

I. Deciduous Orchard Diseases

a. Biology

1. Brown rot (*Monilinia fructicola*); Apricot

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Latent Infection of Apricot Fruit by *Monilinia fructicola*: Fifty apricots were harvested every two weeks from four trees cv. Blenheim on the Research Station orchard beginning on May 22 with green fruit and ending on July 30, 1991 with yellow ripe fruit. Fruit were surface-sterilized with 0.5% NaOCl for 2-min and rinsed with sterile-distilled water (SDW), placed in a glass dish in a plastic crisper containing enough water to keep the relative humidity near 100% and incubated at 20°C for two weeks. In 1992 the experiment was changed slightly. Twenty-five fruit were harvested from each tree for a total of 100 fruit per sampling date. The fruit were surface-sterilized and incubated as above. The first sample of green fruit was taken on May 8 and the final sample of mature fruit was taken on July 23. Infection by *M. fructicola* was evaluated by counting the number of fruit with sporulating lesions. Results of these experiments showed that apricots could be infected early in the growing season as was found in 1991 for apricots picked on May 22 when completely green and immature (Table 1). However in 1992 infection was not detected until July 15 when the fruit was turning yellow. Furthermore, many of the sampled fruit were near mummies which had overwintered on the trees and had not been sprayed with fungicides. As a result of these findings the method of detecting *M. fructicola* came into question.

In 1993, fruit was sampled on a weekly basis from cv. Skaha and cv. Blenheim trees. The Skaha variety had experienced severe blossom blight and it was of interest to determine if this would influence the number of latent infections. The method used for detecting *M. fructicola* was taken from Northover and Cerkauskas (unpublished). Fruit was surface-sterilized by dipping for 10 sec in 70% ethanol, followed by 4-min in 0.5% NaOCl and 0.001% Triton X 155 rinsed in SDW and dipped in 6g/L paraquat (Gramoxone, 200g paraquat/L). Fruit in glass dishes within humid plastic crispers were incubated in a growth chamber with continuous light at 25°C. Brown rot was first detected on green Skaha apricots on June 3 and on green Blenheims on June 11 (Table 2). A much higher percentage of the green Skaha fruit were infected than the Blenheims indicating that inoculum was coming from blighted blossoms. Peak infection of green fruit in the week of June 24 corresponded to a heavy rainfall on June 21.

Table 1. Percent Blenheim apricots infected with *M. fructicola* after incubation at 20°C for two weeks

| 1991 | | 1992 | |
|--------------|------------------------|--------------|------------------------|
| Date Sampled | % <i>M. fructicola</i> | Date Sampled | % <i>M. fructicola</i> |
| May 22 | 14.0 | May 8 | 0.0±0.0 |
| June 3 | 4.0 | May 20 | 0.0±0.0 |
| June 17 | 0.0 | June 3 | 0.0±0.0 |
| July 2 | 0.0 | June 17 | 0.0±0.0 |
| July 18 | 2.0 | June 30 | 0.0±0.0 |
| ----- | --- | July 15 | 3.0±3.8 |
| July 30 | 14.0 | July 23 | 13.0±7.6 |

Table 2. Percent Blenheim or Skaha apricots infected in 1993 with *M. fructicola* after incubation at 25°C for two weeks

| Date Sampled | cv. Blenheim | cv. Skaha |
|--------------|--------------|-----------|
| May 28 | 0.0±0.0 | 0.0±0.0 |
| June 3 | 0.0±0.0 | 10.0±8.2 |
| June 11 | 2.5±5.0 | 27.5±26.3 |
| June 18 | 5.0±10.0 | 15.0±12.9 |
| June 24 | 17.5±23.6 | 50.0±11.5 |
| July 2 | 10.0±0.0 | 40.0±18.2 |
| July 9 | 3.3±5.8 | 52.5±28.7 |
| July 23 | 0.0±0.0 | 7.5±9.6 |
| July 27 | 17.5±15.0 | ----- |
| August 4 | 30.0±21.6 | ----- |