The performance of the spinosyn products (Success™2 Naturalyte™ Insect Control and Success NEO Insecticide) is declining on some populations of western flower thrips (WFT). These thrip populations are usually associated with a prolonged over-reliance on Success™2 Naturalyte or Success NEO and/or ‘closed’ growing systems (glasshouses, greenhouses, etc.).

Dow AgroSciences has compiled the following from information published by various Australian state departments of agriculture to help growers and advisors manage WFT, to optimise the use of Success NEO as a management tool and to prolong the useful life of this and other products against this pest.

Western flower thrips life cycle

Adult females lay their eggs inside plant tissue and when the first stage larva emerges it feeds on the surrounding plant and flower tissue. A second stage larva develops that then drops to the ground where it pupates in the soil or leaf litter until it emerges as an adult. At 30°C the life cycle takes around 15 days but as temperatures decline the life cycle takes longer; at 15°C it can take up to 45 days. In warmer areas of Australia, all stages of WFT are present throughout the year. The pest is attracted to flowers, where it feeds on pollen. Thrips have been found on a wide range of crops (cut flowers, fruit and vegetables), broad-leaf weeds and white clover (a favoured host). It does not survive on grasses. Female thrips fly close to ground level when they move into the orchard in spring, but the higher the temperature the higher they fly and the faster they spread2.

WFT MANAGEMENT – MORE THAN CHEMICALS

Key management elements for managing western flower thrips2

- Keep ground covers mown short throughout the year to prevent flowering.
- Reduce alternative hosts of WFT by removing broad leaf weeds and white clover.
- Monitor for the presence of WFT in the crop using sticky traps.
- Choose pesticides less harmful to beneficial insects to encourage their presence and survival. Two of the main beneficial insects that will help control WFT are predatory mites (for example Transseius montdorensis in sub-tropical areas and Neoseiulus cucumeris in southern areas with a Mediterranean climate).
- If chemical control is required, spray at the right time.
- Use only approved products according to the label or permit directions to reduce the chance of resistance development.

Keep your farm clean3!

- Remove or control weeds within and nearby your crop/orchard, because weeds harbour WFT that will re-infest your crop/trees.
- Plough in or burn old crop debris.
- Monitor for WFT in your crop/orchard and packing sheds with sticky traps.
- Only buy WFT-free seedlings/cuttings/runners from a reliable or accredited supplier, otherwise large losses can occur.
- Don’t bring any plant material onto your property unless necessary, because you may bring WFT with it. Keep any deliveries to one side and inspect for WFT. If found to be present, return the affected plant material to the supplier, or burn or bury it.
- Try to manage WFT well before harvest.
- Use insect-proof screening on your greenhouse if your crop is grown under cover.
- Avoid carryover crops if possible, as they may be more severely affected by WFT.
- Be familiar with the natural enemies of WFT present on your farm, and where possible choose pesticides with the least impact on them. Predatory mites can be a very effective option to assist growers better manage WFT infestations.
The three-spray programme for western flower thrip control (as recommended by NSW DPI)

Adults and larvae of WFT can be effectively killed by insecticides, but the eggs (laid inside leaf tissue) and pupae (mostly in soil) are protected from sprays (see the life cycle diagram on the font). For this reason three sprays are recommended to cover the time taken for eggs to hatch into larvae and for pupae to develop into adults.

A series of three sprays of the same chemical several days apart will be effective for killing the majority of thrips. The length of the interval between applications varies with temperature.

- In cooler regions or at cooler times of the year (10°C-20°C) the length of the life cycle is 25-35 days.
- At 20°C-30°C the life cycle is 15-25 days.

Therefore, the higher the temperature, the shorter the interval between sprays.

Important note on applying consecutive sprays, and chemical resistance

Apply three consecutive sprays of the same chemical and then alternate to a different chemical group for the next series of sprays. There must be at least a 3 week break (<20°C) or a 2 week break (>20°C) before another series of sprays is applied. If monitoring indicates the need to spray earlier, then insecticide resistance, inappropriate spray application or inadequate farm hygiene should be suspected, and expert advice sought. Follow product label directions for the minimum interval between successive applications.

USING SUCCESS NEO FOR CONTROL OF WFT

There are several populations of WFT around Australia which have developed a degree of tolerance to Success products. Putting on more Success NEO, or using it more frequently than the label states, will only worsen the problem and make it harder to bring the population back to a susceptible status. A focus on cultural control techniques is required (netting, better hygiene, removal of weed host plants) and chemical controls other than Success NEO until such time as susceptibility has returned to the normal level.

Only then should Success NEO be used again - but sparingly (no more often than recommended on the label), in rotation with other chemicals and in conjunction with cultural techniques and beneficial insects.

FREQUENTLY ASKED QUESTIONS

Q. What products other than Success NEO Insecticide can I use for WFT control?
A. This will depend on the crop you are growing. There are registered products and also products which have APVMA-approved use permits (but you can't tell this by reading their label). The best option is to ask your local department adviser (NSW DPI, DEEDI, DAFWA, etc.), or check on the APVMA website for products registered in your state in your crop for WFT control, or for products with a permit for WFT control.

Q. I have WFT resistance. How long before Success NEO will be useful again?
A. This is impossible to say, but if you stopped using Success or Success NEO today and other control measures gave good control for 12 months - the Success NEO resistance level would probably drop markedly BUT will rise again even more quickly should Success NEO be over-used again.

Q. I don't have a WFT resistance problem yet - what should I be doing to stay that way?
A. Concentrate on using as many cultural controls as possible. When using chemicals don't cut rates and rotate to as many different mode of action products as possible. Closely adhere to recommendations made in labels and literature.

Q. I've had a spray failure. What do I do if I think I have WFT resistance?
A. Eliminate other possible causes for the failure first because that is the easiest and fastest thing to do. First, make sure that your sprayer is working properly and your spraying technique is good. Was the correct rate of product used and the label followed? Could the thrips have been blown in after spraying? When you are sure everything else has been checked out, check for resistance. Collect samples of thrips and contact your local agriculture department district agronomist (NSW DPI, DEEDI, etc.) and they will provide you with details of who to send them to and what details you need to provide.

Q. There is no alternative spray option for controlling WFT for the crop that I grow. What do I do?
A. Use the cultural techniques outlined above to minimise the population of WFT in your crop or (if practical) grow an alternative crop for a period of time. Apply to APVMA for a minor use permit for the products that have proven effective in other crops.

For more information contact your local Dow AgroSciences representative on TOLL FREE 1800 700 096 www.hortsolutions.com.au

1 http://www.irac-online.org/Resistance/Overview.asp
3 Western flower thrips (WFT) insecticide resistance management plan - www.dpi.nsw.gov.au/agriculture

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