BACTERIAL LEAF BLIGHT PROGRESS IN SEVERAL REGENCY[1)]

by:
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ABSTRACT

One of the important diseases of rice plant is bacterial leaf blight caused by *Xanthomonas oryzae* pv. *oryzae*. In Indonesia, the disease causes losses of 70-80%, in India achieve 74% - 81%, and in Japan reached 20% -50%, thus causing great losses in the economy. The research objective are characterizing *X. oryzae* pv. *oryzae* and study the development of bacterial leaf blight in the region Barlingmascakeb. The results showed that the cause of bacterial leaf blight in the Barlingmascakeb region is *X. oryzae* pv. *oryzae*. Greatest damage to the rice caused by bacterial leaf blight in the Regency Kebumen and followed each Banyumas, Cilacap, Purbalingga, and Banjarnegara. The development of bacterial leaf blight occurs exponential in week five to eight.

Keywords: Bacterial leaf blight, *X. oryzae* pv. *oryzae*

INTRODUCTION

Production of rice in 2006 is estimated at 54.66 million tons Grain Dry Giling (GKG). The increase in rice production in 2006 is based on an increase in harvested area of about 16 million hectares (0.13%) and also increase productivity by 0.37 kw / ha (0.81%). The increase occurred mainly harvested area in the Outer Java as much as 14 thousand ha (0.23%), while in Java only increased by about 2 thousand ha (0.03%) (BPS, 2006). BPS (2008) released a forecast rate of rice production in 2008 of 59.8 million tons or up 4.8% compared to 2007 figures still reach 57.2 million tons of dry milled grain (GKG) averaged 2.7 million tons of GKG. The increase in production have occurred because the harvested area increased by 237 thousand ha, or 1.96 larger than the harvest in 2007 (12.15 million ha) and increase rice productivity of 1.3 kw / ha or 2.76% higher than productivity in 2007.

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2. Lecturer Faculty of Agriculture Unsoed fixed.

Increasing rice production to meet many obstacles in between the bacterial leaf blight disease (Tjubarjat et al., 1999; Suparyono *et al.*, 2004; Kadir, 1999; Yashitola *et al.*, 1997; Srinivasan and Gnanamanickam, 2005). One of the major diseases of rice fields in Indonesia and the Asian countries are bacterial leaf blight or "kresek" caused by *Xanthomonas oryzae* pv. *oryzae* (Kadir, 1999; Mundt *et al.*, 1999; IRRI, 2003). Loss caused by the disease in Indonesia reaches 70-80% (Kadir, 1999), in India achieve 74% -81% (Srinivasan and Gnanamanickam, 2005), and Japan reached 20% -50% (IRRI, 2003), so causing great losses in the economy (Yasin *et al.*, 2005).

Various efforts to control bacterial leaf blight disease has been carried out with antibiotics including oxytetracycline, streptomycin, and chloramphenicol (Khan *et al.*, 2005); prediction (Liu *et al.*, 2006); sanitation (IRRI, 2003); and the combination of antagonistic *Pantoea agglomerans* , *Pseudomonas fluorescens, Bacillus subtilis* and the U.S. (Babu and Thind, 2005), and resistant varieties (Djatmiko and Fatichin, 2007). Control has not yet given a satisfactory result for *X. oryzae* pv. *oryzae* has a host of many of *Leersia sayanuka, L. oryzoides, L. japonica, Leptochola chinensis, L. filiformis, L. panicea, Cyperus rotundus, C. difformis, Oryza rifopogon,* and *O. australiensis* (IRRI, 2003). In addition to the many host, *X. oryzae* pv. *oryzae* has a level of high diversity patotipe caused by the environment, varieties used, and the level of gene mutabilitas high (Keller *et al.*, 2000).

Resistance host is an important component of integrated disease management program for bacterial leaf blight. Currently, 21 resistance genes have been identified and used in the glorification of rice, but a new race of *X. oryzae* pv. *oryzae* appear immediately due to selection pressures caused by specific race resistant cultivars. In fact, virulent strains of *X. oryzae* pv. oryzae was detected in resistant cultivars since the host population affects genetic diversity and population structure of pathogens (Gupta *et al.*, 2001).

Many sources of resistance to bacterial leaf blight has been identified in the rice growers in Asia, however, the glorification of rice for resistance to *X. oryzae* pv. *oryzae* is still in its early stages. Information on the existence of race pathogen population in an area can be used to select and cultivate resistant germplasm. Preliminary research indicates that rice planting areas (Banjarnegara, Purbalingga, and Purwokerto) heavily attacked by *X. oryzae* pv. *oryzae* up to 45% and up to now pathotype and unknown genotype (Djatmiko and Fatichin, 2007). Initial research results Djatmiko and Prakoso (2008) showed that the differences in genetic diversity of *X. oryzae* pv. *oryzae* from different altitude.

Based on the above, it is necessary to research on the development of bacterial leaf

blight in some regency.

The research objectives are: 1) characterizing *X. oryzae* pv. *oryzae* in some regency, 2) Study the development of bacterial leaf blight in some regency.

RESEARCH METHOD

A study was conducted in two phases: 1) Isolation and characterization of disease-causing bacterial leaf blight in rice, and 2) observation of disease intensity.

