

Sycamore Improvement Programme

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5th December 2023



Sycamore Improvement Programme Purpose

- Economic potential
- Fast Growing
- Hardy Species
- Few pests/diseases
- Potential as a substitute species for ash



Sycamore genetic tree improvement in the UK and Ireland

Improve the vigour and quality of the basic planting stock through the following objectives:

1. Provide a supply of improved stock using material which shows desirable silvicultural and timber characteristics from selected seed stands and later from seed orchards.
2. Investigate genetic variation of sycamore among populations in the UK and Ireland using existing and new field trials.
3. In the face of climate change, develop an optimal genetic improvement programme for sycamore through testing, selection, breeding and vegetative propagation of selected material.

What has been achieved so far

2002



Scions collected and propagated

6 clonal seed orchards established



Plus trees identified



3 clonal archives



Progeny Trials...

Breeding population for genetic improvement of Sycamore

Region of provenance	Number of plus trees	Number captured
10	10	7
20	20	20
30	42	40
40	30	24
Ireland	114	105
Total	216	195

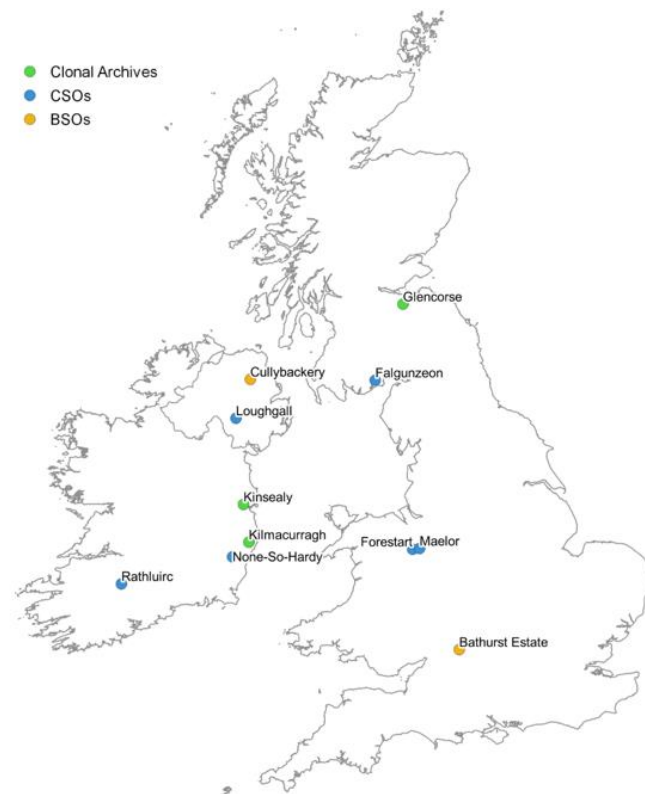


Breeding population for genetic improvement of Sycamore

Clonal Archive	Organisation	County	P. year	Composition
Kilmacurragh	Coillte	Wicklow	2003	67 accessions: all IRE
Kinsealy	Teagasc	Carlow	2008	124 accessions: GB (74), IRE (50)
Glencorse	Forest Research	Midlothian	2010	50 accessions: GB (35), IRE (15)

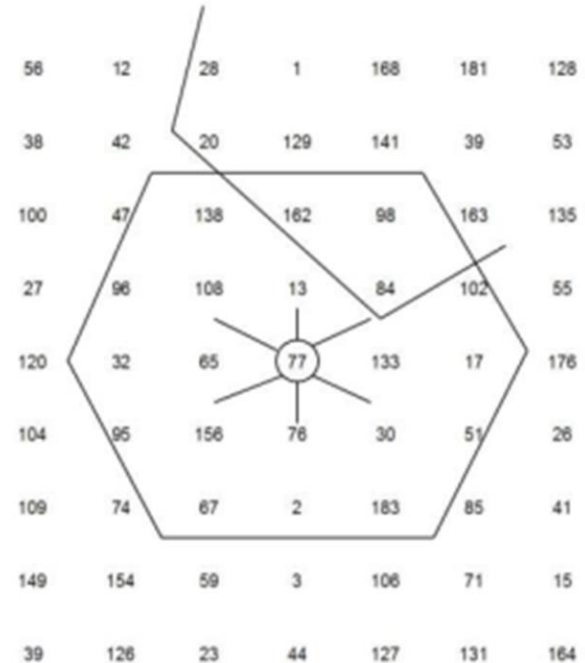


CSO	Organisation	County	P. year	Composition by Region of Provenance					
				10	20	30	40	IRE	Total
Rathluirc	Teagasc	Cork	2003	0	0	0	0	51	51
Maelor	Maelor	Shropshire	2009	2	0	3	68	0	73
Loughgall	AFBI	Armagh	2011	6	19	35	20	96	176
Elsion	Forestart	Shropshire	2014	6	14	32	17	0	69
Falgunzeon	Forestry Commission	Dumfries	2014	6	19	34	19	81	159
None-So-Hardy	None-So-Hardy	Wicklow	2016	6	16	34	19	64	139



