

Work Package 1: Current SRF Resource

Species properties database

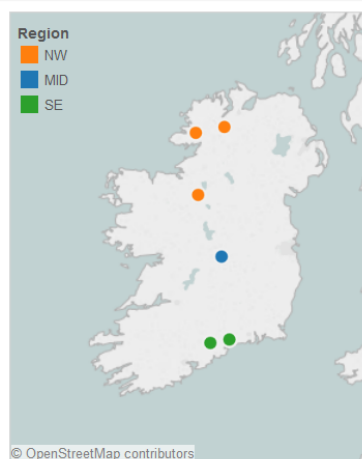
Forest Energy Research
Programme 2010-2014

FOREST ENERGY WOODFUEL DATABASE

Spatial and Temporal Variation in Species Properties

The species currently represented in this database are Sitka spruce, Norway spruce, lodgepole pine, alder, birch and ash. Trees from these species were sampled on a seasonal basis from a range of sites throughout Ireland. There were a total of three sites per species sampled during three periods; flushing (April - June), growing (July - August) and dormant (January - February). During each sample period trees from each species and location were felled and subdivided into partitions - merchantable stem to 7cm top diameter, top, and branches. These partitions were weighed and chipped with samples taken for moisture content and density analysis. Stems were further subdivided by isolating the bark from the wood. Leaves were separated from branches. Each partition was sub-sampled for analysis of ash content, calorific value and chemical composition.

Site Locations



North-West	Alder	Carnow en, Raphoe, County Donegal	Brow n Earth	54.83	-7.63
	Ash	Carnow en, Raphoe, County Donegal	Brow n Earth	54.83	-7.63
	Birch	Carnow en, Raphoe, County Donegal	Brow n Earth	54.83	-7.63
	Lodgepole Pine	Doobin, Glenties, County Donegal	Blanket Peat	54.76	-8.23
	Norw ay Spruce	Cleen, Knockvicar, County Roscommon	Gley	54.00	-8.18
Midlands	Sitka Spruce	Doobin, Glenties, County Donegal	Blanket Peat	54.76	-8.23
	Alder	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
	Ash	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
	Birch	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
	Lodgepole Pine	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
South-East	Norw ay Spruce	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
	Sitka Spruce	Bunakeeran, County Offaly	Cutaw ay peat	53.23	-7.69
	Alder	Lemybrien, County Waterford	Gley	52.17	-7.52
	Ash	Castlelands, Lismore, County Waterford	Brow n podzolic	52.13	-7.95
	Birch	Lemybrien, County Waterford	Gley	52.17	-7.52
	Lodgepole Pine	Kilrossanty, County Waterford	Gley	52.18	-7.54
	Norw ay Spruce	Deerpark North, Lismore, County Waterford	Brow n podzolic	52.13	-7.91
	Sitka Spruce	Deerpark North, Lismore, County Waterford	Brow n podzolic	52.13	-7.91

