**Potato Disease Information**

1. **Early Blight**

* **Common Name**

Early Blight

* **Scientific Name**

Alternaria solani

* **Impact**

Between crops, the early blight fungus can overwinter on potato refuse in the field, in soil, on tubers, and on other solanaceous plants. Infection occurs when spores of the fungus come in contact with susceptible leaves and sufficient free moisture is present. Spore germination and infection are favored by warm weather and wet conditions from dew, rain, or sprinkler irrigation. Alternately, wet and dry periods with relatively dry, windy conditions favor spore dispersal and disease spread. Tubers can be infected as they are lifted through the soil at harvest. If sufficient moisture is present, spores germinate and infect the tubers.

* **Management**
* Disease free seed tubers should be used for planting.
* Removal and destruction of infected plant debris should be done because the spores lying in the soil are the primary source of infection.
* Very early spraying with Zineb or captan 0.2% and repeating it for every 15 – 20 days gives effective control.
* The variety Kufri Sindhuri possesses a fair degree of resistance.

1. **Late Blight**

* **Common Name**

Potato late blight

* **Scientific Name**

Phytophthora infestans

* **Impact**

Late blight is one of the world's worst plant diseases, despite efforts to control it for more than 150 years. It causes large losses in yields of potatoes and tomatoes, and requires the application of expensive fungicides to maintain control.

* **Management**

QUARANTINE

Until recently the movement of tubers from countries where the A2 strain existed was regulated, but with the wide distribution of that strain in recent years, the policy has been reassessed.

CULTURAL CONTROL

Note it is important for all growers in a region to cooperate in getting rid of the sources of the disease. This means getting rid of the cull piles, and also any other unharvested tubers left in the fields.

Before planting:

* It is important to use certified seed, i.e., that which is free from late blight infection, and from viruses. If unsure about freedom from late blight, test a few seed tubers by letting them sprout at 15-20°C for 10-15 days. If infected by late blight they will rot.
* Check for volunteer plants from the previous crop and, if found, remove and burn them.
* Select sites where there is good drainage, and where there is good air movement, so that leaves dry quickly after rain and dews. Avoid fields surrounded by trees.
* Practice crop rotation. Do not plant crops where they were grown in the previous season, or year. Use a 2-3-year crop rotation.
* Choose a short duration, 'early' variety that sets fruits and matures quickly to produce a crop in the shortest time possible, and potentially avoid serious build up of disease.

During growth:

* Plant the seed potatoes on ridges so that the spores have further to travel to reach the tubers.
* Avoid overhead irrigation; otherwise, conditions will be created for the production of spores and their infection of both leaves and tubers.
* Remove self-grown potatoes and Solanum weeds (i.e., volunteer plants) as they may have late blight infections.
* Do not apply too much nitrogen fertilizer as this will increase the growth of leaves, and also delay the time to crop maturity.
* Frequently, inspect the crop for spots on the leaves, especially if fungicides are not being used routinely to prevent infection (see under Chemical Control).
* Destroy the leaves before harvest if late blight is present to avoid the infection of tubers when they are lifted. Use a herbicide to kill the leaves.

After harvest:

* Do not leave rejected tubers in cull piles in the field, otherwise they will provide a source of spores for the next crop

RESISTANT VARIETIES

Late blight resistant varieties are available. They are being bred continually by CIP, so check if they are available in your country.

CHEMICAL CONTROL

The following points are important:

* Use a preventative spray of a contact fungicide before symptoms are seen, e.g., a copper product, chlorothalonil, mancozeb or polyram.
* If using a systemic product that may control the disease after infection, e.g., metalaxyl, cymoxanil, dimethomorph, or a strobilurin, alternate single sprays with two sprays of a preventative product to avoid the development of resistant strains of late blight.
* Manufacturers of cymoxanil and dimethomorph recommend the addition of either mancozeb or polyram to these products.
* It is very important to follow manufacturers recommendations if using systemic products.
* Copper fungicides - copper hydroxide and copper sulfate - can be used on organic crops, although because of copper toxicity, alternatives, such as phosphorous acid and horticultural oils may be necessary.
* The frequency of spray application will depend on the susceptibility of the potato variety and whether environmental conditions favor late blight disease.