

Compositional analysis of correlation of weather parameters with russet of 'Golden Delicious' apples

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The development of russet on 'Golden Delicious' apples is a problem of concern to growers of fresh market apples. Russetting is considered to be due to untimely divisions of cells in the epidermis of the fruit initiated by environmental or cultural conditions. The etiology of nonculturally induced russet is intimately associated with the presence of water on the surface of the fruit. The initiation of russet clearly occurs during the first 30 days of fruit development, and is frequently visible at the end of that period. Creasy (1980) concluded that high relative humidity was positively correlated with the degree of incidence of russetting, especially 16-25 days after full bloom of apple trees. This study was conducted to establish the correlation between weather parameters and the incidence of russetting on apples.

We have recorded the incidence rates of russetting on 'Golden Delicious' grown in 'Mas Badia' field station (La Tallada, Girona), from 1986 to 2002. Each year a sample of apples was picked at random. Each fruit was evaluated for the percent of surface area covered with russet which was categorized into five ordinal categories. In this way we have the percentage of each russetting-category for each year. Simultaneously we have the annual meteorological data recorded hourly at the meteorological station of 'Mas Badia'. From this information we will use CODA to analyze the correlation between the annual percentages of russetting in apples and the humidity and rainfall recorded during the 30 days after full bloom of apple trees in the corresponding year.

References

Creasy, L. L. (1980). The Correlation of Weather Parameters with Russet of 'Golden Delicious' Apples under Orchard Conditions. *J. Amer. Soc. for Horticultural Science*, 105(5), p. 735–8.