



vegIMPACT

Potatoes

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vegIMPACT

Improved Vegetable Production and Marketing for small farmers to Increase the Food Security status and to promote Private Sector Development in Indonesia



VegIMPACT is a project financed by The Netherlands' Government promoting improved vegetable production and marketing for small farmers in Indonesia, contributing to the food security status and private sector development in Indonesia. The project builds on the results of previous joint Indonesian-Dutch horticultural development cooperation projects and aligns with recent developments in the horticultural private sector and retail in Indonesia. The project activities (2012 – 2016) include the Development of Product Market Combinations, Strengthening the Potato Sector, Development of permanent Vegetable Production Systems, Knowledge Transfer and Quality systems & Policies.

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1. Introduction: Potato production in Indonesia

Potato is one of the most important crops in the horticultural sector in Indonesia. The production increased during the first years of the 21st century. Indonesia has become the largest potato producer in SE Asia and has second position after China in the CIP-ESEAP region. However, the area and production decreased the last few years due to a number of reasons, amongst which a steady decline in yield per hectare. The causes of the decrease have been identified during a joint Indonesian-Netherlands mission and include low seed quality and availability and high disease incidence, resulting in high pesticide input and reduced profits.

The table represents the FAO statistics on potato production in Indonesia.

FAO potato statistics Indonesia													
Area Harvested (Ha)													
year													
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
62,776	73,068	55,971	57,332	65,923	65,420	61,557	59,748	62,375	62,650	71,238	66,531	54,819	
Yield (Kg/Ha)													
year													
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
14,720	13,376	14,849	15,590	15,321	16,387	16,401	16,936	16,092	16,672	16,512	15,945	15,755	
Production (tonnes)													
year													
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
924,058	977,349	831,140	893,824	1,009,979	1,072,040	1,009,619	1,011,911	1,003,730	1,044,492	1,176,300	1,060,810	863,680	

Potato is a priority crop in the strategic plan of research and development program of IAARD/ICHORD in Indonesia during the past 30 years. This position is strongly related to its potential as a food crop and its potential for export to for instance Malaysia and Singapore.

The German-bred Granola variety is the major variety in Indonesia since the 80-ies of the 20th century. Granola has moderate resistances to PVY (potato virus Y) and PLRV (potato leaf roll virus) and has a slow degeneration rate which has made it a successful variety in Indonesia (and in Philippines).

But Granola is only suitable for fresh consumption as its dry matter content is too low and its reducing sugars content is too high for processing into modern products.

The USA-bred variety Atlantic is the only variety grown for processing into chips (or: crisps). Atlantic was introduced into Indonesia around 1980 (similar to Granola) and has been dominating the raw material supply to the potato processing industry since its introduction. Each year Indofood is importing seed of Atlantic as insufficient seed is produced within Indonesia. Annual seed imports exceed 2 000 tons. Indofood faces increasing difficulties importing Atlantic seed potatoes as the Atlantic variety is being outcompeted by more recently bred processing varieties.

Both Atlantic and Granola are aging, both are very susceptible to late blight and substitution with modern varieties must be tried. These new (fresh and processing) varieties should have higher levels of resistance to late blight (caused by *Phytophthora infestans*) which is the major fungal pathogen in the Indonesian potato crops and have better suitability for fresh consumption and for processing.

A first test of modern varieties was conducted in 2012 at Balitsa with a set of five Netherlands-bred varieties; fresh and processing varieties. The modern processing varieties were outyielding Atlantic. Further optimisation will show the real yield potential of the new material. Modern cultivation techniques require a Good Agricultural Practices (GAP) approach in nutrient management and pest and disease management. This approach is expected to have impact through developing control scenarios for late blight in terms of use of effective agro chemicals and spraying technology.

The VegIMPACT project focuses on a 10% yield increase in processing varieties by 2016. The goal needs to be achieved through application of a combination of Good Agricultural Practices and the introduction of modern varieties.

1.1. Import of Dutch seed potatoes

In this part of the project all requirements for import and possible constraints will be identified and discussed with the various authorities. If successful, modern varieties will be filed for IPR protection, introduced and tested, demonstrated and officially imported at larger scale if sufficient market potential is observed. This will depend on 1. the acceptance by farmers, but also 2. the facilitation by the Indonesian authorities.

1.1.1. Planned activities for 1013

(For reasons of competition the identity of the (Dutch) potato exporter is not mentioned in this text)

