4

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1914

January 8, 1915.

OFFICE NOTES.

The meetings of the Office Seminar will be held on Tuesdays during January and February, the hour of meeting being 3 P. M. The committee on preparation of programs consists of Messrs. Warburton (Chairman), Leighty, and Adams.

Mr. F. L. Adams, in charge at the Biggs Cereal Field Station, Biggs, Cal., arrived in Washington on Jan. 4th for the purpose of writing his report on the past season's work at Biggs and Chico, Cal.

Mr. J. Mitchell Jenkins, in charge of rice investigations at the Rice Experiment Station, Crowley, La., arrived in Washington on January 2 to do laboratory work with rices and to write his report on the work of the past season at Crowley.

Prof. L. R. Jones, plant pathologist of the Wisconsin Agricultural Experiment Station, was a visitor at the Office on Jan.2 for consultation on the cooperative work in barley diseases.

Mr. James Deitrick, of California, recently visited the Office. He is interested in growing wheat on a very large scale on the Crown lands in Siberia and Russia with tractors and other modern machinery.

During the week of December 28 Messrs H. H. Love and W. T. Craig of the Cornell University Agricultural Experiment Station visited the Office for the purpose of conferring on the cooperative work being done at Ithaca, N. Y., and looking over botanical specimens of wild relatives of the cereals in the herbarium at the National Museum.

Mr. A. G. Johnson, assistant plant pathologist of the Wisconsin Agricultural Experiment Station and assistant in cooperative investigations of barley diseases, arrived in Washington on January 2 to spend a month in laboratory work and for consultation with other workers in his line.

Mr. Yungyen Yung, a Chinese Government student at the University of Illinois, was a visitor at the Office on January 5 and 6. Mr. Young has taken his master's degree at the University of Illinois and is now working for his doctorate. He has specialized in agricultural chemistry, agronomy, and plant pathology. His chief interest in visiting Washington at this time is to become personally acquainted with leaders of various lines of work with whom he hopes to establish mutually helpful relations after his return to China.

NOTICE TO FIELD MEN.

Kindly notice dates of expiration of subscriptions for farm publications supplied by the Department and, when desired that subscription be renewed, notify this Office.

Notes for the Newsletter have not been coming in as regularly as desired. Kindly note that these should be received in Washington not later than Thursday - each week during the months from April to October, inclusive, and every second Thursday during the winter months.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Jan. 6. Maximum temperature for the past two weeks was 44 degrees (Dec. 30) and minimum 1 degree (Dec. 27). Precipitation for this period has been 0.94 inch and for the month 4.62 inches.

TEXAS:

Texas Substation No. 4 (Beaumont) Dec. 26. A light rain fell almost continuously the first five days of the week, making a total precipitation of 0.53 inch. The maximum temperature was 71 degrees (Dec. 24) and the minimum 34 degrees (Dec. 26).

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January 22, 1915.

OFFICE NOTES.

Mr. Homer D. Wade, of the S. M. S. Ranch properties of Stamford, Texas, visited the Office last week in the interest of developing wider markets, especially abroad, for the grain sorghums.

At the seminar on January 12th the subject of "Preparation of Annual Reports of Field Men" was discussed. The topic was introduced by Mr. C. R. Ball and was discussed at considerable length by several members of the seminar. Mr. Ball suggested that the making of an outline for the report before any portion of it was written is of considerable help in preparation and also an aid to the copyist in giving proper value to the various headings. In his opinion the introduction should be amplified, making it a brief summary of the text of the report, including a brief statement of seasonable conditions, the area in each cereal crop and the total area devoted to cereal investigations, changes in personnel, changes in lines of work, etc. He suggested the adoption of a definite sequence of crop discussions in the reports, making this sequence uniform for all reports.

The Office seminar originally planned for January 19 was postponed because Dr. J. W. T. Duvel, Technologist in Charge of the Office of Grain Standardization, was unable to be present on the earlier date. He will talk to the seminar later on the work of the Office of Grain Standardization.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Jan. 20. The weather for the past two weeks has been warm and somewhat unseasonable, with frequent heavy rains. The precipitation was 5.61 inches of which 2.48 inches occurred on January 13th. The maximum temperature was 62 degrees (Jan. 18) and minimum 21 degrees (Jan. 10).

SOUTH DAKOTA:

Highmore Substation. Jan. 4. Snow still covers nearly the entire State. December was marked by extremely low temperatures, the thermometer frequently registering 25 to 30 degrees below zero.

NORTH DAKOTA:

Dickinson Substation. Jan. 21. The total precipitation for 1914 was 22.74 inches, this being the highest recorded in 23 years. The average for that period was 15.78 inches. The rainfall for June and July respectively was 7.88 inches and 5.50 inches, these figures also being the highest recorded in 23 years. Most of the July rainfall occurred, however, during two hail storms, July 26 and July 28.

The mean temperature for the year was 41.4 degrees as compared with 40.4 degrees as the average for 23 years. The mean temperature for December was 8.7 degrees, which was 9.5 degrees colder than the normal for that month. About three inches of snow fell during the month and 1.5 inches remained on January 1, 1915.

Williston Substation. Jan. 19. December was a very cold month, while January so far has been mild. Considerable snow has fallen since January 1st. There has been very little drifting, hence there is a good covering for winter vegetation, especially grains and alfalfa.

OREGON:

Eastern Oregon Dry-Farming Substation. Dec. 5. During practically the entire month of December temperatures were below normal, the mean temperature for the month being only 21 degrees, or seven degrees lower than the mean for the same month last year. From December 6th to 26th the maximum temperature did not exceed 32 degrees.

The lowest temperature was 3 degrees below on the 17th, which is the lowest temperature ever recorded at this substation in December. The highest temperature was 46 degrees on the 31st.

The total precipitation for the month was 0.88 inch, about one-half the 10-year normal. During the cold weather from 2 to 3 inches of snow lay on the ground, but recent thawing and freezing weather has left only a little snow on north slopes. While there has been considerable complaint from different sections in eastern Oregon about the damage to winter wheat, so far as can be observed there has been no serious injury to any of the winter grains on the substation.

WASHINGTON:

State Experiment Station. (Pullman) Jan. 4. The fall weather in southeastern Washington has been exceptional for low precipitation, comparatively even moderate temperature, and the lateness of hard frosts.

On Dec. 25 the ground was free from snow and frozen for 10 inches, but grain was uninjured. Since Dec. 26, 13 inches of snow have fallen. The maximum temperature for December was 39 degrees, minimum 5 degrees. The precipitation during the fall was as follows: August, none; September, 1.2 inches; October, 1.67 inches; November 2.16 inches; December 1.3 inches. Total 6.33 inches.

The latest plantings in the smut experiments were made late in November. The count of plants from the 1914 harvest was finished December 15th.

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VOLUME VII

1915

February 5, 1915.

OFFICE NOTES.

Cereal Investigations Seminars.

At the seminar on January 26 Dr. A. G. Johnson of the Wisconsin Experiment Station discussed the diseases of barley which he is investigating in cooperation with the Office of Cereal Investigations. These diseases (the "stripe disease," "net blotch disease," and "spot blotch disease") affect particularly the leaves of the plant; all are caused by species of Helminthosporium. The common names refer to the characteristic appearance of the leaves which marks each of them. The most effective method of control of the "stripe disease," as worked out by Dr. Johnson, is treatment of the seed with formalin solution at the usual strength of 1 pound to 40 gallons of water for a period of two hours. The "net blotch" and "spot blotch" diseases are not so easily controlled.

At a special seminar on January 29 Dr. H. B. Humphrey gave a progress report on investigations of stinking smut of wheat, with particular reference to the work which is being done in cooperation with the Washington station. In the Palouse region, where this disease is particularly prevalent, the problem is one of crop rotation and soil sanitation. Of a number of seed treatments which were tried the most effective was a solution of copper sulphate and common salt. Dr. Humphrey spoke briefly of the numerous smut explosions which occurred in thrashing machines in the Palouse region in the past season and of the investigation of these explosions which was made by several officials of the Washington station. The results of this investigation have been published by the Washington station in Bulletin No. 117 and may be obtained on request.

