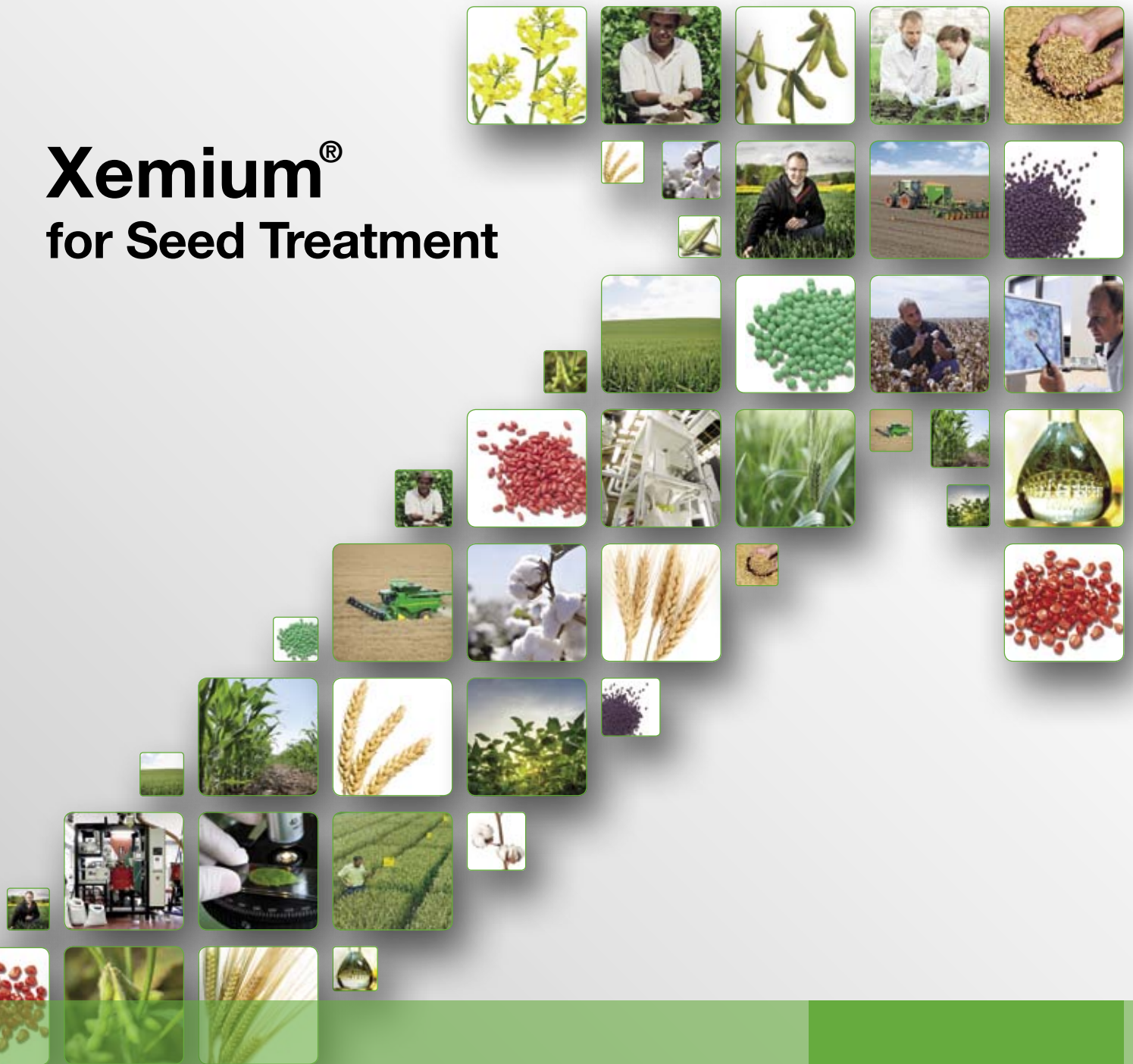
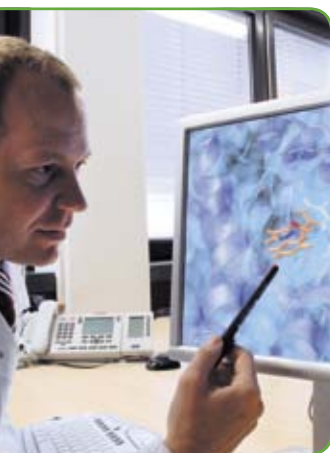


# Xemium® for Seed Treatment



## Xemium®: The New Standard of Fungicidal Seed Protection



Growers worldwide require healthy crop plants from the start, ensuring good quality and greater yields. BASF now offers a new family of seed-coating products based on **Xemium**, which is the latest innovation to emerge from our fungicide research program. In numerous field trials carried out around the globe, **Xemium** has been highly effective in protecting cereals, corn, soybeans, cotton, and many other crops from a wide range of pathogens.

