# PROCEEDINGS INTERNATIONAL CONFERENCE ON SUSTAINABLE INNOVATION

Sustainable Innovation in Enhancing
Global Competitiveness in Asian Countries

UNIVERSITAS MUHAMMADIYAH YOGYAKARTA

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# Editorial Board

# MESSAGE FROM THE RECTOR

In response to global changes brought by modern civilization, some countries might have experienced artificial changes from traditional to modern faces by embracing totally new characteristics of western developed countries, while leaving aside their cultural wisdom and other inner or local characters. This is not the one that this particular conference is meant for a sustainable development in all countries of the world, in particular those of Asia. The emergence of Asian countries is deeply influenced by their dynamics in embracing innovation in science and technology from the West without putting aside their heritage and legacy. Nevertheless, enhancing competitiveness of the Asian Countries remains unchallenged, demanding sustainable innovation, a key word, which plays a significant role in contributing to the creation of global harmony in the world. Asian countries are rapidly emerging as a power house of economic growth and political issues. The International Conference on Sustainable Innovation (ICoSI) for Asian Competitiveness is aimed at exploring the idea of how sustainability of innovation development is embedded within global knowledge, interaction, competition, governance and networking of the Asian countries, taking into account their own local and national considerations. ICoSI is an extended form of International Joint Seminar III, following IJS I and II which had been held in UMY and IIUM in November 2006 and December 2009 respectively.

We wish you a pleasant and productive time during the conference.

**Rector of Universitas Muhammadiyah Yogyakarta,**
*M. Dasron Hamid*

# FOREWORD

On behalf of the Scientific and Organising Committee, I am pleased to extend our warmest welcome to all of delegates to the International Conference on Sustainable Innovation (ICoSI) 2012 combined with 3rd International Joint Seminar. ICoSI 2012 is organized by Universitas Muhammadiyah Yogyakarta (UMY) in collaboration with International Islamic University Malaysia (IIUM) as co-host and Eindhoven University of Technology (TU/e), Netherlands as co-partner. This conference is also officially supported by Association of Universities of Asia and The Pacific (AUAP).

The conference of ICoSI 2012 will discuss the advances and understanding on how sustainable innovation and global competitiveness are embedded within global knowledge, production and governance networks in Asian countries, taking into account local and national considerations. ICoSI 2012 also provides a mean for academicians, researchers, governments and professionals to disseminate and exchange their ideas, reviews and research findings in the scientific environments in terms of innovation and its sustainability. The conference theme of "Sustainable Innovation in Enhancing Global Competitiveness in Asian Countries" reflects the sustainable innovation to face the challenge in global competition and can bring "transformation issues between tradition and modern" to the social and environmental equilibrium in the society. All together the conference will encompass two keynote speeches, 10 special lectures from invited speakers, and 53 papers, from 8 countries including Australia, Philippine, Indonesia, Switzerland, Malaysia, Netherlands, Taiwan R.O.C, United States of America, and participants from Indonesia, Cameroon, Philippines, R.O.C, making this conference a international one.

I would like to express our high appreciation and best gratitude to the Vice President of the Republic of Indonesia, Prof. Dr. Boediono who officiates the opening ceremony of the conference. I would also like to express to express my sincerest gratitude to keynote speakers, Mr. Jusuf Kalla (Former Vice President of the Republic of Indonesia) and Mr. Hatta Radjasa (Coordinating Minister of Economic), and all invited speakers in ICoSI 2012.

I would like to express my thanks to all authors for their outstanding contributions and in particular the members of the program board for their competent evaluation of the large number of submissions. Likewise I would also like to express my appreciation to the member of international advisory committee and reviewers for their support for this conference and member of scientific and organizing committee for their excellent job in organizing and managing this international event, as well as to the invited chairs for their careful preparation of the invited sessions.

I hope that his conference will generate a lot of discussions and share experiences on the sustainable innovation for recent times. I wish all participants a pleasant and memorable

deliberation and hope that you will greatly benefit from this conference and take home with you a truly intellectual and socially satisfying experience.

