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Presentation on the Evaluation of Three STDF Pesticide Residue Data Generation Projects (2013-2017)

ASEAN PG-337, Latin America PG-436, Africa PG-359

Evaluation conducted in November 2018 - April 2019
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Presentation for STDF Working Group
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Objectives of the Evaluation

This *ex-post* evaluation, carried out during November 2018- April 2019, aimed *to verify*:

- the extent to which the projects **achieved their objectives**
- the projects' **effectiveness**, **impact** and **sustainability**
- their **contribution to STDF market access- and SPS-related objectives**

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Project Rationale

Pesticide residue data needed to establish Codex Maximum Residue Levels (MRLs) are **rarely generated in developing countries**. Thus**, few Codex MRLs are established for 'minor-use' crops** (crops of low pesticide usage on a global scale, eg, tropical fruits grown in developing regions).

Lack of MRLs is a is thus a **big market access challenge** for many countries.

+ If MRLs do not reflect actual pesticide use patterns, pests cannot be controlled effectively.

The focus was on **low-risk pesticides and tropical fruits**..

The idea was that an **model** featuring **'learning by doing', expert mentoring and regional collaboration** would provide the skills and experience necessary to expand/prioritise residue programmes, proactively address emerging pest issues, and enhance compliance with international food safety standards**.**

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6 Main Project Objectives

1. Facilitate market access
2. Expand lower-risk pesticide options
3. Improve technical capacity to generate, review and interpret pesticide residue data
4. Support national pesticide registration
5. Facilitate new Codex MRLs
6. Develop a replicable assistance model for joint pesticide residue projects

Total project value: US$3,5 million (in funding and in kind), incl. STDF $1,5m, USDA-FAS/IR-4 $1,8m, and the rest from others.

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ASEAN Pesticide Residue Data Generation Project
STDF/PG/337: 1 Dec. 2012 – 30 Nov. 2016

Project value: US$1 242 000; approved STDF contribution: US$637 000

Participants: Brunei Darussalam, Indonesia, Malaysia, Singapore, Philippines, Thailand , Viet Nam. Observers: Cambodia, Laos, Myanmar.

Administrators/Implementers: ASEAN Secretariat / IR-4 Project (Rutgers Uni.)

Partners: Government agencies, ASEAN Expert Working Group on Harmonisation of MRLs of Pesticides, USDA-FAS, US Environmental Protection Agency, JMPR Secretariat, pesticide manufacturers (Dow, Syngenta, Valent/Sumitomo)

Pesticides and products tested: Pyriproxyfen/mango (Malaysia/Singapore); pyriproxyfen/papaya (Philippines, Malaysia and Brunei Darussalam); spinetoram/mango and spinetoram/lychee (Thailand); azoxystrobin and difenoconazole/dragon fruit (Indonesia and Viet Nam)

Results: Six residue studies (1 each for lychee and papaya, 2 each for dragon fruit and mango). Five new MRLs to date. All seven countries registered these reduced-risk pesticides for these crops.

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Latin American Pesticide Residue Data Generation Project

STDF/PG/436: 1 Oct. 2013 – 30 Sept. 2016

Project value: US$1 195 416; approved STDF contribution: US$374 116.

Participants: Bolivia, Colombia, Costa Rica, Guatemala, Panamá

Implementers/Administrators: USDA-FAS, IR-4 (Rutgers University), Instituto Interamericano de Cooperación para la Agricultura (IICA)

Partners: Government agencies, USDA-FAS, US EPA, FAO, JMPR, pesticide manufacturers (Dow and Valent/Sumitomo, Croplife Latin America), Interamerican Development Bank

Pesticides and products tested: Spinetoram/avocado (Colombia), spinetoram/ banana (Bolivia), pyriproxyfen/pineapple (Panamá), pyriproxyfen/banana (Costa Rica/Guatemala)

Results: Three residue studies (1 pineapple, 1 banana,1 avocado). (Bolivia's trial data were not analysed due to lack of laboratory.). 2 new MRLs to date. All 5 countries have registered the pesticide/product combinations.

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Africa Pesticide Residue Data Generation Project

STDF/PG/436: 1 May 2013 – 30 April 2017

Total project value: US$1 064 450; STDF contribution: US$446 150.

Beneficiaries: Ghana, Kenya, Senegal, Tanzania and Uganda

Implementers/Administrators: USDA-FAS, IR-4 (Rutgers University), African Union Inter-African Bureau for Animal Resources (AU-IBAR)

Partners: government agencies, USDA-FAS, US EPA, FAO, COLEACP (Europe-Africa-Caribbean-Pacific Liaison Committee), pesticide manufacturer Dow

Pesticide and product tested: sulfoxaflor/mango (all five countries)

Results: One residue study (2019-20). Efficacy trials in at least three countries in 2018. Tanzania and Uganda completed registrations of the compound. Kenya is in the process.

