Fat lamb production in Western Australia

N. Davenport
FAT LAMB PRODUCTION IN WESTERN AUSTRALIA

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The production of fat lambs may be considered to have become a major feature of the West Australian sheep industry in 1931, for it was in that year that lamb production first exceeded the State’s internal requirements, and provided a surplus for export. Since then there has been a seasonal export of lambs every year, mainly to the United Kingdom.

The lamb export policy was developed as the result of recommendations made by an honorary consultative committee formed in 1929 to advise the Government on the problem of the State’s surplus sheep.

There has been a marked expansion of fat lamb production since those days. Home consumption has risen from 217,000 carcasses in 1930 to 431,000 in 1955-56—in which season a further 211,000 carcasses were exported. Although the home market is still the main outlet, the availability of an export market at satisfactory price levels is important as a buffer against unduly depressed prices during the periods of peak supplies in the spring.

EXPANSION FACTORS

The increased establishment of improved subterranean clover pastures resulting from the extensive use of superphosphate and other fertilisers; the considerable areas of virgin land in sheep-raising areas which have been brought into production since World War II, and the increased local demand for lamb carcasses are the main factors which have stimulated lamb production in Western Australia.

The local demand has risen with the increased population and also with the greater purchasing power of the individuals.

A noticeable feature of the virgin land development has been the production from recently-developed areas in the south of the State.

The buoyancy of the lamb industry is markedly influenced by the relative returns of sheep-farming for wool and for lamb production.

During the immediate post-war years and until 1952 there was a progressive decrease in the number of British breed rams used in the State, but these increased by 3,000 in the period 1953-56 and at the present time the British breed ram population is at its highest level since the war. The demand for such rams at present exceeds the supply.
MARKET REQUIREMENTS

In order to determine the requirements of the export trade, the 1929 consultative committee made inquiries into the type of carcass which was best suited to the United Kingdom market. It was found that "the greatest demand was for a sucker lamb carcass weighing 28-36 lb. bred preferably from a Down-type ram and compact and symmetrical in shape. It should have a high proportion of meat and be well flesched on all four quarters, particularly in the loin and hindquarters with short bones and a minimum of fat. When on the hooks the space between the hind legs should be in the form of a U rather than a V. Fat covering is important. It is thickest on the back and sides and thins out towards the lower ends of the legs. While not being too thick on the back there should be a thin covering over the meat of the legs, particularly towards the extremities, which is so important in preventing damage by freezing and drying out when in the oven."

The results of these early inquiries are equally true today, except that demand is for even less fat than previously. While such carcasses are most in demand however there is a definite market for lower quality and heavier carcasses.

Lamb carcasses are marketed in four quality grades, viz Down, first, second and third. The Down grade is reserved for the highest quality carcasses showing the effect of the "Down" sire in producing a compact very well-fleshed short-boned carcass that is not over-fat. Within each quality grade are four weight-grades, viz.: "D's" of 20-28 lb.; "2's" of 29-36 lb.; "3's" of 37-42 lb.; and "4's" of 43-50 lb.

Although, as previously stated, there is a definite market for the lower quality and heavier carcasses, the present price levels on the United Kingdom market indicate a preference for lightweight carcasses, even at the expense of quality.

The difference in price per lb. between the first and second grade carcasses is
usually less than the difference between the 29-36 lb. and 37-42 lb. carcasses in the same quality grade.

The local market, which in earlier years was not particularly insistent upon quality, has gradually become more exacting, and home consumption prices now tend to show much the same relationship to quality as that encountered in the export market.

DEVELOPMENT OF THE INDUSTRY

The Merino, which is the principal Australian sheep breed, was developed as a wool-producer and is definitely not a meat type. Its carcass conformation falls far short of export requirements and the ewes do not produce milk in the quantities essential for the rapid growth of high quality lambs.
Fig. 3.—Large-framed Merino ewes suitable for breeding first-cross lambs

To produce lambs suitable for a discriminating market it was found necessary to introduce suitable British meat breeds into the lamb-raising programme.

These were of two main types, the Longwools—mainly represented in this State by the Border Leicester, English Leicester and Romney Marsh—and the Shortwools or Down breeds of which the most popular are the Southdown and the Dorset Horn.

The Longwools are dual-purpose sheep combining good mutton qualities with the production of heavy, long-stapled fleeces.

