BRASSICA & HERB GUIDE
QUALITY FEED YOU CAN RELEY ON
Ecotain® environmental plantain is a flexible perennial herb, which is widely adapted to many climates and soil types. It persists through hot summers and wet winters if it is not overgrazed in these conditions.

Ecotain® has erect growth and broad leaves enabling maximum intake per bite.

Ecotain® has a coarse fibrous root system which is very efficient at extracting nutrients, meaning Ecotain® can perform in a wide range of soil fertility.

Ecotain® is best suited in environments of 600mm+ rainfall and maximum production occurs in fertile soils.

**SOWING RATES AND GRAZING TIMES FOR ECOTAIN®**

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate</th>
<th>Growth habit</th>
<th>Time to first grazing</th>
<th>Grazing management</th>
<th>Persistence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil temperatures 10°C and rising</td>
<td>10-14kg/ha pure stand 6-8kg/ha in clover mix</td>
<td>Erect, leafy</td>
<td>When the plant has seven true leaves</td>
<td>Rotational graze</td>
<td>Perennial 2-4+ years depending on grazing conditions</td>
</tr>
</tbody>
</table>

**INCREASING PASTURE DIVERSITY**

Ecotain® adds diversity to pasture mixes, increasing the palatability and quality of swards. Increased palatability leads to higher intake and better utilisation. The following table shows recommended rates of Ecotain® with various grasses such as Savvy cocksfoot, Hummer tall fescue, One50 perennial ryegrass and Knight Italian ryegrass.

<table>
<thead>
<tr>
<th>Ecotain 5kg/ha</th>
<th>Ecotain 5kg/ha</th>
<th>Ecotain 5kg/ha</th>
<th>Ecotain 5kg/ha</th>
<th>Ecotain 4kg/ha</th>
<th>Ecotain 8kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knight Italian ryegrass 15kg/ha</td>
<td>Savvy cocksfoot 8kg/ha</td>
<td>Hummer tall fescue 15kg/ha</td>
<td>One50 AR37 perennial ryegrass 15kg/ha</td>
<td>Titan 5 Lucerne 8kg/ha</td>
<td>Mainstar forage rape 2kg/ha</td>
</tr>
</tbody>
</table>
Adding Ecotain® to dairy pastures can significantly increase milk production. Figure 1 demonstrates a 2L/cow/day increase in milk production when cows grazing low quality ryegrass were supplemented Ecotain®.

Ecotain® improves palatability in late spring and summer when grass goes reproductive, improving pasture utilisation.

The rapid rumen degradation time of Ecotain® allows cows to spend less time ruminating and more time eating, increasing feed intake and milk production.

Having Ecotain® in your dairy system can also help reduce nitrogen leaching by up to 89% (Woods, 2017 used with permission). Benefitting your farm and the environment.

**MILK PRODUCTION (L/COW/DAY) OF COWS GRAZING IRRIGATED RYEGRASS BASED PASTURE VS. ECOTAIN® VS. GRASS + ECOTAIN®**

![Bar graph showing milk production comparison](image)

**ANIMAL PERFORMANCE - SHEEP & BEEF**

Ecotain® forage systems can increase sheep liveweight production. The winter activity of Ecotain® allows farmers to lamb ewes or maiden hoggets on high quality forage, resulting in heavier lambs and ewes at weaning. Four separate trials have shown Ecotain® increased lamb weaning weights by 10 to 34%.

Livestock tend to be healthier on Ecotain®, due to elevated levels of important minerals (Zn, Cu, Se, Mg, Ca, K).

Ecotain® stands have also shown anecdotal evidence of less dags on sheep and a reduced risk of facial eczema spore.

**WEANING WEIGHT DIFFERENCES OF LAMBS BORN, GRAZED AND WEANED FROM PERENNIAL RYEGRASS OR ECOTAIN® STANDS FROM FOUR STUDIES**

<table>
<thead>
<tr>
<th>Study</th>
<th>Source Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Adapted from Judson. (2008). (109 day lactation)</td>
</tr>
<tr>
<td>Study 2</td>
<td>Adapted from Judson et al. (2009). (95 day lactation)</td>
</tr>
<tr>
<td>Study 3</td>
<td>Adapted from Judson et al. (2009). (87 day lactation)</td>
</tr>
<tr>
<td>Study 4</td>
<td>Adapted from Judson. (2010). Unpublished hogget lambing (hogget 90 day lactation)</td>
</tr>
</tbody>
</table>

![Bar graph showing weaning weight comparison](image)
Mainstar is a short type brassica that has excellent regrowth potential after grazing, giving it the ability to respond to moisture after long periods of summer dry. It has increased forage yields over other short type brassicas. Testing during the breeding process found Mainstar to have a higher leaf percentage and superior animal preference over other short type brassicas.

Winfred is a versatile brassica, being suitable for a wide range of soil fertility and environmental conditions, stock classes and sowing times. Winfred has good frost tolerance and excellent regrowth potential and may extend grazing times from early summer to late winter. Due to the potential of an earlier first grazing, Winfred has the ability to be grazed up to four times through summer and early autumn.

