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SUMBER: TEEAL

1. **Economics of reducing Campylobacter at different levels within the Belgian poultry meat**

   Source: Journal of Food Protection. 2008. 71 (3). 479-485

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   Abstract: Campylobacter infections pose a serious public health problem in Belgium. Poultry meat is most likely responsible for 40% of human campylobacteriosis cases in Belgium. On a yearly basis, consumption of poultry meat causes at least 22,000 campylobacteriosis cases, with a cost of illness of (sic)10.9 million. Several intervention measures have been proposed in literature, aiming to reduce the contamination of poultry meat and thus lead to significant reductions of human campylobacteriosis cases. This study aimed to evaluate the cost-benefit ratio, i.e., the ratio of reduced costs of illness on intervention costs of various intervention measures. These measures were selected by representatives from the poultry meat sector and experts in the field of poultry science. The selection comprised measures at the farm level (phage therapy), at the processing plant (spraying of carcasses with lactic acid or electrolyzed oxidizing water, crust freezing, or irradiation), and at the consumer level (improving kitchen hygiene and application of home freezing). Among these measures, the decontamination of carcasses with electrolyzed oxidizing water applied in the processing plant was the most efficient (17.66), followed by the use of lactic acid (4.06). In addition, phage therapy generated a positive cost-benefit ratio (2.54). Irradiation indicated the highest efficacy, but its cost-benefit ratio was rather low (0.31). There seems to be less gain by trying to improve food handling in the kitchen. The cost to reach consumers is large, while only a very limited fraction of the consumers is willing to change its behavior. The outcome of this study poses valuable information for future risk-management decisions in Belgium

   Descriptors: Biochemistry and Molecular Biophysics; Economics; Foods cost-benefit ratio, meat consumption, poultry meat (poultry feed, meat product)

2. **Subsurface drainage to combat waterlogging and salinity in irrigated lands in India: lessons learned in farmers' fields**

Source: Agricultural Water Management. 2008. 95 (3). 179-189

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Abstract: The introduction of irrigated agriculture in the arid and semi-arid regions of India has resulted in the development of the twin problem of waterlogging and soil salinization. It is estimated that nearly 8.4 million ha is affected by soil salinity and alkalinity, of which about 5.5 million ha is also waterlogged. Subsurface drainage is an effective tool to combat this twin problem of waterlogging and salinity and thus to protect capital investment in irrigated agriculture and increase its sustainability. In India, however, subsurface drainage has not been implemented on a large scale, in spite of numerous research activities that proved its potential. To develop strategies to implement subsurface drainage, applied research studies were set-up in five different agro-climatic sub-regions of India. Subsurface drainage systems, consisting of open and pipe drains with drain spacing varying between 45 and 150 m and drain depth between 0.90 and 1.20 m, were installed in farmers' fields. The agro-climatic and soil conditions determine the most appropriate combination of drain depth and spacing, but the drain depths are considerably shallower than the 1.75 m traditionally recommended for the prevailing conditions in India. Crop yields in the drained fields increased significantly, e.g. rice with 69%, cotton with 64%, sugarcane with 54% and wheat with 136%. These increases were obtained because water table and soil salinity levels were, respectively, 25% and 50% lower than in the non-drained fields. An economic analysis shows that the subsurface drainage systems are highly cost-effective: cost-benefit ratios range from 1.2 to 3.2, internal rates of return from 20 to 58%, and the pay-back periods from 3 to 9 years. Despite these positive results, major challenges remain to introduce subsurface drainage at a larger scale. First of all, farmers, although they clearly see the benefits of drainage, are too poor to pay the full cost of drainage. Next, water users' organisations, not only for drainage but also for irrigation, are not well established. Subsurface drainage in irrigated areas is a collective activity, thus appropriate institutional arrangements for farmers' participation and organisation are needed. Thus, to assure that drainage gets the attention it deserves, policies have to be reformulated

Descriptors: cost-benefit-analysis. crop-yield. economic-analysis. irrigated-soils. soil-depth. soil-salinity. soil-types. subsurface-drainage. water-table. Waterlogging

