

Forest Genetic Resources Trust

Scientific Meeting and AGM

Killeshin Hotel, Portlaoise 27 June 2022

Charles Harper, UCD

Sweet chestnut update



Thanks to

Karen Russell, Jo Clarke, Ted Horgan, East Malling Research, Coillte,
Ravensberg Nurseries, Coillte Nurseries Clone & Mucklagh



Summary 2021-22

- Inventory of CSO, flowering assessment
- Replacement of dead trees
- Grafting with Jan Ravensberg
- New disease to Ireland identified
- Meetings & networking
- Continued support from stakeholders
- Future plans



Sweet chestnut (*Castanea sativa*)

Why Sweet chestnut?

'Fast growing', YC of $8 \text{ m}^3\text{ha}^{-1}\text{year}^{-1}$ (Oak YC of $3 - 5 \text{ m}^3\text{ha}^{-1}\text{year}^{-1}$)

Timber is similar to oak, not as strong, lighter & easier to work.

Used for carpentry, joinery and furniture.

Natural durability, high in tannins, suited to cladding and fencing

Coppiced on 12 -16 year rotations to produce poles.

Issues

Straight grain when young but this spirals in older trees, prone to shake

Susceptible to frost, fungal diseases, squirrel & deer damage

Area

460 ha in 2012 NFI, 480 ha in 2017. Small leaved lime is 710 ha, Grand fir is 400 ha.

Sweet chestnut (*Castanea sativa*)

Sweet Chestnut Group formed in UK 1999 as part of the British and Irish Hardwoods Improvement Programme, BIHIP

Main Aims

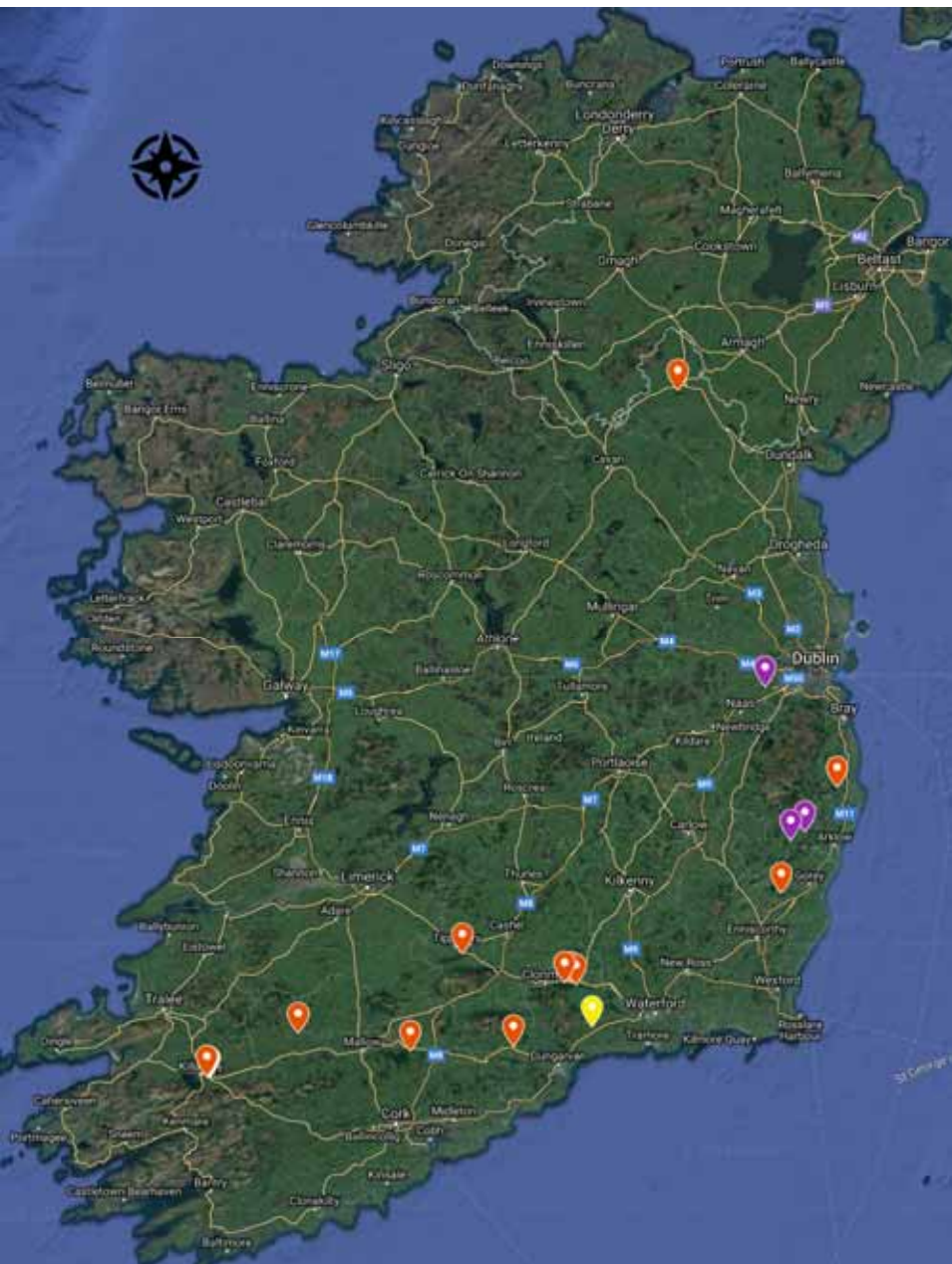
Improve the quality of trees in Britain and Ireland

