



Maximising your Maize crop yield





6 simple steps to successful maize production

So you've invested in top quality treated seed and you are determined to give your maize crop every chance of being a winner.

Most likely to stand between you and success (apart from the weather) are weeds and pests. Hybrid maize varieties, while endowed with very high yield potential, are inherently poor competitors with weeds or pests.

Good weed and pest control is essential in maize.

- It eliminates competition for light, nutrients and moisture.
- It protects the palatability and nutritional potential of your crop.
- Eliminates pests like slugs, army worm and cutworm which ensures maximum plant establishment.

STEP 1

Start early where perennial weeds are a problem

In autumn select the paddock early and control hard to kill perennial weeds (especially couch, Mercer grass, paspalum, Kikuyu, Californian thistle, browntop, etc) with CRUCIAL™. Spray in autumn to maximise translocation and effectiveness, then sow an annual crop (ryegrass or cereal) for some high quality grazing or silage.



STEP 2

A pre-plant clean-up saves time

In spring, before establishing the crop, spray with CRUCIAL to kill the existing vegetation. This clean-up provides the following benefits:

- Controls perennial weeds to minimise competition in the maize crop.
- Reduces the tillage required to produce an excellent seedbed, saving time and money, because plant root breakdown has already been achieved by CRUCIAL.
- Keeps the paddock in production longer beforehand, because an extensive cultivation or fallow period is not required for the new crop.
- Weather is less likely to delay planting, since you are not relying on so many suitable days for cultivation.



Treated pre-cultivation



Untreated pre-cultivation

Application rates for CRUCIAL (see label for more weeds)		Pulse Penetrant rates
Annual ryegrass, cereals	1.8–2.4L/ha	100ml/100L water
Browntop, Kikuyu, Mercer grass	3.6L/ha	100ml/100L water
Couch, paspalum	2.4–3.6L/ha	100ml/100L water
Perennial ryegrass, Californian thistles	2.4L/ha	100ml/100L water
Red fescue, docks	5.4L/ha	100ml/100L water

Note: Many old pastures contain hard to kill weeds and will need at least 3.6L/ha CRUCIAL

Tips to maximise CRUCIAL 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 silage later.

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

- Improve penetration and uptake of CRUCIAL.
- Ensure control of perennial ryegrass.
- Aid rainfastness of CRUCIAL – 15 minutes versus two hours without Pulse Penetrant. (Backed by the Nufarm performance guarantee).



If necessary, add another herbicide to control weeds not well controlled by CRUCIAL

- Buttercup, large docks - **Charter® 750WDG 20g/ha**
- Clovers, sheep's sorrel, yarrow - **Sero® 750WG 40g/ha**
- Clover, thistles, plantain, yarrow - **Archer® 750 200–400ml/ha**
- Mallow, nettles, polygonum species - **Nail® 600EC 20–40ml/ha**
- Dandelion, docks, willow weed - **Kamba® 750 400ml/ha**



Observe grazing withholding periods and relevant plant-back intervals.

STEP 3

Pre-emergence weed control is key

Controlling weeds early with a pre-emergence herbicide is CRUCIAL in maximising maize yields. FAR trials show that waiting to control weeds until as little as 4 weeks after emergence can reduce maize yields by at least 10-20% (See Graph 1).

Other risks of relying solely on a post emergence herbicide include:

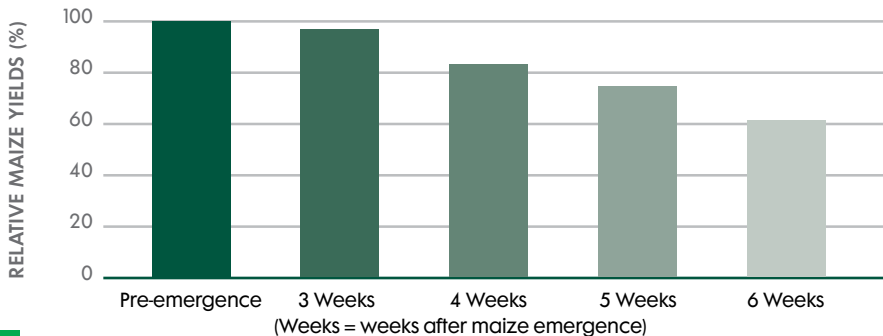
- Larger weeds are typically more difficult to control.
- Delay in application of post emergence herbicides due to weather may result in even further yield losses.
- Post emergence herbicides may only control certain weeds or control only broadleaf weeds and not grass weeds or vice versa.

