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KATA PENGANTAR

Jurnal Informatika Pertanian (JIP) dalam nomor ini mengungkap sejumlah hasil penelitian dari berbagai aspek. Tingkat penurunan tertinggi konsentrasi residu insektisida heptaklor terjadi pada perlakuan urea berlapis arang aktif tempurung kelapa yang diperkaya mikroba.

Di kawasan perbatasan di Kabupaten Sambas, Kalimantan Barat, usahatani padi tadah hujan ternyata menguntungkan. Di Bantul, DI Yogyakarta, usahatani padi sawah lebih unggul dari jagung, kedelai, dan kacang tanah.

Pada lahan rawa sulfat masam, pemberian bahan organik mampu menekan serapan Fe pada tanaman padi. Salah satu metode cepat identifikasi Jaringan Irigasi Tersier (JIT) adalah menggunakan handphone (HP) berbasis android.

Upaya menekan susut hasil padi dapat didekati dengan pendekatan teknis dan budaya. Penerapan sistem mutu mendorong revitalisasi unit penggilingan padi yang dapat meningkatkan rendemen beras.

Tinggi tanaman, luas daun, panjang tongkol, diameter tongkol, dan rendemen biji berpengaruh langsung terhadap hasil jagung hibrida. Di Grobogan, Jawa Tengah, varietas unggul jagung putih sudah diadopsi oleh 66,7% petani. Penerapan inovasi Pengelolaan Tanaman Terpadu (PTT) jagung pada lahan kering memberikan produktivitas 18% dengan tingkat efisiensi 11-30% lebih tinggi dibandingkan dengan usahatani jagung bukan PTT.

Hasil penelitian menunjukkan umur simpan sari buah nanas-cempedak pada suhu -5^{o}C rata-rata 198 hari, umur simpan sari buah nanas-pepaya 172 hari, dan umur simpan sari buah nanas pada 157 hari.

Salah satu kendala pengembangan tebu adalah tidak memadainya ketersediaan benih. Melalui permodelan taksasi produksi mata tunas tebu diperoleh jumlah benih terbanyak dari perlakuan bagal dengan dua mata tunas.

Tanaman legum potensial sebagai sumber protein dalam ransum sapi perah. Metode SOLVER dapat digunakan dalam penyusunan ransum ternak dengan memanfaatkan bahan pakan yang tersedia setempat.

Topografi lahan di sub-DAS Langge, Gorontalo, didominasi oleh perbukitan dengan tingkat kemiringan 12-40%. Oleh karena itu, pada kawasan DAS ini direkomendasikan usahatani konservasi mekanis (terasering) atau vegetatif untuk mengatasi erosi.

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Activated Carbon Coated Urea Enriched with Microbial Consortia Accelerates the Decrease of Heptachlor Insecticide Residue in Paddy Fields

Wahyuni, Indratin, E. Sulaeman, dan A.N. Ardiwinata

Desember 2016. Vol 25 No. 2 .p 155-162

ABSTRACT

Heptachlor insecticide is a toxic organochlorine insecticide, persistent and bio-cummulative in the environment. Remediation using actived carbon and microbial is a solution to pollution due to pesticide in the environment.The objective of this study was to obtain fertilizer technology using urea with activated carbon and enriched with microbes degrading heptachlor insecticide in order to reduce the insecticide residue in paddy fields. The research was conducted at the Jakenan Experimental Station between February to September 2012. The soil used as the planting medium was brought from the village Sukamenak, District Rawagempol Wetan, Karawang. The experiment was conducted in the field at micro-plot scale with lysimeter, and using a randomized block design (RBD) with 3 replications and 6 fertilizer treatments (control , prill urea , urea with activated carbon maize cobs (UAATJ) , urea with activated carbon coconut shell (UAATK) , urea with activated carbon cob corn + microbes (UAATJM) , urea with activated carbon coconut shell + microbes (UAATKM). The plants used were from Inpari 13 variety. The insecticide residue analysis was performed in the Residu Bahan Agrikimia (RBA) laboratory of Balingtan. The results showed significant orthogonal countrast tests of different treatments. The highest reduction of residual insecticide was observed in urea coated with activated carbon cob corn and enriched with microbial consortia degrading POPs, which was 36.30 %. It is suspected that activated carbon coated cob corn with microbial enrichment was favored as its home and the microbes utilized carbon sources of heptachlor as the food.

