INVITED ARTICLE

VETCH UTILISES STORED MOISTURE IN 2019

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TAKE HOME MESSAGES

- 2019 was an exceptional year for vetch at Karyrie (Birchip), with hay yields of over 8t/ha and grain yields of over 2.5t/ha achieved.
- Comparing results from 2018 and 2019 gives a better understanding of which varieties can perform across diverse seasons.

BACKGROUND

A versatile legume crop like vetch can be used for a variety of agronomic reasons including strategically targeting specific agronomic goals in a paddock while still allowing the possibility of a commercial return from the season as well as offering increased profitability across multiple seasons.

Research has been conducted in conjunction with BCG in the southern Mallee for the past six years as part of the National Vetch Breeding program.

This program compares the performance of advanced lines that are developed in the breeding program with existing, commercially available varieties, across a range of vetch growing regions.

As a consequence, the trial work has influenced the release of some vetch varieties, particularly those varieties targeting the Victorian and South Australian Mallee environment.

AIM

To investigate the performance of advanced vetch breeding lines against existing varieties in the Victorian Mallee.

PADDOCK DETAILS

Location:	Karyrie
Crop year rainfall (Nov-Oct):	418mm
GSR (Apr-Oct):	197mm
Soil type:	Clay loam
Paddock history:	2018 Fallow, 2017 Lentils

TRIAL DETAILS

Crop type:	Morava, Studenica, Timok, and Volga vetch
Target plant density:	60 plants/m^2
Seeding equipment:	Knife points, press wheels, 30cm row spacing
Sowing date:	16 April 2019
Replicates:	Four
Harvest date:	14 November 2019

TRIAL INPUTS

Fertiliser:	Granulock® Supreme Z + Flutriafol (200mL/100kg) @ 60kg/ha at sowing
Seed treatment:	P-pickle T® @ 200mL/100kg
Inoculant:	Group E

Weeds, pests and disease were controlled according to best management practice.

METHOD

This trial was sown in a randomised complete block design with four replicates. Plots were sown at a target rate of 60 plants/m^2, assessments included emergence scores, disease assessment, flowering date, biomass cuts at flowering and grain yields at maturity.

RESULTS AND INTERPRETATION

The 2019 cropping season around Birchip produced exceptional results, with a site mean of 7.7t/ha of vetch hay and 2.3t/ha of vetch grain (Table 1). The benefit of trials in a year like this is in demonstrating the potential of a crop and the results that can be achieved in exceptional seasons. Direct selection of varieties from trials conducted in these conditions is not always relevant to local conditions as these seasons happen infrequently.

A comparison of 2019 results against the 2018 results conducted at Narraport, which was a decile 2 year, was conducted to provide a guide as to which varieties have the most potential in both the good and bad seasons.

Table 1. 2018 and 2019 mean vetch variety grain and hay yields (t/ha).

Variety	Hay yield (t/ha)		Grain yield (t/ha)	
	2018	2019	2018	2019
Morava	2.8	8.9	1.6	1.8
Studenica	2.1	6.5	0.9	2.1
Timok	2.8	7.7	1.2	2.8
Volga	2	6.7	1.2	2.4
Site Mean	**2.3**	**7.7**	**1.2**	**2.3**
Sig. diff.	**0.043**	**0.026**	**<0.001**	**<0.001**
LSD (P=0.05)	**0.80**	**1.57**	**0.37**	**0.25**
CV%	**24.1**	**13.2**	**21.8**	**6.7**

2018 Breeding lines data not available

The results presented in Table 1 show Morava is still a very versatile variety adapting across seasons. Although it should be noted in 2018 there was late rain, which benefited the later maturing variety Morava, particularly in grain yield.

Of the current varieties, Timok offers the best early vigour and also most consistent yield in this area. Being able to make the most of the better seasons as well as being more consistent in the average to poor years.

Volga is an early maturing line, suited to the South Australian Mallee, where its early maturity helps it to avoid sharp finishes. This handicapped its performance at Birchip over the last two seasons as late moisture helped the later maturing lines, like Morava and Timok, to finish. However, Volga is still considered a good option in Mallee areas, particularly those prone to dry springs.

COMMERCIAL PRACTICE

The yields achieved in 2019 when combined with the average quality of vetch hay (average 21 per cent crude protein, 10.2MJ/kg of metabolisable energy and 84 per cent dry matter digestibility) and grain (crude protein levels of 29 per cent and 12.8 MJ/kg of metabolisable energy) would have created significant income in this season as well as providing benefits for subsequent crops in the rotation.

With an increasing understanding of, and use for, break crops in a profitable and sustainable cropping rotation, the versatility vetch offers in season, to be cut for hay, harvested for grain, used for grazing or sprayed out as a green/brown manure crop, mean it is an important break crop option in the Mallee, providing both agronomic benefit and economic returns.

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