

# Rootstocks suitable for pear production

## Problem

All cultivated pear varieties are grafted on a rootstock. The rootstock influences the tree's vigour, fruit-bearing capacity and health. Quince rootstocks are most commonly used. The type used depends on the soil, pear variety and planting system.

## Solution

Knowledge of differences in rootstock properties is essential when choosing a rootstock-variety combination. It is important to choose the rootstock that suits your soil, variety choice, planting system and desired growth.

## Applicability box

### Theme

Crop production, Temperate fruits

### Keywords

Rootstocks, pear

### Context

Europe

### Period of impact

Orchard establishment

## Benefits

The selection of the right rootstock results in a pear tree with balanced growth and production, good yields and fruit quality.

## Practical recommendation

- The most frequently used rootstocks in organic pear growing are various types of quince (Figure 1)
- The various quince rootstocks differ in vigour, requirements for soil conditions and water demands (Table 1)

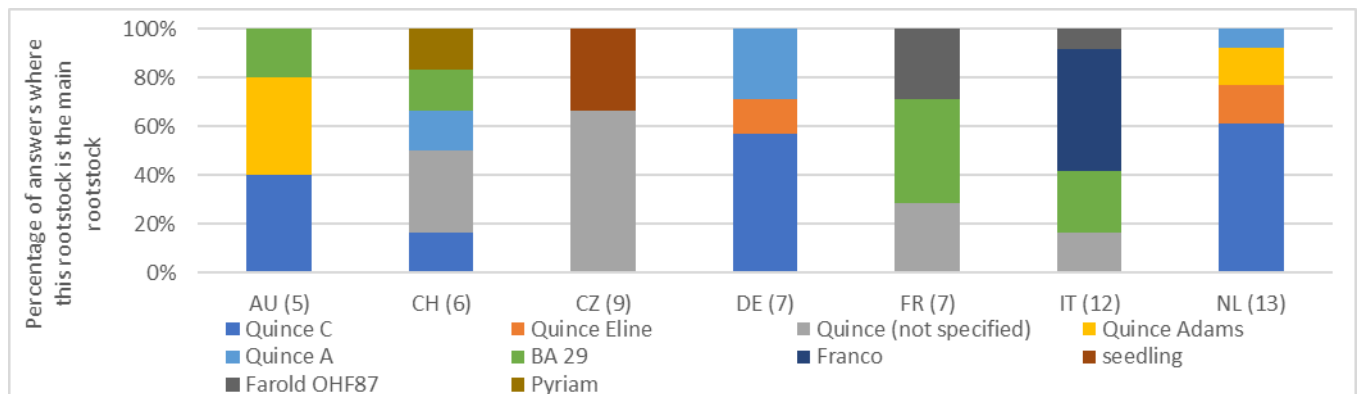


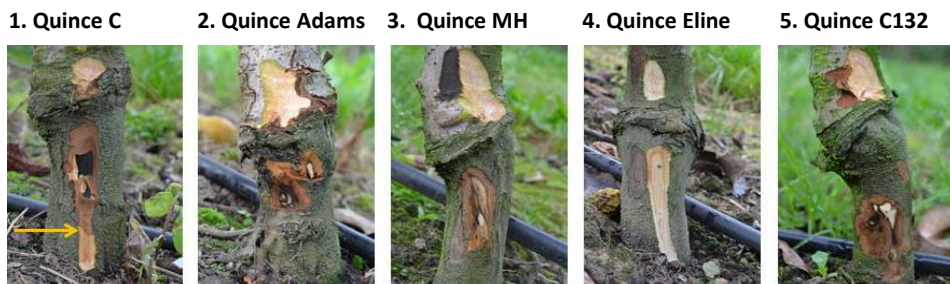
Figure 1. Main pear rootstocks used in organic pear growing in Europe per country (Questionnaire BIOFRUITNET 2020).

Table 1. Properties of and differences between several quince rootstocks

Rootstock	Vigour compared to a seedling (100%)	Origin	Use and comments to soil conditions and compatibility
Quince Eline	low (40%)	East Malling (UK)	low-stem orchards
Quince C	low (40%)	East Malling (UK)	low-stem orchards
Quince Adams	low to medium (45%)	East Malling (UK)	low-stem orchards, best in regions with limited water availability
Quince A	medium (50%)	East Malling (UK)	low-stem orchards, not tolerant to chalk or drought
Quince BA29	medium to high (50-65%)	INRA (FR)	low- or mid-stem orchards

- Not all varieties are compatible with every rootstock. Incompatibility is known for the varieties Williams, Guyot, Verdi, Bosc, Triumph de Vienne and Xenia/Oksana/Novembra. A solution is to use an intermediate stem.

- Doyenné du Comice (=Vereindechant) fits any rootstock and is, therefore good to use as an intermediate stem
- The rootstock Eline® leads to the production of pears with less bronze colour (smoother pears) than rootstocks MC, Adams, C132 and MH (Maas 2014)
- Adams is the most productive rootstock under growth conditions in which no or limited water and fertigation can be applied
- Frost sensitivity is an important factor. Quince Eline is less susceptible than other Quince rootstocks (Pictures 1-5)
- New rootstocks with resistance to various diseases should be tested under organic circumstances.



Rootstock not covered with mushroom compost during the winter 2011-2012



Rootstock covered with mushroom compost during the winter 2011-2012.

Pictures 1-5 show pear rootstocks with or without cover during the winter of 2011/2012, where severe frosts occurred.  
Photo: F. M. Maas, 2014.

### Further information

#### Further reading

- Maas, F. M. 2014. Demonstratie van de gebruikswaarde van kweek onderstammen Eline, C.132 en MH voor de teelt van Conference (in Dutch)
- Baab, G., Klophaus, L., Haaf, S. 2019. Quittenunterlagen für Birnen. Öko-Obstbau 2-2019 (in German)

#### Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.

### About this practice abstract

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