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ABSTRAK
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ABSTRAK
HASIL PENELITIAN PERTANIAN INDONESIA

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KATA PENGANTAR

Abstrak Hasil Penelitian Pertanian Indonesia adalah kumpulan abstrak pengarang yang disusun dan disebarkan untuk meningkatkan daya guna hasil-hasil penelitian bidang pertanian di Indonesia. Melalui media komunikasi ini diharapkan pengguna dapat memilih secara lebih tepat informasi yang diperlukan.

Abstrak disusun menurut subyek, kemudian menurut abjad nama pengarang dan dilengkapi dengan Indeks Pengarang, Indeks Badan Korporasi, Indeks Subyek dan Indeks Jurnal. Jika diperlukan artikel/literatur lengkapnya, pengguna dapat mencari atau meminta pada perpustakaan pertanian setempat atau Pusat Perpustakaan dan Penyebaran Teknologi Pertanian, dengan menuliskan nama pengarang, judul artikel, judul majalah atau buku yang memuatnya, dan disertai dengan biaya fotokopi.

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Penyebaran Teknologi Pertanian

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0001 WIDYANTORO.
Analisis anggaran parsial penggunaan rhizoplus pada pertanaman kedelai setelah padi sawah dengan sistem persiapan tanam yang berbeda. Partial budget analysis of rhizoplus treatment on soybean crop after rice with different soil tillage/Widyantoro; Zubair, A.; Ardjasa, W.S. (Loka Pengkajian Teknologi Pertanian Natar (Indonesia)). 5 tables; 4 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 424-530.

GLYCINE MAX; TILLAGE; RHIZOBIUM; COST BENEFIT ANALYSIS; LABOUR.

Experiment was conducted in lowland rice irrigation at Raman Utara, Central Lampung from July to October 1996, to analyze the cost efficiency of input technology on soybean crop after different tillages and fertilizers. Strip Plot Design with four replications was used in the experiment. Mainplot was 3 different soil tillage (no-tillage, minimum tillage, and full tillage) and as subplot was combination of organic and Rhizoplus fertilizers. The degree return marginal analysis (MRR) is to know highest benefit added. Analysis result showed that soybean farming with Rhizoplus gave B/C ratio higher than without Rhizoplus. The value of highest net benefit and B/C ratio were produced by Rhizoplus utilization with minimum tillage. Utilization of Rhizoplus on soil tillage systems increased soybean farming income where MRR value of full tillage, minimum tillage, and no tillage were 36.33, 43.33, and 17.48 respectively.

F01 PERTANAMAN

0002 EDIYANSYAH.
Uji potensi serasah daun tanaman hutan sebagai media tumbuh jamur tiram putih (*Pleurotus ostreatus*). The potential test of forest litter as cultivated media of Oyster mushroom (*Pleurotus ostreatus*)/Ediyansyah; Estikasari, N.; Prihatno, A. 8 tables; 9 ref.. [Compilation papers on academic seminar of university level] Kumpulan makalah seminar akademik tingkat universitas/Universitas Gadjah Mada, Yogyakarta (Indonesia). Yogyakarta (Indonesia): UGM, 1999: (pt. 4) 15 p..

PLEUROTUS OSTREATUS; TECTONA GRANDIS; PINUS MERKUSII; EUCALYPTUS; ACACIA; MELALEUCA LEUCADENDRON; GROWING MEDIA; FOREST LITTER; SAW DUST.

Jamur tiram putih (*Pleurotus ostreatus*) merupakan jamur edibel yang umum tumbuh pada kayu dan dicoba dibudidayakan pada media campuran serbuk gergaji dengan serasah. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan 6 perlakuan (serasah jati, tusam, eukaliptus, akasia, kayu putih dan serbuk gergaji sengon (kontrol)). Tiap perlakuan dibuat 3 komposisi campuran serasah serbuk gergaji, yaitu 9:1, 6:4, 3:1. Parameter yang diamati meliputi: kualitas miselia, kontaminasi, waktu pemunculan badan buah pertama, berat basah badan buah jamur selama 6 minggu, serta kualitas badan buah. Analisis data menggunakan analisis varians kualitatif deskriptif. Kualitas pertumbuhan miselia jamur bervariasi dari tidak tumbuh, tipis, sedang, tebal sampai sangat tebal. Rerata prosen kontaminasi terbanyak pada media campuran serasah eukaliptus (50 %), kayu putih (50,3 %) dan pada komposisi 9:1 (53,3 %). Pemunculan badan buah pertama berkisar dari 8,3 g/kg sampai 208,7 g/kg media, jauh lebih kecil dari kontrol (308,9 g/kg media). Serasah jati berpengaruh paling baik terhadap produk badan buah dan perbandingan serasah dengan serbuk gergaji 3:7 menghasilkan kuantitas produk yang terbaik.

0003 HAFSAH, S.
Pengaruh naungan terhadap tingkat kerebahan dan produksi padi gogo (*Oryza sativa* L.). Effect of shading on lodging level and upland rice production/Hafsah, S. (Universitas Syiah Kuala, Banda Aceh (Indonesia). Fakultas Pertanian) 2 tables; 8 ref. Summary (En) *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2001) v. 5(3) p. 243-246.

UPLAND RICE; GENOTYPES; SHADING; LODGING; PRODUCTION.

The objective of the experiment was to study the external and internal factor of lodging level, relationship between resistance of shade and lodging resistance, and method of lodging index to predict lodging on field. The research was conducted in Cikabayan Field Station, IPB Bogor from October 1999 to February 2000. The experiment was arranged in Split Plot Design with factorial pattern. The main plots were 0; 25; and 50 % shading. Subplots were 4 upland rice lines that were Jatiluhur; B6926F-TB-1; Kalimutu and TB47H-MR-5. The result of experiment showed that Jatiluhur indicated the highest level of lodging (69.96 %) than other lines under 25 % shading. Then, the lodging caused Jatiluhur production (0.78 kg per 3 m) lower than low-light untolerant upland rice genotypes (0.77-1,12 kg per 3 m). Percentage of field lodging can be predicted by lodging index (R=0.71).

0004 HANDAKA.
Evaluasi kelayakan teknis dan sosial ekonomi cara panen padi di lahan pasang surut Karang Agung Ulu. [Evaluation of technical and socioeconomic feasibility of rice harvesting method in tidal land at Karang Agung Ulu (Indonesia)]/Komarudin; Ananto, E.E.; Alihamsyah, T. (Pusat Penelitian dan Pengembangan Tanaman Pangan (Indonesia)). 4 tables; 7 ref. Summary (In). [Proceedings of the National Seminar on Agricultural Research and Development in Swamp Land: book 1] Prosiding Seminar Nasional Penelitian dan Pengembangan Pertanian di Lahan Rawa/Ananto, E.E.; Ismail, I.G.; Subagio; Suwarno; Djajanegara, A.; Supriadi, H. (eds.); Pusat Penelitian dan Pengembangan Tanaman Pangan, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTAN, 2000: p. 505-513.

ORYZA SATIVA; HARVESTERS; HARVESTING; TIDES; SOCIOECONOMIC DEVELOPMENT; HARVESTING LOSSES.

Kelangkaan tenaga kerja untuk panen mulai sangat terasa setelah budi daya tanam padi bisa dilaksanakan secara serempak. Cara panen yang biasa digunakan petani dengan cara penyabitan dan diikuti perontokan menggunakan pedal perontok atau dibanting/digebol, masih memerlukan waktu dan tenaga yang tinggi yang mengakibatkan biaya panen mahal. Dengan demikian pemakaian Alsintan dalam usahatani lahan pasang surut khususnya alat panen tampaknya semakin diperlukan. Alsintan yang akan digunakan dan dikembangkan perlu teruji keandalannya. Penelitian ini bertujuan untuk melakukan pengujian berbagai mesin panen padi di lahan pasang surut, serta untuk mendapatkan cara panen padi yang efisien, guna mengatasi kelangkaan tenaga kerja dan mengurangi kehilangan hasil. Penelitian dilaksanakan di Primer I Blok Z Desa Sukaraja Karang Agung Ulu Sumatera Selatan pada MH 1998/99. Rancangan penelitian ialah Rancangan Acak Kelompok yang diulang 6 kali. Padi yang dipanen ialah varietas Banyuasin, ukuran plot 10 m x 20 m, sebelum pengujian alat panen di lapangan dilakukan dulu persiapan dan pengujian pendahuluan. Perlakuan cara panen ialah: 1) Panen menggunakan sabit tradisional + digebot, 2) Panen dengan sabit + thresher, 3) Panen dengan striper + thresher, dan 4) Panen dengan Reaver + thresher. Hasil penelitian menunjukkan bahwa cara panen yang efisien ialah cara panen dengan reaver + thresher diikuti oleh cara panen dengan striper + thresher dan sabit + thresher dengan jumlah waktu panen sebesar 15,76 jam/ha, 27,92 jam/ha dan 125 jam/ha dengan biaya Rp.54.447/ha, Rp.77.079/ha dan Rp.158.920/ha berdasarkan kelayakan ekonomis alat panen tersebut juga layak untuk dikembangkan sebagai usaha jasa pemanen. Namun secara sosial alat panen reaver dan striper belum diterima petani karena masih banyaknya padi yang tercecer (losses) walaupun setelah diadakan penelitian ternyata padi hampa. Disarankan untuk pengembangannya perlu sosialisasi ke petani dan dikaji kesesuaian daya dukung lahan, kewilayahan pengembangannya, kendala teknis, sosial ekonomi dan faktor penunjang pengembangan alsintan tersebut.

0005 HASAN, Z.
Pengaruh beberapa cara pemangkasan tajuk terhadap pertumbuhan dan produksi gambir (*Uncaria gambir* (Hunter) Roxb). Effect of pruning on the growth and yield of gambir (*Uncaria gambir*)/Hasan, Z. (Instalasi Penelitian Pengkajian Teknologi Pertanian, Laing, Solok (Indonesia)) 4 ill., 2 tables; 10 ref. Summaries (En, In). *Jurnal Penelitian Tanaman Industri* (Indonesia) ISSN 0853-8212 (Dec 2001) v. 7(4) p. 120-123.

UNCARIA GAMBIR; PRUNING; GROWTH; YIELDS.

Panen gambir dilakukan dengan cara memangkas tanaman meliputi cabang ranting, dan daun. Perbaikan cara memangkas yang dilakukan petani dalam memanen tanaman gambir sangat berpeluang untuk meningkatkan produktivitas gambir kering yang dihasilkan yang saat ini sebesar 632 kg/ha. Untuk itu telah dilakukan penelitian beberapa cara pemangkasan dalam memanen tanaman gambir: pangkas meja, pangkas bersih, pangkas dalam, dan pangkas petani (kontrol). Penelitian dilakukan di Kebun Percobaan IPPTP Laing, Solok, mulai bulan April 2000 - bulan Februari 2001, menggunakan Rancangan Acak Kelompok dengan enam kali ulangan. Hasil penelitian menunjukkan bahwa cara pemangkasan yang dilakukan sewaktu memanen tanaman gambir dapat meningkatkan pertumbuhan tanaman dan produktivitas gambir kering. Pemangkasan dengan pangkas meja menghasilkan pertumbuhan tanaman dan produksi gambir kering tertinggi dibandingkan dengan ketiga cara pemangkasan lainnya. Pangkas meja menghasilkan produksi gambir kering tertinggi sebesar 735,25 kg/ha, sedangkan yang terendah dihasilkan oleh pangkas dalam sebesar 371,25 kg/ha, walaupun tidak berbeda nyata dengan pangkas bersih dan pangkas petani berturut-turut sebesar 464,40 dan 521,70 kg/ha.

0006 HAYATI, M.

Pengujian pertumbuhan, hasil dan rendemen oleoresin pada dua varietas cabai merah (*Capsicum annuum* L.) dengan pemberian dekamon. Study of growth, yields and oleoresin rendemen of two varieties of red chilly (*Capsicum annuum* L.) with the application of dekamon/Hayati, M. (Universitas Syiah Kuala, Banda Aceh (Indonesia). Fakultas Pertanian) 3 tables; 19 ref. Summary (En) *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2001) v. 5(3) p. 266-273.

CAPSICUM ANNUUM; VARIETIES; PLANT GROWTH SUBSTANCES; APPLICATION DATE; APPLICATION RATES; GROWTH; YIELDS; OLEORESINS.

Using variety having high yield can stimulate production of red chilly. Dekamon is a plant growth regulator that can stimulate the formation of shoot and prevent the falling of flowers and fruits. The objective of this study is to find out a better varieties of chilly and the optimum application of Dekamon to maximize growth, yields and rendemen of oleoresin. The study was conducted at Experimental Field and Laboratory of Food Technology at the Faculty of Agriculture, Syiah Kuala University from August 1998 to February 1999. The experiment was designed in RCBD (Randomized Complete Block Design) factorial with three replications. Two varieties of chilly taken into the study were Super King and Cemeti-1 with the concentrations of Dekamon at 0.15, 0.20, 0.25 and 0.30 ml/l of water. Observed variables were the height of plants at 30, 45 and 60 days after planting, the number of productive stems, the number of fruits per plant, the weight of fruits per plant, length of fruits, diameter of fruits and oleoresin rendemen. The result of the study indicated that the highest growth was found on Super King. Meanwhile, the largest number of productive stem and the largest percentage of oleoresin were found on Cemeti-1. The application of Dekamon was effective to affect growth, yield and %age of oleoresin at the concentration of 0.20 ml/l of water. There were significant interactions between varieties of chilly and Dekamon on growth, yield and rendemen of oleoresin.

0007 RIYADI.

Pengaruh jarak tanam dan pemangkasan cabang terhadap pertumbuhan dan hasil tanaman waluh (*Cucurbita moschata* duch. ex poir). Effect of plant spacing and pruning on the growth and yield of pumpkin/Riyadi; Syakhril (Universitas Mulawarman, Samarinda (Indonesia). Fakultas Pertanian) 2 tables; 7 ref. Summary (En). *Jurnal Budidaya Pertanian* (Indonesia) ISSN 0852-287X (Sep 2000) v. 6(2) p. 77-82.

CUCURBITA MOSCHATA; SPACING; PRUNING; GROWTH; YIELDS.

The purpose of this experiment was to determine the effect of plant spacing and pruning and their interaction on the growth and yield of pumpkin. The experiment was conducted from September to December 1999 at Sempaja Sub District of North Samarinda. The experiment design was a Split Plot which arranged in Randomized Completely Block Design, each treatment combination was replicated three times. The main plot was plant spacing (J) consisted of three levels, i.e. plant spacing of 1 x 1 m, 1 x

2 m, and 1 x 3 m. The sub plot was pruning (P) consisted of three levels, i.e. without pruning, pruning at once, pruning at twice. The results showed that plant spacing affected significantly on plant length at 28 days after planting, number of primary branches per plant at 28 days after planting, fruit weight, fruit diameter, and fruit yield per hectare, but it did not affect significantly on the plant length at 14 days after planting, number of primary branches per plant at 14 days after planting and number of fruits per plant. The pruning increased significantly the number of primary branches per plant at 28 days after planting, number of fruits per plant, fruit weight, fruit diameter, and fruit yield per hectare, but it did not affect significantly on the plant length at 14 days after planting, plant length at 28 days after planting, and number of primary branches per plant at 14 days after planting. There was no interaction between plant spacing and pruning.

0008 SUGANDA, H.

Pengaruh arah barisan tanaman dan bedengan dalam pengendalian erosi pada budi daya sayuran dataran tinggi. The effect of row planting direction and raised bed on erosion control in highland vegetable cultivation/Suganda, H.; Kusnadi, H.; Kurnia, U. (Pusat Penelitian Tanah dan Agroklimat, Bogor (Indonesia)) 3 ill., 9 tables; 14 ref. Summaries (En,In). *Jurnal Tanah dan Iklim* (Indonesia) ISSN 1410-7244 (1999) (No. 17) p. 55-64.

VEGETABLE CROPS; LINE PLANTING; SPACING; CONTOUR CULTIVATION; EROSION CONTROL; SOIL CONSERVATION; RUNOFF WATER; SOIL CHEMICOPHYSICAL PROPERTIES; HIGHLANDS.

Jarak tanam dengan arah barisan tanaman terpendek searah lereng dan bedengan searah lereng diduga dapat mempercepat laju aliran permukaan dan erosi pada lahan sayuran berlereng curam. Untuk mengetahui pengaruh arah barisan tanaman dan bedengan dalam mengendalikan erosi pada lahan sayuran di dataran tinggi telah dilakukan penelitian sejak Oktober 1996 - April 1998 di dua daerah sentra produksi sayuran, yaitu Desa Batulawang Kecamatan Pacet dan Desa Cikareo, Kecamatan Sukaresmi, Kabupaten Cianjur, Jawa Barat. Penelitian di Batulawang dilaksanakan pada tanah Ultic Hapludands, kemiringan lahan 9-22 %, tinggi tempat 1.100 m dpl dengan komoditas sayuran kentang, pakcoi, kapri, dan cabai keriting. Penelitian di Cikareo dilaksanakan pada tanah Andic Dystropepts, kemiringan lahan 10-13 %, tinggi tempat 800 m dpl dengan komoditas sayuran cabai keriting, kacang merah dan tomat. Penelitian di dua lokasi tersebut menggunakan rancangan percobaan yang sama, yaitu Acak Kelompok dengan perlakuan disusun secara faktorial, ulangan 3. Faktor pertama adalah tiga arah barisan tanaman, yiatu (1) searah lereng, (2) searah kontur, dan (3) segitiga sama kaki. Faktor kedua adalah empat arah bedengan yaitu, (1) searah lereng, (2) searah lereng setiap 4,5 m dibuat guludan searah kontur, ditanami katuk, (3) searah lereng setiap 4,5 m dibuat guludan searah kontur, ditanami cabai rawit, dan (4) searah kontur. Hasil penelitian menunjukkan arah barisan tanaman searah kontur (jarak tanam terpendek searah kontur) paling baik mengendalikan aliran permukaan dan erosi. Bedengan searah lereng setiap 4,5 m dibuat guludan merupakan alternatif teknik konservasi tanah yang cukup baik mengendalikan aliran permukaan dan erosi. Hasil sayuran baik yang ditanam dalam arah barisan tanaman dan bedengan searah lereng maupun searah kontur tidak berbeda.

0009 SUMANTO.

Pengaruh komposisi media tumbuh (tanah:pupuk kandang) dan EM4 terhadap pertumbuhan stek panili. Effect of growth media composition (soil:manure) and EM4 for vanilla stem cutting growth/Sumanto (Pusat Penelitian dan Pengembangan Perkebunan, Bogor (Indonesia); Taryono; Purwani, J. 3 tables, 8 ref. Summary (En*). Soilrens* (Indonesia) ISSN 1411-4224 (2001) v. 2(3) p. 142-147.

VANILLA PLANIFOLIA; GROWING MEDIA; FARMYARD MANURE; MICROORGANISMS; APPLICATION RATES; GROWTH; ROOTS.

The research on "The effect of growth media composition (soil:manure) and EM 4 for vanilla stem cutting growth" has been conducted at green house of Research Installations for Spice and Medicinal Crops Cimanggu, Bogor on May-July 1998. The objective of this research was to study the effect of growth media and EM4 for vanilla stem cutting growth. The treatments consist of two factor, the first factor was

growth media composition consist of the mixture soil and manure with composition 1:0.1; 1:0.25; 1:0.50; 1:0.75. The second factor was EM4 inoculation, consist of without EM4 and EM4 inoculation. Complete Randomized Design was used, arranged of Factorial Design with three replications. Vanilla plant with single leaf, from Research Installations for Spice and Medicinal Crops Cimanggu, Bogor collection was used. The growth media was 2 kg/pot. The observation parameter were: 1) length of buds, 2) number of leaves, 3) weight of buds, 4) number of roots, 5) weight of roots. This results indicated that there was interaction effect between growth media composition and EM4 for weight of buds and number of roots but did not occur for another observation parameter. The highest of weight of buds and number of leaves were given by treatment combination 1:0.75 (soil:manure) and EM4 inoculation 7.4 g/pot and 2.6 g/pot for weight of buds and number of leaves, respectively.

0010 SYAHID, S.F.

Pengaruh zat pengatur tumbuh terhadap pembentukan serta kandungan sinensetin dalam kalus pada tanaman kumis kucing. Effect of growth regulator on the formation, development and sinensetin content of the callus on *Orthosiphon aristatus*/Syahid, S.F.; Hernani (Balai Penelitian Tanaman Rempah dan Obat, Bogor (Indonesia)). 3 tables; 20 ref. Summaries (En, In). *Jurnal Penelitian Tanaman Industri* (Indonesia) ISSN 0853-8212 (Dec 2001 v. 7(4) p. 99-103.

DRUG PLANTS; PLANT GROWTH SUBSTANCES; IN VITRO CULTURE; CALLUS; HPLC.

Pengaruh zat pengatur tumbuh terhadap pembentukan dan pertumbuhan kalus in vitro serta kandungan senyawa sinensetin pada tanaman kumis kucing dengan KCl telah diteliti di Laboratorium Kultur Jaringan Kelti Pemuliaan serta Pasca Panen Balai Penelitian Tanaman Rempah dan Obat Bogor mulai bulan Maret-Oktober 2000. Bahan tanaman yang digunakan adalah daun kumis kucing steril yang tersedia dalam botol kultur. Media dasar yang digunakan adalah Murashige dan Skoog (MS). Penelitian terdiri atas dua kegiatan yang dilakukan secara bertahap. Pada tahap 1, dipelajari pengaruh konsentrasi 2,4-D terhadap pembentukan kalus. Konsentrasi yang dicoba adalah 0.1, 0.3, 0.5, dan 0.7 mg/l. Pada tahap 2, dipelajari pengaruh konsentrasi BAP terhadap pertumbuhan kalus dengan media yang terbaik pada kegiatan tahap I. Perlakuan yang digunakan adalah: 0.1 mg/l 2.4-D; 0.1 mg/l 2.4-D + 0.5 mg/l BA; 0.1 mg/l 2.4-D + 1.0 mg/l BA dan 0.1 mg/l 2.4-D + 1.5 mg/l BA. Kadar sinensetin pada kalus dari setiap perlakuan tersebut dianalisis secara Kromatografi Cair Kinerja Tinggi (KCKT). Rancangan penelitian yang digunakan adalah Acak Lengkap dengan tiga ulangan dan setiap ulangan terdiri atas lima botol. Parameter yang diamati adalah waktu inisiasi, pertambahan berat, struktur serta warna kalus. Hasil penelitian tahap 1 menunjukkan bahwa penggunaan konsentrasi 0.1 mg/l 2.4-D menghasilkan pembentukan kalus terbaik dengan pertambahan berat kalus paling tinggi yaitu 0.49 gram dalam waktu lima minggu. Dari percobaan tahap kedua ternyata bahwa penggunaan 0.1 mg/l 2.4-D + 0.5 mg/l BA merupakan perlakuan terbaik dalam memacu pertumbuhan kalus dan dapat meningkatkan bobot kalus paling tinggi yaitu 6.59 gram dalam waktu lima minggu namun tidak berbeda nyata dengan perlakuan 0.1 mg/l 2.4-D + 1.0 mg/l BA. Hasil analisa kandungan senyawa aktif sinensetin secara KCKT menunjukkan bahwa perlakuan 1.0 mg/l BA + 0.1 mg/l 2.4-D menghasilkan senyawa sinensetin sekitar 0.24 % yang lebih tinggi dari perlakuan lainnya.

0011 SYAM'UN, E.

Pengaruh umur panen benih dan penyiangan gulma terhadap hasil dan kehilangan hasil kedelai (*Glycine max* (L.) Merr.). Effect of seed harvest age and weed control on soybean (*Glycine max* (L) Merr.) yield and yield loss/Syam'un, E. (Universitas Syiah Kuala, Banda Aceh (Indonesia)) 2 tables; 15 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2002) v. 6(1) p. 87-92.

GLYCINE MAX; MATURITY; HARVESTING LOSSES; WEEDING; ZERO TILLAGE; YIELDS.

Field studies were conducted to study effects of seed harvested at various ages and weeding conducted at various times of soybean crop grown on seed yield and yield loss. Advantage of the studies was a positive contribution to the development of science in optimalizing weed management for maximum soybean yield. Experiments were conducted from March 29 to June 30, 1999 at the SPLPP (Agricultural Research, Training, and Development Station) UNPAD in Arjasari, Kabupaten Bandung. The field experiment was a bifactorial experiment in a Randomized Completely Block Design; the first factor was seed harvest ages (5 day after R7, at R7 and 5 day before R7) and the second factor was weeding at various times (3, 5, 7, 3

and 7, 5 and 7, and 3, 5, and 7 WAP). All treatments were replicated three times. Results of the experiments indicated that soybean grain yield on no tillage soil produced by crop from seed of various time of weeding conducted during soybean plant critical period competing with weed. Soybean grain yield grown from seed harvested at R7 with two times of weeding at 3 and 7 WAP was the highest (3.553 Mg/ha). The lowest loss of soybean grain yield due to competition with weed with two times of weeding treatment at 3 and 7 WAP of as much as 11.344 Mg/ha by seed planting source harvested at R7. The highest loss of soybean grain yield of as much as 69.328 Mg/ha was obtained from crop grown from seed at 5 days after R7 without weeding to no-tillage soil.

0012 WIDARYANTO, E.
Pengaruh penambahan populasi tanaman bawang putih (*Allium sativum* L.) dan pemberian tanaman sela bawang merah (*Allium ascalonicum* L.) terhadap pertumbuhan dan produksi tanaman bawang putih. [Effect of garlic and shallot plant population addition on growth and yield of garlic]/Widaryanto, E.; Agustina, L.; Salsalia, E. (Universitas Brawijaya, Malang (Indonesia). Fakultas Peternakan) 3 tables; 9 ref. Summaries (En, In). Appendices. *Habitat* (Indonesia) ISSN 0853-5167 (2001) v. 12(3) p. 178-186.

ALLIUM SATIVUM; ALLIUM ASCALONICUM; SPACING; INTERCROPPING; GROWTH; YIELDS.

Tujuan percobaan ini adalah untuk mengetahui pengaruh penambahan populasi tanaman bawang putih dan pemberian tanaman sela bawang merah pada barisan tanaman di tepi guludan terhadap pertumbuhan dan hasil tanaman utama bawang putih. Percobaan dilaksanakan di kebun Hortikultura Sidomulyo Batu mulai Mei-September 1995. Penelitian merupakan percobaan faktorial dengan 2 faktor yang disusun dalam Rancangan Acak Kelompok dengan 3 ulangan. Faktor pertama adalah jarak tanam (P) dengan 4 taraf yaitu : P1 = 15x14 cm, P2 = 15x12 cm, P3 = 10x15 cm, dan P4 = 8x15 cm. Faktor kedua adalah sistem tanam (S), dengan 3 taraf yaitu S1 (Penanaman bawang putih tunggal), S2 (Penambahan populasi tanaman bawang putih pada barisan tanaman di tepi guludan, dan S3 (Pemberian tanaman sela bawang merah di tepi guludan). Pengamatan dilakukan pada saat tanaman berumur 30, 45, 60, 75 dan 90 hst. Variabel yang diamati yaitu pertumbuhan dan hasil tanaman. Tidak terdapat interaksi antara perlakuan jarak tanam dan sistem tanam terhadap variabel pertumbuhan tanaman bawang putih tepi guludan. Terdapat perbedaan pertumbuhan antara bawang putih yang ditanam di tepi guludan dan di tengah guludan. Produksi tanaman total bawang putih per hektar didapatkan bahwa penambahan populasi tanaman bawang putih memberikan tambahan produksi sebesar 12 %, sedangkan pemberian tanaman sela bawang merah mengakibatkan berkurangnya produksi tanaman utama sebesar 25 %.

F02 PERBANYAKAN TANAMAN

0013 HANDAYANI, E.
Pengaruh media dan kombinasi NAA dan BAP terhadap pertumbuhan dan perkembangan eksplan pisang barangan. Effect of media and combination of NAA and BAP on growth and development of barangan banana explant/Handayani, E.; Oeliem, T.M.H.; Husni, Y. (Universitas Sumatera Utara, Medan (Indonesia). Fakultas Pertanian) 2 ill., 2 tables; 8 ref. Summaries (En, In). *Jurnal Penelitian Pertanian* (Indonesia) ISSN 0152-1197 (Jun 2001) v. 20(1) p. 26-31.

MUSA PARADISIACA; VARIETIES; EXPLANTS; TISSUE CULTURE; PLANT PROPAGATION; PLANT GROWTH SUBSTANCES; CULTURE MEDIA; GROWTH.

Penelitian ini dilaksanakan di Laboratorium Fakultas Pertanian USU Medan sejak Februari sampai Mei 2000. Tujuan penelitian adalah untuk mengetahui pengaruh media dan kombinasi NAA dan BAP terhadap pertumbuhan dan perkembangan eksplan pisang barangan. Penelitian ditata menurut Rancangan Acak Lengkap (RAL) Faktorial dengan dua faktor yang diuji yaitu tiga jenis media tumbuh (Murashiqe dan skoog MS, modifikasi MS, Cronaner dan Krikorian = CK) dan enam kombinasi dosis NAA & BAP (0-0; 0-0,1; 0,1-0;0, 1-0,1; 0,1-1; 1-0,1 ppm). Hasil penelitian menunjukkan bahwa jenis media tidak

berpengaruh nyata terhadap pertumbuhan dan perkembangan eksplan. Adanya interaksi antara ZPT endogen dengan NAA-BAP mempengaruhi arah pertumbuhan dan perkembangan eksplan. Media MS tanpa kombinasi NAA dan BAP merupakan kombinasi yang paling awal mengalami saat munculnya akar yaitu 3,42 hst dan diikuti oleh kombinasi media CK dengan 0,1-0,1 ppm NAA dan BAP yaitu 3,92 hst.

0014 PASARIBU, E.H.

Penggunaan bahan penyerap air Aquasym dan pemotongan daun indung pada pembibitan setek teh. Application of Aquasym water absorbing matter and cut of mother leaf on tea nursery/Pasaribu, E.H. (Pusat Penelitian Teh dan Kina, Gambung (Indonesia)) 10 tables; 6 ref. Summaries (En, In). *Jurnal Penelitian Teh dan Kina* (Indonesia) ISSN 1410-6507 (1998) v. 1(2-3) p. 53-60.

CAMELLIA SINENSIS; PLANT NURSERIES; CUTTINGS; SOIL WATER CONTENT.

Penelitian penggunaan bahan penyerap air Aquasym dan pemotongan daun indung pada pembibitan setek teh telah dilaksanakan di Kebun Percobaan Simalungun, Pusat Penelitian Teh dan Kina Gambung, dari bulan Februari 1990 - bulan Juli 1990. Penelitian dirancang dalam Rancangan Acak Kelompok Faktorial dengan 12 perlakuan dan 3 ulangan. Perlakuan terdiri dari 2 kombinasi faktor dosis Aquasym dan pemotongan daun indung. Hasil penelitian menunjukkan bahwa penggunaan 1 kg Aquasym/meter persegi tanah bagian atas (top soil) berpengaruh baik secara nyata pada pertumbuhan setek teh. Dengan penggunaan Aquasym kelembapan tanah dalam polybag dapat dipertahankan selama 4 bulan sejak tanam setek. Bahan setek dengan indung yang utuh tetap menunjukkan pertumbuhan yang lebih baik dibandingkan dengan daun indung yang dipotong.

0015 PRIYONO.

Daya regenerasi dan morfisme pertumbuhan bibit hasil kultur daun ortotrop dan plagiotrop *Coffea canephora* melalui embriogenesis somatik. Regeneration and plant morphism of orthotropic and plagiotropic leaf culture of *Coffea canephora* through direct somatic embryogenesis/Priyono; Matsaleh; Suhendi, D. 1 ill., 2 tables; 19 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(2) p. 65-74.

COFFEA CANEPHORA; REGENERATION; SOMATIC EMBRYOGENESIS; TISSUE CULTURE; IN VITRO; LEAVES; VITROPLANTS; SEEDLINGS; GROWTH.

Eksplan dalam kultur jaringan umumnya harus bersifat meristematik. Keterbatasan ketersediaan daun meristem merupakan salah satu kendala dalam kultur jaringan kopi Robusta. Penelitian untuk mengetahui daya regenerasi dan sifat pertumbuhan bibit hasil kultur daun asal cabang ortotrop dan plagiotrop dilakukan di Pusat Penelitian Kopi dan Kakao Indonesia. Penelitian disusun menurut Rancangan Acak Lengkap Faktorial dengan tiga ulangan. Faktor pertama adalah klon kopi Robusta yang terdiri atas enam aras, yaitu BP 358, BP 397, BP 418, BP 534, BP 920, dan SA 237. Faktor kedua adalah sumber eksplan daun yang terdiri atas dua aras, yaitu daun asal cabang ortotrop dan daun asal cabang plagiotrop. Hasil penelitian menunjukkan bahwa daya regenerasi daun kopi Robusta dipengaruhi oleh klon, tetapi tidak dipengaruhi oleh sumber eksplan. Urutan daya regenerasi secara *in vitro* antarklon yang diuji dari yang paling mudah adalah SA 237, BP 920, BP 397, BP 418, BP 358, dan BP 534. Daun asal cabang ortotrop dari enam klon yang diuji hanya menghasilkan planlet dan bibit yang tumbuh ortotrop. Daun asal cabang plagiotrop klon BP 920, BP 397, BP 418, BP 358, dan BP 534 hanya menghasilkan planlet dan bibit yang tumbuh ortotrop. Daun asal cabang plagiotrop klon SA 237 hanya menghasilkan planlet yang tumbuh ortotrop, namun dalam perkembangannya, 98 % planlet tersebut menghasilkan bibit yang tumbuh ortotrop dan 2 % bibit yang tumbuh plagiotrop. Hasil ini dapat membuka peluang pemanfaatan daun asal cabang ortotrop maupun plagiotrop untuk menghasilkan bibit ortotrop melalui embriogenesis somatik.

0016 SADWIYANTI, L.

Pengaruh media tumbuh dan panjang pemotongan akar utama terhadap pertumbuhan bibit batang bawah manggis (*Garcinia mangostana* L.). The effect of growth medium and primary root cutting on the growth of mangosteen seedling (*Garcinia mangostana* L.)/Sadwiyanti, L.; Indriyani, N.L.P.; Susiloadi, A. (Balai Penelitian Buah Solok, Padang (Indonesia)) 2 tables; 12 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 237-240.

GARCINIA MANGOSTANA; GROWING MEDIA; CHEMICOPHYSICAL PROPERTIES; SEEDLINGS; CUTTINGS; ROOTS; GROWTH.

The aimed of this study was to find out the effect of medium and primary root cutting to accelerate the growth of mangosteen seedling. The experiment was conducted at Aripan experimental garden from October 1996 to October 1997, using a Randomized Complete Block Design with treatment combinations between growth medium [soil + carbonized rice hull (1:1); soil + manure (2:1); carbonized rice hull + manure (1:1); soil + manure (2:1); soil + carbonized rice hull + manure (1:1:1)], and primary root cutting (without primary root cutting; cut 25 % from primary root length, and cut 50 % from primary root length). The results showed that soil medium gave better growth compared with other medium such as on plant height, stem diameter, leaf number, leaf area, root dry weight and total plant dry weight, except on root length and root number . Primary root cutting has a significant effect only on root length and root number, but not on other parameters.

0017 SATRIA, B.
Pertumbuhan dan perkembangan planlet manggis (*Garcinia mangostana* L.) pada beberapa komposisi media aklimatisasi. Growth and development of plantlet of mangosteen (*Garcinia mangostana* L.) on several composition of acclimatisation media/Satria, B.; Putih, R.; Kasim, M. (Universitas Andalas, Padang (Indonesia)) 3 tables; 8 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 193-197.

GARCINIA MANGOSTANA; IN VITRO CULTURE; ADAPTATION; GROWTH; GROWING MEDIA.

An experiment was carried out at the plant tissue culture, and acclimatisation room, laboratory of Department of Agronomy, Faculty of Agriculture, Andalas University Padang, from October 1999 to February 2000. The objective of the experiment was to obtain the best composition of acclimatisation medium of soil, sand, animal manure, and compost to support the acclimatisation of plantlet of mangosteen. An experiment consisted of two series. First, plantlet formed from tissue culture at age five weeks was used for acclimatisation in media composition of (1 : 1 v/v) soil + animal manure in room temperature 27 ^{0}C. Treatments were arranged in Completely Randomized Design (CRD) with three replications. For the second series the room temperature was between 29-31 ^{0}C. Composition of acclimatisation media for the second series i.e.: 1) soil + animal manure, 2) soil + compost; 3) sand + animal manure; 4) soil + sand + animal manure; and 5) soil + sand + compost. Observation included the %age of alive plantlet two weeks after acclimatisation (first series); percentage of alive plantlet, height of plantlet, number of shoot per plantlet, number of leaf per plantlet, and length of root per plantlet 9 weeks after acclimatisation. Medium 1 soil + 1 sand + 1 animal manure was the best to support the growth and development of plantlet of mangosteen.

0018 SUKANTO.
Kajian pertumbuhan dan kandungan kafein bibit sambungan kopi robusta dengan batang bawah beberapa jenis kopi. Study on growth and caffein content of robusta coffee seedling grafted to root stocks of varying coffee species/Sukanto (Universitas Syiah Kuala, Banda Aceh (Indonesia)); Karim, A. 4 tables; 17 ref. Summary (En) *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2002) v. 6(1) p. 71-80.

COFFEA CANEPHORA; COFFEA ARABICA; COFFEA EXCELSA; SEEDLINGS; GRAFTING; ROOTSTOCKS; SCIONS; CAFFEINE; GROWTH.

Study of growth and caffein content of Robusta coffee grafted to rootstocks of different coffee species was done in Central Coffee Nursery of Technical Implementing Unit of Plantation Agency, Yogyakarta and in Central Laboratory of Physics and Chemistry GMU during September 2000 to March 2001. The objective of the research was to determine how rootstock material would affect the growth of Robusta scion grafted on them, how the caffein content status of roots of the stocks and of Robusta leaves, and to find a compatible combination. A 2 x 5 factorial treatments were arranged in Randomized Complete Block Design with three blocks as replicates. First factor was rootstock material (BP4, a Robusta coffee, three Arabica coffee varieties: Kartika, S795, and Typica, and an Excelsa one) and the second factor was two

Robusta scions: BP42 and BP358. The results showed that both Robusta scions responded similarly to different rootstock material. Seedlngs with rootstocks material of BP42, Excelsa, and S795 grew better than those with the rest of the rootstock material. As a rootstock, Kartika retarded the growth of Robusta scion grafted on it as indicated by narrower leaves, lower leaf as well as plant height, shorter seedling, and lower leaf number. Roots of Excelca rootstock contained lower caffein content, leading to reduction of leaf caffein content in the scion.

0019 SUSILOADI, A.
Pengaruh jumlah ruas dan lama perendaman air kelapa terhadap pertumbuhan stek erbis (*Passiflora quadrangularis* L.. The effect of internode number and length of soaking in coconut water on the growth of erbis cuttings (*Passiflora quadrangularis* L.)/Susiloadi, A.; Sadwiyanti, L. 1 tables; 7 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 2001 v. 9(3) p. 241-243.

PASSIFLORA QUADRANGULARIS; NODES; COCONUT WATER; CUTTINGS; GROWTH.

The experiment was conducted in the Nursery House of Solok Research Institute for Fruits during the period of December 1998 to April 1999. The objective of the experiment was to obtain a proper internode number and the length of soaking of erbis cutting in coconut water. Treatments were arranged factorials in Randomized Block Design with two replication. The first factor was internode number (one internode, two internodes and three internodes). The second factor was length of soaking of erbis cutting in coconut water (0 hour, 6 hours, 12 hours and 24 hours). The results of experiment showed that there is no interaction between two factors. The three internodes was able to increase shoot length, shoot diameter, leaf number, root number, root dry weight and shoot dry weight. Meanwhile, length of soaking of erbis cutting in coconut water for 12 hours was able to promote shoot arising.

F04 PEMUPUKAN

0020 ADRIZAL.
Pemberian pupuk majemuk lengkap tablet pada jagung. Application of bricket compound fertilizer on corn/Adrizal (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)) 3 tables; 10 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2002) v. 10(1) p. 12-14.

ZEA MAYS; COMPOUND FERTILIZERS; BRIQUETTES; APPLICATION RATES; GROWTH; YIELDS.

A field experiment was conducted at Experiment Station Bandar Buat Research and Assessment Installation for Agricultural Technology from June to October 1998, to determine the effect of bricket compound fertilizer on growth and yield of corn. Five levels of bricket compound fertilizer (1, 2, 3, 4 and 5 brickets per hill) and NPK fertilizer (300 kg Urea, 250 kg TSP, and 100 kg KCl per hectare) were arranged in Randomized Block Design with three replications. Result showed that the highest yield (4,28 t/ha) of corn was obtained at the application of 3 brickets compound fertilizer per hill (equivalent to 120,9 kg Urea; 85,5 kg TSP; and 64,0 kg KCl per hectare).

0021 ALWI, M.
Respon tanaman kedelai terhadap pemberian fosfat di lahan gambut. [Soybean response to phosphate on peat soil]/Alwi, M.; Anwar, K.(Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). 5 tables; 11 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 173-180.

GLYCINE MAX; PLANT RESPONSE; PHOSPHATE FERTILIZERS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; PEAT SOILS.

Lahan gambut di lokasi penelitian merupakan lahan gambut dangkal dengan kedalaman lapisan gambut sekitar 80 cm, dengan tingkat kematangan fibrik hingga hemik, serta tingkat ketersediaan P tanah rendah. Tujuan penelitian adalah untuk mengetahui sumber dan takaran P yang sesuai untuk tanaman kedelai di lahan gambut dangkal, serta mendapatkan nilai konversi antara hasil di rumah kaca dan di lapangan. Penelitian dilaksanakan di desa Gandang, Kecamatan Maliku, Kabupaten Kapuas, Kalimantan Tengah dari bulan Oktober 1999 - Pebruari 2000. Semua perlakuan disusun dalam Rancangan Petak Terbagi dengan 3 ulangan. Sebagai petak utama adalah sumber fosfat yang terdiri dari SP-36, SP-26 dan Fosfat Alam. Sedangkan anak petak adalah takaran masing-masing pupuk fosfat meliputi 0, 45, 90, 135, dan 180 kg/ha P_2O_5. Pupuk dasar yang diberikan meliputi 22,5 kg/ha N (50 kg/ha Urea), 36 kg/ha K_2O (75 kg/ha KCl) dan 1 t/ha kapur. Varietas kedelai yang ditanam adalah Wilis. Benih kedelai yang telah diberi Legin dan Marshal ditanam 3 biji/lubang, kemudian setelah berumur 2 minggu setelah tanam dilakukan penjarangan menjadi 2 tanaman/lubang. Pemeliharaan meliputi penyiangan secara manual pada umur 3 dan 6 minggu setelah tanam. Sedangkan pengendalian terhadap serangan ulat daun, penggerek batang dan penggerek polong dilakukan dengan menyemprot Matador dan Decis sesuai dengan keadaan serangan. Pengamatan dilakukan terhadap sifat kimia tanah awal meliputi pH H_2O tanah, unsur-unsur N-total, P-tersedia, K-tersedia, Al-dd, Ca-dd dan Mg-tersedia. Tinggi tanaman kedelai, fase berbunga, jumlah polong/tanaman, jumlah polong isi/tanaman, berat 100 biji dan hasil per petak panen yang dikonversi ke dalam t/ha. Hasil penelitian menunjukkan bahwa P tidak berpengaruh terhadap peningkatan hasil kedelai di lahan gambut dangkal. Hanya takaran P yang berpengaruh terhadap peningkatan hasil kedelai. Takaran P optimum untuk kedelai adalah 90 kg/ha P_2O_5 atau 2 kali takaran optimum di rumah kaca.

0022 AMRI, A.I.

Frekuensi pemberian pupuk N dan P dan pengaruhnya terhadap pertumbuhan dan hasil kedelai (*Glycine max* (L.) Merrill) pada tanah gambut. Frequency of application of N and P fertilizers and its effect on the growth and yield of soybean (*Glycine max* (L.) Merrill) on peat soil/Amri, A.I. (Universitas Riau, Pekan Baru (Indonesia). Fakultas Pertanian) 6 tables; 24 ref. Summary (En). *Jurnal Stigma (Indonesia)* ISSN 0853-3776 (2001) v. 9(3) p. 205-210.

GLYCINE MAX; FERTILIZER APPLICATION; NITROGEN FERTILIZERS; PHOSPHATE FERTILIZERS; GROWTH; YIELDS; PEAT SOILS.

This research was conducted to study of frequency of application of N and P fertilizers and its effect on the growth and yield of soybean on peat soil. Treatments were arranged in Randomized Block Design with three replications. Treatments were the combination of frequency of application of N and P fertilizers namely one times, two times and three times. The parameters observed were the height of plant, number of primary branch; flowering age, harvesting age, seed dry weight, and 100 seed dry weight. Result indicated that there were significant effects of combination of frequency of application of N and P fertilizers on the height of plant, number of primary branch, age of harvesting and dry seed weight. The most suitable treatment was the combination of application of N two times and P three times.

0023 ANGGRAINI, E.R.

Konsentrasi dan saat aplikasi pupuk daun gandasil B terhadap hasil tanaman cabai keriting hibrida TM-999 (*Capsicum annuum* L.). [Concentration and application time of gandasil B fertilizer on the yield of chilli (*Capsicum annuum* L.) variety TM-999]/Anggraini, E.R.; Rahmayati, S.M. (Institut Pertanian Stiper, Yogyakarta (Indonesia). Fakultas Pertanian) 2 ill., 2 tables; 17 ref. Summary (En) *Buletin Ilmiah Instiper* (Indonesia) ISSN 0852-8772 2001 v. 8(1) p. 25-36.

CAPSICUM ANNUUM; FERTILIZER APPLICATION; APPLICATION RATES; LIQUID FERTILIZERS; FOLIAR APPLICATION; APPLICATION DATE; YIELDS.

The aim of the study is to find out the optimum concentration and application time of gandasil B fertilizer to increase the yield of *Capsicum annum* L. variety TM-999. The 3x3 factorial arranged in Completely Randomized Design was used in this pot experiment. The first factor was the concentration of foliar fertilizer consisted of three levels, namely: 130, 160, and 190 ppm. The second factor was the application

time of fertilizer consisted of three levels, namely: 30, 40, and 50 days after planting, and control plant (soil fertilizer with recommended dosage). The result of the experiment showed that the concentration of gandasil B 160 ppm applied at 40 days after planting can increase the yield of *Capsicum annuum* L. variety TM-999 more than other treatments.

0024 ANWAR, K.

Pengaruh cara aplikasi dan takaran pupuk Kalium pada tanaman kedelai di lahan gambut. [Effect of dosage and application method of potassium fertilizer on soybean in peat soils]/Anwar, K.; Raihana, Y. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 7 tables; 12 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 423-430.

GLYCINE MAX; FERTILIZER APPLICATION; POTASH FERTILIZERS; APPLICATION METHODS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; PEAT SOILS.

Untuk mengetahui respon tanaman kedelai terhadap cara aplikasi dan takaran pupuk kalium di lahan gambut pada nilai uji tanah K dengan kriteria tinggi, telah dilaksanakan penelitian pada MT 1999/2000 di desa Gandang, Kecamatan Maliku, Provinsi Kalimantan Tengah. Percobaan disusun berdasarkan Rancangan Petak Terpisah dengan tiga ulangan. Sebagai petak utama adalah cara pemberian (sebar, tugal dan larik). Sebagai anak petak adalah takaran pupuk Kalium (0; 30; 60; 120 kg K_2O/ha). Hasil penelitian menunjukkan bahwa berat biji kering kedelai dan jumlah polong per tanaman dipengaruhi oleh cara aplikasi pupuk dan takaran pupuk Kalium. Untuk meningkatkan hasil kedelai diperlukan 30 kg K_2O/ha bila diberikan dengan cara sebar atau tugal, serta 60 kg K_2O/ha bila diberikan dengan cara larik. Cara aplikasi, takaran alium dan interaksinya tidak berpengaruh terhadap tinggi tanaman, jumlah biji per polong, persen polong isi dan bobot 100 biji. Berat biji kering berkorelasi positif dengan jumlah polong per tanaman dan persen polong isi.

0025 ANWAR, K.

Pengaruh sumber dan takaran kapur terhadap tanaman kedelai di lahan gambut. [Effect of dosage and source of lime on soybean in peat soils]/Anwar, K.; Alwi, M. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 8 tables; 10 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru a): BALITTRA, 2000: p. 431-438.

