Spring Tech Notes

NOTMAN
Pasture Seeds

Real Farm Value and Know How

This is the latest edition of our technical development notes for management of both new pasture varieties and their weed control, to make sure you have the possibility of being at the forefront of the most advanced developments.

Inside this Issue:

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- Top Crop® Blends available
- Making the Most of Your Available Water
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- Pasture pugging recovery

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Nitrogen to Increase Silage

Driving Pastures to Utilize Available Water

Increasing Productivity Through Nitrogen

To achieve maximum pasture utilization a strategic Nitrogen plan needs to be implemented. This could be concentrated on areas with dense plant population where responses can still be achieved.

It is interesting to note that plants of 26% Crude Protein contain just over 4% Nitrogen, this is around 10 times more than the Phosphorus in these plants. Though Phosphorus is important, it is Nitrogen that is the major drive for leaf growth and with the looming moisture shortages no pasture should be short of Nitrogen when moisture is available.

Long term requirement if applying 25 kg of Nitrogen.
N 25 – P 4 - K 6 – S 4 – Ca 6 Mg 2 all in kg per Hectare.

Spring Nitrogen Usage in Grazing

- As a rule, budget on 1-1.5 kg/ha for each day when moisture is available on the grazing area.
- Nitrogen usage goes up when plant growth increases. Example: 1kg/day early spring and 1.5kg/day mid to late spring. As temperatures increase intervals between applications should be shortened.
- In early spring it may take 6 weeks to see a Nitrogen deficiency while in mid spring it may only a four week period between. If using 1.5kg of Nitrogen per day applications can be just before grazing (two days) or just following the cows. Preferably don't graze for 21 days.
- Spring responses we have measured have consistently been at least 15kgDM for each 1kg Nitrogen applied. Nitrogen at $1/kg =$67/ tonne Dry Matter of feed grown.

Nitrogen Usage for Fodder Reserve

- Where quality hay and silage production is very important, Nitrogen is applied, then 40 days later pasture is cut and conserved. Rates applied: 100kg/ha. Usage: 2.5kg/day.
- Last season responses on Italian Rye was 7.5TDM on crops of silage @ 10MJME for a 40 day lock up period. With 5.5 TDM on perennial pastures were measured for the same lock up period.
- Our current recommendation for Nitrogen on hay & silage is to apply 220kg of Urea 40 days before the planned cutting date. Cutting earlier than 40 days may have higher levels of non protein nitrogen in the plant, hence poor quality.

Key Components for the Above Outcome:

- Pick Pastures that will be responsive
- Urine patches can indicate response can be achieved
- Preferably don't graze for 21 days after applying
- Under grazing rates generally should not exceed 2 kgs Nitrogen /Ha/day
- Do not allow hungry cows unrestricted access to Nitrogen boosted pasture
- Monitor soil pH, Nitrogen will slowly acidify soil

Nitrogen boosted silage (Mega Bite Ultra®)

CONTACT NOTMAN PASTURE SEEDS FOR THIS YEARS LATEST CULTIVARS AND HIGHEST QUALITY PASTURE SEED.

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Silage Inoculants

Latest Update on Silage Inoculants:

When making high quality silage we generally recommend the use a of a proven silage inoculant. Inoculants are not miracle cures but are a tool that should support sound silage making practices including:

- Cutting at the correct growth stage 10% visible seed heads in ryegrass
- A fast wilt less than 48 hours
- Harvesting at the optimum DM% Pasture silage; Pit = 30-40%, Baled = 35-50%
- Dense compacting
- Complete sealing

Silage inoculants provide billions of bacteria that have been specifically identified for their ability to improve the silage making process. The best products are those that contain bacteria that are crop specific and have been proven in independent animal performance trials.

Two products that contain bacteria specifically for pasture and have been tested extensively in dairy and beef trials are Pioneer 1127 and Pioneer 11G22. These products are also the only ones available in Australia that are ISO 9002 certified. This internationally recognised quality assurance rating means we can have full confidence in their performance.

