The following information was obtained from sources believed to be reliable and is provided as a matter of information and is not intended to be a complete listing. Information was voluntarily provided by a number of sources including individual growers, sheep shearsers, state sheep associations and the wool trade. Individual breeders are available for only select sheep breeds.

The American Sheep Industry Association and the American Wool Council does not endorse, indicate any preference for, or assume any responsibility with respect to the products or services mentioned therein, or for any other such items which may be available from other sources.
Columbia sheep were developed by the United States Department of Agriculture as a true breeding type to replace cross breeding on the range. The Columbia breed has found widespread acceptance throughout the United States and is used increasingly to sire crossbred market lambs. Colombias are one of the larger-sized breeds. They produce a heavy, medium-wool fleece with good staple length and hardy, fast-growing lambs.

Today’s Columbia is a popular breed, with heavy, white fleeces and good growth characteristics. Mature Columbia rams weigh between 225 and 300 pounds (100-135 kg) and the females weigh 150 to 225 pounds (68-102 kg). The average fleece weight of ewes ranges from 10 to 16 pounds (4.5-7.3 kg) with a yield of 45-55 percent. The staple length of the wool ranges from 3.5 to 5 inches (9-13 cm). The wool is classified as medium wool with a numeric count of 50s-60s. The wool varies from 31.0 to 24.0 microns.

The foundation of the Columbia Sheep Breeders Association of America is built on the superior qualities of Colombias which make them the most profitable sheep to produce. Their ability to make larger gains on grass and less feed plus their uniformity in quality and the prepotency of Columbia sires combine to make Colombias the world’s most productive breed of sheep. While they were originally developed for range conditions, they have proved admirably adaptable to the lush grasses and farm flock management throughout America.

History
The Columbia is truly an All-American breed, the first to originate in the United States. In 1912, rams of the long-wool breeds were crossed with high quality Rambouillet ewes to produce large ewes yielding more pounds of wool and more pounds of lamb. The first cross Lincoln-Rambouillet line was the most promising of all crosses. The Bureau of Animal Industry maintained this line and by intensive breeding and selection produced a true breeding strain with characteristics of the superior crossbred line. The original cross was made in Laramie, Wyo., and the Foundation of the Government Columbia flock was moved to the Sheep Experiment Station at Dubois, Idaho, in 1918. Today’s Columbia is a popular breed, with heavy, white fleeces and good growth characteristics.
The Cormo breed is a one-time crossing of Tasmanian stud Corriedale rams on 1,200 selected superfine Saxon Merino ewes. This was the beginning of the development of the Cormo breed. The result – quarter Lincoln, quarter Australian Merino and half Superfine Saxon Merino – is fast becoming one of the best wool-producing breeds in the sheep industry today.

Cormo produce a white, long stapled, high yielding fine-wool fleece with a high degree of fiber uniformity. Mature Cormo rams weigh between 160 and 200 pounds and the females weigh 120 to 160 pounds. The average fleece weight of ewes ranges from 5 to 8 pounds with a yield of 50-65 percent. The staple length of the wool ranges from 2.5 to 4 inches. The wool is classified as fine wool with a numeric count of 46s-56s. The wool varies from 17.0 to 23.0 microns.
The Corriedale was developed in an effort to establish a true dual-purpose breed, combining the best traits of the wool breeds and the meat breeds. The result is a sheep that excels in total commercial returns, yielding a heavy valuable fleece and a high quality carcass. Additionally, Corriedales are known for their mothering ability and their ability to forage under a variety of climatic conditions. Mature Corriedale rams weigh between 220 and 275 pounds and the females weigh 150 to 205 pounds. The average fleece weight of ewes ranges from 10 to 15 pounds with a yield of 50-60 percent. The staple length of the wool ranges from 3.5 to 6 inches. The wool is classified as medium wool with a numeric count of 50s-58s. The wool varies from 25.0 to 31.0 microns.

History
James Little is given credit for establishing the Corriedale breed when he was the manager of the Corriedale Estate at Otaga on the South Island of New Zealand in the 1860s.

The Corriedale is an in-bred half-breed with Merino on the dam’s side and the English Lincoln longwool on the sire’s side. The name Corriedale was chosen to be the proper name for the breed in 1902. The New Zealand Sheep Breeders Association began publishing Corriedale pedigrees in 1911; however, it was 1924 before a flock book was published by the Corriedale Sheep Society of New Zealand.

In 1914, the U.S. Secretary of Agriculture appointed Professor F.R. Marshall, head sheepman of the Bureau of Animal Husbandry, and Frank S. King of Laramie, Wyo., representing the National Wool Growers Association, to begin a search for a new dual-purpose sheep. They traveled to New Zealand, where they selected and imported 65 ewes and 10 rams to the government experiment station in Wyoming. It was King who was responsible for organizing the Wyoming Corriedale Society and founding the American Corriedale Association in 1916.

Since that time, Corriedales have gained steadily in popularity. In fact, Corriedales rank high in popularity in many nations and are considered to be the second most numerous breed worldwide.
The Merino fleece sits at the top of the grading charts for fineness; it is the standard against which all others are measured. It remains the golden fleece as it commands top dollar for the breeder. A ready market exists for this fine wool, which ranges from direct sales to the hand spinner, to premium prices in graded wool pools and volume sales to wool buyers. The fineness of the fiber contributes to the woolens without the itch reputation given to fine Merino products. The descriptive word ‘Merino’ is becoming a market definition for high-quality woolen articles.

Mature Merino rams weigh between 190 and 240 pounds and the females weigh 125 to 160 pounds. The average fleece weight of ewes ranges from 9 to 14 pounds with a yield of 45-54 percent. The staple length of the wool ranges from 2.5 to 4 inches. The wool is classified as fine wool with a numeric count of 64s-80s. The wool varies from 17.0 to 22.0 microns.

History
The fine-wooled Merino was derived from man’s first efforts to improve the fiber of his flock. While several cultures have influenced today’s Merino, it was the Spanish who first exploited the potential of it to the fine-wool industry. From the fourteenth through the early nineteenth centuries, the Spanish closely controlled this valuable ‘golden’ resource. After a great success in early America, large-scale production of Merino fiber emigrated to Australia, South Africa and Russia. Today, again, the American and Delaine-Merino Record Association is experiencing a robust growth in flock numbers.
Merino Sheep Breeders

**Colorado**

**Campbell Hansmire Ranch**  
PO Box 100  
Mack, CO 81525  
Phone: (970) 216-9827  
Email: julhansmire@aol.com  
Breeding Stock Available: Replacement Ewes - Yearlings  
Genetic Programs: On-Farm Testing  
Production Information:  
- Percent Lamb Crop: 135%  
- Age Lambs Weaned: 135 days  
- Weaning Wt (lbs): 105  
- Fiber Diameter: 20.2 Micron  
- Certified Wool Clip

**Jewell Sheep Company**  
0280 CR 259A  
Rifle, CO 81650  
Phone: (970) 625-1578  
Breeding Stock Available: Commercial Rams  
Genetic Programs: On-Farm Testing  
Production Information:  
- Percent Lamb Crop: 150%-160%  
- Age Lambs Weaned: 150 days  
- Weaning Wt (lbs): 95  
- Fiber Diameter: 19-21 Micron  
- Certified Wool Clip

**Idaho**

**Barry Duelke**  
1295 E 3440 N  
Buhl, ID 83316  
Phone: (208) 543-5442  
Production Information:  
- Percent Lamb Crop: 165%  
- Fiber Diameter: 22 Micron  
- Certified Wool Clip

**Montana**

**Helle Livestock – John Helle**  
1350 Stone Creek Road  
Dillon, MT 59725  
Phone: (406) 683-6686  
Email: helle@bmt.net  
Breeding Stock Available:  
- Registered Seedstock  
- Replacement Ewes  
- Commercial Rams  
Genetic Programs:  
- On-Farm Testing  
- NSIP  
- Ram Test  
Production Information:  
- Percent Lamb Crop: 160%-200%  
- Age Lambs Weaned: 120 days  
- Weaning Wt (lbs): 80  
- Fiber Diameter: 17-21 Micron

**New Mexico**

**Mike and Jennifer Corn**  
212 E 4th  
Roswell, NM 88201  
Phone: (575) 622-3360  
Email: mikecorn@roswellwool.com  
Breeding Stock Available: Replacement Ewes  
Production Information:  
- Percent Lamb Crop: 110%  
- Age Lambs Weaned: 180 days  
- Weaning Wt (lbs): 85  
- Fiber Diameter: 21 Micron  
- Certified Wool Clip

**Nevada**

**Rafter 7 Ranch**  
Tom Filbin, Manager  
92 E Walker Road  
Yerington, NV 89447  
Phone: (775) 221-3206  
Email: rafter7tom@yahoo.com  
Breeding Stock Available:  
- Registered Seedstock  
- Replacement Ewes  
- Commercial Rams  
Genetic Programs:  
- On-Farm Testing  
- NSIP  
- Ram Test  
Production Information:  
- Percent Lamb Crop: 147.4%  
- Age Lambs Weaned: 150 days  
- Weaning Wt (lbs): 85  
- Fiber Diameter: 18-21 Micron  
- Certified Wool Clip

**Wyoming**

**Cole Creek Sheep Company**  
PO Box 3393  
Casper, WY 82602  
Phone: (307) 262-3972  
Breeding Stock Available:  
- Replacement Ewes  
- Commercial Rams  
Production Information:  
- Percent Lamb Crop: 130%  
- Age Lambs Weaned: 160 days  
- Weaning Wt (lbs): 90  
- Fiber Diameter: 20 Micron
Rambouillets are large sized, rugged and long-lived with a strong flocking instinct. For many years, the Rambouillet has been known as the profit ‘cornerstone’ of the U.S. sheep industry. They are raised in a range of climate conditions from the scarce brush area of Texas to the extreme cold winters of Minnesota. The ability of the Rambouillet to produce both meat and wool of high quality, with little feed and at a wide range of temperatures, are the key factors to maximizing breeders’ profits per acre. In this era of technology push, the producer must learn to minimize costs by increasing efficiency. The Rambouillet can attain this goal.

The American Rambouillet Sheep Breeders Association was formed in 1889 to preserve dwindling numbers of pure Rambouillet. Today, the association is located in Levelland, Texas, and the registry has been outsourced to Milo, Iowa. All pertinent past records have been moved to a climate-controlled building on the campus of Angelo State University in San Angelo, Texas.

Mature Rambouillet rams weigh between 200 and 300 pounds and the females weigh 140 to 180 pounds. The average fleece weight of ewes ranges from 10 to 15 pounds with a yield of 45-55 percent. The staple length of the wool ranges from 2.5 to 4 inches. The wool is classified as fine wool with a numeric count of 60s-70s. The wool varies from 19.0 to 24.0 microns.

History
The Rambouillet descends entirely from the Spanish Merino. In fact, it is the French version of the Merino developed when Louis XVI imported 386 Spanish Merinos in 1786 for his estate at Rambouillet. The strain assembled at Rambouillet remained unusually pure, however, even through the tumult of the French Revolution when their owner lost both the throne and his head. Parceled out to a handful of dedicated caretakers, the Rambouillet Merinos not only maintained their superior fine-wool characteristics but also developed a body size and confirmation seldom seen outside the mutton breeds.

