

Seventeen experiments have been tried in the same time during three years with Indian corn and these have shown an average increase in the weight of the green corn cut for the silo of 3 tons 1,694 pounds per acre.

In experiments with potatoes the average of a test covering a period of two years has shown an increase from the ploughing under of clover amounting to 33 bushels and 20 pounds per acre.

This is a very important question, especially to farmers of the eastern provinces where clover can be easily grown. It is one of the most important questions which can be brought before them, and the growing of clover has been continued in this way from year to year with the object of impressing this fact upon the minds of farmers with greater force.

From the chemical analyses which have been made with clover, it is evident that a crop of clover such as I have described, adds to the soil about as much nitrogen as would be had from the application of ten tons of barn-yard manure to the acre. It adds also practically certain other elements of plant food for the reason that the clover roots go to a depth that other plants do not reach, and they bring up from the subsoil below stores of potash and phosphoric acid which are very useful. The larger part of the nitrogen added to the land by this method, is obtained from the air, the clover being one of those plants which can take in nitrogen from the air, and store it up in its tissues, a power that is limited as far as we know to leguminous plants, to which the clover belong. Another important element which clover contributes to the soil is humus, or vegetable matter. The proportion of vegetable matter in the soil bears a very important relation to the power of that soil to hold moisture. If you take a sponge and dip it in water and lift it out of the water, it will drip to a certain extent, but after the dripping has ceased, the sponge still holds a certain quantity of water which can be got out of it by squeezing. In a similar way the soil has the power of holding moisture to a certain extent, and the more vegetable matter in the soil, the greater its power of holding water, and as the plant must take all its nourishment through its roots by means of water, the amount of water the soil can hold is an important item in reference to its crop-producing power. I have reported on several occasions to this committee the results we have had on a series of plots, treated with different sorts of fertilizers. In each of these series of plots there has always been two that were left without treatment with fertilizers, and these two plots have had a succession of crops grown on them for 12 or 13 years, without any fertilizing. By that means the humus in the soil has been greatly reduced. During the last two years clover has been grown on these two plots and turned under, and it has been a surprise to witness the increase in the yield of these check plots, the first crop of clover materially increased the yield of grain, and the second crop has had a still more marked effect.

*By Mr. Wilson:*

Q. Have you had the percentages of increase worked out?

A. Yes. The two check plots in the series of wheat plots have given an average yield for the 12 years ending with 1899, of 10 bushels 17 pounds in the one case, and in the other of 9 bushels 40 pounds to the acre.

In 1900 after the ploughing under of the first crop of clover the crops of wheat on these plots were increased from 10 bushels 17 pounds to 13 bushels 45 pounds on the one plot, and from 9 bushels 40 pounds to 11 bushels 10 pounds on the other. Last year (1901), when no additional fertilizer was used whatever, except the ploughing under of the crop of clover, the plot which had given an average of 10 tons 17 pounds for twelve years was increased to 17 bushels 20 pounds to the acre. The other which had given as a twelve years' average 9 bushels 40 pounds, gave 15 bushels 5 pounds per acre. Putting the two plots together, the average increase in two years has been 6 bushels 14 pounds, which is more than 60 per cent, all apparently resulting from the ploughing under of green clover.

Q. What is the area of the plots?