

The Groundnut Enemy: Spotting and Stopping Collar Rot

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Groundnut (*Arachis hypogea*) is an important oilseed crop in India and its growing during *kharif* and *rabi* - summer. Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, Rajasthan and Maharashtra are major groundnut growing states contributing about 80 percent area and production in India. This may be contributed to rainfed nature of cultivation of this crop coupled with attack by variety of disease and insect pests. Among diseases, stem rot, collar rot, alfaroot, leaf spot (early and late), rust and bud necrosis affects the groundnut crop both in *kharif* and *rabi*- summer. Collar rot of groundnut, caused by *Aspergillus niger* is one of the important seed and soil borne diseases. It is prevalent in all groundnut growing state and the losses in term of mortality of plants ranges from 28 to 50 %. It is particularly serious in the sandy loam and medium black soil.

Symptom

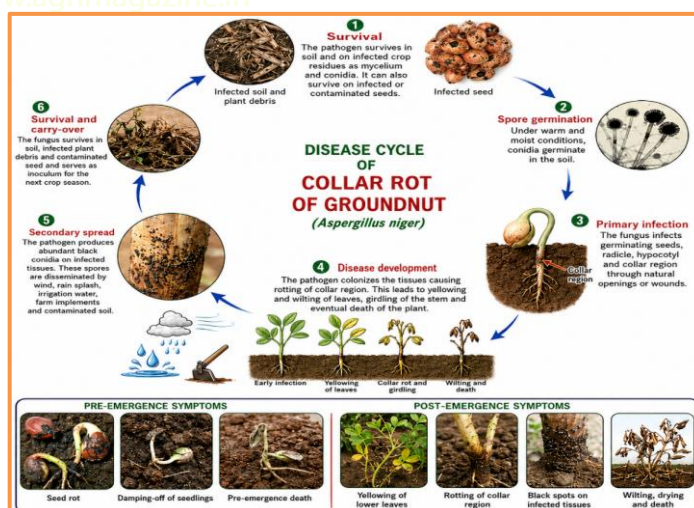
The collar rot disease of groundnut showed two type of symptoms i.e. pre- emergence and post- emergence. The pre- emergence seed rot infected seeds failed to germinate and were covered with masses of black conidia which imparted them a sooty appearance. Seeds become infected with during last day of maturation in soil and during harvesting, handling and particularly during shelling. At the post- emergence stage, the disease cause yellowing of the lower leaves, followed by rotting of collar region. The infection may spread to the crown region, resulting in wilting and eventual death of plant.

Favorable Condition

This disease is more prevalent in soils with low moisture content and high temperature. And it's also prevalent in deep sowing of seed condition.

Disease cycle

The fungal pathogen survive in soil and plant debris as spores (conidia) or resistant structure like sclerotia. These infected inoculum, seed or soil particle act as primary source of inoculum. These spores are dispersed through wind current, irrigation water and rain splash via farm tools. Fungal thread can spread from infected plant tissues to adjacent healthy one through soil or plant contact under moist and warm condition.



Management

- Field sanitation should begin before sowing by removing crop debris, followed by deep summer ploughing. Seeds should not be sown deeper than 2 cm.
- As per CIB&RC recommendations, seed treatment with Thiram 75 WS @ 5g/kg or Mancozeb 40 % + Tebuconazole 1% WS @ 2-2.5 g/ kg or Tebuconazole 5.4 FS @ 0.4 ml/kg or Imidacloprid 18.5+ Hexaconazole 1.5 FS @ 2ml/kg or Pyraclostrobin 3.5 + Thiram 15 + Clothianidin 22.5 FS @ 7 ml/kg or Tebuconazole 2% DS @ 1.25 g/kg or Carboxin 37.5 + Thiram 37.5 % WS @3 g/kg or Carbendazim 12 + Mancozeb 63 % WS @ 2.5 g/kg or Carbendazim 25 + Mancozeb 50 WS @ 3 g/kg seed is recommended for the management of collar rot of groundnut.
- Apply 4 kg *Trichoderma* spp. enriched in 250 to 300 kg of farm yard manure per hectare before sowing.
- To effectively combat collar rot, farmers should cultivate recommended resistant varieties like HNG-10, HNG-123 and RG-425 which offer resistance against the disease while securing high yields in Rajasthan condition.

Conclusion

Collar rot, caused by *Aspergillus niger*, is an economically significant seed- and soil-borne disease that limits groundnut output, especially in places with high temperatures and little soil moisture. Because the pathogen persists in soil and contaminated crop wastes, effective disease management should prioritize preventative treatments above therapeutic ones. An integrated disease management (IDM) strategy that includes field sanitation, deep summer ploughing, maintaining optimal sowing depth, using healthy and high-quality seed, treating seed with CIB&RC-recommended fungicides, applying *Trichoderma*-enriched farmyard manure and cultivating resistant varieties is an effective and long-term approach to disease reduction. Adopting these scientifically verified management approaches can help with seedling establishment, maintaining a healthy plant population, minimizing economic losses, and contributing to increased productivity and long-term sustainability of groundnut production.