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COLLEGE OF
AGRICULTURE
BERKELEY, CALIF.

A DAY AT THE UTAH AGRICULTURAL EXPERIMENT STATION

By

M. C. MERRILL, O. W. ISRAELSEN,
and BYRON ALDER



CIRCULAR NO. 39

Utah Agricultural College
EXPERIMENT STATION

Logan, Utah

December, 1918

A Day at The Utah Agricultural Experiment Station



By

M. C. MERRILL, O. W. ISRAELSEN,

and BYRON ALDER



The oldest inhabitant

FROM the days when Indian chieftains with their hostile bands roamed the sagebrush areas of Utah down to the present, nature's forces have been subdued by many a daring and successful conquest thru the intelligence and unyielding perseverance of Utah's pioneers. Since its establishment, the energies of the Agricultural Experiment Station have been directed toward a continuance of this conquest.

The earth and the waters, the plants and the animals have been conquered and applied to the beneficial uses of man. Bounteous harvests and an abundance of livestock have been produced. Where

dreary desolation and the red man once reigned are now found the happy homes of the prosperous Utah farmers.

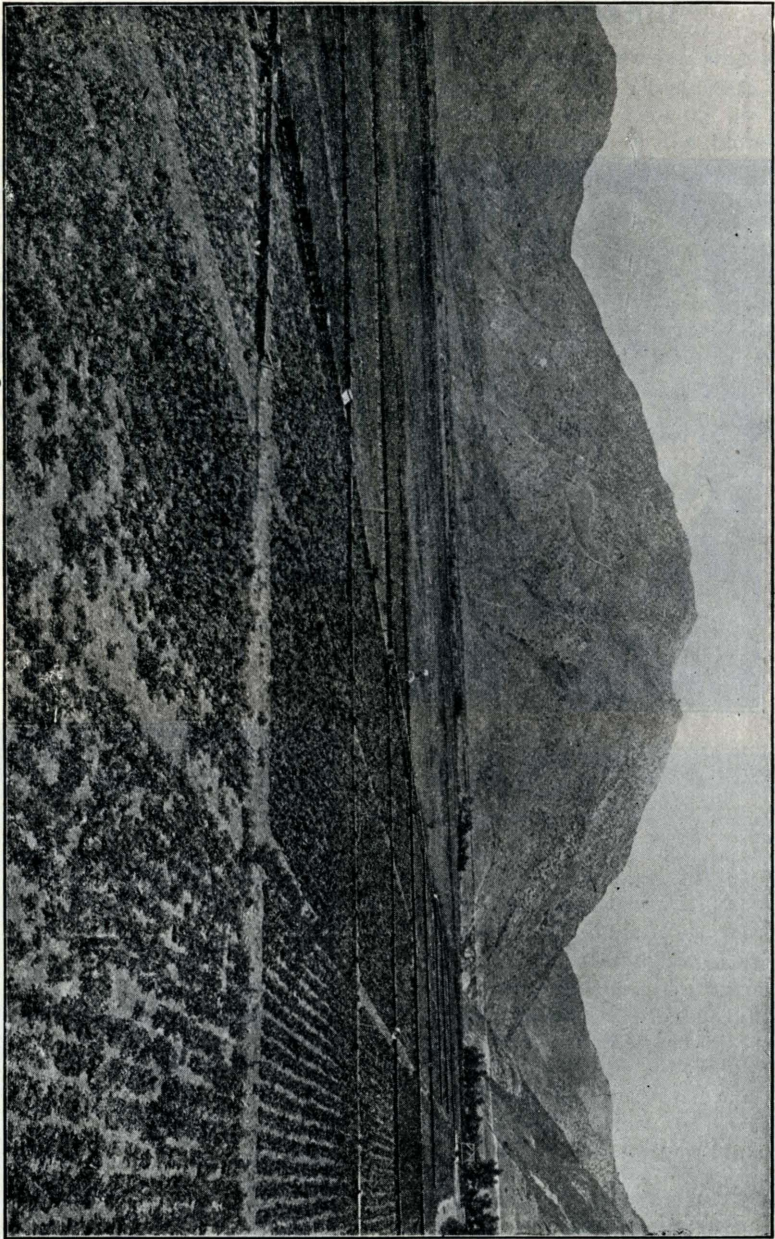
The Agricultural Experiment Stations of the United States were authorized by act of Congress March 2, 1887. The Utah Experiment Station was established by an act of the Territorial Legislature in 1888, and in 1890 it was officially organized for work.

During the twenty-nine years that have come and gone since that epochal event in Utah's history, the Agricultural Experiment Station has earnestly investigated numerous important problems pertaining to the agricultural development of the territory and state, and has in consequence added millions to the wealth of the people. Soils and waters have been analyzed; breeds of livestock and poultry improved; varieties of field crops, fruits, and vegetables have been tested; insect pests and plant diseases studied and control measures ascertained; the best use and disposal of water determined by careful irrigation and drainage experiments; the proper care and feeding of livestock and poultry and the control of their diseases have received profitable attention; the climate of Utah and methods of avoiding damage by frost and other agencies have been given consideration—all these and many other problems have been investigated, and, in part, solved. In short, the aim has been to discover the unknown facts of nature's laws that would promote the agricultural prosperity of Utah and to make these facts known to the people of the state in order to enhance their happiness and material welfare.

An idea of what has been done by the Station since its establishment may be obtained by referring to the lists of the 165 bulletins and 38 circulars which are given at the end of this circular.

Much as has already been accomplished, however, it is only a fraction of the countless problems yet awaiting solution. The state is growing in wealth, the population is increasing. New conditions are constantly arising and bringing with them additional phases of work for investigation.

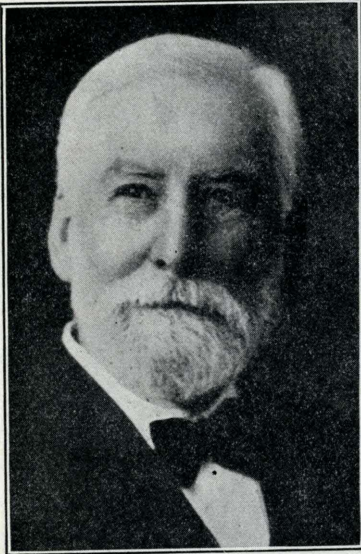
To meet the demands of the present and to prepare for the needs of the future, the energies of the Station Staff are being vigorously directed.



Experimental Plots of the Utah Experiment Station

J. H. Paul
1904-05

DIRECTORS OF THE UTAH EXPERIMENT STATION

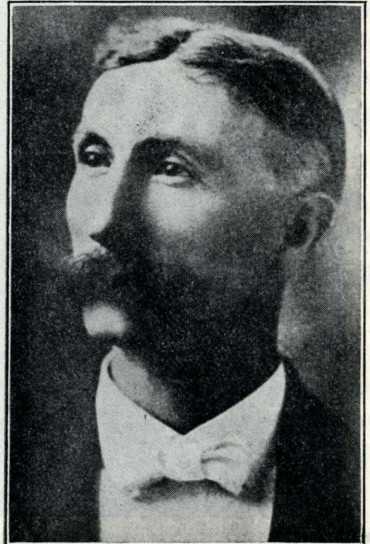


J. W. SANBORN
1890-'94

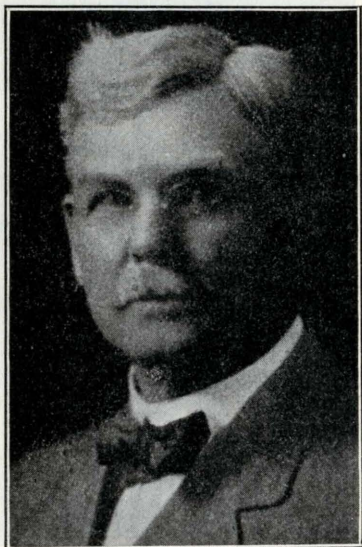
AS was the case with his predecessor, Professor Paul also occupied the dual position of President of the College and Director of the Station. During this time both institutions continued their growth under his able direction, but it was to the college phases of the work that he necessarily had to devote most of his energies. The two positions had grown to such proportions that they were more than one man could successfully fill.

UPON Professor Sanborn, the first President of the Utah Agricultural College, and at the same time the first Director of the Experiment Station, fell the honor and responsibility of organizing and directing the work of the Station in its initial stages. This task he did thoroly and well, and established the scientific basis of research of permanent value to Utah farmers.

Director Sanborn was very greatly interested in agricultural experimentation. He was the author of twenty-four of the early bulletins published by the Station.



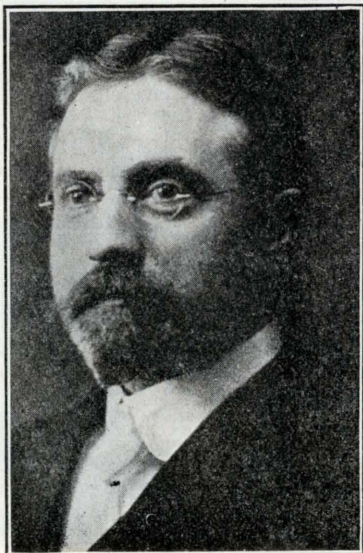
J. H. Paul
1894-'96



Luther Foster
1896-1900

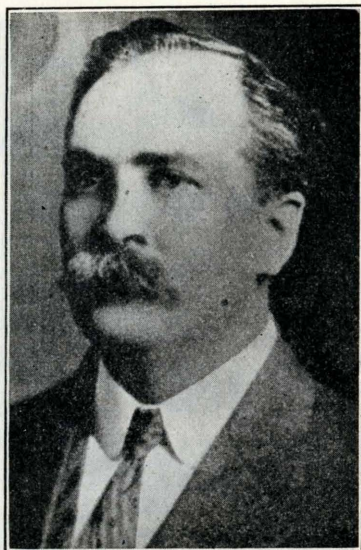
WHEN Professor Foster was appointed to the directorship of the Station, it had come to be realized that, because of the increasingly multitudinous duties of each office, the position of President of the College and that of Station Director should be separated. Director Foster was therefore free to devote his abilities to the prosecution and direction of the experimental work of the Station. This he did in a very excellent way which redounded to the good of Utah.

DR. WIDTSOE'S breadth of vision in science, his demonstrated native abilities, and his ceaseless energies were all manifested in numerous ways while he was in charge of the Station's activities. The result was that the Utah Station achieved a high plane of recognition among her sister institutions thruout the country and at the same time won international fame. The work done along dry-farming, irrigation, and similar lines has ever since been considered notably authoritative. Being a voluminous writer, Dr. Widtsoe wrote many books and bulletins while he was Director.

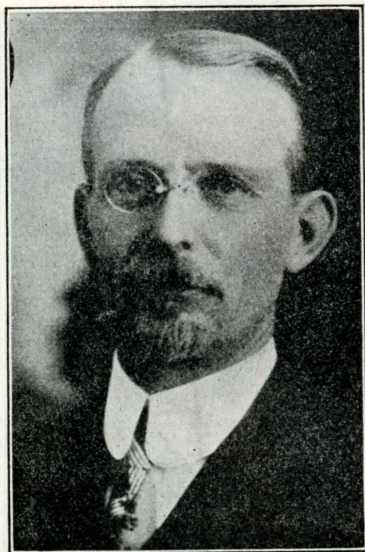


John A. Widtsoe
1900-'05

DR. YODER occupied the directorship but two years. Even in that short time, however, he attained eminent success and won recognition as an able and careful manager of the Station's affairs. He was a well-trained chemist and in all his work he exhibited those painstaking qualities of precise attention to details that characterize scientific work of the highest type. He won especial distinction by his ingenuity in designing and constructing apparatus for various lines of agricultural research.