### Sowing Rates and Grazing Times for Mainstar Forage Rape

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate</th>
<th>Time to first grazing</th>
<th>Number of grazings</th>
<th>Potential yield (depending on number of grazings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>August to November and February to April</td>
<td>3-4 kg/ha</td>
<td>10 to 12 weeks</td>
<td>2 to 4</td>
<td>Up to 10 t DM/ha</td>
</tr>
</tbody>
</table>

### Sowing Rates and Grazing Times for Winfred Forage Brassica

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate</th>
<th>Time to first grazing</th>
<th>Number of grazings</th>
<th>Potential yield (depending on number of grazings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>August to November and February to April</td>
<td>3-4 kg/ha</td>
<td>10 to 12 weeks</td>
<td>2 to 4</td>
<td>Up to 10 t DM/ha</td>
</tr>
</tbody>
</table>
FORAGE BRASSICA PLANT COMPOSITION

Trial work was undertaken to compare Winfred (short type brassica) versus Greenland (tall type brassica).

There is considerable variation between forage brassica (rape) cultivars in the relative proportion of leaf and stem, and the various qualities of these plant components. In general, short rape types have a higher percentage of leaf relative to the total yield than tall rape types.

The leaves of rape plants are high quality regardless of the rape type however, the quality of the rape stem decreases from the top to the bottom.

Short types generally have higher quality in the bottom two thirds of the stem compared to taller varieties.

The lowest quality part of the rape plant is the bottom portion of the stem and this makes up a lower proportion of the total yield of Winfred compared to Greenland.

### Comparison of Winfred (short type) and Greenland (tall type) (% of total DM) and Metabolisable Energy Content (MJ ME/kg DM) for Winfred compared to Greenland

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>WINFRED</th>
<th>Greenland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of total DM</td>
<td>MJ ME/kg DM</td>
</tr>
<tr>
<td>Leaf</td>
<td>44&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>11.6&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Top of stem</td>
<td>15&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.1&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mid part of stem</td>
<td>19&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10.7&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lower stem</td>
<td>22&lt;sup&gt;b&lt;/sup&gt;</td>
<td>10.1&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Source: Adapted from Judson et al. NZ Grasslands 2013.

Different superscript letters mean significant cultivar differences exist between Winfred and Greenland within the mid part of stem and lower stem components.

### TRIAL WORK - LIVEWEIGHT GAIN ON LAMBS

<table>
<thead>
<tr>
<th>Crop yield at grazing, stocking rates, intake parameters and liveweight gain (LWG) data for lambs on two rape cultivars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivar</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Yield t DM/ha</td>
</tr>
<tr>
<td>Crop height*(cm)</td>
</tr>
<tr>
<td>Stocking rate (lambs/ha)</td>
</tr>
<tr>
<td>Utilisation (%)</td>
</tr>
<tr>
<td>Apparent intake (kg DM/head/day)</td>
</tr>
<tr>
<td>Lamb liveweight gain (g/day)</td>
</tr>
<tr>
<td>Liveweight gain/ha/day (kg/LWG/ha/day)</td>
</tr>
</tbody>
</table>


Within row, different superscript letters mean significant cultivar differences exist between Winfred and Greenland.

Source: Adapted from Judson et al. NZ Grasslands 2013.

### Key findings

- When offered the same allowance lambs utilised more of the Winfred than the Greenland.
- Lambs avoided grazing stem when allowance (feed on offer) was generous, which indicates stem is not a preferred component of the diet.
- For Greenland, intake by lambs appears to have been constrained, relative to Winfred, by the apparent reluctance by lambs to consume stem.
- The lower stem made up a greater proportion of total drymatter in Greenland, and the stem was of lower quality compared to Winfred which has a lower drymatter yield and has less lower stem.
A QUICK MATURING FORAGE BRASSICA

- Early maturing, 6-8 weeks, no ripening required
- Excellent quality and forage yields in fertile, moist conditions for finishing stock
- Fast recovery from grazing with excellent subsequent yields, given adequate moisture
- Strong plant survival following multiple grazings
- Low proportion of bolting plants from a mid-late spring sowing
- Tolerates Turnip Mosaic Virus and Cauliflower Mosaic Virus attack

Hunter is a quick-growing, forage brassica, with minimal bulb development and is best suited to multiple grazings for summer and early-autumn feed requirements.

Hunter is an excellent quality forage capable of providing high liveweight gain on animals.

Hunter was bred for tolerance of Turnip Mosaic Virus and Cauliflower Mosaic Virus. This, combined with selection for vigorous regrowth, has provided a variety with fast recovery from grazing and excellent ability to yield in the second, third and sometimes fourth regrowth cycle. Plants usually show good resistance to most clubroot races, but they are susceptible to drought and aphids, and are best suited to heavier soil conditions with periodic summer moisture or irrigation.