1. Isolation and characterization of disease-causing bacterial leaf blight of the area Barlingmascakeb

Isolation causes bacterial leaf blight by growing on SPA (Suparyono et al., 2004): Symptomatic leaf blight bacterial leaf surface sterilized with 70% alcohol, then rinsed with sterile water three times, dry and cut to the size of 5 mm x 5 mm, soaked in sterile water for 5 minutes in a test tube. Suspension was scrawled on SPA medium, 48-72 hour incubation, single colonies obtained yellow, then stored in a medium sloping YPGA given sterile paraffin to be stored at a temperature of 4oC and sterile water will always be used for subsequent propagation. Isolates were then characterized to ensure that the bacterial leaf blight pathogen is *X. oryzae* pv. *oryzae*.

2. Observation disease intensity

Observation intensity disease bacterial leaf blight caused by *X. oryzae* pv. *oryzae* in the field using the following formula:

$$IP = \frac{\Sigma (n \times v)}{N \times Z} \times 100\%$$

IP: the disease intensity

n: number of plants of each attack category

v: attacks category

N: number of plants observed

Z: the value of the highest category

According to Tjubarjat *et al.* (1999), category of *X.oryzae* pv. *oryzae* attack used are:

0: no attack

1: the scale of damage 1 - 5%

3: The scale of the damage from 6 to 12%

5: The scale of the damage from 13 to 25%

7: scale of the damage from 26 to 50%

9: The scale of the damage from 51 to 100%

RESULTS AND DISCUSSION

Isolates used originated from Banjarnegara, Purbalingga, Banyumas, Cilacap, and Kebumen. Entire sample and then grown on SPA medium (Peptone sucrose order). Bacterial leaf blight pathogen tested further by examining the biochemical properties shown in Table 1.

Table 1. Characterization of bacteria as bacterial leaf blight pathogen

Biochemical Testing	Testing Results
Growth in the SPA medium	yellow colony color
Gram Reaction	-
Catalase	+
Oxidase	-
Growth at 0.1% TZC	-
Hydrolysis of starch	+
Resistance to 0.001% Cu $(NO_3)_2$	+

Table 1 shows that the bacterial leaf blight pathogen is *X. oryzae* pv. *oryzae*. It is in according with the research Djatmiko and Fatichin (2008), based on biochemical testing bacterial leaf blight pathogen of growth on SPA medium, gram reaction, catalase test, oxidase, O / F, growth in 0.1% TZC, starch hydrolysis, and resistance of 0.001% Cu $(NO_3)_2$ shows that the bacterial leaf blight pathogen is *X. oryzae* pv. *oryzae*. According to Schaad *et al.* (2001), the bacterium *Xanthomonas* group has a negative oxidase properties. Genus *Xanthomonas* group of bacteria grown on SPA medium showed gram-negative properties (Moffett and Croft, 1983), has a single polar flagelum, and are pathogenic on plants (Schaad et al., 2001).

Catalase is an enzyme that has the ability mendekomposisi H_2O_2 into H_2O and O_2 (Sands, 1990). Further said, most bacteria have a positive catalase properties. Most of the bacteria *Xanthomonas* group has a positive catalase properties and do not form spores (Liu *et al.*, 2006), and produces a source of polysaccharides outcell as "xanthan gum 'on glucose-containing medium (Schaad *et al.*, 2001). Outcell polysaccharide is essential in the formation of bacterial exudate from infected leaves, protect from dryness, and help to spread through the rain and wind (Liu *et al.*, 2006).

Growth of bacterial leaf blight pathogen on SPA medium containing 0.1% TZC showed a negative reaction because of the growing colonies of orange rather than pink. Pink colony

color indicates that the bacteria is not *Xanthomanas oryzae*. According to Schaad *et al.* (2001), that growth Xanthomanas oryzae showed a negative reaction to 0.1% TZC.

Bacterial leaf blight bacteria in medium containing starch, after 2 days incubation lugol pooled solution (potassium iodide + iodine) showed a clear zone around the colony, which has the ability to hydrolyze starch. Pathovar *Xanthomonas oryzae* has the ability hydrolyze starch (Moffett and Croft, 1983; Rudolph *et al.*, 1990) or amylase activity (Fahy and Hayward, 1983).

One of the distinguishing between bacterial leaf blight or "kresek" disease caused by *Xanthomonas oryzae* pv. *oryzae* (Swings *et al.*, 1990; Ishiyama, 1992) and bacterial leaf streak caused by *Xanthomonas oryzae* pv. *oryzicola* is resistance to 0.001% Cu $(NO_3)_2$ (Liu *et al.*, 2006). Bacterial leaf blight pathogen grown on SPA medium containing 0.001% Cu $(NO_3)_2$ showed good growth with a colony of yellow and round. According to Liu *et al.* (2006), that *Xanthomonas oryzae* pv. *oryzae* has a positive response to 0.001% Cu $(NO_3)_2$ and negative tehadap *Xanthomonas oryzae* pv. *oryzicola*.

Disease intensity measurements of bacterial leaf blight conducted in 5 regency for 2 months (Table 2).