Pioneer 1127 is a traditional inoculant that helps improve the fermentation process. It is the biggest selling grass inoculant in Europe and has been proven to increase digestibility, protein availability and milk production.

Pioneer 11G22 is the latest type of inoculant and contains a new strain of bacteria called Lactobacillus buchneri. It has all the benefits of 1127 but will also reduce silage heating during feed-out by inhibiting the growth of yeasts and moulds.

Surveying Inoculants

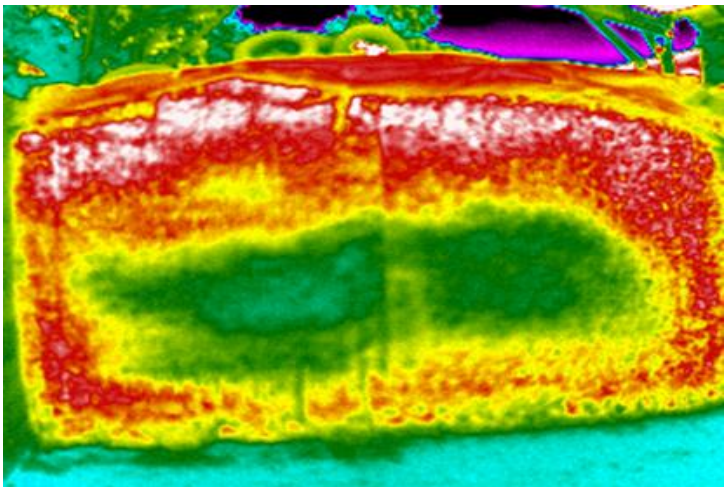
We have sampled a number of silage pits treated with Pioneer inoculant containing new L. buchneri. Samples are included in a NSW Agriculture survey on aerobic spoilage and early results look great. The silage is remaining remarkably cool even with very dry silage that has been exposed to air for a number of days. More results will be available shortly.

Results from the new 11G22 have been excellent at reducing heating of the silage and will is our recommended inoculant to use this year.

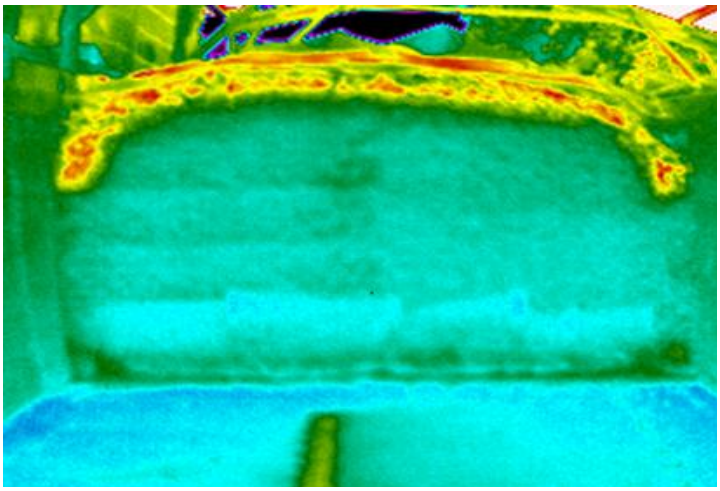
Silage Inoculants

Making Quality Silage

Silage Pit Thermographic Images



Untreated:
High level of heating giving high energy losses



Treated with 11G22:
No heating, therefore low energy losses

Key Recommendations

11G22 is recommended if any of the following are applicable to your silage:

- Made from pasture
- That will be fed out slowly
- With high dry matter content
- That is difficult to compact
- With excessive air

Rolling silage stack

These bulls are genetically different...

Could be Roumare worth $$$ per dose

Could be your back paddock bull

So are these inoculants.

