Effects of Skirting on Yield, Fineness, and Value of Wool from Fine-Wool Range Ewes[1,2,3]

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ABSTRACT: Eighty-one mixed-age (2 to 8 yr old) Rambouillet ewes (58.5 kg, SD 5.9 kg) were randomly assigned to three treatment groups that contained similar numbers to study the effects of wool skirting on clean yield, fiber diameter, and prices received for fine wool. The sheep were managed as a single flock on an experimental ranch close to Barnhart, TX during the 4-yr study. Two fleece-skirting techniques (SK1 and SK2) were compared with a control procedure in which fleeces were not skirted before packaging (original bag, OB method). Skirted wools were higher yielding ($P < .05$) and contained less vegetable matter ($P < .05$) than skirts. However, clean yield and vegetable matter content of skirted and OB wools were not different ($P > .05$). Weight-averaged prices received for grease wool from the SK1, SK2, and OB treatments over the 4-yr period were 4.49, 4.36, and 3.83 $/kg, respectively. Prices received for both types of skirted wool plus skirts were higher ($P < .05$) than prices received for OB wool.

Key Words: Fineness, Sheep, Skirting, Market Prices, Wool, Yields

J. Anim. Sci. 1992. 70:3657–3664

Introduction

Adding value to commodities is an objective of most agricultural producers. Removing contaminated or inferior portions of fleeces and grouping the wool according to important characteristics (e.g., fineness, yield, staple length, and strength) before sale are standard value-adding procedures in most major wool-producing countries (i.e., Australia, New Zealand, and South Africa). Skirting and classing have the potential to add value to wool clips because less sorting is required when the wool reaches the textile mills. Labor savings in the textile industry can be passed back to producers in the form of higher prices paid for properly prepared wool. Most wool in the United States is still packaged using the original bag (OB) method without skirting or classing, because research studies and limited industry experience have failed to demonstrate consistent financial advantages of skirting to U.S. producers (Anonymous, 1952; McFadden, 1958; Lupton et al., 1989). Because skirting costs are relatively constant, and wool prices, though quite variable between years, are inversely related to average fiber diameter, the financial incentive to skirt is higher for fine wool than for medium or coarse wool. This study was undertaken to determine the effects of two skirting methods on clean yield, fineness, and prices received for wool from Rambouillet ewes. Secondary objectives were to quantify the amount and type of skirts removed from these fine-wool fleeces.

Materials and Methods

Skirting is the practice of separating all inferior fleece portions such as belly wool, urine-stained and fecal-contaminated fibers (tags), and so on from the bulk of a fleece after shearing. The products of skirting are termed skirted wool and

[1]Approved by the Director, Texas Agric. Exp. Sta., as TA 30288.

[2]Appreciation is expressed to Univ. Lands-Surface Interests, The Univ. of Texas System, for partial support of this research at the Texas Range Sta., Barnhart.

[3]Financial support from the Cooperative State Res. Service, U.S. Dept. of Agric. under Agreement Numbers 85-CRSR-2-2550 and 88-34148-3490 is gratefully acknowledged.

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Received January 27, 1992.
Accepted July 28, 1992.

skirts. Skirting is normally achieved in a two-phase operation in which portions of the fleece (usually, just belly wool) are removed from the shearing floor by a wool handler ("floor skirting"). The balance of the shorn fleece is subsequently thrown or placed on a skirting table and other inferior portions of the fleece (e.g., very greasy fleece edges or vegetable matter-contaminated wool) are manually removed ("table skirting"). Related terms are grading, classing, and sorting. When wool fleeces are grouped according to average fiber diameter, the process is, by definition, grading. When wool is grouped according to fineness, yield, vegetable matter type or content, staple length, strength, and(or) color, the process is called classing. However, many in the United Stated mistakenly use the words grading and classing interchangeably. When classing is performed at a wool brokerage firm or textile mill by highly trained operators, the process is called sorting.

