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# BREEDING FOR MARKET LAMB PRODUCTION

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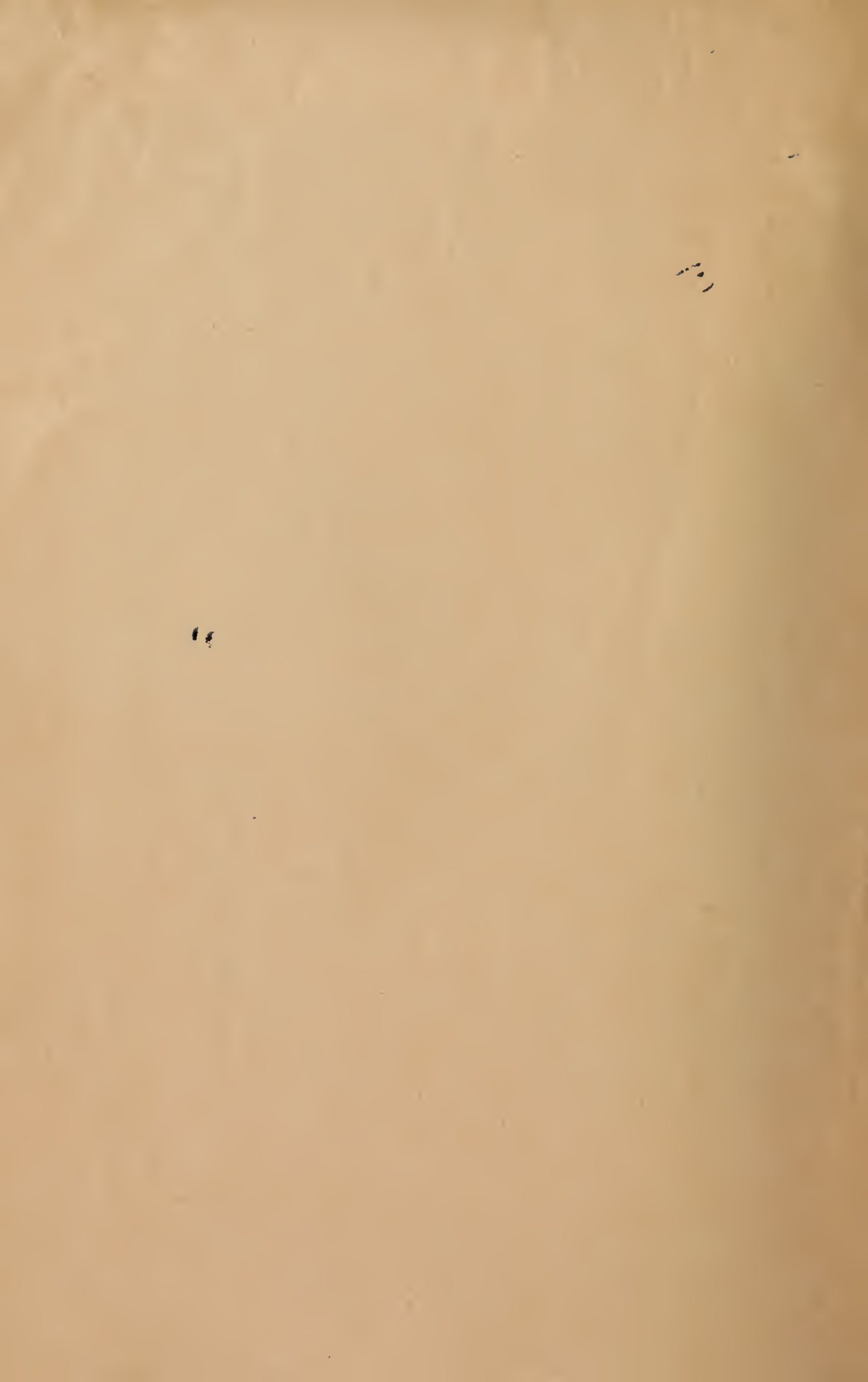
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Top quality market lambs, the result of good breeding and feeding practices.