- Conserve genetic variety
 - Improve timber yield and markets
 - Insure against future threats

Much of the chestnut improvement activities now in Ireland were initiated by the BIHIP and later the Future Trees Trust



Ted Horgan formerly of Coillte next to one of the plus trees near Carrick on Suir



Current Distribution of Activities

Plus trees - 2006/7 identified 56 plus trees in Ireland and 139 in UK

Clonal Seed orchard – 2016 Kilmacthomas

Gene bank – 2016 at Mucklagh, Co. Wicklow

Clone Nursery – 2018 location of root stock & grafted trees

UCD Lyons farm – 2021 potential for tree planting, including chestnut

Kilmacurragh, the location of a sweet chestnut archive since ca. 2008.

CSO 2017



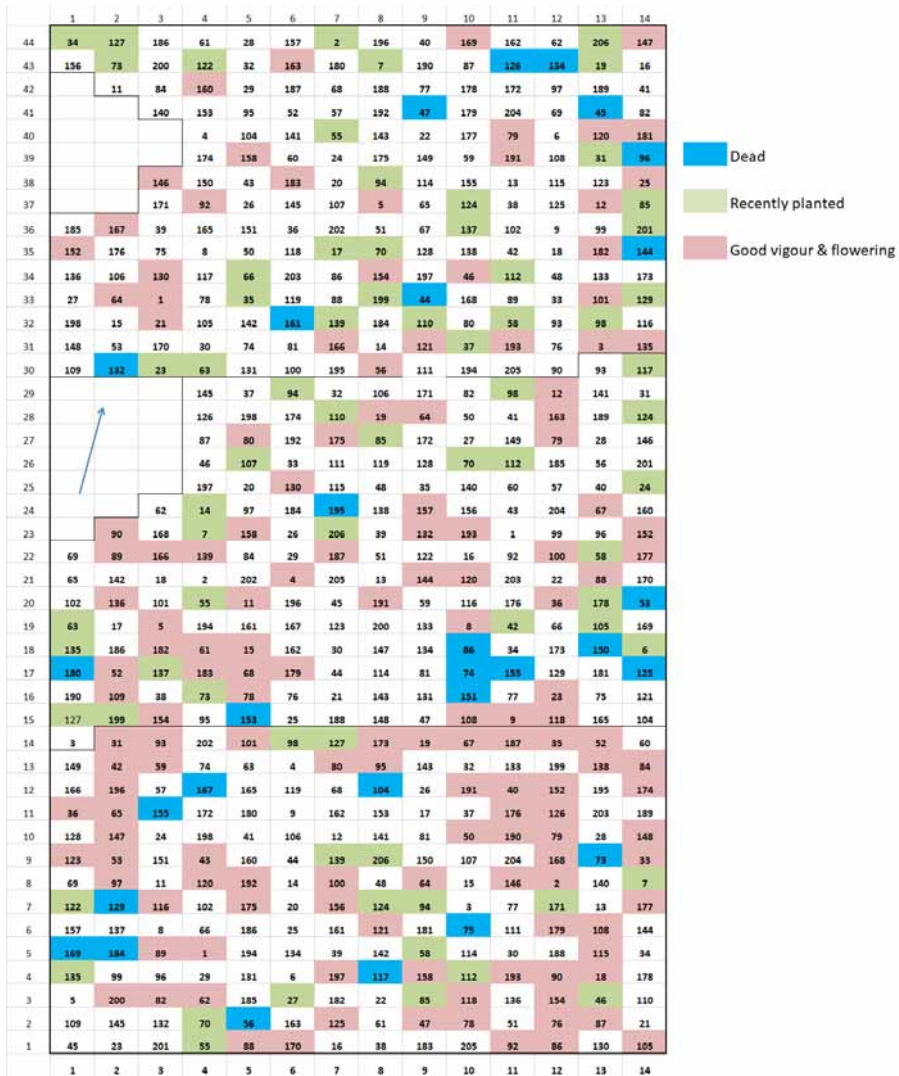
CSO June 2022



Most healthy trees are
now flowering



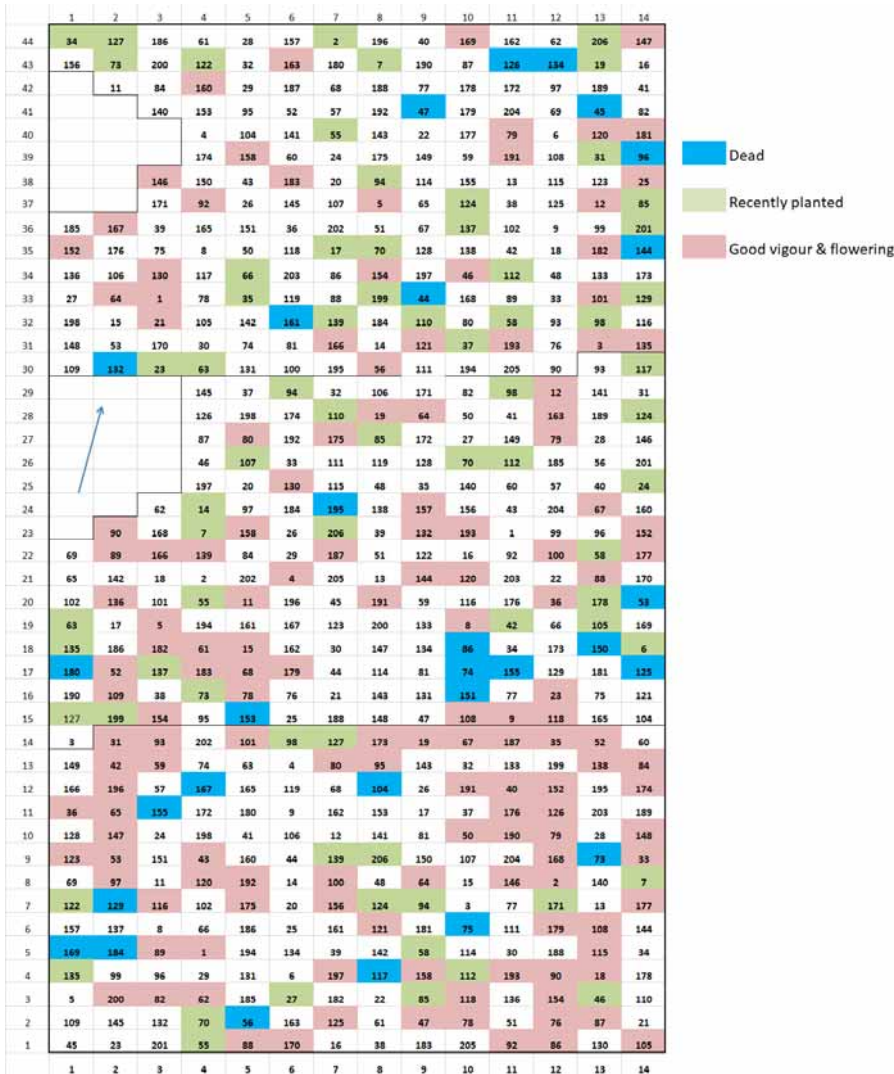
Map of clonal seed orchard, Kilmacthomas



Seed orchard, 2 ha.