Weed Competition = Yield Loss



Maize crop 4 weeks after emergence with no pre-emergence weed control

Graph 1: Effect of post emergence herbicide timing on maize yield losses due to weed competition



(Source: Foundation for Arable Research, Maize Arable Update, No.17)

Roustabout® 840

Control annual weeds before they emerge and compete in the crop, by applying Roustabout 840 to the bare soil. Roustabout 840 is a high strength formulation which is applied soon after planting, prior to crop and weed emergence. For best results apply Roustabout 840 within seven days of last cultivation.

- Provides up to 10 weeks pre-emergence weed control, a critical factor for maximum yield.
- Controls a broad spectrum of annual grasses and broadleaf weeds.
- Is effective in a wide range of soils and climates.
- Doesn't rely on incorporation although incorporation may be beneficial where dry conditions are expected to continue.
- For best practice, tank-mix with Nu-Trazine™ 900DF or Flowable Atrazine 500 to enhance broadleaf weed control.

Application rate for Roustabout 840

Use 3L/ha (2.5L/ha – light, sandy soils only).

Refer to product label for specific details on rates, application and timing.



Roustabout contains a safener to minimise damage to the maize during emergence, especially when conditions are less than desirable. This maximises the number of healthy maize plants that establish and grow to maturity.



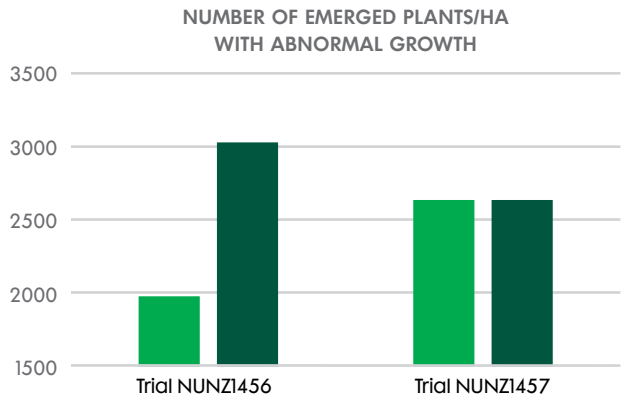
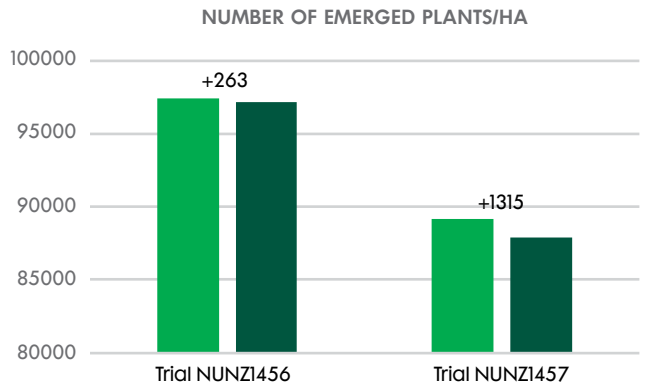
Maize damage - non safened acetochlor

Replicated trials in commercial maize crops

Trial NUNZ1456:
Planted 25 Sept 2014 –
Pioneer P0791

Trial NUNZ1457:
Planted 26 Sept 2014 –
Pioneer P0891

- Roustabout
- Unsafened competitor





**PRIORITY
PARTNERSHIP®**

Need enhanced broadleaf weed control?

To enhance broadleaf weed control pre-emergence, you can select from Nu-Trazine 900DF or Flowable Atrazine, to tank-mix with Roustabout 840, each with their own set of benefits:



No pre-emergence weed control can cause significant yield loss



Roustabout 840 and Atrazine applied soon after planting

Nu-Trazine™ 900DF

If a high infestation of broadleaf weeds (especially willow weed or fathen) is expected, tank-mix Nu-Trazine 900DF with Roustabout 840. Nu-Trazine 900DF offers the following benefits:

- Highly effective for pre- or post emergence broadleaf weed control.
- High strength granular formulation of atrazine, so there's less to handle and its safer to use.
- More compatible with other herbicides.

The ability to tank-mix Nu-Trazine 900DF and Roustabout 840 offers the flexibility to vary the rate of either herbicide according to conditions, which is not possible with ready-mixed products.

Application rate for Nu-Trazine 900DF

For broadleaf weeds in maize and sweetcorn, use 800g–1.6kg. Apply in 200 to 400L water/ha as directed band spray or as an overall spray. Refer to product label for specific details on rates, application and timing.



