

Table of Contents

Facilitator Summary	2
Relative Advantage comments	3
Evaluation	3
Background	4
Aim	4
Outcomes of the day.....	4
Key questions to be answered:.....	4
Participants	4
Collecting the Relative Advantage of Grazing Crops.....	5
Relative Advantage	5
Grazing Crops Forum.....	5
Session 1	5
Speaker Summaries.....	5
Relative Advantage Discussion 1	8
Session 2	9
Speaker Summaries.....	9
Relative Advantage Discussion 2	12
Rubric Development	13
Rubric wrap-up.....	14
Attributes of the technology and ways to move it into the 'good'	15
Grazing Crop Forum Outcomes.....	16
Issues/Opportunities.....	16
Questions/Knowledge Gaps.....	18
Future Ideas	19
Key opportunities for directions forwards for the practice of Grazing Crops in WA.....	20
Key questions/opportunities of the group	20
Other opportunities	21

Facilitator Summary

The Grain and Graze 2 Grazing Crops Forum attracted 30 farmers, consultants and researchers. All were experienced in the use of grazing crops in the WA farming system.

The desired outcomes for the day were developed from a mixture of Grain and Graze 2 Relative Advantage project outcomes and from feedback from leading farmers, researchers and agronomists across the State.

This forum built on a meeting hosted by the Department of Agriculture and Food in December 2010 of all parties who had done, or were doing grazing crop research and/or demonstrations in WA. This meeting led to greater cooperation during 2011.

The majority of the desired outcomes anticipated for the forum were met. (A list of outcomes is detailed on page 5 of this report.)

- There was an environment for the two-way flow of information between farmers, agronomists and researchers; and this was noted in the evaluation sheets completed at the end of the day.
- It is hoped there will be greater cooperation and collaboration between organisations researching and demonstrating grazing crops in WA. There was input into the CSIRO and Grain and Graze 2 projects from the farmers and agronomists in the room; and DAFWA researchers left the forum with a greater understanding of how their contribution can best be used to develop grazing crops in WA. This was noted in the forum notes and evaluation sheets.
- The possibility of a 'home/central hub' for grazing crops in WA was discussed by the group, but no group or agency formally accepted this challenge. It was decided that it would still be an informal network of interested farmers/researchers; and that the Bridging the Yield Gap website was probably the best place to put information regarding grazing crops.
- A formal network of interested farmers, agronomists and researchers was not developed as a result of the day, however an informal network has now been established and it will be interesting to see how this develops.

The key questions that were posed by the day were answered clearly by each speaker. They were;

- How do grazing crops fit in the WA farming system?
- What are the key issues on WA farms regarding grazing crops?
- What is the current state-of-play with research in WA in grazing crops?
- Where do we head with what we know, and what we need to know? (Setting priorities and research/demonstration questions.)

I believe that the answers to these questions (as documented in this report) provide a clear direction for the industry to channel its investment into the area of grazing crops. As the industry becomes more mature in its use of grazing crops, these key questions (and their answers) will change, and it will be the responsibility of the informal network to ensure they remain relevant.

There were some key issues/opportunities that were repeatedly identified by the forum regarding grazing crops in WA, and as such could form a priority list. They were;

- A lack of clear understanding and promotion about chemical with-holding periods and crop grazing
- The role of grazing crops in the low to medium rainfall zones (and the industry understanding/research to support the practice in these areas)

- A matrix or decision support tool which studies crop x variety x region x crop stage and grazing interaction. (It is believed that some of the data would already be available to begin to populate it, and it would be handy to have it all in one place.)

Grain and Graze 2 Relative Advantage comments

Because of the mix (all participants were experienced in the use of grazing crops in the WA farming system), very few of the disadvantages of grazing crops were discussed. But when they were, the forum participants commented on how they had overcome the issues.

For example, the issue of reduced crop yield was discussed by each of the speakers and was brought-up again during the forum at the end of the day. It was recognised by the forum that many croppers would not consider grazing crops because of this fact, and that the practice would not be for every farmer in WA (especially those who don't have sheep or livestock). The growers at the forum said the hardest bit of adopting the technology was opening the gate to the sheep, especially when it was a really good crop, but to have faith in the science and the season. The forum also recognised that it was important to plant extra area of crop to compensate for the loss of yield in grazed paddocks, suggesting that the extra grazing gained from the crop also compensated for the loss of pasture area. This is where the systems modelling being undertaken by CSIRO and Grain and Graze 2 will be important to document some of these whole-farm decisions.

