

Characteristics of organic sweet cherry rootstocks

Problem

Traditional vigorous seedling rootstocks like Mazzard F 12/1 (*Prunus avium* L.) and Mahaleb (*P. mahaleb* L.) typically bear the first crop between the fourth and sixth year and achieve full production between the eighth and twelfth year, leading to delayed returns of investments.

Solution

Growing sweet cherry cultivars on the next generations of semi-dwarf and dwarf cherry rootstocks will allow the orchard to produce fruits earlier than using traditional rootstocks.

Benefits

Regular and precocious yields of high market quality fruit for fresh consumption. Good flavour and significantly higher incomes from newly established organic cherry orchards.

Applicability box

Theme

Crop production, Temperate fruits

Keywords

Dwarf cherry rootstock, fruit quality, precocious yield, flavour, market quality

Context

Sweet cherry production areas, temperate regions

Application time

Orchard establishment

Practical recommendations

Table 1: Characteristics of traditional and size-controlling cherry rootstocks widely used in organic orchards

Rootstock	Tree size (in %)	Precocity	Cultivar compatibility	Root suckers	Suitable soil	Anchorage
Mazzard F 12/1	100	No	Good	Low	For wet and heavy soils	Good
Mahaleb	90	Slight	Fair to good	No	No for heavy soils with high water	Good
Maxma 14	90	Yes	Good	No	Sensitive to drought	Good
Colt	90	No	Fair to good	No	Heavy soils	Good
Gisela 5	50	Yes	Good	No	Heavy soils	Fair to good
Gisela 6	60 – 70	Yes	Good	No	Heavy soils	Fair
Gisela 12	70 – 80	Yes	Good	No	Wide range	Good
Krymsk 5	85 – 90	Yes	Limited data	Moderate	Wide range	Good
Krymsk 6	65 – 70	Yes	Limited data	Moderate	Heavy soils	Good

- Dwarfing and semi-dwarfing rootstocks reduce tree vigour, induce precocity, enhance disease resistance and enable growers to harvest premium-quality fruit from high-density orchards (Picture 1).
- Dwarfing and semi-dwarfing rootstocks can achieve full production in 5 - 6 years (Picture 2) vs 8 - 12 years of traditional rootstocks (Mazzard F 12/1, Mahaleb).
- The size of trees depends on soil fertility, selected cultivar, irrigation, location and pruning.
- Support the trees using Gisela 6 and Gisela 5 rootstock with stakes to avoid tilting due to weak anchorage (Picture 3).
- Self-fertile cherry cultivars combined with dwarfing rootstocks give more regular yields and improve financial flow in newly established orchards.



Picture 1: Breeding of rootstocks focuses on reduction of tree size, precocious crop and cultivar compatibility (cultivar Tamara). Photo: R. Vávra (VSUO)



Picture 2: Trees on dwarfing rootstocks bear fruits from the third year. Photo: R. Vávra (VSUO)



Picture 3: Trees on rootstocks Gisela 5 require stake support. Photo: R. Vávra (VSUO)

- Avoid the most dwarfing rootstocks (Gisela 5 and Krymsk 6) in shallow and low fertile soils.
- Check with advisors that the size-controlling rootstocks chosen for new plantings fit to the desired tree density, soil and climatic conditions.
- Size-controlling rootstocks allow pedestrian orchards with easier and safer management and a more productive working environment.

Further information

Further reading:

- Long, L.E., Kaiser, C. 2010. Sweet cherry rootstocks. A Pacific Northwest Extension Publication PNW619, 9: 1–8.

Weblinks:

1. [Webpage of Gregory Lang](#), Professor at the Department of Horticulture of Michigan State University
2. [Information on Gisela® cherry rootstocks](#)
3. [Sweet cherry rootstock traits](#) on Good Fruit Grower
4. Check the [Organic Farm Knowledge platform](#) for more practical recommendations

About this practice abstract

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