



CRC PLANT biosecurity



UNMAS DENPASAR

IN PARTNERSHIP WITH



This is to certify that

**DR. IR. I KETUT SUMANTRA, M.P**

*as*

**PRESENTER**

**On The Secure Food Futures Summit  
Bali, May 21-22, 2015**



Rector of Mahasaraswati Denpasar University

Dr. Drs. I Made Sukamerta, M.Pd

Denpasar, 21 May 2015  
CRC Plant Biosecurity  
Deputy Chairman

Prof. John Lovett



# PROCEEDING

## SECURE FOOD FUTURES SUMMIT

### BIOSECURITY FOR FOOD SECURITY



CRC PLANT biosecurity



in partnership with :



**Bali, May 21<sup>st</sup> - 22<sup>nd</sup>, 2015**

# **PROCEEDING**

**INTERNATIONAL BILATERAL BIOSECURITY SUMMIT**

**“SECURE FOOD FUTURES”**

**21<sup>st</sup> – 22<sup>nd</sup> May 2015**

**Bali, Indonesia**

Edited by:

**Prof. Ian Falk**

**Prof. Dr. Sang Putu Kaler Surata, MS**

**Dr. Ir. Nyoman Utari Vipriyanit, M.Si**

**Dr. Ir. Ni Gst Ag. G. Eka Martiningsih, M.Si**

**Dr.Theo Litay**

**Dr. I Wayan Mudita**

**Universitas Mahasaraswati Press**

**PROCEEDING OF  
International Bilateral Biosecurity Summit**

**ISBN 978-602-18622-9-2**

Published by

Universitas Maharasaswati Press  
Jalan Kamboja No. 11 A, Denpasar, Bali.  
INDONESIA  
May 2015

Copyright © 2015  
by Universitas Maharasaswati Press  
Jalan Kamboja No. 11 A, Denpasar, Bali  
INDONESIA  
Phone/Fax +62361227019  
Website : <http://www.unmas.ac.id/>  
Email : [info@unmas.ac.id](mailto:info@unmas.ac.id)

## PREFACE

Indonesia in 2015- 2020 faces many and complex development challenges particularly in relation to poverty and food security. National targets in Indonesia are to increase food supplies and food sovereignty over the four year period to 2019. There are two core sets of strategies to achieve these goals, and a third for securing sustainable food futures such as **INCREASE YIELDS: Increasing** crop yields through better technology, water, seeds and fertilizer; **REDUCE LOSSES: Reducing** existing crop losses through better pest and disease management, storage conditions and supply chain quality. Biodiversity is a key to stability in ecosystems (natural and managed). Traditional food production systems, for example, are diverse – and stable. Breakdown of ecosystems due to biosecurity incursions introduces instability and incurs losses, social, economic and environmental; **IMPLEMENT TOGETHER INCREASES OUTCOMES:** With the current bilateral opportunity for Indonesia and Australia working in collaboration for the period to 2019, considerable additional benefits to secure food futures will be achieved if strategies for both increased yields and reduced loss strategies can work together. For example, in selecting new technologies to support to increase yields in the short term, consideration should also be given to the technology’s impact on pest and disease cycles and biodiversity issues.

Strategies for **increasing** food supplies are usually seen as adding more and better fertilizer, better and more resilient seeds, enhanced and more appropriate technologies and more and more reliable water supplies. Increasing productivity of crops is often seen as the key to improving food security but, increasingly, it is recognized that reducing crop loss both on farm and ‘beyond the farm gate’ are of at least equal importance.

The “*Secure Food Futures*” Summit will focus on how secure food futures can be achieved more effectively through a dual approach – (1) increasing yields and (2) reducing loss. Equally important is (3) how **INCREASE YIELDS** and **REDUCE LOSSES STRATEGIES** should work together to compound the benefits of each strategy.

We would like to take this opportunity to express our sincere appreciation to the members of Technical Advisory Committee who helped review the papers and maintained high standards for the international conference proceedings.

