

# Rust in Greengram

*Uromyces phaseoli*



Red brown pustules on leaf (Cesar Calderon, USDA APHIS PPQ, Bugwood.org)



Rust on the upper side of the leaf (Clemson University, USDA Cooperative Extension, Bugwood.org)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> <li>Plant resistant and disease free seeds from KALRO Katumani (N26).</li> <li>Practice crop rotation with non leguminous plants such as tomato and cabbage every 3-4 seasons.</li> <li>Plough deep to about 45cm to encourage rotting of the plant material.</li> <li>Maintain weed-free fields to remove alternate host such as oxalis.</li> <li>Avoid walking through the field during wet weather to prevent disease spread from one plant to another.</li> <li>Work on healthy plants first then move to the infected area.</li> <li>Uproot volunteer crops that could harbour the pathogen.</li> </ul>	<ul style="list-style-type: none"> <li>Look out for leaves with small orange/yellow, halo-like powdery pustules on the upper side and red, circular pustules on lower leaf surface.</li> <li>Check for presence of pustules on petioles, pods and stem.</li> <li>Look out for leaves that are dry and shrivelled which lead to defoliation.</li> <li>Consider direct control actions when orange pustules are observed on leaves of 4-5 plants.</li> </ul>	<ul style="list-style-type: none"> <li>Remove and destroy old plants by burning.</li> <li>Use Trichotech WP at 1.25 g/L water every 2 weeks to one month depending on disease pressure.</li> </ul>	<ul style="list-style-type: none"> <li>When using a pesticide, always wear protective clothing and follow the instructions on the product label.</li> <li>Do not use chemicals with the same mode of action year after year as this can lead to resistance.</li> <li>Always consult the most recent list of registered pesticides (PCPB).</li> <li>Spray Mancozeb such as Biothane or Amicop 50 WP at the rate of 50 ml/20 L of water. Repeat every 15 days.</li> <li>Apply Hexaconazole fungicides such as Cotaf 5% EC, or Anvil 50SC at 75-100 ml/20 L of water.</li> <li>Spray Tebuconazole based fungicides such as Azimut 320 SC at a rate of 100 ml/20 L water and 1 L/200 ml of water.</li> <li>Spray Epoxiconazole/metconazole based fungicides such as Osiris 65EC at a rate of 4 L/Ha.</li> </ul>	<ul style="list-style-type: none"> <li>WHO Class U (unlikely to cause acute hazard). PHI: 14 days, REI: 24 days.</li> <li>WHO Class III (slightly hazardous). PHI: 14 days, REI: 6 hours.</li> <li>WHO Class II (Moderately hazardous). PHI 77 days. REI-24 hrs.</li> <li>WHO Class III (slightly hazardous). PHI: 35 days, REI: 24 hours. Repeat after 7-14 days.</li> </ul>

## Kenya

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