**Conference Chairman,**

*Sri Atmaja P. Rosyidi, Ph.D., P.Eng.*

# PREFACE

All praises be to the Almighty Allah Who has enabled us to organize the first International Conference on Sustainability and Innovation (ICoSI), 19 - 21 March 2012 at *Universitas Muhammadiyah Yogyakarta* (UMY), Indonesia.

We are pleased to inform you that although we have very limited time to prepare this conference, yet we still receive substantial amount of abstracts and full papers. It is perhaps due to the main theme of the conference, namely the *sustainability* and *innovations* which are very attractive never ending, not only for certain branches of knowledge, but almost by all disciplines.

It is indeed the broad topic that might be related to any discipline of knowledge in the human life. The topic has eventually attracted wide ranges of knowledge as indicated by many different titles submitted during the process of submission and review. We are also pleased to inform that papers submitted were coming from local, national or even international contributors.

Due to above condition, we have classified all the papers submitted into four main issues, these include (1) the health related sciences, (2) science and engineering, (3) social sciences and (4) Islamic studies. The health related sciences cover the studies on medicine, dentistry, pharmacy, nursery and nutrition. The science and engineering include the agriculture, environment, mechanical, civil, architecture and so on. While the social sciences cover the accounting, business, economics, law, political science, education and languages; The Islamic studies cover anything related to Islamic issues.

As every one might be aware, a scientific conference is a medium where the scholars present and disseminate their ideas and research findings, and participants will contribute through their criticism and feedbacks, so that the study can be improved and enhanced for the benefits of the society at large. We do hope highly that this objective can be achieved effectively.

Finally, allow me to extend my thanks and sincere appreciation to all parties who have participated in this important occasion. May Allah SWT reward you the best. Amin.

Yogyakarta, 19 March 2012

**Dr. Muhammad Akhyar Adnan**
*Editor in Chief*

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# THE LEVEL APPLICATION OF GAP-SOP ON FARM ACTIVITY FOR PRODUCT QUALITY IMPROVEMENT: A CASE STUDY ON FARM *PONDOH* ZALACCA IN SLEMAN

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*Abstract*

*In order to produce zalacca in accordance with quality standards requires a planning process that ensures the production of fruit obtained in accordance with established quality standards. The production process includes a set of norms of good application or often referred to as GAP (Good Agricultural Practice) SOP (Standard Operating Procedure) farming. This study aims to determine the level of application of the GAP-SOP farming pondoh zalacca and the factors that affect the application of GAP-SOP. The study was conducted by interviewing the farmer's survey methods and techniques of statistical analysis using rank spearmant correlation test. The results showed that levels of GAP-SOP application of the pondoh zalacca farming in the District Turi is already quite high, but several sub-activities need to be improved, such as: irrigation, pest control and harvesting. Farming experience are factors that affect the level of GAP-SOP application at sub thinning activities and control of plant pests, while the scale of farming activities affect the sub-pollinating flowers.*

**Key words**: SOP-GAP, Farming, *pondoh* zalacca.

## INTRODUCTION

Zalacca is one of favored native to Indonesia and has good prospects for the undertaking as one of the commodity in the fruit agribusiness development and has also been directed as an export commodity. But in fact, the production quantity and quality of these fruits have not been able relied upon to be the prima donna of the national fruit. This condition is caused partly by a system of farm management, cultivation; harvesting and post harvest are not yet in accordance with the rules of properly cultivation. On the other hand, at the moment consumers are demanding quality standards of products primed with the consumption of a guaranteed safety. This condition needs to be anticipated by the producer zalacca by applying the rules of the right cultivation, to ensure fruit quality and food safety (Rustijarno, 2008)

Based on the data obtained, the condition of fruit agribusiness in Indonesia experienced an increase in the number of production or availability. Quality products also increased with marketed fruit in the supermarket or fruit shop. Tjiptono and Diana (1995), defines the quality is fitness for use, while according Fergenbaum (1992), is the quality control procedures to achieve quality objectives industry. Despite this low level of fruit consumption that is equal to 30 kg / cap / yr. This is because in general the fruit crop not yet managed optimally in particular commodities zalacca (Thamrin, 2005).

