

# Overview of *Puccinia polysora* Biology

Workshop on Southern Corn Rust *Puccinia polysora*  
NCSU

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# *P. polysora* History

- aka, American rust
- Widely distributed on maize in tropical and sub-tropical areas.
- First reported in 1897: on *Tripsacum dactiloides* L. collected in 1891.
- Later found on maize specimens collected in 1879.

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# ***P. polysora* History**

- **Reported in Florida and NJ, 1920**
- **Indiana, 1949-1950**
- **Illinois, 1958**
- **Wisconsin, 1959**
- **Mississippi River Valley (eastern Texas to western Alabama, upward to southern Illinois, 1972-1974)**

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# *P. polysora* History

- 1949, first report in eastern hemisphere
- 1949, western Africa moving eastward
- 1956, southern and southeastern Asia and Pacific islands.
- Early, 1950s, yield losses in western Africa, 60%, causing widespread famine.

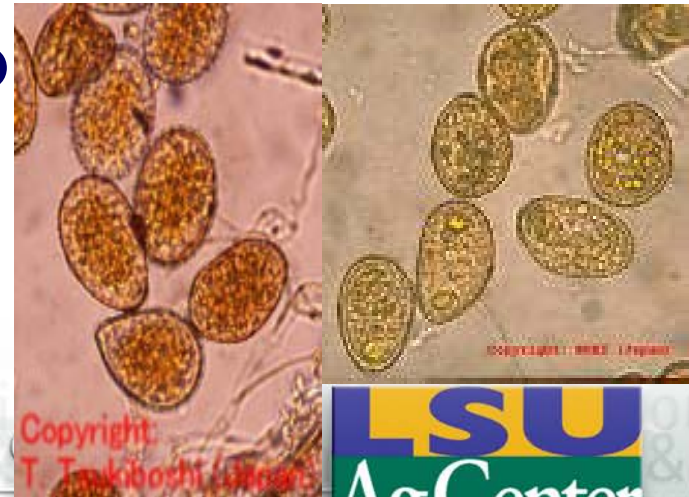
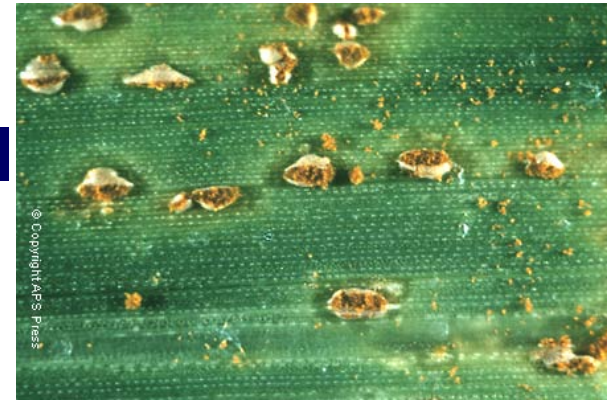
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# *P. polysora* Biology

- Only uredial and telial stages have been observed.
- Uredinia: small, circular to oval cinnamon brown, uniformly distributed
- Urediniospores: yellowish to golden brown, ellipsoid, echinulate, 4-5 equatorial pores