Pioneer® Brand Lactobacillus Plantarum Strain# 286 US Patent# 4.842.871

Strain isolated from a competitor company product

We have recommended these products based on the following:

1) We have personally been involved in Silage Pit Face measurements and have recorded results

2) The inoculants are from Pioneer, the first inoculant company to achieve ISO 9002 certification.
This is a rigid set of standards for quality management systems.

3) These inoculants have been extensively trialed using both laboratory research and livestock trials.

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Chicory Notes

Establishment Tips:

Chicory is a perennial herb, which has proven to be an excellent source of high quality feed, chicory has exhibited tolerance to acidity and has been successfully grown in soils with low pH soils.

Chicory has good disease resistance and insect tolerance, along with excellent summer and autumn growth. The taproot in some soils can go down 1.5 metres allowing soil moisture to be utilized down the profile.

Chicory is not a legume, so for maximum production applications of nitrogen, phosphorus along with other fertilisers will be required. Chicory can be used in both a long-term pasture blend or short term cropping program. When being used in long term pasture either by itself or in a blend Puna would be the suggested variety. If using it as a crop Chico would be suggested.

Mineral analysis:

Chicory perennial ryegrass and Lucerne (ppm)

Element	Chicory	Lucerne	PRG
Zinc (ppm)	66-117	15-20	14-20
Copper (ppm)	13	7-10	6-7
Iron (ppm)	300	100	25-30
Magnesium (%)	0.28-0.44	1.00	0.16-0.20
Calcium (%)	0.90-1.30	1.80-2.00	0.25-0.30

General Establishment Guidelines, for summer fodder chicory.

- Spray with Roundup PowerMAX® or Mouldboard, or ideally both. The aim is to kill existing pasture or weeds. Moldboard plough can be used on deeper soils where you won't be bringing up poor subsoil's such as clay. The use of the plough tends to reduce the amount of weeds germinating due to the soil inversion (weed seeds are buried to a depth of 75-100ml) deep.
- Control broadleaf weeds before sowing, as registered herbicide options are limited, TriflurX® could be incorporated into soil, at the rate of 1.4 to 1.8 lts/ha from four weeks right up to sowing, this must be incorporated into the soil within 4 hours of spraying, the soil needs to be moist and clump size no larger than 50mm this will not work very well in dry soils. If paddock has history of weeds then pre emergent herbicide is essential.
- The recommendation is to sow Chicory into a cultivated seedbed, broadcasting from a power harrow does a good job then harrow with light mesh, and roll. If direct drilling, surface needs to be even and don't sow deeper than 1 cm.
- Use 10kg seed/ha when sowing as a special purpose forage- can be combined with white clover (2kg/ha) and red clover (3kg/ha). Or if using in a perennial pasture mix use 1-2 kg/ha.
- Apply complete fertiliser just before sowing, NPKS 25-20-38-28 / ha. Immediately prior to sowing. This could be supplied by an application of 300 kg/ha of super & potash 3:1 plus 55 kg/ha urea. Magnesium plus trace minerals may also be required. If broadcasting with seed 150 kg / ha of DAP could be used this must be spread within 4 hours to avoid seed damage.

Chicory Notes

- Crop pest checks," slugs" can be controlled with Mesurol pellets" Earth mites" & " Lucerne flea " can be controlled with Dimethoate.
- Weed control, under evaluation Broadstrike used at 25 to 50 grams/ha controls a number of weeds wild radish, wireweed, turnip, and marshmallow. At present this is not registered for use in chicory, therefore we cannot recommend this.
- Plant in late September – Early October for summer forage crop.
- Around 25 days after germination apply 70 kg/ha urea (32kg Nitrogen) repeat this again 30 days later
- As a guide graze from 350mm to 75mm normally ready to graze from mid January onwards.
- If under irrigation or adequate soil moisture apply Nitrogen after each grazing (30 day rotation) rate of nitrogen from 1 to 2.0 kg/day the latter would be under full irrigation or continued high rainfall.
- For Top Crop Chicory spray out with Roundup PowerMAX® + Estercide Xtra 680® from the 25th March to the 10th of April re-sow immediately, this is important if resowing to ryegrass base pasture.
- Chicory must be planted by October 10 in dry-land and November 15 under irrigation.

