

2a. PROTECT YOUR CROP FROM ATTACK



2b. MAINTAIN CROP HYGIENE:



Many things are very effective in reducing the threat from pests and diseases:

- ❖ Timely and effective weed control
- ❖ Removing sick plants in the crop
- ❖ Removing old crops promptly
- ❖ Following greenhouse design and work practices to reduce pest entry
- ❖ Selecting plant varieties for resistance/tolerance to damage where possible
- ❖ Timing and placing crop plantings to reduce exposure to threats
- ❖ Cleaning up the region farm by farm



clean up
The Adelaide Plains
now!

less weeds



less pests



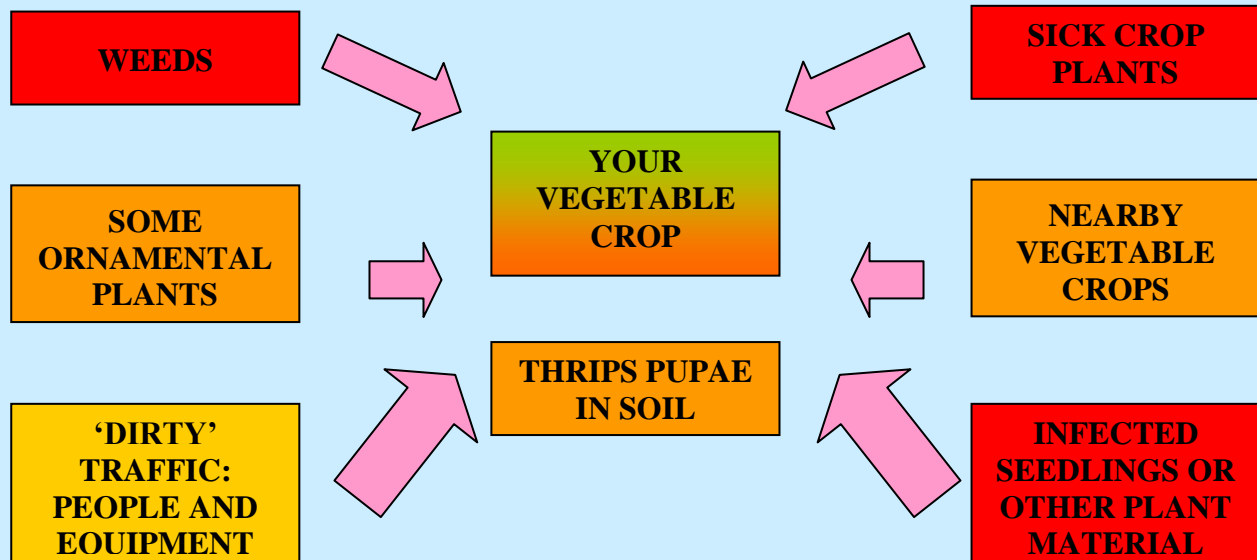
safer crops



GUIDELINES FOR GOOD CROP HYGIENE

TSWV = Tomato Spotted Wilt Virus
WFT = Western Flower Thrips

PROTECT YOUR CROPS FROM THESE THRIPS AND VIRUS THREATS:



MANAGEMENT STRATEGIES FOR REDUCING MAJOR THREATS

- *Clean up weeds regularly, especially before flowering. If already flowering in spring, summer or autumn you should use pesticide with weed control or pests will move to crops*
- *Do not leave old crops standing or dump crop waste near to new crops.*
- *Check regularly for TSWV infected plants and remove them, preferable by placing a bag over them before pulling them out. Dispose of well away from the crop.*
- *Do not move people and plants from thrips and virus infested crop areas to clean areas*

OTHER FACTORS TO CONSIDER

- *Restrict vehicle access to cropping areas*
- *Be aware that bright yellow, white, bright blue and purple colours attract thrips*
- *Share your management concerns and strategies with your neighbour and friends*
- *Support by example a clean-up policy for the Northern Adelaide Plains*

BROADLEAF WEEDS MEAN TROUBLE !



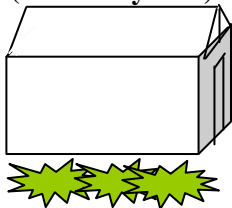
Weeds create harm for your crops by breeding western flower thrips and other pests. They also host tomato spotted wilt virus that thrips will carry into your crop !

