

Komoditas : Bawang Merah

Record 1 of 45 - AGRICOLA 1998-2003/03

AU: Aklilu,-S.; Dessalegne,-L.; Currah,-L.

TI: Association of components of flowering with seed yield in fifteen short-day onion cultivars in Ethiopia.

SO: Trop-sci. London : Whurr Publishers Ltd. 2002. v. 42 (3) p. 99-106.

LA: English

DE: allium-cepa. cultivars-. photoperiod-. genotypes-. seed-output. flowering-. flowers-. inflorescences-. size-. bolting-. flowering-date. genetic-correlation. phenotypic-correlation. ethiopia-.

Record 2 of 45 - AGRICOLA 1998-2003/03

AU: Spurr,-C.J.; Fulton,-D.A.; Brown,-P.H.; Clark,-R.J.

TI: Changes in seed yield and quality with maturity in onion (*Allium cepa* L., cv. 'Early Cream Gold').

SO: J-agron-crop-sci. Berlin, Germany : Blackwell Wissenschafts-Verlag GmbH. Aug 2002. v. 188 (4) p. 275-280.

LA: English

DE: allium-cepa. seed-crops. seed-output. fecundity-. seed-quality. duration-. seed-development. yield-components. moisture-content. seed-moisture. seed-germination. seed-weight. plant-development. seedlings-. harvesting-date. tasmania-.

Record 3 of 45 - AGRICOLA 1998-2003/03

AU: Yang,-J.; Rowell,-D.L.; Burns,-I.G.; Guttormsen,-G.; Riley,-H.; Wadsworth,-G.A.

TI: Modification and evaluation of the crop nitrogen model N ABLE using Norwegian field data.

SO: Agric-syst. Oxford : Elsevier Science Ltd. June 2002. v. 72 (3) p. 241-261.

LA: English

DE: cabbages-. onions-. nitrogen-. recovery-. simulation-models. evaluation-. field-experimentation. sandy-soils. loam-soils. growth-models. norway-.

AB: Evaluation of the nitrogen simulation model, N ABLE, was carried out using data from 10 Norwegian field experiments with winter and summer cabbage and onions grown on sandy and loamy soils in two different rainfall regions. The data was used to assess the benefits of modified growth and N recovery routines in the model. The modified growth equation (previously developed for lettuce) allows for physiological factors to alter the underlying pattern of growth from a J-shaped to an S-shaped curve independently of both temperature and N supply. Simulated dry weights for both winter cabbages and onions (both exhibiting a sigmoid growth curve) were significantly improved using the modified growth equation, provided adjustments were made for the use of onion sets instead of seeds. In addition, the modified growth equation accurately simulates a J-shaped curve exhibited by summer cabbage and other summer vegetables. Tests are also made of modifications to the original soil-N recovery equation to correct for inconsistencies caused by a discontinuity in the N recovery function. The modified soil-N equation was found to give a better description of the relationships between the decrease of N recovery with the increase in fertiliser-N level.

Record 4 of 45 - AGRICOLA 1998-2003/03

AU: Hussain,-M.A.; Shafiur-Rahman,-M.; Ng,-C.W.

TI: Prediction of pores formation (porosity) in foods during drying:

generic models by the use of hybrid neural network.

SO: J-food-eng. Oxford : Elsevier Science Ltd. Feb 2002. v. 51 (3) p. 239-248.

LA: English

DE: drying-quality. porosity-. neural-networks. simulation-models. temperature-. food-products. foods-. prediction-. water-content. food-composition. accuracy-.

AB: General porosity prediction models of food during air-drying have been developed using regression analysis and hybrid neural network techniques. Porosity data of apple, carrot, pear, potato, starch, onion, lentil, garlic, calamari, squid, and celery were used to develop the model using 286 data points obtained from the literature. The best generic model was developed based on four inputs as temperature of drying, moisture content, initial porosity, and product type. The error for predicting porosity using the best generic model developed is 0.58%, thus identified as an accurate prediction model.

Record 5 of 45 - AGRICOLA 1998-2003/03

AU: Garcia,-E.; Alviar-Agnew,-M.; Barrett,-D.M.

TI: Residual pectinesterase activity in dehydrated onion and garlic products.

SO: J-food-process-preserv. Trumbull, Conn. : Food & Nutrition Press Inc. Apr 2002. v. 26 (1) p. 11-26.

LA: English

DE: onions-. garlic-. fresh-products. dehydration-. dehydrated-foods. spices-. powders-. pectinesterase-. enzyme-activity. heat-treatment. drying-temperature. food-additives. gelation-.

AB: During the dehydration of onion and garlic products, use of high temperatures is undesirable due to the potential loss of aroma and flavor characteristics. As a consequence, residual pectinesterase (PE) activity may be found in these dehydrated spices. This study reports the presence of PE activity in raw onions and in dehydrated onion and garlic products. Pectinesterase activity is higher in the raw onion stem disks, and dehydrated products made from this tissue, than in the bulbs. Dehydrated onion products induced gelation of citrus pectin solutions and tomato purees. Although some inactivation of PE in dehydrated onion water suspensions and extracts was observed after 10 min at 50C, complete inactivation required 2 min at 82C. Commercial dehydration operations may require reevaluation to eliminate residual PE activity in dehydrated onion and garlic products.

Record 6 of 45 - AGRICOLA 1998-2003/03

AU: Briggs,-W.H.; Goldman,-I.L.

TI: Variation in economically and ecologically important traits in onion plant organs during reproductive development.

SO: Plant-cell-enviro. Oxford, U.K. : Blackwell Science Ltd. Aug 2002 . v. 25 (8) p. 1031-1037.

LA: English

DE: allium-cepa. sexual-reproduction. spatial-distribution. organic-sulfur-compounds. secondary-metabolites. pest-resistance. medicinal-properties. flavor-compounds. platelet-aggregation. sulfur-. brix-. bulbs-. leaves-. inflorescences-. stems-. plant-composition.

AB: The spatial distribution of organosulphur compounds throughout the onion (*Allium cepa* L.) plant body during reproduction is of ecological and horticultural interest. These secondary metabolites are associated with both pest resistance and many of the vegetable's culinary and medicinal properties, including the ability to inhibit platelet aggregation. Inhibition of platelet

aggregation can be of benefit to human cardiovascular health. Organosulphur compound concentrations are associated with elemental sulphur, pungency, soluble solids and effect on human platelet aggregation. These parameters were evaluated in extracts collected separately from bulb scales, leaf blades, scapes and umbels biweekly throughout the reproductive phase of the life cycle of the onion. Significant variation in pungency, platelet inhibition, total sulphur content and soluble solids existed among samples of organs and within organs over time during reproductive growth. Furthermore, some extracts from leaf, scape and bulb induced rather than inhibited platelet aggregation.

Record 7 of 45 - AGRICOLA 1998-2003/03

AU: Nishigawa,-H.; Oshima,-K.; Kakizawa,-S.; Jung,-H.Y.; Kuboyama,-T.; Miyata,-S.; Ugaki,-M.; Namba,-S.

TI: A plasmid from a non-insect-transmissible line of a phytoplasma lacks two open reading frames that exist in the plasmid from the wild-type line.

SO: Gene. Amsterdam : Elsevier Science. Oct 2, 2002. v. 298 (2) p. 195-201.

LA: English

DE: phytoplasmas-. plasmids-. nucleotide-sequences. open-reading-frames. dna-replication. dna-binding-proteins.

Record 8 of 45 - AGRICOLA 1998-2003/03

AU: Boydston,-R.A.; Seymour,-M.D.

TI: Volunteer potato (*Solanum tuberosum*) control with herbicides and cultivation in onion (*Allium cepa*).

SO: Weed-technol. Lawrence, Kans. : The Weed Science Society of America. July/Sept 2002. v. 16 (3) p. 620-626.

