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KATA PENGANTAR

Kali ini Jurnal Informatika Pertanian (JIP) berisi 15 tulisan hasil penelitian dari berbagai aspek. Melalui aplikasi pendekatan *land rent* diketahui penyebab alih fungsi lahan sawah menjadi kebun kelapa sawit. Survei di beberapa sentra produksi padi membuktikan hama PBPK dapat dikendalikan secara alami dengan memanfaatkan parasitoid setempat.

Metode AMMI diperlukan untuk menilai stabilitas galur harapan kedelai. Menggunakan data hasil penelitian lapang diketahui galur kedelai yang dapat dilepas sebagai varietas unggul. Terkait dengan upaya peningkatan produksi kedelai telah dirancang sistem pakar XSIDS untuk mengidentifikasi penyakit kedelai.

Hasil penelitian menunjukkan aplikasi model regresi *step wise* dapat menentukan peubah agronomi yang berkorelasi positif terhadap hasil jagung putih. Teknik GGE yang melibatkan pengaruh genotipe (G) dan genotipe x lingkungan (GE) telah diaplikasikan untuk mengetahui keunggulan klon ubi kayu pada berbagai lingkungan tumbuh.

Perubahan iklim berdampak terhadap sektor pertanian. Perangkat lunak SIDAPI TAPA dapat menganalisis dampak perubahan iklim terhadap produksi tanaman pangan pada lahan kering. Di sisi lain, kemampuan penyuluh dalam memahami dan memanfaatkan informasi iklim dapat ditingkatkan melalui pendekatan struktural dan fungsional.

Penelitian jeruk keprok mengungkap peran teknologi pengairan dan pemupukan dalam memperbaiki kualitas buah. Aplikasi pupuk Ca dan B dengan dosis tertentu potensial menekan cemaran getah kuning pada manggis. Pengemasan dalam MAP aktif pada suhu 15°C, buah pisang kultivar Mas Kirana tahan disimpan hingga 24 hari. Teknologi ini diperlukan untuk memperpanjang masa simpan buah pisang, terutama yang akan diperdagangkan atau ekspor.

Pengelompokan plasma nutfah rambutan berdasarkan morfologi buah bertujuan untuk membedakan karakter aksesori, termasuk potensi hasil dan daya simpan. Pemberian starter *Saccharomyces cerevisiae* dan urea pada molases tebu, difermentasi tiga hari, menghasilkan bioetanol dengan rendemen alkohol tertinggi.

Lembaga penelitian publik dituntut mendiseminasikan teknologi hasil penelitian kepada pihak pengguna melalui berbagai media. Survei membuktikan media televisi dan radio bermanfaat untuk diseminasi ayam KUB di Kabupaten Sleman dan Bantul, DIY Yogyakarta.

Jakarta, Juni 2016

Ketua Dewan Redaksi

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IP. Volume 25 No. 1, 2016
 Enhancing Fruit Quality of Terigas Tangerine Through Water Management and Fertilization in Sambas Regency, West Kalimantan)
 Tommy Purba, M. Zuhran dan Arry Supriyanto
 Juni 2016. Vol 25 No. 1.p 1-8

ABSTRACT

One of the problems that farmers face on Terigas tangerine in Sambas Regency, West Kalimantan is the low fruit quality. It is believed that it is caused by extreme fluctuation of moisture level, temperature, soil moisture, and nutrition absorption. The aim of this research was to obtain good quality tangerine through the reduction of moisture level fluctuation, temperature, soil moisture, and sufficient nutrition for plants. This research was conducted in Sambas Regency. Research design used was Split Plot Design, which consisted of two main plots, i.e. land with flooded trench and land with unflooded trench. Whereas, the three sub-plots were: 1) inorganic fertilizer (farmer's technology), 2) inorganic fertilizer + organic fertilizer + mulch, and 3) inorganic fertilizer + organic fertilizer + mulch + (Ca + B). This research used four replicates with ten trees per experimental unit. The results showed that flooding the trench during dry-season and followed by fertilization was able to increase the fruit quality of Terigas tangerine. Those fruit quality were fruit dehiscent, fruit diameter (grade), acid level (%), and sugar content fruit.

