Summary of the Workshop on the gap analysis consolidation and capacity building plans for the participating countries of the project (STDF/PG/755) titled" Strengthening phytosanitary compliance and public private partnerships to boost seed trade in the Asia Pacific region.

Location and Date: Bangkok, May 22-23, 2023

As part of the consolidation of the gap analysis and capacity building needs of the participating countries of the STDF/PG/755 seeds project, a workshop was organized in-person in Bangkok from May 22-23, 2023. The agenda of the workshop is attached in Annexure 1. The NPPOs of each beneficiary country namely, Bangladesh, Cambodia, Laos, Nepal, Philippines, Thailand and Vietnam participated in the work along with STDF and APAARI secretariat and representatives from associated technical implementing partners (Asia and Pacific Seed Alliance, Croplife Asia and International Seed Federation). The detailed list of participants is attached in Annexure 2. This workshop was the culmination of the assessment of gaps and capacity building needs of the NPPOs that started with the preparation of questionnaire, response received and one on one meeting with the National Team of each country.

Shivendra Bajaj welcomed the participants and provided the scope of the meeting, which was followed by the opening remarks and outlay of the meeting by Ravi Khetarpal. He also thanked the participating countries for their detailed inputs on the questionnaire which enabled the preparation of the agenda of this workshop and clear understanding of further actions regarding the capacity building needs.

The current status and capacity needs of each country was briefly presented (as per the response from the questionnaire and individual online meetings with each country) by Shivendra to seek consent from the countries that the assessment made from the information provided is correct. The detailed presentation and summary of the assessment made is attached in Annexure 3 and Annexure 4.

Rose Souza Richards from ISF highlighted the challenges associated with the international movement of seeds, the requirements of the ISPM 38 and specific phytosanitary measures that are applied. The presentation is attached as Annexure 5.

The pest list database was discussed for each country and whether the country has a specific pest list for seeds. Rose Souza Richards with support from Thelma Soriano moderated this session. The inputs from NPPOs were sought on the pest list database. The ISF regulated pest list was used as a reference for the seed pest list database. The recommendations in ISPM 2 and ISPM 11 in preparing the seed pest list were also discussed. Thailand already has pest list for seeds for four vegetable crops and it was informed that Philippines has also creating pest list for seeds for eight crops and consulting with the seed sector for additional crops. Other participating countries do not have any pest list specific for seeds.

Each country was asked about the top three vegetable seeds traded (or vegetable crop grown) and if they would like to develop the pest list for seeds, which can be compared with ISF regulated pest list. The countries agreed and shared the most important vegetable crops. The next step will be to engage an expert to develop the pest list for these vegetable crops for each participating country.

Dr K.S. Varaprasad provided the key elements for pest risk analysis with few examples. The presentation is attached as Annexure 6. Dr Ravi Khetarpal also highlighted the importance of comprehensive pest risk analysis.

May Chodchoey made a presentation and moderated the session on third party laboratory accreditation, seed quality testing and laboratory standards. She also stressed the need to expand the capability of seed health laboratory for issuance of phytosanitary certificates and the recommendations of ISPM 45 for accreditation of the laboratories. The NPPO of Thailand made a presentation on the experience and steps taken by Thailand government. She outlined the application procedure to become an accredited laboratory and the criteria for accreditation and the companies that have successfully completed the requirements for specific crops and pathogen tests to become accredited laboratory. The presentation is attached as Annexure 7. The Philippines NPPOs also briefly outlined the steps taken by their government on third party laboratory accreditation. Philippines has issued a government order outlining the procedure for this purpose and have accredited two companies. They agreed to to modify the procedure as per ISPM 45 recommendations. Regarding other countries in the project, it was discussed that Nepal has labs that test seed health but not exclusive seed testing labs. Bangladesh is developing more labs and Vietnam is working on the changes in the legislation that will allow third party laboratory accreditation. For Cambodia and Laos, it is still in very early stage. It was also agreed that the Philippines can be the case study under this project for implementing third party laboratory accreditation. Bangladesh also showed interest to bring the legislation change and would like to significantly build its capacity through this project on recommendations of ISPM45.

On day two of the meeting, Ravi Khetarpal and Shivendra Bajaj highlighted the summary of the day one discussions specifically reconfirming that pest list for seeds will be reviewed for 3 crops for each country which is in ISF regulated pest list and Bangladesh and Philippines will be the focus countries for third party laboratory accreditation through implementation of ISPM 45.

May Chodchoey then shared the progress on the development of the seed portal. This portal will have information about the country phytosanitary requirements. It was informed that the contract has been signed with the vendor and shared the first draft version. It was discussed that Cambodia doesn't have a website in the Ministry of Agriculture. The existing one belongs to the Ministry of Commerce. Cambodia however, agreed to review the pest list of three crops and add to the portal. Laos reported that the website is for everyone but there is requirement of password for uploading. Nepal will create the pest list and add to the website. Philippines as reported earlier is creating pest list for seeds for more crops. Thailand will not work on pest list for crops other than four already completed at this stage and Vietnam has three websites and will discuss about the linking with the portal.

As a result of these discussions, three categories were created as per the existing status on pest list for seeds:

Category A: Philippines and Thailand

Category B: Bangladesh, Nepal and Laos

Category C: Cambodia and Vietnam

ePhyto: Rose Souza Richards moderated the session on ePhyto and asked each country about their progress and support required. Bangladesh will register for ePhyto and ISF will help Bangladesh connect with IPPC on ePhyto. Philippines already receiving ePhyto with some countries and a meeting will be held with the Philippines NPPOs and will do testing with Thailand through Asian Single Window. Thailand making further progress and developing a cloud system to increase the capacity and agreed to support other countries. Nepal reported that they faced issues in tracking with IPPC and working with the service provider to resolve the issue. Cambodia is requesting funding from World Bank to develop its infrastructure on ePhyto while Laos will need the basic technical assistance. Vietnam also reported issues in exchanging data but started work again with New Zealand. Their website belongs to another ministry, and they also need to change their legislation.

Ravi Khetarpal and KS Varaprasad then discussed about the PCE and status of each country. Whether the last step of roadmap for capacity building was considered - Next steps (how countries look at the PCE exercise. Bangladesh and Nepal completed PCE earlier and will look at the gaps that were identified. Cambodia and Laos also did some modules of PCE and will share the details.

Action Items and next steps:

Annexure 8 summarizes next steps and actions items for the remainder of the year:

1. Portal of Phytosanitary Requirements and Pest list for seeds: Other than uploading phytosanitary requirements of each country, the pest list for 3 vegetable crops will be created. The three most important vegetable crops will be reconfirmed and pest list for these crops will be obtained from the countries. It will be translated in English where required. A separate pest list for seeds will be then created in line with ISF regulated pest list. In the meantime, the prototype of the portal will be finalized and import conditions along with the pest list will be uploaded to the portal.
2. Capacity Building on ISPM 38: The workshop on ISPM 38 will be held next year. For countries like Bangladesh, Laos and Cambodia it will be mostly an outline of the process to help take next steps, while Nepal would like to develop its own NSPM. Thailand and Vietnam are fairly advanced and will benefit in the execution or oversight. Philippines will be the active country as it will developing its draft legislations and would welcome comments from the private sector and benefit from the detailed workshop on ISPM 38.

3. ePhyto: The progress on ePhyto will be taken up individually with the countries. As discussed above, support will be provided to Bangladesh to register, while Philippines will be supported in expanding ePhyto and working with Thailand in ASW. Thailand will support other countries and support will be provided to Nepal for troubleshooting in operational aspects. Basic introductory sessions will benefit Laos and Cambodia and Vietnam at this stage will focus first on the legislations change.
4. ISPM 45: Philippines will be the country for case study to advance third party laboratory accreditation, it will be done as per the country legislations. Bangladesh showed interest to make progress while Cambodia, Laos and Nepal will benefit from the capacity building sessions. Vietnam will also benefit from the sessions but need to work on their legislation changes.

Next Meeting: The next in person meeting will be held in Manila on 17-18 October 2023. The meeting will focus on the capacity building workshops on ISPM 2 and 11 to continue work on the pest list for seeds. The workshop will also update on the development of the portal of phytosanitary requirements.

Workshop on the gap analysis consolidation and capacity building plans for the participating countries of the project (STDF/PG/755) titled" Strengthening phytosanitary compliance and public private partnerships to boost seed trade in the Asia Pacific region.

May 22-23, 2023

Venue
Meeting room: **Lotus II, 2nd Floor**
Swissôtel Bangkok Ratchada
204 Ratchadaphisek Rd, Huai Khwang, Bangkok 10320, Thailand

Day One: May 22, 2023

Time	Agenda item	Remark
9.00-9.30	Registration	All
9.30-9.45	Welcome and Introduction	Shivendra Bajaj
9.45-10.00	Opening Remarks/Outlay of the meeting	Ravi Khetarpal
10:00-10:10	STDF Video presentation	*(Video presentation)*
10.10 – 10.30	Review of Countries' Capacity Needs	Shivendra Bajaj
10.30 – 11.00	ISPM38 - Challenges associated with the international movement of seeds - Requirements of the ISPM 38 - Specific phytosanitary measures to apply	Rose Souza Richards *(Video presentation)*
11.00 – 11.30	**Tea break**	
11.30 – 13.00	Discussion on the seed pest list database Inputs from NPPOs - Preparation of seed pest list and seed pest list update *(ISPM11 and ISPM38)* - ISF regulated pest list as a reference for seed pest list update - Review of country's seed pest list	Rose Souza Richards (online)/Thelma Soriano
13.00 – 14.00	**Lunch**	
14.00 – 15.00	The seed pest list database (contd.) -Exercise with the countries: current database and way forward	May Chodchoey/Thelma Soriano All NPPOs - NPPOs to prepare current database and

	(poll to ask which seed list to start with by country and what support is required to review the pest list)	share before the workshop.
15.00 – 15.30	Third Party Lab accreditation - Overview of major seed trade in participating countries and seed movement -Seed quality tests and laboratory standard (ISTA and ISO17025) -why do we need to expand the capability of seed health laboratory for phytosanitary certificate - Implementation of ISPM45	May Chodchoey
15.30-16.00	**Tea Break**	
16.00-17:00	Third Party Lab accreditation contd. - Thailand experience - Steps taken by Philippines	Thailand and Philippines NPPOs/moderated by May Chodchoey

Day Two: **May 23, 2023**

Time	Agenda item	Remark
9.00-9.30	Summary of the day 1 and introduction of Day 2	Shivendra Bajaj
9.30 – 11.00	Portal containing links of countries seed pest list database - Information required for the portal and mode of collaboration with country's NPPO - Discussions on prototype - Steps taken so far	May Chodchoey
11.00-11.30	**Tea Break**	
11.30 – 12.00	ePhyto -Overview - Breakdown, what is needed -needs for different countries -interactive exchange	Rose Souza Richards (Online) / All NPPOs
12.00 – 13.00	Phytosanitary Capacity Evaluation (PCE) -Highlights of PCE for each country - Whether the last step of roadmap for capacity building was considered - Next steps (how countries look at the PCE exercise)	Ravi Khetarpal / KS Varaprasad
13.00-14.00	**Lunch**	
14.00 – 15.00	Closing - Summary, Next steps, Plan for next meetings of Capacity Building	All /Moderated by Shivendra Bajaj

STDF project Workshop

22-23 May 2023

Bangkok Thailand

List of Participants

NO	Organization	Name and Surname
1.	APAARI	Dr. Ravi Khetarpal
2.	APAARI	Dr. Shivendra Bajaj
3.	APAARI	Dr. K.S Varaprasad
4.	APAARI	Mr. Manish Rai
5.	APAARI	Ms Thansita Tanaphatrujira
6.	APAARI	Ms Sokharath Samnang
7.	APSA	Dr. Kanokwan Chodchoey
8.	ASTA	Ms Lainey Wolf
9.	ATSA	Sam Crowell
10.	CropLife	Ms Thelma Soriano
11.	DAE	Mohammad Liakat Hossain Khan
12.	DAE	Mr. Jewel Rana
13.	DOA	Ms. Chonticha Rakkrai
14.	MAFF, Cambodia	Dr. ONG Socheath

NO	Organization	Name and Surname
15.	MAFF, Cambodia	Mr. HO Chea
16.	MoAF, Laos	Mrs. Sounaly SOMMANY
17.	MoAF, Laos	Mr. Vanthieng Phommasoulin
18.	National Plant Quarantine Service Division	Ms. Jessa Blesilda Antero
19.	National Plant Quarantine Service Division	Ms. Carmela B. Rivera
20.	Plant Quarantine and Pesticide Management Center	Mahesh Chandra Acharya
21.	Plant Quarantine and Pesticide Management Center	Prakash Paudel
22.	PPD, Vietnam	Mr Nguyen Tuan Anh
23.	Syngenta India Limited	Mr Surya Rao Rongali
24.	STDF	Ms Catalina Pulido
25.	WorldSeed	Dr. Rose Souza Richards

STDF/PG/755 Project: Strengthening phytosanitary compliance and public private partnerships to boost seed trade in the Asia Pacific region

Workshop on the gap analysis consolidation and capacity building plans for the participating countries of the project.

