

# **PUBLICATIONS**

## **2006**

## IMPROVEMENT OF RUST RESISTANCE IN SWEETCLOVER

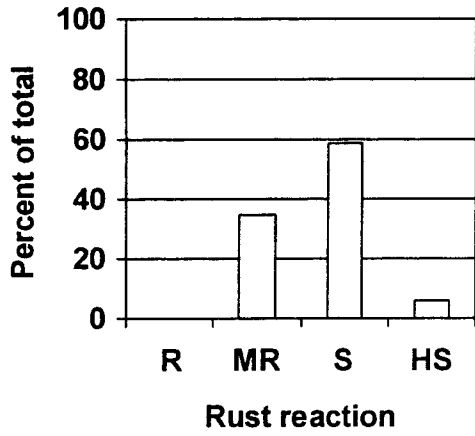
G. R. Smith, G. W. Evers and W. R. Ocumpaugh

**Background.** Sweetclover rust (*Uromyces striatus*) has been noted at several locations in Texas in the past four years and was officially reported in Kansas in 2002 (Plant Dis. 86:1404). The symptoms are the occurrence of orange to reddish brown pustules (uredinia) on the leaves, wilting and early leaf drop. The development of rust resistance in sweetclover was added as an objective to the sweetclover breeding program.

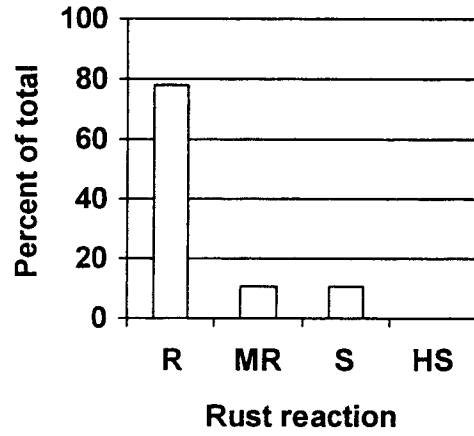
**Research Findings.** Twenty-five sweetclover (white flower, *M. alba*) plant introduction lines (representing the core collection for this species) were planted at Beeville in November, 2003 for evaluation of sweetclover rust resistance. Rust had been noted on sweetclover in previous years at Beeville and severe rust was noted again in mid May, 2004 on the experimental sweetclover lines. In early June four plant introduction lines were identified with some plant to plant variation for rust resistance. The remaining twenty-one lines were classified as rust susceptible. The four lines with some variation for rust resistance did not flower at Beeville and have been classified as biennials. A space planted selection nursery was established at Beeville to evaluate the four plant introduction lines that were identified with variation for rust resistance and one additional related line. Five hundred and seventy-five plants were transplanted in mid December, 2004, including twenty-five plants of Hubam sweetclover as checks. The plants were rated for rust reaction on May 26, 2005. The following rating scale was used: R = resistant, no rust pustules visible; MS = moderately susceptible, 2-10 pustules per leaflet; S = susceptible, 10 – 25 rust pustules per leaflet; HS = highly susceptible, >25 pustules per leaflet. Variation for rust reaction was confirmed for all five experimental lines and Hubam was confirmed as highly rust susceptible (see graphs of rust reactions for each line). Three sweetclover lines were noted with excellent rust resistance (78 to 54% rated as R) but with little forage production potential. These lines (TX-SC-349, TX-SC-551, and TX-SC-472) were all biennial types with very slow growth. Two lines, one biennial line with 51% rust resistant plants and one annual line with 24% rust resistance, were identified with potential for good forage production in south Texas. The line TX-SC-625 was classified as biennial and was 12 to 30 inches tall on May, 26, 2005. The line TX-SC-624 was in late bloom and was 48 to 72 inches tall at this same evaluation date.

**Application.** Sweetclover germplasm with rust resistance has been identified. Development of cultivars with combinations of rust resistance, low coumarin and multi-stemmed crowns is in progress.

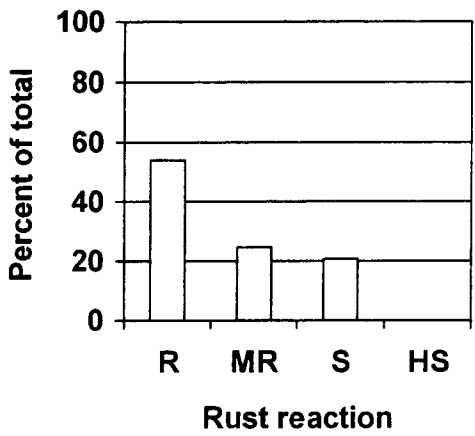
**Hubam**



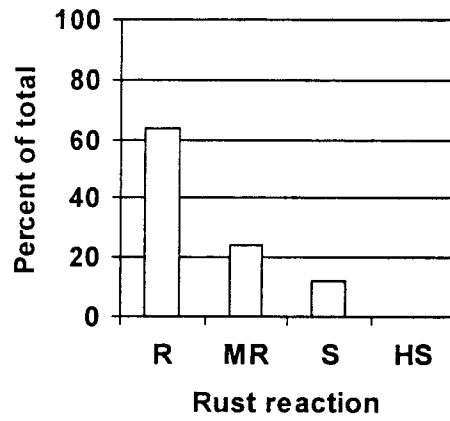
**TX-SC-349**



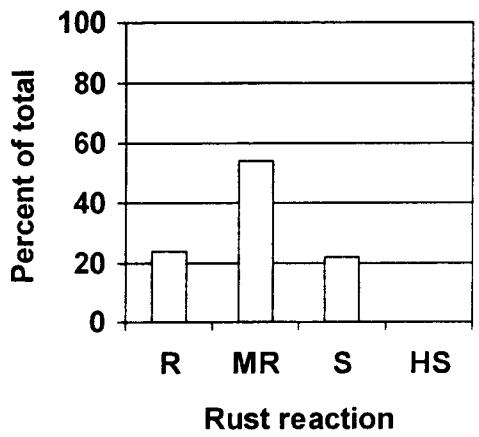
**TX-SC-551**



**TX-SC-472**



**TX-SC-624**



**TX-SC-625**

