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Using mulga as a forage supplement for livestock in droughts

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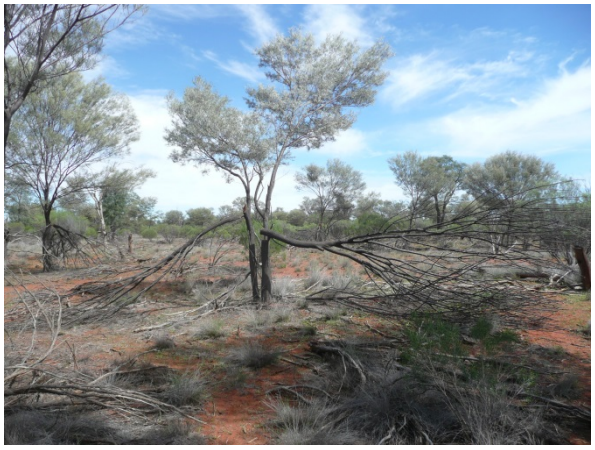
Mulga (usually *Acacia aneura*) covers large areas of the NSW rangelands.

Livestock readily eat mulga, grazing leaves within their reach as well as recent leaf fall.

During drought, mulga provides a valuable feed source. Branches and selected trees are commonly lopped or pushed to allow stock access to leaves above browse height.

Figure 1. Mulga lopped in country were ground cover and perennial grasses have been well managed.



Mulga can effectively supplement low quality pasture as the nutritive value of mulga leaf is largely retained through dry periods, whereas the energy and protein levels of grass declines quickly as they mature or die off.

Mulga also has longer growth periods as it gains moisture and nutrients from a greater depth and area of soil. As a drought progresses and grass quality declines, livestock most likely will select mulga exclusively.

Feeding mulga at best maintains the live weight of dry stock. Pregnant and lactating animals fed mulga require supplementation with better quality feeds to prevent considerable weight loss.

Important considerations

While rangeland properties often have good quantities of freely available mulga, the feeding process requires a major commitment both in time and money.

Feeding involves either the cost of running heavy machinery or significant labour when using a chainsaw.

Mulga is deficient in phosphorus and sulphur. While these deficiencies are easily addressed by using loose licks, this cost also needs to be accounted for.

Machinery breakdowns and wet weather are also considerations. Contingency plans are needed as often there is less than a three day feed buffer. Chainsaws may be substituted for heavy machinery while waiting for parts or a mechanic.

The length of drought is uncertain so planning needs to include an alternate feeding strategy to deal with pregnant and lactating animals.

Most importantly, the decision to feed mulga needs to be made early, well before pasture becomes overgrazed and while livestock are carrying some condition.

In most cases reducing livestock numbers is required.

Sticking to harvesting guidelines and legislation are also important. Contact your Local Land Service (LSS) to get the latest information and regulations.

Selecting an area

Being a finite resource, mulga must be harvested in a way which encourages regrowth and regeneration.

Firstly, identify easily assessable areas, which contain good quantities of mulga and water.

Secondly, decide how the mulga is to be harvested. A selective lopping approach is most appropriate in patches of low density mulga.

In areas of high density, mulga may be selectively felled or pushed in swaths across the slope.

Pushing Mulga across the slope aids regeneration. This is described in more detail later.

Figure 2. Felled mulga (Wanaaring NSW)

Feeding using a chainsaw

Feeding mulga is often done using a chainsaw to either lop selected branches or fell trees.

To feed 2000 sheep, one person will take about six to seven hours daily, plus one to two hours sharpening and maintaining chainsaws. This assumes trees ranging in size from 10 to 20 cm in diameter (Anson and Childs 1972).

Mulga re-grows after lopping but can be killed if the cuts are made too low on the trunk.

It is important to cut the leader branches (stout branches sloping upwards and outwards) leaving lateral branches containing leaf sections growing above browse height (smaller, thin branches).

