Russet on Snap Beans, a new disease caused by *Plectosporium tabacinum*

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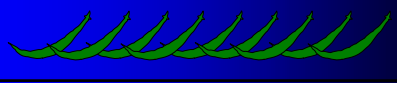
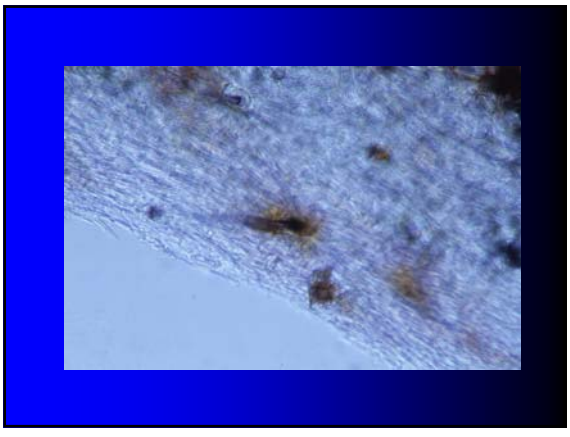
Objectives

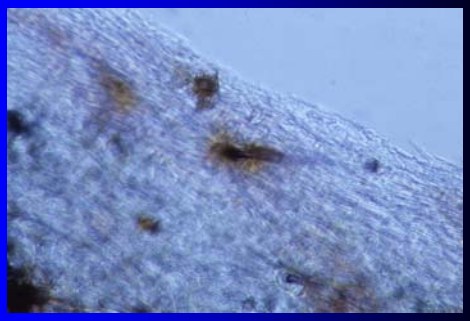
- Determine if an organism is the causal agent of russet.
- If so, identify the organism(s) responsible.
- Consider potential control strategies.

Russet

- Sporadic problem on snap beans in New York and Maryland.
- Usually occurs late in the season.
- Associated with significant rain events.
- Confusion between russet and rust among producers and fieldmen.
- Cause of problem was unknown.







Historically russet was described as having been caused by powdery mildew (Erysiphe spp.) or an injury to the pods.

(Harter and Zaumeyer, 1944).

Russet Symptoms

- Occurred only on the bean pods
- Diffuse superficial light brown necrotic areas or flecks
- No defined border
- Microscopically the rust color was associated with the bases of damaged or absent root hairs
- Not confined to any area of pods, and lesions varied in size and shape
- More symptoms in sulcus possibly due to accumulation of moisture

In 2000 in Maryland harvesting begun of healthy mature Brio snap bean pods was interrupted by rain and two days later russet rendered the field unmarketable.

Isolation procedure

- Excised paper thin sections of pod epidermal tissue.
- Triturated in a drop of sterile water.
- Streaked on potato dextrose agar (PDA) amended with streptomycin sulfate and chloramphenicol.
- Incubated plates at 23C for 2 days, and subcultured on PDA.
- Stored spores from cultures in 15% glycerol at –80C.

Procedures

- Isolated several fungi including the unknown, *Fusarium* sp. and *Alternaria* sp.
- Selected likely candidates for pathogenicity testing.
- Produced inoculum on PDA
- Grew Brio and Gold Mine plants in soilless mix in the greenhouse until the pod stage.
- Selected plants with pin, medium, or harvest sized pods.

Procedures (continued)

- Injured plants with an electric leaf blower or left uninjured
- atomized inoculum on plants
- misted continuously in mist chamber at about 25C for 48 hours.
- Rated plants for disease after symtoms developed

Unknown = Plectosporium tabacinum (Identified by W. Gams)

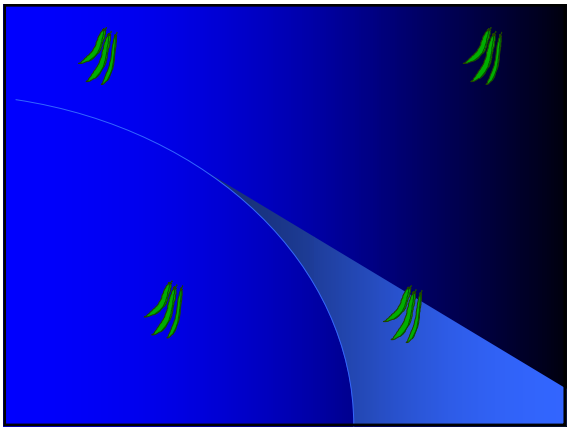
- Commonly found in soils, decaying plant material, crops worldwide
- Wide host range horticulturally important plants, weeds, gill parasite of crayfish.
- Symptoms vary among hosts.
- Saprophyte or parasite?
- Attacks many cucurbitacae.

Data (3/23/01)

Pod Size (cm)	No. of pots	Midpoint (%)
large >12.0	12	37.7 a
medium 5.0-12.0	12	28.5 b
pin 2.5-<5.0	12	5.0 c

Results

- Only *Plectosporium* caused disease.
- Symptoms occurred only on pods.
- Injury was not necessary for disease development.
- Medium to large beans were more susceptible than pin pods.
- Disease severity was greater on Brio than Gold Mine.
- Symptoms developed more rapidly with continuous mist until symptom development.



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