Though named for the town in France, the breed owes much of its development to Germany and the United States. German breeders made extensive use of Rambouillet sires as the breed’s fame spread throughout Europe. A select group of American sheepmen attempted to emulate the small clique of Europeans who maintained pure Rambouillet stock. Many present-day American Rambouillets can trace their ancestry back to either German von Homeyer flocks or the flocks of Rambouillet, France.
Rambouillet Breeders

California
Five-O Ranch
John Olagaray
11888 North Davis Rd
Lodi, CA 95242
Phone: (209) 369-1685
Breeding Stock Available: Replacement Ewes
Production Information:
  Percent Lamb Crop: 121%
  Age Lambs Weaned: 150 days
  Weaning Wt (lbs): 82
  Fiber Diameter: 20-21 Micron
  Certified Wool Clip

Colorado
Campbell Hansmire Ranch
PO Box 100
Mack, CO 81525
Phone: (970) 216-9827
Email: julhansmire@aol.com
Breeding Stock Available: Replacement Ewes - Yearlings
Genetic Programs: On-Farm Testing
Production Information:
  Percent Lamb Crop: 135%
  Age Lambs Weaned: 135 days
  Weaning Wt (lbs): 105
  Fiber Diameter: 20.2 Micron
  Certified Wool Clip

Idaho
Barry Duelke
1295 E 3440 N
Buhl, ID 83316
Phone: (208) 543-5442
Production Information:
  Percent Lamb Crop: 165%
  Fiber Diameter: 22 Micron
  Certified Wool Clip

Montana
Helle Livestock - John Helle
1350 Stone Creek Road
Dillon, MT 59725
Phone: (406) 683-6686
Email: helle@bmt.net
Breeding Stock Available:
  Registered Seedstock
  Replacement Ewes
  Commercial Rams
Genetic Programs:
  On-Farm Testing
  NSIP
  Ram Test
Production Information:
  Percent Lamb Crop: 160-200%
  Age Lambs Weaned: 120 days
  Weaning Wt (lbs): 80
  Fiber Diameter: 17-21 Micron

Nevada
FIM Corporation
PO Box 12
Smith, NV 89430
Phone: (775) 465-2381
Email: fimcorporation@gmail.com
Breeding Stock Available: Replacement Ewes
Production Information:
  Percent Lamb Crop: 152%
  Age Lambs Weaned: 5 months
  Weaning Weight (lbs): 100
  Fiber Diameter: 21+ Micron
  Certified Wool Clip

Rafter 7 Ranch
Tom Filbin, Manager
92 E Walker Road
Yerington, NV 89447
Phone: (775) 221-3206
Email: rafter7tom@yahoo.com
Breeding Stock Available:
  Registered Seedstock
  Replacement Ewes
  Commercial Rams
Genetic Programs:
  On-Farm Testing
  NSIP
  Ram Test
Production Information:
  Percent Lamb Crop: 147.4%
  Age Lambs Weaned: 150 days
  Weaning Wt (lbs): 85
  Fiber Diameter: 18-21 Micron
  Certified Wool Clip
Nevada
David Little
HC 30, Box 360
Spring Creek, NV 89815
Phone: (775) 934-8860
Production Information: Certified Wool Clip

North Dakota
Matt Benz
2108 7th St NW
Beulah, ND 58523
Email: benzmatt@hotmail.com
Breeding Stock Available:
- Registered Seedstock
- Commercial Rams
Genetic Programs:
- On-Farm Testing
- Ram Test
Production Information:
- Percent Lamb Crop: 160%
- Age Lambs Weaned: 90 days
- Weaning Wt (lbs): 85
- Fiber Diameter: 22.8 Micron

Ohio
Valley View Farm
Kyle Dockery
02834 Hicksville-Edgerton Road
Edgerton, OH 43517
Phone: (419) 248-3914
Breeding Stock Available:
- Registered Seedstock
- Replacement Ewes
- Commercial Rams
Production Information:
- Percent Lamb Crop: 160%
- Age Lambs Weaned: 75 days
- Weaning Wt (lbs): 70
- Fiber Diameter: 22.8 Micron

Texas
Robert Pfluger
2601 Circle J
San Angelo, TX 76901
Phone: (325) 994-9278
Email: repfugler@msn.com
Breeding Stock Available: Commercial Rams
Genetic Programs: Ram Test
Production Information:
- Fiber Diameter: 19 Micron
- Certified Wool Clip

South Dakota
Chapman Rambouillets
Leonard/Beau Chapman
PO Box 342
Bison, SD 57760
Phone: (605) 224-5469
Breeding Stock Available:
- Registered Seedstock
- Commercial Rams
Genetic Programs:
- On-Farm Testing
- Ram Test
Production Information:
- Percent Lamb Crop: 130-145%
- Age Lambs Weaned: 120 days
- Weaning Wt (lbs): 90
- Fiber Diameter: 21 Micron
Rambouillet Breeders

Utah

R. Larson Sheep Company
Randy Larson
PO Box 336
Ephraim, UT 84627
Phone: (801) 362-7435
Breeding Stock Available:
  Replacement Ewes
  Commercial Rams
Production Information:
  Percent Lamb Crop: 165%
  Age Lambs Weaned: 175 days
  Weaning Wt (lbs): 108
  Fiber Diameter: 21-22 Micron
  Certified Wool Clip

Edward E. Hobby
22040 N 11750 E
Fairview, UT 84629
Phone: (435) 462-3076
Email: ckhobby_1972@yahoo.com
Breeding Stock Available: Replacement Ewes
Genetic Programs: On-Farm Testing
Production Information:
  Percent Lamb Crop: 148%
  Weaning Wt (lbs): 101 days
  Fiber Diameter: 21 Micron
  Certified Wool Clip

Claude and Linda Plumb
30038 Edgemont Rd.
Provo, UT  57735
Phone: (605) 459-2531
Breeding Stock Available: Replacement Ewes
Production Information:
  Percent Lamb Crop: 130%
  Age Lambs Weaned: 210 days
  Weaning Wt (lbs): 90
  Fiber Diameter: Grade 64

Wyoming

Cole Creek Sheep Company
PO Box 3393
Casper, WY 82602
Phone: (307) 262-3972
Breeding Stock Available:
  Replacement Ewes
  Commercial Rams
Production Information:
  Percent Lamb Crop: 130%
  Age Lambs Weaned: 160 days
  Weaning Wt (lbs): 90
  Fiber Diameter: 20 Micron

Selby Rambouillets
Edward Selby
12192 Haines Road
Casper, WY 82604
Phone: (307) 265-8635
Email: selbyramb@aol.com
Breeding Stock Available:
  Registered Seedstock
  Replacement Ewes
  Commercial Rams
Production Information:
  Percent Lamb Crop: 100%
  Age Lambs Weaned: 90 days
  Weaning Wt (lbs): 85
  Fiber Diameter: 70s

W&M Thoman Ranches LLC
PO Box 146
Green River, WY 82602
Phone: (307) 877-3718
Email: m_thoman@ Hughes.net
Breeding Stock Available:
  Registered Seedstock
  Replacement Ewes
  Commercial Rams
Genetic Programs: On-Farm Testing
Production Information:
  Percent Lamb Crop: 100%
  Age Lambs Weaned: 135 days
  Weaning Wt (lbs): 90
  Fiber Diameter: 19-22 Micron
Targhee is a hardy, dual-purpose sheep, a good meat type with a heavy fleece of high-quality wool. Targhee ewes have good mothering and milking ability. Mature Targhee ewes raise a high percentage of twins under range and pasture conditions. Targhee ewes excel in pounds of lamb weaned per ewe bred.

Mature Targhee rams weigh between 200 and 300 pounds and the females weigh 140 to 200 pounds. Mature Targhee ewes shear heavy fleeces with a yield of five to six pounds of clean scoured wool (10 to 12 pounds of grease wool). Mature Targhee rams shear 8 to 11 pounds of clean scoured wool (16 to 22 pounds of grease wool). Twelve months growth of wool should exceed three inches in length. Desirable Targhee wool is 24.94 to 22.05 microns (USDA wool grade of 60s to 62s or half blood). The coarsest acceptable micron on the side is 26.39 (58s). Wool finer than 22.04 (64s) is acceptable with sufficient staple length. Fleeces should not vary more than two USDA wool grades (about 3 microns) from side to britch, with 27.84 (56s) the coarsest acceptable britch. Fleeces should be dense, uniform and attractive in character.

History
Targhee is one of America’s youngest breeds having been developed this century. The Targhee sheep was developed by the U.S. Sheep Experiment Station at Dubois, Idaho, in response to the industry’s demand for a breed thick in natural fleshing, capable of producing high quality, apparel-type wool and adapted to both the rugged range and farm flock conditions.

The Targhee breed started with breeding three-quarters Rambouillet and one-quarter long-wool cross in 1926. The foundation came from outstanding Rambouillet/Corriedale-Lincoln Rambouillet crosses. The new breed was named Targhee after the national forest where the animals grazed during the summer. The forest was named for a chief of the Bannock Indians who had lived in the area in the 1860’s. One can not get a more American name than that.
**Michigan**

**CRJ Targhees**
Warren & Judy Nellis
8465 North Loomis Road
Coleman, MI 48618
Phone: (989) 465-6210
Email: wjnellis@netzero.com

Breeding Stock Available:
- Registered Seedstock
- Commercial Rams

Genetic Programs: NSIP

Production Information:
- Percent Lamb Crop: 175-200%
- Age Lambs Weaned: 90 days
- Weaning Wt (lbs): 72
- Fiber Diameter: 22 Micron
- Certified Wool Clip

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**Minnesota**

**PM Ranch**
Bob Padula
3840 236th St
Montevideo, MN 56265
Phone: (320) 269-7973
Email: rfp@mvtvwireless.com

Breeding Stock Available:
- Registered Seedstock
- Commercial Rams

Genetic Programs:
- On-Farm
- NSIP

Production Information:
- Percent Lamb Crop: 175%
- Age Lambs Weaned: 60 days
- Weaning Wt. (lbs): 55
- Fiber Diameter: 21-22 Micron
- Certified Wool Clip

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**Montana**

**Dallas Sheep Outfit**
Chuck Dallas
131 Horse Creek S
Wilsall, MT 59086
Phone: (406) 578-2159
Email: dallassheep@mcn.net

Breeding Stock Available: Registered Seedstock

Genetic Programs:
- On-Farm
- NSIP
- Ram Test

Production Information:
- Percent Lamb Crop: 140%
- Age Lambs Weaned: 150 days
- Fiber Diameter: 20.6 Micron
- Certified Wool Clip

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**Green Ranch**
Carolyn Green
PO Box 266
Melville, MT 59055
Phone: (406) 527-4472
Email: greenranch@mtintouch.net

Breeding Stock Available:
- Registered Seedstock
- Commercial Rams
- Replacement Ewes

Genetic Programs:
- On-Farm
- NSIP
- Ram Test

Production Information:
- Percent Lamb Crop: 178%
- Age Lambs Weaned: 120 days
- Weaning Wt. (lbs): 75
- Fiber Diameter: 21.5 Micron

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**Hughes Newford Co.**
Betty Sampsel
PO Box 558
Stanford, MT 59479
Phone: (406) 566-2700
Email: hnco@mtintouch.net

Breeding Stock Available:
- Registered Seedstock
- Replacement Ewes

Genetic Programs: NSIP

Production Information:
- Percent Lamb Crop: 180%
- Fiber Diameter: 21 Micron

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**Tunby Ranch**
Randy Tunby
1881 Anticline Road
Baker, MT 59313
Phone: (406) 772-5627
Email: tunby@midrivers.com

Breeding Stock Available:
- Registered Seedstock
- Commercial Rams
- Replacement Ewes

Genetic Programs: NSIP

Production Information:
- Percent Lamb Crop: 150%
- Age Lambs Weaned: 120-130 days
- Weaning Wt. (lbs): 85-95
- Fiber Diameter: 21-22 Micron
Targhee Breeders

Utah
Russell Allred
602 South 30 West
Fountain Green, UT 84632
Phone: (435) 445-3285
Email: allred@cut.net
Breeding Stock Available:
Registered Seedstock
Commercial Rams
Production Information:
Percent Lamb Crop: 185%
Age Lambs Weaned: 240 days
Weaning Wt (lbs): 125
Fiber Diameter: 62s & 64s

Wyoming
Bridget Kukowski
PO Box 65
Wyarno, WY 82845
Phone: (307) 737-2120
Email: bkukowski@rangeweb.net
Breeding Stock Available:
Registered Seedstock
Commercial Rams
Replacement Ewes
Genetic Programs: NSIP
Production Information:
Percent Lamb Crop: 180%
Age Lambs Weaned: 130 days
Weaning Wt. (lbs): 100
Fiber Diameter: 62s

Other Breeds

Bluefaced Leicester
Don Brown
31024 T.R. 11
Fresno, OH
Phone: (330) 897-4320
Email: don.pllc@gmail.com
Genetic Programs: On-farm Flock Program
Production Information:
Percent Lamb Crop: 200%
Age Lambs Weaned: 60 days
Weaning Wt (lbs): 45
Certified Wool Clip

Polled Dorset
Blue Ribbon Farm
Bob and Mary Burr
1334 Beech Hill Rd.
Mercer, ME 04957
Phone: (207) 587-4068
Email: bburr@tdstelme.net
Breeding Stock Available:
Registered Seedstock
Replacement Ewes
Genetic Programs:
On-farm Flock Program
NSIP
Production Information:
Percent Lamb Crop: 180%
Age Lambs Weaned: 70 days
Weaning Wt (lbs): 60-75
Fiber Diameter: medium grade
Certified Wool Clip

Rambouillet/Dorset
Frank Arburua Jr.
1997 Oxford Way
Stockton, CA 95204
Phone: (209) 462-5478 (209) 607-5484
Email: karburua@sbcglobal.net
Breeding Stock Available: Replacement Ewes
Genetic Programs: On-farm Flock Program
Production Information:
Percent Lamb Crop: 145%
Age Lambs Weaned: 180 days
Weaning Wt (lbs): 130
Fiber Diameter: 24 Micron
Certified Wool Clip

Tunis
Richard D. Schambow Sr.
3501 N Dohs Rd.
Evansville, WI 53536
Phone: (608) 876-6804
Breeding Stock Available:
Registered Seedstock
Replacement Ewes
Genetic Programs: On-farm Flock Program
Production Information:
Percent Lamb Crop: 130%
Age Lambs Weaned: 70 days
Weaning Wt (lbs): 60-70
Commercial and Range Ram Sales

California

California Ram Sale – Tulare, California
Yearly in April
California Wool Growers Association
1225 H Street, Suite 101
Sacramento, CA 95814-1910
Phone: (916) 444-8122
Email: cwga@gvn.net

Colorado

Craig Ram Sale – Craig, Colorado
Yearly in October
Jackie Crawford, Secretary
PO Box 842
Craig, CO 81626
Phone: (970) 824-4331
Cell: (970) 629-8249

Iowa

Center of the Nation NSIP Sale - Spencer, Iowa
Yearly in August
Kathy Krafka Harkema, Media Relations
908 525th Avenue
Montezuma, IA 50171-4700
Phone: (641) 623-7200
Cell: (641) 891-4381
Email: truechamp@aol.com