3. Comparison of medusahead-invaded and noninvaded Wyoming big sagebrush steppe in southeastern Oregon

Source: Rangeland Ecology and Management. 2008. 61 (6). 623-629

Author(s): Davies-K-W. Svejcar-T-J

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Abstract: Medusahead (Taeniatherum caput-medusae [L.] Nevski) is an exotic, annual grass invading sagebrush steppe rangelands in the western United States. Medusahead invasion has been demonstrated to reduce livestock forage, but otherwise information comparing vegetation characteristics of medusahead-invaded to noninvaded sagebrush steppe communities is limited. This lack of knowledge makes it difficult to determine the cost-benefit ratio of controlling and preventing medusahead invasion. To estimate the impact of medusahead invasion, vegetation characteristics were compared between invaded and noninvaded Wyoming big sagebrush (Artemisia tridentata subsp. wyomingensis [Beetle & A. Young] S. L. Welsh) steppe communities that had similar soils, topography, climate, and management. Noninvaded plant communities had greater cover and density of all native herbaceous functional groups compared to medusahead-invaded communities ($P<0.01$). Large perennial grass cover was 15-fold greater in the noninvaded compared to invaded plant communities. Sagebrush cover and density were greater in the noninvaded compared to the medusahead-invaded communities ($P<0.01$). Biomass production of all native herbaceous functional groups was higher in noninvaded compared to invaded plant communities ($P<0.02$). Perennial and annual forb biomass production was 1.9- and 45-fold more, respectively, in the noninvaded than invaded communities. Species richness and diversity were greater in the noninvaded than invaded plant communities ($P<0.01$). The results of this study suggest that medusahead invasion substantially alters vegetation characteristics of sagebrush steppe plant communities, and thereby diminishes wildlife habitat, forage production, and ecosystem functions. Because of the broad negative influence of medusahead invasion, greater efforts should be directed at preventing its continued expansion

Descriptors: annuals; biomass; coverage; dry matter distribution; environmental impact; forage; forbs; grasslands; habitats; invasion; invasive species; perennials; plant communities; population density; rangelands; species diversity; species richness; steppes; vegetation Artemisia; Asteraceae; Asterales; dicotyledons; angiosperms; Spermatophyta; plants; eukaryotes; Pacific Northwest States of USA; Pacific States of USA; Western States of USA; USA; North America; America; Developed Countries; OECD Countries; Taeniatherum; Poaceae; Cyperales; monocotyledons

4. Comparison of the function of different water-saving rice cultivation systems in the seasonal-drought hilly region of Southern China

Source: Journal of Sustainable Agriculture. 2008. 32 (3). 463-482

Author(s): Xiao-Xin. Zhao-Y. Hu-F

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Abstract: This study examines the material flow, energy flow, value flow, and ecological environmental benefits of water-saving rice cultivation systems. The results showed that the net production and economical production in the Results his only two types of water-saving rice cultivation systems were 3.10 ╫ 105 to 3.78 ╫ 105 MJ (ha¶ yr)-1 and 1.77 ╫ 105 to 1.98 ╫ 105 MJ (ha¶ yr)-1, respectively. The major input of energy was from fertilizers, which were 0.59 ╫ 105 to 0.97 ╫ 105 MJ (ha¶ yr)-1. The outputinput ratios of energy and light utilization efficiency of rice fields were 3.22 to 6.45:1 and 0.64 to 0.78, respectively. The net monetary values were $484 to $1166 (ha¶ yr)-1, and the cost-benefit ratios were 0.34 to 0.88. Higher energy conversion efficiency, light utilization efficiency, and economic efficiency were found in the water-saving irrigation double-cropping rice cultivation system and water-saving rice cultivation system of rice and rape rotation. However, the lower energy conversion efficiency and economic efficiency took place in water-saving rice cultivation system of flooddrought cultivation. The water-saving rice cultivation systems had a higher integral benefit than did the local rice cultivation system, and could significantly save water and decrease the application of fertilizer and pesticide, allowing control of agriculture non-point resource pollution

Descriptors: water-saving-rice-cultivation-system; energy-flow; value-flow; integral-benefit

