

Magister[®]

HERBICIDE

Tech Note

Product Overview

Magister[®] is an important and versatile herbicide for control of barnyard grass, the major grass weed in rice. Magister also suppresses silvertop grass which is less common.

How Does Magister Work?

Magister is a short residual herbicide that causes bleaching or whitening of the foliage of susceptible plants.

Clomazone, the active constituent in Magister, is a systemic herbicide taken up through the roots and emerging shoots of grass weeds and then translocated upwards. Weeds will emerge but the leaves of affected plants turn white and the plants will eventually die, usually under the water.

Clomazone is less effective when applied to the foliage but can cause bleaching of emerged crop. Clomazone inhibits the carotenoid biosynthesis pathway and is classified as a Group Q (previously F) herbicide.

Magister Use in Rice

Suitable for use in drill, sod sown, dry broadcast and aerial sown rice, Magister has very flexible application routes, depending on when permanent water is established. Magister is highly compatible with the major herbicides used in rice, either as tank mixes or in sequence.

In drill sown rice prior to the application of permanent water where barnyard and silvertop grass have already germinated, Magister must always be applied as a broadcast spray with the appropriate knockdown herbicide, either paraquat or glyphosate, depending on whether rice has also germinated or not. A clean seedbed is preferred to minimise vegetative tie-up of clomazone.

Magister can also be applied as a drip at inundation in drill, dry sown or aerial sown rice.

Magister is very effective when applied to permanent water, the main rice production system.

Magister can be used in a sequence where a second effective herbicide application of Saturn[®] or Ordram[®] should follow the initial primer treatment of a lower rate of Magister tank mixed with Taipan[®].

Alternatively, higher label rates of Magister can be applied where barnyard grass is present up to the four-leaf stage. Magister must only be applied through a Bickley boom when applied by air into permanent water. Magister can be applied up to the four-leaf stage in rice.

Optimise Performance of Magister in Aerial Sown Rice

Apply Magister at or soon after permanent water to get the best control of barnyard grass and maximum suppression of silvertop grass. Bleaching effects on rice are less likely if applied before or shortly after rice is sown.

Apply Magister at the lower rates of 250 – 300 mL/ha in a tank mix with Taipan. Grass control is often enhanced and the two most significant rice weeds, barnyard grass and dirty dora are concurrently controlled. This mix is preferable where cold water temperatures are expected.

Aerial application of Magister should be made through a Bickley boom. Magister does not need to be applied to the ends or sides of bays, as it is highly water soluble and will distribute readily throughout the water mass.

Maintain adequate permanent water levels to limit subsequent germinations of barnyard grass.

Magister is less volatile than molinate and has longer persistence in permanent water to continue to provide control of later germinating barnyard grass.

Crop Safety

In some cases of Magister application, low levels of phytotoxicity in the form of bleaching may become evident during the early growth stages of the crop. The bleaching effect is usually transient and recovery can be expected within two to three weeks. The bleaching of the leaves will not adversely affect crop yield.



Plant Stress

In severe cases of phytotoxicity symptoms may include leaf burn, leaf necrosis, plant lodging or even partial crop loss. Severe phytotoxicity is usually associated with the rice crop being under stress from agronomic factors such as:

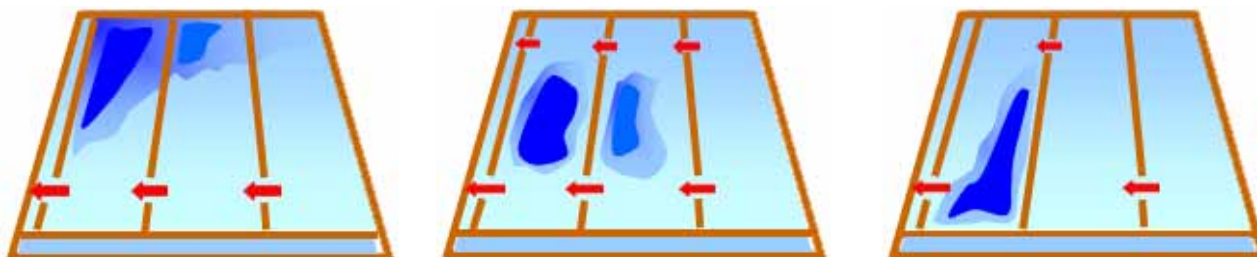
- unseasonably cold water – caused by the local climatic conditions and/or turbid water
- deep water
- elevated salt levels in water
- mechanical stress caused by waves and high wind.

Organic Matter

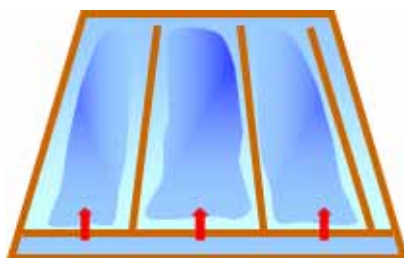
Once applied into water, the amount of freely available Magister to be absorbed by plants (weeds and crop) is directly related to the amount of organic matter in the soil and water. Therefore, the higher the amount of organic matter in the soil, the less amount of Magister will be available to the living plants. There may be an increased chance of crop bleaching in paddocks that have been newly laser levelled with deep cuts. In this situation, consider using the lowest rate of Magister.

Irrigation Water Movement

Evapotranspiration causes accumulation of salts and other dissolved matter in the irrigation water. Therefore, the level of Magister can increase in a terraced bay system where the water is moved from one bay to the next (bay to bay). The method by which the irrigation water is introduced and circulated between the bays has a major impact in reducing the accumulation of both salt and herbicide in dead ends and bottom bays. To avoid accumulation of salts and herbicide, design the field to supply water to each bay independently from the supply channel.



Above: Illustration of 'bay-to-bay' water movement with dark blue indicating areas accumulation of dissolved salts and herbicide.



Left: Illustration of bays being filled independently from the supply channel eliminating accumulation of dissolved salts and herbicide.

Precautionary Summary

- To avoid bleaching and crop damage, don't apply Magister to crops that are stressed or potentially facing stressful conditions.
- If rice is bleached or stressed, do not apply sequential applications of Magister or other herbicides.
- Avoid creating plant stress by minimising turbidity in water.
- Discuss varietal sensitivities of Magister with your district agronomist, avoiding varieties that are highly sensitive (e.g. Illabong).
- Where feasible, design fields so that fresh water is being introduced independently of one another to avoid accumulation of Magister and salts in dead ends and bottom bays.
- To reduce bleaching effects, rapidly flush bays with fresh water, ensuring that water withholding periods are withheld.
- The highest concentration of Magister is present immediately after application. Low water levels in the days after application could increase concentration of Magister in the water profile which could increase phytotoxicity and bleaching of the rice crop.
- Exposing soil after Magister application and permanent water could increase phytotoxicity and decrease herbicidal activity on weeds.

© Magister is a registered trademark of FMC Corporation. Taipan is a registered trademark of Otsuka AgriTechno Co., Ltd. Saturn is a registered trademark of Kumiai Chemical Industry Co Limited. Ordram is a registered trademark of Syngenta Crop Protection.

This publication is a guide only and no substitute for professional advice. Always read the label before use. FMC Crop Protection Pty Ltd bears no responsibility for the information contained within this publication. Product labels are available at fmc.crop.com.au © Copyright 2013 FMC Crop Protection Pty Ltd ACN 48 159 288 123