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Circular No. 56 - Summary of Publications

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SUMMARY OF PUBLICATIONS

Circular No. 56 contains summaries of publications of the Utah Agricultural Experiment Station issued since September, 1924. The publications of this Station are no longer sent to a general mailing list (except in case of libraries) but are sent only on request. Therefore, copies of any of the publications listed will be sent without charge to those requesting them as long as the supply is available. However, in case of abstracts of scientific and technical papers the supply is very limited and the requests for these should be limited as far as possible only to those who are especially interested in this phase of experimentation.

Check those publications desired, FILL IN NAME AND ADDRESS in space provided above (write legibly), place this circular in a stamped envelope, and return to

Division of Publications,
Utah Agricultural Experiment Station,
Logan, Utah, U. S. A.
About sixty different lines of investigation, ranging from experiments in sweet-cream buttermaking to best methods of rotation and maintaining the fertility of the soil and including many other problems of major importance to the farmers of the state, are reported in this publication. The bulletin reports the administrative, research, experimental, and other activities of the Station for the years 1923 and 1924. This is especially noteworthy since no such publication has been issued since 1906, when the last annual report (No. 17) of the Experiment Station was published.

This bulletin reviews the possibilities and present status of the Cache County Water Conservation District No. 1, located in Cache Valley, Utah. In general it is shown that (1) the area contains 7373.38 acres of land to which water is allotted; (2) the district is well-supplied with transportation and educational facilities; (3) the climate is well suited to the growing of such crops as alfalfa, grain, sugar-beets, corn, beans, peas, and some truck crops; (4) the land has good surface drainage; (5) approximately 4200 acres of land in the tract can be irrigated with very little additional expense; (6) certain native plants growing in the district are an index to the presence of salt; and (7) the water-supply of the district is ample.

This publication reports the results of storing various grades of flour on which yearly analyses were made. The following results are noted: (1) Highly-milled flour made from sound wheat can be stored in dry rooms free from odors for at least four years, without deteriorating. (2) Flours of poor grade and whole-wheat flours under the same conditions deteriorate during this period. (3) The moisture content of the flour as well as of wheat approaches a constant of 8 per cent. (4) The water-soluble phosphorus increases due to storage coming principally from the phospholipins of the flour. (5) The soluble carbohydrates increase, whereas the acidity decreased at first but later increased. (6) The rate and extent of increase varied with the flour; it was more rapid and greater in poor-grade flours than in high-grade flours. (7) The bread-making properties of flour increased for a time on keeping.

The insect pests of sugar-beets are considered under two main heads in this circular. In the first group are treated those insects that feed
on the tops of foliage, while in the second group are placed those insects that feed on the roots of the beet. In the first group are included the sugar-beet leafhopper, sugar-beet webworm, sugar-beet armyworm, grasshoppers, beet leaf-miner, false chinch bug, flea-beetles, and blister-beetles. In the second group (those insects that feed on the roots of sugar-beets) are included the sugar-beet root aphid, sugar-beet root-maggot, white grub, and wireworm. Each insect is described in detail with a complete life history and methods of applying control measures.

Circular 55—Rules and Regulations for Second Utah Intermountain Egg-Laying Contest

Byron Alder

General information is given in regard to the second egg-laying contest which is to be held by the Poultry Department of the Utah Agricultural Experiment Station from November 1, 1925 up to and including October 30, 1926.

ABSTRACTS OF SCIENTIFIC AND TECHNICAL PAPERS

The Influence of Manure and Irrigation Water on the Carbon, Phosphorus, Calcium, and Magnesium of the Soil (In SOIL SCIENCE, Vol. 19, No 2, pp. 87-97) by C. T. Hirst and J. E. Greaves. This paper represents a study made at the Central Experiment Station at Greenville of the carbon, phosphorus, calcium, and magnesium of the soil with manure and irrigation water applied as a variable. The plats received no manure, five, and fifteen tons an acre of manure with no irrigation water, 20 inches of irrigation water, and 40 inches of irrigation water. At the time of the analysis the soil had been receiving the same treatment for twelve years. It was fallow and kept free from weeds. From the work the following tentative conclusions can be drawn:

The application of manure to this soil tends to widen the carbon-nitrogen ratio, whereas irrigation water narrows it. The phosphorus applied to the soil with the manure was found distributed in the first, second, and third foot-sections, with the greater quantity of it in the first foot-section. The results point to the conclusion that the irrigation water has caused a concentration of the phosphorus in the surface root-sections which might be otherwise if excessive quantities of water were used. The unmanured soil was losing 1393 pounds an acre of calcium oxide from the first acre-foot, 3318 pounds from the second, and 3475 pounds an acre-foot annually from the third. The loss was increased by manure, but was less as the irrigation water applied increased.

Magnesium carbonate, being more soluble than the calcium carbonate, is carried from the soil more rapidly than is the calcium carbonate. This also is being rendered more soluble by the organic matter. The percentage distribution within the three feet is not greatly changed either by manure or irrigation water. The calcium-magnesium ratio is widened by both organic manure and irrigation water.

*The supply of Scientific and Technical Papers is very limited and it may not be possible in all cases to supply requests made.