

# **PUBLICATIONS**

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## IMPROVED SWEETCLOVER VARIETIES FOR CENTRAL TEXAS

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**Background.** At this time there are few improved pasture legumes available for the 20 to 35 in. rainfall belt in the central part of the state. Before the advent of cheap nitrogen fertilizer after World War II, annual sweetclover was one of the most popular legumes used on Texas farms and ranches. From the mid 1940's to the mid 1950's, an average of 63,000 acres of Hubam sweetclover was grown in Texas for seed production each year. A disadvantage of the old annual sweetclover varieties was their plant morphology that consisted of a thick central stem that had low digestibility and required a long drying time when cut for hay. All annual sweetclover varieties have high coumarin content. It converts to dicoumarol in hay that is not dried properly before baling. Dicoumarol is a blood thinning agent that can result in death of animals consuming sweetclover hay. A low coumarin gene has been identified in a biennial sweetclover that is not adapted to Texas. The transfer of the low coumarin gene to annual sweetclover is reported in another paper. One hundred seed of five annual and five biennial varieties of white sweetclover were obtained from the Regional Plant Introduction Station at Ames, Iowa. Seed were germinated, planted in pots, and placed in the greenhouse. On February 15, 2000 twenty plants of each variety were transplanted to a black clay calcareous soil on the Amy and Tom Pritchett Farm in Ellis County. Plant height and percent flowering were recorded weekly from April 5 to May 17, 2000. On June 1, plants of annual sweetclover varieties Emerald, Floranna, Goh, and Hubam were sampled to compare average stem diameter and stems per plant.

**Research Findings.** The annual varieties grew rapidly in height from April 5 to May 17, 2000 (Fig. 1). Biennials do not flower until the second year and therefore do not grow as tall as the annuals the first year. Only annual sweetclover varieties were used in Texas because of poor survival of biennials due to the hot, dry summers. Emerald, Floranna, and Hubam were at about 25% flower and Goh at 5% flower on April 5 (data not shown). Israel sweetclover is later maturing and did not begin flowering until late June. By May 17, percent flower was 90% for Floranna, 75% for Hubam, 55% for Emerald, 40% for Goh, and 0% for Israel. Of the four annual varieties that had flowered by June 1, Emerald had the thinnest stems and three times as many stems/plant as the other varieties (Table 1). Emerald has a plant structure similar to alfalfa instead of a thick main stem with several branches which is typical for annual sweetclover.

**Application.** Because of plant structure Emerald sweetclover should be more digestible, more tolerant of close grazing, and dry quicker than other annual sweetclover varieties.

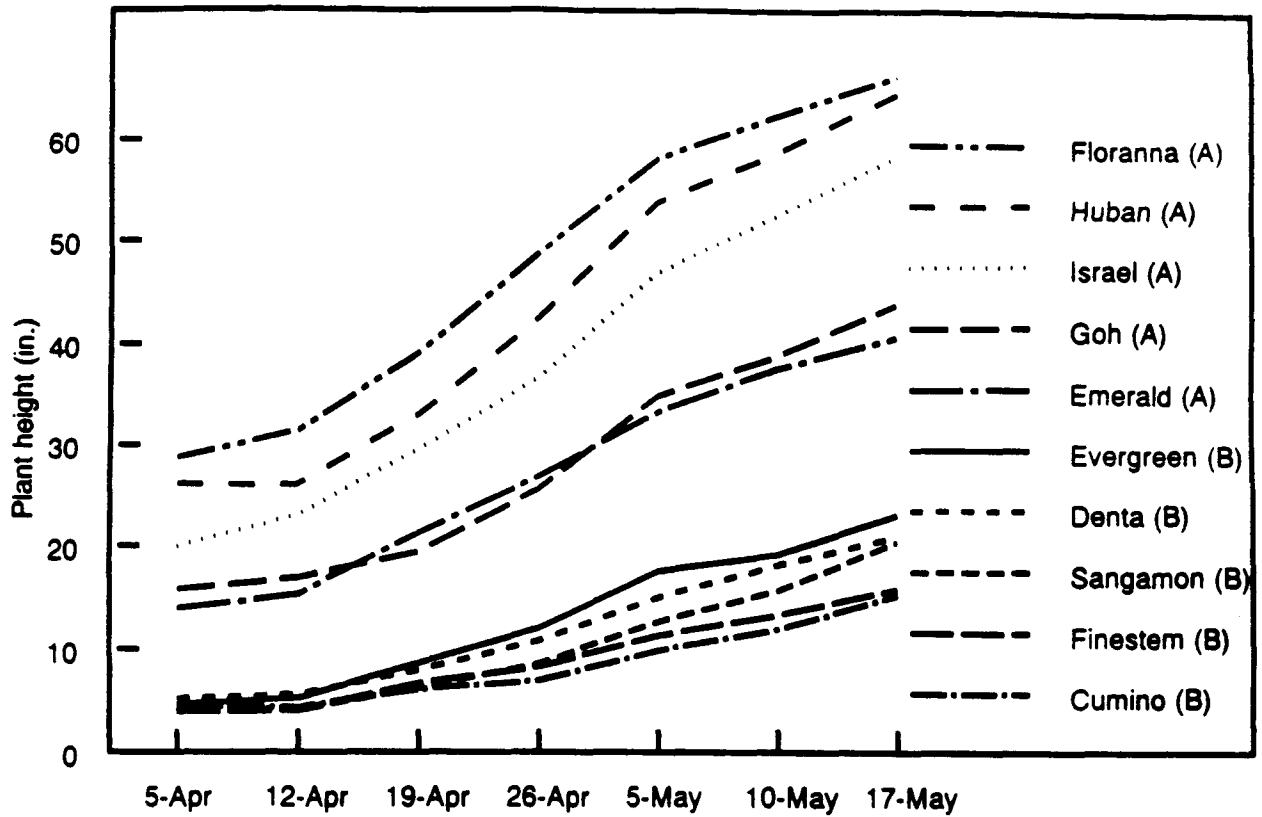


Figure 1. Comparison of five annual (A) and five biennial (B) sweetclover varieties for plant height from April 5 to May 17, 2000.

Table 1. Average stem diameter and stems per plant of four annual sweetclover varieties on June 1, 2000.

Variety	Average Stem Diameter in.	Average Stems/Plant no.
Emerald	0.20	51
Floranna	0.29	18
Goh	0.34	17
Huban	0.38	17