May 22 -23 2023

Bangkok, Thailand

1

Objectives

To ensure that

- phytosanitary issues do not impede the trade of seed between these countries
- phytosanitary capabilities match with global standards
- public-private trust and partnership is boosted to ensure food security through availability of high-quality seeds

The goal of the project is

"Increased seed trade and market access for the Asia Pacific region

2

Key Areas for Engagement

- Identifying gaps between the infrastructure and capabilities of NPPOs
- Creation of a database where all information related to importing phytosanitary requirements for the countries in the region are recorded
- Consolidation of the portal of regulated pests and import condition for the region

3

Key Areas for Engagement

- Capacity building for PRA and other related ISPMS
- Advocate the adoption of initiatives such as ePhyto
- Promoting the involvement and investment of the private seed sector.
- Facilitate the lab accreditation program for the independent private laboratories by NPPOs.

4

STDF Project outputs and its activity

Output 1. Country assessment of existing infrastructure and capabilities of the NPPOs of the participating countries based on the initial information received during the PPG related to the project objectives.

Activities

- Desk Review and Phytosanitary Capacity Evaluation (PCE)
- Analysis of the Validation Workshop for highlighting the action points
- Meeting with the individual NPPOs of each country and in country assessment
- Consultation Meeting

Workplan

Year 1 | Year 2 | Year 3

Q1 - Q2

5

STDF Project outputs and its activity

Output 2. Create database (portal) updated by NPPOs for phytosanitary requirements in English

Activities

- Existing pest list for seeds reviewed for each participating country
- Phytosanitary requirements reviewed and confirmed with the NPPOs
- Import and export phytosanitary certification requirements compiled
- Prototype and finally fully functional database of phytosanitary requirements

Workplan

Year 1 | Year 2 | Year 3

Q2 Q3 Q4 Q1 Q2

6

STDF Project outputs and its activity

Output 3. Sstrengthening NPPO's capacity on international standards for phytosanitary measures (ISPMs) and initiatives

Activities

- Capacity building of the NPPOs on the relevant ISPMs such as ISPM 2,6, 11,12,29,38 and 45)
- Workshops on export certification and import verification
- Assistance to implementation of ePhyto for countries that use ASEAN New Single Window (NSW)

Workplan

Year 1 | Year 2 | Year 3

Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

7

STDF Project outputs and its activity

Output 4. Strengthening Public-Public and Public-Private Partnership

Activities

- Creating a public-public and public-private coordination platform (extension of the APSA phytosanitary expert consultation)
- Joint workshops conducted on awareness of investments made by private sector in seed health testing to support the implementation of ISPM 45
- Policy dialogue for developing a laboratory accreditation program of independent private laboratories by the NPPOs

Workplan

Year 1 | Year 2 | Year 3

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

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Project Progress

Start Date : November 2022

- **Inception Workshop**
- **Constitution of national team**
- **Gap Analysis done**
- **Capacity building activities planned**

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Gap Analysis and Capacity Needs- Database of Phytosanitary Requirements

- **Bangladesh:** No electronic database, but a portal is being created. Agreed to provide link to the seed portal of the project. One list for quarantine pests. No separate pest list for seeds.
- **Cambodia:** Database only available at IPPC link. No separate pest list for seeds.
- **Laos:** Restricted database, partly in English, not online yet. Happy to use ISF list.
- **Nepal:** Electronic database, agree to link with portal. No specific pest list for seeds
- **Philippines:** General website, agree to link with the portal, No separate pest list for seeds
- **Thailand:** Database exists, in English, agree to link with the portal Pest list for seeds for 4 crops
- **Vietnam:** No online database, government notifications in Vietnamese, agree to translate into English.

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Capacity building needs for ePhyto (ISPM12)

- **Bangladesh:** No ePhyto yet. Registering with IPPC. Definite need for capacity building,
- **Cambodia:** No ePhyto yet. Requested for government funding to start the process
- **Laos:** No ePhyto. Manual process for issuing phytosanitary certificate
- **Nepal:** Exchanging ePhyto but need training on updates
- **Philippines:** receiving ePhyto with some countries. Keen to expand
- **Thailand:** Actively exchanging ePhytos. Can provide mentorship to other countries
- **Vietnam:** No ePhyto. Not expected to start anytime soon.

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Capacity building needs: PRAs

- **Bangladesh:** no dedicated team, agreed to assign two officers, agreed to use ISF pest list for PRAs
- **Cambodia:** 7 people in total, no dedicated staff for seeds, agreed to nominate two officers, agree to use ISF list
- **Laos:** no dedicated staff for seeds, also need support on infrastructure
- **Nepal:** **3 staff for PRAs,**
- **Philippines:** significant capacity exists, can gain more from the project
- **Thailand:** significant capacity exists, can gain more from the project
- **Vietnam:** significant capacity exists, can gain more from the project

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Capacity building needs: International Standards

- **Bangladesh:** so far no training on ISPM38, will dedicated two staff
- **Cambodia:** not much work on ISPM38. Priority will be stop illegal seed movement and gain from Thailand and Vietnam
- **Laos:** want to implement ISPM38 but no training so far
- **Nepal:** not much work on ISPM38, good to provide overview
- **Philippines:** draft legislation under process, would gain from the workshops
- **Thailand:** separate workshops on seed movement of some specific crops, can gain more from the project
- **Vietnam:** actively working on implementation of ISPM38, can gain more from the project

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Seed Health Testing Capacity/3rd party accreditation

- **Bangladesh:** 10 labs, one private lab undergoing ISTA accreditation
- **Cambodia:** no separate seed lab,
- **Laos:** 2 labs, need more work before 3rd party lab accreditation
- **Nepal:** no separate seed lab, need more work before 3rd party lab accreditation
- **Philippines:** Public and private seed health testing labs, MoA underway to accredit 3 private labs, can adapt to ISPM45.
- **Thailand:** Formally accredit 3rd party lab accreditation, can mentor other countries
- **Vietnam:** private seed health testing labs exist but accreditation not yet started

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GAP Analysis - Results

Actions	B'desh	Camb.	Laos	Nepal	Philip.	Thailand	Vietnam
Database of seed pest list	-	-	-	-	-	+ (4 crops)	-
Cap. building need for e-Phyto (ISPM 12)	+	+	+	Yes but +	Yes but +	-	+
Need for Pest Risk Analysis training	+	+	+	+	- +	- +	- +
International Standards (ISPM 38) training	+	+	+	+	+	Yes but +	Yes but +
Seed Health Testing Capacity/ 3rd party lab accreditation	Low/+	Low/+	Low/+	Low/+	Med/+	All Good	Low/+
PCE/Application	Done/??	Being done	Done/??	Done/ ??	Need PCE	No urgency	Done /???

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Project workplan

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
OUTPUT 1 **Specific needs regarding existing infrastructure and capabilities of the NPPOs of the participating countries are identified**													
1.1 Analysis of the Validation Workshop for highlighting the action points (Detailed analysis of the capacity of NPPOs based on the response received on the questionnaires during the PPG)	Project Manager, Project Working group, Subject Matter Expert(s)	x											
1.2 Follow up meeting with the individual NPPOs (Meeting with the individual NPPOs of each country and in country assessment)	Project Manager, Subject Matter Expert(s), NPPOs	x	x										
1.3 Group Meeting involving all NPPOs and other stakeholders for final assessment of gaps	Project Manager, Working Group, NPPOs, Private Sector, FAO, IPPC and other invited stakeholders and experts		x										

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Thank you


Australian Government
Australian Centre for International Agricultural Research
WORLD TRADE ORGANIZATION
AFD
USDA
NARC
PARC
IAC
CARP
Rural Development Administration
ICRISAT
ICARDA
Science for resilient livelihoods in dry areas
WorldFish
Bioversity International
IRRI
CIMMYT
World Vegetable Center
IFPRI
ICIMOD
CIP
INTERNATIONAL POTATO CENTER
ILRI
CABI
IAAS
birac
AAU
UPM
cirad
LA RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT
AARINENA
APAFRI
FARA
AIT
Asian Institute of Technology
CACAARI
Central Asia and the Caucasus Association of Agricultural Research Institutions
National Taiwan University
godan
Pacific Community Communauté du Pacifique
BCIL
brac
APSA
HumanLife
AFMA
GFAR
GCHERA

Preparation of a country assessment of its current capacities and needs for capacity building for phytosanitary requirements for the STDF 755 seeds project.

1. **Database of requirements**:

Bangladesh: There is no electronic database, but an online system (SPS Portal) is being established which would be password protected. Currently, the importers/exporters are managing through email. Bangladesh has agreed to provide the link to the portal that would be established during this project. They prefer a restricted access to the portal. They have public database that contains information for specific crop species such as seeds for sowing but no pest list for seeds, they have only one list for quarantine pests.

Cambodia: Database only at IPPC provided link. They have some limitations. The database does not contain information for specific crop species such as seeds for sowing and doesn't have a pest list of seeds for sowing.

Laos: Restricted database, partly in English. Not online, happy to link with APSA portal when online. The website is owned by Ministry of Commerce, ministry of agriculture needs separate website. No separate pest list for seeds for sowing. Happy to use ISF pest list.

Nepal: Electronic database exists in English. Happy to link with the portal to be hosted by APSA. Quarantine pest list exists but not specific for sowing.

Philippines: No dedicated database but a general website. Agreed to link with APSA portal. No pest list for seeds for sowing but a general one, working on it.

Thailand: Database exists, in English, agreed to provide linked to be provided at the portal. Pest list for seeds for sowing for 4 crops, Pepper, Tomato, Eggplant and Corn.

Vietnam: No online database, government notifications available. Not in English, agreed to be translated into English.

2. **Process of Issuing of Phytosanitary Certificates**

Bangladesh: The exporters can apply electronically for phytosanitary certificate. Process of ePhyto certification not started. Definitely need technical capacity building for ePhyto. They will very soon register with IPPC.

Cambodia: Doesn't have the capacity for ePhyto yet but under consideration**.** Requested funding from World Bank to establish ePhyto system and requested government for budget.

Laos: Manual process for issuing phytosanitary certificates. Nothing yet on ePhyto.

Nepal: Exchanging ePhyto, need some updates.

Philippines: only receiving ePhyto from some countries, would be good candidate for further capacity building.

Thailand: Actively exchanging ePhyto

Vietnam: Manual or through a software. No ePhyto yet**.** Not expected to start ePhyto very soon.

3. Pest Risk Analysis

Bangladesh: No dedicated team for PRA. No PRA has been done for the last 3-4 years. In a different project, APHIS experts provided PRA training, but the capacity seems to have lost. Agreed to assign two officers for training on ISPM11. Use CABI list for pests. Agreed to consider ISF pest list for PRA.

Cambodia: Team of 7 people but for all commodities not specific for seed**.** Skilled staff but need training on seed testing. Agreed to dedicate two staff for this purpose. Using CABI list, will consider ISF pest list.

Laos: Some capacity exists, total of 10 staff but not specifically on seed. Agreed to deploy staff for training on PRA for seed. In fact, they want more support. Laos may need another full project on capacity building on PRA and other aspects, they also need technical support, which is out of scope of this project. Using CABI list, will consider ISF pest list.

Nepal: Three dedicated staff for PRA. During the meeting, it was discussed that there seems to be loss of capacity as earlier several people were trained on PRA.

Philippines: Significant capacity exists. Will gain more from capacity building workshops. Happy to review ISF pest list.

Thailand: capacity exists. Can gain more from training.

Vietnam: Capacity exists but staff not dedicated on seeds. Will gain significantly from capacity building workshops.

4. International Standards

Bangladesh: No one got any training on ISPM38, agreed to assign two officers for training. No formal PPP on ISPM38.

Cambodia: Not much work on ISPM38. Would rather benefit from South-South Cooperation (Thailand-Vietnam-Cambodia) to control illegal seeds.

Laos: Want to implement ISPM 38 but no training and capacity yet.

Nepal: Not much work on ISPM38. No training given as yet. Good to provide some overview.

Philippines: Draft legislation on implementing ISPM38 under process. Would gain much from workshops.

Thailand: Some work on seed movement of specific crops, not formally took part in ISPM38 capacity building workshops.

Vietnam: Active work going on in implementing ISPM38. Can be country of interest to formally implement ISPM38.

5. Seed Health Testing Laboratory Capacity

Bangladesh: About 10 seed health testing labs including private sector labs. One private sector lab undergoing ISTA accreditation. No mechanism yet for NPPO to approve third party lab accreditation but developing a plan for that. Agree to pilot for third party accreditation for training on ISPM45.