May 2015

# SECURE FOOD FUTURES

INTERNATIONAL BILATERAL BIOSECURITY SUMMIT, BALI, 21<sup>st</sup> -22<sup>nd</sup> MAY 2015

Hosted by Plant Biosecurity Cooperative Research Centre (PBCRC), Australia  
and

Universitas Mahasaraswati, Denpasar, Bali.

In partnership with

Kopertis Wilayah VIII Denpasar, Universitas Kristen Satya Wacana, Salatiga, Java.

Universitas Nusa Cendana, Kupang, East Nusa Tenggara

Universitas Sam Ratulangi & Pacific Institute, Manado, North Sulawesi

## Organizing Committee

Dr. Drs. I Made Sukamerta, M.Pd  
Prof. Dr. Ir. Gst. Ngr. Alit Wiswasta, MP  
Drs. I wayan Suandhi, M.Pd  
Ir. I Made Sastra Wibawa, M.Erg  
Dr. Ir. Ketut Arnawa, MP  
Dr. Ir. Ketut Widnyana, M.Si  
Dr. Ir. Ni Gst Ag. G. Eka Martiningsih, M.Si  
Ni Wayan Eka Mitariani, SE., MM  
Made Pratiwi Puji Lestari, SE., Ak  
Dr. Ir. I Ketut Sumantra, MP  
Agus Wahyudi Salasa Gama, SE., MM  
I Gede Putu Agus Pramerta, S.Pd., M.Pd  
Dr. Anik Yuesti, SE., MM  
I Nyoman Adi Susrawan, S.Pd., M.Pd  
Wayan Karunia Warmadani  
Gusti Ayu Putu Sri Utami, SE  
Dr. Ir. Nyoman Utari Vipriyanit, M.Si

Prof. Dr. Sang Putu Kaler Surata, MS  
Nengah Dwi Handayani, S.Pd., M.Pd  
Ir. I Made tamba, MP  
Drs. I Nengah Astawa, M.Hum  
Ida Bagus Ari Arjaya, S.Pd., M.Pd  
Ni Putu Dewi Surya Astari, ST  
Made Emy Andayani Citra, SH., MH  
Ni Nyoman Suryani, SE., M.Si  
Anak Agung Putri Maharani, S.Pd., M.Pd  
Ir. Ni Komang Suarti  
Putu Diah Rahmawati, SE  
Ni Nyoman Ayu Suastini, SE  
Ida Bagus Suryatmaja, ST., MT  
Dewa Gede Agung Gana Kumara, S.Pd., M.Pd  
Ir. Bagus Putu Udiyana, MP  
I Gusti Ary Suryawathy, SE., M.Buss  
I Gusti Ayu Panca Dewi, SE

