BASF
The Chemical Company

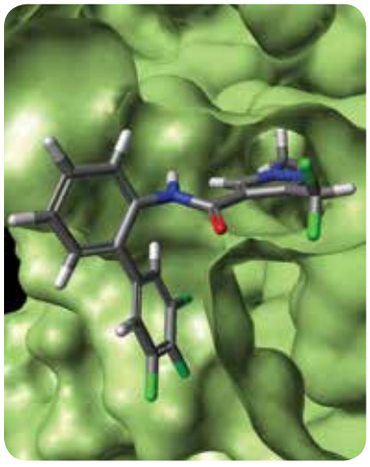
# Xzemplar™ fungicide

**Xzemplar™ fungicide** from BASF was developed with the latest in carboxamide technology — **Xemium® fungicide**. Building on our experience with Boscalid, the active ingredient in **Emerald® fungicide**, BASF has created a new broader spectrum and more active carboxamide fungicide.

**Xemium** will be used in two new turf product formulations for superior control of fungal diseases over a wide range of turf types.

## Xemium: Key Technical Characteristics

- Active ingredient: Fluxapyroxad
- Mode of action (see right)
- Redistribution and continuous supply of fungicide in the leaf
- Active on multiple fungal development stages

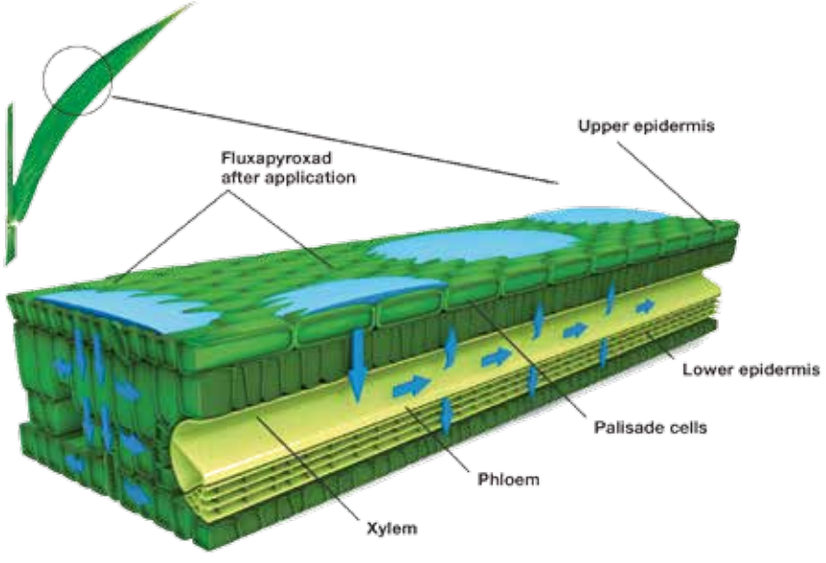


## Mode of Action

Fluxapyroxad blocks respiratory Complex II, also known as a succinate dehydrogenase inhibitor (SDHI). Blocking of Complex II disrupts the energy supply and biosynthesis of essential fungal building blocks.

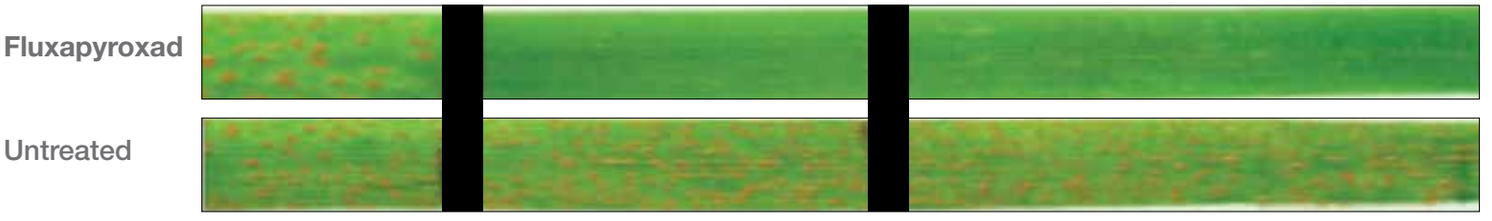
## Continuous Redistribution in the Plant