Montana

Montana Ram Sale – Miles City, Montana
Yearly in September
Montana Wool Growers Association
Jack McRae – Sale Committee Chairman
HC 62 Box 6
Jordan, MT 59337
Phone: (406) 557-6266
Email: MWGA@mtsheep.org

North Dakota

Hettinger Ram Sale – Hettinger, North Dakota
Yearly in September
North Dakota Lamb and Wool Producers Association
Lyle Warner
19401 15th St. NW
Baldwin, ND 58521
Home phone: (701) 255-1183
Cell: (701) 220-1203

South Dakota

Newell Ram Sale – Newell, South Dakota
Yearly in September
Dallerie Riesland
PO Box 2
Newell, SD 57760
Phone: (605) 456-1010
E-mail: ramsale@cityofnewell.com
Web site: www.cityofnewell.com

Nevada

Rafter 7 Ranch Ram Sale – Yerington, Nevada
Yearly in September
Tom Filbin, Ranch Manager
92 E. Walker Rd.
Yerington, NV 89447
Phone: (775) 221-3206
E-mail: rafter7tom@yahoo.com

Utah

Utah Ram Sale – Spanish Fork, Utah
Yearly in October
Jim Caras, Sale Manager
7223 South 3200 West
Spanish Fork, UT 84660
Phone: (801) 798-2503
Utah Wool Growers Association
c/o Douglas R. Livingston, Executive Secretary
431 West 3700 North
Provo, UT 84604
Email: contact@utahwoolgrowers.com

Wyoming

Wyoming Ram Sale – Douglas, Wyoming
Yearly in September
Wyoming Wool Growers Association
811 N. Glenn Rd.
Casper, WY 82601
Phone: (307) 265-5250
Email: wyowool@wyowool.org
Web site: www.wyowool.org/RamSale.html
NSIP specializes in computerized genetic selection of sheep based on performance. NSIP evaluates the genetic value through the use of Expected Progeny Difference (EPDs). Their business is calculating EPDs for sheep producers and breed associations, and helping producers use those EPDs to their best advantage.

All purebred producers with registered animals can join NSIP. Calculation of across-flock EPDs, however, is dependent on the establishment of good across-flock genetic linkages. NSIP is currently working closely with six breeds (Targhee, Suffolk, Polypay, Dorsets, Hampshires and Columbia) to calculate across-flock EPDs. Producers in other breeds receive across-flock EPDs until more flocks join NSIP to establish good genetic linkages.

Sheep Production Handbook

This reference handbook, covering the basics of sheep production, is for beginner and experienced sheep producers alike. Topics include Sheep Breeding, forages, handling, health, management, marketing, nutrition, predator control, quality assurance, reproduction, sheep care, wool, and contact lists for state extension personnel, state extension veterinarians and state animal health officers. Available to order at www.sheepusa.org.

Price: $74.45 each (includes shipping and handling)
Volume Orders: $60 each for 10 books or more in multiples of 5.
Contact ASI for shipping costs: (303) 771-3500 ext. 32.
(Now includes a CD-ROM)
Performance Ram Tests

Montana

Montana Central Ram Test
Rodney Kott
P.O. Box 172900
Bozeman, MT 59717
Phone: (406) 994-3415
Email: r.kott@montana.edu

North Dakota

Dakota Ram Test
http://www.ag.ndsu.nodak.edu/hettinge/ramtest.htm

Dr. Chris Schauer
North Dakota State University
Hettinger Research Extension Center
P.O. Box 1377
Hettinger, ND 58639
Phone: (701) 567-4323
Email: christopher.schauer@ndsu.edu

Texas

Texas A&M Ram Performance Test
http://sanangelo.tamu.edu/genetics/ramtest.htm

Dr. Daniel F. Waldron
Texas AgriLife Research
7887 U S Highway 87 North
San Angelo, TX 76901
Phone: (325) 653-4576 Ext. 221
Email: d-waldron@tamu.edu

Wyoming

University of Wyoming Ram Test
http://uwadmnweb.uwyo.edu/Wool-Lab/Ram_Tests.asp

Dr. Bob Stobart
University of Wyoming Wool Lab
Department 3684
1000 E. University Ave
Laramie, WY 82071
Phone: (307) 766-5212
Email: bstobart@uwyo.edu
California
Roswell Wool Receiving Stations
Mike Corn
212 E 4th Street
Roswell, NM 88201
Phone: (575) 622-3360
Email: mikecorn@roswellwool.com
Web site: www.roswellwool.com

Bakersfield
Jim Stockton
Jim Stockton & Son
12601 Rosdale Hwy.
Bakersfield, CA 93312
Phone: (661) 589-2166

Dixon
Ann Vassar or Jerry Stayner
Superior Farms
Intersection of Hwy 113 & Midway Street
Dixon, CA 95620
Phone: (707) 693-2322 - Ann
Phone: (707) 693-2310 - Jerry

Dunnigan
Jeff Yougmark
County Line Warehouse
99 W. & County Line Road
Dunnigan, CA 95937
Phone: (530) 724-3301

Firebaugh
Marie Gonzales
Perri & Son’s
48845 W. Nees Avenue
Firebaugh, CA 93622
Phone: (559) 349-2866

Ukiah
Tim Cooper
Mendocino Co. Farm Supply
303 Talmage Road
Ukiah, CA 95482
Phone: (707) 462-1492

Illinois
Groenewold Fur and Wool Company
Greg Groenewold
304 East Avon Street
Forreston, IL 61030
Phone: (815) 938-2381
Email: wool@gfwco.com
Web site: www.gfwco.com

Kansas
Mid-States Wool Growers Cooperative
Alex McClure
125 E 10th
South Hutchison, KS 67505
Phone: (620) 663-7147
Web site: www.midstateswoolgrowers.com

Montana
Center of the Nation Wool
Scott Lammers
1818 Minnesota Avenue
Billings, MT 59101
Phone: (406) 245-9112
Email: cw@qwest.net

New Mexico
Roswell Wool
Mike Corn
212 E 4th Street
Roswell, NM 88201
Phone: (505) 622-3360
Email: mikecorn@roswellwool.com
Web site: www.roswellwool.com

Ohio
Mid-States Wool Growers Cooperative
David Rowe
9449 Basil Western Road
Canal Winchester, OH 43110
Phone: (614) 837-9665
Email: info@midstateswoolgrowers.com

South Dakota
Center of the Nation Wool
Larry Prager
PO Box 130
Belle Fourche, SD 57717
Phone: (605) 892-6311
Email: larry.cnwool@midconetwork.com
# Wool Warehouses

## Texas

### Ballinger
Ballinger Wool/KN Feed  
Kevin Newsome  
608 Railroad Ave.  
Ballinger, TX 76821  
Phone: (325) 365-2211  
Email: knfeed@verizon.net

### Brackettville
Kinney County Wool and Mohair Inc.  
Tony Frerich  
PO Box 1010  
Brackettville, TX 78832  
Phone: (830) 563-2471

### Del Rio
Val Verde Wool and Mohair  
Neal Kerr  
PO Box 4290  
Del Rio, TX 78841  
Phone: (830) 775-2413  
Email: vvwool@delrio.com

### Eden
Southwestern Wool and Mohair  
Skeet Rogers  
1202 East Broadway  
Eden, TX 76837  
Phone: (325) 869-8011

### Eldorado
Eldorado Wool Company  
Chris McCravey  
400 Depot  
Eldorado, TX 76936  
Phone: (325) 853-2772  
Email: wmccravey@verizon.net

### Fredericksburg
Lochte Storage and Commission Company  
Dayton Grenwelge  
509 Longhorn Street  
Fredericksburg, TX 78624  
Phone: (830) 997-2256

### Goldthwaite
S&S Supply/Blackwell Wool and Mohair  
Edward Sanders  
132 US Hwy 84 W  
Goldthwaite, TX 76844  
Phone: (325) 648-2231  
Email: edsanders2003@yahoo.com

### Junction
Junction Warehouse Co.  
C.T. Holekamp III  
810 Main Street  
Junction, TX 76853  
Phone: (325) 446-2537  
Email: junctionwarehouseco@verizon.net

### Kerrville
Ranchman’s Wool and Mohair Export Inc.  
Justin Stieler  
110 McFarland  
Kerrville, TX 78028  
Phone: (830) 896-2353  
Email: mohair@ktc.com

### Mertzon
Producers Marketing Cooperative Inc.  
Ronald Pope  
202 NW Railroad St.  
Mertzon, TX 76941  
Phone: (325) 835-7173  
Email: pmcicoop@wcc.net

### West Texas Wool and Mohair Association  
Jessie Whitlow  
109 NW Railroad St  
Mertzon, TX 76941  
Phone: (325) 835-3661

### Ozona
Ozona Wool and Mohair  
Pam Blount  
1307 Avenue E  
Ozona, TX 76943  
Phone: (915) 392-2623  
Email: ozonawmc@verizon.net

### Wool Growers Central Storage Company  
Mike Edinburgh  
607 Avenue H  
Ozona, TX 76943  
Phone: (915) 392-3731

### Rocksprings
Priour-Varga Wool and Mohair Inc.  
Steve Haynes  
300 Main Street  
Rocksprings, TX 78880  
Phone: (830) 683-3194
**Texas (continued)**

**San Angelo**
Santa Fe Grading Company Inc.
David Trudo
1701 N. Bell St.
San Angelo, TX 76903
Phone: (325) 659-1398

Western Wool and Mohair Company Inc.
Steve Hudson
16 East 4th St.
San Angelo, TX 76902
Phone: (325) 655-7138

**Sonora**
Sonora Wool and Mohair
Seco Mayfield
210 W. College
Sonora, TX 76950
Phone: (325) 387-2543
Email: wool@sonoratx.net

---

**Utah**

**Utah Wool Marketing Association**
Will Griggs
55 S Iron St, Ste 2
Toole, UT 84074
Phone: (435) 843-4284
Email: utahwool@wirelessbeehive.com

---

**Wyoming**

**Great Plains Wool Company**
Bruce Barker
80 Landon Lane
Sheridan, WY 82801
Phone: (307) 674-4504
Email: bmbarker@fiberpipe.net
AWEX-ID

AWEX-ID is an internationally recognized system for the appraisal and description of non-measured characteristics of greasy wool. By combining AWEX-ID with presale objective measurements, a full and credible description for wool is possible.

To logically report appraisals of wool, the AWEX-ID is split into two parts, prime (mandatory) and qualifier (where applicable) characteristics.

**Prime Characteristics**
Prime reporting requires selected characteristics to be reported on every appraisal. Prime characteristics form the base description of a sale lot and must include:

- BreedType
- Wool Sub-Category (where applicable)
- Wool Category
- Style
- Vegetable Matter Type

**Qualifier Characteristics**
Qualifier characteristics may be used (if needed) to further describe the wool. This allows for the identification and degree of faults which are of concern to wool processors. Qualifiers are reported if seen in the wool sample by the AWEX appraiser or applied if it is known about the wool clip – such as paint brands. Qualifiers are reported after the prime characteristics and the ‘•’ in the middle of the AWEX-ID.

- Greasy Length Indicator
- Strength Indicator
  - W1 = Part Tender
  - W2 = Tender
  - W3 = Very Tender

*NOTE - When Length and Strength are measured, the test result is listed, and the above qualifiers are not used.*

**The Qualifiers Below are Not Scaled**
- Scourable Color (M)
- Necks (E)
- Doggy (G)

**Standard Comments**
- GFS - Good for style
- PFS - Poor for style
- GFL - Good for length
- PFL - Poor for length
- BOLD - Bold crimp
- PEN - Pen stain
- LICE - Lice-affected wool
- KEDS - Sheep ticks
- UC - Unclassed wool
- BI - Belly wool in

**AWEX-ID Examples**
**MF4E** - Translation: M=Merino, F=Fleece wool, 4=Best style, E=Seeds for VM
**MXF65.80 U1R1** - Translation: MX=Merino cross, F=Fleece wool, 6=Average style, S=Spear grass for VM, 80 mm in length with light amounts of skirtings (U1) and paint brands (R1)
**XLFL5.B0Y1R1BI** - Translation: X= Crossbred, L=Lambs, F=Fleece wool, 5= Good style, B= Burrs for VM, 50 mm long, colored fibers (Y1), paint brands (R1) and belly wool not removed (BI)
**DF6SL.60Y2U2K1** - Translation: D=Downs, F=Fleece, 6=Average style, SL=Hay chaff in clumps for VM, 60 mm long, moderate amount of colored fibers (Y2), moderate amount of skirtings (U2) and slight amount of medullated and kemp fibers (K1)
**RXLF6E.50K3R1U2** - Translation: RX=Hair sheep crosses, LF=Lambs fleece wool, 6=Average style, E=Sand burrs for VM, 50 mm long, heavy/large amount of kemp (K3), small amount of paint brands (R1) and moderate amount of skirtings (U2)
## AWEX-ID Non Measured Characteristics

### Version 3.2S Standard (USA)

<table>
<thead>
<tr>
<th>PRIME TYPE</th>
<th>QUALIFIERS</th>
<th>WHERE APPLICABLE</th>
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<tbody>
<tr>
<td><strong>MANDATORY</strong></td>
<td><strong>CONDITIONAL Non = AM</strong></td>
<td><strong>CONDITIONAL Non = AM</strong></td>
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<tr>
<td>BREED GROUP</td>
<td>WHERE APPLICABLE</td>
<td>MANDATORY</td>
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<td>WOOL SUB CATEGORY</td>
<td>WOOL CATEGORY</td>
<td>STYLE</td>
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<td>Merino/Rambouillet</td>
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<td>Merino Cross</td>
<td>L</td>
</tr>
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<td><strong>X</strong></td>
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<td>U</td>
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<td><strong>D</strong></td>
<td>Downs</td>
<td>K</td>
</tr>
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<td><strong>T</strong></td>
<td>Carpet</td>
<td>G</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>Hair/Shedding</td>
<td>O</td>
</tr>
<tr>
<td><strong>WHERE APPLICABLE</strong></td>
<td>PCS/BLS</td>
<td></td>
</tr>
<tr>
<td><strong>BREED PREFIX</strong></td>
<td>WHERE APPLICABLE</td>
<td></td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>Run with Hair/Sheds</td>
<td>3</td>
</tr>
<tr>
<td><strong>VM SUFIX</strong></td>
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<td>4</td>
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<tr>
<td><strong>TSR/LKS TAGS</strong></td>
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<td>5</td>
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<tr>
<td><strong>TAGS</strong></td>
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<td>6</td>
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</tbody>
</table>

**Note:** All wool >=50mm that is not tested for Staple Length & Strength, must have the length and strength indicator estimated.

