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Potato black scurf

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POTATO BLACK SCURF

COMMON NAME

- *Rhizoctonia* damping off, Blight and rot, White blight, Target spot.

CAUSAL ORGANISM

- *Rhizoctonia solani*(Anamorph) - kuhn.
- *Thanatephorus cucumeris*(Teleomorph) - A.B.Frank
Donk.

SIGNIFICANCE

- Significant loss in yield reduction based on the stage of the disease.
- Some of these consequences are major yield losses from 25% to 100%.
- *Rhizoctonia* can be found across a areas of the united states where its host crops are located.

HISTORY

- In 1858, Julius Kuhn observed and described a fungus on diseased potato tubers and named it *R.solani*. *Rhizoctonia* is greek word. Rhiza means root and ktonos means murder. Solanum is latin word it means night shade.

- The type species for the genus *Rhizoctonia* was initially the species *Rhizoctonia crocorum* described by DeCandolle in 1815. It was later changed to *Rhizoctonia solani* by the International Code of Botanical Nomenclature.

SYSTEMIC POSITION

- Kingdom: Fungi
- Phylum: Basidiomycota
- Class: Agaricomycetes
- Order: Ceratobasidiales
- Family: Ceratobasiaceae
- Genus: *Rhizoctonia*
- Species: *R.solani*

SYMPTOMS

- This disease occurrence is common both in hills and plains.
- There are two phases of disease.

Stem canker phase

- Affected roots, stems, and stolons show reddish brown necrotic patches called cankers. In that plants are stunted and develop a rolling of the upper leaves.

- The sprouts are killed before they emerge and this delays the germination resulting in loss of yield. The canker may cause wilting of the plants also.

Black scurf phase

- Appearance of black crust on the tubers which reduce their acceptability to the consumers. It usually appears as small, irregular blemishes that can be extensive but easily scratched off.

Stem canker



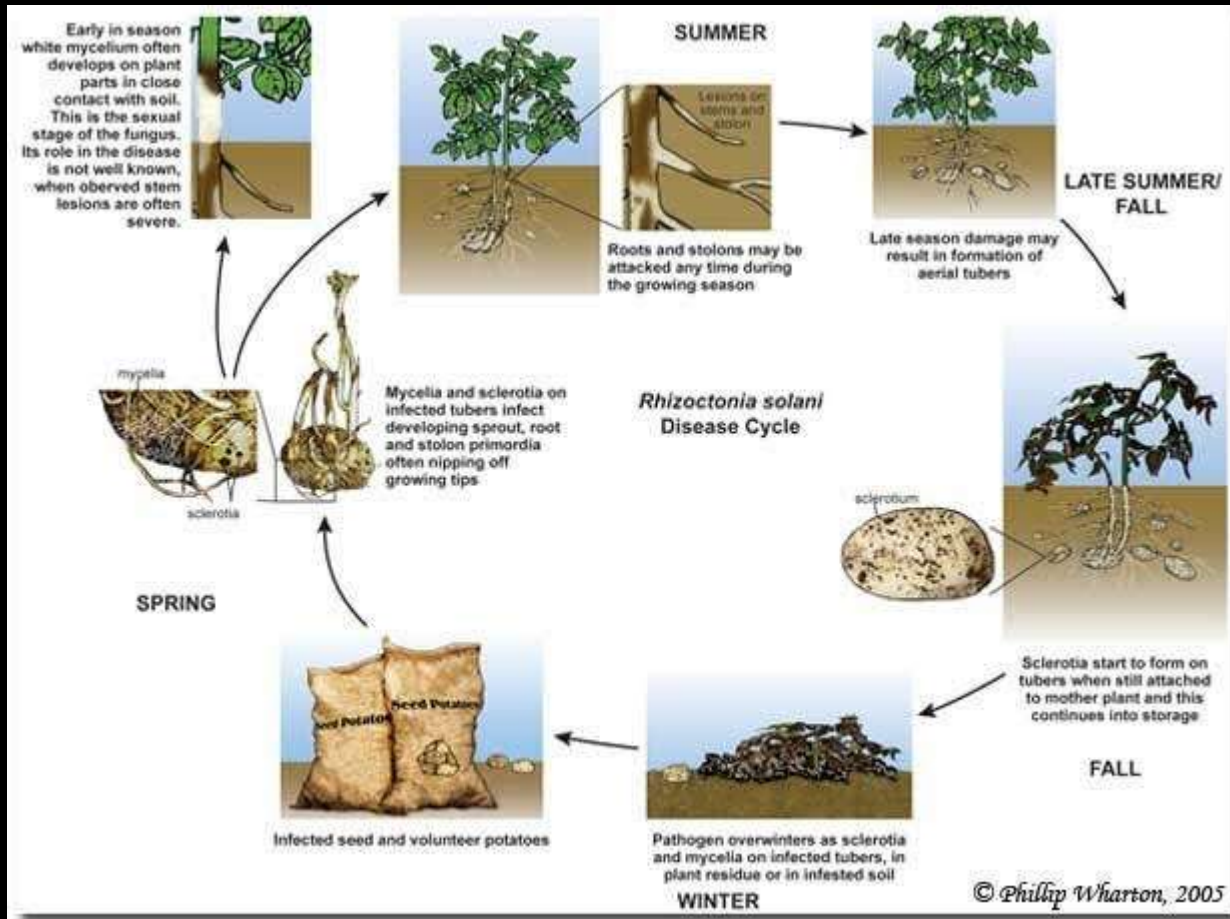
Black scurf



PATHOGEN

- *R. solani* frequently exists as thread like growth on plants or in culture, and is considered a soil borne pathogen.
- The pathogen is not currently known to produce any asexual spores though it is considered to have an asexual lifecycle. Occasionally sexual spores(Basidiospores) are produced on infected plants.

LIFE CYCLE



FAVOURABLE CONDITIONS

- Development of disease is favored by soil temperature between 16 to 23⁰c, while soil temperature is above 25⁰c reduce the severity of canker.
- It more severe in soils that are cool and moist.
- Acid soil is most favourable.

INTEGRATED DISEASE MANAGEMENT

Cultural method

- Use disease free soil. Avoid areas with history of potato production or history of potato scurf and stem canker.
- use certified seed potato and assure disease free propagation material.
- Crop rotation with canola, barley or sweet corn.
- Plant less susceptible cultivar.

BIOLOGICAL MATHOD

- There is growing evidence that a biofumigation treatment from incorporating a mustard cover crop is one way to reduce *Rhizoctonia* incidence. When incorporated into the soil, mustard residues release cyanide containing compounds that fumigate the soil.

REFERENCES

- <http://agropedia.iitk.ac.in>
- ecoursesonline.iasri.res.in/mod/page/view.php?id=9201