LA: English

DE: allium-cepa. solanum-tuberosum. crop-plants-as-weeds. weed-control. mechanical-methods. tillage-. application-rates. crop-yield. bromoxynil-. ethofumesate-. fluroxypyr-. oxyfluorfen-. washington-.

Record 9 of 45 - AGRICOLA 1998-2003/03

AU: Oliva,-A.; Moraes,-R.M.; Watson,-S.B.; Duke,-S.O.; Dayan,-F.E.

TI: Aryltetralin lignans inhibit plant growth by affecting the formation of mitotic microtubular organizing centers.

SO: Pestic-biochem-physiol. Orlando, Fla. : Academic Press. Jan 2002. v. 72 (1) p. 45-54.

LA: English

DE: lolium-multiflorum. allium-cepa. lignans-. derivatives-. herbicidal-properties. mode-of-action. microtubules-. mitosis-. bioassays-. roots-. root-tips. growth-. phytotoxicity-.

AB: The aryltetralin lignans podophyllotoxin, alpha-peltatin, and beta-peltatin, their respective O-beta-D-glucosides, and the semisynthetic derivative etoposide were tested for phytotoxicity. The aglycones were more potent inhibitors than their respective glucosides, and podophyllotoxin was the most active natural lignan tested. These compounds were more active against rye (*Lolium multiflorum* L.) and onion (*Allium cepa* L.) than lettuce (*Lactuca sativa* L.). The semisynthetic lignan etoposide was more active than any of the natural analogues and was phytotoxic to both monocotyledonous and dicotyledonous species. Inhibition of root growth was the main developmental response observed on plants tested with the lignans. At the cellular level, podophyllotoxin and etoposide caused similar symptoms in actively dividing meristematic cells of onion root tips. All phases of mitosis were inhibited by nearly 50%, relative to the controls. Both compounds also induced abnormal star anaphase chromosomal configurations.

While the precise molecular mechanism of action of these compounds remains to be identified in plants, a primary effect is the alteration of the formation of the spindle microtubular organization centers, resulting in the formation of multiple spindle poles and an asymmetrical convergence of the chromosomes.

Record 10 of 45 - AGRICOLA 1998-2003/03

AU: Park,-G.; Xue,-C.; Zheng,-L.; Lam,-S.; Xu,-J.R.

TI: MST12 regulates infectious growth but not appressorium formation in the rice blast fungus *Magnaporthe grisea*.

SO: Mol-plant-microb-interact. St. Paul, MN : APS Press, [c1987-. Mar 2002. v. 15 (3) p. 183-192.

LA: English

DE: magnaporthe-grisea. pathogenicity-. appressoria-. infectivity-. protein-kinase. genes-. transcription-factors. mutants-. mutations-. growth-. sporulation-. spore-germination. hordeum-vulgare. leaves-. mechanical-damage. lesions-. hyphae-.

AB: In the rice blast fungus *Magnaporthe grisea*, a mitogen-activated protein kinase gene, *PMK1*, is known to regulate appressorium formation and infectious hyphae growth. Since *PMK1* is homologous to the *FUS3* and *KSS1* genes that regulate the transcription factor *STE12* in yeast, we functionally characterized the *STE12* homologue in *M. grisea* (*MST12*). A polymerase chain reaction-based approach was used to isolate the *MST12* gene that is homologous to yeast *STE12*. Four *mst12* deletion mutants were isolated by gene replacement. No obvious defect in vegetative growth, conidiation, or conidia germination was observed in *mst12* mutants. However, *mst12* mutants were nonpathogenic on rice and barley leaves. In contrast to *pmk1* mutants that did not form appressoria, *mst12* mutants produced typical dome-shaped and melanized appressoria. However, the appressoria formed by *mst12* mutants failed to penetrate onion epidermal cells. When inoculated through wound sites, *mst12* mutants failed to cause spreading lesions and appeared to be defective in infectious growth. These data indicate that *MST12* may function downstream of *PMK1* to regulate genes involved in infectious hyphae growth. A transcription factor or factors other than *MST12* must exist in *M. grisea* and function downstream from *PMK1* for appressorium formation.

Record 11 of 45 - AGRICOLA 1998-2003/03

AU: Yamashita,-K.; Hisatsune,-Y.; Sakamoto,-T.; Ishizuka,-K.; Tashiro,-Y.

TI: Chromosome and cytoplasm analyses of somatic hybrids between onion (*Allium cepa* L.) and garlic (*A. sativum* L.).

SO: Euphytica. Dordrecht : Kluwer Academic Publishers. 2002. v. 125 (2) p. 163-167.

LA: English

DE: allium-cepa. allium-sativum. chromosome-analysis. cytoplasm-. genetic-analysis. somatic-hybridization. interspecific-hybridization. dna-hybridization. chromosome-number. restriction-fragment-length-polymorphism.

Record 12 of 45 - AGRICOLA 1998-2003/03

AU: Sulistyaningsih,-E.; Yamashita,-K.; Tashiro,-Y.

TI: Haploid induction from F1 hybrids between CMS shallot with *Allium galanthum* cytoplasm and common onion by unpollinated flower culture.

SO: Euphytica. Dordrecht : Kluwer Academic Publishers. 2002. v. 125 (1) p. 139-144.

LA: English

DE: allium-cepa. allium-. interspecific-hybridization. cytoplasm-.

haploidy-. pollination-. tissue-culture. flowers-. biochemical-
techniques. tissue-cultures. explants-. culture-media. chromosome-
number. seedlings-. chloroplast-dna. mitochondrial-dna.
segregation-.

Record 13 of 45 - AGRICOLA 1998-2003/03

AU: Byrne,-C.M.; Bolton,-D.J.; Sheridan,-J.J.; Blair,-I.S.; McDowell,-
D.A.

TI: Determination of the effect of sodium lactate on the survival and
heat resistance of Escherichia coli O157:H7 in two commercial beef
patty formulations.

SO: Food-microbiol. London ; Orlando : Academic Press, c1984-. Apr/
June 2002. v. 19 (2/3) p. 211-219.

LA: English

DE: ground-beef. patties-. escherichia-coli. food-contamination.
microbial-contamination. food-processing. lactates-. water-
activity. ph-. heat-treatment. heat-resistance. viability-. frozen-
storage. frozen-meat.

AB: The effect of 4% sodium lactate (NaL) in beefburger patty
formulations on the survival and heat resistance of Escherichia
coli O157:H7 was investigated. Fresh beef trimmings were
inoculated with E. coli O157:H7 to a concentration of 6.0-7.0
log₁₀ cfu g⁽⁻¹⁾ and subjected to the processing stages of
beefburger patty production. Two commercial beefburger patty
formulations were produced: a 'quality' patty (100% beef) and an '
economy' patty (70% beef, 30% other ingredients, including onion,
water, salt, seasoning, rusk and soya concentrate). Sodium lactate
(4% w/v) was added to the beefburger patties during mincing and
the formed patties were frozen and stored for 1 month. Beefburger
patties without added NaL were used as controls. After frozen
storage for 1 month, patties were examined for E. coli O157:H7
counts. There was a synergistic effect between freezing and NaL,
which resulted in a small but significant reduction (P < 0.05) (
approximately 0.5 log₁₀ cfu g⁽⁻¹⁾) in E. coli O157:H7 numbers. The
frozen beefburger patties were also heat-treated at 50, 55 and 60
degrees C and the data analysed to derive D-values for E. coli
O157:H7 cells. At each temperature treatment, the D-values of the
quality and economy beefburger patties with 4% NaL were
significantly lower (P < 0.001) than the D-values of the patty
formulations without NaL. The study demonstrates that the presence
of 4% NaL in beefburger patty formulations can reduce the overall
risks posed to consumers by the presence of E. coli O157:H7 by,
first; reducing pathogen survival during freezing and frozen
storage of the uncooked product; and, second, by increasing the
susceptibility of the pathogen to heat.
during normal cooking processes.

Record 14 of 45 - AGRICOLA 1998-2003/03

AU: Tyroller,-S.; Zwickenpflug,-W.; Richter,-E.

