

Grass Hungers for Nitrogen

How Our Pastures Can Be Handled To Produce Bigger Dividends For Their Owners

By "Progress"

THE fact that grassland absolutely hungers for nitrogen can be easily demonstrated by observing the effect of the application of animal nitrogen on pastures, e.g., urine. The effect of the nitrogen is noticed by the darker green colour and the greater growth of grass on the urine patches in the field. Further observations will show that it is the better types of grasses, namely ryegrass, which show the greatest response to the animal nitrogen. Recently, Mr. E. B. Levy, Agrostologist to the Department of Agriculture, has been stressing the great importance of nitrogen from animal excreta to get the fullest value and greatest growth, particularly from ryegrass. He has shown that to grow ryegrass successfully it just must have nitrogen; in fact, a little study of the science of plant life will show that without nitrogen no plant growth is possible, nor, in fact, is animal life.

Is Cannibalism Due to Lack of Nitrogen?

HERE is an arresting thought: A noted scientist has stated that cannibalism with human beings can be traced to a lack of nitrogen in their food and in this way. He has found that cannibalism obtains principally in countries that are short of animal life and where the native inhabitants have to confine their food to vegetable products which do not supply sufficient nitrogen to maintain the full vigour of the body system. In order to make up for this nitrogen deficiency they carry out the barbarous custom of eating one another. We must understand that as the plant secures its nitrogen from the soil, so the animal secures its nitrogen through the vegetation on which it feeds, and it builds up in its body complex nitrogenous substances, which supply much needed protein food to man. Nitrogen is the main element in meat; so, unable to get sufficient nitrogen from plant life, and with a shortage of animal life, primitive peoples have adopted the barbarous custom of cannibalism.

How Grass Secures Its Nitrogen.

THE principal source of nitrogen for the growth of grass comes from the decaying vegetable matter in the soil. The vegetable matter from grass leaves decays, bacteria work on it, and convert the complex nitrogenous substances in the soil into a simple form of nitrate which can be taken in by plant roots. Further, certain plants, legumes, represented by the clovers in pastures, have nodules on their roots which contain bacteria and these are able

Grass—the greatest crop in New Zealand—taken for granted, maltreated, overworked and underfed. Is it any wonder that we have our pasture problems? Here is a timely article dealing with nitrogen's place in our farming scheme.

to secure nitrogen from the air. These two methods of feeding the plant with nitrogen, combined with the nitrogen secured from animal manure, are the natural means through which nitrogen is supplied to the plants such as grass. However, science, for a number of years past, has been working on the fact that four-fifths of the atmosphere consists of nitrogen. It is estimated that over every acre of land there is sufficient nitrogen gas to make nearly 40,000 tons of nitrogen in the form of fertiliser. A process of securing this nitrogen from the air as fertiliser was first developed in Germany prior to the War, and, within recent years, it has made marked strides. The result is that to-day farmers are able to secure artificial nitrogen in the form of such a well-known fertiliser as sulphate of ammonia, at a price undreamed of a few years ago.

Making Artificial Nitrogen Produce Bigger Dividends From Grassland.

DESPITE the fact, as mentioned above, that nitrogen is the chief food of grass, there has been a certain amount of opposition to the use of artificial nitrogen on grass. This is largely because of experiments which were carried out a number of years ago, using heavy applications of nitrogen and cutting the crop as hay. However, more recent trials have shown that when nitrogen is applied in the right way, at the right time, and in the right quantity, it can produce big dividends when applied to properly managed pastures.

New Zealand Farmers' Experience.

MANY hundreds of farmers have applied artificial nitrogen in the form of sulphate of ammonia and ammoniated super to pastures in New Zealand during the last five years. A large number of these have applied it with considerable success and have kept on doing so year after year. However, just as there was opposition to the first farm implements made in England several hundred years ago, and just as at one time there were doubters as to the use of lime and of fertilisers, so nitrogen has had to win its recognition as a factor in the fertilising of grassland.

Where Nitrogen is Valuable.