Keywords : tangerine, technology, fruit quality

IP. Volume 25 No. 1, 2016
 Application of Land Rent Approach In Analyzing Paddy Field Conversion to Oil Palm Plantation
 Anis Fahri
 Juni 2016. Vol 25 No. 1.p 9-20

ABSTRACT

Land rent of paddy field is lower than oil palm and it encourages farmers to convert wetland to oil palm plantations. This study aimed to determine the impact of land use on the welfare of rice farmers. The experiment was conducted in Kampar district from April to December 2013. Data were collected through a field survey of 30 rice farmers and 30 farmers who converted wetland to oil palm plantations. Land rent value of paddy rice farming management was then compared with the land rent of oil palm plantations. The alignment of the calculation of land rent value of both commodities was carried out by PVNR value approach to timing analysis for 25 years (according to the economic lives of oil palm plantations) and a discount rate of 10%. The economic analysis showed that the average rice farming land rent value was Rp.9.834.727/hectare/year. The average land rent value of oil palm was Rp 16.255.090/hectare/year. PVNR - land rent value of the rice farming was Rp. 89.200.977 / hectare, while the value of farm land rent - PVNR of oil palm was Rp. 111.388.769/hectare. PVNR - land rent of oil palm was higher by 25 % than that of paddy. The result indicated that the ratio of land rent oil palm was 1.25 times higher than wetland. The welfare of rice farmers was lower with the value of NTPRP 0,57 than oil palm farmers with the value of NTPRP 0,70.

Keyword : paddy land conversion, land rent, oil palm farmer, welfare

IP. Volume 25 No. 1, 2016
 The Application of Stepwise Regression Model in the Determination of White Corn Yields Nining Nurini Andayani, Muhammad Aqil, dan Syuryawati
 Juni 2016. Vol 25 No. 1.p 21-28

ABSTRACT

White corn is a source of functional food, particularly in dry land and dry climate environments. Indonesian Agency for Agricultural Research and Development (IAARD) has released six white corn varieties with various characteristics with wide adaptation area. Breeding programs for developing high yielding white maize varieties is conducted by a series of steps including evaluation of agronomic characteristics of lines/varieties. The objective of the research was to test the applicability of step wise regression model to determine/select agronomic variables that significantly contributed to the yield of white corn. Research was conducted in rainy season 2012 at Muneng experimental station, East Java Province. Maize parental plants used were the result of crossing CML140 x CML264Q lines namely Bima Putih. A total of 14 variables were tested for their significances to maize yield. SPSS and Microstat software were used to calculate the best variables that contributed to the yield significantly. The results showed that among 14 variables involved in the calculation, there were five variables that contributed to the yield, namely: weight of cob at harvest (x5), ratio of the weight of dry grain to the total cob weight (x9), the seed moisture content (x6), and number of ears (x4). Regression models generated from step wise screening was $y = -4.33 + 0.763x5 + 0.1009x11 + 0.104x9 - 1.22x6 + 0.016x4$. The coefficient of determination (R^2) of the model was 0.99, indicating the ability of the regression model to fit the data. This showed that the five independent variables included in the model were the main variables in determining the outcome of hybrid seed Bima Putih-1. This result could be further used as reference to conduct parameter screening to produce high yielding white maize.

