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CHEMICALS AND THE FOOD INDUSTRY, by Robert M. Ikeda and Donald G. Crosby, Manual 26 (\$1.00).

POISONOUS LARKSPUR, by J. M. Tucker, D. R. Cordy, L. J. Berry, and W. A. Harvey, Leaf. 129.

producers separate as much as 10% of the distillate as heads. While this fraction contains impurities in amounts many times higher than remain in the brandy, alcohol is still the main compound of heads. Recovery of this alcohol in usable form has been a processing problem in the wine industry.

Processes such as redistillation and chemical treatment have been used, but generally are expensive or ineffective. Knowledge of the basic reactions taking place during alcoholic fermentation made it possible to predict that yeast would reduce aldehydic impurities added to fermentation. This was soon demonstrated in the laboratory. Further studies worked out proper conditions including the best time for addition to fermentations and

optimum levels for effective reduction of the impurities with minimum toxic effect to fermentations. All the tested species and strains of fermentative yeast reduced impurities.—James F. Guymon, *Dept. of Viticulture and Enology, Davis.*

Improved strain of

HONEYBEES

The development of better bees—more efficient pollinators for California agriculture—is the subject of a current research program. The breeding of improved honeybees requires application of proper breeding techniques, thorough knowledge of the bee and beekeeping, and the development of special beekeeping methods. In addition, the mating of the queen must be controlled by artificial insemination, environmental influence must be minimized, and special techniques must be employed to measure the

characteristics of the honeybee colony. The studies also give attention to general inheritance in the honeybee, to sex and caste determination, development and reproduction, morphology, physiology, ecology, and behavior.

The need for a better bee has become urgent because California agriculture is becoming increasingly dependent upon honeybees for the pollination of insect-pollinated crops. The reasons for this dependence are the widespread use of insecticides which are injurious to wild bees as well as to honeybees, and the clean cultivation and weed-control practices that have reduced the wild flowers which provide the spring and fall honeyflows for wild bee populations. Honeybees, in contrast to wild bees, can be moved from one area to another as needed. They vary in their pollinating efficiency, and the breeding work, so far, indicates selection for pollen gathering is effective.—Harry H. Laidlaw, *Dept. of Entomology, Davis.*

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University of California College of Agriculture, Agricultural Experiment Station, Berkeley 4, California

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