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## Management of Peanut Stem Necrosis Disease in Groundnut Through Border Cropping

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Peanut Stem Necrosis Disease in groundnut occurred in epidemic proportions in Anantapur district of Andhra Pradesh during *khari* 2000. Initially the disease was suspected to be Peanut Bud Necrosis Disease (PBND) caused by Peanut Bud Necrosis Virus (PBNV). In subsequent studies however Tobacco Streak Illarvirus (TSV) was found associated with the disease and was named as Peanut Stem Necrosis Disease (PSND) (Reddy *et al.*, 2002). This was the first report of occurrence of TSV in groundnut in India. Although PSND and PBND are caused by two distinct viruses the symptoms produced by them are very similar. Several flowering weeds are acting as natural hosts for the virus. Among them *Parthenium hysterophorus*, *Cleome viscosa*, *Digera aravens* and *Tridox procumbens* are the important and widely distributed weeds (Prasad Rao *et al.*, 2003). Transmission of virus occurs through thrips spp viz., *Frankliniella schultzei*, *Scirtothrips dorsalis* and *Megathrips usitatus* (Prasad *et al.*, 2003). Presence of infective pollen on leaves is required by vector thrips for transmission. Keeping this mode of transmission in view, border cropping with four rows of sorghum was tested for the management of the disease.

### Materials and method

Six on-farm trials were conducted at different villages in the district. Villages were selected based on their previous history of source and disease occurrence. In each trial two acres of plot was selected. One acre was allotted for border cropping and other without border cropping (control). Four rows of tall growing sorghum were sown as border crop. Border crop at 30 DAS was top dressed with urea to promote quick growth. Observations on disease incidence in treatment and control plots were recorded at 30 and 60 DAS in ten randomly marked meter square blocks and percent disease reduction over control was calculated (Table 1). Pod and haulm yields were also recorded and presented in Table 2.

### Results and discussion

Percent reduction in disease incidence was ranged between 33 – 79 per cent in on-farm trials. Highest reduction was recorded at village Kothapeta (79.22) and lowest was recorded at village Matikapalli (33.68). Higher pod and haulm yields were recorded in plots with border crop compared to control (without border crop (Tables 1 and 2).

Results indicate that sorghum as border crop is effectively acting as mechanical barrier for wind borne transmission of infected pollen and thrips and thus able to prevent the occurrence of the peanut stem necrosis disease in groundnut.

**Table 1. Effect of border cropping on incidence of Peanut Stem Necrosis Disease (PSND) in groundnut**

Name of the farmer	Name of the village and mandal	Disease incidence (%)		Disease reduction over control (%)
		Border cropping	Control	
Lingamaiah	Dondapadu, Gooty	5.7	26.8	78.69
Rangareddy	Kothapeta, Gooty	3.0	14.4	79.22
Raghunath Reddy	Matikapalli, Nallacheruvu	12.6	19.0	33.68
D. Bhaskar Reddy	Ratnalapalli, Nallacheruvu	3.8	16.2	76.54
G. Nagappa	Ratnalapalli, Nallacheruvu	6.0	19.8	69.69
Y. Gangulappa	Ratnalapalli, Nallacheruvu	6.0	15.5	61.38
Mean		6.2	18.6	66.53

**Table 2. Pod and haulm yield of groundnut as influenced by border crop**

Name of the farmer	Village and mandal	Pod yield (kg/ha)		Haulm yield (kg/ha)	
		Border cropping	Control	Border cropping	Control
Lingamaiah	Dondapadu, Gooty	1550	1430	2710	2200
Rangareddy	Kothapeta, Gooty	1650	1350	2700	2430
Raghunath Reddy	Matikapalli, Nallacheruvu	1150	650	2100	1450
D. Bhaskar Reddy	Ratnalapalli, Nallacheruvu	950	700	1750	1400
G. Nagappa	Ratnalapalli, Nallacheruvu	1150	960	1850	1350
Y. Gangulappa	Ratnalapalli, Nallacheruvu	1300	1050	2350	1750
Mean		1291	1023	2243	1760

### Conclusion

Peanut stem necrosis disease in groundnut can be effectively managed by growing four rows of sorghum as border crop.

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