Table 2. The disease intensity of bacterial leaf blight in Kebumen, Cilacap, Banyumas, Purbalingga, and Banjarnegara regency

Regency	Disease intensity (%)							
	Week							
	1	2	3	4	5	6	7	8
Kebumen	25,76	32,18	32,64	34,18	36,16	38,84	43,30	44,62
Cilacap	0,00	0,00	9,26	9,26	9,26	9,63	13,33	24,44
Banyumas	1,85	3,7	7,78	8,15	31,11	31,85	33,33	37,04
Purbalingga	0	0	0	3,70	3,70	3,70	4,40	4,40
Banjarnegara	0,50	0,70	0,80	1,00	1,20	1,50	1,50	1,60

Table 2 shows that the highest disease intensity in Kebumen regency and lowest in Banjarnegara regency. This indicates that the r Kebumen regency, bacterial leaf blight has the potential to cause epidemics. In addition, bacterial leaf blight in Cilacap Regency and Banyumas also potentially epidemic because the disease showed increased growth significantly (Fig. 1).

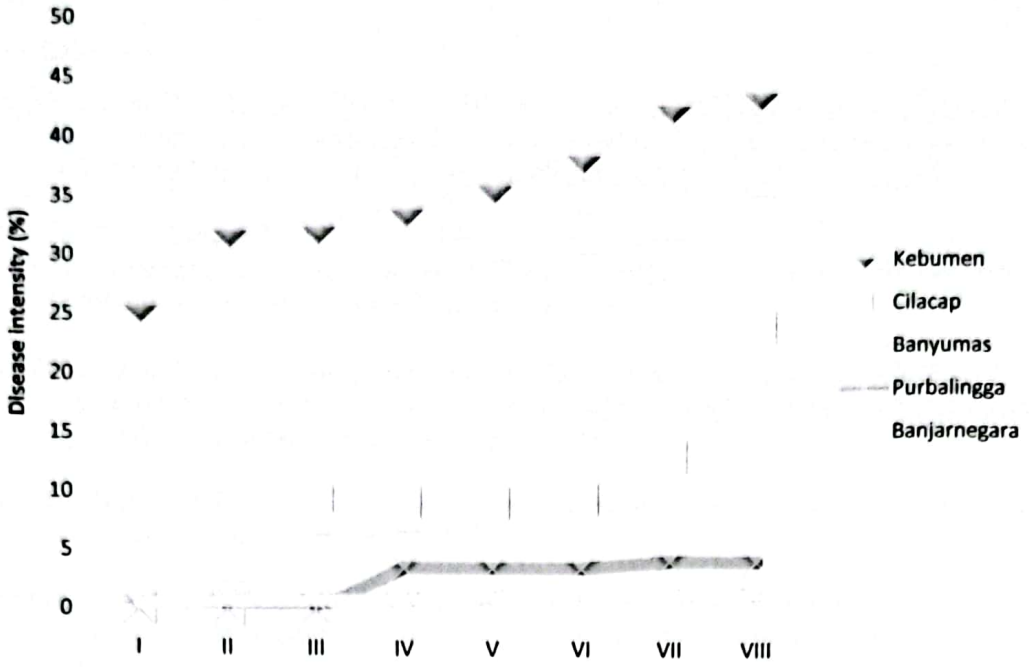

Figure 1. The development of bacterial leaf blight in Kebumen, Cilacap, Banyumas, Purbalingga, and Banjarnegara regency

The magnitude of disease intensity in the regency due to environmental kebumen rice planting area in according with the development of bacterial leaf blight, such as altitude, temperature around 24 to 27 oC. In addition, other factors also support the cultivated varieties (Ciherang), fertilization, have not been done to control bacterial leaf blight. Fertilizing have real impact on the severity of bacterial leaf blight (Sudir and Abdul Rachman, 2009). According to Reddy *et al*. (1979), factors that influence the development of bacterial leaf blight of high N fertilizer application. High N fertilization also affects the multiplication of pathogens and the development of spots.

CONCLUSION

1. The cause of bacterial leaf blight in the Barlingmascakeb region is *X. oryzae* pv. *oryzae*
2. Greatest damage to the rice caused by bacterial leaf blight in the kebumen regency and followed each Banyumas, Cilacap, Purbalingga, and Banjarnegara.
3. The development of bacterial leaf blight occurs exponential in week five to eight.

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CERTIFICATE

This is to certify that

Dr. Ir. Heru Adi Djatmiko, M.P.

has successfully participated in

International Seminar

"UPLAND FOR FOOD SECURITY"
Purwokerto (Indonesia), November 7-8, 2009

Conducted by:
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A S

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SHEDULE OF INTERNATIONAL SEMINAR

