A COMPARISON OF FOUR LEGUMES AS REGARDS THEIR ABILITY TO WITHSTAND WINTER CONDITIONS AND INCREASE THE YIELDS OF THE TRUCK CROPS FOLLOWING

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A comparison between red clover, alfalfa, biennial sweet clover, and winter or hairy vetch was begun in the spring of 1913 to determine their relative hardiness as winter cover crops and their value as green manures in growing truck crops for human food where an optimum amount of lime, phosphorus, and potassium is used and less nitrogen to supplement that in the green manures than it is estimated is necessary to produce a maximum crop. Varietal comparisons of some of the truck crops were also secured.

The comparison was located on plats each containing two-fifteenths of an acre. The alfalfa and sweet clover plats were located between 60 and 70 feet distant from each other but were fairly comparable from the standpoint of contour as each sloped to the south. The vetch and red clover plats were across a driveway from the other plats, but were contiguous to each other. The soil is a silt loam, typical of the experiment station plain. These plats had been treated and cropped alike for three years preceding this test and not very unlike for several years previous to this three-year period.

For the first planting the legumes were inoculated with cultures from the U. S. Department of Agriculture. The legumes were sown between July 20 and August 8, with one exception, 1923, when the date was August 31.

The rate of seeding per acre was 15 pounds each of the red clover, sweet clover, and alfalfa, and 30 pounds of the winter vetch the first six years and 60 pounds the last three years. During the last two years scarified seeds of the vetch and sweet clover have been used. Rye was added to the seeding as a nurse crop in 1918 at the rate of 30 pounds per acre, and in 1919 and 1920 at the rate of 20 pounds per acre.

When the truck crop was corn, the cover crops were seeded in the growing corn and raked in. This was also true when beans were grown. In case of potatoes, peas, and cabbage, the crop was first harvested, then the ground was plowed and the legumes seeded.

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363

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