



We create chemistry

ml
800

Frontier® Optima

700

An emulsifiable concentrate herbicide for the pre-emergent control of annual grasses and certain annual broadleaf weeds (as indicated) and suppression of yellow nutsedge in maize, groundnuts, soyabeans and potatoes and for post-plant application in tobacco

600

500

400

300

Net Content:

200
ml

1 L



Reg. No.: 08-C-132-4



HARMFUL IF SWALLOWED

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Composition: mass/volume:

Dimethenamid-P 720 g/L

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Registered by:

Pivotal Agro-Services (Pvt) Ltd.
Agriculture House, Adylinn Road, Marlborough
PO Box WGT 450, Westgate, Harare
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Manufactured and packed by:

BASF SE
Germany

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TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE

READ THE LABEL BEFORE USING THE PRODUCT

WARRANTY: Although this remedy has been tested under a large variety of conditions the registration holder does not warrant, that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal climatic and storage conditions, quality of dilution water, compatibility within other substances not indicated on the label and the occurrence of resistance of the disease, weed or pest, against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to the failure of the user to follow the label instructions or the occurrence of conditions which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

PRECAUTIONS:

- Handle with care and avoid splashing/contact. Poisonous by ingestion inhalation and contact with skin.
- Wear suitable protective clothing i.e. gloves, boots, overalls and face shield when handling the concentrate. Irritating to eyes and skin.
- Do not eat, drink or smoke whilst mixing or applying the product or before washing hands and face with soap and water.
- On completion of spraying wash with soap and water and wash contaminated clothing after use.
- Toxic to fish, animals and bees.
- Do not contaminate wash where it will not contaminate water supplies (rivers, dams, pools etc.), crops, grazing areas, etc.
- Keep out of reach of children, uninformed persons and animals under lock and key.
- Keep apart from food and feed.
- Store in the original container in a cool dry place.
- Triple rinse empty container in the following manner: invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsings to the contents of the spray tank before destroying the container by perforation, flattening and burying, and never re-use for any other purpose.
- Clean applicator thoroughly after use and dispose of wash water safely.
- Do not inhale spray mist.
- Avoid spray drift onto other crops, grazing, rivers, dams and areas not under treatment.

FIRST AID MEASURES

IN CASE OF ACCIDENTAL POISONING – CONTACT A MEDICAL DOCTOR.

Symptoms of Poisoning: skin irritation, nausea, vomiting, diarrhoea, fall in blood pressure.

General advice: Avoid contact with the skin, eyes and clothing.

Take off immediately all contaminated clothing.

If difficulties occur: Obtain medical attention.

Show container, label and/or safety data sheet to physician.

If inhaled: Keep patient calm, remove to fresh air and seek medical attention.

On Skin contact: If irritation develops, seek medical attention.

After contact with skin, wash immediately with plenty of water and soap.

On contact with eyes: Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On Ingestion: Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Note to physician: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Hazards: When inhaled (e.g. during vomiting) risk of pulmonary oedema and/or pneumonia.

DIRECTIONS FOR USE: USE ONLY AS DIRECTED

USE RESTRICTIONS:

Do not apply Frontier® Optima in the following situations as crop damage may occur:

- On poorly drained soils, soils with a compaction layer or soils with a nutrient deficiency.
- On inbred parent plants of maize hybrids or experimental or newly released cultivars of all Frontier® Optima registered crops, including any seed production of any of the Frontier® Optima registered crops, without first consulting the advice of the distributor or manufacturer.

COMPATIBILITY

Frontier® Optima may be applied in a tank mix or a sequential application with other herbicides registered for use in a given crop. Always read the companion product label(s) and apply each product within label recommendations.

Frontier® Optima is compatible with: Hammer®, OptillTM, Atrazine SC formulations containing 500 g/L active ingredient and cyanazine and atrazine + terbuthylazine based products.

Stellar Star can be applied in a spray sequential program after Frontier® Optima application. Refer to the Stellar Star label for weeds controlled in addition to Frontier® Optima alone.

WITH HOLDING PERIOD:

Following normal harvest of a Frontier® Optima treated crop, there is no restriction on planting any other follow-up crops. In the event of weather induced failure of a crop treated with Frontier® Optima alone, lands can be immediately replanted with any Frontier® Optima registered crop.

MIXING INSTRUCTIONS:

Three-quarter fill the spray tank with clean water. Shake the Frontier® Optima container well. Measure the required volume of Frontier® Optima and pre-mix this with at least 10 L of water before adding to the spray tank. Fill the spray tank with water to the required level while maintaining agitation to ensure thorough mixing of the spray mixture before spraying commences. Maintain agitation while spraying. The prepared spray mixture must not be left in the spray tank for any length of time, e.g. overnight.