DAY I
Saturday, November 7, 2009

Location: Auditorium of Agricultural Faculty UNSOED

TIME (hrs)	AGENDA/TITLE	SPEAKER	CHAIRMAN
07.00–08.30	**Registration**		
08.30–09.30	**Opening Ceremony** 1. Chairman of Organizing Committee 2. Dean of Jenderal Soedirman University 3. Rector of Jenderal Soedirman University		**Woro Sri Suharti, S.P., M.P.**
09.30–10.00	***Morning Coffee Break***		
10.00-11.15	Government of Indonesia Policy on Food Security	Ministry of Agriculture of Indonesia	**M : Prof. Ir. Totok Agung D.H., M.S., Ph.D.** **N : Altri Mulyani, S.P., M.Sc.**
11.15–12.30	**Plenary Session I** Regenerative Energy from Biomass: A New Solution of A New Problems?	Dr. sc.agr. Phillip Grundmann (Humboldt Universität zu Berlin, Germany)	**M : Prof. Loekas S, M.Sc.** **N : Altri Mulyani, S.P., M.Sc.**
	Soybean Production and Improvement in the World	Prof. Shao-Hui Zheng (Saga University,Japan)	
12.30–13.30	**Lunch and Pray Break, and Poster Session**		
13.30–15.30	**Plenary Session II** Processing and Industrial Application of Cassava Starch	Prof. Willem F. Stevens (Mahidol University, Thailand)	**M : Dr. Budi Prakoso, M.Sc.** **N : Altri Mulyani, S.P., M.Sc.**
	Environment Stress Management for Sustaining Food Production System in Upland	Malem K. McLeod, Ph.D. (Agricultural Dept. of Australia)	
	Conserving Upland Soil: A Global Attempt of the World	Dr. Samran Sombatpanit (Mahidol University, Thailand)	
15.30–16.00	**Afternoon Coffee Break**		
16.00–17.00	Tabela	Ir. Kukuh Ambar Waluyo, M.P. (PT Bayer CropScience)	**M: Dr. Ahadyat Yugi, M.P.** **N : Altri Mulyani, S.P., M.Sc.**

SUB TOPIC: AGRONOMY AND CROP MANAGEMENT (A)
Location: Post Graduate Building UNSOED First Floor (R.1-Mawar)

TIME (hrs)	AGENDA/TITLE	SPEAKER	CODE	CHAIRMAN
10.00-12.15	Consistency of Laboratory and Field Test to Drought Resistance on Various Varieties on Upland Rice	Samanhudi	A-1	M: A. Nasrudin N: Ryan F.
	Effect of Probiotics and Types of Fertilizer on Vegetative Grwth of Non-climbing peper	Supartoto	A-2	
	Environmental Determinant for Yied of Cabbage in the Costal Sandy Land	Saparso	A-3	
	Nutrient Uptake Improvement of Soybean by Rock Phosphate Fertilization and Dual Inoculation of *Glomus manihotis* and *Bradyrhyzobium jaopnikum* in Acid Latosollic Soils	D. R. Lukiwati *et al*	A-4	
	Evaluate of Integrated Management of Cub Root on Cabbage Practice by the Builder Farmers in Karanganyar Central Java	Sholahuddin *et. al*	A-5	
	IAA, GA and Cytokinin Content in Leave of Durian Treated with Paclobutrazol and Ethepon	S. Rohadi and Sakhidin	A-6	
	Root System of Rainfed Maize Affected by Tillage and Maize Grass intercropping on Yield	A. Y. Rahayu	A-7	
	Organic Fertilizer Composition and Density of Optimum to Increase Grwth and Potatoes Products in Serang Plateau, Purbalingga	E.W. Tini and K. Wijaya	A-8	
	Young Fruit Thinning for High Yielding of Mango	Sakhidin	A-9	
	Photosynthesis Rate and Nutrient Uptake of Three Different Cocoa Leave Stage and Location	Kartini and A. Sarjito	A-10	
12.15-12.45	**Lunch Break and Poster Presentation**			
12.45-15.00	Cytokinin Application for Overcoming The Drought During Reproductive Stage of Soy Bean	T. Widiatmoko and T. Agustono	A-11	M: A. Yugi R N: Suprayogi.
	Study on Utilization of Industrial Liquid Waste of The Oil Refinary on Lagoon for Soybean Cultivation	K. Faozi and A. Iqbal	A-12	
	Responses of Three Strawberry Varieties to Variation of Acidity (pH) and Electrical Conductivity (EC) of Hydroponics Nutrient in Serang Village, Purbalingga Regency	E. Sumarni and D. Susanti	A-13	
	Bacterial Leaf Blight Progress in Several Regency	Heru Adi Djatmiko, Nur Prihatiningsih, Budi Prakoso.	A-14	
	Uses of Serai Stem Ash for Controlling the RiceWeevil *Sitophylus oryzae* L.	Herminanto	A-15	
	The effectiveness of Cigarette Waste Product to Control *Fusarium* sp of Papaya	M. Wachjadi *et. al.*	A-16	
	Can Upland Rice Survive Under Limited Watered to Improvement Production During late Rainy Season in Raifed Area?	A. Y. Rahayu and Tri Harjoso	A-17	
	Population Fluctuation of Aphids and Their Predators on Potato in South Sulawesi	A. Nasrudin *et. al.*	A-18	
	Trichoderma sp. AND MYCORRHIZA SINERGISM TO Fusarium WILT DISEASE AND GROWTH OF GINGER	Darini Sri Utami and Eny Rokhminarsi	A-19	

		Agustono		N: Suprayogi.
	Study on Utilization of Industrial Liquid Waste of The Oil Refinary on Lagoon for Soybean Cultivation	K. Faozi and A. Iqbal	A-12	
	Responses of Three Strawberry Varieties to Variation of Acidity (pH) and Electrical Conductivity (EC) of Hydroponics Nutrient in Serang Village, Purbalingga Regency	E. Sumarni and D. Susanti	A-13	
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	Can Upland Rice Survive Under Limited Watered to Improvement Production During late Rainy Season in Raifed Area?	A. Y. Rahayu and Tri Harjoso	A-17	
	Population Fluctuation of Aphids and Their Predators on Potato in South Sulawesi	A. Nasrudin *et. al.*	A-18	

