Beeftalk

Taking stock of your future

Prime news and views for beef producers of south-east Queensland

Issue 26 Spring/Summer 2008

in this issue

editorial

Once again it is good to be writing a *Beeftalk* editorial without the worry of drought hanging over us. Most areas of south-east Queensland have had a fairly mild wet winter. We were brought back to reality with a bang during August with widespread heavy frosts and, in some areas, record low temperatures.

The good summer and mild wet winter have reduced the flow of enquiries about supplementary feeding, although I have received enquiries about the skyrocketing prices for supplements and selecting cost-effective alternatives. High prices make it even more important to 'do the sums' before starting a supplementary feeding program. The article on costing supplements takes you through the steps of comparing supplements for value.

Over the past five to ten years we have seen the outbreak of a number of exotic diseases. Equine influenza affected many beef producers by restricting where and how they could move their horses. It is important to be aware of biosecurity risks and the issues we face on our properties. Practical pointers are provided in the article on Farm Biosecurity.

As always we have a range of articles on pastures, from knowing our native pastures – in this issue, forest bluegrass – to improving pastures with legumes, to managing weeds such as lippia and lantana.

Parasites – both internal and external – are always a concern. Over the last 12 months there have been reports of worm resistance to some of the commonly used drenches. Articles on how to manage both problems are included in this issue.

It is good to be able to report the appointment of two new staff members. Marie Vitelli and Adam Logan are working on a project to provide better services to landholders in much of south-east Queensland. Information on what they are doing is in this issue.

There are no hatches, matches or dispatches in the *Beeftalk* team to report this issue.

The Ed

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Legumes – for fodder crops and short-term pastures

A range of tropical legumes is available for planting on the more fertile heavier clay soils to provide high quality grazing forage. These soils, which have higher fertility and water holding capacity than the light textured soils, will often have been used for cropping and now be depleted in nitrogen and soil organic matter.

Legumes for grazing can be grown on these soils as fodder crops or short-term pastures between other crops (leys) or in permanent pasture, providing higher levels of protein for grazing stock.

There are also the long-term pasture benefits of adding nitrogen to the soil. At Brian Pastures Research Station near Gayndah, sorghum was grown following lablab. Sorghum crop yields ranged from 3.5 to 5 tonnes/ha in the first crop after lablab and were more than 3 tonnes/ha in the fourth crop following lablab. This compares with the district average of 2.3 tonnes/ha.

Annual fodder crops

Legumes as fodder (or forage) crops can be planted into cultivation each year in the same way as annual summer crops such as sorghum. The main summer legume fodder crops in south-east Queensland are the annual cowpeas and lablab.

Cowpea *(Vigna unguiculata)*

- Easily established annual legume, producing high forage yields in a short growing season.
- Suited to a wider range of soils than lablab, including more acid soils. Grows well on clay soils provided they are well drained.
- Susceptible to root and stem rots. Red Caloona and Ebony varieties have some resistance to phytophthora stem rot.
- Planting rates vary from 20 to 40 kg/ha.

Lablab (*Lablab purpureus,* formerly known as *Dolichos lablab*)

- Longer growing season than cowpea, more tolerant of frost and very drought tolerant once established.
- Can provide high quality forage for grazing over late summer, autumn and early winter. At stocking rates of 2 to 2.5 steers/ha (1 steer/acre), growth rates are consistently between 0.6 and 0.8 kg/head/day for 80 to 100 days grazing.
- Less susceptible to root diseases than cowpea.
- Can be planted to a depth of 10 cm.
- Forage varieties are Rongai, Highworth and Endurance. Rongai (white flowers, brown seeds) is a late flowering type with high forage yields. Highworth (purple flowers, larger black seeds) flowers earlier and produces similar forage yields. Endurance, a perennial variety (although its success as a perennial is variable), has a smaller seed than Highworth and can be planted at a lower rate (about 15 instead of 20 kg/ha).

Ley pastures or short-term pasture

As soil fertility declines on old crop lands, ley farming is being more widely considered. Ley pastures with a grass or legume mix are planted for 2 to 4 years in rotation with crop. The legumes used in these systems need to establish readily, grow quickly and produce high forage yields to maximise their forage value and the amount of nitrogen that can be returned to the soil. Two legumes being used in this capacity are burgundy bean and butterfly pea.

Burgundy bean *(Macroptilium bracteatum)*

- Perennial with a relatively large seed. Can regenerate from seed but rarely lasts for more than 2 to 3 years in a grazed pa sture because it is so palatable.
- Establishes easily in prepared seedbeds when planted at a depth of 2 to 4 cm.
- Grows rapidly and produces high forage yields in the first year.
- Ease of establishment allows for a rapid improvement in soil nitrogen which is highly desirable for a ley pasture.
- Planting rates are 2 to 5 kg/ha.
- Varieties Cadarga (an erect form) and Juanita (lower growing but can be more persistent and less affected by bean mosaic virus) are usually sold as a composite.
- Grows on a wider range of soils and is better adapted to cooler sub-tropical climates than butterfly pea.

Butterfly pea *(Clitoria ternatea)*

- Strong perennial twining legume that is well suited to clay soils. Flower colour ranges from white to dark blue.
- Tolerates some inundation but does not withstand prolonged waterlogging.
- Not suited to areas with severe or frequent frost but will recover from some frost by regrowing from the base or the woody stems.
- Forage production is highest in summer and is limited when average daily temperatures drop below 15°C.

- Large seed establishes easily when planted at depths to 5 cm.
- Planting rates of about 6 kg/ha on ley pastures will achieve a good plant density of 5–10 plants m^2. Often produces higher yields in the second and subsequent years when a good framework of woody stems has developed.
- Persists for many years under grazing provided it is not continuously grazed and is allowed to set seed. Seedling recruitment is sporadic but can be very successful under favourable weather conditions.
- Palatable at most stages of growth although there have been some reports that it is not always well eaten.
- Milgarra, the Australian cultivar, is a composite of six main lines and a number of minor lines.

Research comparing density changes between butterfly pea and burgundy bean over five years demonstrated the superior persistence of butterfly pea (see Table).

Table. Changes in legume density (plants/m^2) of Milgarra butterfly pea and burgundy bean over four years at Brian Pastures Research Station, Gayndah. (Seedling numbers are shown in brackets).

	Legume density (plants/m^2)				
	1998	1999	2000	2001	2002
Milgarra butterfly pea	13	9 (1)	8 (1)	7 (6)	12 (3)
Burgundy bean	18	12 (5)	8 (5)	1 (9)	6 (2)

At Brian Pastures Research Station growth rates (kg/head/day) of steers grazing burgundy bean were higher (0.55 kg/h/d) in the first year than for butterfly pea (0.4 kg/h/d), which was probably due to the higher amount of forage available. In subsequent years (1998–2002) growth rates were similar with a range of 0.5 to 0.65 kg/h/d.

Combined with grasses

These legumes can be used in pure legume swards. However there are advantages in planting grasses with them, particularly if the grasses are not so aggressive in the establishment phase that they severely reduce legume forage yields. The grasses can take advantage of increased soil nitrogen and reduce the likelihood of weeds becoming dominant, especially in winter when the tropical legumes are not actively growing. Grasses also provide more forage for grazing and, because grasses degrade more slowly than legumes, the release of nitrogen to subsequent crops can be spread over a longer period.

Other legumes to consider are Caatinga Stylo Desmanthus and Leucaena for long term pastures (see separate article in this issue).

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Legumes – for long-term pastures on high fertility soils

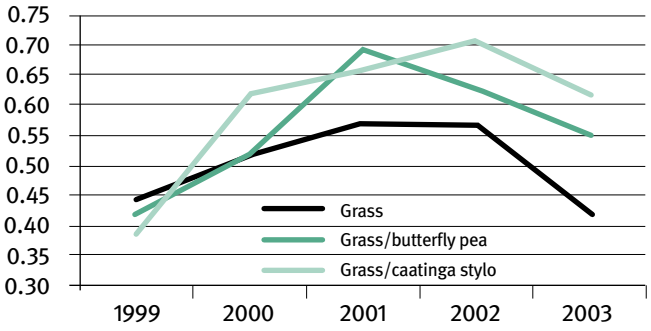
In long term pastures a grass and a legume are usually planted at the same time (except for leucaena, where the grass is established after the legume). These pasture types can be slower to establish but the grass and legume components are very persistent once established. Often the legume takes some time to increase in density but this is necessary for the pasture to remain productive in the longer term. Some leucaena pastures continue to be productive and persistent almost 40 years after planting. Two other tropical legumes with potential to survive in long-term pasture systems are Caatinga stylo and desmanthus.

Caatinga stylo *(Stylosanthes seabrana)*

- Well suited to clay and clay loam soils.
- Woody perennial similar to shrubby stylo (Seca and Siran).
- More tolerant of cold than shrubby stylo or Caribbean stylo.
- Flowers early with prolific seeding.
- Seed is small and slippery if dehulled so should be planted at 1 to 2 kg/ha on the soil surface.
- Requires a highly specific inoculum which should be mixed with seed prior to planting.
- Two cultivars are Unica and Primar. Unica is erect and flowers 2 to 4 weeks later than Primar in the establishment year. Primar is earlier flowering and has more tolerance to cool conditions but has been affected by anthracnose in seed production areas.

