

# ONE SOURCE FOR GROWING GREAT RESULTS.

501 Chicory



## Growing Great Results with Farm Source

The best results for any forage crop come from an integrated, best practice approach that considers all agronomic inputs.

We've worked with technical specialists in seed, nutrients and weed and pest control to help make it easier to capture the full benefit of including spring-sown chicory into your on-farm feed system.

**If you are considering 501 Chicory and would like to know more, talk to your local Farm Source team today, or call us on 0800 731 266.**



## Contents

4. Four great reasons to grow 501 Chicory  
From lowering your Fat Evaluation Index to improved weed and pest control.
8. Crop nutrition  
A good fertiliser programme is essential to help the crop deliver its potential.
9. Weed and pest control  
Example of a weed and pest control programme to allow chicory to establish more quickly.
10. Why 501 Chicory?  
DM yield results from chicory trials.
11. Tips for success  
How many hectares should you grow and how to achieve a high-yielding crop.

## 1. Lower your FEI

With the Fat Evaluation Index (FEI) coming into effect this season, chicory, along with a range of other feeds, may have a greater role in summer feeding.

Fonterra's FEI Grading System rates the suitability of milk fat composition, to make sure certain products meet their required quality standards through processing.

The good news is there are a range of options including 501 Chicory, along with maize and other feeds, which have no negative effect on FEI grades. Speak to your local Farm Source team for more information.

Grading Framework		FEI Result	Demerit	Deductions
A	Meets requirements	<7.50		
B	Meets requirements but is approaching threshold limit	7.50 - 9.00	Alert	
C	Exceeds threshold limit	9.01 - 11.00	2 demerits	10% per collection day
D	Well in excess of threshold limit	>11.00	4 demerits	20% per collection day



*501 Chicory is a great option to consider if you are needing to lower your Fat Evaluation Index (FEI)*

## 2. Low cost, high quality summer feed

We believe most farmers can grow 501 Chicory for 14 c/kg DM

Keys to growing 501 Chicory:

1. Cropping paddocks that won't grow well over summer.
2. Achieving a high crop yield.

In most situations chicory can yield 12 t DM/ha, versus an old pasture growing 5 t DM/ha. This gives chicory a 7 t DM/ha advantage, and a 14 c/kg DM cost, as shown in the table below.

Cost of growing 501 Chicory with different yield advantages:

		Cost of 501 Chicory <sup>1</sup>
Extra feed grown from 501 Chicory (over runout pasture) <sup>2</sup>	9 t DM	11 c/kg DM
	8 t DM	12.5 c/kg DM
	7 t DM	14 c/kg DM
	6 t DM	17 c/kg DM
	5 t DM	20 c/kg DM

<sup>1</sup> Assuming \$1000 cost to grow chicory crop (direct drilled). <sup>2</sup> Estimated 501 Chicory yield less the estimated loss of pasture DM.

The greater chicory's yield advantage over the runout pasture, the cheaper it is per kg DM

Chicory is also much better quality feed compared to PKE or old pasture.

	ME (MJME/kg DM)	Crude protein (%)
501 Chicory	12.5-13	20-26
PKE	11-11.5	14
Summer pasture	9.5-10.5	13-18

### 3. Knock out yellow bristle grass and other weeds

Yellow Bristle Grass is now a serious weed in many parts of the North Island. It can dominate pastures over summer, reducing feed quality and pasture persistence. An effective way to clean this invasive grass out of paddocks is to put them through a chicory crop using a triple spray programme.



#### SPRING

Spray out pasture with glyphosate,  
sow chicory

#### SUMMER

Spray both grass and broadleaf weeds out  
of chicory crop before first grazing.\*

#### AUTUMN

Spray out chicory with glyphosate, and  
sow perennial pasture

This programme will also help eliminate other unwanted weeds and summer grasses from your paddocks, giving new pasture the best start in autumn. Seek specific herbicide advice for your situation.

\*A further grass weed spray may be required if a subsequent germination of yellow bristle grass occurs.