SUB TOPIC: CROP IMPROVEMENT AND BIOTECHNOLOGY (B)
Location: Post Graduate Building UNSOED Second Floor (R.2-Bougenville)

TIME (hrs)	AGENDA/TITLE	SPEAKER	CODE	CHAIRMAN
10.00-12.15	Towards Food Security: Detecting Genome Instability in Tissue-Culture-Regenarated Plants	Yuniaty, *et. al.*	B-1	M: F. Hemon
	Chlorogenic acid Content in Several Sweet Potatoes Cultivar	W. S. Suharti *et. al.*	B-2	N: Y. Wiwit
	Detection of *Pi-ta* Gene in Nine Lines of Aromatic Rice	B. Prakoso and T. Agung D.H.	B-3	
	Genetic Study of Resistence to Cucumber Mosaic Virus in Chilli Pepper	Noor Farid *et. al.*	B-4	
	Graphic Analysis AMMI-Biplot Genotype, Environment, and Their Interaction of Fe Rice Content	Suwarto *et. al.*	B-5	
	Virulence and Genetic Diversity of Fusarium oxysporum f. sp.cepae of GarlicIsolated originated from Tawangmangu, Karanganyar, Central Java	Z. D. Fatawi *et. al.*	B-6	
	Characterization and Evaluation on Fusarium Resistency of Banana/plantain Germ plasms in Banyumas Region due to Support Food Security Through Upland	D. Susanti	B-7	
12.15-12.45	**Lunch Break and Poster Presentation**			
12.45-15.00	Evaluation of Peanut Somaclones Generated From Double *In Vitro* Selection on Polyethylene Glycol (PEG) and *Sclerotium rolfsii* Culture Filtrate Selective Medium Against Drougt Stress and *S. rolfsii* Infection.	F. Hemon	B-8	M: Yuniaty
	Genetics Relationship of Seven Soybean Lines based on RAPD	B. Prakoso and Sunarto	B-9	N: S. Wirawan
	Response of Aromatic Upland Rice Genotypes to	S.	B-10	

	Low Intensity Sunlight	Nurchasanah and A. Riyanto		
	Inheritance Pattern of Resistence Character to Purple Blotch in Shallot	N. Farid and A. Sarjito	B-11	
	Response of Seven Large Seed and Shorten Age Expected Soybean Lines Derived From Lokon x Sindoro Hybridization to Rhizobium Innoculation	P. Hidayat	B-12	
	Response of G 136 Aromatic Upland Rice Line Based on Their Yield to Organic Farming Technique in Purbalingga Region	A. Riyanto *et. al.*	B-13	
	The Development of Black Rice as Special Commodity from Banyumas Regency (Characteristic and genotype purification of black rice)	Wiyantono and Mujiono	B-14	

SUB TOPIC: ECONOMIC AND SOCIAL DEVELOPMENT (C)
Location: Post Graduate Building UNSOED Second Floor (R.3-Cempaka)

TIME (hrs)	AGENDA/TITLE	SPEAKER	CODE	CHAIRMAN
10.00-12.15	Study of Social Capital in Farmers Group and Its Contribution to Improve Economic Performance of Dairy Agribusiness in Upland Area of Banyumas Regency	Sugiarto and Purwaningsih	C-1	M: Istiqomah N: Y. Hardiyanto
	Upland Resource in West Java Province and Its Potentiality for Food Security Towards Double Population Condition	A. Suriadikusumah	C-2	
	Sustainability and Its Dilemma	T.L. Prihatinah	C-3	
	The Potency of Secondary Crops in Regional Development of Banyumas Regency	A. Mulyani and A. N. Mandamdari	C-4	
	Development of Forest Resource Conservation Behaviour in Upland: Some Implications for Improving Food Security Policy	S. Rosyadi	C-5	
	Land Productivity And Cost Production Of Food Crops Farm As Land And Labor Institutions in Gunung Kidul	Suwarto	C-6	
	Profile of Developmental Potential Orange Farming at Sub-Distric Bukateja Purbalingga Regency	T. Widjojoko	C-7	
	The Role of Marketing in Increasing Potato Production in Upland for Sustaining National Food Security	Suyono	C-8	
	Increasing of Farmer's Production and Income *Paddy Farm in River Basin Pemali-Comal Improving Cropping System*	A. Hartati	C-9	
	Structure and Market Performance Analysis for Big Red Chili (*Capsicum annum* L.) for Serang Village Purbalingga Regency Using Structure Conduct Performance	P. Arsil, K. Wijaya, and E. Sumarni	C-10	
	Food Security Looked Out From Household Expenses For Food	A. Rosyad	C-11	

