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Bulletin No. 98 - Report on the Central Utah Experiment Station

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P. A. Yoder

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The Agricultural Experiment Station of Utah

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The Bulletins will be sent free to any address in the State, on written application to the Experiment Station, Logan, Utah.
INTRODUCTION BY THE DIRECTOR.

P. A. Yoder.

In January, 1905, the Legislature of the State of Utah passed an act entitled, "An act providing for the establishment of a Central Utah Experiment Station, and placing the same, with the Southern Utah Experiment Farm, under the direction and management of the Agricultural College Experiment Station of Utah, and repealing Chapter 85, Laws of Utah, 1899." The provisions in full of this act are as follows:

"Be it enacted by the Legislature of the State of Utah:

"Section 1. Central Utah Experiment Station Established. —An experiment station, to be known as the Central Utah Experiment Station, is hereby established. This station shall be a branch of the State Experiment Station established as a department of the Agricultural College of Utah.

"Sec. 2. Southern Utah Experiment Farm. —The Southern Utah Experiment Farm, located near St. George, Washington county, is hereby made a branch station of the State Experiment Station established as a department of the Agricultural College of Utah.

"Sec. 3. Class of Experiments to be Conducted. —Such experiments and demonstrations are to be undertaken and continued on the said stations and farms as bear on the development of the agricultural and horticultural interests of all sections having climatic conditions similar to those prevailing at the sites of the said stations or farms.

"Sec. 4. Central Station, How Located. —The location of the Central Utah Experiment Station shall be determined under the supervision of the director of the experiment station, together with the State Board of Land Commissioners and the Board of Trustees of the Agricultural College, in Davis, Salt Lake, Utah, or Weber counties.

"Sec. 5. Site to be Furnished. —The county or counties in which the station mentioned in section 4 is located, shall furnish to the State a clear title to sixty acres or more of good land, with
sufficient water right, free, which shall be the site of the said experiment station. The Trustees of the Agricultural College shall, together with the State Board of Land Commissioners, be empowered to accept or reject any parcel of land offered for this purpose by any county; **provided**, that the Attorney General of the State shall pass upon the title of said land and water right before acceptance by said Trustees and State Board of Land Commissioners.

"Sec. 6. What Experiments to be Conducted."—The experiments shall be conducted on the said stations and farms with orchard, garden and field crops to determine the most profitable kinds; the best varieties of each kind; the best cultural methods; the proper use of irrigation water; the possibility of improving promising varieties; the possibility of adapting imported varieties to Utah conditions; the possibility of improving their quality; their proper preparation for market; and their preservation by drying, canning and other means; and such other experiments shall be undertaken as will assist in establishing on a safe and profitable basis the agricultural and horticultural industry in the districts represented by the said stations and farms.

"Sec. 7. Reports to be Published and Distributed."—At least one report of the operations of the said stations and farms shall be printed annually. Six thousand copies or more of this report shall be distributed free of charge to interested citizens of the State, upon application.

"Sec. 8. Duties of Director."—The director of the Utah Agricultural College Experiment Station, under the direction of the Board of Trustees of the College, is hereby empowered and directed to prepare the stations and farms referred to in sections 1 and 2 for experimental purposes; to construct buildings, fences, flumes, drains, and other necessary appliances for the inauguration and conducting of the investigations of the said stations and farms.

"Sec. 9. Appropriation."—The sum of eight thousand dollars is hereby appropriated for the establishment of the Central Utah Experiment Farm and the sum of six thousand dollars to be used on the Southern Utah Experiment Farm, for the years 1905 and 1906, out of any money in the State Treasury not otherwise appropriated, or as much thereof as may be necessary to carry out the purposes of this act; **provided**, however, that in no event
shall the sums hereinbefore appropriated be exceeded, and that no part of the sum appropriated to either of said experiment farms shall be used for the support or maintenance of the other.

"Sec. 10.—Chapter 85, Laws of Utah, 1899, is hereby repealed.

"Approved this 18th day of March, 1905."

