

Sheep feeding has developed from a now-and-then practice to a regular phase of farm production on many Iowa farms. From the early type, kept to provide wool for home uses, the shift later was to the mutton type.

12. Sheep Production in the Livestock Enterprises

W. F. LA GRANGE, *Animal Husbandry*

EARLY DEVELOPMENT OF THE SHEEP INDUSTRY IN Missouri influenced the introduction of sheep into southeastern Iowa during the forties and fifties. As early as 1840 Missouri had more sheep than any other state west of the Mississippi and it held this position until 1860 when California took the lead.

The Mormons, who established more or less permanent camps or settlements on their trek through Iowa in the forties, drove many sheep and no doubt some were left in these settlements.

The early pioneers came into Iowa with meager equipment. A yoke of oxen or a team of horses, a cow to furnish milk for the family, numerous dogs, and a few sheep generally made up the livestock inventory. Many of the dogs could well have been left behind, for they soon became a serious menace to the sheep industry in the state.

For several decades the value of sheep was in their wool. Mutton was little known or appreciated. The wool was used almost entirely in clothing made in the home, where carding, spinning, and weaving were all done by women. A spinning wheel was found in every home, though one loom might serve several families.

MERINO

Early sheep were of nondescript breeding but Merino blood appeared early. Originating in Spain, this breed had accompanied the pioneer from Vermont and other eastern states. Today the Rambouillet, a French version of the Merino, dominates range flocks. Merinos were selected and bred for generations as wool producers, with little if any attention given to mutton qualities. Later, in the

eighties, American breeders developed a type of Merino, called the Delaine, that had more mutton and still sheared a fine fleece. This dual type of Merino gradually replaced the early type bred primarily for wool. The Merino was well suited to its job on the frontier. It was hardy, adaptable, and sheared a heavy, fine fleece, but like all members of its race, then and now, it needed man's help and protection.

For many years the Merino dominated the sheep population in Iowa. Many so-called "full-blood" Merino flocks were established after the close of the Civil War. They were purebred, but not as we think of a purebred today. The registry associations for purebred sheep were not started until 1878. Prior to the organization of the sheep associations, private flock records were the only evidence of breeding. Several long-established flocks have been maintained in southeastern Iowa.

One of these flocks, started well over a hundred years ago, is still maintained there by a descendant of the original owner. A veteran of the Civil War, A. J. Blakely, Sr., settled on a farm near Grinnell in 1868. A fortunate sale of 3,000 pounds of brook-washed Merino wool in 1865, sheared from his own flock, and sold at one dollar a pound, made the down payment on his farm.

Blakely brought a carload of Merino ewes and a choice ram to his Poweshiek County farm from the old homestead in Vermont. The ewes were descendants of a flock purchased by his father in 1835. These sheep were the foundation of a present-day flock of Merino sheep, still grazing on the old Blakely farm two miles south of Grinnell. It is one of the leading purebred Merino flocks today. A. J. Blakely, Jr., and his son are now the owners. Rams and ewes have gone to many flocks in Iowa and into other states. It is doubtful if one can find elsewhere in the annals of livestock breeding in the United States, as long a period of improvement of one breed of livestock.

At the first State Fair at Fairfield in 1854 two types of sheep were exhibited, long wool and fine wool. Only two classes were provided for sheep, one for best ram and another for best pen of ewes. Sheep at fairs were not classified by breeds until after 1860.

Not much hope was held out for sheep raising in Iowa from 1855 to 1860. County agricultural societies reported:

Iowa is not yet a sheep-raising state. . . Few farmers raising sheep. . . Wild grass probably has a tendency to make wool coarse. . . Rearing of sheep sadly neglected. . . Worthless dogs in large numbers a menace. . . Wool raised only for home use. . . Most sheep have been harassed and killed by dogs and wolves. . . Every farmer investing has lost money. . . No flock of any size left. . . Fatal mistake made in management. . . Farmers without experience and knowledge.

CIVIL WAR: BOOM AND SLUMP

The Civil War, however, was a great stimulus to sheep raising in Iowa, for trade with the South was cut off and cotton became scarce. Until then, wool had received little attention in Iowa except for home consumption. Now interest rose in the production of wool, not alone for family use but for "export" as well. At the close of the war wool was selling at one dollar a pound, although prior to the war it had sold for twenty to twenty-five cents a pound.

As a result, the number of sheep increased from 258,228 in 1860 to 600,000 in 1863. The next year numbers had reached 900,000 and the 1867 census reported nearly two million head. This was the largest sheep population in the history of the state, before or since.

County and state Agricultural Societies then reported:

Wool growing is receiving increased attention in many portions of the state. . . One of the sources of the future wealth in Iowa will be from sheep. . . Wool is much more profitable than pork or beef.

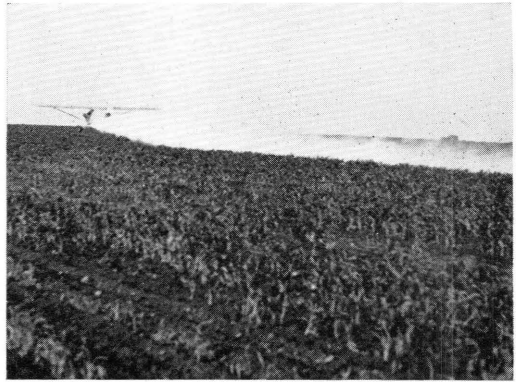
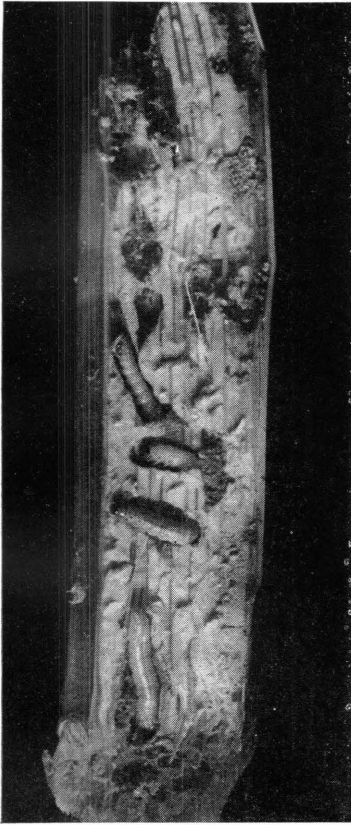
J. B. Grinnell, a man after whom an Iowa city and college were named, saw a great future for wool production in the state.

