

Blackspot Roundup  
Dr Trevor Atkins, HortPlus  
Email: [trevor@hortplus.com](mailto:trevor@hortplus.com)  
Web site: [www.hortplus.com](http://www.hortplus.com)

We were unfortunately spoilt for choice this month as to what weather-related topic to choose for Weather Sense. "Unfortunately", because one of the topics up for consideration was frost - the frequency, severity, and timing of the late frosts experienced this year in a number of growing areas around the country. I opted for another topic instead - the annual Blackspot roundup. If there is interest in a look at the frosts we can do it in a future Weather Sense once there is a bit of distance from the reality and the impact of those events.

Mills Periods are used to express how conducive conditions are for infection by Blackspot ascospores. Figure 1 shows the Mills Periods calculated for weather data from recording weather stations around the country. For the technically-minded, the Mills Periods were calculated using HortPlus' MetWatch software with an 8-hour canopy drying period, light required for the start of an infection period, rain not required for the start of an infection period.

Mills periods are just one part of the Blackspot disease equation. An important consideration is how many ascospores are present at the time of the Mills Period. We have talked about the Beresford Ascospore Model (Dr Rob Beresford, HortResearch) to calculate ascospore maturity and release in a previous Weather Sense column, so I won't go into the details, but along the top of each Mills Period graph in Figure 1 you will see yellow boxes showing ascospore release events. The numbers in these boxes give the proportion of the ascospore population released during that event. Many growers are surprised to see a Mills Period without an ascospore release event, or ascospore release without a Mills Period. If you want further information on this, drop me an email and we can do a future Weather Sense dedicated to this.

The rate of maturation of the ascospore population is driven by heat: over time as warmth "accumulates" more and more of the ascospore population matures and under the right conditions of rain and light the mature ascospores are released. As you would expect, the rate of maturation differs between regions with warmer regions having faster maturation. Figure 2 shows the proportion of ascospores maturing over time for a range of growing regions in Figure 2. By the third week of October this year just on ½ of the total ascospore population had matured in orchards in Central Otago, while in the warmer Gisborne area over 80% of the ascospores had already matured.

Figure 1. Mills Periods and ascospore release events. Key: The Mills Period is shown both by colour and by abbreviation with S being Severe, M - Moderate, L - Light, Mar - Marginal. The unlabelled turquoise bars indicate where conditions were conducive to Blackspot infection, but were not long enough for a Mills Period to eventuate.) See text for further information.

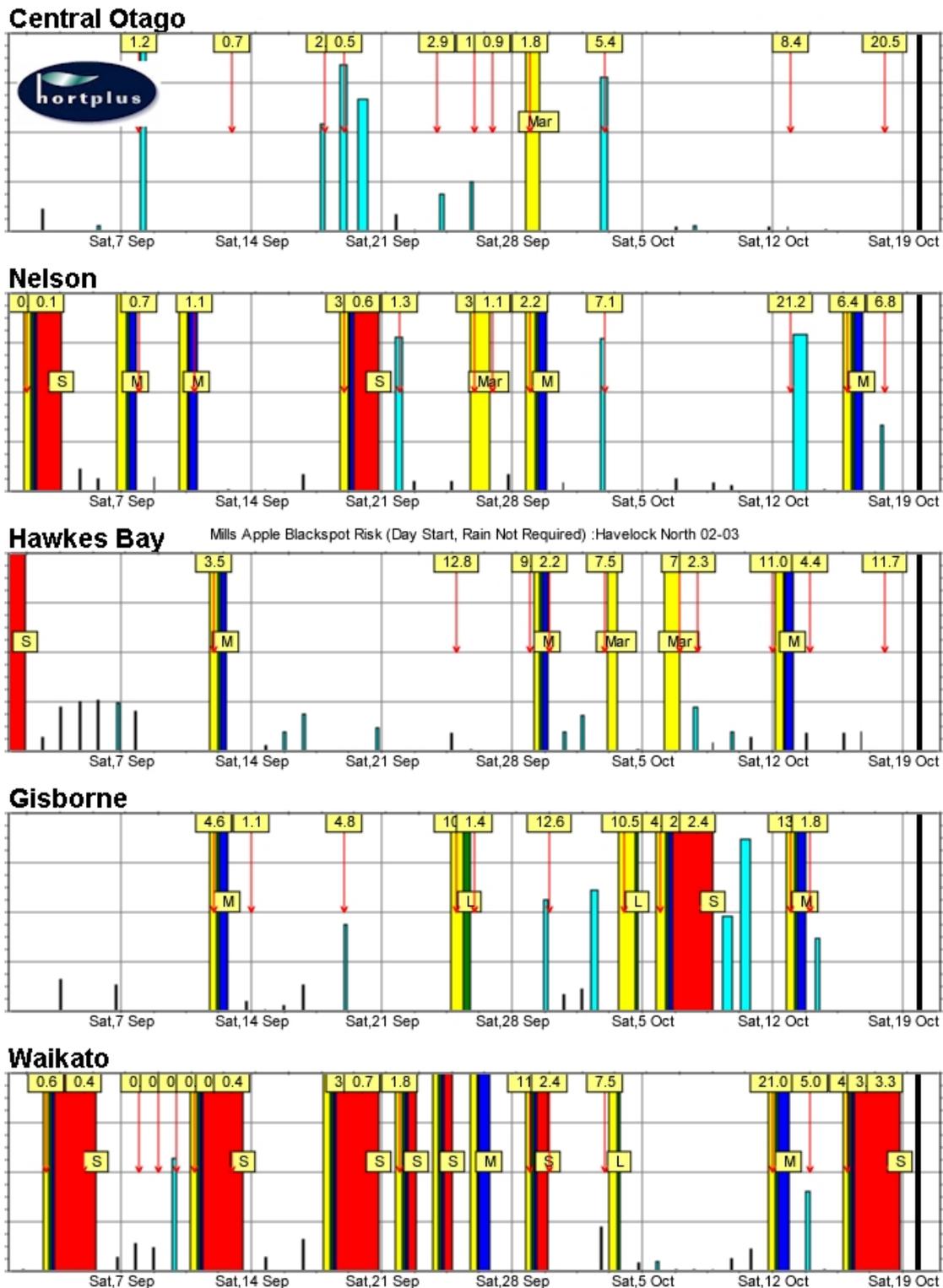


Figure 2. Proportion of ascospore population matured.

