

NURSERY 'KNOW HOW' :

#12 Biological pest & disease suppression

KNOW HOW
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I have long been a champion of developing and promoting better ways of growing healthy plants. I believe in a future less reliant on chemicals as being the future direction for our industry.

The strategy I believe in is a composite of three component parts :

Cultural , Biological and Chemical

Their integration is, in my experience, both tenable and viable. The challenge is to develop techniques which produce acceptable results in a practical production environment.

These are the tactics used to execute the strategy.

You should note the order in which I have arranged my components. My philosophy encompasses the use of chemicals, as I'm a realist, but only after due consideration of all other options.

An example is how the industry today deals with the once very significant disease problem, Botrytis. Twenty years ago *Botrytis cinerea* may well have been disease # 1 in protected cropping systems. Today it rarely rates a mention.

Why? The practice of the day was to protect plants and eradicate Botrytis using the very successful chemical Benlate. This high performance chemical was legendary .

Exclusive and repeated usage in many spray programmes has resulted in the build-up of Benlate resistant strains of fungi.

A period of bad publicity on another issue further damaged its reputation.

With the effectiveness gone and no immediate replacement available, we had to find out how to work without it. We did.

Practice changed and today Botrytis is largely controlled by better use of ventilation and humidity control, not chemicals. The lesson being, use of a chemical may be easy and available, but is it necessary?.

Sometimes there is another, better, way.

1.Cultural technique

Consider these tactics when you next review your plant protection policy.

Ask yourself these questions:

Do I accurately know with which disease/s I am dealing?

Seek professional help with identification.

What do I know about the conditions that favour and promote the incidence of this disease?

Research the disease or seek help.

Which of my crops are vulnerable to this disease?

It may be a problem limited to an insignificant part of your crop and easily fixed by ceasing production of those plants.

Common areas of the cultural practice that will come under review will be:

Irrigation regime

Potting mix physical and chemical make-up

Hygiene

Pest control

Crop handling, etc.

Another common nursery practice which can cause disease problems is root pruning.

Ask yourself, is root pruning necessary?

Is it perhaps only because stock has been held too long before potting-on?

Avoid root pruning if at all possible.

The injury you inflict upon your plants simply invites a host of root rot problems.

When unavoidable, treat stock in advance with a foliar spray of Aliette® or Fostonic and repeat the application a month later. These chemicals will help prepare the stock to deal with the increased disease threat.

Avoid putting stock under severe moisture stress. This can occur when tube stock is held over too long, has become root bound, and is under less than ideal irrigation conditions. I often see tube stock being held in the car park or under trees supposedly as a temporary measure. They are still there months later!

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Keep hygiene as a priority

Remember to spray your tube stock, especially that bought in, along with the rest of the nursery. It is easily overlooked if you have parked it, temporarily, away from the main production area.

Contamination from Willow or Poplar leaves in Autumn may result in an increased incidence of rust diseases. Contact with the soil or sitting in a puddle may result in root rot attack.

2. Biological

Potting mix type can contribute significantly to the promotion of healthy plants if it will support and foster a diversity of beneficial organisms.

Many bacteria and fungi are antagonistic or even predatory on plant pathogens.

You can boost these with strategic additions of *Trichoderma*, mycorrhizae and bacteria to your mix.

A number of proprietary products exist.

The resultant symbiotic relationships can be immensely useful, very cost effective and, in some cases, still compatible with chemical use.

3. Chemicals

Selective and considered use of chemicals is realistic and need not be expensive or have harmful side effects. Review the options carefully. Focus on the active ingredients rather than brand names. The same active ingredient is often available at the same concentration under different brand names at lower prices.

Develop a plan that involves alternate products for each task. Ring the changes to avoid disease resistance.

Read the labels carefully and follow instructions.

Do not attempt to eradicate disease with protectant formulas. This could result in resistance.

Enquire about compatibility with the beneficials in your growing media.

Anticipate disease problems

Most common are:

Pythophthora

Pythium

Fusarium

Rhizoctonia

Downy mildew

Powdery mildew

Rusts

and Leaf spots

Prepare an action plan. Research carefully the options. Focus on prevention rather than eradication. Apply sprays in consideration of plant growth rate rather than simply 14 day intervals. You may need to spray more frequently in Summer for example.

Choosing the least toxic chemical formula for a given task will be gentler on you, the environment, the plant, beneficial bacteria and fungi whilst still suppressing disease.

Remember to consider the integration of all the methods of control at your disposal; cultural, biological and chemical.

McHort have unrivalled expertise in the development of practical pest and disease suppression using biologicals. We also supply many excellent products to support your efforts to manage this ever present threat. Please do call use for any further Information or a detailed programme for your growing business.

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McHort. TECHNICAL BULLETIN

BENEFICIAL INSECTS AND MITES

PEST	BIOLOGICAL	TYPE	COMPATIBLE CHEMICAL
Red spider mite	Phytoseiulus (Lacewing)	Predatory mite	Omite Torque Avid
Whitefly	Encarsia (Lacewing)	Parasitoids	Applaud Confidor drench
Mealy bug Root mealy bug	Cryptolaemus Hypoaspis	Predator Predatory mite	PS1 Plant-Soap Calypso
Sciarid fly	Hypoaspis Nematodes	Predatory mite Entomopathogenic	Confidor spray
Aphids	Aphidus (Lacewing)	Parasitoids	Pirimor Chess
Scale	Aphytis (Lacewing)	Parasitoids	PS1 Plant-Soap
Thrips	Cucumeris Hypoaspis	Predatory mite Predatory mite	Neem Chess Pirimor
Caterpillars	Trichogramma (Lacewing)	Parasitoids	B. thuringiensis Success Mimic
Black vine weevil	Hypoaspis Nematodes	Predatory mite	Neem

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