

Fruit loss reduction of immune cultivars to apple scab using bacteria *Bacillus amyloliquefaciens* in Belarus

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One of the main ways to produce organic horticultural products is the breeding of immune to certain diseases cultivars. However, it does not guarantee full protection for them from other diseases, for example, storage disorders.

During the 2013–2015 years at the Institute for Fruit Growing of the National Academy of Sciences of Belarus the influence of bacterium *Bacillus amyloliquefaciens* on decreasing of diseases of fruits of apple cultivars ‘Darunak’, ‘Imant’ and ‘Nadzejny’ of Belarusian breeding in pre-harvest, storage and shelf life periods were studied. These cultivars contain gene of resistance to scab (*Rvi6*) in their genome.

It is established that losses of fruits from rotting in the pre-harvest period under the triple treatment of apple trees with *Bacillus amyloliquefaciens* were 6.1 %, 10.4 % and 25.4 % respectively for cultivars ‘Darunak’, ‘Imant’ and ‘Nadzejny’ against 11.5 %, 10.5 % and 34.2 % in untreated variants (control).

After storage of selected sound fruits at harvest term for 180 days at a temperature of 0 ± 1 °C and a relative air humidity of 90–92 % losses of fruits amounted from 11.3 % for cultivar ‘Darunak’ in treated variant (39.6 % in control variant) till 18.0% for cultivar ‘Imant’ (23.3 % in control) and 7.7 % for cultivar ‘Nadzejny’ (28.0% in control).

A similar pattern is marked during shelf life period of fruits. After 14 days of storage at a temperature of +18 °C losses of fruits in treated variants with *Bacillus amyloliquefaciens* were at 2.0 %, 7.9 % and 10.0 % lower than in untreated variants respectively for cultivar ‘Darunak’, ‘Imant’ and ‘Nadzejny’.

Thus, the use of biological agent *Bacillus amyloliquefaciens* allows increasing the output of marketable fruits on the stages of harvesting, storage and bringing products to the consumer.

Keywords: biological control, diseases, harvest, *Malus ×domestica*, shelf life, storage, treatment