A GUIDE TO GROWING SUCCESSFUL FODDER BEET CROPS
GOOD WEED AND PEST CONTROL IS ESSENTIAL

When planning your fodder beet crop, consider soil chemical residues, seedbed preparation and a thorough weed and pest control regime, so the full yield potential of your crop can be achieved.

The team here at Nufarm, leaders in crop protection, have put together this easy to follow guide, outlining key best-practice steps for weed and insect pest control.
PRE-START CHECK
Check the spray history of the paddock

Fodder beet crops are very sensitive to many herbicides that have soil residual activity. As a result, the spray history of the area to be planted in fodder beet needs to be taken into consideration long before the first seed is sown. Fodder beet plant back periods are:

> 2 years – picloram, aminopyralid, chlorsulfuron, metsulfuron-methyl.
> 1 year – trifluralin, atrazine, terbuthylazine, simazine.
> 6 months – triclopyr, tribenuron-methyl, thifensulfuron-methyl.
> 3 months – MCPA, MCPB, 2,4-D, mecoprop, flumetsulam.
> 6-8 weeks – dicamba.
> Nil – carfentrazone-ethyl, clopyralid.

Note – these are a **guide only** and may vary depending on climatic conditions, soil type, soil pH and other factors. If in doubt, sow a small area first to check soil residues. These are based on current best information available.
STEP 1
THOROUGHLY SPRAY OUT TO GIVE YOUR CROP THE BEST START

Taking steps to obtain a thorough spray out result can greatly improve the cultivated seedbed and early establishment of the fodder beet crop. Using the right rate of WeedMaster® TS540, Pulse® Penetrant and companion herbicides where required will ensure the crop will get off to a great start.

Where hard to control perennial weeds are a problem (especially couch, mercer grass, paspalum, kikuyu, Californian thistle and browntop) spray with WeedMaster TS540 in autumn, then sow an annual crop (ryegrass or cereal) for some high quality grazing silage – however keep in mind the use of actives with soil residual activity mentioned in the pre start check section.

Alternatively, consider a double spray out programme (this is recommended to maximise the effectiveness of the spray out and the subsequent kill of prior crop and weeds). Spray the existing crop/pasture and leave fallow before applying a second application of WeedMaster TS540 with Pulse Penetrant and cultivating.
APPLICATION RATES FOR WEEDMASTER TS540
(See label for more weeds)

<table>
<thead>
<tr>
<th>Weed Type</th>
<th>Application Rate</th>
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<tbody>
<tr>
<td>Annual ryegrass, cereals</td>
<td>2.0-2.7L/ha</td>
</tr>
<tr>
<td>Browntop, kikuyu, mercer grass</td>
<td>4.0L/ha</td>
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<tr>
<td>Couch, paspalum</td>
<td>2.0-4.0L/ha</td>
</tr>
<tr>
<td>Perennial ryegrass, Californian thistles</td>
<td>2.7L/ha</td>
</tr>
<tr>
<td>Red fescue</td>
<td>6.0L/ha</td>
</tr>
</tbody>
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TIPS TO MAXIMISE WEEDMASTER PERFORMANCE

For maximum absorption, you need at least 5-10cm of actively growing leaf (minimum 10-15cm if couch is present). Preferably spray first then graze or cut for silage later.

Add Pulse Penetrant at 100ml/100L water to:

- Improve penetration and uptake of WeedMaster TS540
- Ensure control of perennial ryegrass
- Aid rainfastness of WeedMaster TS540 – 20 minutes vs. 2 hours without Pulse Penetrant
HARD TO KILL WEEDS

If necessary, add companion herbicides to control weeds that are not well controlled by WeedMaster TS540 and Pulse Penetrant alone.

Add Nail® EC to improve speed of brownout, and control of mallows, nettles and polygonum spp. Use at 50-100ml/ha.

Add Archer® to improve control of clovers, plantain, thistles and yarrow. Use at 0.5-2.0L/ha depending on the weed species present.

Archer and Nail have nil grazing and plant-back periods for fodder beet, however, for best results, delay both for three days to allow WeedMaster to be effective.

Where established docks are a problem, using WeedMaster TS540 at 6.0L/ha will greatly improve control and allow for less regrowth from subsequent crops.

PRE-PLANT INSECT CONTROL

Springtails

Springtails can be a hugely damaging pest at crop emergence, with numbers present in pasture often 30,000/m² or more, so early control measures should always be applied.

Add Dew™ 600 at 400ml/ha at spray-out to control springtails. Dew 600 has a nil stock withholding period. Where a double WeedMaster TS540 spray programme is used, add Dew 600 to the second application.
Slugs feed on seeds and germinating or emerged fodder beet seedlings, severely reducing establishment.