APPLICATION INSTRUCTIONS:

- Frontier® Optima must be applied post-plant of the crop and pre-emergence of the crop and weeds.
- When planting into moist soil, Frontier® Optima must be applied within 3 days after planting (but preferably at planting) onto a fine, even, firm and freshly prepared weed-free seedbed. No more than 3 days should elapse between cultivation and application. To obtain good results, it is necessary that application be followed by 10 – 15 mm of rain or sprinkler irrigation before the weeds emerge. If rainfall does not occur in time, emerging weeds will be stunted and can easily be controlled with a shallow cultivation that will simultaneously mix the herbicide with the top

10 – 20 mm of soil. A deep cultivation should be avoided as this may bring untreated soil to the surface that may result in poor weed control.

- When planting into dry soil (insufficient moisture for germination), Frontier® Optima must be applied as close to, but definitely before, the first rain. Weeds that have already emerged at the time of application will not be controlled.
- Under dry conditions, efficacy will be improved by a shallow incorporation of the product – not deeper than 10 – 20 mm.

NOTE: SUFFICIENT RAIN OR IRRIGATION AFTER APPLICATION IS ESSENTIAL TO ENSURE ACTIVATION OF THE HERBICIDE.

Soil erosion

On light sandy soils of 0 – 10% clay in the top soil, weed control will be reduced if strong winds blow away the soil surface after Frontier® Optima has been applied. Weed control may also be reduced if heavy rains erode or wash away the soil surface containing the herbicide.

Ground application

Frontier® Optima can be applied as either an overall application using a minimum of 200 L of water per hectare, or as a band application using the corresponding amount of water per hectare. Any medium or high volume tractor-mounted sprayer can be used as long as the sprayer can be properly calibrated and is fitted with effective tank agitation. The spray-boom should be fitted with flat fan type spray nozzles to ensure an even distribution of the herbicide on the soil surface.

Aerial application

For aerial application, increase all given rates by 10 %. Frontier® Optima, can be applied aerially, provided that the spray mixture is distributed evenly over the target area and the loss of spray material during application is restricted to a minimum. To achieve this, it is essential that the following requirements are met:

- Use a conventional boom. Nozzles must be equipped with flat fan tips.
- Maintain a flying height of three metres above the target area at wind speeds of 0 – 8 km/h or a flying height of two metres at wind speeds of 9 – 15 km/h. Do not spray when the wind speed exceeds 15 km/h.
- The difference between the wet and dry bulb reading, as determined with a swing hygrometer, must not exceed 8 °C.
- Do not spray during the heat of the day.
- Ensure that fields are accurately marked.

APPLICATION RATES:

Minimum cultivation or no-till situations: Since surface trash may reduce herbicide penetration into the soil, the higher rate for the relevant soil type will give a better result.

CROP	% CLAY	DOSAGE L/ha	DIRECTIONS FOR APPLICATION
Soybeans	0–10	0.5	Use the lower rate only for control of annual grasses. Use the higher rate if yellow nutsedge and/or broad leaf weeds are a problem. Where broad leaf weeds are a major problem it is recommended to tank mix Frontier® Optima with broad leaf herbicide (e.g. Optill™).
	11–20	0.5–0.75	
	21–30	0.75–1.0	
	31–40	1.0–1.25	
Groundnuts	10–20	0.5 – 0.75	Use the lower rate for control of annual grasses. Use the higher rate if yellow nutsedge and/or broad leaf weeds are a problem. Do not apply Frontier® Optima on groundnuts, when they are planted in soils with less than 10% clay content.
	21–30	0.75 - 1.0	
	31–40	1.0 – 1.25	
Maize	0–10	0.5	Pre-emergence weed control with Frontier® Optima as solo product: Where broadleaf weeds are not a major problem, Frontier® Optima may be applied alone. Use the higher rate if yellow nutsedge and/or broad leaf weeds are a problem. An early post-emergence follow-up treatment can be applied (see below). Pre-emergence weed control with Frontier® Optima in tank mixtures (all soil types): Where broadleaf weeds are a major problem it is recommended to tank mix Frontier® Optima with broad leaf herbicide. A follow-up post-emergent treatment of Stellar star can be applied at 1.0 L/ha for better control of late germinating weeds. NB. Frontier® Optima may be applied on Sweet corn and Popcorn. If using a tank-mix, ensure the partner product is also registered for use on sweet corn and popcorn. Do not apply Frontier® Optima to inbred parent plants of hybrids or to experimental or newly released cultivars.
	11–20	0.5 – 0.75	
	21–30	0.75 – 1.0	
	31–40	1.0 – 1.25	
Potatoes	0–10	0.4 – 0.5	Where applicable, use the lower rate for control of annual grasses. Use the higher rate if yellow nutsedge and/or broad leaf weeds are a problem.
	11–20	0.5 – 0.7	
	21–30	0.7 – 0.9	
	31–40	0.9 – 1.2	

