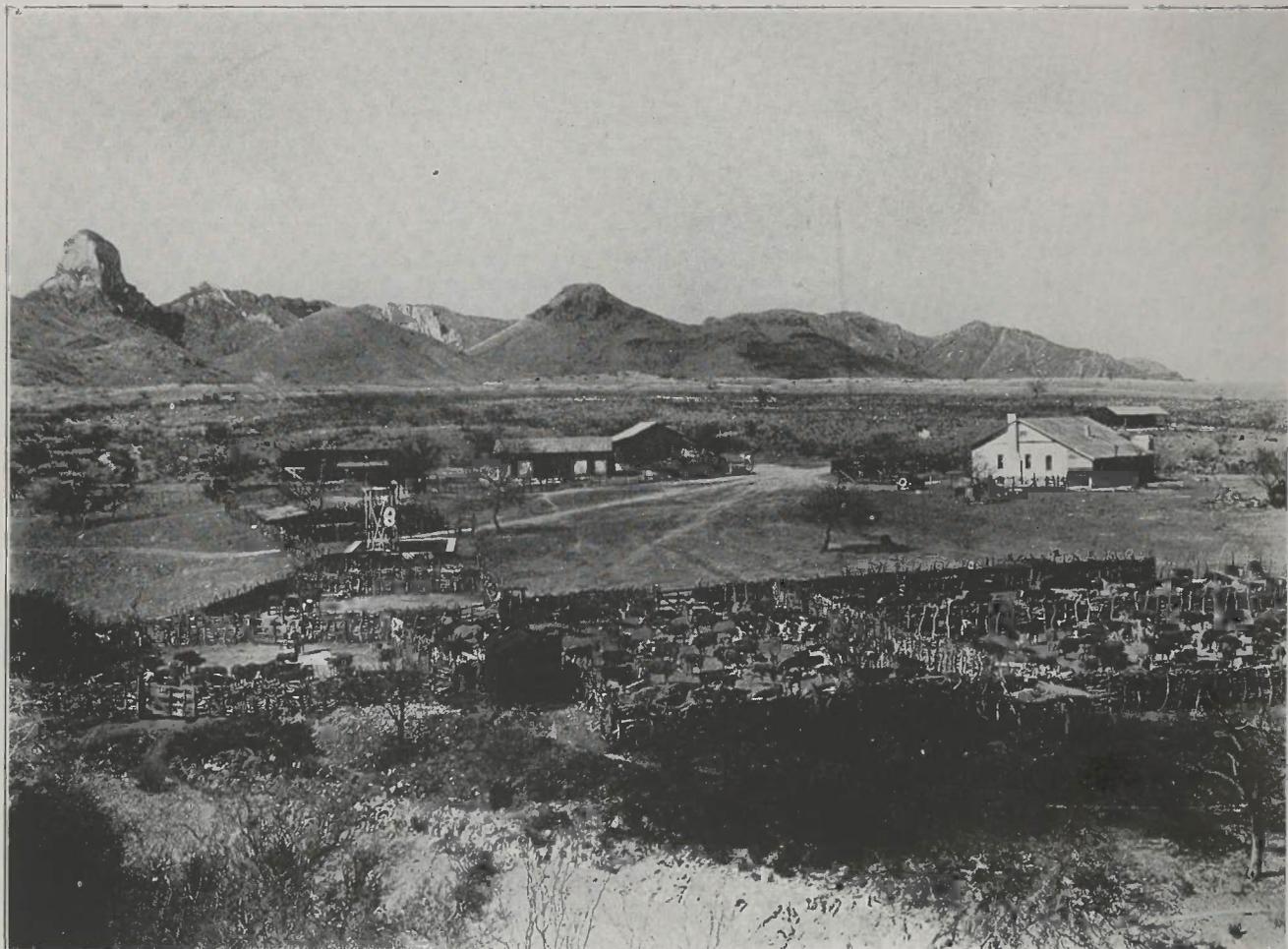


# THE CATTLE INDUSTRY IN ARIZONA

E. B. STANLEY, Animal Husbandman, University of Arizona

**Greater Unity and Cooperation Among Cattlemen Essential to General Welfare of the Industry—Cattle Raising on a Strict Business Basis to Be the Guide to Success in the Future**



A View of the Santa Margarita Ranch Owned and Operated by J. M. Ronstadt of Tucson, Arizona. Baboquivari Peak in the Background.