There were two comments from different participants regarding the practice of grazing crops and its relationship to WA farming businesses that resonated with the forum. They were;

- “For the 70% crop: 30% livestock business; grazing crops may help them stay in sheep just as no-till helped the livestock people get into crop.”
Both farmers and researchers alike indicated the necessity for an ‘easy sheep system’ in WA agriculture. It appears that grazing crops may be a helpful tool for some businesses, especially at the whole-farm level.
- “In lower rainfall areas dual-purpose crops may be more suited to fill winter feed deficits. Whereas in higher rainfall areas, feedbase benefits are more likely to come from pasture deferment.”
The use of grazing crops will be many things to many farming businesses, but for the economic modellers, the cost of feed in the different areas is reflected in this comment. It highlights the necessity for the industry to better understand how grazing crops fits into lower rainfall areas.

Evaluation

A further evaluation will be undertaken by the Grain and Graze 2 Relative Advantage Project Officer two months after the Forum to determine if the outcomes of the Forum had been met, or what could have been done differently. This will be done via a short phone survey with a total of six participants (two farmers, two agronomists and two researchers). The results of this survey will be outlined in the Grain and Graze 2 Annual Report.

Danielle England, Planfarm Pty Ltd, Narrogin

Background

Aim

The forum aimed to bring together a group of 40 people from across the State to share their experiences and ideas regarding how grazing crops are used on WA farms.

Outcomes of the day

- To create an environment for the two-way flow of information between farmers, agronomists and researchers.
- To develop a network of interested farmers, agronomists and researchers
- To develop greater cooperation and collaboration between organisations researching and demonstrating grazing crops.
- To discuss the possibility of a 'home/central hub' for grazing crops in WA.

Key questions to be answered:

- How do grazing crops fit in the WA farming system?
- What are the key issues on WA farms regarding grazing crops?
- What is the current state-of-play with research in WA in grazing crops?
- Where do we head with what we know, and what we need to know? (Setting priorities and research/demonstration questions.)

Participants

Participants were a mix of farmers, consultants (including private agronomists) and researchers. The invitation list was compiled of people who were using grazing crops in their business, or who had experience in researching, demonstrating or recommending grazing crops. A full list of participants can be found in Appendix 2.

Participants were mixed amongst the tables, with the tables forming the discussion groups. An even spread of farmers, consultants and researchers in each of the groups ensured different views were captured during the different activities.

Introductions – the total area of crops grazed in 2011 per table

Yellow dots – 1200ha

Blue dots

Red dots

Green dots

White dots

See stories in appendix 2.

Collecting the Relative Advantage of Grazing Crops

Relative Advantage

Grain and Graze 2, through its activities, aims to outline the 'relative advantage' of different tools/farming techniques that will aid the interaction of the grazing and cropping enterprises within whole-farm businesses.

The *Relative Advantage* is the advantage a farming technique may bring to a farming business. It recognises that the adoption of a different tool may not be absolutely advantageous to a business, but that it is likely to also have its negatives that must be considered during the practice change. For each business this will be different. The responsibility of Grain and Graze 2 is to provide all the information (both positive and negative) on a tool/farming technique to allow farmers to determine if it fits their farming system.

Grazing Crops Forum

This forum invited participants with experience in grazing crops. It gave them an opportunity to come together and swap stories about how the tool/technique is being used on their farm. To facilitate this process, the day's program included lots of opportunity for discussion, and a break-out spot were available in another area for more in-depth discussion between individuals.

The relative advantages (and disadvantages) were discussed by the speakers, and discussed and documented during the panel sessions. These discussions added to the final session which began to identify future opportunities for grazing crops in WA.

Copies of research and demonstration results were welcomed, and room made available for displays. This was taken-up by Grain and Graze 2 and DAFWA.

Session 1

A full copy of the presentations can be found in Appendix 4.