During this period more county fairs were organized. Representatives of breeds other than the Merino began to be exhibited. A Southdown ram, from England, was exhibited at Muscatine in 1857. A few Southdowns were reported in Tama County in 1860, and that same year a Southdown and a Leicester were exhibited at the State Fair. The first Hampshire mentioned in the State Agricultural Society reports was exhibited at the Cedar County Fair in 1862 by G. B. Sargent. Southdowns, Leicesters, and Cotswolds, in addition to Merinos, were on display at this fair. It was not until 1868, however, that the Southdown, Cotswold, and Leicester attracted sufficient attention for the State Fair Board to provide separate classes for them. By 1870 they had more entries at the State Fair than did Merinos.

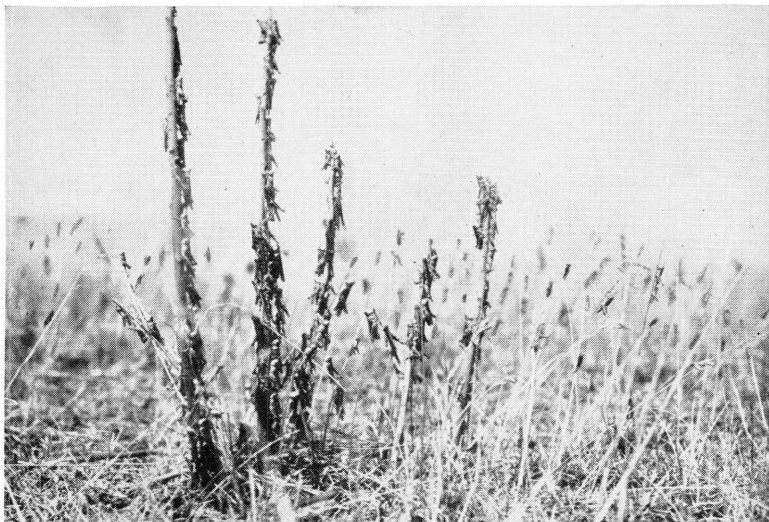
Oxfords were given a separate class at the fair in 1874, Shropshires in 1883. The latter breed appeared in Iowa in the early eighties and by 1891 had gained so in popularity that half the total sheep entries at the State Fair were Shropshires. They continued to make phenomenal progress before and after 1900.

Cheviots were given a class at the 1889 State Fair and the next year Hampshires made a strong show and were given a classification. Hampshires came later than some of the other medium wool mutton breeds, but their progress, especially since 1910 and particularly in the Midwest and in western states, has been phenomenal.

Few farmers realized that the high prices for wool during the Civil



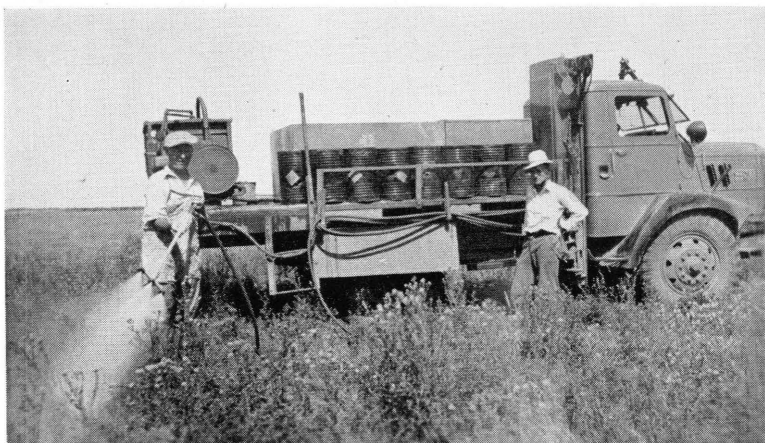
Just at the end of Iowa's first one hundred years, the European corn borer appeared and in the short space of four summers became the most important corn insect pest in the state. The damage is indicated by this piece of corn stalk (left) from the surface of a plowed field, cut open to show larvae. Among control measures, Iowans fought the onslaught by airplane dustings of their fields (right). Here a hybrid seed corn field is being dusted with 3 per cent DDT in talc.—
 CHAPTER 7, MAN AND NATURE BATTLE INJURIOUS INSECTS.



When the ominous clouds of locusts descended, green fields of corn and ripening small grain bent with the weight of their numbers. The swarms usually departed a few days after they came, but behind them they left the whole countryside devastated.—CHAPTER 7, MAN AND NATURE BATTLE INJURIOUS INSECTS.