Eighty-one mixed-age (2 to 8 yr old) Rambouillet ewes (live weight 58.5 kg, SD 5.9 kg) were assigned randomly to three treatment groups of approximately equal size and conventionally managed as a single flock on rangeland at the Texas Range Station in northern Crockett County for 4 yr. The composition of ewes in each treatment group was dynamic throughout the study. Unsound and old (> 8 yr) ewes were culled in late summer of each year and were replaced with yearlings (18-mo-old ewes). All sheep produced wool that conformed to the high standards of quality (< 22 μm average fiber diameter) and yield required of registered Rambouillet ewes and were considered a uniform flock. Ewes in all three groups lambed between February and April and were shorn each year between late April and early June. In addition, animals were crutched in January of each year. The amount of wool removed from each sheep was recorded. Crutching is a partial shearing to remove urine- and fecal-stained wool from around the tail, vulva, and udder and inside the back legs. Crutching is a management practice for improving the cleanliness of the wool clip, reducing occurrence of fleece worm and providing lambs with access to clean teats when suckling. Wool from the belly and legs was also removed from one-third of the flock at crutching time (**SK1** group). Subsequently, SK1 animals were not recrutched and belly wool was not reshorn at shearing later in the year. However, shorn fleeces were table-skirted. Wool from a second group (**SK2**) was skirted entirely at shearing by using floor and table procedures. All skirts generated at shearing were assigned to one of two groups (i.e., "belly wool" and "sweepings and tags"). Further, because none of the fleece wool contained excessive vegetable matter and was not shorter than 75 mm or weak, skirting produced only a single uniform line of skirted fleece wool per treatment. This would constitute an unusual occurrence in commercial practice when greater sheep numbers and lack of uniformity among fleeces would normally give rise to more lines of skirts and skirted wool. Fleeces from the control group (OB group) were packaged without skirting. The amounts and types of skirts (crutchings and bellies), skirted, and OB wool were weighed and recorded for individual animals immediately after shearing. All sweepings and tags from one clip were combined. Subsequently, skirted wool, skirts of different origin, and OB wool were packaged separately in wool sacks, core-sampled, weighed, and sold. Coring tubes (5 cm diameter × 60 cm length) were used to recover representative samples of each category of wool (ASTM, 1990b). Adequate quantities were removed so that subsequent yield analysis could be conducted in compliance with a standard test method (ASTM, 1990a). More specifically, yield was measured as "clean wool fiber present" (**CWFP**), which is the proportion of wool base (pure wool) present in grease wool, adjusted to a moisture content of 12%, an alcohol-extractives content of 1.5%, and a mineral matter content of .5%. Using this method and a single operator, two averages of observed percentages of CWFP are different ($P < .05$) when the difference equals or exceeds 1.1% (ASTM, 1990a). In the case of vegetable material, two averages of observed percentages of vegetable matter present may be considered different ($P < .05$) if the difference equals or exceeds .4% (ASTM, 1990c). Average fiber diameter and distribution were measured for each set of cleansed core samples using Peyer Texlab FDA 200 System (Siegfried Peyer AG, Wollerau, Switzerland; Lynch and Michie, 1976). Enough fibers were measured (> 3,000) to provide 95% confidence limits of sample means of ± .2 μm (ASTM, 1990d). The objectively measured information was provided to the warehouseman and potential buyers before sale of the wool. All categories of wool from each year of the study were sold to the highest bidder by the Sonora Wool and Mohair Company. An attempt was made to sell each annual accumulation on the same day.

Mean values and standard deviations were calculated for the weight and type (e.g., skirted wool, crutchings, etc.) of wool shorn from individual sheep at crutching and shearing time. In addition, analysis of variance and Duncan's new multiple-range test (Steel and Torrie, 1980) were used to identify differences between proportions and characteristics (e.g., yield and diameter) and prices received for skirted wool, skirts, and OB wool between treatments and years.

Table 1. Sheep numbers and weights of skirts, skirted, and original bag wool and whole fleeces (kg/ewe)[a]

Fleece component	Production year								Mean values	
	1988		1989		1990		1991			
									$\bar{x}$	SD
No. of ewes										
SK1	28		24		27		25		26.0[f]	1.8
SK2	26		25		29		30		27.5[e]	2.4
OB	27		23		23		20		23.2[g]	2.9
January crutchings	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD		
SK1	.21[c]	.07	.31[b]	.11	.20[c]	.07	.17[c]	.04	.22	.07
SK2	.21[bc]	.07	.28[b]	.13	.19[c]	.05	.15[c]	.07	.21	.08
OB	.21[c]	.12	.38[b]	.14	.19[c]	.03	.13[d]	.07	.22	.09
Sweepings and tags										
SK1, SK2, OB	.02	—	.05	—	.36	—	.34	—	.19	.18
Belly wool										
SK1 (Jan)	.22	.10	.26	.05	.21	.09	.24	.06	.23[f]	.08
SK2 (Apr/May/Jun)	.19[d]	.06	.28[c]	.09	.48[b]	.14	.50[b]	.16	.36[e]	.11
Skirted and OB wool										
SK1	2.55[c]	.40	3.83[b]	.51	3.93[b]	.61	4.15[b]	.44	3.61[f]	.49
SK2	2.91[c]	.40	3.98[b]	.63	3.75[b]	.55	3.95[b]	.52	3.65[f]	.52
OB	3.00[c]	.54	4.04[b]	.76	4.12[b]	.62	4.37[b]	.44	3.88[e]	.59
Whole grease fleece										
SK1	2.99[d]	.48	4.45[c]	.63	4.70[bc]	.61	4.91[b]	.44	4.26	.54
SK2	3.34[d]	.46	4.58[c]	.76	4.78[bc]	.59	4.95[b]	.53	4.41	.58
OB	3.23[c]	.61	4.45[b]	.82	4.68[b]	.63	4.85[b]	.45	4.30	.63

