

File 518.1.
Culbin Investigation
Notes.

MORAY FOREST DISTRICT
CULBIN INVESTIGATION NOTE

Spring 1984.

Cpt 53 Smiddybrae

FORMER CROP

C.P. P26 clear-felled 77/78. Soil type 15d.

RESTOCKED

79/80 with C.P. No cultivation prior to re-stocking apart from a couple of small areas (frost hollow type) with a Calluna (ling) cover as opposed to the dense and dominant Carex arenaria (sand sedge) elsewhere. The compt. was subsequently b/u but stocking continued unacceptably poor. Causes were weevil damage in spite of insecticidal treatment, frost, intense competition from sand sedge, also roe deer damage. It was however apparent that the plants in the small ploughed areas had fared better than these screeded directly.

AREA PLOUGHED

During June '83 with D6/E Cons double-throw plough, being the tractor/outfit currently available. Due to the general failure of the restocking it was decided to space-furrow plough (apart from the more inaccessible dunes) and replant the whole area. The ploughing was primarily an attempt to negate the frost factor in the light of the evidence we had of previous ploughing results, to hinder weevil activity eg. Monaghty evidence, and to reduce the sand sedge competition. In order to gain the maximum bare sand exposure (to mitigate low surface temperatures at night), plough passes were kept deliberately close. Of the two other major obstacles viz. weevil and deer, it was considered these now ought to be less of a problem due to,

- a. the time lapse since felling, and b. the increased Ranger activity in the area.

AREA REPLANTED

Spring '84 with C.P. (S.P. in south - east corner). Planting was on the ridge top. In view of the surface dryness of the ridges it was decided to lay down one or two small ok-see plots to experiment with the planting position; also to include small trials of possible also less probable alternative species. These comprised the following

1. 0.30 ha S.P. 74(NT11) Rachan 1 + 1. Planted in lines ridge and furrow. Where adjacent ridges were very close together (double throw plough) the planting was staggered i.e. the one line of plants occupying alternate ridges. The objects were to compare S.P. ex Research presumably having some genetic improvement, against the standard C.P., also to compare planting positions.
2. 0.17ha C.P., as per the cpt generally but planting ridge and furrow alternately as in "1".
3. 0.19ha D.F. As per "1" but using a less likely species, although D.F. has grown very well in Culbin albeit on a soil type 15.1 freely drained sand.
4. 0.04ha S.S. Again as per "1" with SS purely experimental.
5. 0.50ha CP/SS intra row 2/2 on ridge only. Area in cpt 61 immediately north of cpt 53. Very similar to cpt 53, soil type 15d, the SS element being purely experimental on this soil type.

* Ref. minute from J.G.S. Gill regarding the S.P. origin - attached.

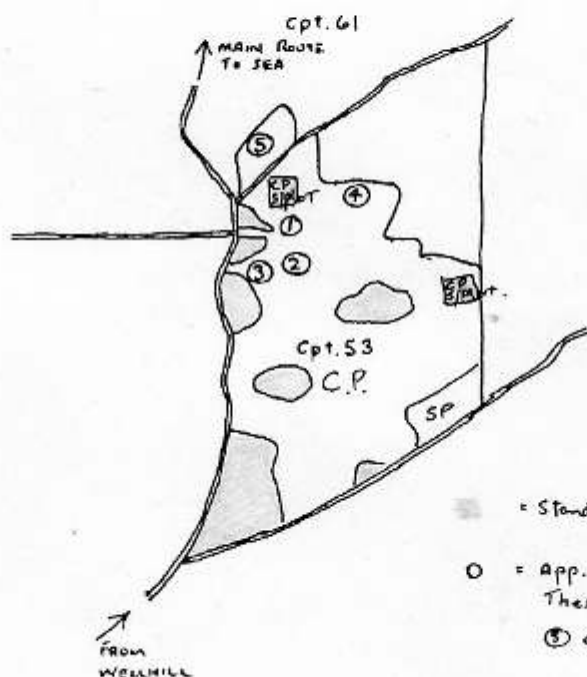
AREA REPLANTED (CONTD)

Further trials are envisaged as a follow-on from the above, eg. different, methods of exposing the bare sand (frost control) and sedge suppression using scarifiers as a comparison to conventional ploughs.

A W F Watson
For Forest District Manager

Spring '84

P.S, Further to the above, S W R Stewart has suggested a more careful investigation (observance of root extension etc. especially in C.P. also a trial of containerised C.P e.g in Japanese paper pots, liaising with Thetford on the latter.



■ = Standing crop (currently Spring 84)

○ = App. position of plots.
These are roughly rectangular, posted at four corners
⑤ comprises whole sub-cpt.

Mr Sandy Watson
Moray Forest District
Newton, Elgin

S18.1 CSN.
Investigate Notes

Forestry Commission
Northern Research Station
ROSLIN
Midlothian
EH25 9SY

Copy: Mr Mike Phillips, Genetics, Newton

Your ref

My ref 48.25

Refers to the Scots Pine plot planted '84
in CPT 53 Smiddy brae.

SCOTS PINE 74 (NT11) RACHAN

Some time ago you asked me to supply some information on the above seed source.

This seed came from an untested orchard at Spye Park (later Savernake Forest) planted in 1958. The grafts came from plus trees selected on the basis of phenotype only at Rachan. The orchard design is known as polycross with 20 ramets x 20 clones planted at 15 ft x 15 ft spacing. Because the constituent clones ~~were the result of phenotypic selection only ie they had not been progeny-~~ tested at the time of planting, we would not expect a great deal of genetic gain.

Open-pollinated families of 19 of the 20 trees were planted in progeny tests on 4 sites in 1968. The orchard has since been rogued on the basis of the results of these tests, giving, hopefully, a slight genetic improvement.

Based on the performance of families in test, Steve Lee has calculated the probable genetic value of seed collected from this orchard. In terms of 10 year height, we would expect this seed source to give:

- a) 1.5% improvement relative to 65(4122)516 Culbin, and
- b) 18% improvement relative to 63(4127)503 Drummond Hill.

A similar improvement is likely in terms of 10 year diameter bh.

I do not know how the Drummond Hill source compares in quality to commonly available SP, but I do know that the Culbin source is of very high quality and difficult to beat. The Culbin source is in fact a mixture from 15 good phenotypes in the Culbin seed stand, and may be rather better than a general collection from Culbin.

I have not attempted to attach standard errors to the above figures: the confidence limits would, I think, be rather wide. The figures should be regarded as reasonable predictions but not with any degree of precision.

I have made some comments about genetic gain in SP in the 1984 Research Report which you may be interested to read - it should be published before long.

Incidentally, the 1974 seed collection from NT11 amounted to 25 hectolitres which yielded 18.1 kg of seed.

I hope this information is of some use.

frank gill

J G S Gill
Geneticist
5 October 1984