Caatinga stylo is not highly palatable. Grazing stock generally prefer green grass leaf over legume leaf but as the grass matures the stylo is well eaten. Steer growth rates when grazing Caatinga stylo/grass pasture at a stocking rate of 1 weaner steer/1.2 ha over five seasons at Brian Pastures Research Station were generally higher than for steers grazing butterfly pea/grass pasture or grass without legume (see graph).

Growth rates (kg/head/day) of steer grazing grass (green panic and creeping bluegrass), grass with Milgarra butterfly pea or grass with Caatinga stylo pasture over five seasons at Brian Pastures Research Station, Gayndah.



Desmanthus *(Desmanthus virgatus)*

- Small long-lived perennial shrub well suited to alkaline clay soils.
- Once established competes with aggressive grasses including buffel.
- Very drought tolerant.
- Forage production is low but it is well eaten by stock when available. It also tends to shed leaf in response to dry conditions so its contribution to the pasture yield and animals' diet is variable.
- Small seed that requires scarification before planting on or close to the soil surface at 1 to 2 kg/ha.
- A heavy seed producer. Seeding occurs throughout the growing season but a high proportion of seed is hard. Field softening can take some years so a good initial strike is important, but plant density can increase rapidly once the seed has softened.
- Marc is the main cultivar.

Growth rates for steers grazing desmanthus/grass pasture at Brian Pastures Research Station over six years ranged from 0.43 to 0.66 kg/head/day. This compared with a range of 0.29 to 0.63 kg/head/day on grass only pasture.

Leucaena *(Leucaena leucocephala)*

- Long-lived shrub or small tree that produces forage of high nutritive value for cattle.
- Grows best on fertile, well-drained, neutral to alkaline soils but can be slow to establish.
- Susceptible to frost. Light frosts affect the leaf and heavy frosts can kill the stems to ground level but usually will not kill mature plants.
- Usually grown in rows 6 to 10 metres apart. Needs to be planted into well-prepared cultivation with a full profile of soil moisture.
- Weed control during establishment is essential and the area should be kept weed free until the leucaena plants are well established (at least 1 to 1.5 m tall), after which grass can be established between rows.
- Two cultivars most widely planted are Cunningham and Tarramba. Cunninghan is a lower growing heavily branched type. Tarramba is more tree-like. Yields of edible forage are similar but Tarramba can establish more quickly and also recover more quickly from setbacks such as frost or insect attack.
- Both varieties are susceptible to attack by psyllids, small sap-sucking insects that feed on the new growing leaves and can reduce forage production, particularly in autumn and spring when conditions are cool and wet.

Forage yields of leucaena in the lower rainfall (650 to 750 mm) sub-tropical areas are low but the palatability and nutritive value of leucaena and the associated grass is high. As a result high animal growth rates of over 250 kg/head/year (0.7 to 0.8 kg/head/day) are regularly recorded.

To maximise growth rates and to prevent toxicity from mimosine and its derivatives, an anaerobic rumen bacteria ('rumen bug') should be transferred to the rumen of all cattle grazing leucaena. This can usually be achieved by drenching about 10 per cent of the animals in a group and allowing the bacteria to transfer to the rest of the group.

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Worm egg counts

To get a good picture of the level of parasite infestation, samples should be taken from at least 10 animals that are 6–18 months old and which represent a cross-section of the mob.

There are no hard and fast rules for interpreting the significance of faecal egg counts. Several factors affect the accuracy of the tests and the impact of the presence of worm eggs:

- Worm populations and egg counts fluctuate rapidly and figures from one sampling may not provide a true indication of the overall situation.
- The number of eggs may vary with such factors as starvation, consistency of the faeces, and resistance of the hosts.
- What may be considered only a moderate burden under good conditions may be a pathogenic burden under severe conditions such as drought.

With these limitations in mind, the following values provide a guide for interpreting results.

	Eggs per gram	
	Significant	Dangerous
Cooperia	500	10,000
Haemonchus	200	1000
Oesophagostomum	200	1000
Ostertagia	500	3000
Bunostomum	200	1000
Trichostrongylus axei	100	1000
Trichostrongylus colubriformis	500	3000

Drench-resistant worm control

Drench failure

Recently the WormBuster laboratory identified two cases of ML drenches failing to control either cooperioid (*Cooperia punctata* and *C. pectinata*) or barber's pole (*Haemonchus placei*) worms in weaner dairy calves in south-east Queensland. The cooperioid worm egg counts on one farm were between 10 000 and 13 000 eggs per gram of faeces (epg). These were extremely high counts; the calves scoured profusely and were much debilitated. On the other farm, most of the infection was due to cooperioids but with some barber's pole.

ML endectocides (Macrocyclic Lactone – see table) are used in cattle to treat and control internal parasites such as worms as well as external parasites such as ticks, lice and mites. When MLs are used to control cattle ticks (*Rhipicephalus [Boophilus] microplus*), worms are also exposed to levels of chemical that select for resistance.

Immunity to worms

Immunity to worms can take from five months to about 18 months to develop depending on the age at weaning and the type of worm involved. In dairy calves, for instance, immunity to cooperioids develops at about five months and to barber's pole worm at 12–18 months. In beef cattle, immunity develops much later because of the older age of weaning and subsequent exposure to worms.

Mature cattle bred on dry inland pastures without exposure to worms may not gain an effective immunity and will quickly succumb to infection when introduced to worm-endemic wetter coastal or sub-coastal districts.

Managing drench-resistant worms

An integrated management strategy for young cattle would include:

- providing improved nutrition to calves to support their immune system while it is developing a resistance to worms
- adjusting stocking rates so that adult animals (low contributors to pasture contamination) outnumber young susceptible animals (heavy contributors to pasture contamination)
- grazing adult immune animals ahead of calves to pick up and remove infective larvae from pastures
- developing more than one calf or weaner paddock to allow calves to graze on a 'low worm' paddock while the contaminated paddock is grazed and cleaned by adult stock
- using drenches from other active groups such as the BZ (benzimidazole) or LEV (levamisole) groups (see table) to better manage drench resistance
- using laboratory testing to identify drenches appropriate to your property.

When selecting a drench, consider these factors:

- application type, whether oral, injection or pour-on
- rotation between drench active groups
- the persistent activity of ML drenches against many worms
- the endectocide activity of ML drenches selecting for resistance in non-target parasites
- need for liver fluke control
- withholding period and export slaughter interval of the drench.

Worm tests

Worm test kits can be purchased at local resellers or by ringing Judy at the WormBuster laboratory on 07 3362 9534. Kits cost $33 including GST, and this includes postage, laboratory testing and reports.

This test can be used to monitor worm burdens and to determine if stock need to be drenched. You can also use the kit to check drenches for efficacy by testing 10 young animals at drenching and the same 10 animals again 7 to 10 days later. Dairy calves should be five months or younger.

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Nematodes most commonly infecting cattle in south-east Queensland

Cooperia punctata and *C. pectinata* complex (cooperioids or small intestinal worms)

Haemonchus placei (barber's pole worm)

Oesophagostomum radiatum (nodule worm)

Ostertagia ostertagi (small brown stomach worm) – occasionally seen

Bunostomum phlebotomum (hookworm) – not seen recently

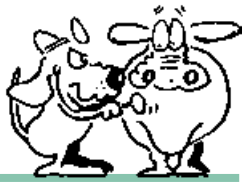
Commonly used cattle drenches in south-east Queensland (many of these drenches are also formulated with flukicides for liver fluke control)

Active group	Active ingredient	Brand names
BZ	albendazole	Albendazole® Cattle Mini Drench Oral, Strategik® Mini-dose Oral, Valbazen® Mini-Dose Oral
	fenbendazole	Fenbendazole® Oral, Panacur® Oral
	oxfenbendazole	Oxfen® Oral, Systamex® Oral
LEV	levamisole	Levamisole Gold® Oral, Levamisole® Pour-On, Nilverm® Oral, Nilverm® Pour-On
ML	moxidectin	Cydectin® Pour-On, Cydectin® Injection, Cydectin® LA Injection
	abamectin	Genesis® Injection, Paramectin® Injection, Paramectin® Pour-On
	ivermectin	Ausmectin® Pour-On, Baymec® Ivermectin Pour-On, Genesis® Pour-On, Ivomec® Injection, Ivomec® Pour-On, Paramax® Pour-On, Virbamec® LA Injection, Virbamec® Pour-On
	doramectin	Dectomax® Injectable, Dectomax® Pour-On
	eprinomectin	Ivomec Eprinex® Pour-On

Points to note:

- **The last few summers have been cooler than normal with frequent showers of rain producing ideal conditions for worm larvae to survive on pasture.**
- **Some Macrocyclic Lactone (ML or mectin) drenches have failed to provide adequate control of worms on some farms resulting, in higher than usual worm burdens.**
- **The ML drenches, when used for tick control, also expose worms to levels of chemical that select for drench resistance.**
- **Young animals are quite susceptible to parasitic infection and worm control measures need to be in place for the first 12–18 months of life until immunity develops.**
- **By contrast, stock over 20 months of age are usually quite immune to parasitic infection and do not require drenching.**

Uterine prolapse in cattle



Prolapse in cattle can range from a vaginal prolapse where only a small amount of tissue is sitting on the outside of the vulval lips to a full uterine prolapse where the whole of the uterus is turned inside out, exposing the very fleshy caruncles (where the placenta attaches to the inside of the uterus) and almost dragging on the ground. Obviously the degree and duration of prolapse will affect the treatment regime and also prognosis.

