GRAIN & GRAZE WHOLE FARM FEED SUPPLY – GRAZING DAYS/SEASON/PASTURE TYPE

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AIM

To understand how a range of pasture types combine to form a whole farm feed supply.

BACKGROUND

The aim of the Northern Agricultural Region (NAR) Grain and Graze project is to maximize farm profitability through the successful integration of perennial pastures into the whole year feed resource, complementing grain and annual pasture production. The NAR Grain and Graze project is a partnership between the Liebe Group, Evergreen Farming, Mingenew-Irwin Group, the Shire of Victoria Plains, the Department of Agriculture and Food (DAFWA) and Northern Agricultural Catchments Council (NACC).

The Liebe Group is located in the low to medium rainfall zone of the WA wheatbelt. In the past there has been limited trialing of perennials pastures in this area. However perennial fodder shrubs such as Saltbush have proven to grow successfully on salt affected land. Due to the uncertain reliability of perennial pastures and the dominance of cropping enterprises in the Liebe region the project is locally focused on better matching total feed supply with livestock demand so as to better manage the whole farm feed resource.

One of the project objectives is to collect grazing records from focus farms in order to determine an overview of the feed resources growers in this region currently have available and how these are being utilised. This information allows us to further focus the project on the feed resources that are providing the most value to the farm and identify where growers can potentially be better utlising these feed resources.

KEY FINDINGS AND COMPARISONS FROM THE 05/06 SEASON 06/07 SEASON:

1) **The effect of drought:** The Liebe area has experienced drought in 2006 and 2007 with 160mm and 162mm falling at Dalwallinu for the growing season in each year, respectively. This has subsequently resulted in less pasture and crop production. Stock therefore had to be supplementary fed or agisted off farm. These grazing calculations and records only account for in-paddock grazing and the value of feed grown in that paddock, as the aim of the project is to investigate the value of different pasture types. The records do not account for supplementary feeding or for when the stock are agisted away from the farm. Therefore if the livestock were supplementary fed in a certain paddock the value of the supplementary feed was subtracted from the total grazing value of the paddock using a simple calculation of: 1kg of supplementary feed = 1 grazing day. Grazing days are calculated by multiplying the DSE/ha for each paddock with the number of days the sheep were in the paddock.

2) **Main components of the grazing system in the Liebe area:** The Liebe region is a predominantly cropping focused area. Livestock are generally included in the enterprise mix as a risk management tool and weed control tool. Although many farmers are implementing fodder shrubs, cereal sown for fodder and some improved pastures, the main components of the grazing system in this area are volunteer pasture in winter and spring and crop stubbles in summer and autumn.

3) **Cropping comparisons from 05 to 06 season:** Using paddock grazing data from three average farms in the Liebe region (see below) it can be seen that between these farms the average area of crop sown was reduced from 62% in the 05 season to 48% in the 06 season. However the grazing value of crop stubbles over these two years remained approximately the same at 32-34%. Generally if the area of crop planted reduced and the season faced was poorer it would be assumed that the value of grazing the stubbles would decrease also. After discussion with the three focus farms two reasons

were put forward. 1) The stubbles from the poorer seasons were thought to have higher nutritive value than in normal rainfall years due to reductions in biomass and poor grain fill. 2) The growers agreed that there would have been much less ground cover left after grazing in the 06/07 summer and autumn than the 05/06 summer period.

4) **Volunteer pasture comparisons from 05 to 06 season:** Volunteer pasture in the Liebe region is comprised mainly of ryegrass, capeweed and radish with some barley and brome grass. Using paddock grazing data from the three focus farms it can be seen that between these farms the area of land left for volunteer pasture increased from 23% in the 05 season to 34% in the 06 season. However the grazing value of volunteer pastures over these two years remained approximately the same at 43-44%. The area of volunteer pasture increased over the two years for two reasons. 1) In 2005 there were more annual legume pastures sown and therefore less area for volunteer pasture, and 2) More paddocks were left out of cereal production due to the poor season which meant the paddocks were assigned to volunteer pasture as sowing annual legumes was a risky option given the season. Even though the area of volunteer pasture increased from 05 to 06 it is likely that the grazing value to volunteer pasture did not follow the increased trend due to the pastures producing less biomass due to lack of rain.