Flowable Atrazine

- Flowable Atrazine is a highly effective herbicide for pre- or post emergence broadleaf weed control. Weeds controlled include fathen*, black nightshade, willow weed, amaranthus *spp.* and Apple of Peru.
- Should be tank-mixed with Roustabout 840.

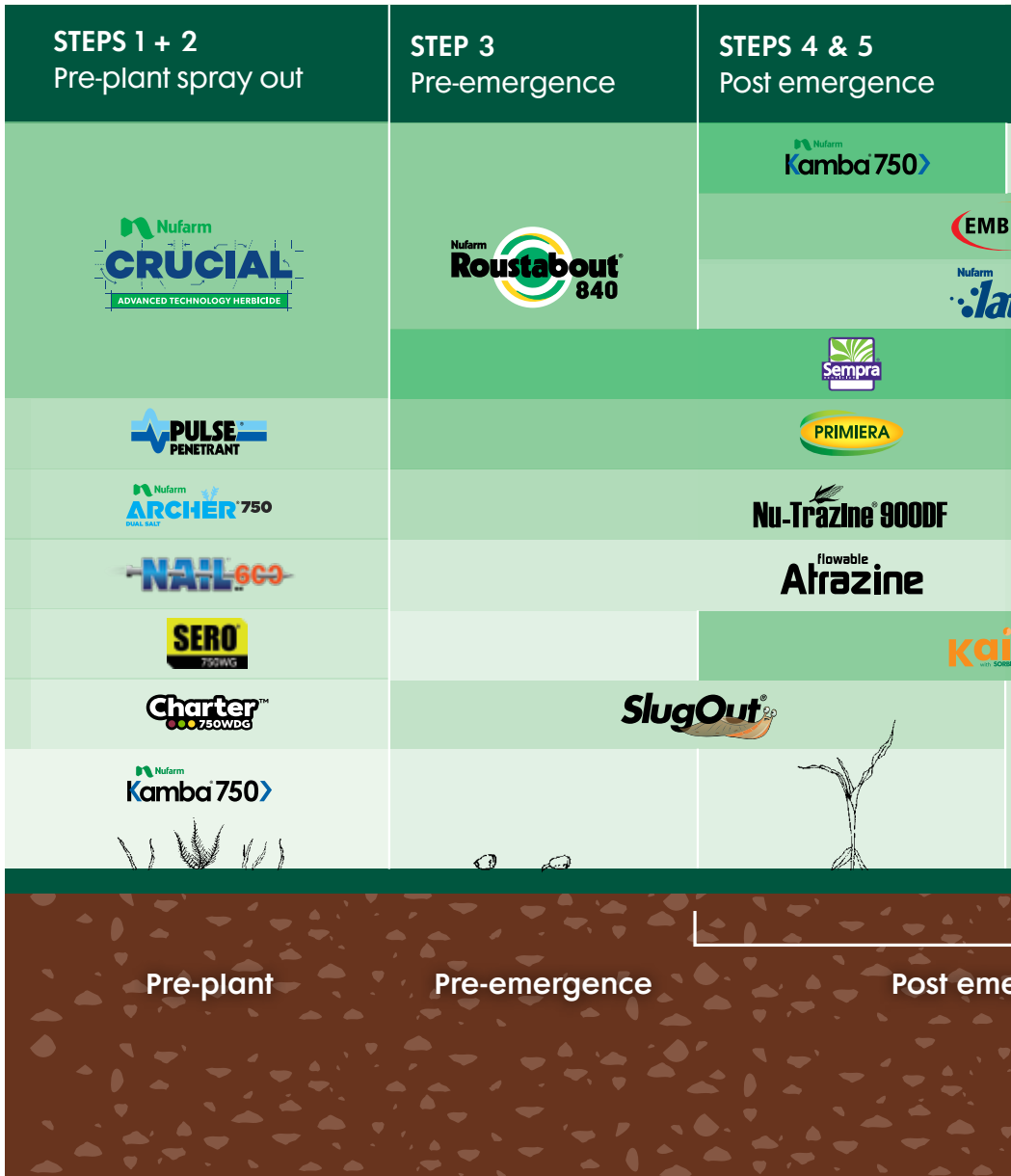
*Excludes triazine-resistant fathen.

Application rate for Flowable Atrazine

For broadleaf weeds in maize and sweetcorn, use 1.5–3.0L in 200 to 400L water/ha as a directed band spray or as an overall spray. Refer to product label for specific details on rates, application and timing.



