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Circular No. 76 - The Utah Agricultural Experiment Station

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UTAH AGRICULTURAL COLLEGE
UTAH AGRICULTURAL EXPERIMENT STATION
**THE UTAH AGRICULTURAL
EXPERIMENT STATION**

P. V. CARDON¹

WHAT IT IS

The Utah Agricultural Experiment Station is one of three major divisions of the Agricultural College of Utah, these divisions being: (1) The College proper, (2) the Agricultural Experiment Station, and (3) the Agricultural Extension Service.

WHAT IT DOES

By research and experiment it seeks to solve farm and home problems, especially those which farmers and farm women individually are in no position to attack successfully. The problems being studied by the Experiment Station include those pertaining to the maintenance of soil fertility, conservation and efficient utilization of irrigation water, improvement of plants and animals, control of insect pests and diseases, development of cultural methods, marketing of farm products, costs of production, livestock feeding, human nutrition, rural living standards and community relationships.

SOME RECENT RESULTS

Established in 1889, the Experiment Station has contributed regularly and constructively to the advancement of agriculture in this state. It is impossible to list in limited space all of the results secured through research during the last forty years, but the following examples of accomplishment taken from some publications of the last two years will show the general character of results being obtained².

Cooperation Dominant in Irrigation Companies.—Community construction and control of irrigation works in Utah has been dominant from the beginning. Even today about three-fourths of the irrigated land in Utah receives water through mutual irrigation companies. A study of the origin, growth, and activities of mutual irrigation companies in Utah, and the importance of this type of organization under existing conditions, has brought to light much information of both historic and economic value. (Bulletin 199)

Winter Injury to Peach Orchards.—The serious effect on peach trees of extremely low winter temperatures may be avoided, say station horticulturists, by locating orchards on good, high bench-land, increasing soil fertility, maintaining an adequate water-supply in summer, eliminating borers, thinning fruit in dry years, and delaying the pruning of old trees. (Bulletin 202)

¹ Director.

² A complete list of available publications will be mailed upon request. Station Bulletin No. 209 reports in detail the work of the Experiment Station for the biennium ending June 30, 1928. Publication authorized by Director, February 9, 1929.

Economics of Ranching.—Efficient utilization of by far the greater part of Utah's total land area depends upon successful sheep or cattle ranching. A preliminary economic survey of the ranch situation in this state, as of 1925, reports the complete operations of 55 cattle ranches and 54 sheep ranches, showing costs and returns for the year. (Bulletins 203 and 204)

The "White-Fly" and Curly-top.—Found in all of the farming areas of Utah into which studies have extended, the sugar-beet leafhopper, commonly known as the "white-fly", constitutes the most menacing insect of the sugar-beet crop. The "white-fly" transmits to the beets upon which it feeds a disease known as curly-top. The result of recent studies shows the insect's distribution in this state, the occurrence of curly-top, its economic importance, and seasonal development. (Bulletin 205)

Tomatoes for Canning and Shipping.—Utah's annual requirement of 20,000,000 tomato plants can be met with home-grown stock, according to station authorities, provided good hotbeds are used and properly managed. Directions for hotbed construction and management are given in Circular 63 which deals at length also with tomato culture, harvesting, and marketing.

Onions in Utah.—Onions now are one of Utah's leading truck crops. Several places in the state are adapted to the culture of a superior kind of onion which is finding a good market. A station circular on onion culture discusses varieties, time of planting, soil and seedbed requirements, cultural and irrigation practices, harvesting, and seed selection. (Circular 64)

Better Milk.—The production of better milk increases consumption, thereby stabilizing demand. It is important, therefore, that dairymen exercise simple preparations aimed at the production of milk under the most sanitary conditions it is possible to maintain. Station Circular 69 offers helpful suggestions.

Weed Control.—Weeds annually exact from Utah farmers a toll of millions of dollars, according to Station Circular 71 on weed losses and weed control; and there is need for ever-increasing vigilance if the weed problem in Utah is to be solved. Weeds can be controlled, the circular states, by observing rigorously three principles:

- (1) The prevention of weed seeds from being brought to the farm
- (2) The prevention of weeds from going to seed
- (3) The prevention of any growth above the ground (in the case of perennials)

Brooding and Feeding Chicks.—"The poultry raiser who does not plan and lay the foundation for a better flock each year is missing an opportunity to increase his financial returns and to make each year's poultry crop more secure." This is the introductory statement of Station Circular 72, giving definite recommendations on types of brooder stoves, temperatures to be maintained, plans of brooder houses, methods of disinfection, and the feeding of chicks.

