

THE SHEEP INDUSTRY

of the



Supplement to
MONTHLY REVIEW
SEPTEMBER, 1950

**FEDERAL RESERVE BANK
OF
SAN FRANCISCO**

. . CONTENTS . .

PART I. SHEEP RAISING¹

Patterns of District operations
Dependence on the public domain
Stock sheep numbers
District cash income from sheep production

PART II. MARKETING THE DISTRICT LAMB CROP

Seasonal lamb movement
Production and consumption
Lamb prices

PART III. WOOL

Major producing areas
Marketing
Interwar and war periods
Postwar period

¹This section previously appeared in the MONTHLY REVIEW, May, 1950.

Prepared by Justinian Caire, Agricultural Economist,
under the direction and review of officers
of the Research Department.

I. SHEEP RAISING

SHEEP raising has been an important agricultural pursuit for many centuries, and early became an important segment of agriculture on the Spanish peninsula. It was here that the fine-wool Merino breed was evolved. This breed was eventually to serve as the foundation stock for the extensive flocks that populated the New World after 1800. The sheep industry became so important to Spain that she jealously guarded her breeding stock from exportation and established liberal laws in favor of flock owners. Towards the end of the eighteenth century, however, the Spanish control of its fine-wooled Merinos was gradually weakened. Some breeding stock found its way to France. Numerous other lots were smuggled out to the Americas. These exportations resulted in the development of the improved Merino strains. Because of its grazing habits, its strong instinct to flock, and the high quality of its wool, the breed proved particularly profitable to exploitation of the natural grass resources of the new frontiers—western United States, southern Argentina, Australia, and New Zealand.

Beginning nearly a century ago, sheep have played an important part in the agricultural development of the western states. The northwest boundary treaty with Great Britain in 1846 and the treaty with Mexico in 1848 established American ownership of a vast expanse of land west of the Rocky Mountains. The natural grass resources which were opened to American occupation with the acquisition of this territory gave impetus to a rapid expansion in the grazing of livestock.

From the original Spanish flocks introduced via Mexico through the mission program and the "rancheros" who followed, the industry had its beginning in California and Arizona. In Utah and surrounding areas it was established with the early Mormon colonies. In the Pacific Northwest, sheep arrived overland following the Oregon pioneers in the 1850's and '60's. During the following two decades, sheep were established on the intermountain ranges of Nevada and Idaho in the wake of the trail flocks.

In the beginning, the profitableness of western sheep production was based essentially on the sale of wool. Wool, as a storable commodity, could be held from season to season for speculation and could be shipped long distances via the slow methods of transportation existing at the time. The Merino was well adapted to the production of fine wool under range conditions. These sheep were efficient grazers on the far flung ranges; they flocked well on the unfenced bedding ground at night; and their wool grew rapidly from one shearing to the next. They also travelled well to and from seasonal pasture areas.

As population continued to expand in the United States after 1900, the demand for meat steadily increased. The production of lamb became a more and more important aspect of the industry, and the sale of lamb and mutton came to contribute the greater share of the income from sheep raising. The British or mutton breeds gained in

popularity. Of the medium wool groups, Hampshire Southdown Suffolk breeds became popular; of the long wool groups, Cotswold, Lincoln, and Leicester. Cross breeds were developed—Corriedale, Panama, Columbia, and a number of others—in an effort to produce a profitable meat carcass while sacrificing as little as possible the desirable wool characteristics of the Merino strains. In most range areas, a percentage of Merino blood has been retained to preserve the strong flocking instinct required in sheep management under range conditions.

Character of District production

Sheep are raised in all Twelfth District states. Within this area, the structure of the industry is essentially one of range operations. The regulation of the free range through the formation of the Forest Service of the Department of Agriculture in 1905 and the establishment of the Grazing Service of the Department of the Interior in 1934 required basic adjustments in early production methods. The creation of these regulatory Government bureaus resulted in the pattern of operation becoming more stable through the institution of range control. They brought an end to the days of the free open range, and eliminated the competition for favorable grass which had resulted in overstocking and depletion of the forage. Their establishment wrote the final chapter to the wars between sheep and cattle interests. They also brought to an end, however, the possibility of starting "a sheep spread" with only a small band of ewes, a camp outfit, and a willingness to be alone.

Other factors have also influenced District sheep production during the last 40 years. When flocks could be trailed long distances to slaughter centers, they were marketed as mature sheep. Good slaughter condition was a secondary consideration to wool production. The offspring not sold one season yielded another wool clip and could be sold the next. Young ewes were held for flock expansion or disposed of to other breeders. Grass was cheap, and capital investment therefore was essentially limited to livestock. As the west became settled and the public domain reduced, an increasing investment in real estate was required, often exceeding the value of the breeding flock. It was no longer practical to retain each year's increase. Sheep-men were able to adjust successfully to these changing circumstances, however, because of the extension of rail transportation and the demand for meat by an expanding population.

Meat production is now the more important factor. Consequently, successful lamb raising and marketing under present day conditions necessitate close supervision by competent and technically trained management. The expanding District population is increasing competition for the use of the remaining public domain by other than livestock interests. The use of farm flocks as a means of agricultural diversification is increasing in some District areas. Nevertheless, the sheep industry in the Twelfth District is still essentially pastoral in character.

Patterns of Operation

The pattern of operation in Twelfth District sheep raising is related to the natural forage characteristic of the western range. Range operations in the intermountain area may be distinguished from those in California and in Arizona. To a lesser but increasing degree, sheep are raised in farm flocks, notably west of the Cascade range in Washington and Oregon, in the northeast corner of California, and in scattered localities in Utah.

Intermountain area

Between the Cascade and Sierra Nevada Mountains in the west and the Rocky Mountain chain to the east lies the vast intermountain area. This region offers a variety of grazing for District flocks, being a sagebrush—short grass—shrub plateau of relatively high altitude extending from eastern Washington and Oregon, across southern Idaho, and over Nevada and Utah to the northern highlands of Arizona. This is principally an area of range flock operation where a large surplus of market lambs is produced in conjunction with a valuable wool clip. These are ranges of the primary producer. The general pattern of operation which identifies the industry in this intermountain region is one of movement of flocks from winter quarters to Federal or state lands (or sometimes to private leases) in the spring of the year, thence on to the summer pasture in the national forests, again a transfer to lower ranges in the fall, and back to home quarters or desert ranges in the winter.

Idaho: The Snake River Valley of southern Idaho from Payette on the western border as far east as Idaho Falls serves as the winter ground for many flocks. Hay and feeds are raised in the valley bottom. This is the principal shed-lambing area of the District where the ewes, which have been bred to lamb in January and February, are winter fed and lambing is done under sheds. With the arrival of spring, movement starts over the Federal grazing lands toward the nearby national forests where operators have their respective summer grazing permits—north and east within the state or south to the Humboldt National Forest in Nevada. Lambs are sold off the summer pastures, three-quarters of which are marketed as fat, averaging from 85 to 90 pounds. Those which fail to fatten are pastured on the valley beet or stubble fields in the fall or finished in the feed lots. Many of the flocks are cross-bred ewes which are mated to black-face mutton breeds.

The southwestern desert plateau of Idaho, most of which is public domain, provides winter grazing for some sheep from western Utah, eastern Oregon, and northern Nevada. Usually an area of moderate winters, supplemental feeding of concentrated feed is necessary to augment the desert forage. Lambing is necessarily later than in the shed area.

Utah-Nevada: The pattern of land settlement in Utah introduced the raising of sheep in conjunction with other operations of farm village communities. Farm flocks are still prevalent in the state, but Utah is fundamentally a

pasture area of sparse range, the greater portion of which is within the confines of Federal lands. Sheep arrived in the area with the early Mormon colonists and proved adaptable to the forage of the region. The early flocks of Spanish and French Merino blood established a hardy foundation stock in the dry climate of the high plateaus. The English breeds later found considerable favor as central markets developed for mutton carcasses.

The national forests cross the center of the state of Utah in a northeast-southwesterly direction. Within their altitudes exist a number of valleys where production of feed, in conjunction with other crops, allies crop farming and livestock production. The national forests also contain extensive areas suitable for summer grazing. On the desert areas, east and west of the national forests, extend the lands of the Grazing Service. The importance of range sheep production in the state rests upon the complementary nature of these two areas of natural feed. In contrast with farm flock enterprises, which usually have no allotment on the public range and consequently are required to maintain their sheep on home-grown feeds through the winter, range operators winter their bands on Federal leases. Storm hazards exist, and severe winters periodically cause high death losses. One of the most severe in the history of western range management was experienced in 1948-49.

There is much overlapping of grazing ranges in the intermountain states. The desert reaches of southern Nevada serve as the winter range for flocks from the forest reserves of the state or for sheep entering from western Utah. The Arizona strip north of the Grand Canyon receives Utah flocks for the winter. Some Idaho sheep summer in the Nevada forests. From western Nevada irrigated areas, where hay is raised for winter feeding, sheep cross into California forests of the Sierra Nevadas for summer pasture. Also, out of eastern Washington flocks are shipped to Idaho and Montana summer ranges.

Eastern Oregon and Washington: East of the Cascades considerable numbers of sheep are raised, though they have been much reduced since prewar years. The Okanogan highlands of Washington produce some of the best pasture of the state and serve as summer grazing for the cross-bred ewes from the southern lambing area. Good quality fat lambs are marketed off grass in late summer, principally during September. In south central Washington, the Columbia Basin, with its adequate feed resources of alfalfa and wheat, serves as winter quarters for flocks which summer on the highlands, or on the mountain ranges to the east.

South of the Columbia River in the wheat and semi-arid areas, three-fourths of Oregon's sheep were grazed prior to 1940. During recent years, however, the industry has been shifting to the Pacific side of the Cascades, so that presently the larger share is run west of the mountains. The use of lambing sheds, and the alfalfa, grains, and wild hay produced in the Blue Mountain area, make possible the production of early fat lambs in the north-

eastern district. On the high semi-desert ranges to the south, later lambing takes place in the open, usually in April and May. Flocks graze over the public ranges and move on to allotments in the national forests. Lambs are marketed off the high ranges in September averaging between 80 and 85 pounds.

Oregon farm flock production

On the Pacific side of the Cascade Range in Oregon, starting from Curry, Coos, and Douglas counties along the Rogue River, through Lane, Benton, Linn, Polk, Yamhill, and Marion counties along the Willamette Valley, about 60 percent of the state's sheep are raised. This is the farm flock area. Relative to the rest of Oregon, the percentage of sheep in this section is steadily increasing. In 1940 over 76 percent of the sheep were run under range conditions east of the mountains. Presently, Douglas County in the southwest has the largest sheep population of any county in the state.

Farm flocks in the District are small flocks, often managed in conjunction with other agricultural pursuits such as dairying, hay, and crops. Small numbers are grazed, usually not more than a few hundred, within the confines of pastures and cut-over timber lands which are under fence or where migration is limited by topographical conditions. In this Oregon coast area there is some grazing on national forest lands by larger flocks under range conditions, but these are in the minority. As a result of smaller flocks, less uniformity of breed is found in this locality. Coarse-wool breeds—Cotswold, Lincoln, Columbia, and Romney—which are more adaptable to the damp climate, predominate in the south. In the north Willamette Valley some mutton types of good quality are raised—Shropshires and Hampshires. Sheep are not herded in this area, and operators run their flocks on owned or leased land, much of which is former timber land which has been burned or logged-over. Because the climate is mild, ewes are bred to lamb in February and March, unattended by herders. Fat lambs are sold off grass in the May-July period to Oregon and California markets.

Closer surveillance and accessibility to the farm flock make management practices possible which are more difficult to apply under open range conditions, such as parasite and disease control, or breeding and lambing control. Shearing, however, sometimes poses a difficulty to the farm flock manager. Operators of large range bands are able to arrange for contract shearing at a central gathering place by crews of professional shearers, and in such manner accomplish this important task at the most advantageous time. Farm flocks, being widely dispersed and composed of a small number of animals, do not offer a continuity of employment to large crews, so that professional shearers are more apt to concentrate on areas of greater sheep population. The manufacture of improved one- and two-man portable shearing machines, and shearing training programs for students and farm owners, are helping to overcome this problem.

