PRACTICE ABSTRACT

Use interstems to improve apricot tree health

Problem

Part of apricot trees (*Prunus armeniaca*) suffer from die-back or as a consequence of sudden wilt may die unexpectedly. Apoplexy is the terminal syndrome of a complex of different diseases. It is especially important in central and northern European growing areas. In these countries, 20-60% of apricot trees are killed in 8 to 10 year old orchards.

Solution

Using interstems can help improve apricot tree health and prolong the orchard's lifespan. Paint the stem white (or use white protection cover) to avoid too big temperature differences and thus fewer cracks in the stems. By this, there is a reduction in infections of, e.g., *Pseudomonas syringae*.

Applicability box

Theme

Crop production, Stone fruits

Keywords

Tree health, fruit quality

Context

Apricot growing, temperate regions

Application time

Tree nursery, orchard plantings

Period of impact

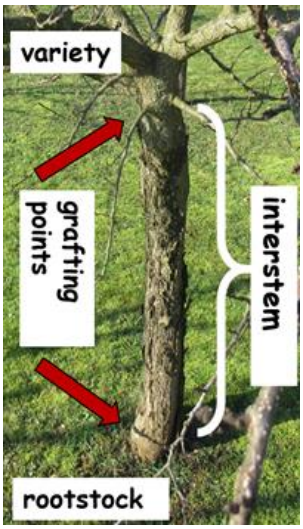
Orchard lifespan

Benefits

Interstems improve economic return since the lifespan of trees, and thus fruit production can be prolonged.

Practical recommendations and information

- ADVANTAGE
  - Interstems used as a tree trunk forming part (picture 1) have a high positive impact on tree health
  - Delay flow of sap in the tree in the spring
  - Regulation of growth vigour, smaller tree crown volume (use of *Prunus persica* as interstem)
  - Delay tree flowering time, decreasing frost damage in case of late frost event during tree flowering
  - Modification of ripening time, early ripening according to used interstem
  - Regular and high annual harvest
  - Improved fruit quality, fruit size is bigger
- DISADVANTAGE
  - The interstem technique is a very expensive process since it needs an extra year in the nursery
- RECOMMENDED VARIETY FOR INTERSTEMS
  - Plum variety Stanley (*Prunus domestica*) has good compatibility with broad range of rootstocks and apricot varieties
  - Greengage (*Prunus domestica* subsp. *italica*) is used as interstem at the Research Institute for Organic Agriculture FiBL in Switzerland. By this the stem of the variety starts at a higher position ("high grafting") that can help to reduce infections with, e.g., *Pseudomonas syringae*. It also helps if the chosen rootstock and variety are incompatible.
  - Peach variety Redhaven (*Prunus persica*) reduce growth vigor, tree crown volume is lower
  - Different *Prunus* species and varieties can be used according to desired impact – tree vigour, tree flowering time, fruit ripening, etc.

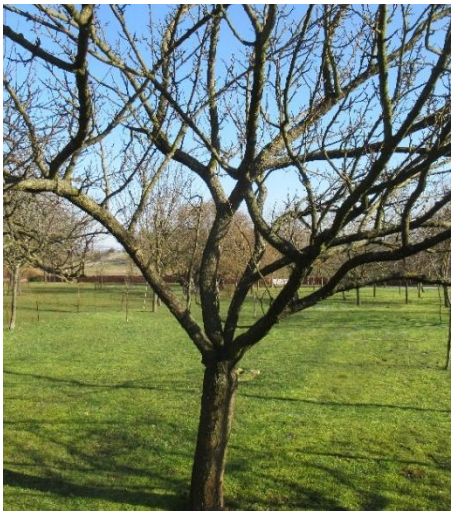


Picture 1, Tree with interstem. Photo: Jiří Kaplan, VSUO, CZ.

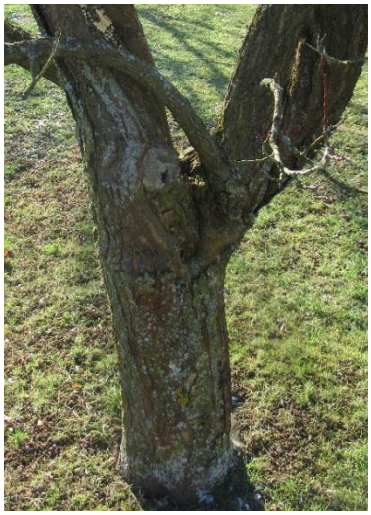
- GRAFTING
  - Chip budding of interstem on semi-dwarfing and dwarfing or vegetative propagated rootstocks
  - English copulation as a method of grafting variety on interstem
  - Good compatibility of the variety used as the interstem with rootstocks and grown varieties is required

- Other reasons for interstem grafting are creating compatibility between incompatible tree varieties via inserting a section of stem compatible with both rootstock and variety
- Nowadays, the offer of apricot varieties is large, but reliable data concerning variety choice for use as interstem and their suitability to organic systems are still lacking, further testing is needed

Picture 2. Apricot tree with interstem (*Prunus domestica subsp. italica*) grown in a plastic tunnel, experimental planting in Frick, FiBL, the tree's trunk is whitened as protection against bark cracks. Photo: Radek Vávra, VSUO, CZ.



Picture 3. Rootstock myrobalan, interstem plum variety Stanley, apricot variety Karola in 15th growing year, tree in very good health condition. Photo: Jiří Kaplan, VSUO, CZ.



Picture 4. Apricot tree without interstem, trunk of the tree is damaged with cracks on the bark. Photo: Jiří Kaplan, VSUO, CZ.

Further information

Further reading:

- Milošević, T., Milošević, N., Glišić, I. 2013. Dynamic of Fruit Growth and Internal Fruit Quality of Apricot Trees Grafted on Rootstock or with Interstem. J. Agr. Sci. Tech. (2013) Vol. 15: 311-321.
- Weibel, A.M., Reighard, G.L. 2011. Interstems but not Grafting Height Control Vegetative Growth of Young 'Redhaven' Peach trees. Acta Hortic. 903, 513-519.
- Rozpara, E, Grzyb, Z.S. 2006. The Effect of the 'Northstar' Interstem on the Growth, Yielding and Fruit Quality of Five Sweet Cherry Cultivars. Journal of Fruit and Ornamental Plant Research, Vol. 14, 2006: 91-96.

Weblinks:

- Interstems are expanding cherry production areas. Good Fruit Grower.
- Check the Organic Farm Knowledge platform for more practical recommendations.

About this practice abstract

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