TI: New sources of dietary myosmine uptake from cereals, fruits,
vegetables, and milk.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society.
Aug 14, 2002. v. 50 (17) p. 4909-4915.

LA: English

DE: alkaloids-. milk-. cereals-. fruit-. foods-. cocoa-. vegetables-.
cream-. chemical-composition.

AB: Myosmine has been regarded as a specific tobacco alkaloid until
investigations pointed out that nuts and nut products constitute a
significant source of myosmine. In the present study it is shown
that the occurrence of myosmine is widespread throughout a large
number of plant families. Using a method for extraction

practicable for all examined foods, quantitative analysis through internal standard addition showed nanograms per gram amounts. Positively tested edibles were staple foods such as maize, rice, wheat flour, millet, potato, and milk and also cocoa, popcorn, tomato, carrot, pineapple, kiwi, and apples. No myosmine was detectable in other vegetables and fruits such as lettuce, spinach, cucumber, onion, banana, tangerines, and grapes. Myosmine is easily nitrosated giving rise to a DNA adduct identical to the esophageal tobacco carcinogen N-nitrosomornicotine. Therefore, the role of dietary myosmine in esophageal adenocarcinoma should be further investigated.

Record 15 of 45 - AGRICOLA 1998-2003/03

AU: Susek,-A.; Javornik,-B.; Bohanec,-B.

TI: Factors affecting direct organogenesis from flower explants of *Allium giganteum*.

SO: Plant-cell,-tissue-organ-cult. Dordrecht, The Netherlands : Kluwer Academic Publishers. Jan 2002. v. 68 (1) p. 27-33.

LA: English

DE: allium-. in-vitro-culture. explants-. flowers-. culture-media. 2,4-d-. iba-. benzyladenine-. sucrose-. glucose-. thidiazuron-. fluridone-. dosage-effects. callus-. regenerative-ability. shoots-. organogenesis-. growth-. micropropagation-. methodology-. developmental-stages. plant-morphology. genotypes-. genetic-variation. dna-amplification.

AB: A novel method is described for the propagation of *Allium giganteum* Regel using direct organogenesis resulting in multiple shoot structures formed on mature flower buds or ovaries. A two step induction and differentiation procedure, similar to that described earlier in onion, was tested. Flowers were inoculated on the induction medium for 6 days and extracted ovaries were placed on the differentiation medium. Optimal formation of multiple shoot structures was obtained using modified BDS medium containing 50 g l⁻¹ sucrose solidified by a mixture of agar/gellan-gum, with 8.88 micromolar benzylaminopurine (BA) and 9.05 micromolar 2,4 dichlorophenoxyacetic acid (2,4-D) in induction medium and 9.08 micromolar thidiazuron (TDZ) in the differentiation medium. Five plant sources obtained from different European retailers of ornamental bulbs were tested separately. All tested genotypes produced multiple organogenic structures, although induction percentages clustered in two distinctive groups. Shoots formed tended to become dormant, and attempts to improve their growth and rooting included treatment with fluridone. Dormancy was partly broken when shoots were briefly dipped in 1 micromolar fluridone. Genetic analysis of plant sources using random amplified polymorphic DNA method showed that 5 retailers actually distribute only two different clones, one of them more and the other less responsive to shoot organogenesis.

Record 16 of 45 - AGRICOLA 1998-2003/03

AU: Nunez,-J.J.; Gilbertson,-R.L.; Meng,-X.; Davis,-R.M.

TI: First report of *Xanthomonas* leaf blight of onion in California.

SO: Plant-dis. [St. Paul, Minn., American Phytopathological Society]. Mar 2002. v. 86 (3) p. 330.

LA: English

DE: allium-cepa. identification-. symptoms-. canopy-. yield-losses. lesions-. leaf-spotting. experimental-infections. california-

Record 17 of 45 - AGRICOLA 1998-2003/03

AU: Schwartz,-H.F.; Brown,-W.M.-Jr.; Blunt,-T.; Gent,-D.H.

TI: Iris yellow spot virus on onion in Colorado.

SO: Plant-dis. [St. Paul, Minn., American Phytopathological Society].
May 2002. v. 86 (5) p. 560.

LA: English

DE: allium-cepa. tomato-spotted-wilt-virus-group. viral-diseases.
symptoms-. lesions-. spatial-distribution. leaves-. diagnosis-.
diagnostic-techniques. immunoblotting-. disease-transmission.
colorado-.

Record 18 of 45 - AGRICOLA 1998-2003/03

AU: Kipkorir,-E.C.; Raes,-D.; Massawe,-B.

TI: Seasonal water production functions and yield response factors for
maize and onion in Perkerra, Kenya.

SO: Agric-water-manage. Amsterdam, The Netherlands : Elsevier Science
B.V. Aug 31, 2002. v. 56 (3) p. 229-240.

LA: English

DE: zea-mays. allium-cepa. crop-production. crop-yield. furrow-
irrigation. application-rates. water-use. evapotranspiration-.
soil-water-content. seasonal-variation. clay-loam-soils. semiarid-
climate. mathematical-models. equations-. kenya-.

Record 19 of 45 - AGRICOLA 1998-2003/03

AU: Jaime,-L.; Molla,-E.; Fernandez,-A.; Martin-Cabrejas,-M.A.; Lopez-
Andreu,-F.J.; Esteban,-R.M.

TI: Structural carbohydrate differences and potential source of
dietary fiber of onion (*Allium cepa* L.) tissues.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society.
Jan 2, 2002. v. 50 (1) p. 122-128.

LA: English

DE: onions-. chemical-composition. fiber-content. cellulose-. pectins-.
carbohydrates-. uronic-acids. sugars-. fiber-. agricultural-
byproducts.

AB: Onion tissues of three varieties were evaluated for dietary fiber (DF) composition. Insoluble (IDF) and soluble (SDF) dietary fibers were subjected to acid hydrolysis, and the resultant neutral sugars, uronic acids, and Klason lignin were quantified. Brown skin exhibited the highest total dietary fiber (TDF) content (65.8%) on a dry matter basis, followed by top (48.5%) and bottom (38.6%), IDF being the main fraction found. The SDF:IDF ratio decreased from inner to outer tissues. Brown skin and outer leaves byproducts appear to be the most suitable sources of DF that might be used in food product supplementation. The chemical composition reveals that cellulose and pectic polysaccharides were the main components of onion DF in all tissues, although differences between them were noticed. An increase in the uronic acids/neutral sugars ratio from inner to outer tissues was found, suggesting that the galactan side chain shows a DF solubilization role.

Record 20 of 45 - AGRICOLA 1998-2003/03

AU: Ramana,-S.; Biswas,-A.K.; Kundu,-S.; Saha,-J.K.; Yadava,-R.B.R.

TI: Effect of distillery effluent on seed germination in some
vegetable crops.

SO: Bioresour-technol. Oxford, U.K. : Elsevier Science Limited. May
2002. v. 82 (3) p. 273-275.

LA: English

DE: lycopersicon-esculentum. capsicum-annuum. lagenaria-siceraria.
cucumis-sativus. allium-cepa. waste-utilization. application-to-
land.

AB: A laboratory experiment was conducted to study the effect of
different concentrations (0%, 5%, 10%, 15%, 20%, 25%, 50%, 75% and
100%) of distillery effluent (raw spent wash) on seed germination
(%), speed of germination, peak value and germination value in

some vegetable crops: tomato, chilli, bottle gourd, cucumber and onion. The distillery effluent did not show any inhibitory effect on seed germination at low concentration except in tomato, but in onion the germination was significantly higher (84%) at 10% concentration as against 63% in the control. Irrespective of the crop species, at highest concentrations (75% and 100%), complete failure of germination was observed. The speed of germination, peak value and germination value also followed a similar trend. We found that a concentration of 5% was critical for seed germination in tomato and bottle gourd, and 25% in the rest of the crops. Based on the tolerance to distillery effluent, the crops studied have been arranged in the following order: cucumber > chilli > onion > bottle gourd > tomato. We conclude that the effect of the distillery effluent is crop-specific and due care should be taken before using the distillery effluent for pre-sowing irrigation purposes.