5) **Alternative grazing options – Do they have a role in the Liebe area?**
Legume pastures: More legume pastures were sown in 05 than in 06 and 07. The years that legume pastures were sown they only accounted for small areas of the farm between 4-13% and the grazing value ranged from 3-14%. However from grower feedback it seems that they are still not a significant pasture option for this area as they aren't able to produce the amounts of biomass required at the start of the season.
Cereal fodder: Sowing cereals as a grazing option increased from 05 to 06. However cereal fodder is only sown on small areas, between 3-11% of the farms and is contributing 2-20% of the total grazing value. The growers believe this is something that is likely to increase in the coming years as the cereals have good early vigour and are able to provide the early feed required to keep sheep off establishing pastures. Cereals also have the ability to produce large amounts of biomass which is looking more attractive as the growing seasons exhibit continued variability.
Saltbush/Bluebush/Perennials: The areas sown to saltbush increased slightly from the 05 to 06 season. As well as this two of the focus farms have planted more areas to saltbush in 2007 and plan to continue this to provide a drought proofing mechanism in the future. Even though the current figures show that saltbush, bluebush and perennial areas only account for 1-2% of farm areas and value, this value can be significant at the right time of year and in drought conditions. Fodder shrubs especially play a special role in drought feedlot areas and also keep the livestock off establishing pastures in the autumn.

RESULTS

CASE STUDY FARM 1:

Property	Keith, Rosemary and Boyd Carter, East Wubin
Arable ha	6,000
Cropped ha	4,200
No. Breeding ewes	Usually: 2,500 Currently: 1,750
Flock Structure	Self replacing merino
Lambing	May
Ave. Annual Rainfall	285mm

Table 1: Summary of grazing records for the period of June 2005 to May 2007.

June 05 May 06

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total area	% Total grazing days
Volunteer Pasture	2.2	750,771	924	17	33
Volunteer Pasture with sub clover base	2.1	214,101	281	5	9
Cadiz, Charano	1.1	184,658	380	8	8
Cadiz 2nd yr	3.4	241,969	194	4	11
Crop Stubble	0.7	950,387	3537	65	41
Perennials	2.1	23,966	31	1	1

June 06 May 07

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total area	% Total grazing days
Volunteer pasture	0.9	499,558	1,461	26	31
Legume pasture	1.0	232,796	637	11	14
Perennial pasture	0.9	9,986	31	1	1
Crop stubbles	0.7	878,116	3,625	63	55

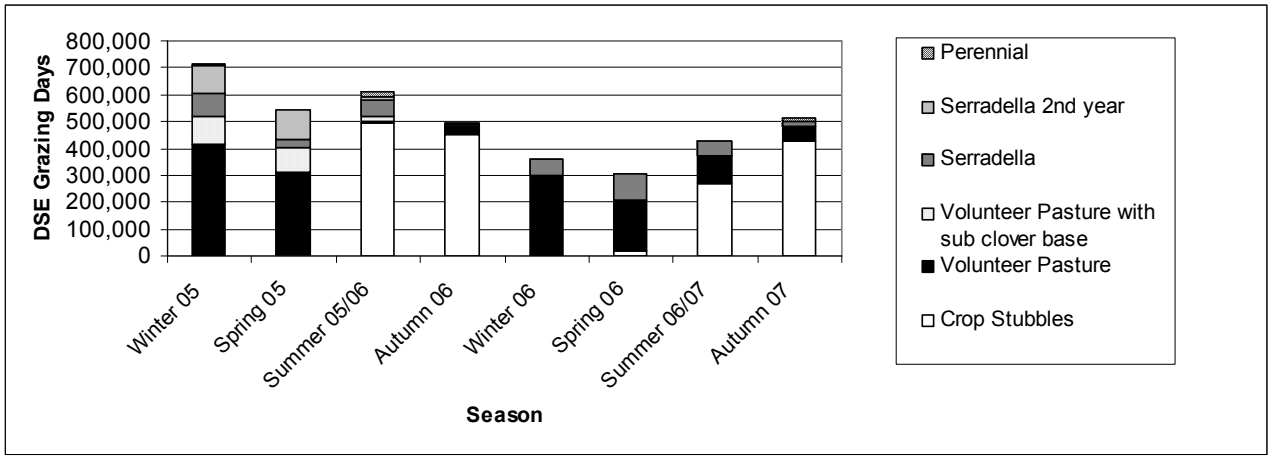

Figure 1: Total DSE grazing days per season per feed type from June 2005 to May 2007.

