

Prevention of vole damage in organic pomiculture

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Abstract

Vole damage is one of the most difficult phytosanitary problems to solve in organic pomiculture. A survey conducted in 2002 among German fruit growers showed that 90 % of the farms suffered from this damage. The water vole (*A. terrestris*) revealed to be the main pest in 80 % of the orchards. 61 % of the farmers announced a high interest in the development of new preventive and control methods. To stop immigration of voles into orchards a mechanical barrier system was developed and tested at two study sites in Baden-Wuerttemberg and Rhineland-Palatinate. At each location barrier systems with wire mesh (mesh size 10 mm) and polyolefine-foil were installed around two 0.7 ha study plots. Two unprotected plots were used as a control. The barriers were anchored 20 cm deep into the soil. 30 cm of the material protruded over the surface. Automatic gates were installed for the entrance of vehicles. 4 persons needed approximately one day to install a barrier around a plot with the size of 1 ha. Not only was the wire mesh cheaper than the foil, it was permeable for wind, water and small beneficial organisms. After installing the barrier systems, voles were removed from all plots. Snap trap boxes were ranged along the outside of the barriers to catch migrating voles. A total of 33 water voles and 1263 common voles (*M. arvalis*) were captured on both study sites from October 2002 to November 2003. During the study period a total of 5 water voles immigrated into the first control plot and 6 settled into the other plot. Four water voles entered two of the barrier protected plots by using fresh mole galleries. The other protected plots stayed free from water voles. Simultaneous to the field studies, trials in two enclosures were carried out in Muenster. The barriers kept all water voles outside the protected plots. The results showed a high efficacy of the developed barrier system.