TOBACCO – GROUND APPLICATION:

Warnings:

After Frontier® Optima application on tobacco, a slight yellowing of the sand leaves and/or plant stunting may occur. This is of a temporary nature and should not have any negative effect on the yield. However, certain precautions should be observed as the likelihood of damage occurring is enhanced by the following conditions:

- when diseased, weak and/or damaged plants are used for transplanting;
- when plants are incorrectly planted with roots curled up and come into contact with treated soil or roots exposed to the herbicide at the time of application;
- when tobacco is planted in very stony or gravel soil;
- when rainfall or irrigation in excess of 15 mm occurs shortly after herbicide application;
- when treated soil comes into contact with roots of inter-plants.

Method and Timing of application in tobacco

- Apply Frontier® Optima as a total surface application within 3 days after transplanting of the tobacco while the plants are still wilted.
- Where tobacco is planted on ridges, apply using a boom fitted with 110° nozzles, positioned between the ridges. This will ensure a more even distribution of the herbicide.
- Within 3 – 4 days after application of Frontier® Optima, not more than 15 mm of irrigation should be applied, to avoid washing out and to ensure activation of product.
- Flue cured tobacco – apply a broad leaf herbicide for broadleaf control, as a sequential spray and not as a tank mix, immediately after application of Frontier® Optima. Consult the respective label of the other products.

CROP	% CLAY	DOSAGE L / ha	DIRECTIONS FOR APPLICATION
Tobacco (TRB Cert. No. 14-17-C-44)	0 – 20	0.7	Pre-planting: Spray Frontier® Optima on the soil after ridging. Post-planting: Spray Frontier® Optima on to soil the surface over the seedlings within 7 days of transplanting. With irrigated tobacco, this must be done before settling in irrigation. Over irrigation will leach the herbicide into the root zone and retard early growth.
	21-30	1.0	

WEEDS CONTROLLED:

The following weed species are normally controlled by a pre-emergence application of Frontier® Optima at the dosage rates indicated below.

Annual Grasses

Scientific Name	Common Name
<i>Brachiaria eruciformis</i>	Sweet signal grass
<i>Dactyloctenium aegyptium</i>	Crow's foot
<i>Digitaria sanguinalis</i>	Crab finger grass
<i>Digitaria ciliaris</i>	Tropical finger grass
<i>Echinochloa crus-galli</i>	Barnyardgrass
<i>Eleusine indica</i>	Goosegrass
<i>Panicum maximum</i>	Common buffalo grass
<i>Panicum schinzii</i>	Sweet buffalo grass
<i>Setaria faberi</i>	Giant foxtail
<i>Setaria pallidifusca</i>	Red bristle grass
<i>Setaria verticillata</i>	Sticky bristle grass
<i>Urochloa panicoides</i>	Herringbone grass

Annual Broad Leaves

Scientific Name	Common Name
<i>Amaranthus hybridus</i>	Common pigweed
<i>Amaranthus spinosus</i>	Thorny pigweed
<i>Amaranthus deflexus</i>	Perennial pigweed
<i>Chenopodium album</i>	White goosefoot
<i>Cleome monophylla</i>	Spindlepod
<i>Galinsoga parviflora</i>	Gallant soldier
<i>Nicandra physaloides</i>	Apple of Peru
<i>Portulaca oleracea</i>	Purslane
<i>Richardia brasiliensis</i>	Tropical richardia
<i>Schkuhria pinnata</i>	Dwarf marigold

Control of the following weeds is variable

Scientific Name	Common Name
<i>Bidens pilosa</i>	Black jack
<i>Commelina benghalensis</i> *	Wandering Jew
<i>Crotalaria sphaerocarpa</i>	Mealie crotalaria
<i>Cyperus esculentus</i>	Yellow nutsedge
<i>Datura ferox</i> *	Large thornapple
<i>Datura stramonium</i> *	Thornapple
<i>Tagetes minuta</i>	Khaki weed
<i>Tribulus terrestris</i> *	Devil's thorn
<i>Xanthium strumarium</i> *	Cocklebur

* N.B. Late and deep germinators not completely controlled.

Other weeds that were not present during the development trials with this product may also be controlled to a certain degree. The registration holder does not accept any responsibility for unlisted weeds.



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