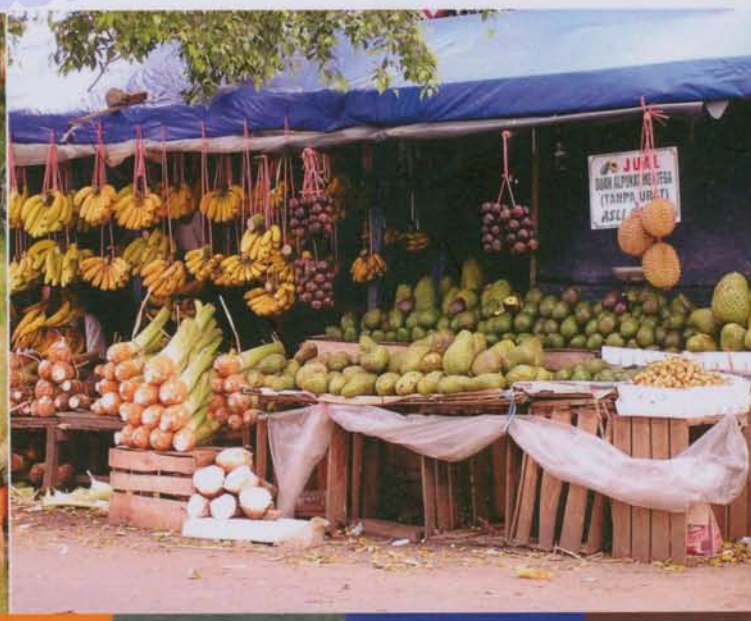
Biosecurity and Biodiversity

Keys to Promoting Local Food for Food Security and Food Sovereignty

Collected papers

Salatiga, February 2019



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Editors: John Lovett
Titi S. Prabawa
Linda Susilowati
Ian Falk

About biosecurity and biodiversity and APBSF

The Australian Plant Biosecurity Science Foundation supports plant biosecurity research, development, extension and capacity building, particularly focused where there is a need for investment in environmental, capacity building, international linkages, non-levy payer, cross-sectoral and strategic plant biosecurity research. The Foundation was established to follow the Plant Biosecurity Cooperative Research Centre (PBCRC) which finished operations in June 2018.

Plant Biosecurity is a set of measures designed to protect a crop, crops or a sub-group of crops from emergency plant pests at national, regional and individual farm levels. Plant Biosecurity is a global issue. Harmful plant pests and diseases can impact on our unique environment and biodiversity, food safety, agricultural trade and market access.

In this proceedings, biosecurity has an additional meaning: namely, the use and cultivation of Indonesian native plant resources, not only to prevent extinction of that genetic material through being overlooked and possibly cleared, but also to reduce reliance on imports of non-indigenous grains which potentially carry pests and diseases.

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- Qaryah Thayyibah Farmer Groups Association, Salatiga, Indonesia (QT)
- Indonesian Biosecurity Foundation (IBF), https://biosecurity.id/
- Centre of Excellence for Biosecurity Risk Analysis (CEBRA), The University of Melbourne, https://cebra.unimelb.edu.au/
- Universitas Mahasaraswati, Denpasar (UNMAS)
- Universitas Sam Ratulangi (UNSRAT)

Participants provided in-kind return transport and accommodation.
(See list of Participants on pages vi–vii.)

Front and back cover images, courtesy of the Crawford Fund.

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FOREWORD

In the on-going national and international debate and discussion about meeting the global imperatives of securing food security and food sovereignty, a vital objective is that regional and local connotations, challenges and opportunities shall be very much 'front of mind'.

The International Master Class (IMC) in Plant Biosecurity held in Denpasar, Bali, in January 2018 brought together participants from many parts of the vast Indonesian archipelago. One of the principal outcomes of two weeks of concentrated activity was the overwhelming support for projecting biosecurity thinking into Indonesian regions. This was seen as a cost-effective way of facilitating out-reach, thus achieving the objective.

The network which was established following the Denpasar IMC has remained very active, generating several proposals for Regional Master Classes (RMC). Universitas Kristen Satya Wacana based in Salatiga, Central Java, has long been a participant in bilateral activities between Indonesia and Australia and offered to host the first RMC on a cost-sharing basis with The Crawford Fund and the Australian Plant Biosecurity Science Foundation.

Representatives of the Centre for Agriculture and Bioscience International (CABI), the Centre of Excellence for Biosecurity Risk Analysis (CEBRA), the Indonesian Biosecurity Foundation (IBF), and Yayasan Qaryah Thayyibah (a farmer cooperative) made significant contributions to the RMC Program through their presentations and contributions to analysis of outputs and outcomes. Emphasising the regional focus, invaluable input was made by a number of local speakers.