Cambodia: No seed health testing lab, only one lab for all commodities**.** Premature to talk about ISPM45.

Laos: Two seed testing labs, one public and another private sector**.** But still premature to about third-party accreditation.

Nepal: No dedicated laboratory for seed health testing. Few labs for general seed testing, shortage of HR and infrastructure. Few private seed labs are emerging. Pre-mature to implement ISPM45

Philippines: Public and private seed health testing laboratories exist. MoA with 3 private sector labs for seed health testing has been established some time back. It can be adapted as per ISPM45. Can definitely be the pilot country for ISPM45 verification.

Thailand: Formally accredited third party seed testing laboratories. Can be a model of South-South Cooperation.

Vietnam: Private sector seed health testing laboratories exist, it appears that they are not accredited and a formal process of implementing ISPM45 has not yet begun.

6. Collaboration with Private Sector

Bangladesh: Private sector seed association exists but interaction with NPPOs moderate.

Cambodia: No private sector seed association. Companies interact one on one.

Laos: No seed association but the agricultural institutes interact with the private sector.

Nepal: Seed Association exists, interaction with private sector growing. One person from private sector in the National Team.

Philippines: Strong collaboration

Thailand: Strong collaboration

Vietnam: Seed association exists. Good collaboration.

7. PCE

Bangladesh: PCE has been done and approved by IPPC. They will share more details. The capacity is not yet utilized.

Cambodia: 9 out of 13 modules, completed. Remaining to be done by July. Final report after completion of all modules.

Laos: Have undergone full PCE. Will share the report.

Nepal: PCE completed, however it was done online during Covid and some records were destroyed during the Earthquake. Keen to gain more information.

Philippines: Not gone through PC, aware of PCE and agreed for PCE to be conducted. Few modules can be worked upon. Will be given complete presentation.

Thailand: PCE not carried out, no urgency to do PCE.

Vietnam: PCE carried out.

Actions	Bangladesh	Cambodia	Laos	Nepal	Philippines	Thailand	Vietnam
Database of requirements	Need a separate pest list for seeds	Doesn't have separate list of pests for seeds	Doesn't have separate list of pests for seeds	Doesn't have separate list of pests for seeds	Doesn't have separate list of pests for seeds	Separate pest list for seeds for 4 crops	No separate list. Need to be translated in English
Process of Issuing Phytosanitary Certificates	Definite need for capacity building on ISPM 12 (ePhyto)	Definite need for capacity building on ISPM 12 (ePhyto)	Definite need for capacity building on ISPM 12 (ePhyto)	Exchanging through ePhyto, experiencing some issues, in touch with IPPC. Need for some update on ePhyto	Receiving from few countries. Can benefit significantly with capacity building workshops	Actively exchanging ePhyto. Can be provided regular updates	Manual. Need thorough training on ISPM12
Pest Risk Analysis	Need training on ISPM 11, agreed to assign two officers	Need training on ISPM 11, agreed to assign two officers	Need training on ISPM 11, agreed to assign two officers	Need training on ISPM 11, agreed to assign two officers	Significant capacity exists. Would benefit with more workshops	capacity exists. Would benefit from capacity building workshops	capacity exists. Would benefit from capacity building workshops
International Standards	No work on ISPM 38 yet. Definite need for training.	No work on ISPM 38 yet. Can be part of overall training but very premature at this stage	No work on ISPM 38 yet. Definite need for basic training.	Not much work on ISPM38 . An overview would be useful	Draft legislation under review. Detailed capacity building on ISPM 38 would be very useful	Some work on specific crops. Will definitely gain with capacity building workshops and can be the country that formally takes up ISPM 38 implementation during the duration of the project	Some work on specific crops. Will definitely gain with capacity building workshops and can be the country that formally takes up ISPM 38 implementation during the duration of the project

Seed Health Testing Capacity/ Third party lab accreditation	Not much technical capacity (outside the scope of this project). But agreed to pilot for third party accreditation for training on ISPM45	Only one lab for commodities. Premature to talk about ISPM 45 as there are no seed health testing labs.	One private sector laboratory that can be accredited. But premature at this stage, although the NPPOs are very keen on the training.	Some preliminary update can be provided on ISPM45	Both public and private sector labs exist. Private labs accredited through MoA. Can be adapted for ISPM 45. Detailed capacity building training can be provided. Pilot for ISPM45	Private seed health testing labs accredited. Formally implementing ISPM45. Can benefit from regular updates	Capacity building would be useful to start the process.
PCE	Completed. Capacity not yet utilized. They will send the details.	9 out of 13 modules completed. Will provide details of the modules. Report after all 13 modules (June-July)	Completed. Capacity not yet utilized. They will send the details.	PCE completed. Can gain more with new information	No PCE done. Agreed for PCE to be conducted.	No formal PCE done. Agreed to do at a later time	PCE done.

Workshop on Gap Analysis Consolidation

DR ROSE SOUZA RICHARDS

International Seed Federation (ISF)
Seed Health Manager
22 and 23.05.2023

CHALLENGES ASSOCIATED WITH THE INTERNATIONAL MOVEMENT OF SEEDS

Key Phytosanitary Challenges for the Seed Industry

- For the same pest import requirements differ from country to country, and for each country of origin (production)

- Different phytosanitary requirements by several countries
- Some examples of required declarations for PSTVd, tomato seeds

Conclusion
Different additional declarations:
- Area / production place free
- Field inspection
- Treatment
- Tested
- Free from

Different wordings

Sometimes more than one requirement
Sometimes multiple options

Key Phytosanitary Challenges for the Seed Industry

- Seed poses different risks depending on intended use:
  - Seed with no potential to germinate or generate plants; seed not for planting but retains viability
  - Seed for planting under restricted conditions and not for release; seed for planting under restricted conditions with the intention of release
  - Seed for planting
- Frequent re-exports
  - Same seed lot, multiple destinations, over many years
- Which pests are a concern? When is seed a pest risk?
- Well-established industry quality management systems already in place reduce phytosanitary risk
  - Wide array of seed health measures used by industry prevent/reduce disease risk

Complexity reduction
ISF Regulated Pest List Database- science based information about seed as a pathway

			Is seed a pathway?			
Seed species	Regulated pests (no.)	References cited (no.)	Yes	Pathway not proven	No	Not a host
Bean	97	413	23	14	41	19
Brassica	118	386	10	13	52	43
Carrot	92	271	4	7	43	38
Cucumber	92	250	4	10	50	28
Eggplant	76	470	2	11	48	15
Lettuce	64	172	3	10	36	15
Maize	166	836	47	27	60	32
Melon	131	485	10	25	64	32
Okra	30	152	1	0	26	3
Onion	94	191	7	12	43	32
Pepper	108	299	9	21	44	34
Spinach	38	113	8	3	14	13
Squash & pumpkin	55	251	5	9	29	12
Tomato	181	619	15	36	89	41
Watermelon	60	259	4	9	31	16
Total	**1402**	**5167**	**152**	**207**	**670**	**373**
		Total (%)	**11**	**15**	**48**	**26**

74% do not warrant to be regulated!

Hurdles to comply with phytosanitary requirements

- Several phytosanitary requirements are hard or even not possible to comply with:
- Additional declarations on PC in country of production:
  - Countries of final destination are not always known at time of seed production
  - Requirements may change over time
  - Seeds may be stored for several years (which is not possible to anticipate)
  - ADs by NPPO country of production cannot be obtained afterwards
- Testing in country of re-export:
  - Validated tests not always available
  - Number of seeds for test may be hurdle (e.g. small seed lots)
- Seed treatment:
  - Active ingredient may not be registered in country of re-export
  - For organic seeds, chemical treatment is not possible
- Physical treatment:
  - May negatively affect the quality of seeds

Equivalent measures

ISPM 38 on the International Seed Movement: Background and Introduction

Dr Souza-Richards
ISF Seed Health Manager

Background

INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC)

- The legislative framework for global phytosanitary management The International Plant Protection Convention (IPPC) was created to secure coordinated, effective action to prevent and control the introduction and spread of pests of plants and plant products.
- It is each country's responsibility to set up its own organizational structure and to define its legal phytosanitary requirements to protect its area from pests not yet present, or present in a limited amount, and capable of establishing and causing severe economic and/or ecological damage.
- Each country has a National Plant Protection Organization (NPPO) to implement its phytosanitary policies and laws and to supervise that plants and plant products that are imported into the country meet its national requirements.

The seed business today

Product development and seed production in multiple countries

- R&D Centre
- Seed production site
- Distribution/Processing

<u>The movement of seed</u>

Germplasm for R&D purposes

Experimental lines and hybrids for screening purposes

Basic seed for multiplication purposes, and

Commercial varieties and hybrids for marketing

- Seeds are moved internationally for many uses. They are planted for the production of food, forage, ornamental plants, biofuels and fibre as well as for forestry and for pharmacological uses. They also have pre-commercial uses (research, breeding and seed multiplication).

- As with other plants for planting, seeds may present a pest risk when introduced to an environment where any pests associated with the seeds have a high probability of establishing and spreading (ISPM 32 (*Categorization of commodities according to their pest risk*)).

ISPM 38: SCOPE

- It was adopted by the Twelfth Session of the Commission on Phytosanitary Measures in April 2017.

- This standard provides guidance to assist national plant protection organizations (NPPOs) in identifying, assessing and managing the pest risk associated with the international movement of seeds (as a commodity class).

- Also provides guidance on procedures to establish phytosanitary import requirements to facilitate the international movement of seeds; on inspection, sampling and testing of seeds; and on the phytosanitary certification of seeds for export and re-export.

- Under ISPM 5 (*Glossary of phytosanitary terms*) seeds (as a commodity class) are intended for planting and not for consumption. Viable seeds, which are a sample of a seed lot, imported for laboratory testing or destructive analysis are also addressed by this standard.

INTRODUCTION

TERMINOLOGY

- Seed-borne pests include:

- - seed-transmitted pests that are carried by the seed internally or externally and directly infest the host plant growing from the seed (category 1(a)) - *Acidovorax citrulli* in seeds of *Citrullus lanatus*

- - non-seed-transmitted pests that are carried by the seed internally or externally and are transferred to the environment (e.g. water, soil) and then infest a host plant under natural conditions (category 1(b)) - *Fusarium oxysporum f.sp. lycopersici* on seeds of *S. lycopersicum*

- - pests carried by the seed, internally or externally, that do not transfer to a host plant under natural conditions (category 1(c)) - *Rice yellow mottle virus* on seeds of *Oryza sativa*

Q 1

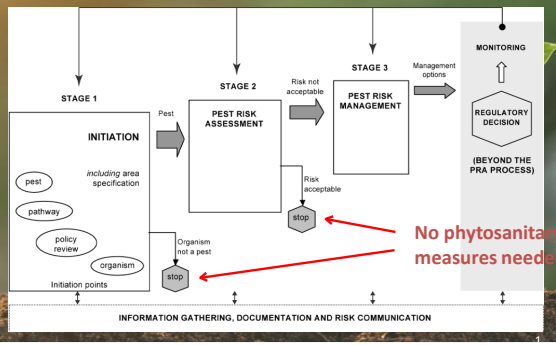
A shipment of pepper seed is moving from Country A to Country B. What considerations should country B make when considering whether to regulate the seed for a particular pest?

ISPM 38 Considerations

Is pepper seed a pathway for the introduction of pests?

What are the pests potentially associated with the seed?

Can seed be a pathway for the introduction and spread of those pests?



No phytosanitary measures needed

ISF Regulated Pest List Initiative

GOAL: Establish meaningful, science based and relevant crop specific pest lists

- Lists of regulated pests taken from NPPO databases and company information on Additional Declarations required per crop and country;
- Classification of each pest by whether "seed is a pathway" and remarks pertinent to the industry
  - If seed is a pathway, information on seed assay and seed treatment provided
- Information reviewed by 3 experts and documented with references to support or refute the classification
- Feedback mechanism open to experts outside the industry
- *The ISF Regulated Pest List Initiative is included in the appendix of ISPM 38.* ***As such, it is for reference purposes only and is not a prescriptive part of the standard.***

Accessing the ISF Regulated Pest List

ISF regulated pest list database

Remove all filters - List of references by Crop: Brassica (Brassica spp.) GET THE PDF | List of references by Pest Type: Bacteria GET THE PDF

784 items in table, 2 items shown, 782 items filtered out.