KEYNOTE SPAKER

Prof. Jhon Lovett

*Foundation Chairman of Plant Biosecurity CRC*

Dr Laura Timmins

*Counsellor (Agriculture) in Jakarta*

Dr. Lum Keng Yeang

*Chief Scientist at CAB International (CABI) Southeast Asia*

## Table of Content

ROLES OF TRADITIONAL IRRIGATION SYSTEM IN SUPPORTING RICE PRODUCTION IN BALI: Lessons Learned from Bali Province, Indonesia	
Gede Sedana.....	1-6
STRENGTHENING LOCAL SECURE FOOD THROUGH REVITALIZATION OF RULES (AWIG-AWIG) OF SUBAK AND AGRIBUSINESS BEHAVIOR	
Cening Kardi and Ni Luh Pastini.....	7-13
THE ACCELERATION OF IMPLEMENTATION OF AGROINDUSTRY REGION BASED ON ENVIRONMENTAL MANAGEMENT SYSTEM IN INDONESIA	
Made Wahyu Adhiputra.....	14-21
ENHANCING STUDENTS' UNDERSTANDING OF RICE PADDY CULTURAL LANDSCAPE BY USING PARTICIPATORY PHOTOGRAPHY	
Dewa Ayu Puspawati and Sang Putu Kaler Surata .....	22-28
THE EFFECT OF VARIOUS DOSES OF BIOCHAR AND COMBINATION WITH DOSES ORGANIC MATTER ON SOIL PROPERTIES AND MAIZE PLANTS GROWTH ON THE SOIL RAINFED	
I Putu Sujana and I Ketut Sumantra.....	29-30
PRESERVING LOCAL FRUIT THROUGH PLANT SELECTION OF SALAK GULAPASIR IN BALI	
<i>Ni Gst.Ag.Gde Eka Martiningsih and I Ketut Sumantra.....</i>	37-42
MARKET WASTE UTILIZATION MODEL FOR OPTIMIZATION OF RICE PRODUCTIVITY IN RAINFED TO INCREASE FOOD SECURITY AND OVERCOME THE NATIONAL WASTE PROBLEM	
I Ketut Widnyana.....	43-49
CUSTOMARY LAW IN BALI FOR CONTROLLING THE CONVERSION OF PADDY FIELDS REGARDING FOOD SECURITY IN BALI	
I Wayan Gde Wiryawan and Made Hendra Wijaya.....	50-60
GOVERNMENT POLICIES IN PROTECT THE PRODUCTIVE AGRICULTURAL LAND IN CONNECTION WITH FOOD SECURITY	
I Ketut Lanang Putra Prabawa, Made Emy Andayani Citra, and I Wayan Wahyu Wira Udytama...61-67	
THE INTEGRATED FARMING SYSTEMS PROGRAM FOR DEVELOPMENT AND IMPROVEMENT OF FOOD PRODUCTION IN BALI	
I Ketut Arnawa.....	68-75



LOCAL INSTITUTION'S ENGAGEMENT THROUGH DIVERSIFICATION OF PRODUCT

Wayan Arya Paramarta<sup>1)</sup>, Ni Putu Sriastuti, and Ida Bagus Swaputra .....76-80

POTENTIAL OF SIMPLE CARBOHYDRATES TABAH BAMBOO SHOOTS FLOUR (*Gigantochloa nigrociliata* BUSE-KURZ) AS PREBIOTIK

Dylla Hanggaeni Dyah Puspaningrum and Cornelius Sri Murdo Yuwono .....81-90

TECHNOLOGY AND EXTENSION IN ACHIEVING FOOD SECURITY IN INDONESIA

*I Wayan Alit Artha Wiguna and Tatik Ingriati* .....91-97

THE FEASIBILITY STUDY OF STRAWBERRY CULTIVATION AS A SUPPORTING FACTOR FOR FOOD ENDURANCE AND SUSTAINABLE AGRICULTURE AT BALI PROVINCE

Anak Agung Putu Agung, I Made Sukerta, Putu Kepramareni, and I Nengah Sudja.....98-108

DEVELOPMENT OF AGROTOURISM-EDUCATION BASED ON DIVERSITY OF SALAK IN THE SIBETAN VILLAGE AS GERMPLASM CONSERVATION EFFORTS

*I Ketut Sumantra, Anik Yuesti, dan Putu Sujana* .....109-116

# DEVELOPMENT OF AGROTOURISM-EDUCATION BASED ON DIVERSITY OF SALAK IN THE SIBETAN VILLAGE AS GERMPLASM CONSERVATION EFFORTS

I Ketut Sumantra<sup>1)</sup>, Anik Yuesti<sup>2)</sup>, dan Putu Sujana<sup>1)</sup>

Agriculture Faculty Unmas Denpasar<sup>1)</sup>  
e-mail: [ketut.sumantra61@gmail.com](mailto:ketut.sumantra61@gmail.com)  
Economic Faculty Unmas Denpasar<sup>2)</sup>

