

# California

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## State, Federal and Interstate Roles In Conservation

A condensation of a report prepared by S. V. Wantrup at the request of the Council of State Governments, and published in the journal, STATE GOVERNMENT.

Legislation formulating public conservation policies in the United States appears in many unrelated acts, treaties, compacts, and ordinances. Execution of these enactments is spread over international, federal, state, and local agencies.

Under the Constitution of the United States, the individual states hold much of the power to regulate utilization of natural resources, especially agricultural land, ranges, forests, water, wild life, and minerals.

Conservation does not necessarily connote efficiency. Neither does depletion mean waste. Both may be wasteful.

Waste of resources means that the net-value stream from utilization of natural resources is not maximized. Maximization must consider both private and public values.

Application of the maximization principle is not easy. Solutions can be found, making it possible to reach minimum goals, at least, of public conservation policies.

### Intrastate Coordination

State machinery for legislative and executive coordination of conservation policies usually is less effective than federal.

Better intrastate articulation or interrelation of resource policies is an aid to better state-federal and interstate cooperation.

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## Hybrid Vigor In Dairy Herds By Crossing in Breed

W. A. Regan

The generally accepted explanation of hybrid vigor or heterosis in dairy cattle is based on the fact that most of the desirable hereditary factors tend to be dominant, while those less desirable are often recessive or hidden.

Because the Guernsey breed has been developed along certain lines, it has definite factors governing desirable traits that are dominant. The Holstein, on the other hand, may have other dominant desirable genes. When the two breeds are crossed, the resulting hybrid heifer has the opportunity for and probably will carry more of these dominant desirable genes than were carried by either parent.

Fortunately the same things may be accomplished, even to a greater degree, by crossing between inbred families within a breed.

### Inbred Jersey Purebreds

Over a quarter of a century ago we began the task of developing an inbred family of purebred Jerseys that would have a high order of transmitting ability for high milk and butterfat production and that, at the same time, would be free from simple recessive defects. In the main, these objectives have been attained.

An important phase of the work requires the use of the herds of co-operating dairymen in progeny testing of young bulls from the University of California experiment herd. Both purebred and high grade Jersey herds are used for this purpose.

Five of these herds which have used only University bred bulls for the

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## Recommendations For Improving Quality of Grapes By Using Proper Cultural Operations on the Vines

A. J. Winkler

Grape crops from 1942 to 1945 were the largest in the history of California grape production. With emphasis solely on quantity, quality suffered.

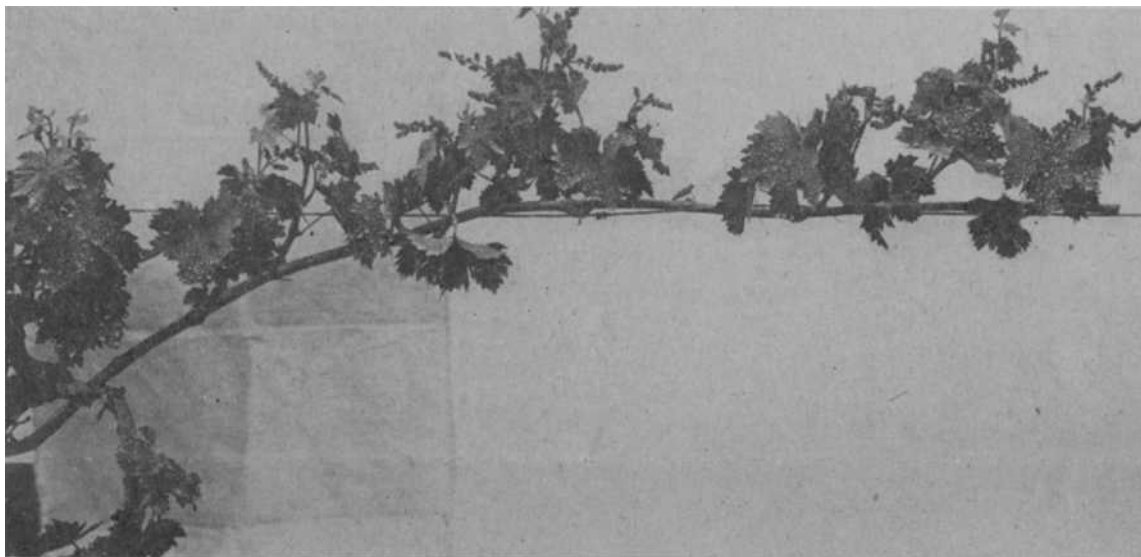
With fruits again moving freely in the normal channels of trade, buyers are becoming quality conscious. The demand for better quality was evident in all markets where fruits and grapes were sold during 1946.

pruning must be emphasized. It is the means of distributing the bearing wood over the vine, between the vines, and between years in accordance with the capacity of the spurs, canes, or vines in order to equalize production and secure good crops of high-quality grapes. It is the cheapest way to reduce the number of clusters and thus lessens the cost of

ment of color may be retarded.

For the purpose of improving the color, only leaves in the head of staked vines and those on the lower part of the north or east side of trellised vines should be removed.

The removal of one-eighth to one-fourth of the leaves will usually give the desired results. More drastic treatment will weaken the vines and



A single cane of a Muscat vine showing the proper stage of development for flower-cluster thinning.

The offering of grapes fell short of expectations at times during that season. Some difficulty was had with the conditions and maturing of a considerable volume of grapes, in particular, with girdled Thompson Seedless.

In most varieties the date at which the fruit reached the legal minimum degree Balling for shipment last season was late despite the fact that 1946 was average or above in heat summation in most producing areas.