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d]Means within a group in the same row without a common superscript differ ($P < .05$).
[e,f,g]Means within a group in the same column without a common superscript differ ($P < .05$).

Results and Discussion

A critical factor in determining profitability of skirting is the amount of wool relegated to the skirt categories. Obviously, the amount of skirts removed should be kept to an absolute minimum, while maintaining the integrity of the skirted wool. Mean weights of individual skirt, skirted, and OB wool categories measured in this study are presented in Table 1. Proportions of each fleece category are summarized in Table 2. Compared with the other 3 yr, 1988 was a low ($P < .05$) production year for wool. Production conditions improved each year of the study as shown by the whole-fleece weight data in Table 1. Crutchings removed in January of each year composed approximately .22 kg per ewe in each of the three treatment groups (5.3% of the whole fleece). Although no differences ($P > .05$) were noted among treatments, differences among years ($P < .05$) were observed within each of the treatments; these were probably a result of different environmental conditions and(or) different crutching crews. At shearing, the least valuable components of all fleeces from each of the three treatments were combined as sweepings and tags. Thus, comparison between treatments is not possible. In the first 2 yr of the study, weights of sweepings and tags were small, .02 and .05 kg per ewe (.8 and 1.1% of total fleece weight). The weight of sweepings and tags rose to .36 and .34 kg per ewe during the last 2 yr (7.6 and 7.0% of total fleece). Part of this increase was certainly caused by environmental differences between production years. However, it is also possible that skirting practices differed as skirting personnel changed among years. The amount of belly wool removed in January in the SK1 treatment (.23 kg) was less ($P < .05$) than that removed at shearing time from the SK2 group (.36 kg). Because each category of belly wool represented 12 mo of growth, irrespective of the month it was shorn, the observed weight difference probably reflects the different strokes made by shearers at crutching compared with shearing time. Including crutchings, totals of 15.2 and 17.0% of skirts were removed in treatments SK1 and SK2, respectively. These percentages are similar to those reported in earlier studies. McFadden (1958) reported skirting levels of 15.4 and 20.4% in his 2-yr experiment with fine wool. Pexton et al. (1969) recorded lower levels in the range 8.9 to 16.4%, whereas Early (1984) reported a range of skirting levels from 9.5 to 17.5% based on his work with 7,900 fleeces from three New Mexico fine-wool flocks.

The proportions of skirted wool and skirts resulting from the SK1 and SK2 treatments were not different ($P > .05$). As planned, the proportion of wool packaged as OB was greater ($P < .05$) than the proportions of skirted wool generated in either

Table 2. Proportions of skirts, skirted, and original bag wool (%)[a]

Fleece component	Production year				Mean value (SD)	
	1988	1989	1990	1991		
January crutchings						
SK1	7.0	7.0	4.3	3.4	5.4[d]	(1.8)
SK2	6.3	6.0	4.1	3.1	4.9[d]	(1.5)
OB	6.5	8.2	4.2	2.7	5.5[d]	(2.3)
Sweepings and tags						
SK1	.8	1.1	7.6	7.0	4.1[d]	(3.7)
SK2	.7	1.1	7.5	7.0	4.1[d]	(3.7)
OB	.7	1.1	7.7	7.1	4.1[d]	(3.8)
Belly wool						
SK1 (January)	7.3	5.8	4.4	5.0	5.6[d]	(1.2)
SK2	5.7	6.0	10.0	10.2	8.0[d]	(2.5)
Skirted and OB wool						
SK1	85.1	86.0	83.6	84.5	84.8[c]	(1.0)
SK2	87.3	86.8	78.4	79.7	83.0[c]	(4.6)
OB	92.8	90.7	88.1	90.2	90.5[b]	(2.3)

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d]Means in the same column without a common superscript differ ($P < .05$).

the SK1 or SK2 treatments. The mean value of 90.5% for OB wool was a result of removing 5.5% of the wool as crutchings in January and 4.1% as sweepings and tags at shearing.