## 4. Get rid of black beetle and other pests

One of the best things about 501 Chicory is while cows love it, black beetle hate it.

As long as you spray the grass weeds out of your chicory, black beetle will pack their bags and leave in search of other feed. The same applies to most other pasture insect pests. This means no insecticide spray is required once the crop is established.



## Best practice crop nutrition

If a chicory crop is going to grow to its potential and deliver the desired benefits, then a good fertiliser programme is essential.

Soil test at least 6 months before sowing, if possible 12 months before. Soil pH has an impact on crop performance and if lime needs to be applied it takes at least 6 months to have an effect.

Use a 150 mm auger. Soil test a transect (line) across the paddock, avoiding areas that are not typical of the paddock, e.g. fence lines, stock camps and urine patches. Samples can be collected in either autumn or spring. Do not sample within 3 months of applying fertiliser or lime, or when soil is saturated.

### Target soil test results for chicory:

Test	Target levels
pH	5.6 - 6.2
Phosphorus (Olsen P)	20 - 30
Potassium (OTK)	>8
Sulphur (sulphate-S)	>10
Magnesium (OTMg)	>8

### Example of a chicory fertiliser programme:

This will vary between situations. If in doubt seek advice from your Farm Source TSR.

When	What	Product
At sowing	Drill fertiliser with the seed (in a separate box) or broadcast and soil incorporate just before sowing. Make sure there is no direct contact between the fertiliser and the seed.	DAP is often used supplying N and P, both critical to early crop growth. Application is 150 kg DAP/ha if drilling with seed, or 250 kg DAP/ha if broadcasting.  OR  Cropzeal 16N if soil potassium is low (<Quick Test 4) or if the chicory is following another crop. Application rate is 250-350 kg/ha.
3 - 4 weeks post sowing	Apply post-emergence fertiliser N.	SustaiN or Nrich Urea at a typical rate of application is 30 kg N/ha.
After grazing	Apply nitrogen after grazing in spring and summer, while plants are actively growing.	SustaiN or Spring fertiliser (with Nitrogen) or SustaiN + K



## Weed and pest control

A good programme controls competing weeds and damaging pests, allowing chicory to establish more quickly with less risk of failure.

### Example of a weed and pest control programme:

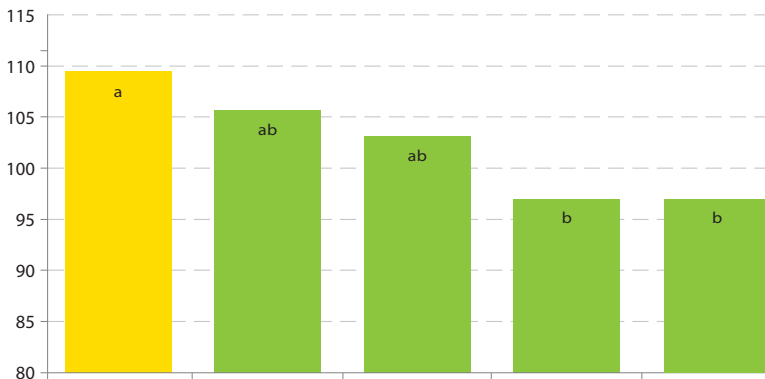
This will vary between situations. If in doubt seek advice from your Farm Source TSR.

When	What	Product
At sprayout of old pasture	<p>WeedMaster TS540 rate based on hardest to kill species – old pastures need 4.0L/ha for browntop, couch, paspalum, Mercer grass, Kikuyu.</p> <p>Pulse Penetrant improves the penetration/uptake of WeedMaster TS540 – ensures control of ryegrasses.</p> <p>Dew 600 for springtail control with nil stock withholding period – spray and graze 3 days later (other insecticides 7 day WHP).</p>	<p>WeedMaster® TS540 (2.7-4.0 L/ha) +</p> <p>Pulse® Penetrant (100 ml/100L water) +</p> <p>Dew™ 600 (400 ml/ha)</p>
At sowing	Use treated seed. No-tillage broadcast SlugOut for slug control.	SlugOut® at 10kg/ha
As soon as the 4 <sup>th</sup> true leaves on the chicory plants have begun to emerge (typically 3-4 weeks post sowing)	<p>Valdo 800WG – a range of broadleaf weeds (some weeds such as plantain will not be controlled).</p> <p>SeQuence – annual grass weeds (typically 0.5L/ha) and some perennial grass weeds (1.0L/ha on large perennial grasses).</p> <p>Bonza – oil adjuvant to improve the performance of the herbicides.</p>	<p>Valdo® 800WG (65g/ha) +</p> <p>SeQuence® (0.25-1.0L/ha) +</p> <p>Bonza® (500ml/100L water)</p>