The general subject of rice investigations was discussed at the seminar on February 2. Mr. C. E. Chambliss discussed briefly the local conditions at the several stations where work with rice is conducted and the methods of growing rice in Louisiana, Texas, Arkansas, and California. Mr. J. Mitchell Jenkins gave some data from the cultural tests at the Crowley, La., station. The results so far

obtained show little difference in yield from deep and shallow plowing. Shallow seeding produced higher yields than deep seeding, and seed sown in a smooth seed bed produced more than that sown in a rough one. In the rate-of-seeding tests sowing at the rate of 80 pounds to the acre has given considerably higher yields than 60 pounds, while the yield has been further increased by the use of 100 pounds of seed. Broadcast seeding has invariably produced higher yields than drilling. Mr. E. L. Adams told of the work with rice at Biggs, Cal. The investigations there consist of varietal, cultural, fertilizer, and irrigation tests. The variety now generally grown is the Wataribune. This variety, however, is so late that the crop is sometimes injured by the early fall rains, so tests are now being conducted to find a substitute for this variety which will yield as well but which will mature at least two weeks earlier. Several promising varieties are now being increased for general testing. In the cultural tests the principal information so far obtained is that seeding about April 1 produces much better yields than that done a month or six weeks later. Mr. G. H. Godfrey discussed the diseases of rice, stating that although the crop is subject to numerous diseases few are of economic importance in the United States. The two which are most destructive in Louisiana and Texas are "blast," or "rotten neck," and "straight head," or rice sterility. It is thought that the best method of avoiding injury from these diseases is to produce resistant varieties. In the California rice fields there are as yet no destructive diseases or insects.

Field Pay Rolls.

In order to facilitate early mailing of pay checks to men in the field the privilege has been granted of making field pay rolls a few days before the end of the month in order that they may be ready for certification by the Chief of the Bureau on the first day of the succeeding month. This privilege is conditioned on notice being received from men in charge of field stations, before the termination of the month, of any necessary deductions. If such notice is

not sent in sufficient time to be received at this Office before the close of the last working day of the month, the above privilege will be revoked. It will then be required that men in charge of field stations prepare pay rolls and certify to them after the termination of the last day of the month. This probably would cause a further delay of from 7 to 10 days in receiving checks.

Arlington tickets.

It is desired that those who use car tickets between Washington, D. C. and Arlington give two days' notice when in need of new ticket books.

Secretary's Memorandum No. 117.

Amending Paragraph 104 of the Administrative Regulations: "Use of Penalty Envelopes".

Paragraph 104 of the Administrative Regulations of this Department is hereby amended to read as follows:

104. USE OF PENALTY ENVELOPES. Official mail matter in penalty envelopes must bear the words "Official Business" to entitle it to free transportation in the mails. The use of penalty envelopes to avoid the payment of postage on other than strictly official business is absolutely prohibited.

When an officer of the department writes to a private party on official business for information of value to the department he may inclose with his letter an official envelope properly addressed to himself to cover the reply.

Penalty envelopes or penalty labels must not be furnished merchants or others from whom articles are purchased for the delivery of such articles by transmission through the mails. Penalty envelopes furnished by the

department to persons not in the employ thereof, or who are not officers of the Government, must not be used by them for the transmission in the mails, free of postage, of any matter other than official information (correspondence) and indorsements relating thereto. But penalty envelopes addressed to the department may be furnished to publishers to be used by them in transmitting copies of their publications for which no charge is made, when such publications contain official information necessary to the department. Penalty envelopes bearing a return address may also be supplied to persons in possession of public documents for use by them in returning such documents to the department.

D. F. HOUSTON

Secretary.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Feb. 3. The maximum temperature for the past two weeks was 48 degrees (Jan. 23); minimum, 17 degrees (Jan. 22 and 31). Precipitation for this period has been 2.81 inches, of which 0.48 inch occurred in the form of snow. The precipitation for the month of January was 6.08 inches.

KANSAS:

Hays Branch Experiment Station. Jan. 23. The past week has averaged very cold with a minimum of zero. Two light snowfalls occurred accompanied by heavy wind. Little or no snow remained on the wheat land as a protection from the cold. Wheat does not look well on account of the dry, cold weather.

017

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OFFICE NOTES.

In the series of Bureau lectures which is being presented this winter at the New National Museum, Mr. M. A. Carleton discussed "The Problems of the Wheat Crop" on Saturday afternoon, February 13.

Mr. A. D. Ellison, of Nephi, Utah, and Mr. F. R. Babcock, of Williston, N. Dak., arrived in Washington on February 5 to prepare reports on their work during the past season.

Mr. E. F. Gaines, Cerealist of the Washington Station, was a visitor at the Office on February 6, while en route to Cambridge, Mass., where he will pursue graduate study in plant breeding at Bussey Institute for the next few months.

Dr. A. G. Johnson, assistant plant pathologist of the Wisconsin Experiment Station and agent in cooperative investigations of barley diseases, left Washington on February 4 after having spent a month in consultation with the various members of the scientific staff.

A series of investigations of seedlings of the different cereals is being conducted in the Arlington greenhouses, from which very interesting results have already been obtained. The greater part of the work is being done by Mr. K. H. Townsend, assisted by Mr. J. H. Martin, of the Bellefourche Experiment Farm.

Cereal Investigations Seminars.

At a special seminar on Saturday, February 6, Mr. E. F. Gaines, Cerealist of the Washington Station at Pullman, Wash., discussed the breeding of cereals which is being conducted at that station. Cereal breeding at Pullman was begun by Prof. W. J. Spillman in 1899, when he made a considerable number of crosses between varieties of wheat. These crosses have since been studied and selected by Professors Elliott, Lawrence, and Gaines. Among the best varieties produced is

one known as Hybrid 128, a white-kerneled club wheat which has averaged 42 bushels per acre in an 8-year field test at Pullman. Extensive studies of dominance in oat and barley hybrids have been made in the past three years by Mr. Gaines.

At the seminar on Tuesday, February 9, the general topic of nursery methods and machinery was discussed by the various field men. Considerable material of interest was brought out in this discussion, which it is hoped can be correlated and put into usable shape for all the field men at an early date.

At the seminar on Tuesday, February 16, the general topic of station results in 1914 was discussed. Each of the field men who is in Washington this winter presented a brief report on climatic conditions and crop yields at his station for the past year.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Feb. 17. The maximum temperature for the past two weeks was 63 degrees (Feb. 15); minimum, 18 degrees (Feb. 10). The precipitation for this period was 1.79 inches. Apparently considerable winter killing has occurred in some of the varieties of winter oats and barley. The frequent occurrence of periods of alternate freezing and thawing that have characterized the winter so far has been very unfavorable to winter grains.

KANSAS:

Hays Branch Experiment Station. Feb. 4. The month of January was below normal in temperature. The average maximum was 40.1 degrees and the average minimum 15.5 degrees compared with a normal for 12 years of 66 and 33 degrees respectively. The maximum for the month was 57 degrees on the 30th and the minimum, -5 degrees on the 23d.

The rainfall was 0.07 inch above normal, the total for the month being 0.68 inch. There were 10 clear days, 8 partly cloudy and 13 cloudy days. Heavy winds have prevailed throughout the month. The average velocity was 10.4 miles per hour.

No. 2 wheat, weighing 59 bushels, has touched a high mark of $1.48 at Hays.

Heavy freezing has been hard on the growing wheat. Indications are that a low winter survival will result in the tests of semihardy winter grains. If the snow that has fallen had remained on the fields less damage would have resulted, but it was blown by high winds and all level fields were swept bare. Furrowed and stubble fields retained a good covering of snow.

SOUTH DAKOTA:

Highmore Substation. Feb. 3. Weather conditions are very severe at the present time and have been for the past two days. A blizzard is at its height today. The snow is lodging in corn stalks and weeds to a depth of several feet. This additional moisture is usually of great value during the growing season. The winter grains have been covered with snow most of the winter and at the present time promise excellent survivals. The ground is frozen to a depth of 18 inches, which shows the most moisture in the soil at this time of year since 1910.

WASHINGTON:

State Experiment Station (Pullman). The maximum temperature for January was 40 degrees, minimum 6 degrees, mean 25.5 degrees. Snowfall 5 inches, equivalent to a rainfall of 0.95 inch.

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March 5, 1915.

OFFICE NOTES.

Dr. R. W. Thatcher, chemist of the Minnesota experiment station, visited the Office on March 3 and 4. While in Washington he consulted with Dr. Bunzell with regard to laboratory methods and apparatus and with Messrs. Carleton and Humphrey regarding the chemical investigation of disease resistance of plants.