Speakers:

Simon Fowler, Chillwell, Condingup

Angus Sellars, Esperance Rural Supplies

Dale Cronin, Dumbleyung

Luke Ledwith, Kulin (presented by Jonathan England, DAFWA, Narrogin)

Don Nairne, Binu (presented by Richard Quinlan, Planfarm, Geraldton)

Other farmer presentations during the forum: David Cox (Session 3)

Speaker Summaries

Simon Fowler

- The future of grazing crops;
 - We are very confident with cereal grazing
 - More research is required on canola grazing in relation to both yield impacts and animal health/performance issues.
 - More research is required on extra nitrogen requirements after grazing on all crops
 - More research is required in lower rainfall zones.

Angus Sellars

- Where my clients are at today;
 - Most of my clients that have stock are grazing crops
 - All are grazing cereals and trialling the grazing of canola
 - Working it into the whole farm system

Angus Sellars cont -

- What have we learnt
 - Cereals
 - Select varieties that are suited to your environment for maximum grain yield
 - Graze to hollow stem but watch flowering length
 - Some longer season types have a role when pushing the system
 - Will give better livestock weight gain
 - Remember weed control
 - Canola
 - Again, select varieties that yield in your environment
 - Know your maturity; length of time for flowering is most important with grazing canola
 - If you have early moisture, canola has the advantage of more weed management options
 - Think about the different canola systems
- Where are we going with Grazing Crops
 - Clients that have started grazing crops will keep pushing and refine the system as confidence grows
 - Adapting farms to maximise the grazing opportunities
 - Cropping farmers that still have the infrastructure can increase livestock numbers; livestock operation will be increasing cropped areas.
- We have proved that you can graze crops with minimal to no yield effects. It is how you can fit it into an individual operation.

Dale Cronin

- Problems
 - Hard to control capeweed, fumitory, raddish in crop
 - Sheep like to camp in certain areas (an electric fence may overcome this)
 - More nitrogen would have increase growth
 - Need to time spraying to control raddish, grasses and not to reduce seed set of Losa
 - Need to decide to crop, or leave to pasture next year (clover seed set)
- Benefits
 - A way to get income while increasing clover composition in pasture
 - Lambs seem to do very well
 - Pasture in other paddocks is being deferred
 - Later in the year the opportunity to manipulate paddocks knowing you have the extra feed
 - Good opportunity to reduce weed burden of a paddock.
- Things to try next year
 - Rye corn looks impressive at the moment
 - Dry seeding canola and clover with Aloska
 - Dry seeding canola into clover dominate pasture
 - Improve practices and measuring for grazing ewes on early sown barley paddocks
- To increase profits need to have a plan to increase stock numbers or cropping area knowing you have the extra fodder.
- Or decide to manipulate other pastures harder and earlier than normal.

Luke Ledwith

- Key points (canola)
 - Wean lambs onto for high, healthy growth rates (in dry years it will be a saving on grain)
 - Earlier the start, the more canola we will seed, and we may get a yield too
 - It will stay green into the summer if rain continues
 - Manipulate the pasture to set-up for cropping, taking out the competition and disease, leaving high FOO
- How grazing fits at Kolindale
 - No profit in grassy crops
 - Need all clover pastures (nitrogen fixation)
 - 30-40% lambs scanned in twin (twin ewes need 23-27mj a day), => instead of spending \$ on ad-lib feeders, use it to clean early crops (?)
 - Put all twin ewes on crops to allow clover pastures to get away (more feed in the Spring)
 - Seed an extra paddock of barley if you think there is a yield penalty over your average of years. To have no yield loss + the graze + the extra stubble after harvest.

Don Nairne

- Still to be investigated
 - Wheat varieties suited to grazing in local area. Need hybrid type wheats with better seeding vigour.
 - Can grazing cereals contribute to weed control? If so, can we develop a system for that?
 - Grazing crops and leaf diseases
 - Grain and Graze Programme – Grazing crops can contribute to better livestock management. I consider that grazing crops has enabled me to cease mulesing on my farm.
- 2011 Project
 - Dry sow forage Dictator barley
 - Multi-graze hard – 4 grazes from 11/6 – 3/8.
 - Sprayed out completely, then resown with forage brassicas. This year used Pulsar forage rate and Pacer leafy turnip. (Hoping it will reach grazing stage in 42 days (mid-October).

