

2. Barnyard manure.
3. Complete commercial fertilizer.
4. Barnyard manure, together with commercial fertilizer.

To carry out this work, four areas of land were selected, 'N' in 1912, and 'X', 'Y' and 'Z' in 1909. Each area was divided into four equal-sized plots, and placed under the following rotation:—

First year.—Hood crop.

Second year.—Oats. Seeded down with 8 pounds red clover, 2 pounds alsike and 12 pounds timothy per acre.

Third year.—Clover hay.

Fourth year.—Timothy hay on rotations 'X', 'Y' and 'Z,' and pasture on rotation 'N.' Land ploughed shallow in early autumn, top worked and ribbed up in late autumn.

The fertilizing treatment given these areas is shown in the following table:—

FERTILIZER TREATMENT GIVEN ROTATIONS 'N' 'X' 'Y' AND 'Z.'

Crop.	Rotation N.	Rotation X.	Rotation Y.	Rotation Z.
Mangels.....	No fertilizer...	Manure 15 tons.	No manure..... Superphosphate, 300 lb..... Muriate of potash, 75 lb..... Nitrate of soda, 100 lb.....	Manure, 7½ tons. Superphosphate, 150 lb. Muriate of potash, 37½ lb. Nitrate of soda, 50 lb.
Oats.....	No fertilizer...	No fertilizer....	Nitrate of soda, 100 lb.....	Nitrate of soda, 100 lb.
Clover hay...	No fertilizer...	No fertilizer....	Nitrate of soda, 100 lb.....	Nitrate of soda, 100 lb.
Timothy hay	Pastured.....	No fertilizer....	Nitrate of soda, 100 lb.....	Nitrate of soda, 100 lb.

The five years' results for this experiment supply rather interesting data.

Rotation 'X,' which was fertilized with barnyard manure alone, cost the least to operate and produced the largest returns. The average profit per acre for the period was \$7.88.

Rotation 'Z,' which received a mixture of barnyard manure and commercial fertilizers produced equally as well as rotation 'X' but cost slightly more to operate with the result that the net profit was just \$6.77 per acre.

Rotation 'Y' receiving commercial fertilizer alone was the lowest in producing power and cost as much to operate as 'X.' The profits therefrom have averaged only \$5.55 per acre.

These results show a distinct advantage of barnyard manure alone over commercial fertilizer alone for this soil, but point to the possibility of combining the two to good advantage when barnyard manure is scarce or high in price.