What are the implications for LMICs of pesticide risk reduction strategies in OECD countries?

CHALLENGES AND SOLUTIONS

April 2025

Funded by the European Union

Who and what is COLEAD ?

NOT-FOR-PROFIT PRIVATE SECTOR ASSOCIATION

PURPOSE

To facilitate and implement actions that, directly and/or indirectly, increase the contribution of the agricultural sector, and horticulture in particular, to the achievement of the SDGs

HOW

COLEAD manages and implements development programmes in the agriculture and food sector (mainly in ACP States), funded by donors, amongst which the EU is the most important

1.

OECD PESTICIDE POLICY: THE EU EXAMPLE

1. EU Pesticide Legislation

Increasingly stringent

- **Regulation (EC) 1107/2009**: authorisation & use within the EU
  - Based on "hazard-based cut-off criteria". **Risk averse; precautionary principle**
  - Residue definition creating challenges (metabolites)

- **Regulation (EC) 396/2005**:pesticide MRLs. Reviewed by EFSA on an ongoing basis
  - Takes account of CODEX MRLs, but **diverges** where "scientifically justified"
  - If no EU MRL, automatically set at LOD, or at default 0.01 mg/kg (or **analytical capacity**)

- **Ongoing review process**: **Progressive loss** or lowering of MRLs for many widely used substances

1. EU Pesticide Policy

Under review with the "Future of Agriculture"

- **Ambitious pesticide reduction strategy**: under review, **re-focused on EU competitiveness**
- **Mirror clauses**: ongoing dialogue, with items of significance for LMICs
- **Import tolerances** – **Under Review**
  - MRLs for a.s. not authorised in EU, but with a 3rd country approval, provided EU safety standards are met
  - Important option for LMICs. Increasingly challenged (by EU stakeholders). Likely to become less accessible, and applied to environment (global impact)
- **Prohibition of export of "banned" substances** – under discussion
  - Little consideration of LMIC production environments, or implications for food security

1.

EU Approvals & non-renewals in last 5 years

Loss of approval followed by loss of MRL

76
NET LOSS OF CONVENTIONAL CHEMICAL AS

- No new conventional AS approved in past 5 years
- 76 non-renewals, withdrawn or expired

8
NET LOSS OF BIOLOGICAL AS

- 13 new biologicals approved; none for 22 months
- 21 biologicals non-renewed, withdrawn or expired

