

C.S.

LIVESTOCK.

(Misc.)

1937.

No. 69/37.

Agricultural Adviser.

SUBJECT.

1937.

16th April.

Brief notes on economical flock improvement for circulation to farmers.

Previous Paper.

MINUTES.

1-4.

Minute from Agricultural Adviser of 16/4/37.

*Submitted.
KCH
Ed.
19.4.37.*

*Very interesting and should be helpful
~~19/4/37~~*

Agrie. Adviser

To note. The monthly notes will fill a long few weeks. In the past farmers have been at a disadvantage in not getting advice of this sort.

*KCH
Ed.
19.4.37*

Subsequent Paper.

Hon. Col. Sec.

Noted thank you.

Article published accordingly in Penguin

29/4/37

SAW
A.A. 30/4/37

SA
30/4/37

Minute from Ag. Adviser of 3/5/37

(5-9)

fr. Submitted. As these Notes are of interest to farmers only it might be preferable if they could be sent to farmers as a Circular from the Agric. Dept. instead of appearing in the "Penguin".

Wett
ed.

Yes They might be cyclo typed

~~Wett~~

I have some doubts regarding the utility of so comparatively lengthy a note on a disease which, except for one outbreak from imported sheep which was speedily suppressed, has not been seen in the country for forty years. I have read the notes with interest, but every man after has surely already got his creature on this universal complaint as Norris calls it in his book. However if the C.A. considers that the farmers will benefit by

The note I certainly do not wish to be discouraged the dissemination.

The request of the manager that his sheep should be released in 60 instead of 90 days is preposterous

~~mtt~~ 5/5/37

Agri. Adviser.

To note H's minute.

2. In future the Notes should be cyclostylated and sent as a Circular from your Dept. instead of appearing in the "Penguin".

met
C.S.
S.S. 57

The Hon. Col. Sec.

H. E.'s minute noted.

The notes regarding 'sheep scab' will be filed for future reference and will not be published meantime.

met
A.A. 6/5/37

P.A.
met

4/6

Submitted

MCH
CJ.

27. 2. 40

Memorandum

Such a ~~note~~ ^{Memorandum} to have any local value should be covered by a note from the Department saying why local efforts at ~~enclosure~~ have not been said to have been successful. It has been tried out at a number of stations i. e. Darwin Port San Carlos and Hill Cove - ^{at} the latter place with modified success and features elsewhere. The fact remains that it has been put up.

The last para. of the memorandum might interest one or two farmers. ~~Attila~~
The Department itself sh. make a note

~~Attila~~ 20/2/40

Agree. Advises.

To note for action necessary on
H's minute.

MCH
CJ.

28. 2. 40



No. 2.
Notes Prepared by Agricultural Department - Stanley,

Falkland Islands.

16th April, 1937.

The following brief notes are intended to offer something in the nature of guiding principles in the matter of economical flock improvements

- (1) Constitution first and foremost is of paramount importance.
- (2) Following on constitution quantity of wool is next in order of importance.
- (3) Having made sure of numbers 1 and 2, the aim should be to answer the following question.

What is the use of a good fleece of high quality if the sheep dies before it is shorn as the result of a poor constitution?

It applies equally to all breeds of sheep that, within the particular breed, the finer the wool, the weaker the constitution, therefore a great danger in all breeding exists in attempting to breed highest priced wool, By endeavouring to breed for highest priced wool, a gain in the price per lb., may be made, but not per sheep, because constitution is sacrificed and invariably weight of wool per sheep.

The ideal aim should be, as good a quality of wool as can be secured without sacrificing the first two essentials.

The breeder should pick out sheep which are thriving the best on his country and breed to that type.

Dual purpose sheep are aimed at in most countries today with a good deal of consideration given to conformation. Wool has of course in the past at any-rate been the main consideration in this Colony, but with the present

prospects /



prospects of the growth of an export trade in frozen mutton, breeders of all breeds of sheep might do well to aim at a low set, short legged type with thick hams and quarters, and plenty of spring of rib, short thick necks and wide loins. The tall leggy type of sheep might gradually be discarded, because the carcass is unsuitable for first class freezing requirements.

On poor quality pastures, the flock has a tendency to become lighter in bone and wool, with a consequent loss of constitution, and some breeders assist this tendency by breeding from rams of the same quality and count as the ewes. For instance, if the ewe flock is of 50 wool count and a 50 wool count progeny is aimed at, many breeders will use a 50 wool count ram which is definitely a wrong procedure. The ram to use should be about a 46 count, as in ordinary circumstances his female and unsexed progeny could not reasonably be expected to be as strong in the wool as the male animal.