Protect and maximise your crop with Nufarm



STEP 6 Post harvest clean up

Nufarm
ARCHER 750
DUAL SALT

LEM
Flo

tro
WG

Nufarm
CRUCIAL
ADVANCED TECHNOLOGY HERBICIDE

PULSE
PENETRANT

Nufarm
ARCHER 750
DUAL SALT

NAIL 600

SERO
750WG

Charter
750WDG

50WG
SO
TECHNOLOGY



Emergence

Mature Plant

STEP 4

Post emergence weed control

Trials show pre-emergence weed control in maize out-yields post emergence weed control, due to the removal of weed competition before it starts. Therefore, pre-emergence weed control should remain the foundation of a successful maize weed control programme. However, post emergence herbicides may also be required in a range of situations, and it is important that they are chosen wisely. The weeds present (either broadleaf or grasses) will dictate which post emergence herbicides are the most suitable.

Broadleaf weed control

Where a wide range of broadleaf weeds (e.g. triazine resistant fathen and black nightshade) appear in the established crop apply Kamba® 750, Primera® or Emblem® Flo (either alone or tank-mixed with Nu-Trazine 900DF or Flowable Atrazine). Select the product depending on the target weed species.

Kamba® 750

Kamba 750 is a unique high strength dicamba formulation which controls broadleaf weeds such as Californian thistles, bindweed, fathen and docks.

Application rate for Kamba 750

Apply Kamba 750 at 270–400 ml/ha. Refer to label for specific details on rates, application and timing.



Late germinating fathen unsprayed



Controlled with Kamba 750 post emergence

Primiera®

Primiera is an easy to use, selective post emergence herbicide for weed control in maize with a flexible application period.

- Outstanding broadleaf weed control including triazine resistant fathen.
- Provides suppression of certain annual grasses.
- Soil and foliar activity.
- Excellent crop safety and potential yield gains.

Application rate for Primiera

Apply Primiera at 150–200ml/ha + Bonza at 500ml –1L/100L. Can be tank-mixed with Nu-Trazine 900DF or Flowable Atrazine 500 to increase the broadleaf weed spectrum. Tank-mix with Latro® WG if grass weeds are present. Refer to label for specific details on rates, application and timing.



Emblem® Flo

A fast acting liquid contact herbicide with no residual activity, providing excellent control of many seedling broadleaf weeds including triazine or dicamba resistant weeds.

- Controls a wide range of broadleaf weeds.
- Suitable for use in sweetcorn crops (refer to label for specific crop directions).
- Apply early post emergence. Emblem Flo can be tank-mixed with Flowable Atrazine or Nu-Trazine 900DF for increased weed control and residual.

Application rate for Emblem Flo

Apply Emblem Flo at 1L/ha in 200–500L of water/ha. Tank-mix with Latro WG if grass weeds are an issue. Refer to label for specific rates, application and timing.



Got specific broadleaf weed problems?

Archer® 750

- Targets Californian thistles, yarrow, Bathurst bur and volunteer potatoes.
- Apply at 200–400ml/ha after the 3 leaf expanded stage but before crop closure.

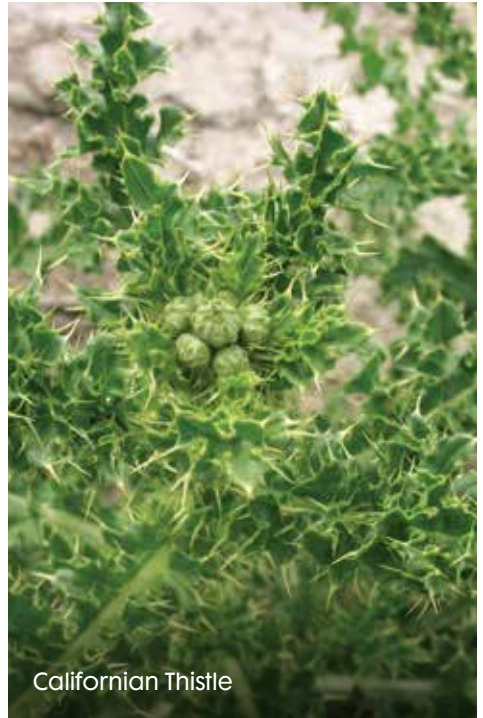


Valdo® 800WG

- Targets buttercups, mallow, mayweed or spurrey.
- Apply at 30–65g/ha when the maize is at the 4th leaf (90mm plant height) stage.
- Can be tank-mixed with Latro® WG where grass weeds are also a problem.



