Introduction
Downy mildew (DM) attacks onions in many parts of the world. It can become severe on leaves of commercially grown onion plants and on leaves and seed stalks of onions grown for seed, especially when relatively cool, moist weather prevails. Other reported hosts are leek, garlic, and chive. DM rarely, if ever, occurs in growing areas with a warmer climate presumably because of relatively warmer night temperatures.

Symptoms
Downy mildew is characterized by pale–green, yellowish to brownish areas of irregular size and shape (oval to cylindrical) on infected leaves. These areas may consist of alternating yellow and green layers of tissue. Leaves become girdled in the region where mildew develops and the leaves collapse. This results in dead leaf tips that usually can be seen within defined regions in a field. The dead leaf tissue is rapidly colonized by purple blotch, which is dark in color and obscures. The disease seldom kills onion plants, but bulb growth may be reduced. Bulb tissue, especially the neck, may become spongy and the bulb may lack keeping quality.

Life cycle
The fungus overwinters primarily as mycelium in infected onions that remain in onion fields or in nearby cull piles. The pathogen also can overwinter in perennial varieties of onion in home gardens. It is suspected that spores of the fungus that persist in the soil may directly infect the roots of young onion plants. These plants become systemically infected and serve as focal points for infection in commercial onion fields.

Control
To reduce primary inoculum of DM, cull piles should be removed and volunteer onions rogued. Perennial onions should not be grown in back yard gardens in the vicinity of commercial onion fields. Other sanitation programs that would reduce or eliminate the source of primary inoculum should be used. These include use of certified seed and sterile media in the nursery, avoidance of overhead...
irrigation and timely weeding. There are several fungicides registered by PCPB that are effective in DM control such as: BIOSURE, TOWER 72 WP, MILTHANE SUPER, MATCO 72WP

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<th>Mandate Centres for Onion Crop Health</th>
<th>KALRO-Kandara, KALRO-Kabete,KALRO-Muguga South(Food Crops Research Institute)</th>
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<tr>
<td>Crop health experts</td>
<td>Jesca Mbaka, Caesar Kambo, Miriam Otipa, Harun Odhiambo, Vincent Ochieng, Ruth Amata</td>
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**Control options**
Farmers from the respective counties will choose what management options to apply depending on the intensity of disease and prevailing conditions. Farmers can seek advice from extension or KALRO Centres as indicated above.

**Expert(s) Contact**
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