David Cox

- Increased livestock returns by grazing crops

Relative Advantage Discussion 1

- Economic benefits obvious at the whole farm level
 - How do we do it better?
 - Dry matter value
 - Livestock growth rate values
 - Extra crop area
 - Ewe/lamb values
 - Pasture growth rate values
 - Whole-farm bio-economic analysis
- Looking at the yield loss and trial data – most growers are not interested
 - Better reporting of trial data
- Economic drivers
 - Not pasture
 - Extra crop in the ground
 - Dry years – extra feed
 - Good years – extra crop
- Good rules of thumb
- Each farm will be different
- Hard to quantify livestock and pasture gains
- Dry sheep vs lambing ewes
 - Matching crops to livestock class
- Work out how it fits your system



Session 2

A full copy of the presentations can be found in Appendix 4.

Speakers:

Mark Seymour, DAFWA Esperance
Matt Ryan, DAFWA, Esperance
Andrea Hills, DAFWA, Esperance
Stephen Gherardi, DAFWA, South Perth
Phil Barrett-Lennard, Grain and Graze 2 WA
Dean Thomas, CSIRO, Perth

Speaker Summaries

Mark Seymour/ Matt Ryan

- Canola, wheat and barley trials outlined
- Cattle trial outlined
- Key messages
 - Less of a growth check on cereals compared to canola (particularly important in growing stock)
 - Clip grazing phase was more productive for growing stock
 - There is an obvious adaptation period
 - Two weeks for cattle grazing canola
 - Possible solutions – pre adaptation of use breeding stock
 - We did not observe any health issues however there are a number of possible problems when grazing brassicas.
 - Nitrate poisoning
 - Goitre (iodine poisoning)
 - 5 methyl cysteine sulfoxide SMCO damages red blood cell membrane causing haemoglobin leakage from cells
- What we have learnt
 - Managing WHPs is difficult
 - Need to use bare seed
 - Timing of post-emergent herbicides is problematic
 - Need to get more than 2 weeks grazing on canola (or view them as holding paddocks)
 - 46Y20 RR (Mid-Late) seems right maturity for April 15 sowing
 - Or plan canola paddocks so they are ready at different times and animals can move from one to the other – the cost of delayed sowing may sometimes outweigh animal benefits
 - Longer season canola lines are safe to graze for longer but unlikely to yield well in WA
 - April sown spring cereals is problematic
 - Development rushes
 - Ready at relatively low biomass in mid -May and prior to the end of many seed dressing WHP's
 - Wedgetail wheat and Urambie/Gardiner barley development suits April sowing in WA
 - Vlamingh seems to be recovering ok

Mark Seymour/ Matt Ryan cont-

- Pushing animals hard increases amount of stem eaten which may reduce potential growth rates
- Clipping crops seems less risky at a wider range of development stages and may give best animal performance – provided stock are mobile
 - Does not necessarily need April sowing to make it work
 - Large areas grazed a little
- Need to manage the pasture when the animals are on the crops so they can return to a good plane of nutrition
- Future activities
 - Need to adapt the system so it suits WA
 - Bringing the activity into the mainstream
 - Grazing May-sown crops
 - When to stop
 - Clip vs crash grazing
 - Height x time of grazing x frequency/length trials
 - Maximising animal performance whilst on crops and when they go back to pasture
 - Extending time on crops – in particular canola
 - Improving pasture deferment
 - Clip vs crash grazing
 - Crop development database
 - Update flower models to include Z30?
 - Need a slightly longer wheat variety (9 weeks to ear at 1cm from April sowing)
 - Better system for April sowing/Seedling vigour for April sowing

Andrea Hills

- How grazing affects disease management in barley
- Grazing reduces disease levels
 - A week after grazing finished (27 July), the top leaf had less than 1% disease on it while the ungrazed was 20% diseased.
 - Average for grazed was 12% and 53% for ungrazed (top 3 leaves).
- Post grazing disease levels
 - After grazing finished on July 25th, powdery mildew levels increased and needed to be controlled by fungicide
- Conclusions
 - Grazing will decrease disease levels on the top leaves.
 - If lower leaves are not grazed they will still become severely infected.
 - After grazing, under high disease pressure, grazed barley needed spraying to control powdery mildew – but it was significantly better than using a dud seed dressing and leaving the barley ungrazed.
 - 2011 was an extremely high pressure season for powdery mildew (a three spray season, not two!)