All the Participants declared their experience an unqualified success, confirming that a shorter, focussed Master Class could deliver considerable benefit. Each Participant had prepared a case study before the RMC and undertook to draft brief papers concerning completed, current or proposed work. These papers would be published and would complement the formal reports made to the co-funders. This proceedings is the result.

In addition to highlighting key aspects pertaining to food security and food sovereignty, the RMC (i) helped to grow the network established following the IMC of 2018; (ii) raised the profile of the Indonesian Biosecurity Foundation as a peak body for the nation; (iii) further strengthened bilateral ties with Australia; and (iv) through CABI, cemented linkages to the rest of the biosecurity world.

A second RMC is in the planning stage. It will follow the Salatiga model and we look forward to its success and to those of other RMCs which may follow.

The Editors: JOHN LOVETT
TITI S. PRABAWA
LINDA SUSILOWATI
IAN FALK

Canberra, Salatiga and Darwin, May 2019

PRESENTERS

Mr Bahruddin	Founder, Yayasan Qaryah Thayyibah (Serikat Paguyuban Petani/Farmer Association), Kalibening, Salatiga.
Dra. Lusiawati Dewi, M.Sc.	Senior Lecturer in Biology, Universitas Kristen Satya Wacana, Salatiga.
Professor Ian Falk	Supervisory Board, Indonesian Biosecurity Foundation.
Dr Susan Hester	Senior Research Fellow, Business School, University of New England, Armidale, NSW; Deputy Director, Centre of Excellence for Biosecurity Risk Analysis (CEBRA).
Theo Litaay, Ph.D.	Senior Policy Adviser in The Executive Office of The President, Republic of Indonesia.
Professor John Lovett	Chair, Australian Plant Biosecurity Science Foundation (contributor, unable to present).
Dr Eka Martiningsih	Secretary, Indonesian Biosecurity Foundation; Senior Lecturer in Agriculture, Universitas Mahasaraswati, Denpasar, Bali.
Dr Wiske Rotinsulu	Senior Lecturer in Agriculture and Head of International Affairs at Sam Ratulangi University, Manado, Sulawesi.
Dr Sivapragasam	Regional Director of CABI, Malaysia.
Dr Drs. I Made Sukamerta, M.Pd.	Rector, Universitas Mahasaraswati, Denpasar, Bali.
Dr Suryasatriya Trihandaru	Vice Chairman, Indonesian Biosecurity Foundation; Pro-Vice Chancellor (Research), Universitas Kristen Satya Wacana, Salatiga.
Ms Dina Banjarnahor M.Sc.	(Moderator) Universitas Kristen Satya Wacana, Salatiga.
Dr Yohanes Martono M.Sc.	Universitas Kristen Satya Wacana, Salatiga (contributor, unable to present).

Image courtesy of Linda Susilowati

PARTICIPANTS

Mr Shofyan Adi Cahyono is a young entrepreneur in an organic farming business named Sayur Organik Merbabu Farm. He is also currently taking his Master degree in Agriculture at Universitas Kristen Satya Wacana. Mr Cahyono is organising young farmers to manage organic farming businesses and encourage youth in his areas to be resourceful farmers.

Mr Yudhi Vanstepan Simorangkir is a student of the Postgraduate program in Development Studies in Universitas Kristen Satya Wacana. He is actively working as a coordinator in Gerakan Mahasiswa Kristen Indonesia (GMKI-Indonesian Christian Student Movement, a youth not-profit organisation that consists of Christian students from various regions in Indonesia). His work is related to indigenous crops from Sumatra named Andaliman.

Mr Bhakti Yudha Prawira is a staff member in Jetty and Silo Operation Department from PT Indofood Sukses Makmur, Bogasari Flour Mills Division, Jakarta. He is actively working on monitoring the quality of wheat production in Bogasari, including pests and diseases management.

Mr Muhammad Dudi Salmon Bayu Aji is a Section Head of Milling from PT Indofood Sukses Makmur, Bogasari Flour Mills Division, Jakarta. His work is related to food safety management progress. Some of his activities are leading his team on flour mixing, retail packaging, and premium packing.

Mr Wahyono is a Genetic Resources Officer from PT East West Seed Indonesia, West Java. His main responsibility is to provide genetic materials in order to support the breeding programmes. His works are related to plant breeding, DNA extraction, plant genomics, and genetic engineering.