California

The irrigated valleys and extensive ranges and forests of California carry more sheep than any other state in the District. Feed-lots in the state also produce the largest number of fat slaughter lambs.

The leading sheep producing district in California is the Sacramento-San Joaquin or Central Valley area. The greater portion of the state's early lamb output originates in this region. Ewes are bred to lamb between November and February depending upon the weather characteristics of each locality. The earliest production originates on the upper reaches of the San Joaquin Valley. The Central Valley and its foothills are a grass area of high carrying capacity from the first fall rains until late spring. Sheep graze throughout the winter and lamb in the open in the foothill areas or on the native pastures of the Sacramento Basin or uplands of the San Joaquin Valley floor. In May, sheep-men in the Sacramento Valley transfer their flocks to the national forests of the Sierra Nevada Mountains for summer grazing. Many sheep in the Central Valley area spend the summer and fall in the valley on irrigated pastures, stubble fields, and crop-land refuse after the completion of harvests. Operations in the foothills of the San Joaquin are similar to those in the Sacramento Valley. Sheep are also wintered and lambed in the alfalfa fields and native pastures of the valley floor. Some flocks move out in the spring to the westside plains, and to sugar beet fields in summer and fall. Other flocks are transferred in the spring to range on the Mojave desert, in years of favorable feed conditions, and from there to the summer forest ranges. Range in the valleys is privately-owned or leased. Flocks can be closely surveyed, making for a high lambing percentage. Lamb crops averaging 140 percent are not uncommon. This high percentage, plus good quality stock and the fast weight gains made on the excellent natural grasses of the region, is conducive to the production of early maturing milk-fat lambs which command a premium price at a season of scarcity.

The northern mountains of the state are also an area of important sheep production. Mendocino and Humboldt are the leading counties in this area. Methods of operation differ considerably from other areas of the state. Except for some summer grazing in the national forests, ranges are mostly large, privately-owned and fenced into pastures within which the sheep are allowed to roam at will. There is some farm flock operation in this district. Grass in the area is not so nutritious as that of the valley sections so that lambs do not attain the fine finish of the valley product, and many go out as feeders. Ewes lamb on the range, usually in February and March, and the lambs are marketed in early fall.

Shasta, Lassen, Modoc, Mono, and Inyo are sheep producing counties of considerable importance in which most flocks are grazed on the national forests in summer and wintered at the home ranches on hay.

Arizona

Sheep ranchers within Arizona follow various methods of operation, and graze their flocks from the desert low-

lands to altitudes of 10,000 feet on summer pastures. The basis of most flocks are fine-wooled Rambouillet ewes. These are usually bred to mutton-type rams for the production of early lambs. A large percentage of Arizona flocks are summer grazed in the high mountain elevations which cross the center of the state in a northwest-southeasterly direction. The ewe bands winter to the north and south of this range. Flocks which come from the north of these mountains winter in the open on the high Colorado River plateau.

Because winters in this area are rather severe, the ewes are bred to lamb late—usually in May—and shearing takes place in June or July. Lambs are marketed in the fall, principally as feeders, for the late lambing season is not conducive to fat-lamb production. The number of sheep in this area has been greatly reduced during the past decade, sheep having been displaced by expanded cattle operations during recent years of high beef prices.

The eastern portion of this north district is grazed by Indian flocks on the extensive reservations. Indian-owned flocks are estimated roughly to represent one-half of the state's sheep. These sheep are of more mixed breeding, producing a coarse, light wool. They yield a wool clip of about two-thirds the usual weight of other fleeces.¹ Some of the meat and wool produced on the reservation is consumed by the Indian tribes themselves, though feeder lambs are exported during the fall and much wool disposed of through traders making yearly pilgrimages to the area.

The colorful migratory trail movements of the large sheep bands of the state's southern operators over the Forest Service driveways have been greatly curtailed in recent years. Bands from the pastures of the Salt River Valley and desert foothill winter range areas graze over the allotted driveways in late spring on their way to the summer mountain feed and return again to winter feed in the fall of the year. The long drive south during the hot autumn season occurs at a time when ewes are on the way to the lambing ground. Also, on the northern trek, flocks trailing from the greatest distances are pressed for time to arrive on the summer breeding grounds, and the later bands must travel on over-grazed trails. Increasing costs of operations make a high lambing percentage of great importance, and the difficulties encountered by use of the stock driveways have encouraged a greater use of rail and truck facilities.

There are two methods of handling flocks which winter in the southern half of the state. Bands are taken either to the alfalfa and irrigated fields of the Salt River Valley or to the desert foothills between the valley and the northern mountains. In either case, the climate being mild, they are wintered in the open. Flocks on the pasture areas lamb early, usually in November and early December, and are sheared in February and March. Fat slaughter lambs are sold in early spring to take advantage of the usual seasonally high market. Bands from the foot-

hill area lamb somewhat later, usually in February, are shorn shortly afterwards, and produce a high percentage of early summer fat lambs sold off the ranges.

Arizona sheep numbers have been gradually reduced so that by 1950 there were less than a third of the number of stock sheep that grazed the state's ranges in 1920.

District lamb feeding

Depending on the forage characteristics and variations in seasonal pasture conditions, between a quarter and a third of all western range lambs each year do not attain sufficient flesh to be marketed for slaughter without additional feeding. On this fact rests the basis of the lamb feeding industry. Fed lambs constitute the main source of lamb supply on the nation's markets after the seasonal inventories of range fat lambs have been exhausted, between late fall and early spring.

The production ranges of the District supply many thousands of feeder lambs which are fattened each year both within the District and east of the continental divide. Within the District the feeding of lambs is an important aspect of the sheep industry. California markets are the chief outlets for District lambs fed through the late fall and winter seasons, though northwest markets are of growing importance.

California, Idaho, Utah, and Washington are the chief lamb feeding states of the Twelfth District. In California the largest concentration of lamb feeding is centered in the Los Angeles area where lambs are fattened in commercial feed yards. The same type of operations are carried on in the San Francisco Bay area and extend into the lower Sacramento Valley. There are two other important lamb feeding areas in the state: the permanent irrigated pasture areas of the Imperial Valley and the Stockton-Oakdale district in the Central Valley. From northern California and out of the ranges of neighboring states, large numbers of feeder lambs are imported and finished in these pastures and on nearby stubble and sugar beet fields.

Considerable lamb feeding in commercial feed lots is also practiced in other District states, in the lower Snake River Valley of Idaho, in the Yakima area of Washington, and in the small irrigated valley areas of central Utah.

Commercial lamb feeding has been a significant factor in the marketing of District-grown hay and grains, as well as of the expanding supplies of agricultural by-products from cotton, sugar-beets, and other farm products used as feed.

Dependence on the Public Domain

In all District states, Federal rural lands constitute a large portion of the grazing area. The degree of dependence on this source of feed, therefore, has had a direct influence on management practices and methods of operation. District sheep ranching is directly influenced by policies of public land administration, by the location, size, and accessibility of grazing allotments, by climatic variations, and by the location and productivity of privately-owned or -leased lands.

¹"Arizona Agriculture 1949"—Agriculture Experiment Station, University of Arizona, Tucson.

	Rural land holdings in Federal ownership ¹ (acres)	Land area of state (acres)	Percent of land area Federally owned
Arizona	53,391,856	72,691,200	73
California	45,515,337	100,353,920	45
Idaho	34,608,970	52,997,120	65
Nevada	59,865,852	70,273,280	85
Oregon	32,603,627	61,664,000	53
Utah	38,386,018	52,701,440	73
Washington	15,127,004	42,865,280	35
Twelfth District	279,498,664	435,546,240	64

¹United States Department of Agriculture, Bureau of Agricultural Economics, "Federal Rural Lands," June 1947, table 25.

Approximately one-fourth of the total land area of continental United States is Federally-owned, consisting primarily of the residue from the public domain distributed under the nation's various land laws. These Federal lands, of multitudinous types, are administered for the public benefit by a number of governmental agencies.¹ The grazing of livestock is recognized as one of the primary uses of over 300 million acres of public land on which approximately 20 million head of livestock (principally sheep and cattle) are grazed some part of the year.²

Nature of Federal lands in Twelfth District

Over 61 percent of the rural lands in Federal ownership in the United States are located in the Twelfth Federal Reserve District and of the total District land area, 64 percent is in Federal rural holdings (see table). Nearly 70 percent of all public land incorporated into grazing districts is found within the states of the Twelfth District as are also half of all national forest lands, many of which are open to grazing some months of each year.³ The greater portion of these vast Federal tracts are mountainous or arid and therefore not suitable for farming. In varying degrees, however, they are adaptable to the growing of natural grasses which serve as the raw material for the production of a considerable portion of the nation's meat supplies. The forage growth is seasonal in character and therefore of value to western meat and wool production essentially when used in conjunction with the feed resources of privately-held pasture or hay-growing areas.

Pasture lands incorporated into Federal grazing districts are generally lands of lower elevations and are often used in the spring and fall seasons in conjunction with the summer pasture areas of the higher elevations on the national forests. Consequently, to many of the Twelfth District's sheep operators, the holding of adequate grazing privileges in either or both national forests or Bureau of Land Management ranges is the determining factor in the management plan. The possession of such privileges and their extent and location are closely allied with the location and type of private holdings or leases where winter feed reserves are made available to breeding flocks.

¹Rural land holdings in Federal ownership, by primary administering agencies in 1948, were administered by the U. S. Forest Service, Bureau of Land Management, Office of Indian Affairs, National Park Service, Bureau of Reclamation, Soil Conservation Service, Fish and Wildlife Service, War and Navy Departments, Tennessee Valley Authority, and other agencies. In 1946 the functions of the Grazing Service and the General Land Office were consolidated into the Bureau of Land Management.

²Estimates are for 1945, made by the Bureau of Agricultural Economics, USDA.

³Acreage figures taken from the BAE report, "Federal Rural Lands—1947," Table 25.

In most areas, grazing privileges on the public domain cannot be acquired by sheep-men without proof that sufficient feed resources are available to insure year-round operation for the number of animals covered by permit.

Grazing privileges

The holding of grazing privileges places upon operators the responsibility of adhering to range-management practices which conform to the beneficial-use standards established by the administering agencies. These requirements are based upon the concepts of sustained-forage yield and the multiple-use purpose of public lands. Grazing privileges are granted for a specified number of sheep and run for either one year or ten years (depending upon type of privilege) with provision for renewal. Fees are assessed on a per-head per-month or a per-acre basis. Grazing privileges are transferable with the sale or disposal of the operating unit. In general, the cost of grazing livestock on the public domain is considerably less than the cost of owning comparable range, as is indicated by the high cash value placed upon grazing privileges when a sheep ranch is sold. Most public ranges are of low-carrying capacity, frequently badly depleted, and, in many areas, remote from transportation. From the standpoint of profitable operation, however, private lands of the same character usually will not warrant the investment of the capital necessary to increase their carrying capacity significantly.

Use of Federal grazing lands

A rough estimate based on the most recent available annual figures gives some indication of the extent to which Twelfth District flocks rely upon Federal lands for their grazing needs. During 1948 approximately 19 percent of the total sheep months (based on the number of sheep inventoried in the District on January 1) were spent pasturing on grazing-district lands, and another 6.5 percent were spent in the national forests. In other words, at least 25 percent of the total sheep months in 1948 were spent utilizing the natural forage of the public domain.