In accordance with the provisions of this act, each of the four counties, Weber, Davis, Salt Lake and Utah, offered one or more sites. This joint commission, provided for in Section 4, appointed a committee of five of its members, two members of the State Board of Land Commissioners, two of the members of the Board of Trustees of the Agricultural College, and the Director of the Experiment Station to examine further the various sites offered. In the spring of 1905, this committee reported on the matter, recommending six sites from which the selection was to be made after a closer investigation of these six farms was made. A sub-committee composed of one member from each of these Boards and the Director of the Experiment Station was delegated to make soil examinations. Three of the proposed sites were examined during the spring, and soil samples from them were taken to be analyzed at the laboratory at Logan. Later in the summer the other three were also examined and on September 1 a report was submitted to the joint commission. More time was allowed for other members of the commission to visit the proposed sites. No final action was taken until January, 1906, when the Lehi-American Fork site was selected. As the boundaries were finally adjusted, the outline of the tract is as indicated in the accompanying chart. The farm is located in sections 9, 10 and 15 of T. 5 S., and range 1 E. of the Salt Lake Base and Meridian, and it contains 80 acres, Utah county having donated 20 acres more to the farm than was required by the law. Along the south the farm fronts on the State Road and the San Pedro, Los Angeles & Salt Lake Railway, affording thus a prominent location and easy accessibility. The farm is one mile from the San Pedro depot at Lehi and two miles from that at American Fork, and but little farther in each case from the Rio Grande Western depot. Next to this road are about fifteen acres of deep low-lying alluvial loam. The balance of the farm lies on a bench considerably higher, and has a loam or gravelly loam soil. Near
the northeast corner of this low part is a thrifty young orchard of about 300 apples trees and a few peach, apricot, and prune trees. This orchard is about seven years old, and will afford valuable experimental grounds for some lines of work until the new orchards set out on the farm come into bearing. A small old adobe cottage is on the farm near this orchard. While this is not satisfactory as a residence, it affords a good tool shed and storage room until more permanent buildings can be erected. Near it is a good, but small cellar.

It doubtless was the purpose of the legislature in establishing this and other sub-stations to provide for carrying on investigations along such lines as are especially dependent upon local conditions, i. e., lines in which the results obtained in any one locality—as e. g. that of the home station—cannot answer for other localities. Horticultural crops are especially dependent upon local soil and climatic conditions, and as horticulture is a very important industry in central Utah, it was decided to make investigations applying to horticultural crops the leading line of work on this farm. Questions relating to irrigation are also of great interest in this State, and as relatively little work has been done on the best way of irrigation of orchard and small fruits, it was decided to take up also such a line of work in which the Irrigation Engineer co-operates with the Horticulutrist. Some work was started by the Agronomist on field crops, using much of the lower part of the farm for that. The Entomologist conducted some spraying investigations in the orchard, and some sugar beet pest investigations on beet plats that were planted for that purpose. The Chemical Department, besides making he preliminary soil investigations on this and other proposed sites for the farm, undertook a complete soil survey of the farm after the boundaries were determined. In this work soil samples have been collected from borings made every ten rods each way on the farm. The laboratory work on these samples will be done during this winter or later as the time of chemists can be spared for this work. Evidently work along animal industry, veterinary, or poultry lines is not sufficiently dependent upon local conditions to make it necessary for these departments to carry on investigations at this sub-station. Results secured at the home Station along these lines will generally apply for any part of the State.

As the horticultural work was planned to predominate on this
farm, the duty was assigned to the Station Horticulturist to exercise general supervision over all the work after it is outlined, and in that capacity to assume responsibilities over the expenditures for equipment, general maintenance, minor improvements, labor, etc., and over the sale of products. For the immediate management of the farm under the officials of the home Station, Mr. Ola Larson was appointed resident Foreman by the Board of Trustees. In the purchase of team, implements and other equipment, it is the policy to buy only high grade articles, and in the improvements which are of permanent character, to make them in a substantial manner.

With this introduction, the reader is now referred to the more comprehensive report of the Horticulturist, and to the briefer reports of the Agronomist and the Irrigation Engineer for further details respecting the farm and the experiments planned to be carried out.

Chart Showing Outline of Central Utah Experiment Farm.
REPORT OF THE HORTICULTURIST.

R. S. Northrop.

Herewith is respectfully submitted the horticultural report of the Central Utah Experiment Station for the year 1906.

The farm, which comprises eighty acres of land, is admirably situated for general experimentation. Most of it is bench land, composed chiefly of rich gravelly loam. It has a general slope to the south, facing Utah Lake, which gives it a very beautiful outlook. In front of it is the main road from Lehi to American Fork, along which the San Pedro Road has its right of way, making the site very prominent.

