

Screening of groundnut cultivars against tikka disease

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In the present investigation, the total 14 groundnut cultivars and 3 check varieties were tested against tikka disease under natural field conditions during *Kharif* season 2006. The per cent disease intensity was worked out for each variety, based on visual observation of 5 plants per plot, per replication. Among the cultivars AK-208-14 showed moderately susceptible reaction whereas all other cultivars showed susceptible reaction to tikka disease. The check variety AK-159 showed moderately susceptible reaction against tikka diseases among the three check varieties.

Key words : Groundnut, Screening, Tikka disease

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INTRODUCTION

Groundnut (*Arachis hypogaeae* L.) is one of the principal oilseed crops of world. It belongs to family Leguminaceae and sub family Papilionaceae. The major groundnut producing countries of the world are India, Suan, China, Nigeria Senegal, Burma and USA. India rank first in both area under cultivation and production, with an annual cultivation area of 6.0 million ha and production of 8.18 million tonnes (Anonymous, 2006).

The groundnut is affected by various diseases like late leaf spot, early leaf spot, rust, crown rot or seeding blight, stem rot and collar rot. Among the important fungal diseases, leaf spot caused by *Cercospora personata* (late leaf spot) and *Cercospora arachidicola* (yearly leaf spot) are the most serious diseases causing premature defoliation. These diseases damage the plant by reducing the leaf area available for photosynthesis and by stimulating the leaflet abscission leading to heavy defoliation (McDonald *et al.*, 1985). The yield loss due to these diseases ranges from 10 per cent to 50 per cent (Ghug *et al.*, 1981). Although foliar diseases can be controlled by spraying certain fungicides (Smith and Littrell, 1980), they are costly and not readily available to the small scale farmers of the semiarid tropics (Gibbons, 1980). Among the different approaches of disease management, growing of disease resistant variety is the best environment friendly means of reducing the yield loss from these diseases (Gibbons, 1980). Therefore, it is important to identify the sources of resistance

that can be used to evolve resistant variety. The present study was, therefore, undertaken with an objective of screening the different varieties of groundnut cultivars and estimation of yield loss against the tikka diseases.

RESEARCH METHODOLOGY

The experiment was conducted during *Kharif* season of 2006. Total 14 cultivars *viz.*, AK-313, AK-314, AK-318, AK-319, AK-320, AK-321, AK-322, AK-323, AK-324, AK-208-11, AK-208-14, AK-208-17, X67-1-1*1, TAG36-B-1 and three check varieties *viz.*, AK-159, TAG24 and JL24 were sown in replicated trial under field condition on the farm of plant pathology Department. The disease intensity of tikka disease (*Cercospora* spp.) was recorded for 5 random plants per plot under natural field conditions 30 and 60 DAS (Days after sowing). The per cent disease intensity was worked out for each variety, based on visual observation of 5 plants per plot, per replication.

Field experiment :

For screening of groundnut cultivars field trials was laid out as follows:

- Year and season : 2006 (*Kharif*)
- Design : Feeler trial
- Plot size : 5m
- Spacing : 30 cm × 10 cm
- Crop : Groundnut

- Cultivars : AK-313, AK-314, Ak-318, AK-319, AK-320, AK-321, AK-322, AK-323, AK-324, AK-208-11, Ak-208-14, AK-280-17, X67-1-1-1, TAG36-B-1, AK-159, TAG24 and JL24
- Method of sowing : Dibbling
- Date of sowing : 2nd July 06
- Date of harvesting : 10th Oct 2006.

RESEARCH FINDINGS AND ANALYSIS

Total fourteen cultivars and three check varieties of groundnut were tested against tikka disease (*Cercopora* spp.) under natural conditions in the field 30 and 60 days after sowing, during *Kharif* season of 2006. The data obtained on per cent disease intensity are presented in Table 1 and Fig. 1.