## Abstract

Sibetan village, Karangasem is a centers of Salacca (*Salak*) plant in Bali and is considered the origin of *salak* plant. In this area was found 15 cultivar, but until now has not been developed optimally, on the other hands the visitor in agro-tourism *salak* is very low at 0.008% of the total of 462 233 tourists visiting Karangasem regency. Factors that contribute to the low tourist arrivals to the *salak* agro-tourism were: 1). In addition to the seasonal nature of fruit, quality fruit not meet the standards. 2) There are no collection and a demonstration gardens that can be used as a field laboratory to empowered them in a way characterized of properties agronomic and evaluated the biotic and abiotic stress resistance. 3) The agro tourism object not managed properly, the operational activities of the tour, and lower human resources. 4) The object of Agro-tourism *Salak* Sibeten no yet marketed optimally, in addition to cooperation among tourism stakeholders still low. The solution offered is the physical revitalization and infrastructure of agro-tourism of *salak* based on educational of *salak* diversity. In this paper were review the matters relating to the design and planning tours based on education and diversity of *salak* cultivar conservation efforts, empowerment, and utilization of germplasm of plant species existing *salak*.

Keyword: Agro-tourism-Education, Diversity, Salak Germplasm, Conservation

## I. INTRODUCTION

Tourism has become one of the industries that have a major impact on the growth of the economy of Bali. From GDP Bali amounting to 73478.16 billion dollars, the contribution of trade, hotels and restaurants amounted to 30.62% (Bali in Figures, 2011). However economic benefits derived from the tourism sector is still often accompanied by environmental destruction, land conversion, social and cultural exploitation and criminality (Diparda Prop.Bali 2009; Dharma Putra, 2010). The gap between the agriculture and tourism industry in Bali is also backed by unequal distribution of agricultural products for the benefit of tourism (Astiti, 2011), so that the Bali community are reluctant to develop the agricultural sector. Therefore, Bali is a small island that has natural beauty and unique customs, culture and religion often have to be faced with the difficult choice between developing agriculture and tourism at the expense of the environment or the reverse.

Addressing this phenomenon required a wise choice by developing synergy between agricultural with tourism by establishing a tourism package such as agro-tourism Salak Sibatana. The potential of agro salak in this village was the very wide garden reaching 81.12% of the area of the Sibatana village ( Monograpi Sibatana 2010). Genetic diversity of Bali salak reached 15 types and is not owned by other regions (Darmadi et al., 2002), however preservation efforts, empowerment, and utilization of germplasm of plant species of salak there has not been much done (Sumantra et al, 2013; Sumantra et al. 2014).

The uniqueness of the package of Agro salak Sibatana, Karangasem, should be potential combined with attractions and handicrafts. This area is also plantation area an environmentally friendly, because farmers never use chemicals as fertilizers or pesticides. Beautiful panorama in this area with Muding hill at the southern end provide good panorama such as a valley with paddy fields and beach panorama in Manggis districts. This Agro-tourism is also close to Bukit Putung attractions, Candi dasa beach, Tirta Ganga and Besakih temple. This program is one of the main implementation of the Bali Provincial Regulation No. 3 of 2013 on the Protection of Local Fruits, provides opportunities and conducive climate to the development of agro salak (Provincial Government of Bali, 2013). The main problem of Salak Agro-tourism in Sibatana, the number of visitors is very low 0.008% of the total 462 233 visits from 12 destinations in Karangasem (Diparda Bali 2012).

Some factors that contribute to this area was: 1). Travellers difficult getting fruit to be picked directly, especially in off season/ outside harvest (Sumantra *et al* ,2012; Sumantra *et al* , 2014) , 2) There is no orchards collection and demonstration gardens. 3) Collection of salak has not been fully used as source of germplasm and is not fully understood by students and visitors because its place dispersed. 4). Not managed properly from the arrangement of the area the operational activities of the tour, and human resources. 5). Not to be marketed to the fullest, as well as cooperation among tourism stakeholders still low. From the above description the agro-tourism salak Sibatana with the existing diversity is potentially developed as an educational recreation park.