# *P. polysora* Biology



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# *P. polysora* Biology



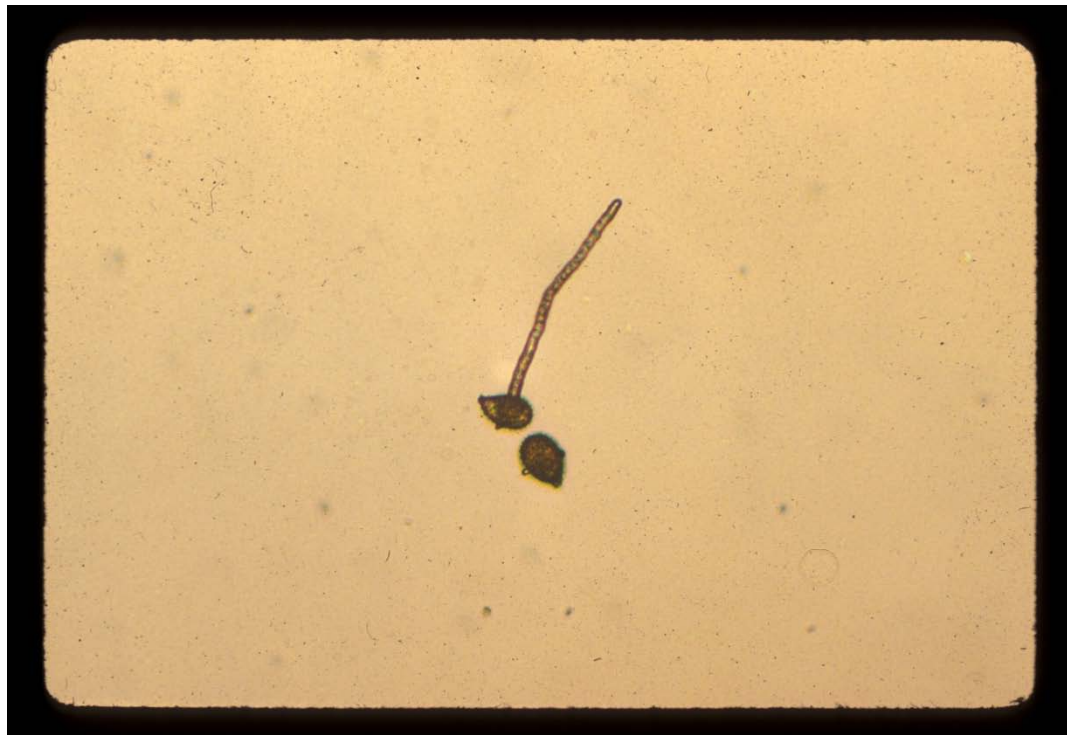
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# *P. polysora* Biology

