

How to manage leucaena once established.

Stuart Buck (DAF Rockhampton)



What does leucaena do?

Provides high quality feed

- Improves weight gain

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

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

Don't forget....managing a grass-legume system

Premise of presentation....

Leucaena has been successfully established, want to know how to manage to maximise returns.

To recap the last webinar....

‘How to reliably establish leucaena’

Climatic needs

Soil requirements

1. Planning
2. Preparation
3. Planting



Available at

<https://futurebeef.com.au/knowledge-centre/how-to-reliably-establish-leucaena/>

Outline of this webinar...

1. Establishment period
 - Weed control
 - First graze timing
 - Insect management
 - Other 'grazers'
2. Once fully established
 - Weed control
 - Grazing
 - Rumen bug
 - Height management
 - Nutrient management
 - Insect management



1. Establishment period: 0mth – 12mth

Healthy, vigorous plant

- Robust plant going into winter (cold and dry)
- Minimise period to first graze
- Set up for 30+ year life

Issues can be:

- Effective weed control
- Timing of first graze
- Insects: psyllids, others?
- Other grazing animals



Establishment period: Weed control

Leucaena poor competitor with weeds

Control weeds for up to 6mths post planting

- Inter-row cultivation
- Registered herbicide options post-plant
 - Grasses: Fluazifop-P (eg Fusilade Forte). 1.65 – 3.3L/ha
 - Broadleaf and grasses: Imazethapyr (eg Spinnaker). 70-140g/ha. Mainly pre-emergent.



Permit for the control of weeds in leucaena



Australian Government
Australian Pesticides and
Veterinary Medicines Authority

**PERMIT TO ALLOW MINOR USE OF AN AGVET CHEMICAL PRODUCT
FOR THE CONTROL OF WEEDS IN LEUCAENA AND BUTTERFLY PEA**

PERMIT NUMBER – PER82166

This permit is issued to the Permit Holder in response to an application granted by the APVMA under section 112 of the Agvet Codes of the jurisdictions set out below. This permit allows a person, as stipulated below, to use the product in the manner specified in this permit in the designated jurisdictions. This permit also allows any person to claim that the product can be used in the manner specified in this permit.

THIS PERMIT IS IN FORCE FROM 06 JULY 2016 TO 31 MARCH 2023.

Permit Holder:
THE LEUCAENA NETWORK ASSOCIATION INC
89 Peacocks Pocket Road
TUCHEKOI QLD 4570

Persons who can use the product under this permit:
Persons generally.

CONDITIONS OF USE

Products to be used:

SPINNAKER 700 WDG HERBICIDE (49625) AND OTHER REGISTERED PRODUCTS

Containing: 700 g/kg IMAZETHAPYR as their only active constituent.

Directions for Use:

Crop: BUTTERFLY PEA (*Clitoria ternatea*); LEUCAENA (*Leucaena leucocephala*)

Pest: CERTAIN BROADLEAVED AND GRASS WEEDS.

Rate: 70 – 140 g/ha.

Critical Use Comments:

- ☐ Apply either pre-plant at least 2 weeks prior to planting (no closer than 2 weeks prior to planting) or post emergent when the legume is at least 7 days old and weeds are very small.
- ☐ DO NOT add crop oil to any application.
- ☐ Use the higher rate for longer term weed control.
- ☐ Apply only ONE application per legume crop during the establishment phase.

Withholding Period:

DO NOT GRAZE, CUT FOR STOCK FEED OR HARVEST FOR AT LEAST 14 DAYS AFTER LAST APPLICATION.

Jurisdiction:

QLD, NT, NSW and WA ONLY.

Additional Conditions:

THIS PERMIT provides for the use of a product in a manner other than specified on the approved label of the product. Unless otherwise stated in this permit, the use of the product must be in accordance with instructions on its label.

PERSONS who wish to prepare for use and/or use the products for the purposes specified in this permit must read, or have read to them, the permit particularly the information included in DETAILS OF PERMIT and CONDITIONS OF PERMIT.

The PERMIT HOLDER should contact the product registrant and pursue registration of this use pattern. Effort in this regard must be demonstrated prior to any APVMA consideration of permit renewal.

Issued by Australian Pesticides and Veterinary Medicines Authority

Note: Permit amended to extend expiry date until 31 March 2023. Permit version 2 issued 09 September 2017.

Establishment period: First graze

Setting up a perennial plant for a productive life, with minimal height issues...

When should first graze occur?

When plants are around 1.5m tall

Critical steps during first graze:

- Short duration
- **Daily monitoring**
- Once most of leaf and growing point removed, take out cattle
- Don't worry about the 'bug' at this stage??





Establishment period: Insect control

Insects can cause issues post-planting

- Above ground soil-based insects
 - Typically worse when planting into pastures
- Psyllids + others
- Grasshoppers



Establishment period: Insect control

What to do about insects post-planting?