Mr Muhamad Taufik Hariyadi is a Genetic Resources Officer from PT East West Seed Indonesia, West Java. He is actively working on collecting genetic materials around Indonesia, exchanging genetic materials from International GeneBanks, and conserving genetic materials through rejuvenation.

Mr Slamet Haryono is a Senior Assistant Manager on Plasma Support from PT Austindo Nusantara Jaya Agri. He is also currently taking his Master degree in Sociology at Universitas Sumatera Utara. His works are related to oil palm plantations, especially in West Kalimantan.

Ms Maria Matoetina Suprijono is a lecturer in Nutrition and Food Biochemistry from the Faculty of Agriculture Technology, Universitas Katholik Widya Mandala, Surabaya. Her background is in Community Nutrition and Food Science. She focuses her research and teaching in Food Nutrition, Food Biochemistry, Nutrition Evaluation, Nutrient Formulation and Fortification. She is a member of the Indonesian Association of Food Technologists. (Unable to attend.)

Mrs Lina Mardliyah is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). As a member of SPPQT she has a role on women empowerment programs in her village. Her ongoing program is to empower housewives from her village to have ability to process raw materials into various products.

Miss Hayuningtyas Dyah Cressidawati is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). Her work is related to the production of alternative local food. She is currently working on alternative healthier flour substitution from cassava named Mocaf flour.

Miss Endang Dwijayanti is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). She is currently working on organic farming management for her village through SPPQT.

Participants, continued

Miss Agnes Cela Purwani is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). Her works are related to community awareness, capacity building, and integrated farming systems.

Mr Achmad Darojat Jumadil Kubro is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). His works are related to integrated farming systems, food production, and capacity building.

Mrs Niken Widya Palupi is a program officer on training and development from Swisscontact Indonesia. She is also currently taking her doctoral degree in the Faculty of Agricultural Technology at Universitas Gadjah Mada, Yogyakarta. Her works are related to green production, market development, supply chain, and technology food-nutrition.

Mrs Rohning Sulistyani is on the extension staff from Department of Agriculture, Salatiga City Government. Her major work is on pests and diseases management. She is also working with local farmers and other stakeholders to develop an agritourism spot in Salatiga.

Mr Wilhelmus Terang Arga Sanjaya is a doctoral student in Microbiology, Department of Soil Science and Land Resources, Institut Pertanian Bogor, West Java. His current work is about bio-organic fertilizer for soil health and rice security.

Mr Dhanang Puspita is a Lecturer in Food Technology, Faculty of Medicine and Health Science, Universitas Kristen Satya Wacana. His research interests include natural pigments, food innovation, and food microbiology.

Mr Andreas Binar Aji Sukmana is a Lecturer in Microbiology, Faculty of Biology, Universitas Kristen Satya Wacana. His works are related to local food, microbiology, and biodiversity.

Mr Risya Pramana Situmorang is a Lecturer in Faculty of Biology, Universitas Kristen Satya Wacana. His works are related to biology education, food management, and farming systems.

Miss Monika Rahardjo is a Lecturer in Food Technology, Faculty of Medicine and Health Science, Universitas Kristen Satya Wacana. Her works include food technology, local crops, and food management.

Participants' locations, 'Regional Master Class in Plant Biosecurity 2019'

MASTERCLASS PROGRAM, 11–16 FEBRUARY 2019

Day 1 – 11 February 2019 (Monday)

08.00 – 09.00	Registration & Briefing about the program.
09.00 – 09.30	Opening Ceremony: Rector UKSW.
09:30 – 10:30	Orientation of Master Class and discussion of desired outcomes, led by Professor Ian Falk & Dr Titi Susilowati.
11:00 – 12:30	"What is biosecurity?": interactive discussion with the participants, led by Prof. Ian Falk & Dr Susie Hester.
13.30 – 14.30	"Bilateral Plant Biosecurity Initiative BPBI: Developing the Indonesian Biosecurity Foundation IBF", led by Prof. Ian Falk.
14.45 – 15.30	Participants' presentations.
15.30 – 16:30	"Biosecurity policy development in Indonesia", led by Theo Litaay, Ph.D.
16.30 – 17:30	Concurrent sessions (3): responses to biosecurity issues raised from the opening addresses and Participants' presentations, moderated by Ms Dina Banjarnahor, M.Sc.

Day 2 – 12 February 2019 (Tuesday)

08.30 – 09.00	Review of previous day's activities, led by Prof. Ian Falk.
09.00 – 10.30	"Biosecurity risk", by Dr Susie Hester.
11:00 – 12:30	"Biosecurity response", by Dr Susie Hester.
14.00 – 15.30	Simulation exercises, led by Dr Susie Hester.
16.00 – 17.00	Group exercises concluded.

