

NITROGENOUS TOPDRESSING IN SOUTHLAND.By - A. Stuart, B.Sc.

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Nitrogenous topdressing in Southland has rather more complicated factors militating against its more general use than is the case in districts farther north. The greatest of these is the relatively short growing season experienced, and the correspondingly long period during which growth is more or less dormant, for in this Province grass growth is practically confined to a period from October to April, and thus from May to the end of September little reliance is placed on grass growth. There is also lacking in normal seasons that period of autumn drought generally associated with more northern districts, and as a consequence there is less incentive for the individual farmer to conserve feed in the form of hay or ensilage for use in the late-summer and early autumn. To the hay and ensilage problem later reference is made.

The second complicating factor is the comparative sourness of Southland soils generally, associated with high rainfalls experienced, particularly around the coastal districts, which lead to the leaching of calcium from the soil. Although the returns of lime carried by rail for the year ending 31st. March, 1935, are given as 77,000 tons (to this must be added the quantity delivered direct to the farmer by lorry) and this represents one-third of the lime actually delivered by rail for the Dominion as a whole,, it would nevertheless require approximately four times this tonnage of lime in order to give each acre of sown grass a dressing of 5 cwt. of lime, which I would consider a conservative estimate, due to leaching each season. It is natural for the farmer to supply nitrogen to the soil in its cheapest form, which is sulphate of ammonia, and this when mixed with the soil undergoes two changes:--

1. A reaction resulting in the formation of calcium sulphate which is readily washed out of the soil, and an ammonium complex insoluble in water.
2. The nitrification of the ammonia and conversion to nitrate, presumably calcium nitrate, which is also easily washed out of the soil unless taken up by plants.

Although soil acidity will retard nitrification, the risk of applying nitrogen during a dormant period must not be overlooked.

A third point regarding nitrogen is that its use is never advocated, even by the representatives of the principal nitrogen fertilizer interests, unless the use of lime, phosphate, and where necessary, potash, has been practised. When one considers that the amount of phosphate used in Southland represents only sufficient to topdress approximately 15% of the sown grassland after allowing for the cropping requirements, it will be realised that the area to which nitrogen could be applied is restricted at present.

It is freely admitted that good results have been obtained in Southland by the intelligent use of nitrogen, -more particularly when applied as a spring dressing, but the production of out-of-season grass (that produced in September) has been too greatly emphasised by its advocates, yet at the same time, users have been advised to delay their applications

until there is a growth movement in the pasture, which normally in Southland will not occur until October.

Given a favourable season, however, grass may be produced in September, but the exact valuation of this grass is extremely debatable, and the question at once arises as to whether the farmer who provides for this period by extra turnips and hay or ensilage does not emerge the better financially, as in any case these feeds will be required as supplementary to any extra grass produced.

To return to the winter feed position, the turnip crop has been, and still is the salvation of Southland, but it has been a mixed blessing in that many farmers make little attempt to balance the ration. One of the first points to strike a visitor in Southland is the small quantity of hay or ensilage conserved. This is due to the fact that the short growing-season is more or less continuous and fairly steady, and in most districts stock are able to control this growth without it getting beyond them.

To help out the feed position in September the use of certified ryegrass with its long growth characteristic confers a definite advantage, and the use of temporary pasture for this purpose is worth more attention than it receives at present. Further both these types of pasture-ryegrass, white clover and Italian ryegrass, red clover or alsike - being vigorous and gross feeders, would benefit by liberal top-dressing, which would include nitrogen, and this extra feed would place the farmer in a better position to conserve surplus growth for a critical period. Another solution, which is gradually finding favour, is to make mere use of the oat crop which does so well in this Province, for feed purposes either as straw or chaff, or crushed grain for cattle, or the grain fed whole to sheep. This crop sown in conjunction with peas could be grown as a special crop for ensilage if desired, but this practice has found few adherents.

From figures obtained through the courtesy of the largest distributing agency for nitrogen in Southland, there has been a falling tendency in their sales during the last three seasons, and it is my considered opinion that any expansion in the use of nitrogen will be associated with the expansion of the use of certified ryegrass in this Province. This has received an added stimulus through the inclusion in certification of genuine old-pasture local lines under the newly-instituted class of commercial ryegrass. To secure the best results from certified ryegrass, annual topdressing is demanded, and thus the grassland acreage topdressed annually must of necessity increase, and this increase will open up a wider field for the advantageous use of nitrogen. With the advent of complete fertilisers, it is difficult to prophesy in just what form nitrogen will be applied in the future in Southland, but one significant feature is the distinct success of Enpekay when applied as a topdressing to playing greens in this district.

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