

vested earlier than other McIntosh strains or be picked on the "normal" harvest dates. They report that the fruit stores well in both regular and CA storage but believe more information is needed concerning the harvest and storage of the strain.

We at the University of Massachusetts as yet have little information about the Marshall strain. We think it has real potential for CA storage because of early coloring; that it will increase pack-out because of more red color; and that planting of the strain will make the harvest season more orderly because the number of days that McIntosh can be harvested will be extended.

Our limited data show that at the Horticultural Research Center, Belchertown, MA, on September 6, 1978, 72% of the Marshall McIntosh fruit were Extra Fancy for color. On this date only 40% of the Cornell strain of McIntosh was Extra Fancy. On Au-

gust 30, 1979, 75% of the Marshall were Extra Fancy in comparison to 53% of the Cornell fruit. Lastly, on September 4, 1980, 53% of the Marshall McIntosh were Extra Fancy and only 16% of the Cornell McIntosh fruit were of this grade for color. We also believe that the red color is more intense on Marshall than on other strains of McIntosh. Our data indicated that the maturity of Cornell and Marshall strains was similar as indicated by flesh firmness and sugar content of the fruit. Thus it appears that Marshall McIntosh is an early coloring strain and not both an early coloring and early maturing strain.

In 1979 we established a planting in which Marshall McIntosh is being compared with 6 other strains of the variety. Hopefully, we will obtain more reliable and complete information on the maturity of these strains and on their keepability in regular and CA storage.

Performance of the Apple Cultivar Prima in Ireland

MICHAEL J. HENNERTY¹

Apple scab (*Venturia inaequalis* [Cke.] Wint.) is a major problem for apple growers in Ireland due to a mild moist climate and widespread distribution of infection sources. There is considerable interest in apple scab resistant cultivars for both commercial and home garden growers. Prima is the first modern scab resistant cultivar to be evaluated for the Irish market.

Budwood of Prima was obtained from Dr. D. F. Dayton, University of Illinois (1) and worked on virus free

M26 rootstocks. The cultivar was included in trials planted in 1973 at the Horticulture Field Station, University College in Co. Dublin and at the Pomology Research Centre, The Agricultural Institute in Co. Waterford. These locations are about 125 miles apart, in two of the main apple growing regions. The spindle-bush training system was used throughout (2).

Tree growth was vigorous and upright in habit and cropping was considered regular at both locations. Full

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bloom occurred between April 23 and May 18 over the 10-year evaluation period, with a mean bloom date of May 3 at Waterford and May 5 at Dublin. This is 8.5 days earlier than the mean Golden Delicious full bloom date.

Harvesting took place between September 16 and October 4, making it some 3-4 weeks earlier than Golden Delicious. At both sites it was noted that exposed fruits of Prima separated much earlier than shaded fruits. At Dublin it was estimated that 20% of exposed fruits would have fallen before shaded fruits could be readily detached. Mean annual yields were similar at both locations over the 8-crops harvested — 21.34 kg/tree at Waterford and 21.96 kg/tree at Dublin, with maximum yields of 33.75 kg/tree (3rd crop) and 31.0 kg/tree (6th crop) respectively. These figures are equivalent to less than half the yield attainable with the cultivar Golden Delicious. Fruit size decreased from approximately 150-160 g/fruit in early crops to 110-120 g/fruit in later ones. Fruit color was satisfactory on exposed fruits — a red flush over a yellow ground color, but on shaded fruits the ground color remained an unattractive green, even after storage.

Storage life was short, normally 4-6 weeks, with a maximum of 12 weeks at Dublin in 1980. At the Waterford site, Prima was one of only two cultivars, from a group of 60 cultivars on trial, to consistently develop internal corking symptoms associated with low boron levels.

The immunity of Prima to apple scab infection remained absolute at both sites even on completely unsprayed plots. Trees were also noted to be fairly resistant to apple canker (*Nectria galligena* Bres.) and to have considerable resistance to powdery mildew (*Podosphaera leucotricha* [Ell. & Ev.] Salm.).

The cultivar Prima is not considered suitable for commercial adoption in Ireland because of low yields, difficulties with ground color development on shaded fruits and unsuitability for a once-over harvest. However it has considerable disease resistance properties and these could make it attractive as a home garden cultivar, since low usage of pesticides is becoming more important in this market than total yield, fruit color, or number of harvests.

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