Robust and reliable phenotyping technique developed for screening groundnut to stem rot disease

Stem rot – a soil borne disease in groundnut

- Stem rot disease caused by *Sclerotium rolfsii* Sacc. is limiting the groundnut production in many countries including India.
- Yield loss in groundnut due to stem rot ranges up to 27%, but can reach over 80% in heavily infested fields. Besides, causes indirect losses such as reduction in dry weight and oil content of kernels and quality of pod and fodder.
- Stem rot is a persistent soil borne disease throughout India and occurrence of the disease is more prominent in 30 to 45 days after germination and at the time of harvest.
- The fungus is soil inhabiting, non-target and destructive plant pathogen. *S. rolfsii* preferentially attacks stem, but can infect any part of the plant including root, leaf, flower and fruit.
- Persistence of the pathogen in soil and wide host range often limits the effectiveness of chemical and cultural control of the disease. Cultural practices coupled with resistant cultivars can increase the efficiency of the disease management.
- Currently no groundnut variety resistant to stem is available due to non-uniform spatial distribution of the pathogen in the soil resulting lack of consistent and reliable screening data, difficulties in development and maintenance of artificial sick plot with optimum inoculums load under field condition for screening of larger population of breeding lines or germplasm.

Until recently, there was no reliable technique available where scientist can screen large number of groundnut breeding lines/ RILs/ germplasm under field conditions and generate reliable data for selecting stem rot resistant groundnut line.

ICAR-DGR has developed a robust, reliable artificial screening technique for screening groundnut genotype resistant to stem rot under normal field conditions.

- The simple, reliable and robust field screening technique for stem rot disease in groundnut is helping in screening groundnut breeding lines/ RILs/germplasm in large scale.
- Going ahead, screening technique and pre-breeding lines developed by the ICAR-DGR for stem rot resistance has been adored and regularly followed by the groundnut breeders including from International research organizations.

Plot is covered with polythene sheet followed by inoculation and watering

Screening block covered with polythene sheet and green shade net

Profuse growth of fungus in the screening block

Luxiours growth of fungus

White mat of fungus in the screening block

Stem fully covered with fungus