

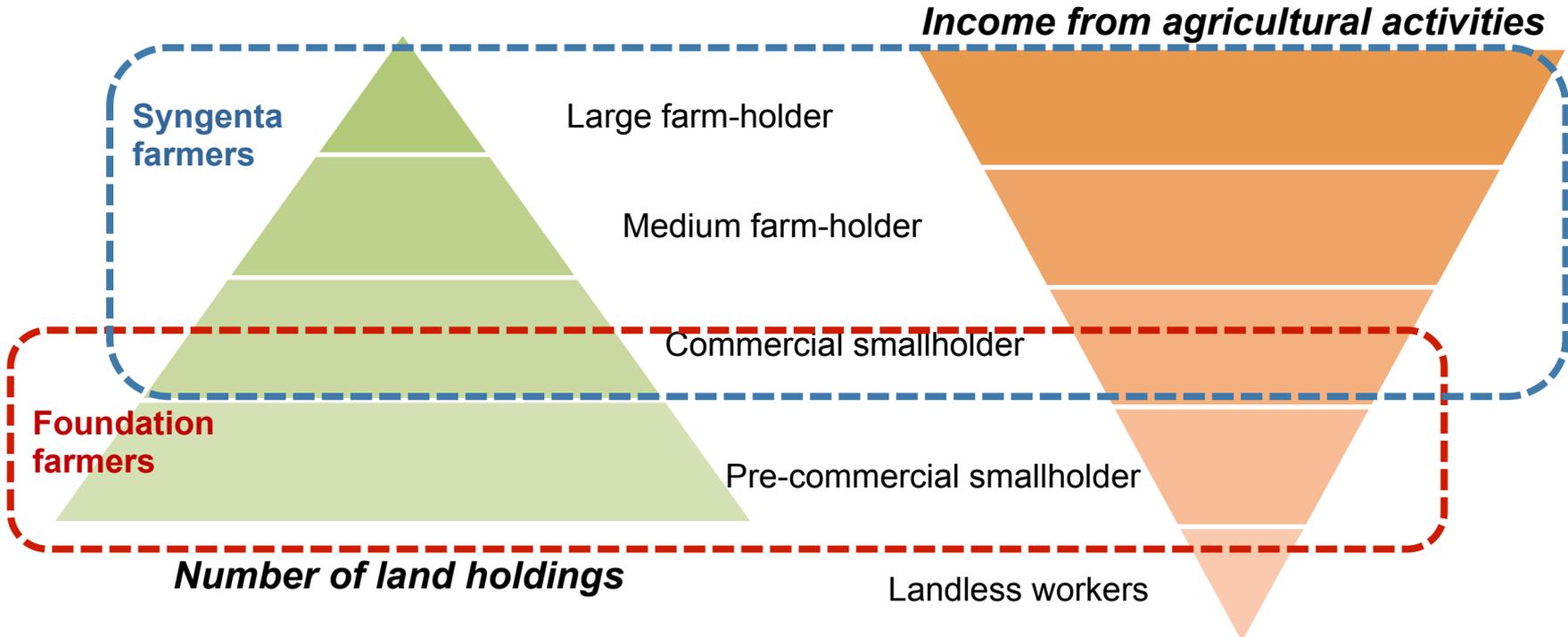
Scaling up Technologies through Value Chains

Developing a high quality potato seed business in
Indonesia

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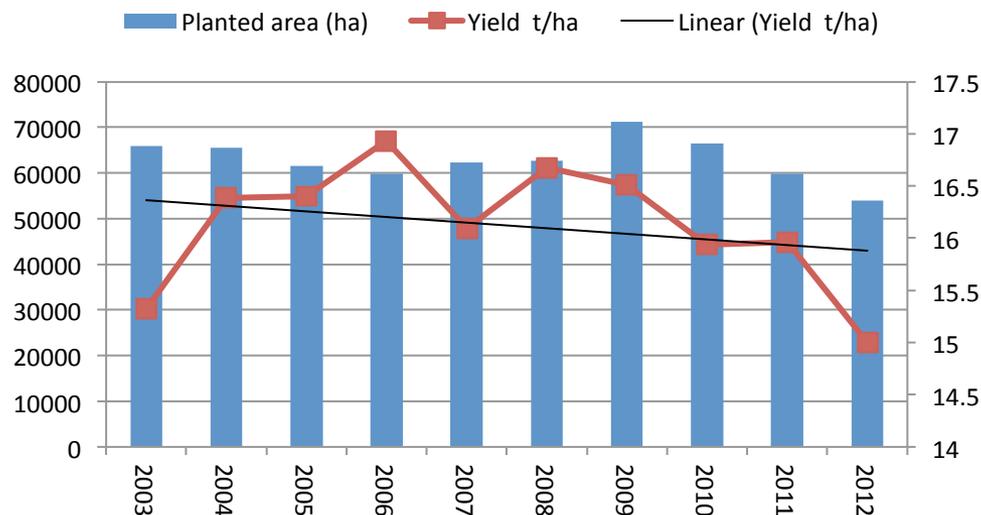
SFSA - Defining the 'Foundation farmer'

- Not for profit organisation, established and funded by Syngenta International AG, an agro chemical and seeds company that works in over 90 countries and has 26,000 employees.
- Strategic and operational independence from the company.
- Mandate to support smallholder famers
- Our success measured by our ability to build self sustaining farming systems.



