State's Productive Capacity

California's agricultural productive capacity attainable in 1955 projected from findings of federal-state survey

Trimble R. Hedges and Warren R. Bailey

The following article is the first of a series of reports based on a study of California's agricultural productive capacity, that can be attained by 1955, which was conducted by the California State Committee on Survey of Agricultural Productive Capacity. The Committee included representatives of the University of California, the United States Department of Agriculture, and State agencies.

California's productive capacity can be increased considerably but any substantial increase must come largely from greater efficiency in production rather than from additional land resources. The estimated expansion of acreage in harvested crops between 1950 and 1955 is placed at 3% or 4% only.

Projections for agricultural productivity in 1955 assume favorable farm prices and adequate supplies of production materials, but a somewhat smaller farm labor force. Improved farming practices and new technology are expected to be available and more widely used as higher levels of production—to be attainable—must be profitable to farmers.

Projections for 1955 represent a more intensive use of cropland than in 1950—when acreage limitations existed in cotton and rice—but less intensity than in 1951—cotton and rice were overexpanded in terms of sustained land use and sound management policies.

Considerable readjustments are indicated from the 1951 situation if trends toward more livestock production are to be realized. The indicated shifts are from cash crops into feed grains, hay and pasture.

Projected Shifts in Acreage for Selected Crops*

	Thousand acres		
	Estimated for 1950	1951	Projected 1955
Cotton	586	1,341	1,250
Rice	240	319	250
Dry edible beans	319	339	320
Sugar beets	218	149	175
Potatoes	123	84	90
Canning tomatoes	76	145	120
Feed grains	3,617	3,196	3,465
Hay and (crop) pasture	2,024	1,917	2,245
Fruits and nuts	2,246	2,275	2,294

* Estimated crop acreages, revised in line with 1950 census results, were not available at the time this study was made.

Projections for sugar beets represent a needed readjustment from 1951 when acreage declined due to unfavorable weather in the 1950 harvest.

The 1951 bean acreage was above average due partly to inability of farmers to plant intended acreage of other crops.

Potato acreage was cut back too sharply in 1951, in reaction to overexpansion in 1950.

The 1951 acreage of canning tomatoes was overexpanded in terms of probable future market demand.

The 1951 acreage of feed grains, hay and pasture were all too low in view of an expanding livestock industry.

The acreage of fruits and nuts can not be expanded quickly and no large expansion appears warranted.

Improved production techniques will lead to significantly higher yields per acre of certain field crops. The projected increase in 1955—over 1950—will be 15% for cotton, 15% for ladino seed, 10% for early potatoes, 9% for sugar beets and 3% for alfalfa hay.

No new technology is in prospect to raise significantly yields of cereals, dry edible beans, late potatoes, flaxseed, and the minor hay crops.

Castor beans and safflower are so new to California that little is known about their possibilities and future yields were not projected.

Marketable production of most vegetables and fruits could be increased on present acreages by harvesting and marketing a larger proportion of the tonnage now produced.

Among the vegetable crops, only carrots are likely to experience higher yields—from use of pelleted seed, greater plant populations per acre, and improved marketing techniques.

Somewhat higher yields per acre of prunes can be expected by pulling out marginal acreage and old orchards.

Higher average yields of almond and walnuts will result from shift in acreage to more productive areas.

Open permanent pasture and range in farms represent more than 40% of the total grazing in California. On the 18 million acres of this land a highly significant increase in grazing—from 0.55 to 0.60 animal unit months per acre—can be expected by 1955. Although that increase is small compared with the maximum potential improvement, the improved range management practices needed to attain the potential are difficult to accomplish. Such practices, not equally applicable to all lands, include rotation grazing, reseeding, water development, and fertilization. About one seventh of California's grazing capacity is on public and private range not in farms. While such range also has great possibilities of improvement, not much progress can be expected by 1955.

About one fifth of California's total grazing capacity is on irrigated pastures and another fifth represents crop residues of various kinds. The average grazing capacity on irrigated pasture is expected to increase from 8.0 to 9.0 animal unit months per acre. No increases in production of crop residues are projected, as only a fraction of such potential feed is now utilized.

California's livestock production is partially dependent upon feed grains and concentrates shipped in from other states. It is estimated that some 36% of the grain requirements in 1950 were imported. According to 1955 projections this proportion would increase to 50%.

The 1955 projected production of feed grains is some 9% below 1950. Thus even

Continued on page 12

CALIFORNIA AGRICULTURE

Progress Reports of Agricultural Research, published monthly by the University of California College of Agriculture, Agricultural Experiment Station.

William F. Calkins.....*Manager* Agricultural Publications

W. G. Wilde.....*Editor and Manager* California Agriculture

141

CAPACITY

Continued from page 2

larger inshipments of feed grains would be necessary to attain the projected levels of livestock production. Grain used for food and industrial purposes plus that exported from California seaports is roughly equivalent to half of the state's total production.

California's hay production is within 3% or 4% of being in balance with requirements. The alfalfa hay shipped into the state just about equals the 150,000 tons of hay dehydrated or otherwise used in commercial mixed feeds. The projected 1955 production of hay is about 9% above 1950, and will be adequate for California's livestock needs.

California's livestock industry has a relatively strong competitive position because the state is a deficit producing area—but production must be efficient because costs of feed and labor are high. The projected 1955 level of production—compared to 1950—represents increases of 10% in cattle and calves, 18% in sheep, lambs, and wool, 9% in hogs, 9% in milk, 31% in chickens raised, 60% in commercial broilers, 11% in eggs, and 22% in turkeys. Most of the additional production is expected to come from an expansion in number of producing animals rather than any marked increase in efficiency per unit. Some further efficiency can be expected from gradual improvement in breeding, disease and parasite control, and better balanced rations.

