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Biopesticide recipes used in market gardens in Mozambique

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Summary

ESSOR has worked with local producers to develop biopesticides that enable production costs to be reduced by up to 70% (depending on the season and crop).
These biopesticides are a core part of the development of the first agro-ecological urban market garden business in Mozambique.

Objectives:

The use of biopesticides in urban market gardens offers an interesting alternative to chemical pesticides. When combined with other agro-ecological practices (crop rotation and diversification, use of bio-control agents, organic composting and fertilizing, etc.), biopesticides help prevent and combat a number of diseases and pests that affect market gardens.

Methodology:

Details of the main biopesticides used in urban and peri-urban market gardens in Maputo are given below.

	Ingredients	Biopesticide recipe
Chilli  to combat beetles, worms, aphids and grasshoppers	• 100 g of red chilli • water • around 75g of white soap	Mix one litre of water with 100g of chilli. Leave to settle overnight. Filter the mixture. Add 1.5 litres of water mixed with the soap. Spray on the infested plants.

	Ingredients	Biopesticide recipe
Onion  to combat aphids and caterpillars	• 1 kg of onions • water	Chop the onions and mix with 10 litres of water. Leave to stand for 24 hours. To spray the plants, mix 1 litre of the mixture with 7 litres of water.

	Ingredients	Biopesticide recipe
Neem  to prevent and combat attack by beetles, aphids, grasshoppers, larvae and worms	• 1 to 2 kg of neem leaves • water • around 75g of white soap	Crush the leaves, put them into a container and add 3 litres of water. Leave to stand for 5 hours then filter. Dilute 1 litre of the mixture with 9 litres of water and add 100 ml of water mixed with the soap. Mix well.

	Ingredients	Biopesticide recipe
Papaya leaf  to eliminate rust and mould	• 1 kg of papaya leaves • water • around 75g of white soap	Cut and crush the papaya leaves and add 2 litres of water. Filter the mixture and add 4 litres of water with the soap.

	Ingredients	Biopesticide recipe
Milk  to combat most viral diseases	• 10 capfuls of milk • water	Mix the milk with 10 litres of water and leave to stand for one hour. Spray every 10 days.

These biopesticides are effective in both prevention and treatment. They may be combined to increase effectiveness (for example, onion + papaya leaf). The agro-ecological 'pesticides' are produced directly by the growers, either at home or at the training plot in the case of collective production. Some producers join forces to produce larger quantities of biopesticides and supply the other members of their association. The basic ingredients are either harvested/gathered by the producers (papaya leaves, neem, onions, chilli) or bought by them (papaya, neem, milk, white soap).

The producers need the following materials/equipment:

- Basin or bucket
- Container for measuring water (1 litre / 1.5 litre bottle; measuring glass)
- Fine sieve
- Pestle
- White soap (one bar = around 75g)

The biopesticides normally keep for a week, after which their effect wears off. They should be kept away from the light in a cool, well-ventilated place and stored in a closed container (but not too tightly closed in order to avoid fermentation).

Results:

- The Maputo producers have used these biopesticides, in conjunction with other agro-ecological practices, to reduce the use of chemical products. For some crops and during some seasons, the cost of pesticides and chemical inputs can represent up to 70% of production costs. For example, an 8m² plot of green beans grown in the cool season using chemical inputs brings in a profit of 3,8 € while the same crop grown during the same season and sold at the same price by a producer using agro-ecological practices generates a profit of 4,6 € if he sells them as "normal" beans (+21 %), and 6,3 € if he sells them as organic green beans (+65%) !

- The use of agro-ecological practices, particularly biopesticides, offers an economically interesting alternative while at the same time reducing negative impacts on the environment as well as on the health of both producers and consumers.

- Around 300 producers in Maputo are now involved in production that does not use chemical inputs, with specific sales outlets. This is one of the very first agro-ecological urban market garden businesses, which is attracting an increasing number of consumers and private operators.

March 2014

Source:

Guide pratique de maraichage durable – ESSOR - 2012
(Practical guide to sustainable market gardening)