

CONTROLLING RUST IN 2002



Common Rust

Puccinia sorghi



Rusts are specialized
parasites with a
limited host range





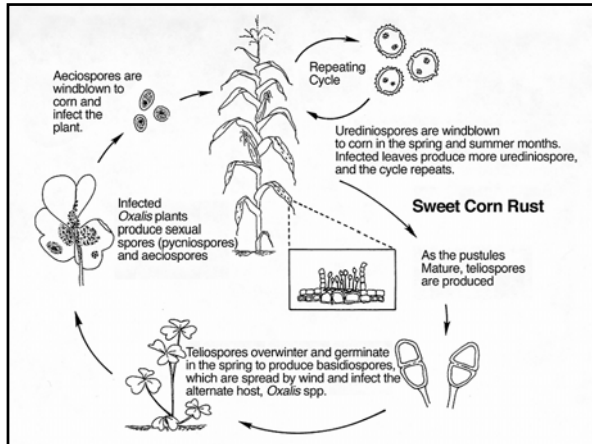
As the pustules mature, they turn brownish black and release the dark-brown overwintering spores (**teliospores**). This spore is not believed to survive in NY

Pustules may also occur on ears and tassles



The complicated life cycle of *P. Sorghi* includes 5 different spore types and two hosts, **corn** and *Oxalis* spp. Teliospores infect *Oxalis*, while urediniospores infect corn.





Puccinia sorghi

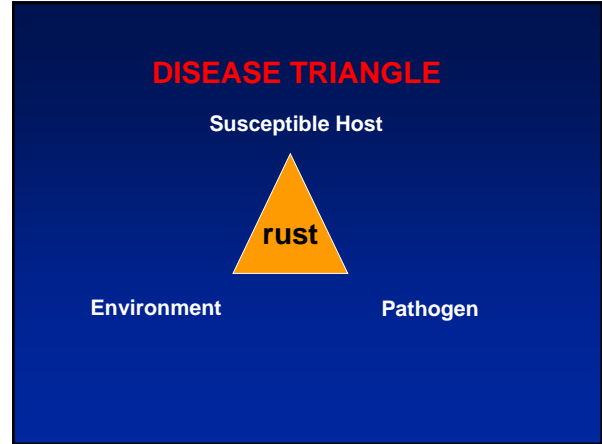
Urediniospore
 Teliospore
 Basidiospore
 Pycniospore
 Aeciospore




Yield losses –quality and quantity

- *delayed silking
- *poor pollination
- *poor tip fill
- *shriveled kernels
- *reduced ear length and diameter
- *reduced sugar accumulation
- *orange pustules on flag leaves

Rust is a “**compound interest disease**”. A few initial pustules may produce thousands of spores if the weather is conducive to disease. These spores are blown to susceptible leaf tissue and the cycle rapidly repeats.

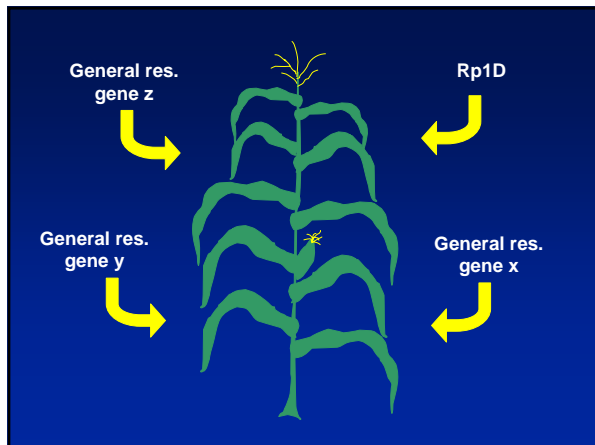


Factors Associated With Rust Development

- Weather
- Host resistance
- Fungal inoculum

Weather

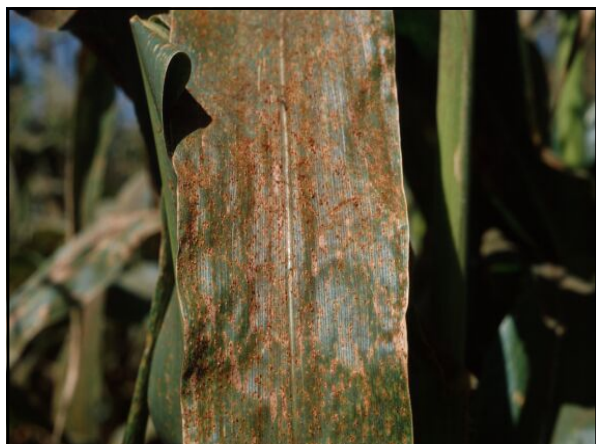
- Temperatures of 60-75 F
- Heavy dews
- High relative humidity
- Frequent rain



Fungal Inoculum

- Arrival date
- Quantity
- Viability
- Species
 - *P. sorghi* / *P. polysora*
- Strain





Virtually **all** varieties may develop rust in 2002 if the population of *P. sorghi* contains a mixture of strains, and it did in 2001.



FRESH MARKET

- Select tolerant varieties
- Begin scouting at early whorl
- Scout frequently and record disease progress
- Treat if disease progression is rapid and severity is high
- Follow the label for directions on use and rates



PROCESSING PLAN

- Begin scouting at early whorl (grower, fieldman, consultant)
- intense scouting on selected varieties
- Treat if disease progression is rapid and severity is high
- Follow the label for directions on use and rates



Management

- Maintain good weed control and wider row spacing to facilitate leaf drying
- Use resistant varieties, especially after June 25 when air fungal density may be higher
- If necessary, control with fungicides to reduce rate of epidemic; treat prior to tasseling.
- Research in Illinois has shown sweet corn hybrids have some 'adult plant resistance': they were more resistant when inoculated at silk rather than at the 4 to 5 leaf stages.

Chemical Control

Quadris

Tilt

Maneb-processors may
discourage use

Mancozeb- processors may
discourage use

Chlorothalonil-fresh market
only

COMMON SMUT

Ustilago maydis

Common smut is characterized by the presence of large, fleshy, irregular **galls** on the stalk, ears, tassels, and leaves.