

Captain

cool season plantain

**Reduces N leaching &
extra valuable cool season yield**

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Captain CSP we've called 'cool season plantain (CSP)' due to its extra growth through this period. This is the most valuable feed in farm systems, and reduces N leaching too.

Key features of *Captain CSP*

- Top cool season production
- Reduced N leaching in pasture
- Very high overall DM yield
- Deep, coarse root system
- Distinctive narrow-leaved plant with upright growth habit for high utilisation
- Suited to both sheep and beef and dairy systems
- Good compatibility with ryegrass and clover



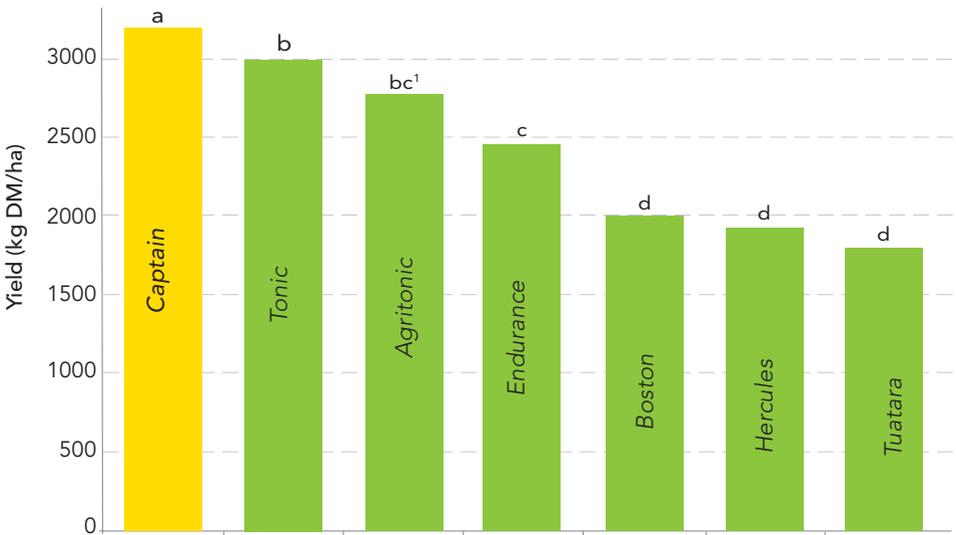
Outstanding cool season production

Captain CSP yields significantly more cool season DM yield than other plantain cultivars.

Plantains vary hugely in winter growth, from winter-active types through to winter-dormant, as shown in the photo on page 4.

Captain CSP has greater yield across the cool seasons (autumn, winter and early spring), providing more feed when it is both most valuable and most needed.

Cool season DM yield data combined from three one year dryland Canterbury trials sown between 2013 – 2018*



* Cool season yield is a total of autumn, winter & early spring periods. LSD (5%) lettering given on yield bars, cultivars with the same letter are not significantly different. ¹ Provisional rating, cultivar has only been in one trial.

Reduced N leaching

Reduced N Leaching

Research indicates that plantain can mitigate N leaching via a number of mechanisms. The low DM content, high water soluble carbohydrates: crude protein ratio and low soluble N are primary components that dilute the urine and partition more N to dung. Secondary components in plantain may also act on soil N nitrification, and N can be directly taken up via growth of the plantain.

The greater cool season activity of *Captain CSP* will enhance both of these mechanisms when it is most needed, as N leaching mainly happens when soils are wet through the late autumn, winter and early spring.



Captain CSP (centre) showing its significant cool season yield advantage over other cultivars on 30 July at Courtenay (190m ASL).

High total DM yield

Not only does *Captain CSP* have a cool season advantage, it produces strongly in the other seasons too.

Captain CSP has very high yielding ability, with good year round growth.

High summer yield is important and *Captain CSP* provides additional much needed protein and feed quality over the warm months, particularly in summer dry areas. (The original purpose of plantain was to provide forage at those times when rooted grasses could not access the deeper located water).

DM yield of plantain cultivars in Canterbury over three trials*.

Trial mean = 100.

| Entry | Autumn | Winter | Early spring | Late spring | Summer | Total |
|-------------------------------|--------|--------|--------------|-------------|--------|--------|
| <i>Captain CSP</i> | 123 a | 101 ab | 102 a | 101 | 109 a | 115 a |
| <i>Tonic</i> | 120 a | 95 bc | 86 bc | 98 | 107 a | 112 a |
| <i>Agritonic</i> ¹ | 115 a | 105 a | 96 ab | 93 | 103 ab | 103 ab |
| <i>Endurance</i> | 89 b | 96 bc | 97 ab | 94 | 99 b | 93 bc |
| <i>Boston</i> | 78 c | 96 bc | 105 a | 105 | 96 b | 85 cd |
| <i>Hercules</i> | 71 c | 96 bc | 104 a | 103 | 82 b | 84 cd |
| <i>Tuatara</i> | 78 c | 93 c | 82 c | 100 | 93 b | 82 d |
| Trial mean (kg DM/ha) | 1759 | 410 | 449 | 1691 | 2821 | 7106 |
| Significance | *** | *** | *** | NS | *** | *** |

*Data from three replicated trials in dryland Canterbury. LSD (5%) lettering given to right of relative yields, cultivars with the same letter are not significantly different. ¹ Provisional rating, cultivar has only been in one trial.

Persistence

Captain CSP has shown good persistence in mixed sward trials.

