Options for Control

White blister predictive model reduces sprays and controls disease

Brassica[Spot] is a computer based, disease-forecasting system for some fungal diseases and insect pests of brassicas. Dr Roy Kennedy, Horticulture Research International, developed the model in the UK. Over 50% of UK growers now use this model to time their fungicide sprays for white blister control.

The model predicts the risk of white blister infection periods for broccoli and other vegetable brassica crops using weather data such as temperature, leaf wetness, relative humidity and rainfall. The model indicates the time to inspect crops for white blister and, depending on the results, a decision is made whether or not to spray.

The Brassica[Spot] model was evaluated in two trials at Dandenong and Werribee, Victoria, during autumn and winter 2005. In both trials white blister was kept in check using only 1-4 chemical applications compared with up to 8 applications under a conventional spray program. The model was an excellent decision support tool that helped to reduce the applications of fungicides for crop protection.

Photo 1.
Weather station in the broccoli trial site at Dandenong.
The weather station collects
- temperature,
- rainfall,
- leaf-wetness and
- relative humidity data every half an hour.

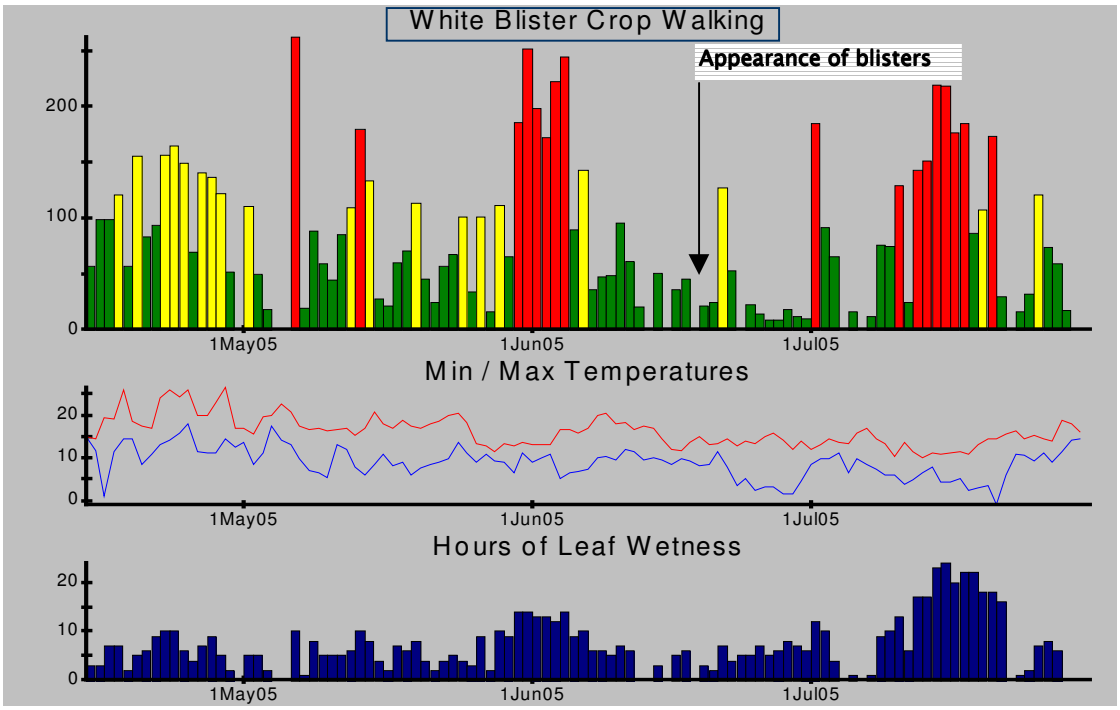

Fig. 1 Brassica[Spot] output from the Dandenong trial site.
Red bars – high infection risk. Yellow bars – moderate infection risk. Green bars – low infection risk.
No bars – no risk.

Case study

- The disease develops 7-21 days after infection, thus the crop needs to be monitored at 7, 10 and 14 days after a cluster of red bars to detect emerging white blisters.
- White blister appeared in the 8th week of the crop, two weeks after the first cluster red bars signifying 'high infection risk'. A fungicide was applied when the disease was sighted.
- High infection risk (red bars) appeared for the second time, two weeks before harvest. The amount of white blister was very low and no fungicides were required to protect broccoli heads.
- Only one fungicide was applied for white blister control in this crop.

Benefits of using the model

- Control of white blister before it gets established in the crop.
- Determines the time to look for white blister in the crop.
- Fungicides can be applied when they will have the maximum efficacy.
- Avoidance of weekly spraying of crops for white blister control.
- Time irrigation to minimise the duration of leaf wetness.

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