One rationale for skirting is that removal of low-yielding, inferior portions of the fleece should increase the yield of the skirted wool. Yield (CWFP) data generated in this experiment are summarized in Table 3. Although yield values for skirted and OB wool were consistently higher ($P < .05$) than corresponding values of skirts, skirted and OB wool yields were not different ($P > .05$). This is not surprising when it is considered that the effect of removing 8% by weight of 48.6% yielding bellies from OB wool would be to reduce yield from 56.6 to 56.0%. Detecting a difference of this magnitude is not likely using the referenced analytical techniques. Substantial year differences ($P < .05$) in yield were evident in all categories of wool, with the January crutchings exhibiting the broadest range (30.6 to 54.8%). Generally, skirted and OB wools were higher yielding ($P < .05$) than belly wool, which in turn was higher than crutchings, sweepings, and tags.

Data on vegetable matter content are summarized in Table 4. Again, prevailing environmental conditions resulted in year differences ($P < .05$) in all of the wool categories. Overall, skirted and OB wools contained less ($P < .05$) vegetable material than most of the skirts.

Another advantage attributed to removing belly wool and skirting fleeces is reduction of colored and black fibers in the skirted wools (Campbell, 1985). If the presence of these fibers is attributed to

Table 3. Clean wool fiber present in skirts, skirted, and original bag wool (%)[a]

Fleece component	Production year				Mean value (SD)	
	1988	1989	1990	1991		
January crutchings						
SK1, SK2, OB	54.8[b]	38.7[d]	30.6[e]	48.7[c]	43.2[gh]	(10.7)
Sweepings and tags						
SK1, SK2, OB	43.0[b]	42.0[b]	34.8[c]	42.8[b]	40.6[h]	(3.9)
Belly wool						
SK1 (January)	50.6[b]	49.7[b]	47.3[c]	48.0[c]	48.9[g]	(1.5)
SK2	51.0[b]	49.7[c]	49.2[c]	44.6[d]	48.6[g]	(2.8)
Skirted and OB wool						
SK1	60.0[b]	57.8[c]	52.3[e]	56.3[d]	56.6[f]	(3.2)
SK2	58.2[c]	58.0[c]	52.3[d]	59.3[b]	56.9[f]	(3.2)
OB	59.6[b]	57.5[c]	52.3[d]	57.1[c]	56.6[f]	(3.1)

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d,e]Means within a group in the same row without a common superscript differ ($P < .05$).
[f,g,h]Means in the same column without a common superscript differ ($P < .05$).

Table 4. Vegetable matter present in skirts, skirted, and original bag wool (%)[a]

Fleece component	Production year 1988	1989	1990	1991	Mean value (SD)	
January crutchings						
SK1, SK2, OB	2.7[bc]	1.2[d]	2.8[b]	2.4[c]	2.3[fg]	(.7)
Sweepings and tags						
SK1, SK2, OB	3.0[b]	2.3[c]	2.2[c]	1.6[d]	2.3[fg]	(.6)
Belly wool						
SK1 (January)	3.4[c]	1.7[d]	.9[e]	5.0[b]	2.8[fgh]	(1.8)
SK2	2.8[b]	1.7[c]	1.2[d]	1.9[c]	1.9[fgh]	(.7)
Skirted and OB wool						
SK1	1.1[b]	.6[c]	.4[c]	.7[c]	.7[h]	(.3)
SK2	1.3[b]	1.0[b]	.4[c]	.6[c]	.8[h]	(.4)
OB	1.2[b]	1.2[b]	.4[c]	.9[b]	.9[h]	(.4)

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d,e]Means within a group in the same row without a common superscript differ ($P < .05$).
[f,g,h]Means in the same column without a common superscript differ ($P < .05$).

urine and fecal-staining, then crutching and skirting has been shown to be beneficial (Foulds et al., 1984). If colored fibers are dispersed throughout the fleece as a result of genetics, then skirting would not normally be expected to reduce colored fiber content. No attempt was made to quantify colored fiber content in this study because no reliable test exists.