The Shortwools are pre-eminent as meat producers, with chunky, well-fleshed and quick-maturing carcasses, but their wool-production is of minor importance.

The relative popularity of the various British breeds in this State is shown by these details of ram numbers at March 31, 1956.

<table>
<thead>
<tr>
<th>Type</th>
<th>Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Longwools&quot;</td>
<td>Romney Marsh</td>
<td>3,438</td>
</tr>
<tr>
<td></td>
<td>Border Leicester</td>
<td>2,019</td>
</tr>
<tr>
<td></td>
<td>English Leicester</td>
<td>714</td>
</tr>
<tr>
<td>&quot;Shortwools&quot;</td>
<td>Southdown</td>
<td>6,924</td>
</tr>
<tr>
<td>or &quot;Downs&quot;</td>
<td>Dorset Horn</td>
<td>4,977</td>
</tr>
<tr>
<td>Other breeds</td>
<td></td>
<td>1,444</td>
</tr>
<tr>
<td>of both types</td>
<td></td>
<td>19,516</td>
</tr>
</tbody>
</table>

Following upon research into the breeding of lambs carried out in other parts of the Commonwealth and New Zealand, an investigation was conducted at the Avondale Research Station near Beverley during 1931-33 to determine the most suitable breeding programme for the production of high quality lambs.

The results of this work, together with the experience of lamb raisers showed that:

(1) Lambs suitable for both the local and export markets could be obtained by mating Merino ewes with British breed rams.

(2) Crossbred ewes were superior to Merino ewes and, mated to Down-type rams, particularly the Southdown, produced lambs of high quality.

(3) The most suitable types of crossbred ewes were obtained by mating Merino ewes with Longwool breed rams, particularly the Border Leicester and the English Leicester, with the Romney Marsh preferred in the wetter areas.

(4) The Southdown was unsurpassed as the sire for the ideal export type but the Dorset Horn was well suited for the production of early-maturing lambs in the shorter season districts.

The development of the industry has been based on these findings.
Fig. 4.—Crossbred ewes (Border Leicester-Merino) at the Avondale Research Station. Such ewes are well suited to the production of high quality export lambs when mated to Southdown rams.

LAMB RAISING AREAS

The principal lamb-producing areas, generally referred to as the “lamb belt,” lie approximately within the 15in. to 30in. rainfall areas, where the establishment of improved pastures with subterranean clover as the basic legume is general practice. The seasonal conditions are very dependable and lambs can be marketed as suckers each year. The production potential of the lamb belt is high. This region contains about ten million acres of cleared country of which some three and a half million acres are under improved sub-clover pasture. The sheep population is approximately 6,000,000. Production per acre is increasing steadily and in addition there are considerable areas of virgin land yet to be brought under cultivation.

In the areas with a lower annual rainfall, seasonal conditions are not as constant, with the result that in occasional years, lambs may not “finish” satisfactorily, and production is therefore somewhat irregular.

An indication of the areas in which lambs are produced for slaughter is given in the accompanying map which shows the distribution of British breed rams throughout the agricultural areas.

BREEDS AND BREEDING

The Merino Ewe.

Compared with crossbred ewes, Merinos do not usually have such high fertility levels, are not quite so efficient in “mothering” their lambs, and secrete less milk, consequently their progeny are somewhat slower in reaching marketable weights.

Nevertheless Merino ewes play an important role in our lamb-breeding programme. They are used mainly in the less-favoured lamb-producing areas where large-framed, medium to strong-woolled types of ewes are mated to Longwool rams to produce first-cross lambs of satisfactory quality for both the home and export markets.

The first-cross ewe lambs are in demand as potential mothers of high-quality export lambs sired by Down rams.

Mated to Dorset Horn rams, suitable Merino ewes produce early lambs of somewhat better quality than the progeny of the Longwool-Merino cross. Because of their lower fleece values however, the female progeny of the Dorset Horn-Merino cross are not favoured as breeders.

The relatively high fleece value of the Longwool-Merino cross causes it to be preferred as a “carry-over” lamb, in cases where bad seasons or other factors prevent the sale of lambs as suckers.

