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# Early blight of Potato

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# Early blight of Potato

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Host- Solanum tuberosum

Pathogen or C\O- Alternaria solani

**Introduction**- Early blight is a disease of potato caused by the fungus Alternaria solani. It is of common occurrence both in cold as well as in warm regions in India and abroad i.e. wherever potatoes are grown (worldwide). Among the fungal diseases, early blight is most destructive. This disease may cause serious damage to the crop.

**Symptoms**- 1. The disease first becomes visible as small, isolated, scattered, pale brown spots on the leaflets. The lowest leaves are attacked first and the disease progresses upwards.

- 2. In the necrotic spots, **concentric rings appear on older leaves** and darkened areas on the stem. This gives a **target board- like effect**. There is usually a narrow **chlorotic zone around the spots**.
- 3. There may be a few spots or a large number of spots on the leaves.
- 4. In dry weather, the **spots become hard and the leaves curl**.
- 5. In humid weather, the affected areas increase and large **rotting patches** may appear.
- 6. In severe attacks, leaves shrivel, become **yellow** and **fall down** i.e. defoliation also occurs. All the aerial portions of the **plant** have a **blighted appearance**.
- 7. **Tuber** lesions are dry, dark and pressed into the tuber surface, with the underlying **flesh turning dry, leathery and brown**. **Reduces the potato yield also**.



# Symptoms- infected plants 2





# Symptoms

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# Symptoms

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# Early blight of Potato

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- Causal organism - Alternaria solani

Deuteromycets

Moniliales

Dematiaceae

- Etiology- 1. The mycelium consists of septate , branched, light brown hyphae which become darker with age. The hyphae are at first intercellular, later penetrating into the cells of the invaded tissue.
- 2. Conidiophores emerge through the stomata from the dead centre of the spots. These are 50-90 x 9 u, dark coloured and borne singly. They form chains of 2-3 conidia.
- 3. Conidia are beaked, muriform, dark coloured and 120-296 x 12-20u. There are both transverse and longitudinal septa in mature conidia.
- 4. A. solani produces a non- specific toxin known as alternari acid.
- Pathogen is both Air borne and Soil born.