- Urediniospores germinate at equatorial pores



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# *P. polysora* Biology

- 16-hr dew period at 26C ideal for optimum infection

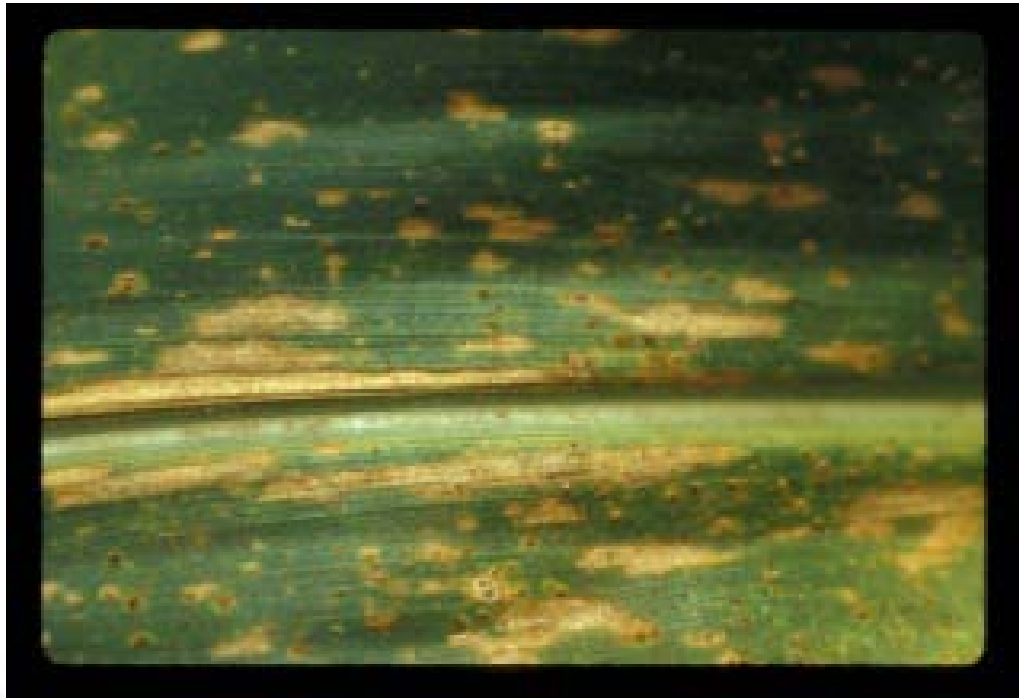


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# *P. polysora* Biology

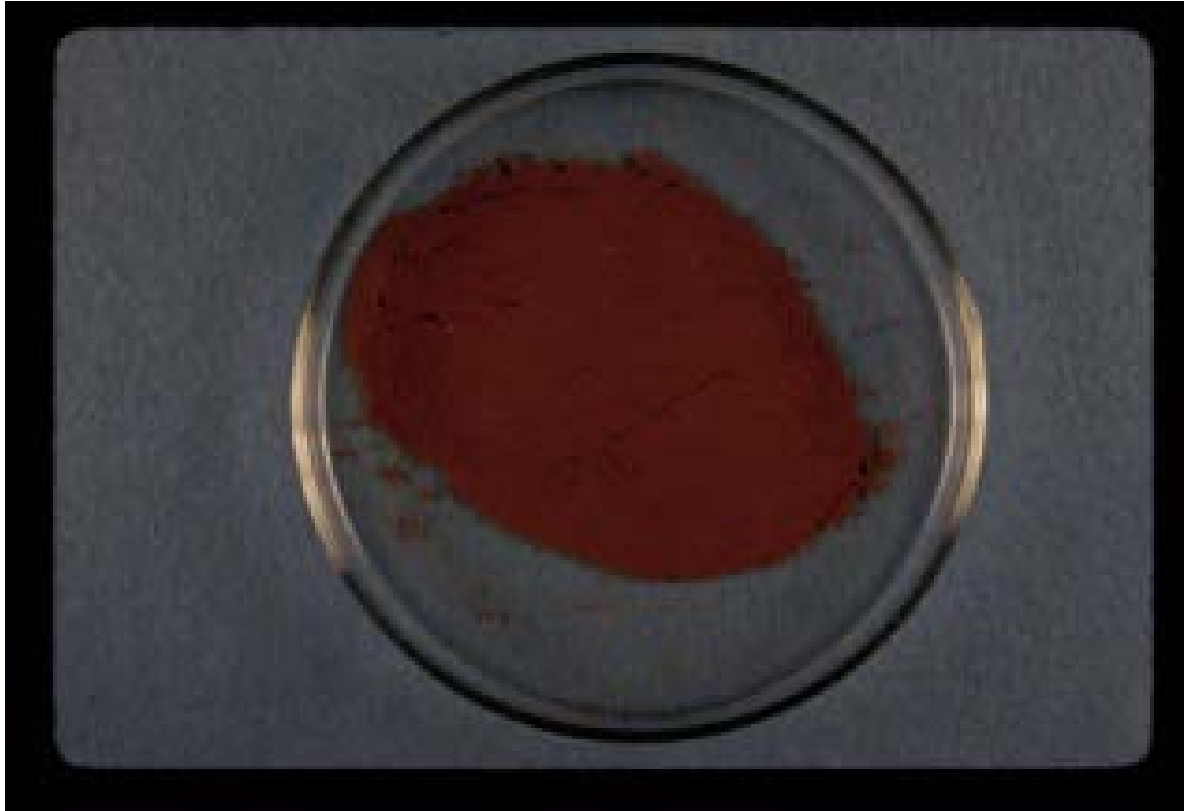
- Uredinia form approximately 7 to 10 days after inoculation depending on temperature



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# *P. polysora* Biology

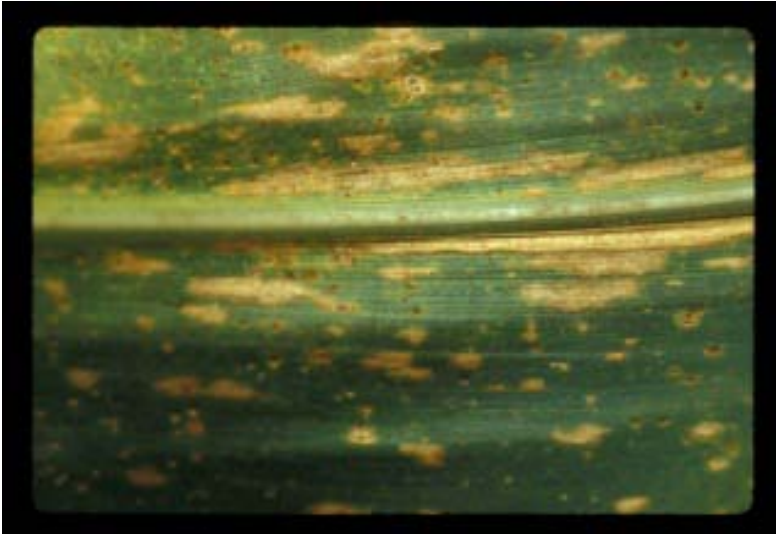
- **Post production to pre-germination environment**
- **Inoculum quality as it relates to germinability and infectivity**
  - **Temperature affects both germinability and infectivity...below 12C drastic reductions/above 20C slight reductions**
  - **High RH affects both**