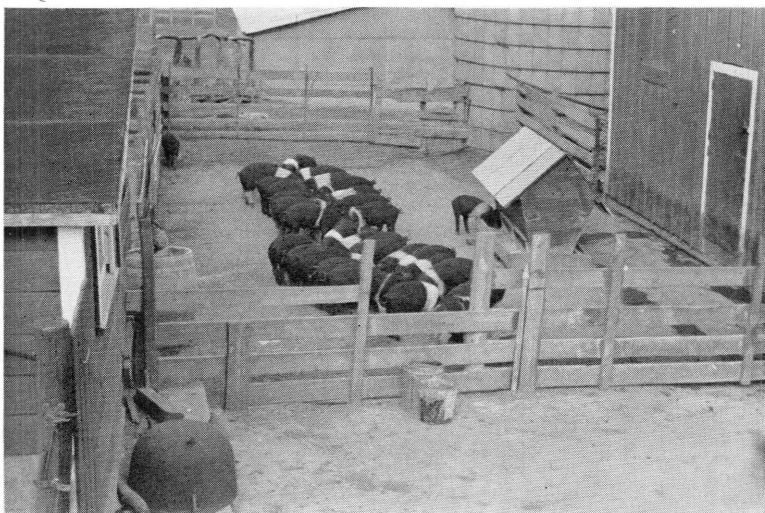
Although no satisfactory method has been devised for protecting small grain from the attack of chinch bugs, the timely construction and proper maintenance of good barriers will protect 95 per cent of the corn crop from first generation bugs migrating from small grain to corn. In this field in southern Iowa in 1939, about half the corn field had been destroyed by the bugs before the barriers were constructed. Their effectiveness is shown, and would have served just as well at the edge of the field if erected in time.—CHAPTER 7, MAN AND NATURE BATTLE INJURIOUS INSECTS.



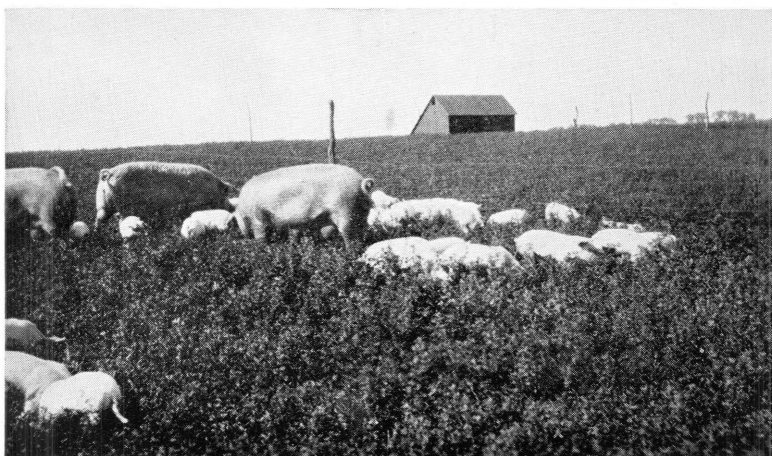
A new method of weed control was introduced in 1927—use of sodium chlorate. This large power sprayer, county-owned, is typical of the type in service to treat European bindweed and other perennial weeds with the chemical.—CHAPTER 8, WEEDS THAT CHALLENGE IOWA CROPS.



In 1891, James Wilson, C. F. Curtiss, and D. A. Kent reported on an experiment which demonstrated "what great possibilities are locked up in the Iowa hog. He is eminently the great corn condenser of the state. His torpid nature and fat-forming function enable him to burn the carbohydrates of corn into bacon. His omnivorous appetite prompts him to gather up all the waste food products of the land and convert them into gold."—CHAPTER 9, HOG RAISING—A BIG BUSINESS.



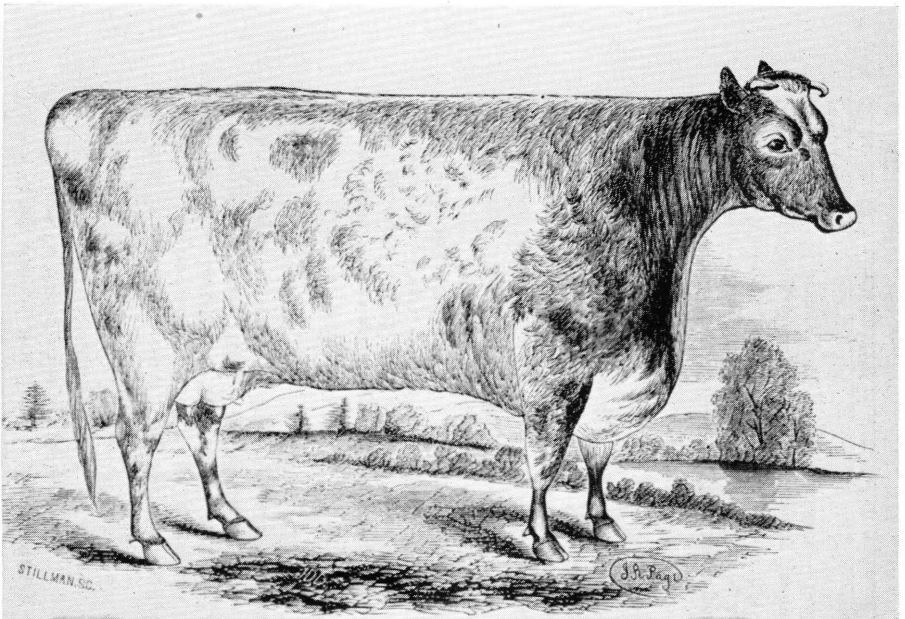
The clean-ground system of raising hogs on concrete floors is a modification that has been developed in Iowa. It has become increasingly important as hog production continues to follow practices which keep the young pigs away from old, contaminated hog lots. As shown above, protected areas between buildings can be used for feedlots when paved with concrete.—CHAPTER 9, HOG RAISING—A BIG BUSINESS.



