

# GOVERNMENT EXPERIMENTAL STATIONS FOR STOCK RAISING AND FEEDING

By Jack Magee

In the October number of the Arizona Agriculturist an article appeared asking why the Southwest could not have an experimental station similar to the one just started at old Fort Keogh, Miles City, Montana. There is such a station just forty miles from the University of Arizona campus. It has been there for twenty-two years, being established in 1902 by proclamation of President Roosevelt when Arizona was yet a Territory. It is conducted upon the same lines, so far as local conditions permit, as the other experimental stations are. The Grazing Department of the Forest Service is in charge of all of them.

The U. S. Government has been engaged in the attempt to solve grazing range and stock problems for many years. To carry on this work four experimental stations have been established in the cattle country. One is on the Jornada Forest in New Mexico, one at the Great Basin, Montana, a new station at Miles City, Montana, and the Santa Rita Range Reserve about half way between Tucson and the Mexican border.

The Santa Rita Range Reserve is located forty miles south of Tucson at the foot of the mountains whose name it bears. It includes thirty-eight thousand fenced acres of the outlying foothills and mesa like mountain slopes to the north of the Santa Ritas. This is a typical cattle country and lends itself admirably to the nature of the experiments. The entire area is fenced into fourteen pastures of desert, mesa, and foothill type of range. Four ranchmen are cooperators with the Government and

run their cattle upon the pastures as advised and directed by the Grazing Department official in charge. Between fifteen hundred and two thousand head of cattle are on the Reserve during the year.

The typical southwestern plants are found growing in various parts of the enclosed area. The classifications are: perennials, annuals, browse, cacti, and the weeds. Among the perennials are the needle grasses represented by *Aristida divaricata*; the grama grasses or *boutelouas*, which include *B. filiformis*, *B. bromiodes*, *B. rothrockii*, *B. eriopoda*, *B. hirsuta*, *B. parryii*, and *B. curtispindula*. *Hilaria belangeri*, known as Curley Mesquite or Southwestern Buffalo Grass is also present. Tangle head or *Heteropogon Contortus* is found all over the range. These are the more important grasses dealt with. Some annual *Aristidas* and six weeks grammas are present but are not considered important factors in the work. The browse plants are *Calliandra*, *Acacia* or Cats-claw, *Mesquite*, *Palo Verde*, *Live Oak*, *Mormon Tea*, and the salt bushes. The weeds are the *Isocoma* or rayless golden rod, ragweed, silver night shade, and the asters. The common prickly pear, tree cactus, and yuccas are edible in times when forage is scarce.

The country is subject to very dry seasons which add a factor of risk not met with in the northwest. These droughts cause losses of great seriousness. Feed is not produced and water is some times hard to get. Now, however, there are wells within three miles of every corner of the pastures. The climate is subtropical and the winters are very mild. The altitude varies between

three thousand and four thousand five hundred feet. Because of the great variation the field of operations is comparatively wide inasmuch as the three types of range, desert, mesa, and foothill, are fairly close together. Rain and temperature records are kept upon the Reserve. Precipitation stations are located in fourteen representative areas. These are read monthly.

All of the different experiments are a part of the big problem which is to find a plan of range management which will result in organizing systems of practical methods of handling live stock and the range, so that the maximum production of cattle and sheep will be obtained over a period of years without reducing the carrying capacity of the range. A minutes consideration of this project will enable one to realize that a large undertaking is before the country.

All of the ranges in the U. S. today are suffering from over grazing. This state of affairs may easily be believed upon reflection of the following. Old timers tell of the once beautiful ranges covered with abundant forage. Hay used to be harvested on the open mesas. Mexicans would go along with wagons and hoes and cut off *Muhlenbergia porterii* by the roots. This plant at one time was plentiful upon the Reserve. Now it does not rank among the important grasses. It was possible eight or ten years ago to put twice as many cattle on a pasture as can feed there now. There are more starvation losses than in former years. The calf crops are smaller. Supplementary feeding must be resorted to to save the herd quite frequently. Erosion started from killing off of many soil holding plants has made enormous inroads upon the range. There is not as much money in the stock business as there was. It is the history of man for centuries. He takes all of the best that he can get without a thought for the future and those who come after him.

It is granted that knowing when the range has had all it can stand is a hard problem. Digest the definition: "Carrying capacity is the maximum number of stock which the unit of range will support each season, over

(Continued on Page 15.)