A careful examination of most flocks will generally show that the sheep which thrive best are low set compact animals with wide open nostrils, strong head and a good spring of rib.

To sum up briefly, the owner should go through and study his sheep and amongst the diverse types it will be found that certain ewes thrive much better than others, and that they produce better lambs and wool, indicating that they are the most suitable types for the country on which they are running.

These special ewes should be carefully selected to form the nucleus of the flock improvement plan. A high class ram of the same type and characteristics as the ewes should then be bought and line breeding resorted to.

The original sire could be re-mated with his grand-daughters provided the mating has been a success - likewise half brothers and /

half sisters could be mated. Line breeding if properly carried out means uniformity and a fixed type. Line bred rams are more prepotent than those bred from continual outcrosses. Dangers of course lie in hereditary weaknesses. No sheep should be mated to relations unless outstanding for constitution. Provided the constitution is sound, sheep can be interbred longer and much more successfully than for instance, cattle.

A breeder having success with his picked ewes and ram should gradually eliminate rams other than the progeny of his picked ewes and ram, so that ultimately all the sheep should be direct descendants of the type that have proved suitable for local conditions.

It is largely a matter of common sense and simple methods. Concentrate on ewes that are thriving on the country, or that in other words are acclimatised, and make sure of constitution especially in the male animals.

I am personally acquainted with an owner, who, over a period of years actually increased the weight of wool per sheep in his flock by nearly four pounds, by adopting common sense methods of line breeding and selection.

Another owner with whom I am well acquainted has been line breeding merinos from one ram for 46 years and this flock today is of outstanding merit.

It should be made a cardinal rule when classing sheep for wool during the process of culling to avoid straight wool, no matter what breed of sheep is concerned. Straight wool is unattractive, breaks in the weaving machines, and usually contains a good deal of hair. Straight woolled sheep are almost always exceptionally hairy in the britch.

Banker
Agricultural Adviser.

MINUTE.

o.
(It is requested that, in any reference to this minute, the above Number and the date may be quoted.)

16th April, 19 37

From

To The Honourable,

Agricultural Adviser,

The Colonial Secretary,

STANLEY.

STANLEY.

I have the honour to submit herewith for the perusal and approval of His Excellency the Governor, before circulation to farmers, brief notes on economical flock improvement., by the process of line breeding and selection.

Further notes will be prepared in due course, say at monthly intervals, on such subjects as Faults in wool, sheep husbandry in its application to Falkland Islands and diseases of sheep in the Colony etc.

Stanley
Agricultural Adviser.



Notes No. 4. Prepared by Agricultural Department - Stanley,

Falkland Islands.

30th April, 1937.

SHEEP SCAB.

Psoroptes Communis Ovis. is the cause of sheep scab, an important disease which occurs in many countries. The parasite cannot be transmitted to other species of animals. The different stages of development include, eggs, larvae (or grub-like) nymphae (or immature), males, females capable of reproduction, and females bearing eggs. The mites are oval in shape and have a white colour with brownish legs. The larvae have three pairs of legs and the other stages four pairs. All bear suckers with jointed pedicles (or small foot like organs) on the first and second pairs of legs.

Description of Life Cycle - The eggs are laid on the skin at the edges of the lesion and hatch normally in one to three days. Eggs separated from the skin by crusts may hatch in four to five days. Eggs separated by wool from the body or drawn away from the skin may hatch up to ten days after having been laid, or otherwise die.

The larvae feed, and two to three days after hatching moult to the nymphal stage, passing the last twelve hours in a state of lethargy (drowsiness). The nymphal stage lasts three to four days, including a lethargic period of thirty-six hours before the moult occurs. The smaller nymphae usually become males. As a rule the females capable of reproduction appear before the males, sometimes as soon as five and a half days after hatching, while the males do not appear before the sixth day.

The egg bearing female, begins to lay nine days after hatching from the egg. The female lays about five eggs daily and a total of /



of ninety or more, living to thirty to forty days in this stage.

The males live up to thirty-four days on the sheep. Off the sheep the mites kept in moist jars with wool and crusts at room temperature will die within ten days. Infected corrals or yards left empty are found to be free of infection after seventeen days.