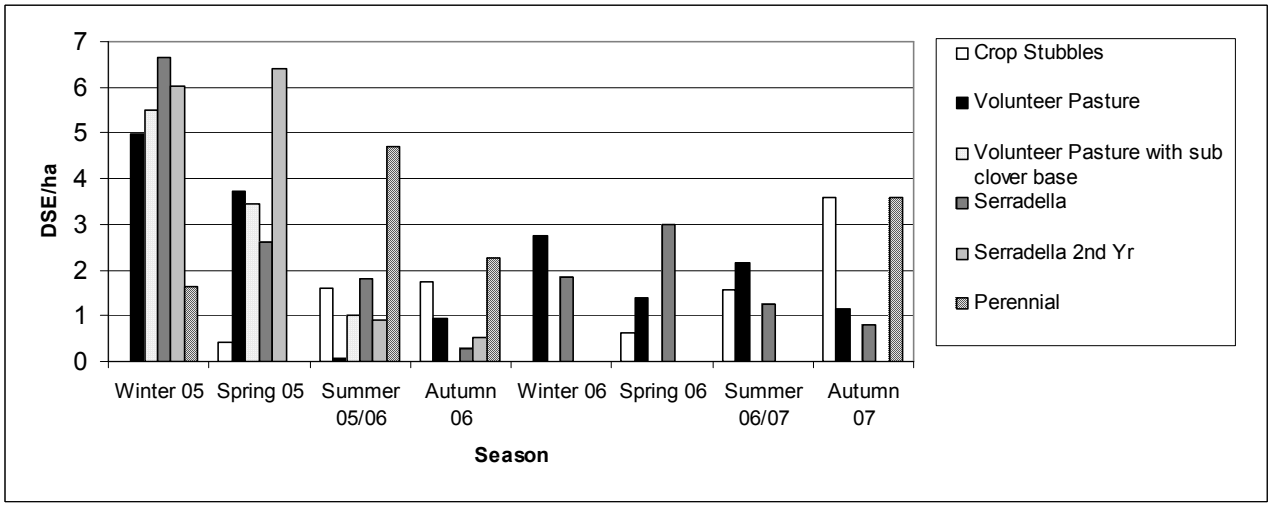

Figure 2: DSE/ha per season per feed type from June 2005 to May 2007.

CASE STUDY FARM 2:

Property	Gary, Kerry and James Butcher, east Pithara
Arable ha	2,800
Cropped ha	2,200
No. Breeding ewes	Usually: 1,600, Currently: 1,250
Flock Structure	Self replacing merino
Lambing	Jun
Ave. Annual Rainfall	300mm

Table 2: Summary of grazing records for the period of June 2005 to May 2007.

June 05 May 06

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total area	% Total grazing days
Volunteer Pasture	4.1	339,480	226	9	31
Caliph medic	1.4	81,693	158	6	8
Cadiz & Oats	2.5	248,489	267	10	23
Oats	1.0	82,804	231	9	8
Crop Stubbles	0.3	211,666	1907	65	19
Saltbush	0.8	2,304	8	0	0
Saltbush & Perennials	0.5	4,064	22	1	0

June 06 May 07

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total area	% Total grazing days
Volunteer Pasture	1.2	327,058	721	29	40
Medic and VP	1.3	60,458	128	5	7
Medic	1.3	159,939	334	13	19
Oats harvested/hay	0.5	51,583	268	11	6
Saltbush and perennials	1.1	9,055	22	1	1
Saltbush/bluebush	0.1	1,593	33	1	0
Standing cereal fodder	0.3	6,465	65	3	1
Crop stubbles	0.6	204,273	939	37	25