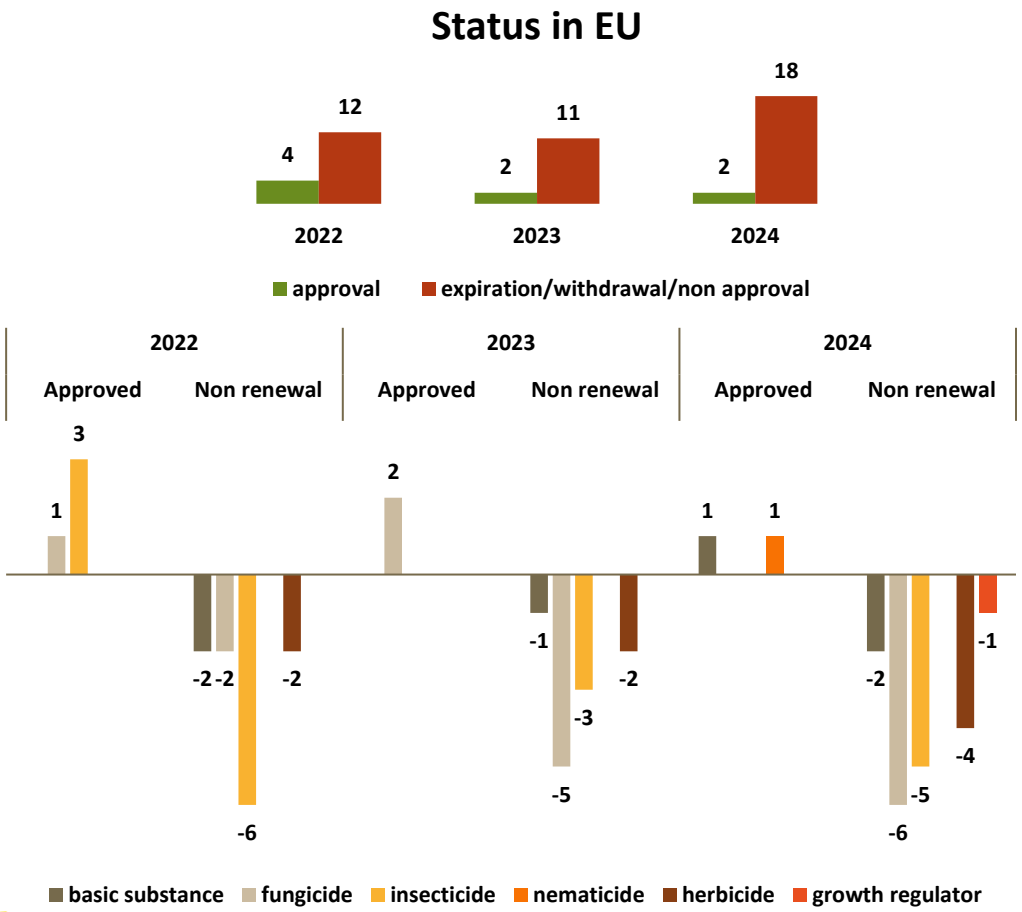
6
NEW BASIC SUBSTANCES

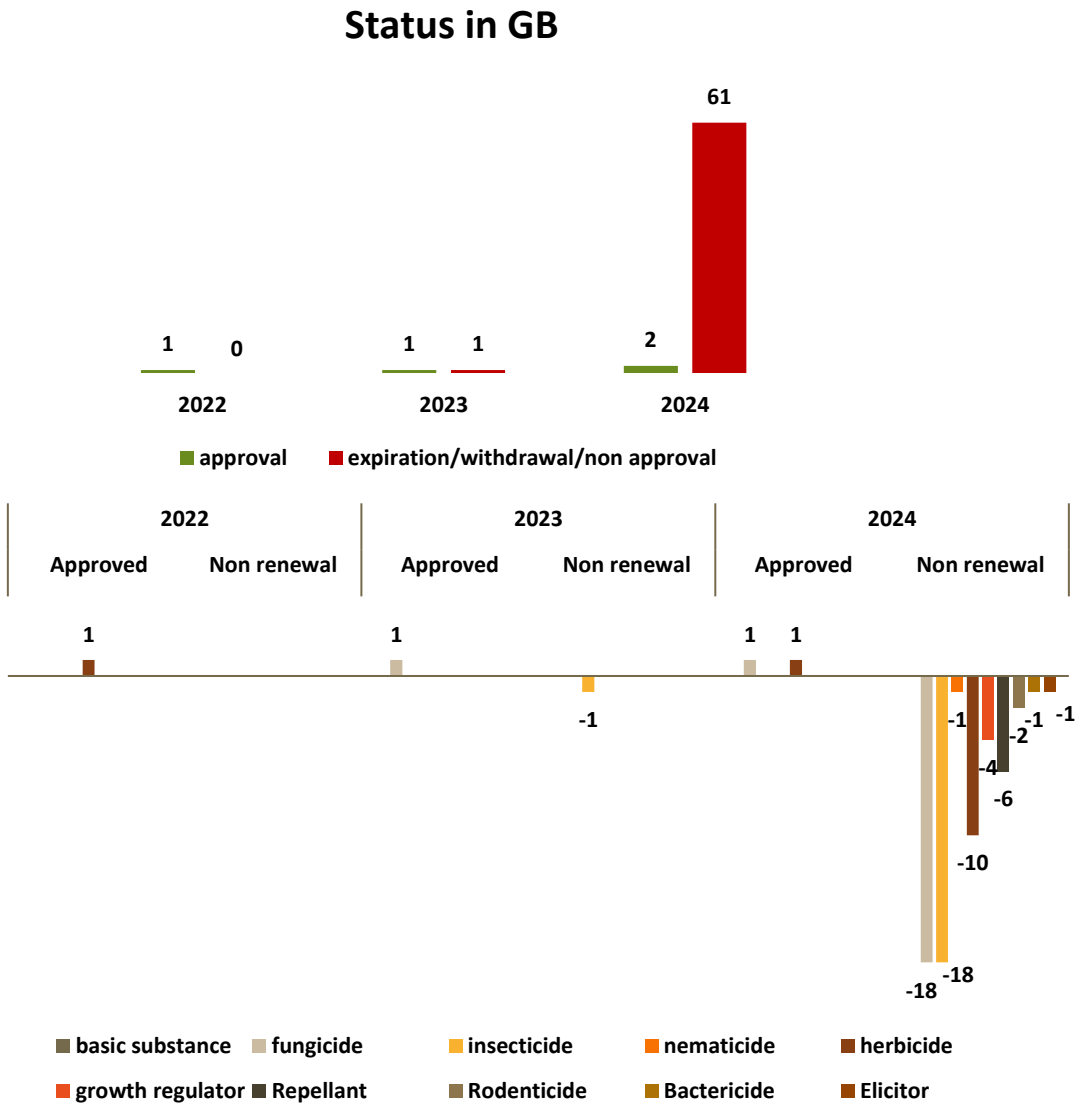
- 6 new basic substances approved
- Includes cow milk