P. A. Yoder
1905-'07



E. D. Ball
1907-'16

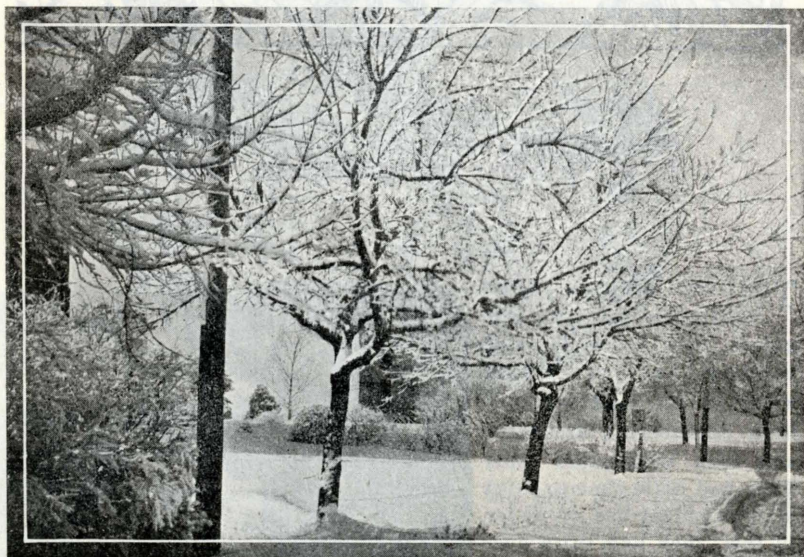
OCCUPYING the position longer than any of his predecessors, Dr. Ball accordingly made a notable record of achievement that placed him among the nation's leaders in scientific accomplishments. His aggressive energy and his tenacious ability to work unceasingly at a problem until he had it solved, coupled with his splendid training and his thorough scientific attitude, formed a powerful combination for effective accomplishments. It was in the field of entomology and in the control of injurious insect pests that he made his greatest contribution of service to the welfare of the state.



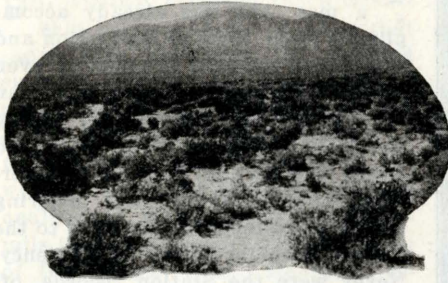
F. S. Harris
1916—

THE present Director, Dr. Harris, is a man who has already accomplished great work of distinction and who gives splendid promise of even greater achievement. He is a man of remarkable powers for doing countless things of both large and small import, and it is in considerable measure due to his inspiring ability to systematize his work to the highest possible degree of efficiency. Never were the Station records, offices, project plans, reports, books, bulletins, and miscellaneous administrative affairs in better shape. Systematic efficiency is verily personified in Dr. Harris.

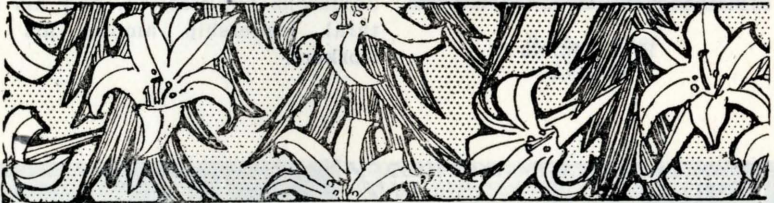
In agronomic lines he has won national fame by reason of his careful and extensive researches, his numerous publications, and his natural leadership among his co-workers.



Winter scene on the campus with the Station office building
in the background.



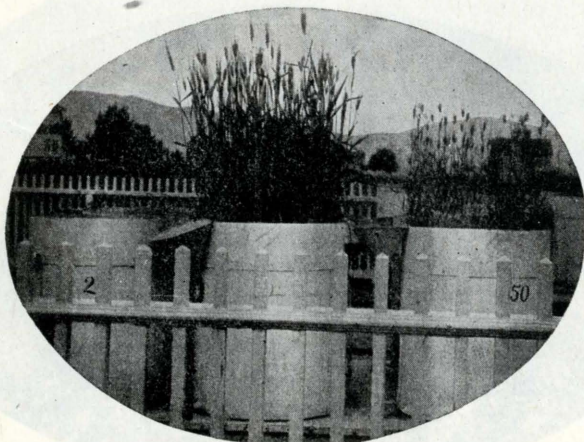
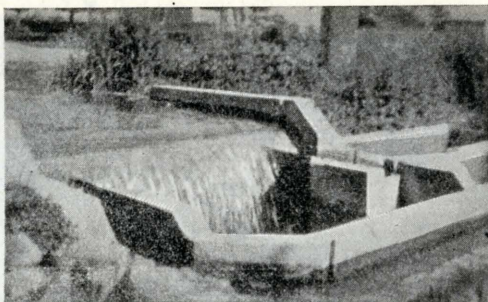
MANY deserts such as this, have been made productive by the sturdy pioneer irrigators of Utah.



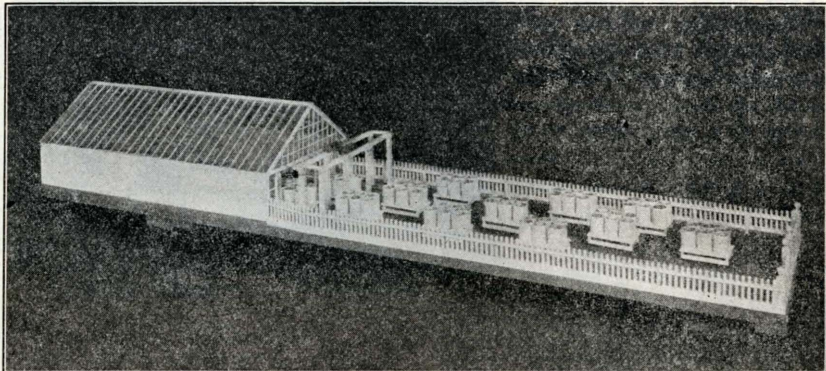
THE first problems which confronted the Utah irrigators were those of canal building and of getting water to the land with but little engineering assistance and with inadequate tools. They had little time to think of economical use of water. In fact, they had little need for doing so since there was at first plenty of water for all.



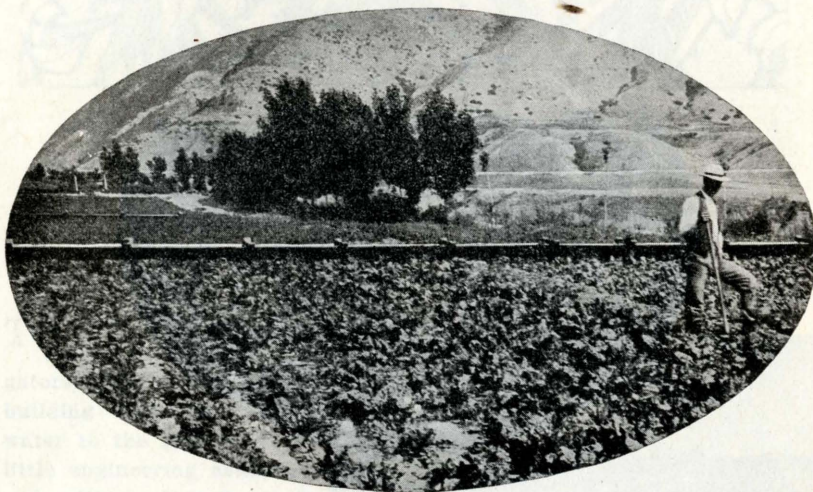
THE Utah Agricultural Experiment Station early recognized that the state's ultimate growth must depend on economical use of water and that accurate division to various users would become a real necessity.



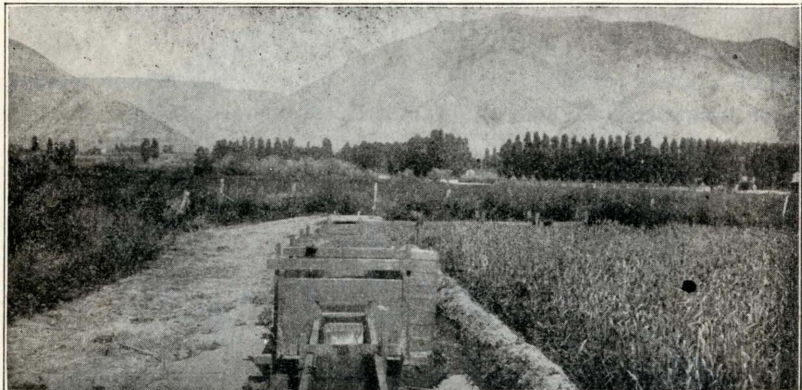
THE Experiment Station concluded that the first step necessary in the study of the principles underlying economical use of water was to find just how many pounds of water were required by different plants to produce one pound of plant substance.



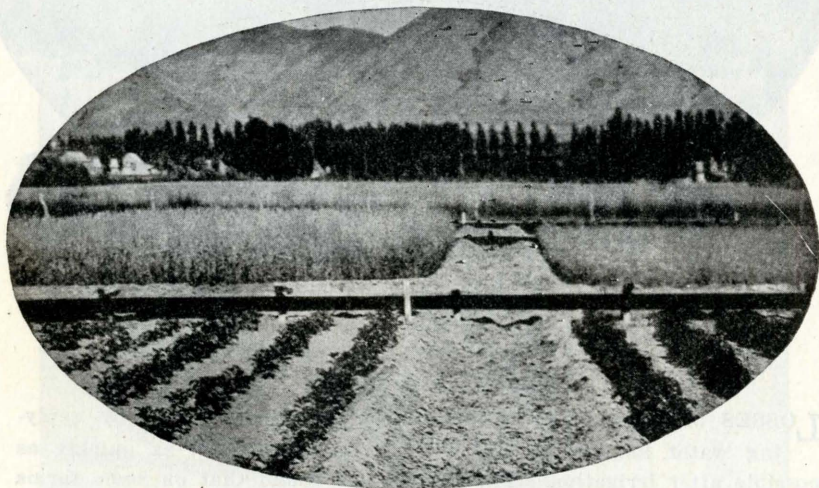
THE large tanks which were used for determining the amounts of water really needed by different crops were kept in a specially prepared greenhouse, where the atmospheric conditions were controlled.



GREENHOUSE experiments, although of great value to agriculture, are insufficient. The Station therefore early selected a typical Utah farm for its irrigation experiments, in order more nearly to approach practical problems.

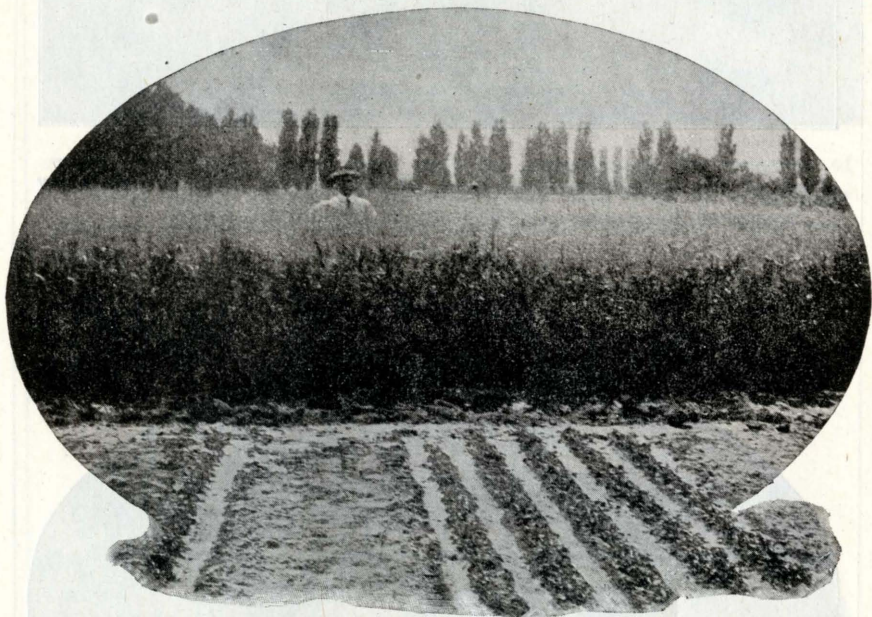


ALL of the irrigation water used on the Station farm is accurately measured by means of Cipolletti, or trapezoidal weirs.