Species	Crop	Pest: Scientific Name	Pest: Additional Info	Pest: Complementary Info	Pest: Type	Pest classification: Is seed a pathway in this crop?	Pest classification: References	Pest classification: Remarks	Detection: Is there a seed test?	Detection: If yes, type of test	Detection: References	Detection: Remarks	Risk mitigation: Can the pest be managed by seed treatment(s)?	Risk mitigation: If yes, what type(s)?	Risk mitigation: References	Risk mitigation: Remarks
Citrullus lanatus	Watermelon	Xanthomonas campestris pv. cucurbitae			Bacterium	No	9-16, 9-76, 9-77, 9-167	This bacterium causes Bacterial Leaf Spot on cucurbits including watermelon. However, no references found indicating seed as a pathway for X. campestris pv. cucurbitae in watermelon. Seed as a pathway is reported in squash and pumpkin, but not in watermelon. **Available information indicates there is no scientific basis for regulation of X. campestris pv cucurbitae on watermelon seed.**									

If you question any content in the list, identify additional references to be considered, or have any comments, please submit to the ISF secretariat via this link

ISPM 38 Considerations

How are the pepper seeds going to be used?

What if the shipment is a small sample of 1000 seeds that will be tested/destroyed during testing in a laboratory?

Or what if the pepper seed will be planted in a controlled greenhouse environment?

ISPM 38 Considerations

1.3 Purpose of import

The production of seeds may involve several steps (e.g. breeding, multiplication, destructive analysis, restricted field planting), which may be performed in different countries. The purpose of import of seeds may impact the probability of establishment of quarantine pests and should be considered when conducting the PRA and determining phytosanitary measures (ISPM 32).

With this in mind, do you still recommend the same requirements for a seed shipment destined to be tested and destroyed in a laboratory?

What about planted in a controlled greenhouse environment?

ISPM 38 Considerations

Were equivalent phytosanitary measures considered?

Seed Sector Considerations

Due to the nature of the seed industry, several phytosanitary requirements are difficult or even impossible to comply with. For example:

Additional declarations on the phytosanitary certificate in the country of production:

- Countries of final destination are not always known at time of seed production
- Requirements may change over time
- Seeds may be stored for several years (which is not possible to anticipate)
- Additional declarations by the NPPO of the country of production cannot be obtained afterwards

Testing in the country of re-export:

- Validated tests not always available
- Number of seeds for test may be a hurdle (e.g. small seed lots)

Seed Sector Considerations

- Seed treatment:
  - Active ingredient may not be registered in country of re-export
  - For organic seeds, chemical treatment is not possible
- Physical treatment:
  - May negatively affect the quality of seeds

These seed sector considerations were all taken into account in ISPM 38:

- Additional Official Phytosanitary Information to enable re-export of seeds
  - Exporting NPPO provides importing NPPO with AOPI to allow future re-export to other countries
- Equivalent Measures

ISPM 38 Considerations

5. Phytosanitary Certification

The global and temporal nature of the seed trade (i.e. re-export to many destinations, repeated re-export from the same seed lot, long-term storage) presents phytosanitary certification challenges distinct from those of the international movement of other commodities.

NPPOs are encouraged to exchange additional official phytosanitary information at the time of export certification with other NPPOs to enable certification for re-export of seeds, as described in ISPM 12 (*Phytosanitary certificates*). Additional official phytosanitary information, which is not required by the first country of import, may be included on the phytosanitary certificate issued by the country of origin when so requested by the exporter in order to facilitate future re-export to other countries (ISPM 12).

A country's phytosanitary import requirement for a field inspection may not be known at the time of production. Where appropriate, the NPPO of the importing country may consider equivalent phytosanitary measures (such as tests or treatments) to fulfil its phytosanitary import requirements for seeds already harvested, in accordance with ISPM 24. However, it is the responsibility of the exporting country to meet the phytosanitary import requirements.

ISPM 38 Considerations

3. Equivalence of Phytosanitary Measures

The equivalence of phytosanitary measures (ISPM 1 (*Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*)) is particularly important for the international movement of seeds as seed companies may have breeding and multiplication programmes in several countries and may export these seeds to other countries, and there may be frequent re-export from a single seed lot.

Determination of the equivalence of phytosanitary measures may be initiated by the exporting country making a request for equivalence to the importing country, as described in ISPM 24 (*Guidelines for the determination and recognition of equivalence of phytosanitary measures*). It may also be initiated by the importing country. NPPOs are encouraged to provide multiple options when setting phytosanitary import requirements.

ISPM 38 Considerations

Equivalent phytosanitary measures may provide NPPOs with options to achieve the required protection. An example of an equivalent phytosanitary measure is the substitution of a requirement for field inspection of the seed crop in the country of origin with appropriate seed testing or seed treatment for the regulated pest. ISPM 24 provides further guidance on the equivalence of phytosanitary measures.

For seeds (including organic seeds) requiring for import a specific chemical treatment, if the chemical is not permitted for use in the country of origin, export or re-export, the NPPO of the importing country should consider an equivalent phytosanitary measure, where possible, provided that the measure is technically feasible and reduces the assessed pest risk to an acceptable level. It is recommended that phytosanitary import requirements do not specify chemical products, active ingredients or exact protocols.

ISPM 38 Considerations

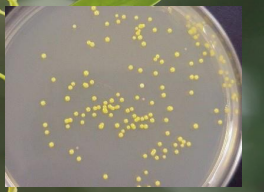
If you determined that you would require a laboratory test for a particular pest of pepper seed, is it a direct or indirect test method?

Why does this matter?

Direct Methods

Examples of direct methods: Grow outs, seed plating (with bioassay), dilution plating (with bioassay)

They permit the pathogen to be detected and **confirmed** (viability and pathogenicity shown)



Indirect Methods

Indirect methods provide an indication of pathogen presence as they react with proteins (antigens, nucleic acids) which are known to be indicative of the target pathogen

- Per ISPM 38: " Molecular and serological diagnostic methods are considered indirect protocols to detect pests in seeds"

They provide ***an indication*** of the presence of the target pathogen, **not confirmation**

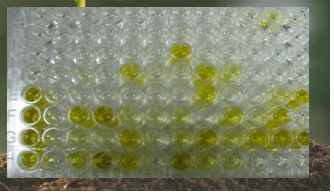
- This is because indirect methods may detect non-viable pathogens or closely related species

Indirect Methods

The ISF position paper on Indirect Methods is an ISF initiative to clarify the difference between indirect and direct test methods. It states that "A positive result of an indirect test should be considered as preliminary and should always be followed with a confirmatory test that is preferably a direct test"

- Negative result = No pathogen present
- Positive result = Pathogen may be present; Seed lot is suspect and needs further evaluation

Considering that regulatory or quality usage decisions can be based off these results (that is, import permission, production use), the interpretation of results needs to be done carefully



Dr Rose Souza Richards
r.souzarichards@worldseed.org

Seed is Life

Workshop on Gap Analysis Consolidation

DR ROSE SOUZA RICHARDS

International Seed Federation (ISF)
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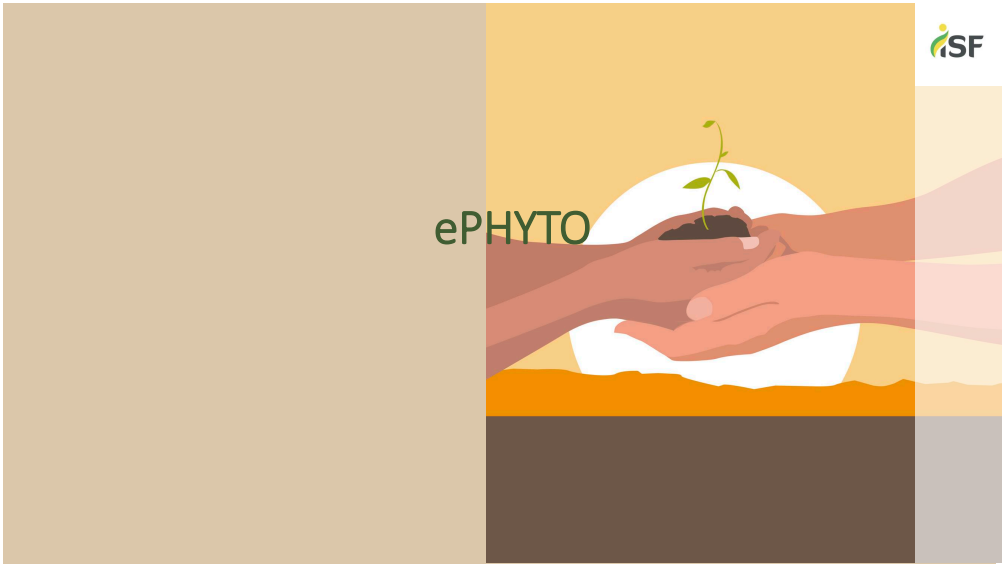
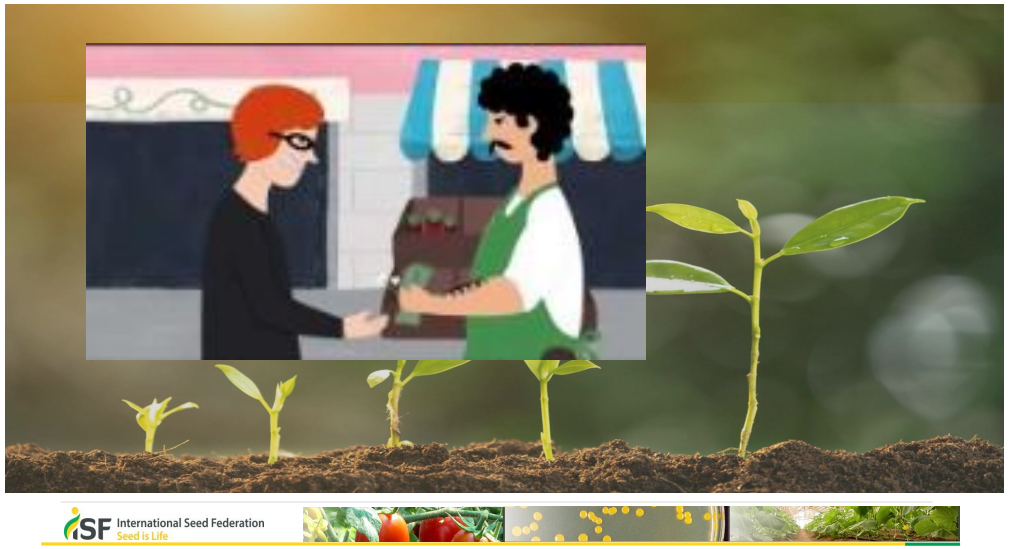
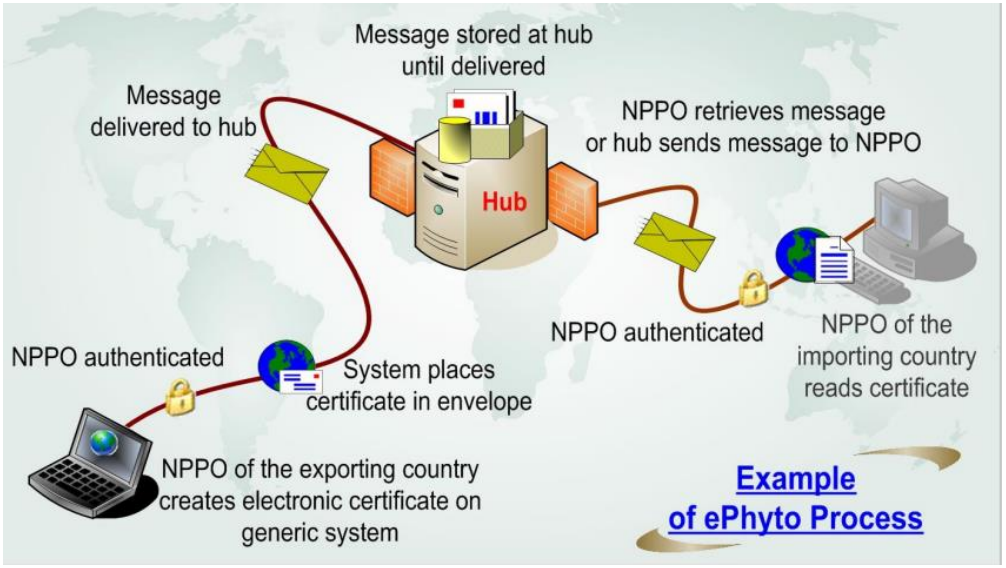
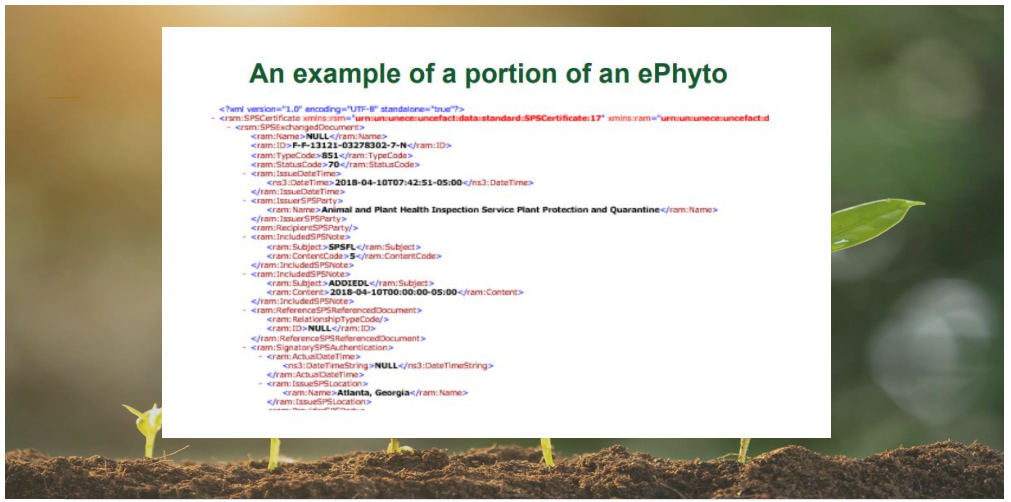

ePHYTO




Message stored at hub
until delivered
Message
delivered to hub
NPPO retrieves message
or hub sends message to NPPO
Hub
NPPO authenticated
System places
certificate in envelope
NPPO authenticated
NPPO of the
importing country
reads certificate
NPPO of the exporting country
creates electronic certificate on
generic system
Example
of ePhyto Process