In addition to being tightly bound to the waxy leaf surface, making it rainfast, fluxapyroxad is redistributed from the wax to areas of the leaf that are not directly sprayed. Its unique molecular design lets it enter the transpiration stream and travel systemically within the leaf. This redistribution along with its high level of activity, ensures long-lasting preventative and curative effects from fluxapyroxad — thus resulting in reliable and more consistent disease control.



# Distribution of Xemium

**Xemium** (fluxapyroxad) protects the leaf blade, whereas other carboxamides show only limited mobility or activity.




Brown rust 1 day preventative. Source: Dr. Speakman, APR/FM

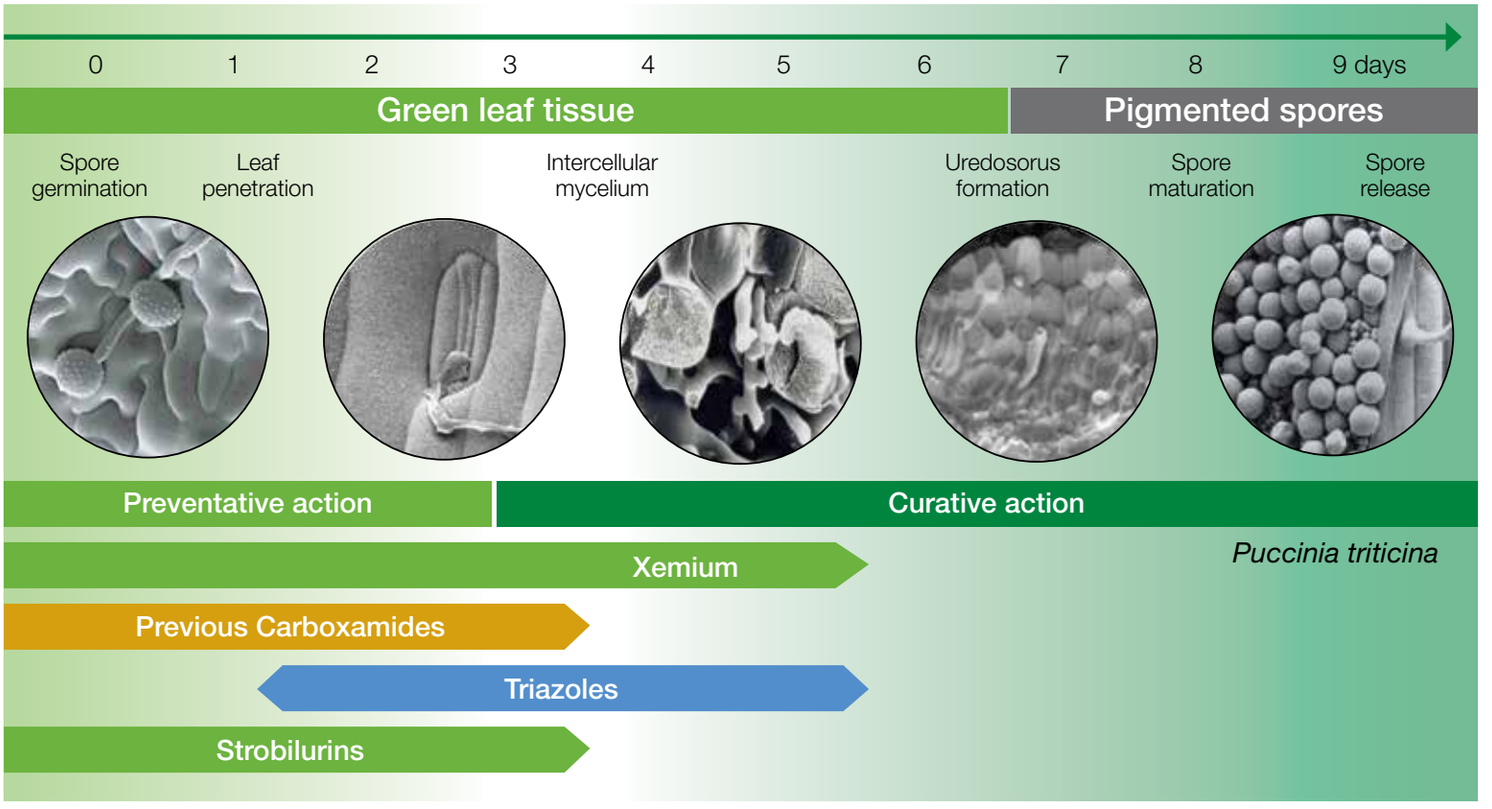
# Xemium: Effect on Fungal Development Stages