Keywords : white corn, model, step wise, yield

IP. Volume 25 No. 1, 2016

Optimization of Calcium and Boron fertilization Rates for Controlling the Yellow Latex Contamination in Mangosteen Fruits (Garcinia mangostana L).
 Titin Purnama
 Juni 2016. Vol 25 No. 1.p 29-40

ABSTRACT

Yellow latex is commonly called gamboge and is a latex produced in all parts of the mangosteen. Yellow sap becomes a problem when it gets out of the ruptured channel, and contaminates the aryl and pericarp. Ruptured channel of yellow latex is presumably because the walls of the epithelial cells of the yellow latex channels is Calcium deficiency. In addition, Boron has also the same function in maintaining the integrity of the cell wall. This research was aimed to know the roles of calcium and boron in controlling contamination yellow latex on the mangosteen fruit, and to obtain the best combination between calcium and boron in preventing the yellow latex contamination on mangosteen. The study was conducted in Purwakarta, West Java from November 2012 to June 2013. The study was arranged a randomized factorial with three replications. The treatment consists of two factors: dosages of Ca (0.0; 2.5; 5.0 and 7.5 kg / tree) and of B (0.00; 0.77; 1.55 and 2.32 g /tree). There was no interaction effect observed between calcium and boron fertilizer on fruit physical and chemical variables but there were significant interactions in quadratic levels of yellow latex contaminant in the mangosteen fruit. The percentage of fruit with minimum aryl contamination was 1.05 % at the optimum combination dose of 5.0 kg Ca/tree and 1.55 g B₂O₃/tree.

Keywords : mangosteen, calcium, boron, gamboge, aryl, pericarp

IP. Volume 25 No. 1, 2016
 Genotype Stability Analysis of Soybean Using Additive Main Effect and Multiplicative Interaction (AMMI) Methods
 Ayda Krisnawati, Panjisakti Basunanda, Nasrullah, dan M. Muchlish Adie
 Juni 2016. Vol 25 No. 1.p 41-50

ABSTRACT

An ideal soybean cultivar is the one that achieves the greatest yield consistently across many environments regardless of environmental conditions. The objective of this experiment was to determine the soybean seed yield stability by AMMI method. A total of ten soybean genotypes, which consisted of eight soybean promising lines (G100H/SHRW-60-38, SHRW-60/G100H-73, SHRW-60/G100H-68, SHRW-60/G100H-66, G100H/SHRW-34, SHRW-60/G100H-5, SHRW-60/G100H-70, and SHRW-60/G100H-75) and two soybean check varieties (Kaba and Willis) was evaluated at six soybean production centers in Yogyakarta, Banyuwangi and West Nusa Tenggara during 2011. The field experimental design for each location was completely randomized design with four replicates. Each genotype was planted on 2.4 m x 4.5 m plot size, 40 cm x 15 cm plant distance, with 2 plants/hill. Stability analysis on seed yield was based on the AMMI method. The combined analysis showed that the genotype and GEI were highly significant for seed yield. The AMMI of the first significant interaction principal component (PC1) accounted for 66.07% of the total variation. Based on AMMI1 biplot, G1 (G100H/SHRW-60-38) and G5 (G100H/SHRW-34) showed higher yield stability. However, the most stable genotype (G5) produced low yield. The other stable genotype (G5) showed highest soybean yield, and therefore it is proposed to be released as a new improved soybean variety.

Keywords : soybean, seed yield, stability, AMMI

IP. Volume 25 No. 1, 2016

Quality Respons of Banana Cv. Mas Kirana under Active Modified Atmosphere Packaging
 Adhitya Yudha Pradhana
 Juni 2016. Vol 25 No. 1.p 51-60

ABSTRACT

Major constraints and problems associated with postharvest handling of fresh banana are short shelf life and lack of proper postharvest handling. The purpose of this study was to evaluate fruit quality and shelf life under MAP packaging, with or without KMnO₄. This research was conducted between May-August 2013 at the laboratory of food processing and agricultural product, Bogor Agricultural Institute. The data obtained were analyzed with analysis of variance (ANOVA), if the results were significant at 5%, then further test was carried out with Duncan test. The results indicated that the shelf life of bananas packaged in White Stretch Film (WSF) with KMnO₄ (MAP active) at 28°C could be stored for 10 days and comparable to 6 days without KMnO₄ (MAP passive), and the shelf life of fruit packed in MAP active at 15°C could be stored for 24 days and comparable to 16 days for MAP passive. The 3 factors interaction were significant at different levels of starch content at 6th day, whereas total soluble solids (TSS) was significantly different at 2nd day of storage. MAP active treatment could delay starch content degradation and TSS when compared to passive MAP.