When does it occur?

Prolapses can be divided into two groups by when they appear:

Pre-calving – A pregnant cow may suddenly present with a vaginal prolapse. During pregnancy the muscular and fibrous attachments holding the reproductive tract in place soften and weaken. With a small degree of straining the vagina can pop out, which further weakens the attachments. Associated swelling can prevent the vagina from returning to its proper position. This mass sitting outside irritates the cow and so she continues to strain against it. However, because the cervix is closed with the pregnancy the whole uterus will not evert and so these prolapses don't tend to progress.

Post-calving – Prolapses usually occur very soon after calving but can occur up to two weeks later. Post-calving prolapses tend to be more dramatic as the cervix is now open to allow the calf to be born which allows the whole uterus to turn inside out and prolapse out. Once again, this type of prolapse is associated with weakness of the structures supporting the female reproductive tract.

What are the causes?

1. **Genetics** – Lines of cattle will be more prone to the problem, and also some breeds are more predisposed to prolapses.
2. **Mineral deficiencies** – Calcium plays a major role in muscle strength and weakness. In extreme cases of high demand for blood calcium, such as in a Friesian cow just on calving, we will likely see hypocalcaemia or milk fever and the cow unable to rise. It is also common to see prolapses in these cows due to the lowered blood calcium.

   Subclinical hypocalcaemia can occur with prolonged mineral deficiency (e.g. under drought conditions and on mineral-deficient country). A cow with this condition may not actually show milk fever signs of not being able to rise but her muscles won't be working effectively. This muscular weakness allows the reproductive tract to be prolapsed out. This is why prolapses are more prevalent in harder times.
3. **Difficult calvings** – The muscles will be weak simply due to exhaustion. If the calf has been caught in the pelvic canal for an extended period the cow may develop calving paralysis as well. The muscle weakness, paralysis and straining involved in the birthing process all contribute to the development of a prolapse.
4. **Gravity** – When a cow is standing, gravity tends to hold her reproductive tract down inside the abdominal cavity. A cow lying on her side and having difficulty rising won't receive this gravitational assistance.

How do we treat it?

Treatments will vary depending on the severity of the prolapse. Normally veterinary assistance will be needed to replace the prolapse because spinal anaesthesia is often used to eliminate straining. Once the prolapse has been replaced, we then need to decide how to keep it in place.

The simplest method is to suture the vulval lips together. In some cases this is adequate but a problem arises if the cow has not calved. Suturing can also be a problem in some of the *Bos indicus* type breeds which tend to be 'sloppy' behind. When the lips are sutured together there is still a lot of room between the sutured lips and the back of the pelvic canal; as soon as the cow strains the prolapse is pushed up into this gap and can eventually tear the sutures.

Another option for keeping the prolapse in place is prolapse buttons, which 'nail' the uterus to the inside of the abdomen. These buttons do not need to be removed for the cow to calve, which is an advantage. They also tend to hold the uterus further forward, lessening the chance of reprolapse. In severe cases, it is common to use both suturing and buttons. The sutures need to be removed for the cow to calve and not cause tearing of the tissue.

While low calcium can be a cause of muscle weakness which may result in a prolapse, it is important to ensure that cattle have a good balance of both calcium and phosphorus. Feeding calcium only in the hope of preventing prolapses may lead to other problems.

How do we prevent it?

Appropriate nutrition is important, particularly during hard times. Avoid keeping lines of cows that are prone to prolapse. And as cows often reprolapse with later pregnancies, if you have a cow with prolapse get rid of her and don't breed from her again. My record so far is the same cow prolapsing three times – great for the vets but not very economical for the cattle producer.

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Sown pastures – higher rainfall country of the Gympie region

Adequately fertilised and well-managed sown pastures have the potential to at least double animal weight gains per head and stocking rates per ha, compared to run-down naturalised and sown pastures. Once established, well-managed sown pastures should persist for more than 10 years.

Gympie region

The high rainfall coastal zone extends north from the Sunshine Coast to Maryborough and includes the grazing lands east of the Mary River and the upper Mary Valley. With average annual rainfall of 1100 to 1600 mm, this country can present some unique challenges where animal production is more likely to be affected by waterlogged soils than by drought.

Native pastures in this area were originally dominated by kangaroo, forest blue and blady grasses, with the exception of the closed forests which generally lacked a significant grassy understorey. The hill country was cleared by axe and burnt and Rhodes grass seed was sown in the ashes, while the creek flats were planted to paspalum and white clover.

Over time, the condition of both native pastures and the early sown pastures declined due to a combination of heavy stocking rates, soil fertility decline and annual burning regimes. As a result many pastures became dominated by inferior grasses such as blady grass and matgrass and weeds such as bracken fern and groundsel bush.

In the 1960s and mid-70s under the Wallum Development Scheme and the Dairy Pasture Subsidy Scheme, tropical legume-based pastures were extensively planted for beef and dairy production. Setaria and desmodium were two of the most commonly sown species.

Recommended species

Grazing Land Type units have common soil, topography and vegetation characteristics which describe a particular suite of land systems, and which reflect the potential pasture productivity and possible land limitations of that unit. Pasture grasses and legumes suited to the five most common land types in the coastal Gympie region are listed below.

Most pasture seed mixes consist of one or two grass species with two to four legume species. When planning a pasture development program, starter and maintenance fertiliser applications to optimise productivity need to be budgeted in. Obtain expert advice before commencing pasture development.

Grazing land type	Grasses	Legumes
Coastal lowlands and plains on sandstones • Leached sands • Sandy loams over yellow clay sub-soils	Pangola (*Digitaria eriantha*), Katambora Rhodes (*Chloris gayana*), setaria (*Setaria sphacelata*), Bisset creeping bluegrass (*Bothriochloa insculpta*)	Lotononis (*Lotononis bainesii*), Shaw creeping vigna (*Vigna parkerii*), Villomix (*Aeschynomene villosa*), Maku lotus (*Lotus uliginosus*)
Open forest on sandstones, shales and granites • Shallow gravely loams • Hard-setting sandy loams and loams over red and yellow clay sub-soils	Pangola, Katambora Rhodes, setaria, Bisset creeping bluegrass	Lotononis, Villomix, Wynn cassia (*Chamaecrista rotundifolia*), fine stem stylo (*Stylosanthes hippocampoides*), Seca stylo (*S. scabra*)
Tall open forest on phyllites and volcanics • Yellow and red clay loams	Katambora Rhodes, green and Gatton panic (*Panicum maximum*), Bisset creeping bluegrass	Shaw creeping vigna, white clover (*Trifolium repens*), glycine (*Neonotonia wightii*), Siratro (*Macroptilium atropurpureum*)
Rainforest and vine scrub on volcanic rocks and phyllites • Deep red friable clays • Brown clay loams • Deep loams over structured sub-soils	Kikuyu (*Pennisetum clandestinum*), paspalum (*Paspalum dilatatum*), green and Gatton panic, Bisset creeping bluegrass, Callide Rhodes	Shaw creeping vigna, white clover, glycine, Siratro
Blue gums or flooded gums on stream alluviums • Sandy loams to clay loams on floodplains and relict terraces	Kikuyu, paspalum, Callide Rhodes	white clover

Notes:
- *Pangola grass can only be planted vegetatively i.e. by runners*
- *Seed of lotononis, Shaw creeping vigna and Maku lotus is not currently available*
- *Wynn cassia is a heavy seeding legume; the maximum recommended sowing rate is 0.5 kg/ha*
- *Other specialist pasture species e.g. Pinto peanut may also have a role in sown pastures*
- *The above recommendations are generally for cattle pastures. Pasture seed mixtures for horses may need to be modified to avoid potentially high oxalate content grasses e.g. setaria*

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Growing trees and cattle – economic and environmental gains

By integrating the production of trees, pasture and livestock, producers could achieve greater net returns while providing important environmental benefits, according to research underway in central Queensland's cattle country.

In the two-year research project, led by CSIRO scientist Mick Stephens in collaboration with DPI&F, the economics of incorporating silvopastoral practices on grazing lands and the potential for greater net returns from a combination of livestock production and forest products is being investigated.

The costs and benefits of establishing strips of higher yielding eucalypt tree species or retaining 20 to 100 metre wide rows of native woodland regrowth such as brigalow (*Acacia harpophylla*) and poplar box (*Eucalyptus populnea*) on grazing lands will be assessed.