Source: Crop Life International

1. Loss by substance type

2022 - 2024





*Source: COLEAD database of PPPs registered in 34 ACP countries

1. Ongoing Review Process

Insecticides	End registration
benfluralin	12-02-23
triflusulfuron-methyl	20-11-23
s-metholachlor	22-01-24
bentazone	31-05-25
propyzamide	30-06-25
lenacil	15-08-25
imazamox	30-09-27
metribuzin	End use 24-11-25
cycloxydim	31-08-26
phenmedipham	30-09-26
aclonifen	31-10-26
metazachlor	31-10-25
pendimethalin	15-01-27
metobromuron	31-05-27
glyphosate	15-12-33

Fungicide	End registration
benthiavalicarb	13-12-23
dimethomorph	20-05-24
prothioconazole	15-08-25
pyraclostrobin	15-09-25
copper	31-12-25
boscalid	15-04-26
fludioxonil	15-06-26
fluopyram	30-06-26
cymoxanil	15-08-26
fluopicolide	31-08-26
cyprodinil	31-10-26
azoxystrobin	31-05-27

Herbicides	End registration
oxamyl	01-05-23
spirotetramat	End use 30-10-25
Spinetoram	End use 31-12-25
esfenvalerate	End use 28-02-26
lambda-cyhalothrin	31-08-26
spinosad	31-10-26
pirimicarb	31-10-26
emamectin benzoate	15-11-26
flonicamid	30-11-26
azadirachtin	31-01-27
tau-fluvalinate	31-01-27
chlorantraniliprole	31-05-27
tefluthrin	31-05-27

6 AS already removed
4 AS pending to be removed
2 AS planned to be removed
29 AS threaten

1.

Replacement with alternatives?

- Slow and very costly EU approval process is a disincentive to investment

Crop Protection AI Discovery and Development Lead Time					
	1995	2000	2005-08	2010-2014	2014-19
Number of years between the first synthesis and the first sale of product containing AI	8.3	9.1	9.8	11.3	12.3

+ **2-3 years on average for the formulation**

Source: AgbioInvestor-CropLife-The-Cost-of-New-Agrochemical-Product-Discovery-Development-and-Registration.pdf.

- EU fresh produce associations are compiling data on country/crops/pests where horticultural crops are in danger of not being grown due to loss of crucial PPPs