The public domain is used to a greater extent in Nevada and Utah than in other District states. In 1948 grazing-district lands were occupied for 46 percent of the annual sheep months required by Nevada flocks, and the national forests were used for 8 percent. In Utah the shares were 54 percent and 7 percent, respectively. Public lands are also used extensively in Idaho and Arizona, but are less significant to the sheep industry on the Pacific Coast.¹

Stock Sheep Numbers

Records of the number of stock sheep on United States farms and ranches are available for as early as 1867. Since that pioneer date of the American range-sheep

¹Considerable numbers likewise grazed on Section 13 lands (Bureau of Land Management lands not incorporated into grazing districts). Figures for numbers grazed on these lands are not available. Grazing on stock driveways on Federal lands and grazing on Indian lands and on state-owned lands are also not included in these figures.

STOCK SHEEP IN TWELFTH DISTRICT STATES

	Numbers on January 1 (in thousands)		Percent change
	1942	1950	
Arizona	719	382	-46
California	2,977	1,602	-46
Idaho	1,858	990	-46
Nevada	698	435	-37
Oregon	1,577	671	-57
Utah	2,137	1,284	-39
Washington	583	298	-48
Twelfth District	10,549	5,662	-46
United States	-45

industry, the number of stock sheep has fluctuated, at approximately 8- to 12-year intervals, between a high of 51 million head in 1884 and a low of 27 million on January 1, 1950. Beginning in 1924, the trend of the stock sheep population in the United States as a whole was upward, and numbers were built up to over 49 million head on January 1, 1942. Following this second record high, inventories declined to a new low on January 1, 1950.

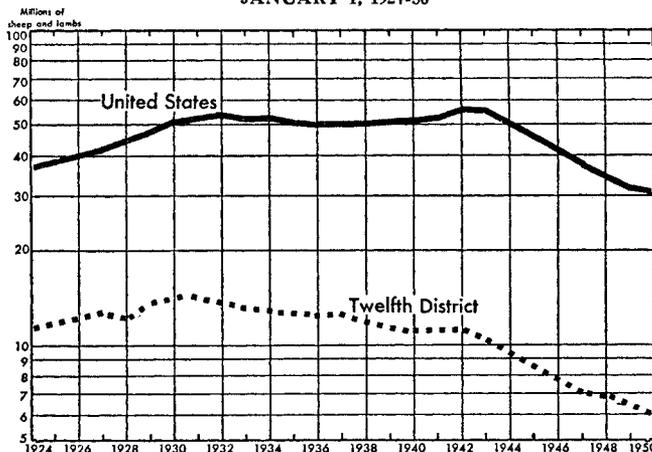
In the Twelfth District, the upward swing in stock sheep numbers which occurred during the late 1920's reached its peak in 1931. A gradual decline during the next decade or so was succeeded by a more rapid and continuing decline beginning in 1942. Between 1942 and 1950, the number of stock sheep in the Twelfth District dropped 46 percent to a low of 5.6 million head.

Reasons for declining numbers

Although an eight-year decline is not inconsistent with the cyclical fluctuations in stock-sheep numbers over a long period, it is significant that it took place during a time of strong demand for meat and record domestic consumption of apparel wool. This was occasioned by a number of factors, some of which have been more pronounced in the Twelfth District than in the country as a whole.

Although wool prices were pegged in 1942, as part of the Federal price control policy, at levels higher than the yearly average which growers had received in over two decades, prices of competing farm commodities proved more attractive in many instances. In California and Arizona, where large numbers of sheep are wintered and lambled on rented pastures, field crops—cotton, flax, and sugar beets—offered strong competition for land use. Planting of marginal land to wheat in some District areas was also expanded. Sheep-men viewed with uncertainty the long-term outlook for continued price support on wool and were apprehensive of the Federal Government's interest in a continuing low tariff policy. Production factors too, were influential in reducing the number of sheep in the District. As a band of ewes represents an investment of \$30,000 or more at present prices, reliable and competent labor is essential to flock management under range conditions. Turned out on the range in the sole care of one or two herders for long periods, sheep require the supervision of skilled and experienced labor, possessed of a high degree of knowledge of the habits, grazing requirements, and characteristics of the animals under their care. During and since the war, competent herders have been scarce. Higher wages have been avail-

SHEEP AND LAMBS—UNITED STATES AND TWELFTH DISTRICT, JANUARY 1, 1924-50



able in other fields of employment. The isolation and privation of a shepherd's life has not been conducive to attracting younger hands, and immigration laws have restricted foreign immigrants who formerly replenished the supply.

During and since the war, production costs have risen sharply and relatively more than in some alternative fields of agriculture. High levels of industrial employment and high wages were more influential in increasing the per capita demand for beef, as industrial workers are beef-eaters rather than consumers of lamb and mutton. As a result, the farm price of beef in 1947 had increased 293 percent over the 1935-39 average and the farm price of veal calves 242 percent. During the same period, however, the price of lamb rose 236 percent, sheep 160 percent, and wool only 106 percent. Consequently, where grazing conditions were suitable, many sheep-men switched to cattle raising after liquidating their flocks.

These are the primary factors that have been influential in reducing the nation's stock-sheep numbers to the lowest point in an 83-year period. In the future, agricultural adjustments may possibly reverse the recent downward trend in over-all numbers. However, further restrictions on the use of the public domain for livestock, continuing high operating costs, large capital requirements, and skilled labor shortages will probably continue to encourage a reduction in large-range operations. Reclamation and irrigation developments may increase the number of farm flocks within the District. It is not likely, however, that District ranges will ever again graze as many stock sheep as in the past.

District Cash Income from Sheep Production

Through the grazing of sheep, a primary District resource is converted to economic usefulness. Closely allied to this process and also of increasing economic importance over the last half century is the contribution of sheep as a market for District feed crops and farm by-products. Expansion in commercial lamb feeding and growing use of farm flocks to diversify farming operations are likewise evidence of the integral part the indus-

PERCENT OF DISTRICT CASH RECEIPTS FROM SHEEP, LAMBS, AND WOOL TO CASH RECEIPTS OF:

	Twelfth District		United States	
	Livestock and livestock products	All farm commodities	Livestock and livestock products	All farm commodities
1925.....	18.0	7.5	5.6	2.8
1930.....	12.8	5.2	4.4	2.6
1935.....	12.0	4.9	5.4	2.9
1940.....	13.4	5.6	5.9	3.1
1945.....	8.0	2.8	3.8	2.1
1949.....	7.6	3.0	3.1	1.7

try plays in the agriculture of the Twelfth District. In addition, the feeding of lambs has been a major influence in the rapid development of irrigated pasture within the District during the past ten years.

Over the past three decades, however, sheep have contributed a declining share of the cash income received by District farmers. Nevertheless, the industry supplied over \$104 million in cash returns to District farmers in 1949. This was approximately one-fourth of total United States cash farm receipts from sheep, lambs, and wool. Receipts from sheep production in 1949 amounted to 2.9 percent of cash receipts from all District farm commodities and 7.6 percent of the receipts from livestock and livestock products, as against 1.7 percent and 3 percent, respectively, for the United States as a whole.

Since 1925, the decline in the share of cash income contributed by sheep raising has been greater for District ranchers than for the nation's farmers in general. This sharper reduction in the District is significant in view of the historical position of this branch of the livestock industry in the agricultural economy of the region.

Within the District, the greatest declines in the relative importance of cash returns from sheep ranching to total cash returns from livestock and livestock products over the past 25 years have occurred in Arizona and Oregon. A quarter-century ago, when Arizona ranges carried many large flocks, sheep accounted for over 17 percent of the cash returns from livestock, but in 1949, only 5 percent. The shift to cattle operations on the northern ranges, the expansion in crop farming and cattle feeding in the southern irrigated valleys, and the operational problems and range restrictions in the central area have all been influential in significantly reducing the importance of sheep to Arizona's cash farm income. Sheep, lambs, and wool, which once produced more than a fifth of Oregon's cash income from livestock, brought but 6 percent of the total in 1949. The replacement of sheep by cattle in the grazing areas east of the Cascade range and the transition to smaller farm flock operations west of the mountains have been influential factors in the decline in the ratio of income from sheep to Oregon's livestock income.

Recent declines sharper

The accelerated decline in the relative earnings of cash returns from sheep in the District during the war and post-war periods has been largely a reflection of the drastic liquidation of breeding flocks. In the range areas of all District states, cattle have displaced sheep to a considerable extent as a result of more favorable prices for

PERCENT OF CASH RECEIPTS OF SHEEP, LAMBS, AND WOOL TO CASH RECEIPTS OF DISTRICT LIVESTOCK AND LIVESTOCK PRODUCTS AND ALL FARM COMMODITIES

	Livestock and livestock products			All farm commodities		
	1925 Per-cent	1940 Per-cent	1949 Per-cent	1925 Per-cent	1940 Per-cent	1949 Per-cent
Arizona	17.3	10.1	5.1	9.6	4.6	1.5
California	10.7	8.8	5.3	3.9	3.0	1.9
Idaho	38.4	28.7	19.9	17.3	14.7	7.6
Nevada	36.5	25.9	17.8	30.1	22.6	14.3
Oregon	20.1	15.1	6.3	10.5	7.8	2.8
Utah	46.0	30.0	18.3	25.8	20.6	12.5
Washington	7.1	6.4	3.0	2.6	2.8	1.1
Twelfth District.....	18.0	13.4	7.6	7.5	5.6	2.9

beef and a less critical shortage of skilled labor. In the irrigated valley areas of California and in the dry land farming regions of Washington, Oregon, and Idaho, large expansions in acreage and value of crops have also been responsible for the relatively weaker position of sheep as cash income producers.

In spite of the downward trend in the ratio of cash income supplied by the sheep industry, absolute dollar returns in most District states in 1949 were higher than in 1925. Increased price levels more than offset decreases in inventories over the period. In Oregon, however, where in 1925 cash income from sheep, lambs, and wool amounted to \$13.6 million, cash income from sheep farming in 1949 totaled \$9.5 million. Sheep produced \$5.3 million for Arizona growers in 1925, but only \$3.9 million in 1949. The stock sheep population declined faster during this period in Oregon and Arizona than in the other District states.

Relative importance of meat and wool

The production of wool is an integral part of the sheep industry. In some areas of the world it constitutes the chief motive for sheep raising. In the United States, however, the sale of wool as the main source of producers' income has been superseded over the years by the sale of livestock. The once paramount position of wool in the industry is emphasized by the fact that to this day most western producers' organizations are identified as "wool growers" associations.

Of increasing importance to District sheep producers is the rising proportion of cash income supplied by the sale of lambs. Lambs are sold on a market that is highly seasonal and competitive. Wool, however, though experiencing extreme price fluctuations, has long been shielded to a greater or lesser degree by Government aid—preferential tariffs, Federal price support, and Government purchases.

Between 1922 and 1929, the sale of lambs contributed an increasing share of sheep growers' income, at a time when lamb and wool prices were at relatively stable levels. In the next three years, both lamb and wool prices fell precipitously—lambs 63 percent, wool 71 percent. With this great drop in the price of wool, receipts from the sale of livestock continued to increase relatively. In 1933, however, the average price of wool recovered rapidly, increasing 129 percent over the previous year, whereas lamb prices rose only 13 percent. Producers' incomes reflected this disparity, as income from wool in 1933 con-

tributed the largest share supplied by wool to growers' income in the past 25 years.

