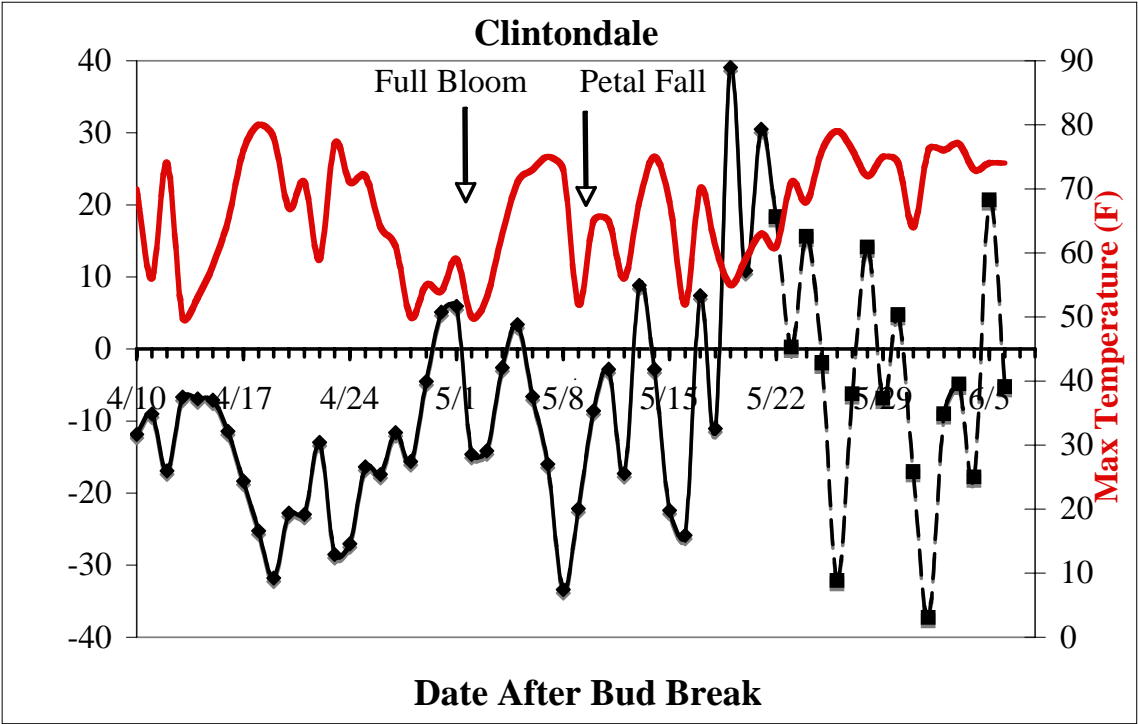
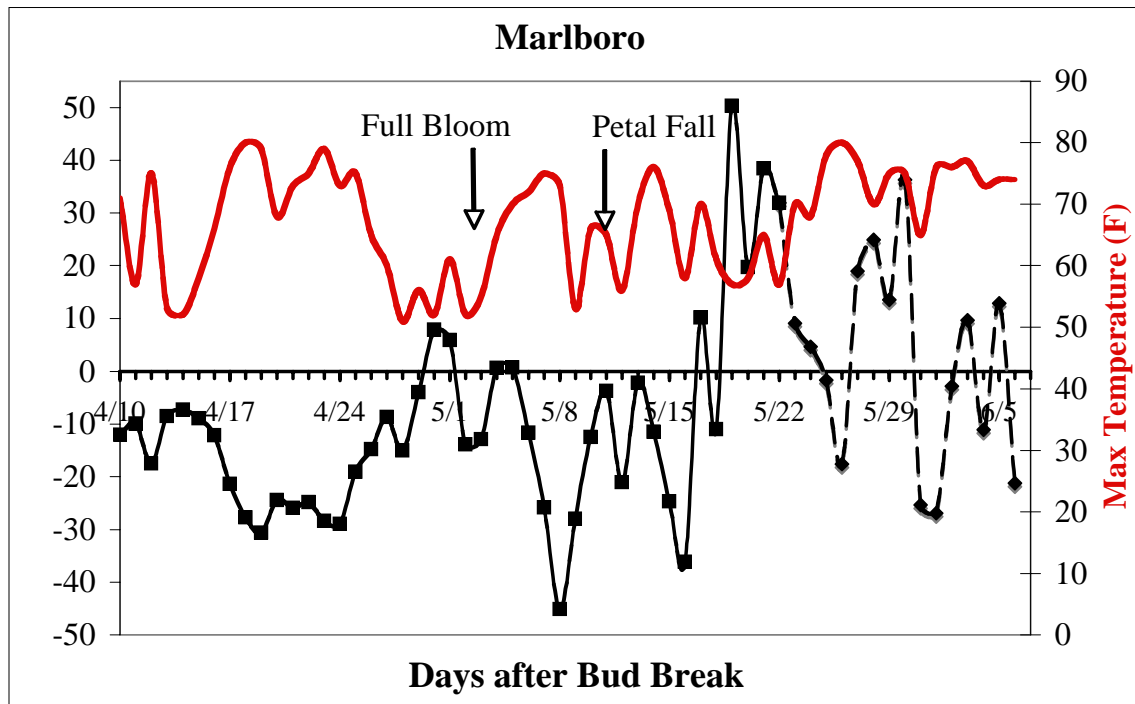