Prof. T. A. Kiesselbach, agronomist of the Nebraska experiment station, spent the month of February in Washington, during which time he made several calls at this Office. While in Washington Professor Kiesselbach devoted most of his time to a study of the literature of water requirements of plants.

Each field man is asked to send in promptly a list of all the farm or other papers which are furnished him by this Office, together with any notices of expiration of subscriptions or any bills for papers which have been continued by the publishing companies notwithstanding such expiration. The list should give the exact title of each publication, together with the name and address of the publishing company.

It is very important that renewals be made at the proper time, for which purpose each station must keep the Office advised of the necessity therefor.

MEETING OF THE GREAT PLAINS COOPERATIVE ASSOCIATION.

The meeting of the Great Plains Cooperative Association is to be held at Mandan, North Dakota, July 14 to 16, 1915. It is very desirable

that the program be made up a considerable time in advance. All members of the staff who have, or can prepare papers suitable for presentation at this meeting should submit at once the proposed titles, together with a brief summary of the matter to be presented thereunder.

Suitable graphs and other charts greatly aid in the effective presentation of such papers. These charts can be prepared easily and attractively in Washington if the data are sent here some weeks before the paper is to be presented.

The following field men have returned to their stations: Mr. E. L. Adams, Biggs, Cal., February 13; Mr. J. Mitchell Jenkins, Crowley, La., February 20; Mr. Geo. A. McMurdo, Akron, Colo., February 20; and Mr. Ross R. Childs, Athens, Ga., February 27.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. March 3. The maximum temperature for the past two weeks was 61 degrees (Feb. 22); minimum, 24 degrees (Feb. 19, 20 and 21). Precipitation for this period has been 1.01 inches, and for the month of February 3.42 inches.

KANSAS:

Hays Branch Experiment Station. Feb. 27. The rain and snow which have fallen during the past 24 hours will prove very beneficial to winter wheat. It is probable that if favorable conditions continue a considerable acreage of oats and barley will be sown in Ellis County.

March 1. The month of February was uniformly mild in temperature. The average maximum for the month was 46.3 degrees; average minimum 26.5 degrees; absolute maximum, 66 degrees; absolute minimum, 13 degrees; and the average daily range, 19.8 degrees. The rainfall was 1.71 inches, which is 0.86 inch greater than the 40-year normal. The condition of the wheat has greatly improved because of the abundant moisture and mild temperature.

COLORADO:

Akron Experiment Farm. Feb. 26. Mr. McMurdo returned from Washington, D. C., yesterday. The survival of fall-sown grain apparently will be high. The seed bed is moist and little damage is anticipated from soil blowing. Very little frost remains in the ground. Snow is falling at the present time and the temperature is low.

There is considerable demand for seed of improved varieties of cereals for spring planting.

SOUTH DAKOTA:

Highmore Substation. Feb. 20. The fields at present have a covering of snow varying from 3 inches to 3 feet in depth as a result of the blizzard of Feb. 12-14.

From present prospects the acreage of Kubanka wheat and Manchu Brown kaoliang will be greatly increased in South Dakota this year.

Feb.26. Weather conditions continue severe and disagreeable. During the past week fogs and snow flurries have alternated. There should be little winterkilling of fall-sown grains, with the possible exception of those on fallow. The fallow does not retain the snow, hence the grains on it are exposed to every alternate thaw and freeze.

IDAHO:

Aberdeen Substation. Feb. 22. The winter has been mild and there is little snow in the mountains. A shortage of water for irrigation is feared. More moisture is needed for spring growth of wheat on the dry farms. The spring seems to be opening much earlier than usual. Frost is practically out of the ground.

7

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OFFICE NOTES.

Dr. L. H. Pammel and Mr. L. C. Burnett, of the Iowa Station, Dr. E. M. Freeman, of the Minnesota Station, and Mr. L. A. Fitz, of the Kansas Station, were visitors at the Office during the past week. While here Drs. Freeman and Pammel consulted with various officials regarding cereal disease studies. Mr. Burnett consulted with the various men in charge of special crops regarding the cooperative work with cereals at the Iowa Station.

Mr. Chambliss left the Office on the 12th instant for a month's trip for the purpose of inspecting the rice work at Crowley, La., and consulting state experiment station officials and others with regard to the production and commercial uses of rice.

On March 16 Mr. Carleton attended a conference in Chicago with officials of the North Dakota Experiment Station and dealers in flax seed, the subject under discussion being flax investigations. He returned to the Office on Friday morning.

The following field men have returned to their stations: Mr. John H. Martin, Newell, S. Dak., March 12; Mr. A. D. Ellison, Nephi, Utah, March 16; Mr. Jenkin W. Jones, Archer, Wyo., March 16; and Mr. F. R. Babcock, Williston, N. Dak., March 18.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. March 17. Cold, windy weather has prevailed the greater part of the past two weeks, with a maximum temperature of 58 degrees (March 14, and a minimum of 23 degrees (March 4). Precipitation during the period was 0.94 inch (March 6). One variety each of spring wheat and barley was sown in 1/20-acre plats on March 4.

GEORGIA:

State College of Agriculture. (Athens) March 9. All fall-sown grains that were put in during October are in excellent condition. Four plats of oats in the fertilizer test that were sown in November have been severely damaged by cold and the stand is poor. The date-of seeding plats show great difference between the sowings on Oct. 20 and Nov. 13. Spring growth is just beginning in most of the varieties.

(Ashburn and Quitman Substations) Spring growth is well under way and most varieties are in excellent condition. Nitrate of soda was applied to all plats about Feb. 15 at the rate of 100 pounds to the acre.

TEXAS:

Amarillo Cereal Field Station. March 13. During the period from Feb. 13 to Mar. 13 there was a maximum temperature of 71 degrees and a minimum of 17 degrees, with a minimum for the entire winter of 8 degrees. The precipitation for 1915 to March 13 has been 2.09 inches. The normal precipitation for the first three months is 1.86 inches.

The outlook for a winter wheat crop is encouraging, as there is but little winterkilling. The soil is now too wet for field work and spring seeding has been delayed.

Mr. A. B. Cron, of the Office of Forage Crop Investigations, returned from Washington this week. Mr. L. N. Jensen, who will this year have charge of the work of the Office of Dry-Land Agriculture, has also arrived.

The following additions will be made this spring to the forest-tree plantings, the trees to be sent from the Forest Service: 250 green ash; 250 red cedar; 100 Chinese arborvitae; 200 Scotch pine; 200 Austrian pine; and 100 jack pine.

KANSAS:

Hays Branch Experiment Station. March 12. Precipitation of 1.22 inches occurred in the form of snow on March 2-5. This is 0.17 inch in excess of the 40-year normal for the month of March. Bare places are only beginning to show on the level fields. Cloudy weather has prevailed for more than a week.

March 13. To-day is the first warm day since the last snow-fall and probably very little snow will remain by night. The plantings of spring grain will consist of 7 varieties of barley, 4 of oats, and 3 of wheat. These will be sown in rather large blocks, $\frac{1}{4}$ to $\frac{1}{2}$ acre in size.

COLORADO:

Akron Experiment Farm: March 8. The maximum temperature for the past week has been 32 degrees; minimum, -9 degrees. Eight inches of snow fell during the week.

Mr. Arthur E. Seamans of the Office of Dry-Land Agriculture returned from Washington on March 2.

CALIFORNIA:

Biggs Cereal Field Station. March 9. It is not now possible to do any field work on the Station. With a continuation of the present good weather, however the land will be in condition to work in about a week.

(State) Little field work has been done in most sections of the State during the past two months. Farmers are now busy preparing their land for seeding grain, especially barley. The acreage seeded to wheat and other grains will be much smaller than was

expected.

The acreage of rice will be considerably larger than that of last year but not as large as expected because water can not be delivered to several large tracts of land until after it is too late to seed rice.

Plant Introduction Garden. (Chico). March 9. Cereal crops are in good condition. The ground is packed as a result of the hard rains, which makes it necessary to work the land to break the crust.

OREGON:

Eastern Oregon Dry-Farming Substation. (Moro). Feb. 28. There was continuous cold weather during the last two weeks of January and the first week of February, with no snow to protect fall-sown grains. Though the minimum temperature during this period was 10 degrees above, the maximum temperatures during most of the period were below freezing. During the last three weeks in February mild weather has prevailed, and farmers in the northern end of the county have begun plowing.

