

Instructions for selecting and sending Samples for Analysis.

Artificial Manures.—Take a large handful from each dozen bags, break down any lumps with the hand, and mix the whole well together on a large sheet of paper. From the heap select six small portions of about 4 oz. each, and, after mixing these thoroughly together, divide the whole into three equal parts, and put each into a clean, dry, wide-necked bottle, with a well-fitting cork or stopper, or into a well-fitting, clean tin box. All these samples should then be labelled, dated, and sealed. One of them is to be retained by the purchaser, the other by the vendor, and the third sent to the analyst. Samples for analysis should on no account be merely put up in paper. [N.B.—Samples, both of manure and feeding-stuffs, should always be taken by the purchaser or his agent, in the presence of the seller or his agent, or in the presence of two independent witnesses, to whom due notice of the time of sampling should be given.]

Soils.—Dig a little trench about 2 ft. deep, exposing the soil and subsoil. Cut from the side of this trench horizontal scrapings of the soil down to the top of the subsoil. Catch these on a clean board, and collect in this manner about 1 lb. weight of soil taken from the whole surface of the section. Similar scrapings of subsoil immediately below should be taken and preserved separately. Five or six similarly drawn samples should be taken from different parts of the field, and kept separate while being sent to the chemist that he may examine them individually before mixing in the laboratory.

Waters.—The water should be sent in a perfectly clean Winchester quart bottle, made of clear glass, and with a well-fitting glass stopper, which is readily obtained at any chemist's shop, or the same will be supplied, ready for use, on application to Mr. Cooper, the carriage to be paid by the sender of the water. The sample-bottle should be rinsed out twice with the water to be analysed before being filled. Well-water should be allowed to run for some time before the sample is drawn. Standing water from cisterns, ponds, &c., should be sampled by immersing the bottle entirely under the water, and holding it, neck upwards, about 4 in. below the surface. Spring- or stream-water should be sampled in dry weather, by immersion, if possible; but, if not deep enough for that, a perfectly clean cup or glass should be used for transferring the water to the bottle. When the bottle has been filled the stopper should be rinsed in the water before being replaced, after which it is to be securely tied down and sealed. For the determination of the degree of hardness, only one quart wine-bottle of the water is required. This bottle must also, of course, be perfectly clean. [N.B.—Samples should be dated and despatched to the laboratory immediately after being taken. It ought to be unnecessary to add that the water-supply of every farm should be above suspicion.]

Limestones, Marls, Ironstones, and other Minerals.—Whole pieces, weighing from 4 oz. to 8 oz., should be sent. These may be enclosed in small linen bags, or wrapped in paper if there is no tin at hand.

Oilcakes.—Take three strips (of the entire breadth of the cake) from the middle of three whole cakes, breaking the latter into two halves for the purpose. The three strips should then be packed in a tin, and the latter dated, labelled, and sealed down as above. Three duplicate pieces, similarly dated, labelled, and sealed, should be retained by the purchaser.

Feeding Meals.—Samples of these should be taken in the same manner as samples of manure, and put into tins. About 4 oz. to 6 oz. are sufficient for an analysis.

All communications referring to analyses must be made to Mr. A. J. Cooper, the Principal of the Harris Institute, Preston, and on forwarding samples separate letters should be sent, specifying the nature of the information required, and, if possible, the object in view.

EXPERIMENT ON THE MANURING OF CLOVER HAY (1898). Under supervision of Mr. J. R. Campbell, B.Sc., Harris Institute, Preston.

Thirteen plots are required for each experiment, two of which are to be unmanured. Each plot is to consist of one-twentieth part of an acre, or 2,178 square feet, and may be 80 ft. 8 in. long and 27 ft. wide, or other dimensions found more suitable, but containing the same area. The land selected for the experiment should be of uniform character. It is desirable that it should be in somewhat poor condition. The previous cropping and treatment of the land all over the area set apart for experiment should have been the same. The plots are better to be all at some distance from fences or ditches, and no part of a head-land ought to be included in them. They should be arranged to run across the ridges to avoid any inequality caused by ridges and furrows. The lines of division between the plots are to be distinctly marked, so that no overlapping may occur either in the application of the manures or in the mowing of the crop. It is essential to the success of the experiment that the utmost care be taken in the application of the manures to the plots. All the artificial manures should be applied on a calm day. The best method is to empty the bags of manure on a sheet set down in the field close to the plots, and any lumps must be carefully broken down. It will be advantageous to mix each manure with such a quantity of earth or sand (not lime or ashes) as will make the whole quantity equal for each plot, and such as will enable the sower to broadcast the manure at least twice uniformly over each. The phosphatic and potassic manures and farmyard manures are to be applied as early as possible. The farmyard manure for plots 10, 11, and 12 (10 cwt. for each) should be carefully weighed. The sulphate of ammonia is to be applied in the last week in March, and the nitrate of soda as soon as growth sets in. The hay is to be weighed when it is dry enough to be put into large stacks or to be sent to market. If the green forage of the second crop is cut, it may be weighed as soon as possible after cutting, or after it is made into hay, provided the crop on all the plots is weighed under the same conditions. The artificial manures will be sent free of charge to the farmer making the experiment; he, however, will supply the farmyard manure from his own farm free of charge. The farmer will be remunerated for time lost in weighing the farmyard manure, and in cutting and weighing the crop. The empty bags are to be returned as soon as convenient, unwashed and