Production of fruit crops in Sleman dominated by zalacca plant, especially species of pondoh zalacca plant. Tempel Subdistrict is one of zalacca pondoh production center in Sleman that can supplies fruits to markets inside and outside Yogyakarta. Pondoh Zalacca is a leading commodity in the Province of Yogyakarta (Anonymous, 2003).

At this time, some farmer groups pondoh zalacca in Sleman have implemented the Standard Operating Procedures of Good Agricultural Practicing (SOP-GAP), so that

their products are certified Prima III, which means it is safe for consumption. Pondoh zalacca cultivation is done organically or without the use of chemical fertilizers and pesticides. (www.deptan.go.id / Secretariat General, 2008).

Managed farm enterprises (Djuwari, 1994) is a management, it can also be interpreted as a science that studies how to make and implement decisions on a farm can be influenced by external factors only, as well as internal factors or factors both at once.

In an effort to penetrate export markets, it has made efforts to include registration of the garden zalacca, implement Standard Operating Procedures of Good Agricultural Practicing (SOP-GAP) and Integrated Pest Management (IPM), availability Pest List, and Packing House which has been registered (www.deptan.hortikultura.go.id, 2008). Problems faced in order to export fruits, among other zalacca plantations that have implemented GAP-SOP is limited so that the ability of producers to supply the needs of export is also limited. Also the prices offered by the importing country is too low so that less profitable farmers, given the results of production still get a certificate Prima III, not yet all products will be certified Prima II or even Prima I. Based on the above issues necessary to study the extent of application of cultivation technology based on the zalacca pondoh GAP- SOP and what factors are affecting the level of the application of cultivation technology pondoh zalacca so that the resulting production still get a certificate of Prima III.

## RESEARCH METHODS

The research on the application of SOP-GAP on pondoh zalacca farms is a descriptive study of a method that focuses on an object to expose a factual, systematic and accurate information about a situation (Nazir, 2003). The application technique is to use survey methods to study the facts in getting the level of application of the SOP-GAP on pondoh zalacca farms and the factors that influence it.

The study conducted in the District of Turi, Sleman because that location is one of the largest development centers pondoh zalacca in Sleman. Samples taken from the peasant farmers who have implemented GAP-SOP on the farms pondoh zalacca in the garden that has obtained registration by the Directorate of Quality and Standardization Directorate General of Processing and Marketing of Agriculture Production. Farmers' groups who have implemented GAP-SOP is a group of farmers "Si Cantik" located in the Bangunkerto Village. All members of the group is taken (the census) as respondents.

Primary data that was taken are the data about the application and the factors that influence the level of application of GAP-SOP on the farm zalacca pondoh, namely: farming experience, level of formal education, land, availability of capital, labor in the family, and the price production.

The level of GAP-SOP application on farms of zalacca pondoh measured based on the intensity of conformance between the application of cultivation techniques with the standard requirements have been determined. The frequency is measured by scoring, namely: 1 for answers that never fit, 2 for rarely appropriate answer, 3 for answers that are sometimes appropriate, 4 for the answer that is often appropriate, 5 for an answer that is always appropriate. Then the results of the scoring were made a category level of GAP-SOP application based on interval with the formula:

$$\text{Interval} = \frac{\text{Highest score - lowest score}}{\text{Number of category scores}}$$

Table 1. Determination of the application of GAP-SOP on the zalacca pondoh farms

| Scores | Scores Achievement | Level category |
|---|---|---|
| 1 - 5 | 3,67 – 5,00 | High |
| | 2,34 – 3,66 | Medium |
| | 1,00 – 2,33 | Low |

In order to determine the relationship between the level of GAP-SOP application (dependent variable Y) with an influential factor (independent variable X), the data were analyzed by using rank spearmant correlation analysis.

## RESULTS AND DISCUSSION

The application of GAP-SOP on the pondoh zalacca farms in details is the technique of cultivation starting from land preparation to harvest and post harvest. Based on field observations and interviews with the farmers was found that the activities of GAP-SOP application in details are the leaf pruning, the thinning of plant buds, the organic fertilization, irrigation, the flowers pollination, the fruit spacing, pest control, harvesting and post harvest.