The interactions between tree and pasture growth, taking land capability into consideration, and the relative costs, prices and yields for livestock and forest products are being investigated, as well as emerging prospects for bio-fuels, carbon sequestration and carbon trading.

This project is building on earlier research, by the Queensland Department of Natural Resources and Water and supported by Meat and Livestock Australia, which looked at some of the competitive and stimulatory effects of tree strips on pasture production at several sites in central and southern Queensland.

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Bull buying – using all the information available

Each year bull buyers have more information available to them on the performance of sale bulls.

Some venders provide everything from liveweight to Estimated Breeding Values (EBVs) to Genestar ratings, although others provide only minimal information. It is understandable that buyers can get confused about using and ranking the information to select bulls to suit their requirements.

To help sort the 'wheat from the chaff' a buyer needs to have clear breeding objectives for their herd and an understanding of the production criteria that give the greatest return.

It's clear that numbers and weight are the two production criteria that have the greatest bearing on profitability. Thus the greatest emphasis should be placed on growth and fertility EBVs and the Breeding Soundness Evaluations.

Once a bull has met your requirements for growth and fertility, you need to select on the next most important traits for improving your herd. Clear breeding objectives will make this decision very easy.

The free DPI&F booklet 'Buying Bulls – it's all in the genes' explains all the objective information provided to bull buyers and is a useful companion at a bull sale.

Further information:

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Lippia spread continues

Like many introduced garden plants, lippia is now proving to be a problem weed and is threatening large areas of land in the Murray Darling basin and the Burnett Mary region. Lippia has been promoted as a no-mow lawn and is sometimes called Condamine couch. It was first recorded in Queensland in 1944 and its weed potential was first documented in 1960.

In 2004 the Murray Darling Basin Commission estimated lippia was costing agriculture and the environment $1.8 billion dollars and affecting 5.3 million hectares of land.

What is lippia?

Lippa (*Phyla canescens*) is a perennial herb. Not surprisingly lippia is in the same family as lantana, common verbena and Mayne's pest. Another plant in the same genus as lippia, called phyla weed (Phyla nodiflora), seems to be less of a problem.

What does it look like?

- flat to the ground reaching only 30 mm in height and radiating out to cover large areas
- grey–green leaves 10–20 mm in length
- green to purple coloured stems 2–3 mm thick, with fibrous roots growing from the nodes
- central woody taproot 50–80 cm long
- white flowers 5–10 mm in diameter, occurring at any time after rain.

The plant is often spread by water flow which moves seeds and stems fragments. It appears that water birds and larger animals can also spread the plant in the mud on their feet.

What is the problem with lippia?

Lippia is not palatable to stock. Due to its aggressive growth and ability to survive flood and drought, lippia can invade whole paddocks, replacing desirable pasture species. Lippia is suspected but not proven to have an allelopathic effect. This means the presence of lippia suppresses and halts the growth of other plants and the germination of their seed. In the Murray Darling system lippia has caused erosion by drying out banks and causing them to subside into creeks and river beds. It is also suspected to have stopped eucalypts from regenerating.

What can we do about it?

Many people are already battling to control this menace. Obviously the best policy is to take action when lippia is first recognised,

before it has the opportunity to spread.

Chemical control and cultivation are the only current options for control. In areas that can be cultivated, replanting with pasture has been successful. In most places chemical control is the only option. Lantana 600, Glyphosate and 2,4-D have been used to control the weed but costs/ha are about $45/spray and two sprays are usually needed for complete control.

NB. If any equipment used to cultivate land infested with lippia should be thoroughly cleaned before moving out of the paddock.

Further information:

www.dpi.qld.gov.au/cps/rde/xbcr/dpi/IPA-Lippia-pp61.pdf

www.dpi.qld.gov.au/cps/rde/xbcr/dpi/IPA-Lippia-PSA.pdf

or

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DPI&F, Kingaroy
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Lantana biological control update

Signs are promising that the latest biological control agent for lantana, the leaf-mining fly *Ophiomyia camarae*, could become established at many of the 21 sites where it has been released across south-east Queensland.

Biosecurity Queensland entomologists have observed mines in lantana leaves at several of the release sites. These mines indicate that *O. camarae* is emerging and possibly breeding at these sites.

Over the last six months Biosecurity Queensland and New South Wales Department of Primary Industries researchers have been studying effective rearing and establishment practices for this leaf-mining fly. To date efforts to rear *O. camarae* in New South Wales have been unsuccessful. However researchers are hoping to establish the fly in the north of that state in spring.

For now we are watching the south-east Queensland sites and waiting to see if the first permanent colonies become established.

Further information:

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Costing supplements

The high price of some traditional supplement ingredients, such as urea and many of the protein meals, has caused a lot of people to re-evaluate their supplementary feeding programs.

The first question to be answered is: 'Am I using the most cost-effective ingredients'?

When deciding on ingredients for a supplement mix or choosing a proprietary supplement, it is important to determine the cost of the supplement in relation to the nutrient you require. In some cases the supplement that appears to be the dearest may actually be the cheapest per unit of nutrient.

For example urea is now about $1200 per tonne. At 46% nitrogen this equates to 287% equivalent protein. (To calculate protein in a feed multiply the nitrogen content by 6.25.) On this basis the cost of a kilogram of protein from urea is 42 cents.

Compare this with the cost of another source of protein, say cottonseed meal (if you can get any), which is now $600 per tonne and 43% protein. The cost of a kilogram of protein is $1.40.

To calculate cost per kg of nutrient

1. Kg of nutrient purchased = (weight of product purchased in kg) multiplied by (percentage of required nutrient in the product)

2. Cost per kg of nutrient = (cost of purchase) divided by (kg of nutrient purchased)

For example

Cost of nutrient (protein) in 1 tonne of cottonseed meal with 43% protein at $600 per tonne:

1. Kg of protein purchased
   = 1000 kg x 43% = 430 kg

2. Cost per kg of protein
   = $600 / 430 kg =$1.40/kg

Once you are confident your supplement is the cheapest per unit of nutrient, the next question to be answered is: 'Is it still economical to supplement'? To answer this question correctly you need to know the improvement in performance that can be attributed to the supplement. As feed prices rise, the cost per unit of nutrient will also rise so the cost/benefit ratio will not be as good as it used to be, irrespective of the supplement used. In some cases where only marginal improvements are achieved, it may be more cost effective not to supplement and accept lower performance.

More information:

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Timely tips for south-east Queensland

	BREEDING	NUTRITION
Spring September, October, November	*Breeders* **A**ssess breeder condition for mating. First calf cows may need extra care. **M**ate heifers one month before the main herd where nutrition is adequate. **V**accinate maiden heifers for vibriosis and leptospirosis (initially 2 vaccinations 4 to 6 weeks apart and annual booster). **T**alk to your veterinarian about the need for pestivirus vaccinations. **C**heck calving cows, especially heifers, regularly. **R**ecord all cows and heifers that have calving problems for culling. **O**rder NLIS ear tags or rumen boluses for calves branded this year. *Bulls* **E**valuate available information on potential bull supplies. **P**urchase bulls according to guidelines. **Remember you get paid for number of calves (fertility) and weight (weight gain).** **M**anage new bulls to get them into working (not sale) condition. **H**ave an annual breeding soundness evaluation done on all bulls. **C**ull bulls on age (over 6–7 years). **C**ull bulls with defects. **V**accinate bulls for three-day sickness (BEF), vibriosis (2 doses one month apart initially, then annual booster). **P**ut bulls out with breeders: • Mate young bulls with young cows. • Avoid mixing bulls of different ages if possible. *Weaners* **C**heck growth of weaners against target growth for sale or mating. *Growing cattle (steers and cull heifers)* **C**onsider vaccinating against three-day sickness (BEF), particularly forward stock close to turnoff.	**R**eview dry season management plan and climate forecasts. **H**eavily pregnant and lactating cows require good nutrition to maintain weight. Energy as well as protein may be limiting in their diet. **W**eaners may need energy and protein to maintain weight. **R**eassess pasture quantity and quality in relation to ground cover and feed values at the end of the dry season. **E**valuate effectiveness and cost benefit of winter supplementation program. **R**e-order supplements for next dry season.
Summer December, January, February	*Calves* **B**rand, dehorn, castrate, tag and vaccinate (5-in-1 or 7-in-1). **E**nter new calves onto herd performance recording program. *Bulls* **O**bserve bulls in mating paddocks. Are they all working? **C**heck working bulls for injuries that will affect their mating ability. *Weaners* **C**ontinue to monitor growth and parasite burdens *Growing cattle (steers and cull heifers)* **W**eigh; assess individually rather than on average. **A**ssess performance against required target. **A**ssess offspring from individual bulls. If one bull has poor calves, cull bull and calves. **C**onsider HGP implants for steer calves for non-EU sale. **E**valuate markets and plan sales.	**S**tart phosphorus supplementation program in deficient areas. Continue until the end of the growing season.

