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AUTUMN AND WINTER LAMBING STRATEGIES IN NORTHLAND

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Abstract

Progress in the development of autumn and winter lambing systems in Northland is described. Both involve split flock lambing in which 30 or 15% of ewes lamb in autumn or winter respectively, the remainder in spring. Using progesterone priming, a high ram to ewe ratio (10%) and ram management, 80.90% of ewes joined lamb over 2 cycles. Winter lambing using cull ewes is simple and does not require a breeding programme. Ewes and their lambs can be sent to the meat works from September. For low cost lamb production with present breeds, autumn lambing requires a breeding programme to develop spring mating ability. Heavyweight (18kg) carcasses can *be* produced early in the killing season. Autumn born replacement ewe lambs consistently averaged 40kg before their first summer. Both systems offer more flexibility in sheep production on farms and in processing and marketing.

Keywords: Autumn lambing, winter lambing, split lambing, management options, extending killing season, heavyweight lambs production.

INTRODUCTION

Lambing occurs in late winter and early spring throughout New Zealand despite the variation in pasture growth patterns (Table 1). Pasture growth in Northland is relatively evenly distributed among seasons, winters are mild, but summer feed supply is unreliable. Consequently carcass weights of most lambs killed in Northland average 1-1½kg less than the national average of 13kg. Autumn calving of beef cattle is practised, and to provide similar management flexibility for sheep farmers, two alternative management systems to spring lambing have been developed. Both involve split flock lambing — (1) 30% of the flock lambing in April/May, (2) 15% of the flock (the cull ewes) lambing in June/July.

In both systems the remaining ewes lamb at the normal time in spring. Rams are run with the autumn or winter lambing flocks in autumn to ensure any non pregnant ewes will lamb in spring. Possible advantages to the farmer include; greater efficiency of pasture useage (Rumball 1980), an improvement in sheep performance, in cash flow, and in management flexibility, especially the ability to take pressure off summer feed supply.

TABLE 1: **Contrasting patterns of seasonal pasture production in Northland and Southland.**

Site	% of annual yield (range) Autumn		Winter		Spring		Summer	
South Kaipara[1] (Northland)	25	(20-41)	14	(10-20)	37	(33-39)	24	(3-34)
Winton[2] (Southland Plain)	19	(11-25)	7	(3-13)	34	(25-44)	40	(30-51)

[1] Piggot et al 1978, [2]Radcliffe 1974. Both experiments were for at least 10 years. Mean annual yields and extreme annual yields were similar between sites.

These lambing systems also have implications for rationalisation of the meat industry (Evans 1985). If farmers supplied prime lambs before the killing peak, expensive works plant that already operate at capacity during the peak could be utilised more efficiently. This would assist in the reduction of killing charges, the

farmer's major internal production cost (Taylor 1982). Heavy weight, lean carcasses can be processed into prime cuts (Kelly 1980) which if produced early in the season, could be used to supply markets which have a continuous demand for chilled lamb.

AUTUMN LAMBING

Concept

Autumn lambing is being developed on farms where pasture recovery in this season is generally good. The aim is to lamb about one third of the flock in April at minimum cost or management disruption.

Results and Discussion

Autumn lambs were produced on 7 farms by treating 300 ewes with progesterone plus an injection of 500 i.u. of pregnant mare serum (PMS) in early November, *2-3* weeks after weaning of their spring lambs. In lamb rates (ewes lambing/ewes treated) were 40-45%. Farmers were able to integrate an autumn lambing flock within their management system. However those with straight-bred Romney, Perendale or Coopworth flocks have discontinued autumn lambing mainly because of the high cost of each lamb produced ($12) and the poor growth of some twins/triplets induced by using PMS.

Four farmers as well as DSIR have continued to develop autumn lambing flocks with Dorset or Dorset x Perendale sheep selected for out of season lambing ability. Two flocks with more than 1200 ewes have 450 of these lambing in autumn.

Mating was synchronised and condensed to 2 cycles by progesterone priming and ram management (Martin *et* al. 1981). Progesterone releasing CIDRs were inserted in ewes for 10 days, half the rams were joined at CIDR withdrawal and the remainder 1½ days later to give a ram to ewe ratio of 10%. In lamb rates (ewes lambing/ewes treated) of November mated ewes selected for spring mating ability have been 80-90%, with up to 60% lambing in the first cycle.

Preweaning lamb growth rates have been similar or slightly lower than those of spring lambs on the same property — at DSIR 230 and 235 g/day for autumn and spring lambs respectively. Post weaning July to September growth rates have ranged from 70-130 g/day then increased to 140-200 g/day as weather and feed supply improved through mid-spring. At DSIR, autumn born ewe lambs were about 10kg heavier than spring born ewe lambs in early summer and maintained this advantage until autumn in both good and poor feed years (Fig. 1). The more mature autumn lambs have been less susceptible to virus pneumonia. Some autumn lambs are mated in their first spring, the remainder in the following autumn at one year of age.