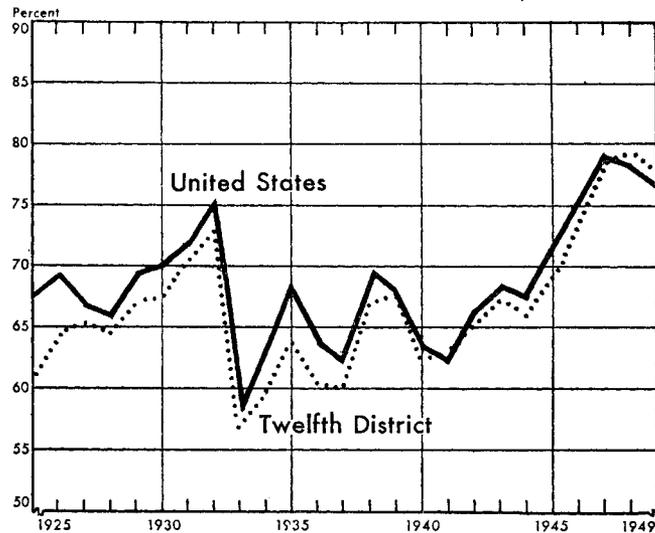
Relatively sharper increases in wool prices in 1936-37 and again in 1940-41 arrested the upward trend in the proportion of sheep growers' income earned by the sale of livestock. Since 1941, however, lamb prices have increased at a much more rapid rate. Average prices received by farmers for lambs in 1949 averaged 136 percent above the 1941 level, but prices for wool were up only 38 percent. This greater recovery by lambs over wool has been accompanied by a sharp increase in the relative proportion of cash income from the sale of livestock as against the sale of wool. Owing to the recent extraordinary rise in the price of wool, however, it is likely that a larger share of producers' income in 1950 and 1951 will be supplied by wool than has been the case for some time.

District sheep and wool income

The western range sheep industry was as readily adaptable as the industry in the eastern or "native" sheep states to the growing demand for meat which accompanied the expansion of United States population after 1900. Access to extensive areas of relatively cheap feed was conducive to the production of lambs on a scale compatible with the market demand. Breeding and management emphasis was shifted, within practicable limits, to the production of fat slaughter or feeder lambs. Consequently, the transition from wool production as the chief source of income from sheep ranching in the District paralleled the national trend. Over the past quarter century, however, the shift has been somewhat more pronounced in the Twelfth District. In 1925, District sheep producers derived 60 percent of their cash income from the sale of livestock; in 1949, livestock's share was 78 percent. For United States sheep raisers in general, returns from livestock sales increased from 67 percent to 77 percent of cash income during the same period. In other words, the proportion of income from livestock sales during the past two decades rose considerably more in the District than in the nation as a whole.

In California, Idaho, and Arizona, the sale of livestock contributes a somewhat larger share of sheep growers' income than in other District states. The production of

RATIO OF CASH RECEIPTS FROM SHEEP AND LAMBS TO CASH RECEIPTS FROM SHEEP, LAMBS, AND WOOL— UNITED STATES AND TWELFTH DISTRICT, 1925-49



choice spring lambs and the large percentage of lambs saved have produced for California growers a high ratio of cash income from the sale of livestock. Another contributing factor is the variegated quality of the state's wool which results in a generally less valuable clip.

The production of high quality lambs in the shed-lambing areas of the Snake River Valley has been influential in supplying Idaho sheep producers with a relatively high ratio of cash returns from livestock sales. In Idaho, 82 percent of cash receipts from the sheep industry in 1949 was derived from the sale of sheep and lambs. Sheep and lambs contributed approximately three-fourths of growers' cash receipts in the remaining District states. The high ratio of income from livestock sales (76 percent) in Washington, which does not produce spring lambs, is due largely to the high ratio of lambs saved to the total number of ewes. Over a 25-year period, Washington sheep growers have saved an average of 104.3 percent lambs from inventories of all ewes one year old or older. This is the highest average of the District, followed by California's 99 percent. In 1948, the percentage of lambs saved in Washington was 111 percent.

II. MARKETING THE DISTRICT LAMB CROP

OF all sheep sold through wholesale channels during the 1935-44 period, approximately 84 percent were marketed as lambs. It is estimated that in 1890, in contrast, 75 percent of all sheep sold were marketed at the age of four years or older. Range lambs are marketed when four to six months old; fed lambs up to 14 months. No price differential is made between ewe lambs and wether lambs.

District lambs are marketed either as fat lambs off pasture and range for immediate slaughter, or as feeders to be conditioned for slaughter. Whether lambs are normally marketed through slaughter or feeder channels is

largely determined by the forage and climatic characteristics of each locality. Annual variations in feed conditions likewise influence the percentage of lambs from any flock which will meet the requirements of the fat lamb trade. In years of poor pasture conditions, a higher percentage of a flock's output requires additional feeding for the lambs to be brought to a slaughter finish.

District producers market their lambs through a number of outlets: direct ranch sale to slaughterers or to lamb feeders, sale to speculators for resale, and competitive bidding at terminal markets. A small percentage is also marketed through cooperative selling agencies. Few

lambs are marketed as yet through the auction yards which are a growing medium of livestock marketing in the West.

The seasonal character of range lamb production makes orderly marketing difficult. Because of this seasonal factor a few major packing concerns have become the nation's principal lamb buyers. In 1949, major firms bought approximately 81 percent of all sheep and lambs slaughtered in the United States.¹ Large concerns, with a network of plants and wide distribution facilities, are able to absorb seasonal surpluses and to channel dressed carcasses to consumption centers in response to fluctuations in demand. Large plants are likewise better equipped to retrieve sheep byproducts economically—a relatively important factor in the profit margin of livestock slaughter.

A large share of the District lamb crop is marketed by direct ranch sale and is contracted for some months in advance of delivery. Pre-season contracts are ordinarily covered by a deposit on the approximate number of lambs expected to be delivered. Lambs are bought f.o.b. shipping points, and payments customarily made on a poundage basis subject to a 2 or 3 percent shrinkage deduction or allowing the stock a "stand" overnight without feed or water.

Major buyers follow the lamb crop over the District as the season develops, contracting in advance so as to insure a steady supply for their delivery commitments. Buyers are largely representatives of major packing firms or are independent speculators who supply trans-shipment centers, such as Ogden, Denver, Kansas City, and Chicago. Fat lambs are sorted for delivery to slaughter centers, and feeders are sold to mid-West and Pacific Coast feeding areas.

Sale of lambs in terminal markets to be sold at competitive bid has been of decreasing importance in the last three decades. Fat lambs are a perishable commodity and few growers feel close enough to the day-to-day price changes to risk forwarding large shipments long distances on a fluctuating market. This has been especially true during recent years when weekly fluctuations in prices have been wide.

Seasonal Lamb Movement

Marketing of the District lamb crop follows a general annual pattern determined by the seasonal variations characteristic of the region. As the delivery of California early lambs declines in June, fat range lambs from southern Idaho's shed-lambing areas start to market. These are followed from July through September by marketings from the high intermountain areas of Nevada, Utah and Idaho, and eastern Oregon and Washington. The prewar movement out of this area was primarily eastward. The large increase in Pacific Coast demand, however, has of later years drawn an increasing proportion of lambs west-

¹ In 1941, the four leading packing companies slaughtered 81.3 percent of the lambs and sheep dressed under Federal inspection; the second four, 10.5 percent; the next five, 4.1 percent, and ten additional companies, 2.4 percent. Twenty-three packing firms accounted for 98.3 percent of federally inspected slaughter of sheep and lambs, which in turn was 81 percent of total slaughter in 1941.

Statement of Consideration for Revision Regulation No. 239: O. P. A. Price Control Volume 9—Page 41:641.

ward from the intermountain region—both fat lambs for slaughter and feeders to replenish the rapidly expanding commercial feed-yards.

Marketing California lambs

Beginning about mid-March, accelerating through April, and reaching a peak in May, thousands of spring lambs are marketed out of the San Joaquin-Sacramento Valley area and the central coastal ranges. These lambs find a ready outlet in eastern consumption centers and in the San Francisco and Los Angeles areas. Pre-season estimates indicated that approximately 325,000 early lambs would be marketed from this area during 1950.

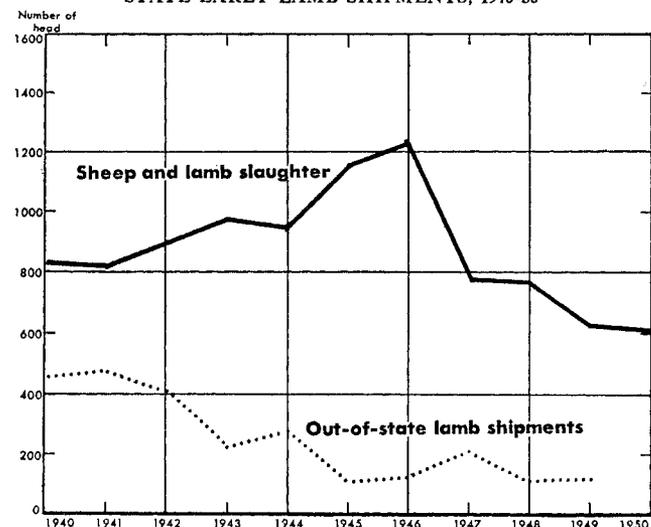
Two other District areas also market lambs at this season, though in smaller numbers. From the irrigated pasture areas of the Imperial Valley, spring lambs are sold on the Los Angeles and San Diego markets. Out of the Salt River Valley alfalfa fields of Arizona, early deliveries are made both eastward to the Kansas City area and westward to southern California. Arizona's early spring lamb crop in 1950 is estimated at approximately 70,000 head.

Following the heavy run of spring lambs, sheep and lambs marketed from California farms decrease steadily the remainder of the year. Range lambs from Humboldt, Mendocino, and other producing areas and lambs fattened on permanent pastures constitute the main within-state supplies during the summer period.

Inshipments from out of state to California slaughter centers commence after spring and early summer supplies have been depleted, and originate largely from within the Twelfth District—Nevada, Utah, Oregon, and Idaho. Both fat lambs for immediate slaughter and feeder lambs for feed-lot replacement or finishing in irrigated pasture are shipped to California.

While the spring run of early California lambs is in progress, some good to choice grade lambs are slaugh-

CALIFORNIA LAMB AND SHEEP SLAUGHTER¹ AND OUT-OF-STATE EARLY LAMB SHIPMENTS, 1940-50²



¹ Slaughter under all inspection services.

² March through June.

Source: California Crop and Livestock Reporting Service.

tered by San Francisco and Los Angeles packers and shipped by fast refrigerator freight to Atlantic Coast markets. Shipments of these highly perishable dressed carcasses to eastern points are handled primarily by the major packers. Lesser numbers are handled by chain stores for their own accounts or by brokers purchasing from independent West Coast packers.¹ During 1949, out-of-state shipments of dressed lambs amounted to approximately 29,000 head. This was a great increase in volume over previous years and was prompted by the record prices for good to choice lamb carcasses prevailing at Chicago between March and June.

Production and Consumption

Production of all meats increased sharply after 1940. The meat requirements of the armed forces and our allies, in addition to the demand of a widely employed civilian population, led to rapid increase in the slaughter of all classes of livestock. The yearly average production of lamb and mutton from 1938 to 1941 was 892 million pounds. The production of lamb and mutton which accompanied the depletion of sheep inventories from 1942 to 1945 amounted to over a billion pounds yearly. The result of this heavy liquidation of stock has been reflected in annual production since 1945. Production has declined successively each year to the 605 million pound output in 1949—43 percent below the 1942-45 average.

Production of beef and pork, on the other hand, has remained above prewar levels. In the case of pork, while consumption per capita has moved upward, supplies have also increased. In the case of beef, continuing high production over prewar levels is facing the continuing high demand of a widely employed population. Beef is eaten by all population groups so that consumption readily responds to increased incomes and is reflected in continuing high prices.

Consumption of lamb, however, has not increased with expanded income. Consumption of lamb differs with population groups, as well as by geographic location.² Lamb is consumed primarily by those in the middle and upper income groups—those occupied in less strenuous occupations—and their consumption remains fairly constant. Consumption of lamb and mutton is also greater in population groups of predominantly Mediterranean extraction—peoples to whom lamb and mutton are by custom a more familiar meat than beef.