An example of a portion of an ePhyto

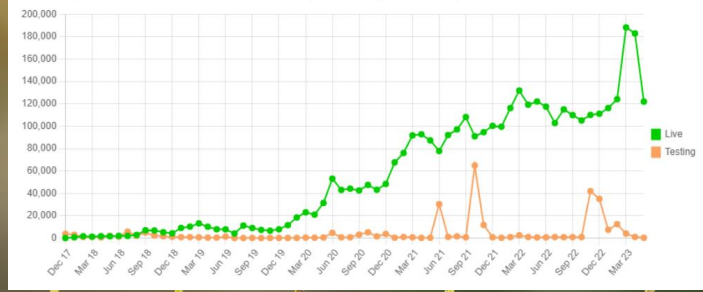
Why implement ePhyto?

- National efficiencies
- Improved security
- Simplification of information flow between traders and government
- Options for data transfer and data sharing
- Expedited clearance of commodities
- Better evaluation of risks
- Ability to address certification problems in advance of commodity arrival
- Ability to prioritize activities in advance of commodity arrival

ePhyto benefits to risk management and trade facilitation

- Better identification of risk
  - Information in advance can be used to identify risk commodities, establish priorities and pre-determine arrival activities
- Targeting in advance of arrival also allows importers to better anticipate actions on arrival
- Better use of resources based upon risk
- Opportunity to align with other electronic initiatives that facilitate trade (e.g. single windows)

Summary of the certificates successfully exchanged through the HUB



Total Live Exchanges:
3,743,434

Total Test Exchanges:
290,372

Pre-Requisites

- For a country to participate in the Hub it is mandatory to have the capacity to produce electronic phytosanitary certificates (ePhytos).
- Countries having their own national system that produces ePhytos but not exchanging electronic certificates with other countries or countries that are already undertaking point-to-point exchanges can participate in the Hub.
- The national system needs to have at least the following functionality:

i. Enter phytosanitary certificate data electronically
ii. Produce phytosanitary certificates (ePhytos and/or paper)
iii. Send ePhytos
iv. Store of electronic phytosanitary certificate data
v. Receive ePhytos
vi. Decrypt ePhytos
vii. Validate the structure of the ePhyto message
viii. Read/view/print/produce pdf of ePhytos

Guide to Joining

Step One: Get prepared
For a country to participate in the Hub, it must have a system capable of producing electronic phytosanitary certificates (ePhytos).

To ensure correct preparation to connect to the hub, we recommend for the country representatives to read all relevant documents concerning Technical Information. The participation of the National Plant Protection Organization (NPPO) is validated by the Official IPPC Contact Point of the Contracting Party.

Prior to Step Two, the representative of the NPPO intending to register for the hub should contact the Official Contact Point to alert them that they will be receiving an automated message from the Hub requiring them to confirm the registration.

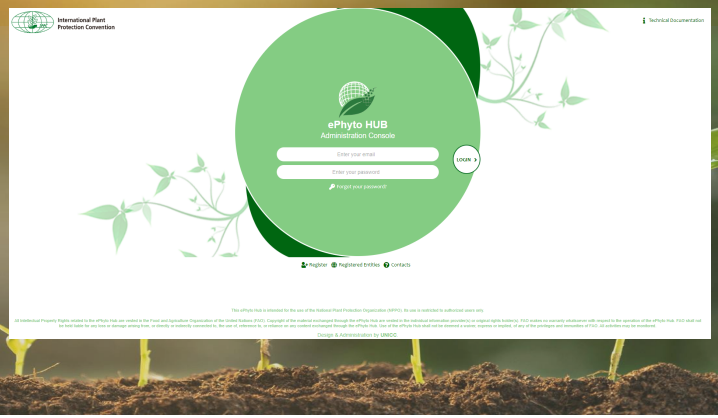
N.B: Should you require official confirmation of participation, please write to the IPPC (ippc@fao.org) and we will be happy to provide an official letter.

Guide to Joining

Step Two: Registration
A representative of the NPPO should initiate registration by clicking on the following link https://www.ephytoexchange.org/AdminConsole/ ; and selecting the 'Register NPPO' tab.

Upon completing the registration steps and once the Official IPPC Contact Point validates the registration, the representative will receive a registration confirmation email. Should s/he not receive such an email we advise that you reach out to the IPPC (ippc@fao.org) for further guidance.

This representative will be the contact person for the IPPC and UNICC for technical issues on the Hub and will be responsible for the hub account. S/he will be the initial system administrator and will grant access to others in the organization



Guide to Joining

Step Three: Onboarding
Once registration has been confirmed, the NPPO representative will receive all relevant on-boarding documents such as the onboarding guide and the web service Application Programming Interface (API) document. These documents will guide the registrant and her/his team in implementing the hub. It outlines clearly the next steps and the type of assistance that will be made available.

Dr Rose Souza Richards
r.souzarichards@worldseed.org

Seed is Life

1

Key Points for discussion

- Seed pest vs Crop pest
- Seed transmitted vs Seedborne
- Assessment of seed pests from quarantine angle
- Can we consider seed pest category in the official quarantine pest lists?

2

Seed Pest Trade Risk Mitigation Options

- Updating seed pest lists of trading countries (CABI crop pest compendium, AI, Google in addition to official lists
- Evidence and extent of seedborne pest contamination and risk associated
- Pre-export inspection protocols right from crop growth for specific seedborne pests
- Exploring and validating management options to eliminate seed pests
- Dialogue with importer on mutual agreement (MRA) on seed pest risk
- Research on seed pest detection and elimination

3

Seed-borne pathogens

Type of Pathogen	Description
Externally seed-borne pathogens	Carried on the surface of seeds. They can include fungi, bacteria, and viruses that can cause disease in plants. Examples Fusarium spp. and Pantoea stewartii subsp. stewartii.
Internally seed-borne pathogens	Carried inside the seeds. They can include fungi, bacteria, and viruses that can cause disease in plants. Examples Fusarium spp. and Penicillium spp.
Concomitant contaminants	Present on or in seeds along with other non-pathogenic microorganisms. They can include fungi, bacteria, and viruses that may or may not cause disease in plants. Examples Aspergillus spp. and Penicillium spp. (ICRISAT mandate crop seed associations)

4

Rice

Major Export Countries	India, China, Vietnam, Thailand, Pakistan, United States, Cambodia, Timor-Leste, Puerto Rico, Brazil, Papua New Guinea, Zimbabwe, Burundi, Eswatini, Myanmar

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest
1	Leaf spot, pink kernel, stack burn	*Alternaria padwickii*	Southeast Asia and parts of Oceania, Egypt, Malagasy Republic, Nigeria, Ghana, Swaziland, Brunei, Burma, Cambodia, China, India, Indonesia, Iran, Iraq, Japan, Jordan, Korea (Democratic People's Republic), Korea (Republic of), Laos, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Saudi Arabia, Singapore, Sri Lanka, Taiwan (Province of China), Thailand and Vietnam

5

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest
2	Black sheath rot, brown spot, seedling blight	*Bipolaris oryzae*	Southern and eastern parts of Asia, including Burkina Faso
3	Black kernel	*Curvularia spp.*	Mostly found in tropical regions, although a few species are found in temperate zones (India, United States, China)
4	Bakanae disease, foot rot	*Fusarium moniliforme*	China, India, Indonesia, Malaysia, the Philippines, Thailand,
5	Head blight, node rot, scab	*Fusarium graminearum*	Brazil, China, India, Japan, Malaysia, the Philippines, and Thailand

6

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest
6	Blast, rotten neck	*Pyricularia grisea*	Brazil, China, India, Japan, and the United States
7	Bunt	*Tilletia barclayana*	India
8	Leaf scald	*Microdochium oryzae*	Several countries in American, African, and Asian continents
9	Sheath blight	*Rhizoctonia solani*	All the rice-growing countries
10	Sheath rot	*Sarocladium oryzae*	Prevalent in all rice-growing countries in Asia
11	False smut	*Ustilaginoidea virens*	Rice-producing countries of Asia, but also in the US

7

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest
12	Udbatta	*Ephelis oryzae*	Mainly in India and China
13	Bacterial stripe	*Acidovorax avenae subsp. avenae*	West Africa and China
14	Bacterial grain rot	*Burkholderia glumae*	Particularly in East Asia, Southeast Asia, North America, and South America
15	Bacterial leaf blight	*Xanthomonas oryzae pv. oryzae*	Asia, Australia, Africa, and Latin America. Basmati rice-growing areas of Pakistan, Mali, Peninsular Malaysia, Indonesia,
16	Bacterial leaf streak	*Xanthomonas oryzae pv. oryzicol*	Asia, Africa, and Latin America, including China, Nigeria, Senegal, Mali, Madagascar, Uganda, and Burundi
17	White tip	*Aphelenchoides besseyi*	Widely across the rice-growing regions of the world, including India, China, Turkey, and Louisiana

8

Wheat

Major Export Countries (Quantity)	Russia, United States, Canada, France, Ukraine, Australia, Argentina, Germany, Kazakhstan, and Poland

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Alternaria leaf blight	*Alternaria triticina*	South Asia, India, Iraq
2	Ergot	*Claviceps purpurea*	Temperate regions of the world, including the United States, Germany, Scandinavia, Poland, Russia, Belarus, and Ukraine
3	Foot rot, seedling blight, spot blotch	*Bipolaris sorokiniana*	South Asia's Eastern Gangetic Plains (India)

9

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Head blight, scab	*Fusarium graminearum*	Tropical to temperate climates (China, United States)
5	Glume blotch, leaf spot	*Stagonospora nodorum*	Major wheat-growing regions of the world (United States)
6	Brown foot rot, snow mould	*Microdochium nivale*	Eastern and central areas of the Asian subcontinent (China)
7	Yellow leaf spot	*Drechslera tritici-repentis*	China, Japan, Southern Brazilian state, Algeria, and North America

10

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
8	Blast	*Pyricularia grisea*	All wheat growing regions
9	Karnal bunt	*Tilletia indica*	India, North & South America, South Africa, Europe, Australia and Pakistan
10	Hill bunt	*Tilletia tritici*	India, North & South America, South Africa, Europe, Australia
11	Hill bunt	*Tilletia laevis*	Iran, Inida
12	Dwarf bunt	*Tilletia controversa*	India, Pakistan, Iran and Mexico

11

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
13	Loose bunt	*Ustilago segetum var. tritici*	Africa, Algeria, Angola, Egypt, and India
14	Flag smut	*Urocystis agropyri*	Australia and India
15	Tundu, yellow ear rot	*Rathayibacter tritici*	Africa, Egypt, Ethiopia, Africa, and Asia
16	Black chaff	*Xanthomonas translucens pv. translucens*	All wheat growing regions (warm and humid climates)

12

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
17	Ear cockle	*Anguina tritici*	Wheat growing areas
18	False stripe	*Barley stripe mosaic virus*	Egypt, South Africa, Europe, Poland, Portugal, Romania, United Kingdom, Australia, New Zealand, Tasmania, Victoria, Israel

13

Maize

Major Export Countries	United States, Brazil, Argentina, Ukraine, and France

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	pink discolouration seeds of maize	*Fusarium moniliforme*	Central America, Africa, Asia, and other regions of maize growing regions
2	stalk rot/white ear rot/root rot	*Diplodia maydis*	Worldwide (North, Central and South America, Africa, Asia, and Oceania)
3	Bacterial leaf blight of maize	*Pantoea stewartii*	Worldwide (Including North America, South Africa, Austria, Argentina, and Mexico)