Crop	Cultivar Suggestions Rate/Ha	kg/ha	Plant Date
Top Crop Chicory	Chico 10kg plus Red Clover 2kg	12	Late September
Top Crop Brassica & Herb	Chico 6kg, Pasja 1kg plus Titan 1kg	8	Late September
Top Crop Brassica, Herb & Millet	Chico 3kg, Millet 10kg plus Titan 3kg	16	October

About Chicory

Chico can be used as a summer crop. The crop has a low amount of pest problems. Stock adapt to this feed quickly, and there are no known animal health problems, it is both high in energy and protein. (12mjme and 18% plus in protein). This is a tap-rooted herb a bit slow to get started but very hardy

Young stock grazing Chicory, Western Victoria

Chicory Planting Dates

This could be grazed on a 30-day rotation growing from 40 to 120 kg/ha from early January to late March. Yields from 7 to 10 tonne DM /HA, with a net yield above pasture growth of 5 to 7 tdm/ha. Don't expect high yields if planted later than October 15th.

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Turnips, Rape & Pasja

Margins on a Dry Year
Generally margins for Rape and Pasja are 20% lower than that of Turnips. In dry conditions our experience shows that Rape is 10-50% more productive than Turnip. When budgeting for Rapes, in dry conditions you would expect the yield gain to be at the lower level 4 tonne gain.

- Spray with Roundup Max or Moldboard—or ideally both. The aim is to kill existing pasture or weeds. Moldboard plough can be used on deeper soils where you won't be bringing up poor subsoil's such as clay, or alternatively disc then power-harrow.
- The use of the plough tends to reduce the amount of weeds germinating due to the soil inversion (weed seeds are buried to a depth of 75-100ml) deep.
- Apply complete fertiliser After the plough or cultivation, NPKS 25-20-38-28/ha. Or chook manure up to 10m3/ha
- Sow Turnip into a cultivated seedbed, broadcasting from a power harrow does a good job then harrow with light mesh, and roll. If direct drilling, surface needs to be even and don't sow deeper than 1cm Use 2kg/ha seed. In dry soils, reduce rate.
- Control broadleaf weeds before sowing, as registered herbicide options are limited, TriflurX® could be incorporated into soil, at the rate of 1.4 to 1.8L/ha from four weeks right up to sowing, this must be incorporated into the soil within four hours of spraying, the soil needs to be moist and clump size no larger than 50mm this will not work very well in dry soils. If paddock has history of weeds then pre emergent herbicide is essential.
- If broadcasting with seed 100kg/ha of DAP could be used this must be spread within 4 hours to avoid seed damage.
- Crop pest checks, "slugs" can be controlled with Mesurol pellets "Earth Mites" & "Lucerne Flea" can be controlled with Dimethoate.
- As a guide start to graze 70 days after planting.

Insecticide Products that may be Required

Product, time of use	Weeds-Pests Controlled	Rate/ha	Approximate $/ ha	Application remarks
Astound®Duo Fastac	Cabbage White Butterfly Cabbage moth	500 ml/ha	$10/ha	Add wetting agent for best results. For turnip 1 day WHP. Use 300 Lts of water/ha.
Folidol	Cabbage White Butterfly Cabbage moth Aphids Cutworms	700 ml/ha	$10/ha	Use high rates of water for best results 400Lt/ha up to 1000Lt/ha. WHP is 14 days.
Success 2	For control of Diamond Back moth	200ml/ha	$65/ha	Use a Non Ionic wetting agent Use 250 Lts water/ha WHP is 3 days.

