Methods of Estimating

CLEAN FLEECE PRODUCTION

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The squeeze machine method as evaluated for use on California and Texas wools, while not as accurate as the side sample method, is much easier, quicker, and less expensive. The animals can be rated in order of clean wool production more accurately than by grease weight, for high-shrinking wools. Rating of animals in this manner allows the breeder to choose those of higher productivity. The side sample method in most cases cannot be used by untrained personnel while the squeeze machine can. In high rainfall areas and with breeding stock producing high-yielding fleeces, grease fleece weight may equal or surpass the squeeze machine in accuracy. The machine does not appear to be of sufficient accuracy to determine shrinkage of wools for sales purposes.

SELECTING SHEEP for wool production necessitates use of the most accurate methods available for the determination of clean fiber content of fleeces. Sources of error in clean fiber determination include shrinkage, fiber length, grade, foreign matter content, and climate in the area where the fleece was grown.

In a two-year experiment the Neale "squeeze" machine estimate was compared with grease weight and a side sampling method as measures of clean fiber content of grease fleeces. Wools used in the study included 728 fleeces from five flocks in five locations in California and from six flocks in two locations in Texas.

Three different squeeze machines were used in the study. Six lots of wool were tested on a second machine following the initial test on the first. Both freshly-shorn and conditioned wools were tested. Conditioned fleeces are those that have been compressed in sacking and subsequently removed and allowed to expand before squeezing.

Grease weights, squeeze readings and machine estimate were recorded for all fleeces. The machine estimate is the clean wool content of the fleece denoted by a particular squeeze reading. Fleeces from two flocks in California were side sampled during both 1958 and 1959. The sampling procedure consisted of the removal of approximately 100 g of grease wool from the midside of the animal as it was shorn. These samples were subsequently scoured and the clean content determined by standard procedures. Yield figures based on these samples were applied to the grease weight of the remainder of the fleece to give a yield estimate for comparison with other methods. All whole fleeces were scoured in the Wool and Mohair Laboratory, College Station, Texas, where actual clean fiber was determined. Side samples were

SOURCES, MEAN GREASE WEIGHTS, AND ACTUAL AND CLEAN WEIGHTS OF EXPERIMENTAL FLEECES

Flock and growth period[a]	Year	No. of fleeces	Range in grade	Staple length	Clean yield	Actual clean weight	Grease weight	Side sample estimate	Calif. machine		Texas Wool Lab. machine	
									Actual reading	Estimated weight	Actual reading	Estimated weight
					%	lb.	lb.	lb.		lb.		lb.
Davis, Calif. ewes	1958	36	48's–64's	Staple	55.3	6.61	11.95	6.96	65.6[b]	5.50		
Davis, Calif. ewes	1959	39	48's–64's	Stable	53.4	6.75	12.65	7.02	61.6[b]	6.23	66.2[c]	5.10
Hopland, Calif. ewes	1958	40	46's–64's	Staple	67.0	5.01	7.48	5.13	74.0[b]	4.20		
Hoplond, Calif. ewes	1959	40	46's–64's	Staple	59.0	4.23	7.17	4.10	77.5[b]	3.76	88.2[c]	3.06
Bakersfield, Calif. ewes 7.5 mo. fleeces	1959	10	60's–62's	Baby combing	42.2	3.04	7.20		77.6[c]	3.32	83.4[c]	2.80
Fresno, Calif. ewes 4.5 mo. fleeces	1959	10	64's–70's	Clothing	30.7	2.24	7.29		84.8[c]	2.60	88.7[c]	2.29
Sacramento, Calif. ewes	1959	50	44's–70's	Staple	51.6	4.84	9.37		72.7[c]	3.90	75.9[c]	3.49
Sonora, Texas yearling ewes 14 mo. fleeces	1958	66	62's–70's	Staple	55.5	5.69	10.25				72.4[b]	4.43
McGregor, Texas yearling ewes 6.5 mo. fleeces	1958	23	60's–70's	French to staple	57.0	4.24	7.44				81.2[b]	3.28
Sonora, Texas rams 7. mo. fleeces	1958	120	62's–70's	French combing	48.4	4.13	8.53				78.4[b] 78.7[c]	3.64 3.15
McGregor, Texas yearling ewes 7.7 mo. fleeces	1959	37	62's–70's	French to staple	51.5	5.19	10.07				72.4[c]	3.88
McGregor, Texas rams 4.2 mo. fleeces	1959	46	64's–80's	Baby combing to Big French	47.2	2.31	4.89				91.9[c]	2.04
Sonora, Texas yearling ewes 14 mo. fleeces	1959	78	62's–80's	Staple	54.4	4.65	8.54				77.1[c]	3.36
Sonora, Texas rams 7 mo. fleeces	1959	133	62's–70's	French combing	50.9	3.76	7.39				79.3[d]	3.53

[a] Growth periods are 12 months duration except as noted.
[b] Each fleece squeezed immediately following shearing.
[c] Each fleece squeezed after sacking then removing from sack and allowing to sit individually for 2 hours before squeezing.
[d] Squeezed on the Texas Extension Service machine.

scoured at the Davis Wool Laboratory.

