

plowed, careful examinations were made and detailed notes were taken regarding the physical condition of the soil in each instance. It was found that the Alfalfa sod was more difficult to plow than that of any of the clovers or the grasses, but that the inverted sod of the Alfalfa plots was exceedingly mellow and friable, surpassing all others in this particular. The comparative differences of the various sods can be understood fairly well from the following figures:

Sods.	Difficulty or ease in plowing, 10 being most difficult.	Loose, friable condition of inverted sod, 10 being most friable.
Alfalfa.....	10	10
Common Red Clover.....	5	7
Mammoth Clover.....	6	6
Alsike Clover.....	4	8
Timothy.....	8	3
Meadow Fescue.....	7	4
Orchard Grass.....	7	4

An Alfalfa sod is usually a little more difficult to plow than that of some of the clovers and the grasses, owing to the very large roots of the Alfalfa plants, which are frequently pulled out of the subsoil instead of being broken or cut in two. When the roots, to the length of two, three, four or five feet or even more, are pulled out of the subsoil and left in the surface soil, a large amount of root material is thus deposited in the land at the very surface. The land is thus left in excellent physical condition, and as the roots decay they supply a large amount of humus, rich in fertilizing elements. In 1898, the Experimental Department spent some time in removing the Alfalfa roots from the land to a depth of two feet. This was divided into four layers, and the roots were carefully separated from each layer. The roots from each of these depths were then taken to the Chemical Department, where they were analyzed. The percentages of the fertilizing constituents in the dried roots of seventeen months' old Alfalfa were as follows for each of four depths in the soil of six inches each:

Roots taken from different depths of soil.	Nitrogen N.	Potash K <sub>2</sub> O.	Phosphoric Acid P <sub>2</sub> O <sub>5</sub> .	Lime Ca O.
First six inches.....	1.64	.66	.55	.59
Second six inches.....	1.58	.41	.55	.38
Third six inches.....	1.59	.43	.51	.48
Fourth six inches.....	1.58	.42	.48	.75

The roots of young Alfalfa plants were found to contain larger percentages of fertilizing materials than those of the plants which were