The easiest way to do this is to cut the whole trunk out of the tree just below shoulder height, aiming to remove all leaders to prevent the tree regrowing in a lopsided direction.

Figure 3. Leader branches lopped leaving lateral branches behind.

Trees with only laterals remaining replace leaders rapidly and are often ready to lop again in about 10 years (Everist, Harvey and Bell 1958).

Feeding using Bulldozers

Bulldozers can be used to push trees over or knock their tops out with pushing or trailing implements.

Figure 4. Trailing implement designed to take the tops out of the trees, leaving smaller lateral branches and the base of the tree intact.

Depending on the approach, experience suggests a 70 to 95 h.p machine will take six to eight hours to feed 6500 to 7000 sheep (Anson and Childs 1972).

A wide implement (such as a long power pole) can be chained to the blade to push a wider swath.

Implements can also be towed to take the tops out of trees while leaving the main body intact.

Where to start?

Initially, cut or push small amounts of mulga close to stock camps and watering points. This allows stock to get used to being fed and to link the sound of chainsaws or machinery with feed time.

After the introductory period, select areas further away to save areas close to water until later in the drought. This encourages stock to graze over a wider area as they travel to water.

Moving closer to water as the drought progresses reduces the amount of energy expended, while making it easier to move stock to a new location.

Utilise unreliable water sources first, to conserve areas with more reliable water for use later in the drought.

How much to cut or push?

Supplying adequate quantities of mulga allows livestock to select leaf rather than coarse stems and branches, which are low in quality and difficult to digest.

The amount to cut is ultimately determined by the intake of the livestock. If livestock are light in condition, it is good practice to keep a buffer of three day's supply to allow for unforeseen circumstances.

Figure 5. Breakdowns happen

This practice is also believed to help break down the high level of tannins found in the leaves of Mulga. Tannins can prevent crude protein and other nutrients in the feed becoming available to the animal.

However, supplying more than a three day buffer may lead to a reduction in feed quality. Hot weather could do the same, indicating that increasing feeding frequency during hot periods may be beneficial.

A 50 kg dry ewe with adequate mineral supplementation can consume between 0.8 and 1.2 kg of mulga leaf per day (as fed).

Trees with a trunk diameter ranging from 10 to 20 cm and lopped just below shoulder height can yield about 9 kg of leaf.

If so, a good starting point to gauge the daily requirement is to lop 40 trees for 350 dry ewes (Anson and Childs, 1972).

A 500 kg cow is likely to consume 10 times more than a 50kg ewe, which means lopping 60 trees for 50 head per day.

Pushing trees over completely may yield slightly more leaf material. These figures are only a rough guide, and constant monitoring and fine tuning will be required.

Ensure there is enough leaf material available as forced consumption of twigs can lead to compaction issues in the gut of the animal.

Figure 6. Mulga ball found in the rumen of a cow, resulting from compaction in the gut.

Dr Brian Hodge and Matt Amos formerly NSW DPI Bourke and Western Lands

Feed quality of mulga

Mulga supplemented with adequate minerals will generally maintain the liveweight of dry adults. However, small liveweight gains or losses are common as the digestibility of mulga can vary throughout the year and on different soil types.

Late pregnant or lactating animals will need supplementation with better quality feeds to prevent considerable weight loss and pregnancy toxaemia.

Carefully monitor the condition of livestock. Visual assessment can be difficult, especially with woolly sheep or when animals are frequently observed. At the very least, use photos as a comparison. Also, getting an assessment from a neighbour or local stock agent is often beneficial.

Mineral supplementation

Livestock fed mulga need supplementation with phosphorus and sulphur to increase intake to a level adequate for maintaining liveweight in dry adults. This may also help avoid compaction of material in the rumen. Table 1 lists a recommended dry lick to supplement mulga feeding.

The supplementation program needs to be cost-effective. Loose licks are a convenient and economical supplement.