A delay in maturing under such conditions very definitely indicates overloaded vines. In the case of Thompson Seedless, for instance, analyses of fruit in the range of 17° to 20° Balling showed the average acid content to be 33 per cent below that of fruit of this variety from the same areas and same range of maturity in prewar years. These figures reveal a situation of extreme overcropping of the vines from which the fruit was taken, since the grapes must hang beyond the normal date of maturing for a long time for the acidity to be depressed to this extent.

### Improving Fruit Quality

Information at hand not only indicates the nature of the difficulties in 1946, but points the way to the avoidance of similar trouble in years to come. Overloaded vines cannot produce high-quality fruit.

Prior to the war, cultural operations were in common use, which, when properly applied, aided materially in the production of better grapes. The return to these practices is not only the simplest but probably the only means of insuring that the table grapes of 1947 will be of acceptable quality. These operations, in addition to good vineyard care are proper pruning, suckering, tendrill and leaf removals, thinning, and girdling.

### Pruning

The pruning season is practically over, but the importance of careful

thinning in the regulation of the crop of table-grape vines.

### Suckering

Suckering is intimately tied in with thinning. Valuable leaves should not be removed, but the fruit on the vines that are too bushy will not attain high quality. Judicious removal of excess shoots when they are still small makes for a normal coverage of foliage which favors the best development of the fruit and reduces both thinning and harvesting costs. A shoot should not be removed just because it happens not to have a cluster, for its leaves will nourish the clusters on other shoots.

### Leaf Removal

Leaf removal if judiciously performed may be advantageous. Basal leaves that will rub the fruit, tendrils that will intertwine the clusters, and the lower lateral shoots where these form in profusion should be removed at the normal time for berry or cluster thinning. These operations may well be combined with the last thinning, especially in the case of Red Malaga and Ribier where only a few clusters have been left to be removed at this time. Only the leaves and laterals up to and opposite the clusters should be removed. All tendrils that might reach a cluster should be cut.

### Opening for Color

The coloring for certain varieties can sometimes be facilitated by opening the vines to permit the air to move through them more freely. One means of doing this is to remove some of the leaves. If this removal is delayed until the fruit has attained the minimum sugar content desired, little or no harm will be done to either the vine or the fruit, and the coloring of the grapes may be improved.

Should many leaves be removed before the fruit reaches the minimum sugar content for harvesting, its maturing as well as the develop-

ment of color may be retarded.

### Thinning

Thinning is the removal of flower clusters before blooming and of immature clusters or parts of clusters after the berries have set. Like pruning, it concentrates the activities of the vine into the parts retained. It offers possibilities in addition to good pruning in the improvement of quality and in the production of a full crop every year.

The fruiting habits and the setting of the fruit of different varieties necessitates different methods of thinning. Thus with flower-cluster thinning, quality is improved through the better setting of normal berries, with berry thinning through the removal of the parts of clusters that tend to become too compact and by better coloring, and with cluster thinning through greater uniformity of size and better coloring.

### Girdling

Girdling—or ringing—consists in removing a complete ring of bark  $\frac{1}{8}$  to  $\frac{1}{4}$  inch wide from the trunk, arm, or cane below the fruit which it is intended to affect. As a result, the carbohydrates elaborated in the leaves will accumulate in the parts above the wound, including the fruit, and will influence its development.

The effects to be achieved determine the time of girdling. Thus, if the girdling is to increase size of berry it should be done just before or at the beginning of most rapid berry growth, which is soon after the berries set, and if it is to hasten coloring and maturing it must be done just before or at the beginning of the ripening period.

Properly timed and executed girdling accompanied by proper thinning has regularly increased the size of Thompson Seedless berries from 50 to 100 per cent.

The berry size of seeded varieties like Ribier, Malaga, etc., is influenced

## Constant Research For the Control Of Citrus Thrips

W. H. Ewart

Citrus thrips are found in all citrus-growing areas of California but are a serious pest only in the inland valleys.

The most serious damage occurs in the Sacramento and San Joaquin Valleys in central California, in the San Fernando Valley, Foothill regions and the Coachella Valley in southern California. Limited numbers of thrips occur on citrus in the coastal areas but they have not caused enough damage to warrant general control measures.

### Injury to Fruit and to New Growth

The fruit and the new growth of all varieties of citrus may be injured by thrips.

Nymphs which hatch in the early spring from overwintering eggs begin to feed on the new flush of growth on oranges and grapefruit and may cause considerable injury.

When the new growth hardens, which is about the time most of the petals have fallen, thrips move to the small fruits where their feeding causes the characteristic ring scarring. Fruits may be injured in this manner until they are about the size of a walnut.

During the early part of the summer the thrips feed on the surface of fruits and tender growth. In late summer the fall flush of growth may be so badly damaged by thrips feeding that very few new leaves develop. On lemons, injury to both fruit and new growth begins with the nymphs which hatch from overwintering

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## Investigations in Poultry Disease Problems Reported

Attempts to develop an improved vaccine for pneumoencephalitis—known in all states except California as Newcastle disease—focused on studies of the effect which the addition of certain substances to the present vaccine might have on its immunizing property.

Laboratory tests of some of these experimental vaccines gave encouraging results.

One vaccine was subjected to field trials involving 37,400 pullets on five farms. Approximately 20 per cent were left unvaccinated for controls and the remainder were given two 0.5 cubic centimeters doses of vaccine. Part of the birds received their two doses of vaccine at four and twelve weeks of age and part at twelve and fourteen weeks of age. These flocks became infected with a mild type of the disease in three to five months after the second vaccination.

The egg yield of all groups was depressed but this effect was significantly less marked in the vaccinated than in the control group.

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relatively little. Although not so consistent as the influence on berry size, the coloring of Red Malaga and Ribier can often be hastened by girdling. The rate of ripening of most seeded varieties may be slightly accelerated.

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