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Assessing new varieties and mixes to increase pasture production in the West Midlands Region: Part 1- Economic Analysis

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Key messages

- Pasture mixes containing a cereal and legume produce the highest DM and decrease in cost of kg of DM/ha
- Identify the key use of pasture (lambing, weaning) will determine the pasture aid in the choice of pasture variety.

Background

A wide window of pasture production can give producers greater opportunity to maximise livestock production during the year. By using a diverse range of pasture species and varieties throughout the farm, peaks in pasture production can be spread throughout the season to meet the needs of varying classes of livestock. For example, high winter producing pastures can support winter lambing twin lambing ewes, or late season pasture mixes can be used for growing out lambs to maximise production/head. Matching pasture production and livestock requirements can dramatically improve animal production while reducing the cost of supplementary feeding. The aim of this trial was to evaluate a range of pasture mixes that have the potential to fill niche pasture production windows in the West Midlands region.

This pasture demonstration site was located at the 2019 Spring Field Day site near Dandaragan on a sandy loam soil type. The site was established on the 5th May using a plot seeder to dry seed 12 pasture mixes (Table 1), with a volunteer pasture adjacent to the site as comparison. Up to 3 pasture cuts were taken from each plot during the season to assess pasture production. The site was mown in August to simulate grazing, and NKS21 fertiliser was broadcast to each treatment on the 25/6/19 and 5/8/19.

Table 1: Pasture varieties demonstrated within the trial outlining seeding rate and supplier.

Plot	Treatment	Supplier	Individual Rate kg/ha	Total Rate kg/ha
1	Forbes Sub-Clover	Seed Force		10
2	Tammin Sub-Clover	Seed Force		10
3	Dalkeith & Izmir sub-clover mix		Dalkeith @ 6.6 Izmir @ 3.3	10
4	Margurita Serradella			8
5	Margurita serradella/ Spartacus Barley			38
6	Express Oats, Vortex Ryegrass, Nitro Persian Clover mix	Heritage Seeds	Oats @ 60 Ryegrass @ 10 Clover @ 2	72
7	Express oats/ Volga vetch mix	Heritage Seeds	Oats @ 60, Vetch @ 25	85
8	Dictator II Forage Barley	Heritage Seeds		100
9	Ascend Ryegrass	PGG Wrightson Seeds		25
10	Cooee Forage Oats	PGG Wrightson Seeds		100
11	Southern Green Forage Ryecorn	PGG Wrightson Seeds		60
12	Appid Leafy Turnip	PGG Wrightson Seeds		4
13	Volunteer Pasture (capeweed, ryegrass, clover)			

Results

Table 2: Cost Comparison of pasture varieties used at the 2019 Spring Field Day site at Dandaragan. Feed cost was calculated by dividing the Total DM/ha by the Total cost/ha. All prices are approximate and may vary between seasons.

Treatment	Total DM (kg/ha)	Seed ($/ha)	Chemical ($/ha)	Fertiliser ($/ha)	Machinery ($/ha)	Total cost ($/ha)	Feed cost ($/kg DM)
1	2780	86	38	87	75	285	0.1
2	3120	86	38	87	75	285	0.09
3	2380	66	38	87	75	266	0.11
4	4460	84	41	87	85	297	0.07
5	4420	113	51	140	97	401	0.09
6	3480	142	38	140	97	417	0.12
7	5440	156	28	140	87	411	0.08
8	5240	160	55	193	97	505	0.1
9	2500	123	55	193	97	467	0.19
10	6020	200	55	193	97	545	0.09
11	7120	126	55	193	97	471	0.07
12	7460	48	28	193	87	356	0.05
13	3020	0	28	53	26	107	0.04

The cost of feed ranged from a minimum $0.04 for the volunteer pasture to the maximum of $0.19 for the Ascend ryegrass mix (Table 2). The second and third lowest feed cost pasture mixes were the Appin turnip and forage ryecorn (respectively). Of the four treatments that were assessed for feed quality, all species were above 11/9 MJ ME, 16% protein, and digestibility (DMD%) was 78% or above.

Table 3: Feed quality comparison of crude protein %, digestibility % and ME available from 4 pasture varieties with high total DM. Recorded from pasture cut taken on 31.07.19. ME = metabolisable energy.

Treatment	Crude Protein %	Digestibility DMD %	ME (MJ/kg DM)
5	20.2	82.9	12.6
7	22	78.5	11.9
8	20.3	83.1	12.7
10	16.1	81.9	12.5

Discussion

The impact of total dry matter production on the cost of feed was clearly visible in this trial, with the most expensive pasture mix (per kg feed grown) being one of the lowest producing mixes. In contrast, Appin Turnip and forage ryecorn were the highest producing pasture mixes with the very low cost per kg/DM.

The selection of pasture mixes to feed livestock throughout the season, or to fill niche feed gaps within the season, should not be made on the cost alone. Higher cost but significantly higher dry matter producing pasture mixes have the potential to significantly increase productivity.

The full report can be found on the WMG website www.wmgroup.org.au

Acknowledgements

This site was part of the 2019 Spring Field Day trial site located at Kayanaba. Thank you to the Roberts family for hosting the site, and Heritage Seeds, PGG Wrightson Seeds and Seed Force for donating part of the seed used in the trial.