	Productivity and Income of Rice Farming Based on Variety and Ecosystem in Banyumas Regency	Kusmantoro, E.S., Daryanto, and Ismangil	C-12	
12.15-12.45	**Lunch Break and Poster Presentation**			
12.45-15.00	The Paradox of Cost Effectiveness and Milk Supply in Indonesia	Istiqomah	C-13	M: A. Suriadikusumah N: L. Cahyani
	Urban Agricultural Development Properties in Supporting Food Security.	I. K. E. Wijayanti	C-14	
	Agribusiness Approach in Developing Upland Farming	A. Purwaningsih and Sundari	C-15	
	Vertical Coordination between Wholesalers and Livestock Feed and Its Relation with Farmer's Sustainability in Cultivating of Corn The Upland in East Java	Y. Deliana	C-16	
	Study of Land Conservation on Surrounding Forest Through PHBM Program in KPH East Purwokerto	S. Widarni	C-17	
	Pattern Development of Commodity Corn Hybrid in The District Purbalingga	B. Sumanto and A. Rosyad	C-18	
	Design of Dynamic System to Measure Performance in Sugarcane Industry as a Part of Agricultural Development System	B. Dharmawan	C-19	
	Indicators and Strategy to Increase Food Security Condition in the Village Area	S. Raharto, Sofia and Y. Hariyati	C-20	
	Income Contribution of Upland Farm Operation to Family Income	P. Hastuti and E. Sriningsih	C-21	
	Profile Food Power of Women Farmers in Jatilawang Banyumas	R. Widarawati, and E. Mela	C-22	
	Ensuring Food Security A Case for ASEAN Integration	Agus suroso	C-23	
	Some Factors Influencing The Iodine Deficiency Disorder On Productive Womern In Baturaden, Banyumas Regency	Endo Darjito and Setiyowati Rahardjo	C-24	
	Ensuring Food Security : A Case for ASEAN Integration	A. Suroso	C-25	
	Effect of Different Levels of *Caliandra calotyrus* Leaves for Coconut Oil Meal and Soybean Waste on Economic Performance of Lactating Goats	Y. Subagyo	C-26	

SUB TOPIC: FOOD PROCESSING AND NUTRITION (D)
Location: Magister Management Building UNSOED First Floor (R.4-Rubi)

TIME (hrs)	AGENDA/TITLE	SPEAKER	CODE	CHAIRMAN
10.00-12.15	Textural Properties of Flour of Severals Commercial Dioscorea Species	U. Purwandari	D-1	M: R. Naufalin N: A.M. Sifudin
	A study on The Application of Edible Coating on The Quality of Potato Chips.	Wibowo *et. al.*	D-2	
	Functional Characteristics of Spent Duck Meat for Use in Emulsion-type Meat Product	J. Sumarmono	D-3	
	The Cellular Antioxidant of Type-2 Diabetes Mellitus Patient Accompanied With Obesity	H. Winarsi and Agus Purwanto	D-4	
	Improving Lipid Profil of Type-2 Diabetes Mellitus Using by Soy Protein	H. Winarsi *et. al.*	D-5	
	The Stability of Tomato Ketchup During Storage Added with Hydroxypropylcellulose as A Thickener Prepared From Oil Palm Empty Fruit Bunches	P. Haryanti and C. Wibowo	D-6	
	Study of Storage Duration for Three Cereals to Population Development of *Sitopphilus oryzae* L. and Its Damage	Y.H. Pratama and Tarjoko	D-7	
	Production Instant Noodle From Cassava Enrichment With Wheat Pollard Protein for Food Security	R. Naufalin and H. S. Rukmini	D-8	
12.15-12.45	**Lunch Break and Poster Presentation**			
12.45-15.00	Study in making of Functional Bread Using Yam (*Dioscoreae* spp.) Flour	G. Suprianto, *et. al.*	D-9	M: U. Purwandari N: U. Budi
	A Mathematical Model for Predicting Unit Surface Conductance on Hot Sand Frying	Siswantoro and B. Raharjo	D-10	
	Development of Green House Effect (GHE) Solar Drier Using Solar Concentrator For Drying Upland Agricultural Product	Ropiudin, *et. al.*	D-11	
	Antioxidant Activity From Kecombrang (Nicolaia speciosa, Horan)	R. Naufalin and H. S. Rukmini	D-12	
	Variation of Processing Method on Antibacterial Activity of Virgin Coconut Oil	R. Setyawati *et. al.*	D-13	
	The Effect of Ratio CMC : Maltodekstrin as Stabilizer as well as Pineapple Substitution to *Quality of Velva Papaya*	Nur'aini and B. Sustriawan	D-14	
	Influence of Natural Coagulant from Pineapple on Organoleptic Characteristic of Tofu from Slamet Variety Soybean	B. Sustriawan and Mustaufik	D-15	
	Evaluation of food safety and quality deviation of crystal coconut sugar in coconut sugar home industry area of purbalingga regency	Mustaufik And P. Haryanti	D-16	

SUB TOPIC: AGRICULTURE MANAGEMENT (F)
Location: Magister Management Building UNSOED Second Floor (R.6-Sapphire)

