

A COMPARISON OF THE PROGENY OF A WILTSHIRE HORN RAM MATED TO
MERINO, SOUTHDOWN, BORDER LEICESTER-MERINO AND CORRIEDALE EWES

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Summary

Three hundred and twenty ewes comprising equal numbers of Merino, Southdown, Border Leicester x Merino and Corriedale ewes were mated in March 1972 to a Wiltshire Horn ram.

Birth weight and growth rate were significantly ($P < 0.05$) greater for the progeny of Border Leicester x Merino ewes than for the other crosses tested. However, there were no significant differences in edible meat content at equal carcass weights between the various crosses.

The ewe progeny of each cross, exhibited low greasy fleece weights, extensive shedding of wool around the points and escutcheon regions, eliminating the need for wiggling and crutching.

I. INTRODUCTION

The Wiltshire Horn (WH) is the only breed of sheep in Australia that characteristically sheds its fleece each spring. Ryder (1969) reported WH fleece weights of 1 to 2 kg.

No information has been documented in Australia on the performance of the WH cross-breeds. In this paper the growth, carcass, skin and wool characteristics of various Wiltshire Horn crossbred progeny are compared.

II. MATERIALS AND METHODS

(a) Animals

Eighty mature ewes in each of four breeds,, Merino, Southdown, Border Leicester x Merino and Corriedale grazed together on annual pasture at the State Research Farm, Werribee, for the period of the experiment.

Vasectomised Corriedale rams fitted with "Sire-sine" harnesses and crayons (Radford, Watson and Wood 1960) were run with the ewes from February to April, 1972. Each day during that period, ewes detected in oestrous by crayon marks were artificially inseminated using semen collected from one Wiltshire Horn ram (WH) by means of the procedures outlined by Marrant and Dun (1960). Ewes later detected as returning to service were re-inseminated. The progeny of the matings are hereafter designated as WM (WH x Merino), WSD (WH x Southdown), WBLM (WH x Border Leicester x Merino) and WCD (WH x Corriedale).

(b) Lambing procedure

Newly born lambs were weighed, eartagged and identified with their dams. Lambs were tail-docked and male lambs castrated between four and eight weeks of age. Lambs were weighed direct from pasture each fortnight between birth and weaning. Weaning occurred on November 21, 1972.

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(c) Carcase measurements

Thirteen WM, 20 WSD, 29 WBLM and 28 WCD were allotted at random within crosses to five groups. Lambs were slaughtered after 24 h fasting at live weights of approximately 30, 35, 40, 45 and 50 kg respectively.

The left half of each carcass was separated into three primal cuts; the leg (cut through the last sacral and 1st coccygeal vertebrae) the loin (cut at the 4th rib) and the forequarter. These retail cuts were weighed, "boned out" and trimmed of fat to provide an edible meat component known in the trade as 75 per cent visual lean. The edible meat, fat and bone fractions were weighed for each of the retail joints. The same retail butcher was employed to separate all carcasses and "bone out" the retail cuts,

(d) Skin and wool measurements

After drying, all skins of the wether progeny were inspected and graded by a tanner and a fellmonger.

A subjective assessment of the degree of wool shedding was made on the head, neck, legs, escutcheon and belly regions of ~~WM~~ cross ewes in July, 1973 when the sheep were 15 to 17 months of age. The ewes were first shorn on April 26, 1974 and again on February 25, 1975. The weight of greasy wool produced during this latter period was recorded; mid-side wool samples for each breed were examined for fibre diameter and for the presence of medullated fibres.

(e) Statistical analysis

The birth weight and rate of gain of all single born lambs and the liveweight of the ~~WM~~ cross ewes, at 23 to 25 months of age were assessed by analysis of variance and Duncan's multiple range test (Duncan 1955).

The rate of gain of each lamb was calculated for 10 weeks of age by interpolation of the measurements of liveweight taken nearest to that time.

The effect of carcass weight and breed cross upon carcass characteristics were examined using a stepwise regression programme operating at a 5% level of significance with pseudovariables to separate the breed effects.

III. RESULTS AND DISCUSSION

(a) Growth and Carcass Characteristics

As variation in the growth rate of male and female lambs within crosses did not differ significantly, data for sexes were grouped for the comparison of growth rate between crosses.