tableau

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WOODFUEL DATABASE
OVERVIEW

USER GUIDE

REPORT

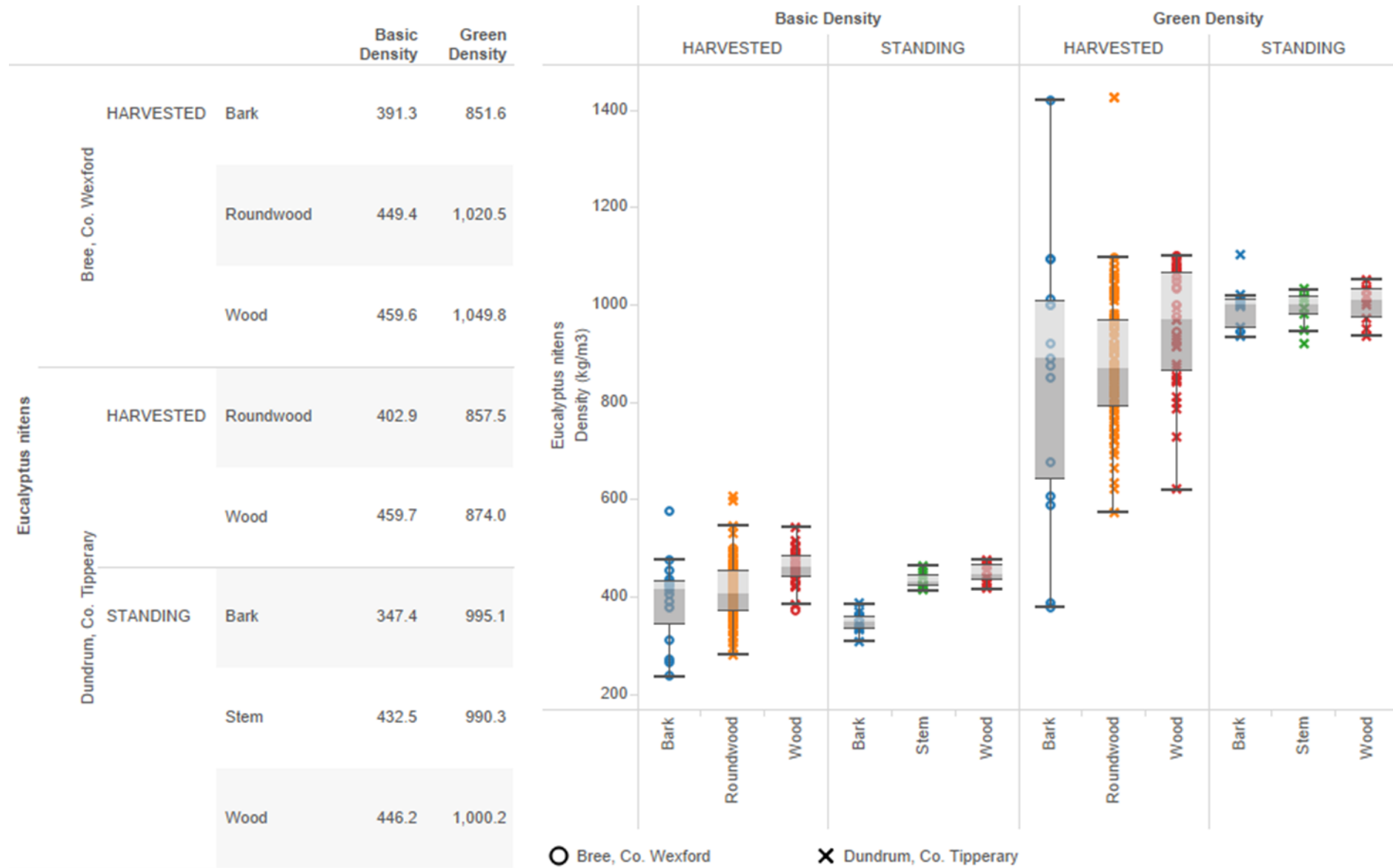
SELECT PARAMETER

SPECIES PROFILES

SHORTFor DATABASE

Our fieldwork feeds into the database

E. nitens density data on the database

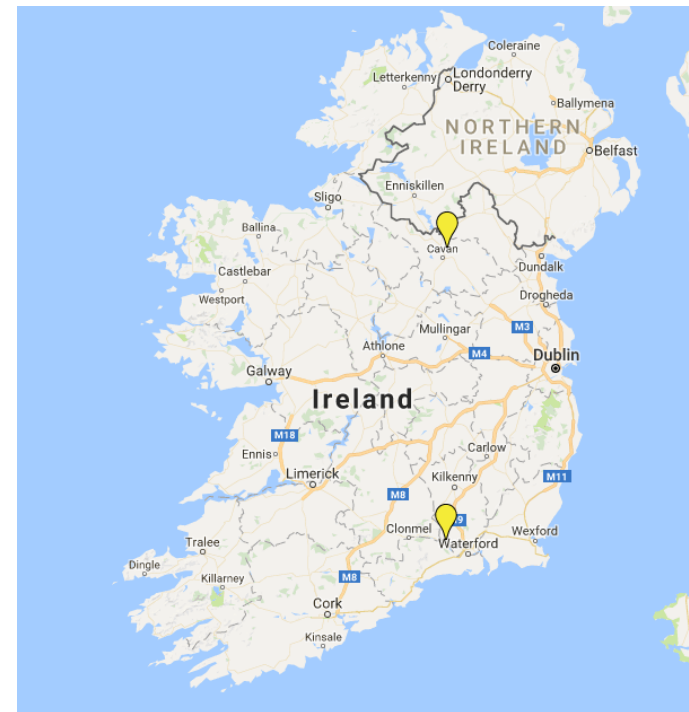


Poplar Field Trials

Productivity and Fuel Characteristics

Poplar field trials

- 2 Sites: Ballyhaise, Kildalton
 - Part of a larger trial which included two more sites, but which are no longer standing
- Planted in April 1997
- 4 m x 4 m spacing
- 30 clones
- Randomized block
- Single tree plots



