CLAYTON MIZUNA

CLAYTON MIZUNA is a residual herbicide for the control of weeds in potatoes. CLAYTON MIZUNA is a water dispersible granule formulation containing 70% w/w metribuzin. **MAPP 19659**

Warning

Very toxic to aquatic life with long lasting effects

Keep out of reach of children

Dispose of contents/container to a licensed hazardous waste disposal contractor or a collection site except for empty, clean containers which can be disposed of as non-hazardous waste.

To avoid risks to human health and the environment, comply with the instructions for use.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work

Protect from frost Store above 5ºC **NET CONTENTS: 5 Kg e** **UN3077**	**Approval Holder:** Clayton Plant Protection Ltd Bracetown Business Park. Clonee, Dublin 15, Ireland. Tel: +353 1 8210127 Email: info@claytonpp.com Website: www.claytonpp.com **Marketed in UK by :** Clayton Plant Protection (UK) Ltd. Contact details as above.

IMPORTANT INFORMATION : For professional use only as an agricultural herbicide			
Crop	**Maximum Individual Dose (kg product per hectare)**	**Maximum Total Dose (kg product per hectare/crop)**	**Latest Time of Application**
Potato (earlies)	0.75	0.75	Pre-emergence
Potato (maincrop)	0.75	1.25	Before the shoots of potatoes reach 15cm in length

Other specific restrictions:

A minimum of 21 days must be observed between applications.
A maximum total dose of 0.35 kg a.s./ha/season (0.50 kg CLAYTON MIZUNA/ha/season) may be applied post-emergence of the crop. Do not apply via handheld equipment.

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABELMAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

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 AND SUITABLE RESPIRATORY PROTECTIVE EQUIPMENT* when handling the product.

*Disposable filtering face-piece respirator to at least EN149 FFP3 or equivalent.

WEAR SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.

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.

WHEN USING DO NOT EAT DRINK OR SMOKE. Wash all protective clothing after use.

Environmental Protection

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 metres of the top of the bank of a static or flowing water body, unless a Local Environment Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1 metre of the top of a ditch which is dry at the time of application. Aim spray away from water. This product qualifies for inclusion within the Local Environmental Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with HSE's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.

Storage and Disposal

KEEP IN ORIGINAL CONTAINER, TIGHTLY CLOSED, IN A SAFE PLACE.

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING-STUFFS.

EMPTY CONTAINER COMPLETELY and dispose of safely.

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 INFORMATION

CLAYTON MIZUNA is both a contact and residual herbicide. It can be used to control weeds in named varieties pre-emergence and, in certain varieties, post-emergence. A list of varieties which may be treated is summarised below. For the latest information, please consult Clayton Plant Protection (UK) Ltd.

CLAYTON MIZUNA should not be used if a previously applied residual herbicide still remains in the soil. This is especially significant on organic soils.

RESTRICTIONS

Do not apply CLAYTON MIZUNA to crops suffering from disease, stress or nutrient deficiencies or that are cold, waterlogged or grown in acidic conditions.

Avoid drift as CLAYTON MIZUNA may damage sensitive crops especially sugar beet, brassicas and lettuce Care should be taken to avoid spray overlap, as crop damage may occur which may not be outgrown.

SOIL TYPE AND CONDITIONS

Do not use CLAYTON MIZUNA on sands.

Do not use CLAYTON MIZUNA pre-emergence on Maris Piper in very light soils and do not treat this variety post-emergence.

Tubers should be planted in a moist, clod-free bed with a good tilth with well-rounded ridges. After planting, no further improvements should be required to the soil tilth; further cultivations will increase weed germination and reduce the effectiveness of CLAYTON MIZUNA. The soil should be moist when spraying. Dry conditions may reduce the effectiveness of CLAYTON MIZUNA.

The residual activity of CLAYTON MIZUNA may be reduced on peaty and organic soils and on mineral soils with high organic matter content.

WEATHER

Yellowing of foliage may occur as a result of treatment, which is more frequent if spraying is carried out less than 3 days after cool cloudy weather and particularly if a sudden change to hot sunny conditions occurs at the time of spraying. The crop should outgrow this yellowing.

In conditions of high sunlight intensity and high daytime temperatures, spraying should be carried out in the evening.

On gravelly or stony soils damage may occur particularly if heavy rain falls soon after application.

FOLLOWING CROPS

Contact Clayton Plant Protection UK Ltd in the event of crop failure due to poor growing conditions. Before drilling or planting the next crop, the soil must be mould-board ploughed to a depth of at least 15 cm. It is recommended that ploughing takes place as soon as possible after lifting and definitely before the end of December.

