

A FARMERS GUIDE

THE SHARPEST HERBICIDE SOLUTION YET



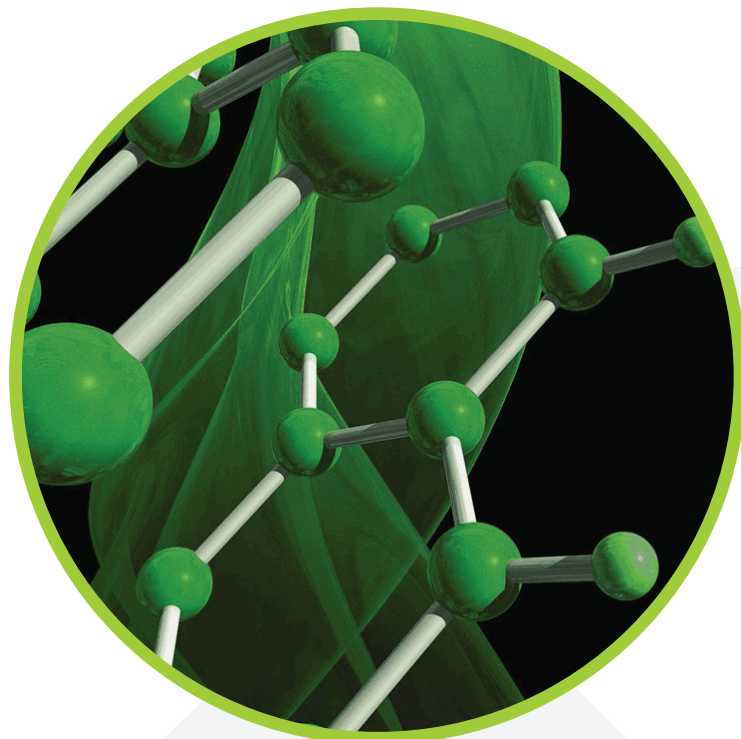
SHARPEN®. The break-through herbicide for faster pasture burndown and longer-lasting weed control in maize crops.

SHARPEN® 
POWERED BY KIXOR® HERBICIDE
Faster. Longer. Broader Control

WHY SHARPEN®?

The most successful herbicide to be launched worldwide in the past 20 years is now available in New Zealand.

SHARPEN® is an extremely powerful yet versatile wettable granule formulation herbicide that can be used in both burn-down and pre-emergence situations. SHARPEN® contains 700 g/kg of a completely new active ingredient known as Kixor®, developed by BASF and launched in various countries around the world over the past 12 months. In the United States alone, over 4,500,000 hectares of land was treated with Kixor® - containing products in its first year of use where the product has revolutionised the maize growing industry.



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SHARPEN[®] KEY BENEFITS

- ✓ Excellent control of major broadleaf (dicot) weeds including triazine resistant biotypes e.g. chickweed, willow weed, nightshade and fathen
- ✓ Broader spectrum and faster burndown in mixture with glyphosate
- ✓ Broadens the spectrum of activity with pre-emergence herbicides in maize
- ✓ Soil residual activity when used pre-emergence in maize
- ✓ Compatible with all formulations of glyphosate providing complimentary activity
- ✓ Mixable with pre-emergence maize grassweed herbicides e.g. acetochlor, S-metolachlor or Frontier[®]-P
- ✓ Utility in multiple crop and non-crop use segments
- ✓ Crop rotational flexibility after burndown - plant ryegrass or cereals after 24 hours
- ✓ Replaces dicamba, 2, 4-D or tribenuron methyl in pasture burndown
- ✓ Replaces atrazine in the maize pre-emergence window
- ✓ Favourable environmental, toxicological and ecotoxicological profile

GENERAL CHARACTERISTICS

Mode of Action

Kixor® is a potent PPO inhibitor, an enzyme necessary for chlorophyll biosynthesis in plants.

Following inhibition of PPO, levels of protoporphyrinogen increase in the cytosol and are converted to protoporphyrin. Upon exposure to light, cytosolic protoporphyrin molecules interact with oxygen to form singlet oxygen, which initiates lipid peroxidation. PPO inhibition results in a rapid loss of membrane integrity (lipid peroxidation), leading to cellular leakage, tissue necrosis and, ultimately, plant death.

Uptake, Translocation and Selectivity

Kixor® is readily absorbed by plant roots, shoots and leaves. Once absorbed, Kixor® is predominantly translocated via the xylem, with relatively little movement in the phloem. Selectivity is conferred by physical placement and more rapid metabolism of Kixor® in tolerant crop species.