GLYCINE MAX; FERTILIZER APPLICATION; LIMING MATERIALS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; PEAT SOILS.

Penelitian bertujuan untuk mengetahui takaran kapur beserta sumbernya yang dapat meningkatkan hasil kedelai di lahan gambut. Penelitian dilaksanakan di Desa Gandang, Maliku (Pangkoh V), Kabupaten Kapuas, Kalimantan Tengah pada MH 1999/2000. Perlakuan berupa sumber dan takaran kapur, disusun dalam Rancangan Acak Petak Terpisah dengan tiga ulangan. Sumber kapur sebagai petak utama adalah berupa kapur kalsit ($CaCO_3$), dolomit ($CaMg(CO_3)_2$ dan kapur oksida (CaO). Takaran kapur sebagai anak petak adalah taraf 0; 0,5; 1,0; 1,5 dan 2,0 t CaO/ha setara. Hasil penelitian menunjukkan interaksi antara sumber dan takaran kapur hanya mempengaruhi jumlah biji per polong kedelai. Perbedaan sumber kapur tidak mempengaruhi parameter kedelai yang diukur. Pemberian kapur mempengaruhi tinggi tanaman, jumlah polong per tanaman, jumlah biji per polong, dan berat biji kering. Pemberian kapur 1.0 t CaO/ha setara mampu meningkatkan hasil dan jumlah biji per polong. Berdasarkan analisis regresi, takaran kapur optimum berada pada 1223 t CaO/ha. Hasil biji kering pada takaran tersebutadalah 1913 kg/ha. Hasil studi korelasi menunjukkan bahwa berat biji per tanaman berkorelasi positif dengan jumlah polong per tanaman, jumlah biji per polong, dan polong isi.

0026 BASYARUDDIN.
Pengaruh residu pemupukan P pada beberapa famili Andisol terhadap pertumbuhan, hasil, serapan P dan Cl tembakau Deli di Sumatera Utara. Residual effect of fertilization in some Andisol families on growth, yield, P- and Cl-uptake of Deli tobacco in North Sumatra/Basyaruddin (Universitas Syiah Kuala, Banda Aceh (Indonesia)) 8 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2002) v. 6(1) p. 50-55.

NICOTIANA TABACUM; PHOSPHATE FERTILIZERS; RESIDUAL EFFECTS; ANDOSOLS; GROWTH; YIELDS; NUTRIENT UPTAKE; SUMATRA.

Experiment was set up to study the influence of residual of P fertilizer on P-, Cl-uptake, growth and yield of Deli tobacco under Cassa House, in North Sumatra. Four Andisol families (Hydrik Melanudand medial isotermik (HMM), Hydrik Melanudand hidrous isotermik (HMH), Typik Hapludand medial isohipertermik (THM), Typik Endoaquand medial isohipertermik (TEM) which had been fertilized with 3 levels of P (0, 400, and 800 ppm P) and planted 1 time with deli tobacco were used. Deli tobacco was planted 1 once on each treatment. The experiment were arranged in Split-Split-Plot-Design consisting of 2 planting times as main plot, 4 Andisol families (HMH, HMM, THM, and TEM) as sub plot, and 3 levels of P as sub-sub-plot. Variables observed were plant height, stem diameter, leaf thickness, leaf width, dry top plant weight, Cl-and P-uptake. First leaf of tobacco was used as a leaf sample to analyze the P- and Cl-uptake of Deli tobacco. Results showed that growth and yield at the first planting period were higher than those in the second planting period. However, the growth and yield in the residual P decreased. While P- and Cl- uptake at the first planting period were lower compared to those at the second planting period. In the second planting period, the P residual did not significantly influence on the all of variable observed, while the soil families significantly influenced on plant height, stem diameter, dry top plant weight, second leaf width, and first leaf thickness. The best growth and yield were found in TEM and followed by THM, HMM, and MHM. Residual of P fertilizer at 4 Andisol families had not been able to supply P requirement for the second planting period, but growth and yield of the plant at the second planting period were still normal

0027 DARMA, S.
Respons tanaman kedelai varietas Galunggung terhadap kompos limbah padat kelapa sawit pada dosis berbeda. Response of soybean Galunggung variety to different level of palm oil sludge compost/Darma, S. (Universitas Mulawarman, Samarinda (Indonesia). Fakultas Pertanian) 2 tables; 16 ref. Summary (En) *Jurnal Budidaya Pertanian* (Indonesia) ISSN 0852-287X (Sep 2000) v. 6(2) p. 96-104.

GLYCINE MAX; OIL PALMS; SOLID WASTES; COMPOSTS; APPLICATION RATES; YIELD COMPONENTS; YIELDS.

The experiment aimed to evaluate the response of soybean Galunggung variety to different level of palm oil sludge application. Field experiment was conducted at Teluk Dalam Village, Kutai Kertanegara District from July to November 1998. Randomized Complete Block Design (RCBD) was used in the experiment. The level of palm oil sludge compost were 0 Mg/ha (K0 as a control), 5 Mg/ha (K1), 10 Mg/ha (K2), 15 Mg/ha (K3), 20 Mg/ha (K4) and 25 Mg/ha (K5). Result of the experiment showed that soybean Galunggung responsed significantly to palm oil sludge compost. The yield increased significantly from 0.53 to 0.94 Mg/ha when the level of palm oil sludge compost was increased to 25 Mg/ha.

0028 EFFENDI AR., A.
Aplikasi beberapa jenis pupuk organik pada tanam caisim (*Brassica campestris* var. *chinensis* L). The application of some organic fertilizers on caisim crop/Effendi AR., A.; Amri, A.I.; Kasoema, A. (Universitas Riau, Pekan Baru (Indonesia). Fakultas Pertanian). 5 tables; 12 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 233-236.

BRASSICA CAMPESTRIS; FERTILIZER APPLICATION; ORGANIC FERTILIZERS; GROWTH; YIELDS.

Investigation about some kinds of organic fertilizers for caisim culture was executed to know the proper fertilizer for this crop. The objective of this experiment was to find out an alternative organic fertilizer for the vegetable crops, especially caisim in order to increase the production. Randomized Block Design non-factorial was used in this experiment with five treatments and three replications. The numerically treatments were (P0) non-manure, (P1) chicken manure, (P2) cattle manure, (P3) composite manure, and (P4) bokashi. The parameters observed consisted of plant height, length of leaves, width, number of leaves, fresh weight of leaves, the number and weight of consumed leaves. The results of this experiment showed that plant height, length of leaves, width, fresh weight of leaves, were significantly affected by the application of some kinds organic fertilizers, while the number of leaves, fresh weight of leaves, and the number of consumed leaves was apparently not significant.

0029 EFFENDI, M.
Uji coba pemupukan NPK pada tanaman Ampupu (*Eucalyptus urophylla*) di daerah tropika semi-arid dan jenis tanah Grumosol. Field trial of NPK fertilization on *Eucalyptus urophylla* in semi-arid tropical region and Grumosol soil type/Effendi, M. 2 ill., 5 tables; 9 ref. Summary (En). Appendix. *Buletin Penelitian Kehutanan* (Indonesia) ISSN 1410-1181 (1998) v. 3(2) p. 1-10.

EUCALYPTUS UROPHYLLA; NPK FERTILIZERS; SEEDLINGS; GROWTH; AGRONOMIC CHARACTERS; SOIL CHEMICOPHYSICAL PROPERTIES; CLIMATE; SEMIARID CLIMATE; SOIL TYPES.

Generally, forest soil in semi-arid tropical region like in East Nusa Tenggara is lack of micro nutrient such as N, P, and K. Application of chemical fertilizer needed in its region to improve the growth should kindly very careful. The research concerning the application of NPK fertilizer on *Eucalyptus urophylla* was aimed to find the optimum dosage of NPK fertilizer in order to improve *Eucalyptus* to its growth in this kind of region. The research was laid out in Random Completely Block Design with 4 replicates/blocks of 25 seedlings each treatment at 3 x 2 m spacing. The treatment applied were dosage of NPK fertilizer, namely; 0; 5; 10; 15; 20; 25; 30; 35; 40; 45; 50; 55; 60; and 65 gram/tree. The effects of those treatments were measured through the evaluation on survival, height, and diameter growth every 6 months during 2 years. The result showed that the optimum dosage of NPK fertilizer to improve the growth of *Eucalyptus urophylla* grown in Grumosol soil type and semi-arid tropical region is 20 gram/tree. Applying NPK fertilizer more than 20 gram/tree caused survival percentage, height, and diameter growth lower than control.

0030 FAUZIATI, N.
Kemampuan substitusi pupuk mikroba pelarut P terhadap pemupukan P pada tanaman kedelai di lahan gambut. [Capability of microbial fertilizer substitution to phosphate fertilizers on soybean in peat soils]/Fauziati, N.; Noordjanah; Anwar, K. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 5 tables; 6 ref. Summary (In) Appendix. [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). Banjarbaru (Indonesia): BALITTRA, 2000: p. 417-422.

GLYCINE MAX; ORGANIC FERTILIZERS; RHIZOBACTERIA; BIOFERTILIZERS; PHOSPHATE FERTILIZERS; GROWTH; YIELDS; PEAT SOILS.

Kesuburan tanah yang rendah merupakan salah satu faktor pembatas dalam pengembangan kedelai di lahan gambut. Penggunaan pupuk kimia semakin meningkat sejalan dengan semakin luasnya pengembangan areal pertanian di lahan bukaan baru dan usaha-usaha intensifikasi berbagai komoditas pertanian. Di lain pihak, kelangkaan dan harga pupuk yang semakin tidak terjangkau, telah mendorong penemuan pupuk alternatif, diantaranya adalah penggunaan mikroba pembantu. Pemanfaatan pupuk mikroba selain murah juga dapat meningkatkan efisiensi pemupukan dan produktifitas tanaman serta mengurangi bahaya pencemaran lingkungan. Penelitian bertujuan untuk mengetahui kemampuan mikroorganisme pelarut P mensubstitusi takaran pupuk P pada tanaman kedelai di lahan gambut. Penelitian dilaksanakan di Desa Gandang, Kecamatan Maliku, Kabupaten Kapuas Kalimantan Tengah pada MH 1999/2000. Perlakuan penelitian disusun dalam Rancangan Petak Terpisah tiga ulangan. Petak

utama adalah pemberian pupuk mikroba yang terdiri dari Rhizoplus, Biofosfat dan kontrol. Anak petak adalah takaran pupuk fosfat yang terdiri dari 5 taraf yaitu 0, 45, 90, 135 dan 180 kg P_2O_5/ha. Pupuk dasar 22,5 kg N/ha, 60 kg K_2O/ha dan 1 t kapur/ha. Kedelai varietas Wilis ditanam pada jarak 40 cm x 10 cm dengan 2 tanaman per lubang. Parameter yang diamati adalah tinggi tanaman, berat bintil akar, jumlah polong isi per tanaman, bobot 100 biji dan hasil biji kedelai per ha serta analisis tanah sebelum percobaan. Hasil penelitian menunjukkan bahwa hasil kedelai dipengaruhi oleh takaran pupuk fosfat. Untuk meningkatkan hasil kedelai diperlukan pupuk fosfat sebesar 45 kg P_2O_5/ha, tapi bila diberi perlakuan Biofosfat tidak diperlukan lagi tambahan pupuk P. Sedangkan pemberian Rhizoplus tidak mampu mensubstitusi kebutuhan pupuk fosfat pada pertanaman kedelai di lahan gambut. Takaran pupuk fosfat mempengaruhi tinggi tanaman, sedangkan terhadap komponen hasil lainnya berpengaruh nyata. Tanaman tertinggi diperoleh pada takaran 90 kg P_2O_5/ha.

0031 FERITA, I.

Pengujian beberapa konsentrasi M-Bio terhadap pertumbuhan dan hasil tanaman cabai rawit (*Capsicum frutescens* L.). Testing of M-Bio concentrations for the growth and yield of small pepper (*Capsicum frutescens* L.)/Ferita, I. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian). 4 tables; 8 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 244-247.

CAPSICUM FRUTESCENS; NUTRIENTS; GROWTH; YIELDS; BIOFERTILIZERS.

An experiment was carried out in Gadut, Bandar Buat village, Lubuk Kilangan, Padang, during the period of February to July 2001. The objective of the experiment was to find out the best M-Bio concentration for the growth and yield of small pepper (*Capsicum frutescens* L.). The experiment was arranged in Randomized Block Design with five treatments and four replications. The treatment was M-Bio concentrations: without M-Bio; 0.2 %; 0.4 %; 0.6 %; and 0.8 %. As basal fertilizer was given urea 100 kg/ha, SP-36 150 kg/ha, and KCl 100 kg/ha. The result showed that, 0.4 % M-Bio concentration, was the best concentration for the growth and yield of small pepper with six times and once a week interval.

0032 FIRDAUS.

Optimalisasi pemupukan NPK dan mulsa pada nilam di Aceh Selatan. Optimizing NPK fertilization and mulching on patchouly farming system at South of Aceh/Firdaus; Yardha; Chairunas (Loka Pengkajian Teknologi Pertanian, Banda Aceh (Indonesia)); Karim, A. 4 tables; 6 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2000) v. 4(3) p. 272-277.

POGOSTEMON CABLIN; NPK FERTILIZERS; MULCHING; AGRONOMIC CHARACTERS; OILS; PRODUCTION; COST ANALYSIS; SUMATRA.

Optimizing NPK fertilization and mulching application on farming system was conducted at onfarm in South of Aceh district from June 1999 to February 2000. The experiment was arranged in Randomized Block Design with three replications. The purpose of this research was to study optimalization of Urea, SP-36 and KCl fertilizer application and to study combination with mulching application on patchouly. Dosage mulching was 5 Mg/ha. The technology introduced were: (1) 70 kg Urea + 70 kg SP-36 + 35 kg KCl + 5 Mg mulching per hectare, (2) 105 kg Urea + 105 kg SP-36 + 52.5 kg KCl + 5 Mg mulching per hectare, (3) 140 kg Urea + 140 kg SP-36 + 70 kg KCl + 5 Mg mulching per hectare, and (4) without fertilizing and mulching or farmer technology (control). The result showed that patchouly responsed to fertilizer application, where the highest fertilizer dosage increased the patchouly oil. Technology with 140 kg Urea + 140 kg SP-36 + 70 kg KCl + 5 Mg mulching per hectare produced wet terna 25.952 kg/ha, dry terna 5.049 kg/ha and patchouly oil 197.24 kg/ha. Its patchouly oil yield was higher compare to farmer technology each 3.730 kg/ha (16.8 %), 871.3 kg/ha (20.8 %) and 81.68 kg/ha (70.7 %).

0033 HASTUTI, P.B.

Pengaruh dosis pupuk N dan populasi tanaman terhadap pertumbuhan dan hasil jagung manis. [Effect of Nitrogen level and plant population on the growth and yield of sweet corn]/Hastuti, P.B. (Institut Pertanian Stiper, Yogyakarta (Indonesia)) 3 tables; 9 ref. Summary (En). *Buletin Ilmiah Instiper* (Indonesia) ISSN 0852-8772 2001 v. 8(1) p. 15-24.

ZEA MAYS; FERTILIZER APPLICATION; NITROGEN FERTILIZERS; APPLICATION RATES; SPACING; GROWTH; YIELDS.

Study on the effect of Nitrogen level and plant population on sweet corn was conducted at the experimental garden of Stiper Agriculture Institute. Factorial Randomized Block Design with three replications was used. The treatments were combinations of three levels of Nitrogen namely: Urea 326 kg/ha (270 g/plot), 425 kg/ha (360 g/plot), and 543 kg/ha (450 g/plot) and three levels of plat density namely: 44.444 plants/ha (37 plants/plot), 53.333 plants/ha (44 plants/plot), and 66.666 plants/ha (51 plants/plot). The plot size was 3x2.75 m^2. The result showed that there was no interaction effect between nitrogen and plant density on the growth and yield of sweet corn. Optimum dose of cob weight without husk was found at application of urea 450,62 kg/ha. Plant density of 75x25 cm or 53.33 plants/ha gave significant effect on fresh weight of root and cob weight without husk 196,06 g/plant or 10.457,5 kg/ha, but no effect on plant height, fresh and dry weight of top plant and length of cob.

0034 HIDAYAT, A.

Respon pertumbuhan tanaman sayuran terhadap pemberian input produksi bahan organik. Response of vegetable crops growth to application of production input of organic matter/Hidayat, A.; Rosliani, R.; Asandhi, A.A. (Balai Penelitian Tanaman Sayuran, Lembang (Indonesia)) 7 tables; 20 ref. Summaries (En, In). [Report of research results of Research Institute for Vegetable Crops during 2001: Book II] Kumpulan laporan hasil penelitian Balai Penelitian Sayuran (Balitsa) Lembang, 2001: Buku II/Balai Penelitian Tanaman Sayuran, Lembang, Bandung (Indonesia). Lembang-Bandung (Indonesia): BALITSA, 2001: (pt. 13) p. 1-15.

VEGETABLE CROPS; ORGANIC MATTER; ORGANIC FERTILIZERS; APPLICATION RATES; MICROORGANISMS; GROWTH; FARM INPUTS; YIELDS.

Percobaan dilaksanakan di rumah kasa Balai Penelitian Tanaman Sayuran Lembang (1.250 meter dpl) dari bulan Juli 2001 - bulan Januari 2002. Tujuan percobaan adalah mengetahui keragaan input bahan organik dan pupuk hayati terhadap pertumbuhan dan hasil sayuran cabai dan selada. Rancangan percobaan yang digunakan yaitu Rancangan Acak Lengkap dengan tiga ulangan. Perlakuan terdiri atas penggunaan bahan organik 20 t/ha + pupuk kimia buatan (NPK), pemberian bahan organik saja tanpa pupuk kimia buatan dan pemberian bahan organik + pupuk hayati (mikroba berguna: Lactobacillus, Mikoriza dan Saccharomyces) tanpa pupuk kimia buatan. Dosis bahan organik yang digunakan yaitu 30, 60, 90, 120 dan 150 t/ha. Bahan organik yang digunakan adalah pupuk kandang kuda. Hasil percobaan menunjukkan bahwa pemberian bahan organik dan pupuk hayati meningkatkan tinggi tanaman dan hasil panen selada (bobot basah tanaman) serta meningkatkan pertumbuhan tinggi tanaman, luas daun, biomassa tanaman, hasil buah cabai, serapan haranya dan kandungan hara tanah. Bahan organik yang digunakan sebesar 90 t/ha atau 60 t/ha dengan pupuk hayati (mikroba berguna) merupakan perlakuan yang terbaik dalam menghasilkan buah cabai. Peningkatan hasil cabai dengan menggunakan kedua dosis tersebut masing-masing adalah 1,316 % dan 1,194 % dibandingkan dengan kontrol (20 t/ha bahan organik + pupuk buatan NPK). Peningkatan dosis pupuk organik bagi keduanya tidak meningkatkan hasil secara nyata untuk tanaman selada, perlakuan terbaik adalah dosis bahan organik 30 t/ha atau meningkatkan 69 % dibandingkan dengan kontrol (20 t/ha bahan organik + pupuk NPK buatan)

0035 ISNAINI, S.

Pemupukan N pada tiga sistem olah tanah musim I: 1. Pengaruhnya terhadap P tersedia, Kdd, serapan P dan K tanaman padi. N fertilization in three tillage systems in planting season I: 1. Effects on available P, exchangeable K, and P and K uptake by lowland rice (*Oryza sativa* L.) /Isnaini, S. (Sekolah Tinggi Pertanian Surya Dharma, Bandar Lampung (Indonesia)); Hidayat, K.F. 4 tables; 14 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 87-93.

IRRIGATED RICE; ORYZA SATIVA; NITROGEN FERTILIZERS; APPLICATION RATES; TILLAGE; PHOSPHORUS; PLANTING; POTASSIUM; SOIL CHEMICOPHYSICAL PROPERTIES; NUTRIENT UPTAKE.

A field study was conducted on Inceptisol in Kedaloman village, Talangpadang, Tanggamus from May to August 1996. The objective of this research was to determine the interaction effects between N fertilization and tillage systems on available P, exchangeable K, and P uptake as well as K by lowland rice (*Oryza sativa* L.). The experiment was arranged in Factorial Randomized Complete Block Design with three replications. The treatment consisted of four dosages of N fertilization (Urea tablet), i.e.: without-N, 57.50 kg/ha N, 86.25 kg/ha N, and 115.00 kg/ha N; and three tillage systems, i.e.: conventional tillage (CT), no-tillage with standing ratoon (NT-1), and no-tillage with dropped ratoon (NT-2). Interaction effects between N fertilization and tillage systems did not affect available P, exchangeable K, and P or K uptake by lowland rice. Nitrogen fertilization increased the P and K uptake as compared with without-N. N fertilization influenced available P and exchangeable K. N fertilization of 115.00 kg/ha had the highest on available P and exchangeable K. The conventional tillage had the highest P uptake by lowland rice, NT-2 and NT-1 respectively. It is concluded that tillage systems influenced available P.

0036 ISNAINI, S.
Pemupukan N pada tiga sistem olah tanah musim I: 3. Pengaruhnya terhadap sifat fisika tanah, bobot akar nisbah pupus-akar tanaman padi sawah. Nitrogen fertilization on three tillage systems in planting season I: 3. Its effect on soil physics, weight of root, and top-root ratio of lowland rice/Isnaini, S.; Maryati (Sekolah Tinggi Pertanian Surya Dharma, Bandar Lampung (Indonesia)). 5 tables; 8 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 105-109.

ORYZA SATIVA; IRRIGATED RICE; NITROGEN FERTILIZERS; TILLAGE; SOIL CHEMICO-PHYSICAL PROPERTIES; ROOTS.

A field study was conducted on Inceptisol at Kedaloman village, Talangpadang, Tanggamus from May to August 1996. The objectives of study were to determine the effects of interaction between N fertilization and tillage system on the characteristics of soil physics (bulk density, total pore space, and soil strength), weight of root, and top-root ratio of lowland rice (*Oryza sativa* L.). The experiment was arranged in a factorial (3x4) Randomized Complete Block Design with three replications. The treatments consisted of four dosages of N fertilization (Urea tablet), i.e.: without-N, 57,50 kg/ha N, 86.25 kg/ha N, and 115.00 kg/ha N; and three kinds of tillage systems i.e.: conventional tillage (CT), no-tillage with standing ratoon (NT-1), and no-tillage with dropped ratoon (NT-2). Interaction between N fertilization and tillage systems did not affect the characteristics of soil physics, weight of root, and top-root ratio of lowland rice. Nitrogen fertilization did not increase all variables determined when compared with without-N. Weight of root and top-root ratio had occured on tillage systems, where no-tillage with dropped ratoon had the highest on top-root ratio.

0037 KASNO, A.
Kalibrasi uji tanah hara P tanah Oxisols, Sulawesi Tenggara untuk tanaman jagung. [Calibration of phosphate in Oxisols for corn (*Zea mays*) in Southeast Sulawesi (Indonesia)] /Kasno, A.; Adiningsih, J.S.; Sulaeman; Nurjaya; Asmin. 8 ill., 7 tables; 22 ref. Summary (In). [Proceedings of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.); Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 397-417.

ZEA MAYS; PHOSPHATE FERTILIZERS; FERRALSOLS; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; SULAWESI.

Hara P merupakan hara makro yang sangat diperlukan tanaman setelah hara N. Pada Oxisols lahan kering, kadar Fe tinggi dan kadar P tidak tersedia bagi tanaman. Takaran pupuk P untuk tanaman palawija lahan kering masih relatif kecil dan tidak sesuai kebutuhan tanaman, sehingga efisiensi pemupukan masih rendah. Penelitian bertujuan untuk mempelajari kalibrasi pemupukan P di lahan kering tanah Oxisols Sulawesi Tenggara guna memperbaiki rekomendasi pemupukan. Penelitian dilakukan selama 2 tahun yaitu 1998/1999 dan 1999/2000. Pada tahun pertama penelitian dilakukan di Sonay, Kecamatan Lambuya dengan pendekatan lokasi tunggal. Rancangan yang digunakan adalah Petak Terpisah dan tiga ulangan. Pada musim pertama dibuat status fosfat buatan, dengan menambah pupuk P; nol kali, seperempat kali, setengah kali, dan satu kali, dimana kali adalah takaran P berdasarkan kurva serapan (1.280 kg SP-36/ha), sebagai petak utama. Pada musim kedua, masing-masing petak utama dibuat percobaan kurva tanggap. Takaran pupuk P yang dicoba adalah 0, 10, 20, 40, dan 80 kg P/ha, sebagai anak petak. Sedangkan pada tahun kedua penelitian dilakukan di Sonay, Poanaha, dan Mokaleleo Kecamatan Lambuya dengan pendekatan banyak lokasi. Rancangan menggunakan Acak Kelompok dengan tiga ulangan, jarak antara satu ulangan dengan lainnya kurang lebih 0,5-2 km. Perlakuan lima tingkat takaran pupuk P yaitu 0, 20, 40, 80 dan 160 kg P/ha. Hasil penelitian menunjukkan bahwa produksi jagung pada Oxisols lahan kering relatif tinggi dengan pemupukan P yang tinggi. Batas kritis hara P-terekstrak HCl 25 % dan Olsen berturut-turut adalah 300 mg P_2O_5/kg tanah dan 8 mg P_2O_5/kg tanah. Batas kecukupan hara P- terekstrak HCl 25 % adalah kurang dari 245, 245-370, dan lebih dari 370 mg P_2O_5/kg tanah, masing-masing dengan status rendah, sedang, dan tinggi. Kebutuhan pupuk P masing-masing status adalah 50-80 kg P/ha, 20-50 kg P/ha, dan 0-20 kg P/ha. Kebutuhan P-eksternal untuk tanah Oxisols Kendari adalah 0,0086 g P/g tanah.

0038 KHALIL, M.

Penentuan waktu tanam kacang tanah dan dosis pupuk fosfat terhadap pertumbuhan, hasil kacang tanah dan jagung dalam sistem tumpangsari. Assessment of planting date of peanut and dosage of phosphate fertilizer on growth and yield of peanut and corn under intercropping system/Khalil, M. (Universitas Syiah Kuala Darussalam, Banda Aceh (Indonesia). Fakultas Pertanian). 4 tables; 9 ref. Summary (En) *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2000) v. 4(3) p. 259-264.

ZEA MAYS; ARACHIS HYPOGAEA; FERTILIZER APPLICATION; PHOSPHATE FERTILIZERS; PLANTING DATE; INTERCROPPING; GROWTH; YIELDS.

This research aimed at obtaining an appropriate planting date of peanut and phosphate fertilizer dosage for maximum yield of peanut and corn under intercropping system. Randomized Complete Block Design with three replications was used. There were two factors involved, that is planting date of peanut with four levels of treatments; 20, 10 days before corn planting, the same day with corn planting and 10 days after corn planting, while dosage of phosphate fertilizer consisted of three levels of treatments, that is 130, 170 and 210 kg TSP/ha. Results showed that planting date of peanut and dosage of phosphate fertilizer exerted significant effect on growth and yield of peanut and corn tested. Planting date at 20 days before corn planting gave the best growth and yield performance. The use of phosphate fertilizer at dosage 210 kg/ha gave the best growth and yield of peanut and corn. There was no significant interaction between planting date of peanut and dosage of phosphate fertilizer on growth and yield of peanut and corn under intercropping system tested.

0039 MAIZAR.

Study on the effect of city garbage used as fertilizer on growth and production of lettuce (*Lactuca sativa* L.) Penggunaan sampah perkotaan terhadap produksi selada (*Lactuca sativa* L.)/Maizar; Balai Pengkajian Teknologi Pertanian Padang Marpoyan, Pekanbaru (Indonesia). Pekanbaru (Indonesia): BPTP, 2000: 32 p. 4 tables; 19 ref. Summaries (En, In).

LACTUCA SATIVA; CULTIVATION; URBAN WASTES; GROWTH; PRODUCTION INCREASE; PROFITABILITY.

Upaya peningkatan produksi selada dapat dilakukan dengan bermacam cara, diantaranya adalah teknologi pemanfaatan sampah perkotaan, baik yang berasal dari sampah organik maupun sampah sintetik (plastik). Sampah mempunyai kemampuan untuk menjaga kelembaban tanah, mengurangi penguapan serta mengatur suhu tanah, disamping itu juga menyediakan unsur hara bagi tanaman. Akan tetapi ketersediaan

hara dari pupuk organik masih belum cukup sehingga perlu dilakukan pemupukan dengan pupuk Nitrogen, dimana pupuk N merupakan hara utama yang diperlukan oleh tanaman selama pertumbuhannya. Penelitian ini bertujuan untuk mendapatkan informasi tentang penggunaan sampah perkotaan pada tanaman selada serta mendapatkan paket teknologi pemanfaatan sampah perkotaan dalam budidaya selada. Diharapkan dari kajian ini akan dihasilkan suatu paket teknologi pemanfaatan sampah perkotaan terhadap budidaya tanaman selada. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan sembilan (9) perlakuan dengan tiga ulangan. Perlakuan tersebut meliputi: (A) Sampah organik dan sintetik + pupuk Urea, (B) Sampah organik + pupuk Urea, (C) Sampah sintetik dihancurkan + pupuk Urea, (E) Sampah sintetik dihancurkan + pupuk Urea, (F) Sampah organik, (G) Sampah sintetik, (H) Tanpa sampah + Urea, (I) Kontrol. Analisis terhadap data pertumbuhan dan produksi selada dengan uji keragaman serta analisis usaha tani. Hasil penelitian menunjukkan bahwa pemberian sampah sangat berpengaruh terhadap pertumbuhan dan produksi selada, dimana penggunaan sampah sintetik mampu meningkatkan produksi selada dibanding dengan perlakuan kontrol tanpa sampah perkotaan. Adapun keuntungan yang diperoleh dari penggunaan sampah sintetik adalah Rp 9.348.270.13 untuk setiap hektar lahan yang diusahakan, nilai RCR 1,88 dan Incremental Cost ratio terhadap perlakuan kontrol adalah 2,98.

0040 MANFARIZAH.
Perbaikan sifat fisik Ultisol dengan menggunakan kapur dan senyawa humat dari air gambut. Improving physical properties of Ultisol using lime and humic substance of peat water/ Manfarizah (Universitas Syiah Kuala, Banda Aceh (Indonesia)) 8 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2002) v. 6(1) p. 45-49.

ACRISOLS; LIMES; HUMUS; SOIL CHEMICOPHYSICAL PROPERTIES; PEAT; WATER.

The experiment of improving physical properties of Ultisol was conducted in the Soil Department, Bogor Agricultural Institute, during September 1998 to April 1999. Prior to experiment, fourty eight pots of soil samples had been incubated for three months. The experimental design was Completely Ranzomized with three replications. There were two factors treated i.e. four levels of lime, namely; no lime (control), 5, 10, and 15 g/kg soil. The other factor was four levels of humic substance, namely; 0 (control), 1, 2, and 3 % of humic substance. The examined variables were index of aggregate stability, rapid drainage pores, slow drainage pores, and available water pores. The result showed that in general the application of lime, humic substance, and its interaction with different level were able to improve significantly physical properties of Ultisol. The interaction between lime of 5 g/kg soil and 1 % humic substance gave a better result. Although this treatment tended to decrease index of aggregate stability from 71.16 to 70.75, but aggregation process was happened, besides rapid drainage pores increased from 1.34 to 2.53 %, slow drainage pores decreased from 2.01 to 1.95 %, and the highest available water pores was reached in this treatment, namely 11.35 %.

0041 MARYATI.
Pemupukan N pada tiga sistem olah tanah musim I: 2. Pengaruhnya terhadap karakteristik pertumbuhan tanaman padi sawah. N fertilization in three tillage systems in planting season I: 2. Effects on growth characteristics of lowland rice/Maryati (Sekolah Tinggi Pertanian Surya Dharma, Bandar Lampung (Indonesia)). 6 ill., 10 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 94-104.

ORYZA SATIVA; IRRIGATED RICE; NITROGEN FERTILIZERS; TILLAGE; GROWTH; ANABOLISM.

An experiment was conducted in Kedaloman village, Talangpadang district, Tanggamus from May to August 1996 on Inceptisol. The purpose of this research was to investigate the effect of N fertilization and tillage systems on growth characteristics of lowland rice. Four by three factorial experiment was arranged in a Randomized Complete Block Design with three replications. The treatment consisted of four levels of N fertilization (without-N 57.0 kg/ha N, 86.25 kg/ha N, and 115.0 kg/ha N) and three tillage systems

(conventional tillage, no-tillage with standing ratoon, and no-tillage with dropped ratoon). Results showed that: (1) crop growth rate (CGR) and net assimilation rate (NAR) on various tillage systems had not been affected by levels of N fertilization, and (2) leaf area indeks (LAI) for both conventional tillage and no-tillage systems had been influenced by N fertilization, whereas 86,5 kg/ha performed optimum LAI.

0042 NURITA.
Respon tanaman jagung di lahan gambut terhadap cara aplikasi dan takaran pupuk fosfat. [Response of maize to application and dosage of phosphate fertilizer in peat soil]/Nurita; Sari, K.; Anwar, K. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 7 tables; 6 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/ Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). Banjarbaru (Indonesia): BALITTRA, 2000: p. 401-408.

ZEA MAYS; PLANT RESPONSE; PHOSPHATE FERTILIZERS; FERTILIZER APPLICATION; APPLICATION RATES; GROWTH; YIELDS; PEAT SOILS.

Fosfat merupakan hara ke dua terbanyak yang diperlukan tanaman jagung dan di dalam tanah bersifat immobil, efektivitasnya dapat ditentukan oleh kontak butir pupuk dengan bulu akar. Untuk mengetahui hal tersebut telah dilaksanakan penelitian di desa Gandang, Kecamatan Maliku, Kabupaten Kapuas, Kalimantan Tengah pada MT 1999/2000. Perlakuan disusun dalam Rancangan Petak Terpisah dengan tiga ulangan. Sebagai petak utama adalah cara aplikasi, dan anak petak adalah takaran pupuk P. Cara aplikasi terdiri dari cara larik, tugal dan sebar sedangkan takaran pupuk P terdiri 0, 30, 60, 90 dan 120 kg P_2O_5/ha. Pupuk dasar adalah 135 kg N/ha, 60 kg K_2O/ha dan 1 ton CaO/ha. Benih varietas Arjuna yang telah diberi Ridomil ditanam dengan jarak 75 cm x 20 cm. Pengamatan dilakukan terhadap sifat kimia tanah sebelum tanam, pertumbuhan tanaman, komponen hasil dan hasil. pipilan terhadap takaran pupuk fosfat pada cara aplikasi berbeda. Tinggi tanaman, diameter batang, jumlah biji per baris lebih respon terhadap pemberian pupuk P bila diberikan dengan cara larik. Sedangkan jumlah baris per tongkol lebih respon bila diberikan dengan cara sebar. Pada cara tugal diperlukan 120 kg P_2O_5/ha untuk meningkatkan berat pipilan kering, sedangkan pada cara larik dan sebar diperlukan 60 kg P_2O_5/ha.

0043 NURITA, S.
Pengaruh dosis pemupukan Micromix SP 18 plus terhadap pertumbuhan dan produksi padi sawah. [Effect of Micromix SP 18 plus fertilizers dosage on the growth and yield of irrigated rice]/Nurita, S.; Subekti, A. (Loka Pengkajian Teknologi Pertanian, Pontianak (Indonesia)). 4 tables; 6 ref. Summary (En). [Proceedings of the Regional Seminar on Agricultural Technology Development in West Kalimantan (Indonesia)] Prosiding Seminar Regional Pengembangan Teknologi Pertanian Spesifik Lokasi di Kalimantan Barat/Rusastra, IW.; Sahari, D.; Swastika, D.K.S.; Syam, A. (eds.); Pusat Penelitian dan Pengembangan Sosial Ekonomi Pertanian, Bogor (Indonesia). Bogor (Indonesia): PSE, 2001: p. 45-51.

IRRIGATED RICE; PHOSPHATE FERTILIZERS; APPLICATION RATES; GROWTH; YIELDS.

A program, called GENTATON intended to increase food production and increased fertilizer demand, mainly SP 36. Existing distribution system and SP 36 fertilizer stock have caused lack of this sort of fertilizer. In order to overcome this problem, it needs alternative fertilizers to replace it. One of these alternative fertilizers is Micromix SP 18 Plus that contained natural phosphorus of 18 % to 25 % and other secondary macro nutrient (Ca and Mg) and micro nutrients. This assessment was a collaborative research between Local Assessment Institute for Agricultural Technology (LAIAT's) and private sector PT Fadjarpurnama Pratama Inti that was carried out in farmer's land in Anjungan, Pontianak District, during dry season of 1999 from April to August 1999. The main objectives of this assessment was to determine the effects of several fertilizer application rates of Micromix SP 18 Plus as the source of phosphorus nutrient on rice growth and production in the rice fields. It used Completely Block Design using five fertilizer rates as treatments and four replications. These treatments were: (A) 200 kg of Urea, 100 kg of MSP 18 Plus, and 75 kg of KCl; (B) 200 kg of Urea, 150 kg of MSP 18 Plus, and 75 kg of KCl; (3) 200 kg of Urea, 200 kg of MSP 18 Plus, and 75 kg of KCl; (D) 140 kg of Urea, 150 kg of MSP 18 Plus, and 52.5

kg of KCl; and (E) 200 kg of Urea, 100 kg of SP 36, and 75 kg of KCl. The results showed that application of Micromix SP 18 Plus using several application rates were not significantly different to control using SP 36 fertilizer and provide rice productivity of 4.63 and 5.02 ton/hectare. It is concluded that Micromix SP 18 Plus as an alternative fertilizer was able to replace SP 36 fertilizer.

0044 PARWATI, D.U.
Efisiensi pemupukan organik pada tanaman padi sawah. [Efficiency of organic fertilizer on irrigated rice]/Parwati, D.U. (Institut Pertanian Stiper, Yogyakarta (Indonesia). Fakultas Pertanian) 2 tables; 7 ref. Summary (En). *Buletin Ilmiah Instiper* (Indonesia) ISSN 0852-8772 (2001) v. 8(1) p. 37-46.

ORYZA SATIVA; VARIETIES; FERTILIZER APPLICATION; ORGANIC FERTILIZERS; EFFICIENCY; GROWTH; YIELDS.

Studies on the efficiency of organic fertilizer on lowland rice was conducted at the experimental field of the STIPER Institute of Agriculture, Yogyakarta. The experiment was 4x3 factorial arranged in a Randomized Complete Block Design and 4 replications. The first factor was 4 high yielding rice varieties namely IR 64, Cirata, Cilamaya Muncul, and Way-Apo Buru. Second factor was 3 levels of fertilizer application namely Bricket Urea 1 g/pot as control, *Leucaena leucocephala* 40,8 g/pot and *Gliricidia sepium* 60 g/pot. The result showed that there was no interaction between variety and fertilizer application on growth and yield of lowland rice. IR-64 variety can increase the growth and yield of lowland rice better than the other varieties. *Gliricidia sepium* and *Leucaena leucocephala* were not significantly different from bricket Urea.

0045 PIRNGADI, K.
Pemupukan NPK pada padi gogo sebagai tanaman sela perkebunan karet muda. Effect of NPK fertilizer on upland rice intercropped with rubber crop plantation/Pirngadi, K.; Toha, H.M.; Guswara, A. (Balai Penelitian Tanaman Padi, Sukamandi (Indonesia)) 5 tables, 11 ref. Summary (En). *Soilrens* (Indonesia) ISSN 1411-4224 (2001) v. 2(3) p. 133-141.

ORYZA SATIVA; UPLAND RICE; NPK FERTILIZERS; FERTILIZER APPLICATION; CATCH CROPS; INTERCROPPING; HEVEA BRASILIENSIS; PLANTATIONS; SOIL CHEMICO-PHYSICAL PROPERTIES; GROWTH; YIELDS.

The increasing rice production with intensification can be conducted by fertilizer especially with NPK fertilizer. Research of this fertilizer for upland rice intercropping with rubber crop plantation has not many conducted yet. This experiment was conducted at Cikumpay Purwakarta (PTP Nusantara VIII Rubber crop plantation), 2 years old in Wet season 1999/2000. The treatment was laid on Split Plot Design with 3 replications. As main plot, was combination of P and K fertilizer with 4 treatments i.e.; 1) 0 kg P_2O_5/ha + 0 kg K_2O/ha, 2) 36 kg P_2O_5/ha + 0 kg K_2O/ha, 3) 0 kg P_2O_5/ha + 36 kg K_2O/ha, and 4) 36 kg P_2O_5/ha + 60 kg K_2O/ha. As sub plot was N fertilizer with 4 treatments i.e. 45, 90 and 135 kg N/ha. The variety used was Limboto, with plant spacing 25 x 25 cm. The result showed that there was no interaction between combination PK and N fertilizer on yield. Effect of PK fertilizer were not significantly different on yield. But it could see that highest yield of 4,05 t/ha was obtained by treatment 0 kg P_2O_5/ha + 60 kg K_2O/ha, with increased yield 12.5 % compare to treatment 0 kg P_2O_5/ha + 0 kg K_2O/ha. Effect of N fertilizer increased yield. The highest yield of 4,03 t/ha was obtained by treatment 90 kg N/ha, with increasing yield of 14,16 % compare to without N.

0046 PURNOMO, J.
Uji korelasi dan kalibrasi hara P untuk tanaman jagung pada Oxic dystrudepts di Jambi. [Correlation and calibration test of phosphate for maize on Oxic dystrudepts in Jambi (Indonesia)] /Purnomo, J.; Nursyamsi, D. 6 tables; 13 ref. Summary (In). [Proceeding of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.). Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 381-395

ZEA MAYS; PHOSPHATE FERTILIZERS; APPLICATION RATES; PLANT RESPONSE; SUMATRA.

Percobaan laboratorium dan lapangan telah dilaksanakan untuk memilih metode ekstraksi yang baik di antara tujuh pengekstrak, yaitu: Bray-2, Colwell, Mechlich, Truog, Olsen, Bray-1, dan HCl 25 % serta menentukan kelas ketersediaan hara P untuk tanaman jagung pada Oxic Dystrudepts. Percobaan menggunakan Rancangan Acak Kelompok dengan empat ulangan dan jagung varietas Pioner-8 sebagai tanaman indikator. Perlakuan terdiri atas enam tingkat pemupukan P, yaitu: 0, 19, 38, 58, 76 dan 95 kg P/ha. Hasil penelitian musim tanam keempat menunjukkan bahwa pemupukan P nyata meningkatkan tinggi tanaman umur 4 minggu setelah tanam dan saat panen, berat kering batang + daun, klobot + tongkol, dan biji tanaman jagung. Pengekstrak Bray-2 dan Colwell dapat digunakan untuk menduga kadar hara P tanah dan kebutuhan pupuk P untuk tanaman jagung pada Oxic Dystrudepts. Kelas ketersediaan hara P-terekstrak Bray-2 untuk tanaman jagung pada Oxic Dystrudepts adalah kurang dari 5, 5-12, dan lebih dari 12 ppm P. Sedangkan P-terekstrak Colwell adalah: kurang dari 18, 18-34, dan lebih dari 34 ppm P, masing-masing adalah rendah, sedang dan tinggi.

0047 PURWANI, J.

Pengaruh bahan organik dan EM4 terhadap ketersediaan hara tanah dan hasil padi pada rotasi tanaman padi-jagung di lahan sawah. Effect of organic matter and EM4 from the soil nutrient availability and yield of rice of rotation crop rice-corn in paddy soil/Purwani, J.; Prihatini, T.; Kentjanasari, A. (Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia)) 9 tables, 12 ref. Summary (En). *Soilrens* (Indonesia) ISSN 1411-4224 (2001) v. 2(3) p. 98-107.

ORYZA SATIVA; ZEA MAYS; ORGANIC FERTILIZERS; MICROORGANISMS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; NUTRIENT AVAILABILITY; SOIL FERTILITY; GROWTH; YIELDS; FLOODED LAND.

Green house and laboratory researches are conducted on July 1997 to February 1998 using low-land soil Plinthic Kandiudults from Mulyorejo, Lampung. By using Randomized Block Design and 3 replications, 6 treatments are tested, namely 1) Control, 2) EM4, 3) Straw, 4) Bokashi, 5) Straw + EM4, 6) Bokashi + EM4. In the first season, rice (var. IR64) was to be tested and following season using corn (var. Pioneer) which is harvested at the 6th week after planting. Urea, TSP and KCl applications for rice and also for corn were 150, 100 and 50 ppm respectively. The EM4 inoculation 10 ml (2 ml culture in 1 l water) was done at the planting time and was repeated every 2 weeks. The aim of the experiment was to find out the effect of EM4 culture on the soil nutrient content and yield of rice. The results of the experiment indicated that EM4, straw and bokashi applications increased P-availability at the corn primordial stage. The application of EM4, straw or bokashi tend to increase dry grain yield compare to control. The highest yield was 24,8 g/pot, derived from bokashi + EM4 treatment.

0048 RAIHANA, Y.

Porsi pemupukan fosfat anorganik dan pupuk organik terhadap hasil jagung di lahan lebak dangkal. [Dosage of anorganic phosphate and organic fertilizer on corn yields on swamp soils]/Raihana, Y. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)) 5 tables; 10 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 393-400.

ZEA MAYS; FARMYARD MANURE; PHOSPHATE FERTILIZERS; ORGANIC FERTILIZERS; GROWTH; YIELDS; PEAT SOILS.

Selain unsur hara makro N, P juga diberikan setiap musim tanam, namun tidak semua pupuk P yang diberikan dapat diserap tanaman, karena sebagian besar diikat oleh koloid tanah, sehingga pemupukan menjadi tidak efisien. Pemberian pupuk organik ke dalam tanah akan dapat membantu melepaskan fosfat dari ikatan koloid tanah terutama oleh ikatan Fe dan Al sehingga pemberian pupuk fosfat (buatan) ke dalam tanah akan menjadi lebih efisien. Untuk mengetahui pengaruh dari porsi pemupukan fosfat dan

pupuk organik dalam meningkatkan hasil jagung di lahan lebak dangkal, telah dilaksanakan penelitian di Desa Tabat, Kabupaten Hulu Sungai Tengah, Provinsi Kalimantan Selatan, pada MK 1999. Rancangan yang digunakan dalam percobaan adalah Rancangan Acak Kelompok dengan 3 ulangan. Perlakuan yang diujikan terdiri dari 11 perlakuan, yaitu: (a) pupuk kotoran sapi 2,5/ha + 27 kg P_2O_5/ha, (b) kotoran sapi 5,0/ha + 24 kg P_2O_5/ha, (c) pupuk kotoran sapi 7,5/ha + 21 kg P_2O_5/ha, (d) pupuk kotoran ayam 0,25/ha + 20,57 kg P_2O_5/ha, (e) pupuk kotoran ayam 0,05/ha + 11,14 P_2O_5/ha, (f) pupuk kotoran ayam 0,75/ha + 1,71 kg P_2O_5/ha, (g) pupuk biomas Ipomoea 0,6/ha + 25,68 kg P_2O_5/ha, (h) pupuk biomas Ipomoea 0,9/ha + 23,52 kg P_2O_5/ha, (i) pupuk biomas Ipomoea 1,2/ha + 21,36 kg P_2O_5/ha, (j) 30 kg P_2O_5/ha, dan (k) 0 kg P_2O_5/ha. Benih jagung digunakan adalah varietas Bayu ditanam pada petak berukuran 6 x 4 meter dengan jarak tanam 75 cm x 20 cm sebanyak satu tanaman per lubang. Dosis pupuk dasar yang digunakan adalah 45 kg N, 25 kg K_2O dan 1 kapur/ha. Pengamatan yang dilakukan meliputi tinggi tanaman, diameter batang, jumlah baris/per tongkol, jumlah biji/per baris, bobot 100 biji dan konversi hasil pipilan kering. Hasil penelitian menunjukkan bahwa pemberian pupuk organic berpengaruh sangat nyata meningkatkan hasil jagung pipilan kering, tetapi pemupukan P tanpa disertai pupuk organik tidak menunjukkan perbedaan yang nyata dibanding kontrol (tanpa pemupukan P). Pupuk organik dari kotoran sapi yang menyertai pemupukan fosfat lebih baik dibanding dengan pupuk kotoran ayam, tetapi tidak berbeda nyata dengan pupuk biomas Ipomoea. Sedangkan masing-masing dosis dari porsi pupuk organik yang diberikan dalam pemupukan fosfat tidak menunjukkan perbedaan yang nyata. Hasil pipilan kering jagung yang diperoleh adalah 3,94 t/ha-5,08 t/ha.