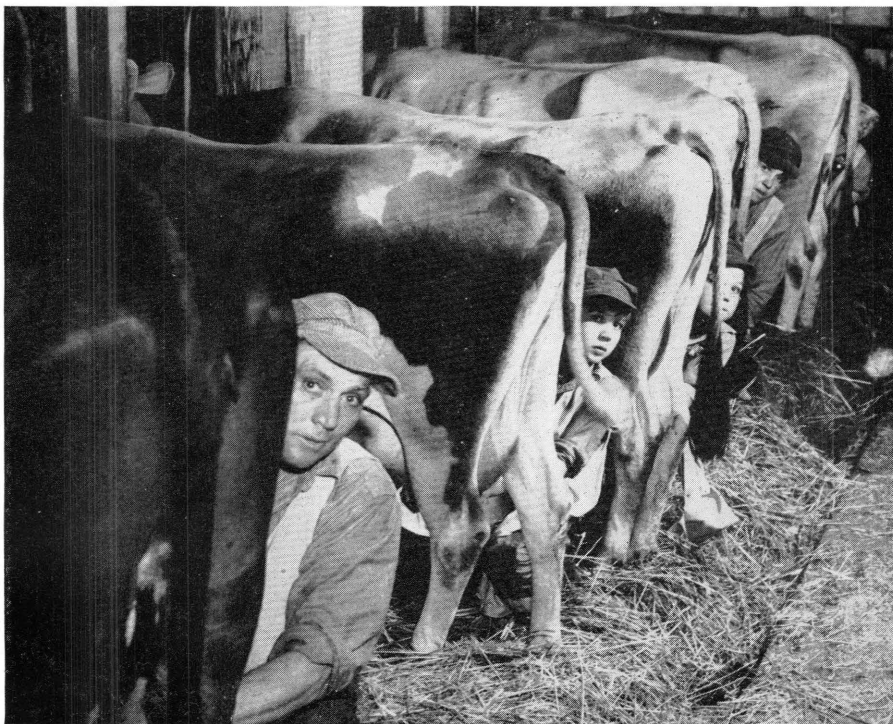
One of the features of the clean-ground system for raising hogs is the moving of the pigs to clean-ground pasture and keeping them on it until they are four months old, or weigh about one hundred pounds. These pigs shown above are getting off to a good start on alfalfa, which furnishes excellent pasture for hogs.—CHAPTER 9, HOG RAISING—A BIG BUSINESS.



Commercial beef production stabilized on the basis of two distinct types of enterprises. One was the maintenance of cow herds with the production of calves sold as feeders or fed out for beef by the grower. The second enterprise, cattle feeding, involves the purchase of thin cattle and fattening them for the slaughter market.—CHAPTER 10, IOWANS FEED BEEF CATTLE FOR MARKET.



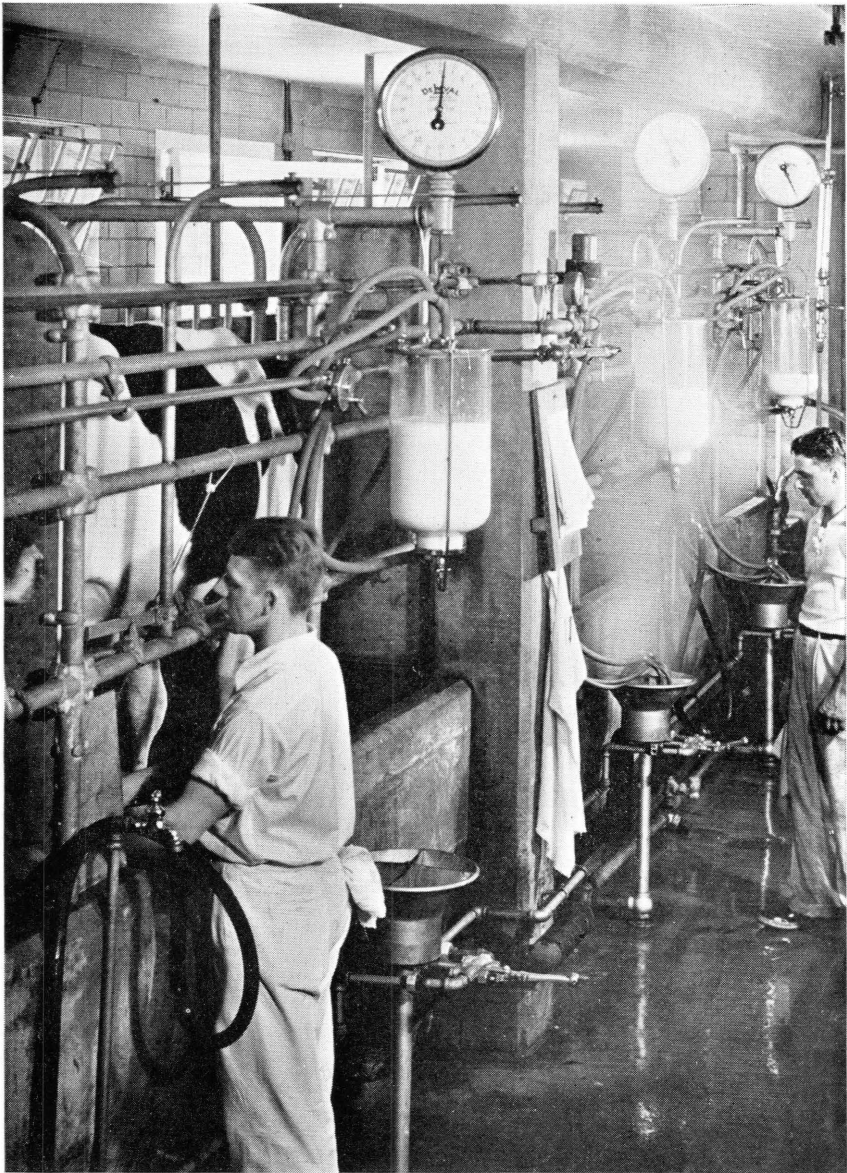
The first cattle fed in Iowa were not started on feed until they were three years old or older. (This 1856 picture shows a four-year-old Shorthorn cow, calved April 22, 1852—and typical of the type developed in that period.) Then after 1890 consumer demand was for lighter cuts. Experimental work demonstrated that feeding younger and lighter weight cattle was more profitable. As a result the trend in beef production for the past sixty years has been to finish cattle for market at lighter weights and at younger ages.—CHAPTER 10, IOWANS FEED BEEF CATTLE FOR MARKET.