IT was mentioned earlier that plants can secure a supply of nitrogen

from the soil, this nitrogen being made available by soil bacteria. It must be pointed out, however, that the bacteria are inactive in the cold periods of the year, e.g., winter. This accounts largely for the stoppage of pasture growth, and for the brownish discolouration of many pastures in the late winter and early spring months. Now, with artificial nitrogen applied in the early spring, it is possible to produce young, nutritious, milk-producing grass several weeks earlier than on pasture untreated with nitrogen. Farmers throughout New Zealand are finding the value of this early spring "bite," more particularly those who have cows calving in the early spring. It has now been proved that early calving pays handsomely and also that it is of little use bringing in cows early unless they are fed well. To-day, hundreds of farmers are using a fertiliser such as Ammoniated Super on at least a portion of their farms to get early spring grass. They have found that by starting cows off well early in the season, by feeding them with grass produced in the way mentioned, it has had a beneficial effect on the herd throughout the season. The effect of applying nitrogen to pastures in the early spring not only produces early grass, but it definitely improves the thickening of the pasture by developing the better types of grass, such as ryegrass, in the sward. The effect of lime, phosphate and potash application is largely in the direction of increasing clover growth. Excess clover growth in a pasture is detrimental; for one thing, it encourages bloat. Nitrogen acts as a balancer and produces a better balance of ryegrass and clover. Nitrogen also helps to reduce the weed contents of pastures. (Sulphate of ammonia is the main ingredient in most lawn-sand mixtures).

Method of Application.

HOWEVER, it must be remembered that nitrogen is not as "fool-proof" as phosphate; it has to be used with a certain amount of common-sense, but New Zealand farmers have proved that they have plenty of this desirable attribute.

How to Use Nitrogen Profitably.

If you have not already done so, try this method:—

Apply to pastures containing a good percentage of ryegrass at

least 3 cwt. of Ammoniated Super per acre for dairy lands and 2 cwt. per acre on sheep country. If phosphate has already been applied this year, 1 cwt. per acre of Sulphate of Ammonia can be used on dairy lands and a slightly lesser quantity per acre on sheep country. The best time to apply the fertiliser is when the grass is starting to make growth in the early spring. The early grass produced should be rationed, that is, stock put on it say for an hour a day, if necessary, when the ordinary pasture comes, the nitrogen treated area can be saved for early ensilage. A number of farmers then apply a little phosphate to the pasture, in this way getting first-class nutritious food for use over the dry summer period. It must always be recognised that nitrogen must be used along with other fertilisers, such as phosphate, potash where necessary, and with sufficient amounts of lime applied periodically.

What New Zealand Farmers Must Face.

THE situation to-day is such—with low prices for primary products—that farmers must farm sufficiently on the most efficient acres. Lowering the costs of production by efficient methods is about the only thing the individual farmer can do to get the present situation in hand. There can be no question that with the advent of cheap artificial nitrogen the farmers of New Zealand have a very valuable weapon with which to get maximum production from their grassland and to make pay high dividends. You will use eventually—why not start now?

For information on use of Ammoniated Super or Sulphate of Ammonia, write to Advisory Officer, I.C.I., Ltd., Box 900, Auckland, or Box 226, Christchurch.

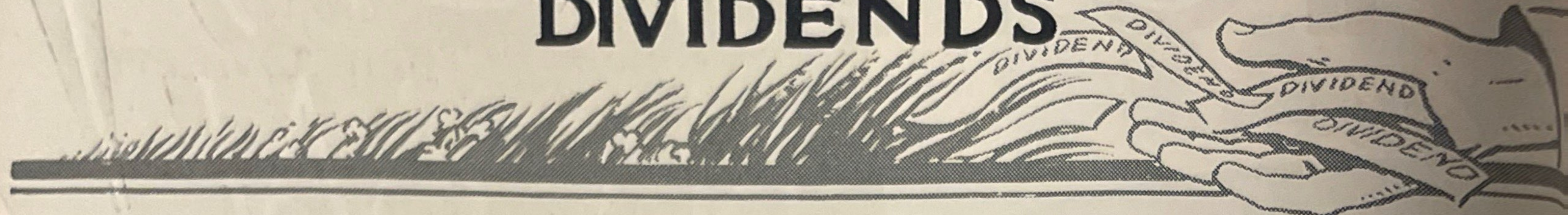
Cows Can Be Contented—Even In Winter!

COLD, wintry days are a source of annoyance to dairyfarmers. Their cows suffer from cracked and chapped udders and teats, and the farmer himself consequently suffers through the poor yield of milk.

This trouble can be prevented by the regular use of Patten's MILKEEZE at milking time. A little rubbed into the milkers' hands will keep teats in good condition and swiftly heal any cuts, chaps, cracks and scratches that may be present. Always keep a tin handy. Sold in 14lb. and 36lb. tins. Chemists and stores.

Making Grass Pay

DIVIDENDS



IS not this the problem facing nearly every farmer in New Zealand? Just consider this fact: 33,000,000 acres of the occupied land in this country are under grass, and less than 2,000,000 acres under all other crops combined. Grass, therefore, is by a long way the most important "crop" in this country. There are comparatively few farms on which grass does not occupy the greatest acreage. Probably grass is the farmer's most important capital equipment on which he has to pay dividends. How much value has land that is bare of plant cover? (unless it has valuable minerals underneath). Not only in New Zealand, but in the Empire, grass is the most important of all crops; it has been estimated that the grasslands of the Empire carry five hundred million head of livestock. It would not be hard to prove also that grass is the most important "crop" in the world, in fact, it has been said that "whilst grass does not produce any fruit in earth or air, still, should the harvest perish for a single year, famine would depopulate the world."