TIME (hrs)	AGENDA/TITLE	SPEAKER	CODE	CHAIRMAN
10.00-12.15	The Use of Parasitic Fungi to Control Golden Cyst Nematode on Potato	E. Mugiastuti *et al*	F-1	M: M. Hoesain N: S. W. Utami
	Characterization of Volcanous Degradation Upland Caused by Stone and Sand Mining and It's Reclamation Scenario for Biomass Production	R. E. K. Kurniawan and P. Widyasunu	F-2	
	Crop-Livestock Production System in Upland of Central Java for Food Security	A. Sodik	F-3	
	Rethinking of Risk Transfer Management Approach to Support The Savety Food in Indonesia	A. Wardhono and M. Rondhi	F-4	
	The Study of Technology of CCBN-RO for The Processing of Peat Water Became The Domestic Drinking Water	M. Naswir and H. Aima	F-5	
	Potention of Streptomyces spp. S4 and Bacillus sp. B46 as a Protection from Lincat Disease	Nur Prihatiningsih, Heru Adi Djatmiko, Herminanto	F-6	
12.15-12.45	**Lunch Break and Poster Presentation**			
12.45-15.00	The Structure and Composition of Weed Communities in Tea Plantation	M. Hoesain	F-7	M: A. Wardhono N: Neneng Astri A.R.
	Use of Natural Enemies and Botanical Pesticides for Controling the Yellow Cyst Nematode *Globodera rostochiensis* on Potato	A. Manan	F-8	
	Output Input Energy Ratio Analysis for Soybean on Upland Planting	W. Trisasiwi and E. Sumarni	F-9	
	Vegetables Land Used Optimally During Dry Season Period in 2010 Using Linear Programming in Serang Village, Purbalingga Regency	K. Wijaya and P. Arsil	F-10	
	Thermal and Economic Modeling of Green House Effect (GHE) Solar Drier Rotary Type for Drying Upland Agricultural Product	Ropiudin and B. Dharmawan	F-11	

INTERNATIONAL SEMINAR; UPLAND DOR FOOD SECURITY
POST GARDUATE BULDING, Sunday 8th November 2009

TIME	AGENDA/TITTLE	SPEAKER	CHAIRMAN	ROOM
	SUB TOPIC CROPPING SYSTEM AND LAND CONSERVATION			
12.45-13.05	No-tilled Aplication and Corn Density Effects on The Growth of Weed and Crop Yield in The Corn-Soybean Intercroping	T. Agustono and T. Widiatmoko	**M: V. R. Cahyani N: Rohandy Yusup**	R5-Topaz PG-MM Lt-II
13.05-13.25	Amelioration of Ultisol Kentrong by Applying Arbuscular Mycorhiza, Dolomit, and Rice Straw for Improving Corn Growth	V. R. Cahyani		
13.25-13.45	Suitable Hydroponics Medium for Three Strawberry Varieties in Serang Village, Purbalingga Rregency	Bondansari and D. Susanti		
13.45-14.05	Spatio-temporal Variability of Soil Physical Properties in Different Potato Crop Ridge Design in Accordance to Soil Erosion and Crop Production.	K. Wijaya *et. al.*		
14.05-14.25	Study of Land Conservation on Surrounding Forest Through PHBM Program in KPH East Purwokerto	S. Widarni		
15.00-15.15	Kesimpulan Seminar			
	SUB TOPIC AGRICULTURE MANAGEMENT			
10.00-10.20	Improvement of water Quality on Cikapundung Stream Due to Converting into Local Dairy Farms	H. K. Surtikanti	M: A. Wardhono N : Sari Wijaya Utami	R6-Saphire PG-MM Lt-II
10.20-10.40	Characterization of Volcanous Degradative Upland Caused by Stone and Sand Mining and It's Reclamation Scenario for Biomass Production	R. E.K. Kurniawan and P. Widyasunu		
10.40-11.00	Crop-Livstock Production System in Upland of Central Java for Food Security	A. Sodik		
11.00-11.25	Rethinking of risk tranfer management approach to support the savety food in indonesia	A. Wardhono and M. Rondhi		
11.25-11.50	The Study of Technology of CCBN-RO for The Procesing of Peat Water Became The Domestic Drinking Water	M. Naswir and H. Aima		
11.50-12.15	Potention of Streptomyces spp. S4 and Bacillus sp. B46 as a Protection from Lincat Disease	Nur Prihatiningsih , Heru Adi Djatmko, Herminanto		
12.15-12.45	LUNCH BREAK, POSTER PRESENTATION			