## **II. RESEARCH METHODS**

Thus agricultural environment is not only the manufacturer of concrete goods, but also of intangible goods, especially those relating to culture, education, food, landscapes and environment. Thus to determine the development of agro-tourism, a careful analysis should be conducted, a SWOT analysis which highlights opportunities, weaknesses, strengths and limitations. The SWOT analysis includes: Strong points: development of powerful agro-tourism; involvement of different ways of life and traditions; high quality service, peace and security activities. Weaknesses: Lack of training; lack of legislation regarding the agro-tourism; lack of additional supply; the high cost of accommodation and restoration. Opportunities: Promoting the preservation of customs and local traditions; new opportunities for employment in rural areas; alternative markets for local products. Restrictions: lack of planning and concrete goals; the risk of massiveness; low political awareness.

### III. RESULTS AND DISCUSSION

#### 3.1. Soil and Climate

Sibetan area, located at an altitude 450-570 m above sea level, classified into B2 agro-climatic zone with 9 months of wet and dry 3 months. The average annual rainfall 2966.40 mm, the highest rainfall fell in December (404.4 mm) and the lowest in June (73.09 mm). The dry season lasts from June to August, while the rainy season from September-May. The mean temperature was 24,29°C with the highest temperature 25.42 ° C in December and the lowest temperature in July 22,53°C, air humidity 86.57%. Soil texture Clay, with moderate C-organic content, moderate N, P is very high and K soil is very low, soil pH slightly acid.

The analysis of water balance shows, the value of potential evapotranspiration (PE) during the year reached 1282 mm, while rainfall (P) in a year reached 2967 mm. In June and July PE value greater than the value of actual evapotranspiration (ETA) so that in this period the water deficit occurred in succession 9 mm and 2 mm. In August the value of PE equal to ETA in line with the period of recharging so that in September had reached field capacity soil and water surplus periods occur until May, with number reached 1726 mm.

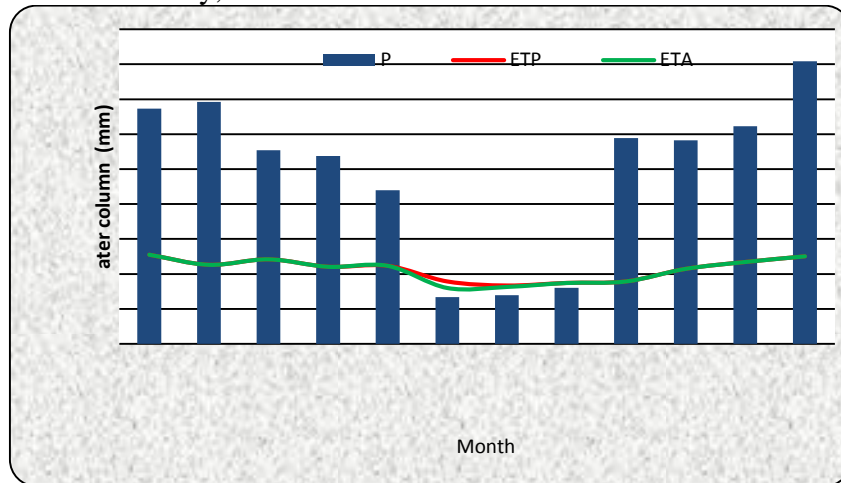


Figure 1. Precipitation (P), evapotranspiration (ETP) and actual evapotranspiration (ETA) Sibetan Karangasem

#### 3.2. DEVERSIY OF SHADE TREES.

The presence of shade trees on the salak plants is very important because these plants do not tolerate full sun. The results showed that the *Erythrina variegata* L. and *Musa paradisiaca* were the dominant shade plants in Sibetan (Table 1)