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Release Date: 21 July 2008
Major Vegetable Matter Types

- Barrel Medic
- Burr Medic
- Cut Leaf Medic
- Small Burr Medic
- Caltrop
- Carrot Seed
- Corkscrew (Storksbill)
- Dock
- Galvanised Burr
- Saffron Thistle
- Spiny Burr Grass
- Subterranean Clover
- Barley Grass
- Spear Grass
- Wild Oat
- Wire Grass
- Noogoora Burr
- Ring Burr
- Bathurst Burr
- Bogan Flea

OTHER VM CODES USED BUT NOT SHOWN IN PHOTOGRAPHS

- M Moit (Twigs, Leaves & Sticks)
- L Clumpy VM

Photographs reproduced from "Vegetable Matter in Australian Wool" published by AWTA Ltd.
VM Type Codes \( (B, E, S, N, T, M, F) \)

### Burr Types (B)
- Barrel Medic
- Small Burr Medic
- Burr Medic
- Cutleaf Medic

### Seed Types (E)
- Caltrop
- Corkscrew (Storksbill)
- Horehound
- Spiny Burr Grass
- Carrot Seed
- Dock
- Saffron Thistle
- Subterranean Clover
- Cobblers Peg
- Galvanised Burr
- Scotch Thistle

### Shive (S)
- Barley Grass
- Wild Oat
- Shive
- Wire Grass
- Spear Grass
- Any fibrillated grass, burr

### Noogoora Ring Burr (N)
- Noogoora burr
- Ring Burr
- Spiny Emex

### Bathurst Burr (T)
- Bathurst Burr

### Moit (M)
- Twigs, Leaves & Sticks

### Bogan Flea (F)
- Bogan Flea

---

The AWEX-ID VM Type is to be the PREDOMINANT visual VM type **UNLESS**

Sufficient quantities (>approximately 25% of the total VM) of a more difficult to process VM type is present in the sample.

---

**Simplistic ranking of VM Codes according to processing difficulty**

<table>
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<th>RANK</th>
<th>DESCRIPTION</th>
<th>COMBINING</th>
<th>CARDING ONLY</th>
<th>CARBONISING</th>
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<td>1</td>
<td>Less Difficult</td>
<td>M</td>
<td>E</td>
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<td></td>
<td>E</td>
<td>F</td>
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<td>M</td>
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<td>T</td>
<td>T</td>
</tr>
<tr>
<td>7</td>
<td>More Difficult</td>
<td>S</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>
AWEX-ID Appraisers

**Ron Cole**  
American Wool Council  
5616 Pawnee Lane  
Greeley, CO 80634  
Phone: (970) 339-9044  
Email: ihcole@comcast.net

**Will Griggs**  
Utah Wool Marketing Assn  
55 S. Iron St  
Suite 2 Bldg 657  
Tooele, UT 84074  
Phone: (435) 843-4284  
Email: wgriggs@wirelessbeehive.com

**Darrel Keese**  
Keese International LLC  
P.O. Box 574  
Brady, TX 76825  
Phone: (325) 456-8662  
Email: ddkeese@classicnet.net

**Scott Lammers**  
Center of the Nation Wool  
1818 Minnesota Ave  
Billings, MT 59101  
Phone: (406) 245-9112  
Email: cw@qwest.net

**Dr. Chris Lupton**  
Texas AgriLife Research Station  
7887 US Hwy 87 N  
San Angelo, TX 76901  
Phone: (325) 653-4576  
Email: c-lupton@tamu.edu

**Wesley Mikeska**  
Independent AWEX-ID Appraiser  
740 Abernathy Road  
San Angelo, TX 76905  
Phone: (325) 656-7988

**Virginia Nollmeyer**  
Independent AWEX-ID Appraiser  
Eastern Montana  
Email: alkalisheepstation@gmail.com

**Bob Padula**  
American Wool Council  
2340 – 236th St  
Montevideo, MN 56265  
Phone: (320) 269-7973  
Email: rfp@mvtvwireless.com

**Dr. Ronald Pope**  
Producer’s Marketing Cooperative Inc.  
7174 Fay  
Mertzon TX 76941  
Phone: (325) 835-7173  
Email: pmcicoop@wcc.net

**Larry Prager**  
Center of the Nation Wool  
PO Box 130  
Belle Fourche, SD 57717  
Phone: (605) 892-6311  
Email: larry.cnwool@midconetwork.com

**Barry Savage**  
American Wool Council  
211 Plymouth Road  
Newton, MA 02461  
Phone: (617) 243-0134  
Email: bsavage1@rcn.com
Arkansas
Paul Ahrens
Lamar
Home phone: (479) 885-6696
Cell phone: (479) 979-5748

California
Juan Garza
Firebaugh
Home phone: (209) 364-1944
Cell phone: (209) 769-7478

Candido Pena II
Bakersfield
Home phone: (661) 323-1889
Cell phone: (661) 747-4387

Jaime Rios
Calexico
Email: jaimeclxc@yahoo.com
Phone: (760) 234-9377

Colorado
John S Jewell
Rifle
Home phone: (970) 625-1578
Cell phone: (970) 379-0397

Mark Kagie
Greeley
Email: kagiemark@yahoo.com
Phone: (970) 351-8657

Iowa
David/Nolan M Abel
Royal
Phone: (712) 933-2637

Dan (Rocky) R Anderson
Griswold
Email: rockyanderson1@hotmail.com
Home phone: (712) 778-2299
Cell phone: (712) 789-0204

Dennis/Kyle G Hoogendoorn
Rock Rapids
Email: joan.hoogendoorn@gmail.com
Home phone: (712) 472-2170
Cell phone: (712) 470-4043

Mark Hoogendoorn
Rock Rapids
Email: markhoogie@gmail.com
Phone: (712) 470-4958

Idaho
Chase Cantrell
Buhl
Phone: (208) 961-1624

Vernon (Bernie) Fairchild Jr.
Buhl
Email: sheepshearing@msn.com
Home phone: (208) 543-5531
Cell phone: (208) 420-1597

Indiana
Steve Kennedy
Indianapolis
Email: kennedyyss20@yahoo.com
Phone: (317) 626-4859

Maine
Wallace G Sinclair
Brownville
Email: pvsmilksheep@aol.com
Phone: (207) 965-2332

Maryland
Emily Chamelin
Westminster
Email: aeriedairy@yahoo.com
Phone: (443) 244-2702

Anne Schroeder
Boyd
Email: farmeranne@stargazingfarm.org
Phone: (301) 349-0802

Massachusetts
Kevin Ford
Charlemont
Email: bladeshear@hotmail.com
Phone: (413) 339-4725

Michigan
Jim Bristol
West Branch
Email: miwoolman@yahoo.com
Phone: (989) 685-3045
Web site: www.misheep.org

Symeon R Caryl
Davison
Email: dnsfarms@juno.com
Business phone: (810) 223-5836
Home phone: (810) 653-1436
Cell phone: (810) 730-2575
Certified Sheep Shearers

Douglas Hoolsema
Melvin
Email: shearingshed@yahoo.com
Home phone: (810) 378-5820
Cell phone: (810) 378-5860

Paul Shetterly
Lake Odessa
Email: sheepshearerman@gmail.com
Home phone: (616) 374-3137

Nick Weaver
Fremont
Email: weavern1@ferris.edu
Home phone: (231) 924-0297
Cell phone: (231) 335-9824

Tamara Weaver
Fremont
Home phone: (231) 924-0297
Cell phone: (231) 335-9824

Minnesota
Larry Kiewel
Belle Plaine
Email: mkiewel@copper.net
Phone: (952) 873-6977

Alex Moser
Steen
Email: almoser49@hotmail.com
Home phone: (712) 478-4544
Cell phone: (605) 254-6004

Doug Rathke
Hutchinson
Email: lambshop@hutchtel.net
Phone: (320) 587-6094
Web site: www.ourfarmtouyou.com

Missouri
Guy Frazier
Hallsville
Email: gfrazier@socket.net
Phone: (573) 696-3589

Kevin Hickman
Humansville
Email: kevinhickman326@gmail.com
Phone: (417) 777-1416

Montana
Keith Braaten
Stanford
Home phone: (406) 566-2555
Cell phone: (406) 566-2555

Ralph McWilliams
Miles City
Phone: (406) 234-2915

Mike Schuldt
Chinook
Email: acxms@montana.edu
Phone: (406) 357-3200
Web site: www.ttc-cmc.net/~schuldt/

Nebraska
Michael Littlefield
Surprise
Email: michaelrlittlefield@yahoo.com
Phone: (402) 526-2240

Nevada
Pat Melendrez
Las Vegas
Email: smelendr@nmsu.edu
Home phone: (505) 425-3218
Cell phone: (505) 929-4705

New Hampshire
Jeffrey Jordan
Chichester
Email: dgjordan@tds.net
Phone: (603) 798-5074
Web site: www.yankeeshepherd.com/about.html

North Dakota
Hilary Gietzen
Minot
Email: hilaryminot@aol.com
Business phone: (701) 240-0488
Cell phone: (701) 282-2191
Web site: www.gietzensheepshearing.com

Mike Hagens
Mandan
Home phone: (701) 663-5267
Cell phone: (701) 220-6636

Oklahoma
Frank/Joe Schwartz
Orlando
Email: showlamb@pldi.net
Home phone: (580) 455-2481
Cell phone: (580) 336-8766

Oregon
Correy McAtee
Prineville
Email: duster_5@msn.com
Phone: (541) 390-6728
Certified Sheep Shearers

Pennsylvania
Thomas Horton
Towanda
Phone: (570) 265-8235
J Randahl Williams
Wallingford
Email: rwilliams@usioffice.net
Phone: (610) 499-1463

South Dakota
Garry R Johnson
Lemmon
Robby Johnson
Lemmon
Aaron Kaufman
Rapid City
Email: aaron@thesheepshearers.com
Phone: (949) 842-3375
Wade Kopren
Bison
Email: wjkopren@sdplains.com
Home phone: (605) 44-7107
Cell phone: (605) 484-0842
Loren Opstedahl
Piedmont
Email: lorkatopstedahl@q.com
Home phone: (605) 787-4497
Cell phone: (605) 484-3600
Brian Troendle
Piedmont
Phone: (605) 499-9951
Tony Troendle
Black Hawk
Email: shear320@yahoo.com
Phone: (605) 210-2547

Texas
Scott King
Ballinger
Email: scottking54@yahoo.com
Home phone: (325) 365-8901
Cell phone: (325) 718-8068

Vermont
Jim McRae
Pittsford
Email: vtshearer@yahoo.com
Phone: (802) 483-9357
Web site: www.vermontshepherds.com
Andrew Rice
Brattleboro
Email: shearwool@hotmail.com
Phone: (802) 257-7982

Virginia
Derrick M Spangler
Copper Hill
Email: olederk@hotmail.com
Phone: (540) 320-2634
Kevin Summers
Amissville
Email: dancinginafield@mac.com
Phone: (540) 937-4490

Washington
Jerry (Gerald) Ladd
Spokane Valley
Email: jerryl@tri-plyfibers.com
Phone: (425) 445-2076
Gerry Larson
Tenino
Email: glarson@scattercreek.com
Phone: (360) 790-0626
Bruce MacLean
Oak Harbor
Email: harmonycottage@bmi.net
Phone: (360) 632-4475
Deanna Pierick
Enumclaw
Email: ratherbeshearing@aol.com
Phone: (253) 261-0072

Wisconsin
Thomas Hawk
Wilson
Phone: (612) 816-9894
Steven Matthys
Barron
Phone: (715) 357-6077
Gavin McKerrow
Eagle
Phone: (920) 251-5287