There are three general lines of work under investigation at this station. The Agronomy Department has the use of the land below the bench for experiments in field crops. This comprises some of the heaviest and strongest land on the farm, being clay loam. It is not the most desirable for horticultural work, but is very well adapted to general farm crops. The land on the bench is now chiefly in alfalfa and upon breaking will be excellent for orchard purposes. It comprised several farms before being purchased for the Experiment Station, and is, therefore, somewhat variable in condition, according to the farming methods of the former owners. Practically all of the land on the bench has been allowed to become more or less washed, and upon removing the old fences around some of the inner lots of the farm, the very uneven condition became more apparent. This unevenness delayed our work considerably in the spring. Those who had been living on the land were slow about giving us possession of it and as a consequence the season was well advanced when we took charge.

It had been planned that the Horticultural Department should work in cooperation with the Department of Irrigation Engineering in ascertaining the duty of water as applied to fruits, both orchard and small. This, as can plainly be seen, required that a portion of the land should be prepared as evenly as possible, in order that an equal and uniform distribution of water
could be made. Our nursery stock for this experiment arrived with the surfacing of the land still incomplete. It was planted temporarily in the nursery, where it still stands pending the preparation of the land.

The Horticultural Department is conducting several lines of work on the farm and has planned other experiments for which some work has been done in preparing the ground. It is to be regretted that it was impossible to do a greater amount of planting in the spring of 1906, for orchard experiments based upon the results of special planting are necessarily slow in giving finished results, since it takes several years for the trees to produce. The fact that the surface of the land needed attention made it obligatory, however, that the leveling be done prior to the planting of the trees. This work is still incomplete, for after the season was too far advanced to complete our orchard planting, it was thought wise to leave the leveling until the coming winter and spring, meanwhile utilizing the land for some late crops of potatoes and oats, thus securing the benefit of the income derived from them. The season was not lost for the trees needed in the experiments were purchased and planted on a small piece of ground set aside for nursery purposes. Yearling trees were secured, for they are more easily formed into proper shaped trees than trees two years old, which have already been formed, often in an improper manner. Thus we have a goodly number of perfect trees which will be greatly benefited by the extra transplanting, besides having a much greater opportunity to grow when permanently planted, for they will be moved but a short distance.

HORTICULTURAL EXPERIMENTS.

As mentioned previously, and as more fully set forth in the report of the Irrigation Engineer, an experiment designed to be carried on for a considerable number of years has been planned in regard to the duty of water when applied to orchard and small fruits. This experiment will also include a careful study of the best means of applying it, together with the effect on the trees as regards health, disease, maturity, productiveness and other points of like nature. It can be seen that if this work is to be comprehensive in its nature, it will require many years for its completion, but since the available information of an accurate
sort bearing on this question is exceedingly meagre, it will be of undoubted value to both Utah and all other irrigated fruit sections in the West.

Another line of work concerning which there is no reliable information at hand, but one upon which there exists a great many conflicting opinions, is in regard to the varieties of apples which should be planted for commercial purposes. In all apple districts of Utah, there can be found some varieties which preponderate in amount of planting, but there is also planted with them a long list of other varieties, many of which have no standing in the market.

Success in apple growing depends mainly on two things: First, securing a good crop; and, second, disposing of it to advantage. It is a recognized fact by the leading apple growers, that certain markets demand certain varieties, packed in a standard manner. These markets pay proportionate prices for the different varieties demanded.

It is also recognized that varieties that are successful in one district may not be successful elsewhere, and though a variety is not profitable in one district it may be an exceedingly heavy bearer and command a high price if grown where soil and climate are suitable for it. Most successful growers also understand that to dispose of a crop to advantage, they must have a sufficient amount of fruit of one variety to ship in at least carload quantities to the markets demanding that variety.

It is with the purpose of ascertaining the varieties of apples which the Utah orchardist should plant in order that he may derive the greatest revenue from his orchard that we have started a test of the commercial varieties of apples. We have made preparations to plant a half-acre of each of the sixteen leading commercial varieties which have a recognized standing in the market. A strict account of all points connected with their culture will be kept, so that at any time information as to the expense of growing and the profits from any of the varieties can be obtained. The following is a list of commercial varieties which will be tested, some of which are now planted. The balance will be planted the coming spring:
The leading varieties to be grown for home use differ from those grown in commercial orchards in the fact that for home use we desire a succession of fruit of high quality while the general market requires fruit of a well known reputation, usually depending upon high color and attractiveness, rather than eating quality.

With the purpose of securing information on the various points concerning the species of fruits generally planted, there has been secured stock sufficient for planting the leading varieties of fruits commonly grown in central Utah. It is expected that this planting will give us considerable information as regards the varieties and also furnish a source of cuttings, cions or buds for those desiring to propagate any of them. In addition to this, the trees will offer a first-class means for studying some live questions, such as the influence of pollen of certain sorts upon the crops of commercial varieties of apples, the age of bearing of various types, and many other points of considerable interest.

