The ranch we are writing about lies near the Mexican border in southern Arizona in some of the best grass country in the West. The topography is rather gentle, the range being crossed by a number of low ridges and intermittent water courses. Most of the soils are of granitic origin and hence very open although some of the ridge tops are characterized by more droughty tighter soils. The average annual precipitation is 18 inches, of which about 14 inches comes during the frostfree period.

The ranch base property was built up by consolidating a number of homesteads. Like many other southwestern homesteaders, those in this area found that the 160 acres allotted by the Homestead Act was too small to make a family living. Those who stayed longest managed to survive by working part-time at nearby mines, but gradually, as the mines closed down, the homesteaders were nearly all forced to leave. The ranch now comprises 1,310 acres of patented land acquired from eight different owners, and 6,700 acres of forest allotment on the Coronado National Forest.

Range Animal Husbandry

Cattle on the ranch are all purebred Herefords. The essentials of the livestock breeding program are 50 cows per bull, permitted by the gentle topography, with a breeding season from April 1 to September 1. Average replacement age for cows is 9 years, the average length of service for bulls 7 years, and heifers are first bred at 24 months of age. This breeding program has resulted in 90 percent or better calf crops. Eighty-five percent of the calves are born in January and February and the remaining 15 percent in March and April. When marketed in November calves have consistently averaged 550 pounds over the last 15 years and, in exceptional years, have averaged over 600 pounds.

This is the story of one rancher's accomplishments. We cannot give you the man's name because, like many other good ranchers, he is modest about his achievements. He admits that he has learned a lot, but he says there is still so much that he does not know that he refuses to pose as an expert. However, he has agreed to let us tell his story.

This rancher is a firm believer in the old adage that "the eye of the master fattens the cattle." He regularly sees each animal almost daily, checking on condition, noting distribution, watching for new calves, sickness or injuries. Much of this checking can be done in connection with the supplemental feeding schedule, but in any event the rancher feels it is a primary job. To make the job easier a system of jeep roads has been developed covering the entire ranch.

Supplemental Feeding

The ranch is managed to provide ample forage year round with supplemental feeding as needed to make up nutritional deficiencies. Supplemental feeding is somewhat heavier than some ranchers practice, partly because the cattle are purebreds and are sold at a premium price and partly because the area is a grass range with very little browse to provide year-long green forage. The kind and amount of supplemental feeding needed was determined by forage analyses over a 5-year period during which checks were made during the different months of the year. Based on these analyses, the cows are fed an average of 2 pounds of cottonseed cake daily from about January 1 to April 15, with the dates varied as necessary according to winter and spring moisture and growth. During periods of lowest forage value the supplement is fed as salt-meal; regulating the mixture so that the animals take more than enough to meet their minimum requirements.

Chemical analyses of forage and soil and years of experience have indicated that the feeding of trace minerals is beneficial, so they are provided in block form. Vitamin A concentrates are also fed. This strong emphasis on adequate nutrition and proper mineral balance is more than repaid, according to the rancher, in the general well-being and disease resistance of the cattle.

Disease and Parasite Control

Disease and parasites are not a serious problem but certain routine precautionary measures are taken. The cattle are all vaccinated against blackleg. Registered animals to be shipped are given 300,000 units of penicillin for protection against shipping fever. Other animals to be shipped are inoculated with shipping fever serum a couple of days prior to shipping in order to give time for the normal reaction to wear off.

Herd bulls are occasionally sprayed for horn flies for the comfort of the animals. Cows and calves are not sprayed since they are so thrifty parasites are no problem.

Range Management

The primary objectives of the range-management program are: (1) to establish and maintain adequate ground cover in order to minimize loss of water by runoff and loss of soil by erosion, (2) to provide adequate year-round forage, thereby insuring better con-
dition of the cattle and reducing the amount of needed supplemental feeding, and (3) to distribute grazing use to prevent the development of "sore spots" and to eliminate areas of nonuse.

In order to obtain the objectives above, the first step taken was to fence the ranch against outside livestock. Then, over a period of years, the range has been divided into 11 pastures. Each pasture has at least two watering places, usually one well and one or more ponds. During the rainy season additional water is available in numerous small catchment basins. The size of the pastures has been determined somewhat by topography and other natural barriers and also by the objective of having each pasture carry about 50 cows.

