



# VEGEnotes

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## Capsicum virus diseases

Diseases caused by viruses are among the most common cause of loss to capsicum growers across Australia.

Vital information on the symptoms, spread, hosts and control of these diseases are clearly detailed in the table over the page (Table 1).



A healthy capsicum crop.

The symptoms outlined for each virus disease are a guide to the range of symptoms usually seen. In reality, the symptoms of several virus diseases often appear to be very similar in the field, and more than one virus disease may be present in a crop at one time.

Diagnosis on symptoms alone is very difficult and often misleading. If a virus disease is suspected, it is advisable to arrange to have samples sent to a plant pathology laboratory for accurate diagnosis.

Most thrips species are unable to transmit tospoviruses tomato spotted wilt and capsicum chlorosis. The species that transmit tomato spotted wilt virus (TSWV) in Australia are western flower thrips (*Frankliniella occidentalis*), tomato thrips (*F. schulzei*), melon thrips (*Thrips palmi*) and onion thrips (*T. tabaci*).

Capsicum chlorosis virus is transmitted by tomato thrips (*F. schulzei*) and melon thrips (*Thrips palmi*). Thrips species such as plague thrips (*T. imaginis*) and greenhouse thrips (*Heliothrips haemorrhoidalis*) do not transmit the viruses.

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Key control method considerations for virus diseases are:

- Use healthy transplants
- Destroy harvested capsicum and tomato crops before planting new blocks nearby
- Maintain high crop and farm hygiene standards
- Do not over use insecticides: insects can develop resistance and insecticides are often of limited use in reducing virus spread
- Use virus resistant varieties in disease management strategies, where possible

### Further Information

Compendium of pepper diseases. (2003) APS Press, St Paul, Minnesota, USA.

Diseases of vegetable crops (1994) Department of Primary Industries and Fisheries, Queensland.

Management of thrips and tomato spotted wilt virus. Department of Agriculture, Western Australia Farmnote 69/2004.

Plant Pathology Sections in each State Department of Agriculture or Primary Industries

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### Acknowledgements

Denis Persley  
Murray Sharman  
John Thomas



### The Bottom Line

- Virus diseases cause frequent economic losses in capsicum.
- Symptoms of different viruses can be similar and accurate diagnosis is essential before deciding on control options.
- Infected plants cannot be cured: control depends on prevention.

Table 1 Virus diseases in capsicums

Virus	Symptoms	Spread	Hosts	Importance	Control
Tomato spotted wilt virus (TSWV)	Ringspots, mottling, yellow blotches, line patterns on leaves. Fruit distorted with blotches/ring patterns.	Thrips with only a few species able to transmit. Virus acquired in larval stage and insect then able to transmit for life. Not seedborne. Not spread by contact and does not survive in soil or debris.	Many crop, weed and ornamental plants.	High.	Control weed hosts. Destroy old crops. Plant healthy transplants. Control thrips. Use resistant varieties.
Capsicum chlorosis virus (CaCV)	Yellowing (chlorosis) of leaf margins and areas between veins on younger leaves. Plants stunted. Fruit distorted with dark spots and scarring.	As for TSWV.	Capsicum, chilli, tomato, peanut, several weed species.	Common in capsicum in Queensland.	Destroy old crops. Plant healthy transplants. Control thrips resistant varieties being developed.
Cucumber mosaic virus (CMV)	Mosaic, mottling on leaves. Fruit have wrinkled, bumpy appearance, uneven colour and ripening with dark spots sometimes developing.	Aphids. Many species can transmit the virus from plant to plant during very short feeding periods.	Many. Include tomato, grain legumes, weed species.	Generally low in Australia.	Crop and farm hygiene. Healthy transplants.
Pepper mild mottle virus (PMMV)	Fruit small, mottled, deformed with sunken or raised areas on skin. Mild leaf mottling may occur.	Virus contaminated seed and infected plant debris are major sources. The virus is easily spread from plant to plant by handling and touching.	Capsicum, chilli.	Can be important in protected cropping situations, e.g. glasshouses, tunnels.	Use healthy seed from a reputable source. Good crop hygiene. Resistant varieties available.
Potato virus Y (PVY)	Narrow bands of dark green tissue along the leaf veins. Yellow-green mottled areas between veins.	Aphids. Virus spread from plant to plant during very short feeding probes by insects. Not carried in seed or spread by handling plants.	Range of crop and weed hosts, including tomato, tobacco and weeds in potato family.	Once very common and damaging. Outbreaks still occur.	Grow resistant varieties. Crop hygiene.
Tobacco mosaic virus (TMV)	Leaf distortion and mosaic, sometimes with leaf drop. Disfigured fruit.	Contaminated seed, plant parts and debris are major sources. The virus is easily spread on tools, farm implements, stakes and by handling plants.	Weeds and crop plants in the potato family, including tomato and tobacco.	May be important in glasshouse crops.	Many capsicum and chilli varieties are resistant.

ISSN: 1449 - 1397

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