The following varieties, which are now growing in our nursery, will be planted in the spring of 1907:

**APPLES.**

Aiken Red.  Black Ben Davis.
Apple of Commerce.  Ben Davis.
Baldwin.  Chicago.
Ben Hur.  Charlamof.
Bayard.  Coffelt Beauty.
Benoni.  Cole Quince.
Bismarck.  Duling.
Bellflower.  Delicious.
Duchess of Oldenburg.
Early Colton.
Early Melon.
Early Ripe.
Early Harvest.
Fall Pippin.
Florence Crab.
Fanny.
Jeniton.
Giant Jeniton.
Grimes Golden.
Gano.
Hubbardston Nonesuch.
Hyslop.
Huntsman.
Ingram.
Jeffries.
Jonathan.
Kinnaird Choice.
King David.
King of Tompkin's Co.
Liveland Raspberry.
Lady Sweet.
Longfield.
Maiden Blush.
Minkler.
Martha.
Mam. Black Twig.
McIntosh Red.
McMahon.
Mann.
Mo. Pippin.
Northern Spy.

N. W. Greening.
Newtown Pippin.
Nixonite.
Paragon.
Payne Keeper.
Rome Beauty.
Red June.
R. I. Greening.
Red Astrachan.
Red Ben Davis.
Senator.
Siberian.
Springdale.
Stark.
Stayman Winesap.
Summer King.
Sweet Bough.
Shockley.
Strawberry (Shermans Favorite).
Vandervere.
Whitney
Wealthy.
Williams Favorite.
Wagener.
Walbridge.
Willow Twig.
Winter Banana.
Winesap.
White Winter Pearmain.
Wolf River.
Yellow Transparent.
York Imperial.

PEACHES.

Alton.
Bokara No. 3.
Banner.
Belle of Georgia.
Bequette Free.

Bonanza.
Champion.
Crawford's Early.
Crawford's Late.
Crosby.
REPORT ON THE CENTRAL UTAH EXPERIMENT STATION.

Captain Ede.  Greensboro.
Carpenter Cling.  Levy Late Cling.
Crothers Late.  Lemon Cling.
Everbearing.  Mathews Beauty.
Early Belle.  Mamie Ross.
Elberta.    Picquet Late.
Engle Mammoth.  Salway.
Yellow St. John.  Smock Improved.
Fitzgerald.  Slappey.
Globe.    Sneed.
Gold Drop.  Victor.
Gold Dust Cling.  Waddel.
Gold Mine.  Wonderful.
Grady.    Worth.

PLUMS.

Abundance.  Last.
America.     Milton.
Black Diamond.  Miner.
Burbank.     Mo. Green Gage.
Climax.     Mathews.
Combination.  Orient.
Damson Free.  Poole Pride.
De Soto.     Red June.
Earliest of All.  Reine Claude.
Tatge.      Shiro.
German Prune.  Splendor.
Gonzales.    Wickson.
Hunt.  Wild Goose.
Imperial.  Waugh Hybrid.
Lombard.    Yellow Egg.

APRICOTS.

Black.  Moorepark.
Blenheim.    Newcastle.
Early May.  Pringle.
Hemskirke.  Royal.
Montgamet.  Routiers Peach.
Superb.  
Stark's Mammoth.  

St. Ambroise.  
Tilton.  

QUINCES.  

Bourgeat.  
Champion.  
Chinese.  
Meech.  
Missouri Mammoth.  
Orange.  

Pineapple.  
Rea's Mammoth.  
Smyrna.  
Van Deman.  
West's Mammoth.  

CHERRIES.  

Advance.  
Bigarreau.  
Black.  
Burr's Seedling.  
Bell Magnifique.  
Calif.  
Chapman.  
Cleveland.  
Centennial.  
Coe's Transparent.  

Elton.  
Eagle.  
Great Bigarreau.  
Guigne.  
Knight's Early Black.  
Lewelling.  
May Duke.  
Olive.  
Windsor.  

GRAPES.  

Brighton.  
Beacon.  
Bailey.  
Campbell's Early.  
Catawba.  
Clinton.  
Concord.  
Delaware.  
Diamond.  
Herbemont.  
Headlight.  
Jefferson.  
King.  
Lindley.  