THE historian, the fiction writer, and the moving picture producer in their record and portrayal of American life have not uncommonly presented in various ways the cowman playing a stellar role. Throughout the ages, the livestock producer has been associated very conspicuously in the progress of civilization. The nature of his pursuit in itself endowed him with those sterling qualities of the pioneer, that made him a leader in the settlement of his country. Since the landing of the Pilgrims, he was always in the advance guard of westward expansion, seeking new land for his herds, following the settlement and conversion of the more fertile areas into farms. In the process of economic adjustment, the range cattleman became permanently estab-

lished in the untillable areas of the West which abounded in natural vegetation valuable for grazing.

The natural adaptability and suitability of the vast regions of grazing land for livestock raising, aside from isolated areas devoted to mining and lumbering, has made possible the development of range cattle production into one of the foremost industries of the West and of vital importance to the livestock industry of the entire country. Some conception of its magnitude may be gained from a government report based on the number of cattle of January 1, 1924, to the effect that the range area supports nearly 40 percent of the beef cattle of the United States.

Arizona is pre-eminently a grazing country. With 85 percent of its total area of 72 million acres devoted to

grazing of livestock, it is not difficult to recognize the significance of the cattle industry in Arizona. Allowing for the probable development of irrigation projects, it is conservatively estimated that the grazing lands of the State will not be reduced to less than 75 percent of the total area. Nor is there any remote prospect that these grazing lands will be made use of other than for the raising of cattle, sheep and goats. The best possible use that can be made of this extensive area is to improve the forage and provide for its efficient utilization. Hence grass is an invaluable asset to the resources of the State. It is the basic raw material of an essential industry.

Cattle raising is a pioneer industry of Arizona. The first cattle to be introduced into a southwestern range

were the Spanish Longhorns. These cattle were first introduced into Mexico in 1521, and later into the country north of the Rio Grande by early Spanish explorers. The original stock multiplied rapidly and became ideally adapted to their new environment. Although the Longhorn has long since been relegated to the scrub class, his stock possessed the bovine pioneer qualities of endurance and resistance that made possible in no small way, the establishment of the cattle industry in the Southwest. Following the discovery of gold in California in 1848, and the admission of Texas into the Union, an impetus was given to cattle raising through the influx of settlers and gold seekers. The early Mormon settlers brought with them milk cows of Shorthorn breeding in 1852, and later in 1877, and were the first breeding stock to be introduced into the State. Depredations of the Indians made it difficult to keep cattle until the period following the confinement of the Indians to reservations about 1886. From this time on a marked increase in the number of cattle has occurred, except during a severe drouth season in 1892-93, which was followed by a period of low prices. According to U. S. D. A. estimates, there were 217,210 cattle in Arizona in 1885, 626,000 in 1910, 791,000 in 1915, 1,000,000 in 1920 and 1,090,000 January 1, 1924. In the course of progress though, particularly during the exploitive stage of the industry, stirring incidents were enacted at the cost of human lives. Strife was incited between cattle barons in the conquest of the free range. Cattlemen clashed with sheepmen. Rustling was not uncommon. Long drives to market were necessary. The perils of drouth were unavoidable. This formative stage of range cattle production is a vivid chapter in history portraying the pioneer cattleman in his quest for recognition and establishment of an enterprise on an economic basis, made possible thru his perseverance, fortitude and untiring efforts for a cause he loved.

