THAILAND

Case Study

The Exportation of Orchids to European Union

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Case study process and activities

Activity timeline
This case study was implemented in approximately 2 years
July 2011-July 2013
Department of Agriculture (DOA)
National Bureau of Agricultural Commodity and Food Standards (ACFS)

The activities in developing the case study
1) general project meeting containing two parts:
   • general meeting among project staff held twice a week
   • Skype meetings developing the model and case study with ICL and QUT
   • Visit by QUT

2) three times stakeholder meeting
Thai Orchid Exporters Association & Thai Orchid Garden Enterprise Association
6-10 February 2010, 29 May 2012 and 19 July 2013
Case Study Objective

To employ the Bayesian Network (BN) to identify key control points and alternative measures generating the effective model to meet EU’s phytosanitary requirements

Better understand alternative phytosanitary measures equivalent to methyl bromide fumigation

The results can ultimately maintain an important export market, currently threatened by high pest interceptions
Case study process and activities

Case Study Developing

Implemented in approximately 2 years

Setup the preliminary model
Production chain, Control point
DSS template

Advice
Fr. QUT+ ICL

CP-BN team

2 stakeholder-meeting

Setup the preliminary model
Production chain, Control point
DSS template

Experts and Entomologists

DSS: Evaluation

Training Session.

Preliminary Result!!

RESULT (Final??)

CP-BN execution

3 stakeholder-meeting

CP-BN execution

Intense Evaluation in DSS
6 -10 Feb. 2012 activities

Suvarnabhumi Airport
Thai Orchids Co.Ltd
Orchids farm
Packing house
29 May 2012 activities
-Stakeholder meeting-
At ACFS Office
Production chain

This was prepared by the Thailand NPPO in consultation with orchid industry stakeholders before a midterm meeting in July 2012. It was reviewed by the Beyond Compliance technical team and FERA-UK.

The production chain indicates a series of potential control measures and verification measures. These measures can be applied to manage the risk of infestation, and monitoring can be applied to determine the effects of the measures.
Thrips palmi - Orchid export from Thailand

Source from pest free area / pest free place of production? ...

Neonicotinoids: imidacloprid, thiacloprid, acetamiprid, th...

Space treatments: Phenthoxy-ethyl, deltamethrin logs (o...

Crop breaks for thorn... 

Physical acting substances: Products based on, or containing, petroleum oils, plant... 

Separated new plants & cuttings from existing growing material when new material arrives (+... 

Insect growth regulators (IGR) and juvenile hormone (JH) mimics: teflubenz...

Insecticides such as imidacloprid and pyrethroids are used, but may have serious effects on natural en...

Test for development of insecticide...

Supplementary cultural and mechanical methods were required to control the pest (...

Apply at least one foliar spray and one space treatment per week, with a second foliar spray per week if possible. N.D. The second foliar spray may replace the space.

At present, biological control of T. palmi is not achievable.

In trials under glass in Japan, none of the (repeated) applications gave t...
**Evaluation: Decision support spreadsheet (DSS)**

**Hypothesis:**

a) The measure efficacy estimates are over optimistic and should be rather lower

b) In this first version there is no facility to add pest challenge along the production chain, only at the beginning

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**Initial system approach CP-BN with 4 control points, initiating the *Thrips* population at 90%**

The hypothesis is supported by the results from 3rd stakeholders interview.
Evaluation: Decision support spreadsheet (DSS)

DSS result

System approach CP-BN with 4 control points, initiating the *Thrips* population at 90%. Pest pressure along the production chain added but here set to negligible.
CP-BN output under the following infestation scenario:

a) Initial pest challenge is 90% chance of being high
b) Various measures applied
c) Additional Thrips challenge along the production chain has 50% chance of being high
d) 15% probability of High infestation at point of export
CP-BN output under the following infestation scenario:

a) Initial pest challenge is 90% chance of being high
b) All measures are turned off
c) No additional Thrips challenge along the production chain
d) 90% of high infestation at point of export
Current Possibility

CP-BN output under the following infestation scenario:

a) Initial pest challenge is 90% chance of being high

b) Methyl bromide fumigation measure switched on at 100% efficacy and implementation

c) Additional Thrips challenge along the production chain

d) 1% of low infestation at point of export; 99% probability of Negligible
Possible Alternative

CP-BN output under the following infestation scenario:

a) Initial pest challenge is 90% chance of being high
b) Methyl bromide fumigation turned off
c) Activate Highly effective spray and hygiene programmes
d) Additional Thrips challenge along the production chain (as previous slide)
e) 8% of low infestation at point of export; 92% probability of Negligible
Conclusions about systems approach (Thailand Case Study)

Selected measures: spray program and field sanitation appear to be equivalent to the use of methyl bromide fumigation to control *T. palmi* infestation in export orchids.

More evaluation may be needed to obtain the better results. (evaluation & sensitivity test → promising results)

Collaborating with the stakeholders help better understand the difference between evaluated theory and practical implementation.
Conclusions about Beyond Compliance project

Obtain Critical Thinking:
the system approach → think more analytically and systematically
(IPM → System approach)

Get better understanding in the orchid cultivation
(e.g. most application techniques based on investment cost)

Learn the fact that the theory may not be implemented in the field

Connection!!
Share the experience among counterparts, brain storms → promising result

Learn to utilize the new innovation method (CP-BN) for pest risk management
and challenge for other projects.