

Disease Management of Scab-Resistant Cultivars

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While 'disease resistant cultivars' are immune to apple scab, they may be affected by other fungal diseases such as cedar apple rust, powdery mildew, and frog-eye leaf spot that affect the foliage and/or fruit. Apple growers need to know what diseases are potential problems on the cultivars; they also need information on how to effectively manage these diseases. The objective of this study was to determine the incidence of foliar and fruit diseases on scab-resistant trees treated with minimal fungicides compared to non-treated trees. The investigation was conducted in an orchard containing 8 scab-resistant cultivars and 2 scab-susceptible cultivars. Each cultivar represented an individual block containing 5-13 trees. Within each cultivar block, the treatments (fungicide treatment versus no fungicide treatment) were randomly assigned to the trees. In 1988 and 1989, the fungicide treat-

ment consisted of 6 applications of benomyl and mancozeb applied between the 'pink' phenological stage to approximately 2-3 weeks after petal fall. In 1990 and 1991, myclobutanil plus captan were applied at the pink and petal fall phenological stages. Each year, disease incidence was assessed on cluster and terminal foliage. In 1990 and 1991, fruit were also evaluated. The cultivars exhibited a range of susceptibility to cedar apple rust. On those cultivars that were less susceptible to cedar apple rust, a 'frog-eye leaf spot' was more prevalent. Fungicides did have a significant effect on incidence of cedar apple rust and leaf spotting. Percentages of non-treated fruit on which no disease symptoms or disorders were detected at harvest ranged from 52% on 'Nova Easygro' to 92% on 'Redfree' and 'Freedom' in 1990, and 50% on 'Freedom' to 99% on 'Liberty' in 1991.

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Super-Marketing and Tasting 'Liberty' Apples in Vermont

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Introduction

Demonstrated consumer acceptance of scab-resistant apples is a prerequisite for their commercial production. In fact, previous taste-testing studies have shown that 'Liberty,' a scab-resistant apple with high fruit quality, was judged better tasting than several standard commercial apples, including 'McIntosh,' 'Empire,' and 'Delicious.'

Methods

Our objective was to evaluate consumer acceptance of 'Liberty.' Graded extra-fancy and fancy packed 'Liberty' fruit were brought into four large supermarkets in the Burlington, VT and Plattsburgh, NY metropolitan areas for taste testing and marketing over a four week period in December, 1992. Shoppers were invited to taste one-

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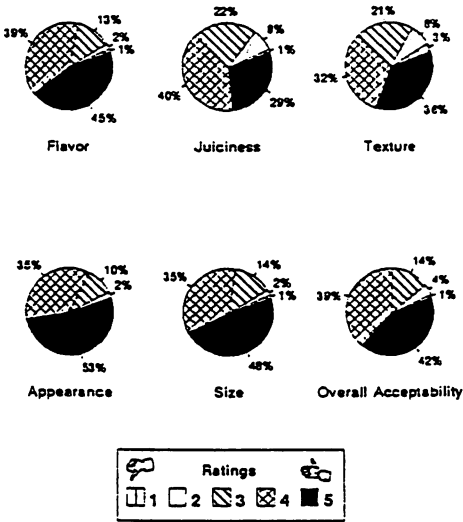


Figure 1. % Taste-testing responses, fruit quality.

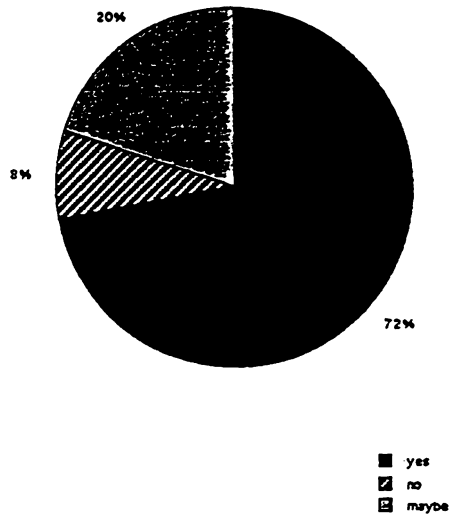


Figure 2. % Responses to "Would you purchase 'Liberty'?"

quarter slice of a 'Liberty' apple, and asked to evaluate the fruit's flavor, juiciness, texture, appearance, size, and overall acceptability. They were also asked if they would be willing to purchase 'Liberty' apples. Additionally, a total of 15 bushels of 'Liberty' fruit were individually labelled with small, oval, red, white, and blue 'Liberty' stickers, and shelved in the Produce Department, to be sold along with 'McIntosh,' 'Empire,' and 'Delicious,' for an additional indication of shopper acceptance.

Results

Over eight taste-testing days, a total of 372 shoppers tasted and evaluated 'Liberty' fruit. Tasters evaluated sensory characteristics on a scale from 1 to 5, with a score of 1 being unsatisfactory, whereas a score of 5 was very good (i.e., very tasty, very juicy, etc.). In general, the majority of tasters

said 'Liberty' had good or very good flavor, juiciness, texture, appearance, size, and overall acceptability, (indicated by a 4 or 5 rating, Figure 1). When shoppers were asked "Would you purchase 'Liberty'?", nearly three out of four responded "yes" (Figure 2). Supporting this response was the fact that Produce Managers reported good movement of 'Liberty' apples off their displays and into shoppers' carts.

Conclusions

Based on these results, 'Liberty' obviously has consumer appeal. Once the horticultural, pest management, and storage requirements of 'Liberty' are better defined, growers can more confidently plant 'Liberty'—thereby reaping the environmental, economic, and social benefits of incorporating scab-resistant apples in commercial orchards.