**SlugOut**®’s unique dust-free granules give excellent coverage per square metre, ensuring effective control of crop-destroying slugs. Broadcast **SlugOut** at 10-15kg/ha either in a single application at planting, or in a split application, half (5-7.5kg/ha) applied around a week prior to planting, the other half at planting.
STEP 2
PRE-EMERGENCE WEED CONTROL

The use of pre-emergence herbicides plays a vital role in fodder beet crops. They eliminate weed competition in the critical early stages of growth, allowing seedlings to get off to the right start. They can also improve the efficacy and allow more flexibility in timing of post emergence applications.

Director™ CS

Director CS is taken up by the emerging shoots and roots of weeds controlling a range of broadleaf and some grass weeds – including shepherd’s purse, wireweed, chickweed and cleavers. Director CS is a 360g/L clomazone formulation as a robust capsule suspension, offering greatly reduced volatility and potential for off target crop damage.

APPLICATION RATE FOR DIRECTOR CS

Apply Director CS at 150-200ml/ha after sowing but before crop emergence.
**Metamitron 700g/L SC**

Metamitron can be added to pre-emergence spray applications to improve the control of certain weeds, particularly wireweed. It can be used as a flexible option that can be added to tank mixes to improve the weed spectrum controlled in both pre and post crop emergence applications.

The label rate for metamitron 700g/L SC is 6.0L/ha, however when used in pre-emergence applications in tank mixes with other herbicides, is commonly used at 1.0-1.5L/ha.

**Ethofumesate 500g/L SC**

Ethofumesate formulations play an important role in pre-emergence applications for the control of grass weeds, particularly summer grasses. Where a high grass weed presence is expected, add to pre-emergence applications at 2L/ha.
STEP 3
POST EMERGENCE WEED CONTROL

Fodder beet crops are especially susceptible to competition from weeds in the early post emergence period. Herbicides used in this phase need to be applied when the weeds are small (cotyledon to 2 true leaf stage) to be fully effective. As a result, crops need to be monitored at least weekly for the first 5-6 weeks for flushes of weeds as they emerge.

The most effective post emergence weed control in fodder beet comes from a programmed approach, where products are applied multiple times based on the development of the crop and weed growth. The products used for these applications have both contact and residual activity, controlling weeds both pre and post plant emergence.

The first spray is typically applied when the fodder beet seedlings are at the expanded cotyledon stage (first true leaf no longer than about 5mm).

The second application is typically applied 1-2 weeks after the first spray, where the fodder beet should be around the second true leaf stage. It is likely that a third post emergence herbicide will
If weeds are not controlled well they can cause significant yield loss

Expanded cotyledon stage
be required depending on weed germination. The time periods between applications and products used can vary depending on crop/weed development, with timing of applications better applied according to weed emergence than crop development.

**Betasana Trio®**

**Betasana Trio** is a selective post emergence herbicide combining three complimentary active ingredients for controlling a range of weeds in fodder and sugar beet. The combination of ethofumesate, phenmedipham and desmedipham in **Betasana Trio** allows for superior crop safety due to the Structure Surfactant Formulation™ (SSF) technology present. This applies at all stages of growth whilst still maintaining outstanding levels of efficacy. This allows **Betasana Trio** to be flexible in its application where spray mixes can be tailored to target specific weeds and widen the already impressive weed spectrum controlled.

**APPLICATION RATES AND TIMING FOR BETASANA TRIO**

Make the first application at 2L/ha when the majority of the crop has reached the expanded cotyledon stage.

For subsequent applications as weeds germinate, use 2.5L/ha (to a maximum of 7L/ha per year total).

**Metamitron 700g/L**

Metamitron can be added to post emergence applications to widen the weed spectrum controlled, and improve control of problematic weeds such as wireweed.
The label rate for metamitron 700g/L SC is 6.0L/ha when applied alone but for most post emergence applications when used in a mixture with Betasana Trio, metamitron 700g/L formulations at 1-1.5L/ha will give good weed control to seedling weeds.

**Archer**

Where problem weeds such as thistles or yarrow are encountered, Archer can be used either alone or tank mixed with Betasana Trio and/or metamitron 700g/L in post emergence applications. Apply at 0.5-1.0L/ha, after the crop has reached the 2 true leaf stage, but prior to bulbous root formation.

**Grass weeds**

No selective grass weed herbicides are currently registered for use in fodder beet, however some active ingredients have been used widely, with little crop injury occurring.

