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NOTES ON INSPECTION OF TREE LUCERNE TRIAL : DEPARTMENT  
OF AGRICULTURE, BOKERUP (ETTRIDGE'S PROPERTY) - 14 SEPT-  
EMBER, 1984

by A.J. HART

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INTRODUCTION:

1. This trial is located over 67ha containing four (4) blocks of approximately equal area astride a natural creek. The creek area is salt affected, quite severely in some areas. Two blocks have tree lucerne and tamarix; two (2) normal pasture paddocks.
2. The area was originally cleared in 1959 with salt appearing in the last 10 years.
3. The first plantings were attempted in 1982.

RATIONALE:

The trial is intended to monitor:

- (i) water table levels
- (ii) salinity
- (iii) benefits of tree lucerne to farm management

1. The technique used was to use a direct seeding combine to give 2 rows 1 metre apart with 20m between the tree lines in July, 1982. Weed control conventional.

Due to drought conditions (6-7" in winter) and plague grasshoppers, this effort was largely wiped out.

2. The area was resown in 1983 using an "Earthway" Ferguson 560 seeder as used by market gardeners.
3. Seed Pretreatments

On site treatments given were hot water soak for 2 hours, then lime pelleted and inoculated with locally prepared (Dept of Agric.) innoculum. This was all mixed with super and sown quickly to avoid clogging in the machine.

The best germination obtained seemed to be about 50%.

Other methods tried also included acid treatment, scarification etc.

4. Site Preparation

Sowing lines were ripped, then sprayed with "Round Up" and then sown with "Earthway" sower using super plus traces. Rate unknown as yet (to be advised).

5. Cropping (interrow) Regimes

Each 4-5 years cropping is to be carried out between rows. (The 20m width is to allow machinery to pass between rows).

6. Fencing

Each row of trees is electric fenced with U/G cabling to each row. Treated mallet posts and droppers (at 10m) are used. Posts spacing 30m.

Tests are being conducted on 2, 3 & 4 wire fences but it appears 4 wires (2 live 2 earth) are minimum to keep sheep out.

78km of electric fencewire was used in this trial.

7. Tamarix aphylla "Athel Tree"

This species has also been established at 1m intervals for use as fodder.

Establishment has been by cuttings on a raised mound (orchard type plough used, actually F.D. sunklands mound plough?).

Results are patchy due to salt variations but generally trees at 2 years are 1-1½m tall and thrifty. These also fenced off.

It is intended to hedgerow slash this species for forage in autumn/late summer.

8. Hydrological Monitoring

The total area has a system of bores to bedrock at about 7m to periodically check water table levels and salinity changes.

No changes have been detected as yet.

Water table on a hill in the southeast block is above ground level so underground pressure gradients obviously are a significant feature of the geology in this area.

Small surface drains have been installed to assist in tamarix establishment

9. General Points of Interest

9.1 Lamb mortality - the State average is about 17-18%. Based on a  $30 \times 10^6$  total population, half being ewes, it represents a lamb population of about  $12 \times 10^6$ .

9.2 The value of tree lucerne is seen to be in the 'feed gap' in late summer and autumn.

9.3 Some of D.R. Snooke's generalisation from a few trees are being checked in this trial.

e.g. Protein = 18% with a digestability equal to grain.

9.4 Effects (if any) on hydrology are to be checked, plus the feed and shelter values.

10. Current Grazing

One block is being currently grazed at a set stocking of 2-2½ sheep/acre (district average) and allowed access to some trees.

This stage of the trial is regarded as "establishment".

11. Tree Lucerne Provenances & Problems

- 11.1 Two types of tree lucerne have been observed here, a narrow- and broad-leaved type. Incidentally, no weeping types as found in Bowelling were observed.
- 11.2 Yellowing of foliage was noticed on some trees. R. Edmiston has collected from similar trees in the Badgingarra area and found the symptoms to be associated with *Fusarium oxyspora* (collar rot). No collar rot was found with brief examination in Bokerup trees.
12. This trial tends to complement the Bowelling trial but is in need of slashing to allow overgrazing by sheep. This is to be done shortly.
13. It is evident that selection should be carried out on strains of the species as it is felt strains have naturally selected tolerance of waterlogging which currently kills large numbers of seedlings.
14. Requests are being made of Dr Guerra in Tenerife Canary Islands for samples of seed of various strains that may be available there.
15. Some troubles have occurred using 'Roundup' in weed control in *Tamarix aphylla* areas.

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