

Honeycrisp Orchard Trials



Philip Schwallier

District Horticulture Marketing Agent
Clarksville Horticultural Experiment Station, Clarksville, Michigan

Presented at the 44th Annual IDFTA Conference, February 17-21, 2001, Grand Rapids, Michigan.

Honeycrisp is a great new apple variety with many outstanding qualities and a number of serious problems. I have been working with Honeycrisp maturity, ReTain use on Honeycrisp and postharvest storage of Honeycrisp.

Honeycrisp apples mature over a wide time frame in early and mid-September for the Grand Rapids, Michigan, area. To monitor apple maturity development, samples were collected at two sites from the western central Michigan area. The first site included samples from the North East 183 (NE-183) variety trial planted in 1995 at the Clarksville Horticultural Experiment Station. The second site is a commercial farm on Peach Ridge located in Sparta, Michigan. Samples were taken from these two sites during 1998, 1999 and 2000.

Honeycrisp has considerable variation in maturity in our trials for 1998-2000. That is, some fruits ripen early and some fruits ripen 2 weeks later right on the same tree. Perhaps the variation of maturity will

improve as the trees grow older. The fruits were sampled twice per week. Honeycrisp ripens with Gala and McIntosh in the Grand Rapids area. In the Grand Rapids area, some years the fruit develops very attractive red color when it is at the mature stage. Most years, however, fruit will have difficulty producing attractive red color when the fruits are mature. Areas north of Grand Rapids will be able to produce excellent red color when the fruit is mature every year. Honeycrisp will require multiple picks to harvest quality fruit. I estimate three or perhaps four color picking harvests will be needed.

Honeycrisp matures in mid-September in Grand Rapids. Figures 1-4 illustrate that the optimum harvest date for Honeycrisp in 1999 and 2000 was September 9-11. In 1999 and 2000, apples matured about 1 week ahead of normal. Normal harvest date should be mid-September. This harvest date is for the second picking when approximately 50% of the crop is mature.

*Decay or rot
and soft scald
are two
major postharvest
problems for
Honeycrisp.*

FIGURE 1

1999 and 2000 Honeycrisp starch index data and optimum harvest date.

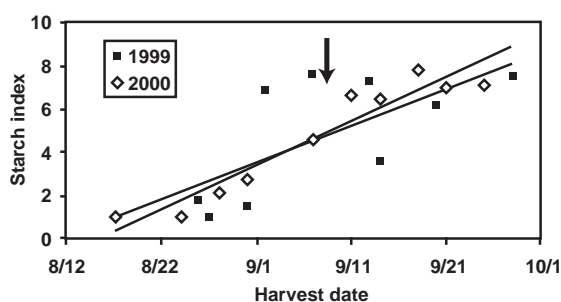
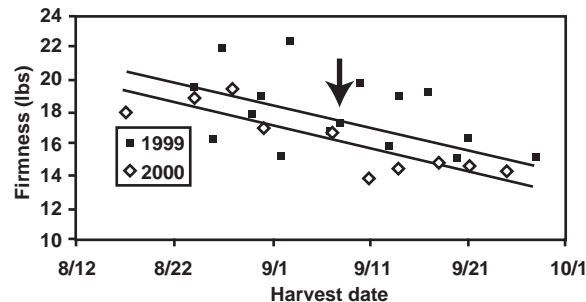


FIGURE 2

1999 and 2000 Honeycrisp firmness data and optimum harvest date.



Honeycrisp is a low ethylene producer. Internal ethylene varies considerably from sample to sample. Significant ethylene develops late in the harvest period (Fig. 5). The starch index measured in 1999 (Fig. 5) developed gradually in a linear form. Re-Tain was applied to Honeycrisp in the 2000

trials. We found Honeycrisp to be moderately sensitive to Re-Tain applications. Re-Tain was applied at full rate of 50g/acre, 30 days before anticipated harvest. Re-Tain delayed maturity about 14 days. Re-Tain-treated fruit never produced any considerable internal ethylene throughout the ma-

turity harvest window as compared to the controls (Fig. 6). The firmness, red color and starch index all were delayed about 14 days (Figs. 7-9).

Honeycrisp has some serious storage problems. Decay or rot and soft scald are two major postharvest problems for

FIGURE 3

1999 and 2000 Honeycrisp internal ethylene data and optimum harvest date.

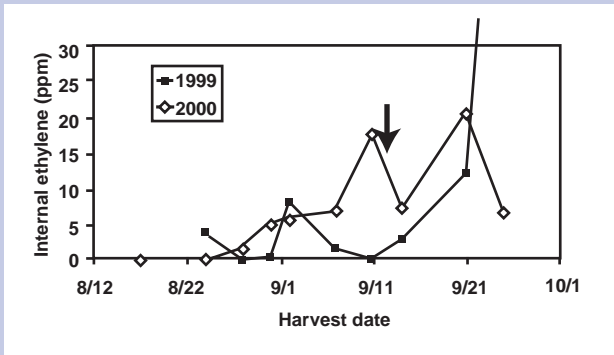


FIGURE 6

2000 Honeycrisp internal ethylene data from fruit treated with Re-Tain and control fruit.

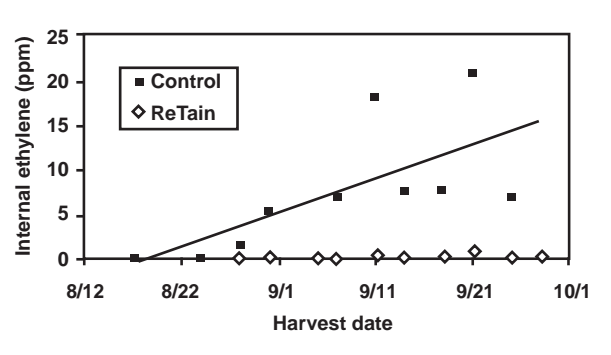


FIGURE 4

1999 and 2000 Honeycrisp red color development data and optimum harvest date.