- Above ground soil-based insects
 - Beetle bait
- Psyllids
 - Spray with dimethoate (eg Rogor) @ 340ml/ha
- Grasshoppers
 - ??
 - Regent registered for 'Pasture'

Establishment period: Other grazers...

Other grazing animals (roos, wallabys, hares, emus, pigs....) can cause issues during establishment

- Early or late plantings highest risk
- Near shelter belts/large shade camps etc

Control options....??

- Plant large enough area
- Don't plant out of season
- Scout, deter...
- Fencing?????



End of first section – Establishment period

Points covered:

- Weed control
- Initial grazing
- Insect management
- Other 'grazers'

Any Questions?



2. Once established: 1yr – 30+yrs

- Weed control
- Grazing
- Rumen bug
- Height management
- Nutrient management
- Insect management
- Monitoring for escapees



Once established: Weed control

Weeds generally not a huge issue once established

- Broadleaf weeds can be hard to manage

Volunteer leucaena can cause issues

- Caused by letting leucaena go-to seed
- Poor / no competition from grass
- Solutions:
 - Heavily graze or slash rows
 - Spray or cultivate out volunteer plants
 - Encourage / re-plant grass?
 - Manage grazing to minimise height



Once established: Grazing

Grazing management is one of the most critical aspects of getting the most from your leucaena-grass pasture

Lack of grazing intensity, at certain times of the year, is one of the biggest failings I see when grazing leucaena

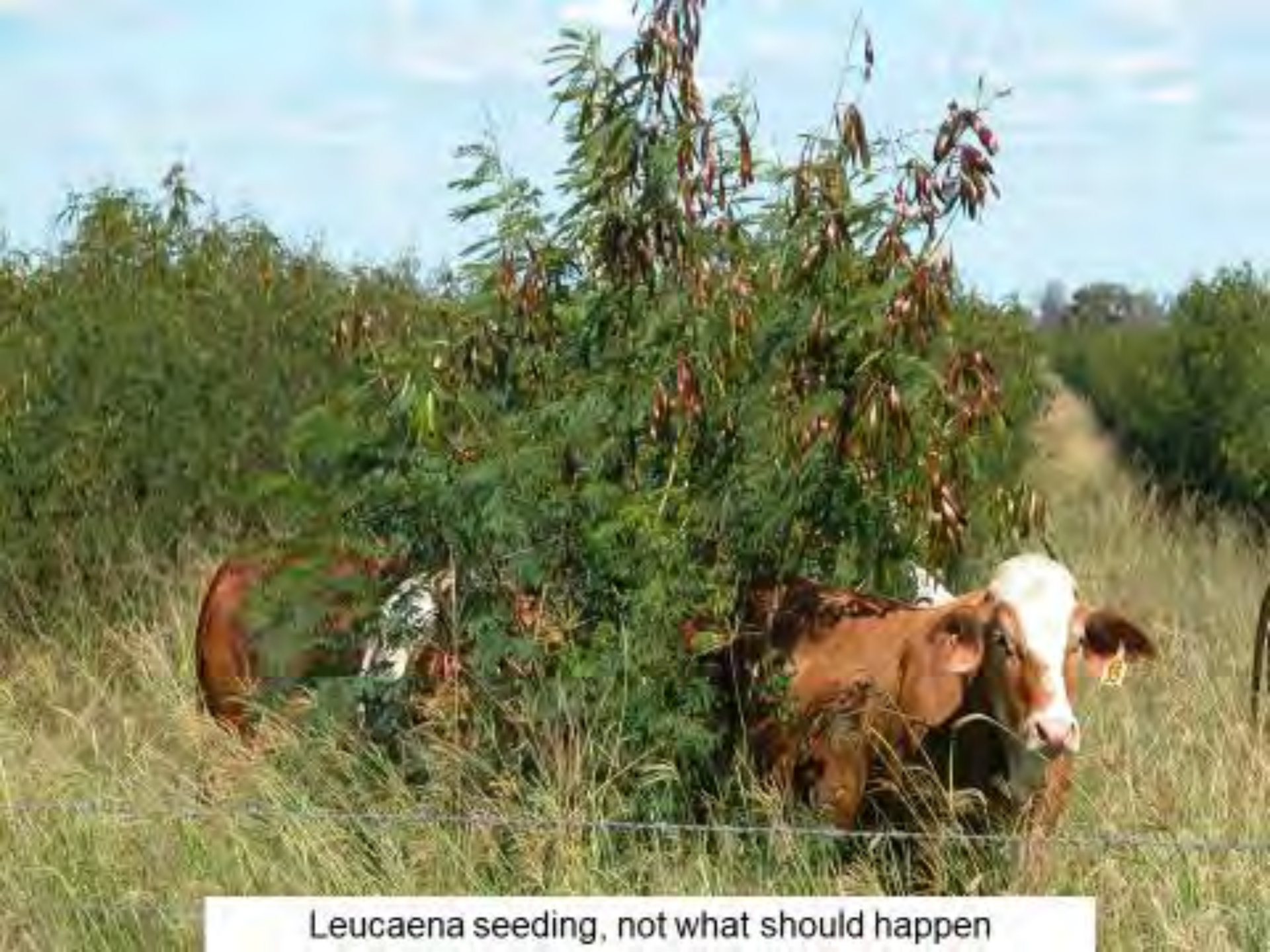
- Leucaena = higher grazing management intensity
- Leucaena = more monitoring of pasture
- Leucaena = on-going maintenance of that pasture
- Leucaena \neq set and forget