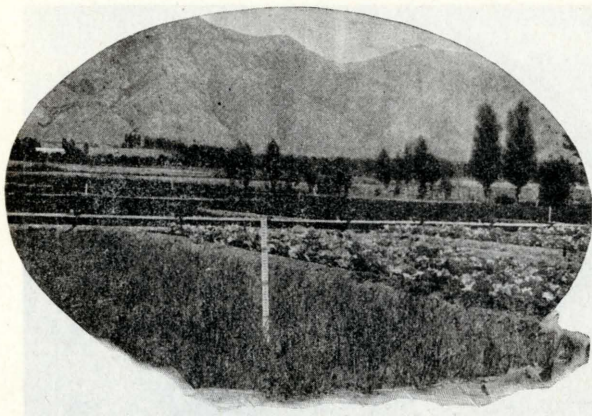


IRRIGATION water given to the experimental plats on the Station farm is uniformly distributed from carefully constructed flumes; records are also made of the exact quantities of water applied.

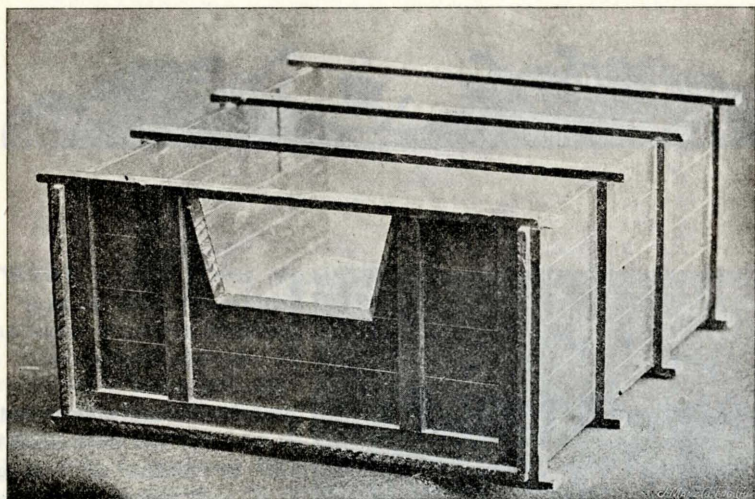
THAT a great saving of water can be made by the furrow method of irrigation was long ago definitely determined.



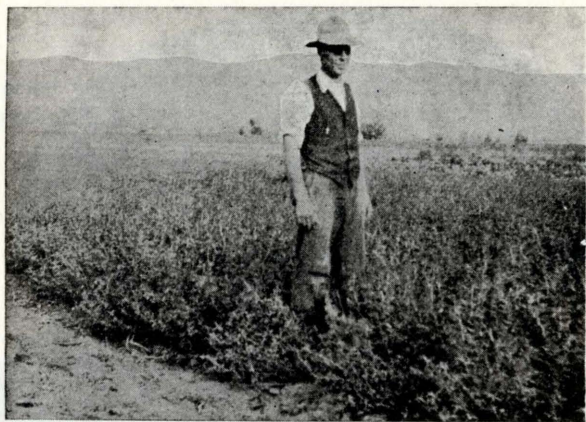
LOSSES of moisture by evaporation are reduced largely by applying water in furrows and by cultivating the soil as quickly as possible after irrigation. The Station has found that on some farms which were irrigated by the flooding method and not cultivated, the soil contained actually less water five days after irrigation than it did immediately before the water was applied.



THE water needs of many different crops have been carefully investigated on the soil of the Station farm and should be studied on other typical soils in Utah.



THE trapezoidal weir and other water measuring devices now being used at the Station will eventually become as valuable to irrigation companies and to practical irrigators as they now are to experimenters.



IT is clearly impractical to apply the results of irrigation experiments made on the soil of one small farm, to all of the various soils in Utah. The Station has therefore begun to extend its irrigation experiments to larger farms on different kinds of soils.



IT has been found that a study of the soil to considerable depths by means of borings with a soil auger is fundamentally important in the design of irrigation systems.

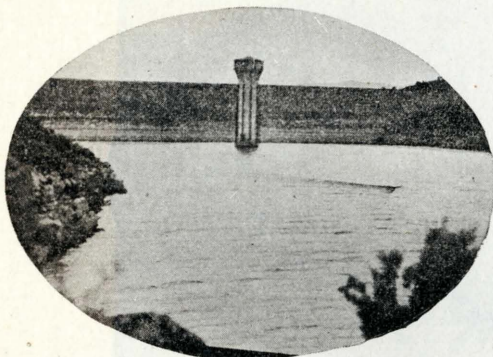


ECONOMY in the use of water cannot be obtained by giving attention only to the problems on the irrigated farms. It is also necessary that adequate canal systems be properly built and well managed. A study of canal-company organization as related to economy in the use of water is now being made.

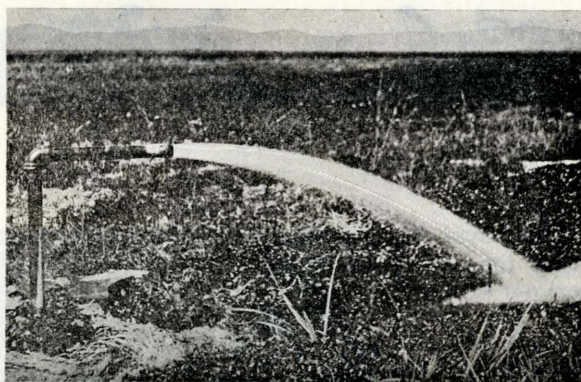


THERE are vast areas of land in Utah for which the water from our streams is inadequate, and it is gratifying to learn that the deep soils of many of our valleys contain water which can be pumped for irrigation purposes. The location of these underground bodies of water, and the devising of the best means of driving wells and of operating pumps to obtain water for irrigation are among the important problems which are now being investigated.



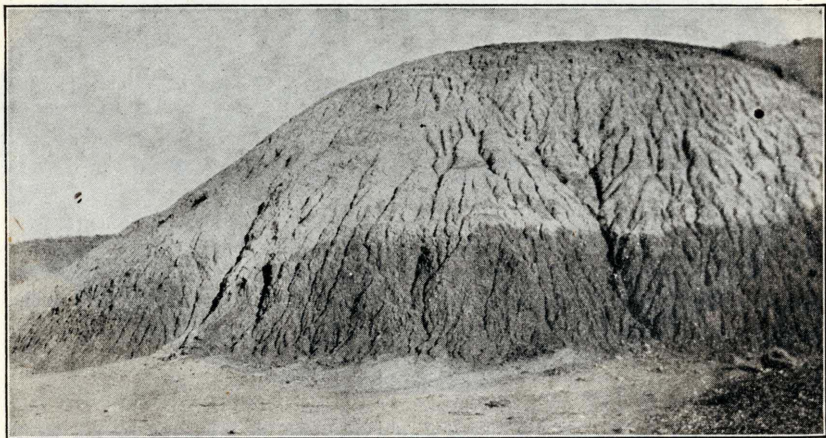


STORAGE of flood waters is destined to be an important factor in the extension of Utah's area of irrigated land. The impounding of water for irrigation brings to the foreground many perplexing problems in laws pertaining to water-rights and irrigation. The Station is now beginning to investigate these problems.



EVERY year adds to our knowledge concerning underground bodies of water. Like surface reservoirs they hold certain amounts of water and no more. If the water is permitted to run out of them faster than it runs in, they soon become exhausted. Public welfare demands that every artesian well be capped when the water is not needed for economical use.

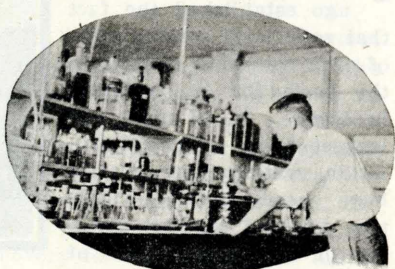
IT has long been recognized that the permanence of profitable agriculture under irrigation is largely dependent on the knowledge and control of alkali salts—substances which exist only in arid regions.



SOME mountains and rocks naturally contain large quantities of soluble plant-food. From such materials soils are formed which are really alkaline because of this excess plant-food. Other alkaline substances, which are not plant-foods, are also usually present. It has been found, however, that by careful management these soils can be farmed with profit.



THE exact nature of different kinds of alkali is determined in the laboratory by the aid of the science of chemistry. This makes possible the intelligent management of alkali soils, particularly in connection with the kinds of crops to be grown. It also points the way toward proper irrigation and forms the basis of determining the need for drainage.

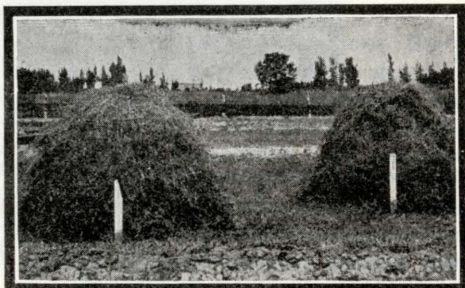




MANURING and irrigating potatoes are important phases of crop experiments. The percentage of marketable potatoes has been found to be highest under moderate applications of manure and irrigation water.



SCIENTIFIC research long ago established the fact that soils need some system of crop rotation. Alfalfa is the basis for any rotation in Utah. It is also our largest crop. Various rotation systems for alfalfa have been tested. Varieties, time of cutting, methods of curing, and time of irrigation have also been investigated.



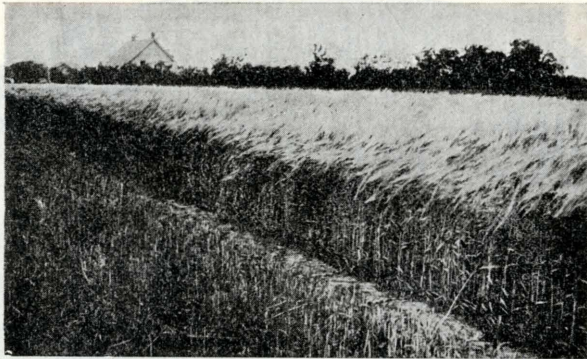


FOR a long time all of our sugar-beet seed was imported from Europe and it was thought that it could not be produced in America. The Experiment Station not only proved that it could be produced here but that it was profitable to produce it. Severe as it was, our sugar shortage would have been much worse had not this work been done.

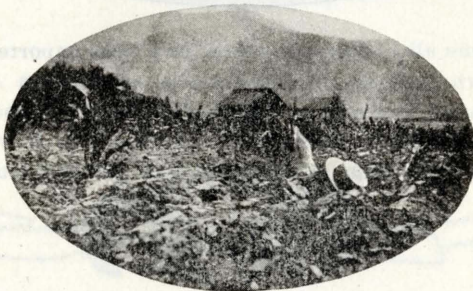


CURLY top is one of the worst diseases of sugar-beets in the intermountain states. What to do in order to control it was not known until the Experiment Station discovered it to be caused by the bite of a small insect known as the sugar-beet leafhopper. It is difficult

to measure the value of this discovery to the sugar-beet industry.



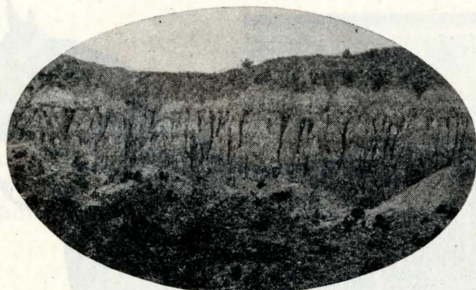
SINCE corn is not profitable for grain in all parts of Utah, some other crop had to be found to take its place. Barley has proved to be a high-yielding crop and a splendid feed.



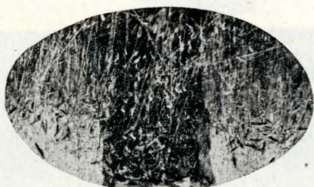
DRY-FARMING has had a varied career in Utah. Most failures have been shown to be due to poor methods. The Experiment Station has studied dry-farming problems in all parts of the state and has made an enviable reputation not only among its neighboring states but also in other countries.



DIFFERENT varieties of wheat produce different quantities and qualities of bread.

