

 Zinger, WP

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wettable powder

metsulfuron-methyl 600 g/kg

Selective herbicide of systemic effect intended for postemergence treatment of spring and winter wheat, spring and winter barley, oats, and common flax to control annual dicotyledonous weeds, including 2,4-D and MCPA resistant weeds, and some perennial dicotyledonous weeds, undesired annual and perennial dicotyledonous and grass weeds and Sosnovsky cow-parsnip on non-agricultural lands.

Advantages:

- Wide range of action - inhibition of nearly all annual dicotyledonous weeds and some perennial dicotyledonous weeds
- Low consumption rate of the preparation
- Low cost of treatment rate per hectare
- High flexibility in terms of application timing
- Convenient packing - water-soluble bags

- Moderate toxicity to mammals, virtually harmless to bees
- Bio-efficiency of the preparation virtually does not depend on weather conditions

Action

Mode of action

The preparation has a systemic effect - penetrates weeds via leaves and roots, is absorbed and moves along the plant through meristematic tissues, thus acting on acetolactate synthase (ALS) ferment. ALS inhibition results in impairment of amino acid synthesis, arrest of cell division and growth, and further plant death.

Protective period

During the vegetation period in favorable conditions.

Speed of action

The preparation gradually penetrates weeds within 4 hours while arresting their growth. The herbicidal effect appears within 7-21 days depending on weather conditions.

Range of inhibited weeds

Annual dicotyledonous weeds, including 2,4-D and 2M-4X resistant weeds, and some perennial dicotyledonous weeds.

Sensitive species: Canadian thistle, vetch, charlock, tansy mustard, sheep bur, satin flower, common groundsel, copper rose, field scorpion grass, dandelion (species), blindweed, hemp nettle (species), field chamomile, wild radish, mayweed, bladder campion, sandweed, field pansy, amaranth (species), dish mustard, day-nettle, and Sosnovsky cow-parsnip.

Moderately sensitive species: speedwell (species), pepper plant (species), milkweed, sow thistle (species), green ginger.

Feebly sensitive species: ragweed, bluebottle, sheepbine, knotweed, common fumitory, common orach, pigweed (species), houndsberry, catch weed.

Usage regulations

Crop / object of treatment	Harmful plants	Preparation consumption rate, g/ha	Mix consumption rate, l/ha	Method, time and conditions of application	Wait time (application frequency)
Spring wheat, spring barley, oats	Annual dicotyledonous weeds, including 2,4-D and MCPA resistant weeds, and some perennial dicotyledonous weeds.	8-10	200-300	Planting spraying at earlier growth stages of annual dicotyledonous weeds (2-4 leaves) and perennial weeds in rosette phase, starting from 2 leaves to cereal tillering. Comply with crop rotation limitations.	60(1)
Winter wheat, winter barley		8-10 (A)	25-50 (A)	Planting spraying in spring at crop tillering stage and earlier growth stages of annual (2-4 leaves) and perennial weeds in rosette phase. Comply with crop rotation limitations.	
Common flax		7-10 7-0 (A)	200-300 25-50 (A)	Planting spraying at 'herringbone' stage with crop as high as 3-10 cm. Comply with crop rotation limitations.	

Non-agricultural lands (protection zones of power transmission lines, glades, routes of gas and oil pipelines, embankments, and right-of-ways for rail and motor roads, aerodromes and other industrial sites)	Undesired annual and perennial dicotyledonous plants	100-200	200-300	Spraying of vegetating undesired plants before blossoming to form cereal cover	-(1)
		200-300	200-300	Spraying of vegetating undesired plants after blossoming to form cereal cover	
	Sosnovsky cow-parsnip	150-200	200-300	Spraying of vegetating cow-parsnip plants of various ages until budding	
		40-50	200-300	Spraying o vegetating annual cow-parsnip plants	

(A) - aviation spraying

Attention! Due to high activity of the preparation at low consumption rates, the sprayer tank shall be thoroughly flushed before using a different preparation.

The best result and quickest herbicide action of the preparation is achieved when treating crop at earlier stages of weed growth.

Attention! Comply with crop rotation limitations.

For cereal crops. Treated areas shall be re-sown with spring cereal crops only.

Beet, vegetables, sunflower and buckwheat shall not be sowed the next year after cereal and flax cropping – deep plowing is required at first.