Stephen Gherardi

- Objectives
 - Measure the production from sheep (condition score, liveweight and grazing days/ha) grazing a standing cereal or canola crop
 - Compare the yield and quality of grazed crops with ungrazed crops
 - Undertake a gross margin analysis to calculate the potential benefits of grazing crops
- A 2011 Bridging the Yield Gap survey of the largest 50% of grain farmers (by production) (n=300) showed that 47% of respondents had a medium to high interest in 'grazing of crops'
- Where to from here
 - Grazing crop strategies for different regions?
 - Are there particular varieties of crops we should not be grazing?
 - Can we define windows for the grazing of particular crops/varieties?
 - How variable is the production response of sheep on particular crops and when they move from crop to crop and crop to pasture?
 - How do we best service the requirements of those wishing to learn more about the grazing of crops?

Phil Barrett-Lennard

- Grazing crops
 - 8 paired paddock demo's
 - 3 x Geraldton area (Richard Quinlan)
 - 2 x Kojonup area (Sam Taylor)
 - 3 x Esperance area (Greg Warren)
 - 1 whole farm economic analysis (FSAS)
 - Work to be conducted by Andrew Bathgate and John Young
 - Analysis to focus on Great Southern and Central Wheatbelt to examine contrasting systems (perhaps should be South East Coast for greater contrast...?)
 - Analysis to examine macro factors first (year 1) and then examine micro factors (years 2 & 3).

Dean Thomas

- Integration group objectives
 - Use simulation modelling and related tools to analyse key management practices to identify production-NRM-risk trade-offs and synergies for integrated crop and livestock enterprises:
 - Management options and decision rules for grazing dual-purpose cereals in the lower-rainfall parts of the cereal-livestock zone
 - Management strategies for timing the grazing of different elements of the feedbase on mixed farms
 - Business and NRM risks and opportunities associated with pasture-cropping
 - Water use efficiency effects of managing the crop-pasture transition
 - Interact closely with the regional project teams in Grain and Graze and also with other RD&E initiatives, including GRDC's Water Use Efficiency program
- Conclusions
 - Dual-purpose crops can reduce the early winter feed-gap in Western Australia
 - The complementary nature of dual-purpose wheat as a component of the feedbase will be affected by farm location

Dean Thomas cont-

- In lower rainfall areas dual-purpose crops may be more suited to fill winter feed deficits. Whereas in higher rainfall areas, feedbase benefits are more likely to come from pasture deferment

Relative Advantage Discussion 2

- Canola
 - Plant density
 - Not much difference in results
 - Different density trials?
- Variable grazing – impacts on response
- Deferred grazing
 - Definition by the group = *not grazing from the start of the season*
- Resting pastures in winter
 - Definition by the group = *grazing at the start of the season, resting in mid-winter*
 - This is what people were talking about in this forum regarding grazing crops
- Issues with deferment
 - Poor start – nothing grows
 - Traditionally you are favouring crops to harm pastures
 - However by sowing extra crop area to cover the feed/FOO required in early winter, there are benefits to grain tonnages and pasture and livestock growth rates
- Winter crops vs Spring Crops (grazing and yield differences)
 - Potential for different varieties
 - Genetic development
- Winter varieties
 - ‘Proper’ work on winter growth in WA
 - Most suited to the dairy farmers
- HRZ breeding zone trials
 - Plant breeder trial sowing dates
- It highlights how far we’ve got to go with breeding work; we’ve been breeding wheat plants for grain production only. Never looked at grazing and grain producing qualities
 - High vigour varieties
- Animal acclimatisation to grazing crops (as shown in the cattle trials at Esperance Downs Research Station trials)
 - What can we do about it? Pre-exposure, behaviour
 - Health issues associated with grazing a monoculture
- Runs in cattle in canola. Seasonal variation noticed
- Gut-fill at measurement and weighing animals on and off crops
 - And its effect on published growth rates
- Systems modelling
 - Scenarios corresponding
 - Dynamics of systems being captured
 - Dean and regional case studies to be included in Grain and Graze 2 work
 - Location of sites – need Katanning in the mix.