Maximum disease intensity was observed in the cultivar AK-319 (PDI 20 %) and AK-324 (PDI 20 %) at 30 DAS (Table 1 and Fig. 1) while at 60 DAS disease intensity percentage

Sr. No.	Groundnut cultivars	Per cent disease intensity	
		30 DAS	60 DAS
1.	AK - 313	15	24
2.	AK - 314	15	27
3.	AK - 318	18	24
4.	AK - 319	20	27
5.	AK - 320	18	24
6.	AK - 321	18	24
7.	AK - 322	16	24
8.	AK - 323	15	24
9.	AK - 324	20	22
10.	TG - 36 - B - 1	18	24
11.	X67 - 1 - 1 - 1	16	22
12.	AK - 208 - 11	16	24
13.	AK - 208 - 14	16	20
14.	AK - 280 - 17	16	22
15.	AK - 159(c)	14	20
16.	TAG 24 (c)	18	31
17.	JL 24 (c)	16	27

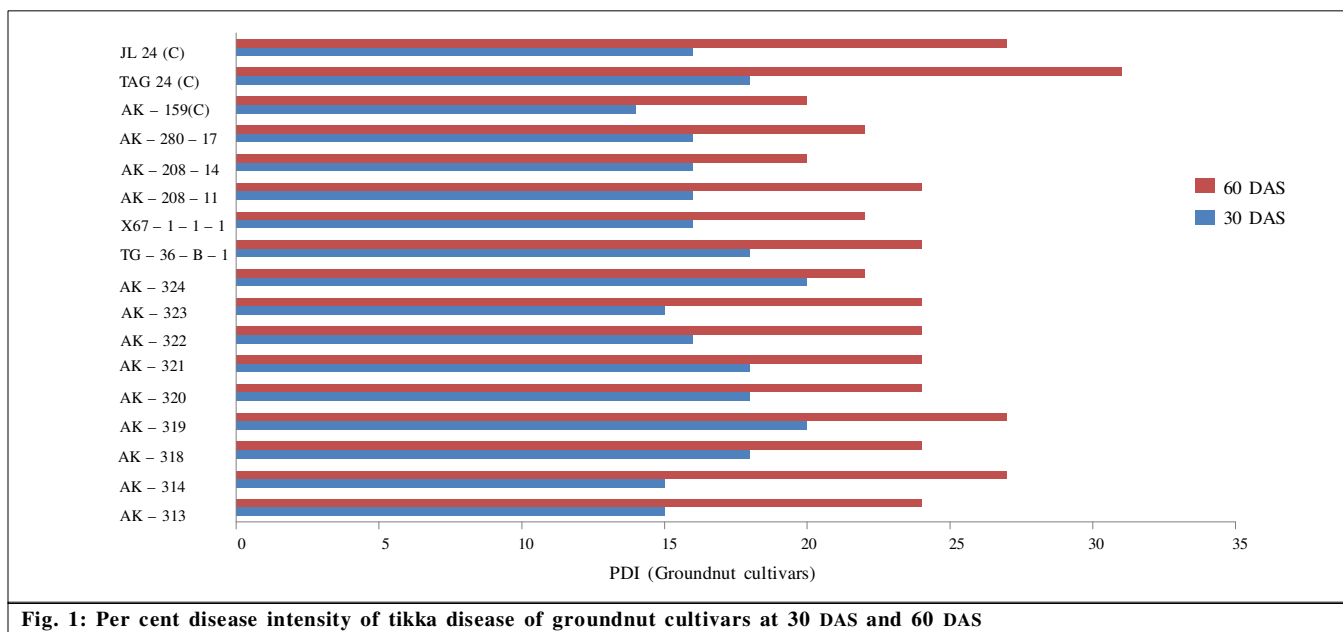


Fig. 1: Per cent disease intensity of tikka disease of groundnut cultivars at 30 DAS and 60 DAS

increased in cultivars AK-314 (PDI 27 %) and AK-319 (PDI 27 %). The minimum per cent disease intensity was reported for the cultivar AK-208-14 among the all cultivars. The lowest per cent disease intensity was observed in AK-159 at both 30 and 60 DAS among the three check varieties.

Among all the cultivars, AK-208-14 showed moderately susceptible reaction. Whereas all other 13 cultivars showed susceptible reaction to tikka disease. The check variety AK-159 showed moderately susceptible reaction against tikka

disease among the three check varieties. Similar results were reported by Waliyar *et al.* (1990).

Conclusion :

Among the cultivars, AK-208-14 showed moderately susceptible reaction whereas all other cultivars showed susceptible reaction to tikka disease. The check variety AK-159 showed moderately susceptible reaction against tikka diseases among the three check varieties.

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