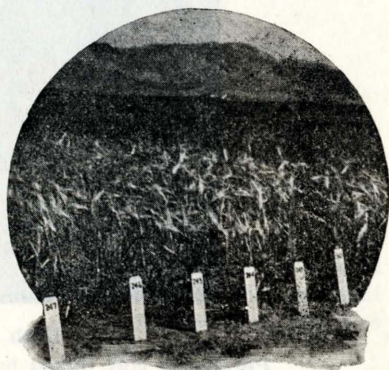


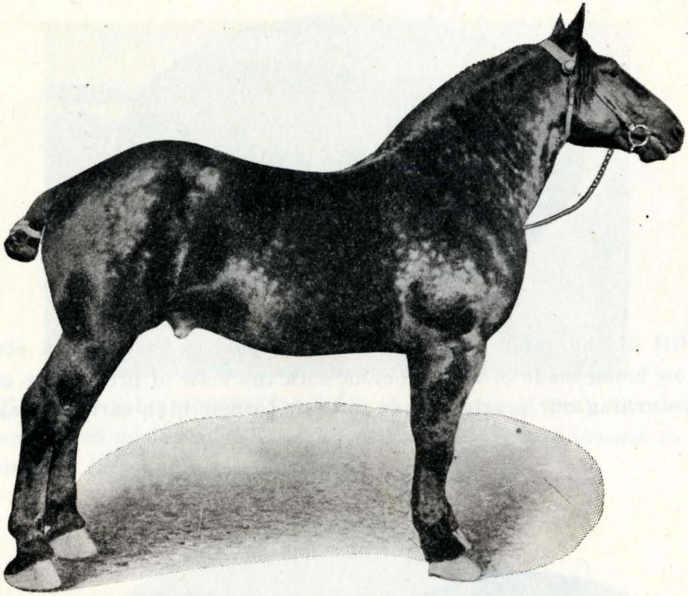
MUCH of the range land in Utah is becoming eroded. A study is now being made of this problem with the view of preventing erosion and returning our grazing lands to their former high-carrying capacity.



SMALL-GRAIN varieties have been extensively studied. They have been found to be badly mixed and to contain many wild oats. Standardization of varieties and seed certification will do much to improve both the quality and the quantity of yield.

PLANT breeding is important work now being carried on. The same variety often consists of several "lines" which breed true when properly selected. Some of these lines are tall, erect, and high yielders whereas others are poor producers and too short even for easy harvesting.





Percheron Stallion

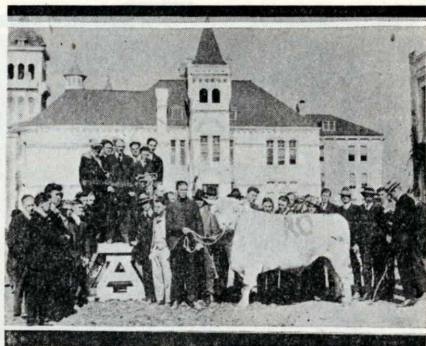
DRIFT horses of the proper type such as these always find ready sale on the market and bring a good price. They are also more efficient for farm work.



Utah Diamant

Percheron colt raised by Utah Experiment Station.

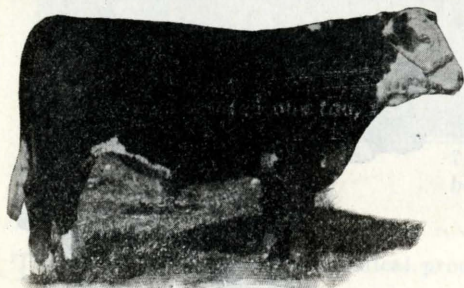
Bud White
385363
A Shorthorn Leader



THE characteristics of the shorthorns make them very desirable for range purposes. They are well adapted to Utah conditions.



A few Shorthorn matrons



Winterton's Gift

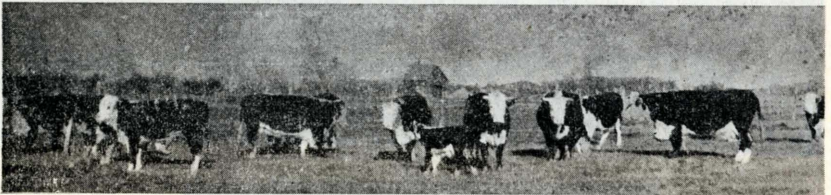
The steer donated to the Red Cross by Winterton Brothers, now being fed in the Station yards. This steer will be shown at the April show and then sold at auction. The proceeds will be given to the Red Cross society.



Bondsman 2nd
369626

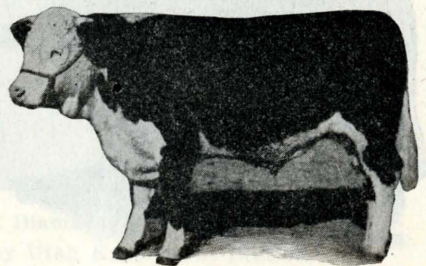
The head of the Hereford
herd at the College

HEREFORDS being one of the leading range breeds in the state of Utah the institution maintains a small herd of good breeding animals.

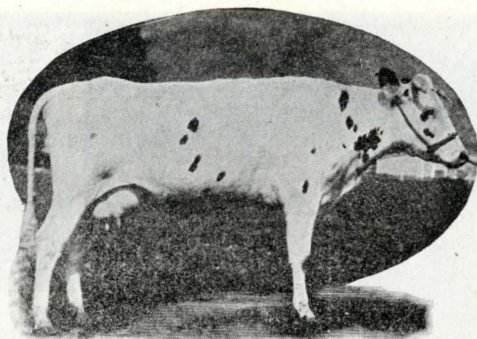


Part of the Hereford breeding herd

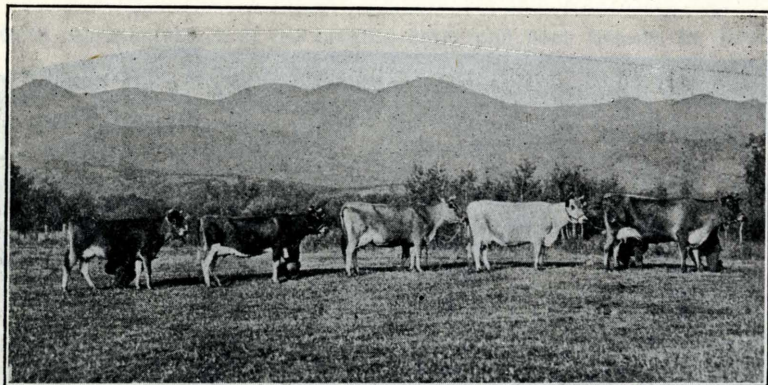
College Choice
Grand champion steer 1917
Salt Lake Livestock Show. Bred
and fed by the Station.



Marion Loganess
272176



HOLSTEIN cow bred and raised by the College. Record with first calf: 14,533.1 lbs. of milk, 430 lbs. of fat, the highest record of this breed for the age in Utah. • Because of its large size and good milking qualities, the Holstein is one of the most popular breeds in the state.

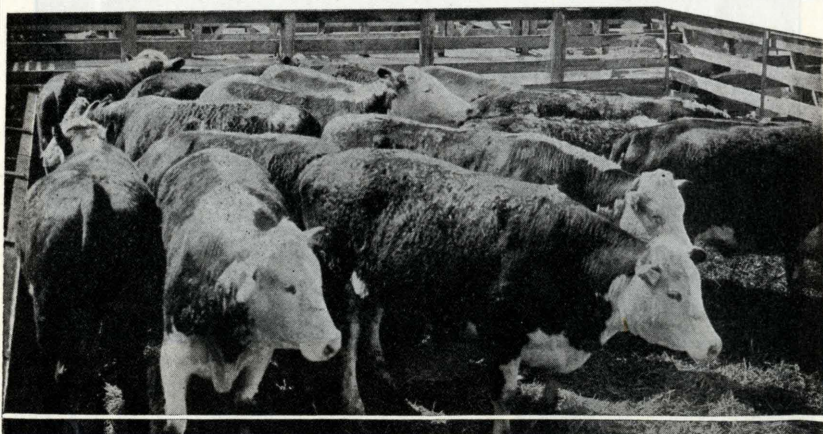
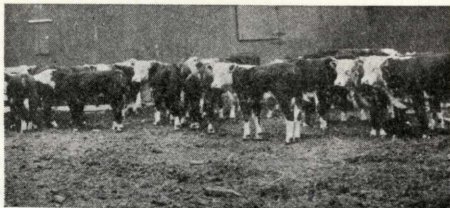


THE uniform type and economical production of the Jersey make her popular the world over.

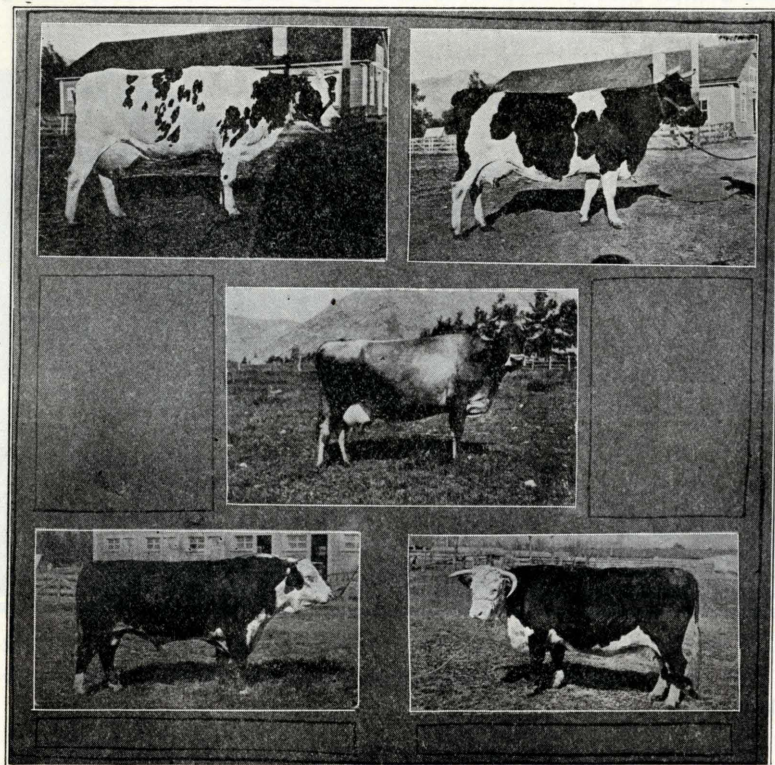


THE result of poor feeding, breeding, and management. There are too many of these on our ranges. They bring the lowest prices when marketed.

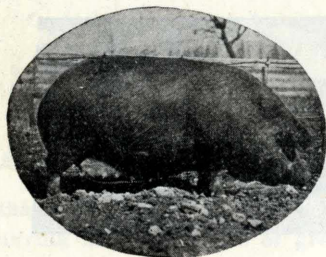
BULLS purchased by one of the Station animal husbandmen for Utah farmers in order to improve their livestock on the range.



WE need more animals of this type. These steers came from the district where the purebred bulls were used.

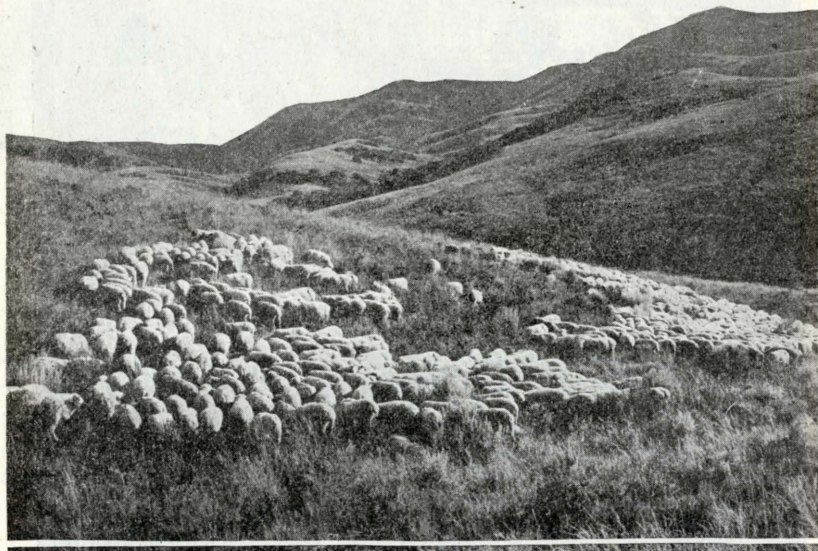


GOOD representatives of the leading dairy and beef breeds in Utah. All are owned by the Utah Agricultural College, and have enviable records in the show ring. The cows have all qualified in milk production.