A gradual, but marked transition of the cattle business has been in process during the past few years to conform with general economic conditions. Instead of adhering to the policy of expansion, greater concentration is being practiced. Increased running expenses have made it imperative to operate a more compact unit. Control measures have had to be adopted to conserve the forage and

make possible more efficient management. The Northern Pacific Railroad land leasing system inaugurated in 1896 was one of the earliest demonstrations showing the beneficial effects of range re-vegetation when placed under control. In 1906, the Forest Service placed in effect the permit system of grazing stock on the forest areas and had for its objects, "the protection and conservative use of all national forest land adapted to grazing, aiding the livestock industry thru the improvement of the grazing lands, and the protection of the settler and established ranch owner against unfair competition in the use of the range." The beneficial results accruing from a regulated use of the range have meant a more efficient utilization of and an increase in the amount of forage, and has brought about an improvement in range cattle management. Recent authorization of 10-year permits on the national forests and provision for individual allotments will add greatly to the stability of the range cattle business. It will enable the stockmen to make improvements from which he can expect a return and insure greater confidence in his business.

In Arizona, there are 11,204,304 acres of national forest lands or 15 percent of the area of the State. During 1925, there were grazed on the forests for all or a part of the year 255,403 cattle or approximately 25 percent of the cattle population of the State at a per annum charge of \$1.00 per head. In addition to this number of cattle, 282,508 sheep and goats and 11,748 horses were grazed on the forests.

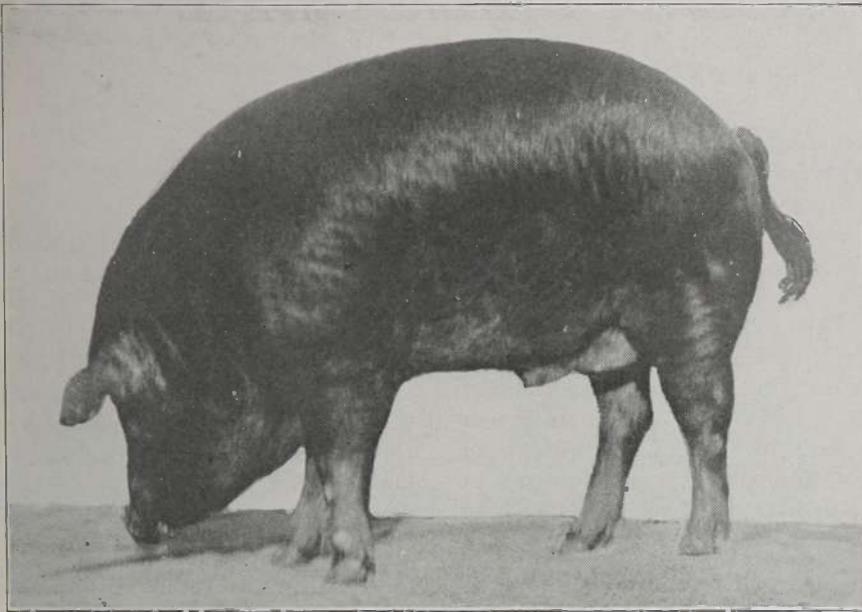
The public domain which constitutes a large portion of the grazing areas in the western states has unfortunately remained uncontrolled. Twenty percent of the area of Arizona is classified as public domain. This class of land has been free and open to all for grazing, a practice which is resulting in the destruction of no small part of the natural vegetation. It has been the policy of the Federal Government to reserve its land for settlement, except for the making of reservations for specific uses. The Stockmen's Homestead Act was an attempt made to encourage the settlement of the poorer lands of the public domain unsuited for farming. A considerable portion of these homesteads have been abandoned within the last 10 years, because of the inadequacy of a 640-acre tract of

grazing land to support an economic range unit.

Stockmen have not been permitted to lease or buy public domain land nor to acquire any legal status that would permit them to establish a protected grazing unit. Fencing has been declared illegal. In no way has it been possible for the stockman to become secure under such a status. It is contrary to the principles of conservation of a natural resource. There can be no stability to range cattle production under these circumstances until definite and stabilized grants of grazing privileges are granted. Since 1900 efforts have been made to legislate regulative measures relating to the control of western grazing lands. Grazing regulations on the forests have been improved, while the status of grazing on the public domain has remained unchanged. Unless definite action is taken soon, there will be little need to protect the rapidly deteriorating public domain. Certainly Congress will not overlook the need of control and conservation of the range areas in the public domain. The creation of grazing regulations that will permit a recuperation of the natural vegetation and the establishment of long time permits will have a far-reaching effect in making for greater stability to the livestock industry. It will enable and encourage the stockman to help himself. His status will be definitely established so that he may adjust his methods to conform with present day conditions and to make improvements that will be secure.