Keywords : urea, activated carbon, microbial enrichment, heptachlor

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Technical Efficiency of Rainfed Rice Farming in Sambas Regency Border Area with Stochastic Frontier of Production Function Approach (Case study in Sebubus Village, District Paloh)

Rusli Burhansyah

Desember 2016. Vol 25 No. 2 .p 163-170

ABSTRACT

Development of rice for food self-sufficiency in the border region of Sambas regency is quite prospective. However, in the District Paloh rice productivity is still relatively low, allegedly due to inefficiency in the use of inputs. The aim of this study was to analyze the efficiency and income of rice farming in the village of Sebubus, Paloh district. The research method used was stohastic frontier of production function with OLS and Maximum likelihood (MLE). The study was conducted in the village Sebubus, District Paloh between May - June 2014. Sampling was done with Proportionate Stratified Random Sampling. The data used was the cross section data obtained from interviews of 120 rice farmers. The Stohastic frontier of production function analysis was performed using the Cobb-Douglas models. The results showed that land, N fertilizer and K fertilizer significantly affected rice production at 95% confidence level. The results also showed that rainfed rice paddy was relatively efficient technically (mean efficiency of 0,81). Age of farmers was a source of technical inefficiency that significantly could improve technical efficiency. Characteristics of farmers such as age, education and experience could help farmers improve their technical efficiency of rice production. Rainfed rice farming in the village Sebubus was relatively favorable (profit of USD 4,099,582.50) and viable (the value of R/C ratio above 2,84 cash costs and the value of R/C ratio on total cost of $ 2,29).

Keywords : technical efficiency, rainfed rice farming, stochastic frontier

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Path Analysis in the Determination of Selection Characteristics of Hybrid Maize Genotypes Tolerant to Drought Stress

Roy Efendi, Muhammad Aqil, Andi Takdir Makalau dan Muhammad Azrai

Desember 2016. Vol 25 No. 2 .p 171-180

ABSTRACT

Information on characteristics related to drought tolerance is particularly important for improving hybrid maize yield. The present study was conducted with 62 genotypes involving tolerant, moderate, susceptible and very susceptible, for post flowering drought tolerance of maize hybrid. An experiment was conducted to determine the characteristics association between grain yield and its components and their direct and indirect effects to the yield. The research was arranged in a randomized completed block design with three replications. Drought stress treatment was started from flowering (50 days after planting, dap) until milk-dough stage (80 dap). The result indicated significant and positive association of grain yield with plant height, ear position height, stalk diameter, leaf area, leaf angle, the percentage of leaf senescence, leaves rolling score, ear length, ear diameter, number of grain/ear and shelling percentage were correlated with the yield under drought stress. Grain yield was strongly correlated with plant height, leaf area, ear length, ear diameter, and shelling percentage. Indirect effect on grain yield under drought conditions were found for the following parameters: stalk diameter, leaf angle, percentage of leaf senescence, leaf rolling scores and number of seeds/ear.

Keywords : correlation, drought, hybrid maize, path analysis

IP. Volume 25 No. 2, 2016

Quick Method for Identification of Tertiary Irrigation Networks in the process of improving irrigation

Haryono dan Fadhlullah Ramadhani

Desember 2016. Vol 25 No. 2. p 181-188

ABSTRACT

The availability of water can not be separated from good tertiary irrigation network, apart from the available Secondary and Primary networks and also irrigation dams. Apart from funding, monitoring of JIT (Tertiary Irrigation Network) during the development and implementation is important. Identification of JIT condition is necessary for repairs, and problem frequently arise is the lack of rapid and accurate report from monitoring the condition. A rapid identification method that is simple, fast and accurate, provides an alternative in implementing the irrigation network monitoring. With a simple device that is android-based mobile phone, equipped with a variety of applications, such as GPS Test, Open camera, GPS Photo Viewer and Photo folders, it is easier in monitoring of JIT. Results of monitoring in West Lombok using rapid method as an alternative, provided an option, better than the old method, with garmin gps, pictures with coordinates that can be sent directly, via social media, so that monitoring can be viewed simultaneously in the field and in the central office, monitoring information did not require a long time in the reports, and impact evaluation could be faster.