0049 RAIHANA, Y.

Respon tanaman jagung terhadap cara aplikasi dan takaran pupuk Kalium di lahan gambut dengan nilai uji K kriteria "tinggi". [Response of maize to application method and dosage of potassium in peat soil]/Raihana, Y.; Anwar, K. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 6 tables; 7 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 155-161.

ZEA MAYS; PLANT RESPONSE; POTASH FERTILIZERS; APPLICATION METHODS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; PEAT SOILS.

Kalium merupakan unsur hara esensial bagi tanaman, yang berperan pada seluruh proses metabolisme tanaman, seperti asimilasi, transformasi asimilasi, dalam sintesa protein, penetral asam-asam organik dan pengatur kadar air. Tanaman yang menghasilkan lemak dan gula seperti tanaman jagung tidak dapat lepas dari pemupukan K. Efektivitas pemupukan di lahan gambut umumnya ditentukan oleh kontak butiran pupuk dengan bulu akar. Untuk mengetahui respon tanaman jagung terhadap cara aplikasi dan takaran pupuk Kalium di lahan gambut pada nilai uji tanah K dengan kriteria tinggi, telah dilaksanakan penelitian pada MT 1999/2000 di desa Gandang, Kecamatan Maliku, Provinsi Kalimantan Tengah. Percobaan disusun berdasarkan Rancangan Petak Terpisah dengan tiga ulangan. Sebagai petak utama adalah cara pemberian (sebar, tugal dan larik). Sebagai anak petak adalah takaran pupuk Kalium (0; 30; 60; 90; 120 kg K_2O/ha). Pupuk dasar yang digunakan 135 kg N/ha, 60 kg P_2O_5/ha dan 1 ton CaO/ha dalam bentuk dolomit. Benih jagung yang digunakan adalah varietas Arjuna, yang ditanam 1 biji/lubang pada petak berukuran 5m x 3m dengan jarak tanam 75 cm x 20 cm. Pengamatan yang dilakukan meliputi analisis tanah sebelum percobaan, tinggi tanaman, diameter batang, jumlah baris/tongkol, jumlah biji/baris, berat 100 biji dan konversi hasil pipilan kering/ha. Hasil penelitian menunjukkan bahwa respon tinggi tanaman, diameter batang, berat 100 biji dan hasil pipilan kering terhadap pemberian pupuk K berbeda antar cara aplikasi. Untuk meningkatkan hasil jagung diperlukan 90 kg K_2O/ha bila diberikan dengan cara sebar, 120 kg K_2O/ha bila diberikan dengan cara tugal, dan tidak respon bila diberikan dengan cara larik. Hasil studi korelasi menunjukkan bahwa berat biji kering berkorelasi positif dengan jumlah biji per baris, berat 100 biji, tinggi tanaman dan diameter batang.

0050 ROECHAN, S.

Pertumbuhan tanaman dan dugaan hasil padi sawah beririgasi akibat pemberian pupuk nitrogen. Plant growth and predicted yield in irrigated rice cropping as affected by nitrogen

fertilizers/Roechan, S. (Balai Penelitian Tanaman Padi, Sukamandi (Indonesia)). 5 ill., 4 tables; 9 ref. Summaries (En,In). *Penelitian Pertanian Tanaman Pangan* (Indonesia) ISSN 0216-9959 2001 v. 20(3) p. 35-40.

ORYZA SATIVA; IRRIGATED RICE; SOIL CHEMICOPHYSICAL PROPERTIES; NITROGEN FERTILIZERS; FERTILIZER APPLICATION; GROWTH; NUTRIENT UPTAKE; YIELDS.

Nitrogen (N) adalah salah satu hara penting untuk perbaikan pertumbuhan tanaman dan peningkatan produksi padi. Efektivitas nitrogen dipengaruhi oleh banyak faktor, antara lain varietas, sifat kimia dan fisik tanah, takaran pupuk, macam pupuk, cara pemupukan, iklim, dan ketersediaan unsur hara lainnya. Waktu pemberian pupuk N yang tepat diperlukan untuk memperoleh pertumbuhan optimal dan hasil tinggi. Kerja sama penelitian antara FAO-Badan Litbang Pertanian bertujuan untuk mempelajari pengaruh N Urea prill dan N Urea tablet secara bertahap, untuk mendapatkan cara pemberian yang optimal bagi pertumbuhan tanaman, serapan N, komponen hasil dan hasil gabah, serta cara pendugaan hasil. Penelitian dilaksanakan di Muara pada MK 1995. Varietas yang digunakan adalah Membramo, dengan umur bibit 23 hari. Rancangan Petak Terpisah digunakan dalam percobaan. Petak utama adalah proporsi pupuk N yaitu: 0,0; 0,4; 0,8; 1,2; dan 1,6 (0, 40, 80, 120 dan 160 kg/ha untuk prill dan 0, 30, 60, 89 dan 119 kg/ha untuk tablet). Anak petak adalah bentuk Urea, yaitu Urea prill dan Urea tablet. Urea tablet lebih efektif dibanding Urea prill dalam meningkatkan tinggi tanaman dan jumlah anakan. Hasil gabah tertinggi diperoleh pada proporsi 1,2 N dari kedua bentuk pupuk. Pengaruh hasil gabah dihitung dengan model yang dikembangkan Mitcherlich MIT 3/9/98, menghasilkan persamaan: E Prill = 2.5 {1-exp. (-0.00828 N)} E Tablet = 2.5 {1-exp. (-0.01128 N)} Kehilangan unsur N dari Urea tablet lebih kecil dan efisiensi pemberian pupuk jauh lebih besar dibanding Urea prill. Untuk memperoleh hasil gabah yang sama, jumlah pupuk N yang diperlukan dari Urea tablet lebih sedikit dibanding Urea prill.

0051 ROESLAN, A.

Pengaruh penggunaan pupuk organik terhadap perkembangan penyakit bercak ungu pada bawang merah varietas Ampenan. Effect of organic fertilizer application, on the growth of purple blotch disease of Ampenan variety onion/Roeslan, A. (Universitas Mulawarman, Samarinda (Indonesia). Fakultas Pertanian). 2 tables; 20 ref. Summary (En). *Jurnal Budidaya Pertanian* (Indonesia) ISSN 0852-287X (Sep 2000) v. 6(2) p. 105-112.

ALLIUM ASCALONICUM; VARIETIES; ORGANIC FERTILIZERS; APPLICATION RATES; ALTERNARIA PORRI; INFECTION.

The study on the effect of organic materials on the epidemic of purple blotch disease caused by *Alternaria porri* (Ell.) cif on Ampenan variety onion was carried out from June until September 1999 at the field at Condong Catur. Completely Randomized Block Design used for research. The research was conducted with three treatments as follows, A = cow manure (15 ton/ha), B = Azolla compost fertilizer (5 ton/ha), and C = inorganic fertilizer (125 kg/ha of Urea, 200 kg/ha of TSP, and 325 kg/ha of KCl), with four replications. Cow manure and azolla compost resulted in higher suppression on disease intensity and infection rate compared to inorganic fertilizer.

0052 RUSLI, I.

Pengaruh aplikasi biomas alang-alang dalam upaya konservasi lahan kering terhadap perkembangan penyakit layu pada kacang tanah. The effect of alang-alang biomass application for the conservation of dryland on the development of peanut wilt disease/Rusli, I.; Salim, Y.; Sadar (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)). 11 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 464-467.

ARACHIS HYPOGAEA; GREEN MANURES; BIOMASS; IMPERATA CYLINDRICA; SOIL CONSERVATION; DRY FARMING; WILTS; PSEUDOMONAS SOLANACEARUM; YIELDS.

Wilt disease of peanut is caused by *Pseudomonas solanacearum* bacterium. The wilt diseases result in decreasing peanut yield about 30 % in West Sumatra. To solve the problem related to the diseases, research has been conducted at farmers' field at Tongar village, Pasaman district during the period of June to November 1993 to study the effect of alang-alang biomass on the growth and development of wilt disease on peanut. Treatments were arranged in a Split Plot Design with three replications. The mainplots were alang-alang mulch and alang-alang green manure, whereas the subplot was alang-alang dose, i.e. 0, 0.5, 1.0, 1.5 and 2.0 t/ha. Results indicated that alang-alang biomass affected the percentage of wilted peanut 11 weeks after planting. Alang-alang mulch of 0.5 t/ha caused the lowest percentage of wilted peanut plants. However, alang-alang green manure of the same dose caused the highest percentage of wilted peanut plants. Alang-alang mulch of 0.5 t/ha caused the highest number of pods, but the same treatment did not significantly affect fresh and dry weight of pods.

0053 SAHAR, A.

Pemupukan P pada beberapa kali musim tanam terhadap pertumbuhan dan produksi padi sawah intensifikasi. P-fertilizations in some planting times on growth and yield of lowland rice intensification/Sahar, A. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)) 4 tables; 11 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2002) v. 10(1) p. 15-18.

IRRIGATED RICE; PHOSPHATE FERTILIZERS; PLANTING DATE; FERTILIZER APPLICATION; APPLICATION METHODS; YIELD COMPONENTS; YIELDS.

The experiment was conducted in farmers field Limau Manis, Pauh Padang from rainy season 1999 to rainy season 2000 (December 1999-December 2000) using Split Plot Design with three replications. The main plot was three planting times (rainy season 1999, dry season 2000 and rainy season 2000), and the sub plot was three methods of P-application (without P, P-starter 20 kg/ha, and 100 kg TSP/ha with broadcasting). The results showed that P-starter, P application of 100 kg TSP/ha and without P have no significant effect on growth and yield component to three planting times. P-starter application tends to increase plant growth, yield component, and significantly increase the yield of lowland rice. The highest yield was found in P-starter application and significantly different with 100 kg/ha TPS and without P application. Up to the third season there was not shown the yield decrease caused by P-starter application and without P compare to P recommended rate (100 kg/ha TSP). The rice yield tends to increase in the dry season.

0054 SALIM, A.A.

Pengaruh takaran zeolit pada pemupukan N terhadap efisiensi serapan N pupuk, hara daun, dan hasil pucuk pada tanaman teh. Effect of zeolite rates and N fertilizer on efficiency of N fertilizer uptake, leaves nutrient, and tea yield/Salim, A.A.; Wibowo, Z.S.; Rachmiati, Y. (Pusat Penelitian Teh dan Kina, Gambung (Indonesia)) 2 tables; 5 ref. Summaries (En, In). *Jurnal Penelitian Teh dan Kina* (Indonesia) ISSN 1410-6507 (1998) v. 1(2-3) p. 76-80.

CAMELLIA SINENSIS; ZEOLITES; NITROGEN FERTILIZERS; NUTRIENT UPTAKE; PLANT NUTRITION; YIELDS.

Penelitian untuk mengetahui pengaruh 9 taraf takaran zeolit dan pemupukan N terhadap efisiensi serapan N pupuk, hara daun, dan hasil produksi pucuk petikan, telah dilaksanakan di Kebun Percobaan Penelitian Teh dan Kina Gambung, Bandung, ketinggian 1.300 meter dpl dari bulan September 1998 - bulan April 1989. Rancangan yang digunakan adalah Rancangan Acak Kelompok terdiri dari 9 perlakuan takaran zeolit berturut-turut (0, 1, 2,, 3, 4, 5, 6, 7, 8) ton/ha/tahun dan diulang 3 kali. Hasil penelitian menunjukkan bahwa takaran zeolit dengan pemupukan N berpengaruh terhadap kadar N pucuk, berat kering pucuk, dan efisiensi serapan N pupuk sebesar 1,29 %, 1,36 %, dan 1,30 % dibanding dengan tanpa perlakuan zeolit.

0055 SETIADI, D.

Pengaruh pemupukan NPK dan kompos terhadap pertumbuhan tanaman kayu merah (*Pterocarpus indicus* Wild) di lapangan. Effect of NPK and compost fertilizer on growth of redwood (*Pterocarpus indicus* Wild) in the field/Setiadi, D.; Munda, T.; Effendi, M. 4 tables; 6 ref. Summary (En). Appendices. *Buletin Penelitian Kehutanan Kupang* (Indonesia) ISSN 1410-1181 (1998) v. 3(1) p. 25-33.

PTEROCARPUS INDICUS; NPK FERTILIZERS; COMPOSTS; FERTILIZER APPLICATION; PLANT RESPONSE; GROWTH; SOIL CHEMICOPHYSICAL PROPERTIES.

The experiment concerning the effect of NPK and compost fertilizer on growth of redwood (*Pterocarpus indicus* Wild.) plantations was conducted in Bolapalelo, South Timor Tengah District. The experiment aims to find the optimum dosage of NPK and compost for growth of redwood planted on Latosol soil types, soil depth of 20-25 cm, at 900 m asl. under about 1.012.5 mm annual rainfall. The trial was laid out in Factorial Design. The treatments applied were K0P0 (0 gram compost and 0 gram NPK/tree), K0P30 (0 gram compost and 30 gram NPK/tree), K0P60 (0 gram compost and 60 gram NPK/tree, K0P90 (0 gram compost, and 90 gram NPK/tree), K250P0 (250 gram compost and 0 gram NPK/tree), K250P30 (250 gram compost and 30 gram NPK/tree), K250P60 (250 gram compost and 60 gram NPK/tree), K250P90 (250 gram compost and 90 gram NPK/tree), K500P0 (500 gram compost and 0 gram NPK/tree), K500P30 (500 gram compost and 30 gram NPK/tree), K500P60 (500 gram compost and 60 gram NPK/tree), K500P90 (500 gram compost and 90 gram NPK/tree), K750P0 (750 gram compost and 0 gram NPK/tree), K750P30 (750 gram compost and 30 gram NPK/tree), K750P60 (750 gram compost and 60 gram NPK/tree), K750P90 (750 gram compost and 90 gram NPK/tree), with 3 replicates of 25 seedlings at spacing of 3 x 3 m. The effect of those treatments were measured through the evaluation of survival, height, and diameter growth every year for two years after planting. The results show that application of compost has significant effects, while NPK fertilizer application and interaction of compost and NPK fertilizer have no significant effects. The dosage of 0 gram NPK/tree (without NPK fertilizer) and 750 gram compost/tree (K750 P0) was the optimum dosage for growth of redwood.

0056 SUFARDI.
Meningkatkan hasil jagung pada Ultisol muatan berubah dengan aplikasi beberapa amendemen tanah: I. serapan hara dan pertumbuhan tanaman. Increasing of corn yield on Ultisol with variable change by applying some soil amendments: I. nutrient uptake and plant growth/Sufardi (Universitas Syiah Kuala Darussalam, Banda Aceh (Indonesia). Fakultas Pertanian) 2 ill., 3 tables; 39 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2000) v. 4(3) p. 244-258.

ZEA MAYS; SOIL AMENDMENTS; SOIL FERTILITY; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; NUTRIENT UPTAKE; GROWTH.

Charge characteristics of soils are of central importance in soil management because the majorities of the reactions that control nutrient availability are dependent upon the physicochemical processes that occur at the soil particle surface. The green house experiment has been conducted to study the effects of some soil amendments in improving the production of corn, especially in evaluating the effects of those materials on nutrient uptake by corn and plant growth on ultisol soil with variable change. The soil materials (acid fine clay soil) that used in the experiment were taken from surface (top 20-cm layer). A Factorial Randomized Design with three replications was used in the study. Two sources of soil amendment were compost and lime ($CaCO_3$). Each soil amendment was consisted of three levels of dosages (0, 4, and 8 Mg/ha) that was combined with three levels of phosphate fertilizer (0.05, 0.10 and 0.15 Mg P/ha). Result of the study shows that soil amendment treatment significantly affects on nutrient uptake by corn. The concentrations of N, P, K, Ca, and Mg in the plant tissue were greater at the soil amended (compost, $CaCO_3$) than the unamended soil. Effects of phosphate fertilizer on corn growth varied depend on source of soil amendment. Use of lime with high dosage more than 8 Mg $CaCO_3$/ha tended to decrease N and K uptakes.

0057 SUNTORO.
Pengaruh residu penggunaan bahan organik, dolomit dan KCl pada tanaman kacang tanah (*Arachis hypogaea*, L.) di Oxic Dystrudepts Jumapolo Karanganyar. [Residual effects of organic matter, dolomite and KCl application on groundnut (*Arachis hypogaea*, L.) in Oxic Dystrudepts of Jumapolo Karanganyar (Indonesia)]/Suntoro (Universitas Sebelas Maret, Surakarta (Indonesia). Fakultas Pertanian) 4 ill., 3 tables; 16 ref. Summary (En). *Habitat* (Indonesia) ISSN 0853-5167 (2001) v. 12(3) p. 170-177.

ARACHIS HYPOGAEA; ORGANIC MATTER; DOLOMITE; POTASSIUM CHLORIDE; FERTILIZER APPLICATION; RESIDUAL EFFECTS; NUTRIENT AVAILABILITY; YIELDS.

Residual effects of organic matter, dolomite and KCl on groundnut were studied in the field. The aim of the research is to evaluate the residual effects of organic matters, dolomite and KCl on groundnut in Oxic Dystrudepts. Design used in the experiment was Factorial Randomized Completely Blocks with 3 factors. The first factor was organic matter types consisting of control (no organic matter), Gliricidia, Chromolaena and cow manure treatments. Each was applied at dosage equal to 120 kg P_2O_5/ha. The second factor was dosage of dolomite application consisting of two treatments i.e. control (no dolomite), and dolomite 850 kg/ha. The third factor was KCl application level with two treatments i.e. control (no KCl), and 120 kg KCl/ha. This experiment consisted of two planting seasons to elucidate the residual effect. The residual effects of organic matter application increased availability P, K, Ca and Mg. The effect of organic matter application to P-available, Ca-exchange-able, and Mg-exchangeable would be more significant when combined with dolomite application, and K-exchangeable would be more significant when combined with KCl. The residual effect on the yield was greater than the first plant. The pattern was different for first cultivation where the order was Chromolaena (51.95 %) more than Gliricidia (44.89 %) more than cow manure (31.37 %).

0058 SUSANTO, H.

Kajian dosis Nitrogen pada sistem tanpa olah tanah terhadap serapan dan produksi padi sawah. Assessment of Nitrogen rate of no-tillage system on Nitrogen uptake by lowland rice/Susanto, H.; Utomo, M.; Subiantoro, R.; Lubis, A.T. (Universitas Lampung, Bandar Lampung (Indonesia)) 7 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 83-86.

ORYZA SATIVA; IRRIGATED RICE; NITROGEN FERTILIZERS; APPLICATION RATES; ZERO TILLAGE; NUTRIENT UPTAKE; YIELDS.

Nitrogen fertilizer of no-tillage rice still need to search the suitable rate for the optimum rice growth and production. The study of Nitrogen fertilizer rates on no-tillage system to nutrient uptake and production of rice was conducted in Central Lampung from November 1996 to March 1997. The research was arranged in a Split Plot Design with three replications. Mainplot was tillage system (no-tillage applied glyphosate a 7 l/ha and intensive tillage), where subplot was the rates of N fertilizer (0, 100, 200, and 300 kg N/ha). Result showed that N fertilizer rates influenced N uptake and yield; the higher N rate, the higher N uptake and production. Eventhough, the N rates 100 to 300 kg N/ha were not significant on yield, but N rates did not influence seed weight. Tillage system did not influence all parameter measured, except yield.

0059 SUSANTO, H.

Penentuan dosis pupuk kalium pada cara tanam pindah padi sawah dalam sistem tanpa olah tanah. Study on K fertilizer rates on no-tillage transplanted rice/Susanto, H. (Universitas Lampung, Bandar Lampung (Indonesia). Fakultas Pertanian). 8 ref. Summary (En). [Proceedings of the sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no. 6) p. 79-82.

IRRIGATED RICE; POTASH FERTILIZERS; APPLICATION RATES; PLANTING; ZERO TILLAGE; NUTRIENT UPTAKE; YIELDS.

Fertilizer recommendation of no-tillage rice still need to search the suitable rate for the optimum rice growth and yield. The study on K fertilizer rates on no-tillage transplanted rice was conducted in Central Lampung from March to July 1997. The research was arranged in Split Plot Design and replicated three times. Mainplot was tillage system, namely: no-tillage by isoprophyl amine glyphosate application at 7 l/ha and intensive tillage. Subplot was K fertilizer rate, namely: 0, 200, 400 and 600 kg KCl/ha. Result showed that K fertilizer rates influenced K uptake and grain yield; but K rates between 200-600 kg KCl/ha was not significantly influenced K uptake, seed weight, and grain yield. All parameters measured were not influenced by tillage systems.

0060 SUTARI, W.

Pengaruh Kalium dan tingkat cekaman kekeringan pada fase pengisian biji terhadap komponen hasil, hasil, viabilitas dan vigor benih kedelai The effect of potassium and level of water stress during pod set until full seed filling phase on yield component, yield, viability and vigor of soybean seed. /Sutari, W.; Nuraini, A.; Sumadi; Universitas Padjadjaran, Bandung (Indonesia). Fakultas Pertanian. Bandung (Indonesia): UNPAD, 2000: 27 p. 2 tables; 31 ref. Summaries (En, In).

GLYCINE MAX; SEEDS; POTASH FERTILIZERS; DROUGHT STRESS; YIELD COMPONENTS; SEED LONGEVITY; SEED VIABILITY; YIELDS.

Percobaan untuk mengetahui pengaruh interaksi tingkat cekaman kekeringan pada fase pengisian biji dengan dosis Kalium terhadap komponen hasil, hasil, viabilitas dan vigor benih yang dihasilkan telah dilakukan dari bulan Juli - September 1999 di rumah plastik Fakultas Pertanian UNPAD Jatinangor. Rancangan percobaan yang digunakan adalah Rancangan Petak Terpisah dengan tiga ulangan. Petak utama adalah tingkat cekaman kekeringan terdiri dari tiga taraf (75 %, 50 % dan 25 % air tanah tersedia), sedangkan anak petak adalah dosis pupuk Kalium terdiri dari empat taraf (0, 25, 50 dan 75 kg/ha K_2O). Hasil percobaan menunjukkan bahwa tidak terdapat interaksi antara tingkat cekaman kekeringan pada fase pengisian biji terhadap komponen hasil, hasil, viabilitas dan vigor benih. Kadar air tanah tersedia 25 % menurunkan jumlah polong isi per tanaman, jumlah biji per tanaman, bobot biji per tanaman, dan meningkatkan daya hantar listrik benih. Dosis pupuk Kalium 50 kg/ha K_2O menghasilkan jumlah polong isi, jumlah biji per tanaman dan bobot biji per tanaman tertinggi, serta dapat meningkatkan daya berkecambah benih.

0061 TEJASARWANA, R.

Pengaruh pupuk hayati azolla dan pupuk kandang terhadap intensitas serangan bercak ungu. [Effect of azolla fertilizer and farmyard manure on *Alternaria porri* intensity on *Allium fistulosum*]/Tejasarwana, R.; Rahardjo, I.B. (Instalasi Penelitian Tanaman Hias, Segunung-Cianjur (Indonesia)). 2 tables; 11 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Purwokerto (Indonesia): UNSOED, 2000: p. 773-778.

ALLIUM FISTULOSUM; ORGANIC FERTILIZERS; BIOFERTILIZERS; AZOLLA; FARMYARD MANURE; ALTERNARIA PORRI.

Penelitian dilaksanakan di Inlithi Segunung, Cipanas, Cianjur, (ketinggian 1100 m dpl.) pada bulan Maret - bulan Juni 1999. Tujuan penelitian ini adalah mengetahui pengaruh pupuk hayati azolla dan pupuk kandang terhadap intensitas serangan bercak ungu pada tanaman bawang daun. Kombinasi pupuk azolla (0, 40, 80 dan 120 g/polibag/bulan) dan pupuk kandang ayam (0, 40 dan 80 g/polibag/bulan) disusun dalam Rancangan Acak Kelompok dengan tiga ulangan. Hasil penelitian ini menunjukkan terjadi interaksi antara pupuk azolla dengan pupuk kandang terhadap intensitas serangan bercak ungu pada tanaman bawang daun. Tanpa azolla dan pupuk kandang intensitas serangan bercak ungu tertinggi 17,80 %. Sedangkan dengan kombinasi perlakuan 80 g pupuk kandang dan 40 g azolla/polibag/bulan intensitas serangan terendah hanya 9,33 %. Berat tanaman bawang daun yang diberi perlakuan 120 g azolla/polibag cenderung meningkat 6,98 g/polibag dibandingkan kontrol. Sedangkan 80 g pupuk kandang/polibag nyata meningkatkan berat tanaman bawang daun sebesar 45,61 g/polibag.

0062 TEJASARWANA, R.

Pengaruh pupuk Urea, pupuk hayati Azolla dan pupuk kandang terhadap intensitas serangan bercak daun pada tanaman selada. [Effect of Urea, Azolla fertilizer and farmyard manure on *Alternaria porri* on *Lactuca sativa* L.]/Tejasarwana, R.; Rahardjo, I.B. (Instalasi Penelitian Tanaman Hias, Segunung-Cianjur (Indonesia)). 2 tables; 11 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan

Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Purwokerto (Indonesia): UNSOED, 2000: p. 779-784.

LACTUCA SATIVA; UREA; BIOFERTILIZERS; AZOLLA; FARMYARD MANURE; ALTERNARIA PORRI; YIELDS.

Penelitian dilaksanakan di Inlithi Segunung, Cipanas, Cianjur, (ketinggian 1100 m dpl.) pada bulan Januari - Maret 1999. Tujuan penelitian ini adalah mengetahui pengaruh pupuk Urea, pupuk azolla dan pupuk kandang terhadap intensitas serangan bercak daun pada tanaman selada. Perlakuannya adalah tanpa perlakuan (kontrol), (1,8; 3,5; 5,3 g Urea/polibag), (40; 80; 120 g azolla/polibag), dan (32; 64; 96 g pupuk kandang/polibag). Petak-petak percobaan disusun menurut Rancangan Acak Kelompok dengan tiga ulangan. Hasil penelitian menunjukkan pupuk Urea, pupuk hayati azolla dan pupuk kandang dengan takaran yang meningkat dapat menekan intensitas serangan bercak daun pada tanaman selada dari 12,33 % sampai 7,40 %. Pupuk Urea dengan intensitas serangan bercak daun yang terendah, kemudian perlakuan pupuk kandang dan pupuk hayati azolla. Pupuk Urea, pupuk hayati azolla dan pupuk kandang dengan takaran yang semakin meningkat dapat meningkatkan berat tanaman pada tanaman selada dari 28,33-50,62 g/tanaman. Berat tanaman tertinggi diperoleh dari pemberian pupuk kandang, kemudian diikuti pupuk Urea dan pupuk hayati azolla.

0063 TEJASARWANA, R.

Pengaruh pupuk Urea, pupuk hayati Azolla dan pupuk kandang terhadap intensitas serangan bercak ungu pada tanaman bawang daun. [Effect of Urea fertilizer, Azolla and farmyard manure on intensity of Helminthosporium attack on *Allium fistulosum*]/Tejasarwana, R.; Rahardjo, I.B. (Instalasi Penelitian Tanaman Hias Segunung, Cipanas-Cianjur (Indonesia)) 2 tables; 12 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 499-505.

ALLIUM FISTULOSUM; UREA; AZOLLA; FARMYARD MANURE; HELMINTHOSPORIUM; BIOFERTILIZERS; YIELDS.

Penelitian dilaksanakan di Inlithi Segunung, Cipanas, Cianjur (ketinggian 1100 m dpl) pada bulan April - Juli 1999. Tujuan penelitian ini adalah mengetahui pengaruh pupuk Urea, pupuk azolla dan pupuk kandang terhadap intensitas serangan bercak ungu pada tanaman bawang daun. Perlakuannya adalah tanpa pupuk N (kontrol), (0,9; 1,8; 2,7 g Urea/polybag/bulan), (40; 80; 120 g azolla/ polybag/bulan), dan (40; 80; 120 g pupuk kandang/polybag/bulan). Petak-petak percobaan disusun menurut Rancangan Acak Kelompok dengan tiga ulangan. Hasil penelitian menunjukkan pupuk Urea, pupuk hayati azolla dan pupuk kandang dapat menekan intensitas serangan bercak ungu pada tanaman bawang daun dari 25,67-6,53 %. Pupuk 0,9-2,7 g Urea/polybag/bulan, 40-120 g azolla/polybag/bulan, dan 40-120 g pupuk kandang/polybag/bulan mendapatkan intensitas serangan bercak ungu yang sama tingginya berkisar 6,53-12,40 %. Pupuk Urea, pupuk hayati azolla dan pupuk kandang dapat meningkatkan berat tanaman bawang daun, kecuali takaran 40 g azolla/polybag/bulan. Pupuk 0,9 g Urea/polybag/bulan dapat meningkatkan berat tanaman bawang daun 39,67-74,09 g/polybag. Pupuk 120 g azolla/polybag/bulan dapat meningkatkan berat tanaman bawang daun 39,67-67,77 g/polybag. Sedangkan 80 g pupuk kandang/polybag/bulan adalah perlakuan terbaik, meningkatkan berat tanaman bawang daun 39,67-106,7 g/polybag.

0064 WIDIASTUTI, D.P.

Kajian teknologi pemupukan padi sawah. [Study on fertilizer technology for irrigated rice]/ Widiastuti, D.P.; Musyafak, A.; Fibrianty (Loka Pengkajian Teknologi Pertanian, Pontianak (Indonesia)). 4 tables; 15 ref. Summary (En). [Proceedings of the Regional Seminar on Agricultural Technology Development in West Kalimantan (Indonesia)] Prosiding Seminar Regional Pengembangan Teknologi

Pertanian Spesifik Lokasi di Kalimantan Barat/Rusastra, IW.; Sahari, D.; Swastika, D.K.S.; Syam, A. (eds.); Pusat Penelitian dan Pengembangan Sosial Ekonomi Pertanian, Bogor (Indonesia). Bogor (Indonesia): PSE, 2001: p. 24-33.

IRRIGATED RICE; FERTILIZER APPLICATION; ORGANIC FERTILIZERS; RICE STRAW; GROWTH; YIELDS; NUTRIENT UPTAKE; ECONOMIC ANALYSIS; KALIMANTAN.

The assessment was carried out in Mengkacak Village, Mempawah Hilir Sub District, Pontianak to find out information on the alternative of using macro organic fertilizer as source of potassium in rice plant and analyzed the farmers' response on it. The assessment was arranged in Randomized Completely Block Design with seven treatments and four replications. They were (A): (Urea 50 kg/ha and SP36 25 kg/ha) using farmer's fertilizer dosage without potassium fertilizer; (B): (Urea 50 kg/ha, SP36 25 kg/ha, and harvest waste rice straw), (C): (Urea 50 kg/ha, SP36 25 kg/ha, and rice husk ash 200 kg/ha), and (D): (Urea 50 kg/ha, SP36 25 kg/ha, harvest waste rice straw, and rice husk ash 200 kg/ha) using farmer's fertilizer dosage and organic fertilizer; (E): (SP36 114 kg/ha and harvest waste rice straw) and (F): (SP36 114 kg/ha, harvest waste rice straw, and rice husk ash 200 kg/ha) using soil analysis as the dosage of fertilizer and organic fertilizer; and (G): (Urea 200 kg/ha, SP36 100 kg/ha, and KCl 75 kg/ha) using local recommendation as the dosage of inorganic fertilizer. The result of this assessment showed that plant growth of productive young plant was significant among technology component A, B, C, D and G, but not significant among technology component A, E and F at level suggestion 95 %, otherwise plant height was significant among entire technology component at level suggestion 95 %. On Duncan's Multiple Range Test (DMRT), statistical analysis at level suggestion 95 % showed that rice production was significant among technology component A, B, E, F and G, but not significant among technology component A, C and D. Fertilizer technology component E that was soil analysis as the dosage of fertilizer and organic fertilizer (SP-36 114 kg/ha and harvest waste rice straw) produced high yield. It was 2.8 tons Milling Dry Rice/ha or 3.2 tons Harvest Dry/ha, high finance profit Rp. 992.645,00 with R/C ratio 1.65 on total cost and finance profit Rp. 1.869.000,00 with R/C ratio 3.87 on cash cost. Most farmer responsed on organic fertilizer use, both of rice straw or rice husk ash, because it was applicable and cheaper than inorganic fertilizer KCl. Besides they knew that using organic fertilizer could increase soil fertility, reduce growth of weed, and prevent pest and disease.

0065 WIGENA, I G.P.

Efektivitas beberapa sumber pupuk belerang pada Oxic dystrudepts, Kubang Ujo, Jambi. [Effectiveness of some sulfur fertilizer resources on Oxic dystrudepts, Kubang Ujo, Jambi (Indonesia)]/Wigena, I G.P.; Santoso, D.; Purnomo, J.; Sukristyonubowo. 7 tables; 20 ref. Summary (In). [Proceedings of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.); Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 199-216.

ARACHIS HYPOGAEA; SULPHUR FERTILIZERS; GROWTH; QUALITY; YIELDS; SOIL CHEMICOPHYSICAL PROPERTIES; SUMATRA.

Penelitian efektivitas beberapa sumber pupuk belerang dilakukan pada tanah Oxic Dystrudepts, Kubang Ujo, Jambi pada musim hujan (MH) 1999/2000. Tujuan penelitian untuk mengetahui respon pemberian berbagai sumber belerang terhadap pertumbuhan, tingkat serta kualitas hasil tanaman. Sebanyak empat sumber pupuk belerang yaitu gipsum, kalium sulfat, amonium sulfat, dan S-elemen diuji efektivitasnya pada takaran 30 kg S/ha. Untuk melihat kurva respon belerang, sebanyak lima level takaran sumber belerang sebagai gipsum yakni 0; 15; 30; 45; 60; dan 75 kg/ha diuji pengaruhnya terhadap tanaman. Sebanyak 12 perlakuan sumber pupuk belerang yang diuji disusun sebagai percobaan faktorial dua faktor dengan menggunakan Rancangan Lingkungan Acak Kelompok dan diulang sebanyak tiga kali. Hasil penelitian menunjukkan bahwa pemberian sumber belerang yang diuji mampu meningkatkan pertumbuhan tanaman, berat brangkasan dan polong kering, kadar asam amino cistin, cystein, dan metionin serta menurunkan persentase polong hampa kacang tanah. Berat polong kering tertinggi

(sebanyak 2,4 t/ha) diperoleh pada perlakuan 30 kg gipsum kombinasi dengan Mg, walaupun tidak berbeda nyata terhadap semua sumber belerang lainnya, tetapi berbeda nyata terhadap kontrol. tase polong hampa kacang tanah menurun akibat pemberian belerang dan terendah diperoleh pada perlakuan kalium sulfat sebesar 13,5 %. Seperti halnya polong kering, hasil ini juga tidak berbeda nyata terhadap semua sumber belerang lainnya, tetapi berbeda nyata terhadap kontrol. Kadar metionin tertinggi (2,28 ppm) diperoleh pada perlakuan kalium sulfat dan berbeda nyata terhadap semua sumber belerang lainnya, tetapi cistin dan cystein tidak berbeda nyata. Penggunaan gipsum dan kalium sulfat menigkatkan pH, kadar P dan S-tersedia, Ca dan Mg tanah, sedangkan amonium sulfat dan S-elemen cenderung menurunkan pH tanah, tetapi meningkatkan kadar P dan S-tersedia dan Mg.

0066 YAFIZHAM.

Pengaruh pupuk fosfor dan mulsa lamtorogung terhadap pertumbuhan dan hasil kedelai (*Glycine max* (L.) Merr.) pada tanah Podsolik Merah Kuning. Effects of phosporus fertilizer and mulch of lamtorogung on growth and yield of soybean (*Glycine max* (L.) Merr.) in Red Yellow Podzolic soil/Yafizham (Universitas Lampung, Bandar Lampung (Indonesia). Fakultas Pertanian). 3 tables; 15 ref. Summary (En). *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2001) v. 5(3) p. 237-242.

GLYCINE MAX; PHOSPHATE FERTILIZERS; MULCHES; LEUCAENA; GROWTH; YIELDS; PODZOLS.

A research was conducted to study effects of phosphorus fertilizer and mulch of lamtorogung on growth and yield of soybean planted in Red-Yellow Podzolic soil. The experiment was conducted in the plastic house, Faculty of Agriculture, Lampung University, Bandar Lampung.Randomized Block Design was used with factorial pattern consisted of two factors, that were P fertilizer (0, 75, 150, and 225 kg/ha TSP) and mulch of lamtorogung (0, 10, 20, and 30 Mg/ha mulch of lamtorogung). Results of the experiments indicated that phosphorus fertilizer and mulch of lamtorogung increased number and weight of nodules, yield component and yield respectively. Application of 150 kg/ha TSP and 20 Mg/ha mulch of lamtorogung increased grain yield 90.00 % and 28.90 % compared to that of the control, respectively.

0067 YUNIARTI, A.

Beberapa sifat kimia tanah (pH, P dan K tersedia) dan hasil padi gogo (*Oryza sativa* L.) akibat pemberian dosis pupuk P dan K pada Ultisols Pondok Meja Jambi. Soil chemical characteristics (pH, available P and K) and yield of upland rice (*Oryza sativa* L.) due to P and K fertilization on Ultisols Pondok Meja, Jambi (Indonesia)/Yuniarti, A. (Universitas Padjadjaran, Bandung (Indonesia). Fakultas Pertanian) 1 table, 8 ref. Summary (En). *Soilrens* (Indonesia) ISSN 1411-4224 (2001) v. 2(3) p. 91-97.

ORYZA SATIVA; UPLAND RICE; PHOSPHATE FERTILIZERS; POTASH FERTILIZERS; FERTILIZER APPLICATION; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; NUTRIENT AVAILABILITY; SOIL FERTILITY; YIELDS; ACRISOLS.

This experiment was carried out in the green house and the Soil Laboratory of Faculty of Agriculture, Padjadjaran University in Bandung, from September 1997 to January 1998. Soil samples used were taken from Pondok Meja Jambi, Jambi regency. Phosphorus and potassium fertilizers as the factor were arranged in a Randomized Block Design (RBD) with 4 x 4 factorial pattern and three replications. The rates of fertilizer SP-36 (P) were 0, 30, 60, and 90 kg P_2O_5/ha. The rates of fertilizer KCl (K) were 0, 25, 50, and 75 kg K_2O/ha. The test plant used was upland rice of Dodokan variety and seeds were taken from Seed Certification Institute of Ciganitri in Bandung. Results of the experiment showed that there was no interaction effects between phosphorus and potassium fertilizers on pH, soil available phosphorus, soil available potassium, and yield of upland rice. There were significant effects of potassium fertilizer on soil available potassium and yield of upland rice, but no significant on soil pH. The yield of maximum rate of upland rice was 69.43 g/polybag on phosphorus and potassium fertilizer were 57,77 kg P_2O_5/ha and 48 kg K_2O/ha respectively.

F07 PENGOLAHAN TANAH

0068 ABDULLAH, S.

Pengaruh pengolahan tanah dan pemupukan P pada pertanaman kedelai setelah padi sawah tanam benih langsung. The effect of tillages and phosphorus fertilization on soybean planted after direct-seeded lowland rice/Abdullah, S.; Ridwan; Jalid, N. (Balai Pengkajian Teknologi Pertanian Sukarami, Padang (Indonesia)). 5 tables; 17 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 194-200.

GLYCINE MAX; TILLAGE; PHOSPHATE FERTILIZERS; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; YIELD COMPONENTS.

The loss of P nutrient from irrigated lowland rice and carried by at the harvest are relatively small. The productivity and sustainability of the soil and water should be maintained. Therefore, conservation tillage should be done as the main priority. The experiment was conducted at farmer's field Batang Anai, Padang Pariaman district of West Sumatra from March to June 1996. The objective of study was to determine the effect of tillage systems and P fertilization on growth and yield of soybean planted after direct-seeded lowland rice. The treatments were arranged in a Split Plot Design with four replications. Tillage systems as the main plot were; (1) zero tillage (ZT= no tillage + 2 l/ha oxadiazon herbicide), (2) strip tillage (ST= tillage was done between stubble of direct-seeded rice), (3) minimum tillage (MT = 1 hoeing + 1 harrowing), and (4) conventional tillage (CT = 2 hoeing + harrowing and levelling). Meanwhile, P fertilization was the subplot consisted of: (1) without P application, (2) application of 22.5 kg/ha P_2O_5, and (3) 45 kg/ha P_2O_5. Results showed that tillage systems and P fertilization affected growth and yield of soybean planted after direct-seeded lowland rice. Phospor applied at 45 kg/ha P_2O_5 did not increase grain yield, but they were more than 22.5 kg/ha P_2O_5 application. The highest grain yield was obtained when P applied at 22.5 kg P_2O_5/ha on strip tillage system (ST), but no significant difference when compared to that of conventional tillage (CT)

0069 ABDULLAH, S.

Pengolahan tanah dan penundaan waktu tanam kacang hijau setelah padi sawah tanam benih langsung. Tillage systems and delay planting of mungbean after direct-seeded lowland rice/Abdullah, S.; Amril, B.; Ridwan (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)). 6 tables; 14 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 386-393.

VIGNA RADIATA RADIATA; PLANTING; DIRECT SOWING; TILLAGE; IRRIGATED RICE; LOWLAND; SOIL CHEMICOPHYSICAL PROPERTIES; WEEDS; GROWTH; YIELD 0COMPONENTS.

An experiment was conducted at farmers' field Lubuk Alung, Padang Pariaman District of West Sumatra Province during dry season 1996. The objective of the experiment was to determine the effect of tillage systems and delay planting time on growth and yield of mungbean planted after direct-seeded lowland rice. A Split-Plot Design with four replications was used. The mainplots were the tillage systems: (1) Zero tillage (ZT = no tillage + 2 l/ha Oxadiazon herbicide); (2) strip tillage (ST = tillage was done between stubble of direct-seeded rice); and (3) minimum tillage (MT = once hoeing, twice harrowing). Delay planting time of mungbean as the subplot consisted of 3,6,9, and 12 days after harvested (DAH) of previous direct-seeded lowland rice, Results showed that soil strength (soil penetration resistance) acted as limiting factor on growth and yield of mungbean planted after direct-seeded lowland rice. Planting mungbean could be delayed up to 9 DAH of previous direct-seeded lowland rice as reflected by higher

grain yield. However, to obtain optimal grain yield, planting of mungbean should be done at least at 6 DAH of previous direct-seeded lowland rice for all tillage systems. The highest grain yield was obtained when mungbean planted 3 DAH of previous direct-seeded lowland rice.

0070 ADRIZAL.
Pengaruh cara penyiapan lahan terhadap pertumbuhan gulma dan hasil padi sawah. Effect of land preparation systems on weed growth and yield of lowland rice/Adrizal; Kari, Z.; Irfan, Z. (Balai Pengkajian Teknologi Sukarami (Indonesia)) 3 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 289-294.

IRRIGATED RICE; MINIMUM TILLAGE; ZERO TILLAGE; GLYPHOSATE; WEEDS; GROWTH; YIELDS.
An experiment was carried out at Bandar Buat Experimental Station, Padang West Sumatra) during dry season 1997/1998, to determine the effect of land preparation systems on weed growth and yield of lowland rice var, Batang Anai. Three treatments, i.e. zero tillage systems with postemergence herbicide (glyphosate), minimum tillage, and full tillage were arranged in a Randomized Block Design with three replications. Results showed that land preparation with full tillage system was more effective in controlling weeds, especially grasses and sedges on lowland rice field. The highest yield of rice (2.83 ton/ha) was also produced by full tillage system. On the other hand, the highest benefit (Rp.1.093.750.00/ha) was obtained from zero tillage with glyphosate postemergence herbicide application systems.

0071 AGUSWARMAN.
Pengaruh pengolahan tanah terhadap pertumbuhan dan hasil tanaman padi, jagung, dan kedelai. Effect of land preparation on upland rice, corn and soybean growth and yield/Aguswarman; Artati, F.; Kari, Z. (Balai Pengkajian Teknologi Pertanian Sukarami, Padang (Indonesia)) 3 tables; 11 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage]. Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 148-152.

ORYZA SATIVA; ZEA MAYS; GLYCINE MAX; TILLAGE; GROWTH; YIELD COMPONENTS; YIELDS.

Study on the effect of land preparation to upland rice, corn, and soybean was conducted at Sitiung Red Yellow Podzolic. The objective of research was to determine the effect of land preparation methods on growth and yield of upland rice, corn, and soybean. Three land preparation methods (zero tillage, minimum tillage, and conventional tillage) were arranged in a Randomized Complete Block Design with three replications. Results showed that grain yield of upland rice was 2.68 t/ha (zero tillage), 3.00 t/ha (minimum tillage), and 2.86 t/ha (conventional tillage); for corn was 4.63 t/ha (zero tillage), 5.24 t/ha (minimum tillage) and 5.3 t/ha (conventional tillage) and for soybean 0,63 t/ha (zero tillage), 0.59 t/ha (minimum tillage), and 0.45 t/ha (conventional tillage). Therefore, minimum or conventional and zero tillage were appropriate tillage for upland rice, corn, and soybean, respectively.

0072 AR-RIZA, I.
Pengaruh alterasi tanah permukaan dan pemberian pupuk Kalium terhadap pertumbuhan dan hasil padi di lahan pasang surut sulfat masam. [Effect of surface soil alteration and potassium fertilizer on rice production in acid sulphate tidal land]/Ar-Riza, I.; Sardjijo (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 3 tables; 11 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 139-145.

ORYZA SATIVA; LAND MANAGEMENT; TILLAGE; POTASH FERTILIZERS; APPLICATION METHODS; YIELDS; ACID SULPHATE SOILS.

Pengaruh alterasi tanah permukaan dan pemberian pupuk kalium terhadap pertumbuhan dan padi di lahan pasang surut sulfat masam. Lahan pasang surut mempunyai potensi yang besar, tetapi usaha pertanian yang dilaksanakan pada lahan tersebut belum memberikan hasil yang optimal, diantaranya disebabkan oleh tingkat kesuburan tanah yang rendah dan penerapan teknik budidaya yang belum mampu mengatasi masalah yang ada. Penelitian yang bertujuan untuk mempelajari penyiapan lahan dan pemupukan kalium yang efisien dilaksanakan di lahan pasang surut sulfat masam pada MK 1997 dan MH. 1997/98 di Belandean Kab. Barito Kuala, Kalimantan Selatan. Perlakuan disusun menggunakan Rancangan Petak Terpisah dengan tiga ulangan. Sebagai petak utama adalah dua macam cara pengolahan tanah (diolah setiap musim tanam, diolah secara selang seling yaitu sekali untuk dua musim tanam). Sebagai anak petak adalah dua cara pemberian pupuk K (diberi K terus menerus setiap musim tanam, diberi secara selang-seling yaitu untuk 2 musim tanam), pupuk K diberikan pada takaran 50 kg K_2O/ha. Diperoleh hasil bahwa tidak ada beda pengaruh yang nyata terhadap peningkatan hasil antara cara pengolahan tanah yang terus-menerus setiap musim tanam dengan cara pengolahan tanah yang dilakukan selang-seling, sekali untuk dua musim tanam. Terdapat pengaruh yang berbeda antara cara pemberian pupuk kalium yang diteliti. Pupuk kalium yang diberikan pada setiap musim tanam memberikan hasil yang lebih baik dibanding dengan yang diberikan hanya sekali untuk dua musim tanam.

0073 BURBEY.
Pengolahan dan pengompakan tanah pada padi sawah di lahan bukan baru. Soil tillage and compaction for rice planted on newly opened rice field/Burbey (Balai Pengkajian Teknologi Pertanian, Sukarami (Indonesia)). 3 tables; 14 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 110-115.

ORYZA SATIVA; IRRIGATED RICE; TILLAGE; SOIL COMPACTION; NPK FERTILIZERS; RICE FIELDS; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS.

High soil porosity on newly opened rice field caused increasing water need and affected leaching soil nutrients and fertilizers. Two sets of experiment were simultaneously conducted at the farmer's field Selumah, South Bengkulu and Cermin Alam, Jambi during wet season 1992/93. The objectives of the experiments were to find out the effect of soil tillage and soil compaction with three levels of NPK fertilization on growth, yield components, and yield of rice. All treatments were arranged in a Strip Plot Design with three replications at Selumah and four replications at Cermin Alam, where three levels of tillage systems (1, 2 and 3 times of soil tillage) at Selumah and three levels of soil compaction (without, one, and twice) at Cermin Alam as the mainplots, while three levels of NPK fertilization (90-45-30, 90-90-60, 90-135-90 kg of N-P_2O_5-K_2O per hectare) as the subplots. Results showed that increasing soil tillage intensity and soil compaction increased growth, yield components, and yield of rice on newly opened rice field. Those parameters also increased the rate of P and K fertilizers. The yield of rice increased about 0.6-1.2 ton/ha at Selumah and 0.6-0.7 ton/ha at Cermin Alam by respectively increasing P and K fertilizers from 45-30 to 90-60 and 135-90 kg P_2O_5 and K_2O per hectare.