By the early seventies the desire for good cattle had gained strength among Iowa farmers. In the passing of time, Iowa farmers became more dairy minded and a demand arose for such breeds as Ayrshires, Brown Swiss, Guernseys, Holsteins, and Jerseys.—CHAPTER 11, THE DEVELOPMENT OF IOWA'S HIGH-PRODUCING DAIRY CATTLE.



Largely responsible for elimination of unprofitable cows, and subsequent increase in milk yields, have been Iowa's dairy herd-improvement associations. Originally known as cow-testing associations, the first was started in Iowa in 1909, in Black Hawk County. The exhibit shown here was displayed at the 1919 State Fair.—CHAPTER 11, THE DEVELOPMENT OF IOWA'S HIGH-PRODUCING DAIRY CATTLE.



From 1850, when a cow produced 147.9 gallons of milk, dairymen of Iowa have improved their cattle until the 1940 Census reported average production for the state at 555.8 gallons per cow. Greatly removed from the old pail-and-stool days is this present-day milking process shown above in the model set-up at Iowa State College. The cows are milked by machine in the most sanitary method possible, and are elevated so the attendant does not have to stoop to do his work. The milk is drawn into glass buckets and is removed from them through sanitary pipes by vacuum to the milk room, where it is quickly cooled.—
 CHAPTER II, THE DEVELOPMENT OF IOWA'S HIGH-PRODUCING DAIRY CATTLE.

War period were only temporary and would fall as soon as the war was over, when cotton again would be available from the South. Two years after the close of the war, wool prices dropped to twenty and thirty cents a pound. Farmers went out of the sheep business nearly as rapidly as they had gone into it. By 1870 the sheep population had dropped to 855,943 and by 1872 was down to 521,826 or a little less than it had been in 1863—a decrease from the high point of 1867 of nearly one and one-half million head.

Other factors in addition to low prices for wool contributed to the decline in numbers of sheep. Crude shelters against Iowa winters were not sufficient. Fences were few and gave little protection against wolves and mongrel dogs. Foot rot, scab, grub, and other maladies decimated flocks. The lack of experience, care, and knowledge in the management of sheep caused severe losses. The rank prairie grass was not adapted to sheep. Even the Vermont-bred Merino did not thrive.

Cattle prices had improved and many farmers replaced their flocks with herds of cattle. The collapse of the sheep boom was responsible in part for the boom in cattle that followed the war.

Settlement of the prairies in central, northern, and western Iowa came after the Civil War. Many immigrants followed the Mormon Trail to western Iowa. Extension of the railroads through the state to the Missouri River brought new settlers. Sheep were taken to the prairie farms by the settlers, but not in as large numbers as in southeastern Iowa. By this time the cattle industry was expanding and the prairie farmer was not much interested in sheep. From the beginning, cattle did well on the prairie. Grass was abundant, well suited for summer pasture and for winter feeding. Although the prairie grass was suitable for summer grazing, hay made from it was not good enough for sheep in winter. The prairie offered little protection against storms, cold weather, wolves, and dogs. Good fences and adequate shelters were yet to come.

The growing of corn soon followed the settlement of the prairie country. In the fall it was cut and shocked, then fed to cattle along with prairie hay during the winter. Hog raising increased. Corn was cheap and in general the only market for it was through cattle and hogs. Very little corn was fed to sheep, except small amounts to the breeding flocks in winter. The sheep industry in Iowa had to change from a wool industry to a mutton industry before the grain feeding of sheep became common.

Hay crops other than prairie hay were necessary before sheep

could be well fed during the winter months. Timothy was first grown as a hay crop, followed by Hungarian grass and then clover. Since farmers had trouble in obtaining a good seeding of clover, they relied extensively on timothy. The progress of clover was slow, but when once established and used as a winter feed for sheep, its value was soon recognized. Clover and other legume hays are considered by good sheep men as essential to winter rations for breeding flocks.

As early as 1860 farmers interested in sheep urged the state legislature to encourage the raising of sheep and wool in Iowa by discouraging the breeding and keeping of dogs. In 1862 the legislature passed a measure taxing dogs from \$1 to \$3 each and ordered county police officers to kill dogs running at large without collars. Owners were held responsible for losses caused by their dogs. When the legislature was called into special session that fall on matters pertaining to the Civil War, however, much of its time was spent discussing the law pertaining to dogs and much of the law was stricken from the statutes.

By 1872 Iowa had about eighty-five woolen mills. There had been a strong plea for Iowa and other states to raise wool, manufacture cloth, and "establish independence of foreign countries in this regard." The demand for cloth made in Iowa woolen mills steadily increased. One writer in the State Agricultural Society report stated that by producing their own cloth Iowans could "cease paying tribute to eastern manufacturers and English looms." Yet Iowa sheep were producing only enough wool to permit the woolen mills in the state to operate half time. By 1879 there were only fifty woolen mills in Iowa, with a consumption per mill of but 15,000 to 250,000 pounds of wool annually. Each decade following found fewer woolen mills in the state. Today only a few mills operate.