14

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Chocolate spot of maize, halo blight	*P. syringae pv. coronafaciens*	worldwide (including the USA, Canada, New Zealand, Romania)
5	Mottle virus	*Maize chlorotic mottle virus (MCMV)*	Worldwide (Including Peru, Brazil, Argentina, and the USA)
6	White streaks with black spore masses near the tips	*Nigrospora sp.*	Worldwide (Including Egypt, India, Central America, Africa, and Asia)
7	Seeds exhibit white streaks	*Fusarium moniliforme*	Worldwide (Including Central America, Africa, Asia, and South Africa)

15

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
8	Seed rot	*Fusarium graminearum*	Worldwide (Including North and South America, Southern Europe, and northwestern Spain)
9	Stewart's diseases and wilt	*Pantoea stewartii subsp. stewartii*	North America, Canada, Mexico, Austria, Argentina
10	Bacterial wilt and blight	*Clavibacter michiganensis subsp. nebraskensis*	Maize growing regions (USA, Canada)
11	Downy mildew of maize	*Peronosclerospora philippinensis*	Tropical Asia, Philippines, China, India, Indonesia, USA

16

Barley

Major Export Countries	Australia, France, Ukraine, Russia and Canada

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Ergot	*Claviceps purpurea*	Worldwide, but it is most commonly found in temperate regions
2	Seedling blight, root rot	*Bipolaris sorokiniana*	Worldwide
3	Scab, seedling blight	*Fusarium graminearum*	Worldwide

17

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Snow mould, brown foot rot	*Microdochium nivale*	Worldwide (France, Erzurum, Russia)
5	Glume blotch	*Stagonospora nodorum*	Worldwide (Warm & Humid regions)
6	Leaf stripe	*Drechslera graminea*	Worldwide
7	Net blotch	*Drechslera teres*	Worldwide (Europe, Asia, Africa)
8	Covered smut	*Ustilago segetum var. segetum*	Worldwide (Africa, Algeria, Egypt, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Morocco, Mozambique)
9	Loose smut	*Ustilago segetum var. nuda*	Worldwide

18

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
10	Kernel blight	*Pseudomonas syringae pv. syringae*	Worldwide
11	Leaf blight	*Xanthomonas translucens pv. translucens*	All Barley growing regions
12	False stripe	*Barley stripe mosaic virus*	Worldwide (Egypt, South Africa, Australia, New Zealand, and many countries in Europe)

19

Soybean

Major Export Countries	United States, Brazil, Argentina, Paraguay, and Canada

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Purple stain	*Cercospora kikuchii*	Worldwide, including major soybean producing regions of the USA, Brazil, and Argentina
2	Pod blight	*Colletotrichum truncatum*	Worldwide, including different soybean-producing regions in Brazil and Argentina
3	Stem canker	*Diaporthe phaseolorum var. batatais*	Worldwide

20

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Stem canker	*Diaporthe phaseolorum var. caulivora*	USA
5	Pod and stem blight	*Diaporthe phaseolorum var. sojae*	Worldwide
6	Charcoal rot	*Macrophomina phaseolina*	Worldwide
7	Downy mildew	*Peronospora manshurica*	Worldwide (USA, India, Malaysia)
8	Root and stem rot	*Phytophthora megasperma var. sojae*	Soybean growing regions worldwide (mainly in USA)
9	Aerial blight	*Rhizoctonia solani*	Worldwide

21

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
10	Bacterial blight	*Pseudomonas savastanoi pv. glycinea*	Worldwide
11	Bacterial pustule	*Xanthomonas axonopodis pv. glycines*	Various soybean growing regions
12	Mosaic	*Soybean mosaic virus*	Worldwide (Most prevalent in China)
13	Bud blight	*Tobacco ring spot virus*	Worldwide (United States, Canada, Australia, China, and Russia)

22

Tomato seeds

Major Export Countries	India, Netherlands, Thailand, Mexico, Spain, and Morocco

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Early blight	*Alternaria solani*	Worldwide (United States)
2	Collar rot	*Rhizoctonia solani*	Worldwide (Saudi Arabia, Japan, and the United States)
3	Stem canker	*Didymella lycopersici*	Worldwide (Europe, New Zealand, Angola, Lesotho, Malawi, South Africa, Swaziland, Zambia, and Zimbabwe, Denmark, Morocco, Romania, Russia, and the United Kingdom)

23

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Wilt	*Fusarium oxysporum f. sp. lycopersici*	Widespread in Brazil, Western Europe, North America, the Mediterranean region, and Japan
5	Leaf spot	*Septoria lycopersici Anthracnose Colletotrichum gloeosporioides*	Worldwide
6	Late blight	*Phytophthora infestans*	Worldwide distribution and is sporadically in most of New England
7	Buckeye rot	*Phytophthora nicotianae var. parasitica*	Tomato growing regions (India)

24

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
8	Bacterial canker	*Clavibacter michiganensis subsp. michiganensis*	Worldwide distribution
9	Bacterial leaf spot	*Pseudomonas syringae pv. tomato*	Worldwide (Africa, Egypt)
10	Bacterial spot	*Xanthomonas vesicatoria*	Worldwide
11	Mosaic	*Tobacco mosaic virus*	Worldwide

25

Cucumber seeds

Major Export Countries	India, Thailand, and Turkey

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Anthracnose	*Colletotrichum lagenarium*	Worldwide
2	Leaf spot, black rot	*Didymella bryoniae*	Worldwide (USA, Africa, Ethiopia, Gabon, Kenya, Malawi, Mauritius, Morocco, Nigeria, South Africa, Tanzania, Uganda)
3	Angular leaf spot	*Pseudomonas syringae pv. lachrymans*	Worldwide

26

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Green mottle	*Cucumber green mottle virus*	Worldwide (including Europe, Asia, the Middle East)

27

Carrot seeds

Major Export Countries	India, United States, and Italy

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Bacterial blight	*Xanthomonas campestris pv. carotae*	Worldwide, including many regions in the Pacific Northwest, United States
2	Leaf blight	*Alternaria dauci*	Worldwide (common disease in Western Australia)
3	Black root rot	*Alerternaria radicina*	Worldwide, including Asia, Africa, North and South America, Europe, and Oceania

28

Sunflower seeds

Major Export Countries	Romania, Bulgaria, China, France, Hungary, and Turkey

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Leaf spot	*Alternaria helianthi*	Worldwide (Warm humid climates like India and Africa)
2	Grey mould	*Botrytis cinerea*	Worldwide
3	Charcoal rot	*Macrophomina phaseolina*	Worldwide (worse in hot, dry conditions)

29

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Downy mildew	Plasmopara halstedii	Worldwide (More in moist condition)
5	Rust	Puccinia helianthi	Worldwide (Africa, Angola, Congo, Egypt, Ethiopia, Kenya, Libya, Malawi, Mauritius, Morocco)
6	Wilt, white rot	Sclerotinia sclerotiorum	Worldwide (Including China, India, Iran, Turkey, Australia, Austria, France, Bulgaria)

30

Sesame seeds

Major Export Countries	India, China, Vietnam, Sudan, Nigeria, Burma (Myanmar), and Tanzania

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Blight	*Alternaria sesami*	Worldwide
2	Leaf spot	*Alternaria sesamicola*	Occurs commonly in tropical and warm-temperate regions
3	Charcoal rot	*Macrophomina phaseolina*	Worldwide (India)
4	Brown leaf spot	*Mycosphaerella sesamicola*	Prevalent in tropical and warm-temperate regions

31

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
5	Angular leaf spot	*Pseudomonas syringae pv. sesami*	worldwide distribution
6	Bacterial leaf spot	*Xanthomonas campestris pv. sesami*	Major sesame-growing regions

32

Citrus

Major Export Countries	South Africa (Orange), Mexico (lemon & Lime), China, and Spain

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	*Indian citrus ring spot virus*	*Indian citrus ring spot virus*	Australia, Brazil, Egypt, Fiji, Ghana, India, Israel, Korea, Mexico, Nigeria, Pakistan, Philippines, South Africa, Sudan, Thailand, United States of America, Vietnam, Venezuela and the West Indies
2	*Citrus mosaic virus*	*Citrus mosaic virus*	Wide geographical distribution, including Asia and India
3	*Citrus leaf blotch virus*	*Citrus leaf blotch virus*	Wide geographical distribution, including China, Morocco, and other regions

33

Cotton seeds

Major Export Countries	Turkey, Greece, Australia, United States, Brazil and India

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
1	Leaf spot	*Alternaria macrospora*	Wide geographical distribution including Israel, India, and the United States
2	Seedling blight	*Ascochyta gossypii*	Wide geographical distribution including the United States, Tanzania, India, Japan, and Georgia
3	Anthracnose, seedling blight, bole rot	*Colletotrichum gloeosporioides*	Worldwide

34

Sl. No.	Seed Borne Disease	Pest Name	Geographical DIstribution of Pest (* to be updated as per CABI)
4	Wilt	*Fusarium oxysporum f. sp. vasinfectum*	Central African Republic, Egypt, Ethiopia, Morocco, Somalia, South Africa, and Sudan, USA
5	Foot rot, stem blight	*Macrophomina phaseolina*	Wide geographical distribution
6	Damping off, seedling blight	*Rhizoctonia solani*	Worldwide
7	Wilt	*Verticillium alboatrum*	Wide geographical distribution (Turkey)
8	Angular leaf spot	*Xanthomonas axonopodis pv. malvacearum*	Main cotton growing areas of Uganda, East Africa, and globally

35

Reference link for the Geographical distribution of the pest: https://docs.google.com/document/d/1f3XGmzuObLwtsZY53kSPA8fmxxRC_CC30pUd9xCo_nE/edit?usp=sharing

36

Lab Accreditation Program in Thailand

Plant Quarantine Research Group
Plant Protection Research and Development Office
Department of Agriculture, Thailand

Why Become Accredited ?

- DOA, as an NPPO, is responsible for pathogen tests for issuing PC which was done by the PQ lab.
- Due to the current export of plants and plant products with increasing and strict import conditions.
- In particular, exported seeds are usually subject to certify free of specific pests required by the NPPOs of importing countries.
- This causes DOA that has limited human resources and equipment unable to provide adequate services.
- Therefore, the program for 3rd party agencies to carry out laboratory testing for exported seeds has been set up

Objective of Program

- To authorized 3rd party lab to carry out testing service activities that contribute to the issuance of PC
- To address the exporters' requirement for seed health testing
- To improve and standardize seed health testing labs
- To facilitate seed trade

Organization Eligible to Become an Accredited Laboratory

- ✓ Seed company
- ✓ Private seed testing company
- ✓ University laboratory
- ✓ Research institute
- ✓ Other organizations

Development of Lab Accreditation Process

Regulation

- ✓ 1. Revise the notification of DOA: Criteria, Methods and Conditions for Issuing PC
- ✓ 2. Regulatory Subcommittee
- ✓ 3. Plant Quarantine Committee
- ✓ 4. Published in the Government Gazette and going into force

Technical

- ✓ 1. Develop requirements for accreditation
- ✓ 2. Develop audit and monitoring process
- ✓ 3. Meeting with stakeholders to comment the requirements
- ✓ 4. Prepare audit checklist
- ✓ 5. Organizing PT test
- ✓ 6. Pre-audit

Application Procedure to Become an Accredited Laboratory

- 3rd party lab submit an application form with supporting documents
- The committee review the documents
- DOA auditors assess lab against the criteria set in the requirements
- 3rd party lab participation in the PT test.
- Committee summary of the audit results
- DOA accredited the authorized laboratory

Criteria for accreditation

Management requirement

- Organization
- Quality system
- Document control
- Control of records

Criteria for accreditation

Technical Requirement

- **Staff**
  - Adequate staff
  - Necessary education
  - Training
  - Technical knowledge

https://brickhillsconsulting.com/product/effective-training-administration/

Criteria for accreditation

Technical Requirement

- **Accommodation and environment**
  - Safety
  - Separation working areas for prevent contamination
  - Prevent unauthorized access
  - Suitable environment for working

Criteria for accreditation

Technical Requirement

- **Test method**
  - Appropriate method
  - International standards
  - Validation of method

ISTA Seed Quality Assurance

ISF

NSHS National Seed Health System

Criteria for accreditation

Technical Requirement

- **Equipment**
  - Properly maintained
  - Calibration program
  - Procedure for handling, Transport, Use and maintenance of equipment

Criteria for accreditation

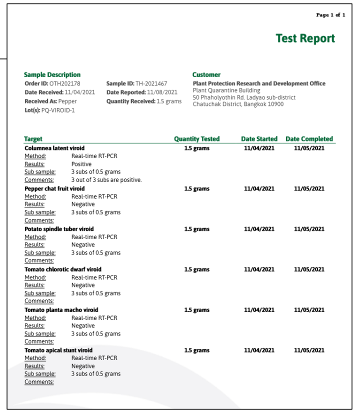
Technical Requirement

- **Sampling**
  - Sampling plan and method
  - Sample data recording
  - Sample handling procedures