Site Descriptions

Site	Kildalton	Ballyhaise
Altitude	20m	55m
Aspect	South Westerly	Westerly
Slope	2°	2°
Relief	Rolling Slope	Inter Drumlin Flat
Parent material	Glacial drift, Ordovician shale & some Sandstone	Silurian Shale & Sandstone
Great Soil Group	Acid Brown Earth / Acid Brown Podzolic	Alluvial Gley over peat
Drainage status	Well drained	Very poorly drained
Temporary water table	100cm+	0 (Surface)
Permanent water table	100cm+	40cm
Vegetation	Good grass / herb	Grass / herb with rushes
Mean annual precipitation	1050mm	1250mm
Mean max. daily temp.	15.0°C	10.5°C
Mean min. daily	5.5°C	4.5°C

Ian Short 2010

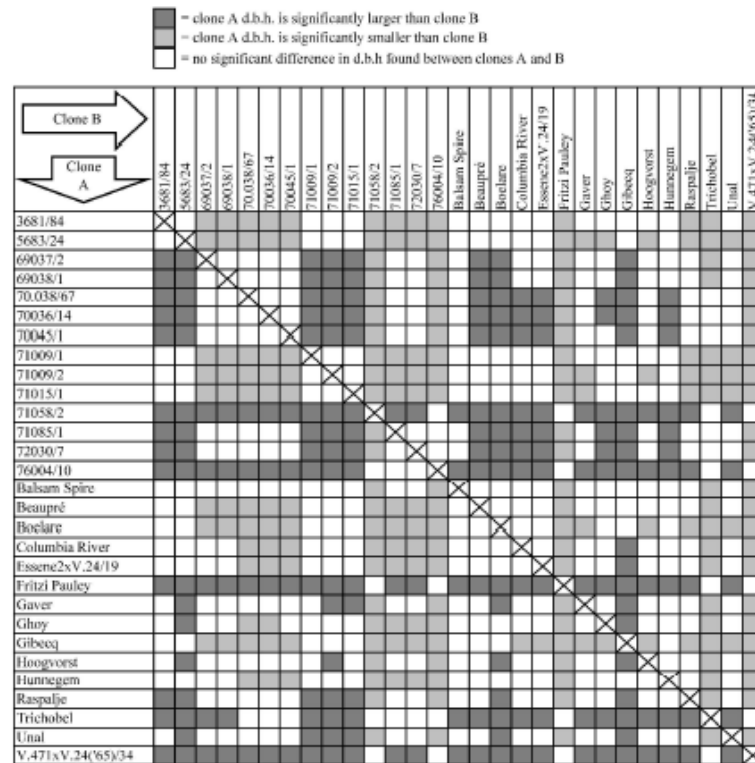


Figure 3. Significant differences ($p \leq 0.05$) in d.b.h. of poplar clones resulting from a Clone Block X X^2 model where X = distance from southeast edge, Kildalton, Ireland.
171x171mm (600 x 600 DPI)

