Pulverized Poultry Manure and Poultry Manure-Tankage

By B. E. Brown

Bureau of Chemistry and Soils, United States Department of Agriculture

Commercial poultry manure collected from cars in which poultry has been shipped is richer in plant food than that obtained under average conditions on the farm. In the latter case the manure gets mixed with litter or some soil to such an extent that the nitrogen in the air-dried manure will average only about 2.5 per cent, while the manure collected from railroad cars, or where no chance for contamination occurs, will run from 5 to 6 per cent in the prepared commercial product. Not only will the litter and soil decrease the nitrogen content in ordinary poultry manure, but losses are apt to occur through volatilization of ammonia, due to failure to provide suitable storage conditions or to add materials to prevent the loss. In the case of commercial poultry manure considerable care is exercised to collect the material as soon as practicable, and it is then treated and dried in such a way as to avoid loss of ammonia and other plant food constituents.

Another commercial product on the market is chiefly poultry manure with which has been incorporated some poultry offal. The manure and offal are ground and thoroughly mixed during the course of drying. This product contains even more nitrogen than commercial poultry manure due to included blood and other more highly nitrogenous materials associated with the offal. An analysis of this material, which might be called poultry manure-tankage, showed it contained about 7.4 per cent of ammonia (about 6 per cent of nitrogen), and a relatively higher percentage of phosphoric acid and potash than the average run of poultry manure.

These richer commercial products contain a maximum of the original plant food constituents, are uniform in physical condition, thereby enabling one to distribute them evenly, and usually can be expected to give a good account of themselves on lawns, fairways, and putting greens, provided they are applied uniformly and at not too heavy a rate. It will be advisable to make the applications light and increase the number of applications rather than attempt one heavy application and take chances on "scorching" the grass. Such materials should be applied during showery weather, or if practicable the grass should be well watered with a hose to wash the material into the soil.

Poultry manure, either ordinary or commercial, or poultry manure-tankage, is also to be recommended for incorporation with the soil in the vegetable or flower garden.

[In THE BULLETIN for June, 1928, on page 112, we presented a table showing the percentages of nitrogen, phosphorus, and potash contained in a number of common fertilizers, including poultry manure. Several inquiries have been received as to whether the nitrogen contents claimed for certain poultry manure products on the market were false in view of the fact that they greatly exceeded the percentages indicated in THE BULLETIN. The table given in that issue was by no means complete. The article by Dr. Oswald Schreiner, which appeared in THE BULLETIN immediately following the table to which we refer, pointed out that there were many good fertilizers on the market, the labels of which were not likely to be misleading since buyers are protected from such frauds by the laws of several states. However, to avoid any apparent injustice to those interested in

poultry manure-tankage products we publish this article by Mr. Brown, of the Bureau of Chemistry and Soils, United States Department of Agriculture. There are at least two such by-products of the poultry slaughter-house business which are commonly used on golf courses, namely, *Bestivall* and *Premier Brand*.—EDITORS.]

Bur Clover as an Adjunct to Bermuda Grass Fairways

By Henry P. Smith

Eight years ago, when the land was purchased and cleared for the Spring Lake Country Club course at Waco, Tex., we had expected that a large part of the tract was sandy loam in character, but it developed that it varied considerably, running from sandy to gravelly, and a large part of it stiff or hard clay when dry, or a puddled, tight soil—"buckshot," as they call it in this country. The fairways, after planting, were heavily coated with stock manure, which developed a fair growth of Bermuda grass, but they were still quite hard, and thin in places.

Bur clover patches on the course of the Spring Lake Country Club. In the background, along the wooded stretch, is seen the line of the 12th fairway, which is a solid strip of Bermuda grass occupied by bur clover in the winter and early spring. The patchy area in the foreground will in all probability be completely covered by bur clover the following spring

I noticed patches of clover of various kinds that appeared to reseed annually, dying down in the spring. Wherever these patches appeared the Bermuda grass came up through them in the spring healthier and more vigorously than elsewhere, and there was a distinct softness or cushion effect to the feet when walking over these areas. I concluded that this might be a solution of our difficulties; and looking into the various varieties of clover that might be best for the purpose I decided upon bur clover, as it not only appeared to yield a maximum amount of nitrogen, but its extensive root system would