Table 1. Relative Density (KR), Relative Frequency (FR) Relative Dominance (DR), Importance Value Index (IVI) and the Diversity Index (H) of shade trees in Karangasem (n = 18 plots)

No	Tanaman pelindung	Karangasem				
		KR %	FR %	DR %	VI %	H
3	<i>Musa paradisiaca</i> L.	34.95	16.98	6.43	58.36	-0.14
4	<i>Erythrina variegata</i> L.	29.13	16.98	20.41	66.52	-0.14
5	<i>Durio zibethinus</i> Murr.	4.37	8.49	12.57	25.44	-0.09
6	<i>Leucaena glauca</i> Benth.	0.97	1.88	0.51	3.37	-0.02
7	<i>Glyricidia sepium</i> .	7.28	10.37	3.08	20.74	-0.08
8	<i>Cocos nucifera</i> .	6.31	12.26	5.97	24.55	-0.09
9	<i>Garcinia mangostana</i> L.	2.91	5.660	14.17	22.75	-0.08
10	<i>Albisia falcate</i> .	3.88	7.547	13.50	24.93	-0.09
13	<i>Toona sureni</i> (Bl.) Merr.	1.94	3.774	8.57	14.29	-0.06
17	<i>Nephelium lappaceum</i>	3.39	6.604	8.49	18.49	-0.07
18	<i>Lansium domesticum</i>	2.43	4.717	2.05	9.19	-0.04
19	<i>Baccaurea racemosa</i> (Reinw. Ex. Bl.) M.A	0.48	0.943	0.34	1.76	-0.01
20	<i>Swietenia sp</i>	1,94	3,774	3,87	9,59	-0,05
		Total H		0.96		

This area does not have a special character in the development of agricultural commodities other than salak, so the shade plant according to agro-climatic conditions and farmer needs. Therefore salak plants in this area planted intercropped under coconut, durian, banana and *Erythrina* sp. (Sukewijaya et al., 2009).

### 3.3. DIVERSITY OF SALAK

Based on plant height, leaf shape, the number of thorns, fruit characters include skin color, flesh, fruit taste, farmers in Sibatana differentiate salak into several types such as:

1. **Salak Gondok:** fruit skin reddish brown, yellowish-white flesh.
2. **Salak Nenas:** end of the fruit pointy, fruit skin reddish brown, flesh fruit yellowish-white, flavors such as pineapple.
3. **Salak Nangka,** fruit skin reddish-brown, yellowish white flesh fruit, fruit flavors like jackfruit.
4. **Salak Putih:** white fruit skin, white flesh fruit and people called salak "Bule" (Fig. 5)

5. **Salak Maong:** fruit skin reddish brown with white spots , farmer called Maong or moldy, white flesh and sweet taste (Fig. 2).
6. **Salak Gula pasir:** Fruit skin dark brown , white flesh and sweet taste (Fig.6) . The research already found three types of salak gulapisir are distinguished by the shape of the fruit (salak gula pasir nangka, nenas and gondok Fig 7 – Fig. 9).
7. **Salak sepet:** fruit skin reddish brown, yellowish-white flesh , fruit flavors astringent .
8. **Salak getih or salak Boni :** fruit skin reddish-brown and red fruit flesh (Fig 3).
9. **Salak cengkeh,** Fruit skin brownish red, yellowish-white flesh, rather loud and fruit flavorful like cloves.
10. **Salak Nyuh,** fruit skin brownish red, thorn slightly and shapes like palm trees (Fig. 4) .
11. **Salak Pade,** fruit skin red-brown, yellowish-white flesh, the trees size is short (Fig. 10).
12. **Salak Injin.** Fruit skin brownish red, flesh fruit white blackish like black rice.
13. **Salak Muani** or male salak tree that never fruitful although the plant is blooming. Salak Muani only found in the salak gulapisir and salak nenas (Fig. 11).



