FIT FOR MARKET | SPS

Biocontrol: opportunities and challenges in tropical horticulture

ABIM 2021

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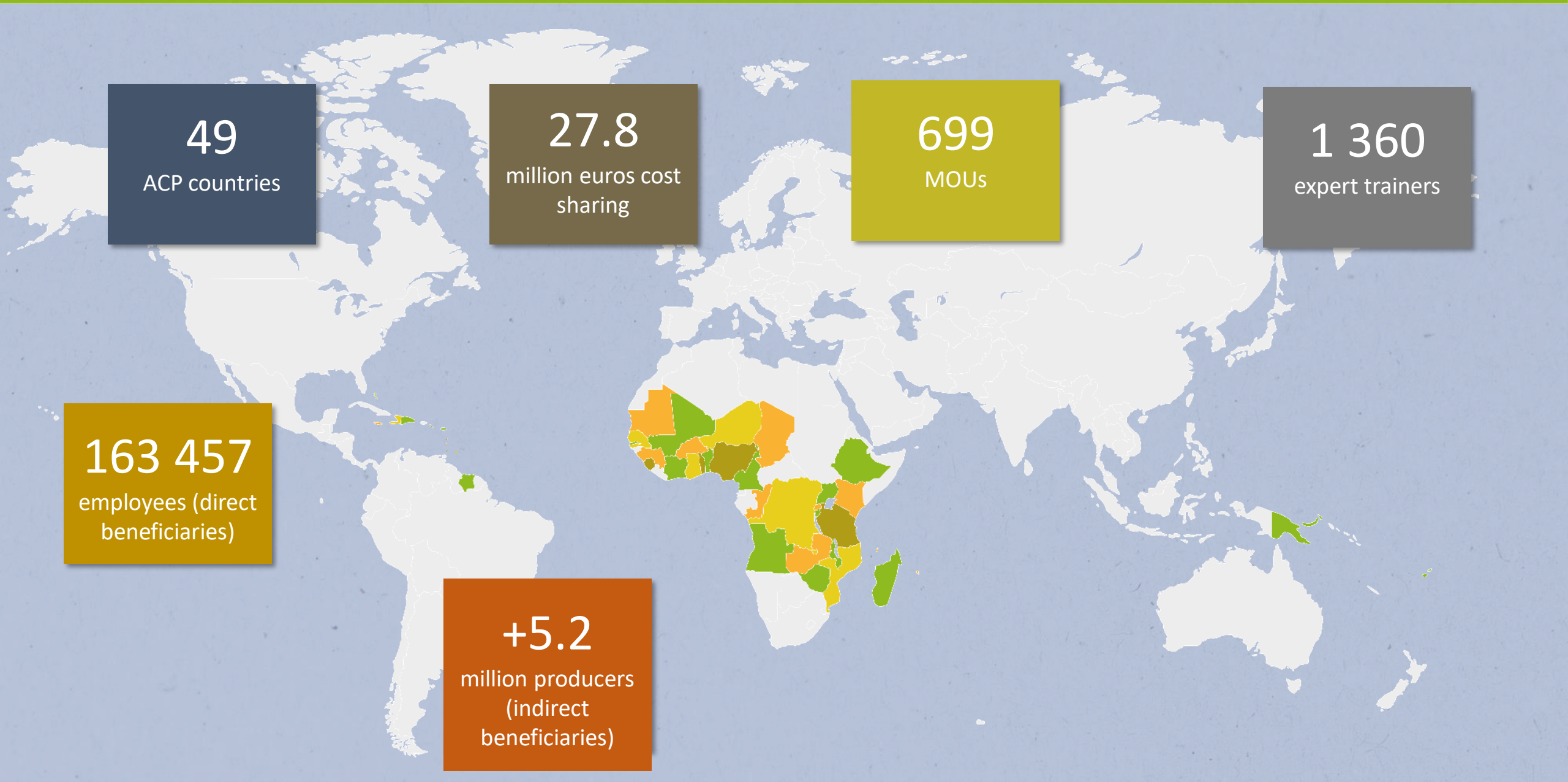
COLEACP

COLEACP | MISSION

COLEACP is a not-for-profit interprofessional association representing the interests of Africa-Caribbean-Pacific (ACP) producers/exporters and EU importers of fruit, vegetables, flowers and plants

- COLEACP mission is to support the development of inclusive and sustainable production and trade in agricultural and food products (in particular fruit and vegetables), primarily within the ACP States and between these countries and the European Union.
- Current programmes include: “Fit for Market-Strengthening sanitary and phytosanitary systems of the ACP horticultural sector”, part of the Intra-ACP Indicative Programme of cooperation between the EU and the OACPS, with funding from the 11th EDF (CRIS 401-899).
- FFM-SPS addresses food safety, plant health, and sustainability in agri-food supply chains. Activities include support for pest management, helping producers to control pests while minimising any negative impacts on people or the environment. When PPPs are an important element of an IPM system, COLEACP works to ensure that producers can access appropriate and less harmful products, and can use them safely.