Keywords : GIS, GPS, Open camera, Photo Map

IP. Volume 25 No. 2, 2016

Accelerated Shelf Life Test (ASLT) Method With Arrhenius Approach for Shelf Life Estimation of Pineapple, Papaya And Cempedak Juices

Abdullah Bin Arif

Desember 2016. Vol 25 No. 2.p 189-198

ABSTRACT

Pineapple, papaya and cempedak are horticultural commodities that are perishable, require large space, and are usually consumed in fresh form. Based on that, technologies are required for processing them, and one alternative is juice technology. To ensure that the juice is still suitable for consumption and unspoiled, information on shelf life is necessary. Method of estimating shelf life used is ASLT (Accelarated Shelf Life Test). This research was conducted at the Laboratory of The Indonesian Center for Postharvest Agricultural Research and Development between September 2012 – January 2013. Results showed that kinetics reaction in the deterioration of vitamin C in pineapple and pineapple-Cempedak juice followed order one. At storage temperature ranging between 30 °C to -5 °C pineapple-cempedak juice showed a shelf life longer than the shelf life of pineapple and pineapple-papaya juices. The estimated shelf life of pineapple-cempedak juice at a temperature of -5 °C was 197.85 days. Shelf life of pineapple-papaya juice at a temperature of -5 °C was 172.39 days. Shelf life of pineapple juice at a temperature of -5 °C was 156.85 days.

Keywords : Fruit juices, shelf life, ASLT method

IP. Volume 25 No. 2, 2016

Efficiency Analyses of Maize Farming on Dry Land trough Implementation of Integrated Crop Management in West Java Province

Parlindungan Y Silitonga, Sri Hartoyo, Bonar M Sinaga, I Wayan Rusastra

Desember 2016. Vol 25 No. 2.p 199-214

ABSTRACT

Implementation of Integrated Crop Management (ICM) on maize farming in dry land is expected to increase the production and efficiency. This study aimed to: 1) analyze technical, allocative, and economic efficiencies of dry land maize farming under ICM and non-ICM implementation program, 2) identify factors that influence the technical inefficiency of maize farming under ICM and non-ICM implementation program. The study was conducted in maize production center in West Java province at Sukabumi and Garut regencies. Stratified random sampling method was used to survey 300 households in 2015. The data were analyzed using the Cobb-Douglas stochastic frontier production function; while allocative and economic efficiencies were analyzed using the input side approach with frontier dual cost function. The results showed that the productivity of ICM maize farming was 18% higher than the non-ICM. The level of technical, allocative and economic efficiencies of ICM maize farming were 88%, 22%, and 20% respectively, while the level of technical, allocative and economic efficiencies of non-ICM maize farming were 78%, 18%, and 14%, respectively. The level of technical, allocative and economic efficiencies increased by 11% to 30% higher in ICM than the non-ICM. Factors causing technical inefficiency were frequency of extension, educational level, and distance of farmland from farmers residence.

Keywords : ICM, technical efficiency, allocative efficiency, economic efficiency, maize farming

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Factors influencing the adoption of Superior Variety of White Maize in Grobogan Regency,Central Java
Laila Kadar, Hermanto Siregar, dan Eka Intan Kumala Putri
Desember 2016. Vol 25 No. 2 .p 215-220

ABSTRACT

Maize is the second basic food need after rice that is potential and has high economic value in increasing income of farmers and food diversification program. White maize, in particular, is an alternative staple food in Grobogan Regency. The superior variety is a component of technology that plays a prominent role to increase productivity, disease resistant, and environmentally suitable (specific location). The aim of the study was to determine the influential factors in the adoption of superior variety of white maize in order to achieve transfer of technology. The study was carried out in three villages of Grobogan Regency, Central Java: namely Sumber Jatipohon, Godan, and Karangasem. The locations were determined with purposive sampling and the number of respondents interviewed was 120 farmers (40 farmers in each village) between September-December 2015. Analyses of the data were descriptively and quantitatively using percentages, charts and tables with logistic regression. The results of this study showed that the interest of farmers to adopt new superior variety of white maize was quite good around 66.7 percent. Farmers' interest toward superior variety may be considered high. While factors significantly influencing the adoption included income, knowledge or information on technology, agriculture extension support, pest, and availability of seeds. On the other hand, factors which were not significantly affecting the adoption included age, formal education, farmers' experience, and land size.

