

## **IMPROVEMENT OF SHEEP THROUGH THE SELECTION OF PERFORMANCE-TESTED AND PROGENY-TESTED BREEDING ANIMALS**

### **2002-2003 Texas A&M Central Ram Performance Test Results**

The 2002-2003 Ram Performance Test was completed with a final weigh day on February 12, final shearing on Feb. 13, and a Field Day on March 14. A total of 188 rams from 19 flocks completed the test.

The rams were delivered to the test station in mid-September and after a two-week warm-up period were shorn on September 23 and weighed on September 25. Side and britch fiber diameter measurements were obtained from samples collected on January 8. Staple length was measured on February 10.

The average daily gain (ADG) was calculated and reported for the 140-day test period. The column marked ADG-Body was calculated by subtracting the daily grease fleece weight from ADG. The fleece growth period was 143 days. The fleece weights and staple length measurements were converted to a 365-day basis. In order to account for shearing stubble, 1/8 inch was subtracted from the staple length measurements. Fleece yields, and thus clean fleece weights, were determined from 32 core samples removed from the entire fleece after shearing. The fleece core samples were evaluated for average fiber diameter (**AFD**) and coefficient of variation (**CV**). Comfort factor, the percent of fibers finer than or equal to 30 microns, was also calculated from the core samples. Lower values for AFD and CV are more desirable.

The rams were scored for face covering, belly wool and skin folds by a committee of 3 people. Belly wool score is an indicator of how much belly wool was present on the side of the animal (1 = no belly wool above the belly, to 4 = belly wool far up the side). Lower values are more desirable for belly wool and skin folds. The range in scores is 1 to 4. Face cove scores above 2.7 are undesirable because of the potential for wool blindness.

The scrotal circumference measurements reported in centimeters were determined by measuring the circumference of the scrotum at the widest point. Fat thickness measurements (inches) and ribeye area measurements (square inches) were taken by ultrasound between the 12th and 13th ribs on February 18. Greater ribeye area and lower fat depth are indicators of more desirable carcass composition or carcass value.

A table with average performance values for many of the measurements of the Fall and Spring test groups is included in this report. Along with the averages are the minimums and maximums of each trait. The column marked 'STD' is the standard deviation calculated from all animals.

**The ROM (Registry of Merit) Index** was calculated as follows:

$$\begin{aligned}
 I = & 60 \quad x \quad [\text{average daily body weight gain in pounds}] \\
 & + 4 \quad x \quad [365\text{-day staple length in inches}] \text{ (with no credit above 5.5 inches)} \\
 & + 4 \quad x \quad [365\text{-day clean fleece weight}] \\
 & - 3 \quad x \quad [\text{fiber diameter in microns } (\mu\text{m}) - 22.9] \text{ (no additional credit for} \\
 & \quad \quad \quad \text{being finer than 19.9 microns or coarser than 24.9 microns)} \\
 & + 1.25 \quad x \quad [22.0 - \text{CV}] \text{ (with a maximum increase or decrease of 5 points)}
 \end{aligned}$$

The fiber diameter value and coefficient of variation (**CV**) were obtained from measurements on a core sample of the entire fleece.

The method of calculating the ROM index has changed over the years. In order to make comparisons across years, a value known as **index ratio** was calculated as follows:

$$\text{Index ratio} = \frac{\text{Actual index value}}{\text{Average index value (within age group)}} \times 100$$

An index ratio permits ranking of animals around a mean with above-average animals having values greater than 100 and vice versa.

As an example, the index for test number **74** was 140.05 and was calculated as follows:

|            |          |  |
|------------|----------|--|
| 60 x .907  | = +54.42 | ADG (body) in pounds                             |
| 4 x 5.50   | = +22.00 | 365- day Staple Length in inches(max=5.5)        |
| 4 x 13.404 | = +53.62 | 365- day Clean fleece weight                     |
| -3 x -1.67 | = +5.01  | Fiber Diameter of core sample (21.23-22.9=-1.67) |
| 1.25 x 4.2 | = +5.00  | Fiber Uniformity (CV of core sample)             |
| Index      | 140.05   |  |

Registered rams that are in the top 30% on Index are eligible for the Certified Ram Classification. The top 30% was calculated independently for the fall and spring groups with January 1 being the dividing date.

In addition to the above requirements, a Certified ram must have:

- gained at least 0.55 pounds per day on test,
- produced a minimum of 9.00 pounds of clean wool (365-day basis),
- produced a minimum of 4.0 inches staple length (365-day basis),
- wool not coarser than 60s (24.94  $\mu\text{m}$ ) on the side or 56s (27.84  $\mu\text{m}$ ) on the britch,
- wool not coarser than 23.77  $\mu\text{m}$  from the fleece core sample
- a face covering score less than 2.7,
- weighed at least 100 lbs at the start of the test (Spring lambs),
- "    "    "    135 "    "    "    "    "    "    "    "    "    " (Fall lambs),
- weighed more than 200 pounds at the end of the test,
- passed inspection by a sifting committee before and after shearing.

Animals considered unsound from the standpoint of **breed type**, amount of **skin folds**, or from **anatomical weakness** and **wool defects**, were sifted from the Certified and Sale lists.

All animals completing the performance test tested negative for *Brucella ovis* at the beginning of the test.