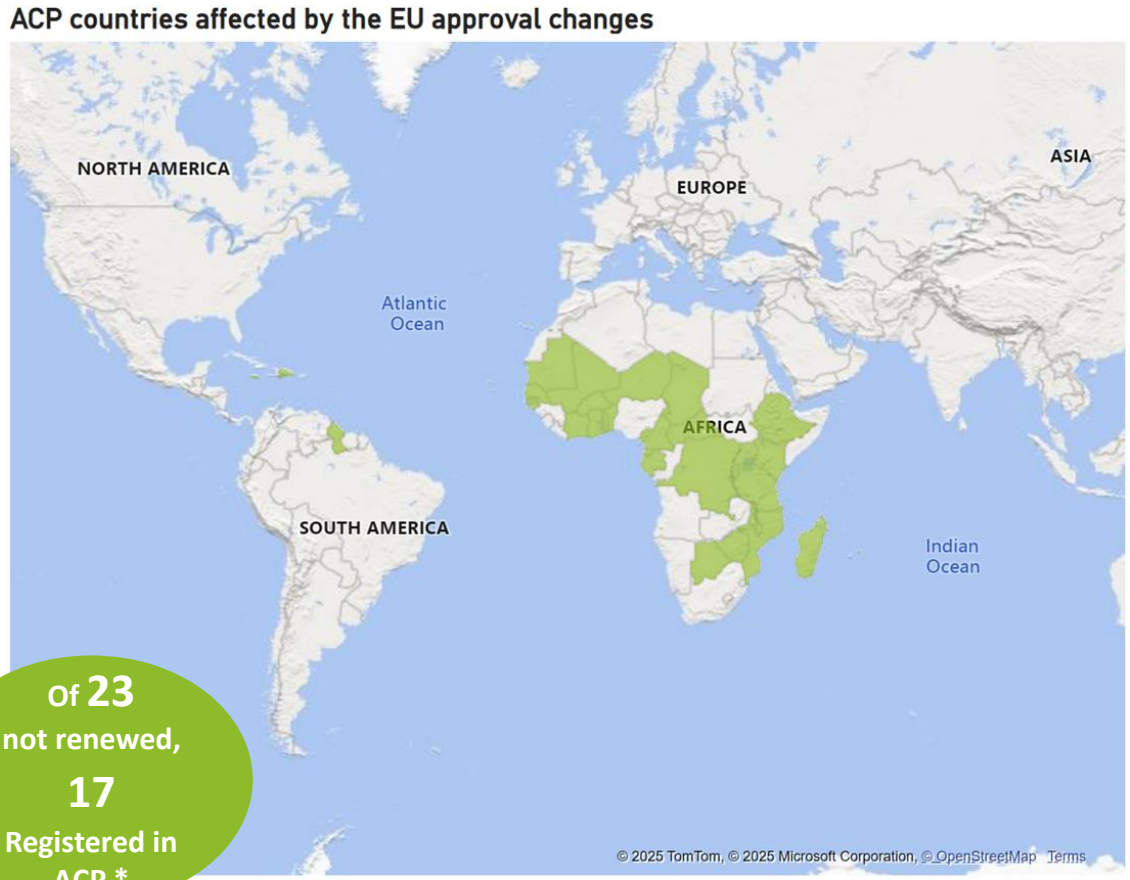
2.