5. The on-farm trials of the rotational prawn-rice farming in a semi-deep water area

Source: Journal of Applied Aquaculture. 2008. 20 (3). 168-183

Author(s): Lam-My-Lan. Micha-J-C. Duong-Nhut-Long. Tran-Thanh-Hai

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Abstract: The on-farm trials of rotational rice-prawn farming in a semi-deep water area in the Mekong Delta of Vietnam was carried out in six rice fields (0.7-1.0 ha) to evaluate the production and economic efficiency of using low and high cost feed on prawn culture in paddies at different densities. Two stocking densities of 4 and 5 PL/m2 were investigated. Two treatments of feed types (pellets only or a combination of pellets, trash fish, and snail meat) were applied at stocking 4 PL/m2. At the treatment of 5 PL/m2, prawns were fed a combination of pellets, trash fish, and snail meat. Prawns were stocked in the mid-April and harvested in mid-November before the next dry season rice crop. Rice farming was started 3 to 5 days after prawn harvesting. By cull harvesting during the culture period, final mean

weights of prawn ranged from 47.2 to 57.2 g/prawn and the male:female ratio at harvesting was 2.5:1.0. The prawn yield of treatment 5 PL/m2 was highest (630 plus or minus 22 kg/ha). Net profits in treatments using the combination of pellets, trash fish, and snail meat were 861 plus or minus 193 US$/ha to 1,019 plus or minus 25 US$/ha for the prawn crop and 1,393 plus or minus 71 US$/ha to 1,576 plus or minus 180 US$/ha for the whole system (prawn crop+dry rice crop) and significantly higher than in treatment using pellet only (P<0.05). Prawns fed on pellets or a combination of pellets and snail meat both offer similar results in terms of production and economics. The dry rice crop offered high cost benefit ratio (2.29-2.33) with low operating cost (414-434 USD/ha) and it made a better use in sustainable rice fields through the rotational rice-prawn system

Descriptors: prawns. rice. shrimp-culture. stocking-density. stocking-rate

6. Profitability and economic efficiency indicators of cv. Gala apple production in Maule Region, Chile

Source: Agricultura Tecnica. 2005. 65 (4). 421-436

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Abstract: The profitability and economic efficiency indicators of apple (Malus domestica) cv. Gala production at a farm located in the Linares area, Maule Region, Chile, were estimated. Technical parameters of the orchard were obtained from historical farm records for different premises from the 1994-95 to 2003-04 agricultural seasons. For the valuation of the investment in the orchard and production costs, the prices for the 2003-04 season were used. From the capital-asset-pricing model, the weighted average cost of capital was calculated, which was estimated at 8.71% annually. The profitability indicators calculated were net present value (VAN), internal rate of return (TIR), net present value index (IVAN) and cost benefit ratio (RBC), while the economic efficiency indicators were total mean production cost (CMET), unit margin (MU) and return on equity (RSC). The analysis was based upon one-hectare land. For the standard situation the results obtained were: 8454 dollars per hectare VAN, 12.1% TIR, 0.43 IVAN, 1.51 RBC. The minimum CMET was estimated at 0.08 dollars per kilogram, the maximum MU at 0.14 dollars per kilogram and RSC up to 23.6%. It is concluded that production of cv. Gala apples is profitable

Descriptors: apples. capital. cost-benefit-analysis. crop-production. efficiency. fruit-growing. investment. orchards. prices. production-costs. production-economics. profitability. Returns

7. Energetics and economics in conventional processing of arecanut (Areca catechu L.) in India

Source: AMA, Agricultural Mechanization in Asia, Africa and Latin America. 2007. 38 (4). 13-17

Author(s): Gunasekar-J-J. Kaleemullah-S. Doraisamy-P. Kennedy-Z-J

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Abstract: Arecanut (Areca catechu) is mostly used by the people as masticatory and is an essential requisite during several religious and social ceremonies. The arecanuts are generally available in trade as (i) raw ripened nuts, (ii) processed green nuts, and (iii) whole or half cut dried ripened nuts. Arecanut processing consists of dehusking, cutting into different grades, boiling, drying and coating with water extract obtained from boiling. Boiling is carried out in conventional open chulhas having three, four or even five pot holes. Based on the study, the operation-wise and source-wise energy consumption for choor making was 6279 MJ/t. The thermal efficiency of three-pot chulha was determined as 7.10%. The cost benefit ratio of arecanut processing carried out in Thondamuthur village of Coimbatore district was found to be 0.0247:1. By using the fuel efficient chulha, the cost involved in boiling could be reduced and the profit can be increased

Descriptors: arecanuts. boilers. boiling. cost-benefit-analysis. energy-consumption. equipment-performance. fuel-consumption. medicinal-plants. Pots

8. Introducing greenhouse gas mitigation as a development objective in rice-based agriculture: II. Cost-benefit assessment for different technologies, regions and scales

