

Cropping Secrets

Chicory

Your questions answered:

(by Ben Trotter, Agricom).

How much per 100 cows?

The best approach is to establish several paddocks of pure chicory/clover pasture close to the dairy shed. To ensure a daily 3-hour diet of chicory the amount of chicory pasture planted should be about 4-6 ha per 100 cows.

What is the difference between chicory and plantain?

Chicory is an herb with a deep tap root that produces high yields of quality forage from September to May. Plantain is also an herb with a fibrous, coarse root system that produces 10-19 t DM/ha/year and shows better cool season growth/longevity compared to chicory. The quality of the two herbs is very similar; however in summer chicory tends to be approximately 1ME unit higher. The two species have a very similar summer dry matter production.

How do you estimate yield?

There is now a rising plate calibration curve for estimating yield in both chicory and plantain.

Chicory = RPM height X 92 + 244

Plantain = RPM height X 94 + 455

Is it worth broadcasting?

This is the most common use of chicory because it requires very little change to pasture establishment and management practices. It is an easy way to increase animal production from a pasture. Seed is broadcast at the rate of 1 to 4 kg/ha, depending on the content required. Establishment can be poor when broadcasted in cold soils. Best results come from getting the timing right (soil temp >12 degrees) before grazing spring pasture.

What is the best crop for summer protein?

All summer crops offer a high level of protein through the summer. Turnips, chicory and plantain all tend to have protein levels ranging from 18-26%CP. The overall crude protein level can be influenced by a number of factors including nitrogen use on the crops and the percentage of green leaf relative to weeds or bulb. Chicory and plantain have good protein levels (up to 26% CP), contain condensed tannins (which may improve the protein supply to dairy cows), and have high digestibility. This quality does not deteriorate as much over summer as ryegrass does, so that in late summer and autumn quality differences between the species can be large.

Can you use Progibb on chicory?

There is no label claim for use of Progibb on chicory, and until data protection laws are changed its unlikely to be on label.

How do you manage weeds?

Monitor weeds, and if found spray only with Preside™ or Valdo™ (65 g/ha + Uptake or Bonza oil). Clean the tank thoroughly before adding water/chemical, and maintain agitation while spraying. Apply when weeds are small (< \$2 coin) as it will not kill **some large weeds**, and it has a residual effect to control late-germinating weeds. If grass seedlings are also present (e.g. summer grasses), a grass-specific herbicide should be added to the mix (e.g. Sequence). It is critical to control these weeds when they are small and this often involves spraying 3-4 weeks after planting.

How do you manage pests?

Pests in chicory and plantain are not typically an issue. Black beetle and Argentine stem weevil tend not to affect these plants once they are established. Seed treatment must be used however for fungal and springtail protection at early stages of establishment.

What are the animal health risks?

Chicory has the potential to cause bloat, although this is less likely than on clover-dominant pastures. Actual cases have been rare, because most grazing occurs outside the high risk period in early spring, it is fed as a small part of a daily diet, and it is usually grazed in the afternoon rather than the morning. Nitrate levels can also reach high levels in chicory, but cases of toxicity are rare, probably for the same reasons.

Our notes:

- Slug bait is important especially if direct drilling.
- Important to use starter fertiliser, eg DAP.
- Use treated seed to guard against pests.
- Must be rolled, if dry, roll it twice for even germination. This also makes weed control easier as all the plants will be at the same growth stage.
- If you get it in by 5-10th November (or earlier), it will be established and drought tolerant by December.
- One benefit of chicory is that its quality remains throughout the summer, much more flexible than some other options.
- Once established and past pest and weed pressures, it's pretty robust.
- Work on roughly 4-6ha per 100 cows which will allow you to feed them consistently throughout the dry period with about 4kg/cow of chicory. You want enough to keep it in their diet rather than having them on it for couple of weeks, then off it while it re-grows.
- Rotation is generally between 20-25 days, weather dependent.
- Chicory is good for extracting effluent/high levels of nutrients in soils. The cows go onto the chicory and then transfer the nutrients to other paddocks around the farm.
- It's nitrogen hungry so will need N as it grows (because of this pasture sown post chicory will also need a starter fertiliser including nitrogen to get it established properly).
- It's high in trace elements.