Per capita consumption of beef and pork increased from 60.8 and 63.3 pounds, respectively, in 1942, to 64.0 and 68.1 pounds in 1949. Meanwhile, consumption of lamb and mutton was down during the same period from 7.2 pounds per person and 5.2 percent of total per capita meat consumption to 4 pounds and 2.7 percent. It is evident that during this period of high and widely distributed incomes, consumers in the United States have dem-

onstrated a preference for meat other than lamb. The large increase in Pacific Coast demand, however, has of later years drawn an increasing proportion of lambs westward from the intermountain region—both fat lambs for slaughter and feeders to replenish the rapidly expanding commercial feed-years.

Lamb Prices

Although per capita consumption of lamb and mutton has declined sharply in the postwar period, lamb prices in the past few years have remained at high levels largely as a result of short supplies at a time of high consumer income. At no time in the present century has the supply of stock sheep been so influential in maintaining favorable prices to producers. Over the years, however, producers' prices and stock sheep inventories have not always travelled in such divergent directions.

Lamb prices and inventories

Annual fluctuations in the prices producers receive for their lambs are not automatically reflected in an increase or decrease in the supply of stock sheep. The increasingly large investment both in fixed capital and in breeding stock that has been required in a sheep enterprise over the past 40 years precludes any quick adjustment of the scope of operations to annual price changes.

Between 1910 and 1924 the trend in the nation's stock sheep inventories, except for a two-year period in 1918-19, was consistently downward. In the first decade of this period, when the farm prices of sheep rose relatively more than cattle prices, sheepmen found it profitable to dip into breeding flocks and sell on a rising market. The price break in 1921 was of short duration and was followed by eight years of relatively high prices. The optimism for continuing high prices for both lamb and wool which prevailed after 1923 encouraged a general expansion in flocks. The depression which followed the disastrous price break in sheep, lamb, and wool prices in 1929 prompted growers to step up production sharply in an attempt to mitigate losses through increased marketings. The price recovery from 1938 forward encouraged producers to continue expanding their flocks to the records set in 1942. Following this period of peak stock sheep numbers, factors both within and without the industry so precipitously reduced inventories that record prices eventually replaced record numbers. The present active demand for breeding stock gives some indication that current prices for lamb and wool may again be influential in building up the nation's supply of sheep.

Seasonal price movements

Through January, February, and early March, the nation's lamb requirements are met through the marketing of "old-crop" fed lambs. Though the available supply of fed lambs influences price movements at this period, old crop lambs, as the season progresses, are approaching the weight limits at which lamb carcasses can be economically wholesaled. That in itself acts as a limiting factor on the relative levels to which prices normally rise during this period.

¹ *California Wool Grower*: "Yearly Review of Movement California Spring Lambs," 1949.

² Professor Edwin C. Voorhies, Agricultural Economist on the Giannini Foundation, University of California, has pointed out in a yet unpublished study that per capita lamb consumption in San Francisco is 8 times greater than in Minneapolis and St. Paul, Minnesota, and 20 times greater than in Birmingham, Alabama. Lamb consumption is also heavily concentrated in large cities.

The arrival of California and Arizona early spring lambs at the nation's market centers influences prices markedly. Arriving on the market in the spring of the year, as a choice seasonal product at a time when supplies of old-crop fed lambs have been largely depleted, early "milk lambs" command premium prices. Depending upon the available supply and time of delivery due to seasonal forage conditions, the seasonal price peak tends to vary between April and May.

The supply throughout the nation of old-crop fed lambs remaining to be marketed at this season, however, sometimes exerts a competitive influence on prices at the beginning of the spring lamb season. This competition is more keenly felt by the earlier deliveries and when wool prices are high. Although heavy carcasses from old-crop lambs compete at a price disadvantage with choice spring lamb carcasses, the value of full-wooled pelts carried by older lambs is sufficient at times to narrow spring lamb margins significantly.

Following the California early lamb movement, prices tend to react generally downward through the summer in response to volume marketing from western and Texas range flocks and from mid-west farm flocks. By fall, the demand for lambs to replenish commercial yards for winter feeding normally revives competition with the slaughter trade, initiating an upward swing in prices during the last quarter of the year.

Between 1910 and 1940, seasonal fluctuations in producers' prices for lambs were remarkably uniform. In 1941 and 1942 and again in the immediate postwar years, following the removal of price controls, expanding consumer demand obscured the usual seasonal fluctuations in lamb prices. The break in lamb prices in mid-1948 and again in 1949 was part of a movement of livestock prices in general to somewhat lower postwar levels. A readjustment toward prewar seasonal price patterns may also have been indicated, but it remains to be seen whether the seasonal pattern in lamb prices will again be as pronounced and as consistent, as long as purchasing power continues high and stock sheep numbers remain low.

Lamb merchandising

Light lamb carcasses apparently are the most desirable from a retailing standpoint, as cuts from lighter carcasses meet with higher consumer acceptance. Lamb cuts, like cuts from all livestock carcasses, cover a wide range of values. Highest price cuts are chops and legs. Neck, breast, shanks—stewing meats—are low price cuts. Large carcasses, and particularly those grading choice, normally carry a heavy covering of fat over the back and on the kidneys and tailhead, which requires trimming by the handler or is passed on to the consumer. Chops and legs—relatively high price cuts—from heavy carcasses are troublesome in this respect and encounter buyer resistance when a substantial amount of high price fat must be relegated to the waste pail. Although large chops, unlike a beef steak, present no divisional problem at the dinner table, they nevertheless are likely to suffer, at high prices, by a cost comparison. Large lamb legs pre-

sent a problem also. Leg of lamb is at its choicest when first served. Sales problems are encountered when a leg of lamb must be served at a second and third meal, when its original cost is comparable to an equal weight of beef. In an effort to meet this problem, the trade has encouraged the sale of cuts more adaptable to family needs and has met with some success. One method has been to cut the long leg into two small roasts to overcome the objection of size. Another has been to sell full-cut legs—containing loin for chops, shank for stewing meat, and the center portion for roast. Many customers, through habit or otherwise, are not disposed to make use of such a large supply. Low value cuts—principally stewing meats—have a more limited and concentrated outlet. The demand is strongest in localities where European-born population groups predominate. When the supply of stewing cuts in any locality is temporarily burdensome, price reductions to facilitate sales cannot readily be offset by mark-ups on more expensive cuts, which force them to a less favorable cost relationship with beef from the purchaser's point of view.

Lamb versus beef prices

Between 1938 and 1946 the average annual price per hundred weight of good and choice slaughter lambs approximated the level of good-grade steer prices on the Chicago market. During this period lamb averaged 96 percent of beef prices. In 1947 the average annual ratio dropped to 90 percent; in 1948 it was further depressed to 83 percent. The high level of lamb prices in the first six months of 1949—during the marketing of the District spring lamb crop—again raised the ratio to 96 percent.

In 1949, however, the early-lamb crop developed poorly. The severe winter necessitated heavy supplemental feeding, development of the crop was retarded, and much of it was below normal finish. Lambs grading good and choice were relatively scarce. During the last half of 1949, the ratio of lamb prices to beef prices turned sharply downward and averaged 85 percent. The price of good to choice lamb moved closer to the comparable grade of beef during the first three months of 1950. During the second quarter, lamb prices again dropped in relation to beef.

Outlook

A number of factors will undoubtedly have a bearing on the relation of lamb and beef prices in the future. Improved breeding and management practices and a sharp increase in commercial lamb feeding have resulted in an increase in the average weight and finish of lambs over the past quarter century. Though the consumption of lamb is relatively more limited than beef, a high level of economic activity, population increases, and a decreasing supply have helped maintain an active demand. There has been little evidence of premium prices being paid for light carcasses or discounts imposed on heavy carcasses. Where discounts have been imposed on marketing of heavy lambs—such as occurred last fall and early winter in Pacific Northwest markets—it occurred at a season of fed-lamb marketings and not in the range-lamb market-

AVERAGE WEIGHT OF SHEEP AND LAMBS SLAUGHTERED IN THE UNITED STATES

	Average live weight (pounds)	Average dressed weight (pounds)
1925	81.48	38.98
1930	82.33	38.96
1935	84.40	39.77
1940	86.18	40.57
1945	94.4	43.2
1946	93.7	42.9
1947	93.6	43.2
1948	94.4	43.6
1949	94.0	

Source: United States Department of Agriculture, Production and Marketing Administration, Livestock Branch, *Market News*, 1948 statistics.

ing season. Growers of range lambs will logically try for maximum weights on the lambs they market while no price penalty exists.

It is difficult to say whether the lower ratios of lamb to beef prices that have appeared in recent years are more than temporary. A decline in the ratio of lamb prices to

beef prices, however, at a time of continuously decreasing lamb and mutton supplies, may be an indication of consumer resistance to lamb cuts of large size or which carry a heavy coverage of high-cost fat. Such a factor could eventually be reflected in producers' returns on their lambs, if the upward trend in the size of lambs continues. In view of the limited pattern of lamb consumption, a significant increase in the nation's inventories of both beef cattle and stock sheep during the next few years would place lamb in keener competition with beef. It is perhaps possible that under such circumstances the problem in merchandising heavy lamb carcasses might be sufficiently increased to be accompanied by price penalties imposed on heavy lamb carcasses. Such a development would be of particular concern to the Twelfth District sheep industry which produces nearly one-fourth of the nation's lambs and most of the spring lambs marketed.

III. WOOL

WOOL is produced in most parts of the world. The type of fiber suitable for the manufacture of clothing—including fine, medium, and coarser grades—is grown in the great pastoral areas of the world—Australia, New Zealand, Argentina, United States, Uruguay, and the Union of South Africa. Carpet wools—with the exception of those from Argentina¹ and New Zealand—are produced chiefly in the areas of early civilization—China, India, Pakistan, Turkey, Iraq, Iran, Afghanistan, and Syria—where primitive methods of animal husbandry are still practiced because of the depletion of the forage resources over many centuries.

Uruguay, 33 percent for the Union of South Africa, 27 percent for New Zealand, and 9 percent for Argentina.¹

Practically all the wool produced in the United States is suitable for the manufacture of clothing of one kind or another, or for uses other than floor coverings. The United States is dependent on foreign production for its carpet wool needs, and it is for this reason that wools used in the manufacture of rugs, carpets, and other floor coverings have duty-free access to the domestic market. The principal sources for domestic carpet wool requirements are listed in the accompanying table.

WOOL PRODUCTION IN PRINCIPAL PRODUCING COUNTRIES (grease basis—million pounds)

	1950 ¹	1949	Averages		Per- cent of world total 1949
			1941-45	1936-40	
Australia	1,100	1,045	1,088	1,052	27.6
Argentina	430	420	506	411	11.1
New Zealand	375	370	350	314	9.8
USSR (Europe and Asia)	325	315	250	310	8.3
United States	247	253	429	425	6.7
Union of South Africa	210	214	234	252	5.6
Uruguay	150	154	144	126	4.1

¹ Preliminary. Source: United States Department of Agriculture, *Foreign Crops and Markets*.

With the exception of the United States, the main wool producing areas are far removed from the great textile manufacturing centers. As a consequence, the wool trade ranks as one of the major sources of international exchange. The few major surplus-producing countries account for approximately 90 percent of the wool entering international trade. The importance of the fiber to the economy of these countries is implied in the ratio of the value of wool exports to total export value; such ratios in 1946 were 32 percent for Australia, 34 percent for

UNITED STATES IMPORTS OF CARPET WOOL¹

Country	1937		1948		1949	
	Thou- sand pounds	Per- cent of total	Thou- sand pounds	Per- cent of total	Thou- sand pounds	Per- cent of total
Argentina	40,252	24.2	215,596	63.2	25,657	54.4
China	27,564	16.5	17,107	5.0	4,074	8.6
New Zealand	17,994	10.8	27,427	8.0	2,831	6.0
India	25,073	15.1	18,095	5.3	4,266	9.0
Pakistan			14,990	4.4	2,992	6.4
Syria	9,074	5.5	7,539	2.2	1,228	2.6
Iraq	8,600	5.2	13,235	3.9	2,051	4.3
Other	37,873	22.7	27,131	8.0	4,109	8.7
Total	166,430	100.0	341,263	100.0	47,208	100.0

¹ Actual weight basis. Because of rounding, figures will not necessarily add to totals.