Keywords : Adoption of technology, Innovation, Logistic regression, Superior variety, white maize

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The Use of Location Quotient and Shift Share Analysis in the Determination of Leading Food Crops in Bantul Regency
Joko Mulyono dan Khursatul Munibah
Desember 2016. Vol 25 No. 2 .p 221-230

ABSTRACT

Land conversion causes competition in land use, and thus it is necessary to select leading commodities based on agro ecological zoning (AEZ). This study aimed to determine the leading commodities of food crops in Bantul Regency agro ecological zone. This study was conducted on March 2015. The data used was time series data of food crops harvested between 2008-2012 and agricultural commodities zone maps year 2013 based on AEZ with scale 1:50.000 obtained from the Statistics of Indonesia, Agriculture and Forestry Office, and AIAT. Commodities with comparative advantages were analysed by Location Quotient (LQ) while commodities with competitive advantages were analysed by Shift Share Analysis (SSA). Leading food crops commodities were determined through an overlay process using the ArcGIS software covering analysis results of LQ, SSA and agricultural commodities zone maps based on AEZ with scale 1:50.000. The result showed that the wetland paddy is a leading commodity in the study area. Based on comparative and competitive advantages, and compatibility with agricultural commodities zone based on AEZ, wetland paddy is the most leading commodity compared to corn, soybeans and peanuts. It is because of the distribution of this commodity in 10 districts (Sanden, Kretek, Pundong, Bambanglipuro, Pandak, Bantul, Jetis, Banguntapan, Kasihan, and Sedayu) with total area of 11,667 ha or 39.4% of agricultural land in Bantul Regency.

Keywords : food crops, agroecological zone, ArcGis

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Use of "Solver" Function in Least Cost Feed Formulation for Small Scale Dairy Cattle Farmers
I G.M. Budiarsana
Desember 2016. Vol 25 No. 2 .p 231-240

ABSTRACT

Smallholder dairy farmers in Indonesia are very limited by the availability of quantity and quality of the feedstuff, especially in dry season. Sources of protein from legumes and non-conventional materials can be found around the area and used as feed ingredients for dairy cows. However, the major problem is in feed formulation for nutritionally balanced ration and with the cheapest cost. This paper outlines a step-by-step procedure in feed formulation based on Excel program for dairy farmers. The steps were performed to provide assurance that the resulting balanced ration was according to the targeted performance and at least cost. Also, users could control the process of formulating the ration. Examples were given by utilizing legumes and the results indicated that the reduction in feed cost was very real, as much as 10-20% when compared to the concentrated feed commonly used by farmers at a price of Rp1420/kg. The formulation method prepared by the program SOLVER can be recommended for use by dairy cattle ranchers individually or with assistance from Extension workers. Farmers are expected to be able to formulate their feed easily in order to get the least cost formula using feedstuff available in abundance, to minimize production cost, and to optimize feed management at small scale farming level..

Keywords : feed formulation, legumes, Excel

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Profile Analysis of the Effects of Organic Matter on Iron Concentration and Absorption in Tidal Swamp Land
Wahida Annisa dan Herman Subagio
Desember 2016. Vol 25 No. 2. p 241-248

ABSTRACT

This study aimed to determine the similarity of the characteristics of each type of organic matter in suppressing the solubility of iron in soil and absorption in plants. This research was conducted in two stages. The first stage was conducted in the greenhouse to study the effect of organic matter to iron solubility in acidic sulphate soil. The research used a factorial design with 1 control and 3 replications. The first factor was type of organic matter used, B1 = rice straw; B2 = weeds; B3 = Combination of 50% rice straw and 50% weeds. The second factor was the incubation period of organic matter I1 = 2 weeks, I2 = 4 weeks, I3 = 8 weeks, and I4 = 12 weeks. The second stage was analyzing the profiles of the type of organic matter in order to evaluate the similarity of the characteristics of each type of organic matter. Based on the profile alignment, it was found that the three types of organic matter were not aligned. The types of organic matter had different roles in suppressing the solubility of iron in soil and its absorption in plants. There is a need to do a comparative analysis with Tukey method to the three types of organic matter.