Fluxapyroxad, the active ingredient in **Xemium**, not only controls a broad spectrum of diseases, but it also controls a wide range of life stages of the fungus.

Fungicides normally show their strength in control during selected stages of fungal development. Triazoles, for example, do a good job of controlling the mycelium, whereas strobilurins, as well as Boscalid, control the fungus better at early stages.

Research has shown that fluxapyroxad affects multiple stages in the fungal life cycle. By having activity on multiple stages of the fungal life cycle, fluxapyroxad creates a wider window for application and greater flexibility in product use.

While preventative applications are preferred, fluxapyroxad controls pathogens at early stages and continues fighting later into the life cycle, all while providing residual efficacy to inhibit future infections.



# New Leader in Dollar Spot Control

**Xzemplar™ fungicide** gives you ultimate control over dollar spot. It combines the fast stopping power of a contact with long-lasting preventative action. Try **Xzemplar** today and take control of dollar spot fast!


- Powered by the next generation carboxamide with enhanced systemic properties for fast, continuous protection
- Quick-acting for curative dollar spot control
- Longer lasting than traditional curative products for improved preventative dollar spot control
- Not limited to just dollar spot; controls brown patch, snow mold, and more
- Easy to mix with pigments for desired turf appearance

## Research Results:

Research has shown that using **Xzemplar fungicide** in your fungicide program can deliver superior control of Dollar Spot, Brown Patch, Snow Mold and Algae.

## Diseases controlled by Xzemplar:

- Brown patch of cool season grasses *(Rhizoctonia solani)*
  Cool season turfgrasses such as bentgrass, fescue, perennial ryegrass and bluegrasses.
- Dollar spot *(Sclerotinia homoeocarpa)*
- Large patch *(Rhizoctonia solani)*
  Warm season turfgrass such as zoysia, seashore paspalum, St. Augustine grass and kikuyugrass
- Summer patch *(Magnaporthe poae)*
- Snow mold* (T*yphula* spp. or *Monographaella* spp.)
- Algae** (algal scum)

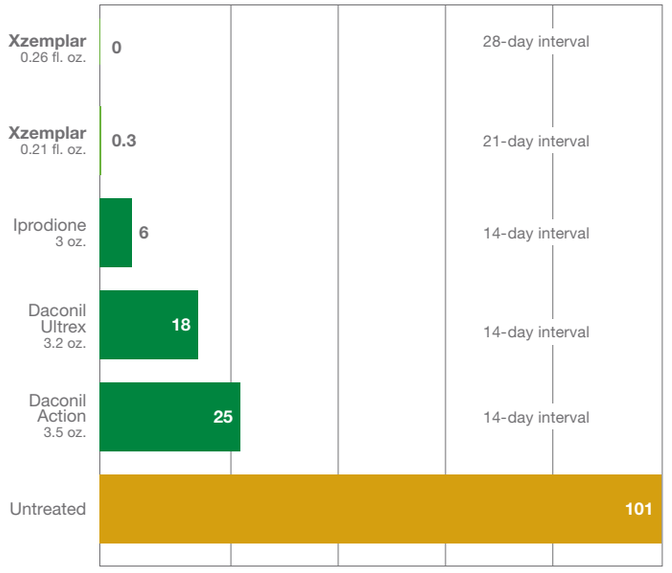
*Snow mold supression
**Reduces incidence of algae