DUROC JERSEY, one of the leading breeds of hogs

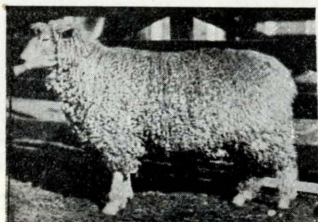
THE greater part of Utah is suitable for grazing only. Sheep raising is therefore one of the state's chief industries.

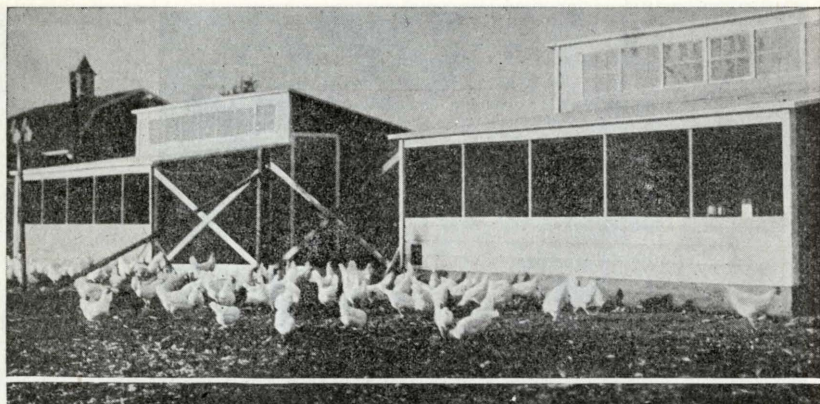


THE problems of range improvement and management are so important that investigations along these lines have recently been undertaken.

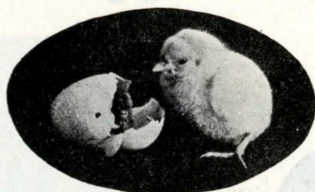


BECAUSE of its size, the Lincoln is a popular sheep to cross on range ewes on the western range.

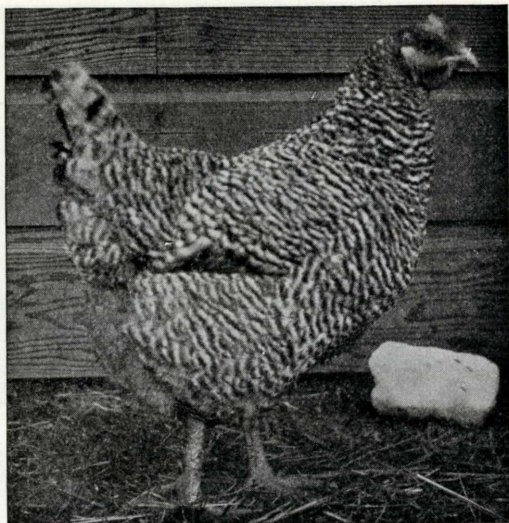




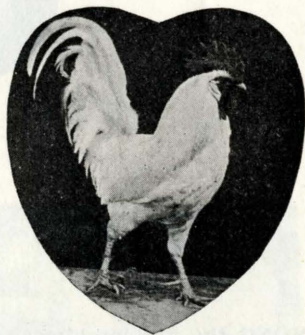
PROPER housing is very important for success with poultry. Various types of houses made of different materials have been tried. This house has given excellent results under Utah conditions.



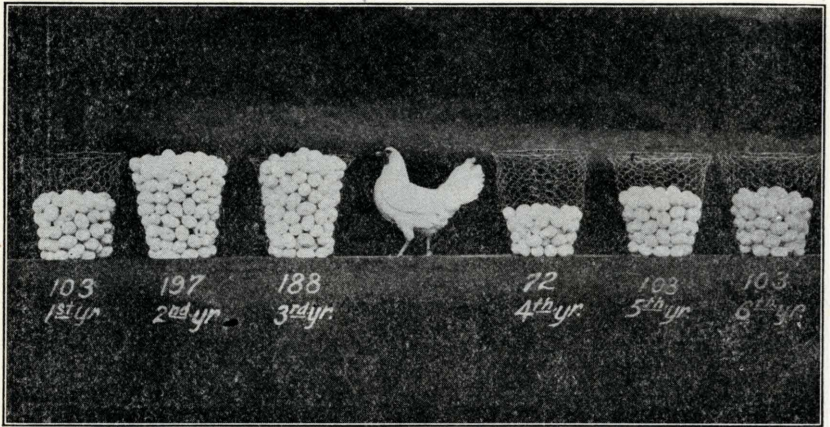
AMONG the first problems investigated by the poultry department was that of incubation. Next to temperature control it was found that moisture conditions, or the control of evaporation from the egg during incubation, are of greatest importance during the incubation.



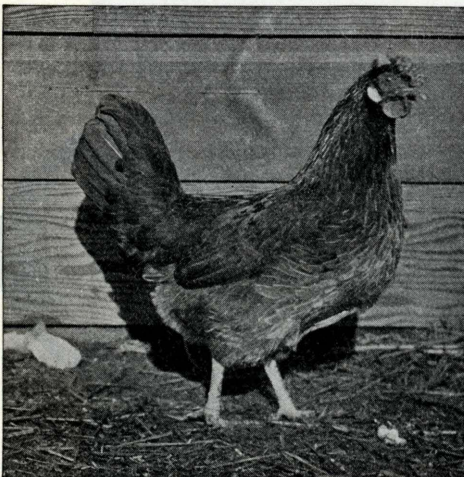
THE Plymouth Rocks, Wyandottes, and Rhode Island Reds, all American breeds, are good egg producers and excellent table fowls when properly fed and housed.



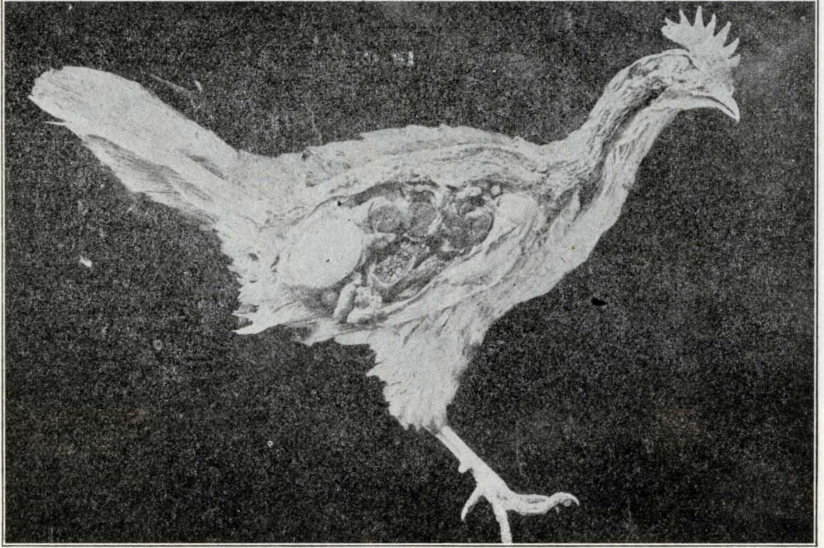
S. C. WHITE LEGHORNS are recognized by most commercial poultrymen as the best egg machine, especially for western conditions.



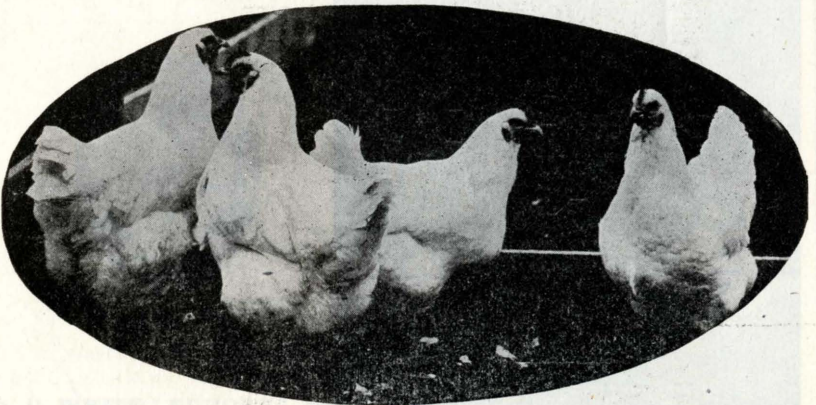
IN breeding for increased egg production some highly profitable results have been obtained and some excellent producers developed. The offspring of these high producers is being distributed over the state.



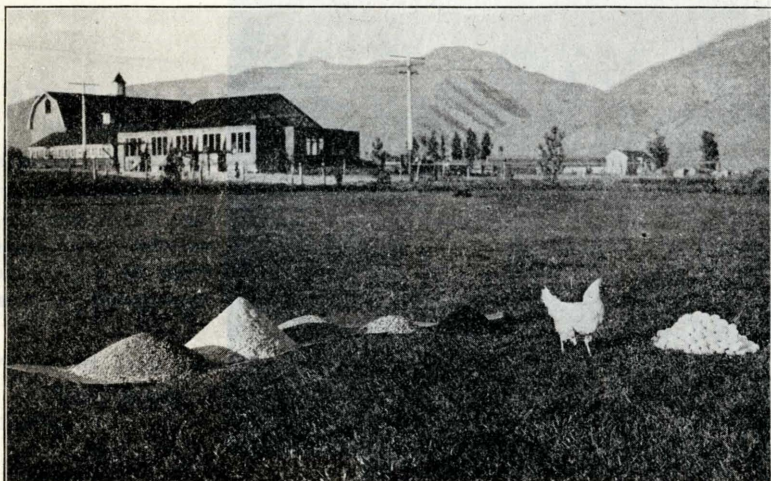
Rose Comb Brown
Leghorn



TRAP nests are expensive and require almost constant attention for best results. A method of obtaining an accurate individual egg record without trap nests has been developed which can be used by any one with practically no equipment other than that found in any poultry house.

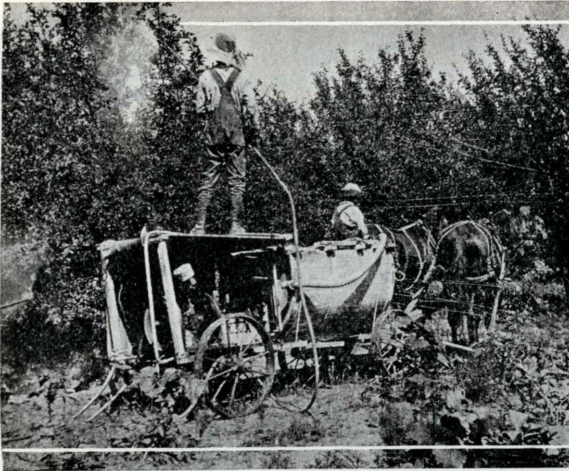


White Wyandotte Pullets



THE feed problem in experimental and practical poultry raising is of fundamental importance. A hen cannot produce eggs unless all the raw materials for their manufacture are furnished in the feed.