GEOGRAPHICAL COVERAGE



INTRODUCTION

- Tropical agriculture is facing increasing challenge with climate change and high pest pressure
- Regulations, markets and consumers demand are evolving and new international initiatives such as the EU Green Deal and Farm to Fork strategies are calling for the transformation to more sustainable food systems that also include ACP countries.
- Transformation of agriculture is not a one step process, it is a transition that requires a combination of innovative solutions
- Biocontrol is one element that can foster transition to a more sustainable agriculture

Operationalisation of IPM

Biocontrol can provide tools for multiple elements of the IPM approach:

- Surveillance
- Biological control
- Chemical control

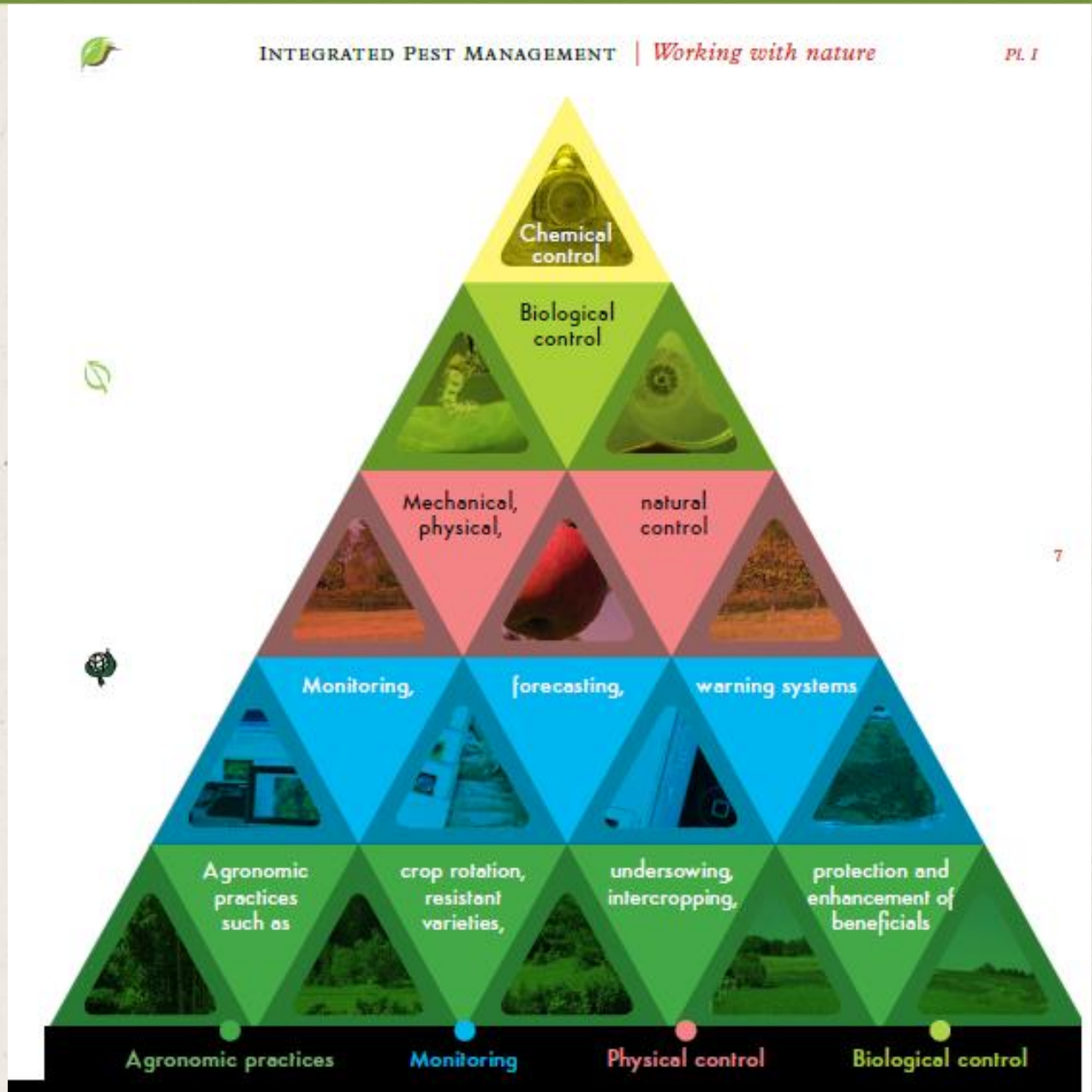
Early warning

Better understanding of pest pressure and dynamic

Higher efficiency through timely interventions

Safer for operators and the environment

Alternatives to control priority pests/diseases where MRLs have been lowered



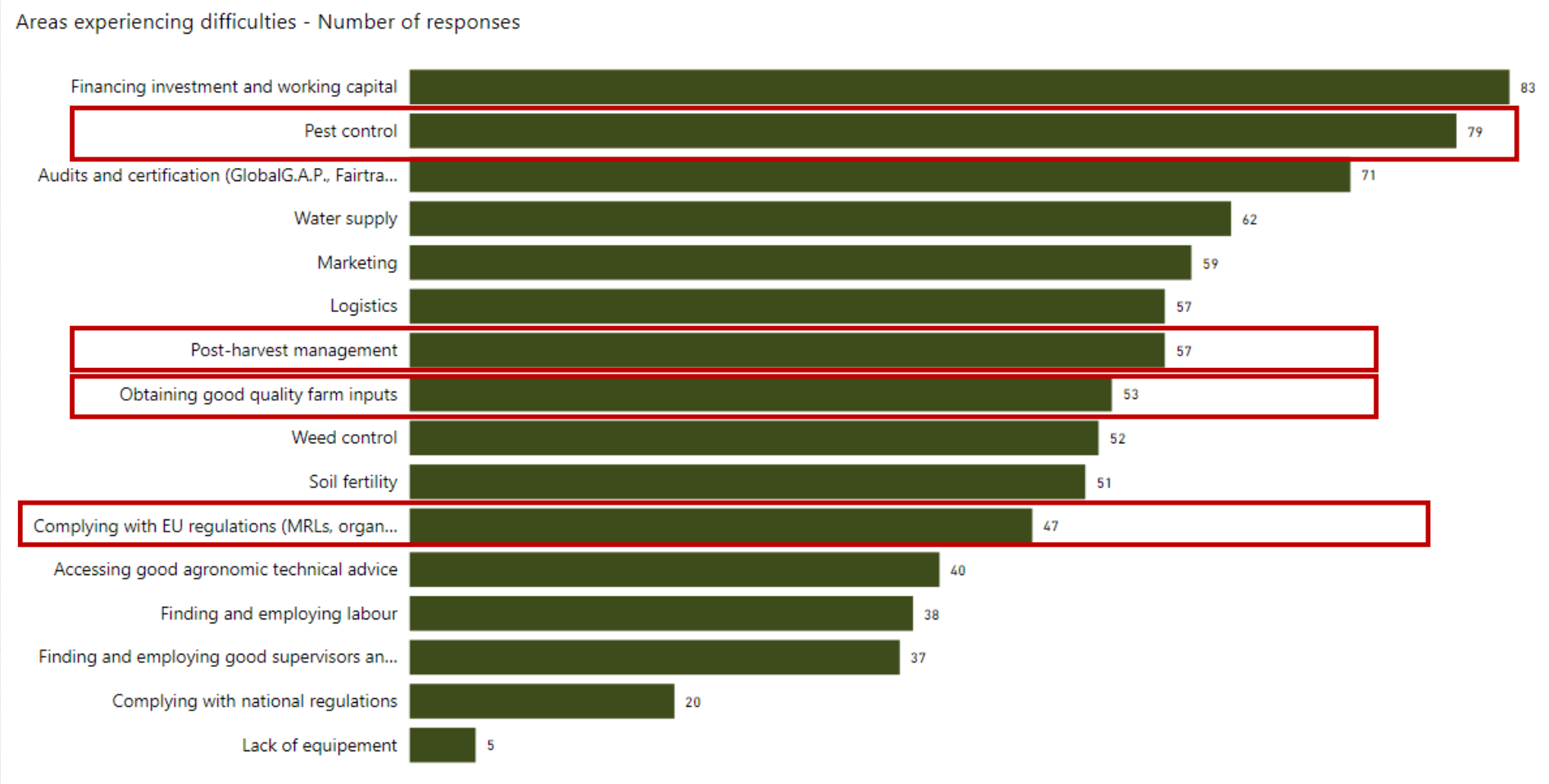
Survey on crop production / protection issues in ACP horticultures

- In 2019, COLEACP conducted a survey on crop production / protection issues in ACP horticultures
- Objective: identify priority areas to inform actions for minor crops
- 110 responses from companies located in Africa and the Caribbeans

Survey on crop production / protection issues in ACP horticultures

In which areas are you currently experiencing difficulties?

