

## Results of an experiment on storage diseases at the apple variety Pinova

Pfeiffer Barbara<sup>1</sup>

### Abstract

Tema-Extrakt, a yeast preparation, FZB 24 (*Bacillus subtilis*) and a malt extract were proofed on their suitability for control of storage diseases in autumn 2000 in an organic orchard at Lake Konstanz. The preparations were sprayed three times before harvest on the apple variety 'Pinova'. In December 2000, February 2001 and at the end of March 2001 the decay through *Gloeosporium* was evaluated. At the end of March in the control only 12 % of the fruits were without or with only very weak symptoms. The best treatment were malt-extract (23%) and *Bacillus subtilis* (24 % in the lowest classes of disease). But the efficiency is too weak to advise this preparations for organic fruit growers. Attention should be payed in the orchards on the kind of growing of the trees, how long it lasts, until the trees drie up, and especially on the sources of infections on the wood.

### Keywords

Apple, *Gloeosporium spp.*, *Bacillus subtilis*, *Equisetum*, malt-extract, yeast

### Basic information about *Gloeosporium*, situation at Lake Konstanz

During the storage-period in winter 1999/2000 organic apple growers at the Lake Konstanz suffered heavy losses through *Gloeosporium spp.*, especially at the variety Pinova. In the past experiments on storage diseases in Weinsberg were done in 1989, 1992 and 1995. There the loss in the control had not been very high because of the young age of the trees.

Round Lake Konstanz both species of *Gloeosporium* (*G. alba* and *G. perennans*) can be watched. On the fruits appear round light or dark brown rotting parts. At high humidity of the air grey or yellow or light red spore cumuli can be seen. The infection itself can be set very early during the development of the apples: The fungus penetrates through wounds or lenticels, but the symptoms appear very late on storage, when the fruits reach a special stage of ripening.

The overwintering is possible on branches (as mycelium), dieing parts like on rests of apples in the trees (also fallen fruits on ground), stigmata of fallen leaves, wounds from cutting, on fallen leaves and on other host plants. *Gloeosporium malicorticis* causes damages on the bark, too, in that case copper is not efficient. In the past different connections were found between the colour or the constitution of the fruits and their susceptibility for *Gloeosporium*: Content of the sum of phenols (HULME, EDNEY 1960), benzoic acid (NOBLE, DRYSDALE 1983), Ca-nutrition (VERHOEFF 1974). The position within the tree seems to play a role, too (SCHULTE 1997).

<sup>1</sup> LVWO Weinsberg, Traubenplatz 5, D-74189 Weinsberg, Germany