WEEDS CONTROLLED

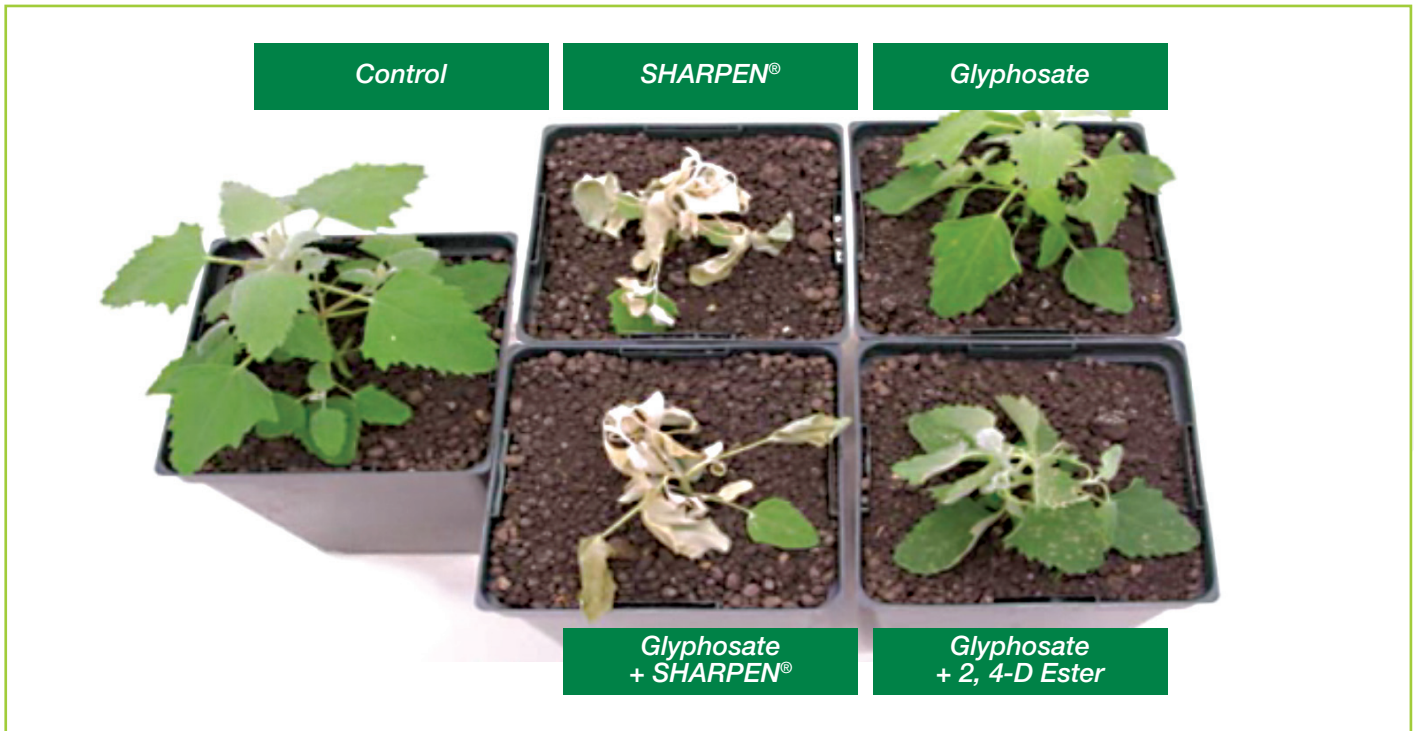
Common Name	Scientific Name
In Maize pre-emergence with 150 g/ha SHARPEN®	
Fathen	Chenopodium album
Black nightshade	Solanum nigrum
Broad-leaved dock (seedling)	Rumex obtusifolius
Willow weed	Polygonum persicaria
Wireweed	Polygonum aviculare
Pink Shamrock (supression)	Oxalis debilis var corymbosa
And grasses as per the partner grassweed herbicide label	

Common Name	Scientific Name
With glyphosate at 25 g/ha SHARPEN® plus Hasten™	
Annual poa	Poa annua
Ryegrass	Lolium perenne, L. multiflorum
Dandelion	Taraxacum officinale
Docks	Rumex spp.
White clover	Trifolium repens
Mallows	Malva parviflora, M. sylvestris
Plantain	Plantago major, P. lanceolata
Tall willow herb	Epilobium spp.
And weeds as per the glyphosate label	

In mixture with glyphosate, SHARPEN® will increase the speed of burndown, particularly on large leaved weeds like Dandelion. SHARPEN® is not antagonistic when used in mixtures with glyphosate thus all the weeds glyphosate normally controls will also be controlled.