**Fig.2: Salak Maong**



**Fig.3: Salak Getih/salak Boni**



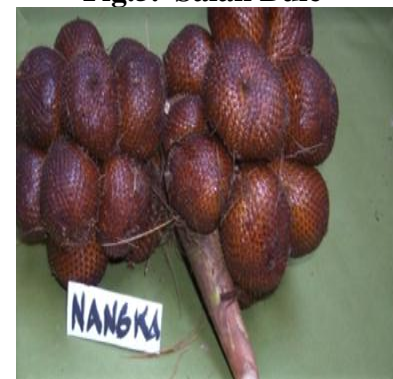
**Fig. 4. Salak Kelapa**



**Fig.5. Salak Bule**



**Fig.6 Salak Gulapisir**



**Fig 7. Salak Gondok**



**Fig 8: Nangka**



**Fig. 9. Salak Nenas**



**Fig. 10. Salak Pade**



**Fig. 11. Salak Muani or Male Salak**

### **3.4. SWOT analysis of Agro-tourism base on the diversity of salak**

Salak Agri-tourists can choose from a wide range of activities that include picking fruits salak, tasting honey, learning about wine salak, or shopping in farm gift shops and farm stands for local and regional produce or hand-crafted gifts.

For planning and marketing a rural community and weighing the pros and cons of tourism an analysis of potential, opportunities, weaknesses and threats in the development of ago-tourism of salak needs to be done.

#### **a. Strengths**

- The diversity of 15 species of salak can be used as a practices for students
- The diversity of 13 species of shade plants potential to be develop as a land concervation.
- On Salak garden will be found rare birds such as punglor birds.
- Regulation of the Bali Provincial No. 3 of 2013 on the Protection of Local Fruits
- The post-harvest products such as wine salak , dodol, pia chips salak .
- The Gardens salak with beautiful landscape
- Ritual culture as a *Ngusabe Dehe, Ngusaba dangsil* etc.

#### **b. Weaknesses**

- Implementation of the Bali provincial regulation No. 3 of 2013 is not optimal
- Gardens collection unformed.
- Character of 15 types of salak is not yet known in detail.
- The guest difficult picking fruit out of season harvest
- The combination of shade trees to plant salak has not been much explored

- There are no clear rules on the management of salak agro-tourism
- Planning the area and complete facilities such as toilets, clues to the location and the parking area is still lacking
- Lack of promotion from stakeholders .

#### **c. Opportunities**

- Visitor both students, researchers and guests from abroad continues to rise
- Formed agro- tourism based on diversity of salak will protect salak germplasm and at the same time the new plants will be found.
- The economy of society will increase by selling food or selling crafts made from salak or plants shade.

#### **d. Threat**

- Extinction of germplasm salak.
- The formation of a new tourist attraction will disrupt the sustainability of agro-tourism of salak.

### **3.5. DEVELOPMENT STRATEGY OF AGRO-TOURISM**

#### **A. Planning and Marketing Education Package**

- Analysis approach base on 4 P (Product , Price, Place and Promotion)
- Analysis approach base on 4 A (Attractions, Accessibility, Amenitas and Activity)
- SWOT analysis ((Strengths, Weaknesses, Opportunities, Threats)
- Analysis approach to STP (Segmentation, Targeting, Positioning).

#### **B. Preparation Package Education Agro Tourism**

- Preparation of appropriate educational tour package price and existing facilities
- Agenda and schedule a tour package.

### **IV. CONCLUSION**

1. There are 15 types of salak cultivars and 13 types of shade plant.
2. The seasonal nature of fruit and quality of fruit not meet the standards.
3. There are no collection gardens and a demonstration garden that can be used as a field laboratory.
4. The agro tourism object do not managed properly , the operational activities of the tour, and human resources
5. The object of Agro Salak Sibeten no yet marketed optimally, in addition to cooperation among tourism stakeholders still low.

