P423. Sources of soybean resistance to *Sternechus subsignatus*

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The gall-maker and stem borer, *S. subsignatus*, rose from a minor to an important pest as soybean fields expanded to new areas and cultivation systems changed. The chemical control of this pest is difficult due to its concealed habit in the pre- and post-embryonic stage. Therefore, other control alternatives are necessary, specially in large fields. Hence, sources of soybean resistance to *S. subsignatus* have been searched for at Embrapa Soybean, Londrina, Paraná State. Thirty genotypes were tested under greenhouse and field conditions in completely randomized no-choice and randomized block multiple-choice design experiments. Tests were performed during four seasons with different genotypes each year, as genotypes not showing resistance were replaced by others of interest. The susceptible control genotypes used in the 1999/00 and 2000/01 seasons were 'Embrapa 4' and 'BR-16'in 2001/02 and 2002/03. In 2002/03, besides greenhouse tests (no-choice and multiple-choice), a field-cage test was performed with artificial infestations of *S. subsignatus* adults. Genotypes were not significantly different from the control genotype at any season in no-choice test. In general, multiple-choice tests promoted a better discrimination between genotypes than no-choice tests. In the 1999/00 season, greenhouse multiple-choice test, BRQ 96-3065 and PI 227687 were less damaged by *S. subsignatus* than other tested genotypes. In the 2000/01 greenhouse multiple-choice test, PI 227687, BRQ-96-3065 and BR-95-1159 were less damaged than others, but only PI 227687 was significantly different ($F = 4,42$; $P < 0,001$) compared to the control ('Embrapa 4'). In 2001/02, the total damage (feeding marks + leaf cut + oviposition + dead plant) was lower in 'IAC-100', PI 171451, PI 227687 and 'IAC-24' than in 'BR-16'. In the 2002/03 season, greenhouse multiple-choice test, the most resistant genotypes were PI227687, BRQ 96-3065, KI-S 601 and Ocepar 17. In the field, during this season, PI227687, BRQ 96-3065 and CS 201 performed better in the presence of *S. subsignatus*. The results suggest that non-preference is one of the resistance mechanisms of soybean to *S. subsignatus*. Futhermore PI 227687 appears to be a source of potential resistance to be used by breeders in insect resistance programs. Other genotypes such as BRQ 95-3065 and PI 171451 also showed some potential, but to confirm this more studies are necessary.

P424. Resistance of elite soybean lines to stem fly (*Malanagromyza sojae* Zehntner)

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Stem fly (*Malanagromyza sojae* Zehnt.) is a serious insect-pest of soybean in India. Infestation in the early stage of growth results in death of seedlings whereas in grown up plants stunted growth is observed due to stem tunneling by the maggots. The infestation reduces grain yield by 25-30 per cent (Kundu and Srivastava, 1992). Soybean varieties show varying degree of stem fly infestation due to host plant resistance. Present studies include the results of field experiments conducted during 1998, 2000 and 2002 to screen elite soybean lines for their resistance against major insect-pests. A total of 107 lines were planted in Randomized Block Design with three replications. Each line consisted of three rows of 3 m length per replication with 45 cm and 5 cm distance between and within rows, respectively. Soybean cultivars PK 1029 was included as stem fly susceptible check. Data were recorded on total plant height and length of stem tunneled by stem fly at physiological maturity stage. Percentage values for stem tunneling were transformed into angular values and subjected to analysis of variance. Soybean lines were categorized for resistance as per AICRPS (2001). Susceptible check variety PK 1029 recorded 34.75%, 30.66% and 38.52% stem tunneling values during 1998, 2000 and 2002 experiments, respectively, which were above economic threshold level (26%) as determined by Venkatesan and Kundu (1994). The results indicated 27 lines to be highly resistant, 8 lines resistant, 19 lines moderately resistant, 31 lines low resistant, 4 lines susceptible and 18 lines highly susceptible to stem fly. TS 98-21, TS 98-91, JS 92-12, JS (SH) 93-48, JS (SH) 93-01, Himso 1578, UGM 47, JS (SH) 93-37, MAUS 64-1, DSb 5, AMS 97-1, NRC 52, KB 221, JS 94-65, MACS 871 and UGM 20075 were found to be promising lines for resistance against stem fly. These lines can be used as donors in development of stem fly resistant soybean varieties.