Melon necrotic spot virus (MNSV)

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Plant Biosecurity EMAI

Melon necrotic spot virus (MNSV) is a plant virus that can affect melon and cucumber crops. Management actions to prevent spread are recommended.

Melon necrotic spot virus

MNSV causes necrotic lesions on leaves and stems, fruit deformation and reduction in fruit quality in watermelons.

Melon necrotic spot virus (MNSV) can be spread in soil and water, by infected seeds and by the root inhabiting fungus *Olpidium bornovanus*.

In Asia, Europe and North America the virus has been reported in greenhouse melons and cucumbers. Significant reductions in yield have occurred.

Symptoms

On infected watermelon plants, small transparent (chlorotic) spots appear on the youngest leaves. These spots turn brown (necrotic) and enlarge over time. Leaves curl and wilt (Figure 1) and may die. Brown necrotic lesions may develop on petioles and stems (Figure 2).

Affected plants may suddenly wilt and lose vigour as the fruit matures.

Infected watermelon fruit may have yellow-brown necrotic spots on the skin (Figure 3). Fruit may be misshapen. Discolouration of the melon flesh and brown staining in the rind may be seen when fruit is cut (Figure 4). In severe cases fruit may decay while still attached to the plant.

MNSV symptoms on watermelons are similar to those caused by the bacterial disease watermelon blotch.

Symptom expression can be more severe when lower temperatures are experienced.

Infection

MNSV shows some host-specificity in melons and cucumbers and the pattern of infection varies. MNSV can systemically infect watermelon but only causes localised infection in some rockmelon and cucumber varieties.

Resistance against MNSV can be conferred by a single recessive gene. Resistance in rockmelon has been overcome by some strains of MNSV at lower temperatures.
Exotic Pest Alert: Watermelon necrotic spot virus (MNSV)

**Management actions**

Once a plant is infected with MNSV the infection persists for the life of the plant.

To prevent MNSV in your crop and reduce the chance of infection and spread:

- use heat treated seed
- use virus free seedlings
- clean tools, machinery and vehicles between fields and properties
- rotate fields and crops
- use biofumigant break crops
- plan to work on younger plants before working on older plants
- remove and dispose of infected plants
- remove rogue host plants and melon weeds
- control pest insects

**Hosts**

MNSV infects watermelon (*Citrullus lanatus*), muskmelon and rockmelon (*Cucumis melo*) and cucumber (*Cucumis sativus*).

MNSV can survive in soil in the absence of host plants for a number of years.

**Spread**

The pathways of spread of MNSV include:

- infected seed
- infected soil and water
- tools and equipment
- insects
- direct contact between plants
- root-inhabiting fungus vector *Olpidium bornovanus*

A plant pest is a disease causing organism or invertebrate which threatens agricultural production, forestry or native and amenity plants

**More information**

NSW DPI Primefact 1005 (April 2010) On-farm hygiene and sanitation for greenhouse horticulture

NSW DPI (2009) Keep it Clean. Reducing costs and losses in the management of pests and diseases in the greenhouse

**Acknowledgments**

Figures 1, 2, 3 and 4 courtesy of NSW DPI

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