



# DID YOU KNOW?



# Anthracnose-Twister Disease of Onion

Causal organism:

***Colletotrichum gloeosporioides-Fusarium fujikuroi***

- Considered to be the most destructive disease of onion in the country (Alberto et al., 2002).
- Characterized by severe twisting of leaves and neck elongation as well as necrosis of leaves.
- The disease complex causes 80% to 100% yield loss which could result to low supply of onion in the market resulting to high price (Alberto & Aquino, 2010).
- The causal organisms were identified as *Colletotrichum gloeosporioides* as the cause of the anthracnose symptom and *Fusarium fujikuroi* formerly known as *Gibberella moniliformis* which is the cause of twisting and abnormal neck elongation due to excessive accumulation of gibberellins in onions (Alberto, 2014).



# How do you identify it based on its symptoms?



R.E. Magbitang

## Anthracnose

White, oval, and sunken spots further developed into orange masses arranged in concentric rings and turned into black acervulus as it matured.



R.E. Magbitang

## Twister

Yellow-green discoloration of the leaves. Severely infected leaves dieback, twist curl with typical twisting from the neck of onion plants.



# How do you identify it based on its symptoms?

## Anthracnose Disease of Onion

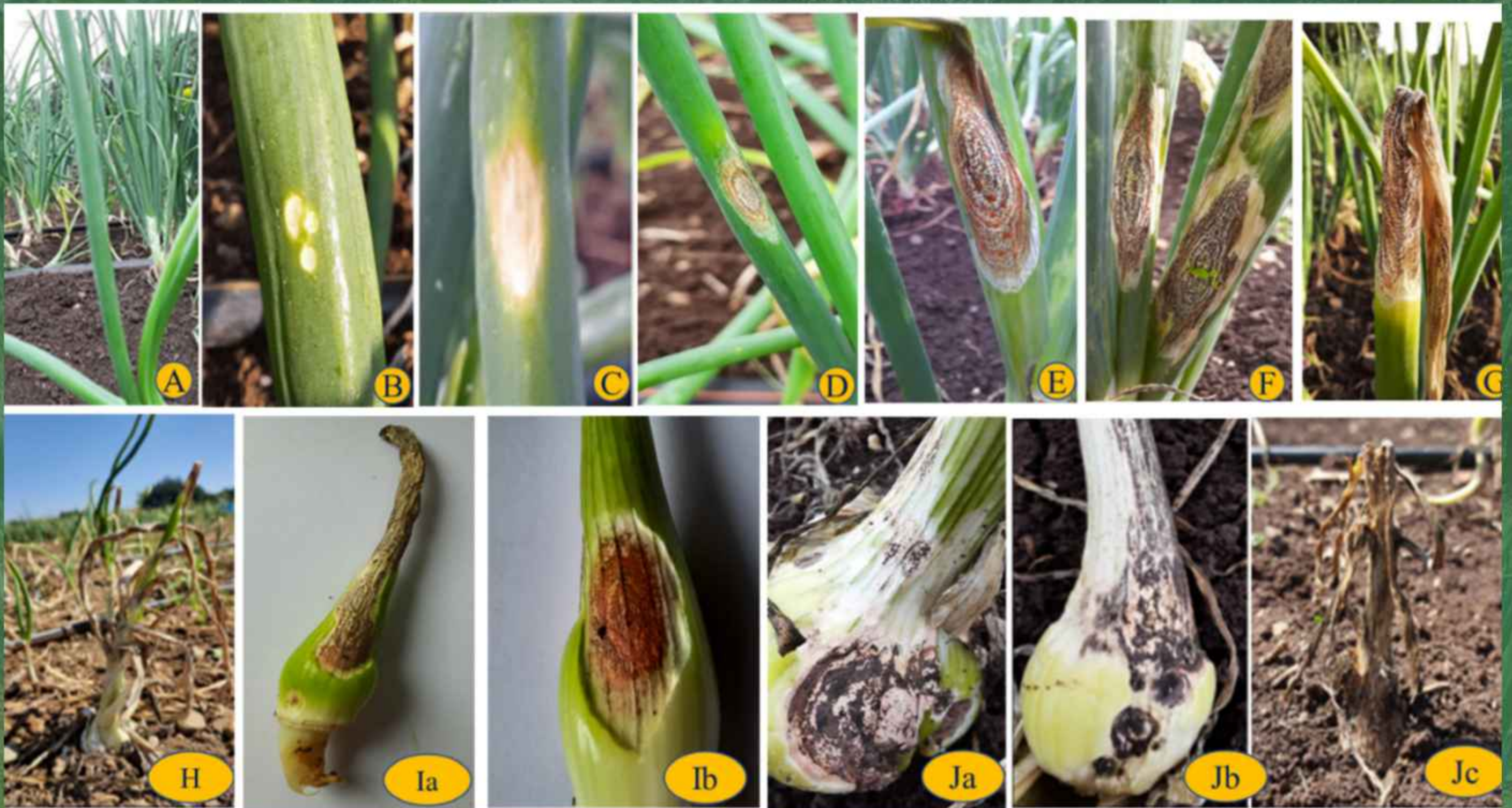


Figure 1. Pictorial representation symptoms of anthracnose disease. (A) Healthy; (B) grade 1: small white specks; (C) grade 2: initial chlorosis; (D) grade 3: advancement of lesion; (E) grade 4: mature lesion; (F) grade 5: lesions begin to coalesce; (G) grade 6: advanced lesion leading to death of leaf blades; (H) grade 7: most advanced stage lesions, wherein the dieback appearance of the plant occurs, leaving few leaf blades unaffected; (Ia) grade 8: advanced lesions on neck region of the plant; (Ib) grade 8: salmon-coloured conidial mucilage on lesion on the neck region; (Ja) grade 9: 50% of the bulb covered with lesion; (Jb) lesions coalesce and form black fruiting bodies on the entire bulb; (Jc) complete infection, the death of the plant.

SOURCE: Dutta R., Jayalakshmi K., S.M. Nadig, D.C. Manjunathagowda, V.S. Gurav, and M. Singh. (2022). "Anthracnose of Onion (*Allium cepa* L.): A Twister Disease" *Pathogens* 11, no. 8: 884. <https://doi.org/10.3390/pathogens11080884>.