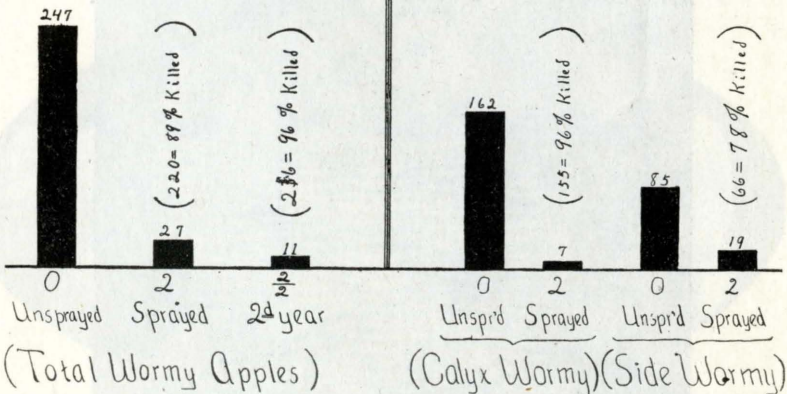


STATION investigations on spraying have made it possible to raise crops of sound and marketable apples.

What Spraying Does To the First Brood of Worms.

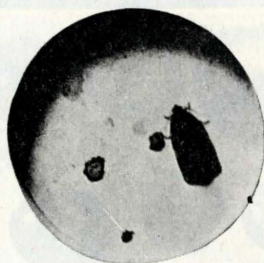
What it does

How it does it

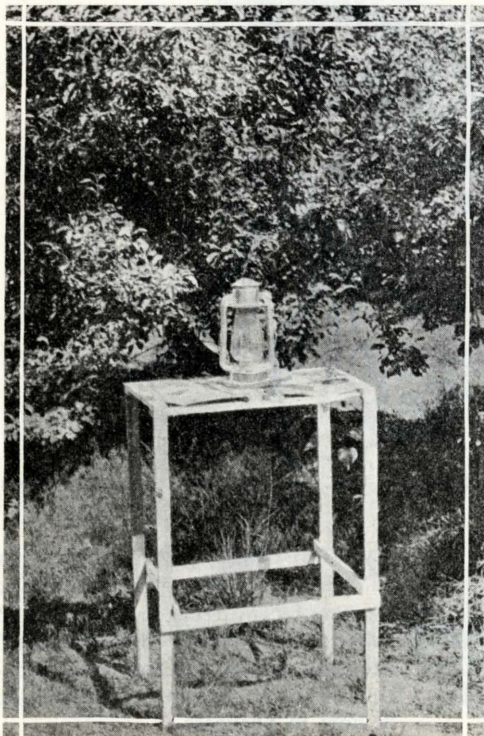
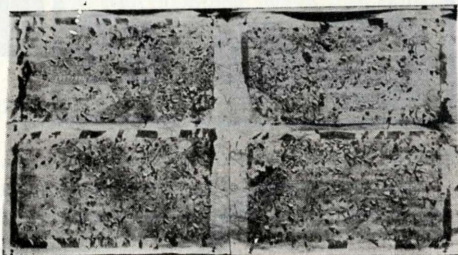


CAREFUL study and experiments have shown the proper time to spray for the codling moth.

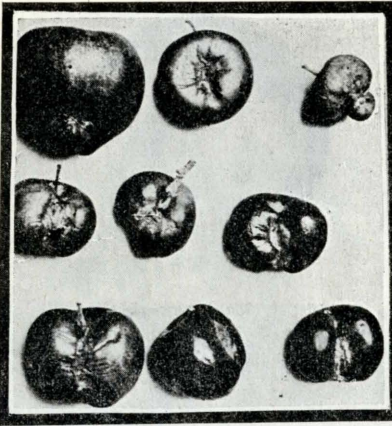
APPLE Leaf Roller. Its control has been thoroly studied.



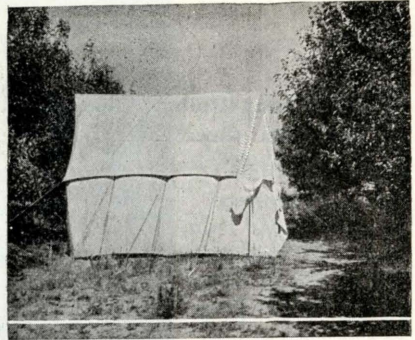
TOP of trap, showing one night's catch of over 1,000 moths.



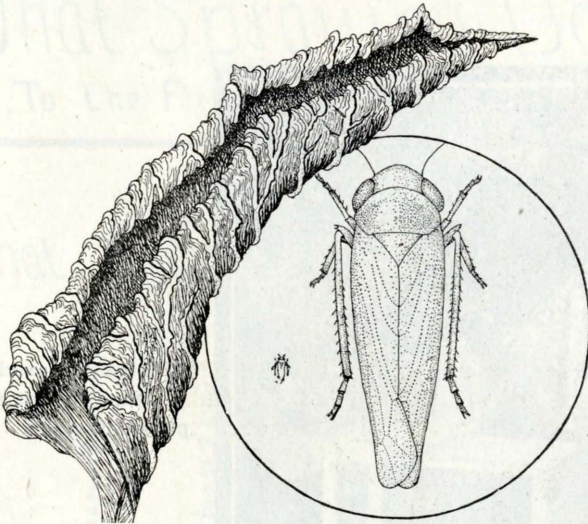
A TRAP to catch night-flying insects for purposes of study.



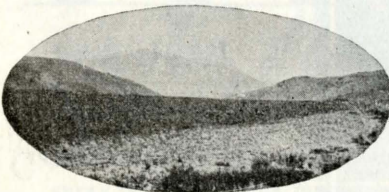
THE apple leafroller destroys great numbers of apples by eating holes in the side of the green fruit.



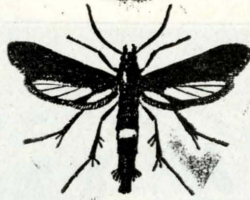
SUCCESSFUL study of insect pests often requires the entomologist to live right in the field with them. This orchard was badly infested with apple leafroller.



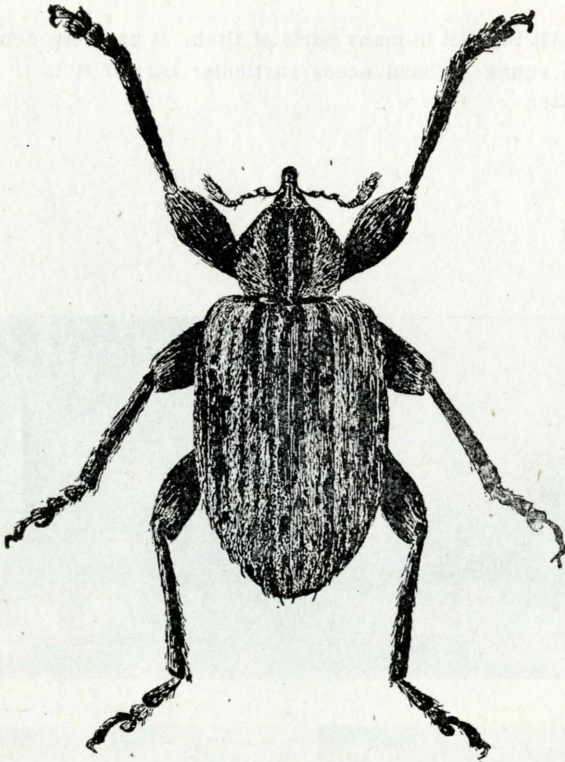
The sugar-beet leafhopper transmits the fatal blight to sugar-beets.



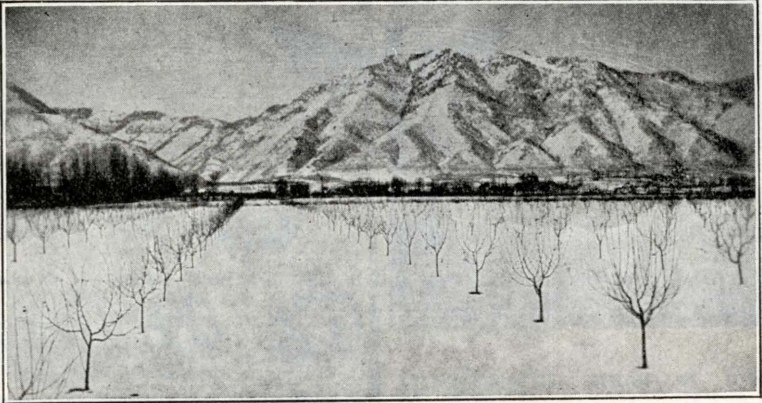
DESTRUCION of wheat by squirrels. The annual loss to farmers by squirrels, rats, mice, and rabbits can hardly be estimated. Study of means of their extermination by the Utah Experiment Station is now in progress.



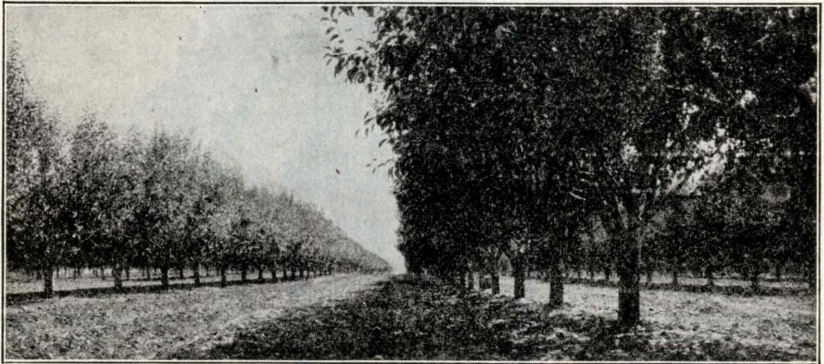
THE peach tree-borer looks very much like a black wasp. It causes serious damage to peach trees.



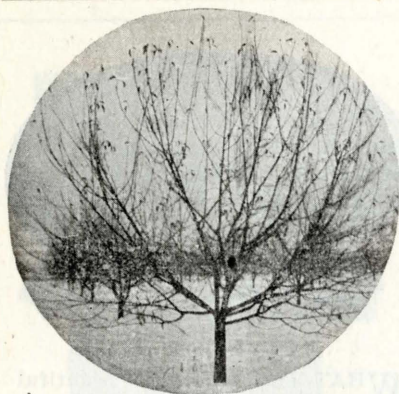
THE alfalfa weevil suddenly threatened the destruction of the alfalfa industry in the state until the Station found effective control measures.



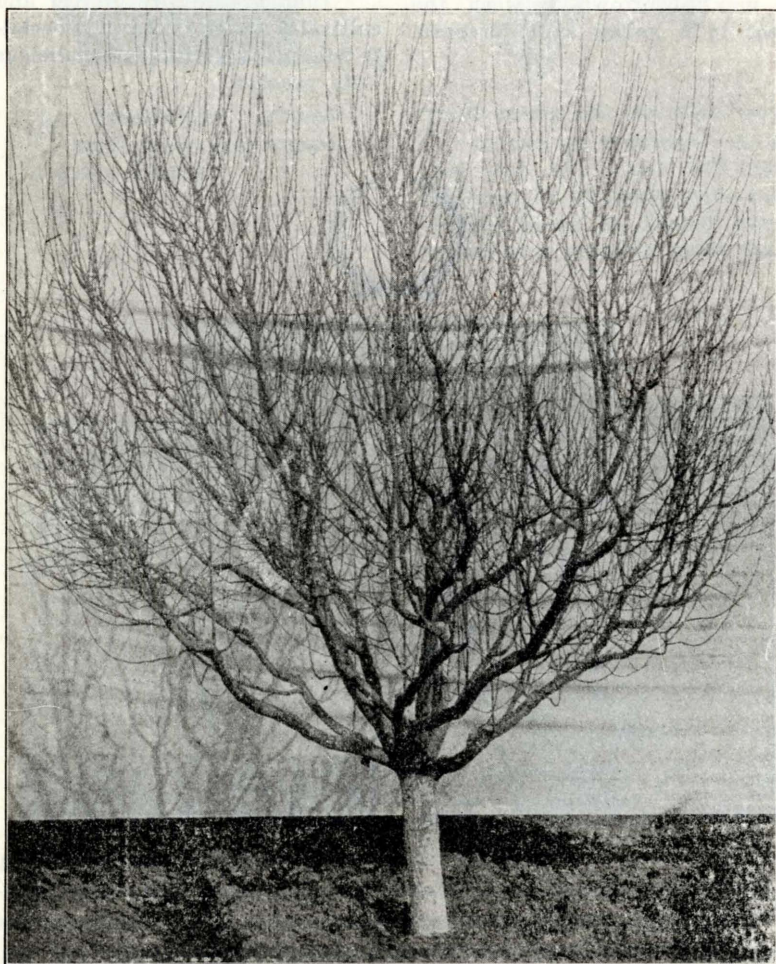
A FAMILIAR SCENE in many parts of Utah. It has been demonstrated that the young orchard needs particular care if it is to be highly profitable later.

