

4.3 PLANNING

4.3.1 Layout Options

The following section details two different approaches to assessing planting density. The first is working from a revegetation percentage in the landscape or paddock and calculating the density from there, and the second is working from a planned planting to a density per hectare of paddock. Which one you use will be determined by what you and the landholder feel comfortable with. Endeavour to interact with all the other players in the farm/catchment planning process. e.g. focus catchments, regional interactive groups etc. Work with these other players to increase overall revegetation without compromising harvestability of oil mallee planting's.

1. WORKING FROM PERCENTAGE REVEGETATION

Planting configurations are determined by interaction with the landholder.

Our aim is to contribute to achieving at least twenty percent perennial vegetation cover, well distributed in the landscape. It is not intended that all of this revegetation be done with oil mallees. It is desirable that many other species be used in revegetation to achieve other benefits such as windbreaks or biodiversity. Consider ten percent revegetation an absolute minimum figure in calculations, and having no non-vegetated area wider than one hundred metres as a target. The following table may help as a guide. This is a guide for all revegetation, and does not imply that all area will be suited for oil mallees.

Landscape Position	Treatment	Tree Cover	Priority	Constraints
Valley floor	Alley	30%	Med	Saline ground water, sodic soils, heavy clays
Break of slope	Belt	100%	High	Saline ground water, cost of fencing from crop land
mid slope	Contour belt	10-20%	Med	Fencing cost, spray drift
Deep sand pockets	Block or alley	30-100%	High	Difficult establishment, low nutrient levels
Waterways	Block	100%	High	Access for weed control, cost of fencing
Laterite caps, Rocky slopes	Block	100%	Med	Difficult establishment, target downslope periphery of such areas.

The distance between plants in the row is set at 1.5m to provide continuous feed to the harvester. Pairs of rows are arranged in hedges. The rows in the hedge are two metres apart. The number of hedges and the distance between hedges varies according to the soil type, landscape position, farmer's aims and percentage revegetation planned. The two basic configurations are block and belt planting although there is a grey area between

these configurations. Whether the farmer sees these layouts as block planting's or alley farming layouts will depend on what use they choose to make of the interrow areas.

4.3.2 Determining number of trees per hectare-belts.

Belt planting's are designed to allow operation of farm machinery for cereal cropping to work between the rows of trees. The relative width of belts and alleys determines the percentage of the landscape that is revegetated. To achieve a realistic revegetation cover, trees have to be planted in multiple hedge belts, as single hedges spaced widely enough to allow boom sprays to pass would amount to only a few percent revegetation.

The overall revegetation figure determined for any sub catchment can be raised with block planting's at break of slope and areas at risk such as hillside seeps.

On the drawings that follow there is an indication of what different percentage revegetation figures may look like on the ground. For simplicity in determining the percentage tree cover in the paddock it is assumed here that:

- the treatment is replicated every hundred metres across a paddock
- the ground between rows of trees within the belt is fully occupied
- the belt only extends one metre outside the outer rip line, as this is the area that is likely to be covered with foliage with a regular harvesting regime.

In this way a belt of two hedges (4 rows) of trees with hedges at 4 metres centres forms a belt 10m wide, and can be assumed to give a revegetation cover of 16%, and four hedges (8 rows) gives 22%. This range of around 10-20% revegetation fits the suggested target of 20% suggested for this rainfall zone by Richard George et al (1997), but recognizes that the farmer will be less willing to go to the upper end of these figures with cropping paddocks.