SHIFT TO MUTTON SHEEP

In the eighties a demand developed for a longer, more lustrous wool than the Merino could supply. The Merino, popular in Iowa since Civil War days, produced an exceedingly fine fleece, but one that lacked length of fiber. Cotswolds and Leicesters, producing longer wool, gained considerable prominence, but, like the Merino, lost popularity with lower wool prices. Although Iowa was not quite ready to shift from wool production to mutton, these long-wool breeds did help attract attention to English breeds possessing better mutton qualities. L. G. Ireland, a noted sheep authority, declared in 1880 that farmers could "greatly increase the value of our wool clip by judicious crossing of Cotswold upon our Merinos and nondescript

or mixed bloods, of which class are at least nine-tenths of our sheep. This will . . . improve the mutton quality of our sheep as well as the quantity and quality of the wool."

A. J. Blakely, Sr., of Grinnell, questioned this policy. He stated his flock of Merinos averaged 10.72 pounds of wool per head, while "crossbred Cotswolds shear less." The Blakely flock of Merinos had been carefully selected and managed for many years, with emphasis on quality and quantity of fleece, while the average flock sheared less than five pounds of wool per head. The controversy between producers of Merino wool and producers of wool from the mutton breeds continued until nearly the Twentieth Century, when mutton types gained a sound footing in Iowa.

Eastern cities were growing rapidly at this time, and consumers began to develop a taste for mutton. The refrigerator car had been developed, making it possible to bring in mutton from the West, and Iowa farmers began to furnish some of the supply. From 1878 to 1885 the number of sheep shipped east from Iowa increased from 55,332 to 254,917.

Much of the mutton produced in Iowa was inferior, however. Some of the reasons are suggested in the State Agricultural Society report of 1887:

Mutton is considered incidental to wool. . . Sheep are expected to live on poor land where other stock would starve. During winter their food is straw, corn fodder, and roughage while cattle get oats and timothy hay and hogs the corn. Both hogs and cattle are adequately protected; if sheep manage to live at any season they are thought to be doing well.

Improvement in mutton qualities of Iowa sheep was slow, but the mutton breeds were on their way to the state and before 1900 large numbers of Southdowns, Shropshires, Oxfords, and other mutton breeds came into Iowa. Their popularity increased over the years to such an extent that today mutton blood dominates Iowa flocks as well as the flocks in other states east of the Missouri River. From their beginning, attention was paid to mutton qualities with wool of secondary consideration. The so-called parent breed, the Southdown, early became a model of mutton perfection. It shaped the form of the other medium-wool, mutton breeds like the Shropshire. These two breeds have won a majority of the championships in the fat and carcass classes at the livestock shows in America.

PUREBREDS APPEAR

The term "purebred" was not used until about 1880 in fair classification and reports. Pure Merino Sheep, Pure Mutton Sheep, and Purebred Middle Wool Sheep were some of the early terms

used for sheep of superior breeding and type. It was in this period, 1879-91, that Purebred Sheep Associations were organized in the United States. They played an important part in promoting the establishment of purebred flocks of sheep in this and other states.

Purebred sheep gained the attention of farmers in eastern states and eastern Canada long before Iowa farmers were ready for this highly specialized industry. A few so-called "purebred rams" were brought to Iowa in early days, and a few flocks of pure breeding were established. Owners of purebred flocks advertised extensively in farm journals and exhibited at leading fairs. Iowa farmers became interested in the mutton breeds and turned to the established purebred flocks for their foundation stock. Purebred mutton rams were brought into the state by the carload and sold to farmers to cross on common ewes.

Purebred flocks of sheep were established at the Iowa Agricultural College in the eighties and were increased in 1891 by an appropriation to expand the college livestock. Among the purchases were "seven or eight more breeds of sheep." Professor C. F. Curtiss bought 5 Cotswolds, 2 Shropshires, 4 Southdowns, 5 Oxford Downs, 4 Hampshire Downs, 5 Dickinson Merinos, and 5 Dorsets. These sheep were bought from what were then prominent flocks in eastern states. Through the years the college has maintained purebred flocks for instructional purposes.

In 1891 and 1892 the trend toward a mutton-type sheep was growing stronger in the state. Professor James Wilson of Iowa State College declared in 1892 that sheep were paying better than other farm animals. He observed:

Mutton must be of prime consideration and wool only secondary to pay on the valuable farming lands of the state. Fine-wooled sheep may pay best where large flocks are desirable on broken hilly lands. The time is coming when Iowa will send spring lambs to market as regularly as butter is now sent.

It took another decade or so to see this realized. Today a high percentage of all sheep bred or fed on Iowa farms are marketed as lambs. The editor of the *Breeders' Gazette* two years later questioned the wisdom of continuing the annual Iowa sheep shearing festival "in states with a pronounced mutton environment like those of the state of Iowa." Henry Wallace in 1896 emphasized, "No state in the Union is better adapted for the production of mutton sheep than is the most of Iowa. I know of no business that has a more prosperous future than the business of growing the mutton sheep in the state of Iowa." George W. Franklin in 1897 stated that, "For success in

the sheep business in Iowa, the breed must be a mutton breed and they should be liberally fed."

The county reports of agricultural societies from 1895 to 1900 tell of the increasing interest of farmers in sheep. The breeds mentioned as popular for the most part were Shropshires, Southdowns, Oxfords, and Cotswolds. Merinos were only reported by a few counties as being the popular breed. These reports stated that farmers were finding sheep of mutton breeding profitable, even more so than hogs and cattle. If attention was given to selection, feeding, and management of flocks, excellent lambs and mutton could be produced that would sell for high enough prices to offset lower prices of wool. Contributing to the renewed interest in sheep were the serious losses in hogs due to cholera. As yet no treatment for it was known and as a result some farmers turned to sheep production.