cpmd@buplant.da.gov.ph



(8)-236-0598

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## Twister Disease of Onion

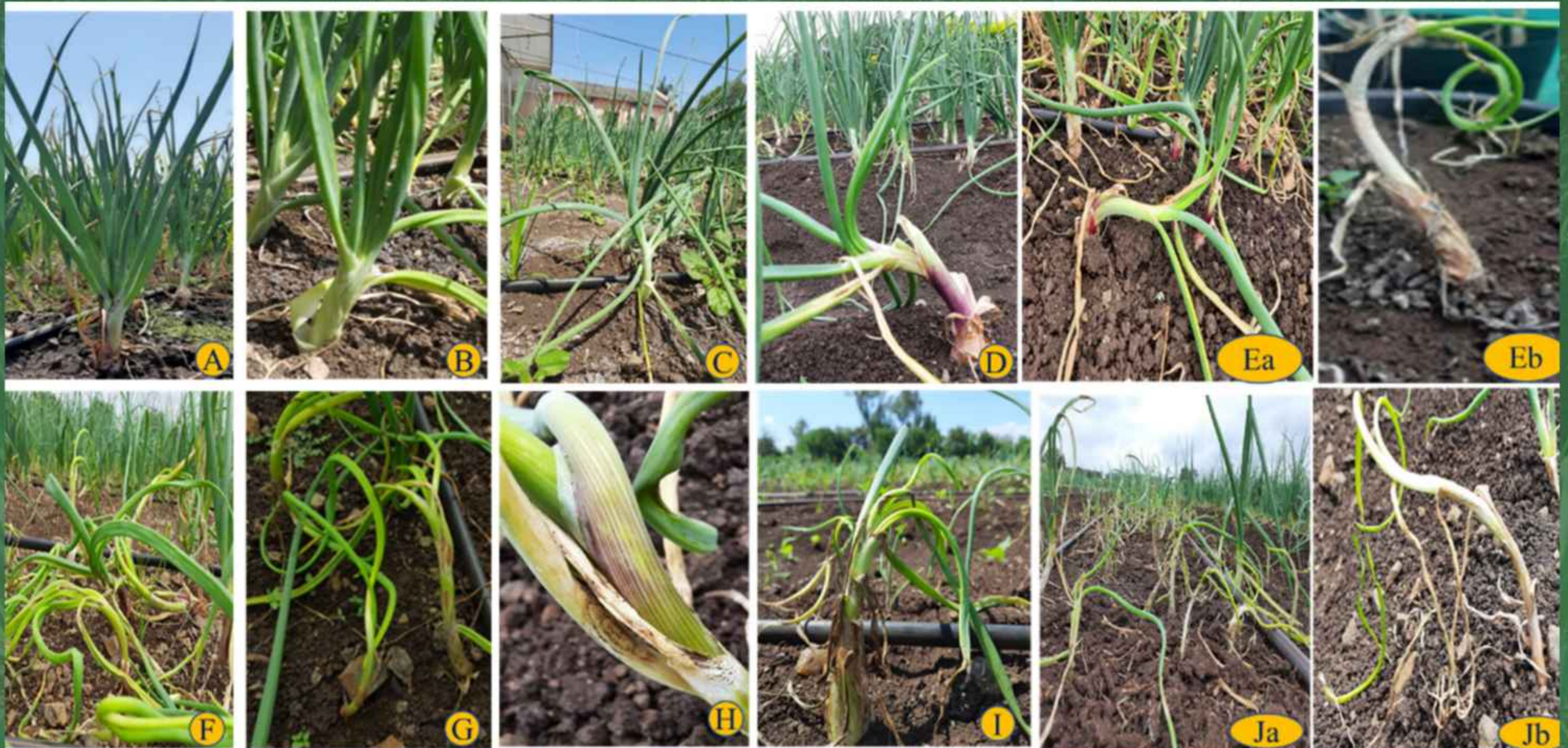


Figure 2. Twister-anthracnose complex: (A) healthy; (B) grade 1: slight twisting from the neck; (C) grade 2: slight elongation of neck and twisting; (D) grade 3: twisting of the leaves with neck elongation; (Ea) grade 4: twisting with severe neck elongation; (Eb) grade 4: elongated neck with leaf curling; (F) grade 5: severe stage of twisting falling of plants on the ground and neck, and foliage becomes slender; (G) grade 6: leaf twisting and initial anthracnose lesions; (H) grade 7: lesion advancement with fruiting body formation; (I) grade 8: twister anthracnose complex leading to death of old and young leaves; (Ja, Jb) grade 9: twister anthracnose complex leading severe neck and foliage drying and defoliation or wilting.

SOURCE: Dutta R., Jayalakshmi K., S.M. Nadig, D.C. Manjunathagowda, V.S. Gurav, and M. Singh. (2022). "Anthracnose of Onion (*Allium cepa* L.): A Twister Disease" *Pathogens* 11, no. 8: 884. <https://doi.org/10.3390/pathogens11080884>.



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# Prevention and Management

- Plant resistant varieties.
- Apply low amount of nitrogen (60 kg/ha).
- Use wider plant spacing and orient rows in the direction of the wind to hasten drying of plant surfaces.
- Destroy crop debris after harvest to reduce sources of inoculum.
- Foliar application of *Trichoderma* as Biological Control Agent (BCA).
- Apply protectant fungicides (Captan, Mancozeb) one week after transplanting or one week after emergence for direct seeded onion. Repeat application at 7-14 days interval depending on the severity of the disease. Or use systemic foliar fungicides (e.g., Mancozeb, Difeconazole, or Proficonazole) two weeks after transplanting. Repeat application at 7-14 day intervals depending on the severity of the disease.
- Use sticker and spreader when spraying fungicides.



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SOURCE: BPI-CPMD  
CLARRDEC. (2007). (Central Luzon Agriculture, Resources Research, Development Consortium) Major diseases of onion: A field guide. Los Baños, Laguna: PCARRDDOST, CLARRDEC-CLSU, 18p. – (CLARRDEC Farm Primer No. 02/2007).



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