Soft-Curd Milk for Infants.—The physical character of the curd in cows' milk varies widely, some curd being relatively hard whereas other curd is soft. This variation holds true for the milk from different cows in the same herd. Station investigators have shown that the curd character of milk is an index of its digestibility by infants, soft curd being more easily digested than hard curd. A simple test for determining the relative hardness of curd has been devised, which is being widely adopted by mothers and infant-feeding specialists. (Bulletin 207)

Economics of Apple Industry.—A comprehensive economic study of Utah's apple industry shows the grower's relation to state, regional and national production and emphasizes the need of growing varieties of high market demand in a favorably located orchard and under efficient orchard management. (Bulletin 208)

Feed High-Producing Cows.—Profits from the dairy herd depend in large measure upon the production capacity of individual cows. This fact is emphasized by recent studies of cost and net return from cows in the experimental herd, the results of which stress the further fact that, so far as the practical dairyman is concerned, the appearance of his cows is less important than their performance records. (Circular 75)

Delayed Harvesting and Quality in Wheat.—Dark hard wheat does not deteriorate in quality upon standing in the field even if subjected to alternate wetting and drying for nearly 50 days after ripening. This conclusion is reached after careful study at the Nephi Substation. The study was made to answer the perplexing question that had arisen among users of combined harvester-threshers as to the effect of delayed harvesting on the quality of dry-farm wheat. (Reprint from technical journal, not available for general distribution.)

SOME OF THE MANY OTHER STUDIES IN PROGRESS

Among the studies in progress, which have not yet yielded results for formal publication but which are expected soon to contribute largely to the solution of many stubborn farm problems, may be mentioned those pertaining to:

Insect pests, as the chalcis-fly, which attacks the alfalfa-seed crop; the sugar-beet leafhopper, of tremendous economic importance; the potato psyllid, responsible for the disease known as "yellows"; grasshoppers; wheat-stem maggots; and many others.

Seasonal Supplies of Irrigation Water.—By the collection of data on winter precipitation by means of seasonal snow surveys and on summer precipitation by means of high level rain gages, it appears that forecasts may soon be made fairly accurately indicating the total amount of water available for crop production under the streams being studied. Precipitation runoff is also being studied, as well as streamflow characteristics. These investigations are of great economic value to the farmers of the state as well as to livestock men with cattle and sheep pastured on the range during the open season.

Plant disease control, with special reference to psyllid yellows in potatoes, responsible for approximately \$500,000 annual damage to the Utah potato crop; chlorosis, affecting a great variety of crop plants, including tree fruits; western yellow blight of tomatoes, bacterial blight of alfalfa, and others.

Home and Community Problems.—Emphasis is being placed on economic studies to determine farm income and outgo; surveys to learn living standards of farm families; and investigations of social conditions affecting farm families in various communities of the state.

Commercial Fertilizers.—Experiments are under way to determine the place of commercial fertilizers in Utah agriculture.

Livestock Feeding.—Feeding experiments are being conducted with dairy cattle and with range lambs to determine the relative value of home-grown feeds.

Underground Water.—The location, extent, and economic importance of underground water supplies comprises the basis of a study which doubtless will have a tremendous bearing on agricultural development in Utah.

Drainage of Water-logged Land.—The difficulties encountered in attempting to drain water-logged land, especially where artesian pressure and alkalinity are complicating factors, are being studied in a comprehensive manner.

When to Pick Peaches.—Studies begun in 1925 with the Elberta and Early Elberta varieties of peaches in seven counties of the state indicate that the best picking time is when the fruit acquires a distinct yellow color on the unblushed side; spoilage becomes high when a distinct orange color is evident. As the result of this preliminary study growers are believed to be realizing substantial benefits through securing better keeping quality in their peaches.

Irrigation, Fertility, and Rotation.—Long-continued field tests have proved (1) that the highest yield of corn may be obtained with about 20 inches of irrigation water; (2) that manure is essential to the successful production of all irrigated crops, especially sugar-beets, alfalfa, potatoes, and corn—15 tons of manure to the acre giving the highest yield of corn; (3) that rotation is essential to successful crop production through a period of years, especially where disease and insect injury threatens.

A Stiff-Strawed Wheat.—A new wheat called Utac, bred at the Experiment Station, apparently withstands lodging in areas where other varieties have failed to do so. The new variety has an exceptionally stiff straw. It also yields remarkably well—several bushels higher than the standard varieties with which it has been compared. Seed of Utac may be available for commercial planting in the fall of 1929.

HOW RESULTS ARE MADE AVAILABLE

The results of research reach the farm homes of Utah through (1) official bulletins and circulars, (2) articles in the public press, (3) county agricultural and home demonstration agents, and (4) public addresses. During the biennium (1927-28) the Experiment Station widely distributed in the state a total of 48 publications. In addition, numerous technical papers were contributed to scientific journals, thus keeping the work of the Utah Station before research workers in all other states.

SOURCE OF SUPPORTING FUNDS

The Experiment Station is a state institution supported by appropriations made biennially by the State Legislature. Supplementing the State funds thus provided are three Federal funds, uniformly available each year to the Experiment Station of each state of the union. The State funds apply largely to maintenance and operation, the respective Federal funds to specific fields of research. Through this cooperative relationship the state secures many benefits not otherwise attainable.

The problems now being studied by the Experiment Station comprise only those for which funds are available. It is realized that other problems, of equal importance, await solution. As soon as any problem under study is solved, another is taken up: But it is impossible to extend available funds to additional problems without sacrificing effectiveness in all fields of research.