TABLE 2: Average carcass production from first draft April-born ram lambs.

Farm location (Farmer)	Date (1984)	Percentage of ram lambs drafted (%)	Carcass weight (kg)	GR (mm)	Value (incl. wool) $
East Coast[1] (Gordon Johnson)	6 Nov	29	13.2	4.9	27
Central[1] (DSIR, Kaikohe)	31 Oct	33	18.7	10.4	34
West Coast[2] (Reg Derrick)	24 Oct	34	17.1	9.1	32

[1] Dorset x Perendale lambs
[2] Approx. equal numbers of Perendale and Suffolk x Perendale lambs

Virtually all autumn iambs could be drafted in time to receive early season incentives. Drafting can begin in September (13kg carcasses). However with increasing feed supply in spring high carcass weights can be achieved by retaining lambs until October and November. Male lambs are left entire to ensure lean carcasses at heavy weights. Weighing scales are used for the first two drafts of lambs from each farm. First draft carcass weights from 3 farms are shown in Table 2. Incidence of overfat lambs was low, 8% at DSIR and nil on other farms. These weights compare with an average of 11.5kg for the earliest spring lambs killed in Northland at the same time. Greater premiums now exist for lean heavy carcasses and the new WX grade developed by Waitaki NZR offers high returns for carcasses over 20kg and below 12mm GR measurement.

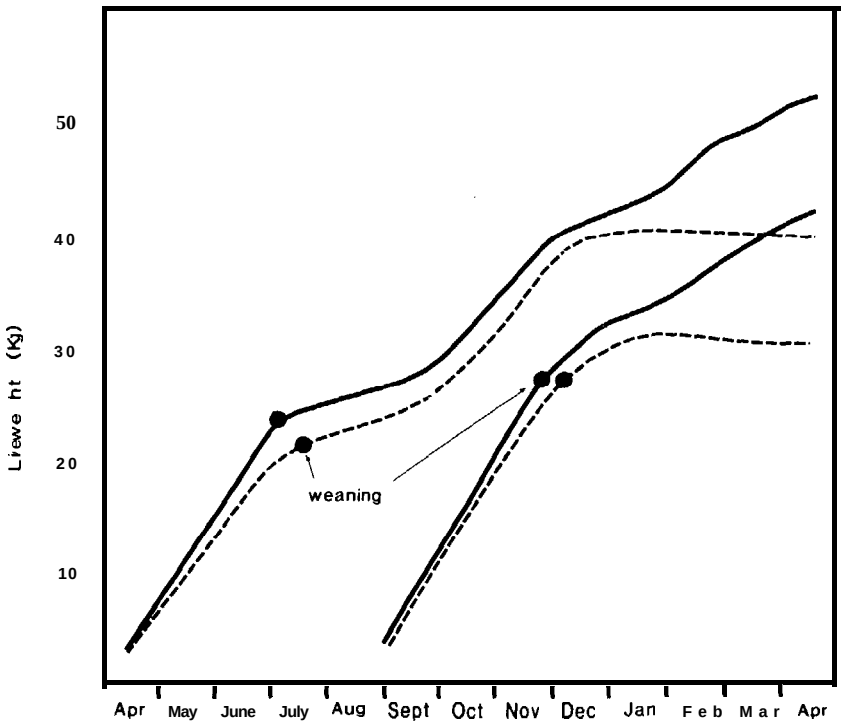

FIGURE 1: Growth of autumn and spring born replacement ewe lambs (Dorset x Perendale) at DSIR, Kaikohe. Year of birth; 1982 — —; 1983 ———

Management

Autumn lambing is timed to occur near the start of pasture recovery after summer. On soils easily rewetted and carrying dense pasture there is a reliable feed supply from April. On other soils and in coastal areas this may occur a month later. At DSIR, where a winter stocking rate of 22 s.u./ha is carried on a northern podzol, the optimum proportion lambing in autumn to match feed supply/animal demand in the absence of feed supplements or nitrogen fertiliser is about 30% Concentrated lambing has more management advantages in autumn than in spring. The period of autumn feed surplus is relatively short and management must allow for a declining feed supply during autumn and winter (Fig. 2). This contrasts with a farmer's experience in spring. Management techniques used have included a pregnancy test in February to deter-

mine numbers of autumn lambing ewes. Early removal of surplus stock by April, intensive mob stocking of dry ewes after mating ends in May, and a reduction in the number of mobs by joining stock with similar feed requirements then allocating feed on a priority basis. Adequate subdivision (more than 30 paddocks) is important. Autumn and spring lambs are weaned at 11-12 weeks to reduce feed demand in winter, and allow spring ewes to recover weight prior to summer. Autumn lambs can be under some feed restriction in July/August but make compensatory growth from mid-spring.

