

# TECHNICAL NOTES

## Temperature and Moisture Stress Affect Germination of *Gutierrezia sarothrae*<sup>1</sup>

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### Highlight

Germination of broom snakeweed seed was found best at 60–70 F temperatures and was inversely related to moisture stress.

Broom snakeweed (*Gutierrezia sarothrae* (Pursh) Butt. & Rusby), an undesirable half-shrub, is frequently the heaviest understory herbage producer in the southwestern pinyon-juniper type (Arnold et al., 1964). Reduction or elimination of this noxious plant

generally increases production of usable forage (Jameson, 1966). Successful reduction may depend on knowledge of life history. Consequently, this study was designed to measure some effects of temperature and moisture stress on snakeweed germination.

Snakeweed seeds (three replications of 25 each) were germinated in the laboratory. Moisture stresses of 0.2, 1.2, 2.4, 6.0, and 12.0 atm were attained by prescribed amounts of aqueous solutions of mannitol (Helmerick and Pfeifer, 1954). Distilled water was

used as a moisture stress control (0 atm). Temperatures of 40, 50, 60, 70, 80, and 90 F were tested. Seed germination was determined for about 2 weeks following incubation.

Seeds germinated best at 60 and 70 F; germination decreased and took longer above and below these temperatures (Figs. 1 and 2). Seeds did not germinate at 40 and 90 F.

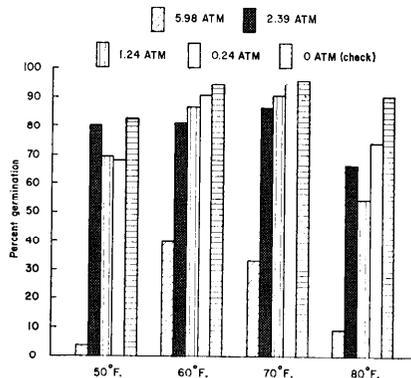


FIG. 1. Percent germination for each treatment of broom snakeweed seed.

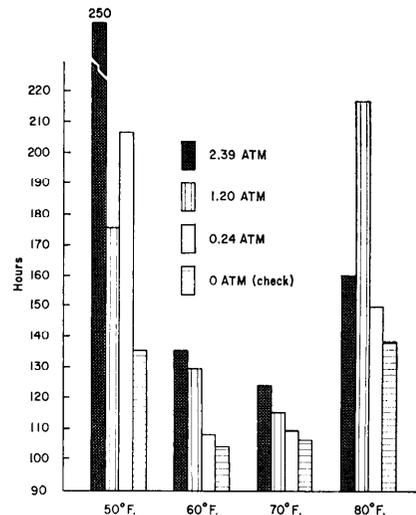


FIG. 2. Hours required for 50% germination of broom snakeweed seed.

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Germination was inversely related to moisture stress; 95% of the seed germinated in the control, while none germinated at 12 atm (Fig. 1).

Although no direct translation can be made, these laboratory trials may serve as an indicator of broom snakeweed germination responses under normal field conditions.

### Literature Cited

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