Source: Agricultural Systems. 2007. 94 (3). 826-840

Author(s): Wassmann-R. Pathak-H

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Abstract: New tools for land use analysis including detailed cost-benefit assessments are needed to integrate resource management for enhancing farmers' income and mitigating greenhouse gas (GHG) emissions. The paper comprises an assessment of GHG emissions and economic returns under different mitigation technologies in three rice growing regions in Asia, i.e., Ilocos Norte province (Philippines), Zhejiang province (China) and Haryana state (India). Site-specific data on soil, climate and socio-economics were integrated in the previously developed spreadsheet model TechnoGAS (Technical Coefficient Generator for Mitigation Technologies of Greenhouse Gas Emissions from Agricultural Sectors). Three baseline technologies that differed in terms of inorganic/organic N supply have been compared to different mitigation technologies in form of Marginal Abatement Cost Curves (MACCs). For

the baseline technology of inorganic N (urea) fertilization, amendment with phosphogypsum and nitrification inhibitors are the most promising mitigation options resulting in shadow prices of less than US$10 per tonne of carbon dioxide equivalent (CE). Assuming a mix of urea and farm yard manure for the baseline, we have tested several options including different irrigation patterns and husk used as fossil fuel. Mid-season drainage had a better cost-benefit ratio (ca. US$20 per t CE) than alternate flooding, but was less profitable than husk utilization (ca. US$4 per t CE). Assuming high organic inputs, biogas technology is, in most cases, the preferable option (ca. US$10 per t CE). Finally, we compiled regional abatement cost curves for selected administrative units using the outcome from regional optimization models. Implementing the three most promising technologies required US$6000 for Dingras municipality, Ilocos Norte, in the Philippines (ca. 103 ha of rice land potentially providing emission savings of ca. 3000 t CE), US$50 000 for Pujiang county in China (ca. 104 ha providing ca. 27 000 t CE), and US$1.2 million for Karnal district in India (ca. 105 ha providing ca. 220 000 t CE)

Descriptors: biogas. carbon-dioxide. cost-benefit-analysis. costs. crop-production. drainage. emission. flood-irrigation. greenhouse-gases. methane. nitrogen-fertilizers. nitrous-oxide. organic-amendments. pollution-control. returns. rice. rice-husks. waste-utilization

9. Channels and commercialization margins of goats in Tejupilco and Amatepec, State of Mexico

Source: Agrociencia. 2007. 41 (3). 363-370

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Abstract: With the objective of analyzing the channels and margins of commercialization of goat meat, an investigation was carried out in the municipalities of Tejupilco and Amatepec, State of Mexico, during 2004-2005. The commercialization channel most often utilized by the participating agents of this market was determined, and the absolute and relative margins were calculated, by means of obtaining their equivalent values, along with those of the costs and profits of each participating agent. Of 133 producers interviewed, 96.5% carry out the sale with live animals. The producer obtained 46.5% of the real price paid by the final consumer per kilogram of raw meat, and the intermediary, 53.5%. Considering birria (a spiced stew of goat meat) as final product, the producer obtained 20.42% of the profits of the entire process and the intermediaries 79.58%; the birria seller obtained

the greatest portion (79.58%) of the total margin of commercialization. The most common commercialization channel was producer, regional buyer, birria seller and final consumer. It is concluded that the birria seller obtained the highest cost benefit ratios (8.86 and 8.61)

Other Title: Channels and commercialization margins of goats in Tejupilco and Amatepec, State of Mexico

Descriptors: commercialization. cost-benefit-analysis. costs. goat-meat. marketing-channels. marketing-margins. Profits

10. Effect of densities and culture systems on growth, survival, yield, and economic return of freshwater prawn, Macrobrachium rosenbergii, farming in the rice field in the Mekong Delta, Vietnam

Source: Journal of Applied Aquaculture. 2006. 18 (1). 43-62

Author(s): Lam-My-Lan. Micha-J-C. Duong-Nhut-Long. Pham-Truong-Yen

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Abstract: Postlarv' of Macrobrachium rosenbergii (de Man 1879) were stocked at 2, 4, and 6 postlarv' (PL)/m2 into rice fields under two culture systems, the integrated and the rotational prawn-rice system. Prawn was fed pellet feed twice daily. The growth of Macrobrachium rosenbergii decreased at higher stocking densities. Prawns in the rotational system grew faster than those in the integrated system. The yields ranged from 286 plus or minus 32 to 516 plus or minus 51, 412 plus or minus 17, to 584 plus or minus 41 kg/ha in the integrated and the rotational prawn-rice system, respectively. The yield at density of 2 PL/m2 was significantly lowest ($P<0.05$) and was highest in the treatment with 6 PL/m2. However, at higher density, the investment cost significantly increased ($P<0.05$), while profit significantly decreased ($P<0.05$). At a density of 2 PL/m2, cost benefit ratio and profit was the highest ($P<0.05$). The integrated rice-prawn system gives lower profits than the rotational system