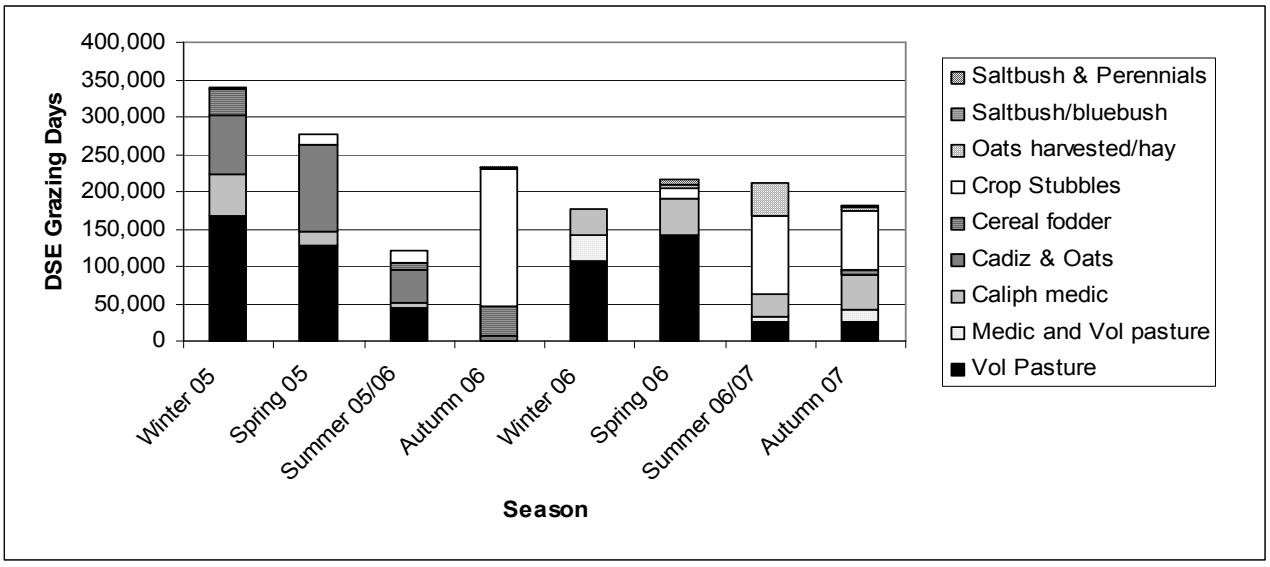

Figure 3: Total DSE grazing days per season per feed type from June 2005 to May 2007.

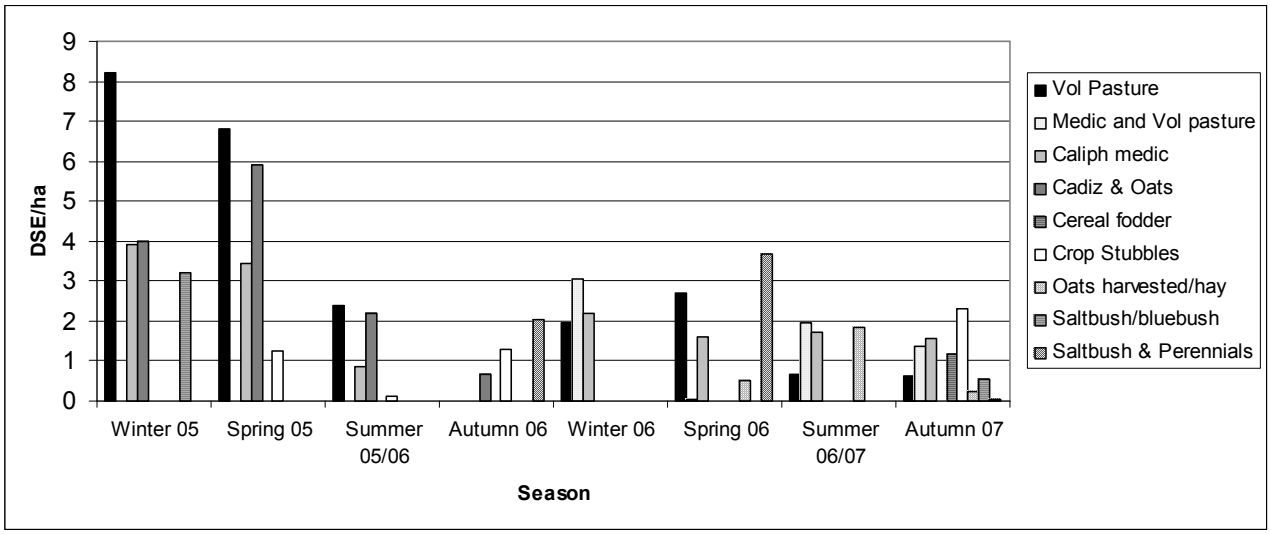

Figure 4: DSE/ha per season per feed type from June 2005 to May 2007.

CASE STUDY FARM 3:

Property	Ross and Lyn Fitzsimons, east Buntine (main property) + 1,100 ha west Buntine
Arable ha	4,800
Cropped ha	2,200
No. Breeding ewes	Usually: 1,600, Currently: 950
Flock Structure	Self replacing merino
Lambing	Late April/early May
Ave. Annual Rainfall	325mm

Table 3: Summary of grazing records for the period of June 2005 to May 2007.

