# Downy Mildew of Onion

*Peronospora destructor*

## Prevention
- The field should not be over flooded as the disease can move in water and cause infection to healthy plants.
- Hot water treatment of the onion bulb used for seed crop.
- Grading of bulbs should be done for the selection of seed.
- Healthy and large bulbs should be selected as small bulbs are usually diseased.
- The disease survives on crop debris and in the soil, so crop rotation with 3-4 year gap and destruction of crop residues are important.

## Monitoring
- Look for the pale spots and down curling and narrowing of the leaves.
- Later on, the whole leaf becomes dried from the centre outwards.
- Monitoring should be done twice a week during December and January when the disease is common.
- Seed crop is more affected than a bulb crop.
- Start control measures when the disease first appears.

## Direct Control
- **Removal of infected plants as soon as symptoms appear**
- **10 minutes in 52 degree Celsius (when the water is hot but bearable)**
- **Spraying of these fungicides may be repeated at weekly intervals when the disease appears (December and January)**
- **Spray mancozeb @250g per 100 litre of water per acre.**
  - **WHO Class U**
- **Spray metalaxyl + mancozeb @250g per 100 litre of water/acre.**
  - **WHO Class III + WHO Class U**
- **Prevention Seed treatment with thiophanate-methyl 2.5g / kg of seed.**
  - **WHO Class U**

## Restrictions
- **Always wear protective clothing, and do not eat or smoke when spraying dangerous chemicals**
- **Spray mancozeb @250g per 100 litre of water for one acre.**
  - **WHO Class U**
- **Spray metalaxyl + mancozeb @250g per 100 litre of water/acre.**
  - **WHO Class III + WHO Class U**
- **Prevention Seed treatment with thiophanate-methyl 2.5g / kg of seed.**
  - **WHO Class U**

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**Pakistan**

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**AUTHOR(S):** Dr. Muhammad Iqbal, Yasar Saleem Khan CABI CWA, Rawalpindi, driqbal_66@yahoo.com, y.khan@cabi.org, +92 51 8317071  
**EDITED BY:** Plantwise

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