Homemade licks are relatively easy to make and often much cheaper than commercial licks. The dry lick is easily prepared using a cement mixer or by mixing directly into a homemade trough.

Table 1. Recommended dry mix supplement for livestock on a Mulga diet

Ingredient	Parts
Stock salt	2
Sulphate of ammonia	1
Mono di-calcium phosphate (MDCP)	1

Source Department of Agriculture and Fisheries, Queensland

Introduce salt for a week or so as livestock tend to have an initial salt craving. The other ingredients can then be added and intake carefully monitored.

Sheep need 15 to 20 g of the total mix per head daily, while cattle require about 80 to 100 g. This provides the required daily intake of five grams each of sulphate of ammonia and MDCP for sheep and 25 grams of each for cattle.

Table 2. Nutrient content of dry lick components.

Source	N	P	S	Na
Stock Salt				39%
Sulphate of Ammonia	21%		24%	
Mono dicalcium phosphate (MDCP)		21%		

N = Nitrogen P=Phosphorous S = Sulphur Na = Sodium

Decreasing or increasing the amount of salt in the supplement can have either a positive or negative impact on daily intake. Often it is a matter of trial and error to achieve the required daily intake.

The cost of a100 kg mix is around $60 to $70 (2015 prices) or about 1.4 cents/head/day for sheep and 6 cents for cattle.

Molasses supplementation

Research shows that as little as 65 g of molasses (as fed) + phosphorus and sulphur, fed daily, can increase consumption of mulga by as much as 40%.

Increasing intake can result in 15 to 30 g per day weight gain in mature sheep, equivalent to 2.7 to 5.4 kg weight gain over a six month feeding period. (Entwistle and Baird, Niven and McMeniman).

In other research, feeding 65, 130 or 260 g per day (as fed) of molasses resulted in benefits increasing as molasses intake increased.

However, **the biggest gains were achieved with the first 65 g**. Sheep fed 65 g were 29% heavier than sheep not fed molasses, compared to 42% and 48% for those supplemented with 130 and 260 g per day respectively.

Why molasses is beneficial is not fully understood, but its sulphur content seems to be part of the story.

Feeding sheep small amounts of molasses is not easy logistically. Also the cost effectiveness is currently considered border-line with cost of molasses of about $685 per tonne.

This equates to 4.4 cents/head/day or about $7.92 for a six month feeding period of 65 g/hd/day. At this cost weight gains will need to be closer to 30 g/day (5.4 kg over 6 months) to make it a worthwhile option (2015 prices).

As to supplementing cows with molasses at a proportionate level, it is not known if this will increase the intake of mulga and weight gain to the same extent.

In commercial licks, urea is commonly added to mineral supplements to balance the low level of protein often found in mature grass pastures. However, there is little evidence to support the need for urea in supplements for livestock consuming a diet of mulga.

Pregnancy and Lactation

Pregnant and lactating animals fed mulga require additional energy to meet their increased nutritional requirements.

Mulga only provides around 60% of the total energy requirement in late pregnancy and just 10 to 20% during the first month of lactation. Additional energy must be supplied from other sources.

Tables 3 and 4 list examples of different feed sources and the amounts required to supplement the mulga in the diet.

Table 3. The amount of supplement required (in addition to mulga) to meet the increased nutritional needs of ewes during late pregnancy and early lactation (g/head/day - as fed).

	Cotton Seed	Lupins	Oats	Mulga only
130 days pregnant	300 (-46)	410 (0)	490 (0)	990 (-88)
14 days lactation	400 (-88)	1240 (0)	1350 (0)	1510 (-126)

Note: Numbers in brackets (x) indicate liveweight change (g/head/day). Cotton seed cannot be fed at high enough rates to maintain liveweight, and mulga fed on its own results in significant weight loss.