Wyoming
Rindy Harkness
Riverton
Email: harknell@hotmail.com
Phone: (605) 695-6656

Canada
Don Metheral
Glen Huron, Ontario
Email: metheral12@gmail.com
Phone: (705) 466-2568
Wool Pack and Wool Bag Suppliers

Friedman Bag Company
Kenneth Fehr Jr.
8746 East Hinsdale Drive
Englewood, CO 80112
Phone: (303) 770-3508

Fulton Denver Company
3500 Wynkoop Street
Denver, CO 80216
Phone: (303) 294-9292
Email: sloanmike7@aol.com

Woolsacks Inc.
Tim Kook, President
P.O. Box 911
107 East Live Oak
Fredericksburg, TX 78624
Phone: (830) 997-9554
Email: woolsacks@beecreek.net

For local sales, please contact your nearest wool warehouse.
Colorado
Woodbury Wool Inc.
Bob Woodbury
0690 Peregrine Court
Broomfield, CO 80020
Phone: (303) 466-5575

Massachusetts
R.H. Lindsay Company
Philip S. Lindsay
16 Mather Street
P.O. Box 240926
Boston, MA 02124
Phone: (617) 288-1155
Email: rhlwool@aol.com
Web site: www.rhlindsaywool.com

Illinois
Shinetex America
Lee Shen
520 Karey Ct
Wilmette, IL 60091
Phone: (847) 571-7256
Email: leeshen@shinetex.net

Groenewold Fur and Wool Company
Greg Groenewold
304 East Avon Street
Forreston, IL 61030
Phone: (815) 938-2381
Email: wool@gfwco.com
Web site: www.gfwco.com

New Mexico
Roswell Wool
Mike Corn
212 E 4th Street
Roswell, NM 88201
Phone: (505) 622-3360
Email: mikecorn@roswellwool.com
Web site: www.roswellwool.com

North Carolina
International Textile Group
Tim Almond
804 Green Valley Road, Suite 300
Greensboro, NC 27408
Phone: (336) 379-2096
Email: tim.almond@itg-global.com

Ohio
Mid-States Wool Growers Cooperative
David Rowe
9449 Basil Western Road
Canal Winchester, OH 43110
Phone: (614) 837-9665
Email: info@midstateswoolgrowers.com

Oregon
Pendleton Woolen Mills/Columbia Warehouse
Dan Gutzman
2030 N Columbia Boulevard
Portland, OR 97217
Phone: (503) 535-5546
Email: danieleg@penwool.com

South Carolina
Chargeurs Wool (USA) Inc.
Diego Paullier
178 Wool Road
Jamestown, SC 29453
Phone: (843) 257-4579
Email: dpaullier@chargeurs-wool.com

Lempriere USA Inc.
Rick Powers
3015 Dunes W. Blvd. #503-A
Mt. Pleasant, SC 29466
Phone: (843) 881-1553
Email: rpowers@lempriere.com.au

South Dakota
Center of the Nation Wool
Larry Prager
PO Box 130
Belle Fourche, SD 57717
Phone: (605) 892-6311
Email: larry.cnwool@midconetwork.com
Wool Buyers/Wool Exporters/Wool Brokers

**Texas**

**Anodyne Inc.**
Terry Martin  
40 West Twohig St  
San Angelo, TX 76903  
Phone: (325) 653-3061  
Email: anodynewool@aol.com

**Bollman Industries**
Ladd Hughes  
928 Hughes St  
San Angelo, TX 76903  
Phone: (325) 655-0112  
Email: lhughes@bollmanhats.com

**Entrenos Inc.**
Rick Honacker  
5433 Ben Ficklin Road  
San Angelo, TX 76904  
Phone: (325) 651-2665  
Email: entrenosinc@yahoo.com

**Keese International LLC**
Darrell Keese  
PO Box 574  
Brady, TX 76825  
Phone: (325) 456-8662  
Email: ddkeese@classicnet.net

**Lempriere USA Inc.**
Jason Bannowsky  
PO Box 313  
Menard, TX 76859  
Phone: (325) 396-4760  
Email: jason_lempriere@bellsouth.net

**Ford Oglesby Wool and Mohair Inc.**
Ford Oglesby  
595 W US Hwy 190  
El Dorado, TX 76936  
Phone: (915) 853-2298

**Producers Marketing Cooperative Inc.**
Ronald Pope  
202 NW Railroad St.  
Mertzon, TX 76941  
Phone: (325) 835-7173  
Email: pmcicoop@wcc.net

**Utah**

**Utah Wool Marketing Association**
Will Griggs  
55 S Iron St, Ste 2, Bldg 657  
Toole, UT 84074  
Phone: (435) 843-4284  
Email: utahwool@wirelessbeehive.com

**Textile Fibers International**
Tony Whitlock  
PO Box 581188  
Salt Lake City, UT 84158  
Phone: (435) 940-1694  
Email: vtwhit@aol.com

**Virginia**

**Cestari Ltd.**
Francis Chester  
3581 Churchville Ave  
Churchville, VA 24421  
Phone: (540) 337-7282  
Email: wool@cestariltd.com  
Web site: www.cestariltd.com

**Wyoming**

**Great Plains Wool Company**
Bruce Barker  
PO Box 672  
Big Horn, WY 82833  
Phone: (307) 674-4504  
Email: bmbarker@fiberpipe.net
U.S. Certified Wool Programs for Producers and Shearers

To improve the quality and reputation of U.S. wool, the American Wool Council is developing the U.S. Certified Wool Programs. **Sheep shearers and producers are encouraged to voluntarily participate in one of the three programs.** The programs follow the “Code of Practice for Preparation of U.S. Wool” developed by the American Sheep Industry Association (ASI) and the U.S. Wool Marketing Trade.

The **Code of Practice** booklet offers a set of standards for a self-regulatory approach to wool clip preparation for either a ranch or farm-flock sheep operation. **Growers have the option of producing either a Choice Wool Clip or a Premium Wool Clip.** Each program offers a step-by-step approach allowing anyone to implement improved wool preparation and packaging techniques regardless of breed type, operation size or geographic location.

Although wool preparation cannot necessarily change market conditions, it can increase the number of markets available to the producer.

As more sheep shearers and producers participate in these programs, confidence will grow from buyers and processors for American wool, thus improving market conditions for all U.S. wool producers.

**SHEARERS**

Certified Sheep Shearing Program

Shearers participating in the Certified Sheep Shearing Program are required to practice the **Code of Practice guidelines and check list.** The check list has four basic requirements for shearers:

1. **Reduce contamination:**
   - No poly tarps or twine are allowed;
   - Notify owners/classers of black wool or other contaminates;
   - Take practical steps to remove wool contamination; and
   - Allow sweeping of shearing area between shearing each sheep to avoid contamination of freshly shorn wool.

2. **Shearing order:**
   - Provided steps have been taken to properly sort the sheep before shearing, shearer agrees not to shear an out-of-sequence sheep;
   - Shear sheep by wool type group; and
   - Package wool types separately and label accordingly.

3. **Wool preparation:**
   - Shear in a manner that will allow the wool to be properly prepared for marketing;
   - Package belly wool separately;
   - Remove top-knot and place with sweepings and leg wool;
   - Remove detected poly and dispose of it properly; and
   - Notify the owner/classer of colored spots on white-face wool sheep.

4. **Packaging and labeling:**
   - Use only new and approved packaging materials;
   - Label wool according to the **Code of Practice guidelines**;
   - Do not mix wool types, wool lines or off-sorts; and
   - Do not allow contamination due to carelessness.
PRODUCERS

Producers select one of the below programs that applies to their operation. Those participating in either of these programs must complete a check list and sign a self-certification declaration form.

**Choice Wool Clip Program**

The Choice Wool Clip Program is designed for all sheep producers to improve wool quality. The check list and form requires producers to complete the following:

1. It is recommended that growers use a certified sheep shearer or shearing crew;
2. Make efforts to minimize all wool contamination with emphasis on poly and colored fibers;
3. Sort sheep prior to shearing by wool type and package the wool separately;
4. Prepare wool in the bellies out manner and package belly wool separately from fleece wool and tags;
5. Use only new and approved non-contaminating wool packaging materials;
6. Not allow contamination due to carelessness or neglect;
7. Label wool bags and packs properly;
8. Maintain a written record of the produced wool clip; and
9. Notify marketing agency of the actions taken to produce a Choice Wool Clip and file the necessary documents.

**Premium Wool Clip Program**

This program is directed at larger flocks of wool and dual-purpose breeds of sheep which table skirting will improve the marketability of the clip and the volume of wool is sufficient to allow for classing by a certified wool classer. In addition to the requirements expected of the Choice Wool Clip, the Premium Wool Clip includes:

1. Wool that is exclusively from white-face wool sheep that have been sheared prior to lambing or crutched within 90 days of shearing to reduce the amount of stained wool and colored fibers;
2. Fully table skirt the wool;
3. Wool is classed by a certified wool classer;
4. Wool is baled in new nylon wool packs and labeled according to the ASI Code of Practice; and
5. Fleece lines are properly sampled, tested and described for marketing including core test for average fiber diameter, yield and vegetable matter; grab sampled and tested for staple length and strength; and assigned an AWEX-ID.
Official forms available through ASI and your local wool warehouse.

U.S. CERTIFIED
CHOICE WOOL CLIP
GROWER DECLARATION AND CHECK-LIST

Growers checking the items below and signing at the bottom of the page will self-certify that they are producing an above average clip by adopting the following rules. (Check all that apply.)

☐ When possible use a certified sheep shearer or shearing crew – provide name of certified shearing crew below.
☐ Make efforts to Minimize Wool Contamination including poly and colored fibers.
☐ Sort Sheep prior to shearing by wool type and package the wool and off sorts separately.
☐ Prepare wool in the Bellies Out manner to reduce contamination in fleece lines. Includes the removal of tags, leg wool, topknots and sweepings, and packaging this lower valued wool separately from fleece wool and belly wool.
☐ Keeping obvious differences separate, and not packaging them together such as:
  Different Breed/Wool types (Wool, Meat, Carpet, Colored)
  Different Wool Lines (Fleece, Belly, Tags)
  Differences in Staple Length and Staple Strength (short & tender wool)
  Other obvious differences when economically practical (lambs and yearling wool)
☐ Use only new and approved non-contaminating wool packaging materials.
☐ Will not allow wool to be contaminated by neglect or carelessness.
☐ Label wool packs and bags properly to identify:
  Grower Name
  Wool Description
  Bag Number
☐ Maintain a written record of the wool clip produced by:
  Shearing date
  Individual bale or bag
  Total production
  Prices received for all wool
☐ Notify Marketing Agency of Actions taken to produce a Certified Choice Clip and fill necessary forms and documentation.

By signing this declaration you certify that you are striving to produce a better U.S. wool clip and abide by these ten guidelines above.

I ______________________________ certify that the above are true statements. ______________________________

(Grower Signature) (Date)

(Print Name) ______________________________ (Grower Address) ______________________________

(Grower Telephone, E-mail) ______________________________

(Certified Shearing Crew Name, Address) ______________________________

(Shearer Telephone, E-mail) ______________________________

Retain Top Copy for Your Files
Bottom Copy to Marketing Agent 4000 - 02/09

Grower Declaration for U.S. Choice Wool Clip
Official forms available through ASI and your local wool warehouse.
Official forms available through ASI and your local wool warehouse.

CERTIFIED SHEEP SHEARING
DECLARATION AND CHECK-LIST
(Check all boxes that apply)

CONTAMINATION REDUCTION:
☐ No Poly Tarps or Twine used by shearing operation.
☐ Will notify grower/classer of black wool spots and other wool contamination found on the sheep during shearing and will take steps necessary to remove the offending contaminant from the wool where practical. This includes removing black wool and poly twine and placing the contaminants in a designated containment area to not contaminate the remaining wool if feasible.
☐ Allow sweeping of wool between shearing of sheep to avoid contamination of freshly shorn wool. (In addition, shearing areas will be cleaned in between runs of sheep during the day. Shearing trailers will be thoroughly cleaned daily to avoid cross contamination.)

SHEARING ORDER:
When the sheep producer has made the effort to sort sheep prior to shearing by wool type and age, the shearer and shearing crew will not shear an "out of sequence" sheep - even if the opportunity presents itself. The various sheep groups can be found in the ASI Code of Practice for preparation of U.S. wool clips.
☐ Shearing of sheep by wool type and packaging the wool separately.
☐ Agree not to shear sheep of different wool types in the same run.
☐ Agree to package and label the wool of different wool types separately.
☐ Shearers agree not to shear a black-face or meat breed cross within a white-face wool breed group. All black face and meat breed sheep and their crosses will be sheared after the white face wool/dual purpose breeds.
☐ Black sheep will be sheared after all the white wool and meat breeds are sheared.
☐ Hair sheep and hair sheep crosses will be sheared after all other sheep, packaged and labeled accordingly.

WOOL PREPARATION:
Shear in a manner to that will allow wool to be properly prepared for marketing:
☐ Toss belly wool aside for separate packaging.
   (Note: if poly is present, this can help reduce poly contamination of fleece wool)
☐ Remove top knot and place with sweepings and leg wool.
☐ On White-face wool sheep, notify grower/classer of colored spots and allow the fleece to be classed appropriately.
☐ Remove poly detected and dispose of properly.

