pared, the yield from the pastured area was about 20% less than the unpastured area in 1957 (the first pasture year), about equal to the unpastured area in 1958, and about 15% greater than the unpastured area in 1959, the third year.

The plant counts and measurements of the alfalfa roots and crowns can be summarized briefly. There was not a significant difference in the number of alfalfa plants per unit area between the pastured (6.7 plants/ft.²) and unpastured (7.5 plants/ft.²) sites. The diameter of the crowns and roots were about 6% larger on the pastured area, and the crown and root weights were 1.20 and 1.11 times larger, respectively. Though these differences were small, they were significant at the 0.05 level. There was significantly less disease in the pastured plants. The average disease class was 1.22 for the pastured alfalfa plants and 1.42 for the unpastured plants.

The only two systematic differences in management to which either the relative shift in yield or the relative plant vigor could be attributed were the traffic and the difference in height to which the forage was cut following grazing. It appears that the relative decline in plant vigor on the unpastured area was due to the lower cutting height because traffic would not be expected to benefit plant vigor, and because in the first pasture season the yields on the unpastured areas were greater when the close cutting would have least accumulative effect. This is contrary to the data of Kust, who found no difference in yield between plots cut to 1-inch and plots cut to 3-inch heights, 3, 4, 5, and 6 times a year over a period of 2 years.

Thus, we feel that the information from this experiment may be summarized as follows.

1. Even on well-managed pastures, animal traffic can produce a significant decline in yields as evidenced by the 1957 results. We have not established whether this is due to direct damage to the plant or due to the pronounced soil compaction. However, direct injury to the plant may be expected either to decrease plant count or to increase incidence of crown damage and disease with respect to pasturing. Since neither of these effects of direct damage was observed at the end of three years of pasturing, the indirect effect of soil compaction on aeration, moisture, etc., appears to be appreciable.

2. Small differences in cutting height appeared to affect forage yields more than animal traffic on this well-managed pasture.