GrazFeed was used to calculate feeding quantities. The energy and protein content was adjusted to 57% digestible and 8% crude protein (CP) in an attempt to mimic estimated animal performance grazing Mulga. A standard reference weight of 50 kg was used.

Lupins or oats are ideal feeds as they contain high levels of energy and have safer levels of starch.

Barley and wheat are also suitable and they are often more cost effective. However, increased care is required, particularly during the introductory phase, as high levels of starch increase the risk of acidosis.

Cotton seed is another good option, however it has a high oil content limiting its use to 30% of the total diet (i.e. no more than 400 g for sheep and 2.5 kg per day for cows). This level of feeding also reduces the risk of livestock having unsafe residue levels if the seeds contain residual chemicals.

There are a number of conditions that need to be considered before feeding cotton seed, particularly to rams, bulls and weaners. Refer to NSW DPI PrimeFact 'White cottonseed – a supplementary feed for beef cattle'.

All cereal grains need to be introduced gradually over a two week period. They also require supplementation with 15 kg of stock lime and 5 kg of salt per tonne of grain. Refer to the PrimeFacts, "Full hand feeding of sheep – feeding management and Full hand feeding of beef cattle – management".

The feeding strategy should include early weaning of calves weighing around 120 kg and lambs around 17 kg.

This enables the mothers to be returned to a diet of mulga (with mineral supplementation), while the weaned offspring can continue to receive the additional supplement.

Table 4. The amount of supplement required (in addition to mulga) to meet the increased nutritional needs of cows during late pregnancy and early lactation (kg/head/day - as fed).

	Cotton seed	Lupins	Oats	Mulga only
180 day pregnant	2.0 (-0.19)	2.0 (0)	2.5 (0)	6.0 (-0.48)
240 day pregnant	2.0 (-0.45)	3.0 (0)	3.9 (0)	6.4 (-0.72)
Cow & calf	2.5 (-0.94)	8.1 (0)	9.1 (-0.36)	7.8 (-1.22)

Note: Numbers in brackets (x) indicate liveweight change (kg/head/day). Cotton seed cannot be fed at high enough rates to maintain liveweight and mulga fed on its own results in significant weight loss

GrazFeed was used to calculate feeding quantities. The energy and protein content was adjusted to 57% digestible and 8% CP in an attempt to mimic estimated animal performance grazing Mulga. A standard reference weight of 500 kg was used.

Note: If a new supplement is to be fed to weaners, it is important to introduce the new feed before weaning to ensure the young are educated and adapted to the new diet.

Use a 'creep feeder' after the mother has trained her offspring to the new diet. A creep feeder allows only the offspring access to the new diet during the acclimatisation period.

The decision to re-join is difficult, as it is hard to predict the seasonal conditions throughout the next breeding cycle.

The impact on flock and herd structure and loss of income from delaying joining needs to be weighed up against the potential increased cost of feeding and lower reproductive performance of females in light condition.

Water

Good quality water should always be available while feeding mulga. If troughs are used for stock water, ensure they are cleaned out regularly.

Adjust mineral supplements to account for water supplies containing high levels of sodium or sulphur.

When to stop feeding mulga and use an alternative strategy

Regularly ask this question during a prolonged drought as circumstances change both on and off the farm.

For example, livestock may not be performing as expected and require supplementation with other energy sources, or feed prices may have significantly increased making agistment or sale a better option than feeding for pregnancy or lactation.

Chasing green pick following rain instead of eating mulga is another common problem. As a result livestock may lose weight as pasture is too short, restricting the amount an animal can eat.

Sometimes this may not be a problem as livestock have enough fat reserves and pasture growth is rapid. However, often livestock will need to be contained in small holding paddocks and fed until pasture quantity is adequate.

Protect and improve the resource

The key to protecting the landscape is to ensure ground cover does not fall below 50% and grasses are not grazed below 10 cm in height. (Refer to NSW DPI publication 'The glove box guide to tactical grazing management for the semi-arid woodlands').