Lutie.  
Marguerite.  
Mc. Pike.  
Moore's Early.  
Niagara.  
Pocklington.  
Red Giant.  
Stark Star.  
Salem.  
Triumph.  
Vergennes.  
Worden.  
Wyoming Red.
GOOSBERRIES.

American—Oregon Champion.
English—Berkley.
Industry.

American—Oregon Champion.
English—Berkley.
Industry.

Dewberries.

Austin.
Lucretia.

Blackberries.

Blowers.
Erie.
Evergreen.
Early Harvest.
Early King.
Eldorado.
Crandall's Early.
Illinois.
Kittatinny.

Black Cap—Gregg.
Mammoth Cluster.
Souhegan.
Cumberland.
Kansas.
Hybrids—Cardinal.
Haymaker.

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Dewberries.

Austin.
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Blackberries.

Blowers.
Erie.
Evergreen.
Early Harvest.
Early King.
Eldorado.
Crandall's Early.
Illinois.
Kittatinny.

Black Cap—Gregg.
Mammoth Cluster.
Souhegan.
Cumberland.
Kansas.
Hybrids—Cardinal.
Haymaker.

Raspberries.

Black Cap—Gregg.
Mammoth Cluster.
Souhegan.
Cumberland.
Kansas.
Hybrids—Cardinal.
Haymaker.

Raspberries.

Black Cap—Gregg.
Mammoth Cluster.
Souhegan.
Cumberland.
Kansas.
Hybrids—Cardinal.
Haymaker.

Red Varieties—
Cuthbert.
Malboro.
Hansell.
King.
London.
Miller Red.
Thwack.
Thompson.
Yellow Variety—
Golden Queen.

Currants

Black Naples.
Cherry.
Fay's Prolific.
Fay's.
London Market.
La Versaillaise.

Black Naples.
Cherry.
Fay's Prolific.
Fay's.
London Market.
La Versaillaise.

Red Varieties—
Cuthbert.
Malboro.
Hansell.
King.
London.
Miller Red.
Thwack.
Thompson.
Yellow Variety—
Golden Queen.

Currants

Black Naples.
Cherry.
Fay's Prolific.
Fay's.
London Market.
La Versaillaise.

Red Cross.
Victoria.
Wilder.
White Grape.
One of the worst things with which the orchardist has to contend is the presence of diseases which form galls, hairy roots, etc., upon the roots of various trees and small fruits. This problem is the more serious because many growers do not realize how likely these diseases are to linger along upon the roots of a tree, often for many years, keeping that tree from being productive as well as preventing another from occupying the ground, until eventually, after many years' nursing, the grower pulls the tree out and finds that the cause for its poor condition has been the presence of disease upon the roots. These diseases are not thoroughly understood, and concerning the danger of contagion there is considerable variation of opinion.

In regard to the investigation of the trouble, I can say that the plan in mind is to thoroughly study all phases of the trouble, with particular reference to the liability of inoculation at the time of budding, grafting, etc., the possibility of disinfecting to remove danger of its contagion and to determine the likelihood of its being transmitted to clean stock after planting by means of irrigation, cultivation, etc. Some of the material for this study

- Aroma
- Auto
- Brandywine
- Beder Wood
- Bubach
- Bismarck
- Crescent
- Clyde
- Challenge
- Carrie
- Duncan
- Dunlap
- Enormous
- Early Hathaway
- Gandy
- Glen Mary
- Haverland
- Jessie
- Kansas
- Lovett
- Marshall
- Marcon
- Michel's Early
- Nick Ohmer
- Oom Paul
- Sample
- Sharpless
- Splendid
- Tenn. Prolific
- Wm. Belt
- Warfield
- Wilson

**STRAWBERRIES.**
has been ordered and work upon it will begin during the winter. It is hoped that results will be secured during the next two years that will justify their publication.

FARM MANAGEMENT.

The management of this farm, in consequence of the greater amount of horticultural work which is to be done upon it, has been referred to the Horticultural Department and Mr. Ola Larson, who for years had been foreman of the Logan Nurseries, was put in direct charge of the work as foreman. The Station is thus in the charge of an experienced horticulturist, and much of the responsibility is, therefore, left with him.

There have been no buildings erected on the farm and but one existed thereon when we took possession. This is a small adobe house of three rooms and shed, which is now used as a storage for small implements, seed and like material. At the north of the house is a small cellar which is being used as a storage house. It is certain that when our orchards begin to bear it will be absolutely necessary to have a storage house erected after some modern plan, which while allowing us to handle our crops to advantage, will be of value experimentally and instructively.