The present rate of stocking is 20 surface acres per cow yearlong. This rate normally leaves at least half the herbage for range improvement and maintenance. Deferment of use during the growing season has also promoted improvement of the perennial grasses. On some pastures each year grazing is not permitted until the forage species have set seed, then the cattle are turned in. In this way the grasses have periodic opportunities to make a seed crop to perpetuate themselves. Meanwhile, the parent plants are grazed lightly enough so that maximum longevity is offered at least as far as grazing pressure is concerned. The only exceptions to this procedure are during years of severe drought. In order to hold utilization to a safe level in drought years all pastures are grazed yearlong. The extra forage provided by no deferments helps maintain the breeding herd without excessive use of the range. With purebred operation this is important. It has never been necessary, in over 25 years of this rancher's experience, to remove cattle from the range for lack of forage. The years of good management on this ranch have promoted the establishment of good ground cover so that moisture effectiveness has been increased and less drought effect is felt here than on companion areas receiving an equal amount of rain.

What Combined Range and Animal Husbandry Practices Have Done

One of the benefits that has been achieved by good range management practices on this ranch is the establishment of an excellent stand of a wide variety of perennial grasses. The percentage of tall grasses or bunchgrasses has increased at the expense of such short grasses as curlymesquite and blue grama. There is some question in the rancher's mind as to whether the shift from short to tall grasses is entirely desirable—in fact, he is concerned about the apparent dominance of the taller species.

In an effort to reverse the composition trend toward tall grass dominance, the rancher is experimenting with periodic heavier-than-usual utilization. He hopes to discourage the tall grasses without losing over-all grass density. This experiment has been underway only a short time and results are not yet apparent. Regardless of the kind of grass present, it is certainly evident that the ranch provides adequate herbage for livestock at all times.

Overall Benefits

The results of 30 years of study and practice on the range are clearly evident. Some of the things...
which do not show so plainly, perhaps, but have a profound influence on the ranching business are that with the good grass cover very little moisture is lost by run off, and the droughts don't seem to hit so hard as on ranges that are not so well managed. The short-grasses no longer predominate but are still present in a healthy mixture. Sore spots around permanent waters are small and the soil is staying in place.

Implementing a Year-Round Forage Program in the Colorado Plains

JOHN HOLTORF, Buffalo Springs Ranch, Akron, Colorado

We think of the type of operation pursued on our Buffalo Springs Ranch as being practical, not only because it has made us money, but also because it seems to be a safe, conservative operation over the long pull. We call it a hybrid type of operation, meaning a cow-calf-yearling program.

Our ranch is located north of Akron, Colorado, in northeastern Colorado in approximately a 16-inch precipitation zone. The ranch has about 7,000 acres of which 3,200 acres is sand hills range, 3,200 acres of plains upland, and 600 acres of flood plains range. The carrying capacity was approximately 250 head when we started out in 1930. Now, we can safely say this has been increased to a 400 animal-unit carrying capacity. This can be attributed, we know, to trial and experience in constantly attempting to reach the goal of increased carrying capacity for the ranch.

Herd Management

The commercial cow herd consists of about 200 Hereford females. Yearlings are made out of all the produce. About 30 to 40 of the top end of the heifers are saved for replacements. A few calves are bought in the fall, steers or heifers or both, depending somewhat upon the sex percentage of our own calf crop and also on price of steers vs. heifers. Thus, we have a total of about 125 yearling steers to market in the fall. Also approximately 60 yearling heifers to go, plus the 30 to 40 top replacement heifers.

John Holtorf started ranching on the Buffalo Springs Ranch as the operator for a partnership. He purchased the ranch in 1941 and has been active in community, county and state organizations related to range and livestock. Holtorf is at present a member of the Board of Control of the Colorado Cattlemen’s Association, Chairman of the Washington County Fair and member of the Washington County FHA loan committee and of the Board of Directors of his bank.

Mrs. Holtorf, sons John and Tom and daughter Mary all have a keen interest in the ranch operation.

One authority has pointed out that this type of operation if practiced by more of the cattle producers would tend to decrease the cattle population. This would come about in that the producer would have to cut his cow-herd one-third in order to provide the additional grass and forage for the yearlings in contrast to a straight cow-calf operation. One of the chief advantages of this hybrid operation, as we see it, is in the event of a critical drought or other adversity the yearling can be sacrificed at an earlier time thereby saving the cow herd that we have developed over the years, so diligently.

The method of marketing is normally the selling of these yearlings off the grass at home. However, there have been occasions when we would feed them out when it seemed like the margins justified it.

In this High Plains area where we necessarily have to keep good fences and find it beneficial to do cross fencing for better pasture use and rotation it is not too difficult to run the steers and heifers separate during the yearling summer. This is necessary and as a result we have little trouble keeping these heifers open which makes them more desirable to the feeder.

Range Animal Husbandry

We have quite consistently been able to sell 800-pound yearling steers for September to October delivery and approximately 700-pound heifers for September 1 delivery. It might be interesting to note how this end is attained so we'll start with the development of our cow herd which has gradually, from year to year, got to be what we consider a good, commercial cow herd.

The selection and care of our bull battery contributes to the making of the top quality heifers selected each year for replacement purposes. These replacement heifers make better cows than their