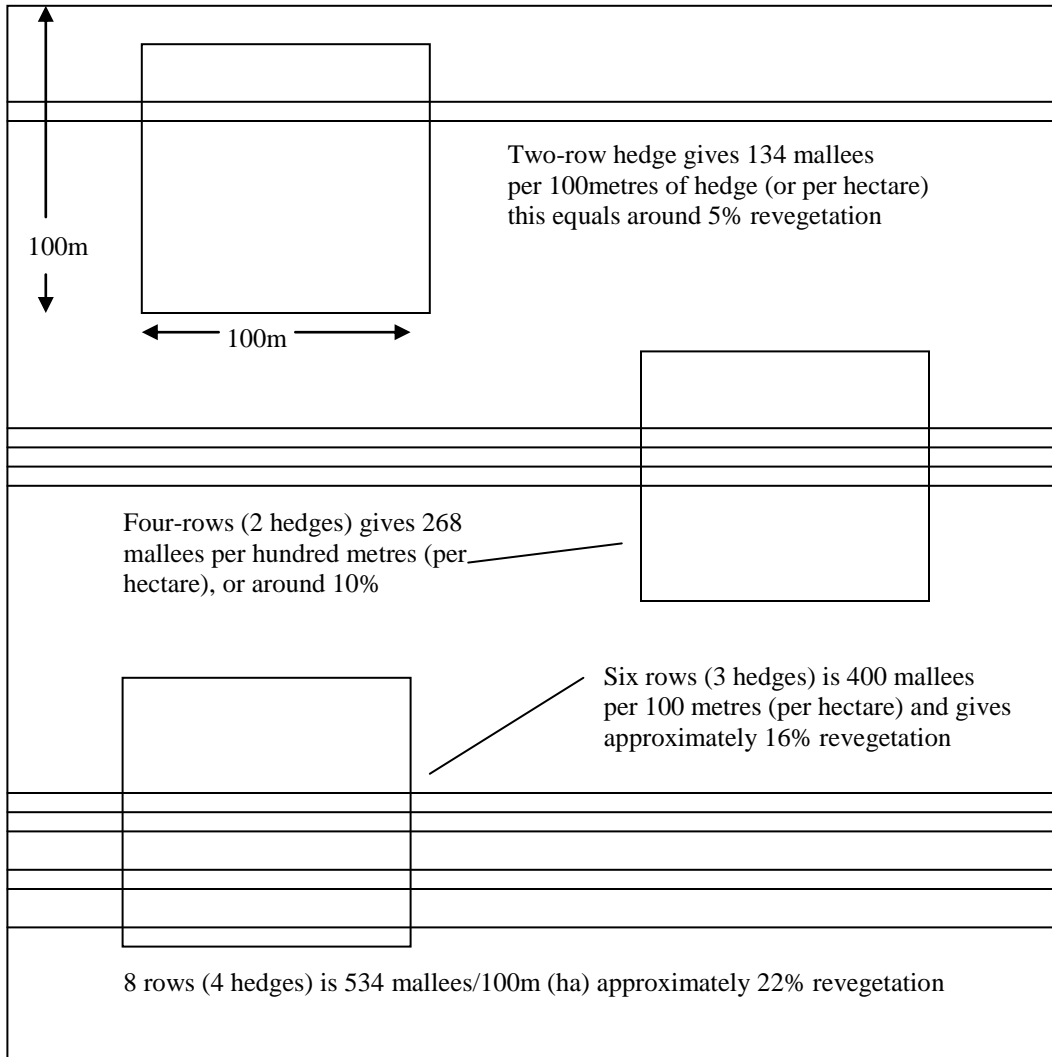
Using the above assumptions planting density per hectare can be determined as

2 hedge (4 row) belt per hundred metres gives 268 trees per hectare

3 hedge (6 row) belt per hundred metres gives 400 trees per hectare

4 hedge (8 row) belt per hundred metres gives 536 trees per hectare.

Determining the number of trees per hectare-belts



Note: Revegetation percentage figures based on the following assumptions:

1. Belt width is one metre outside the rip line, two metres between rows in hedge, four metres between hedges.
2. Trees are 1,5 metres apart.
3. Treatment is repeated for each hectare, that is belts at 100 metre interval.
4. Each square represents one ha, ie 100 x 100m.

Relating kilometres of hedgerow planting to hectare rate of revegetation

4.3.3 Determining number of trees per hectare-blocks and alley farming.

Block planting's are generally restricted to areas considered to be:

1. at high risk, for example a rapidly rising water table, or
2. of low productivity for conventional agricultural practice, for example acid sandplain country.