Timely tips for south-east Queensland

PASTURES	PARASITES & DISEASES	BUSINESS	PROPERTY MAINTENANCE
Check pastures at the spring break: Is there enough ground cover? Remember that spelling pastures early in the growing season will help improve pasture condition, and prolonged heavy grazing of fresh growth will reduce root reserves and ability to grow. Consider burning native pastures to maintain good pasture condition and control woody weed growth. Check firebreaks and fire-fighting equipment. Watch long-range weather forecasts for suitable time to plant pasture. Plant sown pastures before November or wait until February. Consider bloat control on lucerne- or clover-dominant pastures. Check and control weeds before they seed. Actively patrol known 'hot spots'. Check areas used for supplementary feeding.	Vaccinate all classes of breeding and growing cattle as appropriate (see sections above). Obtain cattle dip analysis and adjust chemical level if necessary. Check for increase in tick population as weather warms up. Start tick control program. Use Wormcheck kit from DPI&F to check for internal parasite burdens. Drench if necessary. Weaners are most susceptible.	Meet with all staff to discuss staff issues, business progress and future plans – including retirement and succession planning. Review overall property management and assess where changes are needed. Review breeding program to assess whether it is producing animals suitable for market requirements.	Check mating paddocks are secure. Before end of dry season check paddocks for green patches that might indicate leaking underground piping. Maintain fire fighting equipment, extinguishers etc and ensure staff are fully trained in their use. Clean around buildings and clear leaves from gutters. Ensure fire breaks are maintained and serviceable. Check river and creek crossings before beginning of wet season.
Evaluate dry season pasture management. Consider a summer forage crop for bulk feed to carry cattle while pastures are being spelled. Spell paddocks to help maintain good pasture composition. Assess the benefits of applying maintenance fertiliser to sown pastures. The economics will have changed due to high fertilizer prices. Spell leucaena for at least two months during the growing season. Consider setting areas aside for reforestation.	Continue tick control program. Check young cattle for worms. Treat if necessary. Send faecal samples for Wormcheck two weeks after treatment to check for worm drench resistance. Get samples from smallest animals. Control buffalo fly where applicable with correct sprays, insecticidal ear tags or buffalo fly traps. Make sure all chemical treatments are entered onto correct files for traceback.	**Have a break with family over Christmas.** Evaluate markets and plan sales for coming year. Review marketing options. Update the NLIS database regarding all cattle born, purchased, sold or deceased during the year. Check all permits and registrations etc are up to date.	Do workplace health and safety audit of property. Have an electrician do annual electrical safety checks on all household and farm equipment. Consider attending Chemical Accreditation Program through AgForce SMART train. When water is in dams creeks etc do annual maintenance on windmills and watering points. Carry out vehicle and machinery maintenance during 'wet season' break; especially look after dry-season supplement feed-out trailers etc so they are ready for the next dry. Clean up shed.

Forest bluegrass

Forest bluegrass (*Bothriochloa bladhii*), or Burnett bluegrass as it is sometimes known, is one of our very productive native grasses. It is commonly found on the black soil along river and creek banks and on heavier black clay soils throughout southern Queensland. Forest bluegrass is also native to Africa, India and some Pacific Islands.

Forest bluegrass will grow to one metre high. During the growing season the leaf has a distinct bluish hue with a red tinge in drier times. It is a bulky plant with stems 3–4 mm thick. The nodes (joints) on the stem are slightly hairy. The seed head is large and dark red with small purplish seeds. Like most Bothriochloa species, fresh green plants of forest bluegrass are aromatic, particularly when crushed.

This is one of our 3P grasses, being perennial, productive and palatable. Forest bluegrass is readily eaten by stock and on many properties it has been grazed out. A high proportion of this grass in a pasture indicates good grazing management. Like all good pasture species it benefits from being spelled over the growing season so that it can go to seed.

Experimental work indicates that forest bluegrass increases production with increased CO_2 , so it appears to have some capability to cope with global warming.

Like most of our native pasture species, seed is not often available. However seed of an introduced selection of *Bothrichloa bladhi subsp. glabra* cv. Swann is available. This leafy variety was selected on the infertile traprock soils of southern Queensland but it will grow on a wide range of soil types. As a sown pasture species Swann has moderate spring vigour and persists under heavy grazing. Swann produces a fluffy and small but high quality seed in late March, and can spread from seed and short rhizomes. It needs a good seed bed to establish well.

Further information:

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Extension Officer profile

Marie Vitelli joined DPI&F in March 2008 after a 12 months stint with AgForward delivering Vegetation Management and GPS workshops across Queensland. Although born and bred on a Beechmont dairy farm and a Nerang pony club enthusiast during her teens, Marie spent 23 years in Charters Towers and traversed the Dalrymple Shire and a large chunk of north Queensland during her career. For the first 15 years, she worked on integrated weed control. Her main role was a weed biocontrol entomologist based at the Tropical Weeds Research Centre (Department of Natural Resources and Water).

The last seven years in north Queensland were the highlight of her career as the Landcare Coordinator for Dalrymple Landcare Committee Inc. Marie worked closely with beef graziers and rural blockholders across Dalrymple Shire on 25 funded projects ranging from riparian and subdivisional fencing, weed control, off-stream stock water points and ripping and seeding scalded areas. The move to south-east Queensland in 2007 was due to family reasons.

Marie Vitelli is keen to help make a difference in south-east Queensland by assisting rural landholders with grazing land management issues and sharing their success stories with the wider community

Further information:

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Bovine wasting syndrome

In the last 10 to 12 years an unexplained wasting syndrome has been noted in Queensland beef herds. Some properties have experienced the problem as an epidemic in one year followed by smaller numbers of cases in subsequent years. In other herds, sporadic cases have occurred annually for many years.

Symptoms are low-grade chronic diarrhoea and wasting, usually noticed in one or a group of animals tailing the mob. Some properties have had groups of up to 35 animals affected. Symptoms are commonly noticed at weaning up to 15 months, and sometimes from birth.

Animals that survive their initial bout of disease grow poorly and usually die or are destroyed for humane reasons before three years of age. Treating with antibiotics, anthelminthics or supplements has sometimes brought improvement but generally the animals lose condition again.

Testing has eliminated the possibility of pestivirus, malnutrition, helminths (worms) or Johnes disease. Tests for normal scours have been negative but affected animals can have low levels of parasites and low levels of blood and liver copper and cobalt. Other virus cultures have so far proven negative.

DPI&F is collecting information on the extent of this wasting disease. If you have animals affected with the described symptoms and have been unable to establish a cause, Veterinary Pathologist Bruce Hill would like to hear from you. Please provide the following information:

- location of herd
- total herd size
- breed and age of animals affected
- number of losses/year
- number of animals recovered/ year
- how many years the problem has been apparent.

Please email your information if possible or otherwise call Bruce using the contact details below.

If wasting syndrome is found to be widespread, a research project could be established to determine the cause of this condition.

Further information:

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@dpi.qld.gov.au

Farm biosecurity

If you spot unusual signs of disease, abnormal behaviour or unexpected deaths in your animals, act immediately. Call your veterinarian, local government animal health authority or the **Emergency Animal Disease Watch Hotline on 1800 675 888.**

Farm biosecurity focuses on a range of practices that livestock producers can implement day by day to keep Australian livestock free of disease.

Farm biosecurity is important because animal diseases can:

- reduce the productivity of livestock
- affect farm incomes
- affect animal welfare
- reduce the value of farming land
- close export markets or reduce export prices, with flow-on effects for domestic producers.

Some animal diseases can also be passed to humans.

What are the risks?

The biggest risk is complacency! Australia is renowned for its robust national quarantine system, which can give producers a false sense that they don't need to do anything. Unwanted pests and diseases can – and do – get through even the toughest systems. And remember the debilitating diseases that are already in Australia.

That's where farm biosecurity, the next level of protection for your livestock, comes in.

Australia's national animal health system is most effective when protection is in place at all levels – national, state/territory, regional and on individual farms.

Actions

Australia has an outstanding national quarantine service, but what happens when disease enters Australia? How do you protect yourself from diseases that are already in Australia? Do you know what practices will keep YOUR animals and your livelihood secure?

Farm Biosecurity highlights five key areas of risk in the spread of disease: animal movement and fencing, people and equipment movement, pests, feed and water.

Assess your property for these risk areas and think about ways to minimise them. You will be well on your way to good Farm Biosecurity.

Animal movement and fencing

New/visiting animals can bring disease with them, or take it away. Animal movements have the potential to spread disease rapidly across many properties. Broken or missing fences can allow your stock to mix with neighbours' stock or wild animals, which heightens the risks for the transfer of disease.

- Keep records of where your animals come from and where they have been. Being able to trace the path of a disease quickly is important for controlling it.
- It is good practise to require an NVD for all animals entering your property to ensure they are healthy. For greater assurance, ask for an annual health statement.
- Keep new livestock separate from other animals for a suitable period. This allows time for disease symptoms to emerge and reduces the chance of infecting your other stock.
- Speak to your vet about an appropriate animal health program for new stock.