We have a small orchard on the farm which was planted about seven years ago. It is largely of commercial varieties and is bearing well. This year has been its off year and we expect next year that it will produce heavily. The fact that we have fruit bearing well on the farm makes imperative the building of a residence for the foreman and a stable for the horses. At present the foreman is living about one-half mile from the farm.

The orchard and farm implements are of good quality and kept as well as possible. They were purchased with a desire to be as economical as possible, and yet consistent with the accomplishing of good results. They were, therefore, as few in number as would suffice to do the work, and the best of their class.

The team is young, sound, strong and gentle. They are becoming more valuable every month, and also more desirable for our purposes. It therefore behooves the station to have a barn suited to their needs erected at earliest opportunity, for at present they are housed in a shed not adapted to horses of their size and quality.
REPORT OF THE AGRONOMIST.

W. M. Jardine.

A brief report of the work done on the Central Farm under the direction of the Department of Agronomy is given herewith. At the time the Central Farm was turned over to the Station, it was decided that while the Farm in the main would be devoted to the growing of fruit, a few acres should be used for field experiments. Six acres were set aside for this purpose and the management of the same was turned over to this Department. The land was laid out in plats of one-half acre each and the following experiments were begun:

A five-year crop rotation; variety tests of potatoes and corn; and flood versus furrow irrigation of sugar beets. The following crops were grown in the rotation experiment this year: Potatoes, wheat, sugar beets, oats and alfalfa, peas and oats for forage, corn for fodder, barley, and wheat. It will be seen that nine plats were used, hence nine different rotations have been started. The results obtained are very promising, yet we are somewhat handicapped in that the land was badly run out to begin with. A liberal application of manure should be given all the plats used by the Agronomy Department as soon as possible and before another crop is grown. It is hoped that from these tests one or more desirable rotations will be established for the farmers of Utah who are doing intensive farming, as it will be through the system of rotation that we must expect to keep up the fertility of our land. A good system of crop rotation, with a liberal application of barnyard manure every four years, should prevent deterioration of plant food in the soil.

In the experiments with varieties of potatoes only one plat was used for this work. It was impossible for us to secure the names of all of the varieties of potatoes grown. The seed houses that furnished these potatoes could not furnish us with names of the varieties, hence this experiment was not as complete as we expected it to be.

In the varieties of corn grown, excellent results were ob-
tained. Large yields of well-matured dent and flint varieties were harvested.

In the test of furrow versus flooding for sugar beets, no results have yet been reported.

It is expected that all of this work will be continued next year, 1907, with special attention given to the rotation of crop experiments and the testing of different varieties of potatoes. The potato industry of the State is a promising one, but as it is now handled it does not figure very strongly in Utah agriculture. This industry should be encouraged.

REPORT OF THE IRRIGATION ENGINEER.

W. W. McLaughlin.

I report herewith the proposed Irrigation Investigations on the Central Utah Experiment Farm.

The Irrigation Department, in cooperation with the Horticultural Department, has outlined a series of experiments to study the effect of irrigation water and the methods of applying it upon certain of the horticultural crops. Fifty plats, to be planted with varieties of apples, peaches, currants, blackberries, raspberries, gooseberries, and dewberries, are included in this test. It is particularly advisable in orchard work that complete records of the water applied to the trees be had from the time of setting out, and hence all water used in the development of the trees in the duty of water tests will be measured and recorded.

Several methods of irrigation are in use throughout the country and five of the most prevalent of these practices will be tried and results compared, that ultimately the best method for this section may be ascertained. Others of the plats will be used in a comparison of the results of the application of various amounts of water in unlike ways and at different times. In these tests we have in mind the uniform development of the tree, early bearing, appearance and flavor of the fruit, and ultimately the economical value of the irrigation water.

To conduct such experiments it is necessary that only accurately measured quantities of water be applied, hence there will be required suitable weirs and distributing flumes.

It is necessary that the water applied to all the plats used for experimental work of any kind be measured that this factor may
be controlled and its influence determined. Plans are about completed for the flumes and weirs, and it is the intention to begin their construction at the very earliest date possible.

**Distributing Ditches.**

We are compelled to provide a right of way and prepare ditches to take water across the Central Farm to the land adjoining on the two lower sides. It is found that this soil washes to a considerable extent and therefore it is necessary to provide a water-tight channel made of lumber, tile or other suitable material or to provide "drops" in the ditches already provided. This work should be provided for at once and completed at an early date.

**Water Supply.**

The Lehi Irrigation District and American Fork City are each to furnish a continuous flow of one-half second foot during the irrigation season.