SITUATION IN LMICs

2. Potential impact of approval changes in ACP

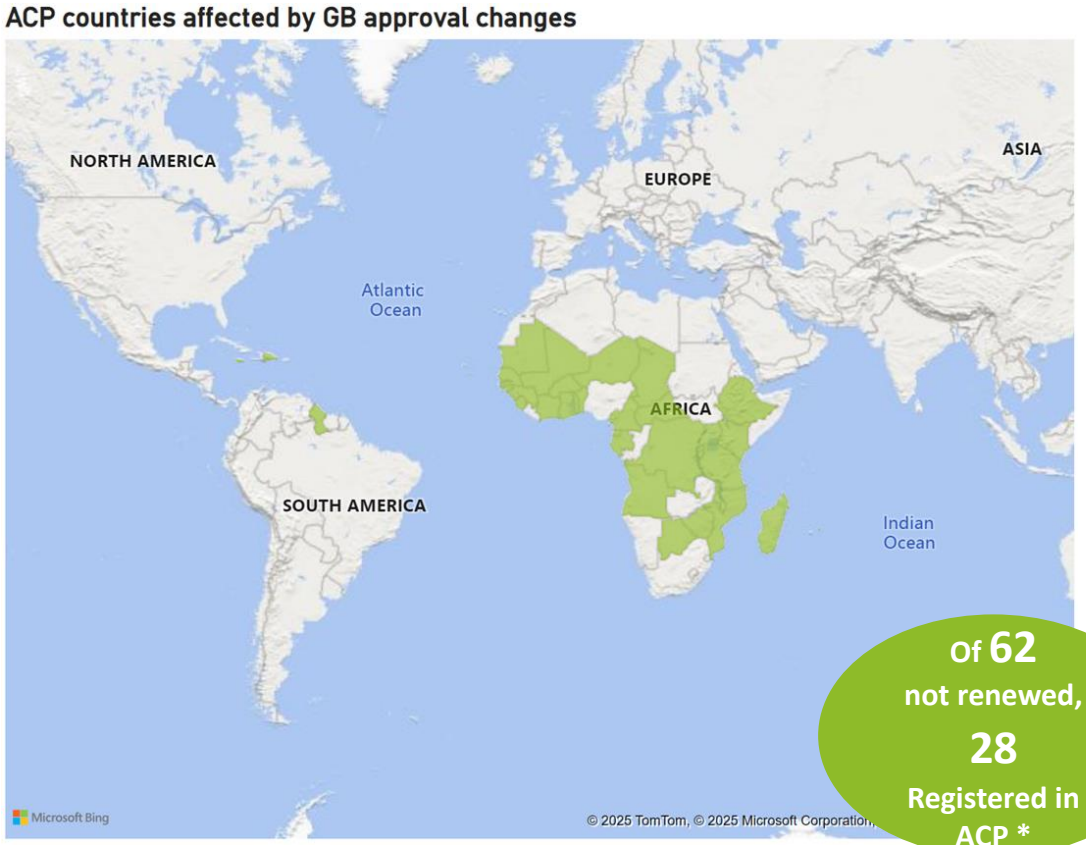
PPPs not renewed between 2022 – 2024

EU non-renewals registered & used on ACP exports



Of **23** not renewed, **17** Registered in ACP *

GB non-renewals registered & used on ACP exports



Of **62** not renewed, **28** Registered in ACP *

*Source: COLEAD database of PPPs registered in 34 ACP countries

2.

COLEAD survey in ACP horticulture

- **Responses from 110 companies in Africa & Caribbean:**
  - **Crop production & crop protection challenges faced by operators**
  - **Priority needs, to inform COLEAD R&I activities**

2. Survey Results

Main challenges

2 **Pest control**

4 Water supply

7 Post-harvest management

8 Access to inputs

10 Soil fertility

12 **GAPs**

Crops affected by pests

1 Mango

2 Tomato

3 Avocado

4 French Beans

5 Chillies

6 Cabbages

7 Beans

Pest /disease control challenges

1 Products available are not effective

3 High cost of products

5 Range of products is too narrow to manage resistance

6 No authorized bio-pesticide

8 Few or no authorised low-risk PPPs

9 PHI is too long

2. COLEAD Research Prioritisation

Priority crop-pests/combinations for ACP horticulture (Top 20)

Rank 1	Rank 2	Crop	Scientific name	Pest or disease (common name)	Pest or disease (scientific name)	Score
1	1	Mango	*Mangifera indica*	Fruit flies	*Ceratitis spp., Bactrocera spp., Anastrepha spp.*	64
2	2	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	False Codling Moth	*Thaumatotibia leucotreta*	46
3	3	Mango	*Mangifera indica*	Anthracnose	*Colletotrichum gloeosporioides*	43
4	4	Beans with pods	*Phaseolus vulgaris*	Thrips	*Various*	42
5	5	Eggplant	*Solanum melongena, Solanum aethiopicum, Solanum macrocarpon*	eggplant moths	*Leucinodes and Neolucoinodes spp.*	38,33
6	6	Beans with pods	*Phaseolus vulgaris*	African bollworm	*Helicoverpa armigera*	36
7	7	Mango	*Mangifera indica*	Mealybug	*Rastrococcus invadens*	34,5
8	8	Mango	*Mangifera indica*	Bacterial canker	*Xanthomonas citri pv. Mangiferaeindicae*	34,33
9	9	Beans (dry)	*Phaseolus spp. and Vigna spp.*	Post-harvest insects	*Various*	34
10	10	Avocado	*Persea americana*	Fruit flies	*Ceratitis spp. Bactrocera dorsalis*	33,5
11	11	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Fall armyworm	*Spodoptera frugiperda*	33
	12	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Fruit flies	*Bactrocera spp., Ceratitis spp.*	33
12	13	Beans with pods	*Phaseolus vulgaris*	Maruca pod borer	*Maruca spp.*	32
	14	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Thrips	*Various*	32
13	15	Mango	*Mangifera indica*	Mango seed weevil	*Sternochetus mangiferae*	31,995
14	16	Eggplant	*Solanum melongena, Solanum aethiopicum, Solanum macrocarpon*	Thrips	*Thrips palmi, Frankliniella occidentalis, Scirtothrips sp.*	31,3
15	17	Avocado	*Persea americana*	False Codling Moth	*Thaumatotibia leucotreta*	31
	18	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Broad moth	*Polyphagotarsonemus latus*	31
16	19	Corn (baby and sweet)	*Zea mayis*	Fall armyworm	*Spodoptera frugiperda*	30
17	20	Beans with pods	*Phaseolus vulgaris*	Whiteflies	*Bemisia tabaci, Trialeurodes*	29,5
18	21	Avocado	*Persea americana*	Cercospora spot	*Pseudocercospora purpurea*	29
	22	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Bollworms	*Helicoverpa armigera + others*	29
	23	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Armyworms	*Spodoptera spp.*	29
	24	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	Mealybugs	*Pseudococcidae*	29
	25	Peppers - chillies	*Capsicum frutescens, Capsicum annuum, Capsicum chinense*	pepper fruit fly	*Atherigona orientalis*	29
	26	Pineapple	*Pineapple comosus*	Mealybugs	*Dysmicoccus spp., Pseudococcus longispinus*	29