PACKAGING AND LABELING:
Shearing crew agrees to the following:
☐ Will only use New and Approved Packaging materials.
☐ Will label wool according to the Code of Practice guidelines.
Will not allow mixing of:
☐ Wool Types    ☐ Wool Lines    ☐ Off-sorts
☐ Will not allow contamination due to carelessness or neglect.

I ________ certify that the above are true statements.

(Shearer Signature)

(Date)

(Print Name)

(Shearer Address, Telephone, E-mail)

American Sheep Industry Association (ASI)
9785 Maroon Cir, Ste 360, Englewood, CO 80112

Forward Top Copy to ASI
Retain Bottom Copy for Your Files

1000 - 02/09
New Packaging Opens International Markets

Over the past 10 years, the material and form that wool is packaged in from the farm or ranch level has evolved. This evolution is a worldwide effort to decrease wool contamination and improve wool handling efficiency. In 1997, major buyers of U.S. wool requested that the U.S. wool industry consider changing its packaging form to better position the U.S. wool clip in the international wool market.

**Baled or Bagged**

Traditionally, the United States used a round wool bag for packaging wool at the farm or ranch level, which is a different form of packaging than that of other countries. The U.S. wool industry and infrastructure evolved around the use of the wool bag as the standard including rigorous sampling and testing methods specifically designed for a round wool bag. In addition, entire systems for handling and shipping efficiency were created to accommodate and facilitate the process of wool movement to U.S. wool mills.

While the United States packaged its wool in round bags, many international competitors used a 440-pound square bale to package wool. This allowed for improved transportation efficiency because square bales are easier to stack and required less space for storage due to greater density. Because large volumes of wool were packaged in square bales internationally, wool mills designed handling systems to accommodate this package design; the square design allows for easier handling and more efficient storage.

Over the years, U.S. bagged wool has become somewhat less attractive to many mills as it is perceived by some to be more difficult to handle and store and lacks transportation efficiency. U.S. wool buyers have made the recommendation to package wool in square bales similar to other wool available internationally. Many mills will not consider purchasing wool unless it is baled; others may automatically discount wool that is not packaged in bales.

Baled wool should be classed at shearing time to ensure the entire bale contents are uniform for fiber diameter, staple length and strength, and style. Flocks need to be large enough to produce uniform lines of wool with a minimum full bale of similar wool.

*Hand-packed wool bales are not recommended for shipment to mills.* The density is not sufficient to allow for efficient handling and shipment. Hand-packed bales seldom retain their square shape and create storage problems. Hand-packed bales should be repackaged to produce a bale of sufficient density, weight and shape for shipment to the mill.
Baled wool is not the answer for every U.S. sheep producer

Wool warehouses that handle and re-grade wool from small grower lots still recommend wool bags for wool growers. These warehouses open up each wool bag or bale to re-grade smaller volumes of wool into commercial sale lots. These commercial sale lots are then baled in a form that is acceptable for shipment to the mills. A warehouse may have more than 15 different lines or types of wool that they prepare to maximize the marketing options for the wool grower.

Speak with your marketing representative before baling wool to determine if the square bale pack will be the most effective and efficient way to handle your wool.

Nylon or Plastic

Worldwide efforts to eliminate jute or burlap wool packaging material began more than 10 years ago. Jute fibers of packaging-material origin were found to be a source of wool contamination. Stray or loose fibers from the material, as well as fibers resulting from routine handling, resulted in additional costs for wool mills. Additionally, disposal of the used material at the mill level was becoming an environmental issue, particularly in Europe.

Nylon wool packs were developed for packaging wool in square bales. Nylon will dye along with wool and is therefore considered an acceptable wool-packaging material. Initially, the cost of nylon wool packs limited their use to the very high-valued wool. Recently, Australia banned the importation of both high-density polyethylene and jute wool packs to reduce wool contamination. With this ban, more nylon wool packs are in use and the price has been reduced dramatically. Today, nylon wool packs are comparable in price to the other packaging materials available.

Efforts in Australia and the United States also resulted in a clear, polyethylene film packaging material that nearly eliminated the contamination issue. In Australia, a film pack was developed and used in a highly visible Wool Quality Assurance Program. The United States’ effort resulted in the square bale pack, which used straps to close the opening and keep wool inside the pack.

At the same time, polyethylene film bags were developed to replace the traditional U.S. jute wool bags. In addition to reducing contamination, the clear film material resulted in an increased awareness of wool quality improvement. Clearly visible through the material, it was easy to determine if the wool had been packaged properly at shearing time. Obvious differences in wool quality can also be detected.

As with any new product, modifications were made to improve performance. Film-packaging material contains many small holes or micro-pores, which allow the wool to ‘breathe.’ In addition, a rough surface was created to help keep the wool in the bale or bag while filling it and reduce slipping during storage.

While the use of film packaging material, in either bale or bag form, has presented some challenges for the wool industry, many of these challenges can be easily overcome. For example, difficulty in closing film bags can be dealt with by simply not packaging bags too full. Wool bags can be sewn closed with cotton string similar to jute bags. Film bags and bales do require more attention during handling to prevent tearing or broken bags and bales.

Wool that is wet or damp at shearing creates an additional challenge for packaging in film square packs or wool bags. Regardless of the packaging material, wet wool should not be sheared. The film-packaging material does require wool to be dry at shearing time. Wool in any packaging material should not be stored in direct sunlight or on the ground.
Identification of Wool Packs and Bags

Each bale or bag should contain the following information:

1. Grower’s name or official brand in legible letters and/or numbers 2” to 3” tall.

2. Official labeling should be used for identification between the grower and the warehouse:
   (see labels on reverse side for acceptable bale markings)
   A  main line of 12-month fleece wool
   BLS  belly wool
   LKS  tags, leg wool, top knots, second cuts, sweepings

3. Bale or bag number, numbered in sequence.

4. Classer stencil number (only if wool is classed).

Use approved ink which dries quickly and will not be absorbed into the packaging material and stain the wool. Do not use branding paint or aerosol paint. Contact the warehouse or a stencil ink manufacturer/distributor for acceptable supplies.

Use new and approved wool packaging materials. Used bags and packs can contaminate wool and cause identification problems. The optimum bale weight is 400-450 lbs. and should not be more than 52” long. To properly close the bale, eight wool clips should be used (four on the inside flaps and four on the outside flaps).
U.S. Classing Line Standards and Labeling for Wool- and Dual-Purpose Breeds

For effective marketing, use objective measurement for average fiber diameter, yield and staple length/staple strength and explore marketing options with warehouses and marketing agents.

The “A line” is the majority or main line of 12-month fleece wool in an individual wool clip, but not necessarily the best line.

<table>
<thead>
<tr>
<th>FLEECE LINES</th>
<th>DESCRIPTION OF LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>Large volume of similar wool, but of a different class than AA line</td>
</tr>
<tr>
<td>AA</td>
<td>Large volume of similar wool, but of a different class than the A or main line of wool</td>
</tr>
<tr>
<td>A</td>
<td>Main line of 12-month wool (majority of wool)</td>
</tr>
<tr>
<td>A-1</td>
<td>Coarser end of wool clip</td>
</tr>
<tr>
<td>A-2</td>
<td>Tender or short wool</td>
</tr>
<tr>
<td>A-3</td>
<td>Additional line with high VM, off-color, etc.</td>
</tr>
<tr>
<td>A-4</td>
<td>Out-cast fleeces</td>
</tr>
<tr>
<td>BLS (bellies)</td>
<td>Wool from the belly area of the sheep (white-face sheep only)</td>
</tr>
<tr>
<td>PCS (pieces)</td>
<td>Wool removed from skirting; not stained but containing high VM, matted, etc.</td>
</tr>
<tr>
<td>STN (stain)</td>
<td>Wool removed from skirting stained with dung, urine, blood, paint, etc.</td>
</tr>
<tr>
<td>LKS (locks)</td>
<td>Tags, top knots, leg wool/shanks, second cuts, sweepings</td>
</tr>
<tr>
<td>CTH</td>
<td>Wool less than 2&quot; long or extremely short in length compared to the A-2 line</td>
</tr>
<tr>
<td>BLK</td>
<td>Wool from black sheep or black spots</td>
</tr>
</tbody>
</table>

- Volume and economics will determine the number of lines necessary.
- Over classing (creating too many lines) should be avoided.
- Main lines of wool from young sheep should be marked with an “L” following the line description.
  - A-L – Main line of lamb or yearling fleece wool
  - A-1L – Coarser lamb or yearling fleece wool
  - A-2L – Short/tender lamb or yearling fleece wool
- Rams wool can be marked RAM. Shorter, lowering yielding, less attractive rams wool would be marked RAM2.

For wool from MEAT breed sheep, use the letter “M” in place of “A.” White-face/black-face meat breed separations can occur where necessary, denote lines as: M-WF, M-BF, MM-WF. Separations should be made where economically reasonable.
### Wool Press Record Example

Official forms available through ASI and your local wool warehouse.

<table>
<thead>
<tr>
<th>Ranch/Farm Name:</th>
<th>Date of Shearing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shearer/Shearing Crew:</th>
<th>Number of Shearers:</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wool Classer Name:</th>
<th>Classer Number:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Number of Bales:</th>
<th>Number of Sheep Shorn:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bale #</th>
<th>Line Description</th>
<th>Weight</th>
<th>Bale #</th>
<th>Line Description</th>
<th>Weight</th>
</tr>
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<tr>
<td>1</td>
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<td></td>
<td>50</td>
<td></td>
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</tr>
</tbody>
</table>
Wool Clip Summary Example
Official forms available through ASI and your local wool warehouse.

Ranch/Farm Name: ____________________________________________
Date of Shearing: ____________________________________________

Wool and Dual Purpose Sheep

<table>
<thead>
<tr>
<th>White-face Ewe Fleeces</th>
<th>WF Yearling or Lamb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line</td>
<td>Description</td>
</tr>
<tr>
<td>AA</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Main Line</td>
</tr>
<tr>
<td>A-1</td>
<td>Coarser Wool</td>
</tr>
<tr>
<td>A-2</td>
<td>Short/Tender</td>
</tr>
<tr>
<td>A-3</td>
<td>Heavy VM</td>
</tr>
<tr>
<td>A-4</td>
<td>Out cast</td>
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</table>

<table>
<thead>
<tr>
<th>White-face Off Sorts (Do not combine with meat breed off sorts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS</td>
</tr>
<tr>
<td>BLS</td>
</tr>
<tr>
<td>LKS</td>
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</table>

<table>
<thead>
<tr>
<th>Meat Breeds and Black-face (including crosses)</th>
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</thead>
<tbody>
<tr>
<td>M</td>
</tr>
<tr>
<td>M-1</td>
</tr>
<tr>
<td>M-2</td>
</tr>
<tr>
<td>M-3</td>
</tr>
<tr>
<td>M-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meat Breed Off Sorts (Must be kept separate from white-face)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-BLS</td>
</tr>
<tr>
<td>M-LKS</td>
</tr>
</tbody>
</table>


Wool Testing Labs and Services

Colorado
Yocom-McColl Testing Labs Inc.
Angus McColl
540 West Elk Place
Denver, CO 80216
Phone: (303) 294-0582
Email: ymccoll@ymccoll.com
Web site: www.ymccoll.com

Montana
Montana Wool Laboratory
Dr. Rodney Kott
Extension Sheep Specialist
Montana State University
Department Range and Animal Sciences
Bozeman, MT 59717
Phone: (406) 994-5602
Email: rkott@montana.edu

Nevada
University of Nevada Reno
Dr. Tumen Wuliji
Department of Animal Biotechnology
University of Nevada, Reno
Mail Stop 202
Reno, NV 89557
Phone: (775) 784-4222
Email: twuliji@cabnr.unr.edu

Texas
Texas AgriLife Research and Extension Center
Dr. Christopher J. Lupton
Wool and Mohair Research Laboratory
Texas AgriLife Research and Ext. Center
7887 U.S. Highway 87 North
San Angelo, Texas 76901-9714
Phone: (325) 653-4576
Email: c-lupton@tamu.edu
Web site: http://sanangelo.tamu.edu/wmrl/clupton.htm

Producer’s Marketing Cooperative Inc.
Dr. Ronald Pope
7174 Fay
Mertzon TX 76941
Phone: (325) 835-7173
Email: pmcicoop@wcc.net

Utah
Utah State University Wool Lab
Dr. Lyle McNeal
Animal, Dairy and Veterinary Science Department
4815 Old Main Hill
Logan, UT 84322
Phone: (435) 797-2154 or (435) 797-2140
Email: lyle.mcneal@usu.edu
Web site: www.utah.edu

Wyoming
University of Wyoming
Dr. Robert Stobart
Extension Sheep Specialist
Animal Science Department
Laramie, WY 82071
Phone: (307) 766-5212
Email: BStobart@uwyo.edu
Various Formulas are Used to Calculate Yield

Yield is the amount of useful fiber that can be obtained from a known weight of grease or raw wool.