**Tank mixing products**

Care needs to be taken when mixing fodder beet herbicides and insecticides as crop injury can increase, especially where oils or adjuvants are added to spray mixes. For specific advice on safe products to mix, refer to the label or contact your local Nufarm representative.
PROTECT AND MAXIMISE

FODDER BEET PROTECTION

Pre-plant spray out
Pre-emergence
Fully expanded cotyledon stage
2 true leaf stage

WeedMaster 10540 mixed with
Pulse Penetrant
Ethofumesate

Archer

metamitron 700g/L

HERBICIDE OPTIONS

Dew 600
for springtail control

SlugOut
YOUR CROP WITH NUFARM

FIRST PLAN

4 true leaf stage
6-8 true leaf stage (pre-bulb formation)
10+ leaf stage

BETASANA TRIO

INSECTICIDE OPTIONS
STEP 4

WATCH FOR PESTS DURING CROP ESTABLISHMENT

Fodder beet is vulnerable to damage from a range of insect pests, including slugs, springtails, Nysius (wheat bug), Argentine stem weevil, leaf miner and aphids. This is especially during the early post emergence period where severe damage to seedlings can occur in an extremely short period of time.

As a result, crops need to be monitored regularly for any insect damage during the critical first 5-6 weeks of crop growth. As fodder beet is precision planted, loss of any plants through the early establishment period due to pests such as springtails and Nysius can greatly reduce yields – so the addition of an insecticide is cheap insurance.
Slugs

Slugs tend to be less of a problem in fodder beet crops where a thorough sprayout and cultivation programme has been carried out. However, in situations where large amounts of surface trash/clods are present, they can be severely damaging. SlugOut at 10-15kg/ha will offer fast control of slugs where damage is noted.

Springtails

Springtail attacks begin as seedlings start to emerge. Feeding can sever the stem, destroy the growing point, or totally defoliate seedlings. Tank-mixing Dew 600 with WeedMaster TS540 at spray out should always be the first option for springtail control. Where springtails become a problem after seedling emergence, use Attack® at 100-200ml/ha at the first sign of damage.

Nysius

Nysius is a hugely damaging pest in fodder beet, feeding at the base of plant stems causing a ‘ring barking effect’. These can kill young seedlings or lead to brittle stems that can break in windy conditions. Apply Attack at 0.5-1.0L/ha at the first sign of damage.

Argentine stem weevil

Argentine stem weevil larvae and adults feed by tunnelling into leaf stems and growing points of new seedlings. This damage severely restricts seedling development and growth, causing stunting and plant death. Use Attack at 0.5-1.0L/ha at the first sign of damage.
Leaf miner

Leaf miner larvae live and feed within the leaf and leaf veins creating whitish tunnels within the leaf. Damage caused by tunnelling reduces photosynthetic activity and premature leaf death, reducing fodder beet yields. **Attack**’s translaminar activity gives excellent control of leaf miner when used at rates of 0.5-1.0L/ha.

Aphids

Aphids are not hugely damaging to fodder beet as such, however they can be vectors for viruses that affect plant growth. **Attack** offers control when used at 0.5-1.0L/ha.

FINALLY
RELAX AND REAP THE REWARDS!

Priority Partnership® is an exclusive rewards programme designed to reward customers of Nufarm NZ for their support. Members are entitled to exclusive benefits including earning points on their purchases, which can be redeemed from a selection of over 2500 rewards online.

You can collect Priority Partnership points on all of Nufarm’s products. For more information on the Priority Partnership rewards programme and how to become a member, visit [www.prioritypartnership.co.nz](http://www.prioritypartnership.co.nz)
## WORKING OUT WHAT YOU NEED

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<thead>
<tr>
<th></th>
<th>APPLICATION RATE PER HA*</th>
<th>TOTAL HA’S TREATED</th>
<th>AMOUNT REQUIRED</th>
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<tr>
<td><strong>Spray Out</strong></td>
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<tr>
<td>WeedMaster TS540</td>
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<td>Pulse Penetrant</td>
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<td>Nail EC</td>
<td>50-100ml/ha</td>
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<tr>
<td>Archer</td>
<td>0.5-1L/ha</td>
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<td>Dew 600</td>
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<td>SlugOut</td>
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<td>Director CS</td>
<td>150-200 ml/ha</td>
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<td>metamitron 700g/L</td>
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<tr>
<td>2 true leaf application</td>
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<td>Slugs</td>
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<td>SlugOut</td>
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<tr>
<td>Springtails</td>
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<tr>
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<td>Attack</td>
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<td>Nysius, Argentine stem weevil, leaf miner, aphids</td>
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<td>Attack</td>
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<tr>
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