

In the absence of certain information in reference to the yield of parts of these plants, it became necessary to estimate the yield of the straw of the small grain as well as of the corn fodder, potato tops, and tobacco stalks, and also the proportion in them when gathered and dried in the air.

It must be borne in mind that the per centage of ashes in each case, was obtained by burning specimens which had been thoroughly dried at the temperature of boiling water, or 212°.

The carbon, nitrogen or ammonia, required for an acre of each crop, may be determined by multiplying the amounts of the dried plants, in the second column of the table, on page 57, by the figures in the last table, cutting off the two right hand figures exclusive of decimals; thus 2000 lbs. of corn per acre, (dried) being multiplied by 54.30 gives 1086 lbs. of carbon in a crop of 2250 lbs., or about forty bushels; in the state it is housed; and 2000 multiplied by 2 gives 40 lbs. for the ammonia required for the same amount of corn.

It will be easy with the aid of the tables to estimate for larger or smaller yields per acre.

Although the facts given in these tables are of the highest importance in their practical application to agriculture, yet it must be admitted that we are still without sufficient information for a full investigation of many important branches of the subject.

The results of analysis, in the tables, were obtained after the maturity of the plant, but we desire to know the composition of the plant in the different stages of its growth.

Experiments have been made by various chemists, proving that the proportion of both, organic and inorganic elements, vary during the growth of the plant. It is necessary, therefore, to determine the exact proportion of each of the constituents of plants at various periods, in order to supply those required for a maximum crop. It was hoped, some years since, that these investigations would be made under the direction of the Agricultural Bureau of the U. S. Patent Office, but so far, it appears that little has been done in that quarter.

As the *whole* country is deeply interested in the production of a few plants, which are of more importance than *all* its other sources of wealth, it would seem proper that the work should be done at the expense of the Treasury of the United States.

To perform these analyses in a proper manner will require for each plant the attention of a really competent professional man, during the whole time of its growth. It cannot be expected, therefore, that any one State will bear the expense of the whole work.