

Use of Balanced Fertilizers in Manure Pits to Control Canker Disease in Damavand Apple Orchards

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Canker caused by fungi *Botryosphaeria ribis* is a serious disease of apple trees having resulted substantial losses in recent years. The spread of this disease, being common in Damavand area is mostly caused by a continuous imbalance in the use of fertilizers and neglecting to apply micronutrients especially boron. The causative agent fungi, often attacks weak trees and scraggly branches, looking as if this problem is a secondary factor, being preceded by the weakening of the trees from poor nutrition, and therefore, proper fertilization to enhance the trees resistance to disease would be an effective means of controlling canker.

An experiment was carried out in 1999 in two pairs of orchards testing the effect of the manure pit application of 400 gr boric acid, 500gr zinc sulphate, one Kg iron sulphate, 250 gr copper sulphate, one Kg ammonium sulphate, 200 gr urea, one Kg potassium sulphate, and 250 gr manganese sulphate mixed with 10 Kg animal waste per tree. In early summer, 2000, a statistical observation was made on the levels of infestation intensity ranging from one to four, by counting the number of trees affected at such levels, the total number of affected trees per hectare, and the ratio of affected trees to the total number of trees; and the results compared for the two treated orchards with the two untreated ones. The results showed that in the two treated orchards especially with the use of boric acid and zinc sulphate, the health and growth rate of the trees were improved, and the disease incidence had been reduced by 50 percent. Likewise, the tree leaf and bark appearance and analysis indicated better nutrition and higher nutrient concentrations in those tissues obtained from the treated orchards.