Table 2. The application level of GAP-SOP on pondoh zalacca farms

| No | Activity | Scores | Category |
|---|---|---|---|
| 1 | The leaf pruning | 4,00 | High |
| 2 | The thinning of tree buds | 3,09 | Medium |
| 3 | The organic fertilization | 4,00 | High |
| 4 | Irrigation | 2,02 | Low |
| 5 | The flowers pollination | 4,09 | High |
| 6 | The fruit spacing | 3,82 | High |
| 7 | Pest control | 1,98 | Low |
| 8 | Harvesting | 2,70 | Medium |
| 9 | Post harvest | 4,09 | High |
| | **Mean Scores** | 3,31 | Medium |

**Pruning**. The results showed that all the farmers cut the leaves of zalacca plants in accordance with the GAP- SOP on pondoh zalacca farming. Compliance level that undertaken is in accordance with the score value of 4.0. This shows that the intensity of the plants treatment in organic farming of pondoh zalacca is pretty good, especially on leaf pruning activities. It's caused that the leaf zalacca is an important part in the formation of flowers and fruits.

**Thinning of trees buds**. The buds thinning of tree that be done by the farmers are at varying levels of Compliance by the score between 2.0 to 4.0. Thinning was done to keep in order to avoid excess plants that can causes plant nutrient deficiency. Thus, it thinning will keep the growth of stem plants grow optimally.

**Fertilization of plants**. Fertilization of plants on pondoh zalacca farms is in accordance the GAP- SOP by using organic fertilizers. A good organic fertilizer is made from goat manure. In the application of pondoh zalacca farm all of the farmers apply organic fertilizer according to the GAP- SOP with the value score of 4.0. The high application level of fertilization which is due to the availability of enough fertilizer and the applications that is relatively easy to do.

**Irrigation**. In general, zalacca plants do not much requires intensive irrigation. Irrigation is done by making a trench on the sidelines of zalacca block. The trench is useful for irrigation and drainage tract during floods in the rainy season. The ground beneath the plant is closed by zalacca leaves so the soil humidity is maintained well. In addition zalacca plants relatively tightly so that evaporation can be reduced. Thus, irrigation is rarely done by the farmers. This low intensity irrigation makes irrigation farmers unusual conduct in accordance with SOP-GAP so the application level is low by an average score of 2.02.

**Flowers Pollination**. Pollinating flowers is an important step that must be considered in the cultivation of pondoh zalacca. To get the maximum production of zalacca, zalacca flowers must be pollinated for good conception. The GAP-SOP application level of pollination ranged is at a relatively the high between 4.0 and 5.0 with a mean score of 4.09. This occurred because the farmers try to make the production of zalacca could be higher and qualified. Besides, if it is not done conception, it production will be very low even out of production because the zalacca of male and female flowers separately.

**Fruit spacing**. Fruits that grow in bunches need to set amount of it in each bunch. To get fruits by the desired size of the market, then in setting fruits do fruit spacing if the fruit bunches are too dense. This is done in order to the fruits are uniformly size and not too small to fit the market demand. The research results show that the application of spacing fruit by the farmers is happening diversity of SOP-GAP application level which ranged between 2.0 to 5.0. This indicates that farmers do not yet fully the fruit spacing because of different perceptions of the farmers about the importance of spacing the fruit. Some farmers think that the fruit spacing will reduce the fruits production. It will affect the production of zalacca that are not uniformly size and maturity level. However, the mean score of the SOP-GAP application of level on the fruit spacing is still relatively high at 3.82.

**Pest control**. In the application of pondoh zalacca farm also need to be considered pest control techniques in accordance by the GAP -SOP for production and quality of the zalacca that produced in accordance with the wishes of the market. The problems that often occur in pest control is pondoh zalacca fruit rot disease. The level of control is also not yet maximal. Therefore the level application of the GAP -SOP in pest control is still quite low ranging from 0.0 to 3.0 with a mean score of 1.98.

