Hybrid Vigor In Dairy Herds By Crossing in Breed

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The general theory of the explanation of hybrid vigor or heterosis in dairy cattle is based on the assumption that most of the desirable hereditary factors for production are dominant and that the desirable genes are dominant in the Guernsey breed. 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 offspring may be heterozygous for numerous traits and have a greater degree of desirable traits than either parent breed. Fortunately the same may be accomplished, even to a greater degree, by crossing between inbred families within a breed.

Five of these herds which have used only University bred bulls for the (Continued on page 1)

The offering of grapes fell short of expectations at times during that season. Some difficulty was had with the conditioning and marketing 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 overlaid vine. In the case of Thompson Seedless, for instance, analyses of fruit in the range of 17- to 30-Balling showed the average acid content to be 20 per cent below that of fruit of this variety from the same areas and range of maturity in previous years. These figures reveal a situation of extreme overmaturing of the grapes from which the beet 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. Overmatured grapes cannot produce high-quality fruit. Prior to the war, cultural operations were in common use, with which, when properly applied, aided materially in the production of better grapes. The return to these practices is as necessary as the best possible methods. Plant health is also important. Fruit quality is in the hands of the producer and the grower can be responsible for increasing the percentage of good clusters and eliminating the clusters on other shoots.

Leaf Removal

Leaf removal if judiciously performed may be advantageous. Basal leaves that will rob 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 be well 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 accelerated by opening the vines to permit the air to move through them more freely. One means of doing this is to remove the petioles at the one sprout, just before the blossoms open, or to remove the petals of pruned fruit, or to remove the petals 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 development of the stop may be delayed due to the pruning, Stop thinning in the regulation of the crop of table-grape vines. Suckering

Suckering

Suckering is intimately tied in with the proper growth and maturing of the berries. Suckers that might reach a cluster should be cut when the berries are of acceptable quality. These operations, in addition to good vineyard management, it concentrates the activities of the fruit 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 necessitate different methods of thinning. Thus with flower-cluster thinning, quality is improved through the better setting of normal berries, with berry thinning by the removal of the petals of clusters that tend to become too compact and by better coloring; head cluster thinning through greater uniformity of size and better coloring.

Girdling

Girdling—or ring-casting—is removing a complete ring of bark, ½ to 1¼ inch wide from the trunk to a depth of ¾ inch below the bark. It is intended to affect. As a result, the carbohydrates elabirate in the leaves will accumulate in the part above the wound, including the fruit and will influence its development. The effects to be achieved determined 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 are set. The stimulation of continued elongation and maturing 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 Riber, Malaga, etc., is influenced.

Investigations in Poultry Disease Problems Reported

Attempts to develop an improved vaccine for fowl pox have been known in all states except California. Serological disease—was tackled in recent 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 separate trials in California, Nevada and Arizona. Only 500 pullets were left unvaccinated for controls and the remainder were vaccinated with 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 become infected with a mild type of the disease in three to five months after the second vaccination. The rate of death due to the disease was depressed but this effect was significantly smaller than what was observed in the control group. (Continued on page 4)
Constant Research on Use of Insecticides

Necessary for the Control of Citrus Thrips

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These tartar emetic-sugar sprays could be applied without tree or fruit injury during the summer months, whereas the loquat spray and at any time in the Coachella Valley, or anywhere California oranges are grown, it appeared to be the perfect treatment for thrips control. However, within three seasons unsatisfactory control occurred in certain groves, which was demonstrated to be the result of the development of tolerant or resistant strains of thrips.

Experiment Station, largely replaced the lime-sulfur sprays, developed by the University of California Citrus Experiment Station, Riverside. Tartar emetic-sugar sprays, further work with the University's Citrus Experiment Station, largely replaced the lime-sulfur sprays or sulfur dusts developed by the Division of Agriculture Experiment Station, Riverside. Tartar emetic-sugar sprays, further work with the University's Citrus Experiment Station, largely replaced the lime-sulfur sprays or sulfur dusts developed by the Division of Agriculture Experiment Station, Riverside.

In a few years we will have two inbred families, our present California Napoleon Nick strain and our new California Romus Rex line. One reason for establishing the California Napoleon Nick, bred one of the first inbred family of purebred Janesville or the Janesville line of purebred Animal Husbandry for a high order transmitting ability for high milk and butterfat production.

The first nine to eleven—none was conspicuous—were 60 pounds of butterfat on a mature, ten month, twice daily milking basis. This is 32 pounds over the record of their dams on identical feeding and management conditions. We are unable to say at this time how much, if any, of this increase is due to the hybrid vigor. The experiment is so planned that we will be able to determine this with accuracy in a few years.

Hybrid Vigor in Dairy Herds

By Crossing Between Inbred Families Within a Breed

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Hybrid Vigor

About fifteen years ago we began inbreeding our pedigreed Holsteins. Marked loss of vigor resulted in lowered production, smaller size, and reduced efficiency. The third and fourth generations were a pretty sorry lot. We secured an inbred bull of another pedigreed Holstein family. His daughters, our old inbred cows, were larger at birth and grown faster than did their dams.

In a few years, when propagated on the above-mentioned winters, is now recognized as being responsible for the success of the pear industry. California Agriculture, progress reports with weeds controlled by oil sprays, permanent covers, no cultivation or cover crop experiments. The use of Old Home and other insecticides in California are to be prevented.

Definite minimum maturity standards based upon color changes, rate of softening and increase in soluble solids have been suggested for test instrumental measurement and for harvest.