In Africa, four of the original six projects were repeated in 2018-19, plus an extra trial by Senegal. USDA/IR4 are preparing data packages to submit to JMPR for review in 2020.

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Overall Achievements

✓**160+ scientists and government officers were trained** in applying GAP and GLP.

✓**62 field trials were carried out in 16 countries** (32 in ASEAN, 23 in Latin America, 7 in Africa) resulting in **10 studies**: 6 in ASEAN, 3 in Latin America, 1 in Africa (underway)

✓**Technical capacity** improved visibly.

✓5 **new MRLs** established in 2018, **2 in 2019**, **3 expected in 2020-2022**. Total: 10 by 2022: 6 Asia, 3 LA, 1 Africa. Just one short of the original goal of 11.

✓To date, all 7 ASEAN countries have **registered the pesticide for the compound/crop tested**, as have the 5 Latin American participants, and Uganda and Tanzania in Africa. Kenya is in the process.

✓The project **improved communications** and joint activities among the regional participants and **contributed to regional harmonisation efforts.**

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Were the 6 Objectives Met?

Objective	Outcome
1. Facilitate market access	Too early to measure
2. Expand lower-risk pesticide options	Yes
3. Improve technical capacity to generate, review & interpret pesticide residue data	Yes
4. Support national pesticide registration	Yes : All 7 ASEAN and all 5 Latin American participants registered the compounds. 2 of 5 African countries registered the pesticides, 1 pending.
5. Facilitate new Codex MRLs	Yes. 5 MRLs in 2018, 2 in 2019, 3 expected in 2020-2022.
6. Develop **replicable model** for joint pesticide residue projects	Yes, plus facilitated the creation of the Minor-Use Foundation

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Status of the MRL Objectives of the Three Projects

Study	Countries	Data submitted to JMPR	Status
Spinetoram on lychee	Thailand: 6 trials, 1 study	2017	Codex MRL established in 2018
Spinetoram on mango	Thailand: 6 trials, 1 study	2017	Codex MRL established in 2018
Spinetoram on avocado	Colombia: 6 trials, 1 study	2017	Codex MRL established in 2018
Azoxystrobin plus difeno-conazole on dragon fruit	Indonesia (6 trials), Viet Nam (1 trial): 2 studies	2017	2 Codex MRLs established in 2018
Pyriproxyfen on papaya	Brunei (1 trial), Malaysia (3 trials), Philippines (3 trials):1 study	2017	Codex MRL established in 2019
Pyriproxyfen on pineapple	Panama: 6 trials, 1 study	2017	Codex MRL established in 2019
Pyriproxyfen on mango	Malaysia (6 trials), Singapore (lab analysis): 1 study	2017, resubmitted 2019	Codex MRL expected in 2020
Pyriproxyfen on banana	Costa Rica (7 trials), Guatemala (1 trial): 1 study	2017, hope to submit revised labet in 2019/20	Codex MRL expected in 2021
Sulfoxaflor on mango	Ghana (2 trials), Kenya (2 trials), Senegal (2 trial)s, Tanzania (1 trial), Uganda (1 trial): will yield 1 study	To be submitted in 2020	Codex MRL expected in 2022
Spinetoram on banana	Bolivia: 3 trials; samples not analysed, so no study.	n.a.	n.a.

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Impacts

Growing awareness of the consequences of the **lack of MRLs for tropical fruits on trade and development.**

Registration of the lower-risk products will **help replace higher-risk pesticides .**

Better understanding of **MRL establishment process.**

More active **participation in global priority-setting fora**.

Establishment of the Minor Use Foundation (prioritise global pest control needs, coordinate residue data generation projects to establish Codex MRLs, national MRLs and import tolerances).

Stronger **regional efforts to harmonise pesticide registration requirements and MRLs for pesticide residues**. Eg, East African Community (EAC).

This more active and better-informed participation in regional and global standards and priority-setting fora should eventually lead to **improvements in market access, food safety and environmental protection.**

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Key Findings

Highly relevant projects met documented SPS and trade-related needs**.**

The STDF contribution had **clear value-added**; the partner organisations could not have done this on their own, and no other donor programmes existed for these specific issues.

Training activities were **delivered on time** and **within budget;** very appreciated by participants.

Key objectives were (or will be) **largely met.**

Hypothesis proved: the collaborative, hands-on model piloted could deliver the desired results. However, it needs to be tailored more carefully to local situations.

The active participation, **persistence** and dedication *beyond the call of duty* of USDA-FAS and IR-4/ Rutgers University teams, contributed strongly to success.

Local champions also made a big difference.

Establishing clear lines of communication, cooperation and collaboration among the many different actors was essential.