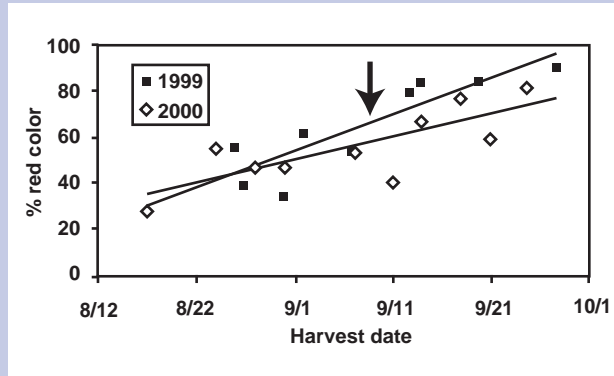


FIGURE 7

2000 Honeycrisp starch index of fruit treated with Re-Tain and control fruit.

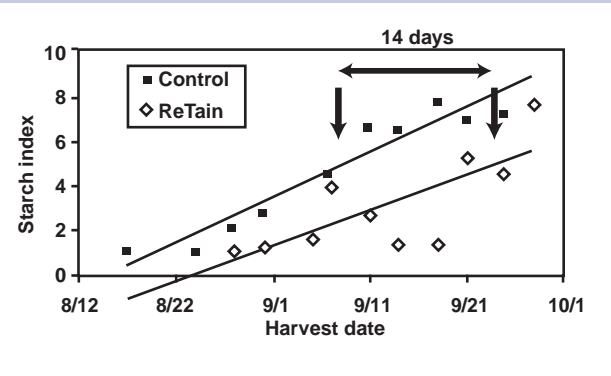


FIGURE 5

1999 Honeycrisp internal ethylene and starch index data.

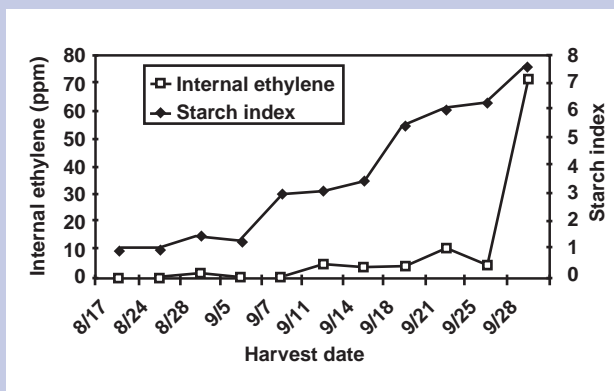
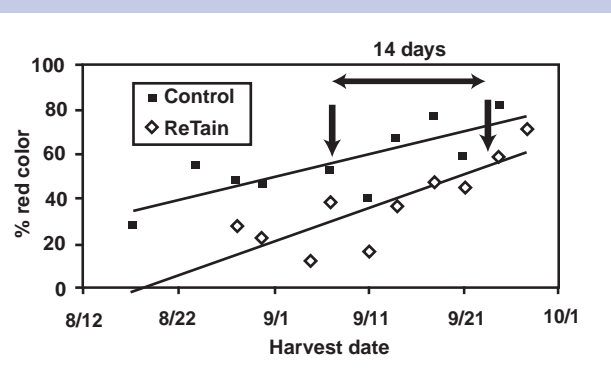


FIGURE 8

2000 Honeycrisp percent red color of fruit treated with Re-Tain and control fruit.



Honeycrisp. When apples were harvested late in the maturity window, a dramatic increase in decay and soft scald occurred in storage as is shown in Figure 10 from 1999 data. Cold storage of Honeycrisp at 3°C

(38°F) reduces scald. CA storage at 1.5% O₂ and 3% CO₂ damages the fruit. Honeycrisp is very sensitive to shifts in atmospheres. Fruits that were harvested late developed an alcoholic or winey flavor.

Honeycrisp has some good qualities. Honeycrisp ripens in mid-September in Grand Rapids. Postharvest decay and soft scald are major problems. Honeycrisp is moderately sensitive for ReTain.

FIGURE 9

2000 Honeycrisp firmness of fruit treated with ReTain and control fruit.

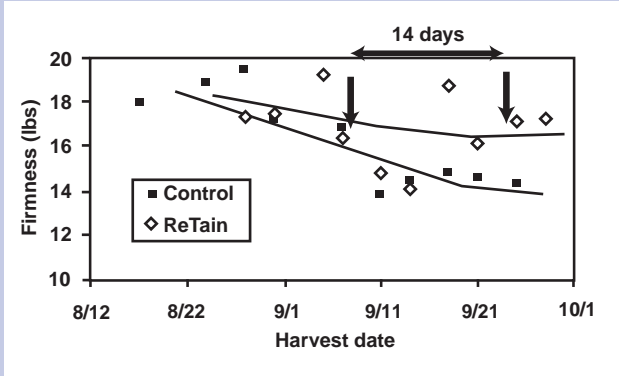


FIGURE 10

1999 Honeycrisp decay and soft scald data.