² Included with India. Source: U. S. Department of Commerce, Bureau of the Census, *Foreign Commerce Weekly*, July 25, 1949.

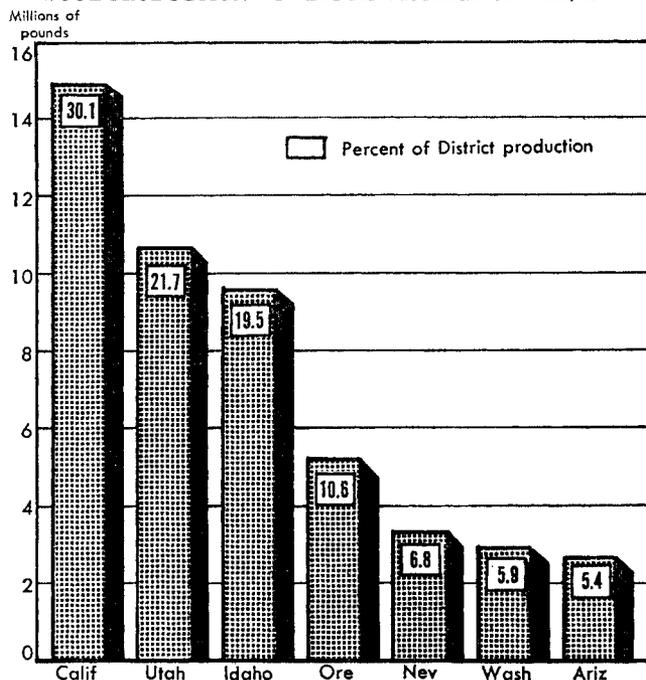
United States production

Domestic wool production is composed of wool shorn from the sheep and wool "pulled" from the pelt of slaughtered animals. Shorn wool production has always represented the major portion of domestic production and since 1930 has fluctuated between 81.4 percent and 85.9 percent. Production of shorn wool in 1949 was 85.7 percent of total United States production. About 90 percent of domestic pulled wool is pulled by meat packing plants which are the major slaughterers of the yearly lamb crop.

¹ In 1948 and 1949 the Argentine clip averaged 419 million pounds, of which approximately one-fifth could be considered of the carpet wool type.

¹ U. S. Department of Commerce, *Foreign Commerce Weekly*, September 26, 1949.

WOOL PRODUCTION¹—TWELFTH DISTRICT STATES, 1949



¹ Grease basis.
Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, *Wool Production and Income*, March 1950.

Though wool is produced in nearly all states, 78 percent of total domestic shorn-wool production originates west of the Mississippi River. The clip from this area is referred to as Territory wool. Texas,¹ Wyoming, and Montana are the leading producers in this area, accounting for 31 percent, 10 percent, and 9 percent respectively of the 1949 clip. Of the states east of the Mississippi, the area of farm flock operation referred to as the native wool states, the leading producer is Ohio where some of the finest domestic Merino wool is raised.

Twelfth District production

In 1949, the Twelfth District produced 23 percent of the nation's total wool clip. Almost three-fourths of the total District clip came from California, Utah, and Idaho, with California the largest supplier. The quality of the California clip, however, is perhaps less uniform than that of other District states, and some of it is heavily infested with grass seeds which require carbonizing in processing for use. Though the larger portion of the state's output consists of fine wools, there is considerable use of cross-breeds, producing medium and coarse grades, in areas concentrating on the production of early lambs. Wools from the California north coast counties, on the other hand, compare favorably with the finest wools raised in the United States.

Shearing

In most sections of the United States sheep are shorn once a year, generally in the spring or early summer. Shearing time is determined by the climatic and range conditions of each locality. Shearing is done on a piece

¹ The Texas clip is frequently referred to separately as Texas wool.

rate basis with variations in the services offered by the flock owner. Current District shearing rates are averaging 40 cents per head. A good professional can clip approximately 175 to over 200 head in an eight hour day, depending upon the type of sheep being shorn.

In the range area, shearing is normally done where the flocks can be gathered at a convenient location and where shearing sheds are available or where portable wooden floors can be easily set up. The wool is packed at the shearing location in burlap bags containing from 250-350 pounds of raw wool. Most of the domestic clip is shorn between February and July. Wool must be shorn at least once a year or much of it would be shed or lost on brush and plant growth on the range. The heavy fleece affords a protection against winter cold, but on the other hand is excessively warm and debilitating in the heat of summer. Shearing is therefore seasonal and timed after the winter is over but prior to the maturing and drying of grass seeds which contaminate the clip and reduce its value.

In the sheep growing areas of the United States little grading of wool as to quality is done at the shearing location other than packing separately lambs' wool, black fleeces, and sometimes belly clippings. The Australian practice of grading at the shearing plant is not followed by American sheep producers generally. Wool grading requires a thorough acquaintance with grade, length of staple, and other wool characteristics as well as its manufacturing uses. Owing to the generally smaller size of American sheep raising operations and the wide range in the quality of the domestic clip, the grading of wool at shearing locations would not warrant the extra costs involved, even if competent graders were available. Pulled wool, however, is usually graded and sometimes sorted at the time of pulling. Even under the present methods of producing domestic wool, particularly in the western range area, it is possible that sales appeal could be enhanced if more care were exercised in handling the clip at the shearing plant.

Wool Marketing

There is little direct selling of wool from the producer to manufacturing mills. Mills are concentrated on the eastern seaboard, far from the western production areas, and are ordinarily in the market for a greater amount of a particular quality of wool than is available from one producer. As producers' wool is not graded, direct purchase by the manufacturer from the wool grower would force the manufacturer to accept some grades and classifications not suitable to his requirements. The mill buyer, therefore, must look to a reliable source of supply of graded wool for his exact needs. Manufacturing needs are also less seasonal than are the production phases, and the mills must therefore rely on stocks accumulated during the annual shearing season.

The dissimilarity in the characteristics of wool production and wool textile manufacture have led to the marketing of wool primarily through wool brokers, commission

houses, or cooperative wool marketing agencies. The wool broker, or merchant, buys direct from the grower on a cash basis, accumulating large inventories at his warehouses, when the wools are graded¹ and resold to mills according to their grade requirements. Wool is also marketed through commission houses which acquire their stocks on consignment to be sold to merchants, charging the grower a fee for the service. Payment to the grower for his wool is usually made only after the commission man has consummated the sale. Cooperative marketing associations, to a greater or lesser degree, perform the services of the wool merchant for their member growers. Membership wools are warehoused, graded, and then sold directly to mills. Cash advances are made to the grower and final settlement made after the grower's wool is disposed of. Some direct buying from producers is done by large mills whose manufacture is of sufficient diversity to assimilate a variety of wool sorts. Local buyers also operate throughout the sheep growing districts, purchasing on their own account—usually the smaller clips—for resale to merchants.

The wool grower and the tariff

The nation's wool growers have long benefited from Government aid in one form or another. It is doubtful that United States sheep raisers or woollen manufacturers could have successfully withstood competition from foreign importations during the past hundred years without some measures of preferential treatment. The principal form of Government aid received by the American wool grower has been protection through tariffs on wool and wool imports. In 1816, wool was made subject to a 15 percent ad valorem duty. Almost continuously since that time, United States producers have enjoyed a level of tariff protection which, in effect, has maintained American wool prices at levels higher than the world market, and secured a major part of the domestic market for American woollen manufacturers.²

¹ COMPARATIVE WOOL GRADES

Official standard wool grades	Corresponding grades	Official standard wool grades	Corresponding blood grades
80's } 70's } 64's }	Fine	50's } 48's }	¾ blood
60's } 58's }	½ blood	46's } 44's }	Low ¼ blood Common
56's }	¼ blood	40's } 36's }	Braid

The grade of wool is principally determined by the diameter of the individual wool fiber, and the fineness of "quality" of the fiber is essentially the defining factor in the use to which the wool is put. The extreme fineness of wool sheared from Merino sheep, as well as the "crimp" or waviness in the fiber which gives it resiliency and therefore strength, gives rise to its high value in the wearing of the better grades of textiles.

The nomenclature of wool grades originated from two sources. The English system determines grade by the number of hanks (560 yards) of yarn that could be spun from 1 pound of combed wool. One pound of 64 fineness or "quality" would make 64 hanks of yarn, while a coarse wool of 40's or 36's would make 40 and 36 hanks. The English nomenclature is also referred to as the spinning count system. The United States system, which has gradually been superseded by the spinning count system, presumably originated in this country as a result of crossing Merino sheep with other sheep breeds possessing less desirable wool characteristics. The

² For two periods, 1894-97 and 1913-21, apparel wool imports into the United States were duty free. Tariff protection is reflected on about 98 percent of the wool raised in the United States. A complex system of tariffs on woollen goods has also indirectly benefited United States wool growers over the long period.

It is the nature of sheep to grow wool, even though bred primarily for the production of meat. The harvest of the fiber, however, incurs costs to the producer which have no relation to the raising of sheep for the production of meat. Many costs must be charged directly to the production of wool: shearing, packing, hauling, as well as some labor costs and investment in plant and equipment—high cost factors in the production of domestic wool, which must compete with cheaper-grown imports. Sheep raisers, therefore, are keenly responsive to trade policies which tend to weaken the competitive position of domestic wool. This has been amply demonstrated in the widespread apprehension among growers over the lower tariff levels implemented by the Geneva Conference in 1948¹ in accordance with the American policy of cooperation with dollar-short nations, among which are numbered the world's leading wool producers.

Wool in the Inter-war and War Periods

Following World War I, the farm price of wool declined 70 percent between 1918 and 1921, accompanied by a sharp decline in the number of stock sheep and in the production of domestic wool. Consumption of wool likewise dropped sharply. Meanwhile, the war-accumulated stocks of old-crop wool in United States and in foreign hands were relatively large. Domestic producers, therefore, faced a disconcerting outlook of record-low lamb and wool prices, further threatened by foreign clips which had the right of free entry. This situation resulted in the passage of the Tariff Act of 1922 which imposed an import duty of 31 cents per pound of clean content on apparel wools.

Following imposition of the tariff and in company with a rise in the general level of business activity, flocks were expanded and domestic wool production rose from 272 million pounds (grease basis) in 1923 to 382 million pounds in 1929, an increase of 40 percent. During the

wool from the offspring of these crosses was lessened in quality or fineness in varying degrees by the cross. The United States system of grading referred to the "blood" proportion of straight Merino breeding in the cross, i.e., a three-eighths blood wool represented a cross of ¾ Merino and ¼ of another breeding. These "blood" terms are now arbitrary trade names referring only to the fineness of the fiber and no longer represent the breeding of the sheep from which the fleece is shorn. Because of the numerous disadvantages of this system of nomenclature, the United States Department of Agriculture in establishing official wool standards in 1926 adopted the English or spinning count system to designate the quality of wool.