# *P. polysora* Biology



- **Urediniospore release**
  - Up to 220 spores/day from early June to mid-August (collector removed from maize fields)
  - Within canopy, release during day, correlated with RH

# *P. polysora* Biology

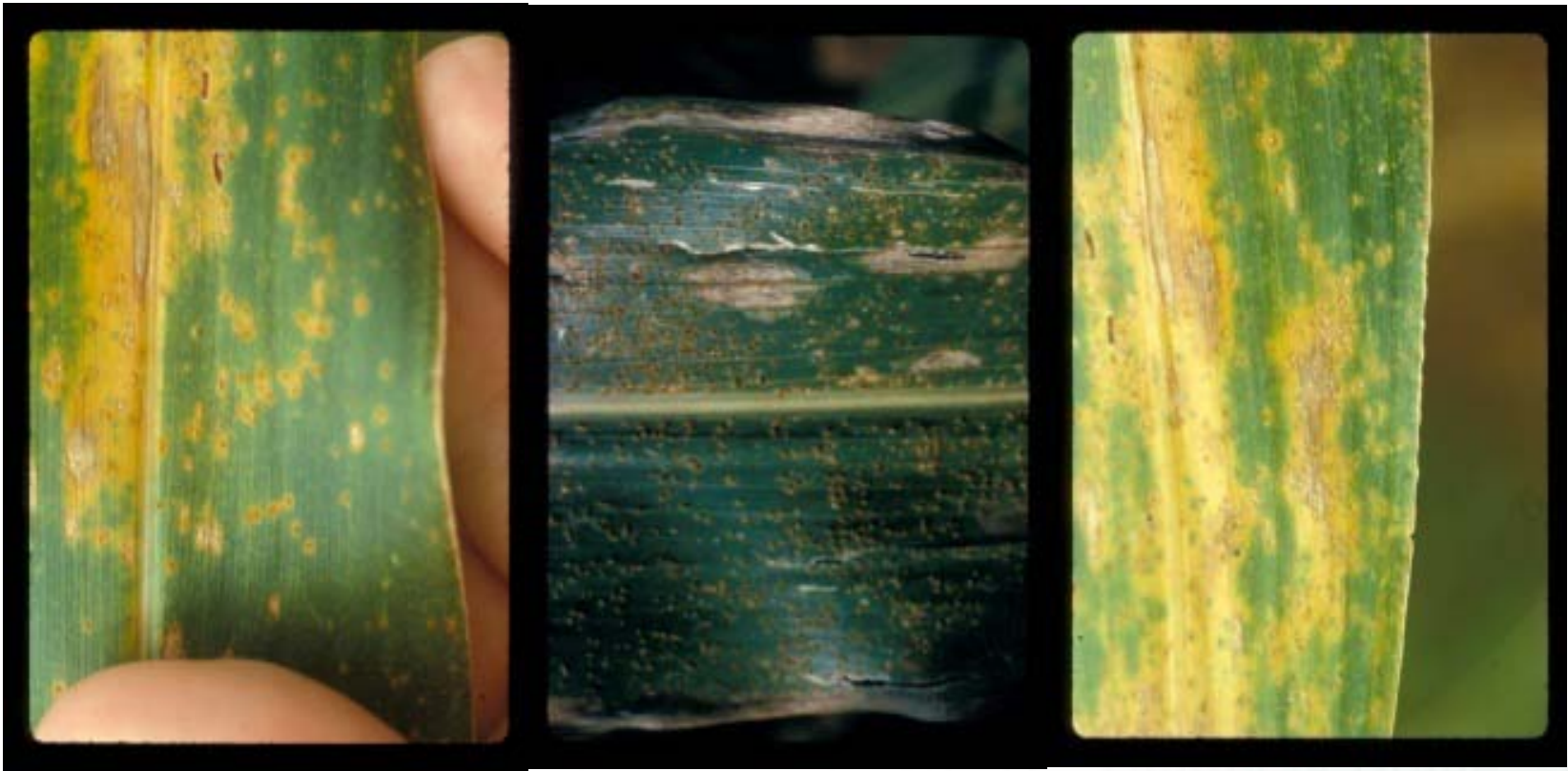


- **Symptoms**
  - Uredinia, abundant on upper leaf surface
  - Generally round to oval
  - Blister stage
  - Leaf lamina, husk leaves of ears, ear shanks, stalks, leaf sheaths

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# *P. polysora* Biology



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# This is what happens when you don't eat your vegetables!!!



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