Vehicles and equipment

Moving vehicles and equipment between properties has the potential to spread disease, and vehicles are hard to sanitise.

- Park your own and visiting vehicles away from places that are trafficked by animals, such as livestock thoroughfares and paddocks.
- Designate a place for all visitors to meet/enter your property.
- Prevent unnecessary visitor contact with your livestock.
- Use local authority wash down facilities or have a designated wash down area on your property
- Wash hands after contact with any farm animal, including working dogs and pets.

Feed

Make sure you know about the feed you buy onto your property – where it came from, how it was formulated, any association with disease animals, chemical use. This is important for you to be certain about its safety for your livestock and your farming future.

- Always get a Commodity Vendor Declaration (CVD) or a By-product Vendor Declaration (BVD) where possible. This tells you everything you need to know about the origins of the feed.
- Store feed in a way that will minimise contamination and access by pests and other animals.

Pest species

Wild animals can mix with your stock and introduce disease.

- Develop a pest and feral animal control program – this will need to be specific to your location.
- Work with your neighbours to control feral animals. The best pest and feral animal control programs recognise that problems extend beyond the fences of individual properties.

Water

Be aware of the source of your water, and the uses you put it to. Drinking water is a common carrier of diseases as many viruses and bacteria can survive for long periods in water.

- Water can carry disease from wild animals so consider your options carefully.
- Using treated water or town water will reduce the risk of animal contamination.
- Regularly check the source of your property's water supply.
- Keep water bowls and troughs high enough that they cannot be contaminated by animal faeces.
- Clean water troughs out regularly.

Information in this article was obtained from Animal Health Australia.

Further information:

Your local veterinarian, Biosecurity Inspector
or DPI&F on 13 25 23

Animal Health Australia
www.animalhealthaustralia.com.au

Water weed maintenance

Infestations of salvinia, water hyacinth, water lettuce and hymenachne can cause major problems in dams and water courses. Water weed infestations affect water quality, pollute drinking water, cause flooding by inhibiting the natural flow of water, and kill aquatic plants and animals. A thick carpet of weed covering the water can give the appearance of being a hard surface and can lead to the drowning of stock and children.

Now is the best time to control these weeds. When the weather warms up water weeds grow rapidly and can completely cover waterways. Salvinia can double its extent every five days.

Salvinia, water hyacinth, water lettuce and hymenachne are declared pests under Queensland legislation which requires land owners to take reasonable steps to keep their land free of these weeds. Salvinia and hymenachne are listed as Weeds of National Significance, which recognises their potential to have a devastating impact on waterways.

Other species such as water lilies may not be declared pests but a heavy infestation can present problems, particularly when drawing water for irrigation. The best advice is to not introduce water lilies into an impoundment that may be used for irrigation. Plants such as red azolla (a tiny red fern) and duckweed (with teeny bright green leaves) are floating native herbs. They may look ugly, but otherwise they are harmless.

Manual removal

Small infestations of floating water weeds can be controlled by manual removal. A net on a long pole (such as a pool net) is very handy. When prevailing winds blow larger infestations into calm areas, a floating boom can be used to contain the weed where it is easier to remove or spray. Anything that floats can be used as a boom, such as poly pipe.

Rooted water weeds can be removed by mechanical means, but mechanical removal in a natural watercourse may not be permitted.

When removing the weed from the water, take it well away from the water's edge to dry. You can then either burn it or use it for compost.

Herbicide use

Only herbicides registered for the particular weed species should be used and then only according to manufacturers' recommendations. Over-strength sprays often just burn the leaves off but don't kill the plants. Spraying is most effective if you spray from the water toward the bank.

Some herbicides cause floating weeds to sink. The rotting plant material will reduce the oxygen levels in the water and this will have an adverse effect on fish and other water animals. To reduce the impact of lowered oxygen levels when treating large infestations, spray only a third of the weeds at a time.

As with any weed control, follow-up treatments are essential. One treatment will almost never kill or remove all the pest plant material.

Other management

High nutrient levels in water will cause a flush in plant growth. Keep a good cover of grass or a wide band of native vegetation around water courses to absorb nutrients from overland flow before it enters the water.

Many water weeds are introduced plants and many have come from aquariums. When disposing of unwanted aquarium plants, lay them in the sun to 'bake' and completely dry out, and then either burn them or place them in a sealed plastic bag in the rubbish bin.

More information about salvinia, water hyacinth, water lettuce and hymenachne and their control is available from local government authorities, DPI&F's land protection officers, or online at www.dpi.qld.gov.au/biosecurity and click on Weeds & Pest Animals.

Further information:

Hellen Haapakoski
Land Protection Extension Officer
Biosecurity Queensland
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Need help identifying water plants on your property? Send Hellen a photo and she will do her best to identify them for you.

Tick resistance to chemicals increases

Cattle ticks resistant to tick-control chemicals (acaricides) are affecting a significant and increasing number of properties, particularly in coastal areas with high stocking rates, as has been noted by a joint project by DPI&F and Meat and Livestock Australia (MLA).

Over the past ten to fifteen years the time between the initial release of a chemical and the first report of resistance has declined significantly. Registering chemicals for controlling cattle ticks is a time-consuming and expensive process, and acaricide-producing companies are questioning the value developing new chemicals.

Market requirements have lead many producers to introduce European and British genetics to Bos indicus herds. This has lead to a reduction in the natural tick resistance of the offspring, often requiring more chemicals treatments to control ticks. Frequent use of under strength chemical will lead to resistance.

It is paramount that producers realise that a tick-resistance problem has far more widespread ramifications than the confines of their own property.

- Resistant ticks are commonly spread when stock from a property with a tick resistance problem are moved to another property. At the new property the purchaser may not notice difficulty in cattle tick control until some time later.
- Most cases of acaricide resistance become evident at clearing dips. Cattle held up because of resistant ticks incur increased costs for feeding, inspection, dipping and yard fees.
- Regular cattle traders may discount or avoid store cattle from areas where there is a known tick resistance problem. This can have a flow-on effect for properties in the area that do not have a problem.

Guidelines for good practice

1. Use tick-control chemicals according to the manufacturer's recommendations. The chemical must be applied at the correct strength to remain effective.
2. Regularly submit dip samples to DPI&F for analysis to ensure the chemical is at the correct strength.
3. If you suspect you have resistant ticks, act quickly by contacting your local Biosecurity officer and submitting ticks for resistance testing.
4. Consider rotating chemical types and application methods i.e. plunge dipping, pour-on and injectable.
5. When you change chemical, be sure to change to a product with a different active ingredient, not just a different name.
6. If you do have resistant ticks, develop a plan in conjunction with Biosecurity Queensland staff to manage and hopefully eliminate the problem.

More information:

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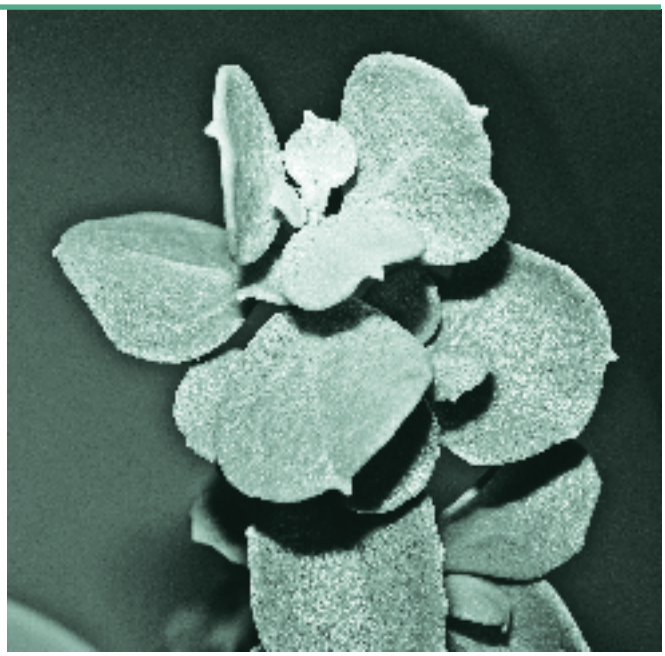
Saltbush – a grazing option?

Saltbush is a native woody perennial shrub that grows to two metres high and is generally associated with the drier areas of Australia. It is now grown as a fodder plant in a wide range of districts. It can be a valuable source of fodder and is often promoted as a drought reserve. As a salt-tolerant deep-rooted plant it will grow in salty areas, lowering the watertable and reducing the salt problem, and thus allowing more productive grasses to grow. But its value as a fodder plant in high rainfall areas is questionable.

Three main species of saltbush are used for grazing. Old man saltbush (*Atriplex nummularia*) is the most



commonly known and has been planted across large areas of western NSW, Victoria and South Australia. A line of old man saltbush (OMSB) called DeKock was selected in South Africa and is said to be more palatable. Other common grazing species are river saltbush and wavy leaf saltbush.