This helps to protect soil from erosion and increases the plants ability to survive and respond quickly to rain.

To achieve these benchmarks, livestock may need to be moved before harvestable Mulga is fully utilised. This will involve lopping or pushing in different areas of the paddock or moving to a new paddock altogether.

Non-domestic animals place pasture under additional grazing pressure. Controlling their impact increases the feed available and helps to protect the pasture after stock have been removed.

When the drought breaks it is important to carefully graze harvested areas to allow recruitment and protect regeneration.

This is likely to involve grazing only when there are sufficient quantities of palatable green herbage and continued control of total grazing pressure.

Figure 7 Germination of annual species and perennial grass residue under pushed mulga branches.

Often there is an increase in pasture production when dense areas of Mulga are thinned. This provides an important opportunity for recruitment, especially of perennial grass species.

Fallen Mulga aids landscape function as branches tend to lay flat on the surface of the soil. They act as a barrier trapping nutrients, seed and moisture**.**

Over time these fertile patches improve the functioning of the soil surface**,** promoting desirable species of grasses while protecting from grazing. (Refer to the PrimeFact, 'Restoration of Native Grasslands').

Figure 8. Country well recovered prior to a second harvesting of mulga. (Previously lopped mulga in foreground; recently felled mulga in background).

Mulga can regenerate from seed, and this usually takes place on bare ground. However it can take a number of years and requires careful grazing management for up to five years.

As droughts can be frequent, careful monitoring of harvested areas is required to ensure they are fully recovered before further harvesting takes place.

CASE STUDY ONE

Producer: Peter Dixon

Property: 'Glenhope' Wanaaring

History

Over the last 50 years, Peter and his family have sustainably lopped and felled mulga for stock feed at 'Glenhope'.

Throughout the 2002 to 2007 drought, Peter cut mulga nearly continuously for 200 cows.

During the 2013 and 2014 drought, Peter cut Mulga in an area that had been lopped in the 1965 drought.

He sold good lines of weaner steers that were reared on mulga and supplement.

Approach

During 2013 and 2014, mulga was cut by hand every second day. It took approximately two to three hours to feed 200 cattle.

Peter cut enough mulga to ensure sufficient feed for the two days without an excess carry over, as livestock preferred fresh cut mulga.

Peter started cutting at water until he was confident that all cattle were responding to the saw.

He would then move 1 km (2 to 3 km if needed) away from water by starting the saw down wind. He picked patches that had good density and quality and moved in an arc, picking other good areas, heading back to water.

Following significant rain, Peter continued feeding while the cattle progressively lost interest and moved away eating pasture.

Peter found it easy to restart feeding as stock returned once they heard the chainsaw.

Equipment

Peter used an 18-inch bar on his chainsaw and a minimum of four chains in a continual rotation. He mailed chains into town for sharpening via the twice-weekly mail service.

Supplement

Peter provided a loose-lick to correct mineral imbalances of mulga.

He prefers a loose-lick compared to a hard block. The cattle consume the lick quickly and move away, rather than spending excessive time licking.

Peter trialled different products and found the cheapest was not necessarily the most cost-effective as cattle sometimes consumed excessive amounts of some products.

Peters tip's for feeding mulga

- Start feeding early when livestock, pasture and ground cover are in good condition – "you can always stop if conditions improve".
- Move away from water after training stock to feeding mulga.
- Focus on dense patches of mulga and move to new locations when declining density results in excessive cutting time.
- Use a long-blade chainsaw to make cuts higher on the tree. This ensures only their tops touch the ground, improving livestock access and ease of mustering on motorbikes.
- Livestock prefer some forms of mulga to others e.g. broad-leaf mulga is preferred compared to narrow-leaf.
- Routinely walk through the mob to assess the condition of all animals as there can be considerable variation within the herd.
- Watch heifers, as they can lose condition quickly and calves may need early weaning.
- In severe drought, mulga quality declines as leaves become pinched and the trees start to drop leaves. In this case, use alternate management strategies to address declining animal performance, e.g. an additional feed supplement or early weaning of calves.
- Using a chainsaw is feasible for mob sizes of about 200. Any significant increase on this number will place increased pressure on the operator and resources.
- A plus side to feeding mulga is cattle become very quiet.
- It is important to know what is happening off farm, so you can take advantage of

alternative strategies such as marketing or agistment.