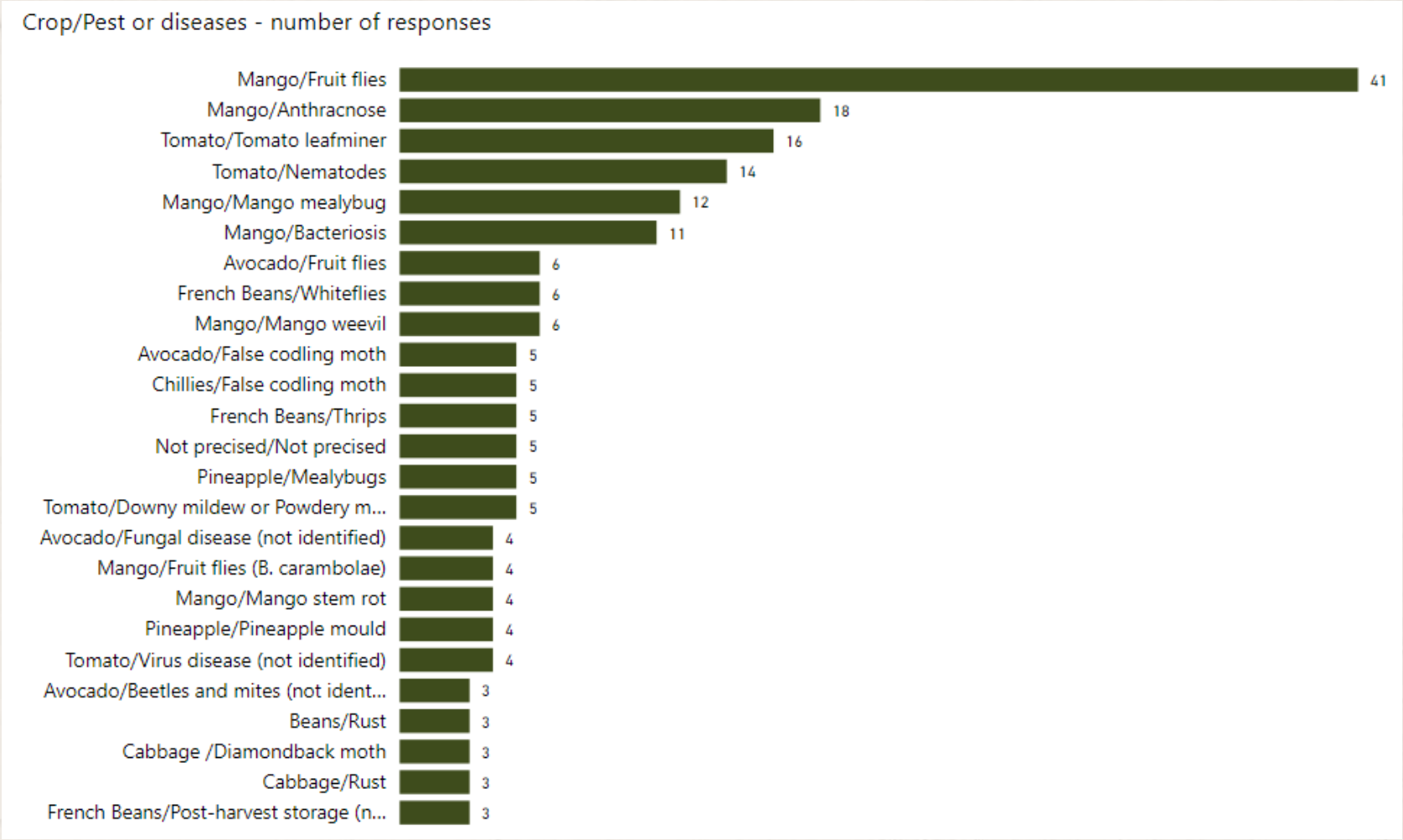
- Pest control rank 2nd
- Post-harvest management 7th
- Obtaining good quality input 8th
- Complying with EU regulation (MRL and organic): 12th



Survey on crop production / protection issues in ACP horticultures

Crop-pest issues in growing markets

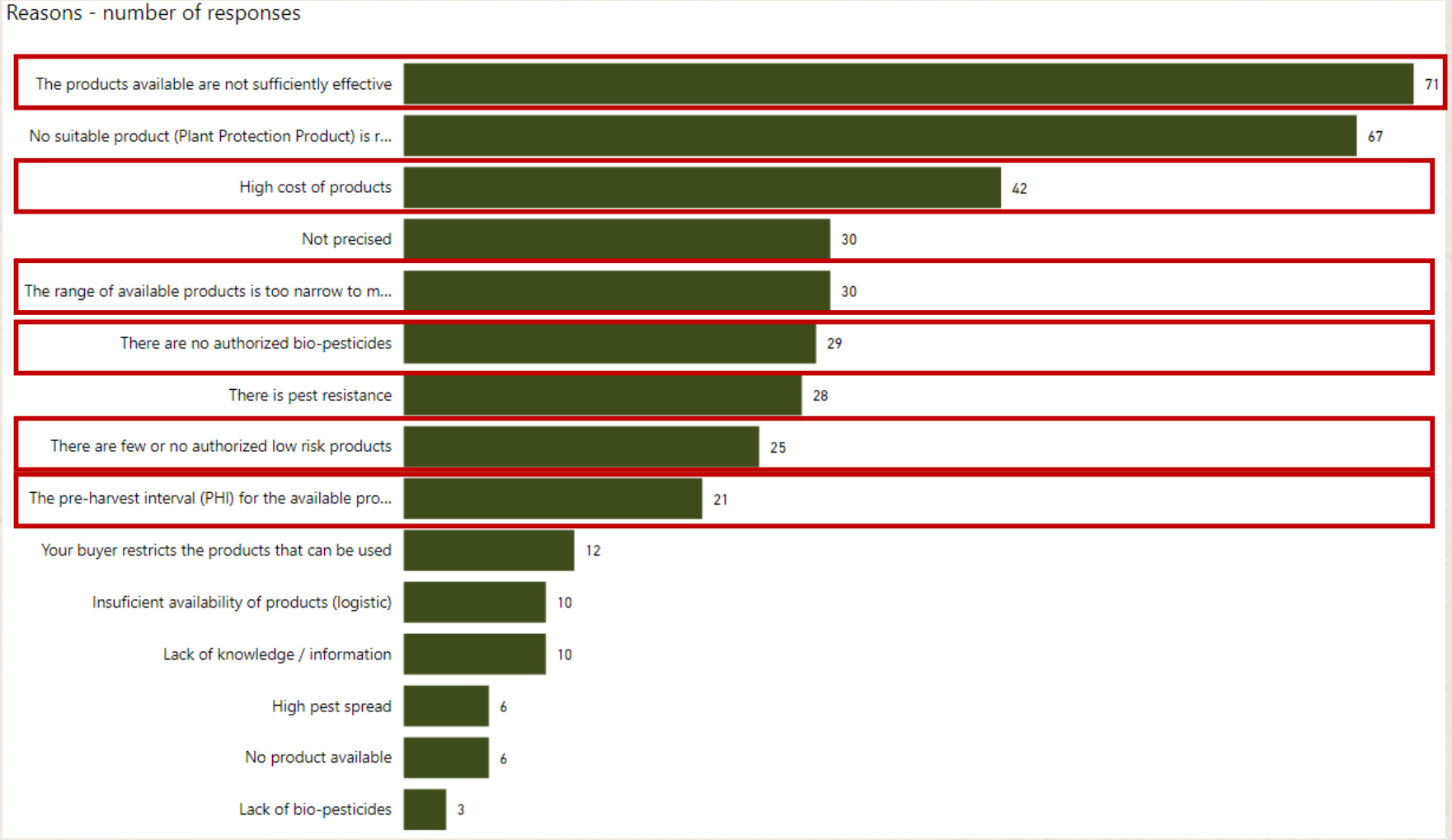
- Mango – fruit flies ranked 1st
- Tomato, Avocado, French beans are among the crops facing the most difficulties