Record 21 of 45 - AGRICOLA 1998-2003/03

AU: Ou,-B.; Huang,-D.; Hampsch-Woodill,-M.; Flanagan,-J.A.; Deemer,-E. K.

TI: Analysis of antioxidant activities of common vegetables employing oxygen radical absorbance capacity (ORAC) and ferric reducing antioxidant power (FRAP) assays: a comparative study.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society. May 22, 2002. v. 50 (11) p. 3122-3128.

LA: English

DE: vegetables-. plant-extracts. oxidation-. activity-. assays-. tests-. chemical-reactions. free-radicals. ferric-ions. reduction-. electron-transfer. hydrogen-ions. transfer-. species-differences. geographical-variation. harvesting-date.

AB: A total of 927 freeze-dried vegetable samples, including 111 white cabbages, 59 carrots, 51 snap beans, 57 cauliflower, 33 white onions, 48 purple onions, 130 broccoli, 169 tomatoes, 25 beets, 88 peas, 88 spinach, 18 red peppers, and 50 green peppers, were analyzed using the oxygen radical absorption capacity (ORAC) and ferric reducing antioxidant capacity (FRAP) methods. The data show that the ORAC and FRAP values of vegetable are not only dependent on species, but also highly dependent on geographical origin and harvest time. The two antioxidant assay methods, ORAC and FRAP, also give different antioxidant activity trends. The discrepancy is extensively discussed based on the chemistry principles upon which these methods are built, and it is concluded that the ORAC method is chemically more relevant to chain-breaking antioxidants activity, while the FRAP has some drawbacks such as interference, reaction kinetics, and quantitation methods. On the basis of the ORAC results, green pepper, spinach, purple onion, broccoli, beet, and cauliflower are the leading sources of antioxidant activities against the peroxy radicals.

Record 22 of 45 - AGRICOLA 1998-2003/03

AU: Halvorson,-A.D.; Follett,-R.F.; Bartolo,-M.E.; Schweissing,-F.C.

TI: Nitrogen fertilizer use efficiency of furrow-irrigated onion and corn.

SO: Agron-j. Madison, Wis. : American Society of Agronomy, [1949-. May/ June 2002. v. 94 (3) p. 442-449.

LA: English

DE: allium-cepa. zea-mays. furrow-irrigation. nitrogen-fertilizers. use-efficiency. species-differences. nitrate-nitrogen. rotations-. dry-matter-accumulation. bulbs-. crop-yield. colorado-.

AB: Furrow-irrigated onion (*Allium cepa* L.) production, with high N fertilization rates, may be contributing NO₃-N to ground water in

southeastern Colorado. This study determined the growth and N uptake patterns of onion grown on a silty clay soil, N fertilizer use efficiency (NFUE) of onion, and recovery of residual N fertilizer by corn (*Zea mays* L.) following onion in rotation. Onion was sampled biweekly from 18 May to 15 Sept. 1998 from plots receiving 0 and 224 kg N ha⁻¹. Nonlabeled N and labeled 15N fertilizer were band-applied near the onion row in split applications of 112 kg N ha⁻¹ each on 18 May and 25 June. Onion dry matter accumulation was slow from planting to about late May, followed by a rapid increase in biomass production and N uptake. Because residual soil NO₃-N was high, N fertilization resulted in only a small increase in bulb yield. Greatest demand for N by onion occurred during bulb development. Fertilizer N recovery by onion was 11 and 19% for May and June N applications (average 15%), respectively. Much of the fertilizer N remained in the upper 60-cm soil profile at harvest and had moved toward the onion bed center. Fertilizer 15N detected at 180-cm soil depth indicated leaching losses from the root zone. The unfertilized 1999 corn crop recovered 24% of fertilizer N applied to onion for a total fertilizer N uptake by the two crops of 39%. Delaying N fertilizer application until onion bulbing begins may improve NFUE. Planting corn directly on the previous onion bed may result in greater N fertilizer recovery by corn.

Record 23 of 45 - AGRICOLA 1998-2003/03

AU: Hole,-C.C.; Drew,-R.L.K.; Gray,-D.

TI: Skin characteristics and quality of onion cultivars given different nitrogen and irrigation treatments.

SO: J-hortic-sci-biotech. Ashford, Kent, England : Headley Brothers Ltd., [1998-. Mar 2002. v. 77 (2) p. 191-199.

LA: English

DE: allium-cepa. onions-. comparisons-. nitrogen-fertilizers. application-rates. water-availability. peel-. epidermis-. moisture-content. handling-. damage-. environmental-factors. bulbs-. bulb-scales. cultivars-.

Record 24 of 45 - AGRICOLA 1998-2003/03

AU: Kopsell,-D.E.; Randle,-W.M.; Schmidt,-N.E.

TI: Incubation time, cultivar, and storage duration affect onion lachrymatory factor quantification.

SO: HortScience. Alexandria, Va. : The American Society for Horticultural Science. June 2002. v. 37 (3) p. 567-570.

LA: English

DE: onions-. cultivars-. food-storage. duration-. food-composition. flavor-.

AB: The lachrymatory factor [LF, (Z,E) propanethial S-oxide] is a direct product of 1-propenyl cysteine sulfoxide (1-PRENCISO) hydrolysis and dominates onion flavor when present in high concentrations. To evaluate LF as a potential means of assessing flavor quality, two onion cultivars were greenhouse-grown and the bulbs stored for 4 months at 3 +/- 1 degrees C, 70% relative humidity. Onions were evaluated at monthly storage intervals for LF development in bulb macerates following a 120 seconds incubation time. When LF was compared to amounts of 1-PRENCISO hydrolysis, we found that LF was severely underestimated. The relationship of LF and 1-PRENCISO also varied between cultivars during storage. As 'Granex 33' was stored for longer periods, the amount of LF measured at 120 seconds more closely reflected the amount of 1-PRENCISO hydrolyzed. LF from 'Dehydrator #3', however, was consistently underestimated regardless of storage time. Therefore, a second experiment was conducted using individual

bulbs of two onion cultivars in an attempt to determine the optimal incubation time for LF quantification. Maximum LF among bulbs was generally detected 5-10 seconds after tissue maceration for 'Dehydrator' and after 15-30 seconds for 'Sweet Vidalia'. The amount of LF quantified between 5 and 120 seconds decreased linearly for nine of ten bulbs of 'Dehydrator', but this trend was less apparent for 'Sweet Vidalia'. A uniform LF incubation time for individual bulbs, therefore, may not be possible for all cultivars. These data show a complex relationship among and within onion cultivars for 1-PRENCISO hydrolysis and the formation of LF in onion macerates.

Record 25 of 45 - AGRICOLA 1998-2003/03

AU: Mathur,-J.; Mathur,-N.; Hulskamp,-M.

TI: Simultaneous visualization of peroxisomes and cytoskeletal elements reveals actin and not microtubule-based peroxisome motility in plants.

SO: Plant-physiol. Rockville, MD : American Society of Plant Physiologists, 1926-. Mar 2002. v. 128 (3) p. 1031-1045.

LA: English

DE: allium-cepa. peroxisomes-. cytoskeleton-. actin-. microtubules-. movement-. biochemical-markers. microfilaments-. trichomes-. root-hairs. cortex-. roots-. growth-. epidermis-.

