

# MANIPULATOR®

MAFF No. 05871

A soluble concentrate plant growth regulator formulation (pH buffered) containing chlormequat (54% w/w, 620 g/litre), metabolic adjuvants and nonyl phenol ethoxylate, for use on spring & winter wheat, spring & winter barley and spring & winter oats

**FOR USE ONLY AS AN AGRICULTURAL PLANT GROWTH REGULATOR**

This product is approved under the Control of Pesticides Regulations 1986

To avoid risks to man and the environment, comply with the instructions for use  
For detailed **instructions for use**, see attached label  
The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work

**HARMFUL** IF SWALLOWED  
**HARMFUL** TO AQUATIC ORGANISMS  
MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT



**HARMFUL**

## SAFETY PRECAUTIONS

### Operator protection

\*Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

\*WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate

\*However, engineering controls may replace personal protective equipment, if a COSHH assessment shows they provide an equal or higher standard of protection

WASH CONCENTRATE from skin or eyes immediately

DO NOT BREATHE SPRAY

WASH HANDS AND EXPOSED SKIN before eating and drinking and after work

WHEN USING DO NOT EAT, DRINK OR SMOKE

IF YOU FEEL UNWELL, seek medical advice immediately (show label where possible)

### Environmental protection

DO NOT CONTAMINATE SURFACE WATERS OR DITCHES with chemical or used container

### Storage and disposal

KEEP IN ORIGINAL CONTAINER tightly closed in a safe place

WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely

\*DO NOT RE-USE CONTAINER for any purpose

KEEP OUT OF REACH OF CHILDREN

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS

## SHAKE WELL BEFORE USE



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**5 litre**

MAB10503

**COMPLIANCE WITH THE FOLLOWING CONDITIONS OF USE AND ALL SAFETY PRECAUTIONS MARKED \* IS A LEGAL REQUIREMENT**

**FOR USE ONLY AS AN AGRICULTURAL PLANT GROWTH REGULATOR**

| <b>Crop</b>  | <b>Maximum individual dose (litres/ha)</b> | <b>Maximum total dose (litres/ha/crop)</b> | <b>Latest time of application</b>  |
|--|--|--|--|
| <b>Winter Wheat</b><br><b>OR</b><br><b>Winter Wheat (Split dose)</b>                       | 1.8<br><b>OR</b><br>1.0                    | 1.8<br><b>OR</b><br>1.8                    | Before flag leaf sheath extending stage (GS 41)<br><br>Before flag leaf sheath extending stage (GS 41)     |
| <b>Spring Wheat</b>  | 0.9  | 0.9  | Before flag leaf sheath extending stage (GS 41)  |
| <b>Winter Barley</b><br><b>OR</b><br><b>Winter Barley (Split Dose)</b>                     | 2.3<br><b>OR</b><br>1.3                    | 2.3<br><b>OR</b><br>2.3                    | Before flag leaf sheath extending stage (GS 41)<br><br>Before flag leaf sheath extending stage (GS 41)     |
| <b>Spring Barley</b>   | 1.25                                       | 1.25                                       | Before four leaves unfolded stage (GS 14)  |
| <b>Oats (Winter or Spring)</b><br><b>OR</b><br><b>Oats (Winter or Spring) (Split dose)</b> | 2.3<br><b>OR</b><br>1.15                   | 2.3<br><b>OR</b><br>2.3                    | No later than third node detectable stage (GS 33)<br><br>No later than third node detectable stage (GS 33) |

**READ ALL SAFETY PRECAUTIONS AND DIRECTIONS FOR USE BEFORE USE.**

# MANIPULATOR<sup>®</sup>

## DIRECTIONS FOR USE

**IMPORTANT:** This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

**'GENERAL COMMENTS'** 'An application of MANIPULATOR can result in yield increase and a reduction in early lodging from a spring application. This control of lodging is more consistent in wheat than in barley'

## TIMING AND RATES OF APPLICATION TO AUTUMN SOWN CROPS OF WHEAT AND BARLEY

### EARLY APPLICATION:

Apply MANIPULATOR during tillering, but not later than the leaf sheath erect stage (when the leaf sheaths on half of the main shoots have reached 5 cm (2 inches) measured from ground level to the base of the uppermost leaf blade) and before the first node is detectable (before GS 31). This is likely to be between mid-February and mid-April. Best results have been obtained from applications made before the end of March *in all autumn sown crops*.

### LATER APPLICATION:

For reduction in lodging, plant height reduction and increase in stem diameter, MANIPULATOR can additionally be applied to wheat at 1.0 litre per hectare and to barley at 1.25 litres per hectare between GS 30 and the end of GS 39. This rate may be increased to 1.8 litres per hectare (wheat) where there is a high risk of lodging.

### SPLIT DOSE ON WINTER WHEAT:

Apply 0.8 to 1.0 litre per hectare of MANIPULATOR at GS 30-32 followed by a further application of 0.8 to 1.0 litre per hectare of MANIPULATOR at up to GS 39 ensuing that no more than 1.8 litres per hectare in total of MANIPULATOR is applied to the crop.