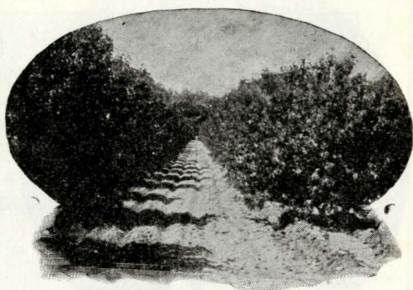
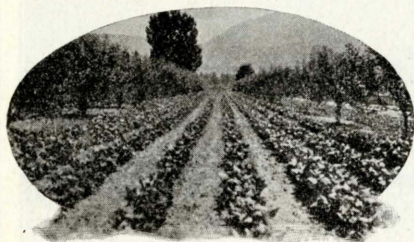


THERE seems to be reviving interest in orcharding in Utah. The Experiment Station, however, is striving to prevent an overdoing of the business by encouraging a stabilized rather than a specialized system of farming and fruit and vegetable production.



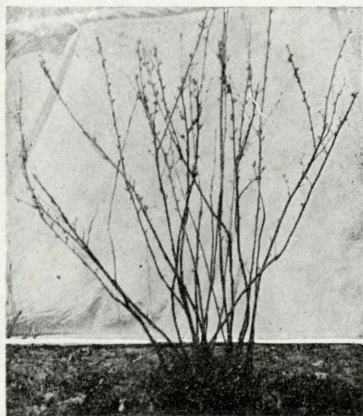
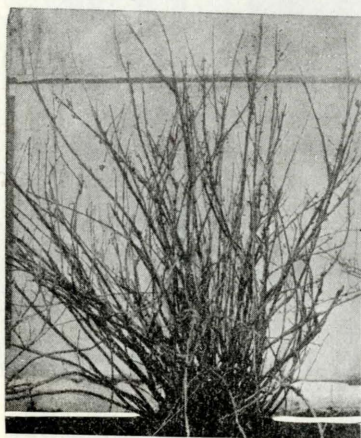
A PRUNED and an unpruned apple tree. The Station, after carrying on numerous experiments on pruning, has demonstrated that it pays to prune and to prune right.





A PROFITABLE crop of beans may be grown between the trees in a young apple orchard.

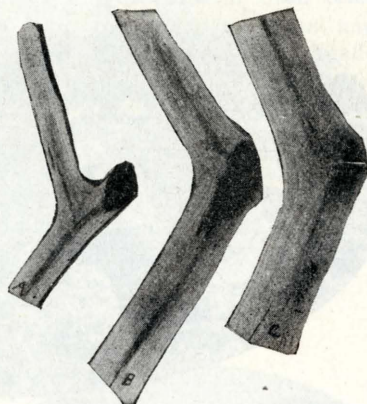
WHAT sight is more beautiful than a carefully pruned and cultivated peach orchard, especially when it is loaded with delicious Utah peaches?



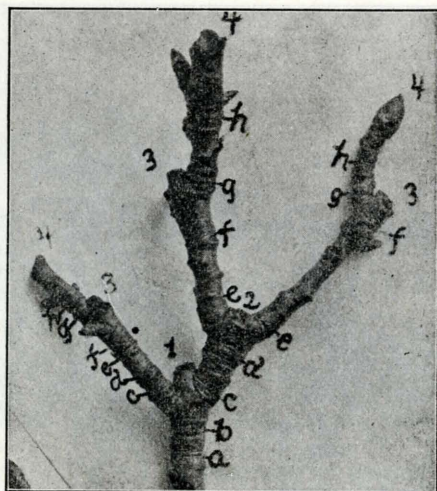
A CURRANT bush before and after pruning. One of the most commonly neglected phases of farm work in Utah is the pruning of the bush fruits. Poor crops of inferior fruit are the usual result.



A PROPERLY pruned limb with the wound entirely healed.



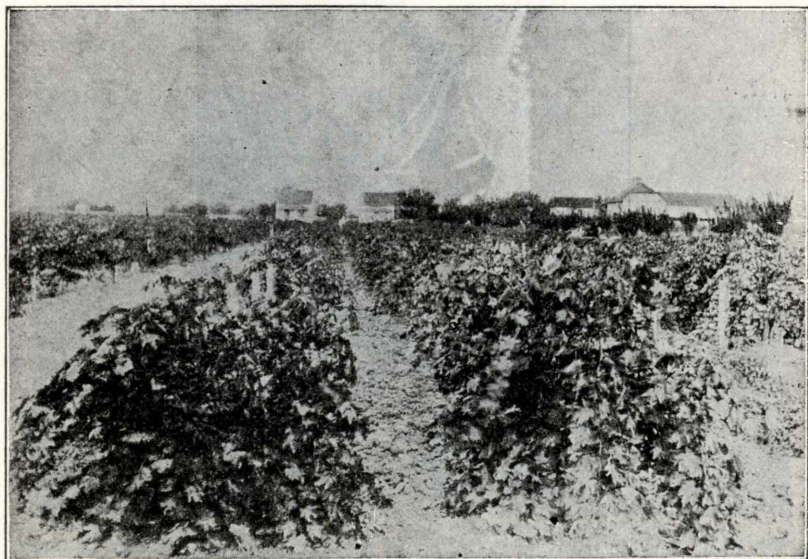
THE wrong and the right way to cut off branches. A, a long stub left which will not heal over; B, properly made cut healing over; C, healed over wound of a properly made cut.



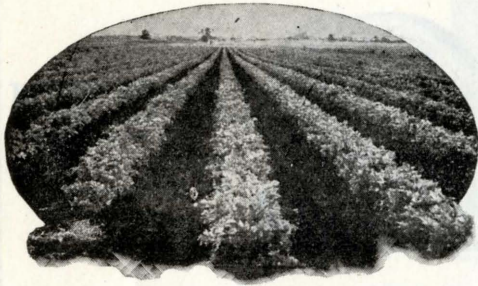
A GREAT deal of study is involved in the complete knowledge of such an apparently simple thing as a fruit spur. It is astonishing how very much of the life history of the tree and its environment the fruit spur can tell. Its careful study is one of the essentials for success in fruit-growing.



PICKING those exquisitely flavored Utah strawberries. By proper care on suitable soil enormous profits are realized from this crop.

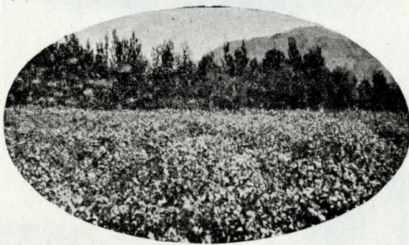
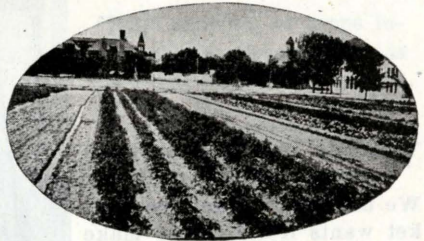


A VINEYARD on the experimental farm in Utah's Dixie, long famous for her fruits.



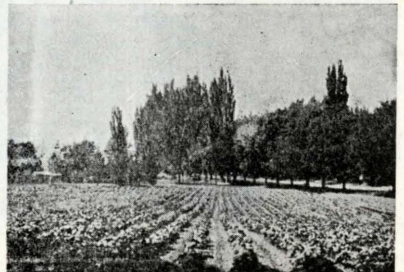
A FIELD of Utah celery. Because of its unexcelled crispness, tenderness, and delicious qualities, Utah celery is fast becoming celebrated throughout the country.

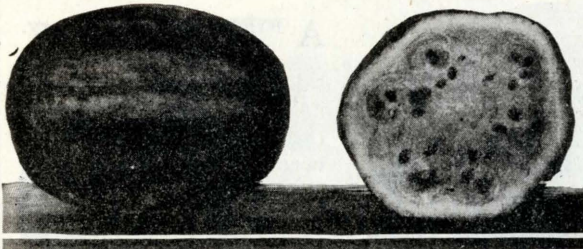
EXPERIMENTAL gardens at the Utah Agricultural College.



A FIELD of canning peas being grown on the College campus for experimental purposes.

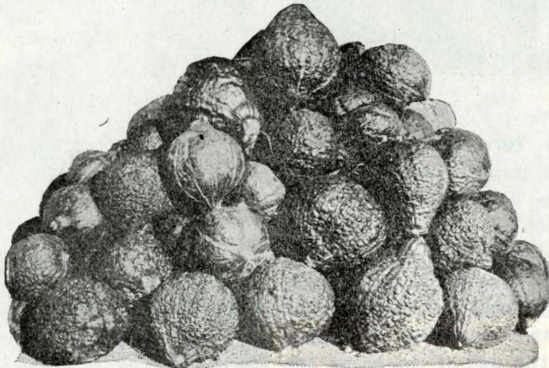
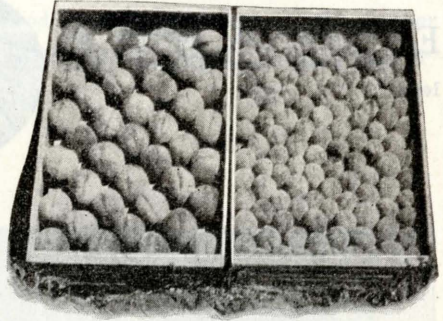
SOYBEANS for human food are becoming popular in many sections of the United States. Exceedingly rich in fatty materials, they may be used to some extent as a substitute for animal fats. The Station is studying the adaptability of certain varieties to Utah's climate and the use of the same for human food under the conditions prevailing in the state.





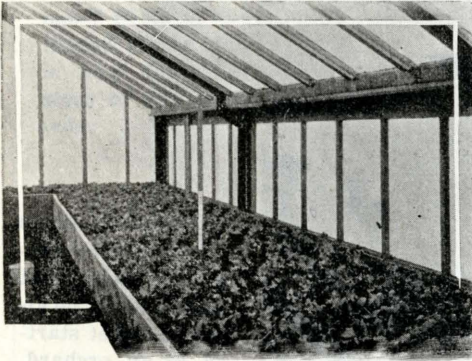
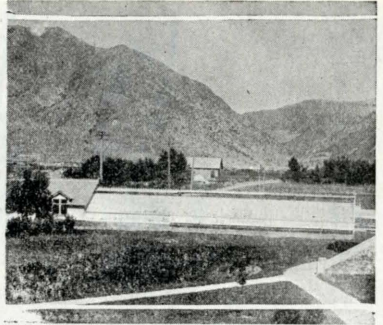
U T A H - grown
melons are
making a name
for themselves.

WHICH would you buy?
Which would you grow?
We must grow what the mar-
ket wants if we are to make
a profit.

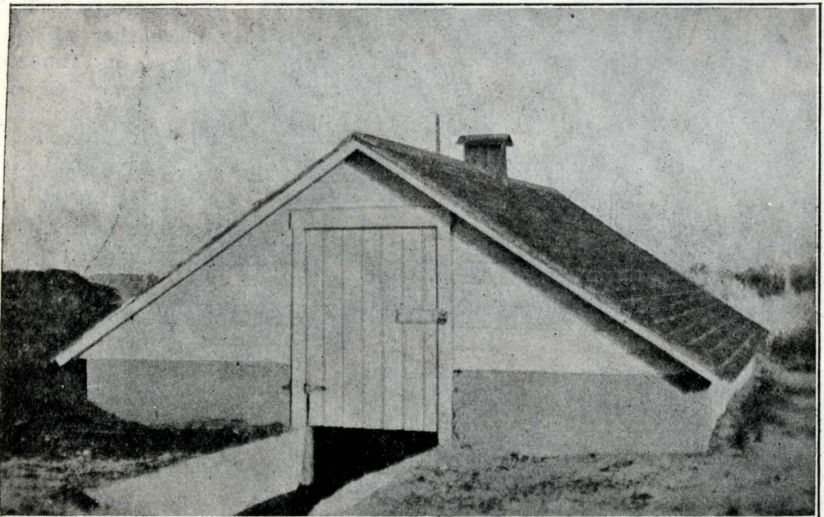


TYPICAL of the golden harvest time in Utah's delightful climate.