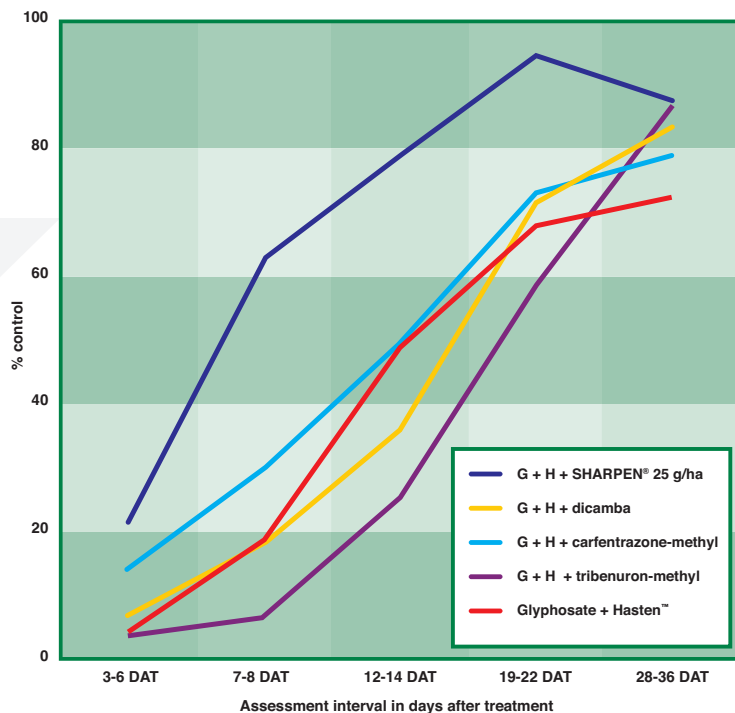
PERFORMANCE

Fathen (*Chenopodium album*) – 20 hours



PERFORMANCE

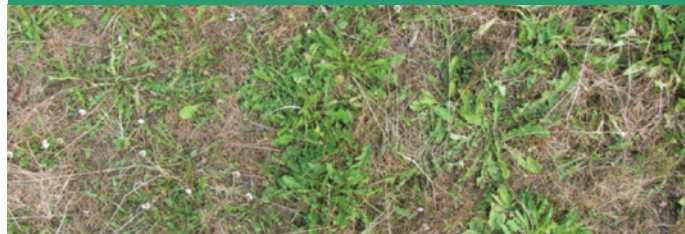
All weeds % control over time, mean of 4 pasture trials in 2008/9



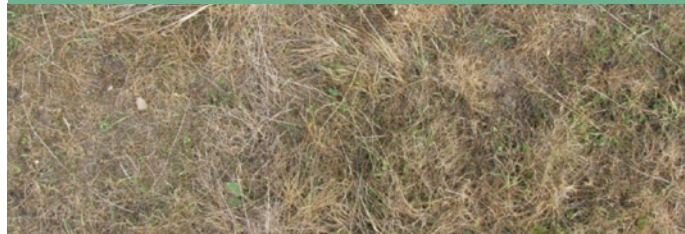
Pasture – Untreated



Pasture – Day 10 Glyphosate + Hasten™ Oil at label rates



Pasture – Day 10 Glyphosate + SHARPEN® + Hasten™ Oil at label rates



PERFORMANCE

Californian Thistle – Day 8 Glyphosate + Hasten™ Oil at label rates



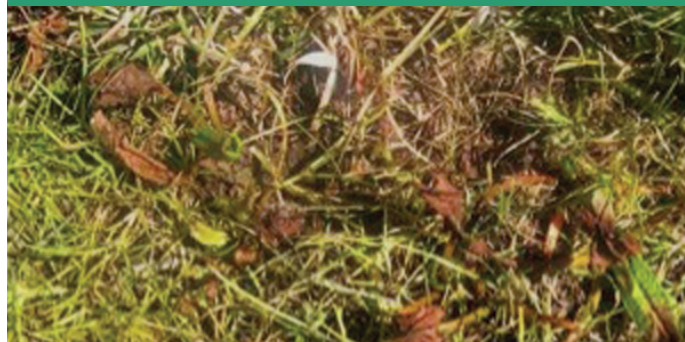
Californian Thistle – Day 8 Glyphosate + SHARPEN® + Hasten™ Oil at label rates