Criteria for accreditation

Technical Requirement

- **Reporting the results**
  - Accurately
  - Clearly and objectively
  - Appropriate information



Page 1 of 1

Test Report

Sample Description

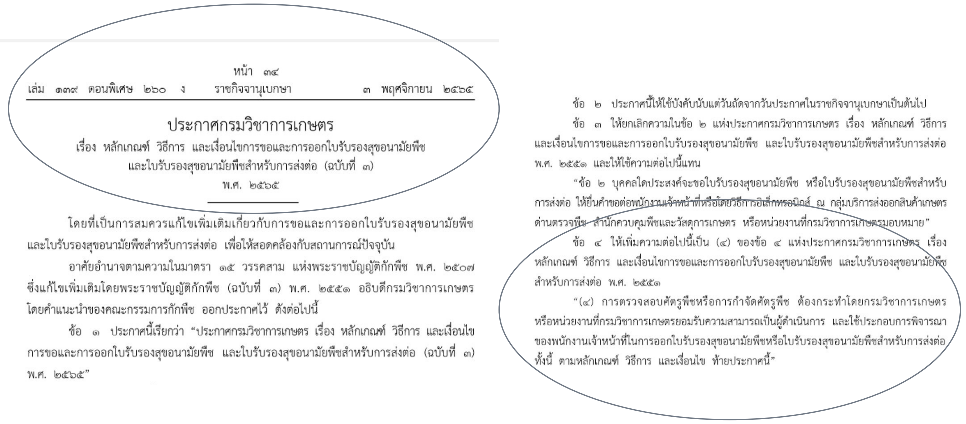
Order ID: OTH202178
Date Received: 11/04/2021
Received As: Pepper
Lot(s): PQ-VIROID-1

Sample ID: TH-2021467
Date Reported: 11/08/2021
Quantity Received: 1.5 grams

Customer

Plant Protection Research and Development Office
Plant Quarantine Building
50 Phaholyothin Rd. Ladyao sub-district
Chatuchak District, Bangkok 10900

Target		Quantity Tested	Date Started	Date Completed
Columnea latent viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Positive			
Sub sample:	3 subs of 0.5 grams			
Comments:	3 out of 3 subs are positive.			
Pepper chat fruit viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Negative			
Sub sample:	3 subs of 0.5 grams			
Comments:				
Potato spindle tuber viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Negative			
Sub sample:	3 subs of 0.5 grams			
Comments:				
Tomato chlorotic dwarf viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Negative			
Sub sample:	3 subs of 0.5 grams			
Comments:				
Tomato planta macho viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Negative			
Sub sample:	3 subs of 0.5 grams			
Comments:				
Tomato apical stunt viroid		**1.5 grams**	**11/04/2021**	**11/05/2021**
Method:	Real-time RT-PCR			
Results:	Negative			
Sub sample:	3 subs of 0.5 grams			
Comments:				



หน้า ๓๔
เล่ม ๑๓๙ ตอนพิเศษ ๒๖๐ ง ราชกิจจานุเบกษา ๓ พฤศจิกายน ๒๕๖๕

ประกาศกรมวิชาการเกษตร
เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืช
และใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ (ฉบับที่ ๓)
พ.ศ. ๒๕๖๕

โดยที่เป็นการสมควรแก้ไขเพิ่มเติมเกี่ยวกับการขอและการออกใบรับรองสุขอนามัยพืชและใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ เพื่อให้สอดคล้องกับสถานการณ์ปัจจุบัน

อาศัยอำนาจตามความในมาตรา ๑๕ วรรคสาม แห่งพระราชบัญญัติกักพืช พ.ศ. ๒๕๐๗ ซึ่งแก้ไขเพิ่มเติมโดยพระราชบัญญัติกักพืช (ฉบับที่ ๓) พ.ศ. ๒๕๕๑ อธิบดีกรมวิชาการเกษตร โดยคำแนะนำของคณะกรรมการกักพืช ออกประกาศไว้ ดังต่อไปนี้

ข้อ ๑ ประกาศนี้เรียกว่า "ประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืช และใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ (ฉบับที่ ๓) พ.ศ. ๒๕๖๕"

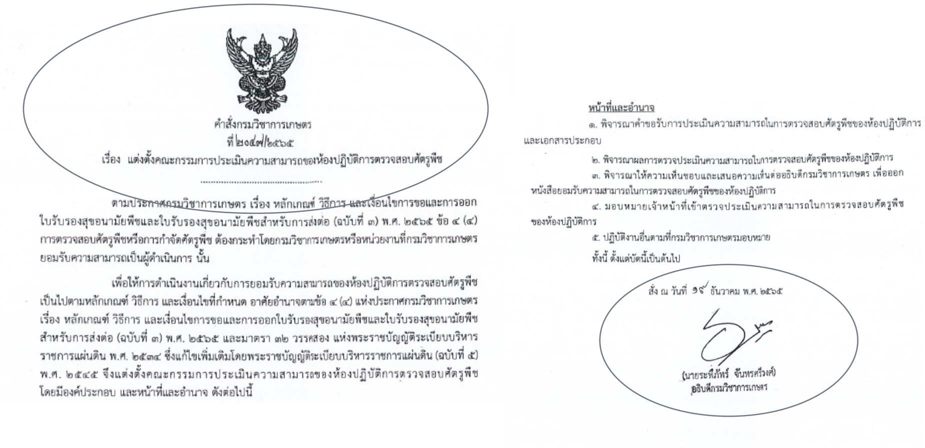
ข้อ ๒ ประกาศนี้ให้ใช้บังคับนับแต่วันถัดจากวันประกาศในราชกิจจานุเบกษาเป็นต้นไป

ข้อ ๓ ให้ยกเลิกความในข้อ ๒ แห่งประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืช และใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ พ.ศ. ๒๕๕๑ และให้ใช้ความต่อไปนี้แทน

"ข้อ ๒ บุคคลใดประสงค์จะขอใบรับรองสุขอนามัยพืช หรือใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ ให้ยื่นคำขอต่อพนักงานเจ้าหน้าที่หรือโดยวิธีการอิเล็กทรอนิกส์ ณ กลุ่มบริการส่งออกสินค้าเกษตร ด่านตรวจพืช สำนักควบคุมพืชและวัสดุการเกษตร หรือหน่วยงานที่กรมวิชาการเกษตรมอบหมาย"

ข้อ ๔ ให้เพิ่มความต่อไปนี้เป็น (๔) ของข้อ ๔ แห่งประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืช และใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ พ.ศ. ๒๕๕๑

"(๔) การตรวจสอบศัตรูพืชหรือการกำจัดศัตรูพืช ต้องกระทำโดยกรมวิชาการเกษตรหรือหน่วยงานที่กรมวิชาการเกษตรยอมรับความสามารถเป็นผู้ดำเนินการ และใช้ประกอบการพิจารณาของพนักงานเจ้าหน้าที่ในการออกใบรับรองสุขอนามัยพืชหรือใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ ทั้งนี้ ตามหลักเกณฑ์ วิธีการ และเงื่อนไข ท้ายประกาศนี้"



คำสั่งกรมวิชาการเกษตร
ที่ ๒๐๕๗/๒๕๖๕
เรื่อง แต่งตั้งคณะกรรมการประเมินความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืช

ตามประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืชและใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ (ฉบับที่ ๓) พ.ศ. ๒๕๖๕ ข้อ ๔ (๔) การตรวจสอบศัตรูพืชหรือการกำจัดศัตรูพืช ต้องกระทำโดยกรมวิชาการเกษตรหรือหน่วยงานที่กรมวิชาการเกษตรยอมรับความสามารถเป็นผู้ดำเนินการ นั้น

เพื่อให้การดำเนินงานเกี่ยวกับการยอมรับความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืชเป็นไปตามหลักเกณฑ์ วิธีการ และเงื่อนไขที่กำหนด อาศัยอำนาจตามข้อ ๔ (๔) แห่งประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืชและใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ (ฉบับที่ ๓) พ.ศ. ๒๕๖๕ และมาตรา ๓๒ วรรคสอง แห่งพระราชบัญญัติระเบียบบริหารราชการแผ่นดิน พ.ศ. ๒๕๓๔ ซึ่งแก้ไขเพิ่มเติมโดยพระราชบัญญัติระเบียบบริหารราชการแผ่นดิน (ฉบับที่ ๕) พ.ศ. ๒๕๔๕ จึงแต่งตั้งคณะกรรมการประเมินความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืช โดยมีองค์ประกอบ และหน้าที่และอำนาจ ดังต่อไปนี้

หน้าที่และอำนาจ

๑. พิจารณาคำขอรับการประเมินความสามารถในการตรวจสอบศัตรูพืชของห้องปฏิบัติการและเอกสารประกอบ

๒. พิจารณาผลการตรวจประเมินความสามารถในการตรวจสอบศัตรูพืชของห้องปฏิบัติการ

๓. พิจารณาให้ความเห็นชอบและเสนอความเห็นต่ออธิบดีกรมวิชาการเกษตร เพื่อออกหนังสือยอมรับความสามารถในการตรวจสอบศัตรูพืชของห้องปฏิบัติการ

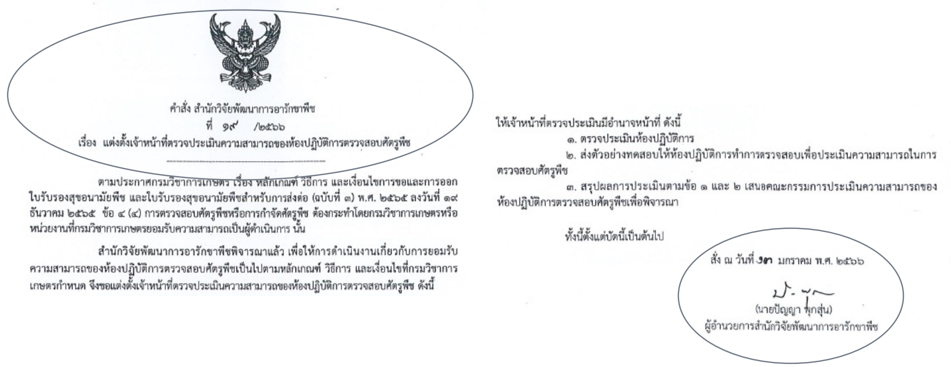
๔. มอบหมายเจ้าหน้าที่เข้าตรวจประเมินความสามารถในการตรวจสอบศัตรูพืชของห้องปฏิบัติการ

๕. ปฏิบัติงานอื่นตามที่กรมวิชาการเกษตรมอบหมาย

ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๙ ธันวาคม พ.ศ. ๒๕๖๕

(นายระพีภัทร์ จันทรศรีวงศ์)
อธิบดีกรมวิชาการเกษตร



คำสั่ง สำนักวิจัยพัฒนาการอารักขาพืช
ที่ ๑๙ /๒๕๖๖
เรื่อง แต่งตั้งเจ้าหน้าที่ตรวจประเมินความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืช

ตามประกาศกรมวิชาการเกษตร เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการขอและการออกใบรับรองสุขอนามัยพืช และใบรับรองสุขอนามัยพืชสำหรับการส่งต่อ (ฉบับที่ ๓) พ.ศ. ๒๕๖๕ ลงวันที่ ๑๙ ธันวาคม ๒๕๖๕ ข้อ ๔ (๔) การตรวจสอบศัตรูพืชหรือการกำจัดศัตรูพืช ต้องกระทำโดยกรมวิชาการเกษตรหรือหน่วยงานที่กรมวิชาการเกษตรยอมรับความสามารถเป็นผู้ดำเนินการ นั้น

สำนักวิจัยพัฒนาการอารักขาพืชพิจารณาแล้ว เพื่อให้การดำเนินงานเกี่ยวกับการยอมรับความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืชเป็นไปตามหลักเกณฑ์ วิธีการ และเงื่อนไขที่กรมวิชาการเกษตรกำหนด จึงขอแต่งตั้งเจ้าหน้าที่ตรวจประเมินความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืช ดังนี้

ให้เจ้าหน้าที่ตรวจประเมินมีอำนาจหน้าที่ ดังนี้

๑. ตรวจประเมินห้องปฏิบัติการ

๒. ส่งตัวอย่างทดสอบให้ห้องปฏิบัติการทำการตรวจสอบเพื่อประเมินความสามารถในการตรวจสอบศัตรูพืช

๓. สรุปผลการประเมินตามข้อ ๑ และ ๒ เสนอคณะกรรมการประเมินความสามารถของห้องปฏิบัติการตรวจสอบศัตรูพืชเพื่อพิจารณา

ทั้งนี้ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๗ มกราคม พ.ศ. ๒๕๖๖

(นายปัญญา พุกสุ่น)
ผู้อำนวยการสำนักวิจัยพัฒนาการอารักขาพืช

Updating on Recently Work

List of pathogens / Test methods / crops submitted by laboratories for competence assessment

L1	L2	L3	L4
Pospiviroid/ qPCR[1]/ Tomato, Pepper	Pospiviroid/ qPCR[1]/ Tomato, Pepper	Pospiviroid/ RT-PCR[2]/ Tomato, Pepper	-
ToBRFV/ qPCR[1]/ Tomato, Pepper	ToBRFV/ qPCR[1]/ Tomato, Pepper	ToBRFV/ RT-PCR[2]/ Tomato, Pepper	-
-	BFB/ PCR/ Melon, Watermelon, Squash	-	BFB/ Cucurbit seed

[1] NSHS [2] ISF

Result of PT-Test

L1	L2	L3	L4
Pospiviroid / Pass	Pospiviroid / Pass	Pospiviroid / Pass	-
ToBRFV / Pass	ToBRFV / Pass	ToBRFV / Pass	-
-	BFB / *	-	BFB / *

*, PT-test has not been done

Result of Pre-Audit

Two laboratories (L1, L2) have been pre-audited for *Pospiviroid* and ToBRFV assays using real-time PCR technique. Both meet the requirement

Future Activities

Set up the program for authorized entities to perform other phytosanitary activities such as field inspection, phytosanitary treatment and sampling.

