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## Fusarium Leaf Blight and Wilt is a New Threat to *Kharif* Groundnut in Rajasthan

Narendra Kumar<sup>1\*</sup>, B. D. S. Nathawat<sup>2</sup> and Raja Ram Choudhary<sup>1</sup>

<sup>1</sup>ICAR- Directorate of Groundnut Research - Regional Station, Bikaner, Rajasthan (334 006), India

<sup>2</sup>Swami Keshwanand Rajasthan Agricultural University - Agricultural Research Station, Bikaner, Rajasthan (334 006), India

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### Corresponding Author

Narendra Kumar  
e-mail: [narendra.kumar@icar.gov.in](mailto:narendra.kumar@icar.gov.in)

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E-mail: [bioticapublications@gmail.com](mailto:bioticapublications@gmail.com)

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### Abstract

Fusarium leaf blight and wilt of groundnut is a new emerging fungal disease particularly of *kharif* season in western Rajasthan, India. *Fusarium* spp. has wide host range causing wilts, blights and necrosis of numerous crops. This disease significantly affects groundnut haulm and pod yield and their quality. This disease occurs in patches at later stages of groundnut crop and their severity is varying from 5-52% at farmers' field. In disease management practices, now effective chemical control measures are not available but efforts are being done for the control of this disease through various combinations of fungicides in addition to bio-control measures, cultural practices and host plant resistance. Now efforts are being done to identify resistance source for developing high yielding groundnut cultivars with resistance of Fusarium leaf blight and wilt.

### Introduction

Groundnut (*Arachis hypogaea* L.) is self-pollinated grown all the seasons in India. Its kernels contain 48-52% oil, 24-30% protein and 16-20% carbohydrate. In India groundnut is cultivated mainly in a *kharif* season crop which accounts about 84% of the total area and 80% of total production. There are several biotic factors affecting yield of groundnut in arid region of Rajasthan but fusarium leaf blight and wilt caused by *Fusarium incarnatum* is becoming a new threat to groundnut cultivation especially in western Rajasthan. *Fusarium* spp. are ranked among the top ten economically and scientifically important plant-pathogenic fungi in the world.

Leaf blight and wilt (*Fusarium incarnatum*) have been observed in groundnut grown during *kharif* 2012 season in the western Rajasthan of India. It was first observed in Asarlai, Jodhpur, Rajasthan and it has re-appeared since 2013 in many groundnut fields in the districts of Jodhpur, Bikaner and some part of Nagaur. In the initial investigation, *Fusarium* species was associated with the disease and it was first identified by Thirumalaisamy *et al.* (2018) as leaf blight and wilt of peanut and they reported 5-52% disease incidence from year to year. Fusarium leaf blight is a fungal disease causing substantial yield losses in farmers' field at initial and later stages of groundnut crop in Bikaner, Jodhpur, Jaisalmer, Churu districts of Rajasthan causing yield losses about 15-20%.

### Disease Symptoms

Disease symptoms initially appear as water soaking lesion or blighting symptoms on the tip and margin of leaflets. The symptoms progressed toward the midrib and petiole, along with water soaking, withering and drooping of aerial parts of the foliage and on the stems (Figure 1). The

roots were devoid of symptoms and signs. At the advanced stages, the entire plant becomes dried and finally dead. The disease appeared in patches and reappeared in the same area at high incidence in subsequent years (Thirumalaisamy et al., 2018). It was observed this disease was appeared in the groundnut crop after 40-50 days after sowing in patches (Figure 2). These patches further extended in all the sides.



Figure 1: Disease symptoms at early stage



Figure 2: Disease symptoms at advanced stage

### Management Practices

**F**usarium is primarily a soil borne pathogen which further spreads through contact of foliage. Deep ploughing and crop rotation is the most widespread cultural practice to manage this disease through changing the soil conducive environment of the pathogen and which also improves soil fertility, moisture and texture. Bio-agents are alternative of

fungicides for suppression of pathogens and also eco-friendly methods. Therefore seed treatment with bio-control agents may be the best approach to control the inoculum of this disease in the soil of groundnut crop.

Till now farmers are managing Fusarium leaf blight and wilt disease through seed treatment and drenching with suitable fungicides but these are not much effective at present. Now experiments are being conducted on managements of Fusarium leaf blight and wilt through different combinations of fungicides under AICRP-Groundnut system. Meantime groundnut germplasm and breeding materials is also being screened to identify resistance source of Fusarium leaf blight at ICAR- Directorate of Groundnut Research - Regional Research Station, Bikaner. Therefore at present primary focus is to identify resistance sources which can be utilized for developing resistant groundnut varieties and to identify best agronomic packages & practices are the best and viable approach to manage this diseases in groundnut, which could be effective in decreasing the production costs, improving product quality and reducing detrimental effects of fungicides on the ecosystems.

### Conclusion

**F**usarium leaf blight and wilt is a new and severe disease of *kharif* groundnut growing area of western Rajasthan. Now integrated efforts through various approaches like fungicides, bio-control, cultural methods and genetic resistance are being done for effective management of this disease in Groundnut.

### Reference

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