### SPLIT DOSE ON WINTER BARLEY:

Apply 1.3 litres per hectare of MANIPULATOR at GS 30-32 followed by a further application of 1.0 litre per hectare of MANIPULATOR at up to GS 39.

### TANK MIXTURES:

At the later application timing, MANIPULATOR is compatible in the following mixtures, provided that all recommendations of MANIPULATOR and partner products are complied with.

1.0 litre per hectare of MANIPULATOR with 0.25 litres product per hectare of M09985 (2-chloroethylphosphonic acid).

1.0 litre per hectare of MANIPULATOR with 0.2 litres product per hectare of M08801 (trinexapac-ethyl).

1.0 litre per hectare of MANIPULATOR with 0.4 litres product per hectare of M02103 (2-chloroethylphosphonic acid + mepiquat chloride).

## TIMING OF APPLICATION TO SPRING SOWN CROPS OF WHEAT AND BARLEY

### Wheat:

Apply MANIPULATOR during tillering but before the first node is detectable on half of the main stems. This will usually mean treating the crop between 15 and 35 days after 50% emergence, especially in late drilled spring crops.

### Barley:

Apply MANIPULATOR at 2 leaves unfolded stage (GS 12) and before 4 leaves unfolded stage (before GS 14) to gain the maximum possible yield increase.

## TIMING AND RATES OF APPLICATION TO OATS (WINTER or SPRING)

Apply 2.3 litres per hectare of MANIPULATOR from just before the beginning of stem elongation (GS 29-30) until no later than the third node detectable stage of the crop (GS 33). Alternatively, MANIPULATOR can be applied as a split dose of 1.15 litres per hectare from just before the beginning of stem elongation (GS 29-30) followed by a further application of 1.15 litres per hectare no later than the third node detectable stage of the crop (GS 33).

## RATE OF APPLICATION

|               |   |
|---------------|---|
| WINTER WHEAT  | Apply MANIPULATOR at up to 1.8 litres per hectare |
| SPRING WHEAT  | Apply MANIPULATOR at 0.9 litres per hectare       |
| WINTER BARLEY | Apply MANIPULATOR at up to 2.3 litres per hectare |
| SPRING BARLEY | Apply MANIPULATOR at 1.25 litres per hectare      |
| WINTER OATS   | Apply MANIPULATOR at up to 2.3 litres per hectare |
| SPRING OATS   | Apply MANIPULATOR at up to 2.3 litres per hectare |

## APPLICATION VOLUME

Apply the recommended rate of MANIPULATOR in at least 200 litres of water per hectare.

## MIXING

SHAKE WELL BEFORE USE. Add MANIPULATOR to a half-filled spray tank. Top up the tank to the required volume and ensure thorough mixing before and during spraying.

## CAUTION

Do not use in tank mixture with liquid nitrogen fertiliser.

## APPLICATION CONDITIONS

Do not apply MANIPULATOR to crops under significant stress from water-logging, drought or nutrient deficiency. In hot, dry weather a better result might be obtained from application in the early morning or evening.

## CAUTION

Although MANIPULATOR may be used under normal seasonal temperatures (down to 1°C) and ground conditions, it should not be sprayed onto plants covered with frost and requires two hours before rain or frost occurs for a good effect to be obtained. Do not allow MANIPULATOR to drift onto neighbouring crops.

## UNDERSOWN CROPS

MANIPULATOR may be used on crops undersown with clovers and grasses.

## VARIETAL RESTRICTIONS

There are no varietal restrictions on the use of MANIPULATOR.

## CAUTION:

The use of poultry manure or slurry on crops may significantly reduce the lodging control obtainable with MANIPULATOR.

## USE OF STRAW

There are no restrictions on the use of straw from crops treated with MANIPULATOR.