- It's great for run-offs too/for young animals in the summer months as it's easily managed once established.
- At the high end you can harvest around 16t, normally get around 10-12t for an October sown crop to the end of March (you have to be mindful of timing of regrassing and pasture establishment), so may be only 8-10t because of regrassing timing. That said, it's still 8-10t of cheap high protein feed and will be yielding more than ryegrass over the summer dry. Can be grown for around 10-12 cents/kg DM.
- When spraying out to re-grass will need good dose of glyphosate – make sure it's got a decent amount of leaf on it before you spray otherwise it won't die and will overtake the newly planted ryegrass. Ideally spray, graze down 3-5 days later. Some might still survive but it won't overtake the new grass.
- Pretty hard to carry it through for a second year, needs to be managed carefully over winter – really need to keep off it and may need to fill (seed) in the gaps in the following season.

Brassicas

Our notes:

- Turnips can be used to hold the big dip in milk production in January and February.
- They have a high ME of around 12-13MJ (even good grass silage is only around 10-11 MJME). They have a good feed value at times where grass is under pressure.
- On a hot day a cow's intake is higher on turnips than dry grass.
- Turnips are higher risk for extreme summer dry years.
- As with any crop, you need to think about location – don't want to be walking cows right to the back of the farm each day for their feed. Needs to be close to the dairy etc.
- Sowing to grazing can be 60-100 days depending on variety.
- You can plant an early maturing and late maturing variety to maintain quality (either in different paddocks or early at the front of the paddock, late at the back).
- Shortcuts for any crops cost you more in the long run. Get it right the first time! Even with costs of various crops, they are still a comparatively cheap feed.
- Identify what weeds are in paddock to spray out and use the right chemical for the weeds that are there. It's a missed opportunity if you are not putting enough spray on!
- Use insecticide and coated seed.
- Slugs and other pests need monitoring. Insects love turnips but can easily be sprayed and controlled.
- Black beetle doesn't like turnips.
- Chicory is more flexible and easily managed but takes more paddocks out eg 4-6ha per 100 cows, but it does feed them for longer time.
- Cows need to be introduced slowly from an initial 1-2 hours a day up to their maximum daily allowance over 7-10 days. This helps prevent problems like scouring, acidosis and nitrate poisoning due to a sudden change in diet. During the introductory period animals should be initially put on the crop when reasonably full, to slow the rate of intake, until they have adjusted to the diet.
- If you want to feed up to 30% of the diet as turnips (say 4kg), you need about 2ha per 100 cows. Lactating cows should not be fed more than 30% of their diet in brassicas.
- It may take cows a day or two to adjust to eating the bulbs but they will normally go back and eat them.
- Should make sure cows still have water when on crop paddocks (for any crop).
- Can use the grazed part of the turnip paddock as a "sacrifice" paddock of sorts...can feed out PKE, silage etc on it and use it to prevent over-grazing of other paddocks.
- If driver is more about pasture renewal and tidying up weeds etc turnips give you more time with the bare land to address those issues. The temptation with chicory is to take it through longer which compromises permanent pasture.

Maize

Your questions answered:

(by Wendy Dewar, Pioneer Brand Products)

Why use maize?

Maize silage offers a large number of farm system, nutritional and environmental benefits. It is a reliable, cost-effective crop which can be used to extend lactation, put condition on dry cows, increase youngstock liveweight gains and decrease N-leaching. For more information see [http://www.pioneer.co.nz/assets/publications/maizesilage/maizesilage\(1\).pdf](http://www.pioneer.co.nz/assets/publications/maizesilage/maizesilage(1).pdf)

How large is the harvest window for maize? Dry down rates.

