

Importing overseas walnut cultivars into NZ: 2009 update

- an information update for NZWIG members prepared by the research committee, to be discussed at Special Information Meeting 28 April 2009

Introduction

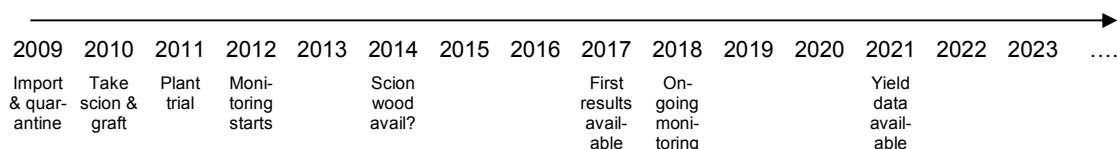
- The idea of importing overseas walnut cultivars into New Zealand was discussed with NZWIG membership at Special General Meeting 15 June 2008.
- Members were not ready to make a decision on the project at the SGM; they wanted more time to think about it, and requested that the research committee gather further information.
- The main requirement was to arrange for Lincoln University to carry out a taste test and nut quality assessment of the potential cultivars for import. This work was done and a summary report from Lincoln University is enclosed.
- Other queries from members at the 2008 SGM and from subsequent discussions are addressed in the following.

An outline of the proposed project

For further details, see the briefing paper from the 2008 SGM, and the remainder of this briefing paper. The proposal is to:

- Import 4 cultivars highly recommended by our colleagues in Tasmania: Howard, Chandler, Lara and Tulare.
- Source them (in winter) as ready-grafted, bare-rooted trees from Tasmania, with 5 plants of each cultivar.
- Quarantine them in a Level 3 (highest security) quarantine facility in NZ.
- Expect them to stay there for a full year and be subject to the required MAF testing for pests/diseases (there is a small chance they could stay longer, if any pest/disease problems are found).
- After quarantine, arrange for a walnut propagator in NZ to take scion wood off them for grafting, and propagate around 25 plants of each cultivar.
- Plant these out in a cultivar trial alongside our main existing varieties, with trial blocks at several locations around NZ.
- Monitor their growth, yield, nut quality, blight, frost hardiness and flowering over a period of at least 10 years.
- Begin making recommendations on aspects of their performance after 6 years, with on-going monitoring and data publication after that.
- Make scion wood available to propagators in the NZWIG propagators scheme from any of the cultivars that perform well.

Possible timeline:



Growers have asked us a lot of questions about the possible benefits and risks of importing overseas cultivars. Here is the best attempt of the NZWIG research committee to answer those questions.

Why is NZWIG considering the import of overseas cultivars?

We are responding to the request from NZWIG members for a wider range of good cultivars (85–90% of our industry is currently based on just two cultivars according to a grower survey). The request is well founded, e.g., a badly timed frost can wipe out the whole crop of one cultivar so it's less risky to have several cultivars with different flowering times in an orchard.

NZWIG is already running a trial of candidate varieties from promising NZ seedlings. This, and any future seedling selection trials, may provide us with some good new cultivars. However there is a higher chance of excellent performance from the cultivars from Californian and French breeding programmes, since cultivars are selected from thousands of carefully designed crosses of known parents.

Wouldn't we be better to wait until we have results from the NZ cultivar trial?

It would be nice to be able to do this, but realistically we will only be gathering the first yield data from our NZ trial in about 2012, and we won't have useful recommendations on the overall performance of the candidates until about 2018. Waiting for this would put any import and potential gains well into the future.

Why can we import now, when we couldn't before?

In the last couple of decades it has been very difficult to import new plant material into NZ due to strict regulations aimed at keeping out plant pests and diseases. The horticulture industry, including the NZ Tree Crops Association, has been lobbying for a new system to allow for import of up-to-date varieties, while retaining careful screening for pests and diseases. The government responded to this, and MAF has been developing new testing manuals for importing a wide range of high value horticultural crops, including walnut. Our manual was completed last year, with assistance from NZWIG. New quarantine facilities have also been set up.

Are there likely to be new walnut plantings in future that would use the new imported varieties?

It is hard to predict how the NZ walnut industry will develop, but it seems a shame to limit our growers of the future only to existing cultivars when there are new high performing cultivars now available overseas.

Won't we lose the uniqueness of our walnuts if we grow imported varieties?

Unlikely - we already grow some imported varieties as fresh, high quality, NZ-grown walnuts (though in smaller numbers than our own Rex and Meyric).