WBLM lambs had heavier ($P < 0.05$) birth weights than other breeds but their growth rate to 10 weeks of age (218g/d) was greater ($P < 0.05$) only when compared to WM lambs (172g/d). However the mean liveweight of WBLM ewes was higher ($P < 0.05$) at 2 years of age than the other breeds (WBLM, 60.4 kg; WM, 53.8 kg; WSD, 56.6 kg; and WCD, 56.6 kg).

The growth rate of wether lambs in this experiment is not considered to represent maximum liveweight gain as the autumn and winter of 1972 were particularly dry and pasture conditions during lamb growth were below

optimum. Further work where pasture supply is not limiting production is required to establish the potential growth rate of WH crossbreds reared on pasture.

Using the derived multiple regression equations, the weight of the carcass components, the leg length and eye muscle area of the lambs were computed at a standard carcass weight of 15 kg. There were no breed cross differences in edible meat, but WM and WSD lambs had significantly higher amounts of fat trim (0.32 kg) than the other two crosses. Kirton and Pickering (1967) have also found that Southdown sheep and its crosses were the fattest of the breeds they studied. However WBLM and WCD lambs had more bone (0.44 kg) at 15 kg carcass weight than the other lambs. .

WSD lambs had a shorter leg length and a larger eye muscle area than the other crosses. These lambs had a traditional "down" type carcass compared to the "leggy" Merino cross lambs but no breed difference occurred in edible meat content either of the leg or whole carcass. Similar observations were made by Boccard et al (1961) and Kirton (1964).

Large eye muscle areas are attractive from a retail point of view and again WSD lambs were prominent in this regard. However there was no significant relationship between eye muscle area and total edible meat.

(b) Skin, shedding and wool characteristics

No WH cross skins were suitable for the tanning trade. The two principal reasons for rejection were firstly, the presence of binders which would incline the skin to felt during tanning, and secondly, poor shape; mainly due to the lack of belly wool.

All WH cross skins were accepted by the fellmongering trade being 56's to 58's fitting into the trade's 171 and 170 grades respectively. Prime lamb skins are mostly classed by fellmongers in the 170 range (58's quality); indicating that WH cross skins would be comparable to other prime lambs in terms of quality. However, the skin returns for WH crosses are likely to be reduced in price compared to the more common breeds because of the substantial shedding along the belly, neck, points and escutcheon regions. There was little difference between the four WH crosses in the skin value actually obtained.

WBLM ewes exhibited the greatest extent of shedding at 15 to 17 months of age, particularly around the head, points and belly regions of the body (Table 1). All WBLM and WSD ewes showed partial or complete shedding around the escutcheon region. The extent and pattern of shedding is similar to WH x Scottish Blackface crosses (Slee, 1959).

The average greasy wool production of the WH cross ewes was low; 2.48 kg, 1.61 kg, 1.52 kg and 2.42 kg for WM, WSD, WBLM and WCD respectively. As expected there was a negative relationship between the degree of shedding and fleece weight.

There was relatively little variation between crosses in average fibre diameter, as measured from mid-side wool samples; mean values were 29.1 μ , 31.9 μ , 32.8 μ and 33.4 μ for WM, WSD, WBLM and WCD ewes respectively. Medullated fibres were present in all crosses.

TABLE 1
Percentage of crossbred ewes exhibiting complete
or no shedding of wool on particular body regions

Breed	Head	Body Region		Escutcheon	Belly
		Neck	Legs		
<u>Complete Shedding (%)</u>					
a					
WM	41	Nil	5	Nil	9
WSD	13	Nil	13	Nil	Nil
WBLM	88	42	79	17	58
WCD	50	23	43	13	27
<u>No Shedding (%)</u>					
b					
WH	Nil	32	Nil	9	23
WSD	6	50	Nil	Nil	37
WBLM	Nil	4	Nil	Nil	Nil
WCD	Nil	17	7	17	33

† Within each body region of the sheep, fleeces were classified into three groups; complete shedding (a), no shedding (b), or partial shedding (c) of fleece wool. $a + b + c = 100\%$.

The results of this experiment indicate that the WH breed may have a place in the development of an "easy-care" meat sheep. None of the WH cross ewes have required crutching or wiggling and no fly strike has been recorded. Further work is required to evaluate the usefulness of the breed in wool producing flocks.

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