The mites puncture the epidermis (or outer layer of the animals skin) to suck lymph, and stimulate a local reaction in the form of a small inflammatory swelling richly infiltrated with serum. The latter exudes on to the surface and coagulates, thus forming a crust. The altered conditions cause the wool to become loose and to fall out, or it is pulled out by the sheep, in biting and scratching the lesion, which itches severely. The bare crusty patches are unsuitable for the mites, which therefore migrate to the margins of the lesion and thus extend the process outwards. The diseased condition of the skin, and probably also the constant irritation, lead to progressive emaciation and finally death of the sheep.

Symptoms :-

Scab lesions may occur on all parts of the body that are covered with wool or hair, but occur most frequently around the shoulders and along the sides of the body in woolled sheep. In the case of young lesions the wool is disturbed over the lesion as a result of the biting and scratching of the sheep, and usually has a lighter colour than the surrounding wool. A lesion of two to four days old appears as a small elevation of the skin, with a yellowish colour and a moist surface; the mite will as a rule be found on the affected spot. From about the fifth day onward the exudate begins to coagulate, forming pale yellow crusts, and the lesion extends outwards as the number of parasites increases. Older lesions are easy to detect on account of the loss of wool and presence



of scab, while the mites are producing fresh lesions in the surrounding covered parts. In some cases large portions of the body may be affected around an old lesion without showing on the surface. If the wool is opened, it is found to be matted together above the skin by scabs, underneath which numerous parasites are located.

In hairy sheep the scab lesion is, as a rule, drier than in woolled sheep, probably on account of more rapid evaporation, and the mites are not as easily found.

Suitable conditions for the development of the disease are:- poor condition of the sheep, dry wool and moist weather which causes increased egg production. The lesions develop more slowly during dry weather in sheep that are in good condition, and particularly in those with greasy wool. So called 'latent' cases in which a small lesion may exist for months, are seen in the latter type of animal, or in rams in which small, ^{dry} lesions may occur on the scrotum, or in the space between the thighs on the brisket and at the bases of the horns. In all types of sheep the mites are frequently found in the ears, where they may hide away for long periods. These latent lesions and hiding places of the mites are exceedingly important in connection with diagnosis and control.

Diagnosis :-

This is a difficult matter and one of the greatest obstacles in the way of complete eradication. It is relatively simple to diagnose the active disease in a scabby flock, but the latent lesions described above make it a difficult matter to declare a large flock free of scab. In examining a flock the animals should be closely herded together so that they become warm and the mites are stimulated to move about. The animals are watched for scratching and biting and all such cases

are /



are examined as well as animals with uneven or picked wool, or bare spots, and those that rub their heads may have mites in their ears and at the bases of the horns. In addition all rams should be thoroughly examined, and also as large as possible a number of the best conditioned animals, particularly such with greasy wool. The fingers of both hands are dug into the wool and the skin is palpated over a large area around the shoulders and the sides of the body. The lesions, even very recent ones, can be easily felt by anyone who has a little experience. To make a definite diagnosis the mites should be found and a microscope should be used in case of doubt, but generally examination with the naked eye is sufficient after a little practice.

Treatment consists in dipping the sheep frequently and systematically in a suitable dip preparation.

Deane
Agricultural Adviser.

No. _____

MINUTE.

(It is requested that, in any reference to this minute, the above Number and the date may be quoted.)

3rd May, 1937

From

To The Honourable,

Agricultural Adviser,

The Colonial Secretary,

STANLEY.

STANLEY.

I have the honour to submit for your perusal before publication in the 'Penguin' some notes on Sheep Scab. The notes were prompted by the recent request of an owner whose rams from South America are still in Quarantine, that they be released on May 1st, instead of May 31st, when the prescribed 90 days Quarantine period will have expired. Strangely enough this same owner strongly objected in 1935, (M/P 125/34) to any reduction of the Quarantine period.

I also note in the same M/p that His Excellency asked for information regarding the life cycle of the 'Scab Mite' and this information does not appear to have been supplied. The rams referred to above will remain at the Quarantine Station for ninety days, and the owner has been advised accordingly.

Stanley
Agricultural Adviser.

Notes No. 16.

S I L A G E

(Parts of this account are extracted from the booklet of the Imperial Chemical Industries Ltd.)