The distribution of the winter precipitation has been very unfavorable, most of it coming when the ground was frozen, and the greater part was lost as run-off in February. In many places on fallow ground on the Substation there are gullies from 6 to 18 inches deep. Though the precipitation since Sept. 1 has been more than 8 inches, stubble ground is wet only about 14 inches deep. With about the same precipitation last winter the moisture had penetrated stubble ground about 4 feet. The total precipitation for January was 1.75 inches, and for February 2.31 inches.

The continued cold weather has given an opportunity to study the winter resistance of many of the grains usually grown in the Columbia Basin as winter varieties. All winter oats, including Boswell, Cliff, and Gray Winter, completely winterkilled.

The following barleys, some of them spring forms which have previously withstood the winters here, are completely killed: Black Hull-less, C. I. No. 618; Gatami, C. I. No. 575; Wisconsin Winter, C. I. No. 519; O. A. C. Winter barley; Two-rowed Winter, C. I. No. 647, and Mariout,

C. I. No. 261. The following barleys have survived with apparently little or no injury: Maryland Winter, C. I. No. 516; Chevalier, C. I. No. 612; Tennessee Winter, C. I. No. 257; Texas Winter, C. I. No. 554; and Utah Winter, C. I. No. 592.

Of the spring wheat varieties planted last fall, the following have been damaged: Karun, Early Baart, Marquis, and Palouse Bluestem. Karun completely winter-killed and the other three were injured in about the order named but will probably recover. Washington Little Club and several of the Washington State College hybrids are not injured. All wheats of the Turkey type have not been damaged at all and there are good stands on all plats. Large areas of winter wheat throughout the entire Columbia Basin in Oregon and Washington will have to be reseeded this spring.

Harney Branch Experiment Station. (Burns) March 1. The maximum temperature for February was 44 degrees on the 2nd and 18th; minimum, -2 degrees on the 13th. Precipitation for the month, 0.73 inch. Total precipitation from Oct. 1, 1914, to March 1, 1915, is 3.38 inches, compared with a normal for this period of 6.56 inches. This does not look favorable for the coming season. The soil is in ideal condition, however, for absorbing the moisture as the snow melts, the ground being unfrozen where the snow has lain all winter. Snow fell earlier than usual last fall and has covered the ground to a depth of several inches since the last of November. At the present time there is a covering of from 6 to 10 inches of snow over the fields, and more is now falling.

Continued cold weather during December, with a daily minimum between -12 degrees and -22 degrees for fifteen days; the cold weather of January, with a minimum of -26 degrees; and a number of frosts during the growing season last summer, have combined to kill over 75 per cent of the young fruit trees on the Station and to freeze all the young growth on the remainder. The covering of snow has served to protect the winter cereals and the winter survival on most of the plats will doubtless be excellent. Present indications are for a late spring and it is now doubtful if work can be commenced on the land before April 1.

WASHINGTON:

State Experiment Station. (Pullman). March 3. The weather in eastern Washington during February has been favorable for winter grain and for spring work. Some plowing is being done. Maximum temperature for February 50 degrees; minimum, 6 degrees; mean temperature, 31 degrees. Precipitation for the month, 1.78 inches.

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April 2, 1915.

OFFICE NOTES.

Mr. J. H. Parker left Washington March 27 to visit points in Indiana, Illinois, Wisconsin, Iowa and Minnesota in the interests of cereal disease work. He will make University Farm, St. Paul, Minn., his headquarters during the spring and summer months.

Dr. C. E. Leighty left Washington on March 29 to visit points in South Carolina, Georgia, North Carolina, Tennessee, and Virginia in the interests of investigations with wheat and minor cereals. He will return about April 12th.

Prof. W. M. Hays, formerly Assistant Secretary of Agriculture, was a visitor at the Office on March 30th. He discussed the subject of cereal breeding with the Cerealist and other specialists.

VIRGINIA:

Arlington Experiment Farm. March 31. The maximum temperature for the past two weeks has been 62 degrees (March 25); minimum, 21 degrees (March 23). There was no precipitation. The rainfall for the month of March was 0.94 inch. The very dry and windy weather of the past month has not been favorable to fall-sown grains.

TEXAS:

Amarillo Cereal Field Station. March 20. The maximum temperature for the past week was 67 degrees; minimum 19 degrees. There was only a trace of precipitation, which came in the form of light snows on March 16 and 19.

The cereal varieties, the rate-of-seeding experiment, and the first date-of-seeding experiment were sown on the 19th. Some head rows of oats have been planted in the nursery.

March 27. The maximum temperature for the week was 77 degrees and the minimum 16 degrees. Seeding of the small grains on the Dry-Land Agriculture plats and in the cereal nursery was completed during the week. Freezing of the ground has interfered to some extent with this work. The moisture condition of the soil is good.

KANSAS:

Hays Branch Experiment Station. March 27. A minimum temperature of 14 degrees was recorded on March 21. The past two weeks have been very cold, with light snows or rains nearly every day. Practically no field work has been done.

A. L. Hallsted, of the Office of Dry-Land Agriculture, has returned to the Station. L. E. Call, professor of agronomy, and J. B. Thompson, superintendent of substations, both of the Kansas experiment station at Manhattan, were recent visitors.

COLORADO:

Akron Experiment Farm. March 26. Four inches of snow this morning will prevent the beginning of field work for a few days. At this date last year a large portion of the field seeding was done. Farmers have started work in the field.

WYOMING:

Cheyenne Experiment Farm. (Archer) March 23. Upon his return to Archer, Mr. Jones reports that the winter has been dry with very little precipitation either in the form of rain or snow. Winter wheat varieties have apparently survived very well. All leaf growth has been cut off by the wind, but the plants appear to be green at the crown. If the present weather continues field work can be started the latter part of the week.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) March 27. The maximum temperature for the past week was 50 degrees; minimum, 4 degrees. The precipitation was .09 inch.

The ground freezes every night, but thaws partially each day. The ground is now bare except where there were drifts. No field work has been done thus far.

NORTH DAKOTA:

Williston Substation. March 27. Upon his return to Williston, Mr. Babcock writes that the weather is still very cold, the thermometer registering close to zero on several nights. Considerable snow remains between Williston and Fargo, but in the immediate vicinity of Williston the snow practically is gone. It is yet too early to report the condition of winter wheat. Reports indicate that it is doubtful whether water will be furnished this season for irrigation purposes.

UTAH:

Nephi Substation. March 29. Mr. Ellison arrived at the substation on March 25 after a two-day consultation with officials of the Utah experiment station at Logan. Dr. Harris inspected the work at the substation on the 26th. The winter precipitation has been normal and the indications are that there has been but a limited run-off. The soil conditions are good, with but little crusting or baking. Crops are in good condition for this time of the year. Field work will be begun this week if weather conditions will permit, although it is now cold and stormy.

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

OFFICE NOTES.

Beginning with this issue, the Newsletter will appear weekly until further notice.

Dr. C. E. Leighty returned from the South on April 6, having been compelled to postpone a portion of his trip because of the severe weather and backward condition of cereal crops.

Dr. F. Kølpin Ravn, Professor of Plant Pathology at the Royal Landbohøjskolens, Copenhagen, Denmark, will come to this country during the first week in May and engage in a series of conferences with officials of the United States Department of Agriculture and of State experiment stations on problems concerned with cereal cultivation, particularly cereal diseases. It will be remembered that Doctor Ravn has published particularly valuable papers on the leaf diseases of barley. His itinerary will be given later. He will be accompanied during his entire itinerary by one or more of the following men of the Office of Cereal Investigations: M. A. Carleton, C. E. Leighty, H. V. Harlan, and H. B. Humphrey.

In correspondence concerning the environmental experiments it is requested that no other subjects be included in the same letter, as such correspondence is filed separately.

Dr. Humphrey wishes to request that field men in looking over fields of wheat and barley this summer bear in mind that the cereal disease laboratory has encountered considerable difficulty in obtaining seed of these two cereals affected with loose smut. It is desired that if a field be found either on the stations or elsewhere in which there occurs two per cent or more of the loose smut, an effort be made to obtain about 10 bushels of grain from the same lot as the seed with which the field

was sown. It would also be well to obtain seed from the crop grown on that field, particularly if the other is not obtainable. The latter is, however, to be much preferred because the occurrence of loose smut in one year's crop does not necessarily insure the infection of the following year's crop, this being dependent upon conditions at the time of flowering.