As lambs from Merino ewes are of lower value than those from the Longwool-Merino cross ewes, the value of the ewe’s fleece is particularly important when considering the aggregate return per ewe in
Fig. 5.—High quality second-cross lambs bred at the Avondale Research Station. These are the progeny of Border Leicester-Merino ewes mated to Southdown sires.

lamb and fleece values. Merino fleeces are usually more valuable than crossbred fleeces.

An important feature of the Merino ewe is that its breeding season usually commences about four weeks earlier than the crossbred. As the lambs usually mature about three to four weeks later than those of the crossbred, the lambs from both types of ewe tend to reach marketable condition at about the same time, when each ewe flock is mated at the commencement of its particular breeding season.

It is a common practice for Merino wool-producers throughout the sheep-raising areas to mate cast-for-age Merino ewes with Longwool or Dorset Horn rams and to sell both the ewes and the lambs.

The Crossbred Ewe.

The term "crossbred" is generally used to describe the half-bred progeny of Merino ewes mated to Longwool rams. As was previously explained, the progeny of Merino ewes mated to Shortwool rams are not favoured. Their better carcass conformation does not compensate for the lowered fleece values compared with the Longwool-Merino cross.

Compared with the Merino, the British breeds (particularly the Border Leicester and Dorset Horn) have faster growth rates, higher fertility levels, better milking qualities and superior carcass conformation as meat producers. Their breeding season commences later than that of the Merino.

In the case of the crossbred ewes, these advantages and disadvantages lie about midway between those of the Merino and the particular British breed used as a sire.

Lambing percentages of crossbred ewes are high and they are good mothers. Milk production is usually ample, even for the nourishment of twin lambs.

Because of these qualities, crossbred ewes are in keen demand by breeders in the lamb belt for mating with Down rams to produce high-quality lambs. The demand is such that it is common practice to purchase requirements as lambs and hold them for mating as two-tooths in the following year.

The three principal types of crossbred ewes in use in Western Australia are:

1) Border Leicester-Merino ewes which are suited to conditions throughout the lamb belt except in the higher rainfall areas. They have a high milk yield and are considered the best of the three crossbred types in this respect. The high growth rate of the Border Leicester breed is shown in the relatively quick maturity of lambs from these ewes.

2) The English Leicester-Merino cross ewe is in less general demand than the Border Leicester-Merino cross but is preferred in the Avon Valley and Great Southern dis-
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districts where it has proved itself to be well suited. This type of ewe has the advantage of a somewhat lower-set and less leggy conformation than the Border Leicester crossbred. However its progeny do not grow quite as rapidly and take longer to reach market standards.

(3) The Romney Marsh-Merino cross ewe is favoured in the heavier rainfall districts where wet pasture conditions during the winter and spring emphasise its advantages over the Border and English Leicester crossbreds. It is used extensively in the Lower Great Southern areas and particularly in the lamb areas adjacent to the southern seaboard. It is of good conformation and the returns compare favourably with those of the Border Leicester cross.

The influence of the slower maturing Romney Marsh breed is shown in the progeny from this type of crossbred. They take rather longer to mature than lambs from the Border Leicester-Merino crossbred ewes.

The Corriedale Ewe.
This is a dual-purpose breed with regard to meat and wool production and the ewes are well suited for breeding high-quality lambs, although they rank somewhat lower than Longwool-Merino crossbred ewes for this purpose. The carcass quality is not as high, and the lambs take longer to mature. The ewes have the advantages of mating earlier than crossbreds, and wool returns are higher. In view of the shortage of crossbreds, Corriedale ewes are in keen demand but supplies are very limited.

The Southdown Ram.

Rams of this breed are superior to all others as the sires for high-quality lightweight lambs. The Southdown is suited to the conditions throughout the lamb belt from the Geraldton area in the north to the southern coast. The rams work freely, quite as well as Dorset Horn rams, in fact there is no difference between the two breeds in this respect.

Southdown lambs from crossbred ewes mature—or in other words develop to the stage when they have the desired proportion of bone, meat and fat—at lighter weights than lambs sired by rams of other British breeds from similar ewes. This is important when the tendency of market demand today is towards lightweight carcasses. At weights above 36 lb. or so, these second-cross lambs readily become over-fat. This is not so with the first-cross lamb from the Merino ewe, which has less tendency to become over-fat than th
second-cross lamb. First-cross Southdown-Merino lambs also mature at lower weights. The carcass is about 2 to 3 lb. lighter than that of the Longwool-Merino first cross.