Removing belly wool from whole fleeces can potentially result in a lowering of mean fiber diameter in the remaining fleece, assuming that belly wool is coarser than the balance of the fleece (Bassett et al., 1972). Although this is true of some fine-wool sheep, it was not for the Rambouillet ewes in this experiment. Mean fiber diameter values for belly wool and skirted wool were almost identical (Table 5). Although year-to-year differences were observed in all the wool categories, overall differences in fiber diameter among the various skirt, skirted, and OB wool categories were small ($\leq$ 1.1 μm). The consistent (but not significant, $P > .05$) small difference between OB and skirted wools cannot be explained in terms of skirting. Apparently, the OB group of sheep produced slightly finer wool than the SK1 or SK2 groups.

In each year of the study, the value of each category of wool was appraised by several (four to nine) wool buyers before it was sold to the highest bidder. Prices received for skirts, skirted, and OB wool are presented in Table 6. Skirted wool sold for higher prices ($P < .05$) than skirts. There were also substantial differences in price among production years. The data in Tables 6 and 2 were used to calculate the information presented in Table 7. Because of the high year-to-year variability in wool prices, analysis of the price data failed to reveal differences ($P > .05$) in prices paid for wool from the three treatments. In a second analysis, year-to-year variability was removed by

Table 5. Fiber diameter of skirts, skirted, and original bag wool (μm)[a]

Fleece component	Production year 1988	1989	1990	1991	Mean value (SD)	
January crutchings						
SK1, SK2, OB	20.0[c]	21.4[b]	20.4[c]	21.6[b]	20.8[e]	(.8)
Sweepings and tags						
SK1, SK2, OB	20.0[c]	20.5[b]	19.4[d]	19.9[c]	20.0[ef]	(.5)
Belly wool						
SK1 (January)	19.9[d]	20.8[c]	19.6[d]	21.5[b]	20.4[ef]	(.9)
SK2	19.9[c]	20.8[b]	21.0[b]	20.6[b]	20.6[ef]	(.5)
Skirted and OB wool						
SK1	19.8[c]	20.8[b]	20.7[b]	20.5[b]	20.5[ef]	(.4)
SK2	20.0[d]	20.7[c]	20.7[c]	21.4[b]	20.7[ef]	(.6)
OB	19.7[c]	18.9[d]	20.7[b]	19.4[c]	19.7[f]	(.8)

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d]Means within a group in the same row without a common superscript differ ($P < .05$).
[e,f]Means in the same column without a common superscript differ ($P < .05$).

Table 6. Prices of skirts, skirted, and original bag wool (grease basis, $/kg)[a]

Fleece component	Production year 1988	1989	1990	1991	Mean value (SD)	
Crutchings						
SK1, SK2, OB	2.42	1.76	.97	.67	1.45[d]	(.79)
Sweepings and tags						
SK1, SK2, OB	1.67	1.76	.86	.55	1.21[d]	(.60)
Belly wool						
SK1 (January)	2.72	3.35	2.14	1.41	2.40[cd]	(.83)
SK2	3.04	3.35	2.14	1.32	2.46[cd]	(.92)
Skirted and OB wool						
SK1	6.81	5.57	3.63	3.86	4.97[b]	(1.50)
SK2	6.25	5.57	3.63	3.86	4.83[b]	(1.28)
OB	5.73	4.73	3.08	2.75	4.07[bc]	(1.40)

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c,d]Means in the same column without a common superscript differ ($P < .05$).

dividing individual treatment mean prices by the yearly mean of all three treatments. Analysis of variance of the resulting ratios, which appear in parenthesis in Table 7, showed differences ($P < .05$) between skirted and OB price ratios. Price ratios for SK1 and SK2 were not different ($P > .05$).

In 1990, the American Sheep Industry Association (ASIA) published a Code of Practice for Preparation of Wool Clips in the United States (ASIA, 1990). Failing to fully embrace skirting and classing as value-adding, postharvest practices for all types of wool, the Association offered instead a set of standards for a self-regulatory approach to clip preparation. However, the ASIA did assist in organizing national wool sales in 1990 and 1991 for wool that was skirted and classed in accordance with the Code of Practice. Results of these sales and national recognition of improved clip preparation were believed to have had a positive effect on prices received for wool during the last 2 yr of this study. The extent to which prices were affected could not be quantified.