Keywords : ANOVA, duncan test, active modified atmosphere packaging, banana

<p>IP. Volume 25 No. 1, 2016</p> <p>Path Analysis Approach to Accelerate the KUB Chicken Adoption Through Electronic Media Retno Dwi Wahyuningrum and Gunawan Juni 2016. Vol 25 No. 1.p 61-68</p> <p style="text-align: center;">ABSTRACT</p> <p>An effective media dissemination is through electronic media, which includes radio and television. Yet, the farmer character was also influenced to dissemination process. The aim of this study improved dissemination method that consider the characters audience of radio and television. The study was conducted to 114 respondents, which consist of 57 recipients of the information about KUB chicken through radio and 57 recipients through television media. The respondents was simple randomly selected 50% from total members of each 4 farmer breeder groups, which are 2 groups from Sleman Regency and 2 groups from Bantul Regency. The research was done on July – November 2014. Some observed variables was the farmer characters (age, gender and level of education), knowledge, attitude and farmer motivation for KUB chicken adoption. The knowledge, attitude and respondents motivation were evaluated using questionnaire, which was taken after the respondents received the information through radio or television. The score of questionnaire was stated to the interval data, which used Likert scale. Validity and reliability test of the questionnaire, also normality data were done by SPSS version 21. The differences influenced of radio and television to knowledge, attitude and motivation to adopt the KUB chicken were tested by t-test. The path analysis was used AMOS version 21 to test some factors that affected to the farmer knowledge, attitude and motivation. The result of study shown that television media was well disseminated of innovation than radio, because it should changed the farmer well known and wanted to adopt the KUB chicken. The radio media more suitable for male audience, that had higher motivation than woman. Since accelerating adoption of KUB chicken would be accured if the audience of television media were the lower educated farmer, which more motivated than the higher one.</p> <p>Keywords : path analysis, accelerating adoption, electronic media, KUB chicken</p>	<p>IP. Volume 25 No. 1, 2016</p> <p>Analysis of Climate Change Impacts on Food Crops Production in Dry Land and Design of Information System Yayan Apriyana, Erni Susanti, Suciantini, Fadhullah Ramadhani dan Elza Surmaini Juni 2016. Vol 25 No. 69.p 69-80</p> <p style="text-align: center;">ABSTRACT</p> <p>Changes in the frequency and severity of extreme climate events and in the variability of weather patterns will have significant consequences for stability of agricultural system. Research objectives were to a) analyze the Impact of Climate Change on Food Crops in Dryland b) develop a software prototype analysis of the impact of climate change on food production, especially upland rice and maize on dry land; c) create a simulation with multiple scenarios of the impact of climate change on dry land. The study was conducted in South Sulawesi, West Nusatenggara and East Nusatenggara. The activities were carried out by projecting precipitation using scenarios: a) SRESA2 (Scenarios of climate change by assuming economic growth is lower and population growth remains high so the rate of greenhouse gas emissions increased, b) SRESB1 (scenario of climate change by assuming mitigation efforts through expanding efficient use of energy and technology improvements so that the emission levels are lower) and making projections of production of upland rice and maize using Decision Support System for Agrotechnology Transfer (DSSAT) as resource information in the preparation of prototype software information Systems Climate Change Impacts on Crop Production (SIDaPi TaPa). The