

## Management of Corn Diseases with DuPont™ Approach® Prima Fungicide

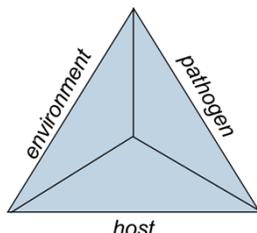
### Foliar Fungicide Use in Corn

- The need for foliar fungicides for disease management in corn production has increased due to a number of factors
  - Continuous corn acres have increased to meet market demands
  - Reduced tillage and no-till production practices have increased corn residue in continuous corn
  - Disease susceptibility in hybrids is variable
  - Increase in foliar corn diseases in recent years across the Midwest due in large part to favorable environmental conditions for disease development

### Factors Affecting Plant Disease

1. Environmental conditions: Temperature and moisture
2. Presence of the pathogen: Previous crop and tillage
3. Host plant: Hybrid selection

Figure 1. Disease triangle



### Biology of Key Corn Diseases

- **Gray leaf spot**, *Cercospora zea-maydis*
  - Survives on infested residue
  - Proliferates in wet, warm, humid (>95%), and overcast conditions
- **Common rust**, *Puccinia sorghi*
  - Carried by weather systems from southern locations
  - Proliferates in high humidity (>95%) and cool temperatures (60°-75° F)
- **Southern rust**, *Puccinia polysora*
  - Carried by weather systems from southern locations
  - Proliferates in warm (77°-82° F), humid (>95%), and wet conditions
- **Northern corn leaf blight (NCLB)**, *Exserohilum turcicum*
  - Survives on infested corn residue
  - Proliferates in prolonged periods of dew or leaf wetness, moderate temperatures (64°-81° F), and overcast conditions



### DuPont™ Approach® Prima Fungicide

- Dual mode of action, containing: picoxystrobin (strobilurin fungicide) + cyproconazole (triazole fungicide)
- Manages a broad spectrum of fungal pathogens in corn, while maintaining plant health under stressful conditions
- Picoxystrobin = better plant health, broad spectrum disease control, reduction in early disease infection
- Cyproconazole = enhanced disease control spectrum, improved post-infection control with heavy pressure, very effective on NCLB
- Both active ingredients are highly systemic throughout the plant, providing excellent plant coverage under less than ideal conditions.

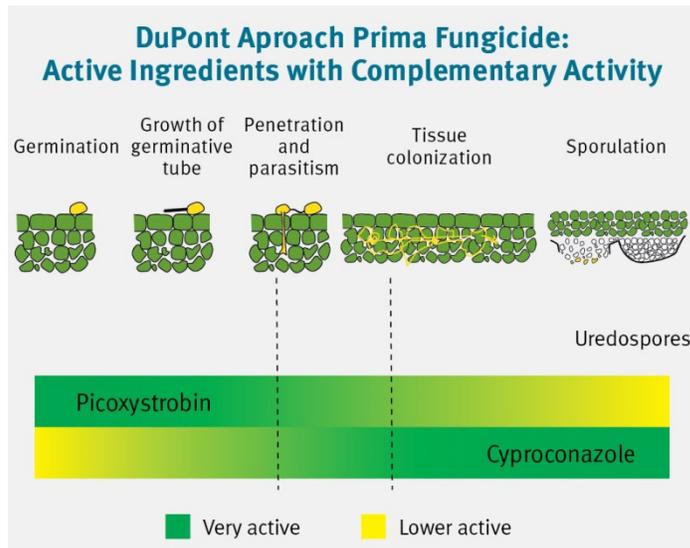


Figure 2. Dual mode of action in DuPont Approach Prima fungicide: picoxystrobin provides early disease protection, while cyproconazole provides post-infection control and extended residual activity.



Figure 3. Characteristic symptoms of NCLB: 'cigar shaped' tan or grayish lesions on leaf surface. Lesions eventually coalesce into necrotic tissue.

