by an average of 64% using the DRAC 'Liberty,' 'Priscilla,' and 'Redfree,' compared to the standard varieties 'Jonathan,' 'Red Delicious,' and 'Golden Delicious' during a two-year test period from 1987-1988. An average 45% reduction in fungicide applications also was obtained during the same period on the scab-immune variety 'Prima' which is very susceptible to cedar-apple rust. DRAC offer fruit growers an opportunity to reduce production costs while protecting the environment.

Fruit Varieties Journal 48(1):47-47 1994

Non-Target Effect of a Fungicide Spray Program on Phytophagous and Predacious Mite Populations in a Scab Resistant Apple Orchard

KIRSTEN M. BOWER,* LORRAINE P. BERKETT, AND JOSEPH F. COSTANTE

Scab resistant cultivars can reduce the need for fungicides in apple production. However, management of powdery mildew, cedar apple rust and frog-eye leaf spot may require limited fungicide use. Since fungicides can have mite suppressive activity, it is important to determine the impact this reduction would have on mite populations. This study, conducted during 1988 and 1989, investigated the impact of a fungicide spray program (6 applications of benomyl and mancozeb versus no fungicide application) on phytophagous and predacious mite populations in a Vermont apple orchard. Levels of mite infestation were determined on 4 scab resistant cultivars and 2 scab susceptible cultivars by counting motile phytophagous and predacious mites on leaf samples collected on 16 dates in each growing season. Data were evaluated separately for each cultivar, on each assessment date and over time, using an analysis of variance with a completely randomized design. Within each cultivar there were 3-5 single tree replicates per treatment. The impact of the fungicide spray program on predacious mite populations were clearly evident in both years. Approximately four weeks after the last fungicide application, significantly higher predacious mite populations were detected on non-treated trees. Out of the 56 samples for all cultivars in which there was a significant difference in predacious mites, on 54 of those incidences (96.4%), the mean number of predacious mites was significantly higher on non-fungicide treated trees. In 1988, few significant differences in phytophagous mite populations within cultivars were detected. However, incidences where there were significant differences in phytophagous mite populations increased in 1989; in the majority of the incidences, populations were significantly higher on fungicide treated trees. This study shows that a fungicide spray program consisting of 6 applications can impact the mite populations on apple trees and documents the potential benefit of eliminating fungicide applications.

*Department of Plant and Soil Science, University of Vermont, Burlington, VT 05405.