- - -

The method of conserving grass and other fodder crops as silage has been practised by farmers in England and other countries for many years. During the past few years much research work has been carried out on improved methods of silage-making in order to reduce the losses which invariably occur in this process of conservation.

Silage properly made is a succulent fodder in which certain fermentations and chemical changes have occurred. The degree to which these changes are controlled determines the nutritive losses in the material.

The two objects to be kept in view in silage-making are:-

- (1) To reduce respiration and its consequent losses to the lowest possible level by exclusion of air. This can be done by careful and thorough treading and sealing.
- (2) To stimulate lactic acid fermentation in order to keep in subjection all other forms of fermentation.

In order to obtain adequate control of respiration and fermentation different processes of making silage are adopted.

(i) MAKING OF SILAGE WITHOUT THE ADDITION OF ACCESSORY MATERIALS

(a) Warm or Sweet Fermentation Process.

In this method the temperature of the mass of fodder is permitted to rise by allowing the retention of a certain amount of air during ensiling. The temperature may rise to 120° F., but no further. If 120° F., is exceeded there is considerably more loss of nutritive value, due to increased respiration with consequent loss of carbohydrates and the lowering of their digestibility.

The method lends itself particularly well to silage made in the stack or clamp. There are, however, always the losses mentioned above, and, in addition, losses due to moulds on the outside of the stack and the top of the clamp.

(b) Cold Fermentation Process.

This process depends on the exclusion of air and the temperature is not allowed to exceed 80° F. In order to exclude air some kind of container or silo must be used, and in order that the material may pack tightly the crop is usually chaffed and thoroughly tramped as filling proceeds. As soon as the silo is filled it is sealed off with a layer of soil.

For both these methods the crop should be fairly mature, grass should be cut about 2 weeks before normal haytime, and oats when they have reached the milky stage, otherwise undesirable fermentation takes place and sour silage is produced.

(ii) MAKING OF SILAGE WITH THE ADDITION OF ACCESSORY MATERIALS.

In order to make full use of the large amount of protein contained in young immature grass or other crops it is necessary to use some other method of making silage. To do this it has been found necessary to adopt one of the following methods :-

- (a) To minimise fermentation by adding acid in such amounts that the acidity of the mass is rapidly brought to a level at which undesirable fermentations cannot take place;
- (b) To permit fermentation and aim at the very rapid production of lactic acid;
- (c) To sterilise the mass with the object of preventing all change.

(a) The Regulation of the Acidity of the Mass by the Addition of Acids.

The presence of lactic acid concentrations of 1 - 2% in good silage, and its preservative action, have led to the addition of both organic and inorganic acids in order to raise the acidity to such a level that undesirable changes are held in check.

The use of acids in fodder conservation has culminated in the A.I.V. process which was put forward by Professor A.L. Virtanen in Finland.

(b) Stimulation of Lactic Acid Formation. The Molasses Method.

Since carbohydrates are essential for the formation of lactic acid the addition of sugar is the obvious way of hastening the formation of lactic acid.

An airtight container or silo is required for this method. Crude sugar or molasses are added during filling at the rate of $\frac{1}{2}$ - 1 lb of sugar per 100 lb of fresh fodder. The best way of adding the sugar is in solution since an even distribution is ensured. When molasses are used the quantities are doubled. The solution is sprayed on the material in layers. Thorough treading during filling is essential. After filling is complete the silo is carefully sealed off with a layer of soil. There must be no free drainage.

(c) Sterilization.

The use of salt in connection with silage was advocated in the early days of silage-making. Salt, however, exerts little control on the type of fermentation met with in silage-making.

SILAGE IN COMPARISON WITH ARTIFICIAL DRYING.

In making silage there is always some loss of dry matter, even if the A.I.V. or molasses methods are used. In the making of ordinary silage and in the making of hay the losses are still greater.

(11)

Artificial drying, that is drying the crop quickly by artificial means at a suitable temperature, is the only process of conservation which practically maintains the whole feeding value of the crop. Ordinary silage as usually made is only about equivalent to hay; A.I.V. fodder and molasses silage, if made from the right material, are much better than hay and have lost very little of the feeding properties of the fresh green crops.

DETAILS OF TWO METHODS OF MAKING SILAGE

This method of conserving fodder seems to be one of the most reliable in a country with such a variable climate as the Falklands. The two methods most generally applicable are the Sweet Fermentation Process in the Stack, and the Molasses method and these will be described in detail.

(a) In the Stack.