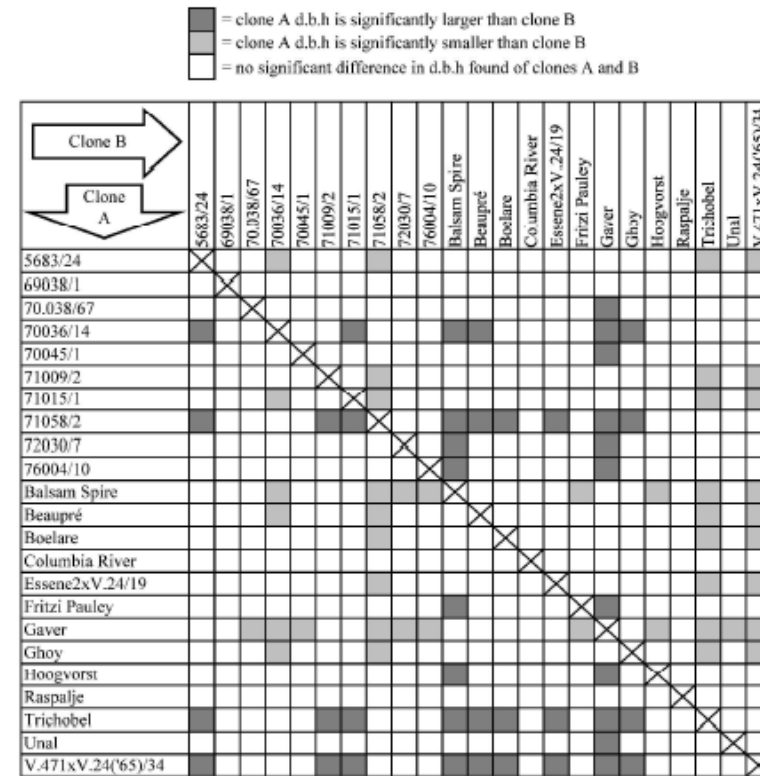


Figure 8. Significant differences ($p \leq 0.05$) in d.b.h. of poplar clones resulting from a Clone Block model, Ballyhaise, Ireland
155x158mm (600 x 600 DPI)

Ian Short 2010

- Results
 - most productive clones:
 - 71058/2', Fritzi Pauley, Trichobel, V.471xV.24('65)/34, 72030/7, 76004/10, Raspalje, Unal