EXPERIMENTAL greenhouses at the Utah Agricultural College.



THE growing of crops indoors under glass is one of the important phases of research in certain lines of experimental work.



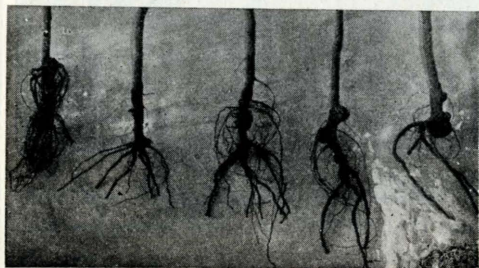
AFTER the crops are carefully grown and the abundant harvests gathered, the next step is to see that they are properly stored for the winter.



HAIRY root, a form of crown gall. Nursery stock of any kind should be carefully inspected before planting.

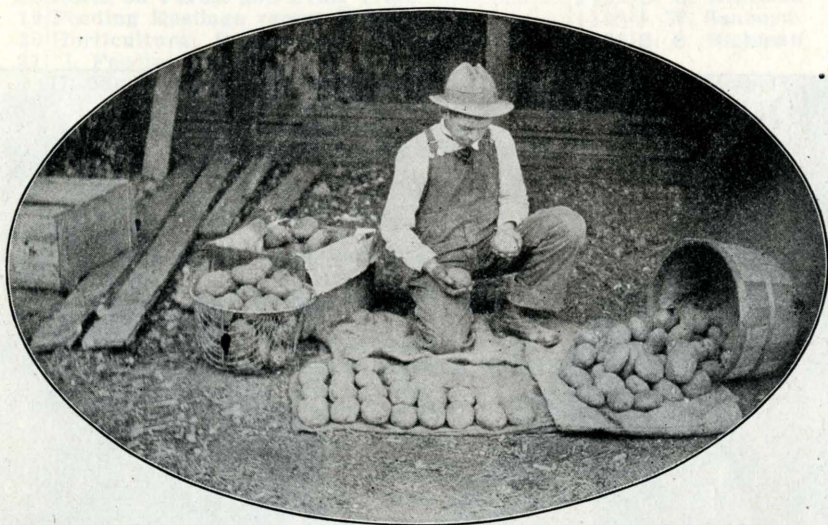
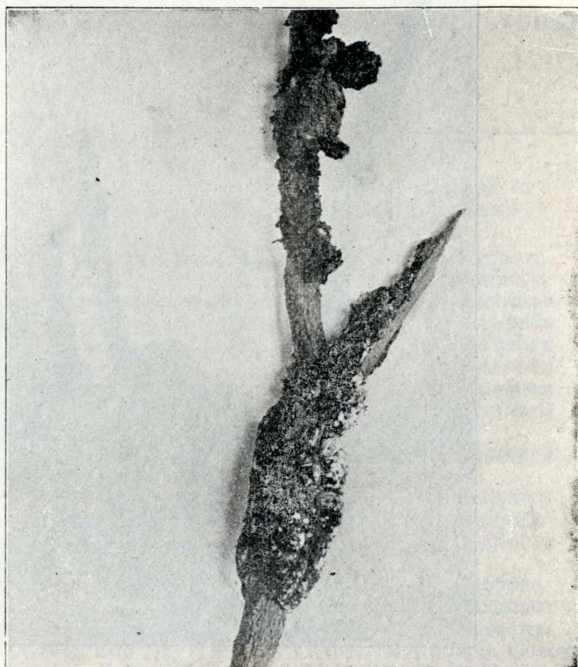


WOOLLY aphid is a very dangerous pest that should never be allowed to get started in an orchard, as it is so difficult to eradicate. It causes the white patches on limbs and roots.



THE crown gall of some fruit trees and other plants occurs in different parts of the state. Control measures have been studied. Nursery stock afflicted with crown gall should never be planted.

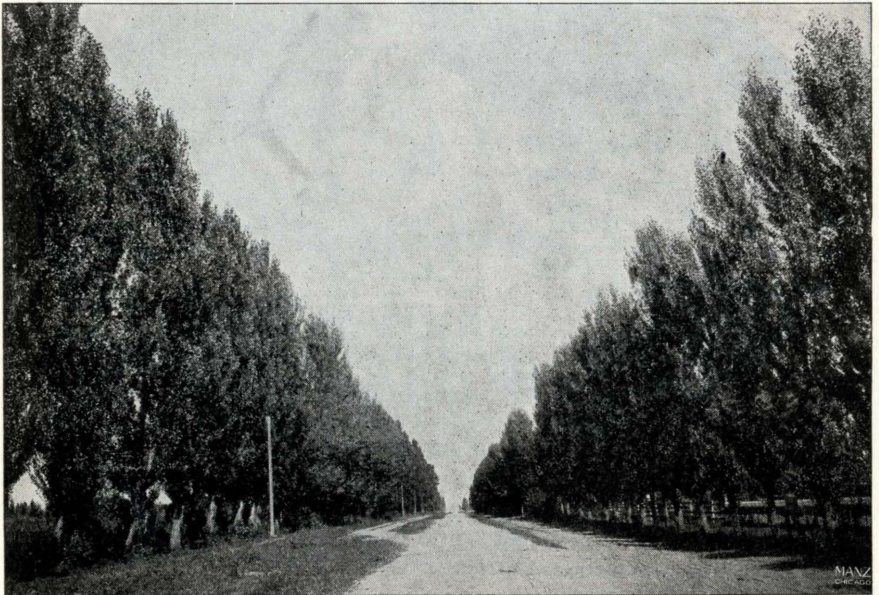
BLACK knot of plums and cherries is a disease widespread in many parts of the United States, and is now found in many of our orchards.



SELECTION of seed potatoes is one of the ways for controlling potato diseases. The potato industry in Utah has lost thousands of dollars thru disease. The Experiment Station has studied this problem for years and has demonstrated efficient control measures.



Which?



**BULLETINS AND CIRCULARS ISSUED BY THE UTAH AGRICULTURAL
EXPERIMENT STATION**

Bulletins—

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7	Draft of Mowing Machines.....	1891	J. W. Sanborn
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11	Influence of Shelter on Food Consumption.....	1892	J. W. Sanborn
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13	Feeding Horses Hay and Grain Mixed Feeding Cut Feed vs. Whole Hay to Horses....	1892	J. W. Sanborn
14	Horticulture and Entomology (Experiments)..	1892	E. S. Richman
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16	The Digestibility of Green and Dry Timothy....	1892	William P. Cutter
17	Feeding Root Crops versus Dry Food.....	1892	J. W. Sanborn
18	Notes on Forest and Fruit Trees.....	1892	E. S. Richman
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27	Irrigation: Early, Late, and Usual.....	1894	J. W. Sanborn
28	The Value of Grass in the Production of Pork Exercise vs. Non-Exercise of Pigs.....	1894	A. A. Mills
29	Irrigation: Amount of Water to Use Relative Feeding Values of Timothy, Lucern, and Wild Hay.....	1894	J. W. Sanborn
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31	Time to Harvest Lucern; Mulching.....	1894	J. W. Sanborn
32	Roots and Plants of Farm Crops.....	1894	J. W. Sanborn
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34	Relative Value of Wheat, Peas, Corn, and Barley in the Production of Pork.....	1894	A. A. Mills
35	Steer Feeding.....	1894	A. A. Mills

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37	Experiments with Fruits and Fruit Trees Ornamental, Forest and Shade Trees.....	1894	E. S. Richman
38	Preliminary Report on Seepage Water and the Underflow of Rivers.....	1895	Samuel Fortier
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58	The Chemical Life History of Lucern, Pt. II..	1898	J. A. Widtsoe John Stewart
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70	Experiments in Pork Production.....	1900	Luther Foster Lewis A. Merrill
71	Carrying Capacities of Irrigation Canals.....	1900	Samuel Fortier
72	A Soil Survey in Salt Lake Valley, Utah.....	1900	F. D. Gardner John Stewart
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77	Horse Feeding.....	1902	Lewis A. Merrill
78	Experiments in Fattening Lambs.....	1902	F. B. Linfield
79	Process Butter—A Dairy Fraud.....	1903	R. W. Clark John A. Crockett
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84	The Grain Smuts.....	1903	Lewis A. Merrill B. F. Eliason
85	Pear Blight.....	1903	W. N. Hutt
86	The Right Way to Irrigate (Results of 1901).....	1903	J. A. Widtsoe W.W.McLaughlin
87	The Codling Moth.....	1904	E. D. Ball
88	The Relation of Smelter Smoke to Utah Agriculture.....	1903	J. A. Widtsoe
89	A New Centrifugal Soil Elutriator.....	1904	P. A. Yoder
90	Beet Molasses with Beet Pulp Feeding with Sheep and Steers.....	1904	Lewis A. Merrill R. W. Clark
91	Arid Farming in Utah.....	1905	J. A. Widtsoe L. A. Merrill
92	Poultry Experiments.....	1905	James Dryden
93	Agricultural Reconnaissance of the Uinta Reservation.....	1905	W.W.McLaughlin
94	Summary of Pig Feeding Experiments from 1890 to 1902.....	1903	B. F. Linfield
95	Codling Moth Work in 1904.....	1906	E. D. Ball E. G. Peterson
96	Care of Milk on the Farm and the Manufacture of Butter and Cheese.....	1906	R. W. Clark
97	Report of the Southern Utah Experiment Station.....	1906	P.A.Yoder, et al.
98	Report of the Central Utah Experiment Station.....	1906	P.A.Yoder, et al.
99	Irrigation and Drainage Investigations during 1905-06.....	1906	W.W.McLaughlin
100	Arid Farming Investigations.....	1906	W. M. Jardine
101	Feeding Experiments with Cattle, Sheep, Swine, and Horses.....	1906	R. W. Clark
102	Poultry Experiments.....	1907	James Dryden

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103	The Milling Qualities of Wheat.....	1908	Robert Stewart Jos. E. Greaves
104	The Storage of Winter Precipitation in Soils..	1908	John A. Widtsoe
105	Irrigation Investigations—Factors Influencing Evaporation and Transpiration.....	1909	John A. Widtsoe
106	A Study of the Production and Movement of Nitric Nitrogen in an Irrigated Soil.....	1909	Robert Stewart J. E. Greaves
107	Improvement of Utah Horses.....	1909	John T. Caine III H. J. Frederick
108	The Effect of Formalin on the Vitality of Seed Grain.....	1910	Robert Stewart John Stephens
109	The Nitrogen and Humus Problem in Dry-land Farming.....	1910	Robert Stewart
110	The Alfalfa Leaf-Weevil.....	1910	E. G. Titus
111	The Reclamation of Seeped and Alkali Lands	1910	C. F. Brown R. A. Hart
112	A Report of Seven Years' Investigation of Dry-farming Methods.....	1910	Lewis A. Merrill
113	The Influence of the Combined Harvester on the Value of Wheat.....	1910	Robert Stewart C. T. Hirst
114	The Movement of Nitric Nitrogen in Soil and Its Relation to "Nitrogen Fixation".....	1911	Robert Stewart J. E. Greaves
115	Movement of Water in Irrigated Soils (Technical).....	1912	J. A. Widtsoe W.W.McLaughlin
116	The Production of Dry Matter with Different Quantities of Irrigation Water.....	1912	J. A. Widtsoe
117	The Yields of Crops with Different Quantities of Irrigation Water.....	1912	J. A. Widtsoe Lewis A. Merrill
118	Methods for Increasing the Crop-producing Power of Irrigation Water.....	1912	J. A. Widtsoe L. A. Merrill
119	The Effect of Irrigation on the Growth and Composition of Plants at Different Periods of Development.....	1912	J. A. Widtsoe Robert Stewart
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