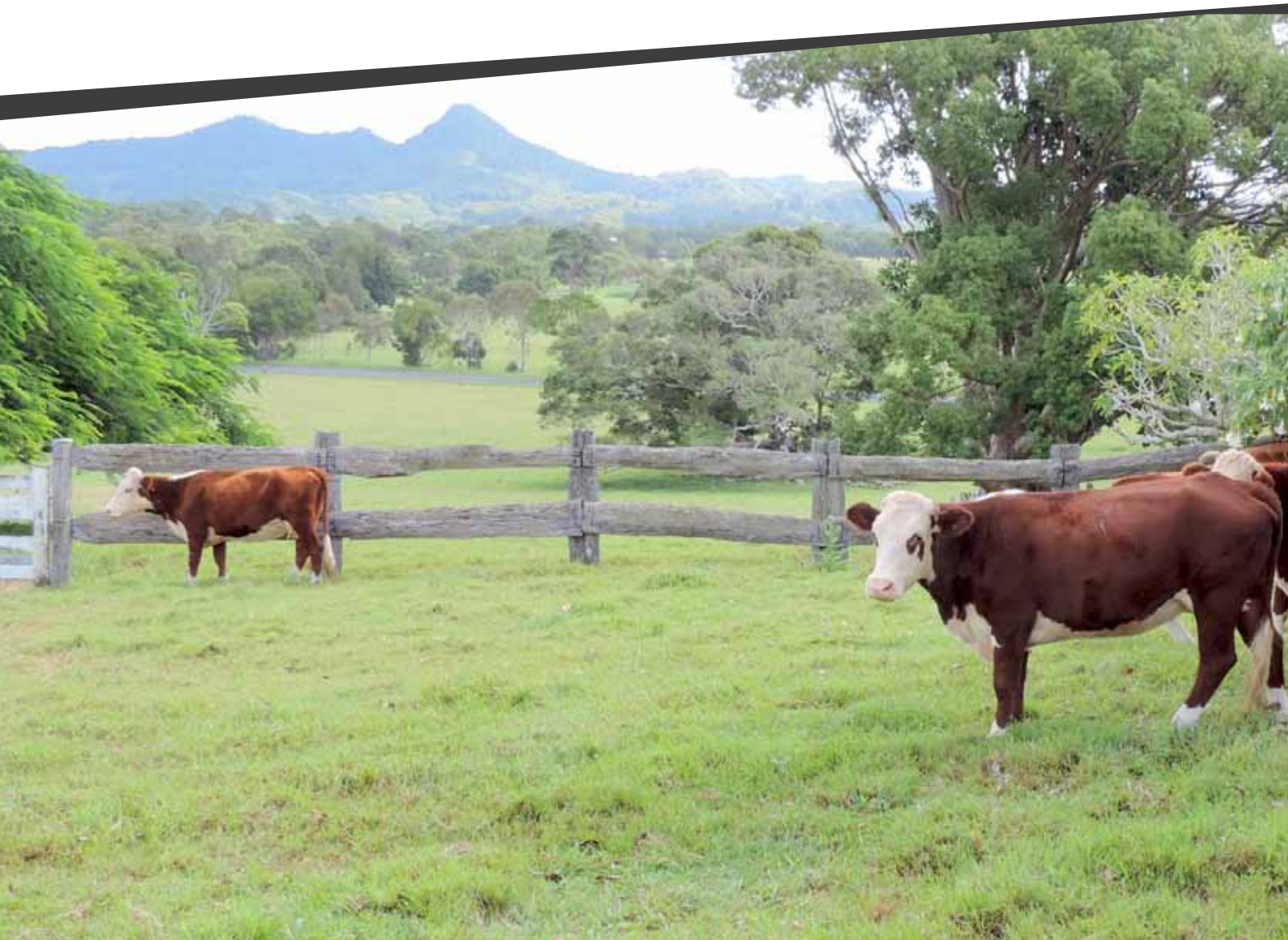
Brunswick Valley Landcare Inc.

Grazing on Small Farms in Byron Shire

Brunswick Valley Landcare Inc.

Sustainable grazing on small farms: farmers teaching farmers



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Foreword

To those who have put so much effort into the production of this book, congratulations on a job well done. I have lived in Mullumbimby for nearly 30 years and represented this area as director of the Rural Lands Protection Board and the Livestock Health and Pest Authority for 15 of those years. I believe this book and the information it contains to be vital for new residents with little or no knowledge or experience of living in rural areas.

If you own livestock you are responsible to ensure they are well fed and watered with plenty of shade and are free from internal and external parasites. If you own dogs or cats you are responsible for keeping them on your own property and under control at al times. Seek advice from your local vet or the district vet at the Local Land Services.

Enjoy living in this wonderful part of Australia and remember to be a responsible, considerable member of the community, and never be reluctant to seek advice from those who have been here for some time such as the local rural store or your vet.

Stewart Kerr JP

Acknowlegments

Brunswick Valley Landcare Inc. would like to sincerely thank all of the farmers who helped with this booklet including Julie and Owen Trevor Jones, Peter Robinson Lindsay Murray, Maurie Marr, Tina Sweeney, Lawrence Tulloch, Stewart Kerr, John and Jenny Barlow, Vicki and Phillip Morrow, Nigel and Janette Watchorn and Judy and Mike Nichols.

PHOTOGRAPHY: Page 10 by Jim Rogers, all other photographs by Wendy and Peter Gibney.

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Australian Government | National Landcare Programme

DISCLAIMER

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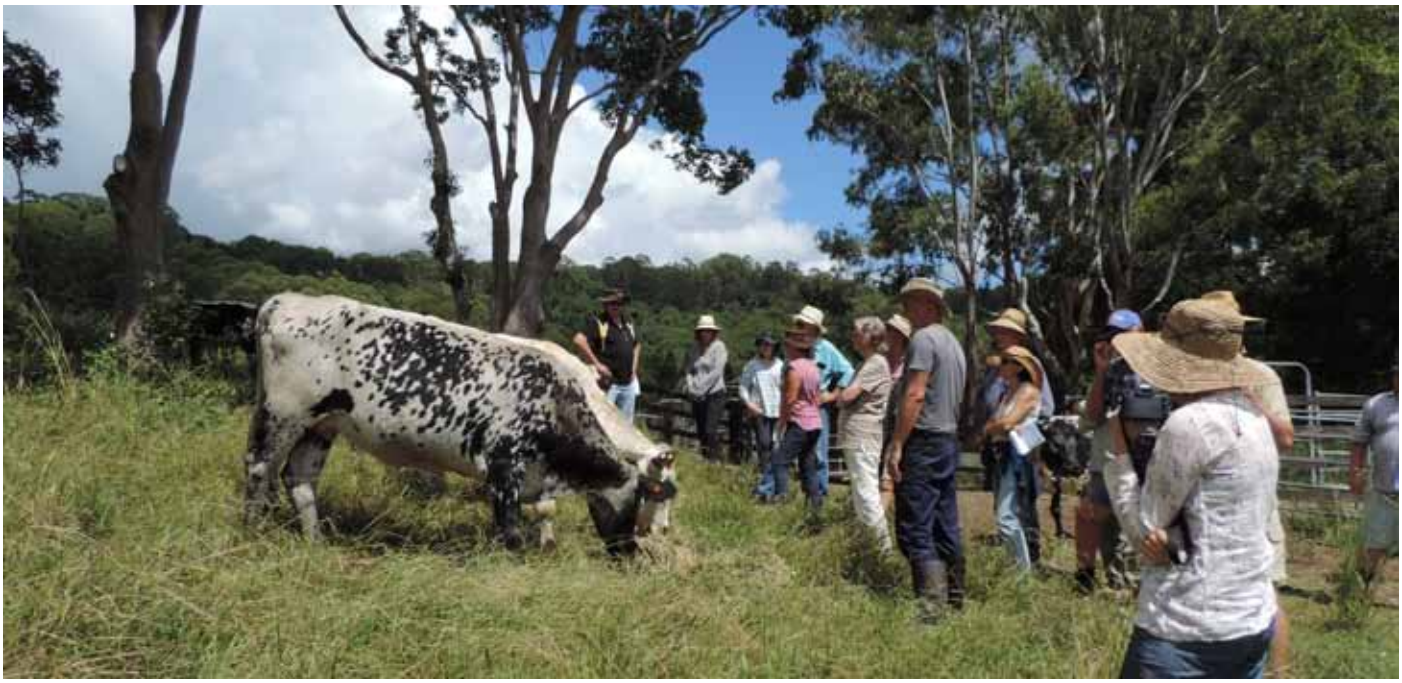


Brunswick Valley Landcare

FIELD DAYS, WORKSHOPS, COMMUNITY PLANTINGS, FUNDING ASSISTANCE AND A GREAT WAY TO MEET PEOPLE IN YOUR COMMUNITY.

Brunswick Valley Landcare (BVL) is a volunteer organisation supporting and encouraging sustainable natural resource management in the Brunswick catchment of northern New South Wales.

Over the past 11 years BVL has undertaken numerous natural resource management projects including extensive bush regeneration work and tree plantings along the Brunswick River in Mullumbimby. BVL is an umbrella organisation for many smaller local landcare and coastcare groups. BVL also helps individual farmers and landholders with information about weeds, native plants, regeneration projects and funding applications.

Community education is an important part of BVL's work and they run many field days and workshops on a wide variety of topics.

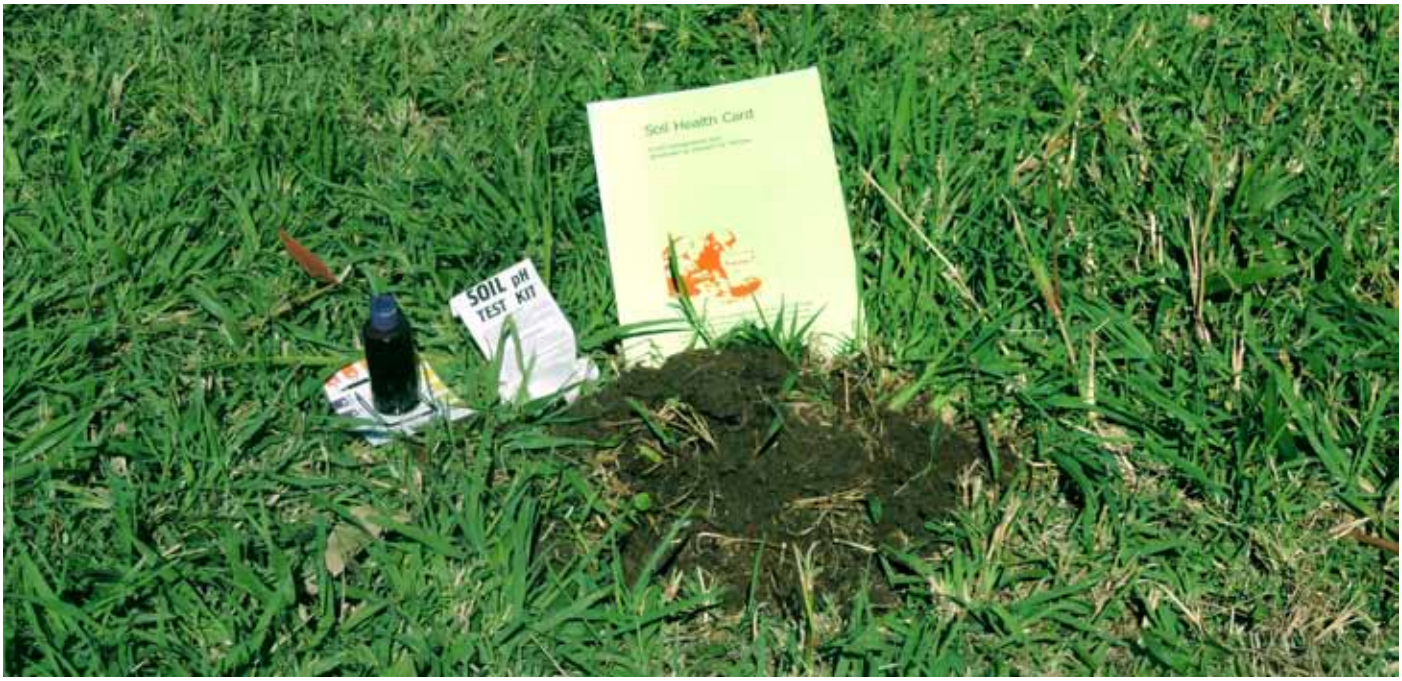
This book is part of BVL's Community Landcare Grant Project "Farmers learning from farmers: sustainable grazing on small farms" . The project included displays at agricultural shows and farmers' markets as well as field days and workshops. Over ninety people attended the workshops and field days and the feedback from farmers who attended these events was very positive.

"Thoroughly enjoyable. Liked how every farm was different and they were all lovely and wanting to share information"

"...excellent way of opening up communication between locals with similar agricultural interests"

Landcare Community Support Officer
Alison Ratcliffe is Brunswick Valley Landcare's community support officer. If you are interested in joining a landcare group, coming along to planting days or attending workshops or field days, contact Alison phone (02) 6626 7028 (Tuesday and Wednesday) or email: alison.ratcliffe@byron.nsw.gov.au .

Landcare Groups in Byron Shire
For the full list of local landcare groups go to page 27.



Soils

There are many practices which will help improve the health of soils for grazing properties. These include maintaining dense pasture and not overgrazing, planting nitrogen fixing legumes, ensuring nutrients are replenished, adding organic matter to the soil and maintaining healthy pH by adding lime or dolomite. Other practices include keeping stock and machinery off waterlogged paddocks to help prevent compaction, and limiting erosion by using direct drilling rather than heavy cultivation.

Soil biology can be improved by introducing dung beetles which take the dung deep into the soil therefore aerating and cycling nutrients. The Dung Beetle Dictionary is a free app from Landcare Australia and is available online at http://apps.landcareaustralia.com.au/dung beetle/DungBeetle_Dict.aspx

Earthworms and other invertebrates can be encouraged by ensuring there is enough organic matter in the soil. Organic matter can be increased by simply slashing paddocks. Soil tests can help guide you on how to improve the health of your soil.

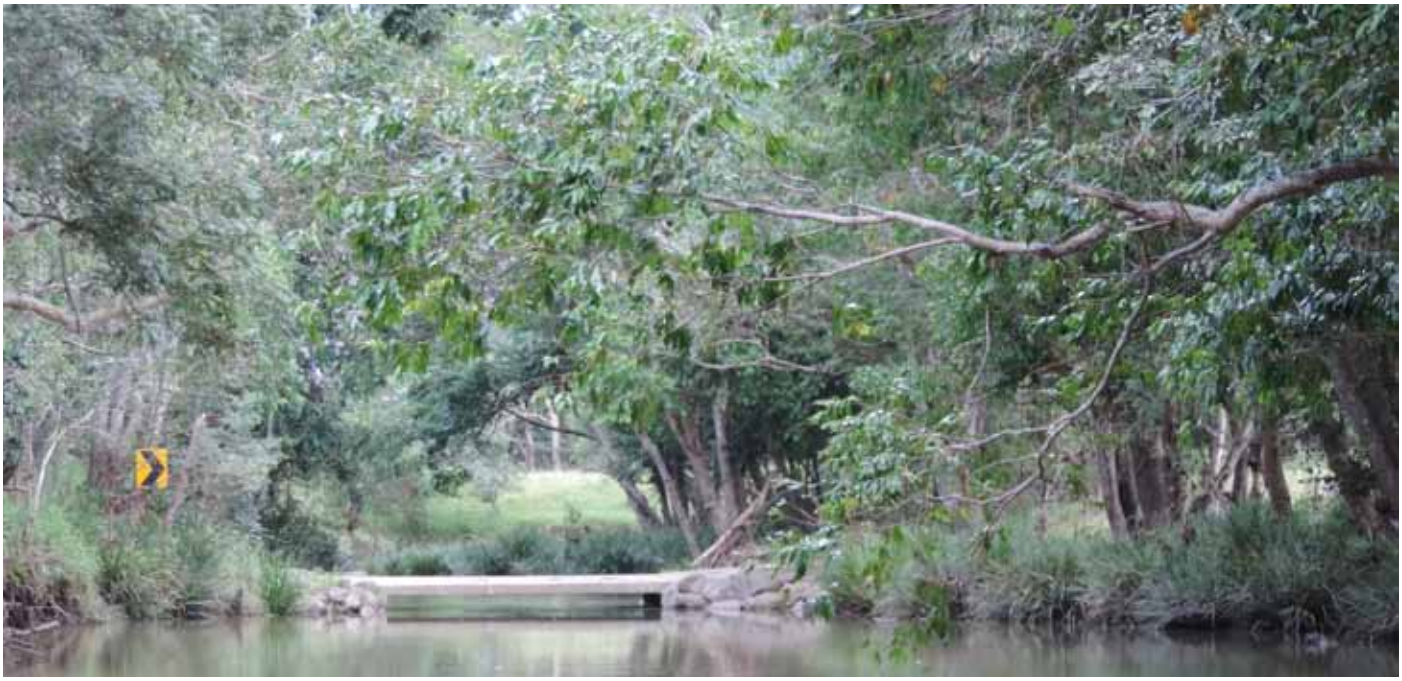
Soil Workshops
Landcare groups and especially Soilcare regularly run workshops and seminars about soil. To find out more go to: http://www.soilcare.org/

The Soil Health Card is a soil management tool developed by farmers for farmers. It details 10 simple soil tests that can be carried out on the farm. . It is available online from http://www.dpi.nsw.gov.au/agriculture/resources/soils/testing/health-card or from Soilcare.

Professional soil testing services
Professional soil testing services available through **DPI Wollongbar:** Phone (02) 6626 1103, 1800 675 623; email: wollongbar.csu@dpi.nsw.gov.au; http://www.dpi.nsw.gov.au/aboutus/services/das/soils

Environmental Analysis Lab (EAL) at Southern Cross University, Lismore, also provides soil testing: Phone (02) 6620 3678; email: eal@scu.edu.au; http://scu.edu.au/eal/

Acid sulfate soils
Acid sulfate soils occur naturally in low lying areas that were under sea water thousands of years ago. When the soil is disturbed by earth works (for example by digging a drain or dam), iron sulfides are exposed to air and produce sulfuric acid. This acid contaminates groundwater and surface waters. To find out if your property has potential acid sulfate soils, you can view maps on Byron Shire Council's website: http://www.byron.nsw.gov.au/



Water

STOCK SHOULD HAVE ACCESS TO CLEAN WATER AT ALL TIMES. RIPARIAN VEGETATION IMPROVES RIVER HEALTH AND WATER QUALITY.

Fish passage
The photo above shows a crossing over the Brunswick River that was improved to allow fish access up and down stream. The project was funded by DPI Fisheries and two neighbouring property owners Judy and Mike Nichols and Tony Naclerio. This crossing has helped Australian Bass which live mostly in fresh water but need estuaries for breeding.

Riparian vegetation
Healthy riparian vegetation improves fish habitat, reduces streambank erosion and provides habitat for native animals. If you would like information or assistance with funding to fence off your creek and improve riparian vegetation, contact your local landcare group.

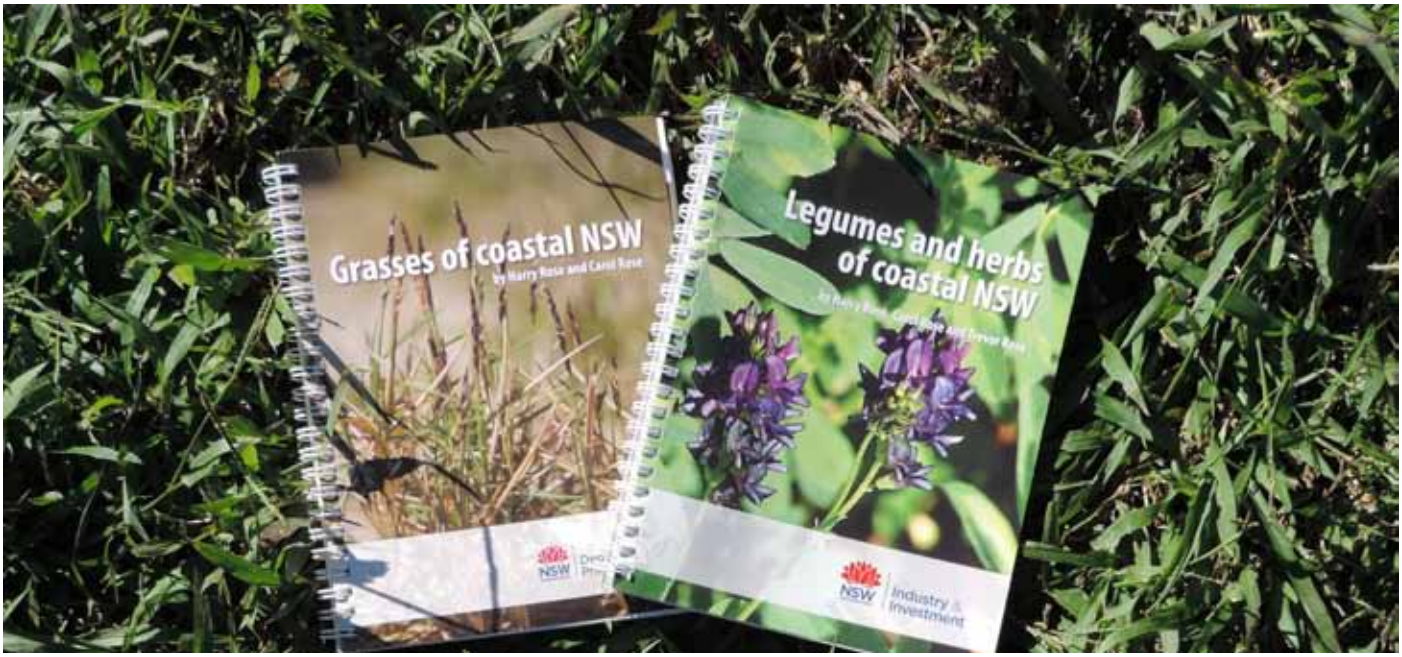
Water supplies
The Water Management Act allows landholders who own or occupy land on a creek or riverbank or over an aquifer to use water for domestic purposes and to water stock on the property. However, a licence is required for intensively housed animals and commercial activities.

Dams
Before digging a dam you should consult with your local council and also the NSW Department of Primary Industries (DPI) Office of Water as some dams will require a licence or council approvals.

Ground water: bores, wells and spear points
To construct a bore, well or spear point you need a *Water supply work approval* . You may also need a *Water access licence* to take the water or a *Water use approval* to use the water depending on the type of use. All of these approvals and licences are available from the NSW DPI Office of Water.

Water quality
Water testing services are available through NSW DPI chemistry testing laboratories at Wollongbar.
Phone (02) 6626 1103 or 1800 675 623
Email: wollongbar.csu@dpi.nsw.gov.au

NSW DPI Office of Water
Contact Advisory Services on 1800 353 104 or email information@water.nsw.gov.au
Website: *http://www.water.nsw.gov.au*



Pastures

GRASSES, LEGUMES AND FODDER CROPS

A survey of farmers in the Byron shire found that the following three grasses were the most common species. The details on each species are from DPI's Grasses of Coastal NSW , pictured above and available from NSW DPI.

Kikuyu *Cenchrus clandsetinus* is highly productive if grown on fertile soils. It is best if rationally grazed down to 5 cm then let regrow up to 15 cm.

Setaria *Setaria sphacelata* is a tufted grass which is high yielding if it is on fertile soils. It is best kept between 5 and 40 cm high. It has high oxalate levels which can cause health problems especially in horses.

Common Paspalum *Paspaulum dilatatum* grows best on moist fertile soils and is a reasonable pasture grass before flowering. A black fungal infection ergot on flower heads is toxic to livestock, so flowering should be limited.

There are other grasses which make excellent feed including annual grasses such as ryegrass which is often planted for winter feed. Information is available online from the NSW DPI website: http://www.dpi.nsw.gov.au/agriculture/pastures

Legumes

Legumes can improve productivity because they are highly digestible, provide high protein and fix nitrogen into the soil which improves production of the companion grasses. There is a wide variety of legumes available including lucerne, clovers, vetches and vignas. Within each species there have been many different cultivars developed to suit different soils and climates. It is best to seek advice from your rural store or seed supplier about which species are available and would do well on your particular property. Also Local Land Services can provide advice. Contact details next page.

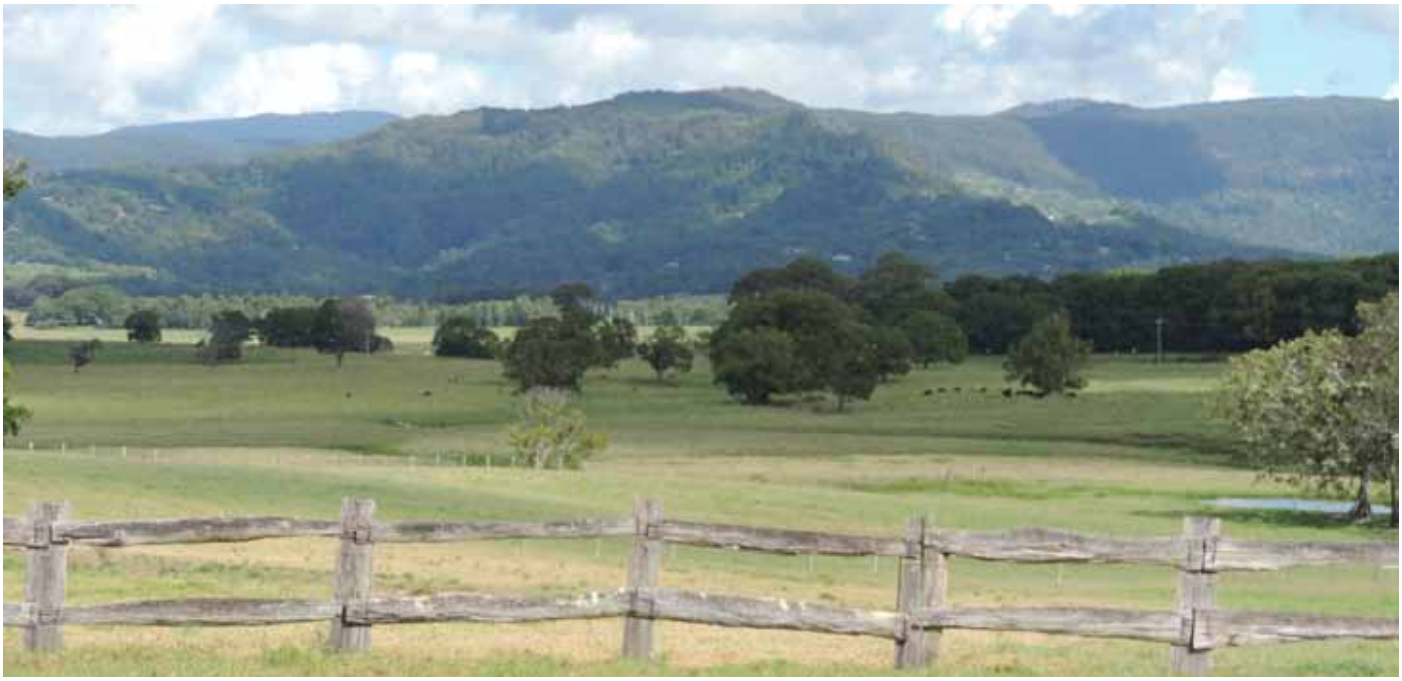
Forage and fodder crops include sorghum, millet, lablab, cowpeas, soybeans and maize. Information is available online from the NSW DPI website: http://www.dpi.nsw.gov.au/agriculture/broadacre/forage-fodder

Pasture pests

Armyworms can turn lush green pasture brown overnight. Armyworms are the caterpillars of a native moth *Leucania convecta*. Damage is most noticeable in autumn in this area. Another pasture pest that damages pastures in Byron Shire is the larvae of the pasture scarab beetle *Rhopea magnicornis.*

Browsers

Grazing on good quality pasture can provide all the nutrients needed for cattle, however other livestock, especially goats browse on leaves, twigs and shrubs. It is important to have the correct feed available for the type of livestock you choose.



Paddocks and Fences

GRAZING MANAGEMENT SYSTEMS

There are many different types of grazing management systems including continuous grazing, rotational grazng and cell grazing. Whichever system is used, it is important that stocking rates do not exceed the carrying capacity of the land.

Continuous grazing allows livestock access to pastures all year without resting paddocks.

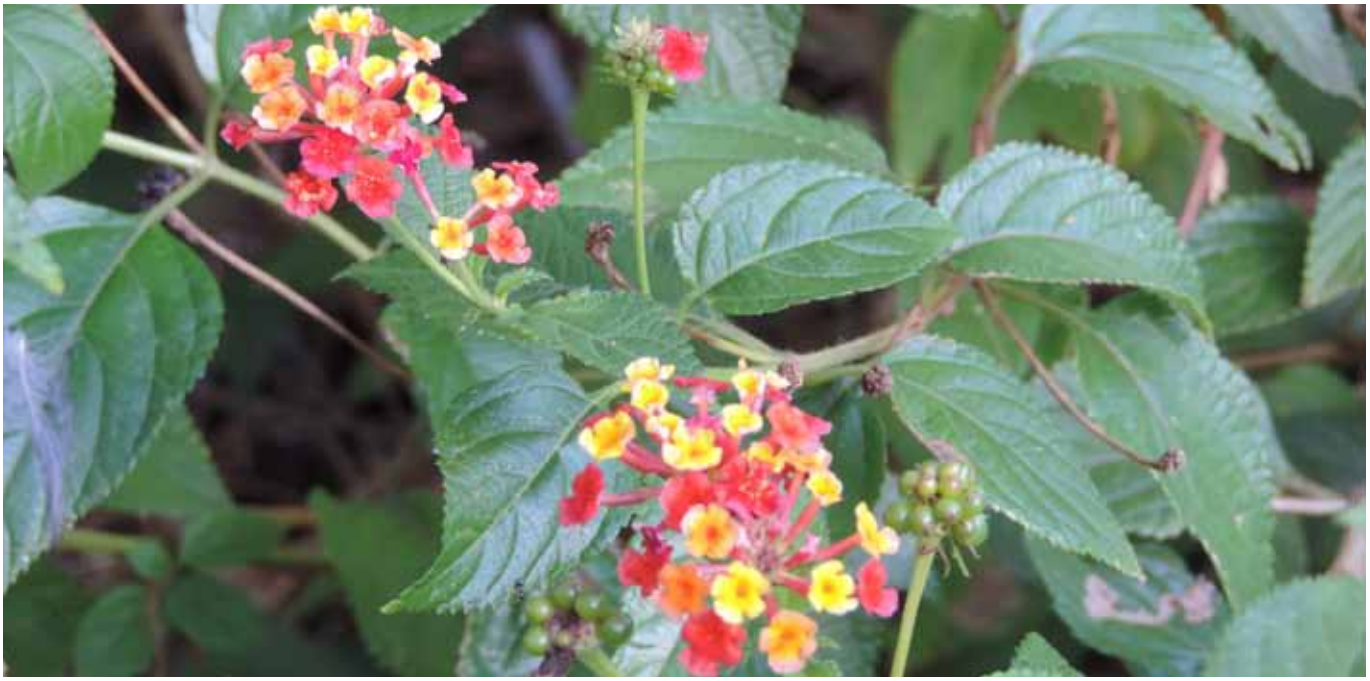
Rotational grazing systems are where paddocks are grazed and then let rest. Rotational periods vary from days to months and are based on a variety of factors including seasonal conditions and stocking rates. Resting paddocks allows perennial grasses to seed periodically.

Cell or strip grazing is a type of rotational grazing where many relatively small paddocks are grazed for a short period with heavy stocking rates followed by a longer recovery period. This system can be costly initially to set up as additional fencing and watering points are required. Many farms use moveable electric fences in these systems. Cell grazing requires more labour than other systems. as the livestock are moved often. One of the main aims of this system is to keep grass pastures at a green leafy stage of growth for good animal production.

Courses and workshops
Courses on grazing systems are available through DPI, Tocal College, TAFE and landcare groups. These vary from short field days to accredited management courses. To find out more go to the following links or contact Soilcare or your local landcare group.
Tocal College: http://www.tocal.nsw.edu.au/
North Coast TAFE: http://www.northcoasttafe.edu.au/
NSW DPI Agriculture Profarm Courses
http://www.dpi.nsw.gov.au/agriculture/profarm

Fencing and wildlife
Fencing is essential to keep livestock contained but entanglement on barbed wire fences causes deaths of over seventy five different species of Australian wildlife. There are a variety of solutions available online at http://www.wildlifefriendlyfencing.com/WFF/Home.

Senior Land Services Officer – Livestock, North Coast Local Land Services
Nathan Jennings: 02 6623 3926
Email: nathan.jennings@lls.nsw.gov.au



Weeds

A VARIETY OF WEEDS IMPACT STOCK. THEY MAY BE POISONOUS, TAINT MEAT AND MILK, OR OUTCOMPETE PASTURES AND REDUCE PRODUCTION.

Noxious Weeds

Noxious weeds are governed by legislation and you have an obligation to control these weeds on any property you own or manage. Some noxious weeds such as Tropical Soda Apple are notifiable which means that if you find them on your property you must contact Far North Coast Weeds (FNCW) . For the latest list of noxious weeds contact FNCW or go to DPI's website http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds

Poisonous weeds for stock

Common poisonous weeds include red flowered lantana and mother of millions. Contact Local Land Services for more information about poisonous weeds.

Managing weeds

When you buy new stock it is recommended that they be held in a small paddock initially to allow any weed seeds to pass through the system in the holding paddock rather than spread over your whole property. Weeds can be managed by maintaining healthy pastures and not overgrazing, by herbicides, hand removal, slashing or biological control. Parammatta Grass is an example of a weed that is being successfully managed on farms by a biological control. The control agent is available through FNCW.

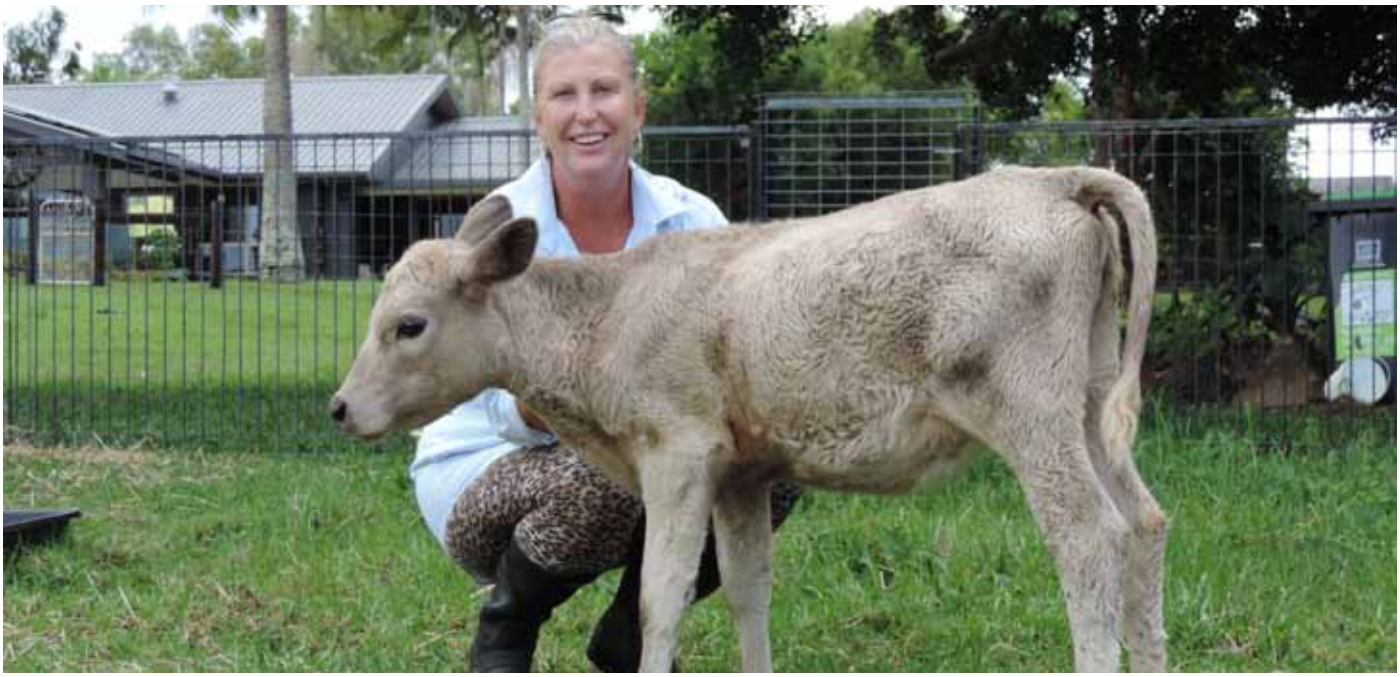
Environmental weeds

These are introduced species that have a detrimental effect on native vegetation. Byron Shire Council has produced fact sheets online to help identify and control environmental weeds common in our region. Some environmental weeds are classified as Weeds of National Significance (WoNS). A list of these species can be found online at: http://www.weeds.org.au/WoNS/

Weed identification workshops

Brunswick Valley Landcare and other landcare groups often run weed workshops. If you volunteer to help at a landcare site you will receive on-site training about weed identification and control methods. Contact your local landcare group or Landcare Community Support Officer for assistance.

Far North Coast Weeds (FNCW)
Phone: (02) 6623 3833 Email: fncw@fncw.nsw.gov.au
Website: http://fncw.nsw.gov.au/



Animal Health and Welfare

SOME DISEASES CAN PASS FROM LIVESTOCK TO HUMANS.

Animal health, welfare and biosecurity are very important issues for livestock owners on any sized property. All livestock owners have a duty of care to their animals which includes ensuring they are treated for parasites and diseases. If you have agisted livestock on your property, you should share the responsibility of animal welfare with the stock owners as they are not always on site.

Courses

There are a variety of courses available to assist you look after your livestock run through PROFARM. These include small one day workshops such as Beef Care and Handling or Alpaca Care and Management. For a full list of courses go to http://www.dpi.nsw.gov.au/agriculture/profarm/courses

District veterinarian

North Coast Local Land Services employs district veterinarians who provide advice and information about animal health issues. This includes advice on drench use, vaccination programs, parasite treatments and nutrition issues.

District vets also deal with new and emerging animal biosecurity and welfare issues and are available to investigate herd problems. If you suspect your animals have a notifiable disease, you have a legal obligation to notify authorities as soon as possible.

North Coast Local Land Services have a very informative book available from their offices titled *Beef Cattle Health and Husbandry for the North Coast of NSW.*

Online Resources:

Animal Health Australia http://www.animalhealthaustralia.com.au/

NSW Department of Primary Industries Health and Disease http://www.dpi.nsw.gov.au/agriculture/livestock/health

Meat and Livestock Australia http://www.mla.com.au/Livestock-production/Animal-health-welfare-and-biosecurity

RSPCA Beef Cattle Welfare http://www.rspca.org.au/what-we-do/working-farming-industries/beef-cattle-welfare

District Veterinarian Northern Coast Local Land Services
Phil Kemsley: 0427 896 822
Website: http://northcoast.lls.nsw.gov.au/

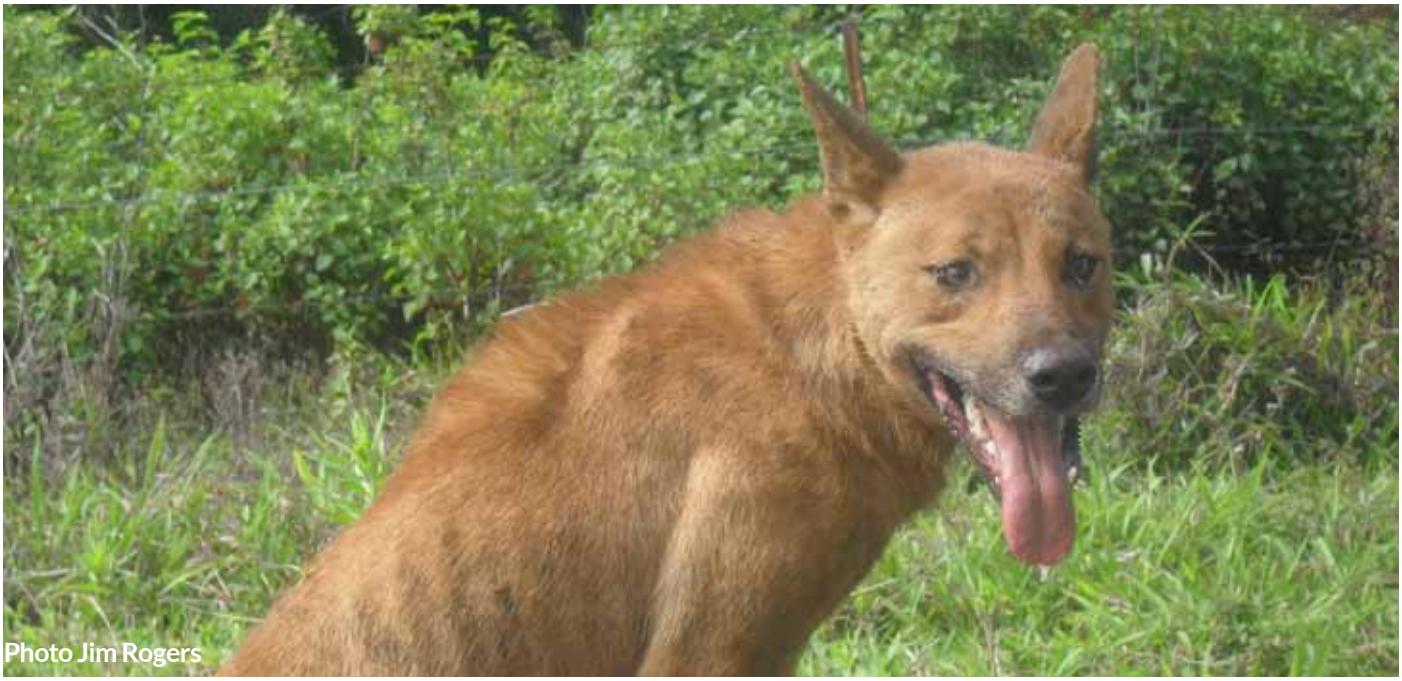


Photo Jim Rogers

Pest Animals

WILD DOGS, FOXES, RABBITS, CANE TOADS AND MYNAS

Wild dogs, foxes, rabbits and pigs are all declared pests and landholders have a legal responsibility under the *Local Land Services Act 2013* to control these animals.

Control methods include trapping, shooting, exclusion fencing, guard animals and baiting. Baiting is with 1080, Sodium fluoroacetate which occurs naturally in some native Australian plant species.

Assistance from Biosecurity Officers
North Coast Local Land Services Biosecurity Officers assist property owners with pest control. They provide advice and free accredited training courses to use 1080 baits. Once accredited they provide baits free of charge. It is best to be part of a group baiting program so if you have a problem with pest animals, talk to your neighbours so you can tackle the problem across the landscape in a coordinated manner.

Wild dogs and diseases
As well as killing and injuring stock, wild dogs also carry diseases which can cause severe losses in production. Neospora is a disease that dogs spread to pastures via their faeces. This disease may be responsible for up to 30% of all cattle abortions on the North coast[1]. Dogs also spread diseases which affect humans including Hydatids, *Echinorcoccus hydatidousis* and *Leptospirosis interrogans*.

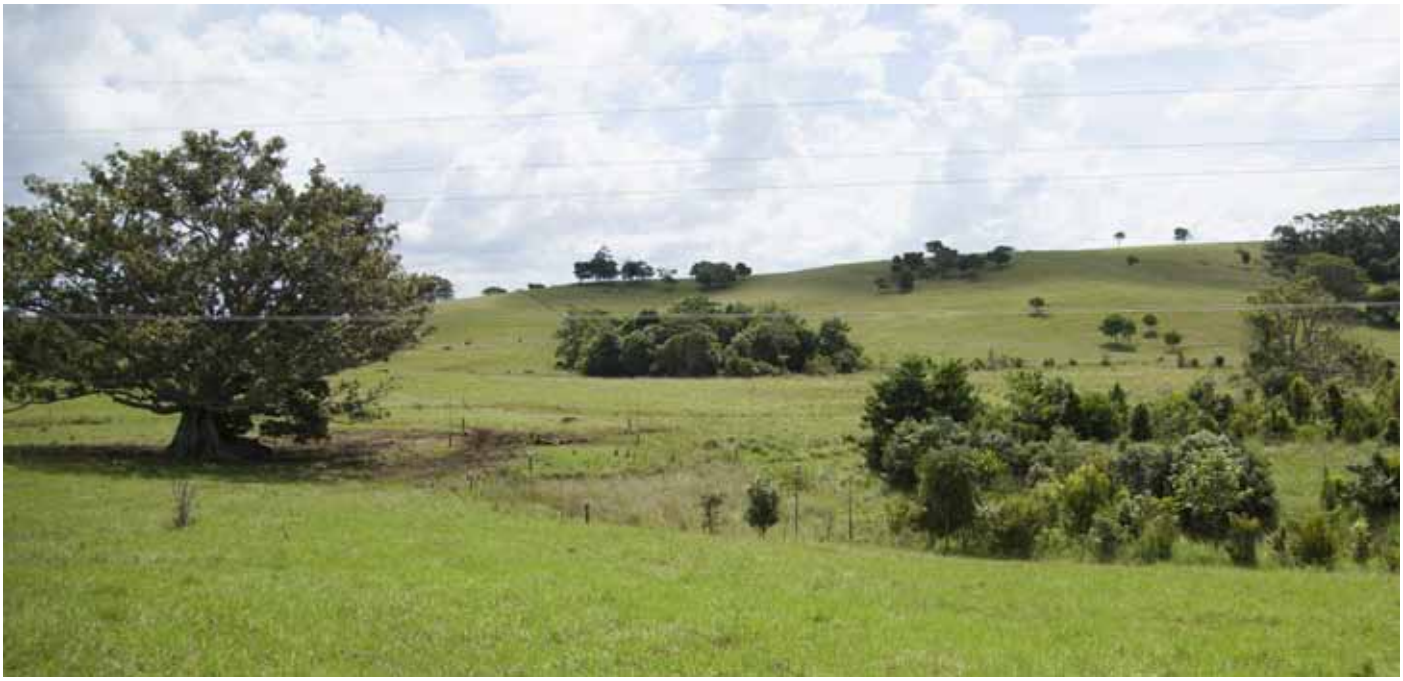
Pets as pests
Domestic dogs can also cause stress and injury to stock if they are not controlled. All working dogs and pet dogs must be kept under control on the owners property. If you have problems with roaming domestic dogs, contact your local council.

Council traps
Byron Shire Council has cage traps available for Indian mynas, cane toads, cats and dogs. These can all be borrowed free of charge. Council also has run soft jaw trapping programs for foxes, wild dogs and feral cats. For more information contact 02 6626 7000.

Other resources.
Invasive Animal CRC Website:
http://www.pestsmart.org.au/

[1] NSW DPI Agnote: Neospora caninum infection in cattle

Biosecurity Officer North Coast Local Land Services
Neil Hing: 0402 000 762, Lismore Office: (02) 6623 3900
Website: http://northcoast.lls.nsw.gov.au/biosecurity/biosecurity-resources



Native Vegetation

NATIVE VEGETATION BENEFITS LIVESTOCK AND WILDLIFE.

Native vegetation can benefit farms.
Paddock trees, shelter belts and wildlife corridors provide shade and shelter against harsh weather which can improve livestock production. Planting trees reduces soil erosion and prevents the water table rising. Restoring and enhancing native vegetation encourages wildlife to the property and many native animals are excellent predators on pest animals, for example an ibis can eat up to 250 g of insects per day and magpies eat scarab beetle larvae which can damage pastures[1]. Native vegetation along creeks and rivers provides shade over water which improves water quality and provides habitat for wildlife including native fish and yabbies.

Biodiversity and wildlife
Byron Shire has very high biodiversity which means there is a very high number of different native plant and animal species. There are also many different types of vegetation in the shire including rainforests, eucalypt forests, salt marsh, mangroves and heathland. Protecting and enhancing native vegetation will improve habitat and encourage wildlife onto your property. Fencing off native vegetation off from livestock, controlling weeds and planting more local native species all help improve wildlife habitat.

[1] Lindermayer *et al.* (2003) *Wildlife on Farms: how to conserve native animals.* CSIRO.

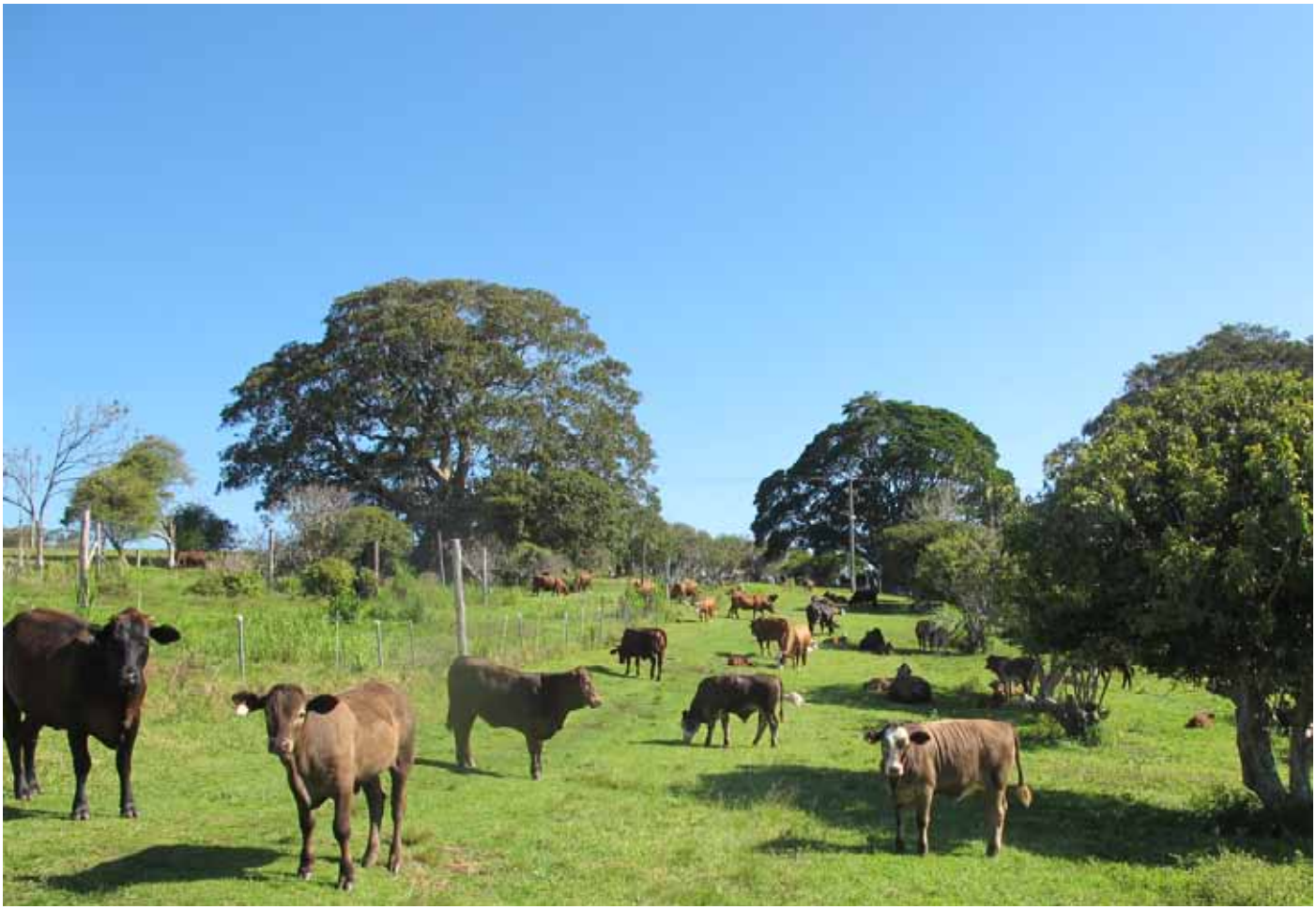
Assistance
Brunswick Valley Landcare and other landcare groups can assist you with information on planning and managing native vegetation including identifying the best species for your property. Byron Shire Council: Natural Environment Team have run many restoration projects including the Koala Connection project. This project has funded the planting of thousands of native trees on private property. To find out how to be involved contact Byron Shire Council on 02 6626 7000.

Clearing vegetation
Any clearing of native vegetation must be in accordance with both NSW state government and council regulations. For information about Byron Shire'sTree Preservation Order phone (02) 6626 7000. Under the Native Vegetation Regulation 2013, all clearing carried out through routine agricultural management activities (RAMAs) must be done to the minimum extent necessary. Information tools are available online to help landholders with approvals: http://www.environment.nsw.gov.au/vegetation/onlinetools.htm

Online Resources:

Native Species Planting Guide - Users Guide
http://www.byron.nsw.gov.au/publications/native-species-planting-guide-users-guide

BVL http://brunswickvalleylandcare.org.au/



Hayters Hill Farm

TREVOR-JONES' FARM AT HAYTERS HILL

Three generations of the Trevor-Jones family currently live on Hayters Hill Farm. Julie and Owen take care of the beef cattle which they sell to their son David for his butchery. Meat is sold directly to the public through farmers' markets which maximises the economic sustainability of the farm. Owen and Julie's son Hugh manages the free range poultry for egg production. Currently the farm produces beef, pork, eggs and lychees.

The land was selected by Julie's family in 1881 and was an Australian Illawarra Shorthorn stud for many years, but dairying ceased on the property in 1966. The beef cattle currently grazed are *Bos taurus*, *Bos indicus* cross breeds.

The pastures on this farm are very healthy and provide plenty of feed even through the drier winter and spring months. Julie and Owen ensure that carbon and calcium are added back into the soil to compensate for the outputs from beef production. This includes adding lime and compost. The poultry on the farm are moved regularly over the paddocks and their manure also adds to the soil fertility.

The pastures grasses on the property include rye grass, kikuyu, paspalum, setaria and legumes include clovers, maku lotus and creeping vigna.

Bos taurus, Bos indicus cross breeds.

The cows on Hayters Hill Farm are first-cross Red Brahman/Hereford . They make good mothers and give hybrid vigour . The cows are joined to Shorthorn/ Charolais-cross bulls to produce quality meat and good yields.

For information about *Bos taurus*, *Bos indicus* crosses go to the NSW DPI website: http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding

Poultry

Hayters Hill farm also produces eggs from 2000 free range Rhode Island Red/Leghorn cross hens. The five caravans which house the hens and the fencing is moved to fresh grass each week which means happy hens, delicious eggs and fertilized pastures.

Byron Creek Catchment Landcare

This landcare group formed in 1993 and includes 12 properties. Julie and Owen were amongst the founding members and over the past 22 years they have fenced off the creek, controlled environmental weeds and planted thousands of native rainforest plants. The landcare group has also hosted field days to share their successes with the local community.

Property and herd size

Farm size: 120 Ha (300 acres)

Stock: 110 - 120 breeders.

Soil

Organic fertilisers, compost and lime are added to the soil. Dung beetles have been trialled and Owen has observed that they are more suited to paddocks with shorter grasses.

Sales

The calves are taken to Casino meatworks at about 10 months of age. Smallgoods are made and meat is packaged back on the farm. The meat is sold at the local farmers' markets and to local businesses.

Rotational grazing

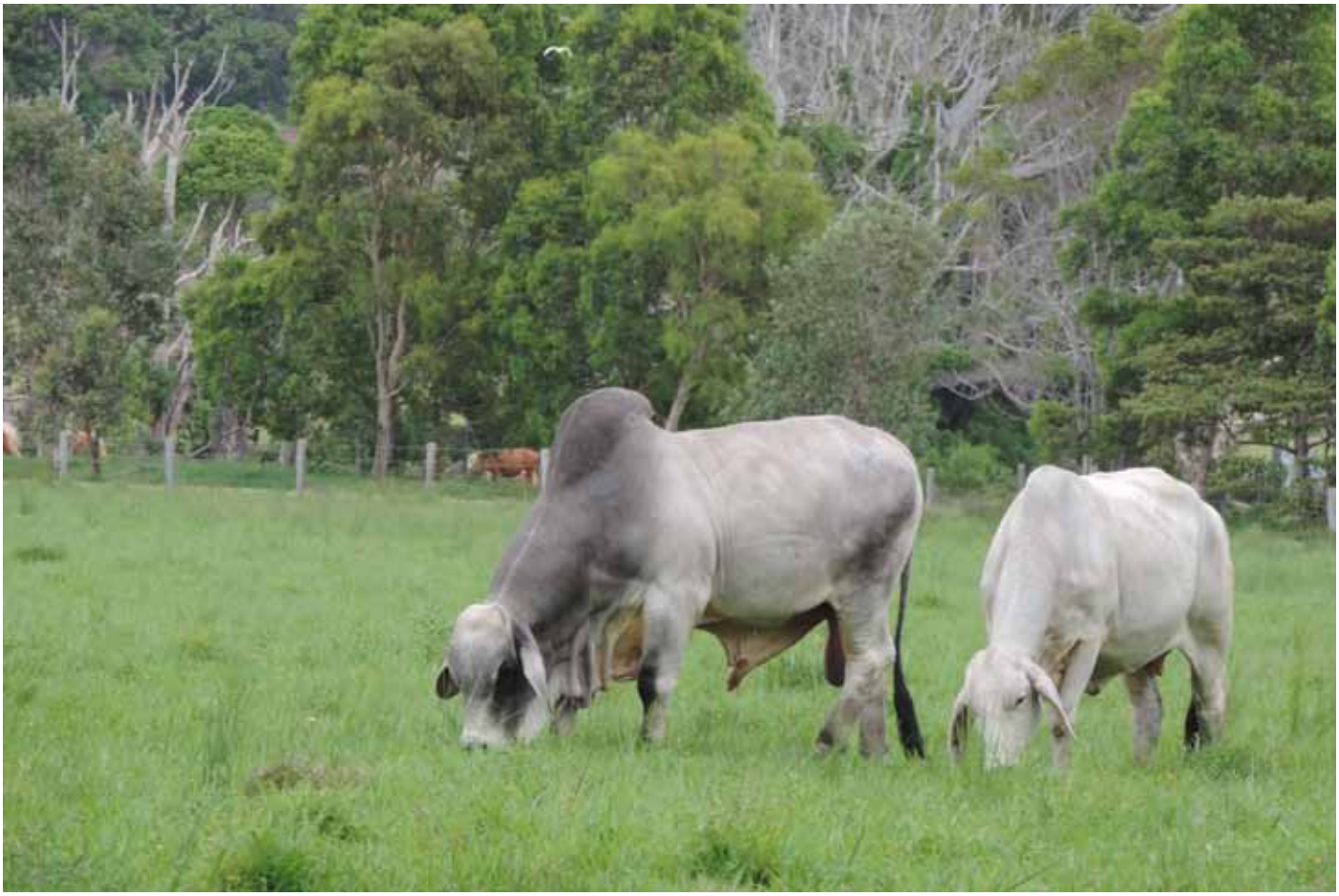
Cattle are moved daily between 30 paddocks. This limits internal parasites and ticks and keeps pastures healthy.

Backrub oil sling

This is used to limit the need for chemical control of buffalo fly. As the cattle walk under the sling the oils rub onto their back.

If you would like more information about Hayters Hill Farm please contact:
Owen or Julie
Email:dulcamah@iinet.net.au

A short Film about the farm is online at:
http://www.foodpolitic.com/where-the-food-grows-a-film-on-sustainable-farming-in-australia/
or
https://vimeo.com/65500817



Helena Brahmans

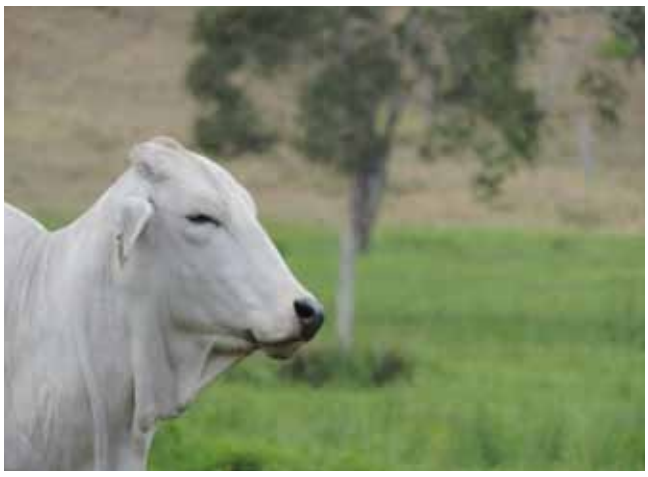
PETER ROBINSON'S BRAHMAN STUD

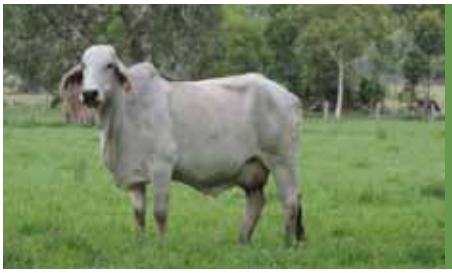
Peter Robinson manages two sites for his Brahman cattle. At St Helena he has twenty breeders on 70 acres and there are twelve breeders on 35 acres at Myocum. Peter breeds excellent quality stud cattle which are in high demand.

Brahmans are used for many crossbreeds including Brafords, a cross with Hereford, Brangus, a cross with Angus, Chabray cross with Charolais, and Drought-master. Droughtmaster were developed in North Queensland by crossing Brahmans with a variety of *Bos taurus* to help manage cattle tick, heat tolerance, eye cancer and to cope with dry conditions and lower quality feed.

Although these photos were taken in spring in 2014, when it was very dry, the pastures were still lush and green due to good soil and pasture management practices. This includes using dung beetles to improve the soil. Dung beetle populations are thriving on the St Helena property. The dung beetles take the manure deep into the soil and improve the chemical and physical properties of the soil The tunnels made by the beetles improve soil aeration and water retention in the soil.

Large populations of dung beetles also limit the amount of manure available for buffalo flies and gastrointestinal parasites.





Bos indicus Modern cattle breeds are often divided into two major groups, no hump taurine *(Bos taurus)* and humped Zebu (*Bos indicus*). *B. indicus* originated in South Asia and other distinguishable features are drooping ears and a large dewlap. Brahmans originated in the USA in the 1800s from four different *B. indicus* breeds and some *B. taurus.*

NSW DPI Breed Factsheet :http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding/breeds/brahman

Brahman Breeders Association website:
http://www.brahman.com.au/index.html

The Brahman's desirable traits include its ability to cope with tropical climates, tick resistance and ability to cope with low quality pastures. They are suitable for cross breeding with *B. taurus* and give excellent hybrid vigour. Peter's Helena Brahmans have good temperament and are easy to manage.

Property and herd size

Farm Size: 28 hectares at St Helena and 14 hectares at Myocum.

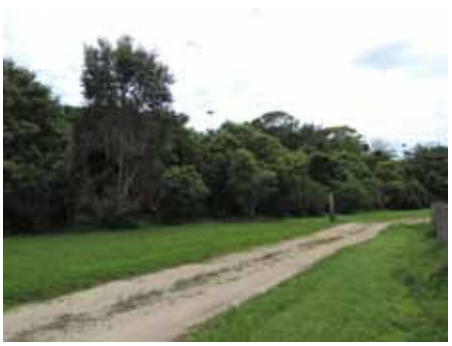
Stock: 20 breeders at St Helena and 12 at Myocum

Pasture species

Grasses include kikuyu, paspalum and setaria. There is a high percentage of legumes in the pasture including clover, vigna and maku lotus. These improve the nitrogen levels of the soil and the Brahmans have a high tolerance to legumes whereas other breeds may bloat on high legume pastures.

Pasture management

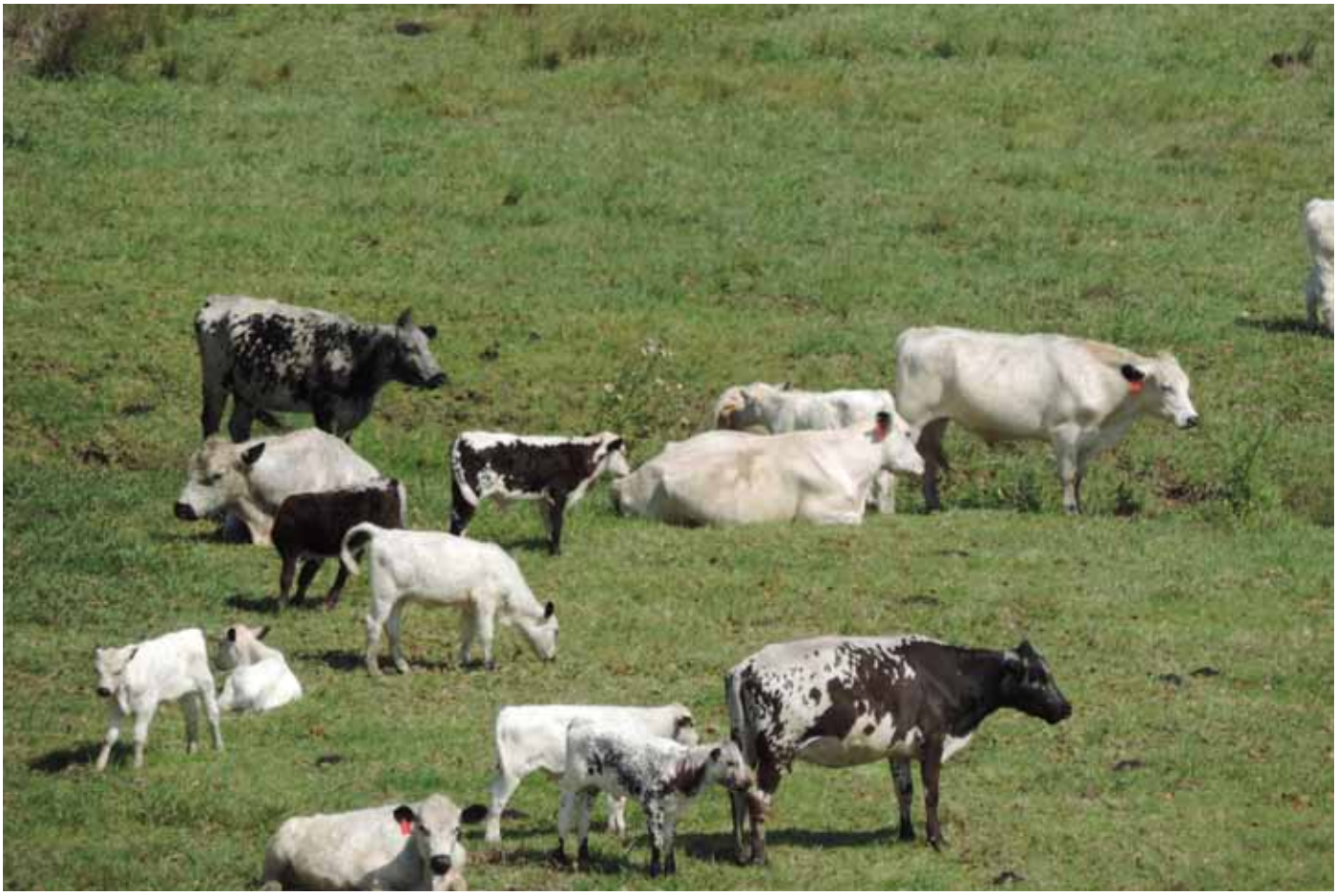
Even though it was very dry last year especially in winter and spring, there were still lush green pastures at the St Helena farm. The paddocks are slashed to add fine organic matter to the soil and dung beetles take nutrients deep into the soil. Slashing also helps with weed management.



Revegetation

Hundreds of trees have been planted on the St Helena property and the revegetated areas have been fenced off from cattle. These native vegetation areas on the farm have grown very well and provide habitat for local wildlife.

If you would like more information about Helena Brahmans please contact:
Peter Robinson
0428 494 840



Dingo Lane Farms

LINDSAY MURRAY'S BRITISH WHITE CATTLE

Lindsay Murray started grazing British White cattle on his farm in Myocum in 2009. He chose British Whites because of their striking appearance and because they are docile, naturally polled (no horns), hardy and produce excellent beef.

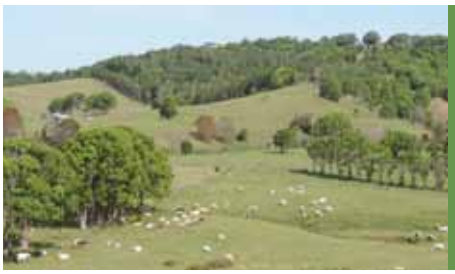
British whites are predominantly white with a black nose, muzzle, teats, ears and around the eyes. This means they are less likely than other light coloured British breeds to suffer from sunburn or eye cancer. They also often have black on other parts of the body especially the necks and forelegs .

Like many of the British breeds, these cattle make excellent mothers and generally mature early.

Preserving and promoting the breed are two of Lindsay's aims for his farm. In the 1970s British Whites were classed as a rare breed. The population had severely declined due to cattle plague in the late 1800s. In 1918 when the first society for the breed was formed in England there were only seven herds left. The population has steadily increased in several countries and there are now over 500 purebred British Whites in Australia.

British White are a very old breed from Lancashire in Britain. The original herd was dispersed from Whalley Abbey in 1697. They were first introduced into Australia in 1958. Originally British Whites were a dual-purpose breed but more recently in Australian herds, they have been selected for beef.

British White Cattle Society of Australia website:
http://www.britishwhitecattleaustralia.com.au/



Native vegetation
Lindsay aims to preserve 15% of his farm for native vegetation. Bush regeneration work includes controlling environmental weeds in forest areas . Lindsay has also planted thousands of native plants. Some of this work has been in partnership with the Koala Connections project and other work with Brunswick Valley Landcare.

Property and herd size

Farm Size: 60 ha

Stock: 35 breeders and 2 pure breed bulls

Pasture

There are a great variety of grasses, legumes and herbs growing on Lindsay's property including kikuyu which is dominant on the upper slopes and paspalum, setaria and couch grass on the lower areas.

Performance

The breed has good weight gains and feed conversion ratios. They can do well on lower grade pasture to maintain body weight and rear calves.

Field days

Lindsay has assisted Brunswick Valley Landcare by being a host property on several occasions. This included a pasture identification field day in partnership with the NSW DPI.

If you would like to help with future landcare field days, please contact your local landcare group.

If you would like more information about this farm please contact:
Lindsay Murray
Phone 041 798 3546
Email: linzy@linknet.com.au

Mullumbimby Angus Stud

MAURIE MAHER

Maurie Maher's Angus Stud is on the edge of Mullumbimby township. He has 80 breeders and one bull. The farm is 44 ha with an additional 10 ha agisted.

Angus cattle originated in Scotland and were first introduced to mainland Australia in the 1840s. Maurie chose Angus because they are placid, polled and produce sought-after beef. They also have no trouble calving because they have small calves. Angus are fertile, usually calving every year. Maurie has a cow that still calved at 18 years.

Stock are sold through paddock to paddock sales and there are no calves left on the property over winter.

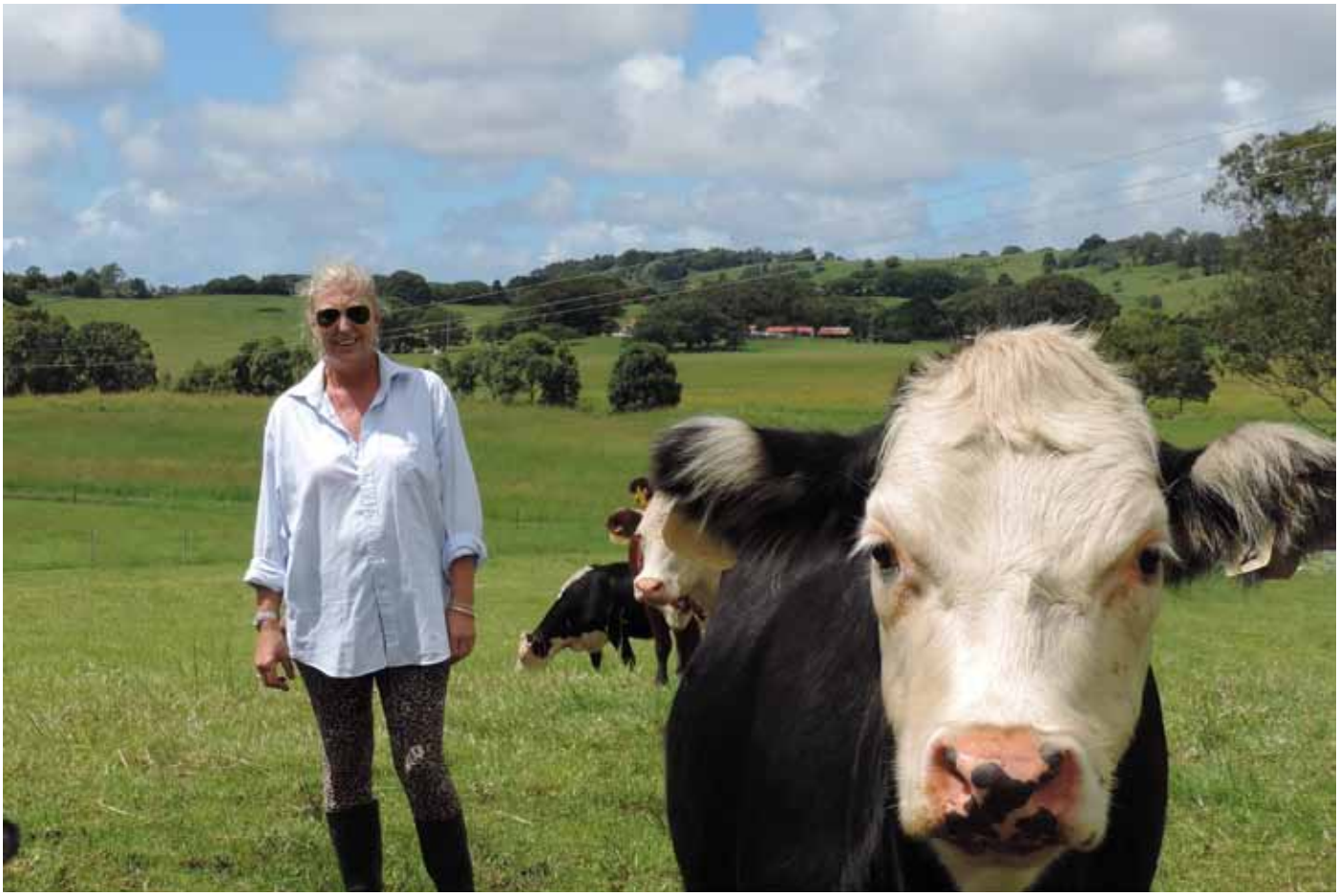
When Maurie bought this farm the soils were compacted from decades of cane farming involving heavy machinery. To improve the condition of soils and pastures Maurie has added lime and fertilizer and ripped the soil. The type of ripper Maurie uses helps aerate the soil but does not harshly till the soil. Winter rye is planted on 25 acres each year and clover, maku lotus and Shaw's creeping vigna have been planted to fix nitrogen and improve pastures.

Maurie has had to deal with wild dogs and roaming domestic dogs on this property. Although the Angus are very protective and there has been no stock losses, the dogs stress the cattle and cause damage to fences. Due to the close proximity to town Maurie has had to control the dogs using a trapper.

NSW DPI Breed Factsheet: http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding/breeds/angus

Angus society of Australia website:
http://www.angusaustralia.com.au/

If you would like more information about this farm please contact:
Maurie Maher
(02) 6684 2092



Myuna: small farms resources sharing

TINA AND DAVID'S BLACK BALDIES (HEREFORD, ANGUS CROSS)

Tina and her partner David have a small property in Myocum and are relatively new to cattle grazing. With their neighbours they have a shared paddock rotation system on three properties. The cattle are moved regularly to keep pastures at a green leafy stage and to maximise production. The neighbours also share water resources. Twenty properties share water from a spring and in dry times Tina and David also have shared their dam water with neighbours.

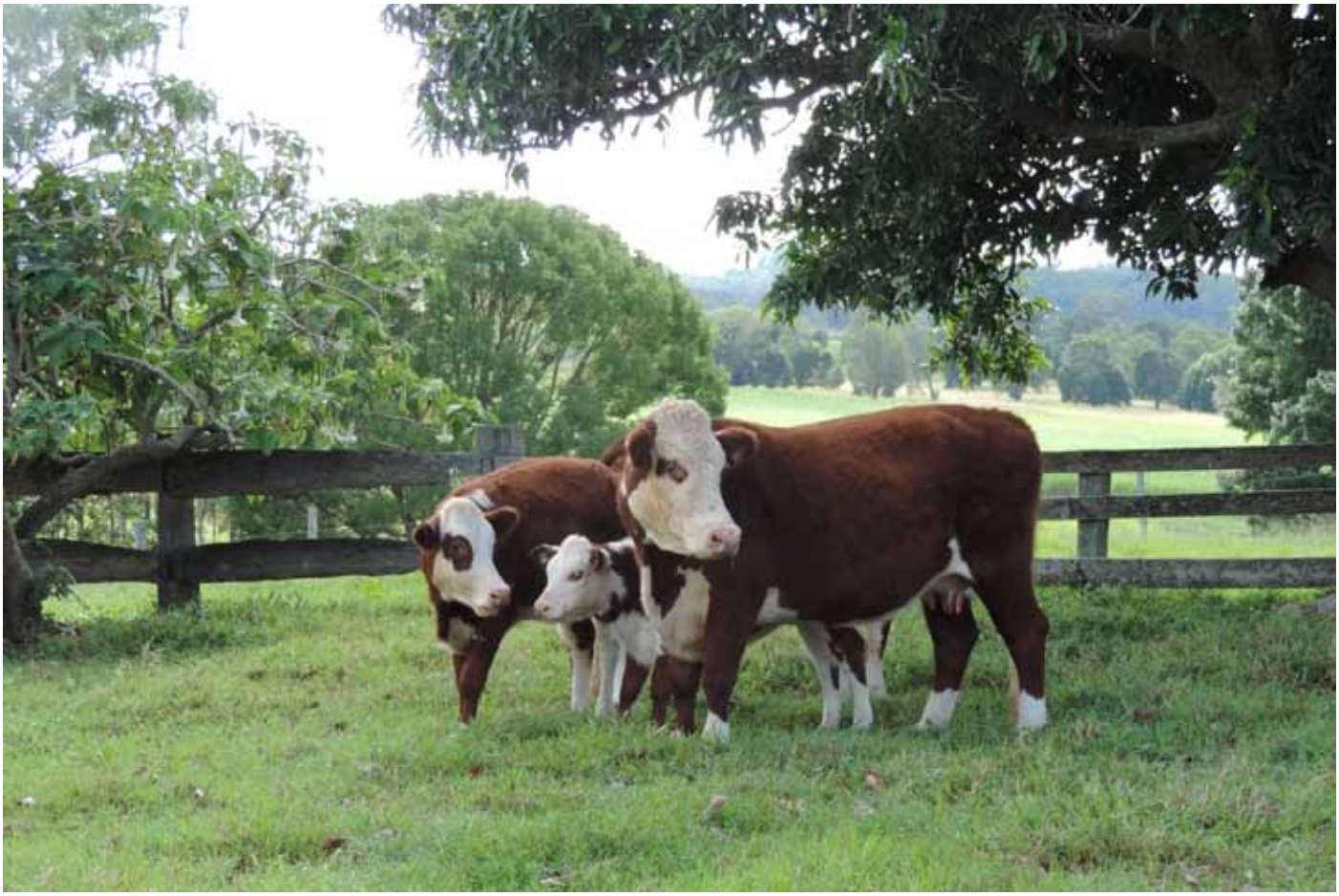
This property has F1 hybrid Black Baldies, which are a cross between Hereford and Angus, have a white face similar to the Hereford, and the black colour from the Angus. This is because alleles for white faces and black coat colour are both genetically dominant in cattle. Tina sought advice from many sources before choosing their cattle. This included consulting a local livestock agent and NSW DPI. Tina also studied a TAFE course in Agriculture last year. The Baldies are a good breed for this area and have the hybrid vigour.

Tina and David have six breeders and a borrowed bull which is shared between the neighbours. They ensure their cattle are healthy by keeping vaccinations up to date, using ear tags for buffalo fly and drenching at routine intervals. The type of treatments are varied to avoid drench resistance.

The property has perennial grasses including kikuyu, paspalum and setaria and some clover. Barley grass was planted and they have plans to plant pinto peanut in future for fodder and to improve the soil.

About 160 native trees have been planted on the property and Tina and David plan to plant more trees as part of a Koala Corridor.

If you would like more information about this farm please contact:
Tina Sweeney
Email: tsweeney@bigpond.com



Herefords

LAWRENCE TULLOCH'S FARM AT MYOCUM

This 50 ha farm was selected by Lawrence's grandfather in 1882 and Lawrence bought the farm 1965. The property had been a dairy farm with Ayrshire and AIS (Australian Illawarra Shorthorn) cross breeds. Lawrence later changed to Herefords which were a very common beef cattle breed in the region during the 1970s. The property was a Hereford stud from 1981 - 2001.

Herefords were developed in Herefordshire in England. Originally they were used for ploughing and beef then the purebred beef strain was established in the early 1700s. They first arrived in Australia in 1826. The distinctive white face is genetically dominant and a popular feature even though white-faced cattle are more susceptible to eye cancer. Selecting breeding cattle with a darker patch around the eye reduces the incidence of eye cancer.

The property currently has 50 breeders. Sales are directly to North Coast Meats and through paddock to paddock sales. In 2014 during the very dry weather it was difficult to sell weaners but now in 2015 sales and prices have improved. Lawrence has another cattle property in the region and between the two farms there has been little need for off-farm income.

The property has a few very old remnant forest red gums *Eucalyptus tereticornis* and there are very large fig trees which provide shade and shelter for the cattle. Lawrence's grandfather planted some of the fig trees in the 1940s and others were planted by Lawrence in the 1970s.

NSW DPI Breed notes http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding/breeds/hereford

Australian Hereford Society website:
www.herefordsaustralia.com.au/

If you would like more information about this farm please contact:
Lawrence Tulloch
(02) 6684 2439

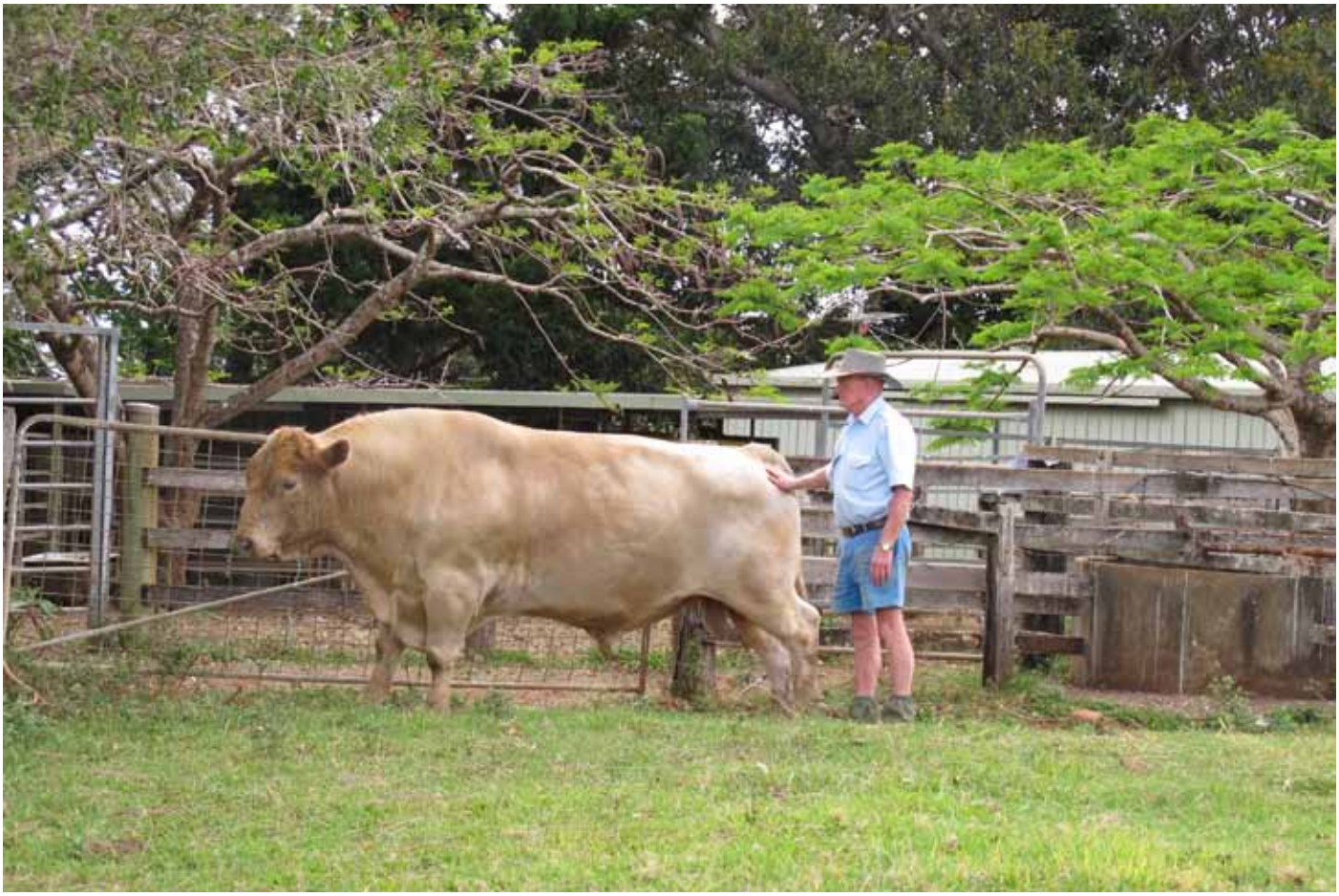


Fig Tree Farm

STEWART KERR'S MULLUMBIMBY MURRAY GREY STUD

Stewart chose Murray Greys because they are an Australian Breed that are quiet and easy to handle. Murray Greys mature early and are good mothers and the cows and heifers on this farm have had no problems with calving. The average weight of calves is 33 kg. Stewart currently has two bulls and 20 breeders.

Murray Greys are light coloured which means they tolerate heat well but unlike some light coloured breeds they do not suffer from sunburn or pink eye. The cattle on Fig Tree Farm are all very healthy; vaccinations are always kept up to date and cattle are checked very regularly so any problems can be quickly addressed.

Fig Tree Farm is 15 ha with an additional 16 ha agisted from several other properties along The Manse Road. The advantage of agisting close by eliminates the need for expensive transport. Stewart obtained a licence from the LHPA (now the North Coast Local Land Services) to move stock along the road. The fences and weeds on the agisted properties are managed by Stewart. Stewart uses artificial insemination to introduce new genetics into the herd and to breed replacement sires.

Bulls are sold through paddock to paddock sales and cows are sold at the annual Murray Grey auction in Lismore in February and paddock to paddock sales.

NSW DPI Breed Factsheet:
http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding/breeds/murray-grey

Murray Grey Beef Cattle Society
Website: http://www.murraygrey.com.au/

If you would like more information about this farm please contact:
Stewart Kerr
(02) 6684 1411 or 0412 486 234

Barlow Family Farm

JERSEY DAIRY CATTLE

Dairy farming used to be a major industry in the Byron shire. The NORCO butter factory was established at Byron Bay in 1895 and by 1900 butter was, in economic terms, the main export from the shire[1]. In the 1940s there were 38,000 dairy cows in Byron Shire, but major changes to the industry in the late 1960s and 70s meant that by the 1980s there were only 3,200 dairy cows[1]. The number of farms across all of NSW has declined since 2000 from 1725 to 731 however production per cow and number of cows per farm have both increased[2]. There are now only six dairy farms left in Byron Shire.

The Barlow family bought their Myocum farm in 1921 and purchased more land in the 1940s and 1980s. The farm is now 141 ha with an extra 28 ha agisted. There are 120 milking cows, all Jerseys. Jersey cows have a much higher cream content in their milk and therefore receive a better price per litre. Other advantages of Jerseys are their gentle temperament; they are smaller and easier to handle, the feed costs less; they are low maintenance. The Barlow farm also has some steep paddocks and Jersey cows are good on the hills whereas Friesians are better suited to flat land.

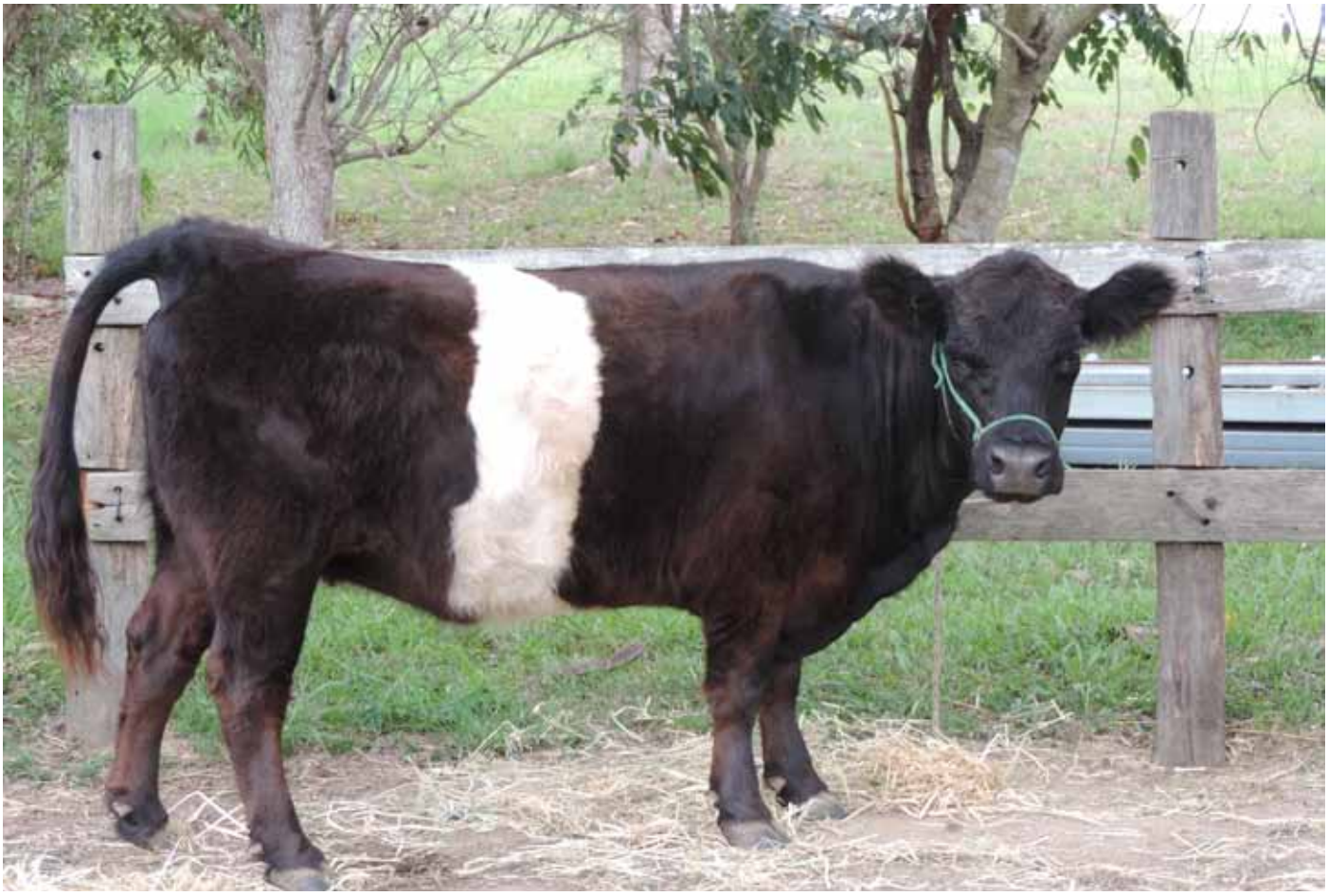
There are 12 paddocks on the Barlow farm and the cattle are moved to a new paddock twice per day, after milking. Kikuyu is the dominant pasture grass and winter rye grass is usually planted each autumn. The soil has had routine additions of lime and also compost has been ploughed into the paddocks on the flat areas which has increased fertility and reduced compaction of the soils.

More information about the Dairy Industry in NSW: http://www.dpi.nsw.gov.au/agriculture/livestock/dairy-cattle

References

[1] Stubbs, B.J. (2006)Thematic History of Byron Shire In Byron Shire Heritage Study, Byron Shire Council.

[2] NSW DPI 2014 http://www.dpi.nsw.gov.au/agriculture/livestock/dairy-cattle/facts-and-figures



Dragonbridge

MINIATURE BELTED GALLOWAY STUD AT THE POCKET

Phillip and Vicki Morrow raise stud miniature Belted Galloways on their farm at The Pocket. They chose this breed as they are suited to the area, very easy to manage and are an attractive lifestyle cattle. Galloway cattle are fertile and make excellent mothers. Galloway cattle have an excellent feed conversion ratio and according to Phillip "the beef is second to none in tenderness and flavour".

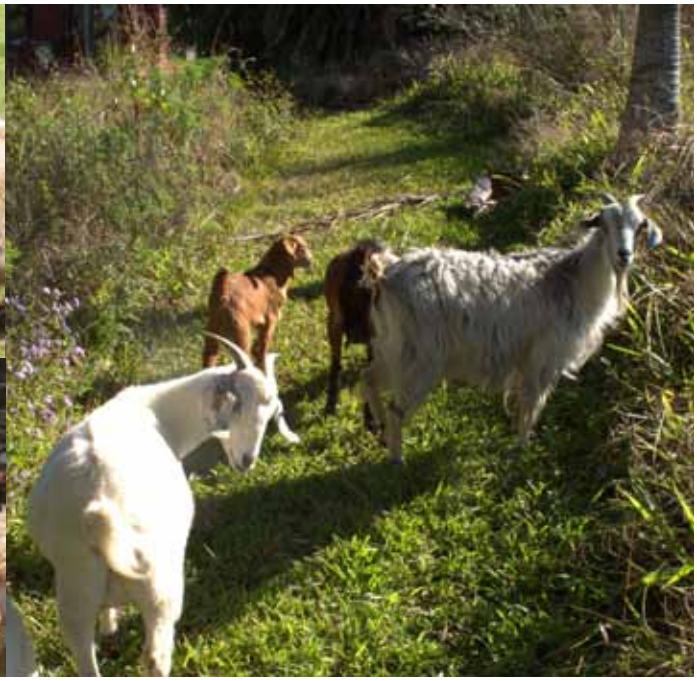
Phillip and Vicki currently have 20 breeders on 14 hectares of land. The pastures are a mix of perennial tropical grasses and legumes. Generally the cattle are fed only on pasture, though supplementary feed is given to weaners and show cattle. All Galloway cattle are nonselective grazers which means that they eat weeds and pasture grasses alike, and therefore can improve the quality of pastures. Marshalls Creek flows through the property and Phillip and Vicki have replaced many Camphor laurels that were on the banks with native trees to help improve the health of the creek.

There are many agricultural shows in our region and Phillip and Vicki have been very successful showing their cattle at these shows. They have won Supreme Champion Small Breed at several local agricultural shows and have been awarded Reserve Champion Belted Galloway Bull two years in a row at the Brisbane Exhibition. All sales for these cattle are private paddock to paddock sales.

NSW DPI Breed Factsheet:
http://www.dpi.nsw.gov.au/agriculture/livestock/beef/breeding/breeds/galloway

Australian Galloway Society
http://www.beltedgalloway.org.au/

If you would like more information about this farm please contact:
Phillip or Vicki
Phone: (02) 6684 5031
Email: dragonbridge@activ8.net.au



Sheep and Goats

Sheep

The coastal areas of NSW are not suited to wool production. However, there has recently been an increase in the number of small farms on the north coast grazing meat sheep.

A popular breed is the Dorper. Dorper sheep were introduced into Australia in 1996. They are a cross between Dorset and Black Head Persian sheep. The breed was developed in South Africa in the 1930s. As shown in the above photo, Dorpers shed their fleece naturally which minimises the need for sheering, crutching and mulesing. There are both black- and white-faced Dorper sheep. Other advantages of Dorpers are that they are adaptable to a variety of climates from arid to semi-tropical areas and are very fertile with lambing intervals as short as 8 months[1].

Sheep and lambs can be particularily vulnerable to wild dogs and fox attacks. As well as controlling these pest animals, you can use fences and guard animals to assist in protecting your flock.

NSW DPI information
http://www.dpi.nsw.gov.au/agriculture/livestock/sheep

[1] Australian Dorpers Website:
http://dorper.com.au/

Goats

There are many breeds of goats and choice of breed depends on whether you want them for milk, meat or fleece. All goats are browsers rather than just grazers so they need access to leaves, twigs and shrubs.

Meat breeds The main breeds for meat in Australia are the Boer goat and the rangeland goat. The rangeland goats bred from feral goats in Australia. The Boer goats were developed in South Africa and introduced into Australia in the 1990s.

Dairy breeds in Australia include Saanen, Toggenburg, British Alpine, Anglo Nubian, Australian Melaan and Australian Brown. The average milk production is 2-3 litres of milk per doe per day[2].

Fleece
There are two main wool breeds in Australia - Angora goats that produce mohair and Cashmere goats.

Websites
NSW DPI website:
http://www.dpi.nsw.gov.au/agriculture/livestock/goats
[2] Goat Industry Council of Australia
http://www.gica.com.au/about-gica
Australian Dairy Goat Society website:
http://dairygoats.org.au/index.html

Alpacas

Alpacas and llamas originate from South America where they have been used for meat and fleece for thousands of years. Unlike llamas, alpacas were not used as pack animals. They are hardy animals that can tolerate harsh climates. Alpacas were introduced into Australia in 1989.

There are two varieties of alpaca. The Huacaya (pronounced wua'ki'ya) pictured above is the most common type in Australia and they have crimpy wool that grows perpendicularly to the body and gives a fluffy appearance. Suri alpacas have long slightly curly fleece.

Alpacas are often used as guard animals for sheep or goats. Although alpacas are very protective of their flocks and aggressive towards foxes, they have been victims of wild dog attacks. Management of wild dogs is very important.

Websites
NSW DPI
[1]http://www.dpi.nsw.gov.au/agriculture/livestock/health/images/information-by-species/other/alpaca-worms

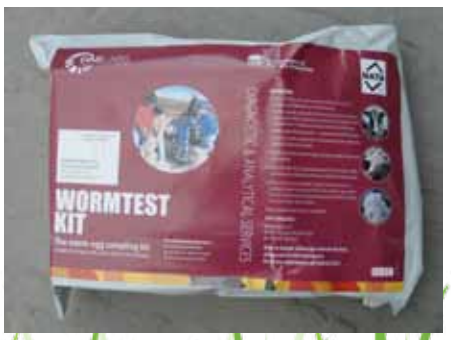
Australian Alpaca Association
https://www.alpaca.asn.au/

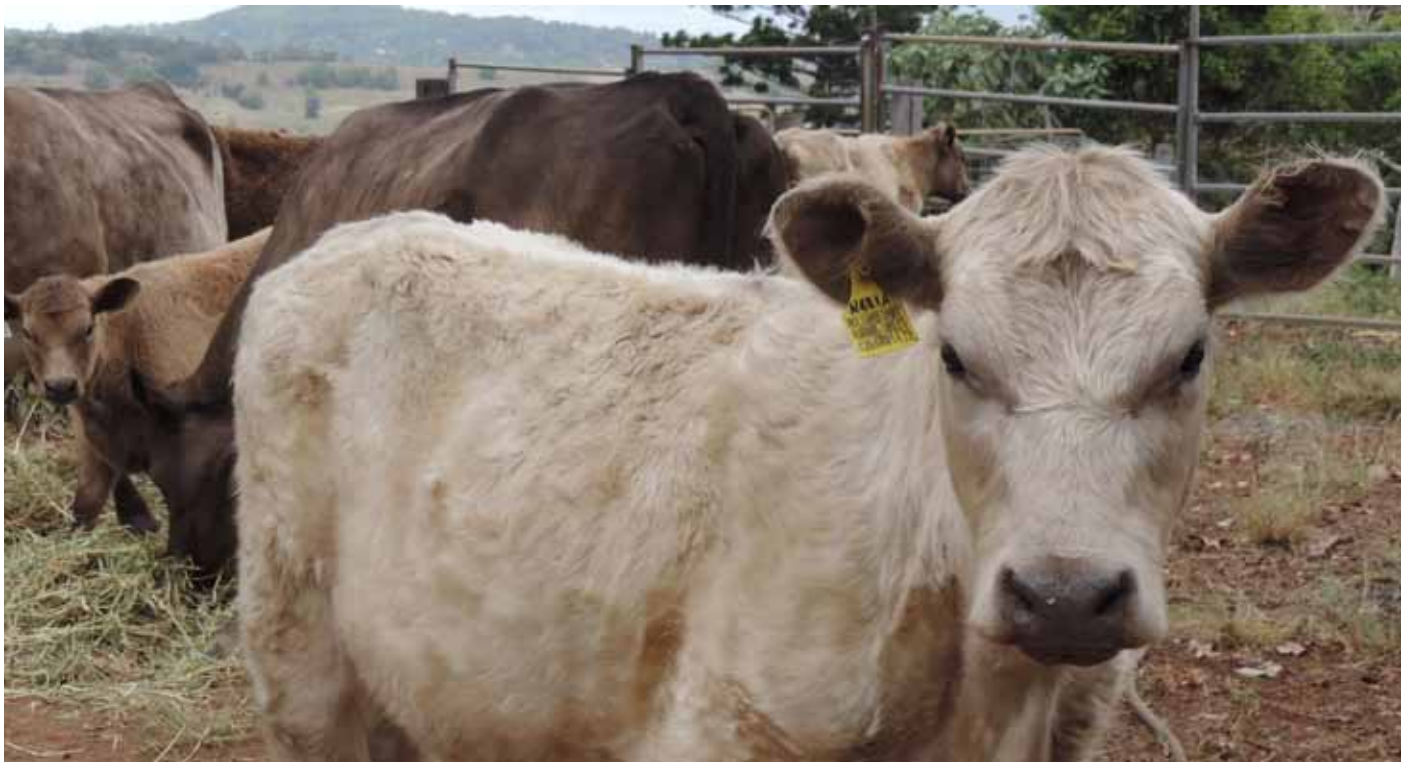
Worm Testing Kits
Alpaca's habit of defecating in the one place limits the spread of worms. However, alpacas are still susceptible to similar parasites that infect cattle, sheep and goats. There are four main worms in Australian alpaca herds: Barber's pole worm, Black scour worm, Small brown stomach worm and Liver Fluke [1].

The NSW DPI laboratory provides worm testing services for alpacas and other livestock. The worm test sampling kits and postage are free from your Local Land Services. The cost of monitoring varies and prices start from $36.60 for basic (count only) tests for 10 samples.

Profarm run courses for farmers interested in learning how to conduct their own worm egg counts.

Primefact Alpaca worms: an overview
http://www.dpi.nsw.gov.au/agriculture/livestock/health/specific/other/alpaca-worms





Legislation: livestock registration and landuse

Property Identification Codes (PICs)
A PIC is a number assigned by Local Land Services to properties with livestock. This registration system assists LLS with animal health and biosecurity issues. PICs are printed on approved National Livestock Identification System tags. If you own, manage or occupy land and have livestock including cattle, sheep, goats, pigs, bison, buffalo, deer, alpacas, llamas, horses and donkeys, you are required by law to have a PIC. If stock are agisted then the owner of the agistment property and the owner of the stock are both responsible for ensuring that the agistment property has a PIC.

You can apply for a PIC through the North Coast LLS offices in Lismore or online at northcoast.lls.nsw.gov.au/livestock/pics

Record keeping: Land and Stock Returns
Livestock owners in NSW are required by law to lodge an *Annual return of land and stock* for each financial year. This provides Local Land Services with information about properties and livestock across each region.

Planning regulations and Agriculture
Byron Shire Council like all NSW councils have a Local Environment Plan (LEP) which list land uses permitted in different zones. It is important to check what zone or zones your land is in as there are different conditions for Rural Land. Zone RU1 is Primary Production and Zone RU2 is Rural Landscape. Many small properties are zoned Large Residential. R5 and agricultural activities are limited to horticulture under the most recent LEPs permitted in this zone. Maps and information are available online and from Byron Shire Council . Phone (02) 6626 7000 Email: http://www.byron.nsw.gov.au/byron-lep-2014-and-lep-1988

Threatened Species Conservation Act 1995 (NSW)
Byron Shire has very high biodiversity and many properties have vulnerable or endangered species of plants or animals on their properties. There are also numerous threatened ecological communities in the shire. The Threatened Species Conservation Act protects these species and the Office of Environment and Heritage administers all of the terrestrial species. **Website:** http://www.environment.nsw.gov.au/threatenedspecies/index.htm .

Directory

Animal Health Australia
http://www.animalhealthaustralia.com.au/

Byron Shire Council
Phone (02) 6626 7000
http://www.byron.nsw.gov.au/

Department of Primary Industries NSW
http://www.dpi.nsw.gov.au/agriculture/livestock

Office of Water
Phone 1800 353 104
Email: information@water.nsw.gov.au
Website: http://www.water.nsw.gov.au

Soil Tests
Phone (02) 6626 1103 or 1800 675 623
Email: Wollongbar.csu@dpi.nsw.gov.au
http://www.dpi.nsw.gov.au/aboutus/services/das/soils

Water Tests
Phone (02) 6626 1103 or 1800 675 623
Email: wollongbar.csu@dpi.nsw.gov.au

Environment Protection Authority
Phone 131 555
http://www.epa.nsw.gov.au/

Far North Coast Weeds
Phone (02) 6623 3833
http://fncw.nsw.gov.au/

Meat and Livestock Australia
http://www.mla.com.au/home

North Coast Local Land Services
Phone 1300 795 299 or (02) 6623 3900
Email: admin.northcoast@lls.nsw.gov.au
http://northcoast.lls.nsw.gov.au/

District Veterinarian
Phil Kemsley 0427 896 822.

Senior Biosecurity Officer
Neil Hing 0402 000 762

Senior Land Services Officer - Livestock
Nathan Jennings (02) 6623 3926
Email: nathan.jennings@lls.nsw.gov.au

NSW Farmers Association
http://www.nswfarmers.org.au/

RSPCA
https://www.rspcansw.org.au/

TAFE
North Coast Phone 1300 628 233
http://www.northcoasttafe.edu.au/

Tocal College: http://www.tocal.com/

Landcare and other community groups

Bangalow River and Landcare
http://www.bangalowlandcare.org.au/

Big Scrub Landcare
https://www.bigscrubrainforest.org.au/

Brunswick Valley Landcare Inc.
http://www.brunswickvalleylandcare.org.au/

Byron Creek Catchment Landcare Group
Email: dulcamah@iinet.net.au

Friends of the Koala
www.friendsofthekoala.org

Goonengerry Landcare
http://www.landcare.nsw.gov.au/groups/goonengerry-landcare-group

Nashua Landcare:
http://www.landcare.nsw.gov.au/groups/nashua-landcare-group

Northern Landcare Support Services
http://www.nlss.com.au/

Richmond Landcare Inc.
http://www.richmondlandcare.org/

Soilcare
http://www.soilcare.org

Tweed Landcare Inc.
http://www.tweedlandcare.org.au/

Wildlife Friendly Fencing
http://www.wildlifefriendlyfencing.com/WFF/Home.html

Wilson's Creek Huonbrook Landcare
http://wilsonscreeklandcare.mullum.com.au/

Landcare Community Support Officer for Byron Shire
Phone (02) 6626 7028
Email: alison.ratcliffe@byron.nsw.gov.au

Brunswick Valley Landcare Inc.

This project is supported by Brunswick Valley Landcare through funding from the Australian Government's National Landcare Programme.

Australian Government

National Landcare Programme