FIELD NOTES.

TEXAS:

Amarillo Cereal Field Station. April 3. The maximum temperature for the week has been 73 degrees; minimum, 26 degrees; precipitation, 0.27 inch, in the form of a wet snow. The average wind velocity per hour for the past week was 6.8 miles; for the month of March it was 7.7 miles.

The sowing of spring wheat and oats in the date-of-seeding test was delayed for one day by the snow that covered the ground on April 1.

Five hundred and fifty rows of wheat were sown in the nursery during the past week. These grains are to be used for classification purposes.

The fallow land was cultivated to prevent blowing of the soil.

KANSAS:

Hays Branch Experiment Station. April 1. The month of March was characterized by low temperatures and much cloudy weather. The mean temperature for the month was 30.4 degrees; mean maximum, 38.6 degrees; mean minimum, 22 degrees. The absolute maximum was 63 degrees (27th) and the absolute minimum -2 degrees (9th). The precipitation amounted to 1.74 inches, most of it in the form of snow. The total is 0.69 inch above the normal. During March there were 4 clear, 6 partly cloudy, and 21 cloudy days. The average wind velocity for the month was 10.5 miles per hour.

Very little field work has been done. Snow and rain is falling today and some snow still remains from the fall of 3 inches on March 29 and 30.

April 9. April 1 and 2 were the first fair days of spring. Fields, especially where stubble held the snow, are still too wet for work. Wheat is in good condition. Winter oats are practically all winter-killed, as is also one winter barley. Four varieties of barley, one of emmer, and one of spelt show an average survival of about 50 per cent. Culberson winter oats planted in deep furrows is also entirely winter-killed.

COLORADO:

Akron Experiment Farm. April 2. The weather is clear and it is hoped that field work can be begun early next week. An inspection of the winter grains shows no signs of spring growth.

SOUTH DAKOTA:

Bellefourche Experiment Farm. April 3. The maximum temperature for the week was 52 degrees; minimum, 20 degrees; precipitation, 0.04 inch. The snow has practically disappeared, leaving the ground rather wet. No field work has been possible. The drills were calibrated and some seed was graded during the week.

Highmore Substation. April 7. The snow has practically disappeared during the warm weather of the past week. It was expected that the first sowing in the date-of-seeding tests could be made today, but a rain of 0.78 inch last night will probably prevent field work for several days. The frost is out of the ground to a depth of more than a foot. Very little water was lost when the snow melted, most of it being absorbed immediately. At present there is more moisture in the ground than at any time since 1909 and as a consequence crop prospects are excellent.

NORTH DAKOTA:

Dickinson Substation. April 5. Mr. Smith arrived at Dickinson on April 3 after an official stop at Fargo. He writes that the snowfall was very light in the vicinity of Dickinson, the ground being almost bare during

a part of the winter. The weather during the past two weeks has been cold. The ground is dry and remains frozen although it thaws a little each day. The winter rye sown at the station last fall seems to be in fairly good condition, but the winter wheat will probably show a large percentage of winterkilling.

Scarcely any farm work has been done in the vicinity of Dickinson. The large area of fall plowing indicates that an unusually large acreage of spring wheat will be sown.

Williston Substation. April 3. With the exception of the past two days the week has been cold. Considerable snow still remains in shaded spots and low places. It is reported that some farmers in this section have already been at work in their fields.

There has been a great demand for seed of spring wheat. Approximately 600 bushels of Power Fife (C.I.No. 3697) grown on the substation has been sold to farmers in the vicinity. There has also been a demand for Siberian oats (C.I.No.742) and Williston No. 170 barley (C.I.No.882).

MONTANA:

Judith Basin Substation. April 5. It is planned to begin spring work tomorrow, about two weeks earlier than usual.

Winter wheat is in fine condition, not only at the substation but throughout the Judith Basin. The winter has been quite dry, but as there has not been much wind little winterkilling has resulted.

IDAHO:

Aberdeen Substation. April 5. Winter wheat on the substation and in the vicinity indicates but half a crop. The fall growth was slight because of scanty rainfall and the cold, open winter caused considerable winterkilling. Many farmers are reseeding with spring grains. Seeding was begun April 1, when field peas were sown.

The work in all the spring cultivation experiments, with the exception of the late harrowing and plowing tests, has been completed. All summer-fallowed plats, with the exception of those in the rotations, have been plowed and put in condition for fallow. Spring work is well advanced.

In order to insure good stands on the irrigated portion of the farm it will be necessary to irrigate all land which is to be sown to small grains or planted to intertilled crops.

CALIFORNIA:

Biggs Cereal Field Station. April 3. A two-inch rainfall early in the week has stopped field work. There has been little favorable weather for the preparation of land for rice, though work on the station is well advanced.

OREGON:

Harney Branch Experiment Station. (Burns) April 1. Maximum temperature for March, 71 degrees (22d); minimum, 8 degrees (5th); total precipitation for March was 0.57 inch, compared with a normal of 1.34 inches. The total precipitation from October 1 to April 1 is 3.95 inches; normal, 7.90 inches. The winter's precipitation has wet continuously cropped wheat stubble land to a depth of 17 inches, as compared with 15, 12, and 26 inches for 1912, 1913, and 1914 respectively. Wheat yielded 4.5, 3.5, and 13.8 bushels per acre respectively for the three years, on the continuously cropped plats.

Preparation of the soil for seeding began earlier than was expected, the first work being done March 17. Most of the land is now disked, and field peas will be sown within a few days. The spring cereals will be sown between April 15 and May 1. Winter emmer, spelt, barley, oats, wheat, and rye were sown March 18 in twentieth-acre plats, continuing tests begun last year to determine the value of these cereals for early spring sowing. Another sowing of each will be made on April 5 to determine how late it is safe to sow these crops.

Fall-sown cereals show winter survival of 1 to 85 per cent for wheat, 60 to 70 per cent for rye, 1 per cent for emmer, 0.5 per cent for spelt, 0.0 for oats, and 0.1 to 0.5 per cent for barley.

17

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

April 16, 1915.

OFFICE NOTES.

Page proof of Mr. Carleton's article for the 1914 Yearbook, "Hard Wheats Winning their Way," was read during the week.

Mr. T. R. Stanton, who has had charge of the cereal work on the Arlington Experimental Farm for the past four years, in the future will assist Mr. Warburton in oat investigations.

Effective about May 1, Mr. A. D. Ellison will take charge of the cereal work on the Arlington Experimental Farm and Mr. J. W. Jones will become superintendent of the Nephi Substation.

Mr. V. H. Florell, of Cleveland, Okla., a graduate of the Kansas State Agricultural College, has been appointed scientific assistant in the Office of Cereal Investigations, effective April 20. Mr. Florell has been assigned to the Cheyenne Experiment Farm at Archer, Wyo.

Mr. Jos. D. Smith, of Missouri, has been appointed agent in the Office of Cereal Investigations. Mr. Smith will have charge of the experiments being conducted cooperatively by this office and the Missouri station at Columbia, Mo.

Department Bulletin No. 183, "Morphology of the Barley Grain with Reference to its Enzym-Secreting Areas," by Drs. Albert Mann and H. V. Harlan, was issued April 13. This is a bulletin of 32 pages, with 8 plates and 7 text figures.

Mr. C. T. Wetherill, of Philadelphia, chairman of the Flax Development Committee, and Mr. Chas. T. Nolan, of New York, a member of that committee, consulted with Mr. Carleton on April 13 regarding the flax investigations for the year. The Flax Development Committee represents the interests of the manufacturers of paint and color, varnish, linoleum and oil-cloth, and lead and zinc.

APPROPRIATIONS FOR 1916.

The Appropriation Act for the Department of Agriculture for the fiscal year ending June 30, 1916, was passed by Congress and approved by the President on March 3, 1915. The following paragraph relates to the work of the Office of Cereal Investigations:

"For the investigation and improvement of cereals and methods of cereal production, and the study of cereal diseases, and for the investigation of the cultivation and breeding of flax for seed purposes, including a study of flax diseases, and for the investigation and improvement of broom corn and methods of broom corn production, $142,005: Provided, that not less than $40,000 shall be set aside for the study of corn improvement and methods of corn production."