Wools grading 46's and higher are classified according to length of staple, designated as strictly combed, French combed, and clothing. Clothing wools are too short to be combed profitably and are used in goods other than worsted. The textiles used in the manufacture of suiting, overcoats, and most other apparel are usually in one of two classes—worsted or woollen. The worsted cloth is made from combed wool only, resulting in a cloth with a clear, smooth texture, as the long fibers through the combing process are drawn together horizontally. Thus, the length of fiber is of great significance in the weaving of worsted cloth, and manufacturers must sort each fleece not only as to its quality but also with respect to its length. The mill, therefore, after purchase of a lot of wool graded 58/60's must sort each fleece, removing portions which are not up to the combing grade standard. These sorts are then channeled to other wool uses. Woolens are made from carded wool of coarser or shorter fiber which has not been combed, hence the fibers are not drawn parallel in the yarn. Woolens are more loosely woven than worsteds, appear soft and fuzzy, and are suitable for heavy weight material. The grades 56's and finer are those suitable for the manufacture of suiting. The medium grades are more generally used in making knit goods and sports wear. (J. F. Wilson, *California Agricultural Extension Service, Circular 106, November 1937.*)

¹ Tariff rates in the Geneva agreement in wools finer than 44's were reduced by 25 percent, or from 34 cents to 25.5 cents per clean pound.

same period, imports of foreign wool declined from 266 million pounds to 102 million, or 62 percent. Producers' prices (which in 1929 averaged 17 cents per pound, grease basis) during the same interval fluctuated between a low of 30 cents per pound to a high of 39 cents. Total mill consumption in this period averaged 540 million pounds or 8 percent below the 1918-21 average, but the proportion of domestic wool consumed in relation to total mill consumption of apparel wool increased steadily. Between 1923 and 1929, stock sheep numbers also increased 33 percent and the proportion of total mill consumption supplied by domestic fiber rose from 55 percent to 69 percent.

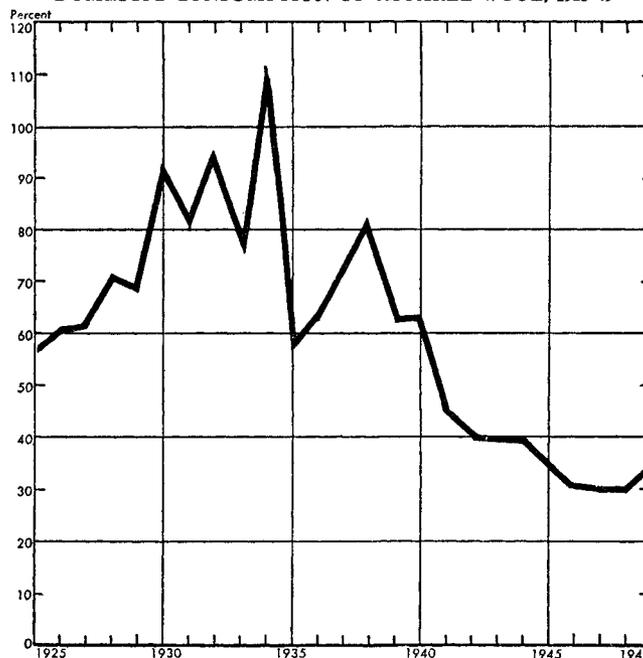
Further tariff legislation in 1930 increased the duty to 34 cents per pound (clean content) on wools finer than 44's quality—that is, on wools comparable in quality to practically all domestic production. In accordance with the general depression in commodity prices immediately following 1929, however, the average farm price of wool dropped sharply from 30.2 cents per pound to 8.6 cents in 1932. Nevertheless, the following year the price readjusted upward in contrast to the sluggishness of other commodity prices, and for the next eight years fluctuated between a low of 19 cents in 1935 and 1938 to as high as 32 cents in 1937. Though lamb prices remained depressed in the first half of the decade, and made only a slow recovery in the late 1930's, stock sheep inventories continued to expand as growers attempted to compensate losses by volume lamb marketings and by expanding wool sales.

The dual income possibility of sheep operations, the more rapid recovery of wool over the price of other commodities, and the quicker adjustment to expansion or contraction of operations placed sheep raisers in a more favorable borrowing position among lending institutions than other forms of livestock enterprises during the 1930's. This was reflected in a further expansion in stock sheep. Numbers therefore increased from 33 million head in 1922 to over 46 million by 1940. The proportion of domestic apparel wool to total wool consumed by United States mills, which from 1920 to 1923 averaged approximately 62 percent, increased to an average of 69 percent between 1924 and 1930, and from that time until immediately preceding World War II it averaged 78 percent. The re-imposition of the tariff in 1922 and the further increases awarded in 1930 were significant factors in reactivating the domestic wool growing industry after the sharp set-back experienced in the period immediately following World War I.

The war period

Beginning in 1940, when stocks were relatively low, the demand for wool in the United States, both for military needs and expanded civilian requirements, sent wool prices soaring. Whereas average prices received by producers for lambs in 1940 rose 4 percent over the previous year and in 1941 increased another 18 percent, the average price received by growers for wool in 1940 was 27

RATIO OF DOMESTIC WOOL PRODUCTION TO TOTAL DOMESTIC CONSUMPTION OF APPAREL WOOL, 1925-49



Source: United States Department of Agriculture, Bureau of Agricultural Economics, *Wool Statistics*, 1949.

percent above 1939 and increased 25 percent more in 1941. These rising prices induced growers to increase their inventories of stock sheep, which by 1942 reached the highest level in sixty years. Domestic wool production increased accordingly. Production of wool, which in 1939 and 1940 averaged 425 million pounds (grease basis), totaled over 453 million in both 1941 and 1942. Nevertheless, it was felt by Government leaders that in the event of a prolonged war, military needs alone would require more than total domestic production could probably expand. Concern was also felt over the possible interruption of the sea lanes over which the greater part of the foreign supply would have to be transported. The Government, therefore, implemented two policies to insure adequate supplies of this vital material; first, the offer of price incentives for further expansion in domestic production, and second, the creation of a wool stock-pile.

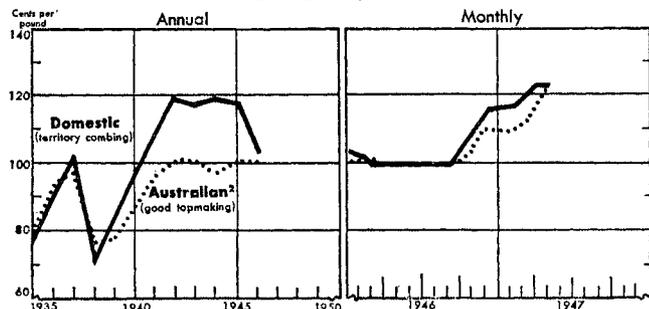
The Buy American Act of 1933¹ was an important factor at this time in the sharp advance of domestic wool prices and the consequent increase in production. In pre-war years, domestic wools had sold well below duty-paid imported wools of equal grade. By 1940, however, domestic wools were commanding a premium over imported stocks² in spite of the fact that foreign clips in general were better prepared and required less conditioning.

By the end of 1940, military requirements were of such magnitude that it became necessary to allow some im-

¹The Buy American Act of 1933 required that in filling Government contracts, domestic products be used if available and if not conducive to unreasonable additions to cost. During the early 1930's Government contracts for articles manufactured from wool were negligible, and this Act had little effect on bolstering domestic wool prices during that time.

²Between 1924 and 1939 the price of domestic territory fine, half, three-eighths, and quarter bloods at Boston averaged more than 10 cents per pound below comparable grades of imported wools. By 1942, domestic wools averaged 4.7 cents higher than duty-paid imported wools of similar quality and 8.7 cents higher in the fall of 1943.

PRICES OF DOMESTIC AND IMPORTED FINE¹ WOOLS
AT BOSTON, 1935-47



¹ 64's-70's, scoured basis.

² In bond price converted to a scoured basis and adjusted for tariff and difference in preparation of domestic and foreign wool.

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, *The Wool Situation*, June 1947.

ported wools to be used in filling Government orders; nevertheless, domestic clips were assured of a demand at very satisfactory prices. Civilian requirements, meanwhile, were filled by foreign wools which were available to the mills at lower prices, in more favorable condition, and frequently of more desirable quality. In March 1941, added incentives to expansion of domestic wool production were contained in the War Department's policy of paying premium prices on textiles manufactured from domestic wool. The result was a further rise in the level of wool prices above comparable foreign grades.

War stock-piling

The plan to stock-pile wool was inaugurated early in 1940. Through a series of agreements with the United Kingdom (which had taken over the marketing of all Empire wool production), a program was evolved for the accumulation of large reserves to be stored in this country and against which both nations could draw, if necessary. Ownership of the stock remained in the hands of the British Government. Early in 1942, the United States inaugurated a stock-pile of foreign wool on its own account by purchase of nearly 300 million pounds (actual weight) of Empire wool. Later, 34 million pounds of Uruguayan wool were added to this reserve in a cooperative effort to reduce the burdensome supply that had accumulated in this Latin American republic. Except for a negligible lot of Argentine wool, no further purchases of South American wool were made for the war stock-pile. The bulk of South American exports to the United States, much of which consisted of coarser grades, was not considered essential war material.

C. C. C. purchase program

In 1941, the exigency of conditions was bringing greater and greater pressures on the general level of prices. In the case of wool, the pressure was furthered by the scarcities which were envisioned as a result of the outbreak of the Pacific war posing an additional threat to imports from Australia.¹ Domestic production at this time was less than half the amount required for both mili-

¹ "Within three days after the attack on Pearl Harbor, the price of Australian wool on the Boston market advanced 5 and 6 cents per pound (clean basis) in volume orders and as much as 7 cents in extreme cases." —Office of Price Administration, Price Control, Volume 12-44: 933.

tary and civilian consumption. Consumption of wool in 1941 was 47 percent above the previous year and 56 percent above the 1935-39 average and rising rapidly. Yet domestic wool production, which had been expanding, was still only 44 percent of total mill consumption. The situation, therefore, was such as to signal a sharp rise in wool prices which would have posed a threat to the entire price structure. The result was the issuance of an official price schedule in December 1941, soon after revised upward, which pegged domestic wool prices, but at substantially above 1941 averages.

Though in 1941 it had seemed far from certain, Empire wool continued to arrive in the United States in spite of war action in the Pacific. The anticipated wool shortage did not develop, so that by 1943 a number of factors were conspiring to darken the outlook for the domestic wool-growing industry. Production costs had risen sharply. A falling off of Government orders appeared likely in the near future. Prices for domestic wool were so much above duty-paid foreign wools in Boston that domestic mills were using the latter source for other than Government orders. Over a three-year period, 1940-42, prices paid for fine domestic wool were 14 percent higher, on the average, than for similar foreign grades. The domestic clip forced into commercial channels would therefore have been required to compete with the lower price level of imported wool. And into the future, the reserves of Empire-owned stocks, as well as those in the hands of the United States Government, loomed as a threat to the stability of the wool market at the end of the emergency.

Two things happened at this time in response to the situation. First, many operators shifted to alternative agricultural pursuits, thus beginning a reduction in stock sheep numbers; second, the Government came to the rescue with a program to assure wool producers a market for their product. The Commodity Credit Corporation instituted a purchase program for domestic wool and became the sole purchaser at the then prevailing prices.¹ By far the greater bulk of the wool stock-pile accumulated by the Government was acquired under the purchase program of the Commodity Credit Corporation inaugurated in 1943. The wool purchase program, however, was not essentially a stock-piling program, but rather a further means of protecting the domestic wool-growing industry, which in spite of relatively high wool prices, was in trouble.

Though the order directing the sale of domestic wool to the Corporation terminated in August 1945, the purchase program was continued on a voluntary basis until early in 1947. Because of the price differential between foreign and domestic wools of comparable grades, most of the domestic clip continued to move to the C. C. C. during 1946 and early 1947.

¹ On April 17, 1943, the War Food Administration issued Food Distribution Order No. 50 to take effect April 25, 1943. This directive required that all wool not sold by producers before April 25 must be sold to, and purchased only by, the Commodity Credit Corporation. Lots of 1000 pounds or less could be bought for private account, provided such wool was later sold to the Commodity Credit Corporation. Other exceptions excluded less than 2 percent of the U. S. clip. The Corporation was prohibited from selling its wool below parity.

COMMODITY CREDIT CORPORATION PURCHASES OF DOMESTIC WOOL

(actual weight—million pounds)

Quarter	1943	1944	1945	1946
April-June	10.7	89.8	85.3	47.8
July-September	135.5	173.9	151.1	129.0
October-December	78.9	76.2	63.1	72.3
January-March	41.7	46.7	40.1	33.4
Total	266.8	386.6	339.6	282.5

DOMESTIC PRODUCTION
(grease basis—million pounds)

	1943	1944	1945	1946
Shorn	378.8	338.3	307.9	280.4
Pulled	65.2	73.5	70.5	61.3
Total	444.0	411.8	378.4	341.7

Source: United States Department of Agriculture, Bureau of Agricultural Economics, *Wool During World War II*, May 1947, and *Wool Statistics*, 1949.