FEEDERS APPEAR

The feeding of western sheep and lambs by Iowa farmers probably started in a small way in the eighties. The range country had to establish flocks before feeders were available to Cornbelt farmers. In the early days of the range industry, sheep were kept to four or five years of age for the annual clip of wool before they were disposed of. At first there was little demand for mutton, for consumers did not relish mutton from sheep four or five years old. Cornbelt lambs and sheep were coming to market after being grain fed. Such mutton was superior to range mutton. Hence, it was found desirable to ship younger range sheep to the Corn Belt for a feeding period before they were marketed.

Sheep feeding in Iowa gradually changed from feeding older sheep to a lamb-feeding operation. In the first decade of the Twentieth Century there was a gradual shift on the range to the ewe and lamb basis of production. In the late nineties the market receipts of sheep were principally older sheep: 75 per cent were yearlings and two year old wethers, 15 per cent were ewes, and the remaining 10 per cent were lambs. Today the reverse is the case. A high percentage of the market receipts are lambs.

In 1890 a Mr. Rice, of Bremer County, fed ten thousand sheep during the winter months. Andrew Jackson, of Tama County, purchased 525 sheep from Texas in 1892. That fall Wash Reed, of Adair County, purchased four carloads of sheep from Colorado. J. Carpenter, of Grinnell, fed fourteen hundred Colorado lambs for the spring market. Two men from Whiting brought a special train of four thousand sheep from New Mexico for winter feeding.

In 1895 the *Breeders' Gazette* told of the development of wool production in the range areas. It was thought production costs would be much less than in the Corn Belt. Attention was called in the same issue to the interest Cornbelt farmers were showing in feeding western sheep for market. This Cornbelt industry was then in its infancy. Several years were required before it became an important farm enterprise in Iowa.

Sheep and lamb feeding in Iowa increased rapidly from 1900. The *Breeders' Gazette* for January 27, 1909, states that the Iowa purchasers of feeders at the Omaha market had doubled in the past five years. In 1904, Iowa feeders bought 174,000 head at this Missouri River market. In 1905 the purchase was increased to 195,000 head, in 1906 to 287,000 head, in 1907 to 306,000 head, and in 1908 to 331,000. This did not represent by any means the total number of western sheep and lambs that went into Iowa cornfields, for other markets than Omaha also furnished sheep to Iowa farms. In that era cornfield feeding of sheep and lambs seemed to be the preferred method of fattening western sheep. The finishing of the sheep and lambs in dry lots, after the feed in the cornfield was gone, was not extensively practiced. Too often sheep were sent to market when snow and cold weather came, even though many of them were only half fat.

In the fall of 1910 the editor of the *Breeders' Gazette* expressed alarm "over so many sheep in Iowa cornfields." He added, "Iowa is not shedded to handle sheep in bad weather." This danger was also cited by J. C. Peterson, of the Peterson Sheep Company. He stated, "The bulk of the lambs fed in the state of Iowa were mostly run through cornfields in the fall of the year, and, after the first snows came, were reloaded and shipped to Chicago where the killers were sorted out and the balance shipped on to Michigan, Ohio, and Indiana for further feeding." Sheep men in those states had been barn-feeding sheep successfully during the winter month for years.

Today Iowa feeders of western lambs have learned to utilize cornfields efficiently. Additional feeds like pasture and legume hay are furnished. When the feed in the fields is no longer adequate, the lambs are finished on suitable rations in the dry lot. Adequate shelter is provided against storms.

The feeding of western lambs has increased rapidly in Iowa over the last two decades. It is carried on particularly in the northern half of the state where feed supplies, especially grain, are more plentiful than in the southern half of the state.

The use of mutton rams on range ewes has changed the type of lambs coming to the feed lots for finishing and to the markets for slaughter. Many range ewes carry fine wool breeding but when bred to mutton rams they produce very desirable feeder and fat lambs.

Sheep feeding has developed from an in-and-out enterprise to a regular phase of farm production practiced on many Iowa farms good years and bad, until today Iowa has developed into a leading lamb feeding state, ranking with Nebraska and Colorado. The business in Iowa is a farm business, where one or two carloads are fed on farms, and few are handled through commercial feed yards. J. C. Peterson has found that Iowa feeders have insisted on the best quality of lambs. He has observed, "It is next to impossible to sell a low-grade car of feeder lambs in the state of Iowa." Successful lamb feeders have co-operated fully to bring about better feeding practices by participation in lamb feeding meetings, demonstrations, and field days. The 4-H Western Lamb Feeding project has been very valuable in spreading useful lamb feeding information.

A large number of both native and western lambs fed in Iowa are marketed at packing plants in Iowa and adjacent states. Formerly many of these packing plants processed only hogs, but, beginning in the late twenties, sheep and cattle slaughter were included. The slaughter of lambs and sheep at these plants was steadily increased. Buyers from these companies purchase sheep and lambs in the feedlots of farmers. Many feeders know the selling price of their fat lambs before they leave the farm. This direct marketing of Iowa lambs has become extensive in recent years. Many lambs fed in Iowa are bought direct from dealers in feeder sheep.

In general, lamb buyers at Iowa packing plants buy lambs on grade. This method allows a higher price on the fat lambs and less for the lower grading lambs. Farmers can observe what it takes in a lamb to cause it to grade high and bring a top price.

The market news service for lambs and sheep has been added to the Iowa market livestock news service. This service furnishes Iowa lamb growers and feeders with information on prices by grades, receipts, and other useful marketing information.

The farmers who maintain farm flocks and raise their own lambs have concentrated in the same parts of the state where they first located one hundred years ago.