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# **BREEDING FOR MARKET LAMB PRODUCTION**

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Sheep have always been a reliable and consistent source of revenue for many Canadian farmers and are well suited to most agricultural areas. They are particularly adapted to farms that produce relatively large amounts of roughage since they require a minimum of grain and are efficient converters of home-grown roughage and pasture into meat and wool. In comparison with certain other classes of stock, labour requirements, capital investment, and overhead are low for a flock of sheep.

## **Sheep produce two crops annually**

In Canada sheep are kept primarily for meat production in the form of fat lambs, weighing 80 to 100 pounds and marketed at four to eight months of age. There are, however, two other sources of income that should not be overlooked, namely wool and aged ewes. While the relationships will vary depending upon prices and the type of enterprise, fat lambs normally provide approximately 80 per cent, wool, 15 per cent, and aged ewes, 5 per cent, of the annual revenue from a domestic sheep flock.

## **Many different breeds are available**

There are many breeds of sheep, some of which excel in certain characteristics while others are superior in different ways. For example, some are noted for the excellence of the carcasses produced while other breeds can produce the greatest number of pounds of lamb in the shortest possible time. It may be said that there is no one breed that is best in all economic characters. The relative usefulness of the different breeds will depend on the conditions under which they are kept and on the available markets.

## **Suitability of the breeds**

Many factors influence the choice of a breed for a particular farm. Amongst these are level of productivity of the farm, type of enterprise, markets, personal preference, and availability of breeding stock. In general, the large, heavy-producing breeds such as the Border Leicester, Hampshire, Oxford, and Suffolk give the best results where pastures are abundant and the level of winter feeding is high. On the other hand the smaller breeds such as the Cheviot and Shropshire are better suited to less productive areas and more adverse conditions. In general, the more active, clean-faced breeds are superior in their ability to utilize extensive grazing areas. Certain breeds such as the Dorset Horn and the Southdown have more specific uses, the former for out-of-season lambing and the latter to improve carcass conformation.

## **Breeding Systems**

Three breeding systems or methods can be used in producing market lamb. These are, (1) the maintenance of a flock of purebred or "graded-up" sheep and the marketing of wethers and surplus ewe lambs; (2) the purchase or rearing of

females of one breed, these being mated to a ram of a different breed; and (3) the purchase or rearing of first-generation cross-bred ewes and mating them to a purebred ram. In the latter two systems all progeny are sent to market. Each of these methods has its advantages and drawbacks and the choice of system will depend largely on flock size and the availability of replacement females.

*Purebred or grading-up system.*—This is the most generally adopted plan throughout Canada. Under this system the operator decides which breed of sheep is best suited to his conditions and develops a purebred or high-grade flock through the continued use of purebred rams of the chosen breed. For small flocks the method has several distinct advantages. It is simple, there is no problem or possible confusion as to the breeding policy, and replacement breeding stock is selected from within the flock thus eliminating the necessity and trouble of bringing in outside females and the consequent risk of disease. Some of the disadvantages are that breed fine points may lower the utility of the chosen breed, the advantages of hybrid vigour are not utilized and, since only one breed is involved, use can not be made of the superior points of other breeds. In addition to this, all too often a continuous line of breeding is not followed. Operators sometimes make frequent changes in the breed of ram used, a policy that results in mixed, mongrel stock and lambs lacking in uniformity.



FIG. 1—Grade Shropshire lambs—the result of using purebred Shropshire rams for several generations.

Regardless of the type of ewes used the grading-up need not be a lengthy procedure. In an experiment conducted at the Experimental Station at Lacombe, Alta., groups of range ewes were graded-up through the use of rams of different breeds. In all, six breeds were tested. It was found that after three or four top crosses the resulting animals resembled the purebreds very closely in appearance and performance.

*Single-cross system.*—While the single-cross system of breeding for market lambs has never enjoyed much popularity in Canada, elsewhere it is used extensively. Under this system ewes of a hardy breed are reared in areas of cheap



land and perhaps used as a straight breed for several years. They are then moved to more productive districts where they are mated to rams of mutton breeds. The advantages of a single-cross system are that normally the ewe stock is more cheaply raised, is hardy, and has excellent wool. Such an enterprise is flexible in that the type of lamb produced can be altered very quickly, simply by changing the breed of ram used to sire the fat lambs. In addition, in the lamb crop, advantage can be taken of hybrid vigour, which is the extra increase in productivity obtained simply through crossing different breeds. On the other hand lambs from such hardy breeds of ewes may not furnish top quality carcasses and are usually relatively slow maturing.