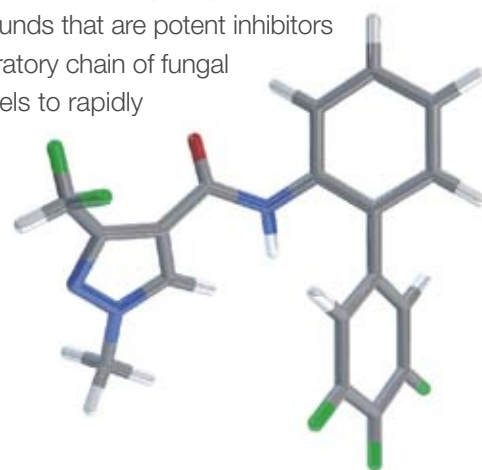
Our innovative **Xemium** technology sets a new standard of fungicidal seed-based protection. **Xemium**-containing products can be easily used to coat seeds, setting a new benchmark in controlling a wide range of diseases that afflict various crops. Another reason why **Xemium** is so effective is that it exhibits outstanding mobility in both the plant and its roots.



## Xemium: Mode of Action



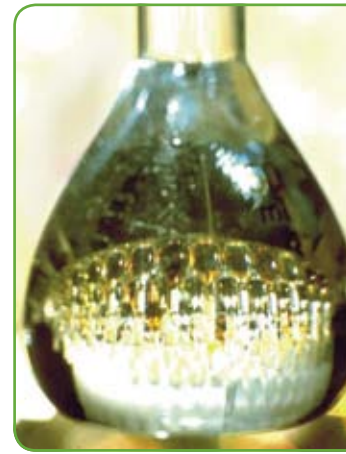
The active ingredient **Xemium**, is a succinate dehydrogenase inhibitor (SDHI). It belongs to the chemical class of carboxamides, compounds that are potent inhibitors of Complex II, a crucial enzyme in the mitochondrial respiratory chain of fungal pathogens. Inhibiting this enzyme causes cellular ATP levels to rapidly decrease – thus enabling highly effective and selective control of fungi. Its molecular structure includes a trifluoro-biphenyl group, which enables **Xemium** to spread throughout the plant with unique speed and efficiency.



3D model of Xemium

## Xemium<sup>®</sup>: Physical and Chemical Properties

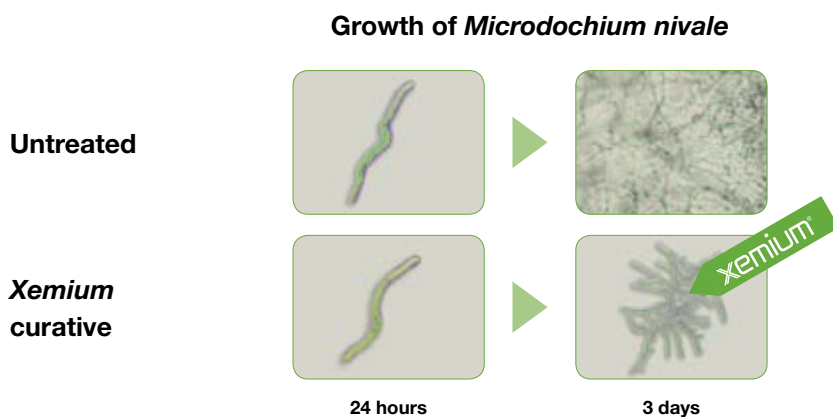
<b>Trade name:</b>	<b>Xemium</b>
<b>Proposed common name:</b>	Fluxapyroxad
<b>Molecular weight:</b>	381.31 g/mol
<b>Formula:</b>	C <sub>18</sub> H <sub>12</sub> F <sub>5</sub> N <sub>3</sub> O
<b>Water solubility:</b>	3.4 mg/L (20° C)
<b>Log P<sub>ow</sub>:</b>	3.1 (mean value)
<b>Odor:</b>	odorless
<b>Melting point:</b>	157° C
<b>Density:</b>	1.42 g/cm <sup>3</sup>



The physical and chemical properties of **Xemium** permit easy formulation and seed-coating. Based on our experience, **Xemium** can also be readily combined with other active ingredients.