	Metabolic Energy MJ/kg dry matter	Crude protein %	Digestibility (DMD%)
Saltbush	8–11	15–20	55–70
Lucerne hay	8.5	17	63

While the figures in the table comparing saltbush with lucerne hay look very positive, only 70 to 80 per cent of the protein in the saltbush is digestible. Similarly, high ash content in the saltbush (15 to 40%) reduces the availability of energy to 40 to 50 MJ ME per kg. Salt content of the leaf can be a problem and can cause mineral deficiencies in stock fed large quantities of OMSB.

Generally OMSB is planted at a rate of 2500 to 2000 seedlings/ha. This allows a stocking rate of 4 Dry Sheep Equivalents/ha or 1–200 kg beef animal/ha. Dry matter production of about 1.6 tonnes per hectare is possible. In comparison a good native pasture may produce up to 3.5 tonnes of dry matter in a similar season.

OMSB has been established from seed in Western Australia but it is generally accepted that seedlings provide the best establishment in eastern states. Plants are usually strong enough to graze at 9–12 months. The recommendation is to leave at least 15 per cent after the first grazing. Regular grazing is then needed to ensure good plant health.

Climate and soil

Saltbush does best in 300 mm plus rainfall environments below 350 m in altitude. It is very drought tolerant and can provide green leaf through the driest periods. Plants grow best at temperatures of 30–35°C and are usually dormant over winter when temperatures are below 13°C. Alkaline soils are best; production on clay soils and very acid soils is limited. While salty soils will also limit production, the plant is extremely salt tolerant and is ideal for planting in saline areas to assist rehabilitation.

So is it worth planting OMSB?

Most of the work with OMSB has been done with grazing sheep and information on its use with cattle is limited. Experiences with grazing cattle in south-east Queensland indicate that saltbush needs to be spelled and locked up regularly (as with sheep) or otherwise the stock will quickly destroy the plants.

Grown on salty areas over a long time period, saltbush can lower the water table. This will allow grass to return to the area, providing some added grazing value. This is a perfect use for saltbush.

Leucaena is a far better option for grazing on fertile soils that are not heavily frosted. Being a legume leucaena will contribute significant amounts of nitrogen to the soil, enhancing grass production. Leucaena also responds quickly to rain and is more resilient to grazing by cattle. Some studies have indicated that saltbush costs $550/ha to establish and leucaena $444/ha to establish. Of course costs will vary markedly from farm to farm.

Ultimately it seems that in the higher rainfall areas there are more productive plants to grow than saltbush. But if you have an unproductive salty area it could be worth fencing it off and growing old man saltbush to help rehabilitate the area. As a drought reserve it would be unlikely you would be able to grow enough saltbush to make a significant difference to drought feeding costs.

An excellent publication, 'Getting the Best from Old Man Saltbush', is available from: www.dpi.nsw.gov.au/agriculture/field/pastures/management/production-management/omsb

Further information:

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New grazing extension services

Good grazing management practices help to improve profitability for graziers and lifestyle for small acreage landholders, whilst providing wider community benefit by reducing sediment run-off.

A range of grazing extension services is available to commercial, sub-commercial and part-time graziers as well as small acreage landholders with grazing animals in the Lockyer, Bremer, Logan-Albert, Pumicestone, Mary and Kin Kin catchments.

As part of the SEQ Healthy Country, Gympie District FarmFLOW and Pumicestone FarmFLOW projects, DPI&F is providing a range of specialised grazing, horticulture, wetlands and nutrient management extension services in these targeted subcatchments.

1. Understanding grazed paddocks

- Information and activities on grazing land types and paddock monitoring
- Process for rapidly assessing the condition of pasture, soil and riparian (creek frontage) areas – can be done on individual properties or as a group
- Advice and connection to extension networks to develop actions and methods for improving land condition and pasture productivity.

2. Understanding carrying capacity, grazing land practices and managing vegetation to reduce run-off and improve productivity

- Local industry and landcare groups using project funds to work with DPI&F to run training workshops such as DPI&F Stocktake (for carrying capacity), MLA EDGEnetwork's Grazing Land Management, Dairying Better-n-Better, Native Forest Management, Equiculture's 'Managing horses on small properties' and others
- Includes helping to organise group activities and paddock walks to consider land condition
- New small acreage extension materials currently being developed.

3. Developing a property management plan or farm management system

- Links to existing property management plan processes through the regional NRM group 'SEQ Catchments' and other industry providers.

4. Running field days and paddock demonstrations

- Scope to set up and monitor a wide range of demonstrations and trials to encompass local grazing land management issues, improving land condition, and reducing erosion. DPI&F FarmFLOW extension service can also help coordinate grazing management field days.

5. Developing local extension tools and guides

- Using feedback from local graziers to develop locally relevant products, guidelines, case studies and photo standards to support decision-making about grazing management options.

The aim of these extension services is to assist producers across all industries in adopting land and water management practices that improve profitability and land condition while reducing risk to waterways and wetlands. These services are being provided with funding from the Queensland Government.

- The SEQ Healthy Country Project is a partnership between SEQ Catchments, NRW, DPI&F, EPA (Qld) and the Healthy Waterways Partnership, with indigenous representation through the SEQ Traditional Owners Alliance, working in the Lockyer, Bremer and Logan-Albert catchments.
- The Gympie District FarmFLOW project is a partnership between DPI&F and the Mary River Catchment Coordinating Committee funded through the Property Management Systems Initiative.
- The Pumicestone FarmFLOW project is a DPI&F project being conducted in collaboration with rural industries, catchment groups, SEQ Catchments and local government.

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Research update

Horned genes discovery

A genetic test to identify animals which do not pass horns on to their offspring could put more money in the pockets of beef producers. The Beef CRC, Meat & Livestock Australia and CSIRO are supporting a project to develop such a test.

Dehorning is a common practice in most breeding herds because of the damage horns can cause to other animals or people. However it is a time-consuming exercise for producers and one which can negatively affect animal productivity and welfare. Dehorning can be painful for cattle and attracts negative publicity from an animal welfare perspective. Research on dehorning older *Bos taurus* animals indicates they suffer a definite setback in their growth rate, but little is known about how older *Bos indicus* cattle react to dehorning.

Bull prices over the past four or five years show that buyers have paid a premium for polled bulls over horned bulls. People are looking for bulls which have a combination of good performance genetics and are polled.

The two significant genes playing a role in the development of horns in *Bos indicus* cattle are the African Horn and Scur genes. When genetic markers have been developed for these genes, a DNA test can also be developed to assess the proportion of offspring likely to be horned or polled.

In addition it appears that factors occurring before or shortly after birth act as a 'switch' to determine whether a calf will develop horns or not. Seven hundred differentially expressed genes have been identified between horned, polled and scurred animals. Further analysis of the inter-linkages between genes to determine which genes are responsible for horn growth is needed.

In the meantime, a Beef CRC PhD student is looking into developing a simple, effective pain-relief program that can be administered at the time of dehorning.

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Counting the cost of acaricides

Researchers from the Beef CRC have developed a new test which could help producers minimise acaricide resistance in cattle ticks (*Rhipicephalus (Boophilus) microplus*). The researchers have uncovered the genetic mutation which causes ticks to be resistant to synthetic pyrethroids (SPs) in Australia.

Resistance to acaricides (pesticides that kill ticks and mites) is a huge economic cost to the northern beef industry which already loses about $175 million per annum due to ticks.

The mutation is in the same gene as the one which causes resistance to synthetic pyrethroids in Latin America, but it is a completely different mutation in Australia.

Synthetic pyrethroids are just one of four groups of acaricides used in Australia. Amitraz, macrocyclic lactones and fluazuron are also used to control ticks. Amitraz is most widely used. 50 per cent of all the ticks tested are resistant to synthetic pyrethroids.

Synthetic pyrethroids and amitraz are the cheapest products. If ticks are resistant to these products, producers are forced to use macrocyclic lactones (e.g. ivermectin, moxidectin) or fluazuron most of which cost about five to 10 times as much per animal to use.

If a product is not working, the producer either puts up with the lower level of efficacy or shifts to another, perhaps more expensive product. This means they may sacrifice some control to reduce the overall cost of protecting their herds against ticks.

The new molecular test is much quicker than the current bio-assay, which can take up to eight weeks to confirm resistance in ticks. Currently fully engorged female ticks are collected from a property. They are then allowed to produce eggs. The larvae are exposed to several different acaricides to see which ones they are sensitive to. All that the lab has to do now is crush the ticks and extract their DNA. This DNA is them genotyped to see whether they carry the particular mutation. Researchers are almost 100 per cent sure if they carry that mutation they will be resistant to synthetic pyrethroids.

While individual farmers are unlikely to use the test, it will assist further research into which strategies can help reduce acaricide resistance.

Some people advocate rotating acaricides. Others claim you should manipulate the dose. People assume this can cause problems but no-one has ever tested it, so there is absolutely no data to say whether these strategies are valuable. We can now test these theories.

Field tests are now dependent on securing further research funds.

Further information

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Clearing muddy water for livestock

The following information is for stock water only.