Indonesia Seed Potato - Current situation 1/2

- Total planted ha has declined from a high in 2009 of 71k to 54k in 2012. The 2012 reduction in ha due presumably due to lack of access to seed and reduced profitability for the growers
- **Yields are declining.** Currently Atlantic at about **12-14 t/ha**, Granola@ 18t/ha. Mean at 15+
- Cost of production (2012) is USD6000/ha, 25-30% each for both CP inputs and seed costs. Breakeven yield (at IDR 4500-5000) = **11-12.0 t/ha**.
- Seed market potential (assuming 1.5 t/ha @ min 80,000+ tonne) is **USD\$ 64m**.
- CP potential assuming USD 1000/ha is ~USD 60m. (Note: USD 1000/ha is conservative).



2003 to 2011 figures from FAOSTAT. 2012 data from personal communication with Jan van der Tas

Current situation 2/2

- Potato with 2 major segments (80,000 tonne / USD 64m seed market)
 - Processing - Estimated at 16% of total production area, var. Atlantic.
 - Largest processor is Indofoods with a ware demand of 120k t/year (half imported). Currently managing seed supply of about 5500t (less than half their needs)
 - Second is Pacific. About 10% of Indofoods demand
 - Fresh production area @ >80% of total. Main variety is Granola
- All year production.
- Seed imports are **restricted** due to ID Seed law and **potato cyst nematode (PCN)**.
- Potato is seen as a strategic crop for R&D the ID government

Current bottlenecks - Main drivers for reduced production are lack of seed and poor quality seed

- **Limited availability of “clean” seed.** The current seed system relies on carry over tubers and/or locally produced seed neither of which are “clean”. This is the major contributor to low yields.
- **Imported certified seed expensive.** Highly subsidized. End user prices USD\$1,250+ / tonne.
- Importation of **seed restricted** by the Indonesia seed law, quarantine issues
- **Little introduction of improved varieties.** Granola and Atlantic are 20 year old+ varieties.
- **High disease pressure** (LB and BW) resulting in yield reductions.

Potato Seed Production – Not a new Technology

18-24
months

1. Plantlet production – Currently IVEGRI. Need to encourage private investment eg operating flower and other Tissue culture labs

2. Plantlets to produce G0 Mini tubers – VCC/SFSA as pilot. Need to encourage private investment. Show economics and business potential

3. Production of G1 seed from minitubers – Certified growers

4. Production of G2 tubers from G1 seed – certified growers. Seed sold to commercial growers or if possible used to produce G3 seed.

5. Ware production – Use g2 or G3 seed for production of ware stock. Initial focus on Atlantic.

- IVEGRI success rate low. SFSA could review process
- **Private enterprise for expansion**
- Tested for quality.
- **Develop strict protocols for greenhouse management**
- **Tested for quality**
- Credit for cash flow an issue??
- Private minituber production facilities.
- **Small grower groups formed into associations**
- Minimum areas required in order to justify inspections
- Produced under supervision and certified according to ID standards
- **Branded seed**, labeled as certified to meet stds of processors eg Indo Foods, Pacific, etc.
- Consider methods to counteract fakes
- Consider alternative production sites outside of Java
- **Seed product as potential part in a Syngenta ICS program.**
- Incorporate Syngenta ICS  **foundation for sustainable agriculture** protocols

Intervention target

Two pronged approach for improved seed supply.

Initial focus - Processing segment, var. Atlantic,

Short to mid term - Fresh segment var Granola.

1. Provide “clean” seed of existing varieties. Initial focus to build the system and solve current problems
2. Introduce improved varieties for both processing and fresh. Multi purpose variety may be an option.



- *SFSA project development / initiation, but,*
- *Private enterprise essential to make it work.*
- *Local public sector in a support role e.g. regulation, research, seed quality.*

SFSA offer to the industry

De-risk entry of private industry entry into the market

1. Early engagement with value chain partners, private and public.
2. Market overviews, joint biz case and KPI development.
3. Initial investment, proof of concept of the technology. SFSA to lead as per Seeds2B approach.
4. Systems development, SOP's, for
 - Mini tuber and OF seed production, technical support via int/ext consultants, certification.
 - Seed management, storage, dormancy management.
 - Training of field force.
5. Access to new varieties:
 - Broker distribution and licensing agreements (royalty based) with leading Dutch breeding company. Trust critical. Already done.
 - Testing of new material - maintain a full pipeline.
 - Lead on initial registrations of new varieties, incl PVP where possible.
6. Funding research to combine public and private genetics to produce new varieties.
7. Social impact investments, e.g. SFSA leveraged additional USD3m for investment in the potato seed value-chain in E Africa.
8. *Longer term, funding for targeted breeding programs, LB, HT, short maturity, short dormancy, nematode (PCN) resistance.*

Scale up – Why will this work

Skills

- Agronomic
- Extension
- Financial
- Manage change, for growers and commercial benefits.

Business Environment

- Demand driven opportunity
- Developed market links.
- Risk management (technology, agronomy, insurance, etc)
- Phased approach

Partnerships

- Motivated commercial partners.
- Transparent working relationships - trust
- Ability to build brand equity in the product / loyalty

Challenges

1. Market

- Grower adoption – Grower education on the benefits.
 - Initially linked via contact farming models.
 - Brand development - building trust in the product.
- Value added pricing.

2. Technical

- Open field production. (pest and disease for seed production, improved agronomy for ware production)
- Managing seed producers (correct rotation, field hygiene, etc)
- Certification systems??

3. Infrastructure and Distribution

- Seed potatoes are perishable and bulky. Cool storage will improve quality.