AB: Peroxisomes were visualized in living plant cells using a yellow fluorescent protein tagged with a peroxisomal targeting signal consisting of the SKL motif. Simultaneous visualization of peroxisomes and microfilaments/microtubules was accomplished in onion (*Allium cepa*) epidermal cells transiently expressing the yellow fluorescent protein-peroxi construct, a green fluorescent protein-mTalin construct that labels filamentous-actin filaments, and a green fluorescent protein-microtubule-binding domain construct that labels microtubules. The covisualization of peroxisomes and cytoskeletal elements revealed that, contrary to the reports from animal cells, peroxisomes in plants appear to associate with actin filaments and not microtubules. That peroxisome movement is actin based was shown by pharmacological studies. For this analysis we used onion epidermal cells and various cell types of *Arabidopsis* including trichomes, root hairs, and root cortex cells exhibiting different modes of growth. In transient onion epidermis assay and in transgenic *Arabidopsis* plants, an interference with the actin cytoskeleton resulted in progressive loss of saltatory movement followed by the aggregation and a complete cessation of peroxisome motility within 30 min of drug application. Microtubule depolymerization or stabilization had no effect.

Record 26 of 45 - AGRICOLA 1998-2003/03

AU: Benkeblia,-N.; Varoquaux,-P.; Shiomi,-N.; Sakai,-H.

TI: Storage technology of onion bulbs c.v. Rouge Amposta: effects of irradiation, maleic hydrazide and carbamate isopropyl, N-phenyl (CIP) on respiration rate and carbohydrates.

SO: Int-j-food-sci-technol. Oxford : Blackwell Scientific Ltd. Feb 2002 . v. 37 (2) p. 169-175.

LA: English

DE: onions-. food-storage. maleic-hydrazide. carbamates-. gamma-radiation. irradiation-. respiration-. carbohydrates-. food-composition. sprouting-. storage-decay. temperature-.

AB: The effects of gamma-irradiation, maleic hydrazide (MH) and carbamate isopropyl, phenyl (CIP) on the carbohydrate content, respiration rate (RR) sprouting and rotting of red onion bulbs (*Allium cepa* L.) c.v. Rouge Amposta stored at 4, 10 and 20 degrees

C were investigated. Between 6 and 8 weeks soluble sugars increased in concentration and varied between 6.0 and 6.5% fresh weight both at 10 and 20 degrees C. However, this peak did not exceed 6.0% fresh weight at 4 degrees C. The basal amount of soluble sugars was about 3% fresh weight. The content appeared to be influenced by temperature, with greater accumulation at 10 and 20 degrees C than at 4 degrees C. The RR increased when the bulbs sprouted, whereas it was reduced by the following treatments: irradiation, MH and CIP, the respiration of irradiated bulbs decreased during the final stage of storage because of the death of the sprouts. The chemical treatment used were effective in controlling sprouting of the bulbs during storage, although not as effective as irradiation and chilling.

Record 27 of 45 - AGRICOLA 1998-2003/03

AU: Keusgen,-M.; Schulz,-H.; Glodek,-J.; Krest,-I.; Kruger,-H.; Herchert,-N.; Keller,-J.

TI: Characterization of some Allium hybrids by aroma precursors, aroma profiles, and alliinase activity.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society. May 8, 2002. v. 50 (10) p. 2884-2890.

LA: English

DE: allium-cepa. allium-. wild-relatives. interspecific-hybridization. hybrids-. lyases-. enzyme-activity. organic-sulfur-compounds. volatile-compounds. aroma-. precursors-. cysteine-. amino-acid-derivatives. random-amplified-polymorphic-dna.

AB: Various Allium hybrids, obtained by the crossbreeding of Allium cepa (onion) as the mother plant and six taxonomically distant wild species obtained by embryo rescue, were investigated with special respect to their individual profiles of cysteine sulfoxides as well as enzymically and nonenzymically formed aroma substances. Alliinase (EC 4.4.1.4) catalyzes the conversion of odorless (+)-S-alk(en)yl-L-cysteine sulfoxides into volatile thiosulfinates. These thiosulfinates were converted to a variety of sulfides by steam distillation. SPME-gas chromatography (GC) and high-performance liquid chromatography (HPLC) used for the analysis of aroma components and their precursors permitted a high sample throughput, so that numerous gene bank accessions and Allium breeding materials were analyzed within a comparatively short time. Cysteine sulfoxides as well as alliinase activity were found in all investigated samples at different levels, but (+)-S-methyl-L-cysteine sulfoxide (methiin) was the most abundant sulfoxide present. (+)-S-(trans-1-Propenyl)-L-cysteine sulfoxide (isoalliin) is typical for onion and was found in all investigated hybrids. The pattern of the other cysteine sulfoxides depended strongly on the parent plants used. The profile of aroma components corresponded with the related pattern of aroma precursors (cysteine sulfoxides). Successful hybridization was proven by randomly amplified polymorphic DNA analysis. Together with these established marker techniques, HPLC and SPME-GC analysis provide support to breeding projects designed to improve the health and aroma properties of Allium hybrids.

Record 28 of 45 - AGRICOLA 1998-2003/03

AU: Nielsen,-K.; Yohalem,-D.S.; Jensen,-D.F.

TI: PCR detection and RFLP differentiation of Botrytis species associated with neck rot of onion.

SO: Plant-dis. [St. Paul, Minn., American Phytopathological Society]. June 2002. v. 86 (6) p. 682-686.

LA: English

DE: allium-cepa. botrytis-. fungal-diseases. identification-. etiology-

. restriction-fragment-length-polymorphism. polymerase-chain-reaction. detection-. diagnosis-.

AB: Botrytis aclada and other Botrytis spp. can cause neck rot on onions, a storage disease that normally is very difficult to detect at harvest using traditional isolation techniques. Sequence characterized amplified region primers (BA2f/BA1r) were designed based on a previously cloned and amplified DNA fragment for direct amplification of isolates of Botrytis spp. associated with neck rot of onions. Digestion of the polymerase chain reaction (PCR) amplification product with the restriction enzyme ApoI makes it possible to distinguish the five groups: Botrytis aclada types AI and AII (B. allii); B. byssoidea; B. squamosa; and B. cinerea. The detection limit was 1 to 10 pg of pure fungal DNA. It was possible to detect B. aclada with the PCR method in artificially inoculated onion bulb tissue and in mature onion leaves showing no symptoms of the disease. The availability of a sensitive and specific PCR detection and identification method for Botrytis onion neck rot pathogens should facilitate ecological studies of this group of onion pathogens.

Record 29 of 45 - AGRICOLA 1998-2003/03

AU: Swift,-C.E.; Wickliffe,-E.R.; Schwartz,-H.F.

TI: Vegetative compatibility groups of Fusarium oxysporum f. sp. cepae from onion in Colorado.

SO: Plant-dis. [St. Paul, Minn., American Phytopathological Society]. June 2002. v. 86 (6) p. 606-610.

LA: English

DE: allium-cepa. fusarium-oxysporum-f.sp.-cepae. compatibility-. strains-. geographical-variation. pathogenicity-. mutants-. genetic-diversity. colorado-.

AB: Nineteen isolates of Fusarium oxysporum f. sp. cepae recovered from diseased onions growing in the western, southern, and northern regions of Colorado were placed into vegetative compatibility groups (VCGs) based on pairing of complementary mutants. Pathogenic isolates from these regions were cultured on variations of potassium chlorate (1.5 or 3.0%) mutation media, potato dextrose agar (PDA), and minimal medium (MM) supplemented with L-asparagine and L-threonine. Chlorate PDA and 3% chlorate MM with L-threonine did not generate the nitrate nonutilizing (nit) mutants required, while MM with L-asparagine (1.5 and 3% chlorate) and MM with L-threonine (1.5% chlorate) generated complementary nit mutants required for compatibility pairings. Five VCGs of F. oxysporum cepae were identified. One VCG was present in all three regions of Colorado examined. Four VCGs were restricted to either western or eastern Colorado. Additional sampling and evaluation of a more diverse collection of F. oxysporum cepae isolates from other regions of onion production is needed to determine the diversity of this pathogen. Such information could assist in breeding for resistance to F. oxysporum cepae.

Record 30 of 45 - AGRICOLA 1998-2003/03

AU: Randle,-W.M.; Kopsell,-D.E.; Kopsell,-D.A.