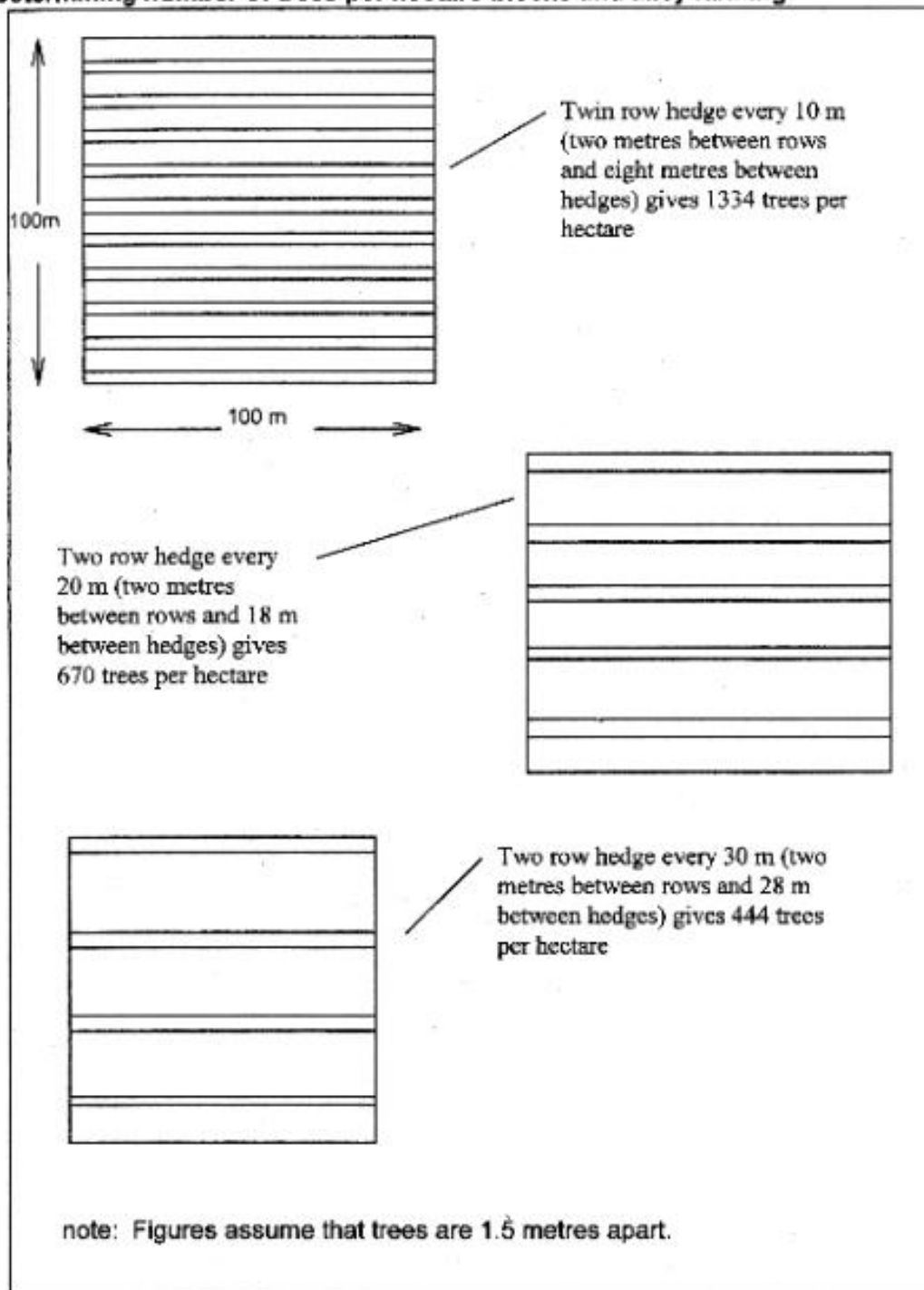
Using the assumptions of spacing from the belt examples, planting's of hedges of mallees every ten metres will result in a planting density of 1334 trees per hectare. This density will suit the high risk category above.

The second scenario, the deep sands, or less productive areas not at high risk in the short term may be more sustainable at planting's of lower density, such as the examples illustrated here at twenty and thirty metre spacing. These layouts will afford greater opportunity for intercropping, hay cutting, establishing perennial pasture, etc.

In summary for block planting's, density per hectare can be determined as

- single hedge (2 rows) every 10 metres gives 1334 trees per hectare
- single hedge (2 rows) every 20 metres gives 667 trees per hectare
- single hedge (2 rows) every 30 metres gives 444 trees per hectare

Determining number of trees per hectare-blocks and alley farming.



2. Block and alley farming plantings