Aside from the National forests and public domain, a considerable number of stock are grazed on Indian reservations, state and private owned lands. Of the 43,000,000 acres of public land in Arizona 18,000,000 acres are included in Indian reservations. The Indian lands are supervised thru the Department of the Interior. Some of the best grazing areas of the State are located on the reservations, particularly in the San Carlos and Fort Apache. Lands suitable for grazing within the reservations and not utilized by the tribal herds have been made available to stockmen thru a system of leasing. Permits are issued on the principle of competitive bidding, for a period of five years, though many may be withdrawn before the lease terminates. The uncertainty of the duration of a grazing lease and the uniform high rates

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litter has proved that sanitation and proper care have raised the average number of the litter from between four and five to eight pigs. These facts are not based on mere assumptions but on the data received from questionnaires sent out to hundreds of swine breeders.

The third principle taught by the Ton Litter is that of feeding. Failure to properly provide for the nutritional needs of the animals will retard their growth despite faultless breeding and care. Feeding, like management, starts with the sow before breeding and continues to the time when the hogs are marketed. Before weaning, the feeding of a sow requires considerable attention for at this period a sow has a decided influence on the litter. The young pigs should be fed succulent and substantial food, after they are two or three weeks old. The feeding of young pigs other food than milk from the sow is advisable for two reasons: First, the cheapest gains made are while the pigs are young; and second, the pigs will be more able to stand the effects of weaning. There is no fixed or set ration which is to be fed although it is necessary that the feed be properly balanced in its nutritive qualities and that pasture and good drinking water be available. The Ton Litter Movement is demonstrating that extravagant feeding or expensive methods to induce rapid growth are not necessary for practical economic

production. It is merely knowing what to feed and when to feed it.

In that the success of the Ton Litter Movement involves the fundamental principles of swine production, it is only fair to conclude that if these principles—breeding, management and feeding—are adhered to, the swine raisers' endless struggle for greater efficiency will be achieved.

#### KINK FOR PLOWING

When plowing under a heavy growth of green material, you can greatly improve the job if you will fasten one end of a chain to the end of the doubletree and the other end to the plow beam, leaving the chain somewhat slack so that it can catch and hold down the green material the plow covers it up. This method is, I believe, known to practically every farmer but the following kink I have never seen used except on my farm and I am passing it on for what it is worth.

Just about where the main chain would touch the plow point, I wire on a piece of chain a couple of feet long. This short piece of chain drags along in the furrow, and being held firmly by the falling earth, it holds the main chain down to work. Without the short chain, the main chain, being loose, fails to cover many of the large weeds. I have used this extra chain for a long time and find it works no matter how heavy the growth is.

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for grazing on the reservation are not in keeping with conditions on the national forests and do not allow a secure operation. Grazing rates have varied from \$1.00 to \$2.40 and at the present time are \$1.40 for cattle, the amount depending somewhat on the competitive demand. Stockmen using the reservation must of necessity renew their permits and maintain the use of their allotment because of the inadvisability of moving breeding cattle to different ranges. In 1923, there were approximately 84,000 "outside" cattle permitted on the reservations which greatly outnumbers the tribal cattle. The number of "outside" cattle is being reduced gradually to permit an increase in the Indian-owned cattle.

The Enabling Act, which gave to Arizona its State lands affixed a minimum value and rental of \$3.00 and 3 cents per acre respectively on these lands. These prices have not proved commensurate with the actual value of a very large extent of the State lands for grazing purposes. The variable nature of the potential worth of the land makes necessary an appraisal that will fix a rate more in line with its worth for grazing.

