

## TECHNOTE

# DIRECTOR<sup>®</sup> 480EC - ALTERNATIVE CROPS

**Nufarm Director 480EC is registered for use in a wide range of horticulture crops, including cucumber, pumpkins, Kabocha squash, rockmelons, watermelon, zucchini, green beans (French beans) and navy beans.**

Applied post plant pre-emergent before weeds emerge, Director 480EC provides robust control of annual weeds including:

- Apple of Peru (*Nicandra physalodes*)
- Blackberry nightshade (*Solanum nigrum*)
- Fat hen (*Chenopodium album*)
- Pig weed (*Portulaca oleracea*)
- Potato weed (*Galinsoga parviflora*)
- Amaranth (*Amaranthus powellii*) (Suppression only)

Some cucurbit varieties may show differing levels of tolerance to Director 480EC. Nufarm therefore recommends the use of lower rates in combination with other post plant pre-emergent herbicides such as Frontier to broaden weed spectrum.

### MODE OF ACTION

Plant uptake of Director 480EC occurs through both the roots and the foliage. The movement of the active constituent clomazone within the plant occurs upward and outwards to the leaf. Clomazone is not downward systemic, nor translocated from leaf to leaf.

### SYMPTOMS

Clomazone inhibits the biosynthesis of photosynthetic pigments of both chlorophyll and carotenoids. Accordingly the foliage of susceptible plants show signs of chlorosis (whitening or bleaching), followed by necrosis (browning).

From a resistance management perspective, Director 480EC is a Group Q herbicide.

### CUCURBITS, BEANS AND POTATOES

In some situations higher use rates, sandy soils, soils of low organic matter, or soils of low pH may cause an increase in the activity of Director 480EC and crop damage may occur.

Do not apply Director 480EC on to soils with both organic carbon content less than 2% and clay content less than 15% - refer Table 2 on page 2.

Some crop varieties may show differing levels of tolerance to Director 480EC. It is recommended to test on a small area to ensure tolerance is acceptable before adoption on a wider scale.

### KEY POINTS

- Apply to dry soils in 150-400L water per hectare.
- Use coarse nozzles with pressure not exceeding 35PSI/250kPa (2.5 bar) with boom height no higher than 60cm above the target- apply only with calibrated equipment.
- DO NOT apply to wet soils or wet plants.
- DO NOT apply to soil intended for seedling transplants.
- The soil surface should be free of large clods of soil that might protect weed seedlings during emergence.
- Best weed control is achieved when overhead irrigation is used to grow the crop.
- Director 480EC should not be mechanically incorporated into the soil as unacceptable crop injury and variable weed control may occur.
- All emerged weeds should be controlled by a tank-mixing a non-selective, non-persistent herbicide such as Shirquat, or by tillage prior to the application of Director 480EC.
- Avoid drift onto sensitive plants (ie. some species of trees, shrubs, ornamentals, agronomic crops, vines and fruits and vegetables)
- DO NOT apply in wind gusts over 12km/hr or when weather conditions favour the formation of inversion layers
- DO NOT apply to soils with both organic carbon content less than 2% and clay content less than 15%

## HOW TO USE TABLES

1. Select rate, or rate range, for use in your crop from **Table 1**.
2. Check crop tolerance using crop tolerance soil type (**Table 2**) of the soil that your crop is to be grown in, to determine maximum crop tolerance range. Crop damage may occur if using rates higher than shown in **Table 2**.

Note: Use lower rate (500mL/ha) in combination with other post plant pre emergent herbicides to broaden weed spectrum.

**TABLE 1 - RATE**

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Cucumber Pumpkins Kabocha squash Rockmelons Watermelon Zucchini	Apple of Peru ( <i>Nicandra physalodes</i> ) Blackberry nightshade ( <i>Solanum nigrum</i> ) Fat hen ( <i>Chenopodium album</i> ) Pig weed ( <i>Portulaca oleracea</i> ) Potato weed ( <i>Galinsoga parviflora</i> ) Amaranth ( <i>Amaranthus powellii</i> ) (Suppression only)	0.5 – 1L/ha	DO NOT apply to soil intended for cucurbit seedling transplants. Watermelons are sensitive to DIRECTOR 480EC. Only the minimum suggested rates should be used. Apply post plant pre-emergence before weeds emerge. Some cucurbit varieties may show differing levels of tolerance to DIRECTOR 480EC. See section on SYMPTOMS. Use lower rates in combination with other post plant pre-emergent herbicides to broaden weed spectrum.
Green beans (French beans) Navy beans		0.5 – 1L/ha	Apply post plant pre-emergent before weeds emerge. DIRECTOR 480EC can be used in tank mix with other post plant pre-emergent herbicides. Use lower rates in combination with other post plant pre-emergent herbicides to broaden weeds spectrum.

**TABLE 2 : CROP TOLERANCE CALCULATOR**

**Table 2** is a crop tolerance calculator for use with all crops with the exception of poppies and tobacco which have a higher crop tolerance to clomazone at label rates.

SOIL TEXTURE	CLAY CONTENT	ORGANIC CARBON CONTENT			
		<1%	1 - <2%	2 – 3%	>3%
Sand, loamy sand, silt	<15%	Only use in poppies and tobacco		500mL	500mL
Loam, sandy loam, silt loam, sandy clay loam	15 – 30%	Only use in poppies and tobacco	500mL	500mL	1L
Sandy clay, clay loam, silt clay loam, silty clay, clay	>30%	500mL	500mL	1L	1L

## WITHHOLDING PERIOD

### HARVEST:

Not required when used as directed.

### GRAZING:

Rice: Do not graze or cut for stock food for 3 months after application.

Other crops: Do not graze or cut for stock food until after harvest.

For more information on Director, contact your local Nufarm Area Sales Manager.

[nufarm.com.au](http://nufarm.com.au)

The information and recommendations set out in this brochure are no substitute for professional or expert advice and are based on tests and data believed to be reliable at the time of publication. Results may vary, as the use and application of the products is beyond our control and may be subject to climatic, geographical or biological variables, and/or developed resistance. To the maximum extent permitted by law, Nufarm Australia Limited disclaims all warranties of any kind, whether express or implied, including but not limited to any warranty that the information is up-to-date, complete, true, legally compliant, accurate, non-misleading or suitable.

© 2017 Nufarm Australia Ltd. All trademarks (®, ™) are owned by Nufarm Australia Ltd or used under license.



Grow a better tomorrow.