## Why 501 Chicory?

Chicory is best grown as a 6-month crop, so an annual type cultivar like 501 Chicory is most suitable, because it will outyield some perennial types over the summer months. 501 Chicory is very fast establishing, and can give up to one full grazing more over the season than some other cultivars. Sow with Tuscan red clover for a mixed sward.

DM yield for chicory trials run 2011-12 and 2012-13. (Trial mean = 100).



Results combined over two trials at Cambridge 2011-12; and Canterbury 2012-13. LSD (5%) lettering is given; cultivars with the same significance lettering (e.g 'a') are not significantly different.



How many hectares should you grow?

Chicory/cow to be fed	Area of chicory to sow	Daily area of chicory
3 kg DM/day	3 ha/100 cows	0.15 ha/100 cows
4 kg DM/day	4 ha/100 cows	0.2 ha/100 cows
5 kg DM/day	5 ha/100 cows	0.25 ha/100 cows

*\*Based on a 20-22 day round with pre-graze covers of 3,000 kg DM/ha and post graze residuals of 800 kg DM/ha*

## 11 TIPS FOR SUCCESS

A high-yielding crop means low c/kg DM costs. Here's how to achieve this:

1. Sow early (as soon as soil temps are 12°C and rising).
2. Sow 501 Agricote treated seed at 8-10 kg/ha for a straight sward or 6 kg/ha of 501 and 4 kg/ha of Tuscan red clover for a mixed sward.
3. Sow shallow (never deeper than 1 cm). Pay close attention to depth control when direct drilling.
4. Sow with the right fertiliser - see page 8 for details.
5. Effluent paddocks give best yields and are often closer to the shed meaning less distance to walk for the milkers.
6. Roll, roll, roll. Good seed to soil contact will speed up germination.
7. Apply nitrogen fertiliser during the active growing season to maintain good growth rates.
8. Control weeds, and by doing so control insect pests too. For best results, see page 9 for details.
9. Graze at Red Band gumboot height down to 3-4 cm.
10. Don't spray the crop out too late in autumn. New pastures take priority – they must go in early enough to give them the best start.
11. Don't keep the crop for a second summer. It might look great in autumn, but it will open up in winter, and go to seed next summer reducing yield and quality.

**CONDITIONS:** The sale of these goods is made strictly on the basis that Fonterra Farm Source, RD1 Limited and the vendor of the goods disclaim all liability, whether express or implied and whether in contract, tort or otherwise, for any loss, damage, claim or injury arising from the result produced by the goods or any failure of the goods to produce a desired result where such result or failure is attributable to any act or omission of the purchaser or any factor beyond the control of Fonterra Farm Source, RD1 Limited or the vendor, including without limitation, purchaser negligence, the storing and sowing of the seed, time of sowing, cultivation, soil conditions, weather conditions, third party intervention and all acts of God. If Fonterra Farm Source, RD1 Limited or the vendor of the goods is found to have any form of liability for any breach of any obligations imposed on them by law, then the purchaser agrees that liability is limited to replacement of such goods or damages not exceeding the original retail price of the goods. Fonterra Farm Source, RD1 Limited and the vendor shall not be liable for any consequential, indirect or special damages or loss of any kind whatsoever including without limitation loss of profits, whether arising from the goods, the result produced or intended to be produced, or from any other cause whatsoever. For specific advice in relation to your farm needs, please consult your local Fonterra Farm Source Technical Sales Rep.

