

# **Livestock Research Briefs and Cattle Growers' Short Course**



**March 22, 1990**



**Agricultural Experiment Station  
Cooperative Extension Service  
College of Agriculture and Home Economics  
and the New Mexico Cattle Growers' Association**

EFFECTS OF DIETS CONTAINING GOSSYPOL  
ON SPERMATOGENIC TISSUES OF YOUNG BULLS

Javad Arshami and Jack Ruttle

(Key Words: Cattle, Gossypol, Spermatogenesis)

Recent research in human medicine has shown that the gossypol component of the cotton plant may be effective as a male contraceptive agent. In the human male gossypol does not produce complete sterility, but does significantly lower fertility and fertilizing capacity of spermatozoa. Because of the high use of cotton ingredients in range cattle diets, research has been conducted at NMSU to determine the effect of gossypol on spermatogenic tissues of the bull. Samples of testicular tissue were obtained from bulls that had been fed either (a) a control diet devoid of gossypol, (b) a diet containing whole cottonseed as a gossypol source and (c) a diet including cottonseed meal as a gossypol source. Histological examination of tissues obtained after two months on the test diets showed that bulls fed whole cottonseed or cottonseed meal as part of their diets when compared to control bulls, had seminiferous tubule walls that were 61% and 74% smaller, respectively. This condition would indicate lower activity of the sperm producing tissues. Cell layers in the walls of the seminiferous tubules were reduced by 50% in comparison to bulls fed a gossypol-free diet. These findings suggest that gossypol-induced infertility is at the cellular level and a result of damage to the spermatogenic tissue. Further research is planned to determine if apparent infertility is reversible.