
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
16 October 2019
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**
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, e.g., tropical fruits grown in developing regions).

Lack of MRLs 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.
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.
ASEAN Pesticide Residue Data Generation Project

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.)

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.
Latin American Pesticide Residue Data Generation Project

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.
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)


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.
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.
## Were the 6 Objectives Met?

<table>
<thead>
<tr>
<th>Objective</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1. Facilitate market access</td>
<td>Too early to measure</td>
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<tr>
<td>2. Expand lower-risk pesticide options</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Improve technical capacity to generate, review &amp; interpret pesticide residue data</td>
<td>Yes</td>
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<tr>
<td>4. Support national pesticide registration</td>
<td>Yes: All 7 ASEAN and all 5 Latin American participants registered the compounds. 2 of 5 African countries registered the pesticides, 1 pending.</td>
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<td>5. Facilitate new Codex MRLs</td>
<td>Yes. 5 MRLs in 2018, 2 in 2019, 3 expected in 2020-2022.</td>
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<td>6. Develop <strong>replicable model</strong> for joint pesticide residue projects</td>
<td>Yes, plus facilitated the creation of the Minor-Use Foundation</td>
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<tr>
<td>Study</td>
<td>Countries</td>
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<td>-------------------------------------------</td>
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<tr>
<td>Spinetoram on lychee</td>
<td>Thailand: 6 trials, 1 study</td>
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<tr>
<td>Spinetoram on mango</td>
<td>Thailand: 6 trials, 1 study</td>
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<tr>
<td>Spinetoram on avocado</td>
<td>Colombia: 6 trials, 1 study</td>
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<tr>
<td>Azoxystrobin plus difenoconazole on dragon fruit</td>
<td>Indonesia (6 trials), Viet Nam (1 trial): 2 studies</td>
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<tr>
<td>Pyriproxyfen on papaya</td>
<td>Brunei (1 trial), Malaysia (3 trials), Philippines (3 trials): 1 study</td>
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<tr>
<td>Pyriproxyfen on pineapple</td>
<td>Panama: 6 trials, 1 study</td>
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<tr>
<td>Pyriproxyfen on mango</td>
<td>Malaysia (6 trials), Singapore (lab analysis): 1 study</td>
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<tr>
<td>Pyriproxyfen on banana</td>
<td>Costa Rica (7 trials), Guatemala (1 trial): 1 study</td>
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<tr>
<td>Sulfoxaflor on mango</td>
<td>Ghana (2 trials), Kenya (2 trials), Senegal (2 trials), Tanzania (1 trial), Uganda (1 trial): will yield 1 study</td>
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<tr>
<td>Spinetoram on banana</td>
<td>Bolivia: 3 trials; samples not analysed, so no study.</td>
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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.
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.
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.
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.
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.
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.
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.
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.
Follow-Up: What has happened since 2017

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

**Study Team Roles and Responsibilities**

~ MRL Residue Studies ~

**Sponsor (Testing Facility Management)**
- Provides resources to ensure completion of the study in a timely manner
- Designates Study Director and Quality Assurance Unit
- Reviews and signs protocol, SOPs, and QA audits and inspections
- Official country signee with in-country registration division and CCPR (Codex)

**Quality Assurance (QA)**
- Independent person who audits lab & field activities, and data
- Ensures compliance with GLPs
- Conducts lab & field inspections; Provides reports to SD, LI, & FI
- Reviews Analytical Summary Report and Final Report

**Study Director (SD)**
- Responsible for all aspects of the study and monitors progress
- Develops protocol; Provides guidance; Assesses data
- Reviews Analytical Summary Report and Field Notebooks
- Writes final report; Assists sponsor with submission for MRL

**Laboratory Investigator (LI)**
- Develops SOPs; Follows protocol; Trains assistants
- Maintains/calibrates instruments; Method validation
- Ensures sample integrity; Coordinates with FI
- Conducts sample analysis; Writes analytical summary

**Field Investigator (FI)**
- Develops SOPs; Follows protocol; Trains assistants
- Selects test site; Ensures crop health; Collects data
- Makes applications; Maintains field notebook
- Collects and ships samples; Ensures sample integrity