TI: Sequentially reducing sulfate fertility during onion growth and development affects bulb flavor at harvest.

SO: HortScience. Alexandria, Va. : The American Society for Horticultural Science. Feb 2002. v. 37 (1) p. 118-121.

LA: English

DE: allium-cepa. nutrient-availability. growth-. bulbs-. harvesting-date. crop-management. plant-development. biochemical-pathways. flavor-compounds. brix-.

AB: A major decision in producing onions with mild flavor on low

sulfur soils is determining when to stop applying $\text{SO}_4^{(-2)}$ to the crop. Sulfate ($\text{SO}_4^{(-2)}$) is necessary for good early growth, but high levels of available $\text{SO}_4^{(-2)}$ late in the season increase bulb pungency. The objective of this research was to determine how sequentially reducing the availability of $\text{SO}_4^{(-2)}$ during onion growth and development would affect flavor intensity and quality of Granex-type onions. Starting 77 days before harvest, $\text{SO}_4^{(-2)}$ concentrations were lowered from 1 mM to 0.05 mM on different blocks of onions in a greenhouse experiment at bi-weekly intervals. Total leaf and bulb S were measured at harvest to monitor S accumulation as $\text{SO}_4^{(-2)}$ fertility was sequentially reduced. Bulbs were harvested and analyzed for flavor precursors and their biosynthetic intermediates, gross flavor intensity as measured by enzymatically developed pyruvic acid (EPY), and soluble solids content. As $\text{SO}_4^{(-2)}$ fertility reductions were delayed during the experiment, total leaf and bulb S increased linearly. In addition, bulb EPY concentrations increased linearly as $\text{SO}_4^{(-2)}$ reduction was delayed, indicating increases in overall flavor intensity. While the total concentration of flavor precursors did not significantly change in response to lowering $\text{SO}_4^{(-2)}$ fertility during the experiment, the concentrations of MCSO to 1-PRENCISO did. MCSO concentration decreased and then increased in a quadratic manner. MCSO produces fresh onion and cabbage like flavors. 1-PRENCISO, on the other hand, increased linearly as the high $\text{SO}_4^{(-2)}$ fertility level was extended through bulb maturation. Increasing concentrations of 1-PRENCISO causes onions to have

significantly more heat and mouth burn when eaten. Reducing available $\text{SO}_4^{(-2)}$ 49 days prior to harvest coincided with a reduction in EPY and a change in the flavor biosynthetic pathway that appeared to be associated with the metabolic changes occurring with the onset of bulbing.

Record 31 of 45 - AGRICOLA 1998-2003/03

AU: Drost, -D.; Koenig, -R.; Tindall, -T.

TI: Nitrogen use efficiency and onion yield increased with a polymer-coated nitrogen source.

SO: HortScience. Alexandria, Va. : The American Society for Horticultural Science. Apr 2002. v. 37 (2) p. 338-342.

LA: English

DE: allium-cepa. nitrogen-. use-efficiency. crop-yield. nutrient-sources. coatings-. polymers-. urea-. application-rates. direct-sowing. leaf-area. nitrogen-content. utah-.

AB: Nitrogen (N) losses can be substantial in furrow-irrigated onions (*Allium cepa* L.). Polymer-coated urea (PU) may reduce N losses and result in an increase in productivity. In this study, we investigated the effects of different rates and blends of urea and PU on onion yield and N use for two cropping seasons. Nitrogen was applied at 112, 168, and 224 kg(.)ha⁻¹ as PU or urea. In addition, three PU/urea blends equal to 224 kg(.)ha⁻¹ of N were compared. Plant growth and N concentration, soil nitrate concentrations, and bulb yield were evaluated each year. Onion yield decreased by 95 Mg(.)ha⁻¹ for each 25% increase in the proportion of urea in the fertilizer blends. Reducing the N rates from 224 to 112 kg(.)ha⁻¹ had minimal effect on bulb yield when all the fertilizer was supplied by urea. A reduction of N applied from 224 to 168 kg(.)ha⁻¹ had little effect on yield, although a further reduction to 112 kg(.)ha⁻¹ did significantly reduce bulb yield when the entire N was supplied from PU. Nitrogen source and rate had no effect on bulb maturity and only minor effects on leaf area and storage potential. Soil sampling indicated that more N was retained in

PU-treated onion beds than in urea-treated beds, which improved nitrogen use efficiency. In addition, N use efficiency improved when there was more PU in the blend and when PU was compared with urea at the same rate. We conclude that the use of PU can dramatically improve N use efficiency and productivity in direct-seeded onions.

Record 32 of 45 - AGRICOLA 1998-2003/03

AU: Shen,-C.; Hong,-Z.; Parkin,-K.L.

TI: Fate and kinetic modeling of reactivity of alkanesulfenic acids and thiosulfates in model systems and onion homogenates.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society. Apr 24, 2002. v. 50 (9) p. 2652-2659.

LA: English

DE: onions-. organic-sulfur-compounds. chemical-reactions. enzyme-activity. lyases-. cysteine-. amino-acid-derivatives.

AB: The dynamic changes in thiosulfate profiles were studied in reaction systems containing a crude onion alliinase, S-alk(en)yl-L-cysteine sulfoxide substrates (1) and preformed thiosulfates (4). Regioisomeric excesses of one of two possible heterologous 4 species (RS(O)SR', where R not equal to R') could be manipulated under conditions where alliinase, 1, and 4 levels were varied. Regioisomeric excesses could be explained by a thiosulfate (4)/ alkanesulfenic acid (2) trapping mechanism, with the greatest control over product profile governed by the rate of 2 generation in the system. The series of reactions existing in this dynamic reaction system was kinetically modeled with reasonable fits to the experimental data. The application of the 4/2 trapping strategy to manipulate thiosulfate and related organosulfur product profiles in diluted onion homogenates was demonstrated using exogenous MeS(O)SMe (4a), PrS(O)SPr (4c), and AllS(O)SAll (4d) as the preformed thiosulfate.

Record 33 of 45 - AGRICOLA 1998-2003/03

AU: Macone,-A.; Nardini,-M.; Antonucci,-A.; Maggio,-A.; Matarese,-R.M.

TI: Identification of aminoethylcysteine ketimine decarboxylated dimer, a natural antioxidant, in dietary vegetables.

SO: J-agric-food-chem. Washington, D.C. : American Chemical Society. Mar 27, 2002. v. 50 (7) p. 2169-2172.

LA: English

DE: cysteine-. amino-acid-derivatives. vegetables-. gas-chromatography. mass-spectrometry. hplc-.

AB: Aminoethylcysteine ketimine decarboxylated dimer (simply named dimer) is a natural sulfur-containing tricyclic compound detected, until now, in human urine, bovine cerebellum, and human plasma. Recently, the antioxidant properties of this compound have been demonstrated. In this investigation, the presence of aminoethylcysteine ketimine decarboxylated dimer was identified in garlic, spinach, tomato, asparagus, aubergine, onion, pepper, and courgette. Identification of this compound in dietary vegetables was performed using gas chromatography, high-performance liquid chromatography, and gas chromatography-mass spectrometry. Results from GC analysis range in the order of 10(-4) micromol of dimer/g for all the tested vegetables. These results and the lack of a demonstrated biosynthetic pathway in humans might account for a dietary supply of this molecule.

Record 34 of 45 - AGRICOLA 1998-2003/03

AU: Gennaro,-L.; Leonardi,-C.; Esposito,-F.; Salucci,-M.; Maiani,-G.; Quaglia,-G.; Fogliano,-V.

TI: Flavonoid and carbohydrate contents in tropea red onions: effects

of homelike peeling and storage.