The present writer will never cease to wonder why it was that grass up until comparatively recent years, was so long neglected; in fact, we rather looked upon grass, did we not, as something which occupied the ground between one crop and another—it was too common to be appreciated, something like the air we breathe. However, this would make the theme for a philosophic study and the main concern of every farmer to-day is to make his grass pay dividends.

What do We Mean by "Grass"

IT means, does it not, many types of grasses, the useful and the useless, the permanent and the temporary, and so on. It also includes the important family of clovers. Of recent years farmers will have read much of the importance not only of the various species of grass, ryegrass, cocksfoot, dogstail, brown-top, etc., and of clovers, white and red, but also of the strains within the species; the true and false perennial ryegrasses, for instance. Space forbids any discussion of these, but it may here be stated that the main object the farmer must keep in mind is to secure over his farm the greatest percentage of what may be termed "good" grasses and clovers. We know also that good grasses are the ones requiring the best treatment from the point of view of fertilisers. The question of the types of grasses, clovers, and of strains of these, will be a matter for each farmer to decide for himself, since it is a question of suiting them to the particular environment and of treating them according to it, and to the particular class of animals grazed upon it. It is extremely fortunate that New Zealand possesses some of the most superior strains of grass and clover in the world, and the excellent work done by the officials of the N.Z. Plant Research Station, in isolating these strains, of certifying to them, and of making them available for farmers, cannot be too highly praised. Credit must also be given to the progressive farmers who have so readily taken up the question of sowing down what are known to be superior types of pasture plants.

To make grass pay dividends then, the farmer must pay attention to the type of pasturage from which the dividend is to be secured. In many cases, the question of altering the type of pasturage on any particular farm is a matter of slow evolution. However, science has placed in the hands of the farmer a means by which he can quite readily make his present pasturage pay good dividends, namely, by topdressing with fertiliser.

Topdressing Pays Dividends

IT has been stated that New Zealand farmers lead the world in the topdressing of their pastures with phosphate. Phosphate plant food most needed by New Zealand pastures, and throughout the length and breadth of the Dominion farmers have found that it pays handsomely to apply phosphatic fertiliser to their grass. Experience and experiment has taught most of them a good lesson in the use of phosphatic fertiliser to use, a suitable quantity to apply, and the time to apply it. Much more has still to be learned in this connection; nevertheless investigations have shown that a large number of farmers are getting most handsome returns from their topdressing practices.

We also know to-day that due attention must be paid to lime application on many areas if full value is to be secured from the use of phosphates. Potassic manures also must not be neglected. So much has been written, and so much advice given on these points, that it would be superfluous to enlarge upon it here.

Management of Pastures

POSSIBLY the greatest advance made in regard to pastures in recent years lies along the lines of improved management of grassland. Research work in England showed that grass kept short almost the equivalent feeding value of linseed oil cake. The value of rotational grazing has been demonstrated, although a great deal more needs to be done by many New Zealand farmers to get the fullest results from this system of grazing.

The management of grassland to get maximum results is a very difficult matter, but it is one which New Zealand farmers are tackling earnestly, particularly from the need for greatest production at the lowest unit cost. We are coming to the conclusion that for maximum returns, grassland wants to be grazed hard when the pasture is producing at its maximum, and that it is not advisable to graze too closely when the pasture begins to fall off in growth; namely, early winter, nor in late autumn or early spring, and not in the dry months of summer. The particular type of management to suit any field will depend largely on the type of land, on the pasturage, and on the type of stock grazing on it, and the actual technique can only be worked out in detail by the individual farmer.

Saving Surplus Grass

THE saving of surplus pasturage is now a standard practice on many farms in New Zealand, particularly on dairy farms. The methods of ensilage, and particularly of cutting it in the short stage of growth, and of saving hay, are practices which are becoming more appreciated each year, particularly by dairy farmers.

The truth that farmers are realising is that grass is the cheapest and most nutritious food for stock, and that the saving of surplus grass secured in the periods of maximum growth for feeding out in periods of pasture scarcity is a most economical means of ensuring high carrying capacity throughout the year. On a large number of farms in New Zealand, nothing other than grass is used for stock-feeding, though there is a case in many regions for the use of supplementary crops along with grass and grass-products to ensure maximum returns.

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