Hudson Valley Region Thinning Notes from Dr. Terence Robinson, Cornell Geneva

**Carbohydrate Supply Curves for 2008
as of 5-23-08**



Carbohydrate Supply Curves for 2008 as of 5-23-08



In the early part of the season the carbohydrate supply curves for apples for the lower Hudson Valley showed a mostly negative trend (deficit). As is typically the case, the first few weeks after bud break show a significant deficit (negative numbers) in carbohydrate supply since the trees are growing and producing leaves and shoots without any new production of carbohydrates from new leaves until about 1/2" green. During this period, stored carbohydrates from the previous year are used to supply the energy for this initial growth. Generally the trees continue in a deficit (relying in stored carbohydrates supplemented by some new production) until bloom.

Near bloom the new leaf area is often sufficient to supply the new growth when conditions are favorable. However when conditions are not favorable there can still be a deficit, which is supplied by reserves until about petal fall.

The hot weather just before bloom from April 17-April 25, 2008 caused a significant carbohydrate deficit. It is not clear if this significant early carbohydrate deficit had a negative effect on subsequent fruit set since we do not yet understand the impact of greater than normal deficits before bloom.

Following the hot weather, just before bloom and during early bloom the trees developed enough leaf area and the environmental conditions were optimum so that the trees produced enough carbohydrate to meet demand on 3 days. However, for the rest of the

days during bloom there was a moderate carbohydrate shortage and on 3 days near the end of bloom (May 7, 8 & 9) there was a severe shortage of carbohydrate, which was caused by cloudy conditions.

Since petal fall the trees have continued to have a mild carbohydrate deficit for 4 days and 3 days of a severe carbohydrate deficit. In the last 5 days the carbohydrate status has improved and is positive because the cool temperatures have reduced fruit demand for carbohydrates.

Weather projections for the next 15 days indicate that carbohydrate status will decline during the weekend due to warm temperatures and moderately cloudy weather which will be followed by several days of positive carbohydrate status.

We interpret this year's data as follows:

1. The severe carbohydrate deficit in late bloom coupled with the severe deficit in the for 2 days soon after petal fall likely caused the trees to be sensitive to petal fall applications of chemical thinners.
2. The improved carbohydrate status in the last 5 days indicates that chemical thinners applied during the last few days will have a moderate response.
3. The upcoming period from Saturday-Monday (May 24-26) is forecasted to have a significant carbohydrate deficit and will be the period for best response from chemical thinners.
4. The period from Tuesday-Thursday (May 27-29) is forecasted to have a positive carbohydrate status and will give normal thinning.

Our recommendation is to spray hard to thin varieties which have a strong set on Saturday-Monday. Spray easier to thin varieties or blocks with a poor set on Tuesday-Thursday. Make sure you find a window of good spray conditions to obtain good coverage.