Descriptors: costs. farming-systems. growth-rate. prawns. productivity. profitability. returns. rice-fields. shellfish-culture. stocking-density. stocking-rate. Survival

11. Investment analysis of rainbow trout farming

Source: Indian Veterinary Journal. 2005. 82 (9). 972-976

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Abstract: This study was conducted to determine the profitability and feasibility of rainbow trout farming in Tokat, Turkey. The criteria of net present value (NPV), cost-benefit ratio (CBR) and internal rate of return (IRR) were used for investment analysis. Three different discount rates (10%, 8% and 5%) were used to calculate NPVs and CBRs. The NPVs were found to be positive ($16483.02/farm; $21401.73/farm; $31476.28/farm). In addition, the CBRs were bigger than 1 (1.12; 1.14 and 1.17). The IRR was 24.36%. Based on the results, it could be concluded that trout farming can be one of the most important and economically feasible income sources for the fish farmers of the rural provinces of Tokat, Turkey

Other Title: Investment analysis of rainbow trout farming

Descriptors: aquaculture. cost-benefit-analysis. costs. economic-viability. fish-culture. fish-farming. profitability. Returns

12. Tillage systems and their effect on some soil properties, crop growth and shoot yield of Grain-amaranth

Source: AMA, Agricultural Mechanization in Asia, Africa and Latin America. 2005. 36 (1). 46-51

Author(s): Afolayan-S-O. Babalola-O. Igbeka-J-C

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Abstract: Experiments were conducted in 1996 (May-July) and 1997 (January-April) to investigate the effects of tillage methods on soil hydraulic conductivity, resistance to penetration, percent aggregates, crop growth and shoot yield of grain amaranth. Five tillage treatments comprised of no-tillage (NT), slashing (SH), ploughing (PHO), ploughing plus harrowing (PHA) and ploughing plus harrowing plus bedding (PHB) were considered using a randomized complete block design with three replications. The saturated hydraulic conductivity in the 0-10 cm layer was significantly higher in the ploughed treatments than in the others (PHO=9.2x10-5cms-1) > (PHA=9.1x10-5cms-1) > (PHB=7.9x10-5cms-1) > (NT=6.8x10-5cms-1) > (SH=6.5x10-5cms-1). In the 10-20 cm layer, the values were in the order: PHA (8.4x10-5cms-1) > PHB (7.7x10-5cms-1). Resistance to penetration in the 0-10 cm and 10-20 cm layers was significantly higher ($P<0.05$) in the SH treatment (18.83 MPa) than in the others (PHA=10.69 MPa, PHO=7.5 MPa, PHB=3.5 MPa). The soil with the SH treatment was the most resistant to root penetration. The geometric mean diameter, mean clod size and mean weight diameter of aggregates were similar for all the tillage treatments. However, the incidence of soil aggregates of approximately 2.00 mm was highest for ploughing plus harrowing plus bedding (PH13) (2.170 mm) and for the incidence of aggregates >4 mm, slashing gave the highest mean value (2.89

mm). Soil chemical properties were generally similar among all treatments except for the cases of calcium, magnesium and organic matter. The SH treatment soil had the highest levels of Mg, the ploughing plus harrowing plus bedding (PHB) treatment soil had the highest levels of Ca, and the no-tillage (NT) treatment soil gave the highest mean value for organic matter (OM). Crop growth performed significantly more luxuriantly with the ploughing (PHO) treatment than with the others. Shoot yield of grain amaranth was significantly greater for the PHB treatment followed by that for the PHO treatment. However, when energy input, traffic induced soil compaction and the cost benefit ratio factors were taken into consideration, the PHO treatment was found to be preferred as the optimum tillage method for grain amaranth production

Descriptors: aggregates. calcium. clods. cost-benefit-analysis. crop-production. crop-yield. growth. harrowing. magnesium. no-tillage. ploughing. resistance-to-penetration. saturated-hydraulic-conductivity. shoots. slashing. soil-chemical-properties. soil-compaction. soil-organic-matter. Tillage

Sri Astuti