2. Shrinking pest management toolbox

In products for export

- Registration of new conventional substances is challenging, especially for minor crops
- Registration of biopesticides often problematic (procedures same as conventional)
- Research funds and support decreasing
- Big problems with counterfeit substances and lack of information
- **Lack of resources and know-how to implement IPM**

2. Implications for export horticulture

Innovation is difficult to absorb

Appearance and Uptake of R&I Outputs (especially by MSMEs) is limited

- Fragmented sector, and many small operators with limited resources
- Cost of new technologies vs. generic products that are very effective and cheap
- Integrating new solutions involves a transition (3 to 4 years and more...)
- Few new options appearing for minor crops (in contrast with major crops such as wheat, cotton, etc.)
- Potential solutions not in the hands of producers (not locally tested/adapted, registered or certified locally)
- Lack of support and reliable advice for dissemination and uptake
- Investments tend to prioritise certification/regulatory compliance rather than innovation

3.

COLEAD INNOVATION ACTIVITIES

3. Field trials

Plant protection technologies

300+ field trials implemented

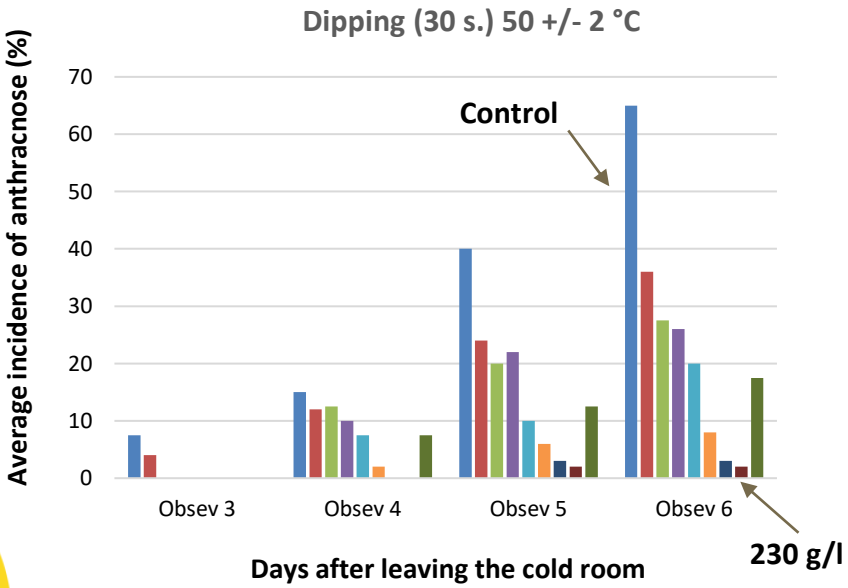
- **IPM trials:** field testing of control packages to improve biodiversity, reduce PPP use, enhance resilience
- **Registration** of IPM compatible plant protection products (PPP):
  - **Efficacy screening trials**
    Test solutions under new agro-climatic conditions or crop-pest combinations
  - **Efficacy trials for registration**
    Generate data needed to support a registration dossier
  - **Residue trials to define Good Agricultural Practices (GAPs)**
    Generate data to define GAPs to comply with EU and CODEX MRLs