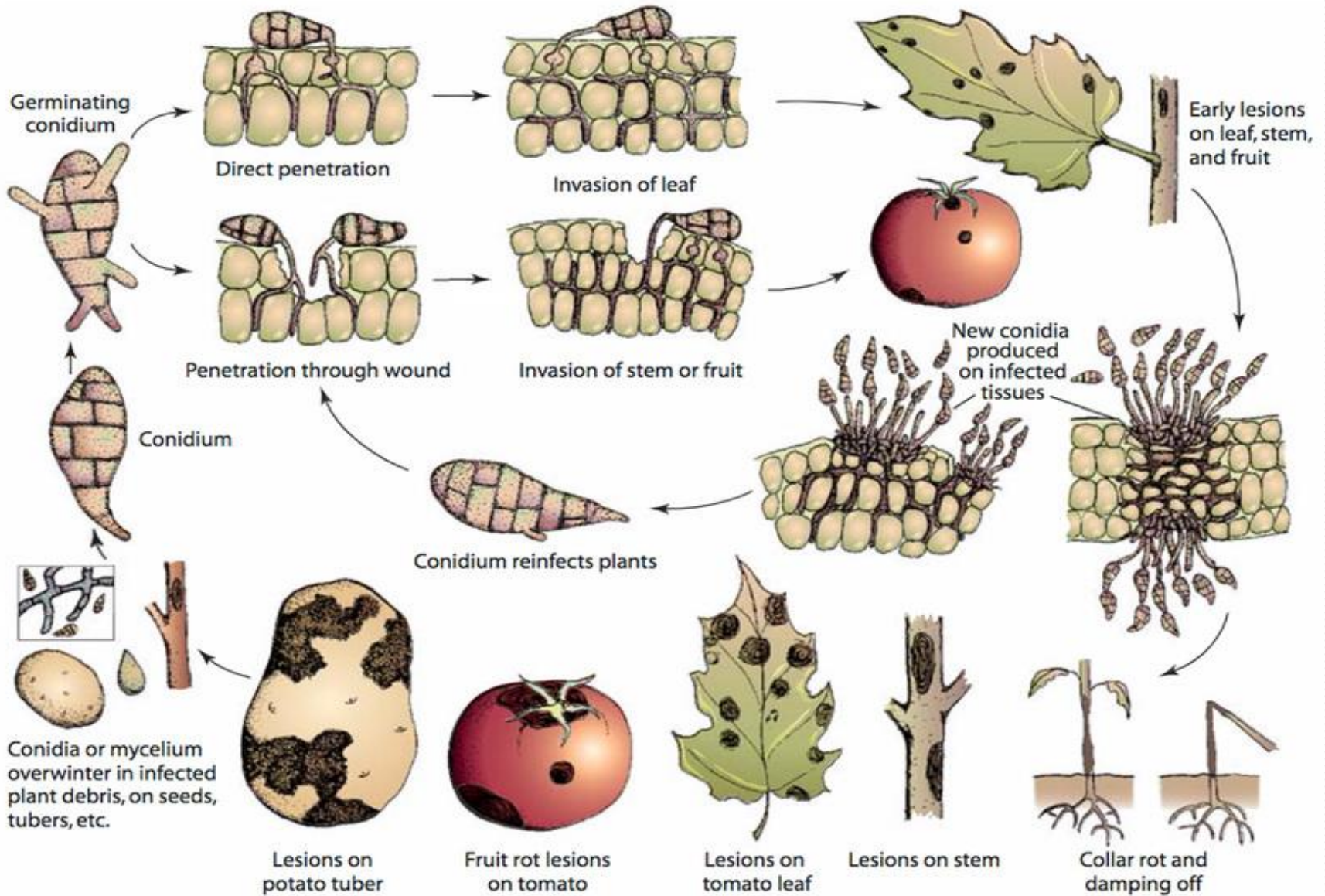
# Mycelium & conidia 6

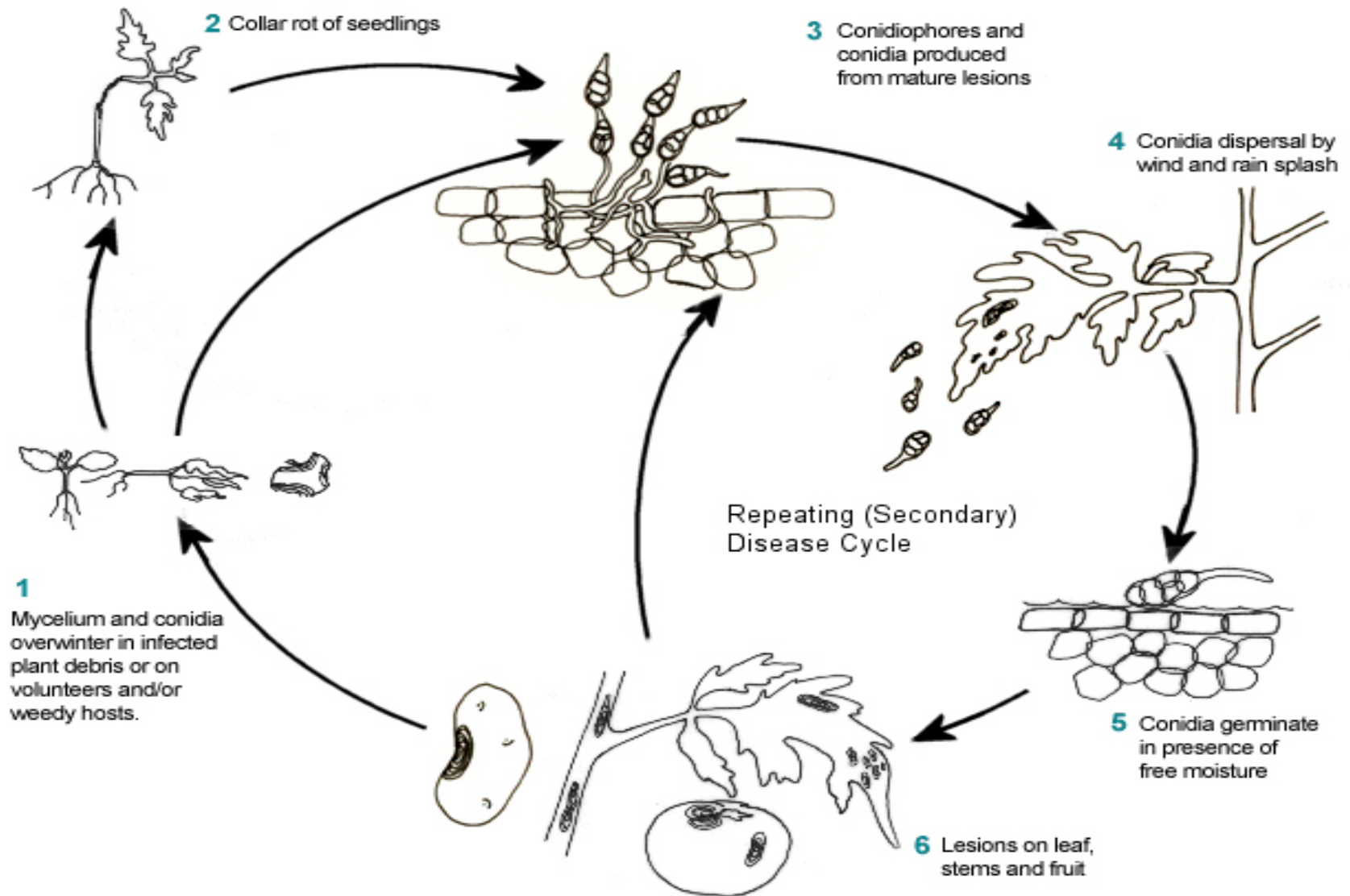




# Life-cycle

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# Early blight of Potato

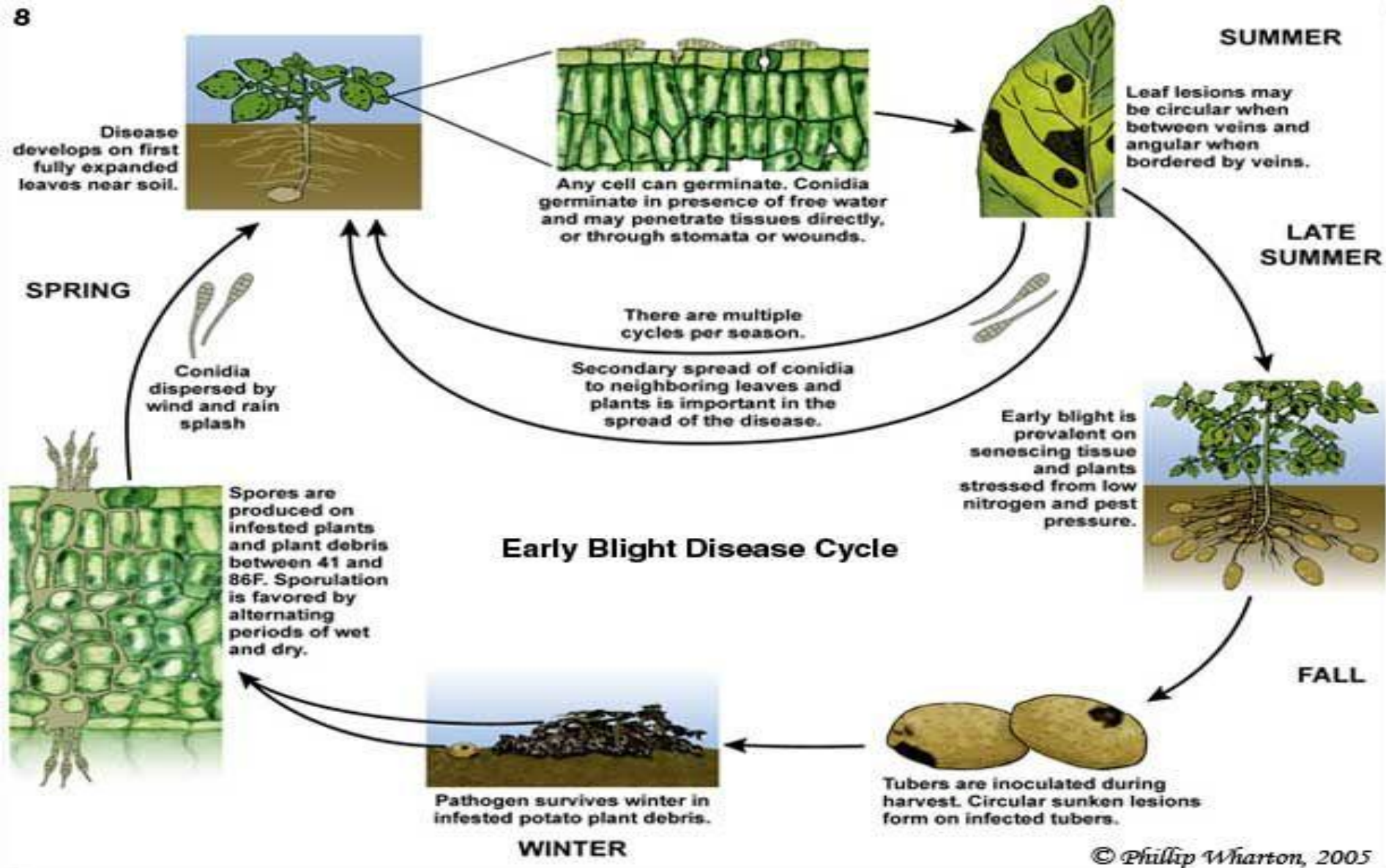
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- **Disease-cycle** – 1. The pathogen is mainly air borne.
- 2. The primary infection may be through tubers.
- 3. The mycelium and conidia of the fungus remains dormant in dry infected leaves for a year or more. Mycelium and conidia thus survive in in the soil in the diseased plant debris to cause primary infection in the next year,s crop.
- 4. Collateral hosts such as tomato play an important role in the perpetuation and dissemination of the pathogen.
- 5. The climate as temperature and abundant moisture and soil exert a considerable influence on the development of the disease.

# Disease cycle

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- **Control** - 1. Since the disease is soil borne, **crop rotation** is helpful.
- 2. Infected dead stems and leaves should be **burned** immediately.
- 3. Copper oxychloride sprays have been recommended for the control of the disease.
- 4. Azariah et al (1962) found **Bordeaux mixture** to be effective .
- 5. Apparao et al (1966) from Andhra pradesh advocated the application of 0.312% Zineb for the field control of this disease.
- 6. Mathur et al. (1971) recommended control of this disease with **Brestan 60, Dithane M-45 and Zineb ie spray of copper fungicides** .
- 7. Use of **resistant varieties** as Sarpo Mira, Cara etc .



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# THANKS