

Loyant™

HERBICIDE
RINSKOR™ ACTIVE

TECHNICAL DATA SHEET

Introducing Loyant™ herbicide with Rinskor™ active

Loyant™ herbicide with Rinskor™ active is a new arylpicolinate herbicide from Dow AgroSciences. Loyant has global utility in seeded and transplanted rice, and provides a solution for weed resistance issues in U.S.-grown rice. The product has broad-spectrum activity on important grass, sedge, and broadleaf weed species, utilizes low use rate technology, and exhibits excellent crop tolerance in rice.

Product Attributes

- Post-emergence control of economically-important grass, broadleaf, and sedge weeds, including ALS-, ACCase-, HPPD-, propanil-, quinclorac-, glyphosate-, and triazine- resistant species.
- Alternative mode of action in rice.
- Low use rates.
- Consistent weed control across variable conditions / water management.
- Rice is tolerant to Loyant in medium- and long-grain varieties and hybrids.
- Rapid degradation in soil and tolerant plant tissue.
- Favorable environmental fate, toxicology, and ecotoxicology profiles.

Control of Resistant Weeds

Globally, Loyant herbicide has demonstrated control of grass, sedge, and broadleaf weed species that have developed tolerance/resistance to other actives. Examples of these chemistries are as follows:

- **ALS Chemistry:** bispyribac, imazamox, imazethapyr, imazapic, penoxsulam, halosulfuron, bensulfuron, metazosulfuron, metsulfuron, pyrazosulfuron, pyribenzoxim, propyrisulfuron.
- **ACCase Chemistry:** cyhalofop-butyl, fenoxaprop, profoxydim, metamifop.
- **HPPD Chemistry:** mesotrione, tefuryltrione, tembotrione, benzobicyclon.
- **Other chemistries:** glyphosate, propanil, quinclorac, clomazone, atrazine.

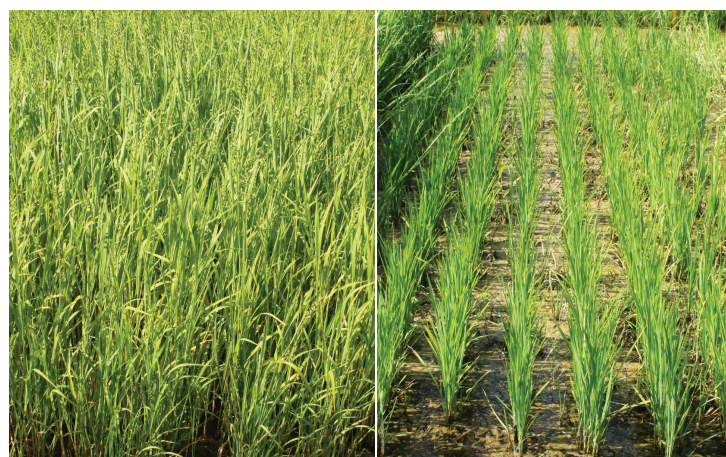
Key Weed Species Controlled in U.S. Rice

Grass Control ¹	Sedge Control ²
Barnyardgrass	Smallflower umbrellasedge
Junglerice	Yellow nutsedge
Broadleaf signalgrass	Rice flatsedge
Tighthead Sprangletop*	Purple nutsedge
	Rough-seed clubrush

* Suppression

Broadleaf/Aquatic Control ³	
Velvetleaf	Spreading dayflower
Jointvetch	Ducksalad
Redstem	Falsepimpernel
Pigweed (includes palmer amaranth and redroot)	Monochoria
Ragweed	Arrowhead/bulltongue/grassy arrowhead
Common lambsquarters	Hemp sesbania
Horseweed	Cocklebur
Alligatorweed	Eclipta
Pitted morningglory	Redroot pigweed
Redweed	Roundleaf mudplantain

1 Partial listing of grass weeds susceptible to Loyant herbicide when used at anticipated label instructions
 2 Partial listing of sedge weeds susceptible to Loyant herbicide when used at anticipated label instructions
 3 Partial listing of broadleaf weeds susceptible to Loyant herbicide when used at anticipated label instructions