Grazing Crop Development

A Rubric¹ was developed at the beginning of the forum that outlined tools/technologies and practices that had been successfully (or not so successfully) implemented in WA farming businesses; and what were their attributes. No-till and lick feeders were given as examples.

Later in the forum participants were asked to fit grazing crops into this Rubric, and to think about what was needed to support the practice in WA (to lift it into the 'good' column). This was then discussed and documented within the small groups.

Table 1 - Attributes of different technologies that have been implemented on-farm

Good -	Medium – “So-So”	Bad – not adopted – “Dud”
Examples No-Till, VRT	RR Canola, Chaff Carts, Lucerne Establishment, VRT, GM crops	Lure H2O, ASBVs, Electronic Ear Tags
Erosion control/environmental concern/care	Some good attributes	Expensive
Timeliness (crop in on time)	Increased risk	No direct return on investment
Scale - scalability	Hard to establish	Associated infrastructure required
Labour efficiency (3)	Opportunity cost	No change in the business as a result
Moisture conservation	NRM benefits	Voluntary
Easy to use	Competes with crop	Need for more trials
Productivity benefits	Stand life is short – density decline	Variable results
ROI	Bugs	Cost
Capital cost	Community acceptance “not quite there”	Always one limiting factor – eg. Water
Efficiency – saves time	Complicated	Traditional industry
Obvious advantages	Not quite proven	Voluntary vs mandatory
Easier	Situational	Expensive
Initial kick-start requires intuition – eg need an outsider with a different frame of mind	Good benefits, but still negatives	Needs associated infrastructure
Mass	Good benefits – but still risks	Not reliable
Benefits to everyone (all involved) herbicide, machinery sales)	Negative community perception	Not changes as result of implementation
Broad network of like-minded people & support		Seasonal variance
Multiple advantages – labour, time, fuel savings		
Champions		
Demonstrations with obvious results (2)		
Need to be in a position to change the business		
Low capital – cost of entry		
Good product – easy adoption		
Easy to see the results		
Marketing advantages		

¹ A rubric is a set of criteria and standards typically linked to objectives that is used to assess or communicate about product, performance, or process tasks. (They are traditionally used in the education system to support student self-reflection and self-assessment as well as communication between assessor and assessee.) A rubric can also provide a basis for self-evaluation, reflection, and peer review. A rubric can best support the learning process when it is shared at the beginning of task creation or development process. Pamela Flash states that “When students are apprised of grading criteria from the start, they can be more involved in the process of working toward success.” (Adapted from Wikipedia.)

Rubric wrap-up

Participants were asked;

- Where do grazing crops fit in the Rubric? Why?
- What are your top three ideas to make it into the 'good' column

General consensus

Medium fit

Medium -> Good

Good

There are two markets – the mixed farmers who would rate it good -> medium and croppers who would rate it poor.

Table 2 - Attributes of grazing crops

Good	So-So	Dud
Reversability	Yield penalty when grazed late/poor spring	Always one limiting factor – eg. Water
Zero capital cost	Easy to implement	<ul style="list-style-type: none"> • Croppers <ul style="list-style-type: none"> • Lack of infrastructure • Expensive to trial • NOT TARGET MARKET • ONLY AIMED AT MIXED FARMERS – livestock and crops
Positive side effects (disease suppression/WUE)	Evaluation harder at whole-farm level	
No associated infrastructure	Needs to be more fool-proof. - Here's the rule book	
Easy to implement and evaluate – paddock scale, harder at the whole farm	Where can I go to get support or find information? - Website needed	
Good rigorous research		
Champions available		
Easy to use (confidence)		
Cheap to implement (if you have stock – if you don't then you wouldn't use it)		
No barrier to reversing		
No associated information is required		

Attributes of the technology and ways to move it into the 'good'