In Canada the basic ewes could be secured from the range flocks of the West. Under the rigorous conditions of the ranges, ewes must be culled at a relatively early age. Such ewes, mostly of Rambouillet breeding, moved to farming areas have proved useful for market lamb production when mated to Down rams.



FIG. 2—Single-cross lambs—sired by a Shropshire ram and out of range-type ewes.

The choice of rams will depend on the general productivity of the farm and on market requirements. As with purebred flocks, the larger breeds are best suited to the more productive areas while the medium and small breeds find their place under less favourable conditions. Since range ewes are relatively deficient in mutton conformation, thick, deep, blocky rams are preferred if quality lambs are to be produced.

Trials conducted at the Central Experimental Farm, Ottawa, have shown that cast-for-age, range Rambouillet ewes moved to Eastern Canada and mated to Shropshire rams could compete successfully with eastern domestic ewes for fat lamb production. The range ewes were superior to the eastern ewes in health, vigour, hardiness and longevity, while the eastern ewes excelled in prolificacy, and their lambs were superior in rate of gain and carcass quality.

*Cross-bred ewe system.*—In many of the major fat-lamb producing countries a cross-bred ewe scheme is utilized. Under such a policy cross-bred ewes combining the desirable characteristic of two breeds, and possessing hybrid vigour,



are produced on cheap land. These cross-breds are then sold to more fertile areas and there mated to mutton-type rams. All progeny are sold and when the ewes pass the age of usefulness the common practice is to sell the entire flock and purchase a replacement unit.

The classical example of this system is found in Scotland where hardy Scottish Blackface or Cheviot ewes are raised cheaply on the heather-covered hills. There they are mated to Border Leicester rams and the female offspring are sold to farmers on better land. In these cross-breds the hardiness and grazing ability of the Blackface and the prolificacy and milking qualities of the Border Leicester are combined. The lowland farmer purchasing these ewes mates them to rams of one of the Down breeds, markets all lambs and, when the ewes reach the end of their productive life, the entire flock is fattened and sold, being replaced with a fresh purchase. In this country the breeds used would not necessarily be the same, but the basic principles remain. Highly productive cross-breds could be raised from a hardy breed of ewes carried on cheap land and could then be mated to mutton-type rams in more fertile areas.



Fig. 3—Second-cross lambs—sired by a Shropshire ram and out of first-cross Cheviot  $\times$  Leicester ewes.

In spite of the rather complex nature of a cross-bred ewe scheme, the benefits to be derived from utilizing the assets of several breeds may more than offset this disadvantage. At the Central Experimental Farm, Ottawa, first-cross Border Leicester  $\times$  Shropshire ewes were compared with straight Shropshire ewes of the same line as that from which the crosses were bred. Over a nine-year period the cross-breds produced 14 more lambs per 100 ewes and these lambs were not only heavier at birth but made more rapid gains. The lambs from the cross-breds reached market weight and finish 24 days earlier and the ewes produced 33 per cent more clean wool.

Later four different types of cross-bred ewes were tested, Leicester  $\times$  Shropshire, Leicester  $\times$  Oxford, Oxford  $\times$  Shropshire, and Cheviot  $\times$  Leicester. No great differences in production were found between the types. However, the





following observations were made; mortality rates were high in the Leicester-Oxford crosses; the Cheviot  $\times$  Leicester ewes were excellent mothers but were very active and required better fencing, the Oxford  $\times$  Shropshire crosses had excellent fleeces but woolly faces were a drawback.

All of these types were mated over the years to rams of three different breeds, Southdown, Shropshire, and Suffolk. The Suffolk rams showed their superiority in siring rapidly-developing lambs. These lambs were heavier when marketed but the carcass grades were inferior to those of the lambs sired by the Southdowns. The gains of the Southdown-sired lambs dropped off rapidly once they approached market weight and many lambs were noted as carrying sufficient finish at too light a weight. On the other hand, the tendency was for the Suffolk-sired lambs to be under-finished at the lower market weights, that is 80 pounds live weight. In most respects the lambs by the Shropshire rams appeared to be intermediate to those of the other two breeds.