## Use Sites: All major turfgrass use sites, including:

- Golf courses
- Sports and athletic fields
- Parks and recreational areas
- Residential lawns
- Commercial and municipal lawns
- Institutional lawns
- Cemeteries
- Sod farms
- Other maintained turfgrass areas

Apply **Xzemplar fungicide** either preventively when conditions are conducive to disease or as soon as disease starts for best results. For more detailed program recommendations, please refer to the BASF Fungicide Program Guide or call your local BASF sales specialist.

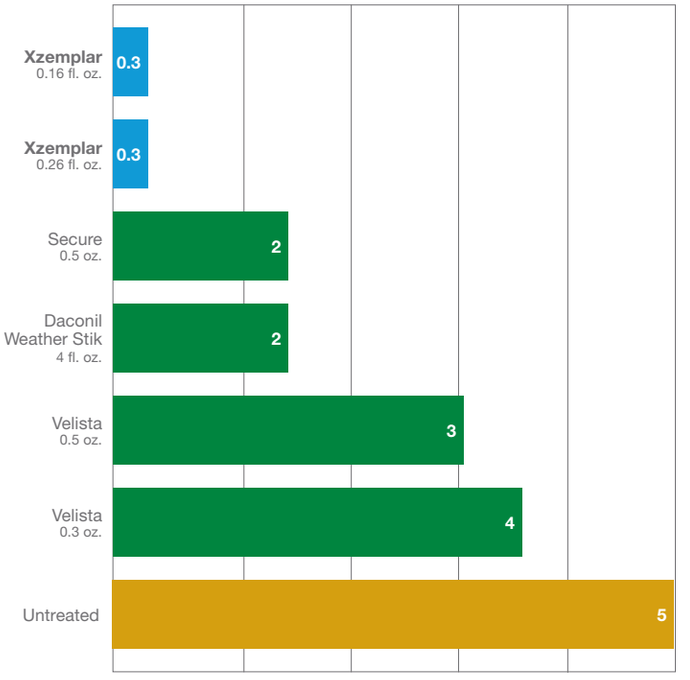
## Preventive Dollar Spot Control on Bentgrass Fairway




**Number of Lesions per Plot**

Final application 8/22 or 8/15, based on 14- or 21-d interval, respectively.
Location: Penn State Univ.; W. Uddin, 2013
Partial data shown