This is an increase of $7,500 over the appropriation for the fiscal year ending June 30, 1915. This increase was made with the definite understanding, however, that $5,000 was to be devoted to additional investigations of cereal rusts and that $2,500 was to be devoted to the establishment of a new experimental farm at or near Waterville, Washington.

FISCAL REGULATIONS.

Paragraph 28 of the Fiscal Regulations has been amended to read as follows:

"All REQUISITIONS for the purchase of supplies, or for job work, in EXCESS of $100 must be APPROVED BY THE SECRETARY, except in case of the Weather Bureau and the Forest Service, which may issue requisitions for amounts not exceeding $500; but NO AUTOMOBILES, motor boats, OR other motor-driven vehicles, no CAMERAS or LENSES, and no MEDICINES for personal use (see paragraph 78, section m), shall be PURCHASED WITHOUT SPECIFIC AUTHORITY of the Secretary."

Paragraph 4, section c, of the Fiscal Regulations has also been amended by the insertion of the words, "the purchase of cameras and lenses," after the words "the purchase of medicines for personal use."

The object of these amendments is to require that on and after April 1, 1915, the approval of the Secretary shall be secured for the purchase of all cameras and lenses.

CEREAL CONFERENCE IN CALIFORNIA.

An interstate conference on investigations of cereals to be held in California, has been announced for May 25-28, 1915. This is a conference of investigations in all phases of cereal research, at which such topics will be discussed as (1) Problems of Pacific Coast wheat production; (2) improvement of barley for the Pacific Coast; (3) problems in cereal smuts; (4) grading, milling, malting, and baking; (5) weed control in cereal production; (6) tillage and crop rotation; and (7) insect enemies of cereals. It is expected that Dr. F. Kølpin Ravn, Professor of Plant Pathology at the Royal Landbohøjskolens, Copenhagen, Denmark, will be present. The conference will meet at Merced, Cal., Tuesday, May 25, for a field inspection of cereals in the San Joaquin Valley; on May 26 the conference proper will begin at the University of California, Berkeley; on May 27 the program will be continued at the State Experiment Farm, Davis, including an inspection of the farm; and on May 28 the plant introduction garden at Chico and the cereal field station at Biggs will be inspected.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. (April 14). Owing to the slight rainfall since March 1, the ground has become very dry and fall-sown grains, especially winter oats and barley, are making very slow growth. Rain is much needed. Weeds are now being removed from the winter oat nursery. Maximum temperature for the past two weeks, 83 degrees (April 10); minimum, 30 degrees (April 5). Precipitation, 0.94 inch, of which 0.84 inch occurred in the form of snow on April 3.

GEORGIA:

State College of Agriculture. (Athens) April 12. The following varieties of barley are beginning to head: Tanbash Hull-less; Arlington Awnless; Virginia Hooded; Hannchen; Hanna; Orel; and Chevalier. The weather has been warmer since April 1 and all grains are growing fast. Precipitation for the past month has been very low.

(Ashburn Substation). April 1. The following varieties of barley are heading: Orel; Tanbash Hull-less; Arlington Awnless; Hannchen; and Hanna. A local variety of rye called South Georgia is practically fully headed. Abruzzes rye is also heading, but is about ten days later than the South Georgia.

(Quitman Substation). March 31. The same varieties of barley and rye are heading as at the Ashburn Substation, but the dates of heading were all about one week earlier. Fishhead wheat (C.I.No.1732) is also beginning to head. About 60 per cent of the heads of Arlington Awnless barley, which was fully headed at this date, were killed by cold. About 10 per cent of the heads of Tanbash Hull-less barley, which was not so far advanced, were also killed.

Dr. C. E. Leighty visited the Quitman Substation on March 31, the Ashburn Substation on April 1, and the station at Athens on April 3.

TEXAS:

Amarillo Cereal Field Station. April 10. Excellent stands of spring grain have been obtained. Rainy and cloudy weather has prevailed so that but little field work could be done. Seven hundred of the large number of forest trees mentioned in the Newsletter of March 19 were transplanted during the past week. The maximum temperature for the past week was 80 degrees; minimum, 35 degrees; precipitation, 0.96 inch.

COLORADO:

Akron Experiment Farm. April 12. The field plats of winter wheat and rye are beginning to make good growth, but a portion of the nursery is not in good con-

dition. Fall-sown emmer, barley, and oats seem to have winterkilled almost entirely. Considerable seed grain has been distributed from the station this spring. The weather is again clear, and field work was started this morning.

WYOMING:

Cheyenne Experiment Farm. April 10. Nearly all the winter-wheat varieties survived the winter in good condition. The early date-of-seeding tests are looking particularly well. It has not been possible to sow any spring grains, as the weather for the past two weeks has been cold and stormy. Some plowing and disking has been done, but the ground is too wet for best results. Little farm work has been done in this section of the state.

SOUTH DAKOTA:

Bellefourche Experiment Farm. April 12. Growth of winter grain and alfalfa started about April 3. The survival of fall-sown grain seems to be nearly 100 per cent. Recent rains have prevented work in the fields, but the soil is now almost in condition to till. Maximum temperature for the week ending April 10, 60 degrees; minimum 38 degrees; precipitation, 0.42 inch.

NORTH DAKOTA:

Dickinson Substation. April 10. The land for the varietal plat tests has been disked and sowing will begin next week. Farm work in general was begun in the neighborhood about April 7. Two light showers occurred during the week, but high winds the past two days caused the surface moisture to evaporate rapidly. Maximum temperature for the week, 73 degrees; minimum, 36 degrees.

Williston Substation. April 10. The frost is sufficiently out of the ground to permit work. No sowing has been done either on the Substation or by farmers in the vicinity, but plowing, disking and harrowing have been in progress. The ground for the cereal varieties has been disked and floated with a planker and is in fairly good condition, but it will be harrowed before sowing. The ground for the nursery has also been disked.

Winter wheat is beginning to make some growth, and indications are that the winter survival will be fairly good.

Maximum temperature for the week has been 68 degrees; minimum, 25 degrees; precipitation 0.27 inch. High winds the past two days caused some blowing of the soil.

UTAH:

Nephi Substation. April 10. The soil is in good condition from recent rains and the cereal crops are growing well. No spring sowing has been done yet, as the soil is still too wet to work. The weather during the past week was cloudy, with a total precipitation of 0.71 inch. Maximum temperature for the week, 67 degrees (April 10); minimum, 30 degrees (April 9).

7

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

April 23, 1915.

OFFICE NOTES.

Mr. C. B. Williams, agronomist of the North Carolina Station, was a visitor at the office on April 20.

Mr. Chambliss returned on the 16th instant from his trip in the South in the interests of rice investigations.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. April 21. The winter rye and some of the early barleys are beginning to head. Clear, dry weather has prevailed during the past week, with a maximum temperature of 88 degrees (April 20) and a minimum of 33 degrees (April 15). The precipitation for the week has been 0.03 inch.

GEORGIA:

State College of Agriculture. (Athens) April 20. There has been practically no rainfall at this point since about March 1, and all grains are beginning to suffer. There is also difficulty in obtaining good stands of corn and cotton. The following varieties of barley are fully headed: Tanbash Hull-less; Arlington Awnless; Chevalier; Virginia Hooded, Orel; Hanna, and Hannchen. Winter Two-Rowed and Bavarian are 50 per cent headed, while Princess, Mammoth, Wisconsin Winter, and Tennessee Winter are just beginning to head. Of the oats, Fulghum, Early Ripe, and Burt are beginning to head.

COLORADO:

Akron Experiment Farm. April 19. Spring-wheat varieties were sown in field plats on April 14 and 15. Oats were sown on the 17th. The ground is ready for barley and flax. The nursery seeding was started on the 16th. High winds have made the work very disagreeable.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) April 19. Series I, field E, and series I, field F, were double-disked and harrowed during the past week and the fallow in series II, field F, was harrowed. The varietal tests of wheat, oats, and barley were sown. The rate-of-seeding test and the first plats of the date-of-seeding test were sown on the 14th. Winter wheat is growing rapidly. The maximum temperature for the week was 83 degrees; minimum, 28 degrees; precipitation, 0.38 inch.

