

Tree Fruit Diseases

Results of Trapping Ascospores of *Venturia pirina* during Rainfall Periods in Mendocino County, California, 1989-1997

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Ascospores of *Venturia pirina* were trapped during rain periods using roto rod samplers (Model 20, Sampling Technologies Inc., Minnetonka, MN 55305) as part of a disease management program in Mendocino county pear orchards in 1989-1997. The 3-5 samplers were located 45 cm above ground level in commercial orchards and were baited with a 1-m diameter pile of random leaf litter 10 cm deep beneath the samplers in late winter.

Accumulated degree day readings were maintained at Hopland, CA, using a recording biophenometer (Model TA51, Omnidata International, Logan, UT 84321) which made temperature readings at 10-min intervals and converted the data to a degree day readout. Data of percentage of spores trapped for the season vs. degree days above 0°C for each year were compared with similar plots for percentage of mature asci vs. degree days above 0°C in Figure 1B, p. 261, of Spotts, R.A. and Cervantes, L.A. 1994, Factors affecting maturation and release of ascospores of *Venturia pirina* in Oregon, *Phytopathology* 84:260-264.

Results and Discussion

In five of the nine years (1989, 1990, 1992, 1993 and 1997) there was reasonable agreement between the Spotts and Cervantes model of percentage of mature asci and this clinical measurement of percentage of spores trapped during rains, only. However, in several years, such as 1991, 1995 and 1996, successful captures during rains have lagged considerably behind the mature ascus model. The years 1993 and 1997 were noteworthy for heavy spore amounts trapped during rains early in the season. In 1994 captures began in agreement with the mature ascus model but lagged in the middle of the season with a very significant spore shower occurring later. In two of the eight years (1995 and 1996) successful initial captures lagged considerably behind the mature ascus model but were characterized by larger than expected later season spore captures. The year 1997 was the longest season of captures. Significant captures (11% of seasonal total) were made at 1/4 inch budswell to 3/8 inch greentip (2/16) and continued as late as 1418C degree days later (3% of seasonal total on 6/3) (Figures 1, 2).

Except when significant spore capture was not accompanied by a Mills Table wetting event sufficient to result in infections, disease observations in the orchards during these years suggested these capture differences were real happenings in the sense of the disease cycle. However, any ascospores not discharged because of lack of rainfall or discharged during dew periods escaped detection in these clinical studies and could be an unknown factor contributing to the perceived lags in capture compared with spore maturation predicted by the mature ascus model. Spotts and Cervantes suggest about 50% of ascospores may be released during dew periods at Hood River, for example.

FIGURE 1

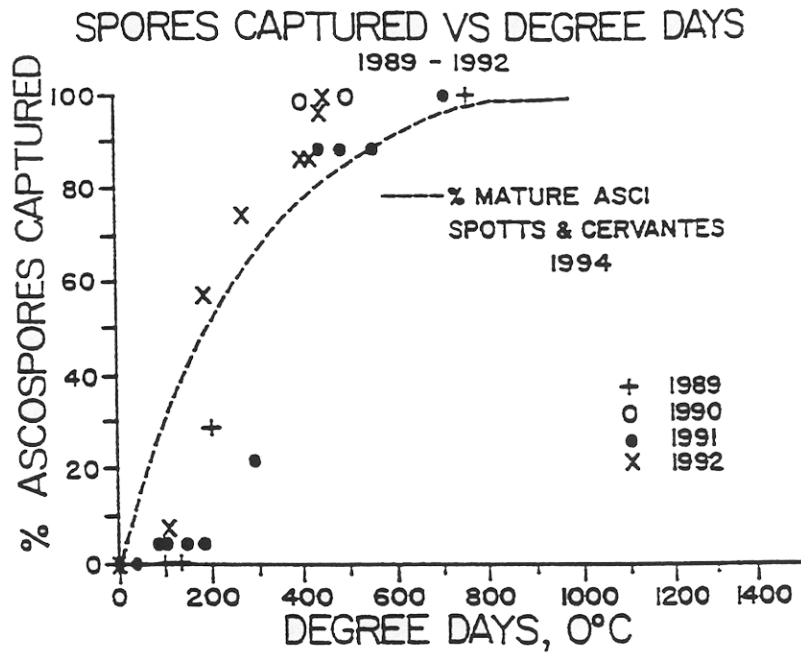


FIGURE 2