The following intervals must be observed between application of CLAYTON MIZUNA and drilling or planting the following crops:

Cereals, ryegrass, winter beans: 16 weeks **All crops except lettuce and radish:** The following spring

Lettuce and radish: Should not be grown in the year after CLAYTON MIZUNA treatment.

RESISTANCE

CLAYTON MIZUNA contains metribuzin, a triazinone belonging to HRAC group C1.

Always follow WRAG guidelines for preventing and managing herbicide resistant weeds.

Maximise the use of cultural control measures wherever possible (e.g. crop rotation, ploughing, stale seedbeds, delayed planting, etc.)

Use tank-mixes or sequences of herbicides with different modes of action within individual crops.

Copies of the guidelines may be obtained from the CPA, your distributor, crop advisor or product manufacturer.

For further advice on resistance management, contact your agronomist or specialist advisor.

POTATO VARIETIES

Not all varieties of potato may be safely treated with CLAYTON MIZUNA. For the latest list of potato varieties which may be treated with CLAYTON MIZUNA contact Clayton Plant Protection Ltd.

Varieties which may be treated:

First earlies, pre-emergence	Alcmaria, Arran Comet, Ostara, Maris Bard, Pentland Javelin, Ulster Sceptre, Orla
Second earlies pre-emergence	Ausonia, Estima, Marfona, Maris Peer, Nadine, Wilja
Maincrop pre-emergence	Maris Piper*, Asterix, Markies, Mayan Gold, Melody, Rooster, Shannon, Vales Sovereign
Maincrop pre- and post-emergence	Cara, Desiree, King Edward, Kingston, Pentland Crown, Pentland Dell, Pentland Squire, Record, Romano, Claret, Isle of Jura, Vales Everest, Vivaldi

*not on sands or very light soils

WEEDS CONTROLLED

Species	Pre-emergence	Post-emergence*
		0.35 – 0.5 Kg/ha
Annual meadowgrass	S	S
Black bindweed	MS	S
Blackgrass	S	MS
Black Nightshade	R	MS
Bugloss	S	S
Charlock	S	S
Cleavers	R	R
Common chickweed	S	S
Common fumitory	S	S
Common orache	S	S
Common poppy	S	S
Corn marigold	-	MS
Corn spurrey	S	S
Fat-hen	S	S
Field forget-me-not	S	S
Field pansy	S	MS
Field penny cress	S	S
Groundsel	S	S
Henbit dead-nettle	S	S
Hemp nettle	S	-
Knotgrass	S	MS
Mayweed spp.	S	S
Pale persicaria	S	S
Red dead nettle	S	S
Redshank	S	S
Scarlet pimpernel	S	S
Shepherd's purse	S	S
Small nettle	S	S
Speedwell spp.	S	S
Sun spurge	S	-
Volunteer oilseed rape	S	S
Wild radish	S	S

S= Susceptible, MS = Moderately susceptible. R = Resistant. - = Insufficient information.
**Post emergence weed control up to 1 expanded true leaf is recorded in the table; however most annual broad-leaved weeds will be controlled beyond this stage.*

Perennial broad-leaved weeds are not controlled by CLAYTON MIZUNA.

Specific weed situations

Early germinating weeds

For best control, apply CLAYTON MIZUNA between the cotyledon to one true leaf stage. Black-bindweed is best controlled at the cotyledon to 2 true leaf stage. It is less sensitive to pre-emergence treatments.

Late germinating weeds including black-bindweed

A post-emergence application may be made to listed safe main crop varieties before leading shoots reach 15 cm. Efficacy of CLAYTON MIZUNA on black-bindweed is improved with post-emergence applications.

Perennial grasses

If the potato crop follows grass, then either a suitable herbicide and/or cultivations should be used to kill the sward in the autumn. If any grass survives, it may be controlled post-planting using diquat. Following weeds can then be controlled using CLAYTON MIZUNA post-emergence on recommended maincrop varieties. CLAYTON MIZUNA will suppress common couch when applied post-emergence up to the two leaf stage.

CROP SPECIFIC INFORMATION

Traditional Method

Overall application (not incorporated) pre-emergence to recommended earlies varieties and pre- or post-emergence to recommended maincrop varieties. Persistence and residual activity and weed control may be less than the listed susceptibilities in maincrops grown on all soil types and earlies grown on all soil types except very light and light soils.