### **Acknowledgements**

The research was funded by Competition Research Grant (MP3EI) from Directorate General of Higher Education in Jakarta, with contract Number:K.112/B.01.01/LPPM-UNMAS/V/2015. Among those who had been especially helpful as technical assistance for this research were Nyoman Sepel Dyanthara, Komang Gede Adita, and Nengah Suparta, the authors expressed thanks in recognition of their services.



## References

- Astiti, 2011. *Sinergi Pertanian dengan Pariwisata*. <http://astiti.blogspot.com/2011/08/sinergikan-pertanian-dengan-pariwisata.html> (down load 28 Nopember 2013).
- Badan Pusat Statistika Provinsi Bali, 2011. *Bali Dalam Angka 2011*. Arysta Jaya Denpasar.
- Darmadi, AAK., A. Hartana, J. P. Moge. 2002. *Perbungaan salak bali*. Hayati 9 (2) :59 – 61.
- Dharma Putra, 2010. *Pencemaran Lingkungan Ancam Pariwisata Bali*, : Manikgeni.
- Disparda Provinsi Bali, 2010. *International Seminar on Tourism Harmonization Development*, Faculty of Tourism, Udayana, Denpasar, 27 April 2010.
- Dinas Pariwisata Propinsi Bali 2012. *Jumlah kunjungan wisatawan pada obyek-obyek wisatawan di Bali tahun 2012*.
- Labek Suyasdi Pura, K. Sumantra, Sumeru Ashari, 2013. *Potensi hasil dan mutu buah beberapa kultivar salak gulapisir pada habitat baru di Bali dan upaya perbaikannya*. Laporan Hibah Bersaing. Univ. Mahasaraswati Denpasar.
- Sumantra 2010. *Fenotif dan Genotif beberapa salak gulapisir*. Laporan penelitian. LPPM Unmas Denpasar.
- Sumantra, K. Sumeru Ashari, T. Wardiyati, Agus Suryanto, 2011. *Hasil dan mutu buah salak gulapisir pada berbagai ketinggian berbeda di daerah pengembangan baru di Bali*. Prosiding Seminar Nasional Perhimpunan Hortikultura. Lembang 23-24 Nopember 2011.
- Sumantra, K. S. Ashari, T. Wardiyati, and A. Suryanto. 2012. *The agroecosystem approach as a concept in sustainable cultivation of salak trees cv. Gulapisir in new development areas in Bali*, in Proceeding of the International Conference on Sustainable Development (ICSD), Denpasar, Bali, 2012, pp. 348- 364.
- Sumantra dan Labek Suyasdi Pura, 2012. *Analisis neraca air lahan pada pertanaman salak gulapisir sebagai dasar untuk pembuahan di luar musim*. Jurnal Agrimeta Vol.02 (03): 1-12.
- Sumantra, K. Sumeru Ashari, T. Wardiyati, Agus Suryanto, 2012. *Diversity of Shade Trees and Their Influence on the Microclimate of Agro-Ecosystem and Fruit Production of Gulapisir Salak (Salacca Zalacca var. Amboinensis) Fruit*. International Journal of Basic & Applied Sciences IJBAS-IJENS :12 (06) : 214-221.
- Sumantra, K.. Sumeru Ashari, N. Labek Suyasdi Pura, 2014. *Heat unit, phenology and fruit quality of salak (Salacca Zalacca var. Amboinensis) on different elevation in Tabanan regency Bali*. Agriculture, Forestry and Fisheries. (<http://www.sciencepublisinggroup.com/j/aff>) :3 (02): 102-107.

**ISBN 978-602-18622-9-2**

**Copyright © 2015**  
**by Universitas Maharasaswati Press**  
**Jalan Kamboja No. 11 A, Denpasar, Bali**  
**INDONESIA**  
**Phone/Fax +62361227019**  
**Website : <http://www.unmas.ac.id/>**  
**Email : [info@unmas.ac.id](mailto:info@unmas.ac.id)**