I have had a couple of enquiries lately regarding clearing muddy water. The following article is from a Department of Primary Industries and Fisheries, Beef Cattle Husbandry Branch, Information bulletin published in April 1980 which itself was extracted form the 'Maranoa District Newsletter' No 12 March April 1980. It was obviously written before we changed to metric hence the use of the imperial measures.

There are times when landholders are desirous of clearing muddy water.

The most commonly used chemical for the purpose is alum, which is sold commercially as crude sulphate of alumia. A 3-5% solution (that is 3-5 lb (1.4 to 2.3 kg) of alum per 10 gallons (44.5 L) of water) is fed into the tank or dam. It is impossible to determine the correct amount necessary for clarification without first conducting a few tests.

Make up a 3-5% alum solution as described. Take about two thirds of a pint (approximately 400 ml) of this solution and add it slowly, with constant gentle stirring, to four gallons (18 L) of the water to be cleared. Allow the mixture to stand undisturbed for some hours. If the water was approximately neutral (that is, neither acid nor alkaline) before treatment, the suspended material will settle within a few hours. In this case, the amount of alum solution to be added to the bulk supply for clearing can be estimated, working on two thirds of a pint to four gallons.

The test sample may clear very rapidly. This indicates that two thirds of a pint of the alum solution to four gallons is too much, and a smaller amount should be used in clarifying the bulk supply. Otherwise, the water will have an astringent taste.

It may be that the test sample clears very slowly. In this case it will be necessary to treat another sample with a somewhat larger volume of alum solution.

In rare cases the water in the experiment may not clear after standing 12 hours or so. This means that it is very acid water, and pre-treatment with soda ash or washing soda (2 ½ oz (70 g) per 10 gallons) is needed before adding the alum solution.

It is advisable to clear dam water in a storage tank rather than in the dam itself, because the least disturbance of the clay on the sides or bottom of the reservoir will again make the water muddy. Also the action of the chemical on the clay of the reservoir may impair the water-holding capacity of the clay permitting the water to leak away.

The storage tank should be constructed with two outlet pipes, one flush with the bottom to remove the sludge and the other extending some distance into the tank to draw off the clear water.

In clarifying the water in the storage tank, the measured amount of alum solution is added to the water in the tank and the whole gently stirred, then allow to stand. The suspended material will precipitate and the water above will be perfectly clear.

NOTE: 1 gallon = 4.45 litres;
1 lb = .454kg 1 oz = 28.3g

A J Ernst
Husbandry Officer
Beef Cattle Husbandry Branch

Obituary of the late ***Mr Common Sense***

'Today we mourn the passing of a beloved old friend, Common Sense, who has been with us for many years. No one knows for sure how old he was since his birth records were long ago lost in bureaucratic red tape. He will be remembered as having cultivated such valuable lessons as:

Knowing when to come in out of the rain; why the early bird gets the worm; life isn't always fair; and maybe it was my fault.

Common Sense lived by simple, sound financial policies (don't spend more than you can earn) and reliable strategies (adults, not children, are in charge).

His health began to deteriorate rapidly when well-intentioned but overbearing regulations were set in place. Reports of a 6-year-old boy charged with sexual harassment for kissing a classmate; teens suspended from school for using mouthwash after lunch; and a teacher fired for reprimanding an unruly student, only worsened his condition.

Common Sense lost ground when parents attacked teachers for doing the job that they themselves had failed to do in disciplining their unruly children.

It declined even further when schools were required to get parental consent to administer sun lotion or an aspirin to a student; but could not inform parents when a student became pregnant and wanted to have an abortion.

Common Sense lost the will to live as the churches became businesses; and criminals received better treatment than their victims.

Common Sense took a beating when you couldn't defend yourself from a burglar in your own home and the burglar could sue you for assault.

Common Sense finally gave up the will to live, after a woman failed to realise that a steaming cup of coffee was hot. She spilled a little in her lap, and was promptly awarded a huge settlement.

Common Sense was preceded in death by his parents, Truth and Trust; his Wife, Discretion; his daughter, Responsibility; and his son, Reason. He is survived by his 4 stepbrothers; I Know My Rights, I Want It Now, Someone Else Is To Blame, and I'm A Victim.

Not many attended his funeral because so few realised he was gone. If you still remember him, pass this on. If not, join the majority and do nothing.'

Mayne's pest
(Verbena tenuisecta)

Mayne's pest is very prevalent this year possibly due to the better than average winter rain. As the note says – it mainly colonises bare areas and areas where the pasture plants are weak. Therefore its incidence can be reduced by good grazing management. It is one of many purple flowered plants in the verbena family and is often confused with some of them as well as blue heliotrope another purple flowered weed.

Description

It is a trailing, short-lived perennial forb with stems to 40cm long. The leaves are deeply-dissected, slightly hairy and arranged in pairs opposite each other on the stem. The flowers are pink to purple with a white centre and form dense clusters at stem ends. Some plants have all white flowers. Each flower consists of a petal tube about 12 mm long which expands into four to five lobes and is then about 1 cm across. Heads become less clumped as the seeds ripen. Each fruit is oblong, 4 mm long and covered by green flower bases. It is an evergreen plant growing in the warmer months.

Land types

Prefers sandy soils in box, pine and mulga country, but grows in most land types with acid soils.

Grazing notes

A vigorous coloniser of bare areas, it can dominate overgrazed pastures and choke out more desirable pasture plants. It germinates mostly in autumn and flowers in spring. It is unpalatable and undesirable, but is sometimes eaten by sheep when no other green feed exists in winter.

(Source: *Pasture Plants of Southern Inland Queensland*, by D R Henry, T J Hall, D J Jordan, J A Milson, C M Schefe and R G Silcock 1995)

If you would like a copy of *Beeftalk* mailed to you, please complete the following form and send to Editor, Beeftalk, DPI&F, PO Box 118, Gayndah, Qld 4625 or Email russ.tyler@dpi.qld.gov.au

Name: .....

Address: .....

Postcode: ..... Shire: ..... Property Number: ..... No. of cattle: .....

Phone: ..... Fax: ..... Email: .....

Which of the following best describes you?

☐ Beef producer ☐ Agribusiness outlet ☐ Education ☐ Other (please state) .....

Weighing up NLIS equipment and software

Fast and easy identification and traceability of animals through the National Livestock Identification System (NLIS) is saving livestock producers hours in their management practices – and a new MLA funded publication is now on hand to make that process even easier.

Using NLIS on-farm to identify and trace livestock not only saves producers time it also improves breeding decisions, makes for accurate records and increases overall production. But with a range of equipment and software available just how compatible is NLIS equipment?

The answers can be found in the new *NLIS equipment and software compatibility* booklet compiled and researched by the Kondinin Group. The 14-page booklet looks at a variety of National Livestock Identification System technologies on the market including readers, scales and herd management software, and critiques their connectivity and workability.

Introducing NLIS traceback equipment is a large investment, so ensuring all components are compatible and capable of carrying out the job efficiently and accurately regardless of where scanning takes place is important. This makes the informative and easy-to-read brochure a must-read for producers looking to make the most of NLIS in their management system and potentially save the industry up to $13 billion in the event of a disease outbreak.

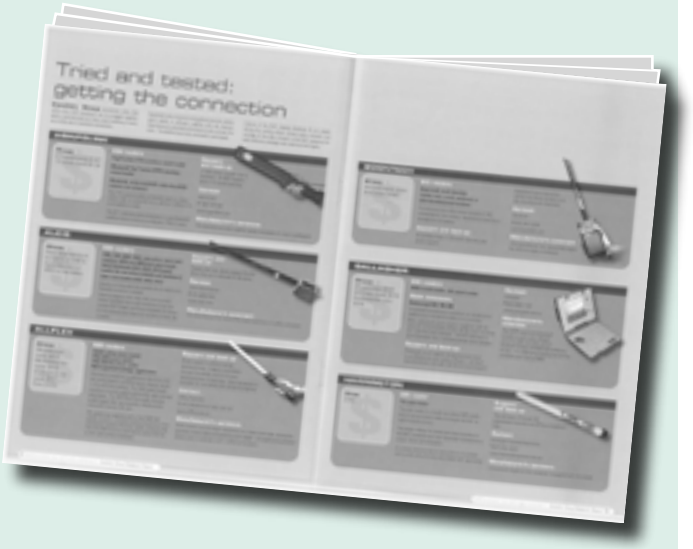
The systems that have been evaluated range from a simple indicator and reader connected to a computer in the cattle yards to a smart scale indicator and simple reader to collect data for transfer to the farm office.

The Kondinin Group's testing found all equipment, regardless of brand, could be physically connected to other components relatively easily. Serial connections were achieved for all readers and scales but Bluetooth connections were more challenging. The brochure also contains handy reference tables showing the compatibility of software programs to readers and scales and specifications of NLIS cattle identification and management systems as tested by Kondinin Group.

To order a copy of this publication please contact the NLIS Helpdesk on 1800 654 743 or download a copy from www.mla.com.au/nlis .

Further information

NLIS Helpdesk
Ph: 1800 654 743



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