To allow for different methods of processing, different mathematical formulas have been developed for calculating yield. All formulas start with the wool base and most also use the vegetable-matter base. Depending on the specific formula, different allowances are made for percent moisture, vegetable-matter base or residual grease. These standard allowances are specified in pertinent testing regulations.

Greasy Wool
Wool in its unscourd form contains wool fiber and varying amounts of other materials including water, wax, suint, dirt and vegetable matter. With the exception of water, most of the other impurities are removed during scouring.

Wool Base (WB)
Wool base is the amount of pure dry wool fiber expressed as a percentage of the total weight of the greasy material.

Wool base of a commercial lot is determined in a laboratory by scouring representative core samples, determining the oven dry weight and then measuring the residual impurities. These impurities are measured in varying ways: ashing at 700°C for residual inorganic material (sand, dirt and minerals present within the wool protein), extraction with alcohol for grease and dissolving the wool in hot caustic soda for vegetable matter. All these tests are highly controlled and similar throughout the world.

Vegetable-Matter Base (VMB)
Greasy wool also contains varying amounts of vegetable matter in the form of seeds, straw, burrs, twigs, etc. The amount and type of vegetable matter also affects the yield of useable wool fiber after processing. The vegetable-matter base is the weight of dry vegetable matter expressed as a percentage of the total weight of greasy wool. Vegetable-matter base is taken into account in some yield calculations depending on the specific type of yield required.

Moisture
Wool has a great affinity for moisture. However, the amount of water it contains depends very much on ambient temperature and relative humidity. Wool’s ability to either absorb or release moisture relatively quickly can have a significant impact on yield. It is generally assumed that at the time of sampling raw wool, its moisture content had time to equilibrate with the surrounding atmosphere. This assumption can be in error when the wool is sampled in rapidly changing conditions or in very dry or very humid conditions.
YIELD DETERMINATION EQUATIONS

In 1997, the U.S. wool industry requested that the U.S. commercial laboratories henceforward report yield in terms of both ASTM Clean Wool Fibers Present (CWFP) and IWTO Estimated Commercial Top and Noil yield for Schlumberger dry-combed wool containing one percent total fatty matter (Schlumberger Dry). Both the ASTM and IWTO yields are derived from wool base. In practicality, the two definitions of wool base are the same.

ASTM Clean Wool Fiber Present (CWFP)
Traditionally, U.S. raw wool was bought and sold on the CWFP basis, which consists of:
- 86% Wool Base
- 12% Moisture
- 0.5% Residual Grease
- 1.5% Alcohol Extractables

\[
\text{CWFP \%} = \frac{\text{Wool Base}}{0.86} = \text{Wool Base} \times 1.1628.
\]

IWTO Yield Measurements
Because U.S. wools are sold in the international marketplace, some common internationally accepted yield calculations might also be used on U.S. wool-test certificates.

IWTO Scoured Yield, 17% Regain (IWTO-SCD 17%) is an estimate of scouring or “washing” yield, before any further wool processing takes place that can remove vegetable matter. The equation used to determine this yield is:

\[
\text{IWTO SCD 17\%} = (\text{Wool Base} + \text{Vegetable Matter Base}) \times 1.1972
\]

The factor of 1.1972 is used to allow for 17 percent regain in moisture content and an allowance of 2.27 percent for residual grease and ash in the sample.

IWTO Estimated Commercial Top and Noil Yield for Schlumberger dry-combed wools (SCH DRY YIELD) is probably the most common internationally used yield calculation; it attempts to predict the amount of wool top and noil that can be combed from the greasy wool and, in a rather complex way, accounts for the amount of wool that is lost when removing specific types of vegetable matter. Similar to IWTO – SCD 17%, allowances are made for residual grease, ash and moisture regain. The conversion factor of 1.207 is applied to the wool base to correct for these factors. The SCH DRY yield also includes a factor for fibers removed with vegetable matter during processing (Processing Allowance). The simplified equation used to determine this yield is:

\[
\text{IWTO SCH DRY} = (\text{Wool Base} \times 1.207) - \text{Processing Allowance}
\]

For Schlumberger dry-combed wools, Processing Allowance = 2.5 + VA (an allowance for vegetable matter). The vegetable matter allowance is mathematically related to the vegetable-matter base (excluding certain types of vegetable matter) and can be either calculated or accessed from tables.

Photos taken at Yocom-McColl Testing Laboratories

3/07-5000
Coring Instructions
1. The bales are cut with a knife or hot iron to allow the tube to enter the bale and avoid nylon contamination.
2. Penetrate the bale to within one inch of the end of the tube.
3. Manually withdraw the tube from the bale.
4. Sample is extruded from the tip through the tube into the sample bag.
5. The cores are extruded into a doubled plastic bag which is 12” x 20” x .003 mils.
6. While sampling, the sample must be protected from climatic changes which affect the sample.
7. When sampling is complete, the inside bag is tied. The sample identification is placed between the bags where it is easily read.
8. The sample is shipped in a box to the laboratory for testing.

Sampling Schedule for Australian Type Bales (7/8” tube)

<table>
<thead>
<tr>
<th>Number of Bales</th>
<th>Cores per Bale</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>6 to 9</td>
<td>3</td>
</tr>
<tr>
<td>10 to 13</td>
<td>2</td>
</tr>
<tr>
<td>14 to 19</td>
<td>2</td>
</tr>
<tr>
<td>20 to 40</td>
<td>2</td>
</tr>
<tr>
<td>40 and over</td>
<td>1</td>
</tr>
</tbody>
</table>

• All bales must be cored.
• All bales must be cored the same number of times.
• Present minimum sample weights are 500 grams or one pound. If minimum weight is not acquired by the sampling schedule, then each bale must be cored again until the sample meets the required weight. This requires coring all bales and all bales must be cored the same number of times.

How to Use Core Test Results
• Determine the yield (CWFP) of the clip.
• Total weight of CWFP; yield (or CWFP) multiplied by net weight: A 50% CWFP x 10,000 lbs. net weight = 5,000 lbs. CWFP.
• Most wool is charged freight and commission on grease weights.
• The formula for grease price from the yield: grease price=clean price x CWFP.
• Wool is hygroscopic (attracts and absorbs moisture from the air) and changes in weight are common, both gain and loss. Pounds of clean wool remain constant.

Production Evaluation of the Flock and Average of Individual Sheep
Flock production = CWFP x net weights (to determine how many pounds of clean wool (CWFP) the flock produces).

CWFP per fleece = Total net weight x CWFP/Total number of individual fleeces.

Fiber Diameter Measurement for Determination of Grade
Normally, the residue from the dried wool is used in the determination of average fiber diameter (AFD), which in conjunction with standard deviation (SD), determines grade. The dried sample is conditioned for a minimum of four hours at 65% relative humidity at 70 degrees Fahrenheit. The sample is sub sampled by gridding for slide preparation. The sub sample is placed in a cross sectioning device and a sliver is cut to a minimum length of 250 microns. The sliver of wool is mounted in oil on a hanging drop slide and fiber images are projected at 500 magnification for measurement. Individual fibers are measured using a calibrated wedge card, and the AFD, SD and coefficient of variation (CV) are calculated. On the basis of these calculations, grade is determined.

Core Test Reports
There are several different types of test reports, but most contain basic information on the lot of wool tested. The report identifies the grower, warehouse and dealer or mill initiating the core test. Administrative information includes lot numbers, number of bales or bags, net weight of cored wool, date of coring, party doing the coring and date the wool was weighed. Most wools tested for yield also are tested for grade and one report will contain data from both. Yield data reports laboratory scoured yield, clean wool fibers present, vegetable matter grease basis and U.S. clean yield. The grade data reports AFD, SD and CV to determine grade.

Yocom-McColl Testing Laboratories Inc.
Recommended Guidelines for Manually Obtaining a Greasy Wool Grab Sample

A representative sample of greasy wool is needed so that wool staple length, staple strength and position of break can be measured. These guidelines have been developed and serve as a recommended procedure to obtain a wool grab sample that is suitable for sending to a commercial wool laboratory for analysis. The sample sent to the laboratory must be representative of the wool lot as a whole, and the sample must be of sufficient quantity (6 to 10 pounds of wool) to allow for an unbiased sub-sampling at the wool-testing laboratory.

Some warehouses have equipment in place to mechanically obtain unbiased wool grab samples. However, not all warehouses have this equipment. This presents a challenge to the U.S. wool industry; however, it is not insurmountable. Other wool producing countries have developed protocols, which allow for the manual sampling of wool and are recommended for use in the United States. With minor modifications, these protocols have been developed for use in the United States.

In addition to testing for wool staple length, staple strength and position of break, a grab sample of sufficient volume can also be used as a display sample. With a display sample, an assessment of non-measured characteristics of the wool, or wool type, can be assigned. AWEX-ID is a universally accepted description method that is available in the United States to describe U.S. wool. AWEX-ID is valuable for marketing purposes and price discovery.

Different sampling techniques are described and recommended on the following pages.

1. One technique describes how to **manually sample properly classed and baled wool once it reaches a warehouse or centralized collection center**.

2. The other two techniques can be performed during wool harvesting (shearing) by a qualified wool classer. These techniques are designed to obtain a representative sample by **sampling each fleece individually** as it is being skirted and classed, or sampling an **armful of wool** as it is being loaded into the wool press. These sub-samples are combined to form a larger, composite sample for every line of wool.

   To ensure that the sample obtained is representative of the lot of wool, it is important to make sure that all the recommendations are followed.

   The critical elements of the sampling operation are:
   - Each tuft sample must be taken at random,
   - Each tuft sample must be roughly the same size, and
   - A tuft sample, once taken, must never be rejected.
**Sampling Classed and Baled Fleece Wool**

The objective of this sampling technique is to obtain a total sample mass of 6 to 10 pounds for each lot of wool. It is necessary to have an indication of the final lot size so that the amount taken in each sub-sample can be determined prior to sampling to achieve this sample weight.

The following procedure is required:

1. Each bale in the lot must be sampled.

2. Before a grab sample is taken, determine the number of grabs per bale for the lot.

<table>
<thead>
<tr>
<th># of Bales/Lot</th>
<th>Minimum # of Grab Samples Taken</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
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<tr>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4-5</td>
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<tr>
<td>8-15</td>
<td>2</td>
</tr>
<tr>
<td>16+</td>
<td>1</td>
</tr>
</tbody>
</table>

   *Each bale in the lot must be sampled. All bales in the lot must be sampled the same number of times.*

3. The bale must be slit to obtain a sample using the following guidelines:
   a. Use a hot iron to slit synthetic wool packs;
   b. Slits must be on the side of the pack;
   c. Grab slits should be 6 to 8 inches in length; and
   d. Slit made at a 45-degree angle to the weave of the material.

4. Locate a properly labeled, large plastic bag near the place of sampling.

5. From the slit on the side of the bale, remove a ‘handful’ of wool from as far in as one can reach into the bale. Each handful of wool should weigh approximately half a pound. Take a sample of similar size for every slit on each bale. It is important to note the following points:
   a. The sample must be taken without fear of favor – this is best achieved by taking the sample as deep as possible thereby ensuring the portion selected is out of sight;
   b. A sample must be taken from every bale slit;
   c. Never reject a sample, no matter what its quality or appearance; and
   d. Aim to take a similar-sized sample from each slit within the lot.

6. Once the sample has been taken, place the handful of wool into the large plastic bag that has been properly labeled for this lot of wool. When sampling has been complete, weigh the bag of samples to determine if enough wool sample has been collected.

7. If insufficient wool has been collected (less than 6 pounds), it will be necessary to sample every bale in the lot an additional time. New slits on the opposite side from the old slits should be made. Each bale must be sampled the same number of times, and sample sizes must be similar in mass to those previously taken.

8. Seal the properly labeled bag for shipment to the laboratory.
Sampling at Shearing Time

There are two basic sampling techniques to obtain a sample at shearing time or wool classing:
1. Sampling of individual fleeces, and
2. Sampling of armfuls of wool taken during wool pressing.

The choice of which technique used will depend on the type of wool (fleece wool vs. skirting/off-sort lines) and the physical location where the wool is being classed into uniform lines for marketing purposes. Because small volumes of wool are allocated to the appropriate line during skirting, sampling armfuls of the various off-sort lines (belly wool, pieces and locks) is covered separately.

In cases where smaller volumes of wool are re-handled to form larger lots of uniform wool, (for example a warehouse that bulk classes wool), sampling individual fleeces at shearing time is not practical. These fleeces must be sampled according to the guidelines for sampling fleece wool lines during wool pressing.

**Sampling Main Fleece Lines**
Sampling individual fleeces is the recommended procedure for obtaining a representative sample of main fleece lines during shearing. Each fleece must be sampled while on the skirting table. As each fleece will be sampled, prior knowledge of the size of the final lot is not required.

