

indigenous to the soil where the custom of burning woods and pasture is abandoned. Unlike some of the western ranges, good natural water facilities are nearly always available.

### Promising Fields for Dairy Development

The close proximity of Florida to northern and eastern markets affords a ready market for livestock at all seasons, and with approximately \$25,000,000 worth of dairy products brought into the States annually, a great field has been opened for dairying in the area free of ticks. By improving the quality of beef cattle in parts of Florida recently made tick free, a vast area is opened up from which northern and western feeders may obtain suitable cattle for feeding and grazing purposes. Breeders of purebred cattle have found in the same parts of Florida a ready market for their breeding cattle, particularly bulls.

The last few years have wrought far-reaching changes in Florida's tick-eradication program. At first there was considerable opposition by misguided persons, but more recently there has been a phenomenal growth in public favor and appreciation of the work. At the close of the calendar year 1929 Florida was over 44 per cent tick free, with systematic eradication in progress in an additional 8 per cent. In addition, five counties were building dipping vats and making the necessary arrangements to start work in the spring of 1930. The cattle-fever tick can not be regarded as a permanent foe to the cattle industry in Florida. The work of tick eradication will gain impetus as more counties are freed from tick infestation, until the whole State will be tick free, paving the way for more and better cattle without quarantine restrictions.

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**T**IMBER and Cattle Can Be Raised Together on Southern Cut-Over Land

It is generally estimated that there are in the coastal-plain belt of the Southern States at least 25,000,000 acres of idle lands, which were at one

time covered with magnificent forests. That they are not now producing another crop of timber can be laid to destructive lumbering and widespread occurrence of fire. In recent years a few landowners have taken an interest in growing new crops of timber on their cut-over lands and some are considering the possibilities of combining cattle raising with reforestation. Whether this will be feasible or not is being worked out in an experiment that has been in progress since 1923 at the coastal plain experiment station at McNeill, Miss., and carried on jointly by the Southern Forest Experiment Station of the Forest Service, the Bureau of Animal Industry, and the Bureau of Plant Industry.

A tract of 320 acres in Pearl River County, Miss., was fenced in 1923, on land from which the original longleaf pine had been logged about 1902 or 1903. Between the time of logging and fencing the land was open to grazing by both cattle and hogs and the dead grass was burned off nearly every winter. The fenced tract was divided into two 160-acre plots. One of these has been burned over each year since 1923, during the winter time, while the other 160-acre plot has been protected from fire. In each of these two larger plots a 10-acre check plot

has been fenced against grazing. (Fig. 182.) On the 300 acres, cattle grazing has been permitted during the spring and summer (April 15 to November 15 approximately) at the rate of 10 acres per steer. This arrangement has resulted in four distinct conditions: (1) One area grazed and burned (150 acres); (2) one area grazed but not burned (150 acres); (3) one area burned but not grazed (10 acres); and (4) one area neither burned nor grazed (10 acres).

In each of these areas small plots were measured off and staked out for an intensive study of the seedlings of long-leaf pine which came up. These seedlings were counted and mapped before and after burning.

Early in 1928 it was found that on the plot protected from both grazing and burning, 82 per cent of the seed crop of 1924 had survived. It seems reasonable to believe that these 3-year-old seedlings—about 13,000 to the acre—will show little mortality from now on. On the ungrazed plot which was burned every year, only 17 per cent of the



FIGURE 182.—The area at the left is protected from both fire and grazing, while the one at the right is protected from grazing but is burned over annually according to local practice



FIGURE 183.—The area to the left of the fence includes the experimental plots and is protected by a fire line on the outside of the fence. Land to the right of the fence is an example of burned and cut-over land

original 1924 seed crop had survived. On the unburned and grazed plot 70 per cent of the original stand survived. On the burned and grazed plot only 24 per cent of the seedlings were alive. (Fig. 183.) It seems, therefore, that the damage caused by grazing itself has been

relatively slight. On areas protected from fire, the grazing accounted for a reduction of only 12 per cent in the number of seedlings.

#### Experiment Applies Only to Native Grasses

Thus far the experiment seems to indicate that cattle grazing and timber growing can be practiced on the same land, particularly where fires are prevented. It should be mentioned, however, that these results apply only to native grasslands where the predominating forage grasses are broom grass (*Andropogon scoparius*) and wire grass (*A. tener*). On improved pasture grasses such as carpet grass (*Axonopus* sp.) practically all longleaf seedlings are killed by the close grazing which ordinarily results. It was found that an average of only 1,000 out of 107,000 longleaf seedlings per acre survived grazing on carpet-grass areas over a period of two years.

Preliminary conclusions drawn from this experiment indicate that cut-over pine lands with an ample stocking of seed trees (about 12 per acre) will restock naturally to longleaf pine when given protection from fire and hogs. Until the trees are of merchantable size the same land can be profitably utilized for grazing by cattle, provided of course that injury due to overgrazing is guarded against. It is believed that the optimum stocking to cattle on such areas will approximate one head to 7½ acres of reforesting land.

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**T**IMBER Waste Large in the Northwestern Douglas-Fir Forests The Forest Service completed in 1929 a survey in the Douglas-fir region of western Oregon and Washington to ascertain the quantity and character of wood waste annually left after logging. There is probably more unutilized wood left per acre in this region, excepting possibly the redwood belt of California, than in any other lumbering section. (Fig. 184.) The survey showed that the annual accumulation of material of cordwood size and larger now being left unused after logging amounts to 3,088,748,000 feet log scale or 6,177,496 cords of sound wood. In footage this is equal to almost one-tenth of all the lumber annually produced from timber native to the United States.

In 1926 the total pulpwood cut in the United States was 5,489,517 cords. More than one-third of the wood waste left after logging in this region—1,146,276,000 feet or 2,292,252 cords—is western hemlock (fig. 185), Sitka spruce, and true firs, woods in demand for sulphite and mechanical paper pulp. The remainder is Douglas fir, western red cedar, and other species with high lumber values but low pulping properties at present. More than half of all the logging waste—1,626,547,000 feet—is Douglas fir. (Fig. 186.)

#### Material Listed as to Size

The survey listed the material, as to its size, character and species, into saw logs, excessively high stumps, pulpwood, fuel wood, shingle bolts, poles, and fence posts. From the saw logs, as a rule compara-