- 70% crop: 30% livestock – may help them stay in sheep just as no-till helped the livestock people get into crop
- Champions
 - Need more in different areas
 - Support for champions
- Economics not clear – needs to be valued correctly
- Positive side-effects (eg disease control)
 - Couple of main reasons to graze crops – but there are added benefits
 - Opposite too
- No merchandise push – nothing saleable, except may be with the seed merchants.
- High livestock prices – may encourage people in
- Key rules and attributes
 - There is a yield penalty if you get it wrong
- Seasonal unknowns
 - Requirement for flexibility
 - Risk management strategy
- Opportunistic
- Exit strategies
- Should strive for it to be a routine part of the business
- It is a tool for the good seasons – maximise crop returns by planting extra area
- Paired-paddock is OK
- Individual farmer is harder
- Keep the messages simple
- Why aren't the agronomists encouraging it
- Develop a critical mass of farmers
 - Different areas
 - Use those farmers who have already embraced it
- Need to train more champions
- Need a critical mass of adopters
- Needs to be made fool-proof
- More value on livestock benefit and less on crop penalty
- There are no sales of product – so it is hard to get the whole industry on-board
- Higher livestock prices
- List of all the positive benefits

Grazing Crop Forum Outcomes

A forum was held after lunch to capture the industry's current research and demonstration priorities and questions.

The groups were asked to answer the following questions regarding Grazing Crops in their groups:

1. What are your top ten issues/opportunities
2. What are the top five questions/knowledge gaps still to be answered
3. What are the top five future ideas you have

Issues/Opportunities

- Low rainfall zone opportunities
- Crop and pasture relationships
 - Increased crop, increased stock
 - Grow more crop without reducing stock numbers
 - Maintain stock numbers, but on a reduced area
- Risk
 - Improved profit, reduced risk
 - Manage risk
 - Diversity of income
 - Risk free grazing crop program
 - If you plant it you can harvest it (if the season turns out, if you don't plant it, you can't harvest it)
 - Minimising risk and feed supply
 - It's a stock grazing system to maximise benefits
 - Grazing crops – try it – it doesn't cost anything; you're not suck with it (eg chaff cart)
 - Free feed people are not using
 - Share farming
- Crop management
 - Changing flowering time – frost advantage
 - Canopy management – water use at the end of the year; disease control; canola – increased efficiencies
 - Canola as a pasture
- Early sowing
 - Perception that to graze it needs to be early sown – opportunities for tailoring sowing dates for different regions
 - Increased early sowing
- Soils
 - Soil compaction and Erosion on sandy soils
- Nitrogen
 - Substituting fossil nitrogen for legume nitrogen
- Weeds
 - Weeds stimulated by grazing; seed germination
 - RR canola to control weeds
 - More crop damage; spraying crop grazed
 - Chance increase weed numbers – managing grass weeds in cereals
 - Weed management – RR crop opened up – broadleaves in cereals
 - Opportunity to control broadleaf weeds in cereals

- Disease management
 - Decreased diseases (cereal)
 - Improved canopy management
- Livestock
 - Increased live weight gain in stock
 - Finishing stock and earlier
 - Moving lambing window corresponds with grazing
 - Animal health issues in highly intensive livestock environment
 - Not enough fat in fast growing lambs
- Supplementary feeding
 - Replacement of supplementary feed in a poor season
- Clipping (the top off crops) vs crash grazing
- Pasture management
 - Spell pastures
 - Resting of pasture
 - Early crop vigour vs pasture vigour (availability)
 - Pasture rest/deferment
 - Increased legumes in the pasture - \$ in the first year
 - How much clover seed production do you need to be able to crop next year
- Information collation
 - Compilation of current information
 - Concept growing degree days to predict crop (vegetative -> reproductive)
- People things
 - Mindset – people need to get comfortable
 - Time intensive enterprise – NAR – or if you are a cropper anywhere
 - Consumer acceptance of grazing GM crops