Survey on crop production / protection issues in ACP horticultures

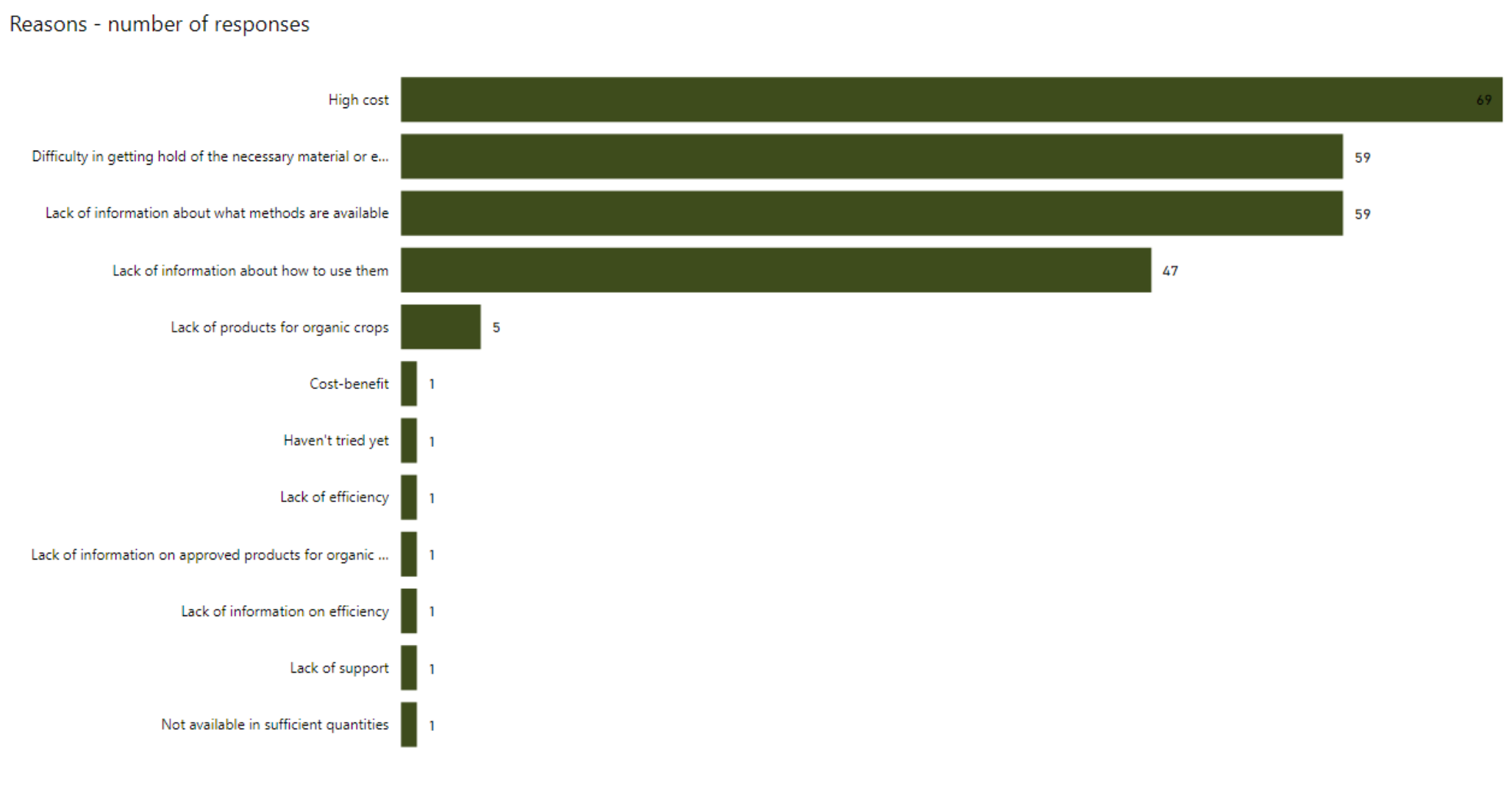
Difficulties to control main pests/diseases

- Products available are not effective: 1st
- High cost of products: 3rd
- Range of products is too narrow to manage resistance: 5th
- No authorized bio-pesticide: 6th
- Few or no authorised low-risk PPPs: 8th
- PHI is too long: 9th



Survey on crop production / protection issues in ACP horticultures

What prevents you from using more non-chemical methods to control pests?