Grass about a fortnight before it is ready for hay and oats which have reached the milky stage are suitable material. The crop should be cut and carted on the same day, and days of heavy rain avoided.

A circular stack is first built to a height of 5 - 8 ft. according to the material. The lower the moisture content the higher the stack may be built. An interval of 24 hours is allowed to elapse before any more fodder is added. During this interval the temperature rises and there is a rapid formation of lactic acid with the result that the whole mass is even throughout as regards type of product.

In building the stack the walls must be kept well trodden and the centre full and slightly hearted up. The stack should be weighted every evening until building is complete. When finishing the stack it is advisable to clip or pull the sides as this will reduce outside waste from mould growth. The trimmings from the sides, together with any waste succulent material, are placed on the top of the stack, and a covering of earth to a depth of 18 inches in the centre and 12 ins. at the walls is placed on the top of the stack immediately.

The side of the stack exposed to the prevailing wind dries out more quickly than the other sides, causing uneven subsidence and possible collapse. This can be prevented by tying a rick sheet over the exposed side or shoring up with poles.

THE MOLASSES METHOD.

For this method an airtight tower or silo is necessary; if the ground drainage will admit it may be sunk into the ground for 2 or 3 feet but water must be prevented from seeping into the pit. The crop should be at an earlier stage of growth than for stack silage and should be cut a week or ten days earlier.

The crop should be carted as soon after cutting as possible, certainly the same day, and very hot days should be avoided. Dull wet days are best so long as it is not raining hard. The fresh material is put into the silo in lots of 2 - 3 cwts. at a time and evenly spread, trodden down and sprayed with the required amount of molasses solution, a watering can will do the job. One man will be required in the silo for spraying and two for spreading and tramping. The silo should be filled from all sides and the point of filling changed with each load to get the treading uniform. The filling should be continuous from day to day, if this is not possible the top of the fodder should be covered with sacks and weighted down. The middle should be kept hearted up but must be trodden as well as the sides.

When the silo is full the top should be dome shaped and trodden until it is really firm. The top is then covered with sacks or paper with some overlap and then the sacks are covered with a four inch layer of peat and then soil to a depth of 18 inches is placed on top.

The amount of molasses required is 1 - 2 lbs per 100 lbs of fresh material ensiled. To distribute the molasses evenly it is necessary to make a dilute solution. If 60 lbs molasses are dissolved in 5 gallons of warm water and this is added to 25 gallons of cold water, and thoroughly mixed, the 30 gallons of solution are sufficient for 2 tons of fresh material. The solution is applied in the required amount to every 2 or 3 cwt of material as it is filled into the silo.

THE FEEDING OF SILAGE.

Ordinary stack silage is about equal in feeding value to hay, but as it obtains much more moisture it takes 2 or 3 lbs of this silage to replace 1 lb of hay.

Molasses silage made from good young grass or oats may have double this feeding value.

Silage should not be fed until at least six weeks after the silo has been filled and once the silo is opened the fodder should be used from day to day until it is finished, if exposed to the air for more than a day the fodder deteriorates.

Silage is an excellent food for all classes of stock, and can be fed up to the rate of 60 lbs per head per day to cattle. Horses should only be given limited amounts alone with hay. It will be found most useful for dairy cows and ewes in spring.

S I L O S

A very useful type of silo, and the one most easily erected as well as the cheapest is a portable wooden one, built in the form of a 16 sided endless box. This box is built 5 feet high and another one exactly similar is placed on top for filling. The two boxes, 10 ft. in all, are filled with fodder and finished off as described above. The fodder is then allowed to settle and will usually settle down to the level of the lower box, the top section is then removed and can be used again. After removing the top section further soiling of the silo will probably be necessary, and it should be left with plenty of slope to run off the rain.

Details of two different sizes of this type of silo can be given to anyone interested

One section 5 ft high and 9 ft 6 ins. diameter, to hold 8 tons of fresh material when used with a top can be built for a material cost of £8.-7s.-4d at present prices in Port Stanley (February, 1940.)

One section 5 ft high and 15 ft diameter, to hold 19 tons of fresh material when used with a top, can be built for a material cost of £13.-10s.-11 at present prices.

14

No.

(It is requested that in any reference to this minute, the above Number and the date may be quoted.)

MINUTE.

27th February, 1940.

From

Officer in Charge,
Agricultural Department,

Stanley, Falkland Islands.