0074 HADID, A.
Pertumbuhan dan hasil tanaman bawang merah dengan modifikasi iklim mikro. [Growth and yield of shallot with micro climate modification]/Hadid, A.; Maemunah (Universitas Tadulako, Palu (Indonesia). Fakultas Pertanian). 5 tables; 11 ref. Summaries (En, In). Appendices. *Jurnal Agroland* (Indonesia) ISSN 0854-641X (2001) v. 8(4) p. 377-384.

ALLIUM ASCALONICUM; MULCHES; HEDGES; HEDGING PLANTS; SPACING; CLIMATE; GROWTH; YIELDS.

Penelitian ini bertujuan untuk mengetahui pengaruh berbagai penutupan mulsa dan berbagai kerapatan tanaman pagar sebagai suatu bentuk modifikasi iklim mikro terhadap pertumbuhan dan hasil bawang merah. Penelitian dilaksanakan di Desa Bono Oge Kecamatan Sigi Biromaru Kabupaten Donggala, Sulawesi Tengah. Penelitian berlangsung dari bulan Mei hingga Agustus 2001. Metode penelitian yang digunakan adalah Rancangan Acak Kelompok pola faktorial dua faktor. Faktor pertama adalah dosis mulsa dengan empat taraf yaitu: (1) tanpa mulsa, (2) 5 t mulsa/ha, (3) 10 t mulsa/ha, dan (4) 15 t mulsa/ha. Faktor kedua adalah kerapatan tanaman pagar yaitu: (1) tanpa tanaman pagar, (2) jagung dengan jarak tanaman 20 cm x 75 cm, dan (3) jagung dengan jarak tanam 40 cm cm x 75 cm. Penelitian tersebut diulang sebanyak tiga kali, sehingga terdapat 36 unit percobaan. Hasil penelitian menunjukkan perlakuan tanpa mulsa dan dosis mulsa 5 t/ha memberikan hasil yang lebih baik dibanding dengan pemberian mulsa 10 t/ha terhadap tinggi tanaman, jumlah umbi per rumpun, dan bobot eskip per rumpun. Kerapatan tanaman pagar 20 cm x 75 cm memberikan hasil yang lebih baik dibanding perlakuan tanpa tanaman pagar dan kerapatan tanaman pagar 40 cm x 75 cm. Interaksi perlakuan tanpa mulsa dengan kerapatan tanaman pagar 20 cm x 75 cm memberikan hasil yang lebih baik terhadap tinggi tanaman bawang merah

0075 ISMON, L.

Pertumbuhan dan hasil jagung dengan dua tingkat pengolahan tanah dan tiga tingkat pemupukan NPK pada dataran sedang dan tinggi. Growth and yield of maize crop with tillage systems and fertilizer on medium and high elevation areas/Ismon, L.; Azwir (Balai Pengkajian Teknologi Pertanian Sukarami, Padang (Indonesia)). 4 tables; 14 ref. Summary (En). [Proceeding of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 188-193.

ZEA MAYS; VARIETIES; TILLAGE; NPK FERTILIZERS; APPLICATION RATES; GROWTH; YIELDS.

The experiment were conducted at Sukarami and Rambatan experimental station with elevation of 900 m and 500 m above sea level, respectively during dry season 1992. The objectives were to determine the best combination of N-P-K level and tillage on growth and yield of maize. The treatments were arranged in a Split Plot Design with three replications. The mainplots were tillage levels (minimum and optimum), while the subplots were N-P-K levels (100-0-0, 200-100-50, and 300-200-100 kg/ha). Results showed that there were no interaction effect of tillages and N-P-K levels on growth and yield of maize at both locations. At Sukarami, minimum tillage and optimum tillage gave grain yield 4.38 t/ha and 4.92 t/ha respectively, while at Rambatan were 3.62 t/ha and 3.71 t/ha. There was a high response of maize growth and yield to N-P-K fertilizers at both locations. The highest yields at Sukarami and Rambatan were produced when applied 300-200-100 kg/ha Urea-TSP-KCl (5.22 and 5.08 t/ha, respectively)

0076 ISNAINI, S.

Dinamika dekomposisi bahan organik akibat pengolahan tanah pada tanah sawah yang dipupuk N dan K. [Dynamics of organic matter decomposition caused by soil tillage in lowland rice field]/Isnaini, S. (Sekolah Tinggi Pertanian Dharma Wacana, Metro, Lampung (Indonesia)) 4 ill., 1 table; 9 ref. Summaries (En, In). *Jurnal Agroland* (Indonesia) ISSN 0854-641X (2001) v. 8(4) p. 390-397.

IRRIGATED RICE; ORGANIC MATTER; DEGRADATION; TILLAGE; NITROGEN FERTILIZERS; POTASH FERTILIZERS; LOWLAND.

Penelitian ini bertujuan untuk mengkaji perbedaan dekomposisi bahan organik pada tanah sawah yang diolah sempurna (OTS) dan tanpa olah tanah (TOT) yang dipupuk N dan K. Percobaan dilakukan pada musim hujan (MH) 1992/2000, yaitu sejak bulan Juli hingga Desember 1999 (musim tanam ke-8). Percobaan berpola faktorial yang disusun dalam Rancangan Acak Kelompok (RAK). Perlakuan yang dicobakan terdiri atas tiga faktor perlakuan, yaitu (1) sistem olah tanah (OTS dan TOT), (2) pemupukan K (tanpa K dan 49.8 kg/ha K), dan (3) pemupukan N (46, 115, dan 184 kg/ha N). Hasil percobaan menunjukkan bahwa sistem TOT menghasilkan laju dekomposisi yang lebih tinggi daripada OTS, baik

dipupuk K maupun tanpa K dengan penambahan N yang semakin meningkat. Dekomposisi bahan organik juga sangat ditentukan oleh kandungan lignin bahan organik.

0077 MUCHTAR, A.

Pengaruh penyiapan lahan terhadap pertumbuhan gulma dan tanaman jagung pada lahan kering. Effects of land preparation on growth of weed and corn in dryland/Muchtar, A.; Bahri, L. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)). 3 tables; 8 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 434-436.

ZEA MAYS; TILLAGE; WEEDS; GROWTH; DRY FARMING; YIELDS.

Field experiment was conducted at farmer's field Kinali, Pasaman district, West Sumatra from October 1995 to February 1996, to determine the effects of land preparation on growth of weed and corn grown on dryland area. Four land preparation methods (intensive tillage, plowing twice in crop rows, zero tillage and farmer's practice) were arranged in a Randomized Complete Block Design with three replications. Results showed that farmer's practice produced lower grain yield (3.19 ton/ha) as due to high weed population. Therefore, intensive tillage might reduce weed population and produced the highest grain yield.

0078 NISWATI, A.

Olah tanah konservasi jangka panjang pengaruhnya terhadap mesofauna tanah. Long-term conservation tillage effects on soil mesofauna/Niswati, A.; Utomo, M.; Arif, M.A.S.; Yusnaini, S. (Universitas Lampung (Indonesia)). 4 tables; 16 ref.. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 410-416.

ZEA MAYS; SOIL CONSERVATION; CONSERVATION TILLAGE; NITROGEN FERTILIZERS; APPLICATION RATES; SOIL BIOLOGY.

The experiment aimed to determine the influence of longterm treatments of various soil tillage systems and N fertilizers dosage on density and diversity of soil mesofauna. A long-term fields experiment had been started in February 1987 on clay loam soil (Udult) at Politani field. Plot size was 4 x 6 m with four replications. The treatments were arranged in a Completely Randomized Block Design 3x3 factorials (tillage systems, i.e. intensive tillage, minimum tillage, no tillage, and N fertilizers were applied at 0, 100, and 200 kg N/ha). This experiment was observed at November 1996 until February 1997 at the twenty-second season. The results showed that, for all variables, there was no interaction effect between long-term soil conservation tillage and N fertilizers. Before planting, conservation tillage (minimum tillage and no tillage) and N fertilizers affected significantly density of soil mesofauna; however there was no significant effect before harvesting. Density of soil mesofauna was highest in the minimum tillage (170 approx 71.9 ind.dm $^{-3}$) followed by no tillage 164 approx 87.1 ind dm $^{-3}$ and intensive tillage (93.9 approx 43.7 ind.dm $^{-3}$). Density of soil mesofauna on litter sample was not affected by all treatments either at before planting or before harvesting. The highest diversity index on litter sample was observed at soil conservation tillage systems (1.78 approx 0.43 at no tillage and 1.65 approx 0.50 at minimum tillage, respectively) and the lowest was at soil intensive tillage (1.27 approx 0.50)

0079 RIDWAN.

Pengaruh beberapa sistem pengolahan tanah dan pemakaian herbisida pada tanaman jagung di antara pohon kelapa. Effect of land preparation systems and application of herbicide on maize planted between coconut trees/Ridwan; Amril, B.; Abdullah, S. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)). 3 tables; 14 ref. Summary (En). [Proceedings of the Sixth National Seminar on

Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 448-452.

ZEA MAYS; COCOS NUCIFERA; CATCH CROPPING; TILLAGE; HERBICIDES; GROWTH; YIELDS; ECONOMIC ANALYSIS.

The experiment was carried out at farmer's field Cubadak Mentawai, Padang Pariaman, West Sumatra during rainy season 1996/97. Combinations of land preparation systems and herbicide application (conventional tillage, conventional tillage + herbicide, strip tillage + herbicide, hill tillage + herbicide, and no-tillage + herbicide) were arranged in a Randomized Complete Block Design with five replications. Results showed that application of herbicide was effective to reduce weed growth and weeding intensity. Combination of strip tillage and herbicide application was the best tillage systems for maize culture because it gave better plant growth, the highest yield, and more financial benefit among treatments. Hill tillage + herbicide and no-tillage + herbicide were also effective to reduce weed growth, but they did not increase maize yields.

0080 RUSMAN, B.

Pengaruh olah tanah konservasi dan mulsa terhadap sifat fisika Ultisol dan hasil tanaman jagung. Effects of conservation tillages and mulch on physical characteristics of Ultisol and maize grain yield/Rusman, B. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian); Zurhalena 8 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage]. Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi /Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 175-182.

ZEA MAYS; CONSERVATION TILLAGE; MULCHES; SOIL CHEMICOPHYSICAL PROPERTIES; ACRISOLS; YIELDS.

A field experiment was conducted at Sitiung Experiment Station of Sukarami Assessment Institute for Agricultural Technology; Soil Physics Laboratory of Agriculture Faculty, Andalas University; and Soil-Agroclimatic Station, Bukittinggi. The objectives of experiment were to determine the status of soil physics as due to soil tillages and rice straw application, and the response on maize grain yield. Three by 4 treatment combinations were arranged in Split Plot Design with three replications. Results showed that minimum tillages (ridge tillage and once hoeing) decreased soil bulk density from 1.02 to 0.93 g/cm^3 and increased cummulative infiltration from 11.45 to 50.33 cm/hr. Application of 15 ton rice straw as mulch decreased penetration resistant and bulk density, and increased index of aggregate stability, porosity and maize grain yield. Therefore, minimum tillages (ridge tillage and once hoeing) and application of 15 ton/ha rice straw were suggested for maize cultivation on Ultisol.

0081 SASA, J.J.

Pengaruh cara olah tanah dan pemupukan terhadap hasil gabah dan emisi gas metan dari pola tanam padi-padi di lahan sawah. Effect of tillage methods and fertilizer on rice grain yield and CH4 gas emission from lowland paddy-paddy cropping systems/Sasa, J.J.; Mulyadi; Sopiawati, T. (Loka Penelitian Tanaman Pangan, Jakenan (Indonesia)); Partohardjono, S. 3 tables; 7 ref. Summaries (En, In). *Penelitian Pertanian Tanaman Pangan* (Indonesia) ISSN 0216-9959 2001 v. 20(3) p. 24-28.

ORYZA SATIVA; TILLAGE; NITROGEN FERTILIZERS; ORGANIC FERTILIZERS; FERTILIZER APPLICATION; METHANE; UPLAND RICE; YIELDS; FLOODED LAND.

Penelitian dilaksanakan pada MH 2000/2001 dan MK 2001 di lahan sawah Loka Penelitian Tanaman Pangan, Jakenan, Jawa Tengah, menggunakan Rancangan Petak Terpisah dengan tiga ulangan. Sebagai petak utama adalah cara olah tanah yaitu tanpa olah tanah (TOT) dan olah tanah sempurna (OTS). Sebagai anak petak adalah pemupukan yang terdiri atas 120 kg N Urea, 100 kg Urea pril + 20 kg N ZA, 100 kg N Urea pril + 20 kg N ZA + 5 t/ha pupuk kandang dan 100 kg N Urea pril + 20 kg N ZA + 5 t/ha jerami

kering. Varietas yang digunakan adalah Way Apo Buru, benih ditanam secara langsung (Tabela) untuk padi gogorancah dan tanam pindah (Tapin) untuk padi walik jerami, jarak tanam 20 x 20 cm. Hasil penelitian menunjukkan bahwa perlakuan TOT mampu menekan emisi gas metan sebesar 38,5 % dibanding perlakuan OTS. Emisi gas metan terendah yang menghasilkan gabah tertinggi, baik dari perlakuan TOT maupun OTS berasal dari pemupukan 100 kg N urea pril + 20 kg N ZA + 5 t/ha pupuk kandang

0082 SUPRIYO, A.
Cara olah tanah dan pengendalian gulma pada kedelai di lahan gambut. Soil tillages and weed control method of soybean grown on peat soil/Supriyo, A. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)); Budiman, A.; Waluyo. 3 tables; 7 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 406-409.

GLYCINE MAX; TILLAGE; WEED CONTROL; PEAT SOILS; TOXICITY; YIELD COMPONENTS.

Field experiment was conducted at farmer's field Pangkoh (Central Kalimantan) during dry season 1995, to find out the effect of soil preparation technology of peat soil on growth and yield of soybean. Eight treatments: (a) control, (b) mannual weeding, (c) soil tillage by hoe 2 times, (d) plough 2 times and harrows, (e) controlled peat burnt followed by minimum soil tillage in rows, (f) controlled peat burnt no soil tillage, (g) mulch (straw) 3 t/ha two days after planting (DAP), and (h) Alachlor 3 l/ha three days before planting (DBP) were arranged in Randomized Complete Block Design with four replications. Results showed that predominant weeds on peat soil were *A. conyzoides, Digitaria sp.,* and *Cyperus distans* belonging to broadleaf, grass, and sedge, respectively. Weed control (80 %) was obtained by minimum soil tillage applied Alachlor (3 l/ha) 3 DBP and gave low toxicity to plant on 21 DAP. Peat controlled burnt followed by minimum tillage in rows gave the highest yield or 85 % over control and 36 % over traditional soil tillage.

0083 UMAR, S.
Cara tanam benih langsung (tabela) dengan olah tanah dangkal dalam menekan gulma di lahan bergambut. Broadcast methods on shallow land preparation to pressed weeds population of peaty areas/Umar, S.; Fauziati, N.; Linda, I. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)) 3 tables; 15 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 380-385.

ORYZA SATIVA; VARIETIES; DIRECT SOWING; TILLAGE; WEEDS; PLANT POPULATION; YIELDS; PEAT SOILS.

The objective of this research was to study the broadcast methods on shallow land preparation to pressed weeds population of peaty areas. The experiment was conducted on peat soil at Suryakanta. South Kalimantan during rainy season 1994/95. The treatments were arranged in Randomized Complete Block Design two factors with three replications. The first factor was land preparations (two times plowing and harrowing, one time plowing and harrowing, two times hoeing and levelling, and traditional method-tajak). The second factor was rice varieties (Kapuas, BW 267-3, and IR 6023-10-1-1). Results showed that land preparation and varieties did not influence the plant population/square meter. The pressing of weed with two times moldboard plow and harrowing was 80.75 % and lines of rice could pressed until 73.47 %. Land preparation with moldboard plow influenced the plant height and tillering capacity. The highest yield was obtained from plot with two times moldboard plow and harrowing (4.56 t/ha) and Kapuas variety (4.17 t/ha). Broadcast method with moldboard plow two times and harrowing seemed to be promising.

0084 WIDIYATI, N.

Sistem pengolahan tanah dan efisiensi pemberian pupuk NPK terhadap pertumbuhan dan hasil jagung. [Soil tillage system and NPK fertilizers application efficiency on the growth and yield of maize]/Widiyati, N.; Fadhly, A.F.; Amir, R.; Momuat, E.O. 5 tables; 12 ref. Summary (En) *Risalah Penelitian Jagung dan Serealia Lain* (Indonesia) ISSN 1410-8259 (2001) v. 5 p. 15-20.

ZEA MAYS; TILLAGE; NPK FERTILIZERS; FERTILIZER APPLICATION; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS; VERTISOLS.

An experiment was conducted to study the effect of soil tillage system and fertilizer application on the growth and maize yield in Bonto-Bonto village, Binamu District, Jeneponto Regency, from December 7, 1999 to March 11, 2000. Soil in the experiment site is Vertisol with heavy clay texture, low N and P content, but high K content. Split-Plot Design with three replications was used. The treatments were consisted of soil tillage systems (no tillage, minimum tillage, and conventional tillage) as main plots, and fertilizer application (no fertilizer, N, P, K, NP, NK, PK, and NPK) as sub plots. The rate of each fertilizer was 120 kg N, 60 kg P_2O_5 and 60 kg K_2O/ha. Result showed that the application of nitrogen significantly increased the growth of maize, as indicated on the higher of plant and ear position. Combination of N and P increased the yield of maize, but combination of N or P and K did not increase the maize yield compared to application of N alone. The highest grain yield was obtained at application of N, P and K combination. Soil tillage systems did not affect growth and yield of maize.

0085 WINARDI.

Penyiapan lahan kering masam pada pola padi gogo-kedelai. Land preparation of dryland acid soils on upland rice-soybean cropping sequence/Winardi (Balai Pengkajian Teknologi Pertanian Sukarami, Padang (Indonesia)). 3 tables; 8 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 137-140.

UPLAND RICE; GLYCINE MAX; CROP MANAGEMENT; TILLAGE; LAND SUITABILITY; DRY FARMING; ACID SOILS; GROWTH; YIELD COMPONENTS.

Study was carried out at Sitiung Experiment Farm, West Sumatra from April to July 1993, to find out the effect of methods of land preparation on growth and yield of soybean grown after upland rice on dryland acid soils (Red Yellow Podzolic). Four land preparation treatments: no-tillage + 3 t/ha of mulch (control): minimum tillage + 3 t/ha of mulch: intensive tillage, without mulch; and intensive tillage + 3 t/ha of mulch were arranged in a Randomized Complete Block Design (RCBD) with four replications. Results showed that minimum tillage + 3 t/ha of mulch increased plant height by 22.30 cm, plant population by 9.35 % filled pod by 13.20 pod/plant, 100-seed weight by 2.80 g, and yield by 752 kg/ha over control.

0086 YUDARFIS.

Cara penyiapan lahan untuk tanaman padi dalam menekan gulma di sawah pasang surut. Methods of land preparation to lowland rice on controlling weeds of tidal wetland/Yudarfis (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Umar, S. 2 tables; 9 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 376-379.

ORYZA SATIVA; LOWLAND; TILLAGE; WEED CONTROL; WETLANDS; GROWTH; YIELDS.

Field experiment was conducted at farmer's Muara Telang, South Sumatra during rainy season 1997/98, to determine an appropriate land preparation method on controlling weeds and growth of tidal wetland rice. Four land preparation methods (moldboard plow and harrowing once, once hoeing and levelling, twice hoeing and levelling and zero tillage applied herbicide and harrowing) were arranged in a Randomized

Complete Block Design with four replications. Results showed that methods of land preparation through moldboard plowing and harrowing significantly induced higher plant height. However, twice hoeings and levelling was able to reduce weed population and increased panicle number per hill. Therefore, farmer's practice (plowing twice followed by levelling) might be a promising method to control weeds and induced optimum growth of tidal wetland rice.

0087 YUFDI, P.

Pengaruh cara pengolahan tanah dan amonium glufosianat terhadap gulma dan tanaman jagung. Effects of tillages and rates of ammonium gluphosianate on weeds and maize crop/Yufdy, P.; Firdausil; Slameto (Loka Pengkajian Teknologi Pertanian Natar, Bandar Lampung (Indonesia)). 5 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 440-443.

ZEA MAYS; TILLAGE; GLUFOSINATE; WEEDS; GROWTH; AGRONOMIC CHARACTERS.

Field experiment was conducted at experimental farm of LPTP Natar during dry season 1997, to determine the effects of tillage systems and rates of gluphosianate herbicide on weed population and growth of maize crop. Three rates of amonium gluphosianate (1, 2, and 3 l/ha Basta) and three tillage systems (zero, intensive, and strip tillages) were arranged in Split Plot Design with three replications. Herbicide rates were assigned as mainplot and tillage system as subplot. Results showed that weed species occupied the area were relatively the same as observed before and after treatments. They were predominated by *Borreria latifolia*, *Croton hirtus*, *Stachytarpheta* and *Mimosa pudica*. However, applying 3 l/ha gluphosianate herbicide one week before intensive tillage improved growth of maize crop.

0088 YUNIAR, E.

Kajian populasi padi gogo dengan beberapa teknis persiapan lahan di pertanaman karet belum menghasilkan. Studies on upland rice population and land preparation techniques in intercropped with young rubber plantation/Yuniar, E. Utomo, I.H. (Institut Pertanian Bogor (Indonesia)) 6 tables; 7 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage]. Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 356-562.

UPLAND RICE; TILLAGE; PLANT POPULATION; INTERCROPPING; RUBBER CROPS; WEEDS; GROWTH; YIELDS.

Study on the influence of crop population (seeding rates) and land preparation of upland rice crop production was carried out at Sukabumi areas planted with rubber plantation of PTP Nusantara VIII from February to July 1997, to evaluate the appropriate upland rice population and tillage system when intercropped with young rubber. The study consisted of two factors, namely land preparations and seeding rates of upland rice. Land preparation consisted of no tillage, minimum tillage, and full tillage, while seeding rates of upland rice were 20, 30, 40, and 50 kg/ha where they were arranged in a Split Plot Design with three replications. Results indicated that most of rice plant characters (plant height, tiller numbers, productive tiller numbers, percentage of filled grain, weight of 100 grains, and rice yield) grown under no-tillage were better than full tillage, seeding rates did not influence all plant characters. Rice plant height and tiller numbers were positively interrelated with seeding rate, while yield of rice and its components were negatively ones. The highest yield was obtained from minimum tillage at seeding rate of 20 kg/ha. Land preparation and seeding rates controlled weed coverages and the best control was found on the treatment of no tillage and 40 kg/ha of seeding rates

0089 YUSNAINI, S.

Olah tanah konservasi jangka panjang: pengaruhnya terhadap aktivitas mikoriza vesikular arbuskular pada tanaman jagung. Long-term conservation tillage: effects on vesicular arbuscular (VA) mycorrhizae activity on corn/Yusnaini, S.; Utomo, M.; Arif, M.A.S.; Niswati, A. (Universitas

Lampung (Indonesia). Fakultas Pertanian) 2 ill., 3 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 423-428.

ZEA MAYS; CONSERVATION TILLAGE; VESICULAR ARBUSCULAR MYCORRHIZAE; NUTRIENT UPTAKE; NITROGEN FERTILIZERS; APPLICATION RATES; YIELDS.

A long term experiment had been started in February 1987 on clay loam soil (Udult) at Politani field, Lampung but observed in November 1996 to February 1997, to determine the influence of long term treatments of various soil tillage systems and N fertilizers dosage on spore number of vesicular arbuscular mycorrhizae fungi, P uptake, and corn yield. Plot size was 4x6 m with four replications. The treatment were arranged in a Completely Randomized Block Design with a 3x3 factorials (tillage systems i.e. intensive tillage, minimum tillage, no tillage; and N fertilizers applied at 0, 100 and 200 kg N/ha). Spore of VA mycorrhizae fungi were observed before planting and before harvesting. Results showed that there was no interaction effect between long-term soil conservation tillage and N fertilizers on all variables. Before planting conservation tillage (minimum tillage and no tillage) significantly affected number of VA mychorrhizae. However, there was no significantly effect before harvesting. Number of VA mycorrhizae was the highest in the no tillage (261.92 approx 75.27 100/g). Number of spores were significantly different between no-tillage and intensive tillage, and there were not significantly different between ninimum tillage (152 approx 21.55 100/g) and intensive tillage (166.75 approx 43.7 100/g). Soil conservation tillage did not affect the yield of corn, but N fertilizers affected the yield of corn. The highest yield of corn was observed at 200 kg N/ha dosage (4.59 Mg/ha)

0090 ZARWAN.
Pengaruh pengolahan tanah dan intercropping padi gogo terhadap gulma. Effect of soil tillage and intercropping upland rice on weeds/Zarwan; Naim, T. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Soenarjo, R.E. 4 tables; 6 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 363-367.

UPLAND RICE; INTERCROPPING; TILLAGE; WEEDS; GROWTH; YIELDS.

Experiment was conducted at Sitiung Research Station, West Sumatra from October 1996 to February 1997, to determine the changes of weed population as affected by different tillage systems and intercropped upland rice with secondary crops. Two soil tillage systems (minimum and conventional tillages) and five intercrops (monoculture rice, rice + maize, rice + soybean, rice + peanut, and rice + cowpea) were arranged in a Split Plot Design and replicated four times. Results showed that rice + peanut intercropping was capable of reducing weed population. This was attributed by crop canopy formation in crop association, particularly under minimum tillage systems.

F08 POLA TANAM DAN SISTEM PENANAMAN

0091 KADEKOH, I.
Pola pertumbuhan kacang tanah (*Arachis hypogaea* L.) dengan jarak tanam bervariasi dalam sistem tumpangsari dengan jagung pada musim kemarau. Growth pattern of peanut (*Arachis hypogaea* L.) with various spacings in intercropping system with maize during dry season/Kadekoh, I. (Universitas Syiah Kuala, Banda Aceh (Indonesia)). 4 ill., 11 ref. Summary (En) *Jurnal Agrista* (Indonesia)) ISSN 1410-3389 (2002) v. 6(1) p. 63-70.

ARACHIS HYPOGAEA; SPACING; INTERCROPPING; ZEA MAYS; GROWTH RATE; ANABOLISM; LEAF AREA.

A reserach was conducted to study the effect of spacing of peanut on net assimilation rate (NAR), specific leaf area (SLA), crop growth rate (CGR), and leaf area index (LAI) in intercropping system with corn during dry season. The experiment was conducted since June till September 2000 in Cikampek, Karawang, West Java. The spacing of peanut consisted of four levels i.e. 40 x 5 cm, 40 x 10 cm, 40 x 15 cm, and 40 x 30 cm. The experiment was laid out in a Randomized Complete Block Design and all treatments were replicated nine times. Results showed that the patterns of growth of peanut in dry season was affected by spacing. NAR and SLA at every ten days of peanut showed cubic patterns with the highest value on spacing of 40 x 30 cm and 40 x 5 cm respectively. The best CGR was on spacing of 40 x 5 cm with cubic pattern, however the wide spacing has linear pattern. LAI at every ten days has linear pattern with the highest value was on spacing 40 x 5 cm. The best growth of peanut in a community was the closest spacing of peanut (40 x 5 cm).

F30 GENETIKA DAN PEMULIAAN TANAMAN

0092 ARDI, A.S.

Uji potensi hasil beberapa jenis tebu (*Saccharum officinarum* L.) lokal Sumatera Barat. Yield potential test of several kinds of West Sumatra local sugar cane (*Saccharum officinarum* L.)/Ardi, A.S. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 10 tables; 6 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p.185-192.

SACCHARUM OFFICINARUM; VARIETIES; GROWTH; CARBOHYDRATES; YIELDS; SUMATRA.

A field experiment to test the yield potential of several kinds of West Sumatra local sugar cane (*Saccharum officinarum* L.) was conducted at Limau Manis Agricultural Experiment Station, Faculty of Agriculture, Andalas University, Padang during the period of December 1999 to June 2000. Treatments were arranged in Randomized Block Design with six treatments and three replications. Data were analysed statistically using F-test and then followed by Duncan's New Multiple Range Test at 5 % level. Several kinds of West Sumatra local sugar cane as treatments were Tebu Gula (ASA 1), Tebu Talang (ASA 2), Tabu Kuning Garis Hijau (ASA 3), Tebu Merah Anggur (ASA 4), Tebu Hitam Besar (ASA 5) and Tebu Hitam Kecil (ASA 6). Results indicated that there were significant differences on vegetative growth such as plant height, number of leaf, length of the longest leaf, width of the widest leaf, number of shoot, stem fresh weight, stem dry weight and sugar yield per hectare. However, sugar content, soluble solid and rendemen were relatively the same. Tebu Merah Anggur (ASA 4) and Tebu Hitam Besar (ASA 5) have the higher yield potential compared to others, indicated by stem fresh weight and sugar yield per hectare.

0093 PIKUKUH, B.

Uji adaptasi calon varietas unggul jagung bersari bebas spesifik lokasi lahan kering [Adaptation of high yielding varieties candidate of self-pollinated corn specific location in dryland]/Pikukuh, B.; Roesmarkam, S.; Handoko; Abu; Balai Pengkajian Teknologi Pertanian Karangploso, Malang (Indonesia). Malang (Indonesia): BPTP Karangploso, 2000: 10 p. 4 tables, 6 ref. Summaries (En, In) .

ZEA MAYS; HIGH YIELDING VARIETIES; OPEN POLLINATION; DRY FARMING; ADAPTATION.

Jagung merupakan komoditas utama yang memiliki arti strategis bagi perekonomian di Indonesia. Untuk itu pemerintah memprogramkan gerakan mandiri padi, kedelai, jagung 2001 (Gema Palagung 2001). Untuk mendapatkan varietas unggul tersebut beberapa tahapan penelitian harus dilalui, salah satunya uji adaptasi calon varietas unggul spesifik lokasi. Penelitian ini bertujuan untuk mendapatkan calon varietas unggul jagung bersari bebas yang adaptif terhadap lingkungan spesifik dan memiliki daya hasil tinggi serta kualitas bijinya bagus. Penelitian dilaksanakan di Desa Talun, Kec. Talun Kab. Blitar pada bulan September hingga Desember 2000. Percobaan menggunakan Rancangan Acak Kelompok dengan empat ulangan. Calon varietas unggul yang diuji sebanyak sembilan calon varietas unggul bersari bebas dengan

pembanding varietas Bisma. Hasil penelitian menunjukkan calon varietas unggul jagung AMATL sangat adaptif di lingkungan spesifik lahan kering dengan potensi hasil (7,87 kg/plot) atau 5,24 ton/ha lebih tinggi 0,89 kg/plot dari pembanding Bisma (6,69 kg/plot) atau 4,46 ton/ha.

0094 PRIYONO.
Frekuensi terbentuknya biji poliembrioni pada beberapa klon kopi robusta (*Coffea canephora*) dan keberhasilannya pada kultur *in vitro*. Polyembryonic seed frequency of robusta coffee (*Coffea canephora*) clones and the success of *in vitro* culture of the embryos/Priyono; Purwadi, B.; Susilo, A.W.; Mawardi, S. (Pusat Penelitian Kopi dan Kakao Indonesia, Jember (Indonesia)). 5 ill., 17 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(3) p. 110-120.

COFFEA CANEPHORA; IN VITRO CULTURE; GERMINABILITY; GROWTH; POLYEMBRYONY; SEED; CLONES .

Salah satu cara untuk mendapatkan tanaman homozigot pada kopi Robusta adalah pemanfaatan biji poliembrioni. Suatu penelitian kultur *in vitro* embrio zigotik asal biji poliembrioni kopi Robusta telah dilakukan di Pusat Penelitian Kopi dan Kakao Indonesia. Tujuan penelitian ini adalah untuk mengetahui frekuensi terjadinya biji poliembrioni dan keberhasilan kultur *in vitro* embrio asal biji poliembrioni beberapa klon kopi Robusta. Percobaan disusun berdasarkan Rancangan Acak Lengkap faktor dengan tiga ulangan. Faktorial klon kopi Robusta terdiri atas delapan aras, yaitu: BP 234, BP 409, BP 534, BP 358, BP 288, BP 42, SA 237 dan BP 308. Faktor ukuran embrio terdiri atas dua aras yaitu embrio kecil dan embrio besar. Hasil penelitan menunjukan bahwa rata-rata terjadinya biji poliembrioni adalah 0,17 %, dengan kisaran 0,04-0,684 % (embrio dua); 0-0,031 % (embrio tiga); dan 0-0,08 % (embrio empat) tergantung pada klon yang diuji. Secara visual salah satu embrio selalu lebih besar daripada yang lain. Daya hidup dan daya kecambah embrio berukuran kecil lebih rendah daripada embrio berukuran besar. Rata-rata daya hidup embrio berukuran kecil dan besar berturut-turut 55,9 % dan 84 %. Rata-rata daya kecambah embrio berukuran kecil dan berturut-turut adalah 60,2 % dan 88 %. Tinggi dan jumlah akar planlet asal embrio berukuran kecil lebih rendah dibandingkan dengan asal embrio berukuran besar. Rata-rata tinggi planlet asal embrio berukuran kecil dan besar berturut-turut adalah 0,9 cm dan 1,5 cm. Rata-rata jumlah akar planlet asal embrio berukuran kecil dan besar berturut-turut adalah 2 dan 3,4. Berdasarkan sifatnya yang lemah pada seluruh parameter yang diamati, maka embrio yang berukuran kecil asal biji poliembrioni diduga bersifat haploid.

0095 RACHMADI, M.
[Phenotypic performance of several peanut genotypes at Jatinangor] Penampilan fenotipik beberapa genotipe kacang tanah di Jatinangor/Rachmadi, M.; Rostini, N.; Carsono, N.; Universitas Padjadjaran, Bandung (Indonesia). Fakultas Pertanian. Bandung (Indonesia): UNPAD, 2000: 22 p. 2 ill., 5 tables; 11 ref. Summaries (En, In). Appendices.

ARACHIS HYPOGAEA; GENOTYPES; GENETIC VARIABILITY; GENETIC INHERITANCE; LEGUMES; SEED WEIGHT; VARIETIES; JAVA.

Tiga puluh tujuh genotipe kacang tanah dievaluasi penampilan fenotipiknya di Jatinangor untuk melihat variabilitasnya, heritabilitasnya dan penampilan beberapa karakter yang lebih baik dibandingkan Lokal Cilengkrang. Percobaan dilakukan mulai bulan April 1999 - Desember 1999 dengan menggunakan Rancangan Acak Kelompok (37 genotipe sebagai perlakuan, diulang dua kali) serta mengamati karakter-karakter: tinggi tanaman (cm), jumlah cabang produktif, jumlah buku subur per tanaman, jumlah polong total per tanaman, jumlah polong isi per tanaman, jumlah polong hampa per tanaman, jumlah biji total per tanaman, bobot 100 biji, bobot biji per tanaman dan bobot biji per petak. Hasil penelitian menunjukkan bahwa variabilitas genetik sepuluh karakter yang diamati adalah sempit sampai luas, variabilitas fenotipiknya luas, dan heritabilitasnya rendah sampai tinggi. Karakter yang memiliki variabilitas genetik luas dengan heritabilitas tinggi adalah jumlah cabang produktif dan jumlah biji total per tanaman. Empat karakter lainnya memiliki variabilitas genetik luas dengan heritabilitas sedang, yaitu jumlah polong isi per tanaman, jumlah polong hampa per tanaman, bobot biji per tanaman, dan bobot biji per petak. Pada pertanaman di Jatinangor diperoleh satu genotipe kacang tanah, yaitu Kelinci yang mempunyai bobot biji per tanaman dan bobot biji per petak lebih tinggi dari Lokal Cilengkrang.

0096 SUHENDI, D.

Kompatibilitas persilangan beberapa klon kakao (*Theobroma cacao* L.). Crossability of cocoa (*Theobroma cacao* L.) clones/Suhendi, D.; Susilo, A.W.; Mawardi, S. (Pusat Penelitian Kopi dan Kakao, Jember (Indonesia)) 2 tables; 8 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(2) p. 85-91.

THEOBROMA CACAO; CLONES; HYBRIDIZATION; CROSS POLLINATION; MATERNAL BEHAVIOUR; FATHERS; DIALLEL CROSSING; SELF COMPATIBILITY.

Penelitian untuk mengetahui kompatibilitas persilangan sembilan klon kakao (*Theobroma cacao* L.) telah dilakukan di KP Kaliwining, Pusat Penelitian Kopi dan Kakao Indonesia pada bulan Mei-November 1996. Persilangan menggunakan rancangan persilangan dialel penuh dengan 10 tanaman setiap kombinasi persilangan. Sembilan klon tetua persilangan tersebut adalah GC 7, ICS 60, SCA 12, NIC 7, ICS 13, NIC 4, UIT 1, TSH 858, dan KEE 2. Bunga untuk persilangan buatan dipilih yang masih kuncup dan dikerodong untuk menghindari kontaminasi serbuk sari liar. Persilangan menggunakan bunga yang telah mekar sempurna dilakukan pada pagi hari sekitar pukul 8.00. Nilai kompatibilitas persilangan dihitung berdasarkan jumlah persilangan jadi dari total bunga yang disilangkan. Hasil penelitian menunjukkan bahwa terdapat perbedaan nyata pengaruh tetua betina (*maternal effect*) dan pengaruh tetua jantan (*paternal effect*) antarklon terhadap kompatibilitas persilangan. Klon KEE 2 menunjukkan pengaruh tetua jantan maupun tetua betina yang secara nyata paling baik dibandingkan delapan klon lainnya. Pengaruh tetua betina secara nyata berbeda antarklon, namun pengaruh tetua jantan tidak. Hal ini menunjukkan bahwa terdapat pengaruh resiprokal terhadap kompatibilitas persilangan. Terdapat tiga macam kompatibilitas persilangan yang terungkap pada penelitian ini, yaitu kompatibel menyerbuk sendiri (*self-compatible*) terjadi pada klon NIC 7, UIT 1, NIC 4, ICS 13 dan Sca 12; kompatibel menyerbuk silang secara umum (*general cross-compatible*) terjadi pada klon KEE 2, TSH 858, dan Sca 12 serta kompatibel menyerbuk silang secara spesifik (*specific cross-compatible*) pada klon GC 7, ICS 60, dan ICS 13.

0097 WAHAB, M.I.

Adaptation research for some promised line of irrigated rice. Uji adaptasi galur-galur harapan padi sawah/Wahab, M.I.; Suwono. Balai Pengkajian Teknologi Pertanian Karangploso, Malang (Indonesia). Malang (Indonesia): BPTP Karangploso, 2002: 7 p. 4 tables, 9 ref. Summaries (En, In)

ORYZA SATIVA; HIGH YIELDING VARIETIES; ADAPTATION; PLANT GROWTH SUBSTANCES; DISEASE RESISTANCE; FLOWERING; GROWTH; YIELDS.

Penelitian ini dilakukan di Kecamatan Pandaan, Kabupaten Pasuruan dari bulan Juli-November 2000 (MK-II) dengan tujuan untuk mengetahui galur-galur padi yang bisa dilepas menjadi varietas yang bisa dikembangkan di daerah sentra produksi padi. Percobaan disusun dalam Rancangan Acak Kelompok dengan 3 ulangan. Perlakuan galur-galur yang diuji adalah Way Apu Buru, Widas, Limboto, Towuti, galur BP 23F-PN-11, BP 342-MR-30-1, IR-60819-34-2-1 (HD-174), IR-59552-21-3-2-2 (HD-176), S-3382-2d-10-2-3, S-3382-2d-6-3-2, S-4325-D-1-2-2-1, S-4424-F-1-1, S-4424-F-2-2-1, Ngale-1. Sebagai pembanding digunakan varietas Membramo dan IR-64. Melihat keragaan pertumbuhan tanaman, ketahanan terhadap penyakit kresek dan hasil GKP per ha, galur yang berpotensi untuk menggantikan varietas IR-64 adalah galur S-4424-F-1-1 dan Ngale-1. Kedua galur tersebut mempunyai umur berbunga 50 % dan umur panen yang hampir sama dengan varietas IR64.

0098 WARDIANA, E.

Penampilan awal beberapa kelapa hibrida hasil persilangan Genjah Hijau Jombang x Dalam Tenga, Bali dan Palu. [Preliminary performance of some hybrid coconuts produced from crossing of Genjah Hijau Jombang x Dalam Tenga, Bali and Palu]/Wardiana, E.; Luntungan, H.T. (Loka Penelitian Polatanam Kelapa Pakuwon, Sukabumi (Indonesia)). 5 tables; 17 ref. Summaries (En, In). *Habitat* (Indonesia) ISSN 0853-5167 (2000) v. 11(112) p. 130-137.

COCOS NUCIFERA; HYBRIDS; CROSSING OVER; VARIETIES; FLOWERING; PRECOCITY; YIELD COMPONENTS; COPRA; PRODUCTION.

Untuk menambah pilihan dan keragaman kelapa unggul bagi program rehabilitasi dan perluasan diperlukan hibrida-hibrida baru yang bisa diperoleh melalui teknik persilangan. Penelitian dilakukan di KP. Pakuwon, Jawa Barat, mulai Oktober 1988 - Maret 1995 yang dirancang dalam Acak Kelompok Lengkap dengan empat ulangan dan enam perlakuan. Keenam perlakuan tersebut terdiri dari kultivar kelapa dari tiga hasil persilangan yang akan diuji yaitu: Genjah Hijau Jombang (GHJ) x Dalam Tenga (DTA), GHJ x Dalam Bali (DBI) dan GHJ x Dalam Palu (DPU), serta tiga kultivar kelapa sebagai kontrol yaitu: Kelapa Hibrida Indonesia 1 (Khina-1), Dalam lokal unggul Pangandaran (DPN), dan Genjah Salak (GSK). Tujuan penelitian ini yaitu untuk mengetahui jumlah daun, umur pembungaan, jumlah seludang, jumlah buah, dan komponen buah serta estimasi produksi kopra. Hasil penelitian menunjukkan bahwa pembentukan jumlah daun GHJ x DTA, GHJ x DBI dan GHJ x DPU memperlihatkan kemampuan yang sama ketiganya mempunyai potensi yang sama dengan Khina-1 dalam hal produksi kopra. Ketiga hasil persilangan tersebut berpotensi untuk dijadikan kultivar kelapa hibrida harapan disamping Khina-1, 2 dan 3.

F60 FISIOLOGI DAN BIOKIMIA TANAMAN

0099 SETIYO, I.E.

Pendugaan laju respirasi dan turnover akar kelapa sawit tipe tenera asal semaian. Estimation of respiration and turnover of DxP oil palm roots/Setiyo, I.E.; Purba, A.; Lamade, E. 1 ill., 2 tables; 20 ref. Summaries (En, In). *Jurnal Penelitian Kelapa Sawit* (Indonesia) ISSN 0853-196X (1999) v. 7(2) p. 71-85.

ELAEIS GUINEENSIS; PLANTING STOCK; SOIL RESPIRATION; RESPIRATION RATE; ROOTS; CARBON CYCLE; ENVIRONMENTAL FACTORS.

Kelangkaan data fisiologi karbon terutama laju respirasi dan turnover akar kelapa sawit bisa menjadi kendala bagi pengembangan model stimulasi pertumbuhan dan hasil secara luas. Salah satu metode penentuan besarnya kedua proses tersebut adalah dengan menganalisis aliran karbondioksida (CO_2) dari sistem tanah atau lazim disebut respirasi tanah. Dengan memadukan teknik pengukuran di lapangan dan di laboratorium dapat diperkirakan laju respirasi akar. Kemudian, dengan model neraca ekosistem karbon diduga jumlah alokasi karbon untuk turnover akar. Percobaan disusun dalam Rancangan Acak Kelompok dua faktor: bahan tanaman (2 taraf) dan letak pengukuran (4 taraf). Bahan tanaman yang digunakan berumur 9 tahun sesudah tanam. Hasil percobaan menunjukkan bahwa peubah respirasi tanah dan respirasi akar berbeda nyata hanya menurut perbedaan letak pengukuran. Pada tanggal pengamatan tertentu ditemukan hubungan linier positif dan nyata antara suhu tanah dan respirasi tanah. Ada kecenderungan laju respirasi akar tanaman DxP La Me lebih tinggi daripada Bah Jambi. Karbon total yang dikeluarkan dari permukaan tanah diduga antara 49,1-50,8 ton CO_2/ha th/1, dengan proporsi untuk respirasi dan turnover akar berturut-turut 0,60-0,90 dan 0,01-0,27.

0100 UTOMO, S.D.

Kandungan klorofil daun dan kontribusinya pada pertumbuhan dan produksi lima varietas cabai merah. Chlorophyll content and its contribution on growth and yield of red pepper/Utomo, S.D. (Universitas Lampung, Bandar Lampung (Indonesia). Fakultas Pertanian). 1 table; 9 ref. Summary (En) *Jurnal Agrista* (Indonesia) ISSN 1410-3389 (2001) v. 5(3) p. 252-259.

CAPSICUM ANNUUM; CHLOROPHYLLS; GROWTH; YIELDS; PLANT RESPONSE.

Chlorophyll is an internal factor affecting the efficiency of photosinthesis of red pepper. Because the content of chlorophyll is relatively easy to be quantified at the early stage of growth, there should be possible to select high yielding varieties based on chlorophyll content. The objective of this study was to determine the chlorophyll content, correlation and contribution of chlorophyll content to growth and yield of red pepper. Experiment was conducted in plastic house in 1999, arranged in Completely Randomized Block Design with four replications. The treatment was varieties of red pepper, i.e. Salero. Laris,

Marathon, Gada, and local. Variables were observed at 45, 60, 75, 90, 105, and 120 days after planting. The chlorophyll content of varieties Salero, Laris and local were higher than that of Marathon. However the efficiency of net photosynthesis and yield of Marathon was highest or tend to be highest among varieties tested. The chlorophyll content of leaves was positively correlated with number of leaves per plant, plant height, and number of branches per plant at 90 days after planting (DAP). The chlorophyll content contributed positively to plant height and number of branches. It can be concluded that chlorophyll content is not a good marker for indirect selection of high yielding varieties of red pepper.

0101 YAHYA, S.

Evaluasi karakter fisiologi kedelai toleran aluminium hasil penapisan secara *in vitro*. Evaluation of soybean physiological character of aluminium tolerant by *in vitro* screening/Yahya, S.; Sudarsono (Institut Pertanian Bogor (Indonesia). Fakultas Pertanian); Sirait, B.A. 5 tables; 13 ref. Summaries (En, In). Appendix *Jurnal Penelitian Pertanian* (Indonesia) ISSN 0152-1197 (Jun 2001) v. 20(1) p. 40-47.

GLYCINE MAX; IN VITRO CULTURE; VARIETY TRIALS; ALUMINIUM; RESISTANCE TO INJURIOUS FACTORS; STRESS; GROWTH.

Penelitian ini bertujuan untuk mengetahui karakter fisiologi kedelai toleran Al beberapa galur kedelai yang mengalami cekaman Al pada kultur in vitro. Penelitian ini dilakukan di Laboratorium Kultur Jaringan Fakultas Pertanian IPB Agustus 1999 - Februari 2000. Berdasarkan percobaan lapang sebelumnya, galur Yellow Biloxy, Slamet, Sindoro dan Willis digolongkan toleran Al, Arksoy moderat sedangkan galur Lumut peka Al. Setiap tunas dari masing-masing galur dipisahkan lalu disubkultur pada media yang mengandung konsentrasi Al sesuai perlakuan (pH 4.0), IBA 1.0 ppm, NAA 0.05 ppm dan pengamatan dilakukan pada umur 21 hari. Percobaan menggunakan Rancangan Acak Lengkap-Faktorial, faktor pertama adalah enam jenis galur yang diekspos ke faktor kedua yang terdiri dari tiga taraf $AICI_3$ (ppm) yaitu 300, 400 dan 500. Hasil penelitian menunjukkan bahwa galur toleran Al masih dapat tumbuh dan berakar hingga 500 ppm Al, sedang galur moderat dan peka Al tumbuh dan berakar masing-masing hingga 400 dan 300 ppm Al. Arksoy memiliki peningkatan pH media tertinggi diikuti galur Lumut tetapi kedua galur tidak berakar pada 500 ppm Al secara *in vitro*. Hasil juga menunjukkan bahwa ABA akar, kadar Al daun, asam sitrat, asam malat, protein total dan uji hematoksilin dapat digunakan sebagai karakter fisiologi yang dapat membedakan kedelai toleran dan peka Al.

