



Capacity building Malaysian Greenhouse Horticulture

Discussion Note – 2010 activities

Anne Elings
Wageningen UR Greenhouse Horticulture
August 2009

Summary

A demonstration greenhouse is being realized at Serdang in Malaysia, under the responsibility of the Department of Agriculture (DoA). The general goal is to demonstrate good horticultural practices. This is very valuable, and forms the nucleus of future horticultural developments. Focus crops are chilli, tomato, cucumber and melon. Once the greenhouses have been constructed, crops will be planted, installations will be fine-tuned, staff will gain experience, and interaction with growers will commence.

Growing a good crop and knowledgeable operation of the installations requires training of the DoA staff in the short term. This is for instance possible in The Netherlands at PTC+ but can also be realized in Malaysia.

The strengthening of linkages between researchers of the DoA (the formal knowledge system) and growers (the informal knowledge system) will contribute to a fast development of the horticultural sector. Growers and researchers can be jointly involved in the demonstration activities, and in the determination of research objectives. This can for instance be organized through the creation of farmer's groups, visits to the demonstration greenhouses, frequent discussion of the experiences gained in the greenhouses, etc.

For the long term, it can be considered whether capacity building at the institute and university level is desired, and whether the focus should be extended to pre- and post-harvest activities.

Background

A demonstration greenhouse is being realized at Serdang in Malaysia, under the responsibility of the Department of Agriculture (DoA). The greenhouse has been designed by Wageningen UR Greenhouse Horticulture, and is specifically suitable for lowland tropical climates. The general goal is to test and demonstrate good horticultural practices. Focus crops are chilli, tomato, cucumber and melon.

Knowledge level

Growing a crop in a greenhouse is a knowledge-intensive activity. The knowledge level in Malaysia is not in line with latest insights with regards to crop management, fertigation and climate control. It is advisable to train MoD staff such that they are well-equipped with knowledge, which will enable them to make the most out of the demonstration greenhouse. This is acknowledged by the management of DoA.

Knowledge systems

Two different knowledge systems can be distinguished, viz., the formal knowledge system that is formed by researchers and extension workers, and the informal knowledge system that is formed by growers. Both systems generate and possess different types of knowledge. A strong interaction between the two systems is needed to ensure fast learning and to stay on top of latest developments in practice and research.

Formal knowledge

Training of DoA staff will enable them to grow a good crop and to operate the greenhouse installation, making use of knowledge regarding the crop (physiology, water and nutrient requirements, protection, etc.), fertigation and climate control. The training should be finished before the first plantings in the new greenhouse.

In interaction with the growers, demonstration goals (e.g., what is a good fertigation system; are increases in production and product quality possible?) and research objectives (e.g., what is the best planting density?) can be identified. These can be translated in specific activities in the demonstration greenhouse, and be modified over time, as demands shift.

The learning process should be guaranteed once the activities in the greenhouse have started. It might be good to involve an experienced grower ('master grower') who can provide on-the-spot advice. This is also practice in The Netherlands, where researchers conduct research, and acknowledge that growing a good crop is a completely different expertise.

The strengthening of research institutes and universities, and the development of links with other countries is a medium and long-term development path.

Informal knowledge

Exchange of experiences and information among growers, farm managers and farm staff very much accelerates the learning in the horticultural sector, to the benefit of all. In the absence of such interaction, individual growers continuously re-invent the same wheel.

Production chain

Pre and post-harvest issues can be expected to become relevant issues for improvement.