Prior to the mid 1980s a range of overseas cultivars was imported into NZ from USA, France and Germany. In the mid 80s, these were planted alongside promising NZ seedling selections in trials at Lincoln University. Those imported cultivars that performed well, e.g., G139 (the purple nut) and G120 from Germany, and Tehama (California), came out of the trial as recommended varieties. Serr (California) has also shown itself to perform well in NZ, Vina (California) has high yield and is suitable for certain locations, and Franquette (France) is grown in very frosty sites. We already include these in our "grafted selected NZ walnuts" lines, because of their good performance in NZ conditions.

In comparison, the imported varieties that did not perform well in the Lincoln trial (e.g., Chico, Payne and Hartley from California, and G026 and Esterhazy from Germany) did not come out with a recommendation, so are hardly grown in NZ.

We assume any new overseas imports would be treated the same – if they show themselves to perform well in a NZ trial, they would become recommended varieties for NZ conditions. Growers can choose for themselves whether to use the imported cultivars or to plant only varieties derived from local seedlings.

Should we be importing overseas cultivars without clear evidence that they offer significant advantages?

NZWIG research committee has gathered information on the new cultivars as far as possible, but unfortunately there is no way of knowing how they will perform in NZ unless we bring them here and trial them. The things we do know are:

- The new Californian cultivars have higher and earlier yield in California than the old Californian cultivars.
- The new French cultivars have higher and earlier yield in France than the old French cultivars.
- From the results of the Lincoln University tests (summary report enclosed) the Californian and French cultivars grown in Tasmania appeared to have flavour and nut quality characteristics at least as good as our current cultivars.
- Our walnut growing colleagues in Tasmania (Tasmania has a similar climate to ours), rate Tulare, Lara and Howard very highly, with Chandler quite successful also.
- The new cultivars are likely to be less risky for frost damage (see below).
- It would be ideal if we could know in advance exactly how the new cultivars will respond (in terms of yield, growth, blight) to our climate, soils, wind, orchard management etc., but clearly this is not possible unless we trial them in NZ.

Would the imported cultivars be less prone to crop damaging frosts?

Yes, we think they would be, from studying their flowering dates in Tasmania (and comparison of NZ-Tasmania flowering dates for cultivars that we have in common: Serr and Vina). The Californian cultivar Chandler and the French cultivar Lara flower particularly late (probably some 3 weeks later than Rex and 2 weeks later than Meyric), making them less risky for frost. The Californian cultivar Howard also appears to flower significantly later than Rex and Meyric. We do not have flowering data for our other proposed cultivar, Tulare (California).

The other risky characteristic of Rex with regard to frost is that it develops its full foliage cover very late, so that nutlets have no protection from the frost until early to mid November. Meyric is less risky in that nutlets have protection from the canopy (once the trees are reasonably large) by around late October. The proposed new cultivars would probably be similar to Meyric in this characteristic.

Would the plants suffer from being brought in from a different climate?

We are minimising the possibility of shock to the new plants by bringing them from Tasmania. This means:

- The climate is similar to our own.
- The seasonality is the same (so we avoid the 6-month season shock that would occur if we brought them from the Northern Hemisphere).

Also, the grafted trees that we have on order from Tasmania (the order dependent on the vote from members) are robust, two-year old plants so should cope well with the handling, transport and quarantine.

What is the risk of bringing in unwanted pests/diseases into NZ?

We believe this risk is extremely low for several reasons:

- We understand that Tasmania has few pests and diseases that are of concern to us and MAF.
- Our trees will be imported bare-rooted in the winter; any old dead leaves, husks and all soil will be thoroughly cleaned off before they are packed for transport.
- Once in NZ, our trees will be quarantined in a facility of the highest security level, which means they are completely enclosed from the outside world – air passes in and out of the facility through tightly screened vents, all potting mix and tools are sterilised, and people going in and out use a sterilising foot bath and pass through an anteroom with one of the two doors closed at all times.
- The trees will be in quarantine for at least a growing season with regular checks and tests from MAF. If any pest or disease concern is found, the trees would have to stay there longer – budwood will not be released until MAF has proved it to be free of pests/diseases (the plants would eventually be destroyed if this cannot be proved – however, this is extremely unlikely).
- We will never take the original plants out of quarantine, in order to eliminate the risk of bringing in root diseases – we will only take budwood.
- MAF recently compiled and published a new testing manual for import of walnut plants and seeds. This lists all the pests and diseases of concern and the required checks and tests for them. This testing is very rigorous.