system was built based on the analysis simulation model projections of production output DSSAT. Based on SRES scenarios A2, the decline in rainfall increased until 2050 in several districts, in South Sulawesi, West Nusatenggara and East Nusatenggara. Treatment of adaptation through SRESB1 scenarios could be effective to anticipate a decrease in rainfall in some regions, either in 2025 or 2050. In general, the region experiencing a decrease in rainfall will also decrease in production of both upland rice and maize production. The decline in upland rice production by SRESA2 scenario until 2050 was between 20-25%, and by a scenario adaptation SRESB1 the decline in production could be minimized to only between 7 -10%. The decline in maize production in the plot until 2050 by SRESA2 was between 9-15%, using scenarios to reduce production SRESB1 was only 5-8%. SIDAPI TAPA is a software analysis of the impact of climate change on food production, especially upland rice and maize on dry land in South Sulawesi, West Nusatenggara and East Nusatenggara.</p> <p>Keywords : information systems, climate change, food crops, dry land</p>
<p>IP. Volume 25 No. 1, 2016</p> <p>Grouping of Rambutan Germplasm Based on Morphological Characteristics Kuswandi, Nofiarli, Andre Sparta, Mega Andini, Sri Hadiati, Nini Marta, Resta Patma Yanda Juni 2016. Vol 25 No. 1.p 81-88</p> <p style="text-align: center;">ABSTRACT</p> <p>Rambutan is a fruit native to Indonesia, which has a high diversity. Indonesian Tropical Fruit Research Institute has a rambutan germplasm collection. The objectives of the research were to identify and classify rambutan germplasm accessions based on morphological characteristics, in order to identify the specific characteristics important for the development of future varieties of rambutan. Collecting data on the 32 accession was conducted in Aripan Experimental Field, Indonesian Tropical Fruit Research Institute from September 2014 to February 2015. Characterization of morphology characters referred to as the Descriptor for Rambutan was published by IPGRI. Cluster analysis based on morphological characteristics successfully separated the accession of rambutan R7 and R11 with 30 other rambutan accessions with the dissimilarity coefficient of 45%. Accession R4 was similar to Sitangkue, R14 was similar to Korong Gadang, and R15 was similar to Sinyonya. Characteristics that can be used to distinguish each of the accession of rambutan were the width of seed, seed thickness, total soluble solids (TSS), fruit diameter, spintern texture and the spintern color. Accession R15 can be developed as a commercial variety, because it has a high yield, and shelf life associated with high fruit weight characteristics and thick rind.</p> <p>Keywords : rambutan, genetic diversity, yield</p>	<p>IP. Volume 25 No. 1, 2016</p> <p>GGE Biplot Analysis of Tuber Yield of Cassava Clones Using Restricted Maximum Likelihood Kartika Noerwijati¹, Nasrullah², Taryono², dan Djoko Prajitno² Juni 2016. Vol 25 No. 69.p 89-98</p> <p style="text-align: center;">ABSTRACT</p> <p>The study was conducted in five locations i.e Kediri, Ponorogo, Probolinggo, Malang, and Mojokerto, from November 2010 until August 2011. The planting materials used were 15 cassava clones. The research objective was to compare analysis methods of the genotype × environment interaction, namely: a) GGE technique using REML without A matrix by assuming homogeneous residual error variance, b) GGE technique using REML with A matrix by assuming homogeneous residual error variance, c) GGE technique using REML without A matrix by assuming heterogeneous residual error variance, and d) GGE technique using REML with A matrix by assuming heterogeneous residual error variance. The results showed that GGE technique using REML without A matrix by assuming heterogeneous residual error variance was more appropriate. Clones CMM 03038-7 (G8) had a wide adaptability and high yield potential, and its clone was closest to the ideal criteria for genotype compared with other genotypes. Clones CMM 03094-4 (G10) had specific adaptability in the environments S2 (Malang) and S5 (Mojokerto), and it had higher yield potential than the control varieties UJ5, Malang 6, and Adira 4. Environment Kediri (S1) had the highest yield among other environments and Kediri was a suitable environment for the growth and selection of cassava.</p> <p>Keywords : cassava, GGE biplot, REML</p>
