

Pre-breeding Period.—During the pre-breeding period, all of the yearling heifers in group I showed estrus, while only three animals in group II and two in group III showed one or more regular estrous periods. None of the yearling heifers in group IV showed any sign of estrus during the pre-breeding or breeding period. Estrual cycle length was similar for all yearling heifers showing estrus (Table 5). Rectal palpation of ovaries, performed every 14 days during the experiment, indicated that the yearling animals which did not show signs of estrus had little follicular growth and failed to ovulate. Likewise, the rectal palpation examination on the day the breeding period commenced indicated that all the yearling heifers in group I had a corpus luteum, while groups II and III had only three and two heifers, respectively, with a corpus luteum. None of the yearling heifers in group IV had a corpus luteum.

During the pre-breeding period all two-year-old heifers except one in group IV showed four to six estrous periods (Table 5). One two-year-old heifer in group IV showed estrus only once, 11 days following the start of the experiment. She was in poor physical condition during the first 112 days on experiment and never returned into estrus during this period. However, she came in estrus during the breeding period and became pregnant at the first breeding. Rectal palpation studies at 14-day intervals during the pre-breeding period indicated that all the two-year-old heifers were ovulating regularly except the one heifer in group IV. The length of the estrual cycles was similar.

Breeding Period.—All the yearling heifers in group I and three heifers in group II were pregnant from the first service and had normal embryos. The remaining two heifers in group II returned in estrus 18 days later, were rebred, and had normal embryos. Neither of the two heifers bred in group III became pregnant at first or subsequent breedings (Table 5). One heifer in group III appeared to have settled at the first breeding, while the other one was bred at three consecutive estrous periods and was killed three days following the last breeding. The heifers which showed no estrus were slaughtered at random times with the pregnant animals, and none had evidence of luteal tissue on the ovaries.

The reproductive performance of the two-year-old heifers varied considerably within the groups. Of those in group I, only two animals were pregnant at first breeding; another became pregnant at the second service, while the remaining two