

Lumisena™

SEED APPLIED FUNGICIDE

Best in class.



OVERVIEW

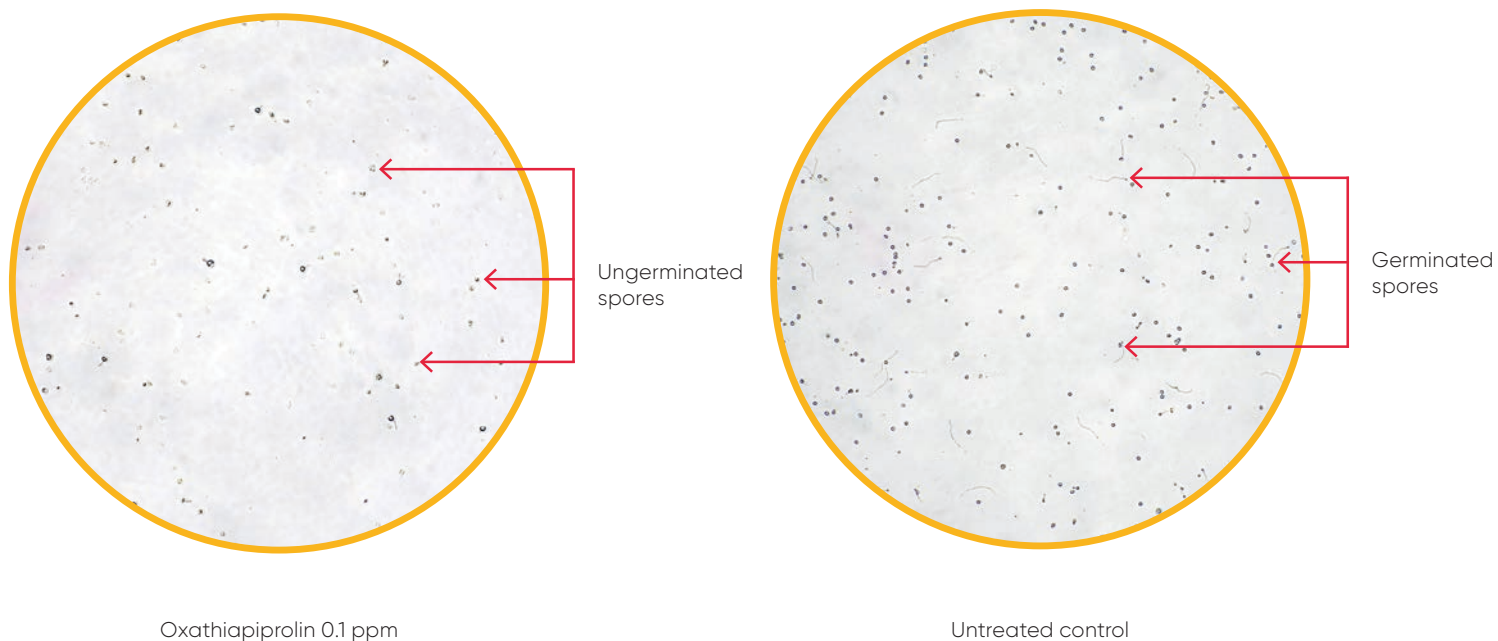
Lumisena™ at a glance

Target crop	Sunflower
Target disease	<i>Plasmopara halstedii</i> ; downy mildew
Active ingredient	Oxathiapiprolin Chemical class: Piperidinyl thiazole isoxazoline
Dose Rate	18.75 mg ai/1000 seeds, 14.1 ml/unit 150K
Formulation	200 g/l Flowable Concentrate for Seed Treatment (FS)
IRAC Group	49
Mode of Action	Binds to oxysterol-binding protein (OSBP)

Mode of Action

Lumisena™ controls downy mildew before it has a chance to damage sunflower plants.

Oxathiapiprolin, the active ingredient in Lumisena™, is active at every stage of the fungal life cycle, resulting in healthier plants. It has preventative activity that inhibits zoospore release and prevents zoospore germination at very low concentrations as is evidenced below. This protects from infection via the roots, enabling healthy emergence.



Photos taken 4 hours after addition of *Plasmopara halstedii* zoospores to the solution at 20°C.
Initial zoospore concentration was identical in both solutions.

EXCELLENT FUNGICIDE CONTROL

Downy mildew. Devastating to sunflowers. Costly to growers.

Downy mildew is considered a major disease in all sunflower producing countries in Europe. Downy mildew can cause significant crop damage by killing or stunting of infected plants, reducing crop stands and causing yield loss. Despite the widespread distribution, downy mildew is listed as a quarantine organism in Europe. Even low disease levels can have severe implications for sunflower production and export of seeds.

Downy mildew is a soil borne disease that is caused by *Plasmopara halstedii*, an oomycete pathogen. Fungicide seed treatment and genetic resistance are effective management tools for downy mildew.



Infected leaf with white-cottony sporulation on underside.



Severe stunting of infected plant.

Lumisena™ – A step change in downy mildew control.

In external research trials with leading university experts, sunflower seed treated with Lumisena™ showed a significantly lower incidence of downy mildew in comparison to existing fungicide seed treatments. In 29 research trials in fields across Europe, Lumisena™ showed 84% fewer downy mildew infected plants compared to untreated plots – with no cross resistance to existing fungicides.



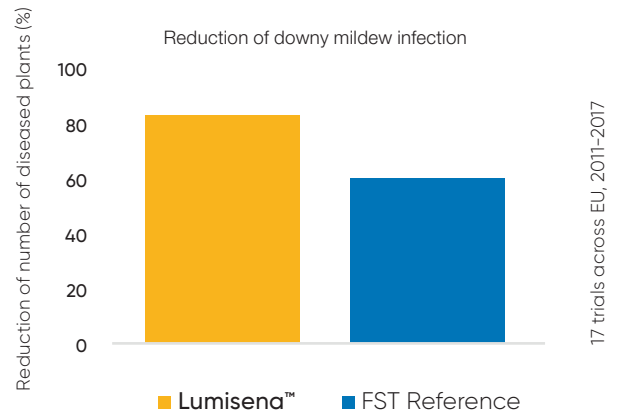
Plot without fungicide seed treatment.



Lumisena™ treated plot.

Best in class.

Compared to the current reference in the market, Lumisena™ provides a stronger and more consistent protection against downy mildew.



SUSTAINABLE USE

Resistance management

The active ingredient oxathiapiprolin is classified as a FRAC group 49 fungicide. Oxathiapiprolin is not cross-resistant with other classes of fungicides used against oomycete pathogens. To reduce the risk of resistance development, Lumisena™ should be used in mixture with a different mode of action fungicide active on the target oomycete disease.

GROUP	49	FUNGICIDE
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Environmental profile



Lumisena™ has a favourable environmental profile if applied according to label recommendations. It is very effective on target organisms at extremely low use rates and has very low toxicity to non-target organisms. Mammalian oral, neurological, developmental and dermal toxicity is low, as is avian and bee toxicity.

Field trials demonstrate:

- Effective control against oomycete pathogens that cause downy mildew
- Significantly lower incidence of downy mildew versus existing commercial seed-applied fungicides
- Increased emergence and healthier stand establishment to help secure yields.
- Highly effective at very low active ingredient use rates
- New mode of action with no cross-resistance to any existing fungicide
- Favourable environmental profile