## COMPATIBILITY

**HERBICIDES** - Provided that all product recommendations are followed, MANIPULATOR is compatible with the following products: amidosulfuron (MAFF 07318), amidosulfuron + iodosulfuron methyl sodium (MAFF 10955), bentazone + MCPA + MCPB (MAFF 00028), bromoxynil + diflufenican + ioxynil (MAFF 09982), bromoxynil + fluroxypyr (MAFF 09836), bromoxynil + fluroxypyr + ioxynil (MAFF 05173, 10577), bromoxynil + ioxynil (MAFF 09987, 10005, 11551), bromoxynil + ioxynil + mecoprop-P (MAFF 08452), bromoxynil + ioxynil + triasulfuron (MAFF 08453), chlorotoluron (MAFF 08743), clodinafop-propargyl (MAFF 08461), clodinafop-propargyl + diflufenican (MAFF 08128, 10001, 10266), clodinafop-propargyl + trifluralin (MAFF 08417), clopyralid (MAFF 10988, 11357), 2-4-D (MAFF 08050, 10032, 11149), dichlorprop-P (MAFF 11067, 11091), diclofop-methyl + fenoxaprop-P-ethyl (MAFF 08946, 08947), diflufenican + flurtamone (MAFF 10744, 10776), diflufenican + isoproturon (MAFF 10440), fenoxaprop-P-ethyl (MAFF 08723), florasulam (MAFF 09819), florasulam + fluroxypyr (MAFF 10879, 10921, 11451), flupyrsulfuron-methyl (MAFF 09026), flupyrsulfuron-methyl + thifensulfuron-methyl (MAFF 09207), fluroxypyr (MAFF 05496, 11044, 11356), imazamethabenz-methyl (MAFF 10218), iodosulfuron methyl sodium (MAFF 11205), iodosulfuron methyl sodium + mesosulfuron-methyl (MAFF 11679), isoproturon (MAFF 11670, 11761, 11770), isoproturon + pendimethalin (MAFF 10376), linuron (MAFF 08893, 11590), MCPA (MAFF 07400, 08345, 10493, 11768), MCPB (MAFF 07522, 10501), mecoprop-P (MAFF 09431, 09963), methabenzthiazuron (MAFF 08687), metsulfuron-methyl (MAFF 02977, 10844), metsulfuron-methyl + thifensulfuron-methyl (MAFF 03990, 10989, 10991), pendimethalin (MAFF 11777), pendimethalin + isoproturon (MAFF 10376), sulfosulfuron (MAFF 10495, 10602), thifensulfuron-methyl + tribenuron-methyl (MAFF 07795), tralkoxydim (MAFF 10441), triasulfuron (MAFF 08421), tribenuron-methyl (MAFF 09340, 10843), trifluralin (MAFF 07406, 11400).

**FUNGICIDES** - Provided that all product recommendations are followed, MANIPULATOR is compatible with the following products: azoxystrobin (MAFF 10443), azoxystrobin + cyproconazole (MAFF 11518), bromuconazole (MAFF 09995), cyproconazole (MAFF 06464), cyproconazole + cyprodinil (MAFF 09387), carbendazim (MBC) (MAFF 03848), carbendazim + flusilazole (MAFF 06150), carbendazim + prochloraz (MAFF 11693, 11698), chlorothalonil (MAFF 09320, 10518, 11835), chlorothalonil + cyproconazole (MAFF 08467, 11676, 11824), cyproconazole + propiconazole (MAFF 09321), cyproconazole + trifloxystrobin (MAFF 11429), cyprodinil (MAFF 08764, 11512), epoxiconazole (MAFF 08319), epoxiconazole + fenpropimorph (MAFF 11731, 11759), epoxiconazole + fenpropimorph + kresoxim-methyl (MAFF 08886, 11747), epoxiconazole + fenpropimorph + pyraclostrobin (MAFF 11557), epoxiconazole + kresoxim-methyl (MAFF 08889), fenpropidin (MAFF, 08660), fenpropimorph (MAFF 00578, 11560), fenpropimorph + flusilazole (MAFF 06783), fenpropimorph + kresoxim-methyl (MAFF 11729), fenpropimorph + quinoxifen (MAFF 08879), fluquinconazole + prochloraz (MAFF 11686, 11700), flusilazole (MAFF 10285), iprodione (MAFF 11702), mancozeb (MAFF 10804, 11622), maneb (MAFF 06992, 08077, 10805), picoxystrobin (MAFF 10978), prochloraz (MAFF 11696), propiconazole (MAFF 08423), quinoxifen (MAFF 08279, 08881), spiroxamine (MAFF 11232), sulphur (MAFF 07526, 11176, 11602), tebuconazole (MAFF 11278), tebuconazole + triadimenol (MAFF 11280), triadimefon (MAFF 11318), triadimenol (MAFF 11417), trifloxystrobin (MAFF 11230, 11231).

**INSECTICIDES** - Provided that all product recommendations are followed, MANIPULATOR is compatible with the following products: chlorpyrifos (MAFF 10139, 11520), cypermethrin (MAFF 04119, 09200), deltamethrin (MAFF 07172), lambda-cyhalothrin (MAFF 10480), pirimicarb (MAFF 10515).

**PLANT GROWTH REGULATORS** - Provided that all product recommendations are followed, MANIPULATOR is compatible with approved plant growth regulator formulations containing: 2-chloroethylphosphonic acid (MAFF 09985), 2-chloroethylphosphonic acid + mepiquat chloride (MAFF 02103), chlormequat (MAFF 11881), chlormequat + 2-chloroethylphosphonic acid (MAFF 04650, 10004, 10029), chlormequat + 2-chloroethylphosphonic acid + imazaquin (MAFF 10395), chlormequat + choline chloride (MAFF 01482), chlormequat + choline chloride + imazaquin (MAFF 10403, 10404), and trinexapac-ethyl (MAFF 08801, 11805).

**TRACE ELEMENTS** – Most chelated or complexed forms of trace elements are compatible with MANIPULATOR but some inorganic forms, especially those of manganese (such as manganese sulphate), can cause problems in the tank mixture.

**ADJUVANTS** - The addition of SPRAYFAST (Adj. No. 0131) may be advantageous in tank mixtures.

**SEED CROPS**

**MANIPULATOR** may be used on all varieties of wheat, barley and oats grown for seed under the Seed Certification Scheme's "Certification of Seed of Wheat, Barley and Oats"

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