Loughgall Clonal Seed Orchard

- 180 plus trees
- 4 plants of each tree, 4.5 x 4.5m spacing
- Permuted neighbourhood design programme (COOL)
- Weed control

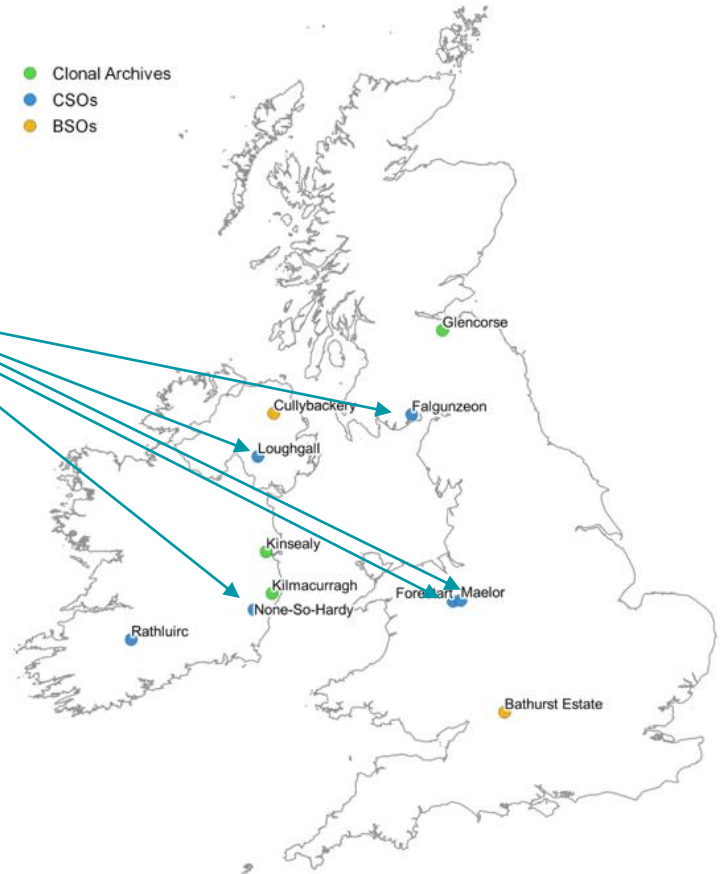


Testing performance of progeny from clonal seed orchards

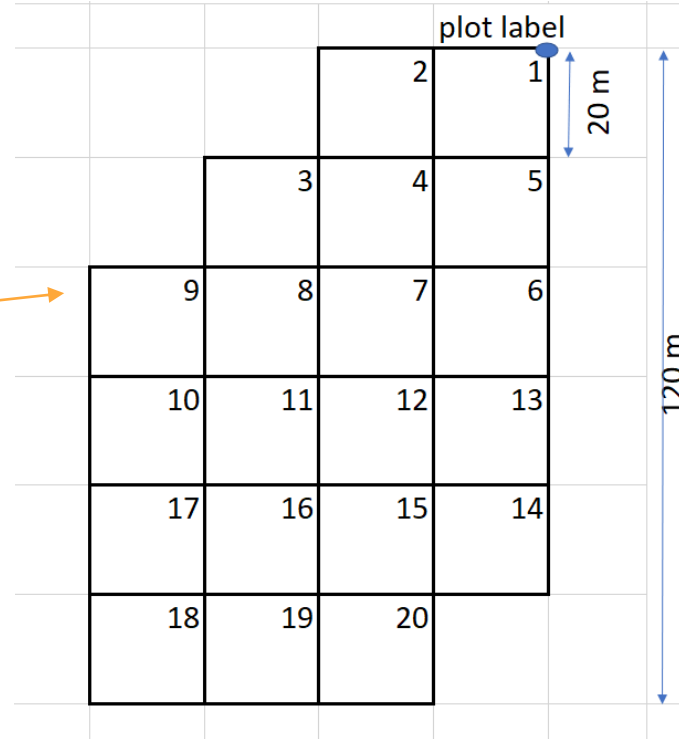


Testing performance of progeny from clonal seed orchards

- 2021 seed collection
- 96 progeny
- Controls – 3 Danish, 2 Irish, 1 Belgian
- Grown on at None-so-hardy nurseries, Wexford
- Aim: to establish 4 replicates



Testing performance of progeny from clonal seed orchards



- Plot layout planned by FGRT
- 20 replicates per site
- 10 x 12 each replicate
- 120 trees per rep





Conclusions (AdaptForRes Task 3 Pillar 3 and FGRT-FTT)

- Tree breeding options for climate change.
- Guidelines on how to best deploy reproductive material to optimise genetic diversity and populations for climate adaptation.
- Benefits and challenges of tree improvement and recommendations for best-practice in seed selection.



Thank You!

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