Alternative forages for use in conserved fodder production

Western Dairy Regional Feedbase Development Group (RFDG)
Tammy Negus, Agronomist and Coordinator

Over the last 20 years the composition of pastures in the WA dairy industry has been changing. The amount of pasture legumes sown and grown has declined and due to reasons such as driving high production systems, intensive nitrogen use and rotational grazing the focus on monocultures of ryegrass varieties has taken a strong hold in the WA dairy industry. We know ryegrass is a great versatile feedbase for producing conserved fodder and it can be complimented or mixed with some variety and alternative pasture species to improve fodder quality and quantity.

Benefits of alternative forages are numerous. Studies have shown they can extract different minerals from the soil and deliver these to the cows. Many clovers contain a higher amount of minerals and protein than ryegrass, however the protein is not always as digestible. Pasture legumes have the ability to fix nitrogen into the soil and with the increasing cost of nitrogen fertilisers this is very appealing. The inclusion of the herb chicory (*Cichorium intybus*) has shown to have an increased uptake and presence of secondary compounds for the sustainable control of internal parasites, increasing the reproductive rate in ruminants, reducing bloat risk in cows and reducing methane production as a means of lowering greenhouse gas emissions.

One of the RFDG objectives is to motivate WA dairy farmers to consider and adopt new strategies and tools that will enhance the performance of their feeding systems and in so doing, help increase the productivity of their dairy farm businesses. With increased on farm inputs the importance of increasing the amount of 'home grown fodder' and the quality of this fodder is paramount.

RFDG demonstration trials in 2 locations in 2012 tested and compared different pasture legumes including sulla, lucerne, vetch and various clovers in local conditions. The feed quality and production of some species proved to be highly beneficial to dairy systems for conserved forage. The data showed that you can boost the crude protein % of your silage dramatically by including a pasture legume in with an annual ryegrass base (CP 10% vs. 18.8%). The vetch and tetraploid ryegrass mix was the most popular due to its quick establishment, insect tolerance, yield and quality and ease of management in terms of growing and conserving. The "Common Vetch" (*Vicia sativa L.)* is possibly an underutilised pasture variety in our WA dairy feedbase systems. It has a similar growth habit to field peas but is fairly adaptable to a wide range of our local WA soil types and sowing time windows.

Trials in 2013 at Vasse are a larger scale demonstration of different forages mixed with annual ryegrass. They will be subjected to different grazing treatments (nil, once and twice per season) and assessed for production in terms of yield and quality. In particular we want to see the effect of grazing on the vetch and assess the versatility of using chicory in grazing and also in the production of conserved fodder. The Dairy Australia 3030 project on partner farms in Victoria have shown chicory can have nutritive values of up to 12 MJ ME/kg DM and up to 25% DM crude protein.

WESTERN DAIRY INCORPORATED
C/ Esther Price Promotions | Box 341 Mundijong WA 6123
Telephone: 08 9525 9222 | Mobile: 0418 931 938 | Facsimile: 9525 5008 | Email: esther@westerndairy.com.au

2013 VASSE DEMONSTRATION INFORMATION – Scott and Michelle Weldon's property
Aim: To produce a large scale demonstration of alternative forages under various grazing situations to test their suitability to grazing pressure, yield and quality for conserved forage in a WA dairy feedbase system.
Site: pH (CaCl) – average 5.3
Treatments: 2Ha –Chicory (2kg/Ha Punter) and tetraploid annual ryegrass (Speedyl 25kg/Ha) 2Ha –tetraploid annual ryegrass (30kg/Ha Speedyl) 2Ha – Balansa clover (2kg/Ha Bolta) and tetraploid annual ryegrass (Speedyl 25kg/Ha) 2Ha – Common Vetch (Morava 20kg/Ha) and tetraploid annual ryegrass (Speedyl 25kg/Ha)
Sowing Date: 3rd June 2013
Applications: Autumn Fertiliser 150kg/Ha Summit Dairy Blend and late winter fertiliser 150kg/Ha Summit NKS
Pest Control: Herbicide knockdown (glyphosate, oxyflurofen) prior to sowing, Insect Knockdown (chlorpyriphos, dimethoate) prior to sowing. Omethoate spray early post emergent.
Grazing treatments: Each 2Ha will be divided into 3 sections receiving nil, one (25.07.2013) and two (02.09.2013) grazing's.
Assessments: Yield measurements across the varieties will be measured using plate meters prior to grazing, grazing tolerances assessed, feed quality data taken from fresh samples at the first grazing, fodder produced measured and tested for feed quality in spring. The re-growth after silage has been cut will also be measured. Soil and plant analysis donated by CSBP.
Issues: The sites were subject to varying levels of waterlogging. Higher than average rainfall was recorded for the area. Conical snails were present and the level of damage was difficult to assess.

WESTERN DAIRY INCORPORATED
C/ Esther Price Promotions | Box 341 Mundijong WA 6123
Telephone: 08 9525 9222 | Mobile: 0418 931 938 | Facsimile: 9525 5008 | Email: esther@westerndairy.com.au

MEASUREMENTS AND FEED ANALYSIS (George Weston Feed Test at first grazing 25th July 2013)

	Ryegrass alone	Chicory + RG	Vetch + RG	Balansa + RG
% Dry matter	12.7	11.9	14.0	12.3
Yield DM T/Ha	1.234	1.325	1.260	1.25
% Neutral Detergent Fibre	43.2	39.0	43.6	43.5
ME (MJ/kg)	11.25	11.84	11.02	11.15
% Crude Protein	29.5	32.5	30.0	31.5
% Available Protein	28.3	31.3	28.6	28.5
% Acid Detergent Fibre	25.4	22.2	27.0	26.3
% Lignin	3.0	2.7	4.1	3.2
% Calcium	0.72	0.84	0.98	0.95
% Magnesium	0.25	0.26	0.29	0.27

REFERENCES

Ramirez, C.A., Barry, T.N. 2012. Alternative temperate forages containing secondary compounds for improving the sustainable productivity in grazing ruminants. Institute of Veterinary, Animal and Biomedical Science, Massey University, New Zealand.

Soegaard, K. 1990. The nutritive of clover. Department of Forage Crops Research Centre, Foulum, Denmark.

Chicory, Project 3030, Dairy Australia, Department of Primary Industries Victoria.

WESTERN DAIRY INCORPORATED
C/ Esther Price Promotions | Box 341 Mundijong WA 6123
Telephone: 08 9525 9222 | Mobile: 0418 931 938 | Facsimile: 9525 5008 | Email: esther@westerndairy.com.au

Your Levy at Work

For more information on the RFDG demonstrations, suggestions for feedbase activities or information on alternative forages please contact Tammy Negus 0448 532 028 tammy.negus@gmail.com

WESTERN DAIRY INCORPORATED
C/ Esther Price Promotions | Box 341 Mundijong WA 6123
Telephone: 08 9525 9222 | Mobile: 0418 931 938 | Facsimile: 9525 5008 | Email: esther@westerndairy.com.au