

Causes of fruit rot in cherry

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It has been established that after fruit cracking, the main causal agents of their decay are early brown rot – *Monilinia laxa*, late brown rot – *Monilinia fructigena*, grey mould – *Botrytis cinerea*, Alternaria fruit rot – *Alternaria alternata*. Minor damage is also observed from Rhizopus rot – *Rhizopus stolonifer* and bitter rot – *Glomerella cingulata*.

Alternaria fruit rot – *Alternaria alternata*

Alternaria fruit rot develops on fruits that have been injured by pests or cracked after rainfall. Initially, rounded brown spots appear on the fruits, which are very similar to those of brown rot, but differ from them by the rotted dry tissue, which is covered with an olive-black mycelium of the fungus. The decayed part is usually sunken. Very often, unfertilized ovaries are attacked by the fungus.

Grey mould – *Botrytis cinerea*

On infected fruits a light brown watery spot appears, which becomes covered with a grey mould. Grey mould is most often observed on injured fruits.

To reduce losses from cracking caused by rainfall during ripening, and thereby indirectly reduce fruit rots, the following is recommended: planting resistant or slightly susceptible to cracking cultivars; spraying with CaCl₂, RainGard, SureSeal, covering of the trees.

Planting resistant or slightly susceptible cultivars

It is very important in regions with frequent rainfall during fruit ripening to plant resistant or slightly susceptible to cracking cultivars. In a number of publications from various European countries, the cultivars Lapins, Regina, Sam, Germersdorfer, Merton Marvel, Castor, Kordia are indicated as slightly susceptible to cracking. For some cultivars there are contradictory data obtained in different countries and growing conditions. Studies carried out at the Institute of Agriculture, Kyustendil have also established that the cultivars grown in Bulgaria have different sensitivity to cracking. From the cultivars studied years ago, the one with the best resistance to cracking among the early-ripening cultivars is Ranna Cherna Edra, among the mid-ripening – Sue, Merton Premier, Hebros and Pobeda, and among the late-ripening – Somerset.

Spraying with CaCl₂

There are data from various countries where cracking is a problem, showing that spraying with CaCl₂ reduces the percentage of cracked fruits. It is generally recommended to carry out three sprays with 0.5% CaCl₂ during the fruit ripening period.

Foliar fertilizers containing calcium are also recommended – Vuxal Calcium – 500–600 millilitres per decare, applied with 150 litres of spray solution. Three to four treatments are carried out, the first being performed about 8 weeks before harvest. According to the manufacturer of Vuxal Calcium, this foliar fertilizer is compatible with the pesticides commonly used in cherry.

Spraying with Bordeaux mixture

It was established many years ago that Bordeaux mixture reduces fruit cracking, but it has not been determined to which of the two elements – calcium or copper – this positive effect is due. A disadvantage of this spraying is the contamination of the fruits, which according to some specialists can be removed by washing them.

Spraying with gibberellic acid

In a number of publications one or two sprays with gibberellic acid are recommended, but the results from its application are contradictory. In some trials it reduces cracking, but in others, conducted in the state of Oregon, USA and in East Malling, England, a stronger fruit cracking was established after spraying with gibberellic acid compared to the untreated control.

Spraying with RainGard

This product contains fatty acids, plant esters, emulsifiers and water. When sprayed, it forms a film on the fruit skin, which serves as a barrier to the penetration of rainwater and thus prevents cracking. Four to five sprays are recommended, the first being applied at fruit “straw colour” or when they turn straw-yellow, and the remaining ones at 7–10 day intervals. It has been established that this product reduces cracking by 50%.

Spraying with SureSeal

A copolymer of stearic acid, cellulose and calcium, which forms a biofilm on cherry fruits and protects them from cracking. A double spraying is recommended – 4 and 2 weeks before harvest.

Covering the trees

The trees are covered by constructing an appropriate framework on which a special polyethylene film is placed, protecting the fruits from getting wet. This practice is widely used in the countries of Northern Europe, America and Australia. Usually the covering is applied 3–4 weeks before harvest, while some authors suggest that the covering should be applied only before rain. This method of protection is effective, but very expensive, and it has also been established that it delays fruit ripening by 3 to 5 days.