I came away with the chorus ringing in my ears, and from that pleasant, cheery clipping-festival at Brig-End to this day "I thank heaven that gave us the sheep."

CORRESPONDENCE

Curing Alfalfa or Lucerne

To the Editor of FARMING:

In reply to your favor of June 6th regarding Lucerne or Alfalfa for hay, it should be cured in about the same way as red clover. Keep the leaves on as much as possible. This crop will cure when up in coil.

Lucerne or Alfalfa should be cut when about one-half or three parts in blossom. The second crop is the one to save for seed. I have found that in all cases it pays me better to cut the first crop for hay and then pasture the balance of the season.

A. RAWLINGS.

Forest, Ont., June 8th, 1899.

Commercial Fertilizers—Manurial Experiments

Root Manuring

To the Editor of FARMING:

SIR,—My purpose in quoting a few of the results obtained in our British manurial trials is not only to show the influence artificial fertilizers may have in the increasing of crops, but also to point out some peculiarities of action under varying conditions; illustrating the fact that unless we give due consideration to *all* the circumstances, we may very easily deduce erroneous conclusions.

In the Northumberland County Council experiments an unmanured plot of swedes yielded 13 tons 2 cwt. of roots per acre; but another plot treated with 1¾ cwt. of sulphate of ammonia and 7 cwt. of superphosphate only yielded 8 tons 3 cwt. per acre; whereas, when 5¾ cwt. of Thomas-phosphate was substituted for the superphosphate, the yield was increased to 17 tons 12 cwt. This, on the face of it, shows the Thomas phosphate to have been immensely superior; and so it was under those particular conditions; but an addition of potash, in the form of 6 cwt. of kainit, made an immense difference to the respective and comparative positions. The super and kainit dressed plot was raised up to 25 tons 5 cwt.; the basic and kainit plot being 21 tons 14 cwt. These figures are singular, but there is no doubt that that soil was deficient in available potash; and under those conditions the stimulating ammonia and vitriolized phosphate would induce a growth in the earlier stages which could not be maintained, and would be susceptible to disease.

Thomas-phosphate would not only be likely to promote a more stable growth, but it is probable the accompanying lime would so act upon the soil as to liberate a supply of potash for the immediate necessities of the plant.

Many soils are fairly well stored with potash, and on them there would not be this marked effect, but as potash is so essential a plant food it is necessary to maintain the supply, and an occasional dressing of kainit would mostly prove remunerative.

I will now quote a Scotch experiment conducted by the Glasgow College authorities: They report, "the land was so poor in condition that practically no turnips could grow on it without manure." There were two unmanured plots, one yielded 1 ton 8 cwt. of swedes per acre, and the other nothing at all. An application of 6 cwt. of Thomas-phosphate induced a yield of 14 tons 5 cwt. of roots per acre; and the same quantity of super produced 16 tons 10 cwt. Both these results are remarkable, showing the immense influence of phosphate on the root crop; and what a marvellous transformation an artificial application of it can effect on land where it is deficient. In this experiment the superphosphate has given a little heavier gross weight than the Thomas-phosphate—but in this instance the roots were analyzed, and this yields us another important lesson, namely, that *the biggest crop is not necessarily always the best.* The roots grown with superphosphate contained 88.52 per cent. of moisture and 11.48 per cent. of dry, solid matter; the swedes grown with Thomas-phosphate contained only 86.53 per cent. of moisture, but yielded 13.47 per cent. of solid nutriment. This certainly is an enormous difference, affording ground for serious reflection, particularly when we find that this extra 2 per cent. of nutriment is chiefly composed of the most valuable food constituents; of sugar there is 7.11 per cent. as against 6.12—and of the flesh-forming albumenoids the Thomas phosphate roots yielded 0.91 per cent., while the super roots gave only 0 75 per cent.

I attach, perhaps, more importance to this extra percentage of nutritive matter than the figures would themselves appear to warrant; but I do so advisedly. Turnips are an artificial production, and, more or less, an artificial food; and they contain a greater percentage of water than is natural to animals. When animals are required to be fed chiefly on roots, it is difficult for them to consume and digest a sufficient quantity to yield the amount of nutriment required to maintain the body in a healthy and thriving condition. Of course this difficulty will be increased or reduced in proportion with the concentration or density of the roots. I have said the value of roots will increase in proportion with the concentration of the nutriment, but I think they will really increase in value in double ratio, as I am quite assured that 10 tons of 12 per cent. roots is of considerably greater feeding value than 12 tons of 10 per cent. roots.

On another farm, embraced within the same series of experiments as the last referred to, the conditions were very different, *the land yielding 26 tons 15 cwt. of swedes per* acre without any manure; and here 6 cwt. of superphosphate only increased the crop 5 cwt.; the same weight of Thomas-phosphate effected an increase up to 29 tons; but I should be inclined to think, in this instance, that the increase was as much due to the lime as to the phosphate; and I have no doubt that the feeding value of the roots was also improved, but unfortunately these roots were not analyzed. This land was already so rich that 20 tons of dung per acre only forced the crop to 30 tons. And probably this increase was at the sacrifice of quality, for in those analyses the roots grown with farmyard manure were the least nutritious of any, yielding only 0.54 per cent. of albumenoids. On another plot an excessive quantity of artificials was applied—6 cwt. of super, 4 cwt. of bone meal, 1 cwt. nitrate of soda, 1 cwt. sulphate of potash; but this heavy dressing only induced a growth of 30 tons 10 cwt.; and this increase would again probably be at the sacrifice of quality, as, in the aforementioned analysis a similar dressing only promoted roots yielding 0.56 per cent. of albumenoids. And, indeed, in the whole series on this farm the Thomas-phosphate was the only manure which yielded a remunerative return.

The Cumberland report says that without manure they got 11 tons 11 cwt. of swedes per acre: with 1 cwt. nitrate of soda, 2 cwt. of kainit, and 5 cwt of superphosphate they got 23 tons 4 cwt.; and that with the same dressing as the last, substituting Thomas-phosphate for the superphosphate, the crop was increased to 25 tons per acre. The report concludes: "Thomas-phosphate has beaten superphosphate; in fact the mixture of 1 cwt. of nitrate of soda, 2 cwt. of kainit and 5 cwt. of Thomas-phosphate has proved the best artificial dressing for the swede crop this year."

This letter appears to be a sound general conclusion, considering the various aspects of the root manuring question, so there, for the time being I will leave it.

FRANK WALLIS.

Lincoln, England.