



CALLISTO – herbicid za zatiranje plevelov v koruzi na osnovi mezotriona

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Mezotrion, aktivna učinkovina v pripravku Callisto, je edini herbicid iz skupine zaviralcev encima HPPD, ki omogoča prilagodljivo zatiranje širokega spektra širokolistnih plevelov tako pred kot po vzniku koruze.

Mezotrion so odkrili v raziskavah alelokemikalij, ki jih izloča rastlina *Callistemon citrinus*. Odkrili so, da rastlinska vrsta *Callistemon* izloča alelopatsko spojino leptospermon. Raziskave so vodile do odkritja kalistemonov in mezotriona. Mezotrion ima enak način delovanja kot leptospermon, vendar kaže bistveno večjo učinkovitost. Nevarnost za nastanek odpornosti na mezotrion pri plevelih je zelo majhna, do navzkrižne odpornosti z drugimi skupinami herbicidov ne more priti. Na občutljivih rastlinah se simptomi najprej kažejo kot beli madeži, nakar rastline odmrejo.

Mezotrion se v rastlinah premešča po ksilemu in floemu. Odpornost koruze na mezotrion temelji na dejstvu, da se mezotrion v rastlini koruze hitro razgradi v neaktivne metabolite. Mikroorganizmi v tleh mezotrion hitro razgradijo predvsem v CO₂, zato je potencial za izpiranje mezotriona v podtalnico zanemarljiv. Mezotrion je malo nevaren za sesalce in ptice, njihova izpostavljenost je nizka, zato je tveganje za neželene učinke zelo majhno. Najpomembnejše prednosti pripravka Callisto so: odlično delovanje na širokolistne plevela in koristno delovanje na travne plevela, odlična selektivnost za koruzo vse do razvojne faze 10 listov, velika prilagodljivost pri izbiri časa škropljenja, tipu tal, vremenskih razmerah in pri mešanju z drugimi herbicidi, ugodne lastnosti pri obnašanju v okolju ter pri vplivu na zdravje ljudi, majhni odmerki, nov mehanizem delovanja, učinkovina na osnovi naravne snovi.

ABSTRACT

CALLISTO – maize weed control herbicide based on mesotrione

Mesotrione, the active ingredient in Callisto is the only HPPD enzyme inhibiting herbicide to provide flexible pre- and post-emergence, broad spectrum, broadleaved weed control. Mesotrione was discovered by studying allelochemicals naturally secreted by bottle brush plant (*Callistemon citrinus*). The allelopathic compound being secreted by the *Callistemon* plants was identified as leptospermone. Synthesis programs led to the discovery of callistemones and mesotrione. Mesotrione has the same mode of action as leptospermone, but much better potency.

Site of action resistance to mesotrione is very low and other herbicide classes does not affect susceptibility to mesotrione. Symptoms in sensitive plants are bleaching followed by necrosis. Mesotrione is translocated throughout weeds in both the xylem and phloem. Maize tolerance to mesotrione is due to rapid breakdown of the herbicide to inactive metabolites in the maize plant. Mesotrione is rapidly degraded in soil by microorganisms primarily to CO₂, consequently the potential ground water contamination is negligible. Mesotrione has low acute toxicity to mammals and birds, and together with the low exposure, the risk of side effects is very low.

Main advantages of Callisto are: excellent broadleaf weed control with valuable effect on annual grasses, excellent crop safety even up to 10 leaves of maize, extraordinary flexibility in timing, soil types, weather conditions and mixing, environmental and human safety profile, low use rate, novel mode of action, flexible crop rotations, natural origins.