Once established: Grazing

What should be done....theory....

- Adjust stocking rate to match available feed
- Rotate cattle through a number of paddocks
 - Enter before leucaena is budding/flowering
 - Leave when some leucaena leaf remains, and grass
- Monitor what plants are being consumed
- If leucaena is getting tall/dominating
 - Increase stock numbers when leucaena consumed
 - Moderate stock number when grass consumed
- If grass dominating
 - Increase stock numbers when grass is consumed
 - Moderate stock numbers when leucaena consumed





Leucaena seeding, not what should happen

Grazing should have started



Grazing close to finishing





Should be rested, not grazed



How to manage grazing from here?

End of grazing; good situation



Once established: Rumen bug

Leucaena contains a toxin - Mimosine

Mimosine is quickly converted to DHP in the rumen, which is also toxic to the animal

Toxicity can occur once diet intake $>30\%$:

- Hair loss
- Salivation
- Weight loss



Once established: Rumen bug

Solution...and recommendation:

- Drench 10% of animals with the 'rumen bug', or 'leucaena bug'... *Synergistes jonesii*
- Anaerobic bacteria...won't survive in oxygenated environments, including:
 - Basically anywhere except the rumen!
 - Won't survive in water eg trough, dam...
- Cattle need to be consuming leucaena for bug to survive
- Obtain through DAF – Tick fever centre at Wacol
Call the DAF call centre: 132523

Once established: Rumen bug

New Research!

- Potential for other ways of detoxification
 - neutralising of DHP by the liver
- Found the 'bug' in various animals in many countries (generally low concentrations)

Is inoculating still necessary?

- Still recommended to dose cattle with the bug
- Future research may demonstrate inoculating cattle may not be needed?

Once established: Height management

All leucaena varieties can grow into tall trees.....

Need to be managed not to do so:

- Select the 'right' row spacing when planting
- Vary grazing pressure over the year
- Competitive companion grass
- Be prepared to slash, and do it when needed
- Work in with you and your environment
 - Soil type
 - Frost potential
 - Management style



Result of chopping

Once established: Nutrient management

High performing pasture system = on-going need for high nutrient supply

- If pasture not performing as expected, given adequate rainfall, heat etc, assess nutrient supply
- Be prepared to fertilise in-crop at some stage
- P (and S) common limiting nutrient
- Soil type and past history are good indicators
- Solutions:
 - Both leaf and soil tests are needed to determine if there is an issue, and what to do about it

Once established: Insect management

Insects are generally not huge issues:

- Psyllids, in coastal locations or periodically inland
- Brown soft scale

Brown soft scale solutions:

- Minimise stress...?
- Manage grazing
- Spray white oil
- Control ant populations?
- Slash and remove old wood?



Once established: Insect management

Psyllids:

- Sap sucking insect
- Prefer humid conditions, not too hot or dry
- More prevalent in coastal locations

Solutions:

- Do nothing, wait for conditions to change
- Graze remaining leaf
- Slash
- Spray with Dimethoate (systemic insecticide)
- Variety selection

UQ



Once established: Monitoring for escapees

Regularly (yearly?) monitor for any leucaena plants outside the planted paddock, esp in non-grazed areas

Any leucaena plants that are somewhere where they should not be, and have come from your paddock, control them! Access and diesel 1:60L

The Leucaena Network code of practice
www.leucaena.net

Conclusions

Leucaena is a very productive, high quality plant

Needs on-going monitoring and maintenance to get the most from it

- Weed control during establishment critical
- On-going grazing management critical
- On-going nutrient management critical

Don't plant leucaena if not prepared to manage it...leucaena-grass pasture are more complicated than grass-only pastures

My contact details

Phone:

07 4843 2605

0427 929 187

Email:

Stuart.buck@daf.qld.gov.au

Address:

DAF office, Parkhurst. Rockhampton.



Thank you for listening

Time for questions.

Phone:

07 4843 2605

0427 929 187

Email:

Stuart.buck@daf.qld.gov.au

