23 men for one year and enough protein for 26 men also for one year. If a farmer had planted half a hectare to maize and the other half to beans as monoculture, he should have produced enough energy to feed only 14 men for one year and enough protein to feed 20 men for one year.

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VARIATION IN PINTO BEAN CULTIVARS GROWN IN TWO SOILS

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In the spring of 1978, six cultivars of pinto beans (UI 114, Ouray, Columbia, Colorado 3385, Wyoming 166, and UI 111) were grown in soils taken from two different fields in west central Nebraska. In one field, crops were very chlorotic and stunted. The pH of this soil was 8.5. The other soil, with a pH of 7.3, was taken from a field where no physical signs of reduced growth or chlorosis were observed. We wanted to determine what influence these soils have on the growth of several dry bean cultivars.

Seeds were germinated in perlite. Ten plants of each cultivar were transplanted to each soil type in greenhouse benches. Five plants were harvested at the end of 3 weeks and the other 5 plants harvested at the end of 5 weeks. Plants were carefully removed from the soil and roots sifted out. Roots and tops (leaves and stems) from each plant were dried and weighed.

Statistical analysis indicated there were no significant differences in dry weights between cultivars grown in each soil. There were significant differences between blocks in each soil. This could have been caused by light and temperature differences in the greenhouse.

There were significant differences in dry weight within some cultivars when soil type was the varying factor. There was one cultivar (Ouray) with a significant difference in root weight between soils at the first harvest and four cultivars (Colorado 3385, UI 114, UI 111 and Wyoming 166) with significant differences in root weights between soils at the second harvest. There were three cultivars (Colorado 3385, UI 114 and Wyoming 166) with significant differences in top weights between soils at the first harvest and all six cultivars had significant differences in top weights between soils at the second harvest. Average plant dry weights were higher in all cultivars when plants were grown in the soil with the lower pH.

This initial study indicated there were no significant differences between the six cultivars of pinto beans when grown in each of two different soils. It does indicate there are differences within a cultivar when grown in different soil types. Soil with the higher pH tended to reduce growth.