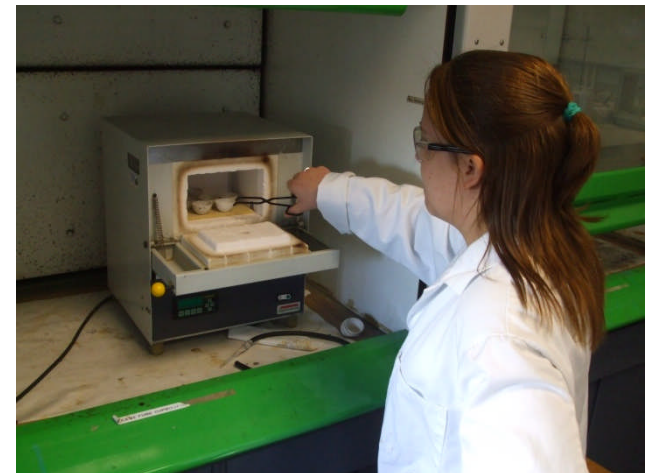
Forestry Programme 2014 - 2020

6.1.6.1 Outline

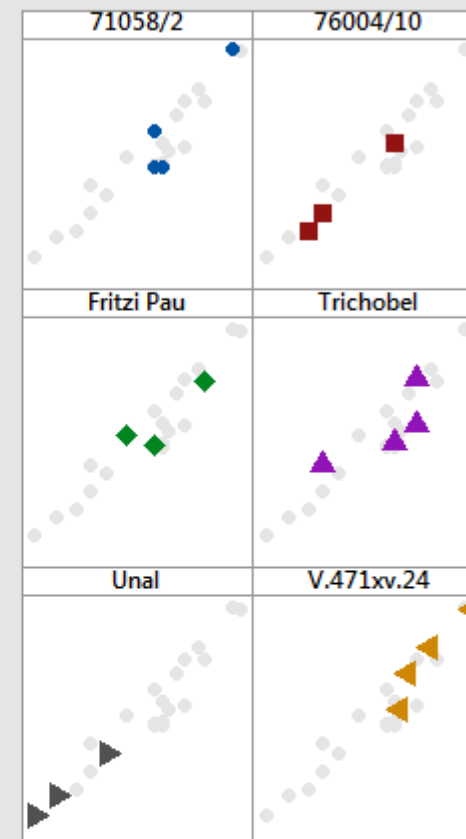
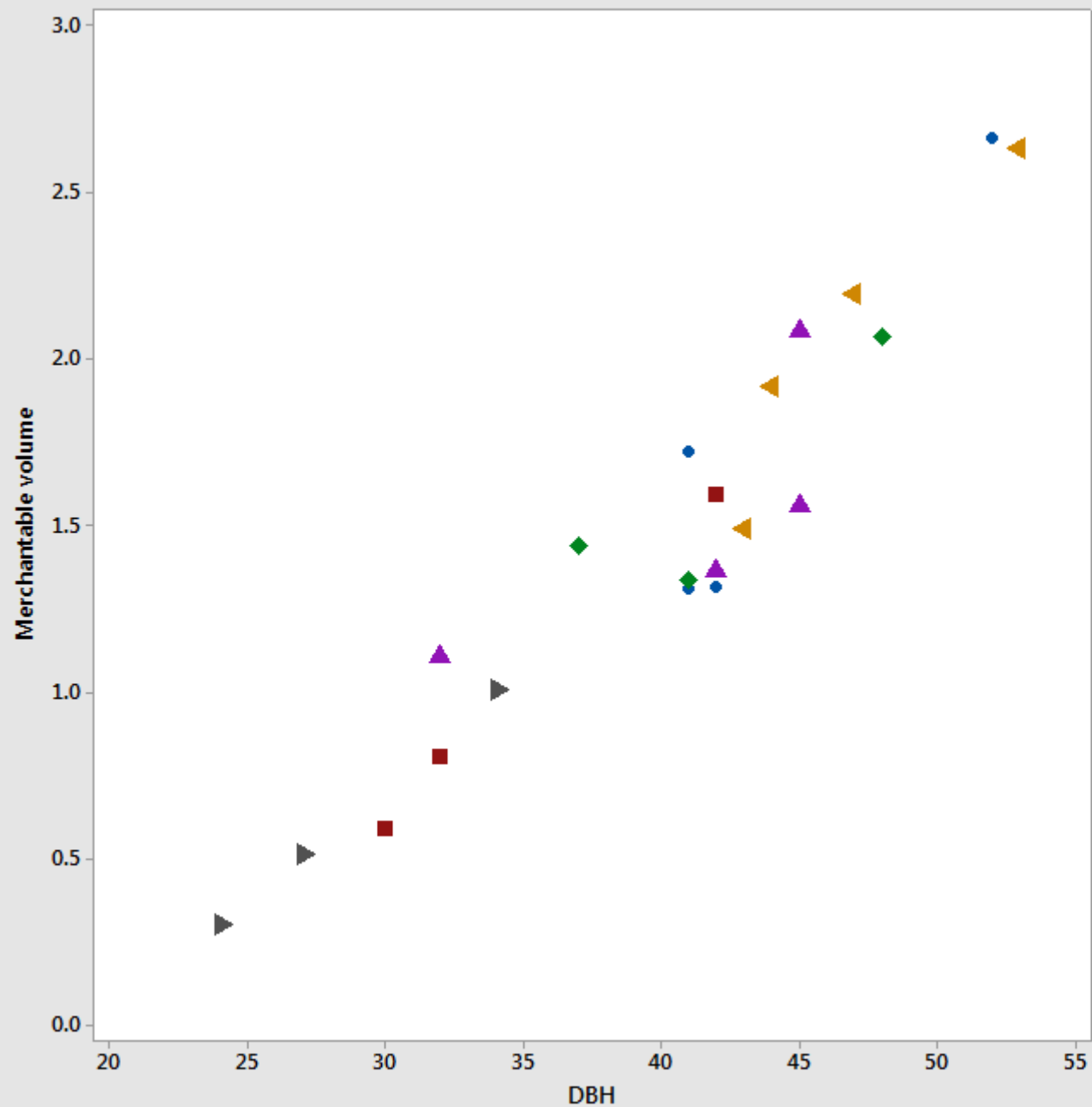
Eligible species under the Forestry for Fibre Scheme are as follows:

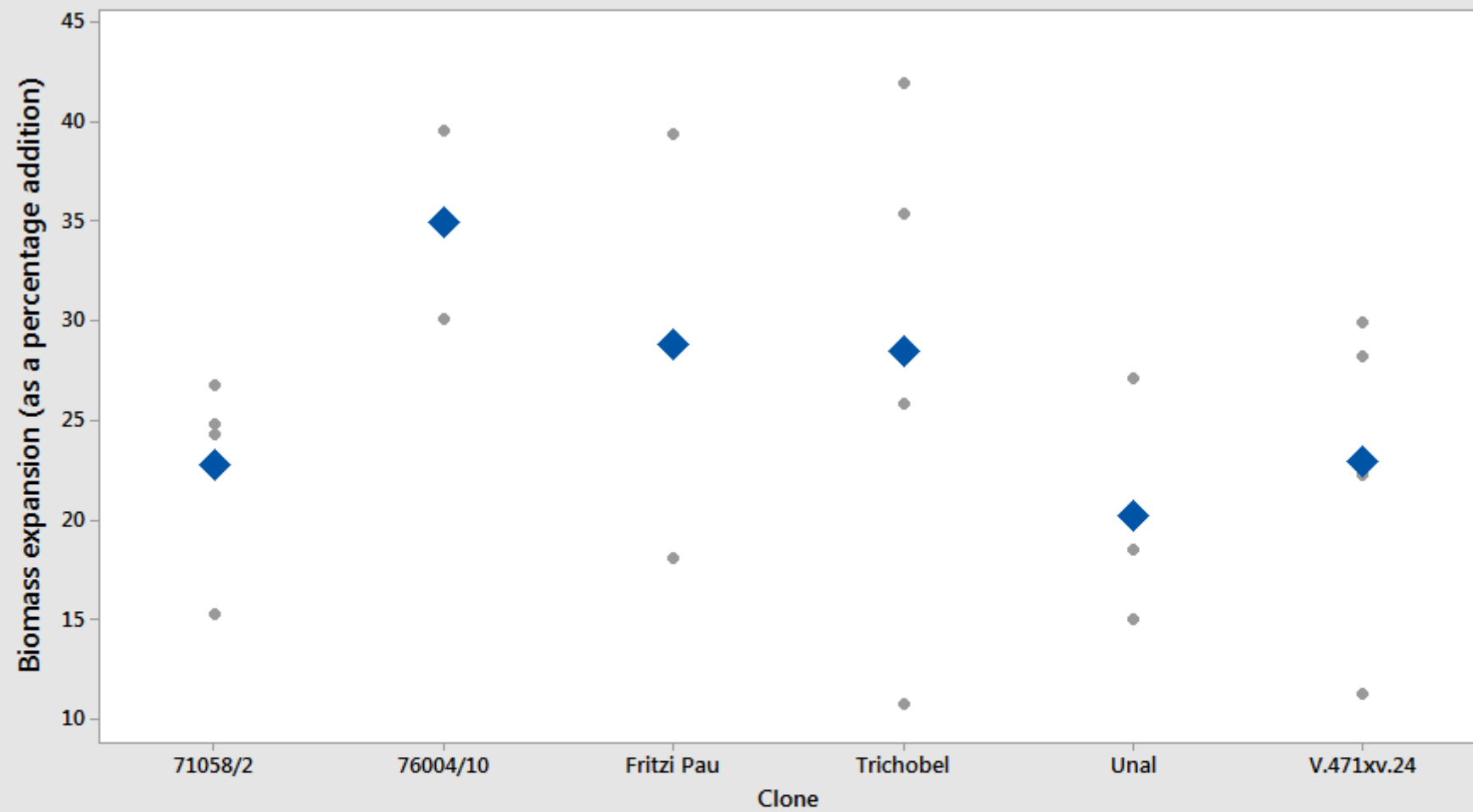
Species/genus	Species and clones
Italian Alder	<i>Alnus cordata</i>
Hybrid aspen	<i>Populus tremula x tremuloides</i> (subject to plant availability)
Eucalyptus	<i>E. glaucescens, gunnii, nitens, rodwayi</i> and <i>subcrenulata</i> . (<i>E nitens</i> only to be restricted to within 50 km of coast and frost-prone, low-lying areas also avoided), other species will be considered on application. ¹⁶
Poplar	Clones ¹⁷ 18 71058/2, Fritzi Pauley, Trichobel, V.471xV.24(65)/34, 72030/7, 76004/10 Raspalje 19 and Unal