A summary of the various lots of wool studied is given in the accompanying table. While grease weights differ from clean weights according to the shrinkage of each lot of wool, side sample estimates in four lots showed fairly close agreement with actual clean weights. Estimates from machine reading vary with lots, most being lower, but with some higher, than actual clean values. Correlations calculated within grades, and over all grades within flocks, between each of the various measures and actual clean weight of fiber per fleece showed the side sample estimate was more accurate than other methods for estimating clean fleece weight. This correlation ranged from .73 to .92 within grade and flock and from .89 to .92 over all grades within flocks.

Grease fleece weight correlations with actual clean weight showed that this estimate differed little in accuracy from machine estimates when clean yields were 50 per cent or higher, but at yields below 50 per cent the squeeze machine was more accurate. Grease fleece weight correlations from high yielding lots were .59 to .92 within grade and flock and .63 to .90 within flock alone. Correlations involving squeeze reading on all machines and on all lots ranged from –.61 to –.89 within grade and flock and from –.66 to –.90 within flock alone.

Only one comparison (with the Sonora rams in 1958) can be made of the results of squeezing fresh shorn wools and the same wools in the conditioned state by the same machine. The comparison of correlations between squeeze reading and actual clean weight for the two operations showed only a small difference (–.82 and –.80).

Fresno and Bakersfield lots were each squeezed in both the California and Texas machines by different operators. The results were nearly identical.

Regressions of clean fleece weight on squeeze readings from this study based on data from all fleeces squeezed freshly shorn (497 fleeces) indicated that the equation $Y = 16.23 - .153\ X$ (where Y = estimated clean weight and X = squeeze reading) would provide a more accurate estimate of clean fiber content than previously used tables.

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TEDION

for Control of European Red Mite on Apples

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Field trials have shown that Tedion is best used as a preventative spray, not as a curative treatment when mites are at treatment level. Seasonal programs should be planned for individual situations. If materials applied for other pests hold mites in check, Tedion can be used later in the season. If not, the material is best applied early, when weather conditions are less favorable for rapid mite increase.

REPORTS OF RESISTANCE to the acaricide Tedion have been received with increasing frequency the past two seasons. Along with these reports, there were indications that the time of application influenced the performance of Tedion.

Plots were established in 1961 to investigate the effect of Tedion on mites in an orchard where poor control with the compound had been reported. Red Delicious apples were used as the test trees, and plots consisted of single trees with five replications in a randomized design. All spray applications were made with a conventional power sprayer and hand guns.

One test plot received a spray early in the season as a preventative treatment, a second when the mites began to increase, a third when the population reached a peak, and a fourth when damage was extensive and mites were declining.

Biweekly mite counts were made throughout the season and all stages were kept separate in the counts including eggs, nymphs, adult males and adult females. The table shows a portion of the seasonal mite counts. The treatment on April 25, applied as a preventative spray, held the mites below treatment level until late in August. After this time, the mites increased rapidly, and continued to increase until the last count. This was in contrast to the other plots which showed a decline in mites in early September. Each tree in the plot was rated as to amount of foliage damage in September,

1961 TEDION PLOTS FOR CONTROL OF THE EUROPEAN RED MITE

PLOT NO.	DATE OF APPLICATION*	AVERAGE NUMBER OF MITES PER LEAF									
		4/24	5/5	6/13	6/27	7/11	7/24	8/14	8/25	9/5	9/12
1	April 25	2.6	0.1	0.04	0.1	0.05	0.4	2.6	7.8	33.5	44.1
2	July 3	3.1	1.5	0.8	2.7	0.7	6.6	18.8	26.2	35.3	22.1
3	July 31	..	..	1.2	2.8	6.5	17.7	17.5	20.0	30.9	20.0
4	August 16	..	..	..	..	8.7	14.5	23.7	28.2	42.8	20.2
5	Check	..	..	..	..	10.2	20.7	42.6	52.2	51.6	37.8

* Tedion applied at 1 pound 25% per 100 gallons.