Being Green and in the Black

Border Landcare Organic Group

Fact Sheet 3

Plant Protection

What is this fact sheet about?
Plant protection is all about managing your whole farm in such a way that the likelihood of pest and disease occurrence is reduced.
Pest damage has impacts on yields and inputs, both time and money.
Increasing chemical resistance, rising costs, growing concerns in the market place over residues and unintended side effects (non target species) and a new awareness that chemical use needs to be reduced, are all pointing to the need for a look at a different way to protect not only our crops but also our ecosystems and to improve our bottom line.
The Biological approach to the problem of pest damage is to take a bigger look at the farm. To view the farm as a functioning ecosystem.
Put simply: Work out what nature can do for you, and help her to do it.

IPM is an essential part of the tool kit.
The four "legs" of IPM are:
Identification: Know your pest: its life cycle, and it's weak points.
Know your beneficials: who are they and what do they need.
Prevention: Minimise the pest threat and maximise the beneficials. Vary your main crop genetic material.
Monitoring: Pests and beneficials.
Know your economic threshold.
Intervention: The trickiest bit.
Goal: To keep the economics working and to minimize any disruption to the farm ecosystem.

Be Patient...natural systems do not always react quickly.

In this vineyard, buckwheat strips are used to feed parasitoids (wasps). Potato farmers use buckwheat as a food source for potato moth parasitoids. Buckwheat has an allelopathic effect and is used to control weeds.

What can I do now?

To get the best result from your effort, here are some things for you to consider.

- Find out more about your pests
- More importantly, find out more about the beneficials that can help . (see the "Want to know more" box on the back page)
- Learn how to protect the habitats for the beneficials. Eg hedgerows, poly cultures, unmown edges and strips,
- Promote diversity, but be careful, it needs to be the right kind. Don't favour the pests!!

Things to think about..
Control of pests and diseases is linked to management practices which minimise pest promoting conditions.

- Soil organic matter management
- Soil nutrient management
- Tillage and associated activities
- Reduce soil compaction
- Protect waterways
- Establishment and maintenance of boundaries, borders and buffer zones.

Key Practices

- Appropriate selection of genetic material, eg rust resistant varieties etc
- Rotations: stock and crops, spatially and temporally
- Biological control
- Mechanical pest controls eg baits, lures, traps, barriers, light, sound etc
- Flame and steam weeding
- Mulching, slashing
- Moderate cultivation
- Soil:Mineral and biological balance
- Nutrients: excess leads to sappy and pest attracting plants; too little and they become stressed and attractive.

Fact Sheets in this series:
1 - Soil & Water Management
2 - Plant Protection
3 - Inputs
4 - Contacts, Links etc

Other terms....
Ecological Pest Management
Ecological Farm Systems
Agro-ecosystems
Habitat Management
Functional Biodiversity
..whatever the terms used, they all imply an integrated approach to "whole of farm" management.

The Triple Threats to Pests
Cover crops
No till /minimum tillage
Rotations

Benefits of Biological Approach
Reduced Chemical use and residues
Reduced labour and machinery costs
Potential yield increases as plants develop better resistance and respond to improved soil management.

Money well spent?
Every year growers spend millions of dollars in an attempt to protect their crops. Yet every year, about 40% of agricultural production is lost to pests and diseases. This figure has remained unchanged since the late 40's.

Paris who?
Predators: Eat pests.
Assassin Bug, Ground Beetle, Lady bird, Damselfly, Lacewing, Predatory mites