Dr. Ir. Ustanji, MS

INTERNATIONAL SEMINAR; UPLAND FOR FOOD SECURITY
POST GARDUATE BULDING, Sunday, 8th November 2009

TIME	AGENDA/TITTLE	SPEAKER	CHAIRMAN	ROOM
SUB TOPIC AGRONOMY AND CROP MANAGEMENT				
12.45-13.05	Cytokinin Application for Overcoming The Drought During Reproductive Stage of Soy Bean	T. Widiatmoko and T. Agustono	**M: A. Nasrudin** **N : Suprayogi**	R1-Mawar PG-Lt-I
13.05-13.25	Study on Utilization of Industrial Liquid Waste of The Oil Refinary on Lagoon for Soybean Cultivation	K. Faozi and A. Iqbal		
13.25-13.45	Responses of Three Strawberry Varieties to Variation of Acidity (pH) and Electrical Conductivity (EC) of Hydroponics Nutrient in Serang Village, Purbalingga Regency	E. Sumarni and D. Susanti		
13.45-14.05	Bacterial Leaf Blight Progress in Several Regency	Heru Adi Djatmiko, Nur Prihatiningsih, and Budi Prakoso		
14.05-14.25	Uses of Serai Stem Ash for Controlling the RiceWeevil *Sitophylus oryzae* L.	Herminanto		
14.25-14.45	The effectiveness of Cigarette Waste Product to Control *Fusarium* sp of Papaya	M. Wachjadi, Ruth Feti R, and W. S. Suharti		
14.45-15.00	Population Fluctuation of Aphids and Their Predators on Potato in South Sulawesi	A. Nasrudin, I. D. Daud, and M. Junaedi		
15.00-15.15	Kesimpulan Seminar			
SUB TOPIC CROP IMPROVEMENT AND BIOTECHNOLOGY				
10.00-10.15	Towards Food Security: Detecting Genome Instability in Tissue-Culture-Regenarated Plants	Yuniaty, *et. al.*	**M: Yuniaty** **N: Yuni Wiwit**	R2-Bougenvil PG LT-II
10.15-10.30	Chlorogenic acid Content in Several Sweet Potatoes Cultivar	W. S. Suharti and D. Susanti		
10.30-10.45	Detection of *Pi-ta* Gene in Nine Lines of Aromatic Rice	B. Prakoso and T. Agung D.H.		
10.45-11.00	Can Upland Rice Survive Under Limited Watered to Improvement Production During late Rainy Season in Raifed Area?	A. Y. Rahayu and Tri Harjoso		
11.15-11.30	IAA, GA, Cytokinin and ABA Content in Durian Leaves Treated with Paclobutrazol and Etepon	S. Rohadi		
11.30-11.45	Response of Aromatic Rice G 136 Line to Organic Cultivation in Purbalingga Region	A. Riyanto, D. Susanti, and T. Agung, D.H		
11.45-12.00	Characterization and Evaluation on Fusarium Resistency of Banana/plantain Germ plasms in Banyumas Region due to Support Food Security Through Upland	D. Susanti		
12.15-12.45	LUNCH BREAK, POSTER PRESENTATION			

Dr. Ir. Wirianggi, MS

COMMITTEE OF INTERNATIONAL SEMINAR
"UPLAND FOR FOOD SECURITY"
FACULTY OF AGRICULTURE – JENDERAL SOEDIRMAN UNIVERSITY

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Perihal : Pemberitahuan & Undangan
Lamp : -

4 Nopember 2009

Kepada

Yth. Dr.Ir. Heru Adi Djatmiko, MP
Fakultas Pertanian Unsoed
Di Purwokerto

Dengan Hormat,

Bersama ini, kami beritahukan bahwa artikel yang Bapak/Ibu/Saudara kirimkan dinyatakan ***Lolos Seleksi*** sebagai Pemakalah pada Seminar Internasional ***"Upland for Food Security"***. Adapun pelaksanaan pemaparan makalah akan dilaksanakan pada:

Hari/tanggal : Sabtu – Minggu / 7 – 8 Nopember 2009

Waktu : 08.00 Wlb - selesai

Tempat : Kampus Fakultas Pertanian Unsoed Purwokerto

Demi kelancaran jalannya pemaparan makalah, kami mohon dengan hormat Bp/Ibu/Sdr untuk membawa :

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3. Hard copy makalah lengkap untuk legalisasi (jika diperlukan)

Kelengkapan tersebut diatas dikumpulkan pada saat registrasi ulang.

Demikian pemberitahuan ini kami sampaikan. Atas perhatian dan kerjasamanya kami ucapkan terima kasih.

Ketua Panitia
Seminar Internasional

Prof. Ir. Loekas Soesanto,MS.,Ph.D
NIP. 19600626 198503 1 004

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PROCEEDING

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Upland for Food Security

November 7 - 8, 2009
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PREFACE

Nowadays, the increasing human population resulted in more demand on foods, fibers, energy, and settlements. Many fertile arable soils with easy access have been converted into settlement and industrial areas causing decreasing food production. Therefore, sustainable food production systems in marginal upland areas are one of the greatest challenges.

This proceeding explored idea related to promising agricultural technologies and social economics, and also many recent finding for food production and processing to achieve sustainable upland agricultural systems for food security. To find better solution for those matters in upland for food security then we are dividing topic into six sub topics, they are: Agronomy & Crop Management, Crop improvement & Biotechnology, Economic & Social Development, Food Processing & Nutrition, Cropping Systems & Land Conservation, and Agricultural Management.

We are grateful because our colleague from domestic and abroad could give contribution to share knowledge and experiences through this proceeding. Therefore, from my deepest heart I would like to thank you to: Director General of The Agency for Food Security, Ministry of Agricultureof Indonesia; Prof. Shao-HuiZheng (Saga University, Japan); Prof. David B. Hannaway (Oregon State University, USA); Prof. Willem F. Stevens (Mahidol University, Thailand); Dr. SamranSombatpanit (Mahidol University, Thailand); Malem K. McLeod, Ph.D. (Agricultural Dept., Australia); Dr. sc. agr. Philipp Grundmann (Humboldt Universitätzu Berlin, Germany); and Prof. Ir. TotokAgungDwiHaryanto, M.S., Ph.D. (Unsoed, Indonesia) that together finding alternative solutions in sustainable upland agricultural systems for food security.

Nevertheless, I would like thank all the institutions and individuals who have given favor and support so this proceeding could be published. I would like to apologize for being late in publishing the proceeding because we were facing impediments with foreign reviewers and some contributors but fortunately the storm had been left behind. We look forward for comments and feedback from readers for the sustainability of our next events. Thank you.

Purwokerto, June 2010

Chief Editor

Prof. Ir. Loekas Soesanto, MS., Ph.D

LIST OF PAPERS