Prior to the advent of intensive occupation of the range areas in the State, Arizona was not exceeded as a grazing country. A great abundance of feed was found by early settlers and an abundance of cattle in a country of mild climate were ideal conditions for cattle raising. The news of this new country spread rapidly and within a period of two years, thousands of cattle were brought in. The country soon became overstocked. There were no control or regulatory measures to protect against over-grazing. Ranges were denuded and erosion set in. Arroya cutting was unknown to the old-timer when cattle were first introduced into the State. A specific case of erosion in the Gila Valley is reported in Science (Jan. 15, 1926) by T. T. Swift. In 1884, the Gila Valley consisted of fields of waving grass, the Gila River was confined in a narrow channel lined with willows, brush and sod grasses. In 1896, twelve years after the introduction of cattle, a flood topped the banks of the Gila. Floods have since been an annual

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year of work in semi-official testing reveals some startling evidence, as to the class of cows that may be found in the Chesney herd. The record is so remarkable that it is shown here in full.

feeds in general Chasney gave as a policy, "Raise all the feeds you can and feed all the cows will eat of a balanced ration, varying the mixture to keep the cows always with a keen appetite."

Name of Cow	Days test	Calf carried, days.	Milk lbs.	Fat lbs.	Age at beginning
Stella's Silver Star 500588 .....	365	199	13,559	651.8	4-6
Noble's Golden Betty 553699 .....	305	216	11,874	518.5	3-0
Noble's Princess Pogis 553700 .....	305	212	11,255	511.8	2-10
Silverine's Golden Maid 495154 .....	305	212	8,727	479.6	5-3
Noble's Beauty Pretty Maid 553693.....	305	238	8,861	469.1	3-1
Noble Beauty's Silver Queen 590823 ...	305	224	7,851	330.7	1-11
Average for six on test .....	315	217	10,254	493.6	3-5

These records show the results of only the first year of testing, and brings to the Chesney Farms the State Championship for every class in which he has tested.

Such is the production in this most unique herd. Now a glance at the type, and you see that there is quality too. Looking into the records of the Arizona State Fair Association we see that the name of Chesney is prominent in the winners. In 1923, six of the thirteen first prizes in Jerseys went to the Chesney herd. In 1924, he went farther and copped Grand Champion with Noble's Golden Betty 553698, the neat little animal that held a similar position in 1925. She is a daughter of one of the heifers that Chesney kept in the herd in 1919, and a member of the get of Sire class that took first in the 1925 State Fair. The other cows in this group were Noble Betty's Silver Queen, Noble's Golden Betsy, and Noble Betty's Pretty Maid. These cows have an average fat record of 462.5 pounds of fat in an average test period of 320 days. In 1925 Chesney showed 14 out of the 66 Jerseys at the Fair, winning junior, senior, and grand champion females with 11 first and six second prizes thrown in.

"Feeding has been an important factor in the development of my herd," said Chesney as he told of his feeding. The grain mixture varies with the season and price of feeds, but one mixture that he gives is made up as follows:

- 200 lbs. Corn and cob meal
- 140 lbs. Wheat bran
- 100 lbs. Cotton seed meal

Chesney feeds grain individually, according to the amount of fat produced by the cows. And concerning

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occurrence and following the drouth of 1899 to 1904, when the vegetation along the river channel was killed off, the banks gave away and the channel soon reached the mammoth proportions of to-day.

The sod covering which once existed in Arizona has largely disappeared. Good grass lands have been gradually converted into brush ranges. There are more annuals, weeds and poorer grasses as a result of the injury to the earlier vegetation. Despite these injurious effects to its ranges, Arizona is far removed from being a barren waste and maintains its prestige as one of the foremost range cattle countries. In addition to the control of grazing on the national forests, it is expected that the other grazing areas will be eventually administered in order to protect and permit a gradual restoration of the grass.

Arizona's claim to prominence as a cattle-raising country has been made possible because of its natural adaptability to the requirements of the industry. Its mild climate allows year-long grazing seasons, thereby minimizing the cost of producing cattle, besides being an ideal condition for the production of young stock. Equipment for protection against the elements is therefore entirely unnecessary, and supplementary feed is required only as an emergency during severe drouths. None of the grazing states can claim a greater diversity of forage. A wider variety of grasses and browse are found in Arizona than any of the western states. Gramma grasses are common to the State, and are limited largely to the southwest and Mexico. These grasses are unexcelled for forage by any other group. They have a high nutritive value and undergo natural curing on the range. Another important feature of the Arizona forages, is their remarkable ability to reproduce. Good reproduction is a factor that will aid very materially in the recuperation of the range. Improved shipping facilities, the development of a nearby market in California, and a comparative freedom from disease are added advantages to cattle raising in Arizona.