Need assessment

Details can best be discussed during a training need assessment in which the following stakeholders participate:

- growers
- Department of Agriculture
- University
- Research Institute
- Supply industry

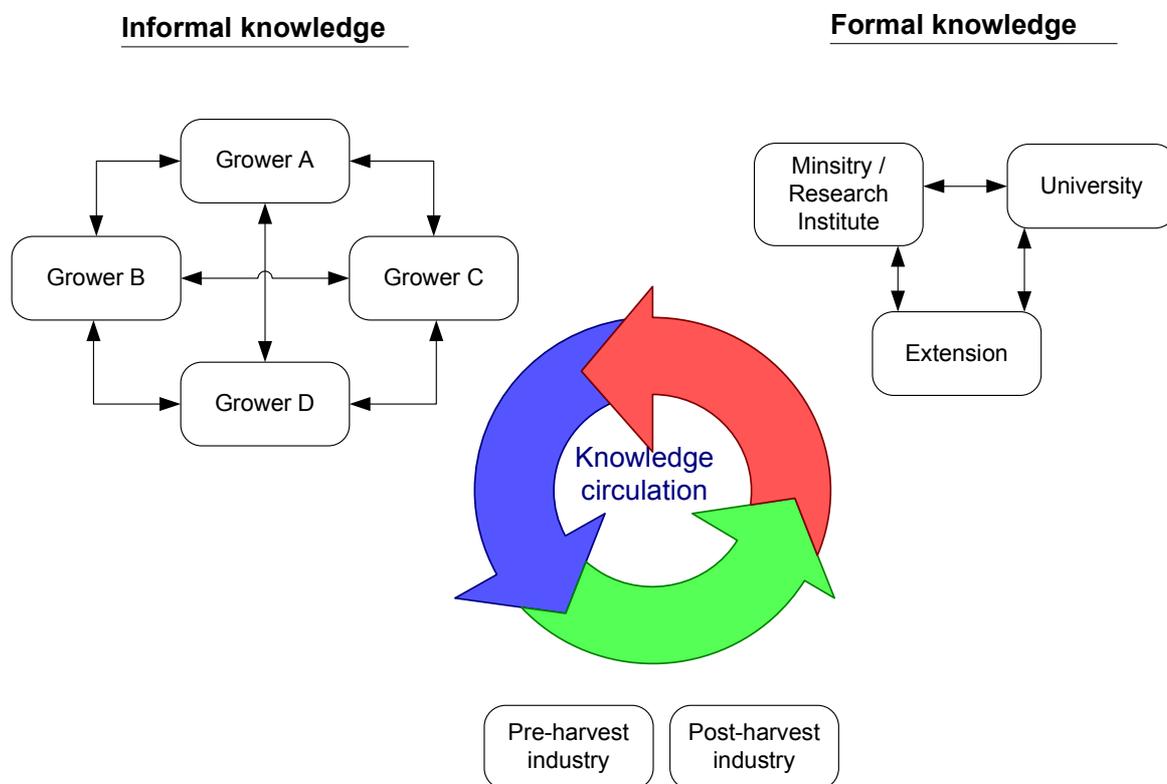


Figure 1. An overview of stakeholders that are involved in capacity building in the field of greenhouse horticulture

Possible activities:

Short term (next few months):

1. Course for DoA staff. This course can be provided by PTC+¹, the fertigation industry, or other suppliers.
 - a. Crop physiology
 - b. Crop protection
 - c. Fertigation
 - d. Climate control
2. Establishment of first crops in greenhouses.
 - a. Fine-tuning installations.
 - b. Gaining experience by staff.
 - c. First experiences with regards to climate control, etc.
 - d. Interaction with growers

Short-Medium term:

3. Development of linkages with growers: integration of formal and informal knowledge.
 - a. Establishment of growers groups
 - b. Interaction between growers and researchers
4. Demonstration activities
 - a. Greenhouse construction
 - b. Greenhouse installation
 - c. Integrated cultivation systems
 - d. Various crops
5. Research activities
 - a. Plant density
 - b. Irrigation regime
 - c. Nutrient application regime
 - d. Maximum temperatures
 - e. Many more

Long term:

6. Strategic capacity building
 - a. Capacity building at institute
 - b. Capacity building at other institutions, e.g., university
 - c. Establishment of relations with other Asian countries.
7. Chain management
 - a. Pre-harvest
 - b. Post-harvest

Collaboration (options)

- Wageningen UR Greenhouse Horticulture: knowledge, research support, process guidance
- PTC+: training
- Wageningen International: strategies in capacity building
- Specialists from countries in the region

¹ A quotation has been prepared by PTC+