

purification and maintenance of commercial varieties. If  $F_1$  hybrid cottons become a reality, doubled haploids and their derivatives will be of great value as parents.

MILLER, W. J., University of California, Davis, Calif.: *Blood groups in Longhorn cattle.*—Through the courtesy of Mr. JULIAN A. HOWARD, Refuge Manager, and Dr. D. C. BOSTWICK, U.S.D.A., 99 Longhorn cattle from the Wichita Mountains Wildlife Refuge, Cache, Oklahoma have been blood typed. Genetic diversity and segregation were demonstrated in nine of ten blood group systems. Certain phenogroup frequencies were characteristically different from ordinary cattle in this country. But the most notable difference was in the B system which contained many new phenogroups.

MILLER, W. J., and P. W. GREGORY, University of California, Davis, Calif.: *Coat color, pattern, horn condition and blood groups in cattle.*—With few exceptions, cattle breeds are kept uniform for superficial traits. Therefore, studies for linkage of blood groups with other genetic traits is thwarted. In studies of dwarf cattle, however, it has been necessary to cross breeds and obtain various kinds of segregants.—The sire family of one Angus-Hereford bull has exhibited genetic segregation for black *versus* red coat color, for white face *versus* self pattern, for polled *versus* horned, and for phenogroups in three systems of blood groups. Segregation of the bull's phenotypes was at random with respect to coat color, pattern and horn condition, excluding close linkage with the B, F-V and S blood group systems.

MITTLER, SIDNEY, Armour Research Foundation of Illinois, Institute of Technology, Chicago, Illinois: *The effect of antimetabolites upon the sex ratio in mice.*—Antimetabolites were tested as a possible agent to alter the sex ratio of offspring in mice. Since some antimetabolites block synthesis of nucleic acids, it was thought that an antitumor compound might favor production of a Y-bearing sperm over X-bearing sperm. Amethopterin, a folic acid antagonist, 6-purinethiol hydrate, a purine antagonist, 8-azaguanine, a triazolopyrimidine analog of guanine, and n-methylformamide were injected daily into male mice for several months. These mice were mated prior to and during the period of treatment. There was no significant change in the sex ratio of their offspring. N-methylformamide and amethopterin affected the fertility of some of the male mice.

MOH, C. C., and G. ORBEGOSO, (Introduced by ROBIN L. CUANY), Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica: *The induction of angustifolia mutants in coffee in  $R_1$  generation by ionizing radiations.*—In studying the effects of ionizing radiations on tropical plant species, it was found that when coffee (*Coffea arabica* L.) seeds were irradiated, a high frequency of angustifolia (*ag*) mutants was induced in the  $R_1$  generation. The *ag* mutants were characterized by producing long and narrow leaves, and the degree of leaf elongation and narrowness varied with different mutants. The *ag* character appearing in the  $R_1$  plants was rarely a sectorial change, but rather the whole plant produced the same characteristic. These mutants have grown for more than a year; none of them have changed back to normal appearance. Thus, the induced changes appear to be permanent.—It has been reported that at least three recessive genes in coffee, when homozygous, give rise to the *ag* character. However, the induction of the *ag* mutants in the  $R_1$  generation can hardly be explained on this basis. Preliminary experiments have shown that the frequency of *ag* mutants increased with radiation dose employed. When thermal neutrons were used as an inducing agent, the *ag* frequency increased linearly with the neutron dose; when X-ray or gamma rays were used, the frequency increased exponentially. This suggests that the *ag* mutants may be due to the result of two-hit chromosomal aberrations. Studies on the effect of fractionated dosage on the *ag* frequency are in progress to test the validity of this hypothesis. (This work was supported by the U.S. Atomic Energy Commission Contract AT (30-1)-2043).