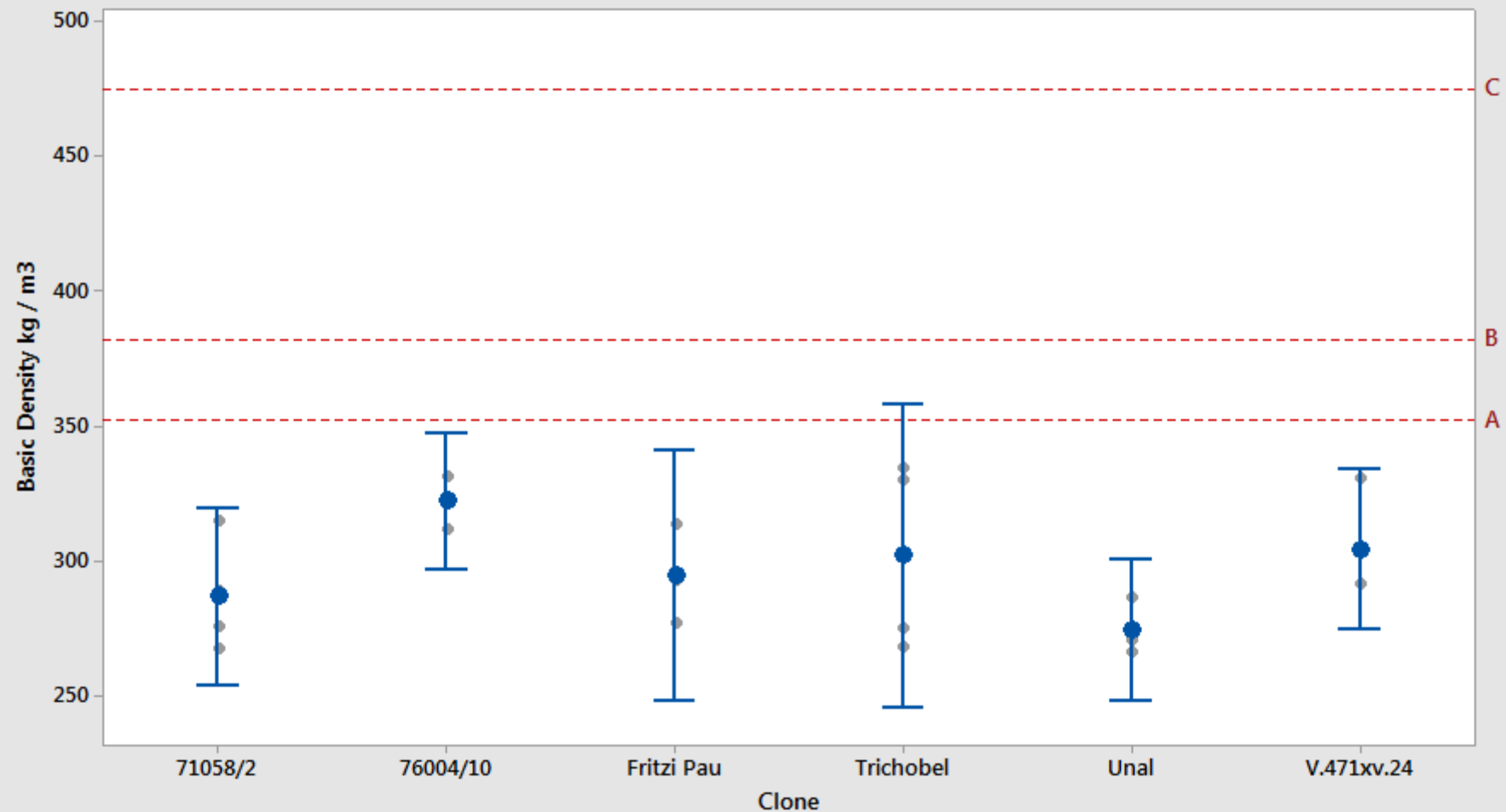
Shortfor Project: Sampling



No. Sampled			
Clone	Ballyhaise	Kildalton	Total
V.471xv.24('65)/34	2	2	4
71058/2	2	2	4
Fritzi Pauley	2	2	4
Trichobel	2	2	4
Unal	1	2	3
76004/10	1	2	3
Raspalje	0	2	2
72030/7	0	2	2*
			* Dead







A: Sitka spruce, 46 years of age (Tobin and Niewenhuis 2007)

B: Sitka spruce, 19 years of age (Coates, unpublished)

C: Sitka spruce, 9 years of age (Tobin and Niewenhuis 2007)

Lab analysis (Ballyhaise site)

	Partition	GCV (MJ kg ⁻¹ db)	Ash content (% wt. db)
		Mean	Mean
Poplar	Wood (without bark)	19.4	0.6
	Stemwood	19.3	1.0
	Bark	19.5	6.0
	Leaves	19.8	10.5
	Live branches	18.9	1.8
	Dead branches	19.7	3.0
	Top	19.6	1.6

		<u>Typical Values EN 14961-1 2010</u>		
		Virgin Wood Materials	Virgin Bark	Residues
GCV	MJ/kg d	19.4 - 20.4	18.0 - 22.7	19.5 - 20.0
Ash	% d	0.2 - 1.0	0.8 - 3.0	2 - 10

Work still to do:

CHN analysis

Chlorine

Sulphur