June 05 May 06

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total area	% Total grazing days
Volunteer Pasture	1.4	941,844	1,823	43	65
Crop Stubble	0.6	505,236	2,372	57	35

June 06 May 07

Feed type	DSE/ha	Total DSE grazing days	Area (ha)	% Total Area	% Total grazing days
Volunteer Pasture	1.1	841,303	2,064	47	68
Cadiz	0.8	40,390	141	3	3
Saltbush/Bluebush	0.9	19,116	56	1	2
Crop Stubbles	0.4	301,419	1,993	45	24
Triticale standing	0.5	29,740	163	4	2

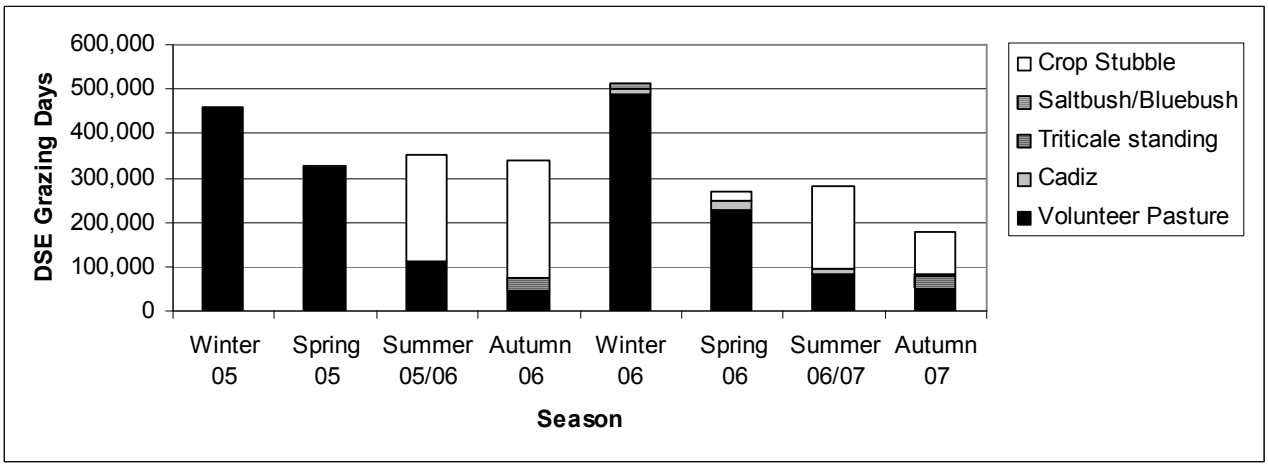

Figure 5: Total DSE grazing days per season per feed type from June 2005 to May 2007.

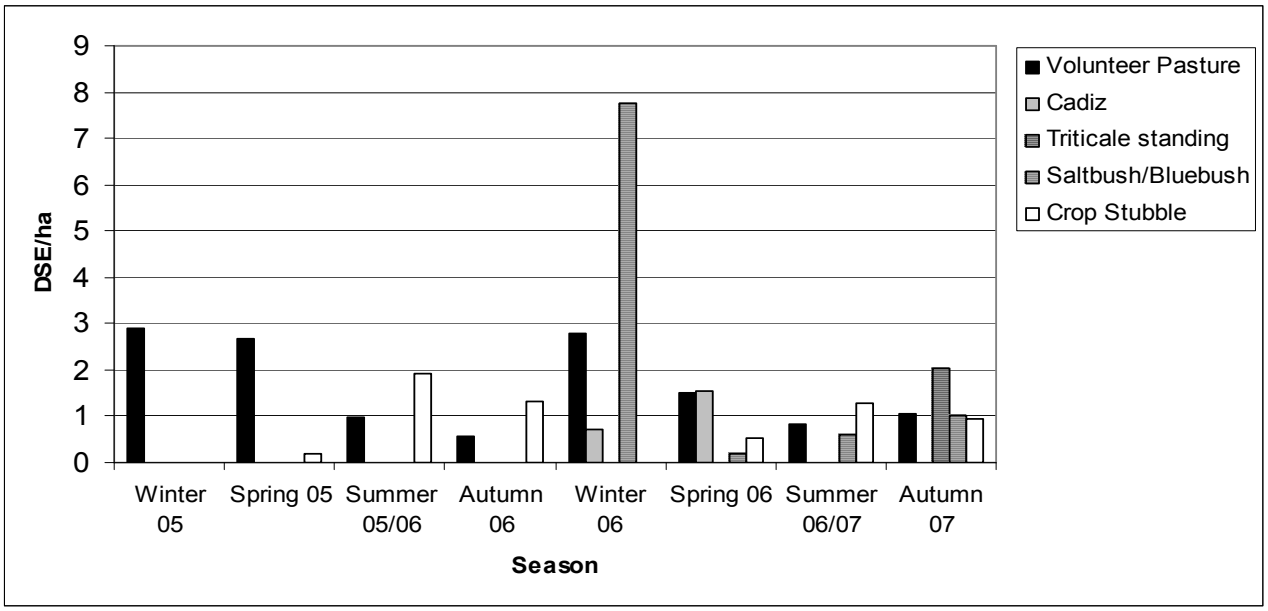

Figure 6: DSE/ha per season per feed type from June 2005 to May 2007.

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