## Curative Dollar Spot Control on Bentgrass Fairway



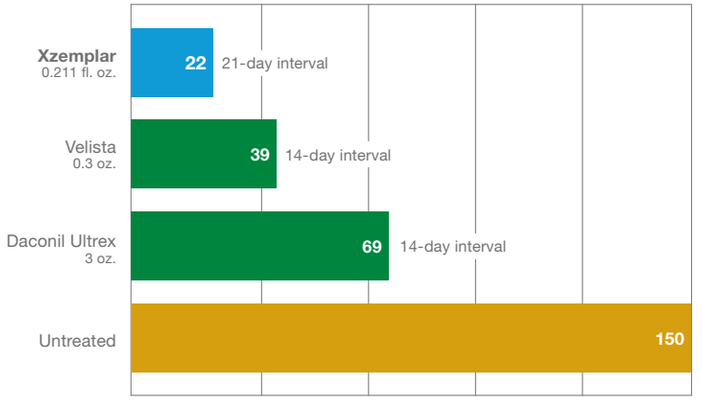

**Dollar Spot Aerial Mycelium**

Location: Univ. of Conn.; J. Inguagiato, 2013
Partial data shown

## Dollar Spot Efficacy on Creeping Bentgrass Greens

### 48 Days after First Application

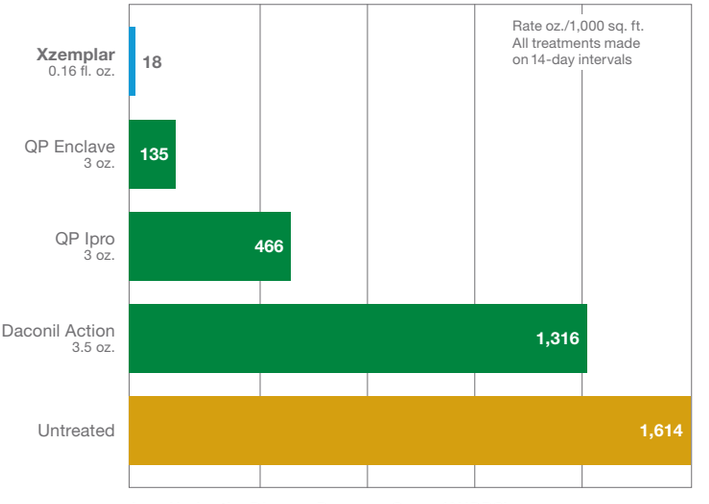
**Xzemplar fungicide** on a 21-day application interval provides greater dollar spot control than competitive products on 14-day interval.




**Number of Infection Centers**

Applications initiated 8/28/12
Xzemplar evaluated 6-DAT following 2 applications (21-d interval)
Velista and Daconil Ultrex evaluated 14-DAT following 3 applications (14-d interval)
Location: North Carolina State Univ.; M. Soika, 2012
Partial data shown

## Season-Long Dollar Spot Control on Bentgrass Greens




**Area Under the Disease Progress Curve (AUDPC)**

AUDPC=quantitative summary of disease intensity over time
Ratings from 6/28 to 8/30 – initial application 5/14
Location: Penn State Univ.; W. Uddin, 2013
Partial data shown

# Preventive Dollar Spot Trial on Bentgrass Greens

**Untreated**

**Xzemplar**

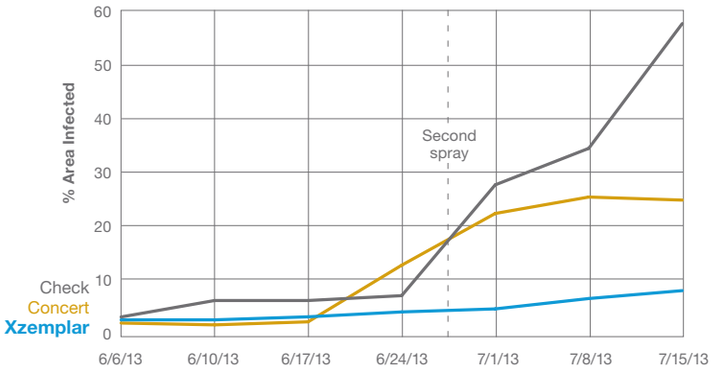
(0.26 fl. oz./1,000 sq. ft.)
28-day interval
Applied 6/6, 7/3, 7/31

**Xzemplar**

(0.21 fl. oz./1,000 sq. ft.)
21-day interval
Applied 6/6, 6/27, 7/17

Photos courtesy of and location:
Kansas State Univ.; M. Kennelly, 2013

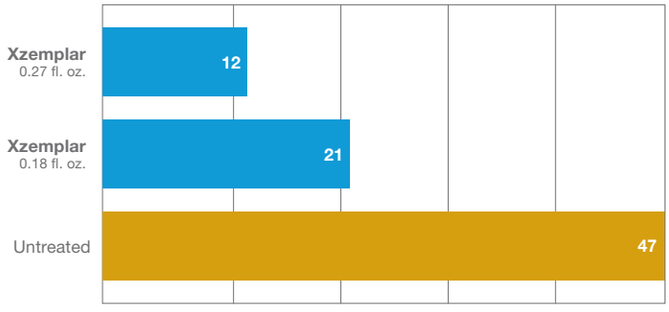
# Brown Patch Control After Two Applications




