

Transfusions of whole cattle blood, of washed red cells, and of red cell stromata have been made into cattle, rabbits, and sheep in efforts to produce specific reagents. Reagents for two previously unidentified red cell antigens have recently been obtained.

The method of determination of red cell antigens has proved to be a critical test for the detection of identical twins.

Much work yet remains to be done on the production of monospecific reagents before a study can be made of possible correlations between different combinations of characters and characters associated with production.

*Pregnancy Diagnosis in Cattle.*—Work on this project has had to be suspended owing to the resignations of all members of the team involved. Preliminary investigations have emphasized mainly the difficulties of the task. Much necessary preliminary work has been accomplished which will save considerable time when staff is again available to take up the study.

#### DAIRY-CATTLE BREEDING

*Use of Proven Sires.*—The location of proven sires and artificial insemination at Ruakura has permitted a start to be made with a long-term investigation of the use of proven sires, irrespective of blood lines, as a method of breeding dairy cattle. During the past two seasons all available cows have been mated to proven sires, or sons of proven sires out of Lifetime Merit Register dams. To date the following females have been bred. It is of interest to note that most of these are the result of artificial matings :—

—					Calves.	Yearlings.	Total.
By proven sires	..	..	..	..	69	41	110
By sons of proven sires	..	..	..	..	1	12	13
Totals	..	..	..	..	70	53	123

The first crop of daughters of proven sires will calve during the coming season. These animals are themselves in calf to proven sires or their sons, so that the second generation of this type of breeding will be available by the spring.

*Inheritance of Defects.*—Three possible cases of inherited defects in cattle have come to our notice and are being followed up : “hydrops calf” in Ayrshire cattle, blindness in Jersey cattle, and “blind forequarters” in Jersey cattle.

*Induction of Twinning in Cattle.*—Following the successful induction of twinning by the use of pregnant mare serum last year, when 12 cull cows were treated and the results determined through slaughter, some 25 head of Aberdeen Angus breeding-cows have been injected for twins this season. From the experience gained it would appear that, even if successful, the technique at present necessary is too difficult for practical use, except in herds where very careful control of stock is possible. The cows treated will be calving next spring.

*Identical Twins.*—Good co-operation was obtained from farmers in the location and collection of identical twins. The present twin population of the Station is as follows :—

Age.					Number of Sets.		
					Heifers.	Bulls.	Total.
Two years and over	..	..	..	..	3	..	3
Rising two years	..	..	..	..	13	5	18
Rising yearling	..	..	..	..	29	5	34
Calves	..	..	..	..	1	..	1
Totals	..	..	..	..	46	10	56