

MINISTRY OF AGRICULTURE  
RESEARCH AND DEVELOPMENT  
DIVISION

DISEASES OF IRISH POTATO IN JAMAICA



Prepared by

Jeannette Williams  
Senior Plant Protection Officer  
Crop and Plant Protection Unit  
July 2003

**Black leg disease**



**Causal organism**

The bacterium  
*Erwinia carotovora*  
var. *atroseptica*

→ Stem with black  
rot

**Symptoms**

The stems exhibit a black rot. This usually begins at the decaying seed piece and may extend partially up the stem or along its entire length. Foliage becomes chlorotic, and leaflets tend to roll upward at the margins. Later the plant wilts, declines slowly and eventually dies. Young shoots may be invaded and killed before emergence.

**Control**

1. Plant seed tubers in well-drained soil.
2. Frequently clean and disinfect seed cutting equipment to eliminate contamination.
3. Treat seed tubers with approved fungicides or suberize them before planting as *Fusarium* spp. infection can predispose plants to bacterial infection.
4. Remove potato cull piles from field.
5. Discard plant refuse to avoid inoculum sources for the bacterium.

**Soft rot disease**



**Causal organism**

The bacterium *Erwinia carotovora* var. *carotovora*

**Symptoms**

Lesions on the tubers appear as slightly sunken, brown, circular water soaked areas. Rotten tissues are wet, cream to light brown with a soft and slightly granular consistency. Infected tissues are sharply delineated from healthy ones and are easily washed away. Infection occurs through the lenticels and wounds or through the stolon end of the tuber via the infected mother plant.

**Control**

1. Avoid excessive soil moisture before harvest to reduce lenticel infection.
2. Harvest tubers only when mature.
3. Do not wash tubers before storage.
4. If washing of tubers is required use water treated with chlorine. Dry them immediately after washing.

For further information please contact:

**Bodles Research Station**  
**Ministry of Agriculture**  
Old Harbour, St Catherine, Jamaica  
Phone: (876) 983-2267, 983-2281  
Fax: (876) 983-2822  
E-mail: [ppu@moa.gov.jm](mailto:ppu@moa.gov.jm)

Irish potato production is a major source of income for many rural Jamaican farmers. The crop is susceptible to a number of diseases caused by fungi and bacteria. Some diseases of importance are Fusarium wilt, early and late blight, black leg and soft rot.

### **Fusarium wilt disease**



Plant affected by Fusarium wilt disease. Note the drooping of the entire plant.

### **Causal organism**

The fungus *Fusarium oxysporum*.

### **Symptoms**

Wilting is rapid with yellowing beginning at the lower leaf and progressing upwards. The fungus grows in the transport vessels of the plant, which becomes blocked. Therefore, little or no water is supplied to the plant and it is prematurely killed.

### **Control**

1. Grow potatoes in land free from wilt disease.
2. Tubers infected with Fusarium wilt should not be used for seed.
3. Avoid contamination of clean fields by inoculum transfer through infested soil or diseased tubers and plant refuse.

### **Early blight disease**



(Courtesy L. J. Turkensteen)

**Causal organism:** The fungus *Alternaria solani*.

### **Symptoms**

Symptoms appear as small spots, dry and papery in texture. Spots have characteristic concentric rings, which gives it a 'bull's eye' appearance. Initial infection is most frequent on the lower, older leaves.

### **Control**

1. Scout fields twice per week for fungal infection.
2. Protectant or contact fungicides such as Dithane/Sancozeb and Bravo effectively control early blight on the foliage.
3. Practice crop rotation. Avoid using solanaceous crops such as tomato, pepper and eggplant in the rotation.
4. Plow under all plant debris and remove cull potatoes after harvesting.

### **Late blight disease**



(Courtesy R. Zachmann)

**Causal organism:** The fungus *Phytophthora infestans*.

### **Symptoms**

Initial symptoms are small pale to dark green irregularly shaped spots. Spots later become brown to purplish-black that may kill entire leaflets and spread via the petioles to the stem, eventually killing the entire plant. Under moist conditions fungal spores appear as a white downy mildew at the edge of the lesions, mostly on the under side of the leaves.

### **Control**

1. Scout fields twice per week for fungal infection since disease development is favoured by cool moist weather.
2. The use of protectant or contact fungicides such as Dithane/Sancozeb and systemic fungicide such as Ridomil MZ.
3. Make sure that fungicide is applied to both leaves and stem.
4. Practice good field sanitation by disposing of all cull potatoes after harvesting.