Day 3 – 13 February 2019 (Wednesday)

08.30 – 09:00	Review of previous day's activities, led by Dr Susie Hester.
09:00 – 10:30	"Biosecurity, food security and food sovereignty", by Dr Sivapragasam.
11:00 – 12:30	"Trade and market access", by Dr Sivapragasam.
14.00 – 15.30	Group exercises, led by Dr Sivapragasam.
16.00 – 17.00	Simulation exercises concluded.

Day 4 – 14 February 2019 (Thursday)

08.30 – 09:00	Review of previous day's activities, led by Dr Sivapragasam.
09.00 – 10.30	"Community involvement to strengthen food security in Indonesia", by Mr Bahruddin.
11:00 – 12:30	"Education, training, and community awareness: capacity building: case study in Subak Bali", by Dr Eka Martiningsih.
14:00 – 15:15	"Local food to contribute to food security", by Dr Wiske Rostinsulu.
15:45 – 17:00	"Local foods for food security and food sovereignty", by Dra. Lusiawati Dewi, M.Sc.
17:00 – 17:45	Discussion groups (3), led by Ms Dina Banjarnahor, M.Sc.

Day 5 – 15 February 2019 (Friday)

08:30 – 09:00	Review of previous day's activities, led by Dr Titi Susilowati.
09:00 – 10:30	"What happens when things go wrong?", by Dr Sivapragasam.
11:00 – 12:30	"The value to universities and other institutions of collaborating with IBF", by Dr Suryasatria Trihandaru and Dr Drs. I Made Sukamerta, M.Pd.
14:00 – 15:30	Future contributions to biosecurity and biodiversity by Participants, led by Ms Dina Banjarnahor, M.Sc.
16.00 – 17:30	Feedback: Consideration of papers to be produced from Master Class, led by Prof. Ian Falk.

Day 6 – 16 February 2019 (Saturday)

08:30 – 09:00	Review of the week's activities, led by Dr Sivapragasam.
09:00 – 10:30	"Where to next?", led by Dr Titi Susilowati, Prof. Ian Falk and Dr Sivapragasam.
11:00 – 12:00	Closing Ceremony and presentation of Master Class Certificates.

FOOD SECURITY, FOOD SOVEREIGNTY AND FOOD SAFETY

6. ***Achmad Darojat JK***. Approaches to food security should not conflict with achieving food sovereignty.

7. ***Muhammad Dudi & Naila Huriati***. Plant biosecurity and food safety – flour milling industry's perspective.

8. ***Zainal Andi Kusuma & Bhakti Yudha Prawira***. Biosecurity planning for wheat from the origin country to Indonesia.

9. ***Agnes Cela Purwani***. Biosecurity: strengthening community awareness and capacity building for food sovereignty.

10. ***Rohning Sulistyani***. Farm biosecurity plans: preventing pests, diseases and weeds in rice fields of Salatiga to ensure food security.

11. ***Susie Hester***. Biosecurity risk analysis: an overview.

Images courtesy of Dhanang Puspita (above left), Agnes Cela Purwani (above right), and Linda Susilowati (right).

6. APPROACHES TO FOOD SECURITY SHOULD NOT CONFLICT WITH ACHIEVING FOOD SOVEREIGNTY

Achmad Darojat JK
Qaryah Thayyibah United Farmers Association, Salatiga, Central Java, Indonesia
darojat.jumadil@gmail.com

Abstract
Food security sought by the government should not conflict with the rights of the farmers to farm as they wish. Driven by the necessity of fulfilling food needs on a national scale, farmers may be required to do things that actually undermine their independence in farming. Buying superior seeds, fertilizing and spraying pesticides, these things make farmers dependent on corporations. Moreover, those practices can have negative effects on the environment. Nevertheless, there are serious targets for food production. Better biosecurity will assist in gaining food security while not abandoning the objective of achieving food sovereignty for Indonesia.

Abstrak
Ketahanan pangan yang diupayakan pemerintah semestinya tidak bertabrakan dengan hak Pertani untuk berdaulat. Petani, karena dikejar oleh keharusan terpenuhinya kebutuhan pangan dalam skala nasional, lalu dituntut untuk melakukan hal-hal yang sebenarnya mencabut kemerdekaan mereka dalam bertani. Membeli bibit unggul, melakukan pemupukan dan penyemprotan pestisida, hal-hal tersebut menjadikan petani bergantung kepada korporasi. Bahkan sering memberi dampak buruk pada lingkungan. Namun memang ada target produksi pangan yang harus dicapai dengan serius. Maka upaya-upaya dalam ketahanan pangan seyogyanya tidak mengabaikan ketahanan hayati dan tidak meninggalakan kedaulatan pangan.