**The Dorset Horn Ram.**

Where quick-growing lambs are required, such as for the early market or in the more northern districts with a shorter growing season the Dorset Horn is well suited for the purpose. Dorset Horn-sired second-cross lambs mature two to three weeks earlier than Southdown-sired lambs from similar ewes, and the carcasses are 2 to 3 lb. heavier. Although their carcass conformation falls below the high level of Southdown-sired lambs, Dorset-sired lambs are well suited to both the export and local markets.

Other Down breeds such as the Suffolk and Ryeland have increased in numbers in recent years, but neither is as suitable as the Southdown for the production of lightweight sucker lambs.

**The Border Leicester Ram.**

Conditions in the lower rainfall areas east of the lamb belt favour the use of the earlier-maturing breeds such as the Border Leicester and Dorset Horn. When Border Leicester rams are mated to Merino ewes, the lambs have ready sale in local markets particularly when produced early in the season although they are not of high quality by export standards. The value of the pelt is considerable. Should the conditions of the growing season not permit the lambs to "finish" as suckers, they are suitable for carrying over in view of their satisfactory fleece value. The principal value of this breed is that the first-cross ewe lambs from Merino ewes are particularly suitable as mothers for breeding second-cross lambs in the lamb belt. They command a premium over their meat values for this purpose.

**The English Leicester Ram.**

This breed is not as widely favoured as the Border Leicester as it is somewhat slower-maturing. The first-cross English Leicester-Merino ewe is however, highly valued for its conformation as the potential mother of export lambs.

**The Romney Marsh Ram.**

These rams are now the most numerous of the Longwool breeds in this State. They are preferred to the other Longwool rams for mating to Merino ewes under the wetter conditions of the more favoured districts. The ewe progeny of this cross are in keen demand as breeders in the heavier rainfall areas. When carried over the hoggets fatten readily and yield good fleeces.

**SELECTION OF RAMS**

Each ram will be expected to sire many lambs, and its influence on the quantity
and quality of the lamb drop will be considerable. Rams are usually purchased as two-tooths (1½ years old). At this age, they are sexually mature and are quite capable of mating at the ratio of three rams per 100 ewes. The average working life of a British breed ram is four to five years, after which fertility can drop quite sharply.

Features of a good ram are a general alert and healthy appearance, good feet and the ability to walk well; legs set well apart; well-sprung ribs without weakness behind the shoulder, a broad level back showing good loin development, the topline continuing on to the tail without falling away unduly and carried down to a deep full twist. Fleshing should be good down to the knees and hocks. The mouth should be normal and the animal should carry a good even fleece typical of the breed.

When purchasing rams it is important that careful inspection should be made of the testicles to ensure that they are in good condition; that there is no abnormal development and particularly no indication of epididymitis, which is a common cause of infertility in British breed rams. It is a disease caused by a specific bacterium which becomes established in the epididymus, normally a small soft knob at the base of each testicle. The epididymus is a channel for the passage of sperm from the testicles. Inflammation resulting from bacterial infection causes swelling and blocking of the duct which carries the sperm, with partial or complete infertility as the result. The disease can spread through the ram flock.

SELECTION OF EWES

Farmers whose principal income is derived from lamb breeding, usually prefer to purchase their ewe requirements, whether they are crossbreds or Merinos. The practice of running a ewe-breeding flock and a lamb-breeding flock on the one property is not favoured.

The mutton qualities of crossbred ewes have been improved appreciably over those of the Merino by the influence of British breed sires. As they are used essentially for breeding top-quality lambs it is necessary that they should exhibit pronounced mutton qualities. They should be low-set and blocky within the characteristics of the type. For instance, the Border Leicester cross ewe tends to be more leggy than the Romney Marsh or English Leicester cross. They should have good width of brisket, be well set behind the shoulder and have well-sprung ribs indicating a broad back and well-developed loin. They should not be hollow-backed, and the topline should not fall away unduly at the tail. Well-filled hind legs, set well apart, is an important point for selection. The better the crossbred ewe, the better the second-cross fat lamb.
Research in New South Wales has shown that the better type ewes produce lambs of heavier carcass weights.