Challenges in ACP horticulture

A lot of biocontrol solutions exist but:

- Only few of them are registered in ACP countries and Local registration is required by certain international standards (ex: GLOBALGAP)
- Registration processes are not adapted to biocontrol, often procedures are based on chemical assessment approaches
- Costs of new technologies vs. generics
- Capacity building for suitable use (timing of application, handling, etc.)
- Large scale demonstration of combination of solutions

Challenges in ACP horticulture

Priority crop-pests/combinations for ACP horticulture

- Used results from the survey and conducted a multicriteria analysis
  - ✓ Criteria for selection included:
  - ✓ trade volume (import/export),
  - ✓ social impact, priority cultures for COLEACP,
  - ✓ pest pressure, interceptions (EUROPHYT),
  - ✓ MRL exceedance (RASFF),
  - ✓ regulatory changes (EU and CODEX),
  - ✓ efficacy of existing solutions,
  - ✓ availability of GAP,
  - ✓ management of resistance, registration in ACP countries,
  - ✓ Etc.

Challenges in ACP horticulture

Priority crop-pests/combinations for ACP horticulture

#	Crop	Pest	Proposed countries for trial implementation (open to alternative proposal)
1	Amaranth and others similar leaves	Bemisia tabaci (whitefly)	Ghana, Togo
2	Avocado	Fruit flies	Kenya
3	Avocado	False Codling Moth	Kenya
4	Avocado	Phytophtora root rot	Kenya
5	Avocado	Anthracnose	Kenya
6	Avocado	Cercospora	Kenya
7	Banana	Nematodes	Kenya
8	Banana	Post-harvest diseases	Kenya
9	Banana	Thrips	Kenya
10	Basil	Leaf miner	Kenya
11	Basil	Whiteflies	Kenya
12	Basil	Downy mildew	Kenya
13	Beans with pods	Thrips	Kenya, Senegal
14	Beans with pods	Bemisia tabaci (whitefly)	Kenya, Senegal
15	Beans with pods	Rust	Kenya, Senegal
16	Beans with pods	Spider mites	Kenya, Senegal
17	Beans with pods	Aphids	Kenya, Senegal
18	Carrots	Downy mildew	Kenya
19	Carrots	Powdery mildew	Kenya
20	Coriander	Septoria leaf spot	Kenya
21	Corn (baby and sweet)	Fall armyworm	CSP, Kenya
22	Cucurbits edible peel	Fruit flies	Dominican Republic
23	Cucurbits edible peel	Thrips	Dominican Republic
24	Eggplant	Thrips	Dominican Republic
25	Eggplant	Leucinodes orbonalis	Uganda
26	Eggplant	Fall armyworm	To be defined
27	Eggplant	Daraba laisalis	To be defined
28	Mango	False Codling Moth	Kenya
29	Mango	Fruit flies	CSP, Kenya
30	Mango	Anthracnose	CSP, Kenya

Challenges in ACP horticulture

#	Crop	Pest	Proposed countries for trial implementation (open to alternative proposal)
31	Mango	Weevil	Ivory Coast
32	Mango	Mealybugs	To be defined
33	Mango	Bacterial disease	Ivory Coast
34	Mango	Thrips	To be defined
35	Mango	Trees decay	To be defined
36	Mango	Scales	To be defined
37	Peppers (Sweet and Chili peppers)	False Codling Moth	Kenya
38	Peppers (Sweet and Chili peppers)	Fruit flies	Kenya
39	Peppers (Sweet and Chili peppers)	Fall armyworm	Kenya
40	Peppers (Sweet and Chili peppers)	Thrips	Kenya
41	Peppers (Sweet and Chili peppers)	Anthonomus eugenii	Kenya
42	Peppers (Sweet and Chili peppers)	Aphids	Kenya
43	Peppers (Sweet and Chili peppers)	Broad mite	Kenya
44	Peppers (Sweet and Chili peppers)	Powdery mildew	Kenya
45	Peppers (Sweet and Chili peppers)	Viruses	Kenya
46	Pineapple	Mealybugs	Cameroun, Benin, Togo, Ghana
47	Pineapple	Wilt	Cameroun, Benin, Togo, Ghana
48	Pineapple	Phytophthora	Cameroun, Benin, Togo, Ghana
49	Pineapple	Nematodes	Cameroun, Benin, Togo, Ghana
50	Rosemary	Leaf hoppers	Kenya
51	Salads	Aphids	Kenya
52	Salads	Caterpillars	Kenya
53	Salads	Downy mildew	Kenya
54	Soft fruits (raspberries/strawberries/black berries/blueberries)	Caterpillars (bollworms)	Kenya
55	Soft fruits (raspberries/strawberries/black berries/blueberries)	Mites	Kenya
56	Soft fruits (raspberries/strawberries/black berries/blueberries)	Botrytis	Kenya
57	Spring onions	Thrips	Kenya
58	Spring onions	Botrytis	Kenya
59	Spring onions	Downy mildew	Kenya
60	Tomato	Tuta absoluta	Zimbabwe, Tanzania