Highmore Substation. April 18. The first of the date-of-seeding plats were sown today, and if the present favorable weather continues most of the seeding will be finished by the last of the week. Winter grains are doing well. Winter rye has an excellent survival in all the fields, and winter wheat is fairly good in the corn stalks, where it was protected. The rabbits have injured the winter wheat on fallow ground to a considerable extent, therefore it is difficult to determine whether or not winterkilling was severe.

NORTH DAKOTA:

Dickinson Substation. April 17. The unprotected winter wheat which was barely alive a week ago apparently is dying. The plats sown in standing corn stalks will show a much better survival. Winter rye has survived the winter well. The sowing of wheat and oat varietal plats is completed with the exception of the Ghirka wheat selections. All land to be sown,

except that for the flax varieties, has been disked to retain moisture. It is planned to sow the flax on sod ground yet to be broken. The weather for the past week has been warm, dry, and windy. The maximum temperature was 85 degrees; minimum, 26 degrees; precipitation, trace.

Williston Substation. April 17. The varietal plats of wheat, oats, emmer, spelt, and rye, the rate-of-seeding tests with wheat and oats, and the April 15 plats in the date-of-seeding tests with wheat and oats were sown on the 15th and 16th instant.

The dry-land plats on which small grain was grown last year are so dry that it is difficult to plow them to a depth of more than 6 inches. Unless rain falls soon there is likely to be poor germination on most of the continuously cropped land. The week has been warm and very favorable for field work. The maximum temperature was 86 degrees; minimum, 29 degrees; no precipitation.

Superintendent Ruzicka has obtained about 2 acres 2 ½ miles northwest of the Substation for a term of 3 years or longer. This land is representative of the general type of farm land outside the Williston Valley, being a rather heavy soil known as the Williams loam. It is practically level and appears to be very uniform. It is to be used to test some of the standard varieties of cereals best adapted to the Williston district. This land produced a crop of wheat last year. It was fall plowed and was harrowed just before seeding. The following varieties were sown in duplicate fortieth-acre plats on April 16:

Wheat;- Kubanka, Taganrog, Power, Ghirka, Marquis, Dakota bluestem, Preston and World Beater.

Spelt and emmer.

Oats;- Siberian, Swedish Select, White Russian, and Sixty Day.

Barley;- Williston, Hannchen, and Oderbrucker.

Flax, Black Voronezh proso, and Kursk millet will be sown later.

Since most of the varieties just mentioned are also grown on the substation, it will be possible to make a comparison of these varieties on the sandy loam of the substation and the rather heavy loam representative of the soil type which is most common throughout the Williston district.

UTAH:

Nephi Substation. April 18. Fall-sown crops are stooling well and making good growth. Field work has been in progress the past week and most of the spring sowing has been done. The recent rains have put the soil in good condition for plant growth, and to date it has been impossible to do spring plowing. The maximum temperature for the week ending April 17 was 76 degrees (April 12); minimum, 34 degrees (April 16); precipitation 0.11 inch.

17

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

April 30, 1915.

OFFICE NOTES.

Dr. Leighty left Sunday evening, April 25, to visit points in the South that he was obliged to omit from his itinerary of the trip begun March 29. He will return to Washington about May 3.

Mr. Champlin suggests in a recent letter that inasmuch as the cereal investigations on all of the experiment farms in South Dakota are in cooperation with this Office, all requests for seed from the South Dakota stations be sent to him at Brookings. This suggestion is made because it frequently happens that a request to one of the substations cannot be filled there. It is then sent to Brookings and filled from that station or forwarded to one of the other farms. Sending all requests direct to Brookings often may effect a considerable saving of time.

According to Memorandum No. 134, of the Secretary's office, the Farmers' Bulletin entitled "The Agricultural Outlook," will be discontinued with the issue of April, 1915. Beginning with May, 1915, and monthly thereafter, estimates of acreage, condition, yield, production, prices, and values of crops and live stock will be published in a serial of the Bureau of Crop Estimates entitled "The Monthly Crop Report." This change is made to expedite the publication of these data. The special articles heretofore included in the Agricultural Outlook will now be published in the Weekly Newsletter of the Department or in some other form.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. April 28. Weeds are now being removed from the winter wheat nursery. Winter wheat and barley are making some growth despite the dry weather, but winter oats are practically at a standstill. The past week has been very warm; in fact, has broken all records of recent years for high temperatures in April. Maximums of 95, 92 and 96 degrees were recorded on April 25, 26 and 27 respectively. The minimum for the week was 44 degrees (April 22). There has been no precipitation.

GEORGIA:

State College of Agriculture. (Athens) April 27. All small grains are suffering from the dry weather. Oats are heading out very low and the indications are for a short crop. Wheat appears to be resisting the drought fairly well. Some of the earlier varieties of wheat are beginning to head. A small amount of rust has appeared in the nursery but none has been observed in the plat tests. The rainfall for March was 2.81 inches, most of which fell in the early part of the month. The normal for March is 5.2 inches. To date there has been no rainfall this month, compared with a normal of 3.72 inches.

TEXAS:

Amarillo Cereal Field Station. April 24. All fall and spring small grains are growing rapidly. The plats in the date-of-seeding test were sown April 22, one week late because the soil was too wet to work on the 15th. A number of fruit trees, to replace others which have died, were planted during the week.

Crop prospects are excellent all over the Texas Panhandle. There is sufficient moisture in the soil for the growth of small grains till heading time.

Maximum temperature for the week, 79 degrees; minimum, 40 degrees. Precipitation for the week, 0.87 inch; for the month, 3.02 inches.

KANSAS:

Hays Branch Experiment Station. April 21. During the past week all plat borders have been trimmed, some wheat cultivation has been done, and a few moisture determinations have been made. Kaoliang stubble sown to wheat shows an average moisture content for the first 6 feet of 21.9 per cent, while bare summer fallow sown to wheat shows 20.5 per cent. The greater moisture content of the kaoliang stubble plat is due to the snow held by it. The week has been favorable for farm work. Station work and that of the farmers is somewhat behind because of bad weather in March.

April 24. Field work was stopped during the afternoon by a precipitation of 0.78 inch, which fell without run-off. The hail which accompanied the rain was not heavy enough to damage any crop on the station. Winter wheat and rye are very rank in growth on the cereal project.

The second annual round-up of western Kansas cattlemen was held at the station yesterday. On account of threatening weather and delayed farm work the attendance was small, only 200 men being present.

A date test of 4 varieties of corn for smut studies was planted yesterday and 28 varieties of corn were planted on bottom land today. Listing on upland for duplicate tests has begun and planting will be done when soil conditions will permit.

seeding test of oats was sown on the 20th. In addition, 336 sixty-foot rows of the wheat and oat nursery were sown. The sowing of the rod-rows was begun on the 21st but was stopped by rain. Heavy showers prevented any field work during the latter part of the week. The maximum temperature for the week was 83 degrees; minimum, 34 degrees; precipitation, 1.70 inches.

Highmore Substation. April 24. Farm work has progressed rapidly the past week. All small grains have been sown except the rod-row nursery and the late date-of-seeding tests. The date-of-seeding test sown on April 12 has emerged in excellent shape, as have also the eight-rod rows and the head rows in the nursery. A precipitation of 0.64 inch on Thursday night and Friday did much good, as the high, hot winds of the preceding week were taking the surface moisture rapidly. Winter grains are doing well.

NORTH DAKOTA:

Williston Substation. April 24. Field work has been in progress during the week until today, when it was stopped by rain. This rain was sufficient to insure germination of the grains sown recently. The increase field of Power wheat, about 25 acres, was sown. The varieties of wheat and oats in field plats were seeded over a week ago and the barleys will be sown early next week. The following rod rows of wheat were sown in duplicate in the nursery: 50 pure lines each of Power and Ghirka, 20 pure lines of Marquis, and 96 miscellaneous varieties and strains.

It now appears to be settled that the Reclamation Service will not supply water to the farmers on the Williston Project this summer.

Maximum temperature for the week, 80 degrees; minimum, 35 degrees; precipitation, 0.38 inch.

Dickinson Substation. April 26. The seeding of varieties in plats and of wheat in the nursery is completed. Winter wheat appears to be dead except where protected. Winter rye was injured by the dry, windy weather this spring.

The weather during the week has been dry and windy. Maximum temperature, 84 degrees; minimum, 36 degrees; precipitation, 0.65 inch (April 23 and 24).

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

May 7, 1915.