Results of research at the Avondale Research Station have shown that breeding from crossbred ewes of greater than average size, is of no advantage with regard to the size of the lamb produced, and therefore presumably also to the growth rate and quality of the lamb. As the maintenance requirements of sheep are proportional to their size, crossbreds of above average size could show a smaller net return per year. This need not necessarily be so with Merino ewes for which milk production is such an important factor for lamb growth for the first eight to ten weeks. In fact, higher milk yields may generally be associated with heavier ewes.

A robust well-fleshed type of Merino ewe should be selected. The narrow slab-sided ewe should be avoided. The South Australian type of sheep is well suited for crossing with British breed rams.

The wool yield of the ewe flock is an important consideration as, on present price levels for wool and lamb, the wool returns fall little short of the value of the lamb. This applies with equal emphasis whether the flock be either crossbred or Merino.

Ewes should be selected when in good condition but not fat and at least half woolled for preference.

**MATING**

The breeding season for Merino ewes in the earliest lamb producing districts commences during early November. This is sufficiently early for the lambs to finish as suckers except in abnormal seasons.

For crossbreds ewes the season commences about a month later than Merinos. In the Geraldton area this is in early December. The breeding season is later as we move southwards, commencing in late December in the Avon Valley and mid-January in the most southern districts.

Early lambing is desirable in the northern areas so that the lambs can finish before the pastures dry off and grass seeds become troublesome. For this reason, a few Dorset Horn rams are useful towards the end of the mating period in these districts to replace Southdown rams so that the last lambs will mature more quickly.

In the areas adjacent to the southern seaboard where mid-winter conditions can be harsh, spring lambing is becoming more popular. In these districts the growing season is long and can extend at times into December. Ewes can thus lamb down on good pasture and raise their lambs under conditions favourable to milk production.

The income from the flock is markedly influenced by the percentage of lambs dropped. Every care should be given to
this aspect of flock management, and the fertility of the rams is of particular importance in this regard.

As rams of the British breeds do not maintain a high level of fertility over many years the ram flock should be kept reasonably young. The incidence of epididymitis is usually lower in young rams.

Fertility can be impaired by troubles such as fly-strike, head injury, abscess formation and grass seed trouble, particularly about the testicles. Even after recovery it may take two months to regain normal fertility. It is important also that the scrotum or purse should be free of wool, in order to prevent overheating.

The rams should receive regular attention throughout the year, and particularly within two months of mating. For mating they should be in good active condition and certainly not fat.

It is important to the lamb breeder that the lambing period should be as short as possible. Three per cent. of rams should be used to ensure this.

Interest has increased recently in the use of vasectomised or "teaser" rams, i.e., rams which have been operated upon, and rendered infertile but are still vigorous and able to serve. At the commencement of the breeding season and at that time only, the presence of rams in the flock tends to induce the great majority of the ewes to come into oestrus or heat during the third week after introducing the rams. Use of this fact is made by adding "teaser" rams to the flock for two weeks prior to the mating date decided upon, and then replacing them with the entire rams on that date.

A very suitable and common practice which effects the same result is to join one-third, i.e., one per cent. of rams for a fortnight before the mating date, and at the end of that time join the remainder. Such a mating procedure does not increase the percentage drop, but is likely to result in a more concentrated and earlier lambing.

After the mating period, the rams should be gone over for injury, condition and culling and the requirements for the following season determined.

The ewe flock also requires careful treatment. When culling, those with defective udders should be excluded and also the non-breeders, i.e., those which have not lambed for two consecutive seasons.

As the lamb flock has been on good pasture during the late winter and spring period, the ewes, particularly crossbreds, are often overfat. For mating, they should preferably be in strong forward store condition. To allow time in which to reduce the condition of the ewes, it may be necessary to wean the last of the lambs a little early. It takes several weeks to reduce overfat crossbred ewes even on poor pasture.
FLUSHING

It has been shown that if ewes in suitable condition are increasing in bodyweight when mated, a greater number of twins will be dropped. This fact can be made use of by improving the nutrition level of the ewes for two weeks prior to joining the rams. As all ewes do not conceive at the first wave of oestrus, it is usual to continue this treatment for a further month or so. The practice is termed “flushing.” A high level of nutrition is not required. Good paddock grazing is sufficient, particularly where meadow hay has been cut and left as grazing. Paddocks in which there are appreciable residues of grain from cereal crops are well suited for the purpose.

(To be concluded).

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