Regeneration

Peter finds cutting mulga is beneficial for his country as it opens up the thick canopy and allows the pasture underneath to regenerate. Feeding disturbs the soil, which encourages mulga regrowth.

Fallen mulga provides cover and protection to allow pasture to grow and seed.

Peter feels no special management is required to enhance regeneration as stock numbers are low coming out of drought and take time to rebuild.

CASE STUDY TWO

Producer: Wally Mitchell

Property: 'Landsdowne' Louth

History

Wally and his family have fed Mulga in western NSW for over 60 years.

Approach

In 2013 and 2014, Wally fed mulga to 200 cows and calves. He pushed mulga with a bulldozer until a breakdown meant he had to cut using a chainsaw. Hand cutting mulga for 200 cows took half a day, every day.

Wally worked to use the dozer and his time efficiently. He started pushing or cutting from the least reliable water source, working out, then back in, then out. When the weather was hot, he cut in areas close to water.

Wally cut enough mulga to ensure leaf was accessible all the time. This allowed stock to eat the fresh mulga, then go back through and eat the remainder. Wally cut no more than two days' supply ahead of time.

Cows fed mulga calved and reared saleable stock without the need to early wean the calves.

Wally continuously runs the bulls with the cows. He finds the cows generally do not get in calf following calving on mulga.

Supplement

Wally feeds cottonseed as a daily supplement while feeding mulga.

Wally's tips for feeding Mulga

- Be committed. Cutting Mulga is time consuming *"You can't cut mulga and play golf!"*
- Start feeding early you can always stop. Feeding early maintains stock in good condition without overgrazing pastures.
- Feeding mulga should be considered a management practice rather than an emergency measure when you are out of options.
- Talk to experienced locals about the palatability of different types of mulga. For example, cattle do not readily eat young mulga.
- Have a contingency plan to manage risk. When feeding mulga you only have 1 to 2 days feed for livestock.
- When feeding cottonseed, allocate a daily ration, to regulate how much they eat and reduce cost rather than dumping it in the paddock.
- Avoid cutting trees that have seeded as cattle padding around cut trees will promote a mass germination of mulga seed.
- Cattle and sheep can be fed together. Sheep hold their condition as well as cattle.
- Leave good places for cattle to camp with shelter and shade close to where you are cutting.
- While feeding, spell some paddocks that are in good condition: these will respond well after rain. If the break does not last long the cattle will readily start eating mulga again.

Regeneration

Starting to feed mulga early maintains stock without over grazing grasses. This allows quality grasses to survive the dry time, and responsive to rainfall, generating green feed and replenishing the seed bank.

Wally continues to stock country after the drought breaks, as felled mulga protects and promotes pasture regeneration.

Mulga has been cut for many years and it is now a lot thicker than it ever was in the past.

CASE STUDY THREE

Producer: Martin and Roseanne Myors

Property: 'Ourimbah' Wanaaring

History

Feeding mulga is and has been a common strategy on 'Ourimbah' during dry times and drought.

Martin and Roseanne fed 160 cows during the 2013-2014 drought. They sold all stock except for breeders and weaned and sold calves early. Bulls were run with the cows all the time. Cows that were too light would not cycle.

They usually feed in mobs of 80 cows but in 2000 boxed the cattle together into a mob of 200.

They successfully pushed mulga for Dorper/Damara cross ewes and fed in a similar way to the cattle except in a different paddock.