SOWING RATES AND GRAZING TIMES FOR HUNTER FORAGE BRASSICA

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate</th>
<th>Time to first grazing</th>
<th>Number of grazings</th>
<th>Potential yield (depending on number of grazings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>September to April given moisture</td>
<td>4 kg/ha</td>
<td>6 to 8 weeks</td>
<td>2 to 4</td>
<td>Up to 10 t DM/ha</td>
</tr>
</tbody>
</table>

QUICK GUIDE TO GRAZING MANAGEMENT OF LEAFY BRASSICAS

Residuals too low - stock eating too much of crop
- High stocking rates but animals growing slowly
- Low LWG/ha - 2-5 kgLWG/ha/day
- Eating 80% of forage on offer

Residuals to maximise liveweight gain/ha
- Optimal stocking rates and animals growing fast
- Maximum LWG/ha - 12.4 kgLWG/ha/day
- Eating 65% of forage on offer

Residuals too high - not eating enough of crop
- Low stocking rates and animals growing fast
- Moderate LWG/ha - 7.2 kgLWG/ha/day
- Eating 35% of forage on offer

Note: Appropriate stocking rates will vary depending on pre-grazing mass and speed of growth

WHAT’S RIGHT FOR YOU - WINFRED, MAINSTAR OR HUNTER?
or an area of each?

More than 8 weeks
- Feed Requirements
- Soil Fertility
- Moisture Requirement
- Winfred
- Mainstar
- Hunter

Less than 8 weeks
- Feed Requirements
- Soil Fertility
- Moisture Requirement
- Winfred
- Mainstar
- Hunter

Low / Medium
- Sporadic
- Reliable

Medium / High
- Reliable

Reliable

Reliable

Reliable
THE PRODUCTIVE AND PERSISTENT PERENNIAL CHICORY

Choice Chicory

• Perennial herb with persistence of 3-4 years
• High ME (+12 ME/kg DM)
• High summer drymatter production given adequate moisture
• Improved cool season growth
• Selected for lower lactucin levels

Choice is a perennial herb with a deep tap-root, high forage quality and high warm-season pasture growth. Choice chicory has been proven on farm and in trials to improve production both per animal and per hectare in sheep, beef and dairy systems.

The deep (1.5-2 metres) tap-rooted nature of Choice chicory can result in consistent growth rates and forage quality, even during hot or dry periods. Choice chicory is relatively inexpensive to establish compared with ryegrass/clover pastures. Choice chicory can be added to new grass pasture mixes (e.g. 2 kg/ha) to boost animal performance and feed production.

Choice chicory has been selected for low lactucin levels. Lactucin has been associated with the potential to cause milk taint.

SOWING RATES AND GRAZING TIMES FOR CHOICE CHICORY

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate</th>
<th>Time to first grazing</th>
<th>Grazing management</th>
<th>Persistence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil temperatures 10°C and rising</td>
<td>Pure stand: 6kg/ha</td>
<td>6 to 10 weeks</td>
<td>Rotational graze or set stock</td>
<td>Perennial 3-4 years depending on grazing conditions</td>
</tr>
<tr>
<td></td>
<td>Perennial pasture mix: 1-2 kg/ha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-2 kg/ha forage brassica, 3-5 kg/ha Choice</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOR PERSISTENCE AND YIELD, CHOOSE CHOICE PERENNIAL CHICORY OVER BIENNIAL CHICORY’S

A CSIRO study compared the production and persistence of chicory varieties in a 3 year trial across NSW, VIC and SA.

Key findings were that Choice performed extremely well:

- Choice produced the most drymatter when averaged across all five trial sites at the end of three years over the other chicory varieties
- Choice had the highest plant persistence at the end of three years over the other chicory varieties including Chico, Commander and Grouse

Australian Purple Top Turnip

- Selected for improved Diamondback moth (DBM) tolerance
- 12-14 weeks to mature, summer turnip
- Selected in dryland conditions
- Certified alternative to Mammoth Purple Top turnip

**Australian Purple Top** is an Australian selection from the popular Mammoth Purple Top turnip. It was bred for increased tolerance to dry conditions in Australia and Diamondback moth attack. APT has true leafy tops and large round bulbs. All APT seed is certified, which ensures true-to-type and meets strict standards including purity and germination.

**Sowing Rates and Grazing Times for Australian Purple Top Turnip**

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate alone</th>
<th>Time to first grazing</th>
<th>Number of grazings</th>
<th>Potential yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>September to December</td>
<td>1-2 kg/ha</td>
<td>12 to 14 weeks</td>
<td>1</td>
<td>Up to 10 t DM/ha</td>
</tr>
</tbody>
</table>

**Sowing Rates and Grazing Times for Rival Turnip**

<table>
<thead>
<tr>
<th>Suggested sowing time</th>
<th>Suggested sowing rate alone</th>
<th>Time to first grazing</th>
<th>Number of grazings</th>
<th>Potential yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>September to December</td>
<td>1.5-3 kg/ha</td>
<td>10 to 12 weeks</td>
<td>1</td>
<td>Up to 10 t DM/ha</td>
</tr>
</tbody>
</table>

**Distributors**

Agricom cultivars are available from all quality seed suppliers. For further information and advice contact one of our distributors:

**AusWest Seeds**
NSW & QLD 1800 224 987

**Stephen Pasture Seeds**
VIC, SA, TAS 03 5334 2555

**Smyth Seeds**
VIC, STH NSW 03 5762 5288

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