Tackling priority issues

COLEACP supports local registration of suitable alternatives in collaboration with solutions owner

- **Screening trials:**

Test alternative solutions and conditions of use

- **Efficacy trials for registration**

Conduct field trials to generate data for registration

- **Residue studies**

Conduct field decline studies to generate data for registration and define GAPs

Tackling priority issues

COLEACP supports local registration of suitable alternatives in collaboration with solutions owner

- 18 field trials supported since 2019 (mango, sweet corn, leafy vegetables, capsicum, etc.)
- 6 biopesticides to be registered by the end of 2021 in more than 10 countries

Trapping for monitoring and informing PPP applications

Mango stone weevil

Spaying of botanicals and entomopathogenic fungus

Mango – fruit flies

Post-harvest treatment using biopesticides

Mango - anthracnose

Tackling priority issues

Provide information and capacity building on safe use

Promote safe use of PPPs, compliant with EU and CODEX MRLs

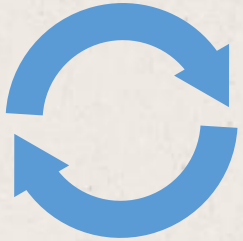
e-GAP

(COLEACP database)

CROP - ANY -

ACTIVE SUBSTANCE - ANY -

CROP	ACTIVE SUBSTANCE	EU MRL	CODEX MRL	GOOD AGRICULTURAL PRACTICES
Amaranth	Abamectin	0.01 (*)	/	view
Amaranth	Emamectin benzoate	0.01 (*)	/	view
Amaranth	Diazinon	0.01 (*)	0.5	view
Amaranth	Acetamiprid	0.6	/	view



- PPPs registered for use in ACP
- CODEX and UE MRLs
- Recommended GAPs
- WHO recommended classif.
- MoA from IRAC and FRAC

Check out the e-GAP user guide

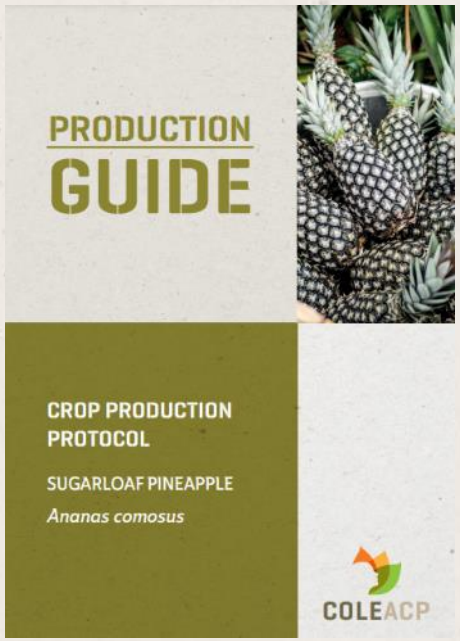
Video on how to use e-GAP

Tackling priority issues

Provide information and capacity building on safe use

Technical brochures – COLEACP e-Library

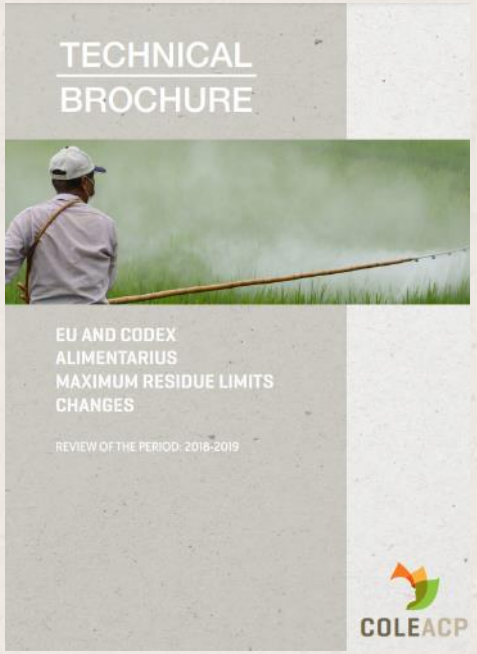
Based on 15 years' experience in the sustainable development of agriculture and agribusiness in ACP countries, 600 references are available in this online resource centre.



Support sustainable production

Control specific pest

Audit your approach



Comply with market requieremements

https://eservices.coleacp.org/en/e-library

Conclusion

Biocontrol could play a pivotal in the transformation of agriculture by supporting operationalisation of IPM

Investments in research, registration and capacity building are needed to mainstream it

Important market opportunities in and for African, Caribbeans and Pacific countries (only 3% of Africa surface are under OA)

Collaboration is required

Conclusion

COLEACP's research and innovation activities aim to ensure that solutions are made available to farmers for priority pests and diseases.

COLEACP has been involved in this work since 2001, and we have partnered successfully with local research organisations, public authorities, and manufacturers to obtain over 40 EU import tolerances, a substantial number of locally registered products, and locally adapted GAPs for the 30 main ACP horticultural crops.