F62 FISIOLOGI TANAMAN - PERTUMBUHAN DAN PERKEMBANGAN

0102 HUSNI, H.

Pengaruh tingkat kematangan buah melinjo dan penundaan pengolahan terhadap mutu emping yang dihasilkan. The influence of the maturity level and the postponing time before processing of melinjo fruit on quality of "emping" produced/Husni, H. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 8 tables; 5 ref. Summary (En). *Jurnal Penelitian Andalas* (Indonesia) (2000) v. 12(32) p. 85-97.

GNETUM GNEMON; FRUIT; MATURITY; LENGTH; PROCESSING; QUALITY; MOISTURE CONTENT; ASH CONTENT; PROTEIN CONTENT; ORGANOLEPTIC PROPERTIES;YIELDS.

The research was carried out to determine the best level of maturity of melinjo fruit and the length of the postponing time before processing on quality of "emping" produced. The design of the experiment was Randomized Completely Design (RCD) in factorial 3 x 4 with 2 replications. The data was analyzed statistically and continued with DNMRT (Duncan's New Multiple Range Test) in 5 % significant level. The first factor was maturity level of melinjo fruit consisted of 3 levels of maturity, i.e. fresh melinjo (green fruit), ripe melinjo (yellowish fruit), and overripe melinjo (reddish fruit). The second factor were postponing time before processing consisted of 4 levels: 1 week, 2 weeks, 3 weeks, and 4 weeks postponing time. Observations were done to the percentage of the non-complete emping, moisture content, ash content, protein content, the total colony of fungi, organoleptic test on color, appearance, taste, flavor,

and the crispy. The result indicated that the interaction between melinjo fruit and the length of postponing time affected the non-complete emping, moisture content, ash content, protein content, the total colony of fungi, organoleptic test on color, appearance, taste, flavor, and the crispy. Organoleptic test showed that only yellowish and reddish fruit produced the good quality of emping. The combination of treatment A3B2 (emping produced from reddish fruit and 2 weeks postponing time) showed the best result, with non-complete emping percentage of 0.39 %, moisture content 11 %, ash content 2.24 %, protein content 16.26 %, total colony of fungi 9.5 x 10^2 colony/g, the color of raw emping was yellow, the color of fried emping was whitish yellow, the appearance of raw emping was flat and shining, with specific taste and flavor and crispy.

0103 SURATA, I.K.
Pengaruh diameter batang stump terhadap pertumbuhan cendana (*Santalum album* L.) di lapangan. Effect of stump stem diameter on growth of sandal wood (*Santalum album* L.) in the field/Surata, I.K. 3 ill., 2 tables; 8 ref. Summary (En). *Buletin Penelitian Kehutanan Kupang* (Indonesia) ISSN 1410-1181 (1998) v. 3(1) p. 34-41.

SANTALUM ALBUM; STUMPS; STEMS; DIAMETER; GROWTH; SHOOTS; SURVIVAL.

The experiment was under taken to determine the effects of stump stem diameter on growth of sandalwood in the field (planting site). The experiment was laid out in Completely Block Design consisting of 3 stem diameter of stump i.e.: 0.20-0.30; 0.30-0.40 and 0.40-0.50 cm with three replicates of the age of one year in the nursery. The stump seedlings were planted in the field with secondary host, *Acacia villosa*. The stump were planted on the land of the *Eucalyptus alba* stand. There were 20 seedlings per plot at 2 x 2 m spacing. The responses were measured on stem height, stem diameter, survival and total shoot. The result showed that the stem diameter of stump 0.40-0.50 cm and the 1.5 years old seedling was the best growth in the field. The planted stumps had maximum survival rate of 30.56 %, height 70.68 cm, and stem diameter 0.740 cm.

H10 HAMA TANAMAN

0104 ARNETI.
Pengaruh waktu tanam *Crotalaria* spp sebagai tanaman perangkap untuk pengendalian hama penggerek polong kacang panjang. Effects of planting time of *Crotalaria* spp as trap crop for controlling yardlong bean pod borer/Arneti (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 2 ill., 3 tables; 21 ref. Summary (En) *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2002) v. 10(1) p. 45-50.

VIGNA UNGUICULATA SESQUIPEDALIS; PLANTING DATE; PEST CONTROL; CROTALARIA; TRAP CROPS; MARUCA VITRATA; POPULATION DENSITY; SEED DAMAGING INSECTS; HARVESTING.

Effects of planting time of *Crotalaria* spp as trap crop for controlling yardlong bean pod borer was conducted in Limau Manis, Padang and the Laboratory of Plant Pest and Disease Faculty of Agriculture Andalas University from March to October 2001. The aim of this experiment was to determine the potential of Crotalaria as trap crop for controlling yardlong bean pod borer. The experiment consisted of four treatments and three replications. Treatments were A) Crotalaria planted 20 days ealier than yardlong bean, B) Crotalaria planted 30 days earlier than yardlong bean, C) Crotalaria planted 40 days earlier than yardlong bean, and D) Yardlong bean planted without trap crop. Treatments were arranged in Randomized Block Design. Results showed that the kind of yardlong bean pod borer was *Maruca testutalis* and the parasitoid were absent. The larva population of *M. testulalis* in yardlong bean planted with Crotalaria was lower than yardlong bean planted without Crotalaria. The population of *M. testulalis* was lowest at Crotalaria planted 40 days earlier than yardlong bean. The damage of yardlong bean decreased. The treatments have no influence on yield of yardlong bean.

0105 SETIAWATI, W.

Keanekaragaman OPT dan musuh alaminya pada komunitas sayuran (Cruciferae dan Solanaceae) di Jawa Barat dan teknik mass rearing OPT dan musuh alaminya. Pests and natural enemies biodiversity on vegetables communities (Cruciferae and Solanaceae) and mass rearing technique of pests and natural enemies/Setiawati, W.; Laksanawati H.D.; Sulastrini, I. (Balai Penelitian Tanaman Sayuran, Lembang (Indonesia)). 5 ill., 3 tables; 5 ref. Summaries (En, In). [Report of research results of Research Institute for Vegetable Crops during 2001: Book II] Kumpulan laporan hasil penelitian Balai Penelitian Sayuran (Balitsa) Lembang, 2001: Buku II/Balai Penelitian Tanaman Sayuran, Lembang, Bandung (Indonesia). Lembang-Bandung (Indonesia): BALITSA, 2001: (pt. 7) p. 1-13.

VEGETABLE CROPS; BRASSICACEAE; SOLANACEAE; NATURAL ENEMIES; BIODIVERSITY; MASS REARING; BIOLOGICAL CONTROL AGENTS; SURVEYS.

Tujuan penelitian ini adalah untuk mengetahui keanekaragaman musuh alami yang terdapat pada komunitas sayuran dan dilanjutkan dengan mencari metode mass rearing yang paling efektif, efisien dan menghasilkan jumlah musuh alami yang berlimpah. Penelitian terdiri dari dua kegiatan, yang pertama adalah survey musuh alami parasitoid *E. argenteopilosus* dilakukan di sentra produksi sayuran di Jawa Barat yaitu di Kabupaten Bandung, Garut, Majalengka dan Cianjur. Sedangkan percobaan kedua yaitu teknik mass rearing parasitoid *E. argenteopilosus*. Penelitian ini dilakukan di rumah kasa Balai Penelitian Tanaman Sayuran Lembang dari bulan Juni 2001 - Nopember 2001. Hasil penelitian menunjukkan bahwa parasitoid *E. argenteopilosus* dapat ditemukan di berbagai lokasi pengamatan. Tingkat parasitasi berkisar antara 18.00-46.00 %. Tanaman inang yang paling terpilih adalah brokoli dan inang yang paling disukai adalah *H. armigera*. Predator yang paling dominan ditemukan di lokasi pengamatan adalah *Rhinocoris* spp*, Sycanus* spp*, Coranus* spp*, Cazira* spp, dan *Enagoras plagiatus*. Predator tersebut banyak ditemukan pada tanaman jagung dengan tingkat predasi berkisar antara 12-23 % dan pada tanaman tembakau dengan tingkat predasi sebesar 27 %. Parasitoid *E. argenteopilosus* menunjukkan tanggap fungsional tipe-2 baik pada inang *H. armigera, S. litura ataupun C. binotalis*. Parasitoid *E. argenteopilosus* memungkinkan untuk dibiakkan secara massal pada inang *H. armigera, C. binotalis* ataupun *S. litura* dan pada tanaman brokoli. Parasitoid *E. argenteopilosus* dan predator Reduviidae mempunyai potensi untuk dikembangkan sebagai musuh alami hama sayuran.

0106 SETIAWATI, W.

Teknik pengendalian OPT secara kultur teknis pada tanaman sayuran. Control of pests and diseases using cultural practice on vegetables/Setiawati, W.; Sulastrini, I. (Balai Penelitian Tanaman Sayuran, Lembang (Indonesia)) 6 ill., 10 tables; 22 ref. Summaries (En, In). [Report of research results of Research Institute for Vegetable Crops during 2001: Book II] Kumpulan laporan hasil penelitian Balai Penelitian Sayuran (Balitsa) Lembang, 2001: Buku II/Balai Penelitian Tanaman Sayuran, Lembang, Bandung (Indonesia). Lembang-Bandung (Indonesia): BALITSA, 2001: (pt. 14) p. 1-19.

VEGETABLE CROPS; PESTS OF PLANTS; PLANT DISEASES; CULTURAL CONTROL; LOW INPUT AGRICULTURE; COST ANALYSIS.

Tujuan penelitian ini adalah untuk mendapatkan cara pengendalian OPT dalam sistem usahatani LEISA pada tanaman cabai yaitu dengan memadukan berbagai cara seperti pengolahan tanah, penggunaan mulsa, tumpangsari dan penggunaan biopestisida serta pengaruhnya terhadap lingkungan hayati dan kandungan residu pestisida pada hasil panen. Penelitian dilakukan di kebun percobaan Balitsa Lembang sejak bulan Mei - bulan September 2001. Rancangan percobaan yang digunakan adalah Rancangan Petak Berpasangan dengan 10 ulangan. Hasil penelitian menunjukkan bahwa pengendalian OPT pada sistem usahatani LEISA dapat meningkatkan pertumbuhan tanaman cabai (tinggi dan lebar kanopi). Pengendalian OPT pada sistem usahatani LEISA dapat menekan populasi dan kerusakan tanaman yang diakibatkan oleh OPT pada tanaman kubis, buncis dan cabai. Penggunaan mulsa plastik dapat mengurangi populasi artropoda yang terdapat di atas permukaan tanah sebesar 62,70 %, kelimpahan predator berkurang sebesar 70,14 % tetapi dapat meningkatkan artropoda yang terdapat di dalam tanah sebesar 2.17 kali dan meningkatkan populasi mikroba agens hayati seperti *Trichoderma* sp. dan *Bacillus* sp. Pengendalian OPT pada sistem usahatani LEISA dapat meningkatkan hasil panen cabai sebesar 9,18 x dengan nilai jual

sebesar Rp.30.565.000,- Penggunaan insektisida secara bergantian antara Agonal dan Spinosad dapat mengurangi kadar residu pada tanah dan hasil panen cabai, kubis dan buncis serta aman untuk dikonsumsi.

0107 SUDJARWO.
Dampak penerapan pengendalian hama terpadu ulat *Plutella xylostella* L. terhadap populasi dan serangan *Meloidogyne* spp. pada beberapa tanaman sayuran. [Impact of integrated pest control of *Plutella xylostella* L. on population and attack of *Meloidogyne* spp. on some vegetables]/Sudjarwo; Herminanto (Unversitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian). 2 ill., 3 tables; 6 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 437-443.

VEGETABLE CROPS; PEST CONTROL; INTEGRATED CONTROL; PLUTELLA XYLOSTELLA; MELOIDOGYNE.

Penelitian tentang dampak penerapan Pengendalian Hama Terpadu (PHT) ulat *Plutella xylostella* L. terhadap populasi dan serangan *Meloidogyne* spp. pada beberapa tanaman sayuran telah dilakukan di Desa Kutabawa, Kecamatan Karangreja, Kabupaten Purbalingga. Peneliitan dilaksanakan mulai bulan Oktober 1998 - Maret 1999. Rancangan percobaan yang digunakan adalah Rancangan Petak Terbagi dengan Rancangan Acak Kelompok sebagai rancangan dasar. Perlakuan utama adalah PHT yang terdiri dari: P0 = tanpa PHT dan P1 = penerapan PHT. Anak perlakuan berupa jenis tanaman inang, terdiri dari T1 = tanaman kubis, T2 = tanaman petsai, dan T3 = tanaman caisin. Tiap perlakuan diulang 4 kali. Variabel yang diamati antara lain: populasi dan serangan Nematoda Bengkak Akar (NPA) *Meloidogyne* spp. dan hasil. Hasil penelitan menunjukkan bahwa PHT tidak nyata mempengaruhi populasi dan serangan NPA dan hasil. Jenis tanaman inang berpengaruh sangat nyata terhadap populasi dan serangan NPA dan hasil. Kombinasi antara PHT dan jenis tanaman sangat nyata berpengaruh terhadap populasi NPA dalam akar.

0108 SUPRIYONO.
Penelitian pestisida nabati untuk pengendalian nematoda puru akar pada tanaman tembakau. [Research of botanical pesticide to control root nematode on tobacco]/Supriyono; Dalmadiyo, G. (Balai Penelitian Tembakau dan Tanaman Serat, Malang (Indonesia)). 1 table; 26 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 647-625.

NICOTIANA TABACUM; MELOIDOGYNE; BOTANICAL PESTICIDES; AZADIRACHTA INDICA; EUGENIA.

Penelitan dilakukan di Laboratorium Fitopatologi, Balittas, Malang, mulai bulan Agustus 1997 - bulan Maret 1998. Penelitian bertujuan untuk mengetahui pengaruh konsentrasi dan waktu perlakuan pestisida nabati terhadap patogen nematoda puru akar. Percobaan disusun dalam Rancangan Acak Kelompok dengan tiga ulangan, yang terdiri dari satu unit percobaan yaitu 1) kontrol, 2) serbuk cengkeh 10 g 1 MST (minggu sebelum tanam), 3) serbuk cengkeh 10 g 2 MST, 4) serbuk cengkeh 10 g 3 MST, 5) serbuk daun mimba 40 g 1 MST, 6) serbuk daun mimba 40 g 2 MST, 7) serbuk daun mimba 40 g 3 MST, 8) serbuk biji jarak 10 g 1 MST, 9) serbuk biji jarak 10 g 2 MST, 10) serbuk biji jarak 10 g 3 MST, 11) serbuk tagetes 20 g 1 MST, 12) serbuk tagetes 20 g 2 MST, 13) serbuk tagetes 20 g 3 MST. Pengamatan dilakukan pada umur 30 dan 60 hari setelah tanam. Hasilnya menunjukkan bahwa hanya pestisida nabati yang berasal dari daun mimba dalam bentuk serbuk dengan konsentrasi 40 g per polibag yang cukup efektif menekan populasi nematoda puru akar.

0109 TANDIABANG, J.
Penggunaan cendawan *Metarrhizium anisopliae* untuk pengendalian wereng jagung *Peregrinus maidis* Ashm.. Utilization of *Metarrhizium anisopliae* fungi to control maize planthopper *Peregrinus maidis*/Tandiabang, J.; Yasin, M. (Balai Penelitian Tanaman Jagung dan Serealia Lain, Maros (Indonesia)) 1 ill., 1 table; 9 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 248-251.

ZEA MAYS; PEREGRINUS MAIDIS; PEST CONTROL; MORTALITY; METARHIZIUM ANISOPLIAE.

An experiment on the utilization of *Metarrhizium anisopliae* fungi in controlling maize planthopper (*Peregrinus maidis*) was conducted at green house of RIMC (Research Institute for Maize and Other Cereals) in 2000. The purpose of the experiment was to evaluate the ability of *M. anisopliae* fungi to control maize planthopper. The treatment consisted of five concentrations of conidia of *M. anisopliae* fungi: 2,5 x 10^8 conidia/ml, 2,5 x 10^7 conidia/ml, 2,5 x 10^6 conidia/ml, 2,5 x 10^5 conidia/ml, and 2,5 x 10^4 conidia/ml. Ten of new emerged adults of maize planthopper were released to mylar caged with one month old of corn plants and sprayed with each treatment above. The experiment was arranged in Randomized Block Design with four replications. The result showed that within three days after conidia application, half of the maize planthopper population decreased. Higher mortality (90 %) was achieved at five days after inoculation with the conidia concentration of 2,5 x 10^7 conidia/ml.

0110 YASIN, M.
Uji keefektifan berbagai konsentrasi CPV (Reoviridae: Cypovirus) terhadap larva penggerek jagung *Ostrinia furnacalis* Guinee. Effectiveness trial on the concentrations of CPV (Reoviridae: Cypovirus) to corn borer *Ostrinia furnacalis* Guinee larvae/Yasin, M.; Syamsuddin, M.Y. (Balai Penelitian Tanaman Jagung dan Serealia Lain, Maros (Indonesia)) 2 tables; 14 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 210-212.

ZEA MAYS; OSTRINIA FURNACALIS; REOVIRIDAE; NATURAL ENEMIES; BIOLOGICAL CONTROL; LARVAE; MORTALITY.

Corn borer (*Ostrinia furnacalis*) is a major insect pest on maize crop which may result in yield loss up to 34 %. Cytoplasmic polyhedrosis virus (CPV), one of the natural enemies is considered prospective in controlling the insect. An experiment was carried out at Entomology Laboratory of Research Institute for Maize and Other Cereals (RIMOC) in 1999 to examine the effect of CPV to the larvae of *O. furnacalis*. A Completely Randomized Design with three replications was used to arrange six concentrations of CPV. There was significant effect of CPV on mortality of larvae of *O. furnacalis*. The results showed that increasing concentration of CPV from 3,7 x 10^7 PIB/ml to 13,2 x 10^7 PIB/ml increased mortality rate of *O. furnacalis* from 31 % to 90 %.

H20 PENYAKIT TANAMAN

0111 CHATRI, M.
Pemanfaatan ekstrak daun alpokat (*Persea gratissima* Gaertn.) untuk menekan pertumbuhan bakteri *Pseudomonas syringae* pv. *glycinea* secara *in vitro*. The use of avocado leaves extract (*Persea gratissima* Gaertn) to suppress the growth of bacteria *Pseudomonas syringae* pv. *glycinea* with in vitro/Chatri, M.; Hasan, Y.; Des, M. (Universitas Negeri Padang (Indonesia). Fakultas Matematika dan Ilmu Pengetahuan Alam) 1 table; 22 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 217-220.

GLYCINE MAX; PERSEA AMERICANA; LEAVES; PLANT EXTRACTS; PSEUDOMONAS SYRINGAE; GROWTH; INHIBITION.

The study of avocado leaves extract (*Persea gratissima* Gaertn.) to suppress the growth of bacteria *Pseudomonas syringae* pv. *glycinea* (Psg) in vitro was carried out from September to December 1999, at

Biology Laboratory, Faculty of Mathematics and Natural Science, University of Padang. This experiment used Completely Randomized Design (CDR) with six treatments, as follow: without avocado leaves extract (30 %, 40 %, 50 %, 60 % and 70 %). The result indicated that paper with 30 % of avocado leave extract did not form barrier zone. That mean this concentration could not suppress the growth of Psg. The application of 40 % and 50 % showed barrier zone, but did not exactly differ with control. The application of 60 % and 70 % showed barrier zone (1,375 mm) and exactly different with control.

0112 HADIWIYONO.
Pengaruh perlakuan stek batang dengan ekstrak bawang-bawangan terhadap intensitas busuk batang panili (*Fusarium oxysporum* f.sp. *vanillae* Schl.) di pembibitan. [Effect of stem cuttings treatment using onion extracts on vanilla stem blight (*Fusarium oxysporum* f.sp. *vanillae* Schl.) intensity in nurseries]/Hadiwiyono (Universitas Sebelas Maret, Surakarta (Indonesia). Fakultas Pertanian). 3 tables; 10 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytophatology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 561-568.

VANILLA PLANIFOLIA; ALLIACEAE; EXTRACTS; BOTANICAL PESTICIDES; SOAKING; FUSARIUM OXYSPORUM; SEEDLINGS; PESTICIDAL PROPERTIES.

Tujuan penelitian ini adalah untuk mengkaji sifat fungisidal ekstrak umbi dan daun beberapa jenis bawang-bawangan terhadap *Fusarium oxysporum* f.sp. *vanillae* in vitro dan menguji kemangkusan ekstrak bawang-bawangan tersebut untuk mengendalikan penyakit busuk batang panili di pembibitan. Percobaan menggunakan Rancangan Lengkap dengan 5 ulangan untuk pengujian in vitro dan 3 ulangan untuk pengujian dalam rumah plastik. Sebagai perlakuan adalah ekstrak umbi atau daun bawang putih, bawang merah, bawang bombay, dan bawang daun. Variabel yang diamati adalah tase hambatan pertumbuhan patogen, laju pertumbuhan patogen, dan hambatan 50 % (ID50) untuk pengujian in vitro, dan insiden penyakit serta keparahan penyakit busuk batang panili untuk pengujian dalam rumah plastik. Hasil percobaan menunjukkan bahwa ekstrak bawang-bawangan bersifat fungisidal terhadap jamur busuk batang panili, *F. oxysporum* f.sp. *vanillae* dan perendaman dengan dosis tertentu mampu menekan intensitas penyakit busuk batang panili (*F. oxysporum* f.sp. *vanillae*) di pembibitan panili.

0113 HANDYATI, W.
Pengendalian penyakit sigatoka (*Mycosphaerella musicola*) dengan sanitasi dan kimiawi. [Control of sigatoka (*Mycosphaerella musicola*) using sanitation and chemical methods]/Handyati, W.; Suhardi; Sihombing, D.; Muyana, R.; Saefulloh, A. (Instalasi Penelitian Tanaman Hias, Segunung-Cianjur (Indonesia)). 4 tables; 7 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Purwokerto (Indonesia): UNSOED, 2000: p. 761-767.

MUSA PARADISIACA; LEAVES; MYCOSPHAERELLA MUSICOLA; DISEASE CONTROL; HYGIENE; CHEMICAL CONTROL.

Sigatoka adalah penyakit pada daun pisang yang disebabkan oleh jamur *Mycospharella musicola*. Penelitian pada sigatoka telah dilakukan di Segunung (Jawa Barat), mulai Januari - Juli 1997 selama masa pertumbuhan vegetatif. Tujuan penelitian ini adalah untuk mendapatkan cara pengendalian sigatoka yang efektif. Percobaan menggunakan Rancangan Petak Terpisah. Sebagai petak utama adalah perlakuan sanitasi, dan tanpa sanitasi. Sedangkan anak petak adalah (1) Kontrol, (2) aplikasi Fenbukonazol, (3) Klorotalonil, (4) Oli Mesran 40 + Fenbokonazol, (5) Oli Mesran 40 + Klorotalonil. Hasil yang didapat adalah pemangkasan daun dapat menekan Sigatoka sebesar 8.98 % (Maret); 21.79 % (April); 25,81 %

(Maret); 22.68 % (Juni). Diantara bahan kimia yang paling baik dapat menekan serangan sigatoka adalah campuran oli + klorotalonil yang diaplikasikan 2 minggu sekali.

0114 MANSYURDIN.
Induksi ketahanan sistemik melalui daun pada tanaman cabai keriting terhadap penyakit antraknosa. Induction of systemic resistance through leaves in red chili pepper against anthracnose disease/Mansyurdin; Dahlan, S.; Yanti, Y. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 3 tables; 14 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 213-216.

CAPSICUM ANNUUM; ANTHRACNOSIS; PESTICIDES; FOLIAR APPLICATION; SYSTEMIC ACTION; DISEASE RESISTANCE.

Systemic resistance in red chili pepper (*Capsicum annuum*) to anthracnosis disease was induced by pathogen (*Colletotrichum capsici*) and K_3PO_4 compound through leaves on seedling, early flowering and early fruiting phases. The research was carried out in green house of Department of Biology, Faculty of Mathematics and Natural Sciences, Andalas University Padang from October 1999 to March 2000. The treatments were designed by a Completely Randomized Design in factorial with three replications. Intensity of disease and resistant criteria of plant were accounted every harvesting for two inoculations. The results showed that inductor of pathogen with induction time at early flowered phase is the best of treatment among other treatments. By the treatment, intensity of disease after first inoculation was suppressed to 6,25 % (first harvest) and 3,33 % (third harvest). Resistant criteria of the treatment was increased to more resistant (first harvest) and resistant (third harvest). After second inoculation, resistant criteria on first harvest by the treatment return to more resistant. So summarized that inductor of pathogen with induction on early flowered phase can increase resistant criteria up to more resistant.

0115 MARTOSUPONO, M.
Fungisida hayati *Trichoderma koningii* dan belerang untuk pengendalian penyakit akar merah anggur (*Ganoderma pseudoferreum*) pada tanaman teh. [Biological fungicide of *Trichoderma koningii* and sulphur for controlling *Ganoderma pseudoferreum* disease on tea plantation]/ Martosupono, M.; Isdiyanto (Pusat Penelitian Teh dan Kina Gambung, Bandung (Indonesia)). 5 tables; 14 ref. Summary (In). [Proceedings of the Supporting Papers of National Seminar on Biological Control] Prosiding Makalah Pendukung Seminar Nasional Pengendalian Hayati/ Mangoendihardjo, S.; Wagiman, F.X.; Mardihusodo, S.J. (eds.); Universitas Gadjah Mada, Yogyakarta (Indonesia). Yogyakarta (Indonesia): UGM, 1997: p. 17-21.

CAMELLIA SINENSIS; PLANT DISEASES; GANODERMA; FUNGICIDES; BIOLOGICAL CONTROL; TRICHODERMA KONINGII; SULPHUR; SOIL PH.

Penelitian pengaruh *Trichoderma koningii* sebagai fungisida hayati dan belerang untuk pengendalian penyakit akar merah anggur (*Ganoderma pseudoferreum*) pada tanaman teh telah dilakukan di lapangan sejak bulan Maret sampai dengan Desember 1995. Penelitian menggunakan Rancangan Acak Kelompok, dengan 20 perlakuan kombinasi, 4 perlakuan serbuk belerang 0, 5; 10; 15 dan 20 g/0,5 m^3 tanah, dikombinasikan dengan *T. koningii* 0, 5, 10, 15 dan 20 g/0,50 m^3 tanah. *T. koningii* yang digunakan dalam percobaan mengandung 5 x 10^6 spora/g. Hasil penelitian menunjukkan bahwa pengendalian penyakit akar merah anggur dengan 20 g belerang/0,50 m^3 tanah dan 15-20 g *T. koningii*/0,50 m^3 tanah memberikan hasil yang terbaik dalam mengendalikan penyakit akar merah anggur karena belerang dapat menurunkan pH tanah yang dapat mendorong pertumbuhan *T. koningii*. Dapat disimpulkan bahwa *T. koningii* dapat dipakai sebagai fungisida hayati untuk mengendalikan penyakit akar merah anggur pada tanaman teh

0116 MUJOKO, T.
Pengaruh pemberian effective microorganism 4 terhadap patogen tular tanah. [Effect of effective microorganism 4 (EM-4) on soil borne pathogen]/Mujoko, T.; Djajati (Universitas Pembangunan Nasional "Veteran" Jawa Timur (Indonesia). Fakultas Pertanian). 3 tables; 7 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology

Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 431-436.

LYCOPERSICON ESCULENTUM; LACTUCA SATIVA; RHIZOCTONIA; MICROORGANISMS; PATHOGENS; FUSARIUM.

Penelitian bertujuan untuk mengetahui pengaruh pemberian "Effective Microorganism-4" (EM-4) terhadap jamur patogen tular tanah. Penelitian terdiri dari dua percobaan yaitu terhadap jamur *Fusarium oxysporum* pada tanaman tomat dan terhadap jamur *Rhizoctonia* sp. pada tanaman selada. Penelitian menggunakan Rancangan Acak Lengkap dengan 3 (tiga) perlakuan konsentrasi EM-4 yaitu 5 ml/l, 10 ml/l, dan 15 ml/l air. Hasil penelitian menunjukkan bahwa konsentrasi EM-4 10 ml/l air mampu mengurangi intensitas serangan *Fusarium oxysporum* 13,33 % pada tanaman tomat lebih rendah dibandingkan dengan kontrol 56,96 % atau dapat dikatakan serangan *Fusarium oxysporum* berkurang 43,63 % Effective microorganism-4 juga mampu memperpanjang masa inkubasi, meningkatkan jumlah bunga dan buah tanaman tomat. Namun demikian EM-4 tidak berpengaruh nyata terhadap jamur *Rhizoctonia* sp. pada tanaman selada.

0117 MUKHLIS.
Potensi berbagai ekstrak tumbuhan dalam pengendalian penyakit blas pada padi. [Potential of some plant extracts on blast disease control in rice]/Mukhlis (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 1 table; 6 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 227-231.

ORYZA SATIVA; PYRICULARIA ORYZAE; PLANT EXTRACTS; BOTANICAL PESTICIDES.

Penelitian ini bertujuan untuk mengkaji penggunaan ekstrak tumbuhan yang dapat dijadikan fungisida nabati dalam mengendalikan penyakit blas pada padi. Penelitian dilaksanakan di laboratorium dan rumah kaca Balittra, Banjarbaru, pada bulan Agustus-Nopember 1999. Bahan yang diuji adalah: daun sirih (*Piper betle*), daun lada (*Piper nigrum*), rimpang lengkuas (*Alpinia galanga*), daun sirsak (*Annona muricata*), daun kenikir (*Tagetes eracta*), daun "gulinggang" (*Cassia alata*), daun jambu biji (*Psidium guajava*) dan daun kamboja (*Plumeria acuminata*). Rancangan yang digunakan adalah RAL, 3 ulangan. Pada percobaan laboratorium, bahan (ekstrak) dicampur dengan media PDA dan kemudian diinokulasi dengan isolat jamur blas (*Pyricularia oryzae*), sedangkan di rumah kaca, inokulum blas diinokulasikan pada tanaman padi yang berumur 21 hari dan sehari kemudian disemprot dengan masing-masing ekstrak tumbuhan. Pengamatan di laboratorium dilakukan terhadap diameter koloni jamur yang tumbuh pada 3, 5, 7, 9, 11, dan 13 hari setelah inokulasi, sedangkan pengamatan di rumah kaca dilakukan 10 hari setelah inokulasi jamur blas. Hasil pengamatan menunjukkan bahwa kecuali ekstrak daun "gulinggang", semua ekstrak yang diuji berpotensi untuk dijadikan fungisida nabati dalam pengendalian penyakit blas.

0118 NURBAILIS.
Pengujian efek anti jamur dari air perasan daun jambu biji (*Psidium guajava* L.) terhadap *Colletotrichum capsici* penyebab antraknose pada cabai. Evaluation of antifungal effect of juice of guava leaf (*Psidium guajava* L.) on *Colletotrichum capsici* causing anthracnose on chilli pepper/Nurbailis; Mahyudin, S.; Marsi, T.E. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 1 table; 7 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 221-223.

CAPSICUM ANNUUM; PSIDIUM GUAJAVA; LEAVES; EXTRACTS; ANTIFUNGAL PROPERTIES; APPLICATION RATES; COLLETOTRICHUM CAPSICI; ANTHRACNOSIS; GROWTH.

The objective of the experiment was to determine antifungal effect of juice of guava leaf on *Colletotrichum capsici* causing anthracnose on chilli. The treatments were arranged in Completely Randomized Design (CRD) with five treatments and three replications. The treatments were the concentration of juice of guava leaf; 0, 200, 400, 600 and 800 gram/1000 ml aquadest. Variables observed were: colony diameter, number of conidia and colony weight. The result showed that addition of juice of guava leaf for all concentrations can reduce the growth of *Colletotrichum capsici* (colony diameter, number of conidia and colony weight) and the effective concentration was 600 gram/1000 ml aquadest.

0119 NURYANI, W.

Pengendalian bercak bunga sedap malam dengan Bio-GL dan Bio-TRI. [Control of gladiolus flower disease using Bio-GL and Bio-TRI]/Nuryani, W.; Djatnika, I. (Instalasi Penelitian Tanaman Hias, Segunung-Jawa Barat (Indonesia)). 1 table; 9 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000 : p. 335-339.

GLADIOLUS; FUSARIUM; ANTHRACNOSIS; BIOLOGICAL CONTROL; GLIOCLADIUM; TRICHODERMA; BACTERIAL PESTICIDES.

Tujuan penelitian ialah untuk mengendalikan penyakit bercak bunga sedap malam yang disebabkan *Fusarium* sp. dengan dua jenis mikroba antagonis. Percobaan dilaksanakan di lapangan di daerah pertanaman sedap malam di Cianjur 400 m dpl, mulai bulan April 1998 - Maret 1999. Percobaan disusun berdasarkan Rancangan Acak Kelompok dengan 4 ulangan. Perlakuan terdiri dari: (1) Filtrat *Gliocladium* sp. (BIO-GL) 10^8 sel spora/ml, (2) Suspensi *Gliocladium* sp. (BIO-GL) 10^8 sel spora/ml, (3) Filtrat *Trichoderma* sp. (BIO-TRI). 10^8 sel spora/ml, (4) Suspensi *Trichoderma* sp. (BIO-TRI) 10^8 sel spora/ml, (5) Propamokarb hidroklorida (sebagai pembanding), (6) Kontrol. Hasil percobaan menunjukkan bahwa suspensi *Gliocladium* sp. paling efektif mengendalikan penyakit dibandingkan dengan perlakuan lainnya.

0120 OMOY, T.R.

CVM dan CVB pada tanaman krisan penyakit virus tular aphid dan pengendalian vektornya dengan cendawan *Beauveria bassiana*. [Control of Chrysanthemum Vein Mottle Virus (CVMV) and Chrysanthemum Virus B (CVB) vector (*Macrosiphoniella sanborni*) using *Beauveria bassiana*]/Omoy, T.R.; Sihombing, D.; Suhardi (Instalasi Penelitian Tanaman Hias Segunung, Cipanas-Cianjur (Indonesia)). 1 table; 13 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 473-476.

CHRYSANTHEMUM; VIROSES; VECTORS; APHIDOIDEA; PEST CONTROL; BEAUVERIA BASSIANA; MORTALITY.

Percobaan pengendalian vektor penyakit Chrysanthemum Vein Mottle Virus (CVMV) dan Chrysanthemum Virus B (CVB) *Macrosiphoniella sanborni* (Gillette) (Homoptera: Aphididae) dengan menggunakan agensia hayati cendawan patogen *Beauveria bassiana* (Balsamo) Vuillemin dilaksanakan di laboratorium Instalasi Penelitian Tanaman Hias Segunung (1100 m dpl), sejak bulan April - bulan Mei 1999. Percobaan menggunakan Rancangan Petak Berpasangan 6 (enam) ulangan dengan 2 (dua) perlakuan. Jenis perlakuan adalah: Treated (T) adalah penyemprotan dengan suspensi cendawan patogen *B. bassiana* dengan kandungan spora 10^8/ml dan perlakuan Untreated (UT) adalah penyemprotan dengan air. Hasil percobaan menunjukkan bahwa cendawan patogen *B. bassiana* pada kandungan spora 10^8/ml efektif mengendalikan vektor penyakit CVM dan CVB yaitu kutu daun krisan *M. sanborni* 3 (tiga) hari atau 72 jam setelah aplikasi penyemprotan.

0121 RAHARDJO, I.B.

Studi penyakit bercak hitam (*Diplocarpon rosae* F.A. Wolf.) pada tanaman mawar mini. [Study on black spot (*Diplocarpon rosae* F.A. Wolf.) on rosa]/Rahardjo, I.B.; Winarto, B. (Instalasi Penelitian Tanaman Hias Segunung-Jawa Barat (Indonesia)). 4 tables; 12 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytopathology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 493-498.

ROSA; DIPLOCARPON; INFECTION; DISEASE RESISTANCE.

Penelitian dilaksanakan di Kebun Percobaan Instalasi Penelitian Tanaman Hias Segunung, Cipanas, Cianjur (ketinggian 1100 m dpl) dari bulan Maret - Juli 1998. Tujuan penelitian ini adalah mengetahui intensitas penyakit bercak hitam pada mawar mini dan perkembangannya. Perlakuan adalah mawar mini dengan warna bunga putih, merah muda, merah tua dan oranye. Penelitian disusun menurut Rancangan Acak Lengkap dengan enam ulangan. Hasil penelitian menunjukkan: 1) persentase daun terinfeksi bercak hitam pada tanaman mawar mini warna bunga merah muda adalah terendah, kemudian oranye, merah tua dan putih, masing-masing persentase daun terinfeksi adalah 39,40 %; 42,60 %; 43,84 % dan 51,02 %. 2) tanaman mawar mini warna bunga putih, merah muda, merah tua dan oranye mempunyai tingkat kerentanan sama terhadap penyakit bercak hitam, intensitas penyakit masing-masing adalah 8,47 %; 8,02 %; 8,86 % dan 8,59 %.

0122 WAHAB, R.

Pengaruh beberapa takaran Kalium dan aplikasi fungisida terhadap infeksi *Cercospora personata* penyebab penyakit bercak daun dan hasil kacang tanah. The effect of some potassium rates and fungicide application to *Cercospora personata* infection as causal agent for leaf spot and yield of peanut/Wahab, R.; Nasrun D. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)) 5 tables; 7 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2002) v. 10(1) p. 51-55.

ARACHIS HYPOGAEA; POTASSIUM; FUNGICIDES; APPLICATION RATES; MYCOSPHAERELLA BERKELEYI; INTEGRATED CONTROL; INFECTION; SPOTS; AGRONOMIC CHARACTERS; YIELDS.

Leaf spot is one of the most important diseases on peanut. The disease can be controlled through some methods such as biological, cultural practices, physical, and chemical application. The health plant cultivation is one of the principles of the integrated pest management (IPM) by using all possible technologies where fungicide application is as the last method when the other methods were not capable to control the disease. In general, potassium can control some diseases on some crops. To determine the effect of potassium rates and fungicide application to disease and yield of peanut, experiment was carried out in polybag (50x50x40 cm) experiment in Kuranji, Padang, West Sumatra on 200 planting season. The treatments were arranged in a Split Plot Design. The main plot consisted of two fungicides application (with and without fungicide application) and in the sub plot was tested five potassium rates from KCl, namely: 100, 200, 300, 400, and 500 kg KCl/ha. From this experiment, it was collected some data, namely: disease infection, yield, insect pest damage, plant height, branch number, pod number, and empty pod. The results showed that of five potassium rates, 300 kg KCl/ha had the best effect on peanut, with lower leaf spot infection and leaf folder insect pest, more in branch and pod number, lower empty pod percentage, and gave the higher yield.

0123 WAHAB, R.

Perkembangan penyakit jamur embun upas (*Peronospora destructor* (Berl) Casp. tanaman bawang merah pada beberapa cara pemupukan dan fungisida. The development of downy mildew of onion at some fertilizer and fungicide treatments/Wahab, R.; Nasrun D. (Balai Pengkajian Teknologi Pertanian, Sukarami (Indonesia)). 4 tables; 12 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 224-228.

ALLIUM CEPA; MILDEW; FERTILIZER APPLICATION; FUNGICIDES; PERONOSPORA DESTRUCTOR; INFECTION; YIELDS.

The downy mildew is one of the most important diseases on reduce of onion yield, especially on rainy or wet season. In the integrated pest management, a disease can be controlled through some technical methods such as fertilizer management which is one of the most important things beside fungicide application as the last alternative. The experiment was carried out at Sukarami experimental station of Sukarami Assessment Institute for Agricultural Technology about 950 m asl on rainy season (November 1999 to January 2000). The treatments were arranged in a Split Plot Design and replicated for three times. In the experiment tested four fertilizer treatment (A = 150 kg Urea, 450 kg ZA, 200 kg SP36, 200 kg KCl per ha; B = A+SS; C = A+NPK; D = A+SS+NPK) as the main plot and fungicide application (A = Systemic, B = Contact; C = a and b intermitten), and without fungicide application as the sub plot. The data collected were downy mildew infection (3-7 weeks after planting), tuber number, and yield. The result showed that fertilizer C (A (Urea, ZA, SP36, KCl) + NPK (15,15,15) was the most effective to downy mildew control among fertilization treatments and with the highest yield, while systemic and contact fungicide intermitten application also with the lowest infection of downy mildew and gave the highest yield among fungicide application treatments.

H50 KELAINAN LAIN PADA TANAMAN

0124 KURNIAWANSYAH, M.
Toleransi tanaman akar wangi (*Vetiveria zizanioides* L.) pada tanah tercemar logam berat Pb dan Cd. Tolerance of vetiver grass (*Vetiveria zizanioides* L.) on soil contaminated by heavy metal Pb and Cd/Kurniawansyah, M.; Sudirman (Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia)); Roechan, S.; Emmyzar. 6 tables, 5 ref. Summary (En). *Soilrens* (Indonesia) ISSN 1411-4224 (2001) v. 2(3) p. 115-125.

VETIVERIA ZIZANIOIDES; SOIL POLLUTION; HEAVY METALS; CADMIUM; LEAD; RESISTANCE TO CHEMICALS; SOIL CHEMICOPHYSICAL PROPERTIES; GROWTH; YIELDS.

Vetiver grass (*Vetiveria zizaniodes* L.) is a multipurpose plant that can grow on various type and soil condition, extreme climate, or soil contaminated by various heavy metals. By reason of that, an experiment was conducted to find out the tolerance of this plant grow on soil contaminated by heavy metal Pb and Cd. It was conducted in green house of Balai Penelitian Bioteknologi Tanaman Pangan (Balitbio) Bogor, from July until November 1998. Soil from Semarang, District of Garret (Regosol Eutrik/typic Tropopsament) was used as plant medium. Design experiment used was Completely Random Design arranged in factorial design with four replications. The first factor was soil condition (flooded and field capacity), while the second factor was concentration rates (Pb: 0, 50, 100, 150, 200, 250, 300, 350 ppm; Cd: 0, 20, 40, 60, 80, 100 and 120 ppm). Heavy metal Pb and Cd derived from Pb $(NO_3)_2$ and $Cd(NO_3)24H_2O$. Responses observed were soil properties before the experiment, growth, and yield component of vetiver biomass. Result of experiment showed that vetiver grass has high tolerance on soil contaminated by heavy metal Pb and Cd until concentration of 300 and 80 ppm, respectively. The information obtained from this experiment that vetiver grass could introduce as buffer of agriculture soil contaminated by material/dangerous toxic compound like heavy metal element.

0125 SILVINA, F.
Peranan Kalium dalam meningkatkan ketahanan tanaman tomat terhadap cekaman air pada berbagai fase pertumbuhan. The role of potassium in increasing tomato tolerance to water stress at several growth stages/Silvina, F. (Universitas Riau, Pekan Baru (Indonesia). Fakultas Pertanian). 5 tables; 14 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 217-221.

LYCOPERSICON ESCULENTUM; POTASH FERTILIZERS; DROUGHT STRESS; RESISTANCE TO INJURIOUS FACTORS; GROWTH RATE.

Tomato usualy cultivated in upland without irrigation that exposes tomato to water stress condition. Water stress also caused nutrient deficiency especially potassium. It is necessary to add potassium to tomato crop in order to reduce negative effect of water stress. The objective of this experiment was to study the role of potassium to increase tomato tolerance to water stress in three stages growth, and to know the dosage of potassium that could be able to increase tomato tolerance to water stress. This experiment was arranged in factorial 4x3 with Completely Randomized Design. There were two factor treatments in this experiment. The first factor was potassium chloride (KCl) dosage: 100 kg KCl/ha, 200 kg KCl/ha, 300 kg KCl/ha, and 400 kg KCl/ha. The second factor was water stress: water stress along growth stage, water stress in vegetative stage, and water stress in generative stage. The result indicated that the present of potassium could increase tomato tolerance to water stress in that three stages of growth. Tomato grew better at a level of potassium applied 400 kg KCl/ha at water stress along stage of growth, 330 kg KCl/ha at water stress in vegetative stage, and 395 kg KCl/ha at water stress in generative stage.

H60 GULMA DAN PENGENDALIANNYA

0126 ADLIS, G.

Tanpa olah tanah Aluvial dengan herbisida glifosat terus-menerus: 2. Pengaruhnya terhadap populasi gulma. Continuous glyphosate application on Alluvial irrigated rice field: 2. Their effect on weeds population/Adlis, G.; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 5 tables; 18 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 235-243.

IRRIGATED RICE; GLYPHOSATE; APPLICATION RATES; WEEDS; PLANT POPULATION; ALLUVIAL SOILS.

Irrigated rice field is usually prepared by intensive tillage that requires more manpower, water supply, and time. Herbicide application followed by zero tillage is good alternative to solve the problem. The field experiments were conducted to determine the effects of eigth treatment combinations of rates (5, 6, 7, and 8 l/ha) and time (10 and 20 days before planting) of herbicide application followed by zero tillage and farmer system on weed population of irrigated lowland rice. Experiments were carried out at Solok District, West Sumatra from rainy season 1994/95 to dry season 1997. Nine treatments were tested in rainy season 1994/95, dry season 1995, and rainy season 1995/96, while in rainy season 1995/96, dry season 1996, rainy season 1996/97, and dry season 1997, these treatments were added by one treatment (glyphosate 7 l/ha at 15 days before planting). All treatment were arranged in a Randomized Complete Block Design with three replications. The results showed that glyphosate 7-8 l/ha applied 10 days before planting were more effective for weed control. Grass weeds were dominant at each season, while broadleaf weeds dry weight was not able to detect at 21 days after planting from rainy season 1995/96 dry season 1997

0127 ADLIS, G.

Tanpa olah tanah Aluvial dengan herbisida glifosat terus-menerus: 1. Aspek pertumbuhan dan hasil padi sawah. Continuous glyphosate application on Alluvial irrigated rice field: 1. Growth and yield aspect of lowland rice/Adlis, G.; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 5 tables; 17 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 229-234.

IRRIGATED RICE; GLYPHOSATE; APPLICATION RATES; GROWTH; YIELDS; ALLUVIAL SOILS; ZERO TILLAGE.

Irrigated rice field is usually prepared by complete tillage that required more manpower, water supply, and time. Herbicide application is a good alternative to solve the problem. The field experiments were done to determine the effects of eight treatment combinations of rates (5, 6, 7, and 8 l/ha) and times (10 and 20 days before planting) of herbicide application following zero tillage and farmer systems. The experiment was carried out at Solok District, West Sumatra from rainy season 1994/95 to dry season 1997. These treatments were tested in rainy season 1994/95, dry season 1995, and rainy season 1995/96. In rainy season 1995/96, dry season 1996, rainy season 1996/97, and dry season 1997, those treatments were added by one treatment (glyphosate 7 l/ha at 20 days before planting). All treatments were arranged in a Randomized Complete Block Design with three replications. At the first three seasons, the results showed that the treatments 7 and 8 l/ha glyphosate applied at 10 days before planting had the best growth, but there were no significant difference among all treatments at next seasons including farmer's systems. The yield was not significantly different among all treatments at the first three season, but the next season the highest yield was found by glyphosate application at all rates when applied at 10 days before planting. Those was contributed by low percentage of unfilled grain.

0128 AMRIL, B.

Tanpa olah tanah Andosol dengan herbisida glifosat: 2. Aspek populasi gulma padi sawah. No-tillage system on Andosol applied glyphosate herbicide: 2. Aspects on weeds population of lowland rice/Amril, B.; Lamid, Z.; Hasan, N.; Yulimasni (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 5 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 276-280.

IRRIGATED RICE; GLYPHOSATE; LOWLAND; WEEDS; ZERO TILLAGE; ANDOSOLS.

The experiment was conducted at farmer's field Kamang, Bukittinggi (Andosol) from dry season 1995 to wet season 1995/96 (two cropping season), to determine the effect of no-tillage and glyphosate herbicide on weed population of no-tillaged lowland rice on Andosol. The treatments were arranged in a Randomized Complete Block Design with three replications. The treatments were no-tillage applied 5, 6, 7, and 8 l/ha glyphosate (Polaris 240 AS) at 10 and 20 days before transplanting, and farmer's practice (conventional tillage) as control. Results showed that no-tillage and using glyphosate herbicide was effective to decrease weeds population as well as farmer's practice (conventional tillage), particularly at rate of 8 l/ha applied at both 10 and 20 days before transplanting rice.

0129 AZWIR.

Tanpa olah tanah Latosol dengan herbisida glifosat: 1. Aspek pertumbuhan dan hasil padi sawah. Zero tillage applied glyphosate on Latosol: 1. Aspects on growth and yield of lowland rice/Azwir; Harnel; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 2 tables; 8 ref. Summary (En). [Proceeding of the Sixth National Seminar on Conservation Tillage]. Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 248-253.