Barnyardgrass Control
 Untreated (Left) - Treated with 30 g ai/ha pre-flood of Loyant™ herbicide (Right)

BARNYARDGRASS



SMALLFLOWER UMBRELLASEDGE



DUCKSALAD



LOYANT™ HERBICIDE TECHNICAL DATA SHEET

GLOBAL FORMULATIONS

Loyant™ herbicide can be formulated as a liquid NeoEC™ formulation and as an SC formulation. It can be also formulated as a solid (GR), depending on market needs.

All formulations have been designed to provide excellent tank mix dilution and compatibility properties. A key feature of the NeoEC formulation is that it poses a lower adjuvant need than an SC formulation. It is low in volatile organic compounds (VOCs) and has been developed to conveniently deliver the optimal type and level of built-in adjuvant.

HERBICIDAL ACTION

Absorption and Translocation

Loyant is a systemic herbicide mainly absorbed by foliage but also by the roots of plants. It is translocated through the phloem and xylem and accumulates in the meristematic tissue where it exerts its herbicidal action.

Mode of Action

Loyant represents the latest member of the unique synthetic auxin herbicide chemotype (HRAC group O), the arylpicolinates.

Members of the arylpicolinates demonstrate novel characteristics in terms of use rate, spectrum, weed symptoms, and environmental fate.

The product represents an alternative mode of action for utility in rice and other crops.

Loyant and other arylpicolinates exhibit unique molecular interaction to auxin receptors as compared to other auxin herbicides.

WEED CONTROL

Rice types:

Clearfield Production System, conventional and hybrid rice.

Loyant Rate for US: 1 pint per acre

CROP SAFETY

When used at anticipated label instructions, rice exhibits excellent crop tolerance and no negative impact on yield has been observed.

EXPECTED REGISTRATION DATES

Registration for Loyant in the US is anticipated in the 2017/2018 timeframe.

www.dowagro.com/rice



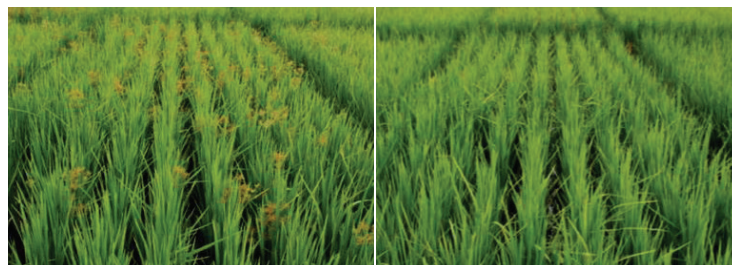
Solutions for the Growing World

Toxicology and Environmental Profile

Loyant has a very favorable mammalian toxicity profile, with very low acute and chronic toxicity. The product is not genotoxic, teratogenic, or a reproductive toxicant.

Rinskor™ active is of low toxicity to all target organisms with the exception of sensitive plants. The product exhibits the same route of degradation in soil, water, and sediment environmental compartments.

The DT 50 of the parent compound in lab tests ranged from 1-10 days in aerobic soil degradation, 5-10 days under anaerobic soil conditions, and 4-6 under water sediment conditions. The parent shows low solubility in water (15 µg/L) and is highly immobile in soil.



Yellow Nutsedge Control
Untreated (Left) - Treated with 30 g ai/ha pre-flood of Loyant™ herbicide (Right)



Glyphosate-Resistant Palmer Amaranth Control
Untreated (Left) - Treated with 30 g ai/ha pre-flood of Loyant™ herbicide (Right)



RINSKOR™ ACTIVE

™/® Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow.
Neither Loyant nor Rinskor active is registered with the U.S. EPA. Federal registration is pending. This material is intended to provide technical information only and is not an offer for sale. Always read and follow label directions.
© 2016 Dow AgroSciences LLC