Sheep alone are run at a high stocking rate at DSIR and high burdens of internal parasites have been recorded in autumn lambs and ewes before weaning. These have been consistently higher than those in spring lambs or ewes (Andrewes 1983, McSporran and Andrewes 1986). A protective drenching programme has evolved with drenches to ewes at docking, to lambs at 8 weeks, at weaning, then post weaning at 4 week intervals.

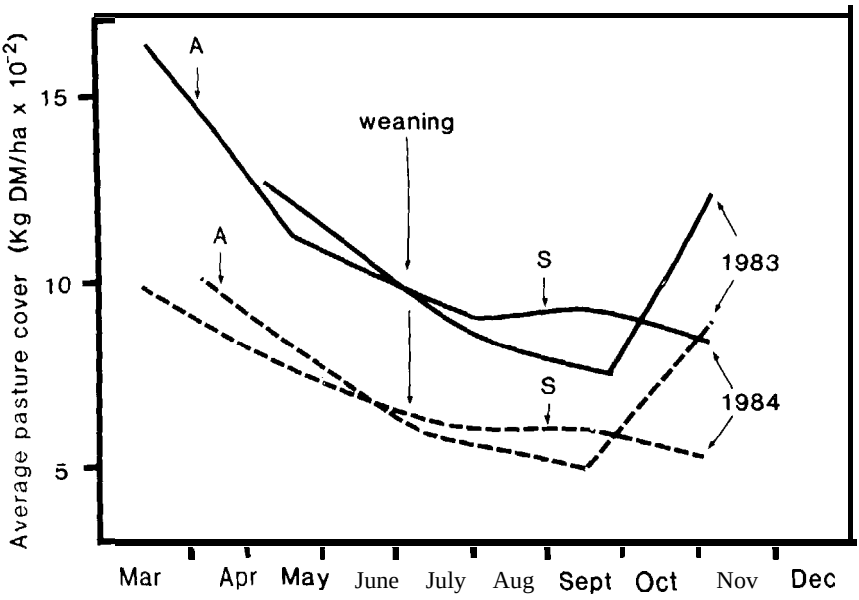

FIGURE 2: Average pasture cover on autumn lambing properties. DSIR, Kaikohe __ ; Gordon Johnson, Waipaipai – – –. A and S are lambing dates for autumn and spring flocks.

Farmer Comment; Gordon Johnson

Our property frequently dries out during late spring and summer, making it difficult to finish spring lambs. Autumn lambing has changed the farm from producing store lambs to mainly prime lambs. It has meant we can produce our own replacements and because the autumn lambs are drafted before summer, we can hold the remaining spring lambs longer. The ability to de-stock in summer to reduce over-grazing and maintain ewe weights is an important benefit. Wool production has been maintained despite developing a cross bred (Dorset x Perendale) flock. This is probably because I can now feed the ewes better and because my lambing % and lamb growth has improved.

Autumn lambing does increase the workload at that time, it also redistributes farm work more evenly through the year. I have integrated the autumn flock with other farming operations including a stud Angus herd.

WINTER LAMBING

Concept

Early mating is induced in ewes that are to have their last lamb. These are selected in January according to age and condition and comprise about 20% of the flock. Progesterone priming, a high ram to ewe ratio and ram management (as described for autumn lambing) is used to induce ewes to mate in late January/early February and lamb ahead of the main flock. Lambs can be weaned in September and both lamb and ewe sent to the meat works before the start of the normal killing season and before summer drought.

Results and Discussion

Winter lambing trials were carried out on 7 farms near Houhora in the far north where drought can extend from November to May. In 1984 and 1985, 80-85% of aged Perendale ewes treated lambed over 2 cycles in early July. In both years good feed supply was available during mating. The ewes had not been previously selected for early lambing ability. Lambs were weaned in late September at 10-13 weeks of age and one third drafted, to average 11.5kg carcass weight and $22/head (1984). The drafting pattern was similar on most farms and of a total of 900 winter born lambs, 70% were drafted before November and a further 10% in early November. They received $2 and $1/head early killing incentive payments respectively.