Two applications May 23 and June 23, 2013; 28-d interval. Selected treatments shown.
Location: Clemson Univ.; B. Martin, 2013

# Algae Reduction on Creeping Bentgrass

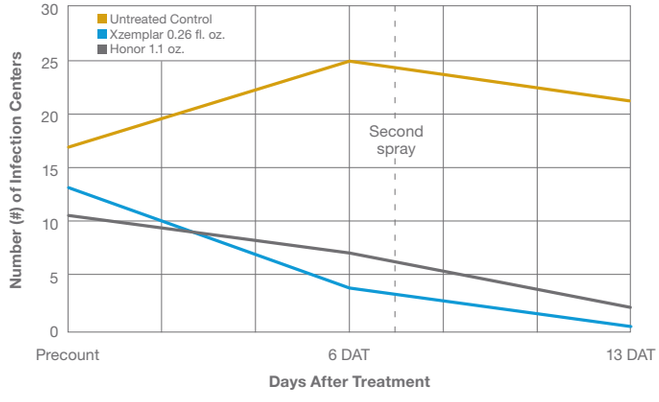
## 14-day Treatment Intervals




**% Algae Cover**

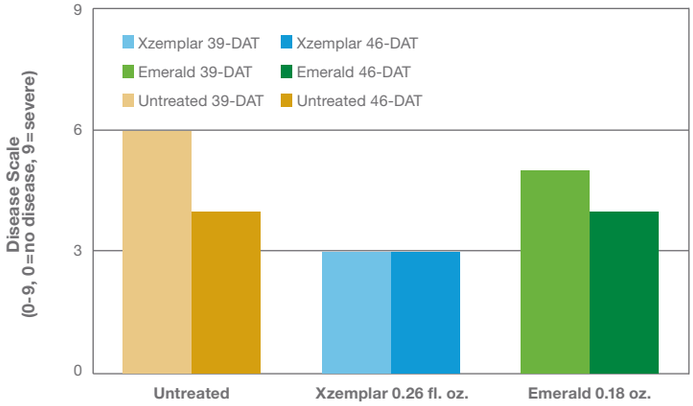
76/31 DAT/DALT; evaluation 8/24/09
Selected treatments shown.
Location: Rutgers Univ.; B. Clarke, 2009

# Curative Control Dollar Spot on Seashore Paspalum




One curative application 4/2013.
Location: Univ. of FL; P. Harmon, 2013

# Dollar Spot Residual on Seashore Paspalum Green




Trial initiated 5/27 as preventive application on 'Supreme' seashore paspalum green; two applications on 21-d interval with infection after second application in June.
Location: Univ. of FL; J. Cisar, 2013


BASF
The Chemical Company

# Technical Profile for Xzemplar Fungicide:

- **Xzemplar:** 26.55% fluxapyroxad
- **Fungicide Class:** SDHI or Succinate-Dehydrogenase Inhibitors (Group 7)
- **Formulation:** Suspension concentrate (SC)
- **Packaging:** 2 x 114 fl. oz.
- **Rates:** 0.16 to 0.26 fl. oz./1,000 sq. ft. on 14-28 day intervals
- **Signal Word:** Caution
- **REI:** Wait until sprays are dried for all uses other than sod farms. On sod farms REI is 12 hrs.
- **PPE:** Long sleeved shirt and pants/chemical resistant gloves/shoes plus socks
- **Use Sites:** All major turfgrass use sites, including:
  - Golf courses
  - Sports and athletic fields
  - Parks and recreational areas
  - Residential lawns
  - Commercial and municipal lawns
  - Institutional lawns
  - Cemeteries
  - Sod farms
  - Other maintained turfgrass areas

**Always read and follow label directions.**