Ideally maize silage should be harvested when the crop is between 30-38% dry matter. For most hybrids the harvest window is 10-14 days but it will vary depending on a number of factors including the crop nutrient status, soil moisture levels and air temperature. Typically hybrids dry down at 0.25-0.75% per day, but again this can vary.

How much yield do you lose from greenfeeding maize?

It depends on how far away from maize silage harvest your crop is. Between 20-30%DM, under “normal” growing conditions, maize silage will accumulate 200-300kgDM/ha/day. Greenfeeding reduces the crop yield and increases the cost per kgDM. As the crop gets closer to harvest, the maize growth slows and the amount of yield you lose decreases.

What is a good hybrid for the Putaruru area?

There is a range of hybrids suitable for the Putaruru area depending on when you can plant, and when you want to harvest the crop. Products like Pioneer® brand P9400 (140-154 days from planting to harvest), 38H20 (136-150 days from planting to harvest) and 39G12 (approx. 126- 140 days from planting to harvest) produce excellent yields. For the latest hybrid recommendations see www.pioneer.co.nz

Which cultivar matures the quickest?

The shortest maturity hybrid in the Pioneer® brand maize hybrid range is 39V43 which is typically 119-133 days from planting to harvest in the South Waikato.

Pest control- what to look out for and when, and what control options available?

The three most common pests of maize are Argentine stem weevil, black beetle and greasy cutworm. The best control method is to plant Poncho® treated maize seed. Walk crops on a regular basis when they are between planting and knee-height and look for any signs of insect damage including chewed, cut-off or wilted plants. Contact your local seed merchant or Pioneer Area Manager (0800 PIONEER) if you have any concerns about your crop.

Which inoculant is best to use?

We recommend Pioneer® brand 11C33 as it improves maize silage fermentation quality and also helps to keep your maize silage cool for longer, decreasing storage and feed-out losses. Contact your Pioneer Area Manager to help fine tune your specific requirements.

Is it more profitable to use inoculant or use that money to buy more maize silage?

It is far more profitable to use inoculant. See <http://www.pioneer.co.nz/inoculants/product-information/frequently-asked-questions/> for more information.

Earlage and high cut options

Maize offers a wide range of product options including maize silage (the whole plant), high cut maize silage (harvested with the forage harvester cutter bar raised), earlage (the whole cob including the husk cover is ensiled) and high moisture corn (where the grain is harvested and fermented). Maize silage gives the highest yield and, at the other end of the spectrum high moisture corn (HMC) gives the highest feed value.

Ideal planting dates?

The ideal planting date will depend on the hybrid you choose and your growing environment. While many silage crops are planted in October it is possible to get good silage yields from Putaruru crops planted in November as long as a shorter maturity hybrid is used.

How long does a maize stack last for?

Maize silage will last for many seasons as long as it is well covered and sealed. If you are planning to store maize silage long-term use a high quality silage cover, weigh it down with tyres which are touching and seal the edges with sand or lime.

Our notes:

- As with any crop, need to think about how it fits into your farm system and do it right – don't take shortcuts.
- Longer maturity maize doesn't always deliver more.
- You want to set up plants so they have water before the dry.
- Plant the right variety at the right time.
- Yellow down inside of leaf is nitrogen deficiency.
- Northern leaf blight winters over so avoid that paddock next time or you can power harrow and get rid of all remnants. Can also spray in extreme circumstances.
- If harvest under 30% DM can lose lots of it in the stack.
- Get crops off ideally around 35%, happy between 33%-38%. Aim for 35%.
- Chop dry maize shorter so it compacts properly and make sure compacted and really rolled well.
- Typically if you are buying maize in, you can't get it till later in the season. So if you are short of feed in summer, or you want it earlier to keep weight on, push the round out, or increase days in milk, grow enough to tide you over until bought in maize arrives.
- It's great for removing excess paddock nutrients, but keep in mind it takes lots out so when regrassing you will need to apply fertiliser.
- It helps dilute urinary N.