

RESISTANCE MODALITY OF HYBRID SORGHUM TO SORGHUM MIDGE. Jose M. Waquil (CNPMS/EMBRAPA-Brazil) and George L. Teetes Department of Entomology, Texas A&M University, College Station, Texas 77843.

Using the sorghum midge, Contarinia sorghicola (Coq.), resistant hybrid ATx2755 X Tx2767 and the susceptible hybrid ATx2752 X Tx430 several aspects of the resistance were examined under field conditions from 1982 to 1984 at College Station, Texas.

Based on the number of ovipositing adult midges trapped per flowering panicle, about 1/3 more female midges visited flowering panicles of the susceptible hybrid than the resistant. In addition, comparing the number of eggs laid by 20 caged females, it was shown that 4-5 times more eggs were laid in spikelets of the susceptible hybrid than spikelets of the resistant hybrid. Although an equivalent proportion of eggs was laid during and before anthesis in spikelets of both hybrids, a significantly lower proportion of eggs was laid in flowers of the resistant hybrid after anthesis. Three aspects of adult ovipositional behavior were determined. About 25% more females were trapped on flowering panicles which had not been previously midge infested compared to when panicles had already been infested. Sorghum midge females searched the flowers of the resistant hybrid more rapidly than they did the susceptible; however, the time used attempting to oviposit was longer. Also, the frequency of ovipositional success was much lower, about 4 times, in flowers of the resistant hybrid than in flowers of the susceptible hybrid. Development of midge immature stages in the spikelet of the resistant hybrid was affected. Proportionally, a greater number of midges reached the late immature stages (large larvae and pupae) in flowers of the susceptible hybrid than in flowers of the resistant hybrid. In addition, a higher proportion of these large larvae and pupae were positioned in the flower next to the caryopsis of susceptible hybrid than the resistant.

A combination of different midge hosts (johnsongrass, resistant and susceptible sorghum hybrid) and two methods to collect midge adults was used to obtain midge adults to artificially infest flowering panicles of the resistant and susceptible sorghum hybrid. The progeny number produced by adults from different hosts and used to infest the susceptible hybrid was not significantly different. However, there was a greater variation in progeny numbers by females reared from the different hosts when they were used to infest the resistant hybrid.