THE NITROGEN INVENTORY AS AFFECTED BY LIVESTOCK VS. GRAIN FARMING.¹

C. G. WILLIAMS.²

In 1910 the Ohio Station began an experiment of comparing livestock with grain farming on the silt loam soil of Wooster, Ohio. The rotation followed is corn, soybeans, wheat and clover. In the livestock system, all the crops grown except wheat are either fed to livestock, or passed into the manure as bedding, and the manure made from the four crops is applied to the succeeding corn crop.

In the grain farming the corn, soybeans and wheat are removed and sold; the stover and straw are left upon, or returned to, the land; and the clover is not harvested but allowed to stand until plowed under the following spring. No livestock is fed in the grain farming system.

Each tract receives two tons of ground limestone and 700 pounds of 16 per cent acid phosphate per acre, per rotation.

THE CROP YIELDS.

It will perhaps be of interest to note the average yield of crops under the two systems.

Eleven crops of corn have been harvested, with the following average yields: In the livestock system 67.90 bushels per acre; in the grain farming 61.18 bushels per acre; a gain of 6.72 bushels in favor of the livestock farming. The average yield of stover in the livestock system has been 3,100 pounds per acre. The stover has not been harvested in the grain farming but may be estimated at 2,700 pounds.

The 10-year average yield of soybeans has been 21.04 bushels in the livestock, and 18.39 bushels in the grain farming. Of straw, 2,043 pounds in the livestock and 1,802 pounds in the grain farming—a gain of 2.65 bushels of beans and 241 pounds of straw in favor of the livestock farming.

The average yield of wheat has been 34.61 bushels in the livestock and 30.42 bushels in the grain farming. Of straw, 3,158 pounds in livestock and 2,617 pounds in the grain farming—a gain of 4.19 bushels of wheat and 541 pounds of straw in favor of livestock farming.

¹ Paper read at the meeting of the Society held at New Orleans, La., November 7, 1921.
² Director, Agricultural Experiment Station, Wooster, Ohio.