The growth of winter lambs to weaning was comparable to that of spring lambs on all farms. The farmers considered feed quality and quantity were optimum for lamb growth in the post weaning period (October) which enabled them to be finished in a tighter group than spring lambs or to be taken to higher carcass weights if required. Winter lambing ewes had a 10% lower lambing percentage than spring ewes. A reduction in ovulation rate (hence twinning) could be expected from early lambing (Black 1974). However, a higher proportion of single lambs ensures better average growth of winter lambs and more reliable finishing before summer. This avoids the effects of virus pneumonia and facial eczema on lamb production later in the season. With weaning in late September ewes have up to 6 weeks to be prepared for sending to freezing works before access is restricted by the start of the spring lamb season.

Management

Ewes were run as a mob from mating to weaning and no particular management problems arose. Feed supply is likely to be tightest in August/September but in these trials, ewes were in good condition at lambing and well fed during lactation. With only 15% of the flock lambing early, the increased feed demand in winter was kept low. Any feed restriction in early spring would tend to affect the ewe more than the lamb. The farm on which feed was most scarce during lactation had a high proportion of kikuyu grass, this type of pasture having up to 40% less growth in winter/early spring than that dominated by ryegrass (Lambert et al. 1979).

Farmer Comment; Danny Holland

After 2 year's experience I have found winter lambing gives several advantages. Use of the hormone impregnated CIDR's is relatively simple. They are easy to put in and even easier to take out. The demand for feed supplies at tupping is spread slightly. After the cull ewes are mated, they can be tightened up and there are fewer ewes to flush in autumn. Feeding the early lambed ewes has been no problem. I rear young cattle and the ewes and lambs follow these round the farm. With the cull ewes and most of their lambs to the Works by November, I get an early cash flow, and am left with less pressure on my summer feed supplies. This gives me the flexibility to make more hay and silage or to continue feeding more young cattle to get a better return. I could also take early born ram lambs through to heavier carcass weights if there were bigger incentives.

CONCLUSIONS

(1) Simple, low cost techniques have been used to produce autumn or winter lambs at the required time.

(2) Successful autumn lambing requires a breeding programme with selection for spring mating ability or the development of a low cost hormone treatment for existing breeds. It also requires new management experience and adjustments to farm practise over several years. In some environments it appears to offer significant advantages in sheep performance and management flexibility.

(3) Winter lambing can be adopted using existing breeds of sheep with a small reduction in lambing percentage. It is particularly applicable to regions with mild winters.

(4) The greatest incentive to adopt split flock lambing is likely to come from the meat processing industry rather than from on-farm benefits. Both systems allow significant changes to be made to the pattern of lamb drafting and to the grades of lamb produced. An estimation of the effects of the widespread adoption of autumn and winter lambing on spreading the pattern of sheep kill for a Northland works is shown in Fig. 3.

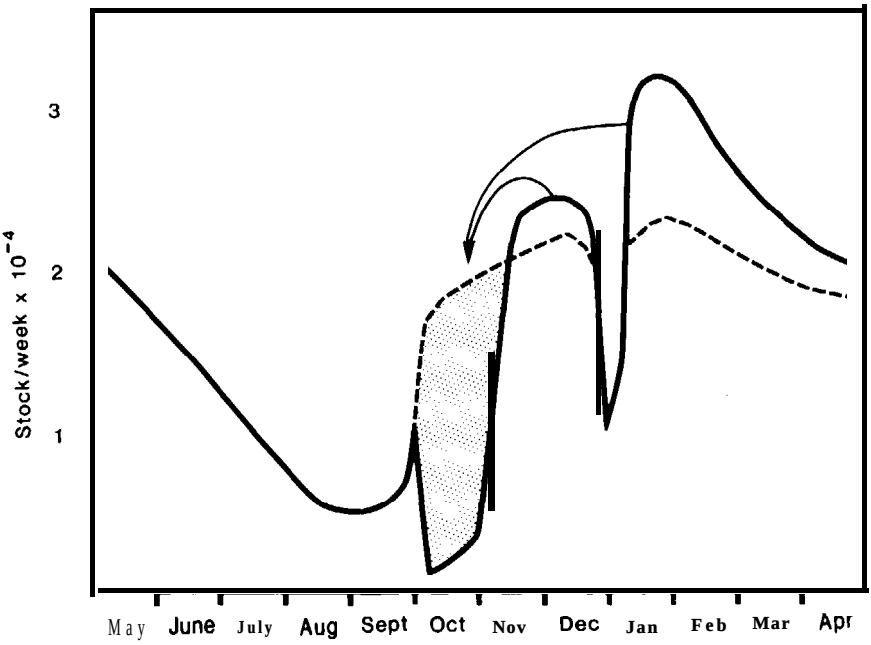

FIGURE 3: Seasonal pattern of lamb plus ewe kill at AFFCO Moerewa Works in 1984/1985 ——, with simulated change in killing pattern after adoption of autumn and winter lambing — —, Shaded area shows a 10% transfer of peak kill.

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