## THE O'MALLEY LBR. CO.

DEALERS IN

### Lumber and Building Material

Phone 954 and 79

N. 4th Ave.

**GOVERNMENT EXPERIMENTAL STATIONS FOR STOCK RAISING**

Continued from Page 10

a period of years without injury to the range, tree growth, water shed, or unwarranted interference with game and recreation." A novice can not go out and judge the condition of the range. It takes years of experience. Often stockmen know the time to remove their cattle has come, but for various reasons do not do so. Some of the danger signals are the conditions of the plants. Are they full of vitality, of maximum height, as dense as in average years, in condition to produce next years growth? Are the more palatable grasses being crowded out by weeds? Are the stock trampling down the overgrazed forage in their attempts to secure sufficient foods? Are the stock in good condition themselves?

Enclosed, protected areas are good checks upon the outside country. "There is no better guide to correct range use than the small fenced enclosures where the range is allowed to grow untouched from year to year.

These small areas judiciously located, will serve a very useful purpose keeping the eye true as to what a range is capable of producing, whether declining in forage yield, or holding its own, or improving, and will give a sound basis for estimating the amount of forage utilized at any time of the year. Outside range should supply the same species and amount of forage as the enclosure, the amount of erosion, damage to plants, and per cent of forage still available."

Here are some good common sense rules to follow. Ride the cattle more, don't let them over graze local areas. Place salt a distance from water so that the land in between will be utilized. Keep the herd reduced to the number that the range will accommodate comfortably. It is better to leave that last ten per cent of grass than to try to graze it, because trampling and overgrazing results.

**EDITOR'S NOTE.**—In regards to our previous editorial on the need of an Experimental Station, such as the state of Montana now has, we had in mind a similar arrangement, whereby the Government and State University authorities cooperated in their efforts.

The Montana station takes up such problems as cattle, sheep, and horse grazing, feeding experiments, the growing of forage crops, cost of production, etc. All these problems are worked out in conjunction with the State University and under the direct supervision of the Bureau of Animal Industry.

However, we hope that a similar arrangement may be made in this state in the near future, and that closer cooperation may be effected between the Santa Rita Range Reserve, (which is under the direction of the Forest Service Dept.), and the Animal Husbandry Dept., of the State University.

*The* **CASE** *Engineering Code*



**A Scientific System of Development**

**A**LL true progress comes through gradual development. Compare the automobiles, telephones or threshing machines of twenty-five years ago with the highly efficient product of today. Better work and longer life for each machine has resulted in every case from intelligent, consistent development.

The development of any machine depends: first, upon the ideals and ability of the designers and builders and, second, upon the data available and the method of its use. This Company is exceptionally fortunate in both these respects. Our engineers are admittedly competent and resourceful. They have devised a system for securing accurate, definite information about the operation of Case machines under the infinite variety of conditions met in extensive field work.

As it comes in, this information is classified, tabulated and charted every month. It is studied carefully for any indication of desirable improvements in design, material or construction. This is the scientific system of development incorporated in the Case Engineering Code that has carried Case products forward to leadership in usefulness and economy.

**J. I. Case Threshing Machine Co.**

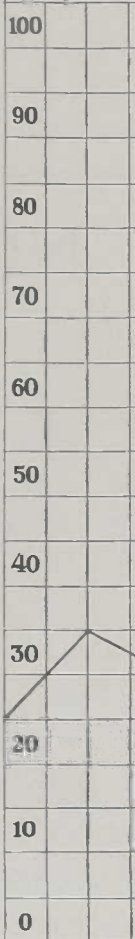
(Established 1842)

Dept. Y75 Racine, Wisconsin



Case Farm Tractors, Steel Threshers, Silo Fillers, Baling Presses, Steam Engines, Road Machinery, Grand Detour Plows and Disk Harrows.

*NOTE*—Our plows and harrows are *NOT* the Case plows and harrows made by the J. I. Case Plow Works Company



**Buy Your Winter Field Seed**

From Arizona's Oldest and Most Reliable Seed House  
**BARLEY, RYE, OATS, ALFALFA, AND OTHER GRAINS**

**Langers Seed and Floral Company**

100 East Congress

Tucson, Arizona

**SHULL & MAULER**

Guaranteed Automobile and Gas Engine Repairing.

PHONE 197-J

429 U. 3rd Ave.