The projected high levels of California's agricultural production are dependent upon ample supplies of machines, irrigation equipment, feeds, fertilizers, pesticides, and related materials. Adequate labor is of prime importance, although mechanization is reducing the labor requirement for some crops, notably cotton and sugar beets.

Projected Adjustments in Major Uses of Cropland*

	Million acres		
	Estimated for 1950	1951	Projected 1955
Intertilled crops	1.9	2.5	2.4
Close growing crops	3.9	3.6	3.8
Hay and (crop) pasture	2.0	1.9	2.2
Fruit and nuts	1.5	1.5	1.5
Total land cropped	9.3	9.5	9.9
Summer fallow	1.2	1.1	1.0
Total cropland	10.5	10.6	10.9

* Estimated crop acreages, revised in line with 1950 census results, were not available at the time this study was made.

Additional numbers of specialized farm machines needed—above 1950 levels—include 5,000 more cotton pickers, 2,300 nut harvesters, 2,000 pruning rigs, and 500 agricultural airplanes. Additional pickup balers, bale loaders, field forage harvesters also will be required. Large numbers of replacement machines covering the whole range of farming will be required annually to maintain farm production. Adequate supplies of repair parts are of signal importance.

The projected production will require more fertilizer than was used in 1950. The 1955 requirements will be 37%—56,000 tons—more nitrogen, 70%—42,000 tons—more phosphate, and 10%—1,000 tons—more potash. Cotton and barley probably will account for most of the additional nitrogen, and general field crops would account for most of the phosphate. Vegetables and fruits already are fertilized at near optimum levels.

To be continued

Trimble R. Hedges is Associate Professor of Agricultural Economics, University of California College of Agriculture, Berkeley.

Warren R. Bailey is Agricultural Economist, Bureau of Agricultural Economics, U.S.D.A., Berkeley.

RANGE

Continued from page 3

durable dry-land grasses. Grown in combination with dry-land alfalfa, it does well in the coastal areas from Monterey to Del Norte County, and in the Sierra foothill ranges above the 15" rainfall belt.

Smilo has about the same climatic tolerance as hardinggrass but should be used on lighter soils. It grows well from San Diego County to Humboldt County on the coast ranges, and from Kern to Shasta at intermediate elevations.

Chewing fescue and highland bentgrass are good competitors for Klamath weed. Crested wheatgrass does well above 3,000 feet, and timothy is used in high areas of cold winter and moderate summers. Redtop also is adapted to mountain areas. Sherman big bluegrass can be used on adverse soil and climatic sites.

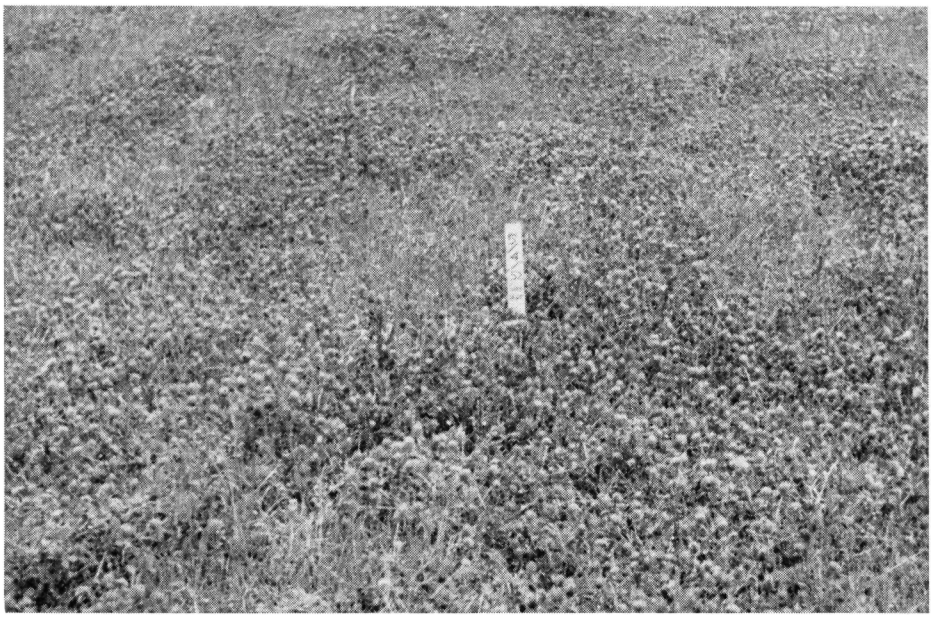
Tall fescue is more drought tolerant, thriftier, and taller than its parent, meadow fescue. It is useful in areas of 20" rainfall or more. The three principal strains—alta fescue, Kentucky 31, and Goar—are late winter, spring, and summer growers. Orchardgrass is not quite so drought tolerant as tall fescue, but can stand more shade.

Rhodesgrass is suited for use on sandy sites south of the Tehachapi, smooth brome for northeastern California, and tall oatgrass for the dry lands of the coastal areas and intermediate elevations in the Sierra.

Nodding and purple stipa are among the hardiest of the native California bunchgrasses. They range from south to north on the coast and in the foothill regions.

Veldtgrass looks especially promising in coastal areas of southern California.

Third-year stand of rose clover on infertile land in eastern Glenn County. Photo taken in May, 1952, by M. D. Miller, University of California Farm Advisor.



Perennial Legumes

Among the perennial legumes, alfalfa is used on the better dry-range sites. Narrowleaf birdsfoot trefoil is useful under very alkaline conditions, at higher elevations the broadleaf type may be used. Under all other situations a mixture of both types may be advisable, but neither type is as drought tolerant as alfalfa.

Continued on page 14