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Maize: Growing a Maize Crop

Maize Silage
Maize is one of the worlds most widely grown crops, for fodder dry land silage yields with appropriate management should be around 12-14t DM/ha and areas with irrigation or high summer rainfall can yield 18t DM/ha. Maize silage can balance the cow's diet by providing good quality fiber and low protein while maintaining relatively good levels of energy. Typically 10-12MJME/kg DM and has protein levels of 7-8%. Cost is typically between $165 to $215 /Tonne DM this includes the cost of lost pasture and deprecation and re-sowing pasture.

Maize Action Plan
September:

- Complete soil test; apply lime or potash if indicated by soil test.
- Order seed, organize planting must be a precision planter.
- Spray paddock with Roundup Power MAX® use high rate to kill weeds/grasses.
- Begin seedbed preparation, break any hardpans.

October & November:

- Apply potash (250-300kg/ha) & manure before final working soil.
- Complete seedbed preparation; ensure there are no large clods.
- Check soil for pest such as wireworm and cutworm.
- Order Gaucho treated seed wireworm can destroy crop.
- Per-band 250-300kg/ha Urea at least 15cm (6 inches) below the seed row or broadcast and incorporate. If not using manure.
- Nu-trazine 900DF at 2.2L/ha and 1.8L/ha of Bouncer after full cultivation to a clod free paddock. Incorporate herbicide to depth of 3-4cm with harrows. Need a minimum of 10mm of rain or irrigation within 10 days of application to be effective.
- Plant as soon as possible after incorporation, soil temp must be 12c or above and rising. Plant to depth of 5cm, can be up to 10 cm on sandy soils.
- Comet® 400 can be used @ 375ml/ha in some states if post germination broadleaf weeds are a problem. (Check label for guidelines)
- Apply 200-250kg/ha of DAP at planting, 5cm to the side and 5cm below the seed row.
- Check for cutworm damage as crop emerges. If any damage is present they spray at dusk with an insecticide such as Lorsban.

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Maize: Growing a Maize Crop

December, January & February:

- Top dress approximately 100kg/ha Urea if plant population is adequate, apply before the 8-leaf stage.
- Prepare the silage pit.
- Inspect milk line of early sown quick maturing varieties (e.g. 38F70) and estimate time of harvest.
- Contact contractor to give him an indication of harvest time.
- Order Maize specific silage inoculant Pioneer 1132 or 11C33.

March & April:

- Harvest crop, chop to 8-12mm average length.
- Make sure rainwater runs away from stack.
- Compact well, then seal cover edges and joins securely.
- Rolled silage weights 600kg/m3 or 250kg DM.
- Check milk line, harvest at milk line four.

Hybrid Selection

Hybrid	CRM	Seeding Rate (seeds/ha)	Bags Seed/ha	Estimate Harvest time Assumes 1-November planting date
34N43	110	90-100,000	1.39	Mid April
35D28	106	80-85,000	1.15	Mid April
36Y84	103	85-90,000	1.25	Early April
38F70	92	85-90,000	1.25	Mid March

Water Efficiency for Maize Crops (East Gippsland Trial)

Maize Cultivar & Watering Method	Yield TDM/ha	Water Used ML/ha	Yield T/ML	Cost $/TDM
38F70 Centre Pivot	21.3	3.1	6.9	$151
38F70 Channel Water	17	3.1	5.5	$189

Successful Maize crop, Muswellbrook NSW

Peter Notman inspecting Pioneer Maize crop.

Crop Timing & 'Best Bets'

Ideal Planting and Grazing Dates

Plant	Brassicas Chicory	Brassicas Millet Maize Sorghum	Brassicas Millet Maize Sorghum			
Graze Harvest			Brassica	Brassica Chicory Millet Sorghum	Brassica Chicory Millet Sorghum	Chicory Millet Sorghum Maize
	Sep-Oct	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**

Note: All the above crops would benefit from some irrigation. Brassica planted in December in most areas would need to be irrigated.