<p>IP. Volume 25 No. 1, 2016</p> <p>The Level of Parasitization of Egg Parasitoid of Yellow Rice Stem Borer of different altitudes Ni Made Delly Resiani dan I Wayan Sunanjaya Juni 2016. Vol 25 No. 1.p 99-106</p> <p style="text-align: center;">ABSTRACT</p> <p>Rice is the staple food of Indonesia's population. Various problems occur in an effort to increase production and productivity. One problem is the attack of yellow rice stem borer (PBBK) which may result in yield losses up to 90%. Utilization of parasitoid is an alternative to suppress the attack of Yellow Rice Stem Borer. The study was conducted in Tabanan, covering three locations with the altitudes of 50, 300, and 550 meters above sea level, and at the Plant Pests and Diseases laboratory of the Faculty of Agriculture, University of Udayana. The study aimed to determine the effectiveness of parasitization of the best Yellow Rice Stem Borer as a natural control agent at different altitudes. The method used was survey by taking a sample group of Yellow Rice Stem Borer eggs with a purposive random sampling in the area of 2.5 hectares (one block in each location was an area of 0.5 hectares) at each location. Observations on parasitoid found in Yellow Rice Stem Borer eggs were done on parasitoid species diversity, equality, abundance, parasitization level, sex ratio, and the pattern of parasitoid invasion. The results showed three species of parasitoid eggs PBBK as biological control agents. Parasitization level of <i>T. rowani</i> and <i>T. japonicum</i> was the highest at the altitude of 50 meters above sea level, while <i>T. schoenobii</i> at the altitude of 300 and 500 meters above sea level.</p> <p>Keywords : level of parasitization, egg parasitoid, yellow rice stem borer, altitude</p>	<p>IP. Volume 25 No. 1, 2016</p> <p>Characteristics of Red Palm Oil Encapsulates Enriched with β-carotene Shannora Yuliasari, Dedi Fardiaz, Nuri Andarwulan, Sri Yuliani Juni 2016. Vol 25 No. 1.p 107-116</p> <p style="text-align: center;">ABSTRACT</p> <p>This study aimed to evaluate the effect of maltodextrin combination with different encapsulation materials in the encapsulation of red palm oil by spray drying, in order to maximize encapsulation efficiency and retention of β-carotene. Maltodextrin was combined with xanthan gum (XG), gum arabic (GA), sodium caseinate (SC). The study was designed using a block randomized design with ten treatments and three replicates. The use of different combinations of encapsulation materials in this study had a significant effect ($p < 0.05$) on the characteristic of encapsulates. The best encapsulation efficiency and β-carotene retention were obtained with MD:XG at a combination of 99.7:0.3%, while the lowest encapsulation efficiency and β-carotene retention were obtained for MD:SC. Combination of MD:XG produced encapsulate with 1.03% of surface oil, 92.40% of oil retention, 72.05% of encapsulation efficiency, and 72.65% of β-carotene retention. The mixtures of different encapsulation materials influenced encapsulate morphology. The MD:SC encapsulate had higher dents and folds on encapsulate surface, whereas the combination of MD:XG resulted in a smoother surface of the encapsulate.</p> <p>Keywords : red palm oil, beta carotene, encapsulation efficiency, microencapsulation, spray drying</p>

