



What does leucaena do?

Provides high quality feed to improve weight gain of cattle

- When grass quality is low

Provides more feed in the paddock

- Enables higher stocking rates



Supplies nitrogen for companion grasses

- Increases grass growth, and quality

Think of it as an organic, high quality supplement for cattle!

Background to presentation

Leucaena is productive, but needs to be well established for best results

Follow 'crop establishment principles'

Premise of presentation....

Leucaena has been assessed as the legume of choice, and want to know how to establish, reliably.

Outline of presentation

Climatic needs

Soil requirements

1. Planning

2. Preparation

3. Planting



Climatic needs

Tropical plant

- Warm, wet summers; mild, winters
- Ideal rainfall: 800mm+
- Productive <800mm if deep soil, wide rows

Very responsive to temperature

- Soils $>18^{\circ}\text{C}$ seed germination
- Max growth $>25^{\circ}\text{C}$ max
- Growth stops at $<10^{\circ}\text{C}$ min
- Mild frosts kill leaves
- Sever frosts kill stems



Soil needs

1. Deep

- Deeper the better (1m+ ideally)
- High water holding capacity

2. Well drained

- No prolonged waterlogging
- Subsoil drainage important

3. Fertile

- pH > 5.5
- High P, S, Zn, K

- All three are important!

- Imperative to **SOIL TEST** if don't know; get advice



1. Planning

Long lived plant (>30yrs) so any issues will be apparent very year for 30+years....

Which paddock?

What is the starting point?

Row configuration?

When to plant?

Which variety?

What seeding rate?

What method?

What machinery?



1. Planning: Which paddock?

Good soil:

- Deep, well drained, fertile

High productivity potential, but is underperforming due to lack of feed quality (protein; nitrogen)

Has infrastructure

- Fences, water points, can get cattle in/out etc

Refer to The Leucaena Network's Code of Practice
www.leucaena.net

1. Planning: What is the starting point?

Is the paddock already cultivated eg forage paddock?

- Plant both leucaena and grass

Is the paddock well grassed with desirable species?

- Great! Only need to establish leucaena

Is the paddock poorly grassed / undesirable grass?

- Not so great....fully remove and start again

Are there suckers / regrowth?

- Control these first.
- Tailored process from there.

Depending on starting point will dictate machinery, inputs required, costs...

1. Planning: Row configurations?

Row alignment:

- Depends on slope
- Direction of cattle flow when mustering
- East-west might decrease shading of grasses

Row spacing:

- Suggest range is 6 – 12m
 - Wider rows (10 - 12m) on very good soils and or with irrigation
 - Narrow rows (6 - 8m) on poorer soils

Twin vs single rows:

- Historically single, twins are more common now

1. Planning: When to plant?

Temperatures are warm enough for germ/growth

- Spring (Sept) through to Autumn (March)

When highest chance of follow-up rainfall

- Generally means Summer (December – February)

ASAP to ensure robust plant going into winter/dry season, and earlier graze

1. Planning: Which variety?

High incidence of psyllids (eg coastal):

- Redlands

Low incidence of psyllids (eg in-land):

- Wondergraze (some psyllid and cold tolerance)
- Tarramba (arboreal, some psyllid tolerance)
- Cunningham (susceptible to psyllids, bushy)

Make sure you get Rhizobium (Leucaena strain; CB3060) and workout how to apply at planting.

Freeze dried or peat (250kg vs 50kg seed)

1. Planning: What seeding rate?

Aim for around 2kg/ha

- 100ha (250acres) paddock needs 200kg seed

If good moisture, seedbed, precision planter, 1kg/ha

- 20 seeds / m of row

Seed quality is VERY important

- Germination >80% (scarified)
- Large, uniform size helpful
- No insect damage, no other seeds etc
- Request a seed test (or do one yourself)



1. Planning: What method?

Depends on starting point...

- Good grass – strips or whole paddock
- Poor grass – whole paddock only
- No grass – whole paddock only
- Suckers/re-growth – control first, then re-assess

Technique?

- Always plant the seed into soil moisture
- Self mulching soils could be sprayed, and drill
- Hard-setting soils need to be cultivated, and drill

1. Planning: What method?

Self mulching soil



Hard-setting soil



1. Planning: What machinery?

- Suitable cultivation gear to create a seedbed and control weeds in fallow
- Suitable spray gear to spray weeds in fallow
- Ripper? Needed for non-cracking soils
- Planter that can precisely place seed, with presswheels...and can fertilise, spray weeds, water injection for rhizobium?
- Spray gear to apply herbicides post-planting, or inter-row cultivation gear?

2. Preparation: Conserve moisture

- Aim for full profile of moisture...or 60cm++
 - 6-12mth fallow depending on rainfall
 - Eg if planting in February, start fallow June/July to ensure enough soil moisture to accumulate **prior to sowing**...in a normal rainfall year!
- Fallow – kill existing grass/weeds for a period of time so moisture (rain) can accumulate in the soil PRIOR to sowing

2. Preparation: Seed bed

- Fine: seed–soil contact
- Friable and firm, not fluffy
- Hard-setting soils are difficult to manage





2. Preparation: Kill weeds

- Multiple cultivations...or multiple sprays.... during the fallow period
- Can take 6+ passes to get existing grass paddock into order to plant into...



3. Planting: When?

- Soil temperatures are 18deg+ and rising (Spring-)
- Soil moisture profile is full, or close to...
- Seed bed is prepared, weed free
- Soil fertility is assessed, and addressed if required
- After a sufficient rainfall event to wet the seed-zone and link to subsoil moisture, **and** there is high chance of follow-up rainfall (Summer)
- Early enough in the season to achieve a plant 1m+ height before winter/dry season or the first frost

3. Planting: Planter characteristics?

Ideally precision planter with....

- Accurate seed metering (20seeds/m)
- Accurate seed depth placement (2-4cm)
- An opener that minimises disturbance (discs?)
- Ground units that follow the contour of the ground
- Presswheels behind the opener that press to the side, not over the top
- Ability to apply starter fertiliser, away from the seed
- Ability to water inject rhizobium (but not critical)
- Ability to apply herbicide at planting (but not critical)



3. Planting: Post-plant weed control?

- Post-plant weed control is critical
 - Either by herbicides or cultivation
- Herbicides:
 - Controlling grasses easy (Fusilade_{forte})
 - Controlling broadleaf weeds (incl legumes) difficult
 - Residual herbicide eg Imazethapyr (eg Spinnaker)
 - ~6 mths control of broadleaf weeds, and some grasses
 - Shielded sprayers can be useful
- Cultivation
 - Inter-row cultivation; yetter wheels

3. Planting: Post-plant weed control?

What generally happens...

- Seedbed is prepared, stored moisture
- Planting rain occurs
- Spray roundup or similar once ground dry enough
- Plant
- Spray spinnaker (or equivalent) over planted rows
 - OR plant, and spray roundup and spinnaker together over planted rows
- Then spray fusilade later if required

3. Planting: Insect control?

Above and below ground insects can be an issue

- 'Beetle bait' (Lorsban, cracked grain, vegetable oil) has been used for above ground insects
- Potential of seed coating for below ground insects...but no registrations, unknown impact on Rhizobium

Summary

Getting establishment right can be tricky, but important for a productive leucaena stand

Must follow good agronomic practices to obtain reliability

Paddock selection, moisture storage, planting are the key aspects of establishment

Next webinar...

Discuss management required

- Planting to first grazing
- Longer-term management needs

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