MANAGEMENT OF TUSSOCK COUNTRY BEFORE AND AFTER OVERSOWING AND TOPDRESSING

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IN ITS UNIMPROVED STATE, tussock country is often poor and unproductive. Early development of this second-class country was based on the plough and lime bag.

Today, with new techniques, both of these can be dispensed with, for, provided a farmer uses adequate superphosphate and inoculated clover seed, sows with the 'plane in July or August, and fully utilizes the resulting feed, preferably by some form of mob rotational grazing, the capital cost, including fencing, can be recouped within 3 to 4 years. "And fully utilizes the resulting feed, preferably by *some* form of mob rotational grazing"-this is the key to any tussock development programme.

Improvement of tussock land is a known technical possibility and if well done is a financially sound proposition. With the urge to make clover grow, much unnecessary money is put over a tussock block just to "keep up with the neighbours" and be "in the swim." However, unless a sowing programme is well implemented and well planned it will not be financially sound.

Assuming tussock country below 3,000 ft a.s.l., and with a rainfall of over 20 in. (average 28 to 30 in.) such as there is in the 1½ million acres in Southland, it is proposed to outline what can be achieved in a well-thought-out and well-organized programme.

The success of a tussock development plan starts well before the 'plane goes on the block. The rate of stock increase, particularly breeding ewes, is the key. The faster development is carried out, the more profitable it will be, but it must be well balanced, both physically and financially. A lesser area developed and fully utilized is more profitable than a larger area inefficiently farmed. It is useless to grow two plants where one grew before if the stock are not there to eat them, The available capital

TABLE 1: OUTLINE OF STOCK NUMBERS REQUIRED OVER FIVE YEARS

Year	Extra Ewes to Ram in the Autumn					
	1966	1967	1968	1969	1970	1971
1966	400	400	400			
1967		400	400	400		
1968			400	400	400	
1969				400	400	400
1970					400	400
Totals	400	800	1,200	1,200	1,200	
To utilize 2,000 acres in 5 years				....	....	4,800 ewes

should not all be spent on one item; it must be balanced between fencing, fertilizer and stock (these three must always be considered together). Fqr every £5 spent on capital fencing, fertilizer and seed, ewes to the value of £15 should either be on hand or bought.

As a general rule, a block should not be oversown and topdressed unless it can be adequately stocked in the second season at 15 to 20 sheep per acre, e.g., 100 acres-2,000 sheep; 200 acres-4,000 sheep; 1,000 acres—20,000 sheep. Table 1 outlines stock increases, or stock needed to utilize the feed grown, over five years (doing 400 acres each year), to give a worthwhile return for effort.

Thus, to limit the stock-purchase bill, two main principles must be adhered to early in the programme:

(1) All ewe lambs must have future breeding potential. There is no place for the so-called fat lamb rams.

(2) Culling should be done only at the two-tooth stage. The only other female stock sold should be cast ewes to freezing works.

Fencing

Results show that fencing can increase carrying capacity by 40 to 50%, even without sowing and topdressing. On topdressed areas, an additional 50 to 125% increase in carrying capacity can be expected over and above the fencing effort.

Sowing

July and August sowings give the best results in the establishment of clovers. Cocksfoot also establishes well from August sowings. Even during dry spring periods, plants tend to carry over till adequate moisture is available. With clovers, there is a marked response to super. phosphate and/or sulphur or molybdenum, but little effect from lime. In grass establishment, lime may give a slight response but this effect is usually nullified by adequate superphosphate. Clover can be introduced into heavy pasture, but, with grasses, the effect of lime or fertilizer is of secondary importance, as the main factor is competition from existing cover. To ensure success, therefore, it is essential to check competition from present cover either by burning or close grazing. Hoof cultivation is the most successful method for preparing for over-sowing.

Although grasses do not make much growth for 2 to 3 years, most sown plants survive till the clovers build up the ground. It is difficult to introduce grasses once the area has been improved as clover and volunteer native species kill out the seedling sown grasses.