**Sampling Individual Fleeces on a Skirting Table**
1. Make sure a labeled container is provided that can be related to each bin or classed wool line. This may be a labeled cardboard box, small plastic container or a plastic bag attached to the wool bin.
2. While the fleece is on the skirting table, and once skirting is completed, select a tuft of wool (consisting of 4-6 pencil sized staples of wool) from one of four quadrants of the fleece.
   a. To avoid a length bias it is essential that the sampling location within the quadrant is varied.
   b. Always retain the first tuft selected. Never reject a tuft once it has been taken.
   c. Successive fleeces must always be sampled from an adjacent quadrant, not from the same quadrant as the previous fleece. The location within the quadrant must be different from the location in the previous fleece.
3. It is essential that the tuft be transferred to the wool classer with the fleece. Once the wool classer has decided on the appropriate wool line, the corresponding tuft of wool is placed in the designated container.
4. When pressing for a particular bin or bale is complete, take the sample tufts representing the wool in the bin/bale and place it in a plastic bag. Record the wool line description and the corresponding bale number on a card and place it inside the plastic bag so that it can be read. Seal the bag and place this sample in a secure location until all the bales of this wool line are assembled into a lot.
5. When lotting for each line of wool is complete, transfer the samples of tufts (corresponding to each bale in the lot) into a separate larger plastic bag, for each line of wool classed. Label the larger plastic bag accordingly, noting the appropriate wool line and number of bales within that particular line.

**Sampling Skirtings/Off-Sort Lines of Wool**

**Belly, Pieces, Locks, etc.**
Sampling skirtings or off-sort lines of wool is inherently more difficult because the amount of skirted wool from each fleece is relatively small and variable in weight. The procedure relies on a random selection of a tuft from the skirting or off-sort from each fleece.

1. Ensure that a container is provided that can be related to the appropriate line of wool. This may be a plastic or paper bag, a small plastic bin or a cardboard box.
2. When the various off-sorts are removed from the fleece, select a tuft of wool consisting of 2-3 pencil-sized staples at random from the off-sort before they are placed in the bin.
3. When pressing for a particular bin is complete, remove the sample tufts from their container, and place it in a plastic bag. Record the line description and the corresponding bale number on a card. Place the card in the bag of accumulated wool so that it can be read. Seal the bag and place it in a secure location until the wool is lotted.

When lotting is complete, transfer the samples (corresponding to each bale in the lot) into one larger plastic bag for shipment to the testing lab. Label the larger plastic bag accordingly, noting the appropriate wool line and number of bales.
Sampling Fleece Wool Lines During Pressing

The objective of this technique is to obtain a total sample mass of 6 to 10 pounds for the final line classed. It is necessary to have prior indication of the final lot size so that the amount taken in each sub-sample is sufficient to achieve this sample weight.

For warehouses and wool pools that class individual fleeces, this is the recommended procedure to obtain a sample. Because each fleece will have been previously rolled and packaged, it is not possible to obtain a random, unbiased sample from these fleeces. Therefore, sampling during wool pressing is the recommended procedure.

The following procedure is required:
1. Determine the weight of sample per armful to be taken. Utilize the following method to determine this weight:
   a. Estimate the number of bales (A);
   b. Estimate number of armfuls to achieve one bale (B);
   c. Determine number of samples (C) where C = A x B;
   d. Total weight of sample required is 10 pounds;
   e. Average weight of sample taken per armful = 10 pounds /no. samples (C).
2. Locate a small plastic bag/container near the wool press.
3. As an armful of wool is placed into the press, reach into the middle of the armful, take a sample of wool and place it in the container. Take a sample of similar size for every successive armful until the entire bin/bale has been pressed. It is important to note the following points:
   a. The sample must be taken without fear of favor – this is best achieved by taking the sample from the middle of the armful thereby ensuring the portion selected is out of sight;
   b. A sample must be taken from every armful;
   c. Never reject a sample, no matter what its quality or appearance; and
   d. Aim to take a similar sized sample from every armful within the lot.
4. Once the pressing of a particular bin/bale is complete, record the line description and the corresponding bale number on a card. Place the card in the bag of accumulated wool so that it can be read. Seal the bag, and place it in a secure location until the wool is lotted.
5. When lotting is complete, transfer the samples (corresponding to each bale in the lot) into one larger plastic bag for shipment to the testing lab. Label the larger plastic bag accordingly, noting wool line and number of bales. All of the samples collected must be sent to the laboratory.

Official U.S. Wool Grade Standards Card

<table>
<thead>
<tr>
<th>USDA Grade</th>
<th>Fiber Diameter (micron)</th>
<th>Maximum Standard Deviation (micron)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finer than</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80s</td>
<td>17.20</td>
<td>3.59</td>
</tr>
<tr>
<td>60s</td>
<td>19.50 to 19.74</td>
<td>5.19</td>
</tr>
<tr>
<td>61s</td>
<td>20.00 to 20.54</td>
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</tr>
<tr>
<td>62s</td>
<td>20.55 to 21.04</td>
<td>6.49</td>
</tr>
<tr>
<td>50s</td>
<td>21.50 to 25.99</td>
<td>7.09</td>
</tr>
<tr>
<td>51s</td>
<td>26.00 to 26.57</td>
<td>7.59</td>
</tr>
<tr>
<td>52s</td>
<td>27.05 to 27.63</td>
<td>8.19</td>
</tr>
<tr>
<td>53s</td>
<td>29.00 to 29.99</td>
<td>8.69</td>
</tr>
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<td>40s</td>
<td>30.00 to 30.54</td>
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<td>32.00 to 32.55</td>
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<tr>
<td>42s</td>
<td>34.00 to 34.59</td>
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<tr>
<td>43s</td>
<td>36.00 to 36.59</td>
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</tr>
<tr>
<td>34s</td>
<td>38.50 to 40.25</td>
<td>11.19</td>
</tr>
<tr>
<td>Coarse from 40s over 40.25</td>
<td>11.19</td>
<td></td>
</tr>
</tbody>
</table>
Sheep Production in the Twenty-First Century; Keeping Pace with Demand

The relative value of greasy (raw) wool is a function of its value-determining characteristics that are both qualitative and quantitative.

**Clean price** is based primarily on qualitative factors that determine the "end use" of the raw fiber. The two most important qualitative factors in value determination are fiber diameter and length. Characteristics that also affect clean price, but to a lesser degree, are uniformity, fiber strength, color, crimp, softness and certain contaminants such as "poly" twine, amount and type of vegetable matter contamination and non-scorable branding paint.

To determine **grease price**, a measure of yield is necessary.

Wool grown on farms and ranches is normally sold and moved to processing centers “in the grease.” However, its value is always determined from a measure or estimate of both qualitative and quantitative aspects of the clean fiber present.

The first step in determining grease price is to establish a clean price that is based mostly on the fiber diameter and length combined with other factors noted previously. Clean price is then combined with a value for yield to arrive at a grease price using the following formula:

\[
\text{Clean Price} \times \text{Yield} = \text{Grease Price}
\]

Grease price determined in this manner is usually a ‘delivered’ price. To determine grease price at a given point, handling costs such as freight, grading, storage, commissions, coring and testing are deducted. Because these charges involve wool in the greasy state, they are subtracted from the delivered grease price rather than clean price. The formula for determining the grease price actually paid to the wool grower becomes:

\[
(\text{Clean Price} \times \text{Yield}) - \text{Handling} = \text{Grease Price}
\]

### Wool Price Example (Actual figures will vary)

<table>
<thead>
<tr>
<th>Clean Price Delivered</th>
<th>$2.12</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Multiply Yield</td>
<td>x 0.58</td>
</tr>
<tr>
<td><strong>Grease Price, Delivered</strong></td>
<td>$1.23</td>
</tr>
<tr>
<td>- Minus-</td>
<td></td>
</tr>
<tr>
<td>Transportation and</td>
<td>- 0.15</td>
</tr>
<tr>
<td>Other Handling Charges</td>
<td></td>
</tr>
<tr>
<td><strong>Grease Price, Received By Grower</strong></td>
<td>$1.08</td>
</tr>
</tbody>
</table>
Considerations for growers:
The formulas for determining grease price of wool suggest that producers can adjust their management systems to change one or more of the factors to increase the price they receive for their wool clips.

Fiber diameter and length are the two factors that primarily determine clean price. These factors can be altered by changes in breeding and/or nutrition. If the nutritional program is correct for optimum lamb production, dietary changes to influence wool growth are seldom justified. Average fiber length can be increased and average fiber diameter can be reduced to increase clean price by using different breeds or by within-breed selection.

Response to within-breed selection for these traits is relatively slow; however, resulting changes tend to be permanent. Changing breeds is usually not encouraged for existing flocks which the breed or breed combinations used have been selected to fit specific management systems and environments.

Year-long care and proper wool handling at shearing time affect both clean price (due to contaminants) and yield (due to level of non-wool components). Harvest time (shearing) is especially crucial because entire clips can be improved or spoiled during that period. Management adjustments at shearing time are usually rewarding to producers because they are quite easily accomplished, readily visible and, in the long-term, increase grease price with minimal cost.

Careful attention to marketing options available and the cost/benefit relationships associated with each can usually reduce handling (marketing) charges.

When possible, objective measurement (coring with laboratory analysis) should be used to measure the basic wool value determining factors. Wool that is described accurately has a better chance of being correctly priced.
USDA Wool Marketing Loan Program

USDA’s Farm Service Agency (FSA) provides marketing assistance loans and loan deficiency payments (LDPs) for wool. Producers are able to use their wool as collateral for a guaranteed loan from the USDA, but they are not required to take out a loan in order to participate.

Producers must have title and beneficial interest in the wool to participate and the wool must be shorn off the animal. Eligible producers can either:
1) Request a nine-month marketing assistance loan, or
2) Agree to forgo the loan and request a loan deficiency payment or ‘LDP.’

Most producers participate using the LDP option rather than taking out a loan on their wool.

Because some wool is more valuable than others, there are different loan rates for different fiber diameter classes of wool. Graded wool loan rates are reported on a clean wool basis and require a core test where the average fiber diameter and yield are known.

<table>
<thead>
<tr>
<th>Category</th>
<th>2010 Loan Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graded Wool</td>
<td></td>
</tr>
<tr>
<td>&lt;18.6 Micron</td>
<td>$3.88</td>
</tr>
<tr>
<td>18.6 – 19.5</td>
<td>$3.38</td>
</tr>
<tr>
<td>19.6 – 20.5</td>
<td>$2.94</td>
</tr>
<tr>
<td>20.6 – 22.0</td>
<td>$2.72</td>
</tr>
<tr>
<td>22.1 – 23.5</td>
<td>$2.56</td>
</tr>
<tr>
<td>23.6 – 25.9</td>
<td>$2.33</td>
</tr>
<tr>
<td>26.0 – 28.9</td>
<td>$1.78</td>
</tr>
<tr>
<td>&gt; 29 Micron</td>
<td>$1.38</td>
</tr>
<tr>
<td>Ungraded Wool</td>
<td>40 cents</td>
</tr>
</tbody>
</table>

All wool shorn off the sheep is supported at a minimum rate of 40 cents per pound – referred to as ungraded wool.

Wool Marketing Loans
Marketing loans are available for up to nine months with a small initial filing fee. Growers shear the sheep, determine the amount of wool produced and are able to take out a loan on the wool they produce. The wool can not be sold while under loan.

At any time during the loan period, a grower may repay the loan and the amount of interest due.

USDA announces weekly repayment rates for wool and growers repay the loan at either the announced repayment rate or the loan rate, which ever is lower. If the repayment rate is below the loan rate - growers are able to keep the financial gain after paying off the loan and interest. Weekly repayment rates are determined by USDA using international wool market prices and are adjusted to reflect fluctuations in U.S. currency exchange rates.

Loan Deficiency Payments - LDP
Producers not wanting to take out a loan on their wool can still participate in the program by taking an LDP. An LDP is only available when the announced repayment rate is below the loan rate.

If the repayment rate is above the loan rate, there is no LDP on the wool. Repayment rates are announced weekly and are dependent upon international wool-market prices and currency exchange rates.

Similar to wool marketing loans, there are both graded and ungraded LDP rates. All wool is eligible for the ungraded LDP program. Producers wanting to participate in the graded LDP portion of the program must have core test information on their wool which determines the loan rate and repayment rates in effect for that wool.

Growers without core test information are limited to participate in the ungraded program; however, growers with core test information can choose either the graded or ungraded LDPs on their wool – which ever is to their financial advantage. Core tested wool is not limited to the graded LDP rates and this has been a source of confusion in the past.

LDP Examples:

**Example 1**
- Ungraded Loan Rate: 40 cents
- Weekly Effective Repayment Rate: 11 cents
- Loan Deficiency Payment (LDP): 29 cents

**Example 2**
- Ungraded Loan Rate: 40 cents
- Weekly Effective Repayment Rate: 44 cents
- Loan Deficiency Payment (LDP): There is no LDP

**Example 3**
- Graded Loan Rate (21 micron): $2.72
- Weekly Effective Repayment Rate: $2.38
- Loan Deficiency Payment (LDP): $0.34 on a clean basis

**Example 4**
- Graded Loan Rate (21 micron): $2.72
- Weekly Effective Repayment Rate: $2.98
- Loan Deficiency Payment (LDP): There is no LDP

Producers with core test information need to determine which option is financially in their best interest. In the above examples, even though Example 3 has a LDP of 34 cents clean, when converted to a grease price equivalent, the ungraded LDP rate in Example 1 would be more financially favorable to the grower.

Clean price x % yield = grease price ($0.34 x 56% yield = $0.19 grease equivalent).

Growers are encouraged to contact their local FSA office to determine eligibility and program details.