Dock – Untreated



Dock – Day 4 Glyphosate + SHARPEN® + Hasten™ Oil at label rates



12 WEEKS AFTER PRE-EMERGENCE TREATMENT IN MAIZE

Maize growers residual plus SHARPEN® at 12 weeks

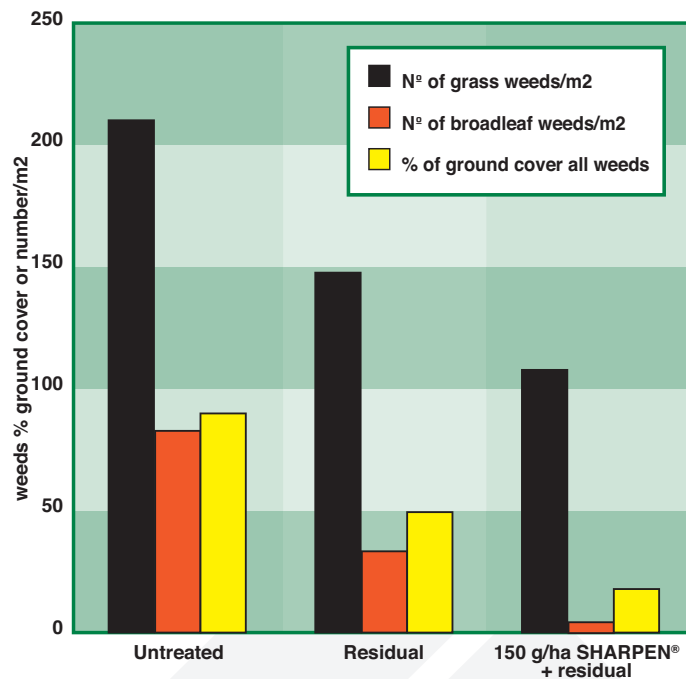


Maize growers residual without SHARPEN® at 12 weeks



Weed control in Waikato maize

SHARPEN® weed control (mean of 5 trials)



USING SHARPEN®

Crop	Rate	Remarks
Pre-plant burn down in seed bed preparation and conservation tillage or pasture renovation	25 g/ha	Apply as a pre-plant burn down prior to sowing new crop or pasture. Always apply SHARPEN® in mixture with an approved glyphosate formulation at the manufacturer's recommended rates. Use no more than 2 times prior to planting, ensuring at least 21 days between applications. Refer to the Crop Plant Back & Rotational Recommendations table for crop specific recommendations. Always use with a suitable adjuvant e.g. Hasten™.
Maize	150 g/ha	Apply once to maize crops as a pre-emergence treatment as soon as practical after planting and before the crop or weeds emerge. Always apply SHARPEN® in mixture with acetochlor, S-metolachlor or Frontier®-P at the manufacturer's recommended rates.
General weed control in industrial and non-agricultural areas e.g. wasteland, yards and fence lines	25 g/ha	Always apply SHARPEN® in mixture with an approved glyphosate formulation at the manufacturer's recommended rates. Always use with a suitable adjuvant e.g. Hasten™. Knapsack rate: 1 g/20 litres of water.
Apple and pear orchards	25 g/ha	Apply under trees that have mature (lignified) bark. Always apply SHARPEN® in mixture with an approved glyphosate formulation at the manufacturer's recommended rates. Use no more than 3 times per season under trees, ensuring at least 21 days between applications. Follow precautions for drift on the glyphosate label. Avoid contact to foliage and other green plant tissue. Do NOT use under any other perennial tree or vine crop. Always use with suitable adjuvant e.g. Hasten™.

FACT SHEET

Active Ingredient: 700 g/kg Saflufenacil (Kixor®).

Formulation: Wettable granule.

Adjuvants: Use Hasten™ in burndown situations. No adjuvant is required for pre-emergence use in maize.

Compatibility: SHARPEN® is compatible with all glyphosate, S-metolachlor and acetochlor formulations, as well as Frontier®-P and most other commonly used herbicides, insecticides and adjuvants.

Rainfast: SHARPEN® is rainfast once dried on the crop or soil. In burndown situations do not apply if rainfall is expected within 1 hour of application.

Tank Cleaning: Ensure the spray tank is clean and flushed with water after use.

Plantback: Refer to label for specific recommendations based on pasture canopy density. No plantback restrictions following use in maize.

Water Rate: 100 litre/ha or greater, ensuring good coverage of target weeds.

In Crop Uses: Apples, pears and pre-emergence maize.

Mode of Action: SHARPEN® is a GROUP E Herbicide, a PPO (protoporphyrinogen IX- oxidase) inhibitor. Visible symptoms are consistent with bleaching.

Crop Stage: Apples and pears: mature plants.
Maize: pre-emergence, as soon as practical after planting.
All other uses: when weeds are actively growing.

Use Rate: Maize 150 g/ha SHARPEN®.
All other uses 25 g/ha SHARPEN®.

Speed of Activity: Symptoms are apparent 24 hours after application under ideal conditions.

SHARPEN® is available from selected rural merchants.

For more information contact your local field representative or BASF rural supply specialist.

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The Chemical Company