Grazing

Close continuous grazing, following sowing, has been shown to be as effective as intermittent grazing. Long spelling has a detrimental effect. Blocks should never be allowed to seed in the first year; they should be grazed. In the first winter, blocks cannot be grazed too hard—the sheep will deteriorate before the block does.

Thus, the salient point is that the block must be "hammered" before the 'plane goes over it, and afterwards, if there are to be worthwhile results. The ideal time is the winter before and after sowing.

All that remains, then, is for the sheep grazing programme to be fitted into this system. On the tussock country in Southland, most properties have adequate supplies of winter feed in the form of hay and swedes or' turnips. This fits into the programme quite well for winter on a tussock block. After the rams have been out for about 6 to 8 weeks, the flock is placed on the block, which is to be oversown and topdressed, at high concentrations-definitely over 20 sheep per acre, maybe

80. They are left there as long as possible, with hay fed to them if necessary.

Ideally, the block could then be used as a run-off from a brassica crop. The following year, with some growth on the improved area, about a month after the rams go out, the flock moves in. Again, they are pegged and held as long as possible on the principle that the block cannot be grazed hard enough. In this way, over two years' heavy wintering the sward becomes a grazing proposition for all sheep at most times of the year.

The successful man of hill country is the sheep-cattle, man who, when the block is reasonably established, employs some form of rotational grazing, or at least mob-stocking. The spoiler of improved hill country is the man who hard set-stocks. .

With tussock improvement in the manner described, a runholder changes from a large-scale grazier to a farmer. Tussock blocks become tussock paddocks. Unless one is prepared to accept and make these changes in management and way of life, a development programme using the oversowing and topdressing technique should not be attempted.

Summary

Management, therefore before and after oversowing and topdressing, devolves into two simple rules:

(1) Plan physically and financially before anything is ordered, remembering that adequate stocking in the season is 1.5 to 20 sheep per acre and for every £5 spent on capital fencing, fertilizer and seed, ewes to the value of £15 should be on hand or bought.

(2) Blocks cannot'be grazed. too hard; stock will regress before the block does so.

DISCUSSION

Should a man go into tussock country without established pasture in reserve?

Yes, provided he appreciates the need for support by good grass. He can possibly rent this from a neighbour.

A slide showed tussock reversion after establishing a ryegrass/white clover pasture. Mr Fitzharris advocated burning. Why not cattle?

Cattle would take 2 to 3 **years** to win back the block, and tussock farmers who are short **of** capital are better off investing in ewes. When they get established, say in 5 to 6 years, then cattle have a place.

Mr Fitzharris refers to dense tussock cover when he advocates heavy grazing. In areas where tussock is not dense, would it not be better to burn and thus reduce the initial capital outlay for stock required to crush?

In Southland, with adequate rainfall, heavy stocking is preferred to check the tussock before it gets away once topdressing is applied.

Why not cover a larger area with a lighter fertilizer dressing, to provide a more manageable improvement, i.e., cover the lot quickly with a slower overall increase?

Physically and financially the approach outlined in the paper has proved the soundest and most economic.

Is tussock a weed in the high country?

Once topdressed, it *grows* rapidly and becomes a weed.

Is silver or fescue tussock the weed in Southland?

Silver is the weed.

Is trampling or is *eating the advocated means of* getting *rid of tussock?*

Both, together with clover competition.

Spelling blocks to reseed is practised locally; why not in Southland?

It is preferable to graze continually, relying on a good initial take from oversown clovers. Some clover will seed, but spelling will encourage reversion. If clovers are weak it is better to put more seed with subsequent topdressing.

COMMENT (T. E. LUDECKE): Where fescue tussock was lost locally, production was halved. It is not a weed in this district, and farmers would not like to lose it.

In Southland, spelling encourages tussock reversion and on 200 to 300 acre blocks it is hard to get rid of. With 20 to 30 acre paddocks, it is possible to graze the tussock right out and have an improved pasture.

Mr Fitzharris mentioned £5 as the amount required to increase carrying capacity by three ewes. What are the cost details?

Fertilizer costs £16 a ton, spread. Most farmers can oversow, topdress and fence, with a follow-up the second year, for a total cost of £6 per acre.