To

The Honourable,

The Colonial Secretary,

STANLEY.

I have the honour to forward herewith for the information of His Excellency the Governor, a copy of notes on Silage which are to be distributed to the farmers.

T. Beatty
Officer in Charge,
Agricultural Department.

SUMMARY OF LAMBING STATISTICS FURNISHED AS
ARRANGED AT FARMERS' CONFERENCE - 1937.

Percentages on Ewes put out in 1936.

	Lambs marked 1936	Hoggets dipped 1937	Hoggets shorn 1937-38.
EAST FALKLAND	70.5	63.9	55.4
WEST FALKLAND	66.8	61.4	53.4
ISLANDS	75.6	71.9	65.4
WHOLE FALKLANDS	70.1	64.7	55.9

Percentages on Ewes put out in 1937.

	Lambs marked 1937	Hoggets dipped 1938	Hoggets shorn 1938-39.
EAST FALKLAND	68.3	62.0	54.6
WEST FALKLAND	63.7	57.8	51.5
ISLANDS	75.3	66.8	61.3
WHOLE FALKLANDS	68.4	61.2	54.3

These figures are taken from the information supplied, but are not complete as several stations neglected to fill in the returns. In order to make the figures of more value it is hoped that all managers will co-operate.

T. Beatty
STOCK INSPECTOR.

16

No.

MINUTE.

(It is requested that in any reference to this minute the above Number and the date may be quoted.)

27th February, 19 40.

From Officer in Charge,

 Agricultural Department,
.....

 Stanley, Falkland Islands.

To The Honourable,
.....

 The Colonial Secretary,
.....

 STANLEY.
.....

I have the honour to forward herewith for the information of His Excellency the Governor, a copy of Lambing Statistics, which it is proposed should be sent to the farmers.

T. Beatty
Officer in Charge,
Agricultural Department.

AGRICULTURAL DEPARTMENT,
STANLEY.

1st March, 1940.

Foreword to Notes No. 16.

Silage making is a method of conserving crops which could be widely used in these Islands. It has been tried on several farms in the Falklands but without much success. In searching for the cause of these failures it is necessary to consider what happens when green fodder is ensiled. Changes take place due to (a) Respiration of the living material, and (b) Fermentation after the death of the cells of the fresh material.

For successful silage making the respiration must be kept down to a minimum, as not only does this result in a loss of the most digestible nutrients of the crop, but with increased respiration the temperature rises and this in turn lowers the digestibility and also encourages undesirable types of fermentation and bacterial action. The rate of respiration is determined by the amount of air available, and in order to control respiration and keep the temperature within limits, as little air as possible should remain in the material when it is ensiled.

Very thorough treading throughout the filling is essential, and an air tight container or silo has an obvious advantage over the stack and clamp.

After the death of the cells of the green material fermentation begins with the production of certain organic acids, the most desirable of these being lactic acid. To ensure the formation of lactic acid the crop ensiled must be cut when it is fairly mature and contains a high proportion of carbohydrates, or carbohydrates such as molasses may be added as the crop is ensiled. If there are not sufficient carbohydrates present, undesirable acids such as butyric acid are formed and a sour unpalatable silage results. If the silo is not filled evenly and continuously undesirable types of fermentation also take place.

To sum up the main causes of failure are :-

1. Incomplete exclusion of air, and poor finishing off of the silo or stack.
2. Allowing the wrong type of fermentation to proceed.
3. Incontinuous and uneven filling.
- and 4. With a clamp or pit, not choosing a sufficiently well drained site.

It is hoped that the accompanying notes on Silage may be of interest and benefit to all farmers and managers.

T. Beaty

Officer in Charge
Agricultural Department.

15-16. Minute from Agricultural Adviser of 27/2/40.

To Agric. Adviser.
MCH
cl.

Hon. Col. Sec.

(17)

H.F.'s minute of 28.2.40 noted.
I enclose a copy of a foreword to the notes on Silage which will be sent along with the notes to farmers.

2. A silo will be built by this Department during the winter ready for next summer.

I.D.
o/c A.D.
1.3.40

Yr.

Submitted.

MCH
cl.
2.3.40

See. Inadequate draining has I believe been the chief cause of failure here

~~1/1/41~~ 2/4/41

V.C. Agric. Dept.

To note.

MCH
4.3.40

Hon. Col. Sec.

Noted

I.B.
o/c A.D.
4.3.40