

the last 7 years. Peanuts were fertilized with 400 pounds of 2-10-4 per acre for the first 3 years and 500 pounds of 2-10-8 fertilizer the last 8 years of the test. Blue lupine and crotalaria received 300 pounds per acre of 0-14-10 the first 3 years and no fertilizer during the last 7 years. Soybeans were not fertilized.

Yields of corn are shown in Table 1. Compared with the average of all continuous corn treatments, 2-year rotations averaged 3 bushels higher, and 3-year rotations 5 bushels higher for the 11 years. However, continuous corn interplanted with crotalaria or followed by oats or lupine yielded only slightly less than 2-year rotations and 6 to 8 bushels more than continuous corn with no cover crop. The 2-year rotations averaged 9 bushels more and the 3-year rotations 11 bushels more than continuous corn with no cover crop. For all years except 1947, 1953, 1955 and 1957, the rotations gave a highly significant increase in yield of corn over continuous corn without a cover crop and in these years the trend was in favor of the 2- and 3-year rotations. In 1950, after the largest lupine cover crop of the 10 years reported (Table 4), rotation corn yielded 23 to 35 bushels more than continuous corn with no cover crop (Figure 2).

Figure 3 shows the relationship between total rainfall in May, June and July and corn yield from the 3-year rotation of peanuts, lupine, corn, oats for grain, crotalaria and oats, for 1949 through 1957. The correlation coefficient was 0.762, which was significant at the 5 percent level. These results indicate

Fig. 2.—Left: Corn grown in 1950 after 4 years in a 3-year rotation of peanuts, lupine for green manure, corn, oats for grain, crotalaria and oats for green manure. Yield 93 bushels per acre. Right: Corn grown continuously for 4 years. Yield 58 bushels per acre.