List of agencies applying for assessment of the competency of pest inspection laboratories

No.	Company	Quantity		
		Species	Pests	Method
1	MONSANTO THAILAND CO., LTD.	2	2	1
2	SEED TEST LABS ASIA CO., LTD.	3 species, 1 family	14	4
3	Chia Tai CO., LTD.	13	7	5
4	EAST WEST SEED INTERNATIONAL CO., LTD.	13	8	2
5	HM.CLAUSE (THAILAND) CO., LTD.	4 species, 1 family	12	4
6	Agence Nationale de la Science et du Developpement Technologique (Thailande) (NSTDA)	1 family	1	1

List of companies and scope of application for assessing the competency of pest inspection laboratories

Company	Scope			
	Species	Plant parts	Pests	Method
1. MONSANTO THAILAND CO., LTD.	Pepper	Seed	*ToBRFV, Pospiviroid*	qPCR
	Tomato	Seed	*ToBRFV, Pospiviroid*	qPCR
2. SEED TEST LABS ASIA CO., LTD.	Cucurbitaceae	Seed	*SqMV, CGMMV, MNSV, KGMMV, ZGMMV*	ELISA
			Acidovorax citrulli	qPCR
	Eggplant	Seed	*ToBRFV, Pospiviroid*	RT-qPCR
			TMV, ToMV, PMMoV, ToRSV, TRSV	ELISA
	Pepper	Seed	*TMV, ToMV, PMMoV, ToRSV, TRSV*	ELISA
	Pepper	Seed	*ToBRFV Pospiviroid*	RT-qPCR
	Tomato	Seed	*TMV, ToMV, PMMoV, PepMV, ToRSV, TRSV*	ELISA
	Tomato	Seed	*ToBRFV, Pospiviroid*	RT-qPCR

List of companies and scope of application for assessing the competency of pest inspection laboratories

Company	Scope			
	Species	Plant parts	Pests	Method
3. Chia Tai CO., LTD.	Watermelon, Cucumber, Pumpkin, Melon, Cantaloupe, Squash	Seed	*Acidovorax citrulli*	Seed extract qPCR Sweat box grow-out Pathogenicity assay
	Watermelon, Cucumber, Pumpkin, Bitter gourd, Melon	Seed	*Didymella bryoniae*	Blotter assay
	กะหล่ำปลี, กะหล่ำดอก, กวางตุ้ง, ผักกาดขาว	Seed	*Leptosphaeria maculans*	Blotter Assay
	Watermelon, Cucumber, Pumpkin, Bitter gourd	Seed	*SqMV*	ELISA
	Watermelon, Cucumber, Pumpkin, Bitter gourd	Seed	*CGMMV*	ELISA
	Watermelon, Cucumber, Melon	Seed	*MNSV*	ELISA
	Tomato, Pepper	Seed	*ToBRFV*	Seed extract qPCR

List of companies and scope of application for assessing the competency of pest inspection laboratories

Company	Scope			
	Species	Plant parts	Pests	Method
4. EAST WEST SEED INTERNATIONAL CO., LTD.	Pepper, Tomato	Seed	*ToBRFV*	PCR
	Pepper, Tomato	Seed	*ToBRFV*	PCR
	Pepper, Tomato	Seed	*Pospiviriod (PSTVd)*	PCR
	Pepper, Tomato	Seed	*Pospiviriod (PCFVd)*	PCR
	Pepper, Tomato, Eggplant	Seed	*TMV*	ELISA
	Pepper, Tomato, Eggplant	Seed	*ToMV*	ELISA
	Pepper	Seed	*PMMoV*	ELISA
	Bitter gourd, Melon, Cucumber, Luffa angular, Luffa smooth, Pumpkin, Snake gourd, watermelon, Wax gourd, Zucchini	Seed	*CGMMV*	ELISA
	Bitter gourd, Melon, Cucumber, Luffa angular, Luffa smooth, Pumpkin, Snake gourd, watermelon, Wax gourd, Zucchini	Seed	*SqMV*	ELISA

List of companies and scope of application for assessing the competency of pest inspection laboratories

Company	Scope			
	Species	Plant parts	Pests	Method
5. HM.CLAUSE (THAILAND) CO., LTD.	Pepper, Tomato	Seed	*ToBRFV*	RT-PCR
	Pepper, Tomato	Seed	*Pospiviriods (PCFVd, PSTVd, CLVd, TPMVd, TASVd)*	RT-PCR
	Pepper, Tomato	Seed	*Tobamoviruses TMV/ToMV*	ELISA
	Cucurbitaceae	Seed	*CGMMV, MNSV, SqMV*	ELISA
	watermelon	Seed	*BFB*	Seed wash/qPCR
	Melon	Seed	*BFB*	Sweat box/qPCR
6. Agence Nationale de la Science et du Developpement Technologique (Thailande) (NSTDA)	Cucurbitaceae	Seed	*Acidovorax citrulli*	SE-qPCR

ภาพตัวอย่าง การดำเนินการตรวจประเมินห้องปฏิบัติการตรวจสอบศัตรูพืชของเจ้าหน้าที่ฯ


ประชุม


ประตูห้องแลป

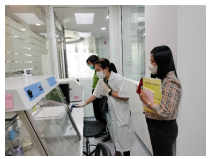

การสุ่มตัวอย่าง


ลงระบบรับตัวอย่าง


ห้องเก็บตัวอย่าง


อุปกรณ์ วิธีการตรวจสอบ

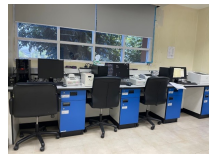

อุปกรณ์ วิธีการตรวจสอบ

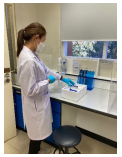

อุปกรณ์ วิธีการตรวจสอบ


การเก็บเอกสาร บันทึกต่างๆ


บริเวณคัดแยกขยะ

ภาพตัวอย่าง การดำเนินการตรวจประเมินห้องปฏิบัติการตรวจสอบศัตรูพืชของเจ้าหน้าที่ฯ





Operation

Company	Operation steps
1. MONSANTO THAILAND CO., LTD.	appove
2. SEED TEST LABS ASIA CO., LTD.	appove
3. Chia Tai CO., LTD.	on process
4. EAST WEST SEED INTERNATIONAL CO., LTD.	on process
5. HM.CLAUSE (THAILAND) CO., LTD.	on process
6. Agence Nationale de la Science et du Developpement Technologique (Thailande) (NSTDA)	on process

THANK YOU

FOR

YOUR ATTENTION

Annexure 8
STDF workshop (STDF/PG/755)

Next Steps and Action Items for 2023

1

STDF Project outputs and its activity

Output 2. Create database (portal) updated by NPPOs for phytosanitary requirements in English

Activities

- Existing pest list for seeds reviewed for each participating country
- Phytosanitary requirements reviewed and confirmed with the NPPOs
- Import and export phytosanitary certification requirements compiled
- Prototype and finally fully functional database of phytosanitary requirements

Workplan

Year 1 | Year 2 | Year 3

Q2 Q3 Q4 Q1 Q2

2

Existing Information to be added to the portal

- **Bangladesh:** No electronic database, but a portal is being created. Agreed to provide link to the seed portal of the project. One list for quarantine pests. No separate pest list for seeds.
- **Cambodia:** Database only available at IPPC link. No separate pest list for seeds.
- **Laos:** Happy to use ISF list. *(verify the links from Laos – 2 websites)*
- **Nepal:** Electronic database, agree to link with portal. No specific pest list for seeds
- **Philippines:** General website, agree to link with the portal, regulated pest list for 8 seed crops are complete but not yet uploaded on the website. *–in a process to work on regulated pest list for more seed crops referring to the priority proposed by the private sector.*
- **Thailand:** Database exists, in English, agree to link with the portal Pest list for seeds for 4 crops
- **Vietnam:** No online database, government notifications in Vietnamese, agree to translate into English. https://sansangxuatkhau.ppd.gov.vn/

3

Next Steps For adding information to the Portal

- Identify top 3 imported vegetable crops for each country
- Obtain pest list for those crops from each country
- Create pest list for seeds for those crops
- Add the list to each country phytosanitary conditions website
- Add link to the portal

4

Which are the top 3 imported vegetable crop seeds ?

- **Bangladesh: tomato, Brassica sp., chili, radish, eggplant, watermelon**
- **Cambodia: Tomato, Chili and Brassica sp.**
- **Laos: Tomato, chili, corn and eggplant**
- **Nepal: corn, cabbage, cucumber, pumpkin, pepper and radish**
- **Vietnam: corn, tomato, chili, cucumber and Brassica sp.**

- **Philippines**
- **Thailand**

5

Tier 1	Tier 2	Tier 3
Thailand Philippines	Bangladesh Nepal Laos	Cambodia Vietnam

6

Steps to take

Regulated pest on selected seed crop(s) (ISPM38) → Translate into English language → Include import condition on country's website → Link to the "Seed Portal"

7

Information on seed portal

- Link to country's website – import condition
- ISF regulated pest link
- Suggestions ??

8

In Person Workshop

- Location and Dates- Manila, October 17-18
- Tentative Topics to be discussed
  - Pest list for seeds
  - Portal development
  - Capacity Building workshops on ISPM2 and ISPM 11.
- Plan for 2024

9

Status and Next Steps on ISPM38

- **Bangladesh: so far no training on ISPM38, will dedicate two staff (willing to be trained)**
- **Cambodia: Drafting of ministry proclamation on ISPM38. Priority is to stop illegal seed movement. Expect to gain knowledge from Thailand and Vietnam**
- **Laos: Workshop on ISPM38 is required to create the awareness on international seed movement for both public and private sectors (need the capacity building program also on seed testing laboratory)**
- **Nepal: plan to develop own standard to comply with ISPM38.**
- **Philippines: draft legislation under process and welcome comments from private sector (capacity building for PRA to develop technical experts)**
- **Thailand: already implement ISPM38 – able to mentor other countries (south – south cooperation)**
- **Vietnam: require a capacity building to develop technical experts (Ex. Inspectors at the port and PRA staff) actively working on implementation of ISPM38.**

10

Next Steps on ePhyto

- Individual tracking of progress with the countries.
- Support to Bangladesh to register and initiate the process
- Expand Philippines capacity to send and receive ePhyto (currently only receiving)
- Troubleshooting for Nepal in operational aspects
- Cambodia and Laos to benefit from introductory capacity building sessions
- Thailand to mentor other countries
- Vietnam to focus on legislation change

11

Next Steps on ISPM45

Bangladesh:** 10 labs (1 ISO accredited lab), one private lab undergoing ISTA accreditation (interest to be in the capacity building program of ISPM45) – Rule is yet to revised. But very keen on taking next steps on ISPM 45

Cambodia*: no separate seed lab, will benefit from the capacity building sessions

Laos*: 2 labs, need more work before 3rd party lab accreditation

Nepal* : no separate seed lab**,** need more work before 3rd party lab accreditation *(regulation in the progress to allow NPPO to authorize the private seed health lab)*

Philippines*:** Public and private seed health testing labs, MoA underway to accredit 3 private labs, can adapt to ISPM45. Agreed to be the case study for this project

Thailand*:** Formally accredit 3rd party lab accreditation, can mentor other countries

Vietnam*: private seed health testing labs exist but accreditation not yet started

12