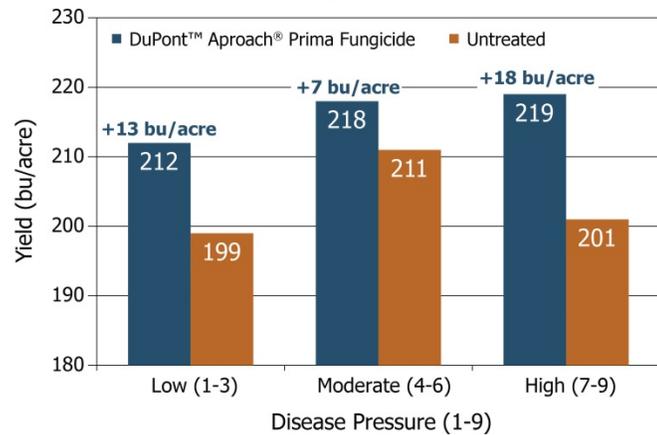
# Fungicide Efficacy in NCLB Management

- Research has demonstrated the economic value of fungicide applications depends on the primary factors of **disease pressure, application timing, and hybrid susceptibility**

## Disease pressure

- No disease threshold for NCLB
- High residue due to reduced and no-till practices and corn after corn rotation can lead to an increase in inoculum
- Even at low levels of NCLB pressure, fungicide application has shown an economic benefit

**DuPont™ Approach® Prima Fungicide x NCLB Disease Pressure**

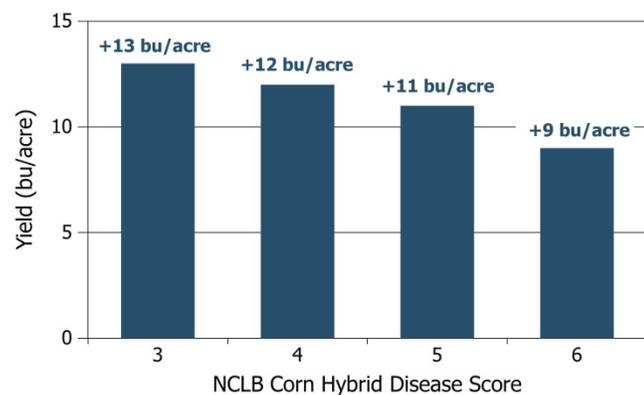


**Figure 4.** Average yields from 40 Pioneer® GrowingPoint® agronomy trials in Iowa in 2015 comparing DuPont™ Approach® Prima fungicide applications with low, moderate, and high NCLB pressure.

## Hybrid susceptibility

- Corn hybrids have varying levels of genetic resistance to NCLB
- DuPont Pioneer hybrids vary from a score of a 3 to 6 on a 1 to 9 disease scale (1 = susceptible to 9 = tolerant)
- Fungicide applications protect yields of all hybrids including moderately-resistant hybrids

**DuPont™ Approach® Prima Fungicide x Hybrid NCLB Score**



**Figure 5.** Average yields from 40 Pioneer GrowingPoint agronomy trials in Iowa in 2015 illustrating the yield advantage of a fungicide application on Pioneer® brand hybrids with varying disease scores.

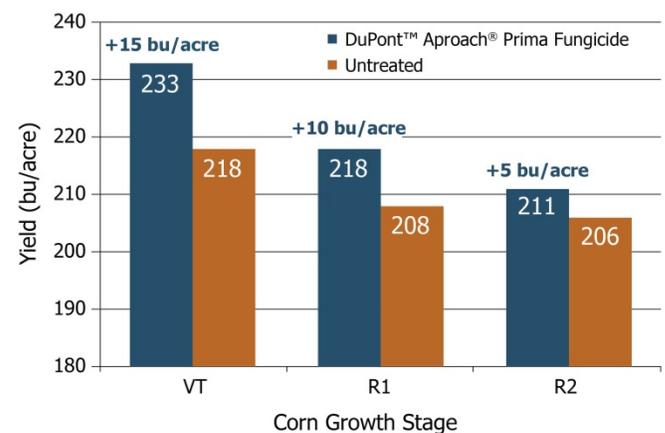
# Application timing

- The goal is to protect yield by preventing infection on the ear leaf and above as the plant enters the reproductive stage
- DuPont Approach Prima fungicide is most effective when applied prior to disease infection or soon after infection
- Fungicides applied at tasseling to early silking stages (VT to R1) have the greatest likelihood of an economic return



**Figure 6.** Field trial comparing DuPont Approach Prima fungicide pre-tassel applications in corn to untreated corn with high NCLB pressure.

**DuPont™ Approach® Prima Fungicide x Corn Growth Stage**



**Figure 7.** Average yields from 40 Pioneer GrowingPoint agronomy trials in Iowa illustrating the value of timely fungicide applications.

## Conclusions

- The need for foliar fungicides to manage key diseases in corn has increased
- Fungicide effectiveness for managing NCLB depends on 3 primary factors: **disease pressure, hybrid susceptibility, and application timing**
- DuPont Approach Prima is an effective fungicide providing disease control and higher corn yields

Always read and follow all label directions and precautions for use.

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