Introduction
In Indonesia there are two terms that often counter each other: Food Security and Food Sovereignty. The first term is often used by the government while the second term is more often used by non-governmental organizations.

Food Security, in accordance with Indonesian Law No. 18, 2012, is

> "the condition of the fulfillment of Food for the state and individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with the religion, beliefs, and culture of society, for a healthy, active and productive life on an ongoing basis".

Whereas Food Sovereignty is the right of the state and nation to independently determine food policies that guarantee the right to food for the people and which give the community the right to determine the food system in accordance with the potential of local resources.

Food security speaks of availability while food sovereignty speaks of independence. The need for food must be fulfilled in quantity and quality, but there must be no harm to individual dignity. The most appropriate way to achieve this is to invite all small farmers to sit equally with giant farmers in terms of providing food in adequate quantity and quality.

Approach
The main focus of this research is on members of SPPQT (a farmer union at Salatiga, Central Java, Indonesia). They are farmers who had done regular farming in the Green Revolution of Indonesia until 1998. They have been converting to organic approaches since 1998. Despite their efforts, they are having an unsolved problem in encouraging other farmers to adopt organic farming methods. The main obstacle is the decrease of harvest by about 60%, a very serious threat that can certainly make farmers resist adopting organic approaches.

In December 2018, SPPQT started a pilot project on a new system in organic farming. From that day, a record has been made of all the processes that have been carried out and all the results that have been achieved. Particular attention has been paid to soil conditions and the growth of the padi plant. This project continues until March 2019.

The information in this paper is collected from the farmers who are involved in the project. It is about what they had been doing in the old way and what they can now see and feel using the new methods.

Discussion

Farming sovereignty: The best way to support farmer independence (sovereignty) is to make sure that there is no interference with farmers from outside interests. Farmers should plant as independent operators. They must be able to enjoy planting as a life, not merely as a business circle. Farming is an activity to maintain social and environmental fabric, not merely fostering capital to make profits. The interference often comes from the government. It can put farmers in a difficult position. Farmers have to plant the commodity that the government decides. It means that farmers have to buy certain seed, fertilizer and pesticide. This is not right. Food security sought by the government should not conflict with the rights of the farmers to farm using their own methods.

Farming in quantity: The idea is how to multiply farming products in order to achieve the maximum amount of harvest. At the national level there are still a number of targets to achieve. In general, the yield of rice on farming land, both in regular and in organic farming in Salatiga, Indonesia, is about 2.5 tons per hectare. So if one farmer can achieve a rice harvest of 7.5 tons per hectare, surely that technique is worth learning? SPPQT is now piloting this technique. Although at the time this report is written the process is still on-going, the result is outstanding. On the same soil, with the same seed, starting at the same time, but with a different treatment, the different results appear. At the 80th day rice stalks grown with old techniques grow at 28 straws at the most, while with new techniques they grow at around 70 straws. Some have reached 80 straws. Almost certainly, the yield to be achieved will be far more than with the old way.

Farming in norm: The idea is to maintain good relations among farmers, and good relations between farmers and the ecosystem including plants, animals, microorganisms, soil, and water. Farmers believe that everything they have now is entrusted from God. They have to preserve it and they will pass it to their next generation in a good condition. They believe that this is God's mandate. Not damaging the environment can be realized by not using pesticides to control pests. Alternative techniques are preventive techniques that allow pests not to approach naturally. They grow plants that are not liked by pests around the farm land. Also they do not use substances that can damage the soil or water. This usually occurs during fertilizing. So they do not use urea salts or other substances that endanger the environment. They use natural fertilizers from animal waste, plant compost, and fermented organisms.

All the three farming orientations mentioned are organized and cooperate in a union of farmer groups. Farmers living in the same area together solve problems at the local level. Then they send their leaders to be their representatives in order to solve the bigger problems at the higher level. This form of gathering farmers also can be applied to any problem related to farming. And all of these are starting from food sovereignty.

Future work

There are still a lot of farmers that are not aware of their right to food sovereignty. They need to be awakened. Government concerns at not achieving the food-security target are unrealistic because independent and motivated farmers have greater possibilities in multiplying their food production. They just need to learn how to organize themselves and to direct their objective to the right way. Government and NGOs should be encouraged to take a facilitative part in this.

INDEX of keywords and others, by paper number

Crawford Fund FOR A FOOD SECURE WORLD

UNIVERSITAS KRISTEN SATYA WACANA

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