Rootstocks for intensive pear production

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- In the case of intensive production systems, the objective is to use a rootstock that restricts tree vigour, induces early cropping – is precocious – and results in a high yield efficiency.

- In Australia, Pyrus calleryana D6 seedlings are the most commonly used rootstock for commercial pear production. However, D6 is slow bearing and excessively vigorous – producing very large trees that are unsuitable for intensive pear production.

BP1

- BP1 originated in South Africa and is reported to have vigour similar to Quince A and BA29 (75% of Pyrus calleryana) and good yield efficiency.
- There are no reported compatibility issues between BP series rootstocks and scion cultivars.

- However, BP1 is highly susceptible to pear decline and fireblight and is difficult to propagate.
- Susceptibility to pear decline has limited use of BP1 as a rootstock in Europe.

- . It has shown reduced vigour and improved yield efficiency compared with D6 for both Williams and Packham. BP1 is commercially available in Australia but numbers can be limited

Pyrodwarf

- Pyrodwarf originated from a cross between Old Home and Bonne Luise d'Avranches.
- It reportedly has 50% lower vigour than D6 and good graft compatibility with European and some East-Asian pear varieties.
- Pyrodwarf has low susceptibility to iron chlorosis, is tolerant to water-logging and is winter hardy.
- However, evaluations in Europe suggest it's still too vigorous for intensive systems.

Pyriam

- Pyriam is a clonal rootstock developed by INRA in France through open pollination of Old Home. It has not been tested in Australia but is seen as a potential replacement for Quince BA29 in south-east France. It reportedly has good graft compatibility with Williams, is easily propagated, has a low susceptibility to fireblight and good growth and habit in the nursery.
- Pyriam induces slightly higher vigour than BA29 but has equal productivity and fruit sizes. No published data is available to compare its performance to quince.

BM2000

- BM2000 originated in Australia as a result of open-pollination of likely parents Williams and Packham.
- It’s described as having medium vigour compared to D6.
- There is no experimental data regarding precocity, productivity or yield efficiency in the literature

Quince rootstocks

- The most commonly used are:
- BA29
- Quince A
- Quince Sydo
- Quince Adams
- Quince C

- Many evaluations have been carried out with quince rootstocks.

- Whilst there is often some variation in results between sites and scion cultivars, generally BA29 is considered the most vigorous followed by Quince A and Quince Sydo (both approximately 75% of seedling) and then Quince Adams

- Quince C is the least vigorous at approximately 60% of seedling.

- Quince C and Quince Adams have the highest yield efficiency compared to BA29, Quince A and Sydo (which are all similar).

In more recent years three other promising quince clones have emerged –

- Quince EMH (developed at East Malling), C132 (a selection from the Caucasus region of Russia) and Eline® (a Romanian selection sourced from Fleuren Nurseries in the Netherlands)

- These rootstocks are generally considered to perform similar to Quince C in terms of vigour control and yield efficiency.
- However, in some trials they have exhibited traits that may make them more attractive than Quince C such as: improved fruit size (EMH and C132) and reduced russetting (Eline).

Management challenges with quince rootstocks

- Quince rootstocks provide good vigour control, but there are still key management challenges associated with their use.
- One major issue is the incompatibility of quince with many important European pear scion cultivars such as Williams, Beurre Bosc and Packham.
- This can be overcome with the use of interstems of compatible cultivars such as Beurre Hardy or Comice.

Availability in Australia

- At present the most widely available rootstock for pear production is D6. Quince A, BM2000 and BP1 are expected to be more readily accessible in the coming years

- The APFIP pear rootstock trial is currently the only source of rootstock performance data under Australian conditions. Trail results can be found by visiting the APFIP website.

Have a look your self

- Innovations in Australian pear production practices are being showcased by the ‘Profitable Pears’ project and the ‘Pear Field Laboratory’ at DEPI Tatura.