## Xemium: Effects on Fungal Development

**Xemium** controls a wide range of fungal development stages for a broad range of pathogens. For example, it inhibits spore germination and mycelium growth in developing fungi.



In vitro tests on *Microdochium nivale*  
Source: Agar spores; 24 hours of curative treatment with 0.023 mg/ml of **Xemium**; BASF SE, Dr. Speakman, 2011

## Xemium®: Characteristics



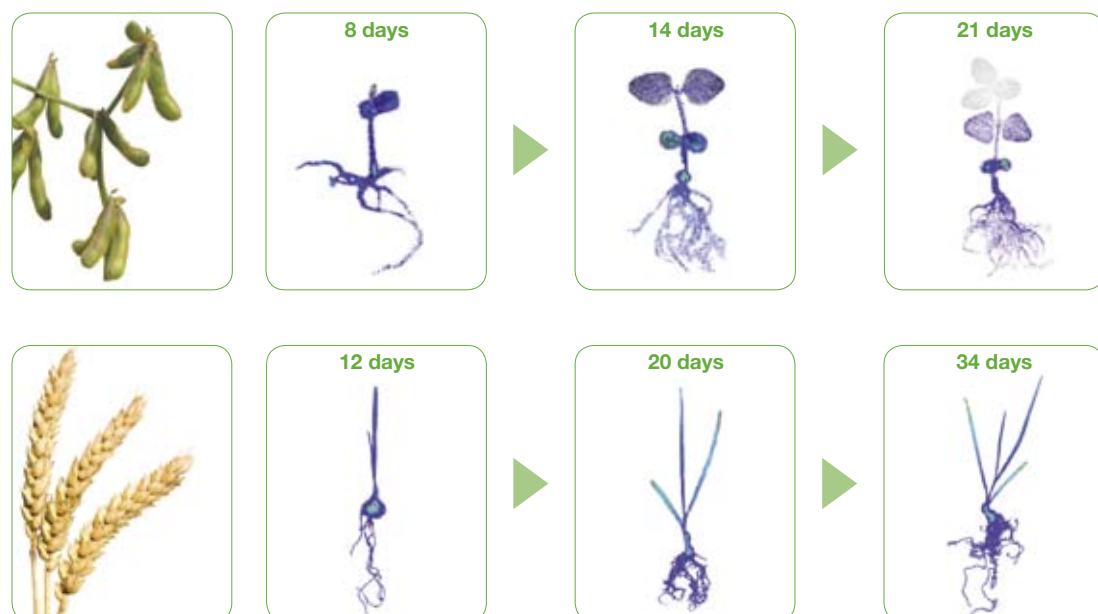
The unique molecular properties of **Xemium** make it readily available to the plant. After being taken up, **Xemium** enters the transpiration stream and travels throughout the plant with the water flow. This plant-wide distribution, together with its high activity level, ensures protection from the first developmental stages – thus providing reliable, consistent disease control. Seed treatment with **Xemium** and resulting control of disease will contribute to a better stand, which is a foundation for a healthier crop and yield.

**Xemium** has exhibited excellent translocation in various leaf and root stages in both mono- and dicotyledonous crops. It is continuously distributed throughout the root mass, protecting the entire system and resulting in stronger roots.

**Xemium** controls a very broad range of fungal pathogens belonging to the following major classes: *Ascomycetes*, *Basidiomycetes*, *Deuteromycetes*, and *Zygomycetes*. Like all SDH inhibitors, it does not affect *Peronosporomycetes*.

**Xemium** can be combined with existing available solutions for application to seeds, either as a premixed coating or as a tank mix.

**Xemium** is readily taken up by the roots and evenly distributed throughout young plants at early stages.



Distribution of radio labeled **Xemium** within different plants.

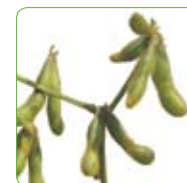
Source: BASF SE, Dr. Schiffer. <sup>14</sup>C ADME study with soybeans and wheat plants. Levels of radio-activity represented by color.

## Xemium<sup>®</sup>: Control Spectrum

**Xemium** is very effective for controlling major diseases that affect cereals, corn, cotton, soybeans, oilseeds rape, and many other crops. It also enables unprecedented control of *Rhizoctonia*.

