

To spray, or, not to spray...

That is the question... asked by a lot of organic growers with names other than Shakespeare!

Does your answer depend on the presence of beneficial predators, or, is it a matter of the amount of crop and money you'd lose if you don't spray? Or a lot of both?

You became involved in organic, biodynamic and sustainable agriculture for a number of reasons. Not having to use harmful insecticides was probably among them and this can also be a factor in your decision.

However, insect pests have not read a copy of the National Standard for Organic and Biodynamic Produce. Insects see a crop, they do what comes naturally to them and eggs are laid. These hatch in hundreds and thousands. The pests eat, mate, lay more eggs and then there are more chompers of crop than there are beneficial chompers of pests by a factor of hundreds or thousands to one.

Why is this so?

We can generalise by stating that say, predatory ladybirds lay dozens of eggs yet *Heliothis* moths lay hundreds of eggs. A wasp that 'stings' a caterpillar to paralyse it to provide fresh meat for its hatching egg can't keep up either. The disparity is compounded if pests like aphids complete a generation in 2 weeks but their predators take a month.

Natural fungal and viral spores can wipe out a pest population... but they often don't get going until the second or third pest generation. By this time your crop has struggled, a big proportion of the flower and fruit buds have been damaged or completely eaten and the leaves are flat-out photosynthesising enough sugars to feed the sapsuckers... leaving damn-all for filling out the fruit.

Ah-ha! You say. But if the soil is healthy and full of nutrition, the plant will be able to cope. And yes, this is right. Healthy plants can 'swamp' the young insect hatchlings with sugars, gums and resins... and they do this as a direct result of healthy soils.

Soil health is the fundamental basis of the organic and sustainable agricultural movement... and I agree entirely. But how come healthy plants thriving in healthy soils still get into trouble with pests?

Here are a couple of reasons.

Too much or too little soil moisture will cause stress in an otherwise healthy crop. Pest insects, with no access to radio, TV or newspaper advertising somehow get word and turn up in droves.

The second reason is open to debate, however, some think that insect pests are more likely to attack crops of many hectares... than small crops of the same type.

That may only be an indication of grower diligence. The grower of larger scale crops is doing it commercially and is perhaps more likely to be analytical of the loss of yield potential due to the presence of insect pests. This is not to disparage the smaller producer who sells what can be harvested at the local shops or the farm gate. Some

such growers may, (in general), not be as concerned as the large commercial growers (in general). But one fact destroys this big versus small crop size debate...

Insect pests far too often attack and lower the yield of healthy plants growing in healthy soil whether those plants are part of a hundred hectare or a kitchen garden plot. You've seen attack in both with your own eyes and so have I.

A little less soil health, less soil moisture, a warmer season, the proximity of a neighbour's infested crop... all are factors that make a difference. But the reality is that insects can and do significantly attack healthy crops.

The last resort

This is not about some fancy accommodation north of Cooktown.

Answering the question 'to spray or not to spray' does not have to wait until you are on the brink of financial disaster. 'Last resort' for you is a personal decision after evaluating your own circumstances.

It's not just a matter of looking to the Standard or looking to your Information Officer.

There are no written criteria specifying what level of damage or threat your crop has to reach before it is OK to take action. There is, however, the spirit of organic production that says you should do your best to grow crops without indiscriminate spraying. This is right and fair enough. The py/pbo combination is an approved input. It is an available option and it is there to be used when you need it.

No sensible and canny grower is likely to spend time and money spraying a crop because the flowers are just opening and the aphids, mites or monoleptas *might* happen along and reduce fruit set.

Growers should recognise the timing of the possible threat and begin to check every couple of days to see if the pest numbers are building up. The 'to spray or not to spray' question is answered during each crop check.

Once a pest population is really threatening your crop yield, it is too late to do anything about soil nutrition, too late to introduce additional beneficial insects, viruses or fungi. When it gets to the threatening stage, only a pyrethrum/pbo spray can deliver same-day kill of pests and stop losses before they amount to anything of significance. Keeping some on hand 'just in case' is sensible thinking. A day's delay could easily result in a 5%+ reduction in your harvest. A week's delay could halve your prospects.

The time to take action is before damage is done. To spray as soon as insect pest numbers begin to build is prudent. You can be certain the pests are not going to go away; their numbers will only increase. When the damage is actual, it is too late

Lessened yield is money lost forever. You can do better next year but you can't get back the losses of the year you're in now.

To spray or not to spray? That is the question... only you can answer. It is your decision alone. Then again, your family and/or your bank manager may pose another question... "what happened to the money you expected to make?"

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