Approach

Mulga was pushed across the slope with a bulldozer using the blade without an attachment. This took approximately 1 hour depending on distance between mobs.

They started feeding at the water and worked outwards, pushing mulga every three days, allowing more efficient use of time. Martin and Roseanne managed to keep cows in light store condition over a prolonged feeding period of two years. Older cows tended to lose the most condition.

There was not much reprieve and towards the end of the drought, the quality of mulga was declining with trees under pressure. At this time Martin and Roseanne decided to send stock off on agistment as it became available.

Dust (caused by stock walking back and forth to water and machinery) seems to settle on the mulga, appearing to suffocate the leaf and reduce its quality.

Goats are attracted to pushed mulga and this may provide opportunities for trapping or result in competition and the need for increased feed supply.

Supplement

Martin and Roseanne feed a mulga mineral supplement to cattle and believe it is an essential practice.

Martin and Roseanne's tips for feeding Mulga

- It is important to provide a mineral supplement to stock fed mulga.
- There are minimum requirements for sulphur and phosphorus. Adjust the mix to ensure stock eat the right amount.
- Push mulga across the slope to catch nutrients and water for regeneration.
- Dust can reduce the value of Mulga. Avoid having cattle walking past mulga you plan to push next.
- Wean calves early and ensure watering points can comfortably handle the size of mobs being fed.
- Cattle and sheep can be fed together.
- Be committed when making the decision to feed mulga: once you start it is hard to stop unless you get the option of suitable agistment or it rains.

Regeneration

The practice of pushing mulga across the slope for perennial grass regeneration has had repeated success at 'Ourimbah'.

Recovery rain is the key as the seed base is there and just needs water.

Pushed mulga protects seed. There is no real management change required to promote regeneration, except perhaps with high stock densities.

CASE STUDY FOUR

Producer: Bill Ridge

Property: 'Tuon' Enngonia

History

'Tuon' is predominantly Mitchell grass country.

As part of the Ridge family strategic drought plan, they purchased 'Back Creek', a mulga property approximately 100km away.

The role of 'Back Creek' is to provide feed during drought and to protect the Mitchell grass on 'Tuon'.

Approach

When it started to get dry in 2013, Bill trucked 100 cows from 'Tuon' to 'Back Creek'.

Bill flew to 'Back Creek' every 4 to 5 days and pushed enough Mulga using a dozer with a power pole attached across the front of the blade. The dozer would use 20 litres of fuel on each occasion.

Bill would like to feed more often, however the long distance between properties made more frequent feeding inefficient and inconvenient.

Bill began feeding close to the least reliable water supply and as needed moved and fed at the next least reliable source.

The cows calved and were early weaned and fed separately.

Supplement

Bill provides hard lick blocks to supplement cattle fed Mulga. Bill would have preferred to use a loose lick, but the distance between properties made introducing and monitoring the lick difficult.

Bills tips for feeding Mulga

- Before feeding mulga, consider other available options. Monitor feed and livestock markets and take agistment were available.
- Only feed mulga to core-breeders and high value animals.
- Begin to reduce stock numbers early, before mulga feeding is required.
- Start feeding close to your least reliable water supply and progress to the next least.
- A power-pole attached to the dozer blade is effective at knocking the tops out of trees and makes time spent pushing more efficient. Railway iron is less suitable as it tends to bend.
- Plan to wean calves early.
- When feeding, monitor previously pushed mulga to ensure there is enough leaf to prevent cattle consuming too much twig material. As needed increase the amount pushed.

Regeneration

Mulga has a role to play in a balanced system and pasture management. Moving cattle off Mitchell grass country and feeding mulga maintains the Mitchell grass in good condition.

Once there is a break in the season, continuation of mulga feeding allows the Mitchell grass to regenerate, increasing leaf area and growth, enabling the plant to take full advantage of available water.

Pushing mulga disturbs the soil and may stimulate the growth of undesirable species such as turpentine and box suckers.