IRRIGATED RICE; ZERO TILLAGE; GLYPHOSATE; GROWTH; YIELDS; FERRALSOLS.

Field experiments were conducted at Seed Bank Station Sungai Dareh from wet season 1994/95 to wet season 1995/96 (three cropping seasons), to determine the growth and yield performance of irrigated lowland rice grown on Latosol soil as affected by zero tillage applied glyphosate herbicide. Combinations of two times (10 and 20 days before transplanting, DBT) and four rates (5, 6, 7, and 8 l/ha) glyphosate (Polaris 240 AS) following zero tillage and farmer's practice were arranged in Randomized Complete Block Design with three replications. Results showed that there was no effect of zero tillage applied glyphosate on growth and yield of irrigated lowland rice grown on Latosol soil. However, zero tillage applied glyphosate herbicide regardless time and rates of applications gave 216-673, 207-667 and 314-1347 kg/ha grain yield more than farmer's practice during wet season 1994/95, dry season and wet season

1995/96, respectively. Therefore, it is suggested that zero tillage applied 6 l/ha glyphosate at 20 DBT in wet season and 5 l/ha glyphosate at 10 DBT in dry season.

0130 BUSYRA, B.S.
Tanpa olah tanah Aluvial dengan herbisida glifosat terus menerus: 3. Aspek status hara tanah padi sawah. Continuous zero tillage Alluvial soil applied glyphosate herbicide: 3. Aspects on selected soil nutrient status of lowland/Busyra, B.S.; Lamid, Z.; Asni, N. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 2 tables; 6 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 244-247.

IRRIGATED RICE; LOWLAND; ZERO TILLAGE; ALLUVIAL SOILS; GLYPHOSATE; NUTRITIONAL STATUS; YIELDS.

Fields experiments were continuously conducted at the farmer's field Solok West Sumatra from wet season 1994/95 to dry sesaon 1997 (7 cropping seasons), to determine the changes of selected soil nutrient status of lowland rice soil as affected by continuous zero tillage applied glyphosate herbicide. Combination of two times (10 and 20 days before transplanting) and four rates (5, 6, 7, and 8 l product/ha) of herbicide application following zero tillage and farmer's practice (conventional tillage) were arranged in a Randomized Complete Block Design with three replications. Results showed that there were not consistent effect of treatment combinations on soil C-organic, total-N, available-P, and exchangeable-K interms of increasing rates and times of herbicide application and seasonal observation. However, there were positive effect of continous zero tillage applied glyphosate herbicide on lowland rice grain yield as reflected to grain yield of conventional tillage. This was due presumably to nutrient availability and efficiency to be absorbed by crops from zero tillage systems.

0131 CHAIRUDDIN, D.
Penyiapan lahan pada budidaya padi rintak di sawah lebak Kalimantan Selatan. Land preparation in rintak rice cultivation at flooded lebak in South Kalimantan/Chairuddin; Nazemi, D.; Simatupang, R.S. (Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia)). 5 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 153-157.

ORYZA SATIVA; VARIETIES; CULTIVATION; FLOODED LAND; WEEDS; TILLAGE; WEED CONTROL; KALIMANTAN.

Weeds are faced in constraining land preparation on establishing rice cultivation. A field experiment was conducted at farmer's field Tabat, Hulu Sungai District (South Kalimantan) during planting season 1996, to determine an appropriate tillage systems and weed control on rice cultivation at Lebak Sawah. Treatments were arranged in Split Plot Design with three replications, where 3 tillage systems (slash and brought out-no tillage, spraying paraquat-no tillage, and glyphosate-no tillage) as mainplot and 4 weeding methods (unweeding, weeding once, applying 2.4-D, and applying MCPA) as subplot. Results showed that no-tillage applied glyphosate and paraquat effectively suppressed weed population. Application of 2.4-D and MCPA herbicides were also effective on controlling weeds associated with rice growing and improved growth and yield of lebak rice crop.

0132 DAHONO.
Tanpa olah tanah Latosol dengan herbisida glifosat: 2. Aspek populasi gulma padi sawah. Zero tillage on Latosol applied glyphosate herbicide: 2. Aspect on weed population of lowland rice/Dahono; Azwir; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 4 tables; 10 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage]. Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.;

Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 254-260.

IRRIGATED RICE; GLYPHOSATE; WEEDS; ZERO TILLAGE; FERRALSOLS; YIELDS.

Field experiments were sequentially conducted at Central Seed Bank, Sei Dareh (West Sumatra) from wet season 1994/95 to 1995/96 (three cropping seasons), to determine weed population of lowland irrigated rice as affected by zero tillage applied glyphosate herbicide every cropping season. Combinations of two times (10 and 20 days before transplanting, DBT) and four rates (5, 6, 7, and 8 l/ha) of herbicide application following zero tillage and farmer's practice (conventional tillage) were arranged in a Randomized Complete Block Design with three replications. Results showed that weed population was satisfactorilly controlled when herbicide applied at 20 DBT at the rate of 6-7 l/ha. However, there was the shafting time of herbicide application to 10 DBT at the same rates in controlling weed to the third season (wet season 1995/96). These combinations gave 340-673, 420-560 and 540-1187 kg/ha grain yields higher than farmer's practice for wet season 1994/95, dry season 1995, and wet season 1995/96 respectively.

0133 ERDIMAN.
Tanpa olah tanah Andosol dengan herbisida glifosat: 3. Aspek status hara tanah padi sawah. Zero tillage on Andosol applied glyphosate herbicide: 3. Aspects on soil properties of lowland rice/Erdiman; Bahri, L.; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan. 5 tables; 9 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 281-284.

IRRIGATED RICE; GLYPHOSATE; LOWLAND; NUTRITIONAL STATUS; ZERO TILLAGE; GROWTH; YIELDS; ANDOSOLS.

Field experiments were respectively conducted at farmers' field Kamang, West Sumatra during dry season 1995 and wet season 1995/96 to determine the combination effects of times and rates of glyphosate herbicide application on soil nutrient status and grain yield of zero tillage lowland rice on Andosol. Eight treatment combinations (two times and four rates of herbicide application) were arranged in Randomized Complete Block Design with three replications. Farmer's practice (conventional tillage) was also done for comparison. Results showed that soil P and K increased between 50-100 % as compared with farmer's practice when observed on dry season 1995. However, soil N, P and Ca increased by 25, 100 and 25 % respectively over farmer's practice during wet season 1995/96. The highest grain yield for both seasons was produced when zero tillage lowland rice applied 7 l/ha glyphosate at 20 days before transplanting.

0134 HAMZAH, M.A.
Evaluasi campuran herbisida glifosat dan sulfentrazone untuk mengendalikan gulma pada padi sawah tanpa olah tanah. Evaluation of mixture of glyphosate and sulfentrazone for weed control in no-tillage irrigated rice/Hamzah, M.A.; Purwanto, A. (Bina Guna Kimia (PT), Jakarta (Indonesia)). 4 tables; 13 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/ Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 307-312.

IRRIGATED RICE; ZERO TILLAGE; GLYPHOSATE; WEED CONTROL; ENVIRONMENTS; GROWTH; TOXICITY; YIELDS.

The experiment was conducted at Rancabangau, Sukamandi, West Java on wet season 1996/97, to evaluate the effect of herbicide on weeds of irrigated rice using no-tillage method. Nine treatments (mixture of isopropyl amine glyphosate + sulfentrazone, premix isopropyl amina glyphosate + isopropyl

amine 2,4-D 240/120 were applied 15 days before transplanting, while several treatments of isopropyl amine glyphosate were applied at 15 days before transplanting followed by clomazone that was applied at 3 days before or 3 days after transplanting) were arranged in a Randomized Complete Block Design with three replications. Results showed that the mixture of isopropyl amine glyphosate + sulfentrazone at the rate of 1200 g a.i/ha + 300 g a.i/ha was effective to control weeds that growing later or before transplanting of irrigated rice. Competition between rice crops and weeds at early growth reduced rice tiller to 40 %. The mixture of isopropyl amine glyphosate + sulfentrazone gave alternative to control weeds that growing at critical period, particularly sedges and broadleaf weeds.

0135 KARI, Z.

Tanpa olah tanah Andosol dengan herbisida glifosat: 1. Aspek pertumbuhan dan hasil padi sawah. Zero tillage on Andosol applied glyphosate herbicide: 1. Aspect on growth and yield of lowland rice/Kari, Z.; Harnel; Lamid, Z. (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 4 tables; 11 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 270-275.

IRRIGATED RICE; GLYPHOSATE; ZERO TILLAGE; GROWTH; YIELDS; LOWLAND; ANDOSOLS.

Field experiments were conducted at farmer's field Kamang (Andosol) from dry season 1995 to wet season 1995/96 (two cropping seasons), to determine the changes of zero-tillage growth and yield of lowland rice as due to applying glyphosate herbicide, Combination of two application times and five rates of glyphosate (Polaris 240) followed by zero tillage systems were arranged in a Randomized Complete Block Design with three replications. Farmer's practice (conventional tillage) was also conducted for comparison. Results showed that herbicide applied at 10 days before transplanting (DBT) produced the highest grain yields of rice (4413 kg/ha) when herbicide was applied 8 l/ha in dry season 1995 and 4865 kg/ha of 7 l/ha -20 DBT in wet season 1995/96 while farmer's practice were only 3847 and 4210 kg/ha, respectively. The higher grain yield of zero-tillage applied glyphosate to lowland rice, the more grains per panicle, weighter 1000 grains and lower infilled grains on both seasons.

0136 SEBAYANG, H.T.

Pengaruh herbisida Oksadiazon, metil metsulfuron dan waktu penyiangan terhadap pertumbuhan dan hasil padi sawah pada sistem tanam benih langsung. [Effect of Oxadiazone, methyl metsulfuron and time of weeding on the growth and yield of direct seeded lowland rice]/Sebayang, H.T.; Suminarti, N.E.; Puridawati, I. (Universitas Brawijaya, Malang (Indonesia). Fakultas Pertanian) 11 tables; 16 ref. Summaries (En, In) *Habitat* (Indonesia) ISSN 0853-5167 (2000) v. 11(112) p. 173-184.

FLOODED RICE; DIRECT SOWING; OXADIAZONE; HERBICIDES; SALVINIA MOLESTA; LUDWIGIA; ECHINOCHLOA CRUSGALLI; DOMINANT SPECIES; WEEDING; GROWTH; YIELD COMPONENTS.

Suatu penelitian untuk mempelajari pengaruh herbisida metsulfuron dan waktu penyiangan terhadap pertumbuhan dan hasil padi sawah Sistem Tanam Benih langsung (TaBeLa) telah dilakukan di Desa Kepuh, Kec. Sukun, Kodya Malang pada bulan Maret - Juni 1999. Percobaan merupakan percobaan faktorial yang disusun dalam Rancangan Petak Terbagi. Petak utama merupakan jenis herbisida yang terdiri dari tiga taraf yaitu 1) H0 = tanpa herbisida, 2) H1 = herbisida oksadiazon dan 3) H2 = herbisida metil metsulfuron. Sedangkan anak petak adalah waktu penyiangan terdiri dari empat taraf yaitu 1) P0 = tanpa penyiangan, 2) P1 = penyiangan pada 21 hari setelah sebar (hss), 3) P2 = penyiangan pada 42 hss, dan 4) P3 = penyiangan pada 21 dan 42 hss. Hasil penelitian menunjukkan bahwa gulma *Marsilea crenata, Salvinia molesta, Ludwigia adscendens, Monochoria vaginalis, Echinochloa crusgalli* dan *Pistia stratiotes* merupakan gulma dominan sebelum percobaan. Pada 60 hss secara umum pada setiap petak perlakuan gulma *Marsilea crenata* dan gulma *Salvinia molesta* nilai SDR nya menurun, sedangkan nilai

SDR gulma *Monochoria vaginalis*, *Echinochloa crusgalli* dan *Paspalum vaginatum* meningkat. Gulma *Ludwigia adscendens* nilai SDR nya cenderung sama. Hasil penelitian lainnya menunjukkan bahwa tinggi tanaman tidak dipengaruhi oleh perlakuan herbisida dan waktu penyiangan. Sedangkan jumlah anakan, jumlah daun, luas daun, bobot kering tanaman pada perlakuan herbisida oksadiazon, dan herbisida metil metsulfuron yang dikombinasikan dengan penyiangan 21 dan 42 hss menghasilkan pertumbuhan yang lebih baik dibandingkan perlakuan pengendalian gulma lainnya. Demikian juga terlihat pada jumlah malai per rumpun, jumlah gabah per malai dan berat 1000 gabah. Pada hasil gabah kering panen terlihat bahwa pengendalian gulma dengan herbisida oksadiazon sama pengaruhnya dengan herbisida metil metsulfuron, tetapi nyata lebih tinggi hasilnya dibandingkan dengan tanpa herbisida. Penyiangan pada 21 dan 42 hss menghasilkan hasil gabah kering panen yang lebih tinggi dibandingkan dengan penyiangan pada 21 hss, 42 hss dan tanpa penyiangan.

0137 SIMATUPANG, R.S.

Pengaruh herbisida isopropil amina glifosat pada budidaya padi tanpa olah tanah di sawah pasang surut. Effect of isopropyl amina glyphosate herbicide on zero tillage tidal wetland rice culture/Simatupang, R.S.; Maamun, M.Y. (Balai Penelitian Tanaman Pangan Lahan Rawa Banjarbaru (Indonesia)); Hermawan, W. 5 tables; 18 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 368-375.

ORYZA SATIVA; CULTIVATION; CHLORPROPHAM; GLYPHOSATE; ZERO TILLAGE; WETLANDS; ECONOMIC ANALYSIS.

Field experiment was conducted at UPT SP-I Palingkau and Palambang villages, Kapuas Murung, Central Kalimantan during wet season 1997/98, to determine the agronomic performance of tidal wetland rice as due to no-tillage. There were 6 treatments, i.e. 4 dosages of herbicide (5, 6, 7 and 8 l/ha) on zero tillage, full tillage, and farmer's method. The treatments were arranged in Randomized Complete Block Design with four replications. Results showed that isopropyl amina glyphosate herbicide on zero tillage system performed good control of weed and increased rice yield. On a newly opened land in SP-I Palingkau, the best dosage of herbicide was 7.0 l/ha and gave the highest rice yield (4.50 t/ha). Meanwhile, in Palambang, the best dosage of herbicide was 6.0 l/ha and produced rice yield of 3.84 t/ha. Using herbicide on zero tillage might reduce labor requirement around 29.2 and 28.9 %. Both dosages of herbicide were economically profitable because they gave additional income respectively Rp. 886.890/ha in SP-I Palingkau and Rp 477.260/ha in Palambang and seemed to be recommended on zero tillage systems for tidal wetland rice culture.

0138 SRIYANI, N.

Penggunaan herbisida sulfosat untuk persiapan lahan padi sawah tanpa olah tanah. Sulphosate herbicide application on no-tillage lowland rice/Sriyani, N.; Mawardi, D. (Universitas Lampung (Indonesia). Fakultas Pertanian). 4 tables; 7 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 302-306.

IRRIGATED RICE; LOWLAND; ZERO TILLAGE; HERBICIDES; SULFOSATE; GROWTH; WEED CONTROL.

No-tillage system combined with herbicide application to overcome weeds and rice ratoon problem becomes an important alternative to increase efficiency and to solve labor shortage. There are several new herbicides being registered for this purpose, therefore information regarding those herbicides needs to be studied. This research was conducted at farmer's field Gading Rejo, Lampung from December 1996 to April 1997 to study the utilization of sulphosate herbicide as a component for land preparation in no-

tillage lowland rice. Eight treatments were arranged in a Completely Randomized Block Design with three replications. There were zero tillage (ZT) + sulphosate 145 g/l each at 6, 8 and 10 l/ha; ZT + sulphosate 240 g/l each at 4, 6 and 8 l/ha; ZT + glyphosate 240 g/l at 6 l/ha; and conventional tillage as control. Results showed that the highest number of tillers per plant was found in ZT + sulphosate 240 g/l at 4 and 6 l/ha, while plant height was not affected by all levels of herbicides used. At 17 days after herbicide application, the number of weed species decreased significantly from 12 species at the beginning to one-five species. *Fimbristyles littoralis* was a dominant species in herbicide applied fields, while *Marsilea crenata* was dominant in conventional tillage field. It was shown that sulphosate 240 g/l at 4 and 6 l/ha suppressed weed growth without reducing yield, therefore it is reasonable to conclude that herbicide application could be an alternative to replace conventional tillage.

0139 SUHARTONO.

Pengkajian penggunaan beberapa herbisida pada budidaya jagung tanpa olah tanah. Assessment of herbicides utilization on zero tillage maize culture/Suhartono; Dahono (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)). 2 tables; 10 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 444-447.

ZEA MAYS; HERBICIDES; ZERO TILLAGE; WEEDS; GROWTH; ECONOMIC ANALYSIS.

A field experiment was conducted as Sukarami Assessment Institute for Agricultural Technology during wet season 1996/97, to determine an effective herbicide to control weeds, and growth and yield of zero tillage maize crop. Three selected herbicides, i.e. glyphosate-Round-up (R), glyphosate-Polaris (P), and paraguat dichloride-paracol (PCL) at the rate of 1.5 l/ha applied 21 days before planting (DBP) were field evaluated and arranged in Randomized Complete Block Design with three replications. Results showed that glyphosate-Round-up (R) was significantly effective to suppress weeds when observed at 42 days after planting and then followed in sequentially glyphosate (P) and paraquat dichloride (PCL). Those herbicides applied on zero tillage did not affect growth and yield of maize crop. However, grain yield (6.7 t/ha) obtained from plot treated glyphosate (R) was higher than glyphosate (P) (6.27 t/ha) and PCL (6.02 t/ha). On the other hand, higher net income (Rp. 1.687.850/ha/4 months or Rp. 421.962.50/month) was assessed from plot treated glyphosate (P) than the others as due to cheaper price of herbicides.

0140 SULISTYONO, E.

Studi efektivitas pencampuran surfaktan dengan herbisida untuk jalur tanaman karet belum menghasilkan. Study of the effectiveness of surfactant with herbicide mixing for young rubber plantation/Sulistyono, E.; Lontoh, A.P.; Widagdo, H. (Institut Pertanian Bogor (Indonesia). Fakultas Pertanian) 4 tables; 7 ref. Summaries (En,.In). *Buletin Agronomi* (Indonesia) ISSN 0216-3403 (1999) v. 27(1) p. 25-29.

HEVEA BRASILIENSIS; HERBICIDES; SURFACE ACTIVE AGENTS; WEED CONTROL; WEEDS; SPECIES.

Penelitian bertujuan untuk mengetahui konsentrasi efektif surfaktan dan jenis herbisida. Percobaan dilakukan pada jalur tanaman karet belum menghasilkan di PTPN VIII, Sukabumi, Jawa Barat. Percobaan faktorial disusun dalam Rancangan Acak Kelompok dengan 3 ulangan. Faktor pertama adalah jenis herbisida yaitu glifosat dengan dosis 2.5 l/ha, sulfosat dengan dosis 1.5 l/ha, parakuat dengan dosis 2 l/ha. Faktor kedua adalah konsentrasi surfaktan yaitu 0 %, 0.1 % dan 0.2 %. Herbisida glifosat dengan surfaktan pada konsentrasi 0.2 % efektif mengendalikan gulma di perkebunan karet yang belum menghasilkan. Ini ditunjukkan oleh tase penutupan gulma sampai 12 minggu setelah aplikasi kurang dari 70 %. Paraquat tanpa surfaktan efektif menekan bobot kering *Borreria alata*, dan *Commelina benghalensis*. Glifosat tanpa surfaktan baik untuk mengendalikan *Ottochloa nodosa* dan *Ischaemum timorense*

0141 TJOKROWARDOJO, A.S.

Penggunaan glifosat dan herbisida pratumbuh dalam sistem tot-tabela padi sawah di kabupaten Poso, Sulawesi Tengah. Use of glyphosate and pre-emergence herbicide in no-tillage-direct seeded system for lowland rice in Poso district, Central Sulawesi/Tjokrowardojo, A.S. (Balai Penelitian Tanaman Rempah dan Obat, Bogor (Indonesia)); Arifin, M.; Slamet, M. 3 tables; 8 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 295-301.

IRRIGATED RICE; DIRECT SOWING; GLYPHOSATE; ZERO TILLAGE; HERBICIDES; YIELDS; SULAWESI.

An experiment has been conducted at Poso Pesisir area, Central Sulawesi from May to October 1996. The objective of the experiment was to evaluate the effect of glyphosate and its combination with pre-emergence herbicides on weeds and rice no-tillage systems. The experiment used a Randomized Block Design with 16 treatments and 3 replications. Rice variety IR66 was transplanted and directly seeded in no-tillage and tillage plots. No-tillage plots used glyphosate herbicide (5 l/ha), whereas tillage plots used manual tools. The glyphosate herbicide at both plots were combined with pre-emergence herbicides (piperophos/2,4-D 1.5 l/ha), methylmetsulfuron 20 g/ha, or butachlor/2,4-D IPE 2 l/ha. Results indicated that glyphosate was effective to control weeds. Glyphosate and pre-emergence herbicide's combinations were effective to control secondary weeds with efficiency of weed control values were more than 60 %. The yield of rice in no-tillage-direct seeded system using pre-emergence herbicides was 18.9 % higher than those in no-tillage-transplanting systems (6.525 t/ha). The yield of rice in no-tillage pre-emergence herbicide's systems (7.113 t/ha) was lower than those in tillage-pre-emergence herbicide's systems (7.125 t/ha). Weeds in direct seeded decreased rice yield of 37 % in no-tillage plots and 71.2 % in tillage plots, whereas weeds in transplanting decreased rice yield of 32.4 % in no-tillage plots and 63.5 % tillage plots.

0142 YUFDY, P.

Aplikasi herbisida glifosat dan teknik pengolahan tanah terhadap pertumbuhan tanaman jagung. Effect of glyphosate herbicide application and tillage on growth of maize crop/Yufdy, P.; Firdausil; Slameto; Sudirman, S. (Loka Pengkajian Teknologi Pertanian Natar (Indonesia)) 5 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 437-439.

ZEA MAYS; GLYPHOSATE; TILLAGE; GROWTH; YIELDS.

Field experiment was conducted at experimental farm of LPTP Natar, Lampung during dry season 1997, to determine the effect of herbicide application and tillage systems on weed population and growth of maize crop. Three rates of herbicide (3, 4, 5, and 6 l/ha) of glyphosate in the form of Touchdown and tillage systems (intensive, zero, and strip tillage) were arranged in Split Plot Design with three replications. Results showed that 3 l/ha glyphosate herbicide followed by zero tillage was in order predominated by *Borreria latifolia, Croton hirtus* and *Stachytarpheta indica*, when observed three weeks after planting. However *Brachiara paspaloides, Borreria latifolia, Croton hirtus*, *Stachytarpheta indica*, and *Mimosa pudica* were dominant before glyphosate herbicide application.

0143 ZUBAIDAH, Y.

Tanpa olah tanah Latosol dengan herbisida glifosat: 3. Aspek status hara tanah padi sawah. Zero tillage on Latosol with application of glyphosate herbicide: 3. Aspect on soil nutrient status of lowland rice/Zubaidah, Y.; Azwir; Lamid, Z.; Ramainas (Balai Pengkajian Teknologi Pertanian Sukarami (Indonesia)); Hermawan, W. 5 tables; 15 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu

Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 261-269.

IRRIGATED RICE; GLYPHOSATE; LOWLAND; NUTRITIONAL STATUS; ZERO TILLAGE; FERRALSOLS; YIELDS; SOIL CHEMICOPHYSICAL PROPERTIES.

Field experiment was conducted at BBI Sungai Dareh, West Sumatra from rainy season 1994/95 until rainy season 1995/96 (three planting seasons), to determine the influence of zero tillage system and glyphosate herbicide application on soil nutrient status and yield of lowland rice. Combinations of time application (10 and 20 days before transplanting, DBT) and four rates (5, 6, 7, and 8 l product/ha) of glyphosate, and farmer's practice (conventional tillage) were arranged in Randomized Complete Block Design with three replications. Results showed that zero tillage system with the application of glyphosate herbicide did not influence soil nutrient status up to the second planting, but at the third planting season particularly soil pH (lower) and soil organic matter, exchangeable Ca and CEC (higher) than farmer's practice. The highest grain yield (4027 and 2837 kg/ha) were obtained when herbicide were applied 5 l/ha-10 DBT and 7 l/ha-20 DBT.

0144 ZULAIKHA, S.
Perubahan spesies gulma pada dua cara olah tanah dan pengaruhnya terhadap kedelai di lahan sulfat masam. Change of weed species due to land preparation methods and its effect on soybean grown at acid sulphate soils/Zulaikha, S. (Universitas Lampung (Indonesia)); Supriyo, A. 7 tables; 9 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998 *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 399-405.

GLYCINE MAX; VARIETIES; WEEDS; SPECIES; TILLAGE; ACID SULPHATE SOILS; YIELDS.

Field experiment was conducted at Barambai, South Kalimantan from November 1996 to February 1997, to find out the soybean critical period of weed competition and its effects on soybean yield in two soil preparation methods. Twelve weedy periods (weedy 0-15, 0-30, 0-45, 0-60, 0-75 and 0-90 days; and weed free 0-90, 0-75, 0-60, 0-45, 0-30 and 0-15) and two land preparation methods (intensive and minimum tillage) were arranged in factorial Randomized Complete Block Design with three replications. Results showed that dominant weed species on acid sulphate soil were *Echinohloa colona, Cynodon dactylon, Cyperus rotundus,* and *P. commersonii* with SDR 20, 80, 19.51, 17.85 and 11.96 % respectively, and then *Amaranthus spinosus* (SDR = 10.28 %) and *Fymbristilis littoralis* (SDR = 3.90 %). Soil tillage affected weed growth where the highest infestation at 15 to 90 days after planting (DAP) was *Echinochloa colona* (SDR 23-59 %). However intensive tillage performed the same weed species as before treatment, but *Eleusine indica* at 75 DAP was the highest infestation (SDR = 31.33 %) and the lowest was *F. littoralis*. Weed infestation at 0-60 days after planting was critical period where dry weight was high both on intensive and minimum tillages. The dominant weed dry weight was contributed by grasses (*E. colona*) and broadleave (*A. spinosus*). Combination of weed free since 0-75 days with minimum tillage or intensive tillage showed the highest soybean yield (1.121 t/ha) which seemed to be appropriate agronomic practice combination.

J10 PENANGANAN, TRANSPORTASI, PENYIMPANAN DAN PERLINDUNGAN HASIL PERTANIAN

0145 JUNIANTO, Y.D.
Viabilitas dan virulensi blastospora *Beauveria bassiana* (Bals.) Vuill. kering-beku pada beberapa suhu simpan. Viability and virulence of freeze-dried blastospores of *Beauveria bassiana* (Bals.) Vuill. at several storage temperatures/Junianto, Y.D. (Pusat Penelitian Kopi dan Kakao, Jember (Indonesia)); Semangun, H.; Ambarwati-Harsojo; Rahayu, E.S. 5 ill., 26 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(1) p. 30-41.

BEAUVERIA BASSIANA; VIABILITY; PATHOGENICITY; FREEZE DRYING; STORAGE; TEMPERATURE.

Blastospora *Beauveria bassiana* dapat diproduksi secara masal dengan cepat menggunakan medium cair. Salah satu cara pengawetan spora jamur yang paling baik adalah pengering-bekuan. Spora kering-beku dapat mengalami deteriorasi jika tidak disimpan dalam kondisi yang sesuai. Penelitian untuk mengetahui viabilitas dan virulensi blastospora *Beauveria bassiana* kering-beku pada beberapa suhu simpan telah dilakukan di Laboratorium Fitopatologi, Pusat Penelitian Kopi dan Kakao Indonesia. Faktor suhu simpan yang diteliti (5, 15 dan 25 ^{0}C) merupakan bagian dari sebuah percobaan yang disusun menggunakan Rancangan Perlakuan Petak Terpisah dengan Rancangan Dasar Acak Lengkap. Setiap perlakuan diulang tiga kali. Hasil penelitian menunjukkan bahwa blastospora yang dikering-bekukan mempunyai kadar air 3,3 %. Blastospora kering-beku tetap viabel dan virulen selama lima bulan setelah disimpan dalam kondisi vakum pada suhu 5 ^{0}C, dengan daya kecambah 90,33 % dan menyebabkan mortalitas *Hypothenemus hampei* 93,33 %. Peningkatan suhu simpan menjadi 15 ^{0}C menurunkan daya kecambah secara cepat, sedangkan pada suhu 25 ^{0}C menurunkan baik daya kecambah jamur maupun mortalitas *H. hampei*.

J11 PENANGANAN, TRANSPORTASI, PENYIMPANAN DAN PERLINDUNGAN HASIL TANAMAN

0146 PURWOKO, B.S.

Pengaruh perlakuan pasca panen dan suhu simpan terhadap daya simpan dan kualitas buah mangga (*Mangifera indica* L.) varietas Arumanis. Effect of postharvest treatments and storage temperatures on shelflife and quality of mango cv. Arumanis/Purwoko, B.S.; Magdalena, F.S. (Institut Pertanian Bogor (Indonesia). Fakultas Pertanian. 7 tables; 16 ref. Summaries (En. In). *Buletin Agronomi* (Indonesia) ISSN 0216-3403 (1999) v. 27(1) p. 16-24.

MANGOES; VARIETIES; KEEPING QUALITY; POSTHARVEST CONTROL; STORAGE; TEMPERATURE; CALCIUM CHLORIDE; PACKAGING; PLASTICS; QUALITY; POSTHARVEST LOSSES.

Penelitian ini bertujuan untuk membandingkan keefektifan perlakuan $CaCl_2$, spermidin, pelilinan dan pengemasan plastik pada dua suhu simpan dalam memperpanjang daya simpan dan mempertahankan kualitas buah mangga. Bahan yang digunakan adalah mangga Arumanis dengan tingkat kematangan 80 %. Percobaan menggunakan rancangan faktorial dengan dua faktor yaitu suhu simpan (24-25 ^{0}C dan 18-19 ^{0}C) dan perlakuan pasca panen (spermidin 1 mM, $CaCl_2$ 3 %, pengemasan plastik, perlakuan pelilinan, dan kontrol). Percobaan menggunakan 3 ulangan. Hasil percobaan menunjukkan perlakuan plastik merupakan perlakuan terbaik dalam menghambat susut bobot, peningkatan padatan terlarut total, nisbah PTT/asam, dan penurunan kandungan asam tetapi memberikan off-flavor. Perlakuan suhu 18-19 ^{0}C efektif menghambat peningkatan kelunakan, peningkatan PTT, dan penurunan kandungan asam buah.

0147 SINAGA, R.M.

Pengaruh suhu dan tekanan vakum terhadap karakteristik seledri kering. The effect of temperature and vacuum pressure during dehydration on characteristics of dried celery/Sinaga, R.M. (Balai Penelitian Tanaman Sayuran, Lembang (Indonesia)). 7 tables; 12 ref. Summaries (En, In). *Jurnal Hortikultura* (Indonesia) ISSN 0853-7097 (2001) v. 11(3) p. 215-222.

CELERY; APIUM GRAVEOLENS; DRIED PRODUCTS; DRYING; VACUUM DRYING; QUALITY; SMELL; ORGANOLEPTIC PROPERTIES.

Tujuan penelitian adalah untuk menentukan tingkat suhu dan tekanan vakum menggunakan alat pengering vakum yang sesuai agar diperoleh karakteristik daun seledri kering yang disenangi konsumen. Penelitian dilakukan di Laboratorium Fisiologi Hasil Balai Penelitian Tanaman Sayuran di Lembang dari bulan Juni

- November 1999. Rancangan percobaan yang digunakan adalah Rancangan Acak Kelompok dengan dua faktor masing-masing tiga ulangan. Faktor pertama adalah suhu, yakni 40 ^{0}C, dan 50 ^{0}C serta faktor kedua adalah tekanan vakum, yakni 400, 500, 600, dan 700 mbar. Hasil penelitian menunjukkan bahwa perlakuan 500 mbar dengan 45 ^{0}C adalah terbaik diikuti perlakuan 500 mbar dengan 50 ^{0}C serta tekanan 400 mbar dengan 50 ^{0}C. Perlakuan tersebut menghasilkan nilai warna, aroma, tekstur, dan penampakan terbaik dengan nilai 1,33 dan 1,80 (rangking 1-5) serta kadar air standar 8,55 %, total padatan terlarut normal yakni 35,21 %, vitamin C masih tinggi (144,14 mg/100g), aroma tergolong tinggi (62,93 mikro grek/g), total klorofil tinggi (13,95 %), dan persentase rehidrasi lebih besar dari 250 % atau lebih besar dari 2,5 kali berat awal. Hasil penelitian ini bermanfaat untuk pengembangan industri sayuran kering.

0148 SUDARYONO, S.

Peningkatan efisiensi dan kapasitas penjemuran kedelai brangkasan. Increasing efficiency and capacity of "brangkasan" soybean sundrying/Sudaryono, S.; Nugraha; Lubis, S.; Thahir, R. 2 ill., 5 tables; 5 ref. Summaries (En, In). [Proceedings of the Seminar on BKS-PTN Barat Research Results] Prosiding Seminar Hasil Penelitian BKS-PTN Barat, Oktober 1999/Universitas Sriwijaya Palembang (Indonesia). Fakultas Pertanian. Palembang (Indonesia): UNSRI, 1999: (pt. 15) 6 p.

SOYBEANS; DRYING; SOLAR ENERGY; PRODUCTION INCREASE; MOISTURE CONTENT.

Penjemuran kedelai brangkasan seringkali menghadapi banyak masalah, terutama pada musim hujan. Penggunaan mesin pengering tidak efektif, karena kedelai brangkasan bersifat sangat voluminous. Penelitian ini bertujuan untuk meningkatkan efisiensi dan kapasitas penjemuran kedelai brangkasan. Kedelai varietas Wilis dipanen pada kadar air 38-41 %, dijemur pada beberapa taraf ketebalan, sampai kadar air biji mencapai 17 % untuk proses perontokan. Percobaan dilaksanakan pada MP 1991/92 di Laboratorium Pascapanen Karawang, Balittan Sukamandi, dengan menggunakan Rancangan Acak Kelompok (RAK) dan 3 ulangan. Hasil percobaan ini menunjukkan bahwa penjemuran kedelai brangkasan dengan ketebalan 25-30 cm, memberikan hasil efisiensi dan kapasitas penjemuran yang lebih baik daripada ketebalan 15-20 cm, meskipun laju pengeringannya lebih lambat. Sedangkan persentase butir rusak tidak banyak berbeda diantara 4 taraf ketebalan.

0149 WIJADI, R.D.

Pengaruh lama pemeraman terhadap mutu dan daya simpan pisang var. ambon kuning dan cavendish pada umur petik yang berbeda. [Effect of ripening time of the quality and storage life for banana cv. ambon kuning and cavendish of different harvesting time]/Wijadi, R.D.; Kurniati, M.; Suhardjo. 4 tables; 10 ref. Summaries (En, In). *Wawasan (Indonesia): Wahana Wacana Hasil Analisa* ISSN 0854-4948 (2000) v. 9(8) p. 45-52.

BANANAS; QUALITY; POSTHARVEST PHYSIOLOGY; RIPENING; STORAGE; KEEPING QUALITY; HARVESTING DATE.

Penelitian teknologi penanganan segar buah pisang dilaksanakan di Kabupaten Malang dan laboratorium BPTP Karangploso Malang. Bahan percobaan berupa buah pisang varietas ambon kuning umur panen 110, 117 dan 124 hari, dan varietas cavendish umur panen 100, 107 dan 114 hari dihitung sejak bunga mekar. Pemeraman pisang dilakukan dengan pemberian karbit 15 gram per 15 kg buah dengan lama pemeraman 1, 2 dan 3 hari. Percobaan menggunakan Rancangan Acak Kelompok dengan 3 ulangan. Pisang masak hasil pemeraman disimpan pada suhu ruangan hingga 7 hari. Varietas ambon kuning menunjukkan mutu terbaik pada perlakuan umur panen 124 hari dengan pemeraman selama 2 hari, kandungan total asam 0,30 %, kadar vitamin C 3.85 mg/100g, kadar gula total 24,53 %, nilai warna kulit 3,0, nilai kekerasan 2,58 serta ketahanan simpan 5 hari. Varietas cavendish terbaik dipanen umur 107 hari dihitung sejak bunga mekar, dengan pemeraman selama 2 hari, kandungan total asam 0,37 %, kadar gula total 27,73 %, kadar vitamin C 6,13 mg/100g, nilai warna kulit 2,33, nilai kekerasan 1,02, dan ketahanan simpan 6 hari.

J13 PENANGANAN, TRANSPORTASI, PENYIMPANAN DAN PERLINDUNGAN HASIL PETERNAKAN

0150 ABUBAKAR.
Pengaruh suhu dan waktu pasteurisasi terhadap mutu susu selama penyimpanan. Effect of temperature and time of pasteurization on the milk quality during storage/Abubakar; Triyantini; Sunarlim, R.; Setiyanto, H.; Nurjannah (Balai Penelitian Ternak, Bogor (Indonesia)). 4 ill., 4 tables; 21 ref. Summaries (En, In). *Jurnal Ilmu Ternak dan Veteriner (Indonesia)* ISSN 0853-7380 (2001) v. 6(1) p. 45-50.

PASTEURIZED MILK; STORAGE; TEMPERATURE; PROTEIN CONTENT; MOISTURE CONTENT; LIPID CONTENT; MICROORGANISMS.

Penelitian pengaruh suhu dan waktu pasteurisasi terhadap mutu susu selama penyimpanan telah dilakukan dengan menggunakan susu sapi segar. Tujuan penelitian ini adalah untuk penyimpanan susu pasteurisasi yang masih layak dikonsumsi dengan kandungan zat gizi yang masih baik. Penelitian ini menggunakan Rancangan Acak Lengkap pola Faktorial 2 x 8, dengan perlakuan suhu pasteurisasi sebagai faktor T, terdiri atas 2 taraf: low temperature long time (LTLT) (T1), yaitu susu dipanaskan pada suhu 65 ^{0}C selama 30 menit dan high temperature short time (HTST) (T2), yaitu susu dipanaskan pada suhu 71 ^{0}C selama 15 detik, sedangkan perlakuan penyimpanan pada suhu kamar sebagai faktor S, terdiri atas 8 taraf, yaitu berturut-turut 0, 3, 6, 9, 12, 15, 18, dan 21 jam, dengan ulangan 3 kali. Parameter yang diukur meliputi: uji alkohol, kadar air, kadar lemak, kadar protein, dan jumlah mikroba susu pasteurisasi selama penyimpanan. Analisis data menggunakan analisis varian dan regresi linier sederhana. Hasil penelitian menunjukkan bahwa kadar air, kadar lemak, dan jumlah mikroba pada perlakuan suhu pasteurisasi tidak berbeda nyata ($P > 0,05$), tetapi berbeda nyata ($P < 0,05$) pada perlakuan lama penyimpanan. Sementara itu, kadar protein berbeda nyata ($P < 0,05$) baik pada perlakuan suhu pasteurisasi maupun lama penyimpanan. Dari penelitian ini dapat disimpulkan bahwa susu pasteurisasi masih baik dikonsumsi sampai umur penyimpanan 15-21 jam, sedangkan kadar proteinnya cenderung lebih baik apabila dipasteurisasi pada suhu 60 ^{0}C.

0151 SUNARLIM, R.
Pelayuan pada suhu kamar dan suhu dingin terhadap mutu daging dan susut bobot karkas domba. Aging meat at room and cold temperatures on meat quality and aging loss of sheep carcass /Sunarlim, R.; Setiyanto, H. (Balai Penelitian Ternak, Bogor (Indonesia)). 5 tables; 14 ref. Summaries (En, In). *Jurnal Ilmu Ternak dan Veteriner* (Indonesia) ISSN 0853-7380 (2001) v. 6(1) p. 51-58.

LAMB MEAT; AGING; TEMPERATURE; CARCASS COMPOSITION; QUALITY; WATER HOLDING CAPACITY; COOKING; COLOUR; TENDERNESS.

Tujuan penelitian ini membandingkan daging segar dengan daging yang dilayukan pada suhu kamar selama 12 jam, pada suhu 4 ^{0}C selama satu hari dan suhu 4 ^{0}C selama seminggu dari karkas domba lokal terhadap mutu daging yang dihasilkan. Untuk itu, penelitian pelayuan karkas domba telah dilakukan dengan menggunakan 12 ekor domba lokal jantan dan betina berbeda umur. Karkas dibagi dua: (1) bagian kanan dilayukan pada suhu 4 ^{0}C selama sehari dan seminggu pada suhu kamar selama 12 jam dan (2) karkas bagian kiri tanpa pelayuan (segar) sebagai pembanding. Rancangan kelompok berpola faktorial 2 x 2 (2 jenis kelamin dan 2 perlakuan yaitu pelayuan vs pelayuan) dari masing-masing perlakuan 3 macam pelayuan untuk penilaian mutu daging. Rancangan Kelompok Faktorial 2 x 3 (2 jenis kelamin dan 3 macam pelayuan) untuk penilaian susu bobot karkas. Ulangan dilakukan dua kali umur yang berbeda (tua dan muda). Parameter yang diukur adalah pH, daya mengikat air, susut masak, keempukan, warna daging, dan susut bobot karkas. Hasil yang diperoleh selama proses pelayuan terjadi penurunan pH, meningkatnya keempukan selama 12 jam pelayuan pada suhu kamar (1,84 kg), pada pelayuan suhu 4 ^{0}C selama sehari (2,03 kg), akan tetapi pada pelayuan suhu 4 ^{0}C selama seminggu dagingnya menjadi sangat empuk (0,92 kg) dibandingkan dengan daging segar dengan keempukan masing-masing 3,41 kg, 4,06 dan 3,66 kg. Warna kecerahan (1) warna kemerahan (a) dan warna kekuningan (b) umumnya meningkat akibat pelayuan dibandingkan dengan tanpa pelayuan, kecuali pelayuan pada suhu kamar selama 12 jam terjadi penurunan warna kemerahan (a) secara nyata. Pelayuan suhu 4 ^{0}C selama sehari, suhu kamar 12 jam, dan

suhu 4 ^{0}C selama seminggu tidak mempengaruhi daya mengikat air dan susut masak. Susut bobot karkas tertinggi terjadi pada pelayuan 4 ^{0}C selama seminggu (13,58 %), yang nyata lebih tinggi dibandingkan dengan pelayuan suhu kamar selama 12 jam (2,42 %) dan suhu 4 ^{0}C selama sehari (2,90 %).

K10 PRODUKSI HUTAN

0152 EFFENDI, M.
Penampilan pertumbuhan kayu merah (*Pterocarpus indicus* Wild.) di lapangan di bawah pengaruh perlakuan umur bibit. Growth performance of redwood (*Pterocarpus indicus* Wild.) in the field under effect of seedling age/Effendi, M. 5 tables; 8 ref. Summary (En). Appendices. *Buletin Penelitian Kehutanan* (Indonesia) ISSN 1410-1181 (1998) v. 3(2) p. 36-48.

PTEROCARPUS INDICUS; SEEDLINGS; AGE; GROWTH; CROP PERFORMANCE; QUALITY.

The redwood (*Pterocarpus indicus* Wild.) is one of the indigenous three species of East Nusa Tenggara region with a high economical value. This species has been widely used for reforestation programs in this region. Reforestation in dry tropical forest region like in East Nusa Tenggara has for a long time been ended with failures due to lack of appropriate technology which is significantly different compared to other wet tropical regions. Using best seedling quality is considered as one of the best assurance for the success of reforestation. The research finding best seedling quality of redwood relating to its seedling ages was conducted in Oetium, Timor Island, East Nusa Tenggara. The Randomized Completely Block Design was applied to this research with 4 blocks of 25 seedlings for every treatment at spacing of 3 x 2 m. The treatments applied in this research were seedling ages of 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; and 12 months. The effects of those treatment were measured through the evaluation of survival, height, and diameter growth every year until its survival was stable and its growth was not affected by the treatment. The correlations between seedling characters of root-top ratio, seedling height, and seedling diameter and its growth in the field were processed by using analyses regresion correlation. The results showed that seedling age had a significant effect on survival, seedling height and seedling diameter. The seedling death in the field occured only until the second year. On the other hand the significant effect of the treatment on seedling height and seedling diameter had only occured for 3 years after planting. The 6-month old seedling result in the best performance of the plantation either in terms of survival, height growth, or diameter growth. The higher the root-top ratio the better seedling quality were resulted. The highest of root-top ratio was reached by seedling of 6-month old. Root-top ratio is the best character for selection of good seedling quality.

0153 EFFENDI, M.
Pengaruh letak bahan stek pada tajuk ortet terhadap pertumbuhan stek pucuk beringin (*Ficus benjamina* L.) di persemaian dan di lapangan. Effect of cutting position in the ortet crown on growth of shoot cutting of *Ficus benjamina* L. in the nursery and in the field/Effendi, M. 3 ill., 5 tables; 5 ref. Summary (En). *Buletin Penelitian Kehutanan Kupang* (Indonesia) ISSN 1410-1181 (1998) v. 3(1) p. 1-10.

FICUS BENJAMINA; CUTTINGS; CROWN; GROWTH; SHOOTS; PLANTING STOCK; SURVIVAL.

Ficus benjamina L. is one of the most important tree species suitable for soil and water resources conservation purpose. This research aims to evaluate the effect of cutting positions in the ortet crown to the growth of shoot cutting of *Ficus benjamina* L. in the nursery and in the field. Ortet crown (ortet of 11-15 years old) from top to bottom was divided equally into 4 layers i.e: upper-top layer, lower-top layer, upper-bottom layer, and lower-bottom layer. Research in the nursery was done by applying Random Completely Block Design with 4 replicates/blocks of 100 shoot cutting each ortet crown layer. The effects of cutting position in the ortet crown were observed by measuring survival, ramet height, ramet diameter, and number of leaves every month until 6 months old. The ramet from the nursery stage trial were planted in the field. The planting design consisted of 4 replicates of Randomized Completely Block Design with 20 ramets per block at spacing of 3x2 m. Survival percentage, stem height, and stem diameter were

measured at 1 year after planting. The result on the nursery stage shows that there is a significant effect of the treatment on survival percentage, ramet height, ramet diameter, and number of leaves. The growth of plants in the field is still affected by the treatment applied at the nursery stage. The shoot cutting taken from lower-bottom layer (the lowest layer of the crown) shows the best performance of the growth both in the nursery and in field

0154 EFFENDI, M.
Pengaruh media tumbuh terhadap pertumbuhan stek pucuk beringin (*Ficus benjamina* L.) di persemaian dan di lapangan. Effect of potting media on growth of shoot cutting of *Ficus benjamina* L. in the nursery and in the field/Effendi, M. 2 ill., 5 tables; 8 ref. Summary (En) *Buletin Penelitian Kehutanan* (Indonesia) ISSN 1410-1181 (1998) v. 3(2) p. 26-35.

FICUS BENJAMINA; VEGETATIVE PROPAGATION; CUTTINGS; SHOOTS; GROWING MEDIA; PLANT NURSERIES; GROWTH; AGRONOMIC CHARACTERS.

The experiment was conducted to find the potting media for growth of shoot cutting of *Ficus benjamina* L. in the nursery and in the field. Random Completely Block Design was used for this nursery stage experiment with 4 replicates of 50 cuttings in each treatment. The treatment applied in this experiment was potting media, namely; soil (T); sand (P); cowdung (K); coconut coir dust (S); combination of soil and sand (T1P1); combination of soil and cowdung (T1K1); combination of soil and coconut coir dust (T1S1); combination of sand and cowdung (P1K1); combination of sand and coconut coir dust (P1S1); combination of cowdung and coconut coir dust (K1S1); mixing of soil, sand, and cowdung (T1P1K1); mixing of soil, sand, and coconut coir dust (T1P1S1); mixing of soil, cowdung, and coconut coir dust (T1K1S1); mixing of sand, cowdung, and coconut coir dust (P1K1S1); and mixing of soil, sand, cowdung, and coconut coir dust (T1P1K1S1). The effects of those treatments were evaluated by measuring the survival rate, ramet height, ramet diameter and number of leaves every month until 6 months old. The ramets from the trial of nursery stage were planted out in the field. The planting design consisted of 4 replicates of Randomized Completely Block, with 25 seedlings per block at spacing of 3 x 2m. Survival percentage, stem height, and stem diameter were measured at one year after planting. The result of the nursery stage showed that survival, ramet height, ramet diameter, and number of leaves were affected by media used. Media of mixture of soil, sand, cowdung and coconut coir dust in the same ratio (T1P1K1S1) is the best media for rooting, on the other hand media of mixture of soil, sand, and cowdung in the same ratio (T1P1K1) is the best media for growth. The growth of plantation in the field is still affected by the treatment applied at the nursery stage. The ramet grown in the media of T1P1K1 resulted in the best growth in the field.