Pre-crop Emergence applications

Potato and soil type*	**Rate**
Earlies (first and second):	
Very light, light, medium and heavy soils:	0.75 Kg/ha
Second earlies	
Peaty and organic soils	0.75 Kg/ha
Maincrop	
Very light, light, medium, heavy, peaty and organic soils	0.75 Kg/ha

Post-emergence applications

Listed maincrop varieties	
All soils	0.35 Kg/ha or 0.5 Kg/ha**

"*Soil classification ADAS 85 System" and "**See specific timings and application methods below"

Do not use CLAYTON MIZUNA on potatoes grown in sand soils

Water Volumes

Traditional method : Use a minimum of 200 litres of water per hectare using a Medium Quality spray (as defined by BCPC). Where the soil is cloddy, it is advisable to increase the volume of

water. For post-emergence application use a minimum of 130 litres of water per hectare using a Fine – Medium Quality spray (as defined by BCPC).

Application
Apply pre- or post-emergence to the soil surface. Even coverage of both sides of the ridge is important. Care should be taken in particular with post-emergence applications where the crop is sheltering the weeds; it is essential that the spray penetrates the canopy. Do not apply CLAYTON MIZUNA in windy conditions.
Filters should be at least size 80 mesh. Filters finer than 80 mesh should not be used.

Specific timings and application methods

Incorporation of CLAYTON MIZUNA into the soil
On soils containing greater than 10% organic matter and on mineral soils under dry conditions, CLAYTON MIZUNA should be incorporated at a rate of 0.75 kg/ha into the top 10-15 cm of soil during the final cultivation. This gives increased activity and is especially advantageous for those varieties which cannot be treated post-emergence. This method is particularly useful to increase activity on soils with more than 10% organic matter.

Pre-planting: On soils containing greater than 10% organic matter and on mineral soils in dry conditions, apply 0.75 kg/ha of CLAYTON MIZUNA, incorporating into the top 10-15 cm of soil during the final cultivation. Suitable cultivators are rotary harrows, rotary cultivators or spring tine harrows.
A suitable granular nematicide may be incorporated into the soil at the same time, in accordance with the manufacturer's recommendations. After planting, ridging up should occur as soon as possible. It is important that ridges do not incorporate untreated soil which would allow weeds to establish. A final ridging up may be made, before the crop meets across the rows.

For recommended maincrop potatoes grown in two-row beds only, a follow-up post-emergence treatment of up to 0.5 kg/ha of CLAYTON MIZUNA may be applied. This will give useful control of late germinating weeds in the furrows.

Post-planting: Place the tubers in shallow ridges and apply 0.75 kg/ha of CLAYTON MIZUNA. Before the crop emerges, incorporate by cultivating shallowly while at the same time ridging up. The cultivator should be fitted with suitable ridging bodies. In the case of second early varieties this application may only be made on soils containing more than 10% organic matter. A further application of up to 0.5 kg/ha of CLAYTON MIZUNA will be needed to control later germinating weeds. The second application may also be applied post-emergence before the leading shoots of the potatoes are 15 cm long.

Post-emergence applications :
This method is for use on recommended maincrop varieties only. The method is only recommended until the weeds reach the cotyledon stage. If weeds are beyond this stage control may be reduced.

Rate of Use: On recommended varieties only, make 1 application at 0.35-0.5 kg/ha.

Timing: Application should be carried out at or before early cotyledon stage of the weeds until the most advanced shoots of the potatoes are 15 cm long.
CLAYTON MIZUNA should be used pre-emergence on crops destined for use as seed.

Temporary plastic mulches
Using the traditional method of application, early potatoes may be treated with CLAYTON MIZUNA and covered with plastic mulches. Since effective control of weeds by CLAYTON MIZUNA is dependent on soil moisture, it is important that crops are well irrigated before the mulch is applied. Application should also be made to well-prepared, clod-free ridges. If using this method on mineral soils with a high organic matter content the residual activity of CLAYTON MIZUNA may be reduced. This may result in inadequate weed control.

MIXING AND APPLICATION

For use by tractor mounted/trailed sprayer only.

Add half the required amount of water to the spray tank and begin agitation. Add the recommended quantity of CLAYTON MIZUNA. On emptying the container, RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling, through the filter basket, and dispose of container safely. Maintain agitation throughout the filling, travelling and spraying operations. Dilute solutions should be sprayed immediately. After spraying, thoroughly clean the sprayer using a recognised decontaminant.

Crops should not be re-entered until spray residues are dry.

Conditions of Supply
All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use or the weather conditions before, during or after application, which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded, and no responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.