### **Choice of system**

The actual choice of breeding system will depend on many factors such as location, personal preference, availability of stock, size of flock. In general the purebred or graded-up flock is best suited to farms where few sheep are kept and the returns provide a relatively small proportion of the total income. The advantages of a cross-bred ewe scheme can only be exploited in large flocks, or on a co-operative basis with farmers in areas of relatively low productivity producing the cross-bred females. The single-cross system utilizing cast-for-age range ewes can doubtless be best employed in districts relatively close to the range areas since shipping charges to more distant points might be prohibitively high.

### **Correct selection of breeding stock is vital**

Irrespective of the program followed the selection of breeding stock must be made carefully. Only healthy, sound, well-grown females, typical of their breed or type should be chosen. If the information is available, or if ewe lambs from the flock itself are being selected as replacements, animals should be chosen from parents having a high productivity level. If mature ewes are being selected, great attention should be paid to udders and mouths and all animals with broken mouths or faulty udders should be rejected. Within the flock itself culling should be practised and ewes that do not measure up in productivity or that have faulty mouths or udders should be sold. All too often sheep are retained that cannot stand the strain of pregnancy. Such animals may die late in the winter, with the consequent loss of a winter's feed plus the salvage value of the old ewe. When culling sheep in the fall, care must be taken to not place too much emphasis on condition since often the thinness of some ewes is due to the fact that they milked heavily all summer while the better condition of certain ewes may be because they produced little milk.

The selection of the ram should be based upon the same general considerations. Only the best sires available should be used irrespective of the breeding policy being followed. However, in a cross-breeding scheme, since none of the progeny are to be retained for breeding, certain points can be overlooked in the choice of the ram to sire the fat lambs and more emphasis can be placed on features such as carcass conformation.

### **Good management means good lambs**

Even though the flock may be of top quality, top market lambs will not be produced unless the sheep are well fed and well managed. Pregnant ewes should receive four to seven pounds of good quality legume or mixed hay per day throughout the winter along with a small allowance (one-half to one pound per day) of

grain around lambing time. Silage makes a valuable addition to the ration but feeding should be discontinued about a month before lambing or large soft lambs may result.

Pasture is important since lambs should be fat off grass without any additional feeding. Normally sheep do best on a rather short, well-grazed, clean pasture with ample shade and watering facilities.

All lambs should be docked and male lambs intended for market should be castrated. These are simple operations and can best be done when the lambs are two to three weeks old.

If the flock size warrants, it is best to market the lambs as they reach the correct weight and finish rather than sell them all at once since in the latter case some lambs will be too heavy while others may be underfinished, thus lowering the average price. Weight requirements vary somewhat, but in general the demand is for well-finished lambs weighing between 80 and 100 pounds live weight.

The ravages of dogs and predators are often a deterrent to increased sheep production. While it is only by strict enforcement of dog laws that the danger may be reduced yet many have found that enclosing the sheep at night has eliminated losses. In any event daily inspection of the flock and the use of a well-trained sheep dog will accustom the sheep to handling and will thus reduce the danger of losses caused by the sheep being panic-stricken at the sight of a dog.

At one time internal parasites of sheep were one of the principal problems and only through frequent drenching could they be kept under control. However, the development of phenothiazine has largely eliminated this. In normal years in most districts, internal parasites now can be kept under control with a single dose of phenothiazine.

Fences are a problem that is always before the sheepman. Many types have been used but the only thoroughly satisfactory sheep fence is one of woven wire. However, since sheep usually develop the roving habit in search of feed, much less trouble will be experienced in keeping the flock at home if pasture is abundant and water and shade are adequate.

Doubtless the biggest single obstacle to greater and more efficient market lamb production is the relatively small size of farm flocks. Frequently in small flocks no definite breeding policy is followed and the nutritional status is far from good, simply because the returns from the flock do not form an important part of the total farm income. Were the flock size to be increased to upwards of 40 ewes, quality rams could then be purchased and adequate provision made for the feeding and management of the sheep. In this manner the flock would become a stable source of income and a source of pride and satisfaction to the owner.