**Harvest**. The accuracy of the harvest to see the level of fruit maturity, fruit size, harvesting techniques and the hanging fruit of the land to the collection point will affect the quality of fruit produced. The GAP-SOP application level on the harvest activities that conducted by the farmers is diverse ranging from 0.0 to 4.0. However, most farmers carry out the application of GAP-SOP with the level of suitability score of 3.0. The average score of the GAP-SOP application level is 2.7 including the medium category. Fearing the price down and their life necessities are often urged, the farmers sometimes pick fruits while prices are still high because of supply in the market was still a little whereas the demand was high. This is what causes the level of GAP-SOP application on the harvest activities has not been high yet.

**Post-Harvest**. Post-harvest fruits handling aim to keep the zalacca produced is maintained the quality and the freshness. Post-harvest handling in detail are cleaning, sorting and grading. The grading intended that the resulting fruits grouped with a uniform size. Post-harvest handling of farmer's implementing GAP-SOP is high enough with a mean score of 4.09. This indicates that farmers trying to get the results of fruits selling by fruits cleaning and sorting in order to earn reasonable prices.

In general, the level of GAP-SOP application on pondoh zalacca farms in Turi District classified as medium. It can be seen from the results of the analysis that show a mean total score of 3.31. Therefore, some activities still need to be improved in the GAP-SOP on pondoh zalacca farms.

**The factors affecting the Level of GAP-SOP Application.** There are some internal and external factors affecting the level of GAP-SOP application on pondoh zalacca farms. These factors are farmers' education, farmers 'experience, number of family members and farmers' land area. Rank Spearmant correlation analysis results show that in general there is no significant influence of internal and external factors toward the level of GAP-SOP application. However, tracing the influence of internal and external factors toward the level of GAP-SOP application in detail indicates that exhibited significantly influence as can be seen in Table 3 as follows.

Table 10. Correlation of Internal and External Factors toward the level of GAP-SOP Application on pondoh zalacca farms

| Internal and External Factors | education | experience | number of family members | land area |
|---|---|---|---|---|
| GAP-SOP Application | -,073 | ,278 | -,146 | ,072 |
| - The thinning of tree buds | -,228 | **,326(*)** | ,089 | ,043 |
| - Pest control | -,172 | **,356(*)** | ,002 | -,069 |
| - The flowers pollination | -,265 | ,277 | ,089 | **-,300(*)** |
| - The leaf pruning | . | . | . | . |
| - The organic fertilization | . | . | . | . |
| - Irrigation | -,167 | ,160 | ,255 | -,025 |
| - Harvesting | ,097 | ,039 | -,157 | ,235 |
| - Post harvest | ,064 | ,177 | -,022 | ,147 |

The factors that affect the level of GAP-SOP application on pondoh zalacca farms in detail are: 1) farmers' experience significantly influence the thinning of tree buds and the pest control. The experience of farmers has a positive correlation to the thinning of tree buds and pest control. It means the higher the experience level of the farmers then the level of GAP-SOP application on the thinning of tree buds activity will be higher or more intensive. Likewise, the level of GAP-SOP application on the pest control activities will be more intensive. 2) The land area significantly influences the level of GAP_SOP application on pollination activities. The farmers' land area negatively correlated to the zalacca flowers pollination. It means that if the land area is expanded, then the level of GAP-SOP application of zalacca flower pollination activity on the downside or the less intensive. This phenomenon can occur if land expansion is not matched by the availability of adequate labor workforce, especially for zalacca flower pollination. The

farmers will give priority to the utilization of its workforce outside the pollination activity so that become less intense pollination activity.

## CONCLUSION

In general, the level of GAP-SOP application on pondoh zalacca farms in the Turi District still classified medium. Factors that affect the level of GAP-SOP application on pondoh zalacca farms in detail are the experiences of farmers towards activities of the thinning of tree buds and the pests control have positive correlation. Whereas, the land area negatively correlates the flower pollination activities. Based on the results of the research the application of SOP-GAP farming pondoh zalacca needs to be improved to produce higher quality zalacca products so it can fulfill the demands of export markets. Special efforts should be followed by an extension of land provision of the proper working tanaga so the application of SOP-GAP can still be implemented better

## REFERENCES


Anonim. 2003. Penentuan Komoditas Unggulan Nasional di Propinsi dan Spesifik Daerah. Tim Asistensi. Pusat Penelitian Sosial Ekonomi Pertanian. Bogor.

