

# Summer forage crops

Options for a drystock farm based on a  
Waikato case study



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**SCIENCE**  
Challenges

Options are required for drystock farmers to fill the summer feed gap.

As part of the 'Summer-safe multi-species cattle pasture' project funded by the Our Land and Water National Science Challenge, a 0.07 ha plot study and two case study paddocks were established in September 2021 on a drystock finishing property at Te Pahu, Waikato, New Zealand.

We compared a range of simple four-species mixtures and hyper-diverse mixtures containing over ten species, with a brassica monoculture. Key performance indicators included herbage production, metabolisable energy (ME), weed incursion and production costs.

Key findings:

- Simple mixtures provided a viable alternative to a brassica monoculture based on energy yield and energy costs. The most promising option was a simple rape-dominant mixture which contained rape, plantain and a cereal. It had a high energy yield, low weed abundance and a low metabolisable energy cost.
- Hyper-diverse mixtures did not provide energy yield or energy cost advantages when compared to a simple mixture.
- Plantain contributed little to total dry matter in mid-summer but provided forage at the end of February for a second grazing.
- The cereal established rapidly and reduced weed ingress in the rape-dominant mixture harvested in mid-summer.
- A diverse mix may have lower weed ingress, but herbicide options are also limited.
- Further research is required to validate these preliminary findings by comparing crop mixture performance at a range of sites over several years. Crop and livestock production data are required.

Table 1: Herbage production, metabolisable energy content, energy yield and energy cost for three mixtures in the small plot study, and the two case study paddocks, on a drystock farm in Waikato. SED: standard error of difference.

Treatment	Herbage production kg DM/ha	Metabolisable energy MJ/kg DM	Energy yield MJ ME/ha	Energy Cost \$/100 MJ ME
<b>Small plot study</b>				
Rape monoculture	10860	11.0	119780	0.99
Rape dominant mix	13350	8.0	106720	1.16
11 species mix	9470	8.3	78200	1.31
SED	999	0.27	10820	
Significance level	P<0.01	P<0.01	P<0.05	
<b>Case study paddocks</b>				
Rape dominant mix	13250	10.8	143070	0.86
11 species mix	8530	8.4	71660	1.43