

INGESTION OF SNAKEWEED BY NATIVE RANGE CATTLE AND EFFECTS OF CONSUMPTION ON REPRODUCTIVE PERFORMANCE

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(Key Words: Toxicosis, *Gutierrezia*, Snakeweed, Beef Cows, Reproduction)

Broom snakeweed (*Gutierrezia sarothrae*) and threadleaf snakeweed (*G. microcephala*) infest western rangelands from northern Mexico to southwestern Canada. Ingestion of snakeweed, at low levels, has been shown to impair reproductive rates in cattle and rats. Although snakeweeds are unpalatable by nature, they have been found in diets of range cattle. Therefore, in order to assess the impact of snakeweed on New Mexico cattle operations a study was designed at New Mexico State University to determine: 1) the occurrence of snakeweed in diets of beef cattle grazing native rangelands with varying degrees of snakeweed infestation, 2) the relationship between snakeweed occurrence in diets, snakeweed population, and diet quality, 3) the effects of snakeweed intake on reproductive performance under range conditions, 4) if snakeweed ingestion and toxicity varies across genotypes of beef cattle. Four cooperating southwestern New Mexican ranches are participating, with varying percentages of snakeweed in pastures (in plant frequency from 0.6 to 13.7% and in weight of available forage from 8.8 to 51.9%). Fecal and blood samples are to be collected from cattle herds on each ranch, at three different periods during 1993 and 1994. Fecal samples will be examined microscopically at the AAFAB Composition Laboratory in Fort Collins, CO, to estimate diet composition. Chemical (nutritive) analysis will be conducted at the NMSU Nutrition Laboratory. Periodic blood samples will be analyzed by Southwest Medical Laboratory, Las Cruces, for serum clinical components, to develop a toxicological profile. Pasture condition will be assessed by step-point method and available forage clippings with a one-half meter² frame. Regression techniques will be used to establish relationships among available and ingested snakeweed and between ingested snakeweed and serum clinical profiles. Differences among cattle genotypes, in amounts of snakeweed ingested, will be determined.

RAT BIOASSAYS OF EMBRYO-FETAL TOXINS IN EXTRACTS OF SNAKEWEED FOLIAGE

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(Key Words: *Gutierrezia microcephala*, Toxins, Rats)

Using stored, freshly-frozen portions of snakeweed foliage collected at three locations and shown by extensive rat experimentation to contain potent embryo-fetal toxins as well as (less potent) hepato-renal toxins, we have prepared methylene chloride (dichloromethane) extracts and partitioned these into neutral-alkaline and acidic fractions. These fractions have been incorporated into diets for newly-inseminated female rats, and study is in progress to determine which of these fractions is most embryotoxic.