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Findings (cont): Challenges & Areas for Improvement

Model broadly effective, but **implementation design was overly optimistic,** leading to **significant delays.**

More **rigorous needs and risk assessments**, **more thorough planning and risk mitigation**, and **better communications and follow-through**.

Budgets and time were often underestimated for field trials.

Lack of advanced analytical capacity in some countries required **transport of samples to other countries for analysis**. This worked well in Asia, but posed a major challenge for Africa and Bolivia.

The **laboratory analysis** phase was the most challenging. Equipment breakdowns, transfer of trained personnel, problems with reagents, need to repeat analyses, etc, caused delays in all three regions.

In addition, extraneous reasons like JMPR's backlog and communications contributed to the delays.

Sustainability was not addressed as a continuity objective.

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Lessons Learned

The model used in the three projects is sound, but it must be **adapted to the infrastructure, conditions and resources in each country**.

The **composition of the Study Team is crucial**. Members should have appropriate technical expertise and be selected from organisations with the ability to dedicate the necessary time, replace members seamlessly, and communicate and coordinate effectively with the other stakeholders. (*See last slide for an example*.)

Identifying and prioritising pesticide/crop combinations is extremely difficult, **as many interests must be balanced.**

Effective and efficient **collaboration** depends on a **clear understanding of roles, responsibilities and mutual expectations**.

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Lessons Learned (cont)

Stakeholder engagement requires good strategies and multiple approaches at various levels over the life of the project and after.

The **private sector** (growers, exporters and their associations) represents key stakeholders and end-beneficiaries, and **needs to have a much stronger involvement from the design stage.**

'**Champions**' that emerged during the projects proved to be **important drivers of change and sustainability.** Their effectiveness can be enhanced through active nurturing and support during and after the project.

Sustainability mechanisms need to be built into the project at the planning stages, to ensure continuity and consolidation of achievements.

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Key Recommendations 1-5

The Model piloted should form the basis of future projects on generation of pesticide residue, taking into account the lessons learned and adapting the model to local conditions.

Relationships and Communications
High-level, written, commitments should be sought from governments and pesticide firms to provide the necessary policy, personnel and budget support.

Project managers should **identify key national decision-makers and stakeholders**, **determine their role** in the project, and **develop strategies** to get and **keep them onboard at critical points** before, during and after the project.

JMPR should establish an effective mechanism to inform relevant parties on its assessments of the data packages.

Planning
More **thorough planning**, rigorous needs assessments, risk assessments, contingency planning, and regular review of assumptions.

'Build in' **sustainability** from the beginning.

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Key Recommendations 6-9

Capacity development and perpetuating knowledge and skills
Follow the ‘on-the-job learning’ and ’train-the-trainer’ principles, with the aim of developing a **core group of experts** in each country.

Include in training activities: case studies on the issues that caused the delays, etc.

Create **mentoring** programmes, as both a capacity-building and sustainability tool.

Support **laboratories** to generate high-quality data (e.g., standard operating procedures, methods development, QA audits, log-filling and report writing).

Upon completion of each project, support **follow-up assessment meetings** at both the national and regional level.

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Key Recommendations 10-12

International organisations and developing countries
Valent/Sumitomo should **revise/complete their dossiers/data packages** for pyriproxyfen on mango and banana so that they fulfil JMPR requirements, and **resubmit them to JMPR**.

The countries that participated in the three projects, in collaboration with other countries, should endeavour to **expedite JMPR and CCPR work on extrapolating Codex MRLs from key representative crops** to other crops in the same Codex subgroup.

When tropical produce is denied access to markets due to the application of **MRLs that are stricter than Codex MRLs, affected exporting countries** should raise the issue at the SPS Committee and **request justification for the stricter limits**.

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Follow-Up: What has happened since 2017

N**ew pesticide data generation projects in Latin America (ongoing), Asia (at protocol stage) and Africa (under discussion)** will allow participants in the 3 pilot projects to **consolidate knowledge and skills** with the continuing support of USDA-FAS and IR-4/Rutgers University.

Two **regional training centres for field and lab analysts** are being planned, possibly to be located at universities in Costa Rica and Colombia.

The **Minor Use Foundation** is now fully functioning as a non-profit organisation.

Sumitomo amended the Malaysia/Singapore label for pyriproxyfen on mango and resubmitted the dossier to JMPR for approval at its next meeting; a Codex MRL is expected in 2020.

JMPR may consider in 2020 a revised dossier from **Costa Rica and Guatemala on pyriproxyfen on banana** (to correct 2017 labelling issues)**.** A Codex MRL may be established in 2021.

The **African project on sulfoxafor on mango** is continuing; the project team hopes to submit the data to JMPR in 2020.

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Based on the project experience, IR-4 and USDA prepared a good-practice chart: