BEEFnews
NEW ENGLAND & NORTH WEST SLOPES

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A quarterly newsletter for beef producers of the New England and North West Slopes areas of NSW.

IN THIS EDITION



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NSW DEPARTMENT OF PRIMARY INDUSTRIES

# Are you managing your herd health?

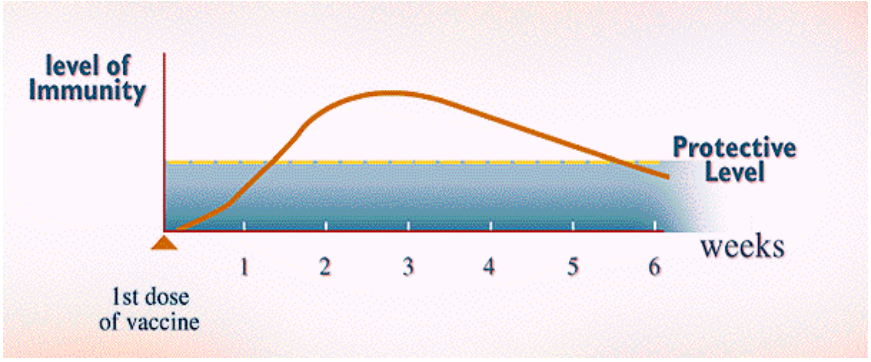
*Alastair Rayner, Livestock Officer (Beef Products) Tamworth*

*Bill Hoffman, Livestock Officer (Beef Products) Casino*

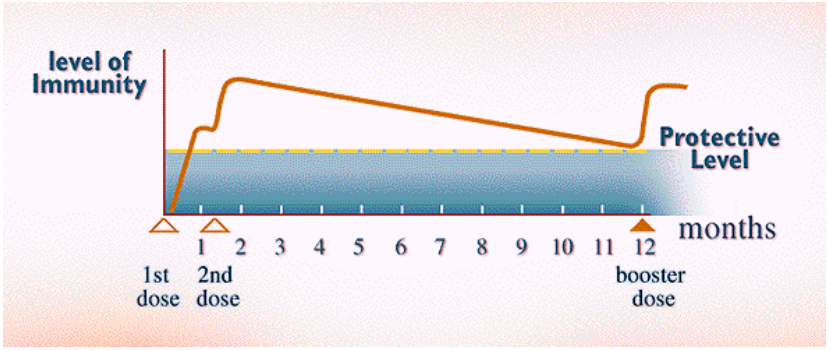
There are a multitude of vaccines on the market. It is important to know which animals need to be vaccinated, what they need to be vaccinated against and what they should be vaccinated with. In addition vaccination programs need to be correctly applied and timely to ensure that the vaccination dollar is being used to its full advantage.

Any vaccination program needs to complement management, nutrition, and genetics to ensure that more calves are born, mortalities are reduced, growth rates are optimized, weaner throughput is increased and sale returns are maximised.

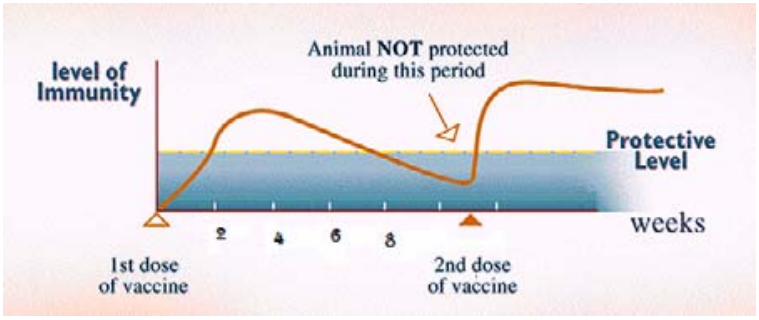
It is important to understand how vaccines actually work in order to implement a program correctly. Vaccines stimulate an animal to develop antibodies which combat the effects of a disease. The first vaccination in any program stimulates this immune response. It generally takes about 10 days for the antibodies to accumulate sufficient levels to protect the animal.




However this initial level of immunity is often low and doesn't last for long. This is why a second booster vaccination is essential. This second dose quickly producers a response and provides a higher and longer level of protection.




Many producers often don't provide the second dose until much later than the recommended 4 to six weeks. These delays extend the period of time where an animal remains unprotected from disease.




**Handling Vaccines**

Many sound vaccination programs have been undermined by poor vaccine handling and administration. Vaccines should always be stored in a fridge, and used within the expiry date. During transport and at the yards, vaccines should be kept in an esky with ice bricks and ideally kept out of the sun.

Needle management is important. Needles should be kept clean and changed regularly. Vaccines should be given to an animal under the skin, **not** into the muscle.

When purchasing pack sizes, it is preferable to purchase amounts sufficient for your needs. Once the pack has been opened it should be used and not stored as needles, dust and air can introduce bacteria and moulds which will affect the vaccine.

**Clostridial Diseases**

Clostridial bacteria are widespread in the soil and the gut of normal healthy animals. When Clostridia multiply they produce potent toxins. These toxins thrive in soils in warm weather following rain or in other oxygen free environments such as decaying vegetation, wounds or carcasses.

The toxins enter the body of the animal through a number of ways: Ingestion (as is the case with Botulism), released in the gut (such as in the case of pulpy kidney/enterotoxaemia) or are released from other tissues (such as in Blackleg).

The major Clostridial diseases that can be prevented by effective '5 in 1' vaccination programs are pulpy kidney (enterotoxaemia), tetanus, blackleg, malignant oedema and black disease. '7 in 1' vaccines protect against all of the above diseases as well as Leptospirosis.

**Pulpy kidney/Enterotoxaemia**

Results from the proliferation of clostridial bacteria in the intestine that produces a toxin. It occurs in young rapidly growing animals on good feed. It usually follows a change in the digestibility of the diet i.e. going from winter pastures onto lush spring pastures. Signs of the disease include diarrhoea, bellowing, dullness, blindness, convulsions and death. In times of grazing lush

feeds, boosters can be given every 90 days.

**Tetanus**
Usually the result of contamination of deep wounds. The bacteria involved remain at the site of entry, multiply and produce a toxin that affects the nervous system.

**Blackleg**
Tends to occur in young cattle from 6 month to 2 years old that are on good quality feed and are rapidly growing. Blackleg is thought to result when spores of the bacteria, normally found in muscle, multiply as a result of bruising. They produce a toxin which causes severe muscle damage. The affected area becomes hot, swollen and a gas builds up eventually resulting in gangrene. In most cases a limb is affected and the animal is lame. The toxin becomes absorbed into the bloodstream eventually resulting in death.

**Malignant Oedema**
Malignant oedema results from wounds becoming contaminated by soil which allow the clostridial bacteria to enter the body. Infection can also occur via the navel in newborn calves and following injections if good techniques aren't used.

**Black Disease**
Black disease is thought to result when there is damage to the liver, such as occurs with migrating liver fluke. This allows the bacteria concerned to multiply and produce toxin. This toxin causes severe liver damage and death.

**Leptospirosis**
Leptospirosis is a serious disease of livestock and humans caused by different strains of the bacteria Leptospira. Leptospirosis may cause delay to service, abortion in late pregnancy or 'redwater' (brownish red coloured urine) may be seen in young calves as a result of the breakdown of red blood cells. Humans can become infected with all strains of Leptospira. It causes flu like symptoms and in many cases these infections will require hospitalisation.

It is spread through the urine of infected animals. Vaccinating cattle against Leptospirosis should be considered as cheap health insurance, not just for livestock but for livestock producers as well.

**Pestivirus**
Reproductive losses as a result of Pestivirus infection include return to service, abortion, stillbirths, birth defects, ill thrifty calves and respiratory disease.

**Vibriosis**
Vibriosis is a common infectious venereal disease causing repeated return to service as a result of abortion, embryonic mortality and uterine infections. Infected bulls are generally responsible for introducing vibriosis into a clean herd and they spread it to susceptible cows and heifers during joining. It is displayed by animals failing to conceive and continuing to come on heat, occasionally abortions and a spread out calving as a result of infected females returning to service towards the end of the joining period. As immunity develops, the incidence of the disease reduces, but reinfection can occur because immunity normally wanes a year after the initial infection.

Vaccinating bulls annually against the disease is the best way to maintain a vibriosis free herd. The vaccine should be given four weeks before joining.

Table: Vaccination Program Summary

| Disease | Vaccine | Initial Treatment | Annual Booster | Animals to Treat | When to Treat |
|---|---|---|---|---|---|
| Black leg, Malignant oedema, Tetanus, Enterotoxaemia, Black disease | 5 in 1 | 2 injections<br>4 – 6 weeks apart | Yes | Calves to two years old | Ideally just before marking<br><br>Marking & Weaning<br><br>Boosters given to stock grazing lush feeds, crops or high grain rations, as often as every 90 days |
| Above Diseases plus Leptospirosis | | 2 injections<br>4 - 6 weeks apart | Yes | Calves to two years old and maiden heifers and pregnant cows previously untreated | Ideally just before marking<br><br>Marking & Weaning |
| Pestivirus | | 2 injections<br>4 - 6 weeks apart | Yes | Heifers and Previously unvaccinated cows and bulls | 6 – 8 weeks before joining and a second dose 2 – 4 weeks before joining |
| Vibriosis | | 2 injections<br>4 - 6 weeks apart | Yes | All Bulls | 1 month before joining |

# Applications now open for 2008 RIRDC Rural Womans Award

*Allison Priest, Rural Women's Network Assistant Coordinator, NSW Department of Primary Industries*

The Rural Industries Research & Development Corporation (RIRDC) Rural Women's Award recognises and encourages the vital contribution women make to rural Australia. It supports women with a strong and positive vision for the future of rural Australia and provides them with an exciting opportunity to develop their skills and make a difference.

Rebecca Arnott, winner of the 2004 Rural Women's Award and Brand Manager for the Australian Agricultural Company, is encouraging all rural women and particularly women in the livestock industry to apply for this year's Award.

'The Award has given me a much broader understanding of Australia's major trading partners and their branded beef product and of the challenges and opportunities facing the Australian industry. It has also given me credibility within my industry, opened up networks, and given me access to industry and government leaders. All this has been valuable in pursuing my vision,' said Rebecca.

As a result of the Award Rebecca completed the Australian Institute of Company Directors Course and has since joined two boards and an advisory body. She has also completed the Australian Rural Leadership Program and is building new skills and extending her leadership capacity.

The 2008 Award is clearly focused on supporting women with strong leadership skills, a positive vision for the future and the potential to make a difference in primary industries and natural resource management. It is open to all women involved in agriculture, including broadacre and intensive livestock and cropping enterprises, horticulture, forestry, fisheries, natural resource management and related service industries.

The Award provides a $10,000 bursary for the winner and the opportunity for the winner and runner-up to participate in the RIRDC Australian Institute of Company Directors Course.

Women interested in apply for the 2008 Award also have access to more than twenty past winners and finalists who are happy to discuss ideas and mentor applicants through the application process.

For an application package or details of mentors, contact Allison Priest, NSW Award Coordinator on 02 6391 3620 or email: allison.priest@dpi.nsw.gov.au. Information is also available from: http://www.dpi.nsw.gov.au/rwn

# Editorial

*Alastair Rayner, Livestock Officer (Beef Products) Tamworth*

This winter has definitely seen a return to the traditional New England winters, with snow, sleet, heavy frosts and very little rain. For producers on the tablelands, the challenge will be managing calving and ensuring cows have sufficient feed to rear their claves and go into the joining period in sufficient body score to enable cycling and maintain conception rates. If you do have questions or need some ideas to help develop a management plan, feel free to contact me so we can discuss some options.

Pulpy Kidney has been a real issue for many producers across the North West Slopes. As a clostridial disease, all animals are susceptible when the conditions are right. Grazing lush feed, new crops or even heavy grain feeding can bring on the right environment for this disease. The article in this newsletter as well as NSW DPI Primefacts on the internet may be very useful in helping develop a preventative plan for your herd.

The annual bull selling season for Northern NSW is well underway. Remember that buying a bull should be a process which involves preparation so you purchase the bull which will add to your enterprise by improved performance and not one which will cause on going problems such as changes in maturity pattern, temperament or structural issues. Caring for your new bull is another area which does take some time and the article in this edition hopefully will give you some ideas to settle your new bull in.

# Coming Events

## Beef-n-omics

Beef-n-omics continues to attract new producers who wish to undertake a specific beef oriented course. If you are interested in Beef-n-omics two courses are planned for later this year, which depending on demand will be around Tamworth and Inverell. If you are interested please contact the Tamworth office of NSW DPI on 02-6763 1100

## Ag-Quip

NSW DPI will be at Ag-Quip. This year the beef display will contain information regarding our new Beef Breeding Package, which includes a DVD, as well as information on Beef-n-omics and several Livestock officers will be on hand to answer any general enquiries.

# Establishing a Breeding Direction

*Bill Hoffman, Livestock Officer (Beef Products) Casino*

Regardless of the chosen breeding system, cattle producers must strive for genetic improvement in the traits identified as economically important for both the current and future performance of the herd. The basic objective of animal breeding is to enhance the efficiency of production and the quality of the product for the ultimate consumer through planned genetic change. The choice to straight breed or cross breed will relate to the ability to match the cattle with the environment and market.

**Straight Breeding Programs**

Straight breeding programs appeal to many beef breeders because they produce replacement females from within the herd. They are reasonably easy to manage because only one cattle breed exists on the property

**Important points:**

• BREEDPLAN EBVs and $indexes are available to select both bulls and cows.
• Breeding management options are simple and don't require selection of sires from different breeds, or for them to be mated in different paddocks.
• They are self replacing, meaning that breeder replacements are produced within the herd.
• Turnoff animals are relatively similar with little variation.
• Lines that "look" even (i.e. colour) may attract a premium.
• Straightbred females continue to be in demand to be used in crossbreeding systems.

**Crossbreeding Programs**

Crossbreeding systems bring together a desired combination of genes more rapidly than can be achieved through within breed selection. Advantage can be taken of the complementarity among breeds but knowledge of individual breed characteristics is important.

The decision to crossbreed also often relates to the potential gains of hybrid vigour, an additional boost to production. Hybrid vigour is the difference between the performance of the progeny and the average performance of the parents. In general, the more distantly the parental breeds are related, the greater the amount of hybrid vigour that can be expected. The greatest level of heterosis results from the crossing of the least related purebred such as Bos Indicus and Bos Taurus breeds.

For greatest benefit in all crossbreeding programs, it is imperative that the programs be based on straightbred animals of high genetic merit for economically important traits.

Crossbreeding provides flexibility in being able to quickly alter particular characteristics of a herd for a specific purpose, such as to cater to a particular market, increase production or remedy a problem. There can be disadvantages with crossbreeding such as management difficulties.

**Planned Crossbreeding Systems**

Whilst the potential gains from crossbreeding are large, most of the success depends on good planning and the use of superior genetics to provide the priority traits identified for a specific breeding enterprise.

The following briefly outlines the key 'planned' approaches to crossbreeding.

**Rotational Crosses**

Rotational crossing simply means that two or more different sire breeds are used in sequence over the female groups which are grouped according to their sire breed. Two, three or even four sire breeds may be used. In a simple system using two breeds, cows of breed A are mated to sire breed B, with the resulting heifers being joined back to sire

breed A. An increase of 10 - 20% in the weight of calves weaned per cow joined can be achieved from a two breed or criss-cross rotation.

**Important points:**

• The system generates its' own replacement females.
• Hybrid vigour is retained giving a 10-20% increase in weaning weight.
• Cows can be run as one mob for most of the year as they only need to be separated by sire groups for joining.
• Depending on the breed chosen, some variability will occur within the progeny.
• Breeds with good maternal traits should be used, as female progeny of all sire breeds are kept.

**Two Way Cross (F1)**

This is a simple system where a bull of one breed is joined to straight bred cows of another breed – all progeny are sold. Hybrid vigour is generated in the progeny only. Because the cows are straight bred there is no hybrid vigour generated at that level.

This system does not produce its' own replacements so they need to be purchased or bred in a separate enterprise. This system offers the opportunity to produce and market specialised F1 females which are often highly sought after. Male progeny can be sold as weaners or feeder cattle.

**Important points:**

• 5 - 10% increased weaning weight turned off.
• Straight bred female replacements can often be purchased.
• Increased value of heifer progeny as F1 breeders.
• Increased value of F1 steers for feeding or slaughter.

**Terminal Sire Joined to Firstcross (F1) Females**

In this system, a third breed of bull is joined to first cross (F1) cows and all progeny are sold meaning that the system terminates at that point. This is the most productive system, as F1 females of the right breed groups can maximise maternal hybrid vigour for fertility, milking ability and longevity. They can also be selected for environmental adaptation and medium size, meaning that their feed requirements are not too high.

Sires can then be selected for their growth and carcase traits. The main problem with this system is that it doesn't generate its' own replacement females – they must be sourced from outside the system.

**Important Points**

• Maximum hybrid vigour is utilised.
• 20 - 50% increased weaning weight turned off per cow mated.
• Breed can be selected to maximise complementarity.
• Cows can be selected to best suit the environment and sires selected to specifications.
• Opportunity to select sires using EBVs and indexes.
• Replacement females needed from outside the system.
• Heifers may need to be mated to bulls with low calving risk.

## What are the Economic Benefits of Cross Breeding?

*Alastair Rayner, Livestock Officer (Beef Products), NSW DPI Tamworth*

Changing a breeding direction is a major decision for any beef producer. Within this newsletter the considerations producers must have in mid are outlined. However these are not the only issues which must be addressed. The impact of hybrid vigour extends beyond the obvious advantages in growth and corresponding weaning or sale weights.

Producers who retain cross bred females need to recognise these females will be heavier, and will require more nutrition than straight bred females. This may mean cow numbers need to be reduced in order to maintain correct nutritional requirements. If this can't be done the benefits of hybrid vigour will be undermined as the full potential for growth, and fertility won't be met.

However if nutrition can be satisfied, and the target market accepts the chosen cross animals, there are significant economic advantages for cross breeding.

One method of comparing the advantages is through NSW DPI's Beef-n-omics program. The following case study was generated using average figures for Northern NSW.

Within this example, the case study was compared by modelling an average breeding herd using a single British breed and producing 400kg feeder steers.

The next step was to model the changes which could be expected by using another British breed over these females.

The final step was to model the impact of retaining the heifers and moving into a rotational cross breeding program.

**ASSUMPTIONS**

**1000 Ha** – Improved & Semi Improved Pastures

**Straight Bred British herd**

**Target Market** Feeder steers (400 kg entry weights)
Surplus Heifers (sold as 9 month weaners)

**Cow Numbers** 350 **Weaning:** 85%

**Details**: Steers sold at 15 months
Heifers Sold at 9 months @ 235 kg

| | |
|---|---|
| ***Gross Margin:*** | **$144,634.00** |
| ***Gross Margin / Ha:*** | **$144.63** |

**ASSUMPTIONS**

**1000 Ha** – Improved & Semi Improved Pastures

**Two Way Crossbred British herd (Same cows joined to Bull from another British Breed)**

**Hybrid Vigour: 5 – 10 % in progeny** (in this case study 7%)

**Target Market** Feeder steers (400 kg entry weights)
Surplus Heifers (sold as 9 month weaners)

**Cow Numbers** 355 **Weaning:** 85%

**Details**: Steers sold at 13 months – Faster growth and will meet specifications at an earlier age

Heifers Sold at 9 months @ 251 kg – Will be heavier at weaning & F1 females attract a slight premium, in this case 5c/kg

***Gross Margin:*** **$149,672.00**
***Gross Margin / Ha:*** **$149.67**

**Changes – GM > $5,038**
**GM / Ha > $5.04**

**ASSUMPTIONS**

**1000 Ha** – Improved & Semi Improved Pastures

**Rotational Crossbred herd: (Using two British Breeds in Rotation. Keeping replacements)**

**Target Market** Feeder steers (400 kg entry weights)
Surplus Heifers (sold as 9 month weaners)

**Cow Numbers** 335 (cows will be heavier and numbers must be reduced) **Weaning:** 90% (improved fertility)

**Details**: Steers sold at 13 months @ 420kg (slightly faster growth)
Heifers Sold at 9 months @ 270 kg – Will be heavier and retain the premium as cross bred females.

***Gross Margin:*** **$ 160,548.00**
***Gross Margin / Ha:*** **$ 160.55**

**Changes - GM > $15,914.00**
**GM / Ha > $ 15.92**

Without doubt well designed and implemented cross breeding programs offer many advantages to beef producers. However before commencing on the cross breeding plan, producers should weigh up all the important and relevant factors for their own situation and seek input from their NSW DPI Livestock Officer (Beef Products) before implementing major changes.

## Bringing Your New Bull Home

*Alastair Rayner District Livestock Officer (Beef Products) Tamworth*

Purchasing a new bull is a major occasion for most beef producers. Sale days can be a great source of stress, particularly when investing in the genetic future of a breeding operation. However the sale day stress also can impact on the bulls themselves. It is important to attempt to minimise this stress and allow the bull to settle in to its new home as quickly and as easily as possible.

AT PURCHASE

Some bulls find the excitement of the sale ring a little too much and react badly. A better guide to a bull's temperament is its behaviour in the paddock prior to the sale. How a bull reacts in this situation is a much better indicator of its temperament and its flight zone (that is how close will it allow people to approach) than in the sale ring.

If the bull doesn't react well to pressure or really finds the selling process stressful, this will be important in determining how to handle him in the future.

Possession of the bull commences at the fall of the hammer. While the bull may be returned to a pen with its peers, and soon calm down, it will soon be separated and transported to a new and unfamiliar environment. This can be stressful so a few simple steps should be followed.

DELIVERY

Your new bull should be insured. Some vendors may provide assurance, however if they don't insurance against transport loss, accidental loss of use and infertility should be seriously considered. The transport for the bull should also be considered.

- When loading the bull avoid using buzzers, dogs or other aids. Try not to rush and upset the bull.
- If you have bought bulls from different origins (eg a multi vendor sale) bulls need to be separated on the truck
- Unload them as little as possible when on the trip. If you do need to stop, try and arrange a stop where some feed and water can be provided.
- Sometimes it can be worthwhile loading the bull with some steers which can be left with the bull when it arrive home
- Ensure the floor and truck body are suitable for the trip and won't cause injury

If you are using a carrier, it is important to discuss with the carrier a few other issues in addition to those listed above. These include:

- Which bulls can be put together
- Resting procedures, and the expected delivery time as well as how YOU want your bull to be handled
- Give the ear tag and brand numbers to the carrier
- Get the carriers number and provide them with yours
- Ensure that if you buy bulls from interstate the correct paperwork has been completed.

ON ARRIVAL

When your new bull arrives, he will be nervous, tired and possibly lonely. It is important to allow the bull time and space to adjust to its new home. The bull should be unloaded into the yards. Never jump them off into the paddock as the bull may never be seen again!

Bulls from different origins should be unloaded and kept in separate yards. Placing

some steers in the yards provides the bull with company and will help them settle down. Providing some hay and water is very important. Once this is done, the bulls should be left alone overnight and allowed to adjust to the new location.

If the bull has not been given a health program prior to sale, the following morning or the next day is the best time to treat him. Most sales will provide information about the previous health treatments. If the bull hasn't been treated, it should be treated with

- 7 in 1
- Vibriosis
- Other treatments may not be required but you should discuss an introduced cattle program with you veterinarian.

After a few days in the yards with feed, water and other cattle for company you may decide to move a bull into a small paddock. How quickly a bull settles done should be the guide to determining when a bull can be put into paddocks.

## The mixed farming puzzle – McMaster putting the pieces together.

*Carol Harris, Research Agronomist NSW DPI Glen Innes*

Is integration of livestock and cropping enterprises worthwhile or should they be separated?

If they are integrated what are the further benefits to production and sustainability from introducing perennial fertilised pastures into the rotations? Answering these questions is the goal of a mixed farming systems trial underway by researchers from the University of New England and the NSW Department of Primary Industries at Warialda. This project is part of the Grain & Graze program that is a collaborative partnership between Meat & Livestock Australia, Australian Wool Innovation, the Grains Research & Development Corporation and Land & Water Australia.

This trial, located on the Douglas McMaster Research Station comprises three farmlets set up to compare three distinct management systems to produce credible paddock scale evaluation. The farmlets comprise equal areas of the three dominant soil types in the Warialda area; native pasture hilltops, red basalt slopes and black flats.

Producers, extension officers and researchers have combined to direct research priorities and evaluate adoption of mixed farming enterprises for the region. This group designed the following three management systems;

1) A "typical" system based on current practice on the North-West Slopes of NSW where there will be no grazing on the cropping areas of the farmlet.

2) An "integrated system" where cattle will be allowed to graze all areas of the farmlet.

3) An "integrated pasture" system with livestock management similar to the integrated system, but with fertilised perennial pastures sown on all soil types of the farmlet.

Data on a number of parameters (soil fertility, soil moisture, pasture herbage mass & quality, ground cover, liveweight gain, grain yield & quality, input costs and output prices) will be collected from each farmlet to measure the overall production and sustainability of each system. To strengthen this information, precision agricultural techniques will estimate grazing pattern, behaviour and compaction (GPS tagged cattle), soil water status (EM survey) and pasture and crop vigour (CropCircle).

To date the project team's evaluation of the three mixed farming systems suggest that integrating enterprises has the potential to increase gross income by 17% and the "integrated pasture system" by 48% compared to the 'typical' system.

To learn more about mixed farming systems in the North-West producers are invited to attend a Grain & Graze field day at the Douglas McMaster Research Station. The field day will feature inspections of the mixed farming systems trial farmlets as well as lucerne, alternative legume, grass and triticale trials. There will also be a number of trade and agency displays. The field day will commence at 10am on October 19. For further information about the field day contact Chris Guppy at UNE on 67733567 or Carol Harris at NSW DPI Glen Innes on 67301900.