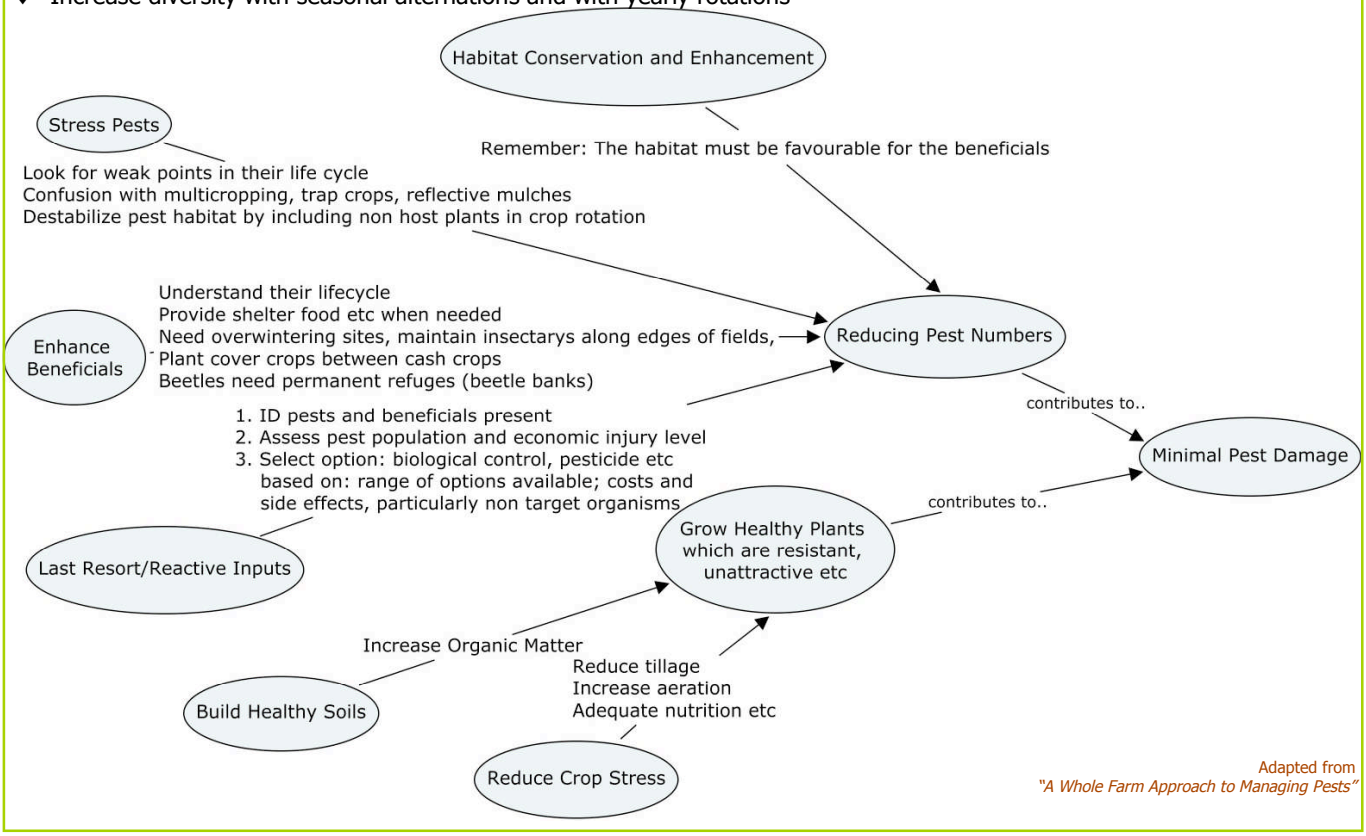
Parisitoids: Lay their eggs in the pest.
Mainly small wasps; Encarsia, Aphidius, Aphytis, Trichogramma

Beneficials: a term to cover all the good bugs AND the forgotten biological agents: the fungi and the bacteria

You can download these free books, *"Building Soils for Better Crops, 2nd edition"* and *"Managing Cover Crops Profitably, 3rd Edition"* at www.sare.org

Basic Principles of Biological Control of Pests:

- Use many "little hammers" to improve the health of the plants, to increase the stress on the pests and to encourage the abundance of beneficials.
- Improve the management of the disturbances created by agriculture
- Include perennials in and near crop fields
- Increase diversity with seasonal alternations and with yearly rotations



Adapted from
"A Whole Farm Approach to Managing Pests"

Want to know more...

"The Good Bug Book" by Australasian Biological Control Inc at www.goodbugs.org.au

"Pest and Disease Management on Organic Farms" from Queensland DPI

"Natural Pest Control" An Australian Guide by Chapman, Penman and Hicks (ISBN:0 17 006830 7)

"Managing Insects on Your Farm: A Guide to Ecological Strategies" download it from www.sare.org/publications/insect.htm

"A Whole-Farm Approach to Managing Pests" download the bulletin at www.sare.org/publications/farmpest/index.htm

Where to go to get more info?

See the BLOG Fact Sheet 4
Contacts Links and Information

Have you thought of doing a search through your ***public library***? If you are a library member then you can search online. Ask your librarian how.

This Fact Sheet is also available online at the BLOG website (www.granitenet.net.au/groups/BorderLandcareOrganicGroup/page.cfm) or at the BLOG Wiki (gb-blog.wikispaces.com/)

This project is supported by:

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