5m between rows
and 3m within rows
between trees

Map of clonal seed orchard, Kilmacthomas



Of those trees consider good vigour and flowering

8 clones have full compliment of 3 ramets – all UK origin

6 Irish clones have 2 ramets each

Clone	# Ramets
64	3
79	3
120	3
152	3
154	3
158	3
191	3
193	3

Clone	# Ramets
1	2
5	2
12	2
19	2
36	2
52	2

23 UK clones have 2 ramets each

22 Irish clones have 1 ramet

45 UK clones have 1 ramet each

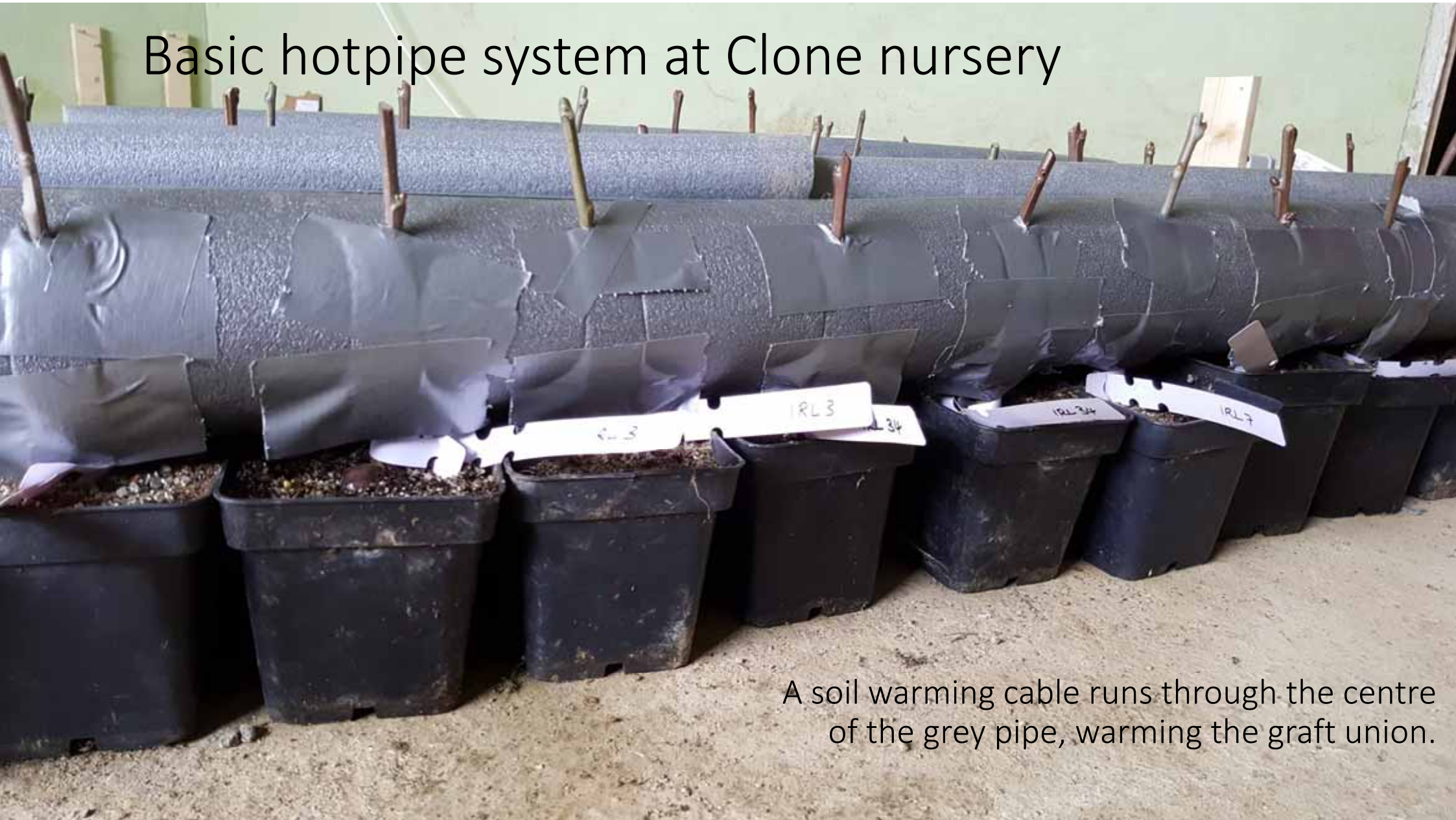
44 clones no longer represented at this level

