

Indeed, proper humus-supply to these and other soils will render lime and manures fully effective—will make them go further.

The practice of colder countries of annually treating a portion of the farm with dung is practically out of the question in this climatically more-favoured land. Even if farmyard manure were produced in quantity here, soil-fertility could not be fully maintained thereby, for it has been ascertained by scientific investigations that even when stored under the best of conditions there is a loss of 40 per cent. to 50 per cent. of plant-food constituents in the manure. On the other hand, green-manuring with leguminous crops will maintain the fertility of the soil. As to the most economical method of supplying green manure to the soil, the practice of sowing red clover or cow-grass with a cereal crop, and after harvest ploughing-under the dense subsequent growth, has much to recommend it. The purpose for which the clover is sown is one of soil-renovation, and one should not be tempted to feed it off with sheep, no matter how good a crop it looks. Deliberately plough it under, and rest assured this action will have a most marked effect upon the crop—indeed, crops—that follow. It has been shown by experiments in North America that the ploughing-under of a good crop of red clover is equivalent to applying 15 tons to 20 tons per acre of farmyard manure to the soil. By the method just described of providing humus the season is not lost, for on the same area a cereal crop is still grown. Indeed, a better grain crop is produced, for the leguminous crop—red clover or cow-grass—stimulates the non-leguminous crop, and *vice versa* (another scientific fact).

Failing the growing of clover with the cereal whenever and wherever grown, the system of setting aside each year a small fresh area and growing on it a legume for ploughing under may be resorted to. Eventually the whole farm, or the portion requiring renovating, could be so treated. This, of course, entails partial loss of season. Again, stubble areas might be disked and harrowed in the autumn, and white mustard, rape, or crimson clover broadcasted. Later, the crop selected (all three grow quickly) could be ploughed under—a chain attached to the beam of the plough dragging under all green material. Here again the temptation to feed off with sheep should be resisted, for on a soil lacking in humus greater production can eventually be obtained from the land by the deliberate ploughing-under of this crop. Crimson clover is to be preferred to the other crops mentioned, for it is a legume, hence a nitrogen-gatherer.

Should any one doubt the economic value of green-manuring to a soil known to be through various causes not too well supplied with humus, let him sow a small patch of red clover and plough this under in a paddock intended for oats. Later, when the oats grow and mature, let him note the difference between the green-manured and untreated areas. He can, if he desires, cut the oats on treated and untreated areas of the same size, and so estimate the difference per acre, either in chaff or grain, produced by green-manuring. Seeing is believing, and this simple and easily handled experiment, if properly carried out, will in all probability astonish by its results many people, especially on cropped soils and on the lighter soils of the country.

This phase of profitable farming and maintaining a permanent fertility is of great importance, and one which is by no means receiving the attention it deserves.