The Commodity Credit Corporation stock-pile, therefore, was a significant factor in absorbing domestic production during the four-year period 1943-46 and in maintaining the price of domestic wools above comparable grades of competing sources.

Domestic consumption of wool between 1941 and 1946 had been at record levels, yet domestic production averaged only 35 percent of total mill consumption during the same period. When the end of the war also brought to an end a large military demand, Commodity Credit Corporation stocks of domestic apparel wool amounted to 469 million pounds on April 1, 1946, or 23 percent larger than the previous year's domestic clip.

Hence, during the war the paradoxical situation developed in which the Government was insuring prices for wool at levels above competing foreign supplies, mills were consuming record supplies of wool, and yet domestic growers were reducing their flocks to new low levels.

The Postwar Period

As has been seen, the wool situation was not the sole factor affecting the sharp decline in sheep raising in the United States in recent years. We have also seen that uncertainty over long-term Government price support and tariff policies, the eventuality of an end of military requirements, and the spectre of large stocks which they feared would plague postwar markets were contributing factors leading the nation's sheep operators to view the outlook with concern. Subsequent developments in the postwar economy, however, allayed the industry's apprehension. After 1945 the situation was characterized by an orderly liquidation of war-born stocks and by high prices which reflected pent-up domestic purchasing power and European rehabilitation needs.

Stock-pile liquidation

Foreign wool: At the war's end, the Empire wool stock-pile was moved out of this country to foreign storage. The United Kingdom Dominions Wool Disposal, Ltd., a British company known as the Joint Organization (J. O.) was organized for the purpose of liquidating this stock-pile as well as to stabilize the marketing of the

annual dominion clips.¹ In September 1946 the J. O. resumed the auctions which had been discontinued by the "take over" of Empire wools. During the year the wool textile industry had recovered sufficiently in Western European countries—notably Belgium, France, Britain, and Italy—to create a demand that was amply filled by those J. O. stocks, and when the auctions opened, prices moved rapidly upward. Stocks were rapidly reduced through 1947-48-49 and at price levels conducive to improving the marketing outlets for Commodity Credit Corporation holdings in the United States.

Domestic-owned foreign wool: The domestic stock-pile which United States growers had viewed pessimistically during the war likewise met an unprecedented demand and by 1950 had been practically eliminated. The Government-owned stocks of foreign wool acquired by the Defense Supply Corporation during the war had nearly all been disposed of by mid-1945. During 1944 and 1945, 264 million pounds of United States-owned foreign wool stocks were sold either at auction or in private sale, and the last remaining lot was disposed of in Europe through the Foreign Economic Administration.

Domestic wool: The stock of wool purchased by the Commodity Credit Corporation was procured largely at OPA ceiling prices for domestic wool, scoured basis, delivered at Boston. Purchase was made through accredited "handlers" who operated under conditions prescribed by the Corporation. Growers received the appraisal price, less handlers' fees, transportation costs, and C. C. C. fees to cover costs of appraisal, storage, and interest. Prices received by growers averaged 42 cents per pound (grease basis) as compared with average prices of 40.1 cents in 1942 and a 1935-39 average of 23.7 cents.

While J. O. offerings on the world market were rising steadily in price, wools offered by the C. C. C. found a ready domestic market. The Corporation, however, was prevented by law from liquidating its stocks below parity. As the parity price of wool rose with the general inflation in all prices, the Government was forced to revise its selling prices upward. The favored position of domestic to foreign wool prices was weakened thereby so that early in 1947 Commodity Credit Corporation sales were greatly reduced.

Following a Presidential veto of a bill containing provisions for establishing fees and quotas on wool imports as inconsistent with avowed United States reciprocal trade policies, Congress enacted Public Law No. 360 in August 1947 providing price support to domestic wool growers through 1948. The bill also authorized the Commodity Credit Corporation to dispose of its stocks, both owned and to be acquired, at less than parity. When C. C. C. prices were lowered thereby, Government stocks again moved into domestic consumption and imports declined. Imports continued to be reduced in 1948 and 1949 owing to high replacement costs of foreign supplies and

¹ Composition of the J. O. consists of four representatives from the United Kingdom, two from Australia, and one each from New Zealand and South Africa.

generally lower levels of consumption. At the present date, C. C. C. stocks have been practically exhausted.

One of the major threats to United States wool growers which existed at the end of World War II—that of large stock-piles both in this country and abroad—has therefore been successfully eliminated in an orderly manner and under circumstances which have maintained average yearly prices that have been very favorable to the grower.

World production

It is estimated that world wool production in 1950 will be approximately 2 percent above the 3.8 billion pound output of 1949. The high wool prices prevailing during the past two years have been influential in expanding flocks in most major and minor producing areas, except in the Union of South Africa, Canada, and the United States. Drought conditions reduced production in South Africa in 1949 and its effects will be further felt in 1950. The continued decline in Canadian production since 1945 was caused by much the same impulses which similarly affected wool raising in the United States. Wool production in Europe has recovered rapidly since the war and in 1949 was 11 percent above the 1947 low. For 1950, European output is expected to come within 6 percent of the 1936-40 prewar average. Australian producers since the depressing drought of 1945 have been rebuilding their flocks. Production was up 7 percent in 1949 over 1948, and estimates for 1950 indicate a further increase in the clip. Increases in wool output are likely to occur in both New Zealand and Argentina in the current year.

World wool stocks continued to be depleted in 1949 as consumption remained at high levels. Stocks which on July 1, 1947 were estimated at 4.2 billion pounds had decreased to 3.6 billion a year later, and in mid-1949 were placed at 2.9 billion. World consumption of wool during the postwar years has exceeded production, and the accumulated war-stocks materially aided in filling the acute demand. Widespread foreign needs have maintained a high level of world prices which has extended into 1950.

The domestic situation

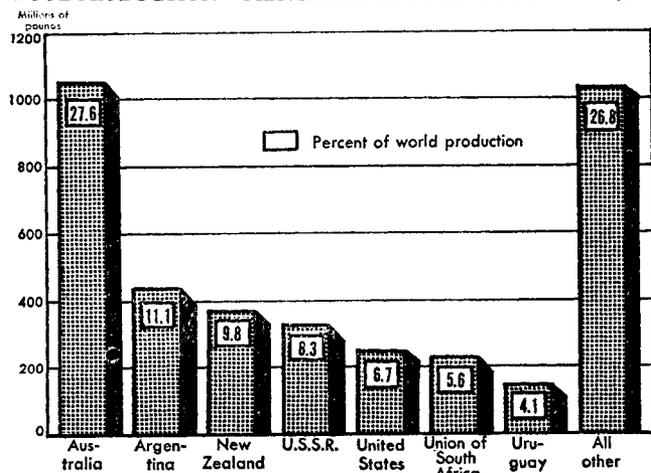
Though consumption of apparel wool in the United States in 1949 was 29 percent below 1948, it was still 22 percent above the 1935-39 average. Production meanwhile was 40 percent below the prewar average. The decline in 1949 consumption, accentuated in the first half of the year, was essentially the result of smaller output of men's and boys' tailored clothing and women's and children's ready-to-wear apparel. Inventory reductions in wholesale and retail outlets were also of some influence. Per capita consumption of apparel wool was reported at 2.3 pounds in 1949 as against 3.3 pounds in 1948, and consumer expenditures for clothing were down 7 percent from 1948. Nevertheless, with world consumption of wool outstripping production, wool stocks relatively low both at home and abroad, and the continuance of a high level of domestic economic activity, and anticipated military requirements, demand for apparel wool in 1950 was expected to continue above prewar levels in spite of the reduction in domestic consumption that has occurred over the past four years.

Smaller domestic output likely: As contrasted to the increased production anticipated in the major wool producing areas of the world in 1950, wool production in the United States is likely to reach a new low as a consequence of a 2.7 percent drop in the number of stock sheep during 1949. Shorn wool output which in 1949 was 217 million pounds in the grease has been estimated at 212 million for the 1950 shearing. This would be only 59 percent of the 360 million pounds production encouraged by the price support act. As slaughter of sheep and lambs will probably be less owing to the further decrease in numbers as well as to a retention of some stock for flock expansion, production of pulled wool in 1950 is also likely to be below last year. Total domestic production of both shorn and pulled wool in 1950, estimated at 247 million pounds (grease basis), or 2.3 percent below last year's 70-year low, would seem to insure a favorable climate for the maintenance of prices well above parity.

Prices moving upward: The present price support program, under the Agricultural Act of 1949, requires that wool prices be supported at such a level, between 60 and 90 percent of parity, as to encourage an annual production of 360 million pounds of shorn wool. Price supports for 1950 were announced at 90 percent of the parity price of wool¹ on March 15 which on that date was 50.2 cents per pound (grease basis), thereby establishing average support at 45.2 cents per pound.

Prices received by growers for shorn wool during the past 18 months as well as open market prices at Boston for Territory wools were above 1948 levels; yet in 1949 there was considerable uncertainty over market trends among producers as well as dealers and manufacturers. Open market prices at Boston on wool grading 60's or better, which were at peak levels during the first quarter of 1949, dropped sharply thereafter. Following devaluation of the British currency in September last year,

WOOL PRODUCTION¹—PRINCIPAL PRODUCING COUNTRIES, 1949



¹ Grease basis. Source: U. S. Department of Agriculture, *Foreign Crops and Markets*, June 19, 1950.

² Revised parity.

accentuated reductions in quotations on the London auction created a further element of uncertainty in domestic wool channels which was aggravated by the sudden recovery of the foreign market shortly thereafter. Both farm prices and Boston quotations soon reflected this upward movement, however, and prices strengthened toward the end of 1949 and continued to rise during 1950. Prices received by domestic wool growers averaged out at 49.3 cents per pound (grease basis) in 1949, compared to 48.8 cents in 1948 and 42.0 cents in 1947. In March of 1950, the average farm price was 49.6 cents and by August 15 it had risen to 58.3 cents. Current wool prices will undoubtedly result in a further increase in the average price received by farmers over the nation as a whole.

Outlook

The immediate as well as the long-term outlook for domestic wool must now be viewed in the light of the present critical international political situation. Should the present involvement in Korea be of long duration, heavy military requirements would again be saddled on domestic production. The contemplated expansion in military personnel in the United States and possibly in allied nations as well would again bring about a shift in wool utilization from civilian to Government consumption. The world production of Merino wools from which the better textiles are manufactured was sharply curtailed after 1943 owing to the diminishing output in the United States

and smaller clips as a result of drought conditions in Australia and South Africa. The proportion of crossbred wools, 58's and coarser, was correspondingly upward. This led to the more extensive use of medium type wools by American manufacturers and served to create an upward pressure on prices of the less desirable grades. Even with a significant increase in the output of finer grade wools, expanded military needs in the event of a prolonged war situation could again be expected to restrict supplies of these types available for civilian use. This should effect a continuance of the relatively strong demand for medium and coarser type wools, as textile manufacturers would be forced to rely upon these sources for civilian needs.

The present situation then, in view of recent developments, implies the following: (a) expanded military requisitioning of worsted wools which are in relatively short supply, (b) United States civilian consumption, presently above prewar levels, supporting a demand for medium grade wool fibers, (c) continuing strong foreign demand for civilian needs with a likely increase in foreign military requirements, (d) carry-over stocks of apparel wool at the lowest postwar level, with Government ownership of the stock at negligible proportions. The domestic outlook, therefore, is for continuing high wool prices with the possibility of reimposition of Government price ceilings and the probable rebuilding of the Government stock-pile if the world political situation should grow worse.