Buttercup



Californian Thistle

Grass Weed Control

Latro WG®

Latro WG is a water dispersible granule that is ideal for post emergence control where perennial grasses are the main target. Latro WG also controls annual grasses and certain broadleaf weeds. Benefits include:

- Controls perennial grass weeds including couch, ryegrass, Mercer grass and Kikuyu.
- Also controls summer grasses, yellow bristle grass and barnyard grass 'escapes'.
- Easy to measure and mix granular formulation.
- Apply at 50–80–110g/ha with the addition of Bonza spray adjuvant at 500ml–1L per 100L of water.



Above: Effect of Latro WG on Couch grass 9 days after treatment.

Nutgrass a problem?

Sempre®

Sempre is a water dispersible granule that is ideal for post emergence control of purple and yellow nutsedge. Benefits include:

- Only available registered product to control purple and yellow nutsedges (nutgrasses) in maize.
- Apply 65–130g/ha + adjuvant (either Bonza at 500ml/100L or Contact Xcel at 150ml/100L) when there is a minimum 10cm of new nutsedge growth and prior to canopy closure of the crop. Use higher rates for dense infestations.
- Can also be tank-mixed with Kamba 750 or Primera for general broadleaf weed control.



Post emergence tank-mix options

Primiera + Latro WG

- Outstanding control of hard to kill broadleaf weeds and annual and perennial grasses.



Untreated

Kamba 750 + Latro WG

- Ideal for populations of both hard to kill broadleaf and grass weeds.
- Do not add Bonza spray adjuvant with this tank mixture as there may be an increased risk of crop injury (Reduced grass weed control may occur).



Kamba/Latro tank-mix

Emblem Flo + Latro WG

- A dicamba free option where combinations of broadleaf and grass weed populations are present.
- Do not add Bonza spray adjuvant with this tank mixture as there may be an increased risk of crop injury.



Emblem/Latro tank-mix



STEP 5

Watch for pests

Check maize crops regularly (every few days) in the first few weeks after emergence for evidence of cutworm.



Cutworm damage in maize crops

Application rate for Kaiso® 50WG

Kaiso 50WG is effective on cutworm at an application rate of 200g/ha.



SlugOut®

SlugOut is highly effective for controlling crop-destroying slugs and snails. SlugOut's unique dust-free granules give excellent coverage per square metre, ensuring effective control of slugs and snails when planting new crops, or as spot treatment on emerged or established crops. Using SlugOut at planting time in no-till or strip-till maize is critical. At the very least, slug populations should be assessed before planting.



Application rate for SlugOut

Broadcast: Use 10–15kg/ha (100–150g/100m²). Preferably band along the maize rows at 10kg/ha when slug damage occurs. Refer to label for specific details on rates, application and timing.



Slug hotel

STEP 6

Post harvest clean up

Don't miss the opportunity for a post harvest clean up. Spray with CRUCIAL, particularly if hard to control perennial weeds are present. This is the essential last step before establishing perennial pasture.



Post harvest use CRUCIAL

Finally

Relax and reap the rewards!

Look forward with confidence that you and Nufarm have given your maize crop the best possible chance of reaching its maximum yield and profitability.

PLUS, you can earn **Priority Partnership®** points on all of Nufarm's maize products. For more information on the Priority Partnership rewards programme, visit www.prioritypartnership.co.nz





**PRIORITY
PARTNERSHIP®**

Powerful rewards for loyalty

Every purchase of Nufarm products earns you valuable rewards points in Priority Partnership®, the loyalty rewards programme for New Zealand growers. Rewards points can be redeemed on a wide range of items for the whole family.

If you are not a member, find out more and join online at prioritypartnership.co.nz or call 0800 508 588.

Working out what you need

	APPLICATION RATE PER HA*	TOTAL HA'S TREATED	AMOUNT REQUIRED
Spray Out			
CRUCIAL	1.8–3.6L/ha		
Pulse Penetrant	100ml/100L of water		
Nail 600EC	20–40ml/ha		
Kamba 750	400ml/ha		
Charter 750WDG	20g/ha		
Archer 750	200–400ml/ha		
Sero 750WG	40g/ha		
Pre-Emergence			
Roustabout 840	3L		
Nu-Trazine 900DF	800g–1.6kg		
Flowable Atrazine	1.5–3.0L		
Post Emergence			
Kamba 750	270–400ml		
Primiera	150–200ml		
Emblem Flo	1L		
Latro WG	50–80–110g		
Archer 750	200–400ml/ha		
Valdo 800WG	30–65g		
Sempre	65–130g		
Pest Control			
Kaiso 50WG	200g		
SlugOut	10–15kg		

*Please refer to product labels for specific application rates and use directions.

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