0155 EFFENDI, M.
Pengaruh ukuran diameter dan jumlah ruas stek terhadap pertumbuhan stek cabang dan stek pucuk beringin (*Ficus benjamina* L.) di persemaian dan di lapangan. Effect of cutting diameter and number of node on growth of branch cutting and shoot cutting of *Ficus benjamina* L. in the nursery and in the field/Effendi, M. 11 tables; 11 ref. Summary (En). *Buletin Penelitian Kehutanan* (Indonesia) ISSN 1410-1181 (1998) v. 3(2) p. 12-25.

FICUS BENJAMINA; VEGETATIVE PROPAGATION; CUTTINGS; DIAMETER; NODES; BRANCHES; GROWTH; AGRONOMIC CHARACTERS; PLANT NURSERIES.

The previous research was conducted to evaluate the effect of cutting diameter on growth of branch cutting of *Ficus benjamina* L.in the nursery and in the field. Cuttings in various diameter were classified in 4 diameter classes: 1.0-2.5 mm; 2.6-5.0 mm; 5.1-7.5 mm; and 7.6-10.0 mm. The following research was conducted to evaluate the effect of number of node on growth of shoot cutting of *Ficus benjamina* L. in the nursery and in the field. The treatment applied in this research was number of node namely: one-node cutting, two-node cutting, three-node cutting, four-node cutting, and five-node cutting. The research used cutting in the same diameter of 1.0-2.5 mm (the best cutting diameter resulted from the previous research). Both research in the nursery used Random Completely Block Design with 4 replicates of 50 cuttings. The effect of cutting diameter and number of nodes were determined by measuring survival percentage, ramet height, and ramet diameter at the age of 6 months. The ramets from trials of nursery stage were planted

out in the field. The planting design consisted of four replicates of Randomized Completely Block Design, with 25 ramets per plot at spacing of 3 x 2 m. Survival percentage, stem height, and stem diameter were measured at one year after planting. The result of the nursery stage showed that there was significant effect of cutting diameter and number of node on survival percentage, ramet height, and ramet diameter. The growth in the field was still affected by the treatment applied in the nursery stage. Cutting in diameter of 1.0-2.5 mm (shoot cutting), and three-node cutting result in the best performance of the growth either in the nursery stage or plantation stage.

0156 KUSWANTO.
Respon pertumbuhan semai cendana pada beberapa jenis tanah dan tanaman inang selama di persemaian. [Respose of yellow sandal wood growth on some soil types and host plants in plant nurseries]/Kuswanto; Christanti H.S., I. (Universitas Gadjah Mada, Yogyakarta (Indonesia). Fakultas Kehutanan) 2 ill., 6 tables; 11 ref. Summary (In). [Proceedings of Fifteenth National Congress and Scientific Seminar of Indonesian Phytophatology Association: role of tropical phytopathology on sustainable agricultural and forestry development] Prosiding Kongres Nasional 15 dan Seminar Ilmiah Perhimpunan Fitopatologi Indonesia: peran fitopatologi tropika dalam pembangunan pertanian dan kehutanan yang berkelanjutan/Universitas Jenderal Soedirman, Purwokerto (Indonesia). Fakultas Pertanian. Purwokerto (Indonesia): UNSOED, 2000: p. 613-623.

SANTALUM; SEEDLINGS; GROWTH; HOST PLANTS; SOIL TYPES; PLANT NURSERIES.

Penelitian ini bertujuan untuk mengetahui dan mendapatkan bukti pengaruh beberapa jenis tanaman inang terhadap pertumbuhan semai cendana, mengetahui dan mendapatkan bukti bahwa pertumbuhan semai cendana akan berbeda bila ditanam pada beberapa jenis tanah bersama tanaman inang yang berbeda; mengetahui dan mendapatkan bukti urut-urutan keeratan hubungan antara beberapa jenis tanaman inang dan jenis tanah sebagai media semai cendana yang paling baik. Rancangan penelitian yang digunakan adalah Rancangan Acak Lengkap (RAL) yang disusun secara faktorial dan uji lanjut yang digunakan adalah uji lanjut metode Duncan Multiple Range Test (DMRT). Fakton-faktor yang digunakan yaitu: faktor pertama 3 jenis tanah dan faktor kedua adalah 5 jenis tanaman inang dimana semua perlakuan diulang 9 kali, yaitu 3 ulangan untuk semua perlakuan dengan masing-masing ulangan diulang 3 kali. Sehingga jumlah semai cendana seluruhnya adalah 5x3x3x3 = 135 contoh uji semai cendana. Hasil penelitian menunjukkan bahwa pada kombinasi perlakuan semai cendana yang ditanam bersama tanaman inang tembelekan pada tanah Grumusol (SaleG) berpengaruh paling baik untuk pertumbuhan semai cendana yaitu mencapai tinggi rata-rata 42,63 cm dan diameter 3,36 mm. Disusul kemudian kombinasi perlakuan semai cendana bersama inang tembelekan pada tanah Regusol (SaleR) dengan tinggi rata-rata 40,63 cm, serta diikuti kombinasi perlakuan semai cendana yang ditanam bersama inang turi pada tanah laterit (SaSgL), yaitu mencapai tinggi rata-rata 39,53 cm.

0157 MOKO, H.
Penelitian pendahuluan pengaruh penyimpanan scion terhadap keberhasilan sambungan pada *Eucalyptus pellita*. Preliminary study of the effect of scion storage on the success of *Eucalyptus pellita* grafted/Moko, H.; Adinugraha, H.A.; Chigira, O. 1 ill., 5 tables; 9 ref. Summary (En) *Buletin Penelitian Pemuliaan Pohon* (Indonesia) ISSN 1410-1165 (2001) v. 5(1) p. 11-20.

EUCALYPTUS PELLITA; SCIONS; STORAGE; BUDDING; ROOTSTOCKS; GRAFTING; PLANT PROPAGATION.

Eucalyptus is one of the forest tree species used as an important source of wood for pulp mills in most country especially in the Southern Asia and Australia. The increasing export of *Eucalyptus* for use in pulp mills demanded its planting in broad scale and needs many seeds for this purposes. The vegetative plant propagation especially on grafting technique can be achieved the tree improvement programme due to its increase the plant genetic gain. Preliminary study of the effect of scion storage on the success of *E. pellita* grafted was conducted at The Center of Research and Development of Biotechnology and Forest Tree Improvement at Yogyakarta. The objective of this experiment was to study the success of rind grafting technique and the effect of scion storage before its grafted to rootstock. The experiment was arranged in Randomized Block Design with 4 treatments and 3 replications. The treatments were long of scion storage

i.e.: direct graft, 1 day, 2 days and 3 days. The scion storage were conducted by its immerse in the water in the open plastic box. The experiment result showed that the direct graft gave better effect on the growth percentage (80 %), number of shoots (17), and the length of shoots (7,042 cm) than other treatments.

L01 PETERNAKAN

0158 USRI, N.
Pengaruh bobot badan awal terhadap pertumbuhan, konsumsi pakan dan air minum pada penggemukan pedet Frisian Holstein jantan. [Effect of initial body weight for growth, feed consumption, and water intake of male Frisian Holstein calves fattening]/Usri, N. (Universitas Padjadjaran, Bandung (Indonesia). Fakultas Peternakan). 3 tables; 13 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 66-73.

CALVES; CROSSBREDS; FEED CONVERSION EFFICIENCY; NUTRITIVE VALUE; WATER; BODY WEIGHT.

The research has been done at Center of Primary Seed (Balai Benih Utama) Cimangkok, Sukabumi during 5 months. Calves used in this research was male Frisian Holstein with 3 groups of initial body weight were 122,2 kg (treatment A), 93,2 kg (treatment B) and 78 kg (treatment C). The numbers of calves for each treatment were 5 heads with totally of calves were 15 heads. The methodology design used was Completely Randomized Design with some variables measured including growth, feed efficiency, ratio cost of feeds to increase 1 kg body weight and water intake. The result of research showed that daily gain was significantly influenced ($P < 0.01$) by initial body weight. Daily gain of treatment A, B, and C was 0,546 kg, 0,414 kg and 0,368 kg, respectively. Feed intake, feed efficiency, cost of feed to increase 1 kg body weight and water intake were not influenced by initial body weight. The average of feed intake was 2,911 % of body weight, feed efficiency was 0,118, cost of feed to increase 1 kg weight was Rp. 1.278,72 and water intake was 9,63 % of body weight.

L02 MAKANAN TERNAK

0159 BINTANG, I.A.K.
Pengaruh kandungan protein dalam ransum terhadap karkas entok (*Cairina moschata*). [Effect of protein content on rations of muscovy ducks (*Cairina moschata*) carcasses]/Bintang, I.A.K. (Balai Penelitian Ternak Ciawi (Indonesia)).4 tables; 14 ref. Summary (En). *Media Peternakan* (Indonesia) ISSN 0126-0472 (2001) v. 24(1) p. 23-37.

MUSCOVY DUCKS; RATIONS; PROTEIN CONTENT; PROXIMATE COMPOSITION; CARCASSES.

A study was conducted to find out the effect of protein content on the carcass of muscovy ducks. One hundred and sixty DOD, consisted of 80 males and 80 females, all DOD (0-3 weeks) were given starter layer. The treatments given growing period (3-6 weeks old) consisted of two protein level (12 % and 15 %) x 2 sexes (male and female), with 5 replicates each of 4 DOD was allocated randomly in litter cage of 1 x 1 square meter. Isocaloric ration (2600 kcal/kg) was given for all treatments. The finisher period (6-12 weeks old), all muscovy duck given same ration (12 protein and 2600 kcal/kg) was applied for all treatments. The experimental design for this study was Randomized Block Design, with factorial pattern (2x2). The result showed that the male muscovy was significantly ($P < 0.05$) higher than female in all parameters measured, except for the carcass percentage. Muscovy duck received grower ration with 15 % protein were not significantly different than that which received 12 % protein in all parameters measured, except breast weight ($P < 0.01$) and abdominal fat ($P < 0.05$). There was no interaction between protein ration and sex that affect all parameters measured, except male muscovy duck received 15 % protein increased breast weight, but decreased abdominal fat.

0160 BUDIANSYAH, A.
Pengaruh penggunaan tempe saga dan suplementasi kalsium-fosfor dalam ransum terhadap performan dan retensi zat makanan pada ayam broiler. The effect of saga bean and calcium-phosphorus supplementation in the ration on the performance and nutrient retention of broiler chickens/Budiansyah, A.; Hendalia, E.; Sumaja, W.A. 3 tables, 8 ref. Summaries (En, In). [Proceedings of the Seminar on BKS-PTN Barat Research Results] Prosiding Seminar Hasil Penelitian BKS-PTN Barat, Oktober 1999/Universitas Sriwijaya, Palembang (Indonesia). Fakultas Pertanian. Palembang (Indonesia), 1999: (pt. 26) 8 p.

BROILER CHICKENS; RATIONS; SUPPLEMENTS; SOYFOODS; PERFORMANCE; NUTRIENTS; CALCIUM; PHOSPHORUS.

Penelitian ini bertujuan untuk mengetahui pengaruh taraf penggunaan tempe saga (hasil fermentasi biji saga dengan menggunakan kapang tempe) dan penambahan mineral kalsium-fosfor dalam ransum terhadap performan ayam broiler. Sebanyak 180 ekor ayam pedaging jantan galur MF-202 G umur satu minggu dibagi secara acak ke dalam 36 unit perlakuan yang terdiri dari 4 taraf penggunaan tempe saga (0 %, 7,5 %, 15,0 % dan 22,5 %) dan 3 taraf penambahan sumber mineral kalsium-fosfor (0 %, 1 % dan 2 %), masing-masing terdiri dari 3 ulangan dan setiap ulangan terdiri atas 5 ekor ayam. Peubah yang diamati meliputi jumlah konsumsi ransum, pertambahan bobot badan, bobot karkas, angka konversi ransum serta retensi bahan kering dan protein kasar. Data diolah dengan menggunakan sidik ragam dalam Rancangan Acak Lengkap pola faktorial. Untuk melihat perbedaan pengaruh dari setiap perlakuan digunakan uji jarak berganda Duncan. Hasil penelitian menunjukkan bahwa tempe saga dapat digunakan sampai taraf 7,5 % tanpa berpengaruh buruk terhadap peubah yang diamati, kecuali terjadinya peningkatan angka konversi ransum. Penggunaan tempe saga pada taraf 15 dan 22,5 % akan menghasilkan performan ayam yang lebih rendah dibandingkan perlakuan lainnya. Penambahan mineral kalsium dan fofor kedalam ransum yang mengandung tempe saga tidak memberikan peranan yang berarti.

0161 CIPTAAN, G.
Penilaian kualitas protein ransum itik yang mengandung kulit pisang batu fermentasi. [Study protein quality in the duck diets containing fermented banana peels]/Ciptaan, G. (Universitas Andalas, Padang (Indonesia). Fakultas Peternakan). 2 tables; 11 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 50-54.

DUCKS; RATIONS; BANANAS; PEEL; FERMENTED PRODUCTS; PROTEIN QUALITY.

The experiment was conducted to study protein quality in the duck diets containing fermented banana peels. There were 5 levels of fermented banana peels used in this experiment. They were 0, 10, 20, 30 and 40 % in isoprotein (18 %) and isocaloric (3000 kcal). The ducks were randomly assigned to experimental diets in a Completely Randomized Design (CRD) with 4 replications. The result of the experiment showed that protein consumption, nitrogen retention, average weight gain and protein efficiency ratio were not significantly affected ($P > 0.05$) by any treatments. In conclusion, the fermented banana peels could be included as much as 40 % in the diets for ducks.

0162 FARLIS, J.
Pemberian bioda terhadap pertambahan berat badan sapi peranakan Ongole. [Effect of bioda on the average daily gain (ADG) of local Ongole cross cattle]/Farlis, J. (Universitas Andalas, Padang (Indonesia). Fakultas Peternakan) 3 tables; 12 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 26-31.

COWS; CROSSBREDS; LIQUID FERTILIZERS; PROBIOTICS; WEIGHT GAIN.

Bioda is commercial name of liquid fertilizer, which contains protein, minerals, and probiotics. These contents can be used as feed additive to ruminant. So, one experiment was conducted by using Completely Randomized Design (ARD) to evaluate the effect of bioda on the average daily gain (ADG) of local ongole cross cattle. Twenty-five ongole cross bulls divided into five groups were fed corn (stalk, leaves), concentrate and one level of bioda. There were five levels of bioda: 0 ml (as control), 3 ml, 6 ml, 9 ml per

head daily for 30 day treatment. The data were analyzed by using the analysis of variance. The result showed a significant levels of ADG were 0,814 kg, 0,9352 kg, 1,3766 kg, 1,5974 kg, 1,5901 kg respectively.

0163 GINTING, B.L.
Pemanfaatan tepung daun sengon (*Albizzia falcata*) dalam ransum ayam buras. [Utilization of sengon (*Albizzia falcata*) leaves meal in native chicken ration]/Ginting, B.L. (Universitas Jambi (Indonesia). Fakultas Peternakan) 4 tables; 19 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 12-19.

CHICKENS; FEED CONVERSION EFFICIENCY; PARASERIANTHES FALCATARIA; RATIONS.

This study was conducted to examine the effect of sengon leaves meal in the native chicken ration. There were four treatments in this experiments: R0 = ration without leaves meal, R1 = 5 % of ration was substituted by sengon leaves meal, R2 = 10 % of ration was substituted by sengon leaves meal and R3 = 15 % of ration was substituted by sengon leaves meal. This study used Randomized Block Design with four treatments and four replications. Parameters of this study were feed intake, body weight gain and feed conversion. The result showed that feed intake of R0 was the lowest (R0 > R1 = R2 = R3). Body weight gain of R3 was the lowest but body weight gain of R0 was same with R1 and R2 (R3 < R0=R1=R2). Feed conversion R1 was the lowest (R1 < R0=R2=R3) among the others, but feed conversion of R0 was same with R2 and R3. It can be concluded that sengon leaves meal can be used just 10 % in the native chicken ration.

0164 HUSMAINI.
Pengaruh pemberian ubi kayu fermentasi sejak periode rearing terhadap penampilan ayam kampung pada awal produksi. [The influence of using fermented cassava on rearing of native chicken at first period production]/Husmaini (Universitas Andalas, Padang (Indonesia). Fakultas Peternakan) 2 tables; 12 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 38-42.

CHICKENS; CASSAVA; FERMENTED PRODUCTS; ANIMAL PERFORMANCE; REARING TECHNIQUES.

This research was conducted to evaluate the influence of using fermented cassava in diet of native chicken on performance at early first period. Eighty female native chickens, 20 weeks in age were used and placed in cage house. Crude protein and metabolizable energy content in diet were 15.5 % and 2600 ccal/kg. Treatments were arranged as Randomized Block Design (RBD) with 4 treatments (0; 7.5; 15; 22.5 %) fermented cassava and 5 block of body weight as replication. Variables observed were feed consumption, gain weight, age and body weight in the first lay, weight of the first egg and egg production in the early four weeks of first period. Result of this experiment indicated that egg production was affected ($P < 0.05$) by treatments and the other variables were not significantly influenced ($P > 0.05$).

0165 MUGIYONO, S.
Pengaruh waktu pengurangan pemberian pakan terhadap kinerja ayam broiler. [The effect of time of feed denial on performance of broiler chicken]/Mugiyono, S. (Universitas Djenderal Sudirman, Purwokerto (Indonesia). Fakultas Peternakan) 4 tables; 16 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 43-49.

BROILER CHICKENS; FEEDING LEVEL; ANIMAL PERFORMANCE.

A research has been conducted to study the effect of time of feed denial on performance of broiler chicken. Experimental method used Completely Randomized Design. The treatment was the time of feed denial of 12 hours per days at 8 to 21 days old (P) that consisted of six grade: P0 = 0 hours per days (control); P1 = 12.00 to 24.00 o'clock; P2 = 18.00 to 06.00 o'clock; P3 = 24.00 to 12.00 o'clock; P4 = 06.00 to 18.00 o'clock. The performance observed were growth, body weight, feed consumption, feed conversion, income over feed cost, carcass weight and carcass percentage. Each trial until filled in four

chickens, its repeated five times so that wrapped in 100 broiler. The statistical analysis showed that time of feed denial were significantly (P < 0,05) affected performance (growth, body weight and feed consumption), and did not significantly (P > 0.05) affect on feed conversion, income over feed cost, carcass weight, and carcass percentage. The research result could be concluded that the time of feed denial of 12 hours per days at 06.00 to 18.00 o'clock decreased growth, body weight and feed consumption, but time of feed denial of 12 hours per days at 12.00 to 24 o'clock, 18.00 to 06.00 o'clock, and 24.00 to 12.00 o'clock did not make any difference on performance of broiler chickens.

0166 NOVA, K.

Kajian penggunaan tepung kunyit (*Curcuma domestica*) dalam ransum ayam pedaging. [Use of curcuma (*Curcuma domestica*) meals in the ration of broiler]/Nova, K. (Universitas Lampung (Indonesia). Fakultas Pertanian). 2 tables; 8 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 20-25.

BROILER CHICKENS; CURCUMA LONGA; FEED ADDITIVES; RATIONS.

Curcuma (*Curcuma domestica*) meals is one of feed additives that can be added in the ration of poultry because curcuma meal contains curcumin as antibacteria and improving digestion system of broiler. The experiment was intended to find out effect of using curcuma meal in the ration on feed consumption, body weight gain, and feed efficiency of broilers. Eighty broilers of Lohman Strain on 2 weeks old were used in this experiment. The chicks were randomly assigned to five diets with four replications using Completely Randomized Design. The treatment were 0 %, 0.6 %, 0.9 %, and 1.2 % of curcuma meal in the ration. Data was subjected to analysis of variance and orthogonal polynomial contrast. The result showed that use of curcuma meal in the ration up to 1.2 % did not give significant influence on feed consumption and body weight gain of broilers. But, the treatment gave a highly significant quadratic (P < 0.01) influence on feed efficiency. Use of curcuma meal to the level of 0.6 % gave optimal response with feed efficiency of 50.66 %.

0167 SIREGAR, B.

Pengaruh penggantian bungkil kelapa dengan bungkil inti sawit terhadap performans produksi telur puyuh (*Coturnix-coturnix* Japonica). [The effect of substitution of palm kernel cake for coconut meal on quails (*Coturnix-coturnix* Japonica egg production)]/Siregar, B. (Universitas Jambi (Indonesia). Fakultas Peternakan). 4 tables; 13 ref. Summary (En). *Jurnal Peternakan dan Lingkungan* (Indonesia) ISSN 0852-4092 (2001) v. 7(3) p. 6-11.

QUAILS; RATIONS; COCONUTS; OILSEED CAKES; EGG PRODUCTION.

In order to find out the effect of substitution of palm kernel cake for coconut meal, 100 female quails of three weeks old were used and classified into five groups based on body weight. Each group had four treatments and each treatment had five quails. The quails were kept in an individual cage of the size of 25 x 15 x 15 cm. The experiment was designed using the Randomized Completely Block Design (RBD), with four levels of substitution of coconut meal with palm kernel cake as treatments: R0 (basal ration with 15 % coconut meal + 0 % palm kernel cake); R1 (basal ration with 10 % coconut meal + 5 % palm kernel cake); R2 (basal ration with 5 % coconut meal + 10 % palm kernel cake); R3 (basal ration with 0 % coconut meal + 15 % palm kernel cake). Parameters measured were feed intake, the initial age of laying eggs, body weight at maturity, egg production, egg weight and feed efficiency. The results showed that the substitution of coconut meal with palm kernel cake had no significant effect (P > 0.05) on all parameters. Based on the results, it can be concluded that palm kernel cake could replace coconut meal in quails ration.

0168 UHI, H.T.

Pengaruh pemberian siput murbei (*Pomacea* sp.) terhadap pertambahan bobot badan dan produksi telur itik Mojosari. [Effect of mulberry snail (*Pomacea* sp.) application on body weight increase and egg production of Mojosari ducks (Indonesia)]/Uhi, H.T.; Tirajoh, S.; Usman (Loka Pengkajian Teknologi Pertanian Koya Barat, Jayapura (Indonesia)) 1 ill., 3 tables; 6 ref. Summary (In). [Proceedings

of the Assessment Programs and Results of Animal Husbandry and Fisheries in Irian Jaya (Indonesia)] Prosiding Program dan Hasil Pengkajian Peternakan dan Perikanan di Irian Jaya/Sahari, D.; Uhi, H.T.; Lewaherilla, N.E.; Nggobe, M. (eds.); Loka Pengkajian Teknologi Pertanian Koya Barat, Jayapura (Indonesia). Jayapura (Indonesia): LPTP Koya Barat, 1997: p. 33-40.

DUCKS; POMACEA; PRODUCTION INCREASE; EGGS; BODY WEIGHT; COST BENEFIT ANALYSIS.

Siput murbei (*Pomacea* sp.) banyak dijumpai di Desa Koya Barat, namun selama ini belum dimanfaatkan sebagai pakan ternak itik. Untuk itu telah dilakukan penelitian tentang siput murbei sebagai pakan ternak itik. Maksud penelitian ini adalah untuk mengetahui berbagai kombinasi penggunaan siput murbei dalam ransum anak itik (unsex) dan itik betina petelur. Itik yang digunakan adalah itik Mojosari tipe petelur berumur 6 bulan sebanyak 8 ekor dan anak itik umur 14 hari sebanyak 8 ekor. Ransum yang digunakan adalah campuran ransum yang terdiri dari jagung halus, dedak, bungkil kedelai, premix A, kapur, garam ditambah dengan tambahan campuran siput murbei (*Pomacea* sp.) sebagai perlakuan dengan tingkat pemberian siput 5 %, 10 %, 15 % dan kontrol 0 % (tanpa pemberian siput). Rancangan yang digunakan adalah Rancangan Acak Lengkap (Completely Randomized Design) dengan 2 ulangan sehingga terdapat 8 unit percobaan masing-masing untuk anak itik dan 8 unit percobaan untuk itik betina petelur. Uji statistik menunjukkan bahwa pemberian siput murbei tersebut tidak memperlihatkan pengaruh terhadap pertumbuhan bobot badan, namun pemberian siput murbei cenderung memberikan perbedaan antara perlakuan dengan rata-rata pertambahan bobot badan sampai akhir pemeliharaan masing-masing perlakuan adalah 385 gram untuk perlakuan A (siput murbei 5 %), 468 gram perlakuan B (siput murbei 10 %), 520 gram perlakuan C (siput murbei 15 %) dan 380 gram perlakuan D (tanpa siput murbei). Hasil penelitian ini menunjukkan bahwa tingginya prosentase pemberian siput peningkatan bobot badan akan lebih tinggi, sedangkan pemberian optimal dalam penelitian ini belum diketahui. Nilai B/C ratio dari pemberian siput murbei 15 % adalah 1.25.

L51 FISIOLOGI TERNAK - NUTRISI

0169 AISJAH, T.
Nilai kecernaan protein ransum yang mengandung bungkil biji jarak (*Ricinus communis* Linn) terfermentasi pada ayam broiler. The digestibility value of ration protein containing of castor (*Ricinus communis* Linn) oil meal on broiler/Aisjah, T. (Universitas Padjadjaran, Bandung (Indonesia). Fakultas Peternakan). 2 tables; 5 ref. Summaries (En, In). *Bionatura* (Indonesia) ISSN 1411-0903 (2000) v. 2(3) p. 151-156.

BROILER CHICKENS; RICINUS COMMUNIS; RHIZOPUS OLIGOSPORUS; FERMENTED PRODUCTS; RATIONS; DIGESTIBILITY.

Penelitian mengenai "Nilai Kecernaan Protein Ransum yang mengandung Bungkil Biji Jarak (*Ricinus communis* Linn) Terfermentasi pada Ayam Broiler", telah dilaksanakan di kandang ternak unggas Fakultas Peternakan Universitas Padjadjaran, Jatinangor, Sumedang, selama 42 hari mulai tanggal 10 April - 22 Mei 1999. Tujuan penelitian ini adalah untuk mengetahui nilai kecernaan protein dari ransum yang mengandung produk fermentasi bungkil biji jarak sebagai bahan baku pakan alternatif dan tingkat penggunaannya dalam ransum ayam broiler. Penelitian dilaksanakan secara eksperimen dengan menggunakan Rancangan Acak Lengkap (RAL) yang terdiri atas lima perlakuan ransum dan masing-masing diulang sebanyak empat kali. Tingkat bungkil biji jarak terfermentasi dalam ransum adalah 0; 3; 6; 9; dan 12 %. Ternak percobaan yang digunakan adalah ayam broiler final stock "Arbor Acres" sebanyak 20 ekor yang berumur enam minggu. Ayam dikelompokkan ke dalam 20 kandang individual secara acak tanpa pemisahan jenis kelamin dan setiap kandang terdiri atas satu ekor ayam. Hasil penelitian ini menunjukkan bahwa: 1) Bungkil biji jarak yang diolah melalui proses fermentasi dengan kapang *Rhizopus oligosporus* dapat dijadikan bahan baku pakan alternatif untuk menyusun ransum ayam broiler; 2) Penggunaan bungkil biji jarak produk fermentasi sampai tingkat 12 % dalam ransum ayam broiler tidak berpengaruh terhadap kecernaan protein ransum.

L53 FISIOLOGI TERNAK - REPRODUKSI

0170 ISNAINI, N.

Manajemen IB dan evaluasi kualitas semen menjelang pelaksanaan IB pada sapi perah di wilayah kerja KUD Karang Ploso Kab. Malang. [Artificial insemination management and evaluation of semen quality approaching artificial insemination (AI) implementation on dairy cattle in Karang Ploso, Malang (Indonesia)]/Isnaini, N.; Suyadi; Rahmaningsih, D.E. (Universitas Brawijaya Malang (Indonesia). Fakultas Peternakan) 1 ill., 2 tables; 10 ref. Summaries (En, In). *Habitat* (Indonesia) ISSN 0853-5167 (2001) v. 12(3) p. 192-198

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DAIRY CATTLE; ARTIFICIAL INSEMINATION; MANAGEMENT; SEMEN; QUALITY; EVALUATION; JAVA.

Penelititan dilaksaakan pada bulan Oktober 2001 di peternakan sapi perah yang tergabung dalam wilayah kerja KUD Karangploso yang terdiri dari tiga lokasi penampungan yaitu Bocek, Karangploso dan Ngenep. Tujuan penelitian adalah untuk mengetahui manajemen IB dan mengevaluasi kualitas semen menjelang pelaksanaan IB. Materi penelitian yang digunakan adalah semen beku sapi perah dan inseminator yang ada di lokasi penelitian. Metode yang digunakan adalah survey. Data mengenai manajemen IB dianalisa secara deskriptif sedangkan data tentang lama dan temperatur thawing serta kualitas semen menjelang pelaksanaan IB (motilitas individu spermatozoa) pada kedua inseminator dianalisis menggunakan uji t tidak berpasangan. Hasil penelitian menunjukkan bahwa manajemen IB yang meliputi penanganan semen oleh inseminator yaitu pengisian N2 cair dilakukan setiap hari dan pengambilan straw dari container tidak lebih dari tiga detik, waktu IB yang dilakukan kurang dari 12 jam setelah pengamatan birahi, serta deposisi semen pada saat IB pada posisi 4. Thawing yang meliputi suhu thawing dari tiga lokasi terdapat perbedaan masing-masing 22,7 ± 0,65 (Bocek), 23 ± 0,78 ^{0}C (Karangploso) dan 22 ± 0,33 ^{0}C (Ngenep), lama thawing yang dilakukan di tiga lokasi tidak terdapat perbedaan yaitu Bocek 14 ± 8,01 detik, Karangploso 14 ± 5,95 detik dan Ngenep 15 ± 6,43 detik. Sedangkan thawing yang dilakukan oleh dua inseminator terdapat perbedaan yang sangat nyata ($P < 0,01$) pada lama thawing yaitu rata-rata 10 ± 0 detik dan 18,6 ± 7,3 detik untuk inseminator A dan B. Kualitas semen untuk motilitas individu spermatozoa dari tiga lokasi penampungan tidak terdapat perbedaan yakni rata-rata untuk lokasi penampungan Bocek 17,73 ± 7,86 %, Karangploso 23,18 ± 5,6 % dan Ngenep 20 ± 7,82 %. Dari dua inseminator yang berbeda motilitas individu spermatozoa rata-rata 21 ± 6,3 %, dan 19 ± 8,5 % untuk inseminator A dan B. Hasil penelitian disimpulkan bahwa kualitas semen menjelang pelaksanaan IB masih dibawah standar. Dari hasil penelitian disarankan untuk inseminator agar dalam melakukan thawing memperhatikan suhu air dan lama thawing.

0171 RUSDIN.

Pengaruh berbagai pengencer dan waktu pembekuan terhadap keutuhan membran dan akrosom sperma domba. [Effect of some diluter and freezing period on membrane intact and acrosome intact of sheep sperm]/Rusdin (Universitas Tadulako, Palu (Indonesia). Fakultas Pertanian) 5 tables; 15 ref. Summaries (En, In). *Jurnal Agroland* (Indonesia) ISSN 0854-641X (2001) v. 8(3) p. 341-348.

SHEEP; SEMEN; FREEZING; MEMBRANES; ACROSOME.

Penelitian ini telah dilaksanakan di Laboratorium Reproduksi Ternak Fakultas Peternakan Universitas Padjadjaran dari tanggal 28 Mei 1997 - tanggal 27 Agustus 1997. Tujuan penelitian adalah untuk mempelajari pengaruh macam pengencer dan lama pembekuan terhadap keutuhan membran dan keutuhan akrosom sperma domba dan interaksi dengan keduanya. Rancangan penelitian yang digunakan adalah Rancangan Acak Kelompok (RAK) pola faktorial 3 x 5 x 3. Perlakuan yang dicobakan terdiri dari 3 (tiga) macam pengencer (tris kuning telur, sitrat kuning telur, dan susu krim) dan 5 (lima) fase lama pembekuan (5, 10, 15, 20, dan 25 menit) terhadap keutuhan membran dan akrosom sperma. Setiap perlakuan diulang sebanyak 3 (tiga) kali. Hasil penelitian menunjukkan bahwa pengencer tris kuning telur dan lama pembekuan 15 menit berpengaruh nyata lebih baik ($P < 0,05$) terhadap keutuhan membran (45,00 %) dan keutuhan akrosom (44,37 %), dibandingkan pengencer sitrat kuning telur serta susu krim pada lama pembakuan yang lain dan kedua faktor terjadi interaksi.

P10 SUMBERDAYA AIR DAN PENGELOLAANNYA

0172 IRAWAN.
Evaluasi teknis dan finansial penerapan teknik konservasi air pada lahan kering berlereng di Wates, DI Yogyakarta. [Technical and financial evaluation of water conservation technique applied on sloping dry land at Wates, Yogyakarta (Indonesia)]/Irawan; Suhardjo, M.; Vadari, T.; Heryani, N.; Hadi, S. 6 tables; 9 ref. Summary (En). [Proceedings of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.); Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 305-334.

JAVA; WATER CONSERVATION; EVALUATION; SLOPING LAND; DRY FARMING; RUNOFF WATER; ECONOMIC ANALYSIS.

Kegiatan penelitian lapangan dengan tujuan untuk mengetahui efektivitas sistem rorak sebagai teknik konservasi air pada lahan kering berlereng telah dilakukan di Wates, pada tahun 1998/1999 dan 1999/2000. Penelitian menggunakan Rancangan Acak Kelompok dengan ukuran petak 120 m^2 dan tujuh perlakuan mengenai panjang dan jarak antar rorak. Hasil penelitian menunjukkan bahwa sistem rorak dapat mengontrol jumlah aliran permukaan (run-off) dan erosi pada usahatani lahan kering berlereng. Namun demikian penerapan sistem rorak tersebut berakibat pada pengurangan keuntungan usahatani. Hal ini menunjukkan perlu adanya bantuan sumber dana bagi petani lahan kering untuk menerapkan teknik konservasi pada lahan usahataninya. Berdasarkan analisis finansial, kriteria investasi yang masih memungkinkan bagi petani lahan kering untuk menerapkan sistem rorak antara lain masa tenggang waktu pengembaliannya paling cepat dalam 3 tahun dan bunganya cukup rendah, sekitar 12 % per tahun.

P11 PENGAIRAN

0173 HATTA, M.
Pengaruh drainase dan pencucian terhadap sifat kimia tanah pada sulfat masam dari Delta Telang, Sumatera Selatan. [Effect of drainage and leaching on soil chemical properties on acid sulphate soil from Delta Telang, South Sumatra (Indonesia)]/Hatta, M. (Loka Pengkajian Teknologi Pertanian, Pontianak (Indonesia)). 9 tables; 7 ref. Summary (En). [Proceedings of the Regional Seminar on Agricultural Technology Development in West Kalimantan (Indonesia)] Prosiding Seminar Regional Pengembangan Teknologi Pertanian Spesifik Lokasi di Kalimantan Barat/Rusastra, IW.; Sahari, D.; Swastika, D.K.S.; Syam, A. (eds.); Pusat Penelitian dan Pengembangan Sosial Ekonomi Pertanian, Bogor (Indonesia). Bogor (Indonesia): PSE, 2001: p. 116-123.

ACID SULPHATE SOILS; PYRITES; OXIDATION; DRAINAGE; LEACHING; PH; SUMATRA.

The research aimed to investigate soil chemical characteristics of acid sulphate soil as the result of draining and leaching on three different depths (0-15 cm, 15-30 cm, and 30-45 cm) especially soil acidity, SO_4, Fe, Al, Mn, K, Ca, Mg and EC (Electric Conductivity). The research was conducted in the green house and laboratory of Department of Soil Science, Bogor Agriculture University from April to September 1999. The research used undisturbed soil samples by using PVC cylinder with 20 cm in diameter and 95 cm in length. The research was arranged in Completely Randomized Design (CRD) with two factors consisting of eight levels of draining (K0, K1, K2, K3, K4, K5, K6, and K7), four levels of leaching (C1, C2, C3, and C4), and three replications. The three different depths especially 0-15 cm, draining increased soil acidity and SO_4^{-2} concentration, but the concentration of exchangeable Fe, exchangeable Al, K^+, Ca^{2+}, Mg^{2+}, and EC to be decreased; meanwhile exchangeable Mn gave the same effect. The leaching treatment decreased the soil characteristics.

P33 KIMIA DAN FISIKA TANAH

0174 FAHRUNSYAH.
Pengaruh lateks alam terhadap beberapa sifat fisika tanah Ultisols. Effects of natural latex on the physical characteristic of Ultisols soil/Fahrunsyah (Universitas Mulawarman, Samarinda (Indonesia). Fakultas Pertanian) 4 tables; 6 ref. Summary (En). *Jurnal Budidaya Pertanian* (Indonesia) ISSN 0852-287X (Sep 2000) v. 6(2) p. 90-95.

LATEX; APPLICATION RATES; SOIL CHEMICOPHYSICAL PROPERTIES; ACRISOLS.

An experiment was conducted in the greenhouse to determine some effects of natural latex on the physical characteristic of Ultisols soil. A Completely Randomized Design was used in the experiment, consisted of 10 treatments and 3 replications. The treatments were: L0 (without latex), L1 = 2 tons concentrated latex/ha, L2 = 4 tons concentrated latex/ha, L4 = 2 tons fresh latex/ha, L5 = 4 tons fresh latex/ha, L6 = 8 tons fresh latex/ha, L7 = 2 tons skim latex/ha and L9 = 8 tons skim latex/ha. Results of the experiment indicated that application of different kind and dosages of natural latex was able to improve physical characteristic of Ultisols, such as aggregation enhancement, aggregate stability index, aeration pore, total porosity and bulk density reduction. The role of latex tend to be linked with the increase of latex dosage.

0175 HARYONO.
Peranan rorak dan slot mulsa dalam peningkatan kelembapan tanah pada lahan kering beriklim kering. [Role of soil management and mulches on increasing soil moisture in dry climate dryland]/Haryono; Kurnia, U. 2 ill., 4 tables; 11 ref. Summary (En). [Proceedings of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.); Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 461-471.

NUSA TENGGARA; SOIL CONSERVATION; MULCHES; SOIL WATER CONTENT; DRY FARMING; DRY SEASON; SOIL CHEMICOPHYSICAL PROPERTIES.

Kekurangan air merupakan kendala utama pada pertanian lahan kering beriklim kering. Kecamatan Alas di wilayah Sumbawa Propinsi Nusa Tenggara Barat, pada bulan tertentu mempunyai curah hujan besar dalam waktu singkat, juga mempunyai bulan kering selama beberapa bulan, sehingga pada bulan-bulan tertentu ketersediaan air tanah sangat kurang berakibat petani tidak bisa tanam. Untuk mengatasi persoalan tersebut, maka dilakukan penelitian yang bertujuan untuk bisa memperpanjang masa tanam; yaitu beberapa teknologi konservasi, dan bisa diterapkan oleh petani dengan biaya yang terjangkau. Penelitian dilaksanakan di Kampung Baru, Desa Mapin Kebak, Kecamatan Alas, Kabupaten Sumbawa Besar, Propinsi Nusa Tenggara Barat. Lahan yang digunakan adalah milik petani, dengan kemiringan lahan 6-12 % termasuk dalam jenis tanah Alfisols, percobaan berada pada lereng bawah. Rancangan yang dipergunakan Acak Kelompok secara faktorial, dengan faktor pertama vertikal interval 6 m dan 9 m, faktor kedua adalah teknik konservasi tanah yaitu: rorak, slot mulsa, dan teras gulud dengan kombinasi pakan ternak. Tanaman indikator jagung hibrida dengan jarak tanam 70 cm x 20 cm, diberi pupuk urea, SP-36, dan KCl. Parameter yang diamati adalah curah hujan harian, kelembapan tanah setelah 4 hari hujan terakhir, dan produksi tanaman jagung. Hasil penelitian menunjukkan bahwa pembuatan rorak hanya bisa meningkatkan kelembapan tanah efektif sampai jarak 150 cm, selebihnya relatif sama. Dari dua jarak 6 m dan 9 m dengan ukuran rorak 200 cm x 30 cm x 30 cm, untuk produksi jagung kering terlihat bahwa perlakuan rorak mempunyai hasil paling tinggi dibandingkan dengan perlakuan lainnya.

0176 HERVIYANTI.
Pemanfaatan senyawa polifenol dari tanaman gambir untuk meningkatkan ketersediaan unsur P Ultisol dan serapan P tanaman kedelai (*Glycine max* L. Merr). The use of polyphenol of gambir to increase phosphorus availability on Ultisol and P uptake of soybean/Herviyanti; Emalinda, O.; Prima, S. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 4 tables; 8 ref. Summary (En). *Jurnal Penelitian Andalas* (Indonesia) (2000) v. 12(32) p. 98-106.

GLYCINE MAX; UNCARIA GAMBIR; POLYPHENOLS; PHOSPHORUS; ACRISOLS; NUTRIENT AVAILABILITY; ABSORPTION; DRY MATTER CONTENT.

The study on the use of gambir as the source of polyphenol to increase phosphorus availability on Ultisol and P uptake of soybean was conducted at Agriculture Faculty, Andalas University, Padang. The objective of this study was to evaluate the ability of polyphenol to increase available P on Ultisol, therefore P that can be uptake by soybean increase. Randomized Completely Design was used as experimental design in this study which is consisted of six treatments and three replications. The treatments are polyphenol concentrations: 0, 20, 40, 60, 80 and 100 ppm. The result of this study showed that polyphenol application can increase available P on Ultisol, so P uptake and dry weight of soybean increase. At 40 ppm, polyphenol shows the greatest influence. At this concentrations, available P increases that 19,56 ppm and P uptake and dry weight of soybean increase that are 3,61 g/pot and 7,4 mg/pot, respectively

0177 PARTOYO.
Perubahan sifat fisik Regosol abu vulkanik akibat pemberian tiga macam bahan organik. [Change of physical properties on vulcanic ash Regosols caused by organic matter application]/Partoyo (Universitas Pembangunan Nasional "Veteran", Yogyakarta (Indonesia)); Hastuti, S. 5 ill., 2 tables; 15 ref. Summary (In). [Proceedings of the Seminar on Specific Location Agricultural Technology on Increasing Farmers Welfare and Environment Conservation] Seminar Teknologi Pertanian Spesifik Lokasi Dalam Upaya Peningkatan Kesejahteraan Petani dan Pelestarian Lingkungan/Musofie, A.; Wardhani, N.K.; Shiddieq, D.; Soeharto; Mudjisihono, R.; Aliudin; Hutabarat, B. (eds.); Instalasi Penelitian dan Pengkajian Teknologi Pertanian, Yogyakarta (Indonesia). Yogyakarta (Indonesia): IPPTP, 2000: p. 331-335.

REGOSOLS; ORGANIC MATTER; ORGANIC FERTILIZERS; SOIL CHEMICOPHYSICAL PROPERTIES.

Regosol abu vulkanik merupakan tanah cukup luas sebarannya di Daerah Istimewa Yogyakarta. Secara fisika dan kimia, kesuburan tanah ini pada umumnya rendah. Tanah ini bertekstur kasar, berstruktur butir tunggal, agregasi belum berkembang, dan porositas didominasi pori lebar sehingga kemampuan menahan lengas rendah. Perbaikan sifat fisika tanah ini diperlukan untuk meningkatkan agregasi dan kemantapannya. Penelitian dilakukan dengan percobaan pot untuk mendekomposisikan tiga macam bahan organik, yaitu azolla (01), daun kacang tanah (02), dan jerami (03) di tanah Regosol dari Kalitirto, Berbah, Sleman, Yogyakarta. Masing-masing bahan organik dicampurkan ke dalam 5 kg setara kering mutlak tanah dengan takaran 40 ton per hektar. Dekomposisi dilakukan dalam kondisi kelengasan sekitar kapasitas lapang selama 3 (T1), 6 (T2), 9 (T3), dan 12 (T4) pekan. Untuk mengetahui pengaruh Nitrogen terhadap proses dekomposisi bahan organik, dibuat perlakuan penambahan Urea dengan takaran 0 (N0), 100 (N1), dan 200 (N2) kg per hektar. Kombinasi perlakuan tersebut disusun secara Acak Lengkap Faktorial dalam 3 ulangan. Hasil menunjukkan bahwa selama dekomposisi azolla, daun kacang tanah, dan jerami terjadi perbaikan struktur tanah Regosol dengan kecenderungan peningkatan persentase agregasi, kemantapan agregat, dan persentase pori mikro, serta penurunan persentase pori makro.

0178 RUSNETTY.
Efek mikoriza vesikula arbuskula (MVA) dan fosfat alam terhadap beberapa sifat kimia, serapan hara, dan produksi cabai merah (*Capsicum annuum* L.) pada tanah gambut. Effects of vesicular arbuscular mycorrhizae and rock phosphate on some chemical properties of soil, P absorption and red chili (*Capsicum annuum* L.) yield on peat soil/Rusnetty (Universitas Taman Siswa, Padang (Indonesia). Fakultas Pertanian); Mayerni, R. 3 tables; 7 ref. Summary (In). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2002) v. 10(1) p. 8-11.

CAPSICUM ANNUUM; VESICULAR ARBUSCULAR MYCORRHIZAE; ROCK PHOSPHATE; SOIL CHEMICOPHYSICAL PROPERTIES; SOIL ANALYSIS; YIELDS; PEAT SOILS.

The research objectives were (1) to study the interaction between MVA and rock phosphate in affecting the soil pH, available P, cation exchange capacity, plant dry weight and red chili yield per pot. (2) to use slow release rock phosphate as an alternative P fertilizer to increase the peat soil productivity, (3) to get

knowledge on the ability of MVA in assissting the absorption of P in peat soil. This pot experiment was conducted in a greenhouse. Factorial 3x5 design with three replications was applied. Factor A was three levels of MVA (a0 = without MVA al =100 g inoculants per pot, a2=200 g inoculants per pot) and factor B was five levels of rock phosphate (b0 = without rock phosphate, b1=100 kg/ha, b2 =200 kg/ha, b3=300 kg/ha, b4 = 400 kg/ha). MVA and rock phosphate treatments showed no interaction on parameters studied. MVA treatment alone has no effect on soil pH, available P and CEC of soil but it affects P content of plant, plant dry weight and red chilli yield per pot. Rock phosphate treatment significantly affects the soil pH, available P. CEC, P content of plant; plant dry weight and red chilli yield per pot. The treatment with rock phosphate up to 400 kg/ha resulting in an increase of available P, plant dry weight and red chilli yield per pot. However the results were not significantly different from that of 300 kg/ha of rock phosphate treatment.

0179 SHOLEH.
Pencampuran P-alam dengan belerang untuk meningkatkan kelarutan P-alam di dalam tanah. [Mixing of natural phosphate with sulphur to increase the solubility of natural phosphate in the soil]/Sholeh; Sulaeman; Hamid, A.; Prihatini, T. 5 tables; 8 ref. Summary (In). [Proceedings of the National Seminar on Reorientation of Soil Resources, Climate and Fertilizer Utilization, Book 1] Prosiding Seminar Nasional Reorientasi Pendayagunaan Sumberdaya Tanah, Iklim, dan Pupuk, Buku 1/Sofyan, A.; Irianto, G.; Agus, F.; Irawan; Suryanto, W.J.; Prihatini, T.; Anda, M. (eds.); Pusat Penelitian dan Pengembangan Tanah dan Agroklimat, Bogor (Indonesia). Bogor (Indonesia): PUSLITBANGTANAK, 2001: p. 369-379.

PHOSPHATE FERTILIZERS; SULPHUR FERTILIZERS; SOLUBILITY; SOIL CHEMICO-PHYSICAL PROPERTIES.