- SO: J-agric-food-chem. Washington, D.C. : American Chemical Society.
Mar 27, 2002. v. 50 (7) p. 1904-1910.
- LA: English
- DE: onions-. delphinidin-. quercetin-. cyanidin-. anthocyanins-.
glucose-. fructose-. sucrose-. food-storage. home-food-preparation.
simulation-. peeling-.
- AB: The content of anthocyanins, flavonols, and carbohydrates of
Tropea red onions (*Allium cepa* L.) was determined by HPLC and
HPLC-MS. Cyanidin derivatives constitute >50% of total
anthocyanins, but delphinidin and petunidin derivatives, which
have not been reported in red onions thus far, were also detected.
The flavonoid distribution in the different layers of the bulbs
indicates that, after homelike peeling, the edible portion
contains 79% of the total content of quercetin 4'-glucoside but
only 27% of the anthocyanins. Storage of onions for 6 weeks in
different conditions, all of them mimicking home storage habits,
resulted in a decrease to 64-73% of total anthocyanins. The same
trend was verified for the total antioxidant activity, which was
reduced to 29-36%. A decrease in glucose and fructose content
correlated with anthocyanin degradation was also observed. Storage
at low temperature seems to better preserve the onion anthocyanins.
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Record 35 of 45 - AGRICOLA 1998-2003/03

- AU: Boyhan,-G.E.; Torrance,-R.L.
- TI: Vidalia onions--sweet onion production in southeastern Georgia.
- SO: HortTechnology. Alexandria, VA : American Society for
Horticultural Science, c1991-. Apr/June 2002. v. 12 (2) p.
196-202.
- LA: English
- DE: allium-cepa. crop-production. food-marketing. cultivars-. breeding-
. food-composition. crop-management. aquifers-. history-. plant-
pests. plant-diseases. site-preparation. harvesting-. processing-.
georgia-.
-

Record 36 of 45 - AGRICOLA 1998-2003/03

- AU: Bailey,-P.H.J.; Currey,-J.D.; Fitter,-A.H.
- TI: The role of root system architecture and root hairs in promoting
anchorage against uprooting forces in *Allium cepa* and root mutants
of *Arabidopsis thaliana*.
- SO: J-exp-bot. Oxford : Oxford University Press. Feb 2002. v. 53 (367)
p. 333-340.
- LA: English
- DE: arabidopsis-thaliana. allium-cepa. roots-. mutants-. root-systems.
plant-morphology. root-hairs. stability-. mechanical-properties.
branching-. strength-. age-. seedlings-. fracture-.
- AB: The role played by lateral roots and root hairs in promoting plant
anchorage, and specifically resistance to vertical uprooting
forces has been determined experimentally. Two species were
studied, *Allium cepa* (onion) which has a particularly simple root
system and two mutants of *Arabidopsis thaliana*, one without root
hairs (rhd 2-1) and another with reduced lateral root branching (
axr 4-2). Maximum strength of individual onion roots within a
plant increased with plant age. In uprooting tests on onion
seedlings, resistance to uprooting could be resolved into a series
of events associated with the breakage of individual roots. Peak
pulling resistance was explained in a regression model by a
combination of a measure of plant size and the extent to which the
uprooting resistance of individual roots was additive. This
additive effect is termed root co-operation. A simple model is
presented to demonstrate the role played by root co-operation in

uprooting resistance. In similar uprooting tests on *Arabidopsis thaliana*, the mutant *axr 4-2*, with very restricted lateral development, showed a 14% reduction in peak pulling resistance when compared with the wild-type plants of similar shoot dry weight. The uprooting force trace of *axr 4-2* was different to that of the wild type, and the main axis was a more significant contributor to anchorage than in the wild type. By contrast, the root hair-deficient mutant *rhd 2-1* showed no difference in peak pulling resistance compared with the wild type, suggesting that root hairs do not normally play a role in uprooting resistance. The results show that lateral roots play an important role in anchorage, and that co-operation between roots may be the most significant factor.

Record 37 of 45 - AGRICOLA 1998-2003/03

AU: Nishigawa,-H.; Oshima,-K.; Kakizawa,-S.; Jung,-H.Y.; Kuboyama,-T.; Miyata,-S.I.; Ugaki,-M.; Namba,-S.
TI: Evidence of intermolecular recombination between extrachromosomal DNAs in phytoplasma: a trigger for the biological diversity of phytoplasma.
SO: Microbiol. Reading, U.K. : Society for General Microbiology, c1994-. May 2002. v. 148 (pt.5) p. 1389-1396.
LA: English
DE: phytoplasmas-

Record 38 of 45 - AGRICOLA 1998-2003/03

AU: Suh,-H.J.; Noh,-D.O.; Choi,-Y.M.
TI: Solubilization of onion with polysaccharide-degrading enzymes.
SO: Int-j-food-sci-technol. Oxford : Blackwell Scientific Ltd. Jan 2002 . v. 37 (1) p. 65-71.
LA: English
DE: onions-. dissolving-. polysaccharides-. degradation-. enzyme-activity. reducing-sugars. synergism-. ph-. pork-. hydrolysates-. flavor-. color-. food-acceptability. sweetness-. bitterness-.
AB: For the selection of suitable enzymes for the solubilization of onion, degree of solubilization (DS) values were measured. The DS values of Pectinex and Viscozyme were 75.8 and 78.4%, respectively, which indicates they have higher specific activities than Cereflo and Celluclast. The enzyme mixture of Pectinex and Viscozyme (relative ratio of 1:3) had higher DS values and reducing sugar content than Pectinex alone. The enzyme mixture degraded onions with a synergistic effect, solubilizing 85% of the onion. The DS values and reducing sugar content at the optimal condition (pH 4.5 and 45 degrees C) reached a maximum of 85% and 494.8 mg g⁻¹ of onion, respectively. The DS values and reducing sugar content increased with increasing reaction time, reaching a maximum of 89% and 517.5 mg g⁻¹ of onion, respectively. When cooking pork, onion appeared to be preferable to onion hydrolysate, however there was no significant difference. The sweetness and preference of pork cooked with 3% addition of hydrolysate per gram of pork meat were the highest but those were not different significantly from those cooked with less than 10% addition of hydrolysate per pork meat.

Record 39 of 45 - AGRICOLA 1998-2003/03

AU: Fry,-B.A.; Loria,-R.
TI: Thaxtomin A: evidence for a plant cell wall target.
SO: Physiol-mol-plant-pathol. London ; Orlando : Academic Press, c1986-. Jan 2002. v. 60 (1) p. 1-8.
LA: English
DE: raphanus-sativus. allium-cepa. streptomyces-scabies. nicotiana-

tabacum. bacterial-toxins. pathogenicity-. bacterial-diseases. symptoms-. plasma-membranes. cell-walls. seedlings-. volume-. hypocotyls-. cell-suspensions. application-rates. inhibition-. protoplasts-.

AB: Thaxtomins are unique 4-nitroindol-3-yl containing dioxopiperazines that cause dramatic plant cell hypertrophy and seedling stunting. This family of phytotoxins is produced by *Streptomyces* species that cause diseases of root and tuber crops; its members are essential for pathogenicity. The symptom produced by thaxtomin A suggest several potential plant cell targets including the plasma membrane, various components of the cytoskeleton and the cell wall. Dramatic increases in cell volume in onion seedling hypocotyls, radish seedling hypocotyls and tobacco suspension cultures, in response to 0.05-1.0 micromolar thaxtomin A, suggested that this phytotoxin is interacting with one or more conserved plant cell targets. Onion root tip cells treated with thaxtomin A concentrations at or below that which inhibited onion root growth were binucleate or had abnormal cell plates. Thaxtomin A (1.0-3.0 micromolar) inhibited normal cell elongation of tobacco protoplasts in a manner that suggested an effect on primary cell wall development. In summary, these data suggest that thaxtomin A alters, either directly or indirectly, the deposition or composition of monocot and dicot plant cell walls in ways that affect the wall integrity and the ability of the cell to progress normally through cytokinesis.

Record 40 of 45 - AGRICOLA 1998-2003/03

AU: Haar,-M.J.; Fennimore,-S.A.; McGiffen,-M.E.; Lanini,-W.T.; Bell,-C. E.