There are also many obstacles with which the range cattlemen must contend. Severe periodic drouths are the cause of gravest concern to stock-

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## FRUIT GROWING IN SOUTH AFRICA

The largest single orange grove in the world is located in South Africa, where citrus production has been increasing rapidly in recent years. It is now estimated that South Africa will be exporting about 7,000,000 boxes of oranges annually by the year 1930.

In 1911, there were a total of 985,601 orange trees under cultivation. This number has been increased by 1,610,990 trees since that time. Most of these trees were grafted.

South Africa not only grows citrus fruits readily, but it also produces a number of other fruits to perfection, including apples, apricots, avocados, bananas, cherries, gooseberries, figs, pineapples, plums, quinces, melons, olives and peaches.

South Africa has an advantage as a fruit exporting country in that its products reach the British and American markets in the off season. One of the obstacles to development has been the heavy spoilage during shipment. As a result of the development of improved refrigeration on the steamers, this loss has been reduced to negligible proportions. Co-operative marketing and improved shipping facilities are causing a rapid development of fruit growing in South Africa.

## SHOCKING

"Well, darter," said Farmer Corn-tossle to his daughter on her return home from college, "How much do you weigh now?"

"Why, she replied, "I weigh 140 pounds undressed for Gym."

"Who the tarnation is Jim?" came from the old man.

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men. The uncertain continuity of forage and water renders range stock liable to heavy losses. The almost complete dependence upon the natural vegetation accounts for the great loss due to starvation during drouth periods. The gradual deterioration

of the ranges is lessening their carrying capacity. The future condition of the range will determine very definitely the number of cattle in Arizona.

Predatory animals are becoming a decreasing menace thru the efficient efforts of the U. S. Biological Survey.

The large number of poisonous plants is another obstacle to the

range stock industry, while minor losses also occur from chilling, diseases and theft.

Another disadvantage is the lack of suitable conditions for growing supplementary feeds. Range land is not generally adapted to the farming of small areas, nor is it definitely known that the practice is economically sound.

The extremely varied nature of the topography of the State accounts for the existence of three general types of grazing ranges; the desert, prairie grass and mountain. The desert or lower mesa ranges are found in southern, western and central Arizona. The altitude of this type of grazing land is low ranging from about sea level to 3500 feet. The summers are hot and the winters are mild. The rainfall is uncertain, varying from 3 to 15 inches and comes during the summer and winter seasons. Short-lived annuals and shrubs are common to this type of range. During the late winter and early summer, there is normally an abundance of feed, whereas in the late fall, and spring, feed is usually available.

The winter annuals are the more valuable type of grasses and are more abundant. Alfilaria or Filaree is considered the most abundant and valuable annual in Arizona. It begins growth in December, January and February and continues to grow until May. This annual is drouth resistant, stays green for a month or six weeks and is relished by stock after it has dried. Indian wheat is another valuable annual with a growing season similar to filaree. It makes an excellent feed for sheep and cattle in early spring.

The prairie grass type of range, otherwise known as the year-long range is found in the northern half of Arizona and northeastern and southern Arizona. These ranges vary in altitude from 3500 to 6500 feet and are of two types, the northern, which is an extension of the prairie grasses from the north, while the prairie grasses found in the higher elevations of the southern part of the State resemble those of Mexico and Central America. The annual precipitation varies on the prairie grass regions from 12 to 24 inches. The climate is comparatively mild, the summer temperature varying from 80 to 105 degrees and the winter from zero to 70 degrees.

The grasses common to the prairie grass ranges and of most value are the gramma, blue-stem and curly mes-



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quite. Arizona mesquite, Blue Palo verde, scrub oak, and mescalilla are the most valuable sources of browse. The gramma grass makes good feed from November 1 to March or April, while the curly mesquite can be grazed at any season. In the steep foothills, the blue-stem grasses make good feed from July 15 to November 1.