Sunflower and buckwheat shall not be sowed the next year, if soil pH is above 7.5 or after prolonged drought during the period from preparation application until planting of such crops.

For common flax. Treated areas shall be re-sown with spring cereal crops only.

Beet and vegetables shall not be sowed the next year.

Sunflower and buckwheat shall not be sowed the next year, if soil pH is above 7.5 or after prolonged drought during the period from preparation application until planting of such crops.

Application technique. Mix preparation method

Prepare the mix immediately before use.

For ground treatment:

Fill water into a small vessel, add a bag of the preparation (25 g per 1 liter of water) packed in water-soluble film, stir until packing fully dissolves and a uniform suspension is formed.

Fill the sprayer tank with water to 1/2, then add the prepared moving suspension, top up with water until full and stir thoroughly.

Prepare the mix and fill the sprayer on dedicated sites that are disinfected afterwards.

For aerial treatment:

Prepare the mix using mechanical aid immediately before application. It is feasible to use fixed refilling stations SZS-10 and mobile units APT Temp and APZh-12.

Fill the refilling unit tank with water to 1/2, turn the agitator on, add the stock solution of the preparation and top up with water until full while continuously stirring it.

Preparation of the stock solution:

Fill the vessel with water to 2/3, add the preparation on the basis of 1 bag (50 g) per 1 liter of water, then stir the contents to produce a uniform suspension.

As the aircraft approaches the area of treatment, turn the hydraulic agitator on to additionally stir the mix (hydraulic agitator working time min. 2

minutes).

Mix preparation and filling into sprayers tanks of an An-2 plane shall be carried out with engine stalled and additional mix cleaning using ground-based filters. When using a Mi-2 helicopter provided with a dedicated refilling unit, the mix shall be loaded on a fenced site without main rotor stalling, but at reduced speed.

Recommended equipment:

For ground treatment, use boom sprayers OPSh-15-01, OP-2000-2-01 or similar.

For aerial treatment – An-2 plane or Mi-2 helicopter.

Compatibility with other preparations

Efficient when used alone. May be combined with preparations based on 2,4-D, MCPA, glyphosate and other pesticides. The preparation may be used in prepared mixes or successively with insecticides or fungicides registered for use on cereal crops or common flax. Test for physical and chemical compatibility before use. Do not mix Zinger, WP herbicide, packaged in water-soluble film, with any boron-containing agrochemicals, including Ultramag Boron, Ultramag Calcium / Calcium Active, Biostim Cereals, due to an irreversible chemical interaction between the polymer film and boron compounds.

Potential for resistance

Occurrences of resistance to sulfonylurea based herbicides were observed in specific biotypes of weeds. To avoid resistance, alternate herbicides from various chemical groups or used combined preparations.

Phytotoxicity

When used in recommended quantities, the preparation does not suppress cereal crops and common flax. No adverse effect on plant growth and development was observed, and some experiments demonstrated higher yield of grain, seed and fiber product of common flax.

Recommendations on protection of valuable flora and fauna objects

The preparation is of low hazard to bees and fish – Hazard Class 3.

Basic provisions of the 'Guidelines for preventing bee poisoning with pesticides' and following environmental regulations:

Treat plants early in the morning and late in the evening.

For ground application:

treat plants at wind speed up to 4 or 5 m/sec;

protection boundary zone for bees – min. 2-3 km;

bee's flight time limitation – 8-9 hours.

For aerial application:

treat plants at wind speed up to 0 or 1 m/sec;

protection boundary zone for bees – min. 5-6 km;

bee's flight time limitation – 8-9 hours.

Warn apiary owners 4 or 5 days before treatment.

Do not use the preparation in private farms.

General information

Chemical class

Sulfonylureas

Transport and storage conditions

Comply with all conventional rules of toxic substance transport. Keep the preparation in a room dedicated for pesticide storage. Storage temperature range - minus 15 °C to plus 40 °C.

Shelf life

2 years

Hazard class

Hazard class III, moderate hazard

Packing

1 kg

Packing contains water-soluble bags. Each water-soluble bag contains 25 g or 50 g of herbicide. Do not open the water-soluble bag, immerse it directly into water.

Registrant

Schelkovo Agrohim, Russia

Manufacturer

Schelkovo Agrohim, Russia