<p>IP. Volume 25 No. 1, 2016</p> <p>Design of an Expert System for Controlling Soybean Diseases Indah Puji Astuti, Irman Hermadi, Agus Buono, Kikin H. Mutaqin Juni 2016. Vol 25 No. 1.p 117-130</p> <p style="text-align: center;">ABSTRACT</p> <p>Early detection and identification of soybean diseases is important to support better productivity of soybean. The demand for the availability of an expert on soybean disease is very high, especially for the beginners in the field of agriculture. However, the number and time allocation of the experts are not adequate to serve farmers located in different geographical areas. Therefore, an expert system is proposed as a solution to use as a diagnostic tool for soybean diseases just like a human expert. It will be even easier when the system is implemented into an Android-based application to be used anywhere and anytime. The objective of this study was to analyze and design an expert system for early identification of soybean diseases. This study was adopting the Expert System Development Life Cycle (ESDLC) approach. The stages were project initialization, knowledge engineering process, and implementation. The study was started with the project initialization phase that conducted in September 2014 and the completion of the implementation phase in August 2015. The results of research were in the form of document analysis and prototype system.</p> <p>Keywords : android-based, ESDLC, expert system, soybean disease</p>	<p>IP. Volume 25 No. 1, 2016</p> <p>Model of Capacity Enhancement of Extension Agents in Utilizing Climate Information at Indramayu District with Sustainable Analysis Approach Ume Humaedah, Astrina Yulianti, Enti Sirnawati, Lukman Effendi Juni 2016. Vol 25 No. 1.p 131-144</p> <p style="text-align: center;">ABSTRACT</p> <p>Capacity of extension agents in understanding climate forecasting and climate change is allegedly limited. Therefore, it is necessary to improve their capacity on this issue. Research was conducted between May to December 2014. Indramayu in West Java was chosen purposively, representing irrigated-land agroecosystem. Respondents were extension agents selected from Agricultural Extension of Fisheries and Forestry Services (BP3K) or Agricultural Extension Services (BPP) with their working area being considered high vulnerability to climate change. Total respondents were 59 extension agents randomly selected. There were three phases of dynamic hypothesis resulting in : 1) problem identification, 2) ideal capacity determination; and 3) model design. Methods of data collection were survey, interview, and focus group discussion (FGD). A RAP-FISH ordination technique through Multi Dimensional Scaling (MDS) was used to assess the existing extension capacity and identify sensitive attributes influencing the ability of the extension agents in the use of climate information through analysis of leverage in each variable. Results showed that accessibility to resources, information management and election of extension dimension methods were the dimensions to be considered for improving the extension agents capacity building in climate utilization. Therefore, a structural approach should be done through increased synergy between institutions involved in capacity building of extension agents and its resources. Moreover, synergy amongst sources of information should be conducted to encourage the roles of BP4K and BP3K in managing climate information. While the functional approach is done through re-designing capacity development activities on utilizing climate information, with the focus on improving the accessibility, information management, and selection of extension methods.</p> <p>Keywords : extension agent, capacity building, climate change, climate information, sustainability analysis</p>
<p>IP. Volume 25 No. 1, 2016</p> <p>Factorial Design with Three Factors for Optimization of Bioethanol Production from Sugar Cane Molasses Abdullah Bin Arif, Wahyu Diyono, Agus Budiyanto dan Nur Richana Juni 2016. Vol 25 No. 1.p 145-154</p> <p style="text-align: center;">ABSTRACT</p> <p>Bioethanol is a plant-based fuels potential as alternative materials to substitute fossil fuels which are non-renewable. The aim of this study is to get the optimal dose of <i>Saccharomyces cerevisiae</i> as starter, concentration of nitrogen (urea) and fermentation time for the production of bioethanol effectively and efficiently. This study was conducted at the Laboratory of Postharvest Research and Development Institute, Bogor from May to September 2015. The materials used are molasses of sugar cane. The experimental design used was a factorial design with 3 factors. The first factor was the treatment of fermentation time (1, 2 and 3 days). The second factor was the nitrogen concentration (0, 2 and 4 grams). The third factor was the <i>Saccharomyces cerevisiae</i> concentration (1, 1.5 and 2 grams). Each treatment was repeated twice. Observations were made on the characteristics of the raw materials (total sugar content, ash content and calcium content) and the resulting product (total sugar content, alcohol content and yield). Data were analyzed using analysis of variance and Duncan Multiple Range Test (DMRT). The results showed that the addition of starter <i>Saccharomyces cerevisiae</i> and treatment of urea 2 grams each produced the highest yield alcohol with a fermentation time of 3 days.</p> <p>Keywords : bioethanol, fermentation, <i>Saccharomyces cerevisiae</i></p>	