	PVP	Quarantine
April	<ol style="list-style-type: none"> 1. Make a summary document on the Indonesian PVP system and requirements; 2. Verification by ArndJan van Wijk and Potato exporter. 	<ol style="list-style-type: none"> 1. Consult with NVWA export team; 2. Make summary document on Quarantine requirements for potatoes.
May	<ol style="list-style-type: none"> 1. Send it for verification to Indonesian authorities (CPVP office, DG Horticulture); 2. Decision about the cultivars that will be presented for Indonesian PVP. 	<ol style="list-style-type: none"> 1. Send summary document for verification to Agricultural Counsellor and NVWA export team; 2. Send final version for verification to Quarantine authorities.
June	<ol style="list-style-type: none"> 1. Report on the trials in Lembang. 	
July/August	<ol style="list-style-type: none"> 1. Study visit to the Netherlands: by officers of Quarantine, PVP and IVEGRI: Visits to NAK, NVWA, Exporting company, farmer-breeders, PPO/PRI etc. 2. Discuss the intended PVP applications; 3. Discuss the trial layout, quantities required etc. 	Study visit: <ol style="list-style-type: none"> 1. Discuss remaining quarantine issues with Director of Quarantine; 2. Discuss derogation of the requirement of pre-shipment inspection; 3. Plan the intended imports for research purposes with IAARD.
September	<ol style="list-style-type: none"> 1. Preparation of Platform Meeting and sending out invitations; 2. Import of 2 or 3 varieties for PVP application. 	<ol style="list-style-type: none"> 1. Discuss remaining quarantine issues with Director of Quarantine, if any; 2. Invite Quarantine to Platform meeting; 3. Import of a number of varieties for PVP purposes for new on-farm trials (through IAARD).
October/November	<ol style="list-style-type: none"> 1. Visit Indofood and major importers to investigate possibilities for business. 2. Platform Meeting with invitation of major players in the sector. 	
December	Evaluation, reporting and planning for the next year(s)	

1.1.2. Planning 2014-2016:

Discussion of the 2-years' import restriction whenever appropriate to sound the ideas of authorities and generate consensus: at present import of Atlantic is allowed by Indofood (as far as we know on basis of lack of local supply).

After 2 years of import a variety must be produced locally. This can be done 1. in combination with annual import of restricted amounts that will serve as basic stock, or 2. entirely locally with a system of rapid propagation and production of G0. At this point in time, the best approach still is not known and shall be based on experience and possibilities to find trustworthy local partners and a system of remuneration (royalties). This is mainly a task and mandate of the Dutch exporter.

2. Increase in potato production for processing

2.1. Start-up meeting

The potato agronomy project team plans a start-up meeting in April 2013. The VegIMPACT potato project team consists of Nicky Gunadi (IVEGRI), Witono Adiyoga (IVEGRI), Joost van der Burg (WUR) and Romke Wustman (WUR). The team will map the activities during the period April-December 2013 with an outlook to 2014.

2.2. Creation of a sector stakeholder platform

The project team will contact PisAgro and Kadin to suggest closer collaboration within the Indonesian potato chain. The new Indonesian potato platform is to play a role in legislation for variety registration with particular emphasis on commercial introduction of processing varieties and seed potato imports based on the demands of the processing industry and major retailers. Whether a third platform provides the best strategy or that one of the existing platforms mentioned above can be used, will be investigated. In any case, regular meetings with participation of the public and private sector will be organised as these will prove instrumental to generate the necessary pressure for change.

2.3. Design of innovation

The VegIMPACT project will:

1. Identify constraints in production levels: i.e. varieties, pest and disease control, supply of quality seed in 2013.
2. Increase production of processing varieties by 10 % by 2016.
3. Introduce Good Agricultural Practices (GAP) for processing varieties and fresh consumption varieties from 2013 onwards.
4. Up scaling through a Knowledge Transfer (KT) program starting in 2013.

2.4. Joint seed potato varietal experiments

VegIMPACT will collaborate with the Dutch seed potato trader to test new processing potato varieties in Indonesia in 2013 and 2014. The company will select the varieties for testing, is to supply seed potatoes and is to cover the cost of shipping the material into Indonesia. VegIMPACT will be in charge of running (incl. funding) the experiments and of reporting.

2.5. Identification of suitable trial sites

The project requires two sites for running varietal experiments and for running demonstrations to support the VegIMPACT Knowledge Transfer program. It is expected that such sites will be conveniently located in Garut and in Pangalengan regions.

2.6. Decision on the training subjects

Training will be based on constraints resulting from the potato crop analysis conducted in 2013. The training subjects will be supported by demonstrations for up scaling to a large number of potato growers in west Java.

2.7. Detailed work plan for the April – December 2013 period

The proposed work plan is to get an immediate benefit of the potato cropping seasons in West Java. Two steps to be taken in 2013 are described below:

Step 1: April – August 2013

April/May	1. Selection of 20 growers in each of two regions: Garut and Pangalengan 2. Selection is based on: Commitment to the project objective (10% yield increase of processing varieties) via recommendation of the head of the desa
March-June/July	1. Identification of yield constraints in cropping season
July/August	1. Reporting
August	1. Group feedback to participating 2*20 growers 2. Formulation Knowledge Transfer (KT) program for Step 2

Step 2: September – December 2013

September/October cropping season	1. Implementation yield increase recommendations at farm level (2*20 farms)
December/January cropping season	1. Implementation yield increase recommendations at farm level (2*20 farms)

2.8. Work plan for 2014-2016

Step 3: March – August 2014: Similar as to Step 2
Similar steps through to 2016

Potato cropping seasons in Java:

1	Rainy season	September/October - December/January
2	End rainy - dry season	March - June/July
3	Dry season	May - August/September