Crop reliability

High	Turnip Pasja	Turnip Pasja Rape Chicory	Sorghum Millet Rape Chicory	Maize/Millet Chicory Rape Sorghum
Medium		Millet Sorghum	Turnip Pasja	Pasja
Low				Turnip
	Dec	**Jan**	**Feb**	**Mar**

Note: Both Pasja and Turnip can be highly reliable with some irrigation applied. Turnip does not grow well under flood irrigation. Millet can be direct drilled in soils without root mat but heavy rates would be required.

Tips common to all crops

- High germ seeds 90 % plus a must.
- Control weeds and have an excellent cultivated seedbed.
- Soil clump size generally smaller than 50 mm.
- Address any acidity problems apply complete NPKS before planting, plus top up fertiliser after germination.
- Monitor for pests and take action if problems occur.
- Introduce stock slowly to enable the rumen to adapt.
- Good seed soil contact a must.

top crop forage blends

Cultivar Best Bets

Seed mix	**Sowing rate kg/ha**	**Sowing depth CM (must roll)**	**Net energy Yield/Ha**	**Estimated Returns $/ha After cost**
Turnip - Civasto or Barkant	1.5 to 2.5	.5cm or broadcast harrow	91,000	$1,642
Chicory - Chico	8 to 10	.5cm or broadcast harrow	114,000	$1,826
Top Crop (Brassica, Herb & Millet)	16	Broadcast harrow and roll	81,000	$1,423
Sorghum - Beta graze	20 to 25	5cm	76,000	$1,142
Maize 38F70 & 36Y84 - Quick CRM	80,000 - 100,000 seeds /ha	5cm	121,000	$1,296

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Pasture Pugging Recovery

Despite the best efforts of many farmers, with the high rainfall over the summer and autumn periods soils have become saturated this has led to severe pasture damage on a large number of farms across many regions.

Recovery will depend on a number of factors when planning what strategies you may wish to take.

How do we assess Pasture Damage?
Do your own classifications, you may need four groups (light, medium. heavy, severe)

- **Light**- May have a number of options, from rolling when soil conditions are drying, this option is generally only available during a small window of time and on flatter type land.
- **Medium**-Rolling or smudging, may look at over sowing if plant density has been affected.
- **Heavy** – This may require pasture Re sowing or a complete renovation using either a crop grown for silage, hay or summer crop
- **Severe** – Often paddocks that may have been sacrificed or severely wet during rotational grazing. Will need to be cropped or could go back to permanent pasture if clean of annual weed or can control spring germinating weeds (eg fat hen, wireweed, stinging nettle, deadly nightshade)

Areas to Target
This is an area that could be debated for ever.

One of the main points is to try and be organized to get the job done at the appropriate time and in an efficient manner, naturally on any farm you target the most damaged areas first generally these could be the Summer Crop targets.

You would expect not to plant any more than 10% to 15% of your farm into summer crops as it can become difficult to feed large amounts of summer crops to the cows, the only exception we would consider is Chicory as this can be a grazing crop for an eighteen month period.

If there is still further Severe or Heavy pugged areas direct drilling is not an option using a power harrow and re sowing to ryegrass in September can be achieved on some farms, your local knowledge needs to be considered.

Following this in many cases the area may be too large to renovate this spring then these areas could be identified for autumn renovation levelling over the late spring and summer period is required and these areas could be used as a sacrifice area.

Key Points

- Prioritising your main targets early if possible.
- Control of weeds and Pests essential both pre and post grazing's.
- Always check plant back periods.
- All re sowing requires appropriate timing.
- Don't take on more than you can manage effectively.
- All re sowing requires good seed soil contact (good tilth.)
- Planting back to perennials in September has proven successful provided good management practices are in place.

Pugged pasture requires agressive smudging or power-harrowing before planting.

Surge ryegrass showing quick establishment last spring after soils had been pugged.

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