White cells in the map are trees of lower vigour, moderate to no flowering



- Replacement of dead trees in the clonal seed orchard continued where possible
- This depends of the availability of scion wood and survival of grafts
- Learning to graft chestnut with Jan Ravensberg, Ravensberg Nurseries, Offaly, has been a privilege.

Basic hotpipe system at Clone nursery



A soil warming cable runs through the centre of the grey pipe, warming the graft union.

Callus formation at the graft union encouraged by using the hot pipe for 3 weeks at 23° Celsius



Trees in the hot pipe
(3 on the right) get an
early start



Gnomoniopsis smithogilvyi

New disease to Ireland found at chestnut archive





New Disease Reports

First report of *Gnomoniopsis smithogilvyi* causing lesions and cankers of sweet chestnut in the United Kingdom

A. Lewis, C. Gorton, H. Rees, J. Webber and A. Pérez-Sierra

Forest Research, Alice Holt Lodge, Farnham, Surrey GU10 4LH, UK

<http://dx.doi.org/10.5197/j.2044-0588.2017.035.020>

Can be present in healthy looking trees also

Received: 11 March 2022 | Accepted: 22 March 2022

DOI: 10.1002/ndr2.12072

NEW DISEASE REPORT



First report of the fungus *Gnomoniopsis smithogilvyi* causing cankers on sweet chestnut (*Castanea sativa*) in Ireland

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<https://doi.org/10.1002/ndr2.12072>

Meetings & networking

- Ireland – NXTGENWOOD
- UK - Maintained contact with FTT: disease & future work
- Italy - contact made with chestnut R&D centre Piedmont: markets
- France - Eurocastanea meeting via zoom: disease



Continued support

- Ellen Parkinson
- Coillte Nursery Clone
- Future Trees Trust
- Ted Horgan
- Karen Russell
- UCD Lyons Farm
- UCD Rosemount



Future Plans

- Assessments of the CSO & archives
- Rootstock for winter 2022-23
- Continue work on archives & CSO
- Phenology of bud break & links to shake
- Rooting habits
- Seed germination
- Cost benefit of hot pipe
- Markets, promotion, education ...
NXTGENWOOD
- Breeding strategy & group membership



18 FORESTRY IRISH FARMERS JOURNAL Saturday 14 October 2017

Forestry Sweet chestnut - underrated species



With correct management and a sustainable seed source of viable material, sweet or Spanish chestnut may have potential as an alternative broadleaf species to ash. Donal Magner reports

Despite adapting well to Irish soil and climatic requirements, sweet or Spanish chestnut is rarely planted in

for size when it was introduced to Ireland, but it was probably well established by the 19th century as it features in a 17th-century manuscript by Don Philip O'Sullivan Beare, which he completed in 1615.

Sweet chestnut is widespread throughout southern Europe but originated in what was once Asia Minor. It received its Latin name, *Castanea sativa*, from the Turkish city of Kastania. The common name varies depending on location as it is known as Spanish, Portuguese and European chestnut. Sweet chestnut is probably the more relevant name today given its wide distribution and its ability to produce crops of edible nuts, unlike the horse chestnut which is inedible, even for horses.

It grows well in a variety of sites in Ireland but it is well to avoid exposed or frosty sites. Like most species, it doesn't like extremes such as very wet and very



Sweet chestnut seed orchard in Kilmacthomas, which should provide viable quantities of seed within 10 years.

Species selection and site choice in Ireland. It should be planted at 2m x 1.5m spacing or a stocking rate of 3,500 per hectare. It is relatively easy to establish as it grows fast during the first few years and is usually free of vegetation competition by the end of the second growing season.

grow, straight, lightly branched final crop trees. All publications on sweet chestnut advise against the sudden opening up of stands as this can affect crown vigour. The thinning regime is similar to ash and since ash was removed as a grazed species, sweet chestnut may be a

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Thank you