CASE STUDY FIVE

Producer: Callum and Nancy Robinson

Property: Glenmore and Ellerslie- Weilmoringle

History

Callum and Nancy have used Mulga feeding as a drought strategy for a number of years.

During 2013 and 2014, they fed 90 cows through the different stages of pregnancy and lactation.

They weaned calves early and fed an alternative ration.

Bulls were removed as they tended to harass the cows and cause unplanned pregnancies.

Callum feels that agistment is generally not an option as it often is too far away, costing time and money in travel. Further, the feed is commonly no better than the mulga he could be providing at home.

Approach

Initially, mulga was cut with a chainsaw. Branches were selectively lopped to maintain the tree.

Trees infected with galls were selected first as they were least likely to survive the drought.

Callum reworked areas in which he had previously selectively lopped the trunk out of the tree, leaving the outer branches. These trees thickened up and re-sprouted ready for further lopping.

As feed requirements increased, Callum cut entire trees to increase feed quantity and improve labour efficiency.

Callum used a tungsten tip chain to prevent the need for sharpening and replaced the chains as needed.

He began cutting near water, to train stock to the noise of the chainsaw. Once trained, Callum would move the stock further away by simply starting the saw.

Callum fed in areas that were easily accessible whilst carrying a chainsaw, fuel and oil. Where possible he avoided dense areas of mulga.

As the drought progressed, Callum began using a D7 bulldozer to reduce labour requirements.

Using a chainsaw took two to three hours per day. Pushing with the dozer reduced this requirement to less than one hour per day.

He selectively pushed mulga, leaving scattered trees.

Callum found that working out how much to cut or push was trial and error.

Factors included the availability of other feed sources such as grass and whether supplementing with cottonseed, using a mineral lick or feeding dry, pregnant or lactating cows.

Callum generally fed daily, cutting or pushing enough to ensure cows had access to sufficient leaf material.

Callum would provide more mulga if he had to miss a day or two.

He found fresh cut mulga to be more palatable and full of moisture. Greedy bigger animals tended to follow the saw or machine and take a big mouth full of fresh leaf.

Stock also preferred older trees as younger trees appeared to be ‘sappier’ or have more tannin.

He also found differences between the many types of mulga. Livestock tended to leave some trees until last, such as tall types similar in shape to pine trees, while others were keenly sought.

Rain events caused Callum a few problems in paddocks with poor fences as cows moved away, chasing green pick.

Supplement

Callum supplemented the cattle with a mineral lick and cottonseed.

He fed cottonseed daily rather than dumping larger piles in the paddock.

The mineral supplement was fed in homemade feeders made by welding halves of 44-gallon drums together.

Callum’s tips for feeding Mulga

- Feeding mulga is a good drought strategy.
- The decision to cut or push mulga will depend on time availability and machinery availability.

- Estimate how long you think you will be feeding mulga for, then double it.
- Once you start cutting you are personally committed. Paying someone to cut mulga is not a viable option due to labour availability and work place health and safety issues.
- If using a bull dozer, expect expensive breakdowns. “They never break down when you’re not using them”.
- Select trees affected by galls and mistletoe, as they are less likely to survive long term compared with unaffected trees.
- If cows calve whilst on mulga, plan to wean calves early and provide supplement more suited to early-weaned cattle.
- Shrub feeding attracts unmanaged goats. This can be a bonus; it makes them easy to muster and their sale provides cash flow.
- Try to contain stock in smaller paddocks after rain as they chase green pick.
- Instead of dumping cotton seed in the paddock allocate a daily ration to regulate intake and reduce costs.

Regeneration

There is always a good pasture response and regeneration in areas where mulga has been cut or pushed.

The lopped or pushed mulga protects germinating or regenerating grasses, which includes protection from sheep, especially Dorpers and Damaras, and goats. Cattle tend to graze differently and leave much more behind.

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