

Response of Some New Apple Varieties to Natural Infection with Apple Scab, under Conditions of Excessive Rainfalls

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SUMMARY

Apple scab, caused by the fungus *Venturia inaequalis*, is one of the major diseases in Transylvania apple orchards. Prevention and control of this disease is often very difficult, especially due to increasing resistance of pathogens to chemicals used in treatments (Sestras, 2003; Mitre et al., 2009). In Cluj-Napoca condition, Romania, spring of 2010 was a very rainy one in the rain level as well as by number of consecutive days with rain. Over the high humidity environment was registered favourable temperature levels for infections with scab. The response to natural infection with scab of ten varieties of apples ('Florina', 'Jonagold', 'Jonica', 'Red Chief Delicious', 'Mutsu', 'Granny Smith', 'Golden Reinders', 'Gala', 'Topaz', 'Pinova') grown in superintensive culture system (3100 trees/ha), was studied. In this field, placed at UASVM Cluj-Napoca, there has been no chemical treatment or other measures against apple scab in 2010. The climatic conditions were determined by „Vantage Pro2” Integrated Sensor Suites includes temperature, humidity, wind and rain sensors. The amount of precipitation for the first decade of May was 30.2 l/m², second decade 60.4 l/m² and 68.2 l/m² in the third decade. The leaves humidity was between 80-95%. Attack Degree (AD%) oscillated strongly, depending on the climatic conditions and the genotype: 0.001% ('Topaz') and 30.56% ('Golden Reinders'), compared to 0.05% ('Florina', as control). Except 'Golden Reinders', the most susceptible to apple scab attack were 'Mutsu' (30.42%), 'Jonica' (27.03%). Only genetically resistant cultivars to apple scab attack ('Florina' and 'Topaz') did not presented symptoms. The study demonstrates that varieties without genetic resistance were very susceptible to apple scab attack, and technologies to combat apple scab must ensure coverage for treatments. It was enough that trees should not be treated only nine days, to settle on leaves up to 30.56 AD%. The pace of increase of the Attack Degree was 3% per day.

Keywords: apple varieties; scab infection; climatic conditions; rainfall effects

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