

# Anthracnose of Onion/Onion Twister

Contributed by IPM CRSP  
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Tagalog Name: "Paltak";

The onion industry suffered from heavy losses in 2000 and 2001 due to an outbreak of a strikingly unusual and uniformly distributed disease, which occurred in Nueva Ecija and neighboring onion-growing provinces in Luzon. The disease, anthracnose of onion, caused yield losses of as high as 80 to 100% in almost all of the fields. The damage to the industry was so high that the disease now poses a serious threat to all onion-growing areas of the country. Anthracnose also attacks other crops such as tomato and pepper, and fruit trees such as mango, avocado, and papaya.

## Symptoms and Damage

- White, oval, sunken spots appear on the leaves at the early stage

- As the disease progresses, clusters of orange acervuli form in concentric rings in the shallow sunken necrotic spots

- As the plants mature, the acervuli harden and turn black (anthracnose symptoms)

- In severely infected leaves, dieback symptoms appear, leading to the collapse of the plants.

- If anthracnose symptoms are not fully expressed, twisting, curling, and chlorosis of leaves appear, resulting in elongated neck and slender bulbs (twister symptoms).

- Symptoms also occur from the neck down to the bulb, leading to rotting before harvest.

## Cause

The disease is caused by *Glomerella cingulata* (Stoneman) Spauld. & Schrenk. (anamorph. *Colletotrichum gloeosporioides* (Penzig) Penzig & Sacc. This pathogen has a wide host range and occurs in the tropical regions of

Africa, Asia, and Latin America. It is primarily a saprobe or parasite on a very wide range of plants.

Acervuli colored brown to black are normally found in the necrotic areas. They are usually setose or glabrous, sometimes rounded and elongated. Setae are few to absent. Conidia are cylindrical with rounded ends, sometimes oval with rounded apex, hyaline, aseptate and uninucleate, 8-25 x 3-8 $\mu$ . Colonies in PDA are grayish white to orange to black with fructification showing diurnal zonation.

#### Conditions for Disease Development

Heavy rainfall and high humidity and temperatures of 20 to 30°C favor its development. Spores are disseminated by wind, water splash due to rain and irrigation water. The disease is transmitted from one season to the next by crop debris.

#### Management Practices

• Use resistant varieties. Plant tolerant hybrid lines of onion such as Rio Colorado, Takii's Red, and Tanduyong.

#### • Biological:

- Apply VAM in the seedbed before sowing seeds by broadcasting VAM soil inoculant.
- Apply Trichoderma sp. (T5 IPM CRSP isolate) spore suspension (10 to 15 gm/161 water) in the seedbed after sowing of seeds.
- Repeat application 1 to 2 weeks after sowing and at 7-day intervals depending on the severity of disease.
- Before transplanting, dip roots of seedling in Trichoderma sp. (T5 IPM CRSP isolate) spore suspension (10 to 15 gm/161 water).
- Apply Trichoderma sp. (T5 IPM CRSP isolate) spore suspension (10 to 15 gm/16 L water) and repeat as needed.

• Cultural. Avoid using sprinkler irrigation. If possible, do not submerge the bulbs during irrigation.

• Chemical. Apply protectant fungicides (Captan, Benomyl or Mancozeb) 1 week after transplanting (for transplanted onion) or 1 week after emergence (for direct-seeded onion). Repeat application at 7 to 14 days' interval, depending on the severity of the disease.

• Sanitation. Destroy crop debris after harvest to reduce source of inoculum.

#### Source

PhilRice, 2007. Integrated Pest Management in Rice-Vegetable Cropping Systems. Maligaya, Science City of Muñoz, Nueva Ecija.

onion plant damaged by anthracnose

black acervuli on onion leaf