



Research Notes

Control Strategies for White Blister

Control white blister with a combination of management practices and a fungicide spray program.

Controlled watering

Avoid long periods of leaf wetness as spores need water to germinate and wet leaf surfaces to infect plants.

- ◆ A **short**, heavy watering is preferable to a **long**, light watering.
- ◆ Time irrigation to when leaves will dry off quickly, such as at dawn.
- ◆ Avoid watering in the evening as leaves will stay wet for a longer period of time.

Ventilation

Maintain good air movement to dry leaves off quickly and reduce infection.

- ◆ Orientate crop rows in the direction of the prevailing wind.
- ◆ Increase plant spacing.
- ◆ Avoid planting crops in high humidity where fogs persist, such as near the coast or river valleys.

Nutrition

- ◆ Increased nitrogen may increase susceptibility to white blister.
- ◆ Increased levels of phosphorous (P) and potassium (K) may increase resistance to white blister, however, high rates of these fertilisers can stunt plants.

Resistant varieties

- ◆ The variety Greenbelt was very susceptible to white blister in Victoria and is no longer grown.
- ◆ Field observations have shown that Viper/Atomic, a summer variety, has tolerance to white blister. Bellstar, a winter variety, also has tolerance to white blister. Seed companies are actively selecting for white blister resistance in broccoli varieties.



Hygiene – Start clean, stay clean.

- ◆ Use good quality seed. The presence of galls, containing oospores, on seedling stems is an indication of seed-borne contamination.
- ◆ Plant disease free transplants. This slows down the appearance of white blister in broccoli.
- ◆ Remove volunteer plants and contaminated crop debris. These can be a source of infection for adjacent crops or new crops.
- ◆ Rotate crops. Avoid consecutive plantings of the same crop species by rotating with a non-brassica crop to reduce the likelihood of white blister carry-over.

Chemical control

Control white blister in crops before the disease develops to epidemic levels.

- ◆ Implement fungicide resistance management strategies.
- ◆ **Do not apply more than 5 consecutive sprays of the same systemic fungicide.**
- ◆ Research from overseas has shown that *A.candida* develops resistance to fungicides very quickly.
- ◆ Fungicides designed to control true rust fungi will not have any activity against white blister, as it is not a true rust fungus.
- ◆ There are 6 systemic fungicides, from 4 different activity groups, with efficacy to white blister.
- ◆ There are at least 2 contact or preventative fungicides with efficacy towards white blister. These may have better value when used together with a systemic fungicide. Good coverage is required with these fungicides, as the chemical has to be in direct contact with the fungus to kill it.
- ◆ Some soft chemicals, those with short or no with-holding periods, also have efficacy for white blister, but they may not be as effective as the systemics. These may be useful for strategic applications near harvest or between harvests if disease pressure is high.
- ◆ Spraying according to the disease predictive model can reduce fungicide applications.



Post Harvest

- ◆ White blister does not form toxins and so is not harmful to humans.
- ◆ When levels of white blister are low, blisters can be picked off heads during the post harvest handling.
- ◆ Ensure cool conditions during packing and transit as undeveloped (latent) white blister infections can develop after harvest.

Disclaimer: This publication may be of assistance to you but the State of Victoria and its officers do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

© State of Victoria, Department of Primary Industries, June 2005.

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the Copyright Act 1968