Keywords : profile analysis, organic material, incubation period, iron solubility

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Strategy to increase rice production with the emphasis on the losses during harvest and postharvest using modeling system approach: Case study in district Indramayu, West Java
Agus Supriatna Soemantri, Prima Luna, dan Irpan Badrul Jamal
Desember 2016. Vol 25 No. 2.p 249-260

ABSTRACT

Paddy loss during harvest and postharvest handling is a complicated system involving many elements, and they are inter-connected. Therefore, to overcome these issues, appropriate and sustainable strategies should be implemented. The purpose of this study was to analyze the leverage factors that can overcome the problems of post-harvest losses of rice by a dynamic system approach as a basis in formulating policy strategy. This research was conducted in Indramayu, West Java, from January to December 2012. The methodology used in this research was modelling system approach. Primary data collection was conducted by a questionnaire survey and interviews with stakeholders and farmers as respondents. Secondary data collection was obtained from the Central Bureau of Statistics Centre (Jakarta) and regional (West Java), Regional Agriculture Services, Regional Industrial and Trade Services, Regional Population and Civil Registration Agency, Center for Agricultural and Food Security Agency. The results showed that the reduction of rice losses could be approached in two ways: technical approach and cultural approach. The technical approach could be developed by implementing a quality management system such as GHP and GMP, while the cultural approach could be implemented by creating new jobs. Application of the quality system would also encourage the revitalization in rice milling so that it would increase the yield, and so the application of the quality management system would contribute greatly to the production of dry unhulled rice as well as rice in Indramayu. The implementation of this strategy must consider the ability and readiness of the district, so that the strategies could be more realistic and easier to be implemented. The simulation results showed that the implementation of the strategy by using harvest and postharvest equipments to be accompanied by the implementation of GHP and GMP, may decrease shrinkage ranging from 5.58% to 10.14%, or the equivalent of rescuing MPD from 61,240 to 115,859 tons in 2020..

Keywords : dynamic system, rice losses

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Spatial Analysis in the Classification of Critical Land in The Sub-Basin of Langge Gorontalo
Rahmat Hanif Anasiru
Desember 2016. Vol 25 No. 2. p 261-272

ABSTRACT

Watershed (DAS) is a complex ecosystem, where land quality is largely determined by land use activities. This illustrates the importance of analytical procedure, especially where the context in which the spatial pattern of land use in the future can be designed based on the risk of degradation in large areas. Data and information are necessary to be used as reference in designing a planning scheme related to land use. Geographic Information Systems (GIS) is a system that has the ability to analyze problems and their spatial and non-spatial combinations (queries) in order to provide solutions to spatial problems. Sustainable farming is an integral part of sustainable development, a farming system which preserves water resources, land resources, and plant resources in acceptable and suitable ways economically, socially, and environmentally. The research aimed to identify and classify critical land by spatial analysis. Based on identification of land, there were 12 individual units in the study area. Based on the spatial analysis, critical land classification was divided into not critical area of 1,818 ha (28.7.%), Potentially Critical 2,596 ha (41.06%), Moderately critical 1,631 ha (25.08%), Critical 226 ha (3.57 %). Most of the land in sub-basin Langge was a hilly area of 1180.6 ha (63.8%) with a slope of 12-25%; 25-40% and above 40%. Alternative farm management in this area was a conservation farm by mechanical conservation techniques (terraces) or vegetative with cultivation techniques hallway, living fences, grass strips and agroforestry

Keywords : Watershed, spatial analysis, conservation farming

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Assessment of Bud Production As Sugarcane (Sacharrum officinarum L.) Seed with Regression Analysis Approach

Ahmad Dhiaul Khuluq dan Ruly Hamida

Desember 2016. Vol 25 No. 2.p 273-278

ABSTRACT

One of the problems encountered in the development of sugarcane (Sacharrum officinarum L.) includes the availability of sugarcane seed both in quality and quantity. Evaluation of bud sett planting method in seed production was required in order to achieve the expected results. The study was conducted at the experiment station Muktiharjo, Central Java in 2012 using PSJT 941 varieties. Treatments applied were the different number of buds on bud sett which were at 3 levels, 1 bud, 2 buds or 3 buds. Research was arranged in a randomized complete block design (RCBD) with 5 replications. Observations were conducted on germination, tillering, plant height, number of stems, number of suckers and number of buds. The data obtained were analyzed with ANOVA and further tested using the Duncan test. Production assessment modeling approach was performed by a regression analysis. Calculation of stem number on 2 buds showed the highest with 9.6 stems/m, 9.2 buds/stem and with the sucker numbers lowest at 0.38 suckers/m. The highest production buds was obtained at planting 2 buds with 847,848.06 buds/ha which can be used as 8.83 ha for the milled sugarcane plantation. Assessment of bud production per hectare could use equation Y = 159655,48.e0,171.X with the independent variable of stem numbers per meter with a correlation coefficient of 0,9007 and a standard error of 1,0699.

Keywords : Sugarcane, seed, production assessment