Penelitian pengaruh pencampuran belerang dengan P-alam untuk meningkatkan kelarutan P-alam telah dilakukan di laboratorium Pusat Penelitian Tanah dan Agroklimat pada tahun 1999. Penelitian menggunakan Rancangan Acak Kelompok dengan 16 perlakuan yang merupakan kombinasi dari empat tingkat pencampuran P-alam dengan belerang kali dua butiran belerang kali dua inokulan. Empat tingkat pencampuran P-alam denga belerang yaitu 0, 50, 100, dan 125 %. Yang dimaksud dengan 100 pencampuran yaitu setara dengan berat S pada pencampuran 100 % dengan asam sulfat. Dua butiran belerang yang digunakan adalah kasar (150-100 micrometer) dan halus (kurang dari 100 micrometer). Dua inokulan adalah dengan dan tanpa inokulan *T. thiooxidans*. Campuran P-alam dan belerang tersebut kemudian diinkubasikan ke dalam tanah Inceptisols yang berasal dari Yogyakarta. Pengamatan kelarutan P-alam dilakukan pada waktu 2, 4, 6, dan 8 minggu setelah inkubasi dengan indikator kelarutan P-alam berupa P larut dalam air, P dengan pengekstrak Bray-1, dan Ca-dapat tukar. Sebagai indikator adanya oksidasi belerang diukur pula sulfat terekstrak dalam KH_2PO_4 dan pH tanah. Hasil penelitian menunjukkan ada pengaruh pencampuran belerang terhadap kelarutan P-alam. Makin tinggi tingkat pemberian belerang makin tinggi kelarutan P-alam; butiran belerang kasar (150-100 micrometer) tidak berbeda nyata dengan butiran belerang halus (100 micrometer) dalam pengaruhnya terhadap kelarutan belerang; tidak ada pengaruh inokulan terhadap kelarutan P-alam. Pencampuran belerang menyebabkan meningkatnya kandungan S-KH_2PO_4 dan menurunnya pH dalam tanah.

P34 BIOLOGI TANAH

0180 BAON, J.B.
Pertumbuhan tanaman kopi muda yang diinokulasi jamur mikoriza arbuskular dan produksi awalnya. Growth of immature coffee trees inoculated with arbuscular mycorrhizal fungus and their initial production/Baon, J.B.; Wibawa, A. (Pusat Penelitian Kopi dan Kakao Indonesia, Jember (Indonesia)) 4 ill., 2 tables; 13 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(3) p. 132-141.

COFFEA ARABICA; VESCULAR ARBUSCULAR MYCORRHIZAE; INOCULATION; PHOSPHATE FERTILIZERS; NUTRIENT UPTAKE; GROWTH.

Penelitian peranan inokulasi jamur mikoriza terhadap pertumbuhan dan produksi tanaman kopi pada aras tanaman masih sangat jarang. Untuk mengkaji jasad renik tanah, khususnya jamur mikoriza arbuskular dalam meningkatkan pertumbuhan dan efisiensi pemupukan pada pertanaman kopi selama masa belum menghasilkan serta produksi awalnya telah dilakukan penelitian lapangan di kebun percobaan Andungsari, Bondowoso, yang kandungan fosfor (P) tersedia dalam tanahnya sangat rendah. Percobaan disusun dalam Rancangan Acak Kelompok Lengkap berfaktor dengan kombinasi perlakuan jamur mikoriza dan pupuk fosfat yang diulang empat kali. Bibit kopi Arabika (*Coffea arabica* L.) sebagian diinokulasi dengan jamur mikroba arbuskular, *Gigaspora margarita*, saat ditanam di polibag, sedang sebagian lainnya dibiarkan tanpa diinokulasi. Sejak dipindahakan ke lapangan, kedua kelompok tanaman tersebut mendapat perlakuan dipupuk superfosat, fosfat alam atau tanpa pupuk. Disamping itu semua tanaman mendapat unsur-unsur hara yang lain dalam bentuk pupuk. Hasil penelitian selama empat tahun pertama menunjukan bahwa inokulasi jamur mikoriza meningkatkan tinggi tanaman, jumlah daun dan lilit batang kopi sejak tahun pertama sampai tahun ketiga. Namun, pada bulan ke-45 perlakuan jamur mikoriza sudah tidak berpengaruh nyata dalam menghasilkan jumlah buku dan cabang primer per pohon. Inokulasi jamur mikoriza meningkatkan secara nyata kandugan P dalam daun serta jumlah gelondong kopi per pohon. Di lain pihak, pemupukan dengan superfosat ataupun dengan fosfat alam tidak berpengaruh nyata. Perlakuan inokulasi jamur mikoriza cenderung memberikan hasil terbaik dalam hal bobot 100 gelondong kopi, bobot gelondong kopi serta bobot kopi pasar per pohon, kecuali rendemen dibandingkan tanpa inokulasi.

0181 HUSIN, E.F.

Respon beberapa varietas tanaman kedelai terhadap cendawan mikoriza arbuskula [Response of some soybean varieties on arbuscular mycorrhizae fungi/Husin, E.F. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian). 8 ill., 5 tables; 8 ref. Summary (In) *Jurnal Penelitian Andalas* (Indonesia) (2000) v. 12(32) p. 63-78.

GLYCINE MAX; VARIETIES; VESICULAR ARBUSCULAR MYCORRHIZAE; PLANT RESPONSE; GROWTH; YIELDS.

Penelitian bertujuan untuk mengetahui respon dari beberapa varietas tanaman kedelai terhadap cendawan mikoriza arbuskula (CMA), sehingga dapat diketahui varietas kedelai yang paling respon terhadap CMA. Penelitian dilaksanakan di rumah kawat Fakultas Pertanian Universitas Andalas sejak Februari - Juni 1999. Percobaan dirancang dalam bentuk Faktorial dengan dua faktor dalam Rancangan Acak Lengkap dengan 3 ulangan. Faktor pertama adalah CMA (tanpa diinokulasi dan diinokulasi) dan faktor kedua adalah varietas tanaman kedelai (Singgalang, Krakatau, Cikuray, Galunggung dan Wilis). Parameter yang diamati adalah tinggi tanaman, bobot kering, jumlah dan bobot nodul, persentase infeksi CMA serta jumlah dan bobot biji per pot. Hasil penelitian menunjukkan bahwa penggunaan inokulum CMA pada tanaman kedelai dapat meningkatkan pertumbuhan dan hasil tanaman kedelai. Hal ini ditunjukkan dengan meningkatnya hampir semua variabel yang diamati. Kedelai varietas Galunggung dan Cikuray ternyata lebih respon terhadap CMA dibandingkan varietas Singgalang, Krakatau dan Wilis.

0182 LESTARI, A.P.

Profil plasmid dan toleransi *Bradyrhizobium japonicum* terhadap antibiotik. Plasmid profile and antibiotic tolerance of *Bradyrhizobium japonicum*/Lestari, A.P. 1 ill., 1 table, 12 ref. Summaries (En, In). [Proceedings of the Seminar on BKS-PTN Barat Research Results] Prosiding Seminar Hasil Penelitian BKS-PTN Barat, Oktober 1999/Universitas Sriwijaya Palembang (Indonesia). Fakultas Pertanian). Palembang (Indonesia): UNSRI, 1999: (pt. 25) 10 p..

RICE FIELDS; BRADYRHIZOBIUM JAPONICUM; PLASMIDS; RESISTANCE TO CHEMICALS; ANTIBIOTICS; ROOT NODULES.

Penelitian ditujukan untuk mempelajari profil plasmid isolat bakteri *Bradyrhizobium japonicum* dan toleransi terhadap antibiotik yang dicobakan pada tanaman kedelai varietas Wilis dan Dieng. Isolat yang digunakan adalah isolat lahan sawah yang berasal dari 3 lokasi di Jawa Timur, yaitu Gondanglegi, Dinoyo dan Kediri. Penelitian terdiri dari 2 bagian, yaitu studi plasmid dan uji nodulasi. Studi plasmid meliputi profil plasmid dengan menggunakan Elektoforesis Gel Agarosa Horizontal 0,6 % dilakukan di

Laboratorium Fisiologi Tanaman, Fakultas Pertanian, Universitas Brawijaya, Malang dan dilanjutkan dengan uji nodulasi yang dilakukan di rumah kaca, Universitas Muhammadiyah Malang. Pelaksanaan percobaan berlangsung selama 4 bulan. Pengamatan profil plasmid dilakukan terhadap isolat GL01-010, DN01-009 dan KD01-006 yang ditumbuhkan pada media biakan tanpa antibiotik, dengan antibiotik Kanamycin 20 mg/ml, Tetracycline/ml, Chloramphenicol 5 mg/ml dan Ampycyline 5 mg/ml. Uji nodulasi terhadap kedelai varietas Wilis dan Dieng dilakukan menggunakan Rancangan Acak Lengkap dengan 3 ulangan. Hasil penelitian menunjukkan (1) Profil plasmid *Bradyrhizobium japonicum* isolat Gl01-010, DN01-009 dan KD01-006 menunjukkan keragaman, (2) Toleransi isolat G101-010, DN01-009 dan KD01-006 terhadap antibiotik bervariasi. Pada uji pembentukan nodul pada varietas Wilis, isolat GL01-010 memiliki toleransi yang tinggi terhadap antibiotik Kanamycin, DN01-009 toleran terhadap Tetracyline dan KD01-006 memiliki toleransi terhadap Kanamycin, Chloramphenicol dan Ampycyline. Pada varietas Dieng, toleransi yang tinggi terhadap Kanamycin dan Tetracyclin dimiliki oleh isolat GL01-010 dan DN01-009, sedangkan KD01-006 toleran terhadap Tetracycline.

0183 SANTOSA, E.

Pengaruh fase pertumbuhan bakteri dan jenis gambut terhadap populasi dan kualitas inokulan beberapa isolat bakteri pelarut fosfat. Effects of bacterial growth phases and peat types on population and quality of inoculant of several phospho solubilizing bacteria/Santosa, E.; Komariah, S.; Widati, S.; Kabar, P. (Pusat Penelitian Tanah dan Agroklimat, Bogor (Indonesia)) 5 ill., 3 tables; 8 ref. Summaries (En, In). *Jurnal Tanah dan Iklim* (Indonesia) ISSN 1410-7244 (1999) (no. 17) p. 65-71.

BACTERIA; SOLUBILIZATION; MICROBIOLOGICAL ANALYSIS; PEAT; MICROORGANISMS; PHOSPHATES; INOCULATION; GROWTH PERIOD; POPULATION GROWTH; CULTURE MEDIA.

Penggunaan mikroba pelarut fosfat merupakan salah satu teknologi alternatif yang dapat dipakai untuk meningkatkan efisiensi pemupukan fosfat. Penyediaan inokulan mikroba pelarut fosfat yang telah teruji keefektifannya dalam meningkatkan ketersediaan fosfat sangat membantu penggunaan mikroba tersebut di tingkat petani. Salah satu bentuk inokulan yang praktis penggunaannya di lapangan adalah inokulan bentuk powder. Penelitian ini bertujuan untuk mengetahui fase pertumbuhan bakteri pelarut fosfat dalam Pikovskaya cair yang paling sesuai bagi pembuatan inokulan dan jenis gambut yang paling baik untuk carrier inokulan bakteri pelarut fosfat dalam bentuk powder. Penelitian metode pembuatan inokulan di laboratorium mikrobiologi Pusat Penelitian Tanah dan Agroklimat (Puslittanak) dilaksanakan pada bulan Juli - Desember 1998, dilaksanakan dalam dua tahap. Tahap pertama untuk mengetahui waktu yang diperlukan bagi setiap tahapan pertumbuhan dua isolat bakteri pelarut fosfat dalam media Pikovskaya cair. Tahap kedua mengadakan percobaan dengan Rancangan Split-Split Plot. Sebagai petak utama adalah isolat KK dan KC, anak petak adalah fase pertumbuhan logaritmic dan stationery, sedangkan anak-anak petak adalah gambut fibrik, hemik, dan saprik. Untuk mengetahui kualitas inokulan diamati populasi masing-masing isolat pada 0, 2, 4, 8, dan 14 minggu setelah inkubasi. Hasil percobaan tahap pertama menunjukkan bahwa fase pertumbuhan logaritmic dan stationery pada isolat KK masing-masing dicapai setelah 12 dan 48 jam inkubasi. Sedangkan pada isolat KC fase pertumbuhan logaritmic dan stationery masing-masing dicapai setelah 12 dan 36 jam inkubasi. Percobaan tahap kedua menunjukkan bahwa pelaksanaan inokulasi biakan Pikovskaya cair ke carrier gambut pada fase logaritmic menghasilkan kualitas inokulan yang lebih baik dibandingkan dengan saat fase stationery. Jenis gambut saprik memberikan kualitas inokulan yang lebih baik dibanding dengan gambut fibrik maupun hemik.

0184 YUNIARTI, A.

The effect of mycorrhiza and level of water stress during pod set until full seed filling phase on N and P uptake growth and yield of soybean Pengaruh mikoriza dan tingkat cekaman kekeringan pada fase pengisian biji terhadap serapan N dan P serta pertumbuhan dan hasil kedelai/Yuniarti, A.; Damayani, M.; Fitriatin, B.N. (Universitas Padjadjaran, Bandung (Indonesia). Fakultas Pertanian) Bandung (Indonesia): UNPAD, 2000: 29 p. 4 tables; 26 ref. Summaries (En, In).

GLYCINE MAX; MYCORRHIZAE; DROUGHT STRESS; DRY FARMING; NITROGEN; PHOSPHORUS; NUTRIENT UPTAKE; ABSORPTION; SEED FILLING; GROWTH; YIELDS.

Percobaan untuk mengetahui pengaruh interaksi tingkat cekaman kekeringan pada fase pengisian biji dengan dosis mikoriza terhadap serapan N dan P, pertumbuhan dan hasil kedelai telah dilakukan dari bulan Juni - Desember 1999 di rumah plastik Fakultas Pertanian UNPAD Jatinangor. Rancangan percobaan yang digunakan adalah Rancangan Petak Terpisah dengan tiga ulangan. Petak utama adalah tingkat cekaman kekeringan yang terdiri dari tiga taraf (75 %, 50 % dan 25 % air tanah tersedia), sedangkan anak petak adalah dosis mikoriza yang terdiri dari empat taraf (0, 5, 10, dan 15 ton/ha). Hasil percobaan menunjukkan bahwa tidak terdapat interaksi antara tingkat cekaman kekeringan pada fase pengisian biji dengan dosis mikoriza terhadap serapan N dan P, komponen hasil, dan hasil. Penurunan jumlah polong, jumlah polong isi, jumlah biji, bobot 25 biji, bobot kering biji per tanaman, serapan N dan P mulai terjadi pada taraf kadar air 50 % sampai 25 %. Pemberian inokulasi mikoriza sebanyak 10 ton/ha sampai 15 ton/ha dapat meningkatkan derajat infeksi akar, serapan N dan P, jumlah polong per tanaman, dan jumlah polong isi per tanaman.

P35 KESUBURAN TANAH

0185 RACHMIATI, Y.
Pemanfaatan bakteri pelarut Fosfat untuk tanaman teh. Use of phosphate solubilizing bacteria for tea plant/Rachmiati, Y.; Salim, A.A. (Pusat Penelitian Teh dan Kina, Gambung (Indonesia)). 6 tables; 9 ref. Summaries (En, In). *Jurnal Penelitian Teh dan Kina* (Indonesia) ISSN 1410-6507 (1998) v. 1(2-3) p. 68-75.

CAMELLIA SINENSIS; PHOSPHATES; BACTERIA; INOCULATION; PLANT NUTRITION; SOIL CHEMICOPHYSICAL PROPERTIES.

Untuk mengetahui kemampuan 12 isolat dalam melarutkan Fosfat pada pasir kuarsa dan tanah, dilakukan uji hayati pada tanaman teh klon TRI 2025 di rumah kaca PPTK dari bulan September 1996 – Desember 1996. Percobaan pertama menggunakan Rancangan Acak Kelompok, perlakuannya adalah 12 isolat (B1, B4, B9, B14, B30, B36, B46, B49, B50) masing-masing perlakuan diulang empat kali. Petak utama adalah jenis tanah dan anak petak adalah 12 isolat bakteri. Hasil percobaan pertama menunjukkan bahwa setelah 1 bulan inokulasi tidak meningkatkan ketersediaan P tersedia, P jaringan tanaman, berat kering tanaman, jumlah P daun + tanah. Penelitian kedua memperlihatkan bahwa P_2O_5 tanah, jumlah P daun + tanah pada jenis tanah Latosol lebih tinggi dibanding dengan Andisol dan Regosol.

P36 EROSI, PELESTARIAN DAN PERBAIKAN TANAH

0186 YUSUF, A.
Tindakan konservasi tanah dalam budidaya kopi organik melalui pengembalian bahan organik sumber lokal di Aceh Tengah. Soil conservation in organic farming of coffee through returning crop residue in Central Aceh/Yusuf, A.; Yardha (Loka Pengkajian Teknologi Pertanian Banda Aceh (Indonesia)); Karim, A 3 tables; 16 ref. Summary (En). [Proceedings of the Sixth National Seminar on Conservation Tillage] Prosiding Seminar Nasional VI: budidaya pertanian olah tanah konservasi/Irfan, Z.; Lamid, Z.; Jahja, D.; Irawati; Ardi (eds.). Padang (Indonesia): Himpunan Ilmu Gulma Indonesia, 1998. *Prosiding Seminar Nasional VI Budidaya Pertanian Olah Tanah Konservasi* (Indonesia) ISSN 0216-8308 (1998) (no.6) p. 211-217.

COFFEA; SOIL CONSERVATION; ORGANIC FERTILIZERS; RESIDUES; EROSION; SUMATRA.

The experiment was conducted at IPPTP Gayo, Pondok Gajah, Central Aceh from February 1997 to October 1998. Coffee arabica (clone cartimor Jaluk aged 36 months) was planted 1,5 x 2.0 m on the area of 35 % slope. Vetiver grass and lamford PG 65 were planted 6.0 x 6.0 m. Treatments were arranged in Randomized Complete Block Design with four replications. All treatments were: P0 (unweeded, but slashed twice a year and crop residue returned), P1 (weeded, slashed once a year, crop residue i.e. coffee

hull, vetiver, lamtoro, and weed compossed and applied 8 ton/ha), P2 (as P1 applied 16 ton/ha), and P3 (as P1 and applied as mulch 16 ton/ha). Results indicated that the highest soil erosion occured at P1, followed by P2 and P3. C organic losses was the highest at P1 followed by P2 and P3. Losses of P, K, Ca and Mg were the highest at P3, followed by P1 and P2. Yield of coffee was the highest at P2, followed by P1 and the lowest at P0. The application of organic matter 16 ton/ha gave a better result.

Q02 PENGOLAHAN DAN PENGAWETAN MAKANAN

0187 HAMZAH, N.

Evaluasi mutu kecap dari kacang merah dengan lama fermentasi berbeda sebagai alternatif pengganti kecap kedelai. Evaluation of kidney bean ketchup quality with different fermentation time, as a substitute for soybean ketchup/Hamzah, N. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian) 1 ill., 5 tables; 11 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 229-232.

KIDNEY BEAN; SOYFOODS; PROCESSING; FERMENTATION; DURATION; NUTRITIVE VALUE; ORGANOLEPTIC PROPERTIES.

The experiment was conducted at the Agriculture Product Technology Laboratory from November 1999 to February 2000. This experiment made kidney bean ketchup by different fermentation time. The aim was to know the effect of salt fermentation time to ketchup quality resulted. The experiment used Completely Randomized Design with three treatments of fermentation time (A = 30 days; B = 45 days; C = 60 days) and three replications. The best treatment was C (fermentation time of 60 days by criteria pH 4.67, protein content 2.76 %, N total 0.36 mg/g, rendement 68.35 %, viscosity 85.72 cps, total celconat 6.1 x 10 cubic), and result of organoleptic test (aroma and taste) on like category.

0188 INDRASARI, S.D.

Teknologi pembuatan makanan ringan dari tepung beras komposit melalui proses teksturisasi. Snack food production technology of composite rice flour through a texturization process/Indrasari, S.D.; Suismono; Jumali; Setyono, A. (Balai Penelitian Tanaman Padi, Sukamandi (Indonesia)). 4 tables; 15 ref. Summaries (En, In). *Penelitian Pertanian Tanaman Pangan* (Indonesia) I SSN 0216-9959 2001 v. 20(3) p. 29-34.

RICE; MUNG BEANS; FLOURS; FOOD TECHNOLOGY; SNACK FOODS; TEXTURIZING; CHEMICOPHYSICAL PROPERTIES; ORGANOLEPTIC ANALYSIS.

Penelitian bertujuan untuk mempelajari pembuatan makanan ringan dari tepung komposit beras dan kacang hijau dengan cara teksturisasi. Penelitian dilaksanakan di laboratorium Fisiologi Hasil Balai Penelitian Tanaman Padi pada tahun 2000. Komposisi formula tepung komposit yang digunakan adalah tepung beras amilosa lebih besar dari 25 %/pera: kacang hijau = 10:90, 20:80, 30:70; tepung komposit beras amilosa (20-25 %/pulen): kacang hijau = 10:90, 20:80, 30:70; tepung komposit beras amilosa 15-20 % (sangat pulen): kacang hijau = 10:90, 20:80, 30:70. Percobaan menggunakan Rancangan Acak Lengkap dengan tiga ulangan. Penelitian pendahuluan dilakukan untuk menetapkan formula rasio tepung beras dan tepung kacang hijau, mencari kadar air adonan dan menentukan kondisi operasi teksturizer tangan pada kisaran suhu dan waktu yang tepat untuk mengepres/memasak adonan. Prosedur pembuatan makanan ringan yaitu pembuatan adonan, pengepresan dengan teksturizer tangan dan pengeringan. Adonan terdiri atas tepung komposit, air, telur, gula dan garam. Pengamatan dilakukan terhadap sifat fisik yaitu kekerasan, rasio rehidrasi, derajat putih dan diameter produk; sifat kimia dan gizi yaitu kadar air, protein, lemak, abu, karbohidrat dan energi serta uji organoleptik terhadap aroma, warna, bentuk, tekstur, dan rasa produk. Hasil penelitian menunjukkan bahwa produk makanan ringan yang diolah dengan cara teksturisasi menggunakan tepung komposit 10 % tepung beras IR64 dan 90 % tepung kacang hijau memiliki kandungan gizi terbaik yaitu 20,22 % protein, 6,14 % lemak, 2,89 % abu, 64,59 % karbohidrat dan energi 384,47 kalori. Namun berdasarkan uji organoleptik, panelis menyukai produk yang komposisi adonannya

terdiri atas 30 % tepung beras IR42 dan 70 % tepung kacang hijau dengan kandungan gizi 17,93 % protein, 4,90 % lemak, 2,54 % abu, 68,94 % karbohidrat dan energi 383,82 kalori.

0189 ISWARI, K.
Teknologi pengolahan sirup dan fruit leather nenas silaut. Processing technology of silaut pineapple syrup and fruit leather/Iswari, K. (Balai Pengkajian Teknologi Pertanian, Sukarami (Indonesia)) 2 ill., 6 tables; 9 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (1999) v. 8(3) p. 233-237.

PINEAPPLES; FRUIT SYRUPS; PROCESSING; STERILIZING; DURATION; PROXIMATE COMPOSITION; ORGANOLEPTIC PROPERTIES.

Pineapple planted in Silaut have low market value due to sour taste and high water content. So that they need processing method to get the added value. The experiment was conducted in SAIAT-Postharvest Laboratory from October 1998 to February 1999. The experiment of syrup processing was aimed to determine the optimal ratio of sugar-juice and sterilization time to produce acceptable pineapple syrup. The fruit leather processing was aimed to determine the optimal sugar dosage to produce fruit leather. The experiments were arranged in Randomized Complete Design with three replications. There were two factors in syrup experiment. First factor was the ratio of sugar and pineapple juice (8:10; 9:10; 10:10 and 11:10), and the second factor was sterilization time (10, 15, 20 and 25 minutes). The factor in fruit leather experiment was ratio of sugar and pineapple slurry (0:1; 1:2; 1:3; 1:4; 1:5; 1:6 and 1:7). The result showed that ratio sugar and pineapple juice as much as 10:10 and 11:10 could produce the best quality of syrup. Sterilization time tends to decrease the vitamin C content, from 13.01 mg/100 g juice for 10 minutes sterilization to 12.55 mg/100 g juice for 25 minutes of sterilization. For fruit leather, it needs ratio of sugar and slurry as much as 1:4 and 1:5 to give the best result.

0190 KAROUW, S.
Penggunaan 2 kultivar kelapa hibrida dalam pengolahan kelapa parut kering (desiccated coconut). [Utilization of two cultivars of hybrid coconuts on desiccated coconut processing] /Karouw, S.; Barlina, R.; Pasang, P.M. (Balai Penelitian Tanaman Kelapa dan Palma Lain, Manado (Indonesia)) 2 tables; 8 ref. Summary (In). *Buletin Palma* (Indonesia) ISSN 0215-0646 (2001) (no. 27) p. 27-31.

COCONUTS; HYBRIDS; DESICCATED COCONUT; PROCESSING; STORAGE; ORGANOLEPTIC PROPERTIES.

Penelitian ini bertujuan untuk mengetahui mutu kelapa parut kering (desiccated coconut) yang dihasilkan dengan menggunakan bahan baku kelapa hibrida. Bahan yang digunakan dalam penelitian ini adalah kelapa hibrida GKN x WAT (PB-121) dan GKN x DTE umur buah 11-12 bulan yang diambil dari KP. Kima Atas. Penelitian dilakukan sejak bulan Agustus-Desember 1999 di Laboratorium Balai Penelitian Tanaman Kelapa dan Palma Lain, Mapanget. Perlakuan disusun secara faktorial dalam Rancangan Acak Lengkap. Faktor A adalah jenis kelapa hibrida yaitu :al. GKN x WAT; a2. GKN x DTE; faktor B adalah lama penyimpanan yaitu :bi. 0 minggu; b2. 2 minggu; b3. 4 minggu; b4. 6 minggu dan b5. 8 minggu. Hasil penelitian menunjukkan bahwa kelapa parut kering yang dihasilkan dari kelapa hibrida GKN x WAT (PB-121) dan GKN x DTE sampai penyimpanan 8 minggu memiliki kadar air, kadar lemak, kadar asam lemak bebas dan warna yang memenuhi standar, kecuali kadar asam lemak bebas kelapa GKN x DTE pada penyimpanan 8 bulan.

0191 RENATE, D.
Alternatif pengolahan cabe merah (*Capsicum* sp.) menjadi produk konsumsi puree. Alternative processing of red pepper (*Capsicum* sp.) to puree product consumption/Renate, D. (Universitas Jambi (Indonesia). Fakultas Pertanian). 2 tables; 8 ref. Summaries (En, In). [Proceedings of the Seminar on BKS-PTN Barat research results] Prosiding seminar hasil penelitian BKS-PTN Barat, Oktober 1999/Universitas Sriwijaya, Palembang (Indonesia). Fakultas Pertanian. Palembang (Indonesia): UNSRI, 1999: (pt. 14) 6 p.

CHILLIES; PROCESSING; VEGETABLE PULPS; PROCESSED PLANT PRODUCTS; CONSUMPTION; STORAGE; VITAMINS; ORGANOLEPTIC PROPERTIES; QUALITY.

Salah satu alternatif pengolahan cabe merah yang dapat dikembangkan adalah produk puree. Puree cabe merah membutuhkan biaya rendah dan mudah dalam pengolahannya serta memiliki karakteristik cabe segar sehingga dapat langsung digunakan untuk lauk atau pengolahan lainnya. Penelitian ini bertujuan untuk mengetahui pengaruh lama penyimpanan terhadap kualitas puree cabe merah yang dihasilkan. Bahan yang digunakan adalah cabe merah keriting; lama penyimpanan selama 0, 15, 30, 45, 60, 75 dan 90 hari. Rancangan yang digunakan adalan Rancangan Acak Kelompok Lengkap dengan 2 kali ulangan. Data dianalisis dengan sidik ragam dan polinomial ortogonal. Hasil penelitian menunjukkan bahwa puree cabe merah yang disimpan selama 90 hari masih menunjukkan kualitas yang baik dengan pH 3,6, kadar vitamin C sekitar 1,28 mg/100 g, kadar kapsaisin 0,12 %, total mikroba 150 koloni/g. Lama penyimpanan 75 hari menunjukkan kualitas yang terbaik dilihat dari komposisi dan penampakannya.

0192 ROSTIATI.
Pembuatan tepung cabai rawit (*Capsicum frutescens*), kajian dari penggunaan natrium karbonat (Na_2CO_3) dan antioksidan butylated hydroxytoluene (BHT). [Effect of blanching agent (Na_2CO_3) and antioxidant (butylated hydroxytoluene) on hot chilli flour water content]/Rostiati (Universitas Tadulako, Palu (Indonesia). Fakultas Pertanian) 9 tables; 14 ref. Summaries (En, In). *Jurnal Agroland* (Indonesia) ISSN 0854-641X (2001) v. 8(4) p. 398-405.

CHILLIES; FLOURS; MOISTURE CONTENT; BLANCHING; SODIUM BICARBONATE; ANTIOXIDANTS; BHT; CAROTENOIDS; OLEORESINS; EXTRACTS.

Tujuan penelitian ini adalah untuk mengetahui pengaruh blanching dan pemberian antioksidan butylated hydroxytoluene (BHT) dan natrium karbon (Na_2CO_3) terhadap kadar air, kadar vitamin C, total karoten dan oleoresin tepung cabai rawit. Penelitian ini terdiri dari dua tahap. Tahap pertama perlakuan blanching. Rancangan yang digunakan adalah Rancangan Acak Kelompok (RAK) dengan satu faktor yaitu waktu blanching 5, 6, 7 dan 8 menit. Tahap kedua menggunakan Rancangan Acak Kelompok (RAK) pola faktorial dengan dua faktor. Faktor pertama adalah konsentrasi antioksidan BHT dengan tiga level yaitu tanpa BHT, 0.001 % dan 0,002 %. Faktor kedua adalah konsentrasi Na_2CO_3 dengan tiga level yaitu tanpa Na_2CO_3, 0,1 % dan 0,2 %. Pengamatan dilakukan pada hari ke 0, 15 dan 30 terhadap kadar air, kadar vitamin C, total karotenoid dan oleoresin. Hasil yang diperoleh dari akhir pengamatan untuk penelitian tahap pertama terbaik pada waktu blanching 5 menit. Tahap kedua terbaik pada perlakuan konsentrasi Na_2CO_3 0,2 % terhadap kadar air (7,25 %), kadar vitamin C dan total karotenoid. Untuk perlakuan konsentrasi BHT 0,001 % sampai akhir pengamatan menunjukkan hasil terbaik dengan kadar vitamin C 1,10 mg/100 g, total karotenoid 5617,33 mikrogram/100 g dan oleoresin 12,41 %. Pengamatan pada hari ke 30 untuk perlakuan BHT 0,002 % dan Na_2CO_3 0,2 % tidak nyata pengaruhnya. Interaksi perlakuan yang diberikan tidak menunjukkan pengaruh nyata terhadap semua parameter yang diamati baik setelah penepungan maupun setelah penyimpanan.

Q04 KOMPOSISI MAKANAN

0193 ABDOELLAH, S.
Hubungan antara cita rasa kopi robusta dengan komposisi bahan tanam serta komponen lingkungan. Relationship between taste of Robusta coffee and plant material and environment components/Abdoellah, S.; Hulupi, R.; Sulistyowati (Pusat Penelitian Kopi dan Kakao, Jember (Indonesia)) 2 ill., 10 ref. Summaries (En, In). *Pelita Perkebunan* (Indonesia) ISSN 0215-0212 (2000) v. 16(2) p. 92-99.

ROBUSTA COFFEE; TASTE; PLANT PRODUCTION; PROCESSING; ENVIRONMENTAL FACTORS; ORGANOLEPTIC PROPERTIES.

Salah satu faktor yang diinginkan oleh pembeli biji kopi Robusta adalah cita rasa, yang diketahui sangat dipengaruhi oleh proses pengolahan pascapanen, meskipun beberapa pembeli mempercayai bahwa kondisi prapanen juga berpengaruh terhadap cita rasa. Dengan adanya kemungkinan pengaruh kondisi prapanen terhadap cita rasa tersebut, maka pengetahuan tentang komponen prapanen yang berpengaruh terhadap cita rasa sangat diperlukan. Penelitian hubungan cita rasa kopi Robusta dengan komponen bahan tanam serta komponen lingkungan telah dilakukan pada 16 kebun di Jawa Timur. Biji kopi olahan diamati cita rasanya, meliputi aroma, flavor, body, dan acidity. Diamati komposisi bahan tanam dan parameter iklim yang meliputi tinggi tempat, curah hujan, bulan kering, bulan basah dan nilai Q; sedangkan parameter tanah meliputi kadar C, N, P, K, Ca, Mg, S, Cu, Zn, Fe, dan pH. Sebagai data pendukung diamati pula jenis tanah, topograpfi, jenis dan kerapatan penaung. Data dianalisis dengan uji gerombol menggunakan program NTSYS-PC versi 1.7, selanjutnya dibuat persamaan regresi antara komponen cita rasa dengan komponen lingkungan. Hasil penelitian menunjukkan bahwa bahan tanam kopi Robusta klon-klon Bgn 300, Bgn 371, Bgn 372, BP 42, BP 234, BP 288, BP 358, BP 409, SA 237, dan TS 6 maupun ilegitimnya tidak berpengaruh terhadap perbedaan cita rasa kopi yang dihasilkannya, demikian pula faktor lingkungan kecuali jumlah bulan kering. Terdapat kecenderungan hubungan kuadratik antara cita rasa dengan jumlah bulan kering. Jumlah bulan kering antara 3-4 per tahun tidak hanya terbaik untuk aspek prapanen kopi Robusta, tetapi juga terbaik untuk menghasilkan cita rasa.

0194 ANAS, Y.

Analisis beberapa faktor mutu dari minyak goreng sawit yang dipasarkan di Kodya Padang dalam kaitan dengan lama penyimpanan. Analysis of some quality factors of cooking palm oil in Padang market in relation to storage time/Anas, Y.; Hamzah, N.; Dahar, D. (Universitas Andalas, Padang). Fakultas Pertanian) 4 tables; 6 ref. Summary (En). *Jurnal Stigma* (Indonesia) ISSN 0853-3776 (2001) v. 9(3) p. 261-264.

PALM OILS; MOISTURE CONTENT; FREE FATTY ACIDS; STORAGE; DURATION; PEROXIDES; QUALITY; SUMATRA.

The objective of this study was to know the change on some quality factors of cooking palm oil in Padang market in relation to storage time. Treatments were arranged Factorial in Completely Randomized Design. Two factors were studied. First factor was oil production area (A): Padang (a1), Medan (a2), and Dumai (a3). The second factor was the storage time (B), consist of 7 days (b1), 14 days (b2), 21 days (b3), and 28 days (b4). Evaluation in this study included: moisture content, dirt content, free fatty acid content and peroxide value. The result indicated that based on oil production area, Dumai has the highest in moisture content (0.12 %), dirt content (0.45 %) and peroxide value (1.59 meq/kg), Padang has the lowest in dirt content. Due to storage time, moisture content, dirt content, free fatty acid content and peroxide value increased for all oil production area. The highest free fatty acid content (0.31 %) was found in combination treatment a3b4 (Dumai, 28 days) and the lowest (0,12 %) was found in combination treatment a2b1 (Medan, 7 days).

0195 ANTARLINA, SS.

Substitusi tepung ubijalar dalam pembuatan roti tawar. [Sweet potato flour substitution on bread processing]/Antarlina, SS.; Ginting, E. (Balai Penelitian Tanaman Kacang-kacangan dan Umbi-umbian, Malang (Indonesia)). 5 ill., 7 tables; 11 ref. Summary (In). [Food crops management in swamp lands] Pengelolaan tanaman pangan lahan rawa/Prayudi, B.; Sabran, M.; Noor, I.; Ar-Riza, I.; Partohardjono, S.; Hermanto (eds.); Balai Penelitian Tanaman Pangan Lahan Rawa, Banjarbaru (Indonesia). Banjarbaru (Indonesia): BALITTRA, 2000: p. 509-520.

SWEET POTATOES; FLOURS; BREAD; BREAD MAKING; SUBSTITUTE FOODS; RAW MATERIALS; CHEMICAL COMPOSITION; CHEMICOPHYSICAL PROPERTIES; ORGANOLEPTIC PROPERTIES.

Penggunaan tepung ubijalar sebagai bahan substitusi dalam pembuatan roti tawar, diharapkan dapat memperluas pemanfaatan ubijalar. Tujuan penelitian adalah untuk mengetahui mutu roti tawar yang disubstitusi tepung ubijalar ditambah malt dan tapioka. Penelitian dilaksanakan di Laboratorium

Pascapanen BALITKABI Malang. Bahan utama penelitian adalah dua tepung ubijalar yaitu klon AB 94001-8 (warna daging putih) dan Inaswang Op 6 (warna daging kuning muda). Perlakuan disusun dalam Rancangan Acak Kelompok (RAK) faktor tunggal dengan tiga ulangan. Ada 13 perlakuan yang terdiri dari suplementasi 10 dan 20 % tepung ubijalar (putih dan kuning), 90 dan 80 % tepung terigu, 0,1 dan 0,2 % malt, 0, 2,5 dan 5 % tapioka, serta 100 % tepung terigu sebagai pembanding. Pengamatan sifat fisik, kimia dan uji organoleptik dilakukan terhadap tepung dan roti tawar. Hasil penelitian menunjukkan bahwa penambahan tepung ubi jalar terhadap tepung terigu menyebabkan peningkatan daya serap air dan daya larut air tepung campuran. Dari komposisi kimia, penambahan tepung ubijalar menyebabkan penurunan kadar protein, peningkatan kadar amilosa, abu dan karbohidrat. Roti tawar dari tepung campuran warnanya relatif lebih gelap, daya mengembangnya (volume spesifik) lebih rendah, tekstur relatif lebih keras dan kadar proteinnya lebih rendah daripada roti tawar dari terigu. Berdasarkan komposisi kimia, sifat fisik dan uji organoleptik pada roti tawar, maka substitusi sebesar 10 tepung ubijalar warna putih dalam 90 tepung terigu, ditambah 0,1 % malt, dan 2,5 % tapioka dapat menghasilkan roti tawar yang baik. Roti tawar tersebut mengandung 33,52 % air, 7.86 % bb protein, 2,47 % bb lemak, 14,20 % bb. amilosa, 1,12 % bb abu dan 55,03 % bb karbohidrat.

0196 TOWAHA, J.

Kandungan daging buah empat kultivar kelapa Dalam. [Endosperm content at four tall coconut cultivars]/Towaha, J.; Heryana, N.; Tampake, H.; Randriani, E. (Loka Penelitian Pola Tanam Kelapa Pakuwon, Sukabumi (Indonesia)). 3 ill., 2 tables; 18 ref. Summaries (En, In). *Habitat* (Indonesia) ISSN 0853-5167 (2000) v. 11(112) p. 154-160.

COCOS NUCIFERA; VARIETIES; ENDOSPERM; MOISTURE CONTENT; PROTEIN CONTENT; LIPID CONTENT; FREE FATTY ACIDS; YIELD COMPONENTS.

Penelitian bertujuan untuk mempelajari kandungan daging buah empat kultivar kelapa Dalam di Instansi Penelitian Lolitka Pakuwon dan Bogor. Kultivar kelapa yang digunakan: Kelapa Dalam Sawarna (DSA); Kelapa Dalam Bali (DBI); Kelapa Dalam Tenga (DTA) dan Kelapa Dalam Palu (DPU). Penelitian menggunakan Rancangan Acak Kelompok Lengkap dengan 4 perlakuan dan 4 ulangan, sebagai perlakuan adalah kultivar kelapa yang terdiri dari 4 kultivar dan setiap kultivar diambil 20 butir kelapa sehingga jumlah keseluruhan sebanyak 80 butir kelapa untuk dikomponen dan dianalisis daging buahnya. Hasil penelitian menunjukkan bahwa berat komponen (buah, sabut, tempurung, daging) dan tebal daging serta analisis daging buah (kadar protein, lemak, serat kasar dan asam lemak bebas) pada keempat kultivar bervariasi dan berpengaruh nyata. Berat buah, sabut, tempurung, daging dan tebal daging masing-masing: 1812,47-3335,00 g; 832,50-1665.00 g; 283,32-320,009 g; 537,50-730,00 g dan 1,11-1,25 cm. Berat buah, sabut, tempurung dan daging buah serta tebal daging tertinggi diperoleh pada kultivar DBI yaitu: 3335 g, 320 g, 730 g dan 1,25 cm. Kadar air, protein, lemak, serat kasar dan asam lemak bebas berturut-turut berkisar antara: 50,63-56,30 %; 2,63-3,51 %; 23,74-32,00 %; 6,98-10,44 % dan 0,03-0,14 %. Kadar air yang terendah diperoleh pada kultivar DTA 50,63 %, kadar protein dan lemak tertinggi diperoleh pada kultivar DSA 3,51 % dan DPU 32,00 %. Sedangkan kadar serat kasar dan asam lemak bebas (FFA) terendah diperoleh pada kultivar DTA 6,98 % dan 0,03 %.

Q52 PENGOLAHAN DAN PENGAWETAN PAKAN

0197 MAHATA, M.E.

Pengolahan daun lamtoro mini (*Desmanthus virgatus*) dengan tekanan uap panas sebagai pakan alternatif sumber protein untuk ternak unggas. Processing of lamtoro mini leaf (*Desmanthus virgatus*) with steam pressure as alternative source of protein for poultry feed/Mahata, M.E. (Universitas Andalas, Padang (Indonesia). Fakultas Pertanian); Rizal, Y.; Nuraini. 1 table; 10 ref. Summary (En). *Jurnal Penelitian Andalas* (Indonesia) (2000) v. 12(32) p. 58-62.

POULTRY; FEEDS; STEAMING; MOISTURE CONTENT; CRUDE FIBRE; CRUDE PROTEIN; DESMANTHUS VIRGATUS; LEAVES; PROCESSING; TIME; FEED LEGUMES.

An experiment was conducted to evaluate the effect of processed lamtoro mini (*Desmanthus virgatus*) with steam pressure on water content, crude fiber and crude protein content. Lamtoro mini was steamed in autoclave at temperature 121 ^{0}C for 15, 30 and 45 minutes. Data were analyzed by using Completely Randomized Design with three treatments and six replicates for each treatment. Result of the experiment indicated that water, and crude protein content were not affected ($P > 0.05$) by steam pressure however crude fiber content was highly significantly affected ($P < 0.01$). It is concluded that processing of lamtoro mini with steam pressure did not significantly affect on water and crude protein content, but decreased crude fiber. The time of processing at 45 minutes was the best treatment.

0198 WIDIASTUTI, I.M.
Pengaruh substitusi kacang kedele dengan biji saga (*Abrus precatorius* Linn) dalam konsentrat terhadap komponen non karkas dapat dimakan (edible) ternak kambing jantan lokal. [Effect of saga (*Abrus precatorius*) seed used as soybean meal substitute in feed concentrate on the quantity of non-carcass edible component of male local goat]/Widiastuti, I.M. (Universitas Tadulako, Palu (Indonesia). Fakultas Pertanian) 4 tables; 10 ref. Summaries (En, In). *Jurnal Agroland* (Indonesia) ISSN 0854-641X (2001) v. 8(4) p. 425-430.

GOATS; FEEDS; CONCENTRATES; RATIONS; PROXIMATE COMPOSITION; SOYBEAN MEAL.

Penelitian dilakukan di Palu pada tanggal 24 Juni - 2 September 2000. Penelitian ini menggunakan 15 ekor ternak kambing jantan lokal yang berumur 8-10 bulan dengan kisaran bobot badan antara 10-16 kg yang ditempatkan dalam kandang individual model panggung dengan ukuran 75 x 75 x 75 cm^3 sebanyak 15 petak. Digunakan Rancangan Acak Kelompok (RAK) dengan 5 perlakuan berupa substitusi biji saga dengan kacang kedele dalam konsentrat masing-masing: 0 %, 25 %, 50 %, 75 %, dan 100 %; dengan 3 ulangan serta pengelompokan berdasarkan bobot badan awal ternak percobaan. Hasil analisis keragaman menunjukkan bahwa substitusi biji saga dengan kacang kedele dalam konsentrat tidak memberikan pengaruh yang nyata ($P > 0,05$) terhadap bobot dan tase komponen non karkas dapat dimakan pada kambing jantan lokal.

Q55 ZAT TAMBAHAN PADA PAKAN

0199 KARDAYA, D.
Pengaruh suplementasi Zn-proteinat, Cu-proteinat dan ammonium molibdat terhadap performans domba lokal. [Effect on Zn-proteinate, Cu-proteinate and ammonium molybdate to local lambs performance]/Kardaya, D. (Institut Pertanian Bogor (Indonesia). Fakultas Peternakan); Supriyati; Suryahadi; Toharmat, T. 6 tables; 27 ref. Summary (En). *Media Peternakan* (Indonesia) ISSN 0126-0472 (2001) v. 24(1) p. 1-9.

LAMBS; PROTEINS; RATIONS; MOLYBDENUM; FEED ADDITIVES; FEED CONSUMPTION; ANIMAL PERFORMANCE; DIGESTIBILITY.

A study on Zn-proteinate, Cu-proteinate, and ammonium molybdate supplementation was conducted for eight months in 30 male thin-tailed lambs with an average initial body weight of 13.1 approx. 0.15 kg in order to determine their performances. The animals were allocated into six treatments according to a Completely Randomized Design. The treatments were diet with: no mineral supplementation (R1), 35 ppm Zn(R2), 35 ppm Zn and 10,1 ppm Cu (R3), 35 ppm Zn and 5 ppm Mo (R4), 10.1 ppm Cu and 5 ppm Mo (R5), and 35 ppm Zn, 10.1 ppm Cu and 5 ppm Mo (R6). The diet consisted of 70 % elephant grass and 30 % concentrate of a dry matter basis. The supplementaion increased ($P < 0.05$) ruminal fermentation activity, nutrient digestibility, feed consumption, mineral absorption, feed efficiency, and growth rate. Supplementation of Zn, Cu+Mo, Zn+Cu, Zn+Mo, and Zn+Cu+Mo improved lamb performances fed a high forage diet. The supplementation of Zn produced a better performance when it was combined with Cu instead of Mo. Meanwhile, Zn as a sole supplement gave the best result among other mineral supplementation and resulted in growth rate up to 32.5 % higher than control. Molybdenum supplementation combined either with Cu or Zn, resulted in the worse performance than that combined with both Cu and Zn.

Q70 PENGOLAHAN LIMBAH PERTANIAN

0200 RAUDATI, E.
Pemanfaatan tulang sapi untuk pembuatan gelatin melalui hidrolisis dengan asam sulfat. [Utilization of cow bone in gelatine making through hydrolisis with sulfuric acid]/Raudati, E.; Yusuf, S.; Amalia (Universitas Sriwijaya, Palembang (Indonesia). Fakultas Matematika dan Ilmu Pengetahuan Alam). 5 tables, 9 ref. Summaries (En, In). [Proceedings of the Seminar on BKS-PTN Barat Research Results] Prosiding Seminar Hasil Penelitian BKS-PTN Barat, Oktober 1999/Universitas Sriwijaya Palembang (Indonesia). Fakultas Pertanian. Palembang (Indonesia): UNSRI, 1999: (pt. 23) 7 p..

COWS; BY PRODUCTS; BONES; SULPHURIC ACIDS; PROCESSING; GELATIN; PROTEINS; ASH CONTENT; TEMPERATURE; HEATING; SOAKING.

Penelitian ini bertujuan untuk melihat pengaruh konsentrasi asam sulfat sebagai media dan temperatur perendaman terhadap jumlah, kadar protein dan kadar abu gelatin yang dihasilkan oleh sapi. Dalam penelitian ini digunakan Rancangan Acak Lengkap yang disusun secara faktorial. Adapun faktor perlakuan adalah a) Perendaman dengan asam sulfat pada konsentrasi 4, 5, 6, dan 7 %, dan b) temperatur pemanasan 40, 50, 60 ^{0}C. Setiap perlakuan diulang sebanyak 3 kali. Data dianalisis dengan menggunakan analisis keragaman dan perbedaan yang nyata diuji dengan menggunakan Uji Beda Nyata Terkecil pada tingkat kepercayaan 95 %. Parameter yang diukur adalah jumlah gelatin, kadar protein, abu dan kadar air dari gelatin. Kandungan gelatin diperoleh melalui tahap-tahap degreasing, demineralisasi, perendaman dengan asam, denaturasi dan tahap penyelesaian. Hasil penelitian menunjukkan konsentrasi asam sulfat dan temperatur pemanasan sangat mempengaruhi jumlah gelatin dan kadar protein, air dan abu gelatin yang dihasilkan. Kadar asam sulfat tertinggi untuk memperoleh gelatin yang memenuhi standar SII adalah 6 %, sedangkan temperatur pemanasan adalah 50 ^{0}C. Jumlah gelatin dan kadar protein tertinggi dan yang dihasilkan dalam penelitian ini adalah 11,436 % dan 85,582 %.

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