Protect your crops by clearing weeds to:

- *red*
- *uce thrips*
- *reduce virus*
- *reduce other pests and diseases like white fly*

WHEN CLEARING WEEDS WATCH OUT FOR:

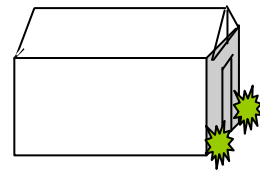
1. Weeds too close
(10m away best)



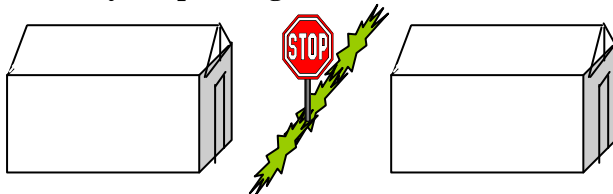
2. Thin rows of weeds up
against greenhouse



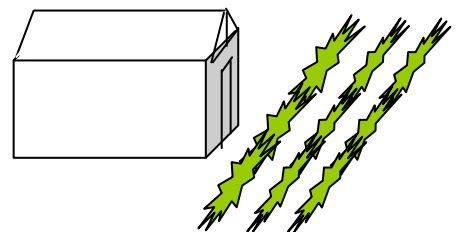
3. Weeds at doorway



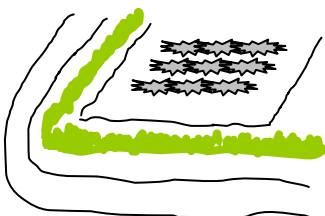
4. Weed banks which staff could walk through
and carry thrips into green house on clothes



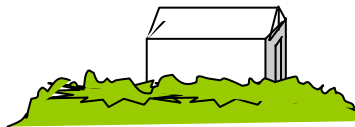
5. Weeds in vehicle tracks



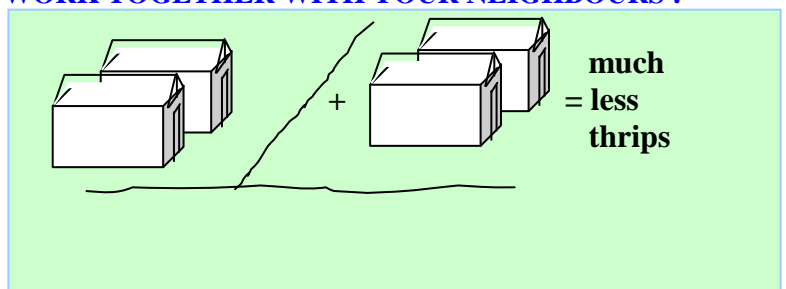
6. Weed rows along road verges



7. Weeds in difficult areas to clear
like earth mounds



WORK TOGETHER WITH YOUR NEIGHBOURS !



Prepared by Tony Burfield
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MAKE LIFE HARD FOR WESTERN FLOWER THRIPS

Clear Those Weeds before They Seed !

- ◆ Clear flowering weeds **NOW** while it's easier
- ◆ Once they flower they become a thrips plague factory
- ◆ No weeds means less thrips in spring & less weeds to clean up next year



- ◆ Clear all flowering weeds on or near to your farm are where Western Flower Thrips breed up in spring
- ◆ Clear At least 10m around every glasshouse or crop – the whole farm is even better !
- ◆ Many flowering weeds also hold Tomato Spotted Wilt Virus for the thrips to carry onto your crops
- ◆ Many weeds have very small flowers, but still contain thrips, including ground covering weeds
- ◆ Generally grasses, especially native species are safe, but can provide thrips with temporary homes

Greatly Improved Control of Thrips, Virus and Whitefly

Farm trials at Virginia have demonstrated that improved greenhouse design can lead to much better control of thrips, virus and whitefly using almost no chemicals.

To get real benefits from your investment it is important to consider the following things before improving an existing greenhouse or designing a new one:

- Use the fine 'anti-virus mesh' which is now much cheaper. This can cause an increase in humidity and more plant disease so you may need to improve greenhouse ventilation
- Build a double entry door to reduce the entry of thrips and whitefly
- Include an easy system for raising and lowering plastic sheets over the mesh
- If fine mesh is added to old greenhouses they may still have cracks and holes, e.g. along the edges of corrugated fibreglass sheets, where thrips will still get in and then build up

EVEN WITH AN IMPROVED GREENHOUSE YOU WILL STILL HAVE TO MONITOR AND CONTROL PESTS SO THAT THEY CANNOT BUILD UP AND CAUSE DAMAGE.

Before you spend your money consider getting the most from your improvement \$\$'s by investing in other changes like:

- Better climate control with increased ceiling height, circulation fans. overhead misting and heating
- Selecting a different trussing system to harvest more efficiently with extended crop life
- Changing plant/row spacing to increase productivity and ease crop labour
- Putting in a hydroponic system

For expert advice on greenhouse design contact

- Your local consultants, retailers of greenhouse materials and greenhouse specialist companies
- The Australian Hydroponic Greenhouse Association (<http://www.ahga.org.au/ahga.html>) produce an industry publication ('Soilless Australia') specialising in greenhouse technology. *Contact Saskia Blanch on 02 9939 5992*
- Internet sites for greenhouse technology (eg NSW DPI at: www.agric.nsw.gov.au/reader/15441)

Some key differences between three levels of greenhouse technology

1) Low technology



Improved hygiene, monitoring and spray program gives very good results. Biological control is difficult

2) Medium Technology



Biological control can be included if thrips & whitefly are at lower levels with fine mesh on sides & vents

3) High Technology



Modern systems make excellent pest control possible, including biological strategies