TI: Evaluation of preemergence herbicides in vegetable crops.

SO: HortTechnology. Alexandria, VA : American Society for Horticultural Science, c1991-. Jan/Mar 2002. v. 12 (1) p. 95-99.

LA: English

DE: brassica-oleracea-var.-capitata. cucumis-melo. daucus-carota. lactuca-sativa. allium-cepa. spinacia-oleracea. lycopersicon-esculentum. application-date. herbicide-resistance. evaluation-. field-experimentation. application-rates. isoxaben-. herbicides-. abiotic-injuries. biomass-. california-.

AB: In an effort to identify new herbicides for vegetables crops, broccoli (*Brassica oleracea*) cantaloupe (*Cucumis melo*), carrot (*Daucus carota*), head lettuce (*Lactuca sativa*), bulb onion (*Allium cepa*), spinach (*Spinacia oleracea*) and processing tomato (*Lycopersicon esculentum*) were evaluated in the field for tolerance to eight herbicides. The following herbicides and rates, expressed in a.i. lb/acre, were applied preemergence: carfentrazone, 0.05, 0.1, 0.15 and 0.2; flufenacet, 0.525; flumioxazin, 0.063, 0.125 and 0.25; halosulfuron, 0.032 and 0.047; isoxaben, 0.25 and 0.50; rimsulfuron, 0.016 and 0.031; SAN 582, 0.94 and 1.20 and sulfentrazone, 0.15 and 0.25 (1.000 lb/acre = 1.1208 kg(.)ha⁻¹). Tolerance was evaluated by measuring crop stand, injury and biomass. Several leads for new vegetable herbicides were identified. Lettuce demonstrated tolerance to carfentrazone at 0.05 and 0.10 lb/acre. Cantaloupe and processing tomato were tolerant of halosulfuron at 0.032 and 0.047 lb/acre. Broccoli, cantaloupe and processing tomato were tolerant of SAN 582 at 0.94 lb/acre. Broccoli and carrot were tolerant of sulfentrazone at 0.15 lb/acre.

Record 41 of 45 - AGRICOLA 1998-2003/03

AU: Chen,-J.; Chen,-J.P.; Adams,-M.J.

TI: Characterisation of some carla-and potyviruses from bulb crops in

China.

SO: Arch-virol. Wien, Austria : Springer-Verlag. Feb 2002. v. 147 (2)
p. 419-428.

LA: English

DE: allium-sativum. shallot-latent-carlavirus. onion-yellow-dwarf-
potyvirus. miscellaneous-plant-viruses. leek-yellow-stripe-
potyvirus. geographical-variation.

Record 42 of 45 - AGRICOLA 1998-2003/03

AU: Rahn,-C.R.; Lillywhite,-R.D.

TI: A study of the quality factors affecting the short-term
decomposition of field vegetable residues.

SO: J-sci-food-agric. West Sussex : John Wiley & Sons Limited. Jan 1,
2002. v. 82 (1) p. 19-26.

LA: English

DE: crop-residues. vegetables-. wheat-straw. decomposition-. half-life.
carbon-nitrogen-ratio. chemical-composition. carbon-. nitrogen-.
equations-. heat-sums. seasonal-variation. summer-. autumn-.

AB: Experiments were carried out to characterise the composition and
decomposition of 13 vegetable crop residues. There was a
considerable range of composition, with 55% of the dry matter
being water-soluble in onion compared with only 15% in wheat. The
range of carbon/nitrogen ratio in the vegetable crops was narrow,
between 9 and 24, compared with a C/N ratio of 58 in wheat. The
decomposition of the residues could be described by the
single-exponential equation $Y = a + be(-k(t-d))$, where Y is the
proportion of residue remaining at any thermal time day degrees
above 0 degrees C, a is the proportion of residue remaining at the
end of the experiment, b is the corresponding proportion of the
degradable fraction, k is the rate constant for the decomposition
process and d is a delay factor (in units of thermal time) which
delays the start of the decomposition process. Y, a and b are all
expressed as percentages on a weight basis and, by definition, a +
b must equal 100 at t = 0. The value of d is assumed to equal zero
for all residues except those from leafy brassicas, for which it
was set at 100. The half-life of crop residue decomposition ranged
from 145 day deg for onion to over 1400 day deg for wheat. The
decomposition rate constant (k) was related to the C and N
contents ($r = 0.84$, $p = 0.001$), and the a parameter to the crop's
lignin content ($r = 0.74$, $p = 0.004$).

Record 43 of 45 - AGRICOLA 1998-2003/03

AU: Kim,-J.Y.; Yuan,-Z.; Cilia,-M.; Khalfan-Jagani,-Z.; Jackson,-D.

TI: Intercellular trafficking of a KNOTTED1 green fluorescent protein
fusion in the leaf and shoot meristem of Arabidopsis.

SO: Proc-Natl-Acad-Sci-U-S-A. Washington, D.C. : National Academy of
Sciences,. Mar 19, 2002. v. 99 (6) p. 4103-4108.

LA: English

DE: arabidopsis-thaliana. allium-cepa. shoot-meristems. leaf-meristems.
epidermis-. protein-transport. transcription-factors. recombinant-
proteins. animal-proteins.

AB: Dominant mutations in the maize homeobox gene knotted1 (kn1) act
nonautonomously during maize leaf development, indicating that Kn1
is involved in the generation or transmission of a developmental
signal that passes from the inner layers of the leaf to epidermal
cells. We previously found that this nonautonomous activity is
correlated with the presence of KN1 protein in leaf epidermal
cells, where KN1 mRNA could not be detected. Furthermore, KN1
protein expressed in Escherichia coli and labeled with a
fluorescent dye can traffic between leaf mesophyll cells in
micro-injection assays. Here we show that green fluorescent

protein (GFP)-tagged KN1 is able to traffic between epidermal cells of Arabidopsis and onion. When expressed in vivo, the GFP approximately KN1 fusion trafficked from internal tissues of the leaf to the epidermis, providing the first direct evidence, to our knowledge, that KN1 can traffic across different tissue layers in the leaf. Control GFP fusions did not show this intercellular trafficking ability. GFP approximately KN1 also trafficked in the shoot apical meristem, suggesting that cell-to-cell trafficking of KN1 may be involved in its normal function in meristem initiation and maintenance.

Record 44 of 45 - AGRICOLA 1998-2003/03

AU: Saethre,-M.G.; Orpen,-H.M.; Hofsvang,-T.

TI: Action programmes for pesticide risk reduction and pesticide use in different crops in Norway.

SO: Crop-prot. Oxford, U.K. : Elsevier Science Ltd. Apr 1999. v. 18 (3) p. 207-215.

LA: English

DE: field-crops. greenhouse-crops. crop-management. fungicides-. herbicides-. insecticides-. usage-. risk-. integrated-pest-management. surveys-. norway-.

AB: The objectives of the two Norwegian Action programmes for pesticide risk reduction (1990-1994 and 1998-2002) are presented. Norwegian farmers were interviewed about their application of pesticides in different crops. Such information is important and should be updated after a few years to evaluate the current programme. The survey included 16 different crops: potato, strawberry, tomato (in glasshouses), onion, carrot and Chinese cabbage grown in the 1994 growing season; cucumber (in glasshouses), lettuce (in glasshouses and in the fields), cauliflower, cabbage and swedes grown in 1995 and broccoli, cherries and plums grown in 1996. Data on the individual use of different pesticides were obtained. The average number of applications and the total amount (kilograms of active ingredients) per hectare of fungicides, herbicides and insecticides in each crop are given.

Record 45 of 45 - AGRICOLA 1998-2003/03

AU: Cramer,-Christopher-S.; Mendoza,-Jose-Luis, 1961-; Wall,-Marisa-M.

TI: 2000-2001 onion variety trials at New Mexico State University.

SO: Las Cruces, N.M. : New Mexico State University, Agricultural Experiment Station, 2002. 16 p.

LA: English

DE: Onions-Varieties-New-Mexico.