Dewa, I. A.S.W. 2009. *Manajemen Pengendalian Kualitas Produk Ikan Tuna Ekspor di PT Perikanan Samodra Besar Benoa Bali.* Jurnal Sosial Ekonomi Pertanian dan Agribisnis SOCA. Vol. 9. No. 3: 263-390 Nvember 2009. Jurusan/Program Studi Agribisnis Fakultas Pertanian Universitas Udayana. Bali

Dimyati, Ahmad dkk. 2008. *Meeting The Requirements of International Market for Salacca.* Case Study : Export Challenge of Salacca "Pondoh" Variety to China. Dirjen Hortikultura Dep.Tan. R.I

Djuwari 1994. Dasar-dasar Ilmu Usahatani. UGM. Yogyakarta.

Fadholi, H. 1993. *Ilmu Usahatani.* Penebar Swadaya. Jakarta

Fergenbaum A.V. 1992. *Total Quality Control*. Penerapan Teknik-teknik Statistika Dalam Manajemen Bisnis Total. PT. Gramedia Pustaka Utama. Jakarta

Hayati. 2003. *Analisis Faktor Sosial Ekonomi Usahatani Kentang di Desa Batur Kecamatan Batur Kabupaten Banjarnegara*. Skripsi Fakultas Pertanian Universitas Muhammadiyah Yogyakarta

Montgomer. D.C. 1991. *Pengantar Pengendalian Kualitas Statistik*. Gadjah Mada University Press. Yogyakarta

Nazir. 1988. Metode Penelitian. Ghalia Indonesia.

Permadi, A.E. 2004. *Faktor-faktor yang Mempengaruhi Keputusan Petani Cabai Merah Keriting di Desa Sugimas, Kecamatan Grabak, Kabupaten Magelang*. Skripsi Fakultas Pertanian Universitas Muhammadiyah Yogyakarta

Rustinarjo. S. 2008. Akselerasi Inovasi Teknologi Usaha Budidaya Salak Pondoh Organik melalui Penerapan SPO-GAP (Good Agricultural Practice) di Desa Merdikorejo, Kecamatan Tempel, Kabupaten Sleman. Seminar Nasional Bioetika Pertanian. Bogor, 29 Mei 2008.

Santosa Singgih. 2002. SPSS Versi 10. *Mengolah Data Statistik Secara Profesional*. Elex Media Komputindo. Kelompok Gramedia. Jakarta

Singarimbun, M. dan S. Effendie. 1989. Metode Penelitian Survei. LP3ES. Jakarta.

Soekartawi, 1995. *Analisis Usahatani*. Penerbit Universitas Indonesia. Jakarta

Supranto.1998. *Teknik pengambilan keputusan*. PT Rieneka Cipta. Jakarta

Thamrin, M. 2005. Standar Prosedur Operasional (SPO) dan Good Agricultural Practises (GAP) Pada Budidaya Salak Pondoh. Makalah disampaikan dalam Apresiasi

Peningkatan Mutu Salak Melalui Penerapan Standar Prosedur Operasional (SPO) dan Good Agricultural Practises (GAP). Denpasar 6-9 Juni 2005.

Tjiptono dan Diana. 1995. *Total Quality Management.* Penerbit Andi Offset. Yogakarta

http://www.deptan.go.id/setjen/. 2008. *Lokasi Agribisnis Salak di Kabupaten Sleman*. Dakses tanggal 22 Februari 2010

www. deptan.go.id. 2009. *Penataan Pasokan Salak Untuk Ekspor*. Available online on February 22th 2010

www.deptan.hortikultura.go.id. 2008. *Persiapan Ekspor Salak Ke China*. Available online on February 22th 2010

www.wikipedia.com. 2009. *Profil Salak.* Available online on February 23th 2010