Questions/Knowledge Gaps

- Withholding periods
 - Withholding periods and MRL – needs research
 - Withholding periods of chemicals
 - Justification of withholding periods
- Crops stages and growth rates
 - Early sown spring cereals – tillering >GS 30
 - Grazing vs Flowering vs Variety vs Region for Canola
 - Genetics x environment x season
 - Variety x dry matter – and growth curves
- LRZ
 - Livestock in LRZ and where grazing crops fit
 - Application to low rainfall areas
 - Ideal system in low rainfall area
- Livestock
 - Animal behaviour/selectivity
 - Understand rumen adaptation to canola (How much they will eat and grow)
 - FOO vs intake
 - How do you allow for gut-fill in research
- Economics
 - Profit of different G&G systems
 - Whole farm economics – quantifying profit for/from grazing
- WUE of grazed vs ungrazed crops
- Canola
 - What role does plant density play in grazing canola
 - Grazing brassicas – what's their suit/fit in WA (eg blackleg)
- Soils
 - Soil compaction (particularly in no-till)
 - Effect of grazing on waterlogged paddocks
 - What does it do to soil carbon
- Weeds
 - Weed recovery vs crop recovery (competitive advantage of weeds over crops)
- Nutrition
 - Nitrogen requirement after grazing
- Farm infrastructure (eg water)
- Skills and attitudes
- Optimising crop performance under dry sowing and/or very early sowing
- How big is this grazing crops thing going to get? (Numbers using it – do nothing, support required, considering BYG survey)

Future Ideas

- Case study farms – benchmark for 5 years
- Winter malting barley
- Paddock sign
- Training animals to eat canola
- Crops as pastures (especially Low Rainfall Zone)
 - IT, RR canola, forage brassicas, cereals
- Development of a website to make available (Prediction crop vegetative to reproductive stages)
- Breed varieties with longer vegetative period that are suitable for grazing
- Who pays for designing systems suitable for grain and graze?
- Twin sowing, crop/legume (graze crop and then knock-out legumes)
- Web page with database about dual purpose crops
- Breeding – grazing useful traits (eg early vigour, winter vernalisation, upright growth)
- Optimising dry matter production (varieties, seed rates, fertiliser strategies)
- Under-sowing: increasing legumes in crops
- Grazing legumes (eg peas, lupins)
- Trial/demo – followed all the way through; grazing crop economics vs supplementary feeding
- Technology to move sheep from paddock to paddock



Key opportunities for directions forwards for the practice of Grazing Crops in WA

Key questions/opportunities of the group

1. With holding periods and MRL guidelines
 - a. Easy rules in the blue book
2. Crop x variety x region x crop stage
 - a. Decision making matrix re grazing times, sowing dates and rainfall/seasonal info
3. Economics at the whole farm (Dean Thomas, Phil Barrett-Lennard and Mike Ewing)
 - a. And adjustments depending on experience
 - i. Linking to champions and redefining transects
4. Research
 - a. Water Use Efficiency
 - b. Soils
5. Low Rainfall System
 - a. Pathways to Resilience (DAFWA)
 - b. Dave Kessell – MLA \$
 - c. Phil Barrett-Lennard – AWI \$
6. Novel livestock systems
 - a. Exploration of not using pastures, only crops
 - b. Thinking of supply chain opportunities
7. 2012 Crop Updates
 - a. Forum second afternoon.
 - i. Farmer presenting (suggested Fowlers)
 - ii. Farmer chairing
 - b. Outline the opportunities for mixed farmers
 - c. Target agronomists
 - d. Key recipes (sound ideas) from agronomist
 - i. May come from other info (ie from paper)
 - ii. Bend thinking towards grazing crops
 - iii. General support gained through farmer examples
 - e. Responsible
 - i. Mike Ewing
 - ii. Phil Barrett-Lennard
 - iii. Greg Warren
 - iv. Simon Fowler

Other opportunities

1. Demonstration sites
 - a. Grain and Graze 2 sites continuing
 - b. DAFWA support for sites available
2. The grazing crops 'blue book' will be revised during Grain and Graze 2 at a National level.
3. Ute guide to be developed. Simple recipe
4. Practice will grow itself – focus on mainstream
5. DAFWA programs
 - a. Interactions between grains and livestock
 - b. Bridging the Yield Gap and/or Pathways to Resilience opportunities
6. Grower groups
 - a. Support available from DAFWA and Grain and Graze 2
7. Linkages
 - a. GRDC, MLA, AWI
 - b. Grain and Graze 2, Making More from Sheep, Sheep's Back
8. Information available on website
 - a. Bridging the Yield Gap
 - b. Grain and Graze 2