Isn't there a high risk that our imported trees will die in quarantine?

We believe the risk is low – it is possible that a few trees will die in quarantine, but it is extremely unlikely we would lose all five of any cultivar. As long as we get one of the five of each cultivar through alive, we have what we need. The factors which we think make it low risk are:

- We are importing our cultivar material as ready grafted trees, which will be transported while dormant in the winter and so are robust for the shift. (This compares with some past import projects that have brought in scion wood for grafting in NZ – scion wood is more fragile, and must be transported quickly and kept in very good condition otherwise the grafting will have low success rate).
- The grafted trees have been grown on for a year in Tasmania so will be robust 2-year-old trees when we bring them in.
- We are sourcing the trees from the supplier we believe to be the best walnut propagator in Australia.
- We have arranged that the original plants will never be released from quarantine – we will only take scion wood off them for grafting in NZ. This means that the roots of the original plants will not have to be sterilised on arrival, a process that would severely knock them back.
- The Tasmanian propagator recommends that the imported trees should be planted in pots of 40–60 litres while in quarantine so that they have plenty of potting mix and a good reserve of moisture around their roots, and we will ensure this happens.
- When MAF prepared their new testing manual for importing walnut into NZ, they contracted the NZWIG research committee to write the section on care of walnuts in quarantine. This means that we ourselves have written the instructions for their care, and we have an established link with MAF should any problems arise.

Isn't the timeframe for this project so long that current members will get little benefit from it?

It is true that (assuming we import trees in winter 2009) we will only be starting to get the first set of performance data through in about 2017, and a more complete data set (including several years of yield data) will not be available until 2021. However, our forebears in NZTCA thought long term for the good of the industry when they planted the trials at Lincoln University in the mid eighties, and as a result, we have some good cultivars for our orchard plantings. We believe it responsible to continue this long-term view for the future of our industry.

Also, there may be enough growth on our NZ-grafted trees by about 2014 for propagators to start taking a small amount of scion wood off them. Thus propagators may be able to start making a few grafted trees of the new cultivars available to members as early as 2015, for those members who are happy to go with the cultivars' credentials in Tasmania rather than waiting for performance results in the NZ trial.

Isn't the cost beyond the resources of NZWIG?

Not necessarily – but it depends on members' priorities. We believe we have enough money for the proposed project (though our quarantine provider is currently finalising the costing; we will not have a final figure until the date of the meeting). However, if members have other projects in mind that they believe are higher priority, we may want to keep our funds for these projects rather than spending it on cultivar import.

Can NZWIG charge a royalty on sales to recover the cost?

Not in a legal sense – we cannot own or control the distribution of these cultivars because they are no longer under Plant Variety Protection. We could ask the NZ propagators to include them in the existing propagators levy scheme (that was set up to help recover costs when the earlier cultivars were trialed at Lincoln University in the mid eighties). However, in the present case we would be reluctant to charge members extra when buying these trees, since their import would already have been funded by members' subscriptions.

Why is NZWIG research committee recommending Howard, Lara, Tulare and Chandler for import?

- We are limiting ourselves to the cultivars available in Tasmania – this avoids seasonal and climatic change for the plants, ensures low pest/disease risk and keeps the cost down.
- Our colleagues in Tasmania give their top recommendation to Howard, Lara, Tulare and Chandler (they also have extensive, high-yielding older plantings of Vina and Serr – cultivars that we already have).
- The recommended cultivars are no longer under Plant Variety Protection so are easy for us to access and to propagate and sell in NZ.
- Howard, Lara, Tulare and Chandler are still the top picks in California and France – the newer cultivars (e.g., Gillet, Forde, Sexton, Fernette, Fernor) don't appear to be significantly better.

How would the import project be managed if members decide to proceed?

- Currently the project is being managed by the NZWIG research committee.
- We have already (1) had extensive discussions with a quarantine provider, (2) tentatively ordered the grafted trees from a propagator in Tasmania, and (3) applied for a MAF import permit – though these do not commit us to proceed.
- The research committee would appoint a project manager if members decide to proceed – ideally this person would have skills in the care of walnut plants.
- This person would manage the import, the appointment of a propagator to take scion wood once the budwood is ready for release, and the planting of a trial.
- We would aim to make budwood available to all propagators in the NZWIG propagators levy scheme as soon as it is practical, so that grafted plants can be made available to members as soon as possible.
- We would aim to gather and publish information on the performance of the new cultivars in the trial as quickly as possible, though this assessment process will take 10 years or more.