Table 7. Weight-averaged prices of combined components in each treatment ($/kg)

Production year	Treatment[a] SK1	SK2	OB
1988	6.19 (1.06)	5.81 (1.00)	5.48 (.94)
1989	5.15 (1.04)	5.18 (1.05)	4.47 (.91)
1990	3.24 (1.05)	3.17 (1.03)	2.82 (.92)
1991	3.39 (1.10)	3.28 (1.07)	2.55 (.83)
Mean value	4.49 (1.06)[b]	4.36 (1.03)[b]	3.83 (.90)[c]

[a]SK1 = Skirted group 1; SK2 = skirted group 2; OB = control (original bag) group.
[b,c]Means in parenthesis in the same row without a common superscript differ ($P < .05$).

Implications

Over a 4-yr period, prices received for skirted and classed fine wool were higher than those received for comparable wool packaged in original bag form. Skirting and classing of fine wool at the producer level is expected to continue to be a value-adding procedure that will enhance the position of U.S. wool in domestic and international markets. As the example described in the Appendix shows, skirting and classing do not guarantee a fixed, higher return for wool. However, the practice does position the producer to take advantage of favorable markets when they occur.

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Appendix

This example enumerates some of the variables involved in harvesting and preparing wool from fine-wool sheep. Actual conditions experienced in western Texas in 1991 are used.

A shearing crew composed of a foreman, eight shearers, two wool pickers, and a "stomper" sheared 700 fine-wool sheep and packaged 3,200 kg of wool in 1 d using the OB method for a contract price of $1.65/animal. The wool was packaged in Texas-style bags (1.83 m long, approximately 64 kg/bag).

To skirt, class, and package wool in accordance with ASIA specifications, four extra skirters and a classer could be provided by a wool warehouse for $300/d. An additional cost of $3.00/bale (approximately 193 kg/bale) would be charged for the loan of two skirting tables and a baling machine.

Because the prices of three wool bags and one wool pack are similar, the extra daily cost associated with skirting, classing, and baling wool would be the following:

$$\$300 + \$50 \text{ (i.e., } \frac{3{,}200 \text{ kg} \times \$3.00}{193 \text{ kg/bale}}\text{)} = \$350 \text{ per day}$$

In the following examples, the characteristics of the wool that was marketed are summarized as follows: average fineness, 19.7 μm; clean yield, 59.6%; vegetable matter present, .2%; staple length 85 mm. Appendix Table 1 shows the

Appendix Table 1. Estimated difference in returns from original bag vs skirted and classed fine wool[a]

	Selling date before 4/30/91		Selling date, 7/1/91	
Item	OB	SK	OB	SK[b]
Wool from 700 sheep (gross wt, kg)	3,200	3,200	3,200	3,200
Crutchings				
Proportion, %	3	3	3	3
Weight, kg	96	96	96	96
Price, $/kg	.55	.55	.67	.67
Sweepings and tags				
Proportion, %	7	7	7	7
Weight, kg	224	224	224	224
Price, $/kg	.55	.55	.55	.55
Bellies				
Proportion	—	7.5	—	7.5
Weight, kg	—	240	—	240
Price, $/kg	—	1.32	—	1.41
OB and skirted wool				
Proportion, %	90	82.5	90	82.5
Weight, kg	2,880	2,640	2,880	2,640
Price, $/kg	2.31	2.80	2.75	3.86
Gross returns from wool, $	6,828.80	7,884.80	8,107.52	10,716.32
Cost of skirting, classing, and baling, $	0	350.00	0	350.00
Net return, $	6,828.80	7,534.80	8,107.52	10,366.32
Difference (SK – OB), $	706.00		2,258.80	
Increased return for SK wool, $/animal	1.01		3.23	

[a]SK = skirted and classed wool; OB = original bag wool.
[b]Actual prices received for SK wools in 1991.

estimated results of selling this type of wool before April 30, 1991. Estimated prices for OB wool are based on the sale of comparable wool at sales that occurred in Sanderson, TX and in New Mexico before this date. The estimated prices of skirted wool were based on 22 lots of comparable wool sold in San Angelo before or on this date through the ASIA-endorsed sales. Appendix Table 1 also shows the likely results of selling OB and the actual result of selling prepared wool on July 1, 1991. The OB price is estimated. The prices for skirts and skirted wool were those actually received for the 1991 wool in this experiment. The substantial change that occurred in the U.S. wool market on April 30, 1991 is reflected in the estimated increased net returns for skirted and classed wool. For 2 mo before this date, increased returns attributed to skirting and classing were estimated to be $1.00 per animal. For several months after April 30, increased returns attributed to skirting and classing increased to $3.23 per animal.