The third, or mountainous type of grazing ranges also known as the summer ranges is found in the high mountain regions of the State, between elevations of 7000 to 10,000 feet or higher. Dense forested areas, mountain parks, grassy mountain slopes and rocky areas with chaparral are characteristics of this type of range. Heavy rains and snows fall in the summer and winter seasons respectively. The annual precipitation varies from 17 to 30 inches. The climate of these regions is similar to that of the North Central states, while the fall and spring seasons are cool and dry. Natural water resources are limited and artificial provisions must be made to provide an adequate water supply for stock.

There is not as wide a range of vegetation types in the mountain areas as are found on the prairie grass and desert ranges. Relatively few annuals are to be found. A wide range of perennial herbs including grasses, weeds and shrubs are to be found.

The yearling steer is the principal product of the Arizona cattle industry. The greater portion of the grazing ranges are suited more for breeding purposes and are not as well adapted to growing out older cattle for market, hence yearlings and calves constitute the greater number of market stock. Most of the stock is marketed during the fall and spring months, the greater number being moved during October and November. California is the point of destination for from 65 to 71 percent of the cattle shipped out of Arizona. A large number are shipped to Colorado and Kansas pastures. The proximity of the California markets, which handle a majority of Arizona cattle, has lessened the cost of marketing.

sened the cost of marketing.

A good many of the Arizona cattlemen have listed their stock with the marketing organization of the California Cattlemen's Association. This body is striving to establish an orderly system of marketing to bolster up the cattle market by avoiding heavy runs on the market which inevitably create low prices. The plan is meeting with success. It is demonstrating the value of organization in coping with a major problem and is a big step toward the cost plus system of marketing. The Arizona Cattle Growers' Association is keeping its members in touch with market conditions thru its weekly market letter.

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### THE CATTLE INDUSTRY IN ARIZONA

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The business of fattening cattle in Arizona is of minor significance compared to the production of stocker and feeder cattle. There has been little to encourage cattle feeding, due to the absence of satisfactory markets and high feed costs. It is becoming, however, a necessary link in a system of diversified farming, and a beneficial adjunct to the range cattle industry. Upwards of 40,000 cattle are fattened for market during years of plentiful feed. Cattle feeding in Arizona, when conducted in an intelligent manner can be made directly or indirectly, a profitable enterprise in conjunction with other farming operations. Its success will depend upon the efficient utilization of the roughage feeds from the farm, alfalfa hay, silage, pasture, and cottonseed hulls, supplemented with cottonseed meal, and under certain conditions grain. It will also depend upon the further development of a market outlet for good fat cattle locally and into California.

With the strengthening of the cattle market, it is believed that the turn for better times has been reached. The casualties have been heavy; many have had to wipe the slate clean and begin again. It is the time for reconstruction to build against another

disaster. Greater unity and cooperation among cattlemen is absolutely essential to the general welfare of their industry. Orderly marketing, freight rates, tariff duties, regulation of grazing on the public domain, livestock financing, appraisal of state lands and truth-in-meats are problems that call for concerted action. It is high time for the cowman to line up with the local organization and at the same time set about to increase the calf crop. It means the settling down to a strict business basis, the elimination of unnecessary losses, more up-to-date methods, use of good bulls and a determination of the actual cost of production.

### PRUNING PLUMS

The New York Agricultural Experiment Station has noted little difference in the behavior of plums, pruned heavily and pruned lightly in tests extending over several years. Since little pruning seems to give as good results as much pruning, the station regards it as waste of time and effort to prune the trees heavily. It is recommended that growers simply thin out thick growths where necessary and remove broken or injured branches.

Ten varieties of plums were used in the tests, including Abundance, Bradshaw, Burbank, DeSoto, Grand Duke, Wayland, Pottawattamie, Reine Claude, Shropshire and Italian Prune. The principal difference between the trees pruned according to the two methods was that the little pruned trees developed larger and broader heads. Also the heads on the little pruned trees were more symmetrical than those given heavy pruning. The increased size of the heads did not in any way retard maturity of the fruit or interfere with the harvesting. The sizes of the trunks and branches of the two lots of trees were practically the same, and there was little difference in the height of the trees.

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