The following ration was formulated by a nutritionist and fed free-choice in ¼" pellets. This ration specification has been used each year since the 1995-1996 test.

| <b>Ration ingredients:</b> | <b>Percent (as fed)</b> |
|----------------------------|-------------------------|
| Cottonseed hulls           | 23.37                   |
| Alfalfa, dehy., 17%        | 28.24                   |
| Grain Sorghum              | 24.34                   |
| Cottonseed meal            | 7.30                    |
| Soybean meal, 44%          | 7.30                    |
| Molasses, cane             | 4.87                    |
| Binder                     | 2.43                    |
| Trace mineral salt         | 0.97                    |
| Calcium carbonate          | 0.49                    |
| Ammonium chloride          | 0.49                    |
| Aurofac 10                 | 0.15                    |
| Vitamin A                  | <u>0.05</u>             |
| TOTAL MIX                  | 100.00                  |

The trace mineral salt mixture was formulated for use in complete feeds for sheep. It added a minimum of 20 ppm of both manganese and zinc but contained no copper. The Vitamin A premix provided a minimum of 1,000 IU of Vitamin A per pound of feed.

Feed was purchased from Angelo Pellets, Inc., San Angelo, TX.

This report and other information about the Texas A&M Ram Test can be read using the internet. The URL is: <http://sanangelo.tamu.edu/genetics/ramtest.htm>

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## 2002-2003 Texas A&M Central Ram Performance Test

|              | AGEGROUP    |        |        |             |        |        |                |        |  |
|--------------|-------------|--------|--------|-------------|--------|--------|----------------|--------|--|
|              | ALL (N=188) |        |        | Fall (n=30) |        |        | Spring (n=158) |        |  |
|              | MEAN        | STD    | MEAN   | MIN         | MAX    | MEAN   | MIN            | MAX    |  |
| Sep 25 wt    | 137.53      | 21.020 | 166.30 | 111.00      | 214.00 | 132.07 | 95.00          | 167.00 |  |
| Nov 13 wt    | 182.78      | 23.081 | 213.73 | 139.00      | 259.00 | 176.90 | 136.00         | 241.00 |  |
| Jan 8 wt     | 229.50      | 24.041 | 255.43 | 179.00      | 305.00 | 224.58 | 177.00         | 289.00 |  |
| Feb 12 wt    | 258.43      | 26.133 | 282.63 | 206.00      | 332.00 | 253.84 | 206.00         | 326.00 |  |
| Daily gain   | 0.86        | 0.120  | 0.83   | 0.62        | 1.04   | 0.87   | 0.56           | 1.16   |  |
| ADG body     | 0.79        | 0.115  | 0.76   | 0.56        | 0.95   | 0.79   | 0.50           | 1.08   |  |
| Staple Len.  | 5.39        | 0.536  | 5.04   | 3.85        | 6.02   | 5.46   | 4.28           | 6.89   |  |
| Grease wool  | 27.34       | 4.122  | 25.55  | 19.67       | 38.41  | 27.67  | 18.22          | 39.07  |  |
| Face score   | 1.15        | 0.393  | 1.07   | 0.67        | 1.70   | 1.16   | 0.67           | 3.00   |  |
| Belly wool   | 1.47        | 0.473  | 1.73   | 1.00        | 3.00   | 1.42   | 1.00           | 3.00   |  |
| Fold score   | 1.50        | 0.421  | 1.35   | 1.00        | 2.17   | 1.52   | 1.00           | 3.50   |  |
| Scrotal cir. | 36.40       | 2.238  | 37.77  | 33.90       | 42.20  | 36.14  | 31.00          | 42.10  |  |
| Diam. Side   | 22.90       | 1.575  | 23.79  | 20.54       | 26.44  | 22.73  | 19.68          | 27.01  |  |
| Diam. Britch | 25.48       | 2.053  | 26.60  | 22.81       | 29.81  | 25.26  | 20.39          | 31.12  |  |
| Diam. Core   | 22.04       | 1.281  | 22.83  | 19.62       | 25.12  | 21.90  | 19.15          | 25.46  |  |
| CV, Core     | 19.51       | 1.721  | 19.43  | 16.96       | 23.38  | 19.53  | 16.18          | 24.04  |  |
| Comfort      | 97.06       | 2.381  | 95.90  | 90.30       | 99.40  | 97.28  | 86.50          | 99.60  |  |
| Diam. pts    | 2.55        | 3.706  | 0.20   | -6.00       | 9.00   | 3.00   | -6.00          | 9.00   |  |
| Var. pts     | 2.94        | 1.932  | 3.06   | -1.72       | 5.00   | 2.91   | -2.55          | 5.00   |  |
| Clean wool   | 11.56       | 2.042  | 10.44  | 8.26        | 14.51  | 11.77  | 7.77           | 18.78  |  |
| Yield        | 42.37       | 4.644  | 40.93  | 30.73       | 49.21  | 42.64  | 30.04          | 55.77  |  |
| Fat depth    | 0.36        | 0.068  | 0.39   | 0.27        | 0.59   | 0.35   | 0.19           | 0.56   |  |
| Ribeye area  | 3.39        | 0.305  | 3.53   | 2.71        | 4.24   | 3.36   | 2.80           | 4.03   |  |
| INDEX        | 119.83      | 13.509 | 110.60 | 88.57       | 138.14 | 121.58 | 91.99          | 154.70 |  |
| Index ratio  | 100.00      | 10.783 | 100.00 | 80.08       | 124.90 | 100.00 | 75.66          | 127.24 |  |

STD is the standard deviation