Its use on other crops and additional application modes are currently being evaluated.

<b>Soybeans</b>	Root and stem rot	<i>Rhizoctonia solani</i>
	Seed/ seedling rot	<i>Fusarium solani</i>
	Leafspot	<i>Alternaria sp.</i>
	Seed Rot	<i>Phomopsis sp.</i>
	Colletotrichum	<i>Colletotricum truncatum</i>
	Mould	<i>Penicillium-/ Aspergillus sp.</i>
	<i>Early reduction of:</i>	
Soybean rust	<i>Phakopsora pachyrhizi</i>	



<b>Corn</b>	Root and stem rot	<i>Rhizoctonia solani</i>
	Fusarium wilt or blight	<i>Fusarium sp.</i>



<b>Cereals</b>	Bunt / Stinking smut	<i>Tilletia sp.</i>
	Leaf stripe	<i>Pyrenophora gramineum</i>
	Loose smut	<i>Ustilago nuda</i>
	Pink snow mould	<i>Microdochium nivale</i>
	Seedling blight	<i>Fusarium sp.</i>
	Sharp eyespot	<i>Rhizoctonia cerealis</i>
	<i>Early reduction of:</i>	
	Septoria leaf blotch	<i>Septoria tritici</i>
	Powdery mildew	<i>Blumeria graminis</i>
	Yellow (stripe) rust	<i>Puccinia striiformis</i>
	Net blotch	<i>Pyrenophora teres</i>
Scald	<i>Rhynchosporium secalis</i>	



<b>Cotton</b>	Root and stem rot	<i>Rhizoctonia solani</i>
	Fusarium wilt or blight	<i>Fusarium solani</i>
	Black root rot	<i>Thielaviopsis basicola</i>



<b>Oilseed rape</b>	Root and stem rot	<i>Rhizoctonia solani</i>
	Fusarium wilt or blight	<i>Fusarium solani</i>
	Black stem disease	<i>Phoma sp. (seed-borne)</i>



## Xemium®: Registration



Registration of **Xemium** seed treatments for all major crops is planned in all important regions:



Europe	✓			✓	
North America	✓	✓	✓	✓	✓
South America	✓	✓	✓		✓
Asia	✓	✓	✓		✓

**Xemium** products (for both foliar application and seed treatment) will be registered worldwide in accordance with global maximum residue levels (MRLs). Import tolerances are also being established for exported and imported crops to enable free trade of **Xemium**-treated produce.



**Xemium** - worldwide import tolerances to ensure free trade

## Xemium<sup>®</sup>: Application

**Xemium**-containing products uphold the high standards that all innovative BASF seed treatment products must meet with regard to formulation and handling.

**Xemium** is available as an FS (water-based) formulation for seed treatment.

From our experience, combining **Xemium**-containing products with other products in tank mixes does not diminish the ease of use or effectiveness of any of the ingredients.



## Benefits for Your Seed

The new **Xemium** technology enables:

- Advantageous new mode of action for seed treatment application
- Outstanding mobility and distribution in young plants and their roots
- Benchmark protection of seeds by controlling *Rhizoctonia* and *Fusarium solani* as well as many other pathogens
- Reliable and robust application in any weather
- Complete protection when combined with other active ingredients (e.g. F500<sup>®</sup>, Triticonazole, Prochloraz, etc.)
- Healthy plants from the start, thus ensuring greater yields
- Complements the genetic potential of seed varieties by supporting healthy crops from the very beginning



## The Value of Xemium<sup>®</sup> for Growers

The properties of Xemium ...  
... and how they benefit growers



Complete seed protection

Independence of weather

Healthy plants



Wide spectrum of diseases

Stronger roots



Benchmark protection



Reliable application



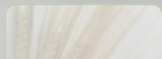
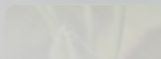
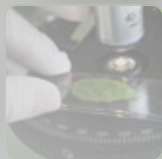
Outstanding distribution



High mobility in the plant



Unique chemistry



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Crop Protection  
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### Disclaimer

This flyer provides general information about **Xemium**. The information presented here is based on study results and reflects the current state of our knowledge.

The product discussed in this leaflet is neither registered nor available for sale.

This educational material is provided for informational purposes only and is not intended to promote sales of the product.

Any sale of this product after registration has been granted shall be solely on the basis of approved product labels, and any claims regarding product safety and efficacy shall be addressed solely by the label.

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