Canterbury plantain/ryegrass mixed sward trial, plant density score two years after sowing*.

| Entry | Density score 25 May 2017 |
|--------------------|------------------------------|
| <i>Tonic</i> | 7.7 a |
| <i>Captain CSP</i> | 6.8 a |
| <i>Endurance</i> | 4.4 b |
| <i>Boston</i> | 2.4 c |
| <i>Tuatara</i> | 1.0 d |
| Trial Mean | 5.0 |
| LSD (5%) | 1.2 |
| Significance | *** |
| %CV | 21.0 |

* Scored on a 1-9 basis, where 9 = dense plant population.



Aerial photo of trial showing *Captain CSP* plots (framed white) out-persisting many other varieties. In some plots most plants have died leaving bare soil.

Animal performance

Captain CSP is high in energy and crude protein throughout the year. It is easily digestible, improving stock appetite especially over dry summer months when ryegrass is of lower feed quality.

Vegetative leafy plantain can enhance animal performance with the following nutritional benefits over ryegrass:

- Lower NDF (fibre content) than ryegrass when ryegrass starts to go to seed in late spring and summer.
- Higher protein in summer.
- Rapid rumen degradation rate which can lead to higher animal intakes through faster rumen clearance.
- Higher in essential minerals like P, K, S, Ca, Mg, Na, Zn, Cu, B and Co than ryegrass/clover pastures.



Sheep, beef, deer systems

Captain CSP can be used as a finishing crop, or in a pasture mix.

Two year finishing crop

In sheep, beef and deer systems *Captain CSP* is an ideal component of a finishing crop when mixed with red, white, and annual clovers, to provide a very high LWG pasture.

The annual clovers (*Laser Persian* and *Vista balansa*) provide most of the animal performance through the first year, with red and white clover dominating after that.

This is also ideal to control grass weeds like browntop, where grass herbicide programme should be used.

In a pasture mix

Captain CSP can also be used as part of a perennial pasture mix to improve sward protein and quality particularly through late spring and summer.

Finishing - suggested seed mixes

| Sheep, Beef, Deer | | kg/ha |
|----------------------------------|---|-------|
| Two year high LWG finishing crop | <i>Captain CSP</i> plantain | 10 |
| | <i>Laser Persian</i> clover | 4 |
| | <i>Vista balansa</i> clover | 3 |
| | <i>Morrow red</i> clover (coated) | 6 |
| | <i>Kotuku</i> white clover | 4 |
| | Total | 27 |
| Perennial pasture mix | <i>Tyson</i> or <i>Rohan SPR</i> ryegrass | 18 |
| | <i>Safin</i> cocksfoot | 4 |
| | <i>Weka</i> white clover | 4 |
| | <i>Morrow red</i> clover (coated) | 4 |
| | <i>Captain CSP</i> plantain | 2 |
| | Total | 32 |

Dairy systems

Captain CSP can be used as a crop, or sown as part of a ryegrass pasture.

In a pasture mix

Captain CSP can be added into a pasture mix at 2-4 kg/ha to help mitigate N leaching and increase summer feed quality in dryland situations. *Captain CSP* can also be used as part of a specialist high-yielding, high quality 2-3 year pasture, with *Shogun NEA* hybrid ryegrass and *Kotuku* white clover.

Summer crop

Captain CSP can be sown as specialist dairy forage crop at 10-15 kg/ha. To feed a daily diet of 3-4 kg DM/cow/day of *Captain CSP* through summer, the area required is 5-6 ha/100 cows working on a 21 day rotation. This equates to a daily allocation of 20-30m²/cow/day. The rotation may need to be adjusted where growth rates are affected (e.g. in dry conditions).

Dairy - suggested seed mixes

| Dairy | | kg/ha |
|-----------------------------|---|-------|
| Perennial pasture mix | <i>Maxsyn</i> or <i>Governor</i> ryegrass | 20-22 |
| | <i>Kotuku</i> white clover | 2 |
| | <i>Weka</i> white clover | 2 |
| | <i>Captain CSP</i> plantain | 2 |
| | Total | 26-28 |
| Specialist 2-3 year pasture | <i>Shogun NEA</i> hybrid ryegrass | 30 |
| | <i>Kotuku</i> white clover | 4 |
| | <i>Captain CSP</i> plantain | 2 |
| | Total | 36 |

Crop management

Establishment

Plantain is best suited to fertile, free draining soils. Due to its small seed size, *Captain CSP* should be sown no deeper than 10mm. Sow into a firm, weed free seed bed, when soil temperatures are above 10-12°C. The first grazing of *Captain CSP* should be after 6 true full leaves, allowing the plant time to establish its deep root system.

Broadleaf weeds need to be completely controlled prior to sowing as few herbicide options are available for spraying broadleaf weeds out of plantain. Alternatively, *Captain CSP* can be oversown into new pasture in spring, allowing broad-spectrum herbicides to be used over first winter.

Seek advice from your local retail technical representative for appropriate spray options.

AGRICOTE seed treatment

We recommend sowing *AGRICOTE* treated seed. This contains a range of insecticide, fungicide and nutrients to help protect and enhance establishing plantain seedlings when they are most vulnerable.

Fertiliser

Annual maintenance requirements for phosphate (P), sulphur (S) and potassium (K) are the same as for ryegrass. Plantain shows a good response to nitrogen (N). Three or four applications of 35 kg/N/ha post grazing is recommended through spring/summer.

Grazing

Ideally *Captain CSP* is suited to rotational grazing. Graze at 25 cm (~3000 kg DM/ha cover) down to a residual of 4-5cm (1500 kg DM/ha). Repeated overgrazing will impact regrowth potential and reduce persistence.

Avoid pugging and grazing in very wet conditions. In a well-managed pasture sward *Captain CSP* will survive for at least three years.



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