3. An ongoing process

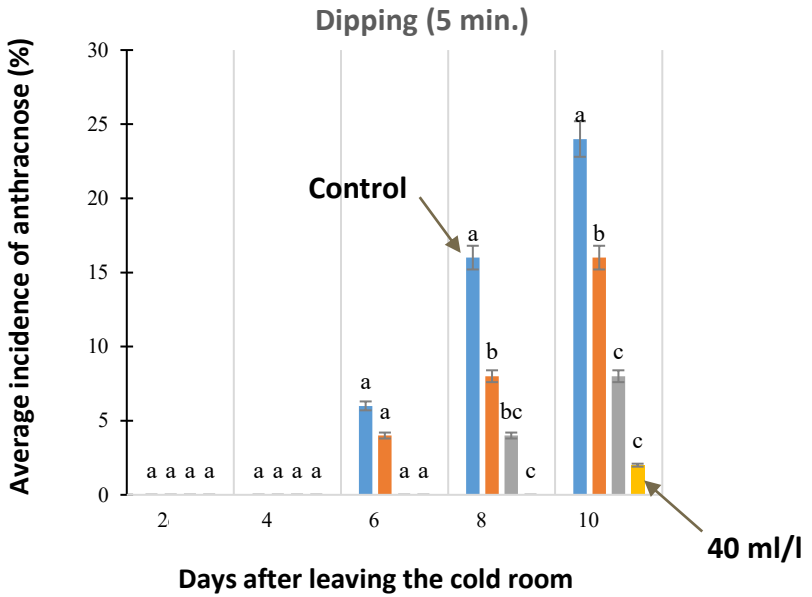
Mango anthracnose post-harvest efficacy solution

- Big effort to secure an alternative to prochloraz from 2019 (MRL reduced to LOD in 2023), get manufacturers on board, and regulatory authority (CSP)
- COLEAD support secured registration for fludioxonil & *Bacillus amyloliquefaciens* QST 713 in 9 West African countries

SCHOLAR
(Fludioxonil)



SERENADE
(*Bacillus amyloliquefaciens* QST 713)



BUT EFSA identified fludioxonil as an endocrine disruptor. Likely no longer available for 2026

3. Recent achievements in ACP countries

Focus on ready-to-market solutions and fast-track registration

5 years (since 2021)

48 trials by COLEAD

18 trials in partnership with manufacturers

9
Registrations in 11 countries

2
Dossiers under review in Kenya

8
Products expected to obtain registration in 2025 - 2026

14
AS tested in residue trials for GAPs

38
AS in screening trials

10
AS in IPM & ICM trials

3. COLEAD Research & Innovation brokerage

COLEAD support

IDENTIFYING, ADAPTING, AND DISSEMINATING AGRICULTURAL INNOVATION & TECHNOLOGIES

1. MONITOR & ANALYSE → **2. ADAPT INNOVATIVE SOLUTIONS TO THE LOCAL CONTEXT** → **3. DISSEMINATE & UPTAKE**

Consistently monitor the ACP horticulture sector across four key dimensions

- **Needs Assessment**
- **Regulations & Policy Landscape**
- **Innovative Solutions**
- **Market Access Conditions**

The team brokers research and innovation to effectively customize technology according to the local context, providing three types of services.

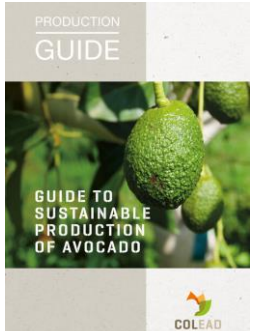
Research Prioritisation	Technology Testing & Trials	Scientific Data Production
Objective Establish research priorities based on information monitoring & analysis	**Objective** Implement field trials in prioritised topics and scale up PB's accessibility of solutions via blended finance	**Objective** Generate scientific data to support adaptation & local authorization of products & technology

Utilize the outcomes of local innovation adaptation and share them with a wider audience

1) **Innovation Dissemination & Upscaling**

2) **Technical Advisory**

3) **Technical Support Material**



4) **Partnership & Advocacy**

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3.

In Summary

- **Estimated 40% global crop yield lost to pests and diseases***
  - Outbreaks occurring more often, causing more damage
  - Distribution changing, new strains evolving

An industry facing challenges

- Loss of MRLs in destination markets – especially EU
- Stringent retailer demands – especially EU – combined with pressure on price
- Limited substance approvals for organic production – especially EU
- Slow development of alternative plant protection products (PPPs)
- Limited investment in PPP approvals in exporting countries
- Limited investment in alternative pest management strategies

Fruit flies trapped over a week in mango trials (Senegal)

*Source : * https://www.cabi.org/projects/global-burden-of-crop-loss/*

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Thank you

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