Invitation to participate

This work is a participatory and iterative process where all stakeholders (farmers, governments, PPP manufacturers, etc.) are invited to contribute to identifying the most relevant research and innovation activities. If you would like to contribute to this challenging and impactful research work, please contact us at: network@coleacp.org

COLEACP Trial programme

Crop	Pest/disease	Description[1]	Country	Year	Status
Mango	Anthracnose	Efficacy trials for the registration of a post-harvest solution to control mango anthracnose in West Africa	Senegal, Gambia, Burkina Faso	2019	Completed
Mango	Anthracnose	Exploratory trial of six biopesticides (screening)	Senegal	2020	Completed
Mango	Fruit flies	Exploratory trial of four biopesticides (screening)	Senegal	2020	Completed
Mango	Fruit flies and anthracnose	Scientific study on alternatives to PPPs in post-harvest treatment to control fruit flies and anthracnose: evaluation of the impact of hot water treatment on fruit quality	Ivory Coast	2020	Completed
Mango	Stone weevil	Exploratory trial of PPPs for the control of the mango stone weevil and development of population monitoring methods	Ivory Coast	2020/21	In progress
Mango	Anthracnose	Efficacy trial for the registration of a pre-harvest treatment solution in West Africa	Senegal	2021	Completed (report in press)
Mango	Anthracnose	Efficacy trial for the registration of a post-harvest treatment solution in West Africa	Burkina Faso	2021	Completed (report in press)
Sweet corn	Fallarmyworm	Efficacy trials for PPPs registration in West Africa	Burkina Faso, Mali	2021	In progress
Leafy vegetables	Whiteflies	Exploratory trial to identify alternative solutions for control (screening) and to validate a technical itinerary using PPPs already registered	Ghana	2021	Completed (report in press)
Mango	Fruit flies and anthracnose	Scientific study on alternatives to PPPs in post-harvest treatment to control mango flies: reduction of the impact of hot water treatment on fruit quality by post-treatment cooling	Ivory Coast	2020	Completed (report in press)
Mango	Fruit flies and anthracnose	Scientific study on alternatives to PPPs in post-harvest treatment to control fruit flies in mango: evaluation of the impact of hot water treatment on fruit quality	Cameroon	2021	Completed
Mango	Fruit fly	Disinfestation and valorisation of mango waste in compost	Guinea	2021	Completed
Mango	Fruit flies	Efficacy trials for the registration of 2 PPPs in West Africa	Mali, Senegal	2021	Completed
Capsicum	False codling moth	Efficacy trials for PPP registration	Kenya	2021	In progress
Avocado	False codling moth	Efficacy trials for PPP registration	Kenya	2021	Planned
Mango	Anthracnose	IPM trial	Senegal	2021	Planned
Sweet corn	Fallarmyworm	Efficacy trials for PPP registration in West Africa	Burkina Faso, Mali	2022	To be planned
Pineapple	Mealy bugs	Efficacy trials for PPP registration	Cameroon	2022	To be planned
Avocado	Fruit flies	Efficacy trials for PPP registration	Kenya	2022	To be planned
Mango	Fruit flies	Efficacy trials for PPP registration	Mali, Senegal	2022	To be planned

[1] Knowledge/data generated in a given geographical area is also intended to be shared or replicated across the ACP.

COLEACP Trial programme

Crop	Pest/disease	Description[2]	Country	Year	Status
Aubergine	Thrips	IPM trial	Dominaican Republic	2022	To be planned
Leafy vegetables	Whiteflies	Efficacy trials for PPP registration	Togo	2022	To be planned
Mango	False codling moth	Efficacy trials for PPP registration	Kenya	2021	Planned
Mango	Fruit flies	Efficacy trials for PPP registration	Kenya	2021	Planned
Mango	Anthracnose	Efficacy trials for PPP registration	Kenya	2021	Planned
Soft fruits	Botrytis	Efficacy trials for PPP registration	Kenya	2021	Planned
Soft fruits	Caterpillars	Efficacy trials for PPP registration	Kenya	2021	Planned
Basil	Whiteflies	Efficacy trials for PPP registration	Kenya	2021	Planned
Carrots	Powdery mildew	Efficacy trials for PPP registration	Kenya	2021	Planned
Babycorn	Fall army worm	Efficacy trials for PPP registration	Kenya	2022	To be planned
Basil	Leafminer	Efficacy trials for PPP registration	Kenya	2022	To be planned
Basil	Downy mildew	Efficacy trials for PPP registration	Kenya	2022	To be planned
Soft fruits	Mites	Efficacy trials for PPP registration	Kenya	2022	To be planned
Salad	Downy mildew	Efficacy trials for PPP registration	Kenya	2022	To be planned
Salads	Aphids	Efficacy trials for PPP registration	Kenya	2022	To be planned
Salads	Caterpillars	Efficacy trials for PPP registration	Kenya	2022	To be planned
Rosemary	Leaf hoppers	Efficacy trials for PPP registration	Kenya	2022	To be planned
Coriander	Septoria leaf spot	Efficacy trials for PPP registration	Kenya	2022	To be planned
Capsicum	Fruit flies	Efficacy trials for PPP registration	Kenya	2022	To be planned

[2] Knowledge/data generated in a given geographical area is also intended to be shared or replicated across the ACP.

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Merci
Danke
Gracias
Obrigado
Thank you

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