The United States Census of 1850 reported 14,805 sheep in Iowa. They were located chiefly in the east-central and southern areas of

the state, which were settled early. No sheep were reported in the 1850 census in the counties west of Fayette, Black Hawk, Marshall, Polk, Madison, and Lucas except for a few in Pottawattamie.

By 1860 all counties in the state reported sheep except the thirteen counties in the northwest. But the heavy sheep populations were still in the east-central and southern counties. The number of stock sheep on farms in Iowa for 1940-45 averaged 1,275,400. The eleven southeastern counties in this period had 23 per cent of the state's sheep. The topography of this area is especially suitable for sheep raising. The land is rolling, with considerable timber and pasture areas and relatively smaller areas suited to cultivated crops. Natural protection for sheep abounds. Sheep can utilize grass on slopes and hills as well as other classes of livestock. The quantities of harvested crops, roughage, and especially grains required for sheep are not as great as for some other kinds of livestock.

PRESENT-DAY PRACTICES

In producing native lambs for today's market, one of two plans is usually followed. Some owners have the lambs born in February or early March and feed and manage the flock so as to market the lambs in June. These early lambs must be fed grain and hay in addition to the ewes' milk. Rapid gain on lambs is necessary in order to have sufficient weight and finish for early marketing. Early pastures are used, but grain feeding is continued until the lambs are marketed. Early lambs are marketed before hot weather, which too often brings on poorer pastures and trouble from internal parasites. Early lamb production requires good shelters and good rations for the ewes. Lambs marketed in early June usually sell on one of the high markets of the year.

Under the second plan native lambs are born in April and early May. The ewes and lambs are turned on pasture and little if any grain is fed before the lambs are marketed in the late summer or fall. If suitable pastures are provided and if the flock is kept free of internal parasites, the lambs are produced economically. Too often insufficient pastures are available, especially because of dry weather. Few preventions against parasites are taken, and lambs make slow growth and do not reach a suitable market weight and finish until fall rains and cooler weather restore the pastures.

Sheep production and sheep feeding are generally one of several livestock enterprises in Iowa. Farmers who own a flock of ewes raise hogs, feed cattle, or milk cows in addition. Crops produced on most

Iowa farms are diversified enough to be used more efficiently by more than one kind of livestock.

While most farms in Iowa raise some pigs and maintain some cattle, at least for milk, sheep are found on fewer farms. According to the 1940 Federal Census, breeding ewes were reported on 41,369, or 19 per cent, of the 212,318 farms in Iowa. The number of farms maintaining breeding flocks has doubled since 1910. Returns on breeding flocks when properly cared for have been satisfactory.

DISEASES

Various disorders in sheep cause considerable loss. Preventive measures generally give better results than curative measures. Internal parasites, especially in the farm flock, cause the most serious losses, not so much from death as from loss of condition, unthriftiness, anemia, and poor utilization of feed in the sheep that survive. The losses from parasites are constant. They are hard to evaluate, however, and do not in general receive the attention they deserve. Parasitism is generally greater in farm flocks than range flocks, since farm flocks remain concentrated on smaller areas for longer periods.

Stomach worms and nodular worms cause much damage to farm flocks. Preventive and control measures must be resorted to by most flock owners if losses from parasites are to be kept low. Good rations and rotation of flocks on pastures are preventive measures. Drenching infested animals with various drugs will control internal parasites.

External parasites like scabies are controlled by dipping the sheep in solutions of lime-sulphur or nicotine under the supervision of federal or state veterinarians. Two dippings are required to cure scab.

The only known practical method of eradicating sheep ticks is to dip the infested sheep in the spring after shearing, in one of several liquids that will kill the parasites, or subject to some of the more newly-developed insecticides in sprays. Since control is easy, there is little reason for having infested flocks.

Another disorder causing considerable loss in farm flocks is the so-called "pregnancy disease." The ailment is primarily one of pregnant ewes carrying twins or triplets. The disease is not presumed to be infectious. Poor rations and lack of exercise appear to be its chief causes. Prevention is accomplished by the use of well-balanced rations containing legume hay, easily digested carbohydrates in grain mixtures, salt, and a good water supply. Regular exercise is necessary. Abrupt changes in rations, in drinking water, and in exercise may cause this disorder.

ORGANIZATIONS

Marketing wool in Iowa was done through wool dealers until 1919. In that year a state-wide group of sheep men met in Des Moines and formed what is now known as the Iowa Sheep and Wool Growers' Association. From the beginning the Association marketed its members' wool on a graded basis. Much of the annual United States clip is marketed at Boston, and the Association has built up a prestige for Iowa wool on graded lines in that market. One of the leading organizers of the Iowa Sheep and Wool Growers' Association and its first manager, C. J. Fawcett, is now manager of the National Wool Marketing Corporation. This national corporation is the parent organization of twenty-five state associations. In 1944 the National Wool Marketing Corporation handled fifty-four million pounds of domestic wool. Its nearest competitor handled seventeen million pounds. The Iowa association has operated solely for the benefit of its members, reducing the cost of marketing wool, helping to maintain a uniform market price each season, and helping to improve the quality of wool produced in Iowa by its educational program.

The Iowa association owns its warehouse in Des Moines. The board of directors consists of prominent Iowa sheep men.

Other county, district, and state organizations aid in promoting the sheep industry in Iowa. The Iowa Purebred Sheep Breeders' Association sponsors an annual stud ram show and sale and co-operates with county and district organizations in conducting purebred ram and ewe sales. The Iowa Lamb Feeders' Association sponsors field days where lamb feeding problems are discussed. The parent of all Iowa sheep organizations is the Iowa State Sheep Association. This organization is financed by legislative appropriation. Representatives of other sheep associations make up its board of directors. Its fieldman works with all branches of the sheep industry in Iowa.