OFFICE NOTES.

A. A. Potter left Washington May 1 for points in the North Central and Great Plains States to investigate the problem of smuts in cereals. He probably will not return until the end of June.

C. H. Clark left on May 3 for points in the Southwest in the interests of flax investigations.

On May 5 and 6, respectively, C. E. Leighty and M. A. Carleton went to New York City to meet Dr. F. Kölpin Ravn on his arrival from Denmark on the steamship "Hellig Olav," and to accompany him to New Brunswick, N. J., and Amherst, Mass., where he will lecture before the colleges of agriculture at those points. Mr. Carleton, after visiting grain dealers and others interested in cereal production in Baltimore and New York, will return to the Office on May 10. Dr. Leighty will continue his journey with Dr. Ravn to State College, Pa., Ithaca, N. Y., Lafayette, Ind., Urbana, Ill., Madison, Wis., Lincoln, Nebr., and Manhattan, Kans. He expects to return to Washington about May 26. Dr. Ravn's further itinerary will be given in future issues of the Newsletter.

G. H. Godfrey left Washington today to visit points in the South to investigate cereal diseases. He will return about June 5.

FIELD NOTES.

VIRGINIA:

Arlington Farm. May 5. Owing to the dry and very warm weather during the last two weeks of April, all the winter grains are heading unusually early.

Practically all of the varieties of winter rye and barley are nearly fully headed, while the early varieties of winter wheat and oats are beginning to head. If it does not rain soon, the straw of the various cereals will be the shortest yet harvested at the Arlington Farm. Maximum temperature for the past week, 87 degrees (April 28); minimum, 46 degrees (May 2); precipitation, 0.14 inch, and for April, 1.11 inches. Total precipitation for March and April, 2.07 inches, as compared with an average of 6.77 inches for the previous ten years.

GEORGIA:

State College of Agriculture. Mr. Childs writes on May 4 as follows:

Ashburn Substation. May 3. The earlier varieties of barley will be ready to harvest by the 6th. Some oats and wheat will be ready to harvest in about 10 days. The weather is dry but all grain is looking very well.

Quitman Substation. May 4. Harvesting was begun with the earlier varieties of barley today. The earlier varieties of oats and wheat will be harvested in about one week. All grains have suffered from dry weather and are very short, making harvesting difficult. Wheat, barley, and rye have been rather badly damaged by leaf rust. Rabbits have caused considerable damage on some plats. For the first time in a month rain is falling today.

TEXAS:

Amarillo Cereal Field Station. May 1. All small grains are growing well. Winter rye is heading, and winter wheat entirely covers the ground in the plats. Leaf spots resembling rust are appearing

on the rye and wheat. During the week some of the roads on the farm were seeded with winter rye to keep down weeds. The plats have continued too wet for any team work. Maximum temperature for the week, 85 degrees; minimum, 45 degrees; precipitation, 1.87 inches.

KANSAS:

Hays Branch Experiment Station. April 30. Three plats of winter rye seeded on Sept. 21 are beginning to head. Winter barley plats look promising even though badly winterkilled. Wheat on fallow is very tall and rank and though seeded at rates of 30 to 38 pounds per acre has stooled until at this time it is too thick.

The grain sorghum area has been cultivated, leveling the lister ridges in preparation for relisting and planting. Corn planted on bottom land April 23 may not germinate on account of cold, wet weather. Upland planting of corn will be made as soon as the ground is dry enough to work.

Messrs. Umberger and Hall, of the Division of Farm Extension of the College at Manhattan, were recent visitors at the station.

The month of April has been favorable to plant growth but unfavorable for farm work. The mean temperature for the month was 56 degrees; mean maximum, 69 degrees; mean minimum, 43 degrees. The absolute maximum was 80 degrees (April 28) and the absolute minimum 2 5 degrees (April 2). The precipitation amounted to 3.13 inches, which is 0.79 inch above normal. The rainfall for the first four months of the year is 3.16 inches above normal. During the month of April there were 4 clear, 8 partly cloudy, and 18 cloudy days.

COLORADO:

Akron Experiment Farm. May 1. Good stands of spring wheat, oats, and barley have been obtained, but growth is slow. Flax is beginning to emerge, but the stand cannot be estimated yet. The average survival of winter wheat appears to be about 75 per cent. Nursery planting is again delayed because the soil is too wet to work.

Mr. R. L. Piemeisel, of the Office of Alkali and Drought Resistant Plant Investigations, arrived at the Farm on April 29. Supt. O. J. Grace made an official trip to Fort Collins during the week in connection w ith cooperative work being conducted at the Farm.

In the vicinity of the Farm much of the wheat was sown last fall on poorly prepared land. The growth is not yet sufficient to cover the ground.

Since April 23 the precipitation has amounted to 3.74 inches. The weather is again cold and cloudy and there has been but little warm weather.

WYOMING:

Cheyenne Experiment Farm. April 30. Owing to several rainy days during the past week the seeding of spring grains has been retarded. The rate-of-seeding tests with oats and the varietal tests of spring common wheats were sown. Nearly all of the varieties of oats in the nursery have been sown. The soil in the nursery was in excellent condition.

A series of plats which is to be sown to Kherson oats and Arnautka wheat for increase has been plowed, double disked, and is now being harrowed. These will be seeded as soon as the weather permits.

Winter wheat is making a vigorous growth. None of the spring-sown grains except those in the date-

of-seeding tests sown April 16 have emerged. Of these, Svanhals barley, C. I. No. 187, is making a strong start; Spring Turkey wheat, C. I. No. 4154, medium strong; Kherson oats, C. I. No. 459, medium; and North Dakota flax, C. I. No. 3, shows a scattered growth.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) May 3. Seeding has been very much delayed this s eason by the late thawing and the frequent rains which have followed, although everything which has been sown is growing rapidly. A strip of corn ground in Field O was prepared for the seeding of the irrigated grains. Owing to the unfavorable weather only a few rod-rows were sown during the week. Maximum temperature, 79 degrees; minimum, 39 degrees; precipitation, 0.87 inch. The total rainfall for the month of April was 2.58 inches.

Highmore Substation. May 1. Rain on April 26 delayed field work the first part of the week. Conditions have been favorable since Tuesday, however, and field work now is well advanced. Nursery seeding of small grain practically is finished and the greater part of the earlier seeding has emerged.

Agricultural Experiment Station. (Brookings) May 3. There is abundant moisture throughout the State this spring and prospects for a crop were never more favorable at this time of the year.

MINNESOTA:

University Farm, St. Paul. April 28. Weather has been unusually warm for April, with frequent showers during the week. The cereal disease work this year is located on the new land used by the Division of Botany and Plant Pathology, north of the campus. Sufficient land will be available for cereal

rust work to provide for a two-year rotation. During the present week, 657 4-foot rows of the wheat classification nursery, 200 10½-foot rows of wheat varieties, and 877 10½-foot rows of individual hybrid selections have been sown. An extensive series of experiments to determine the effect of nitrogenous and phosphate fertilizers upon cereals and rust development is planned.

NORTH DAKOTA:

Dickinson Substation. May 1. Nursery seeding during the week has been completed as follows: Oats, 133 strains; barley, 111 strains; pure-line selections, 140 strains; wheat classification, 786 strains. A few selections and crosses of wheat remain to be sown, also the nursery tests of prosos and grain sorghums and the plat tests of flax varieties. The plat varieties of wheat and oats have emerged. The weather has been dry and windy. Maximum temperature, 78 degrees; minimum, 34 degrees; precipitation, trace.

May 3. A snow storm yesterday (precipitation about 1 inch) will benefit the nursery and plats.

Williston Substation. May 1. Despite the daily high winds and the fact that there has been no precipitation for over a week the ground is in very good condition. Wheat and oats sown in field plats the middle of April and the April 15 date-of-seeding tests of oats, barley, and flax have emerged. The rod-row plantings of wheat in the nursery are also up. The varieties of barley in field plats were sown the last week in April, and the varieties of flax in field plats and the May 1 date-of-seeding tests were sown today.

In the Newsletter of April 16 it was reported that there was apparently a good survival of winter wheat. Four hardy varieties were sown last fall in barley stubble, between corn rows with all stalks standing, between corn rows with every fifth row of stalks

standing, and on bare fallow. All varieties winterkilled entirely on the bare fallow. There is a survival of from 5 to 30 per cent in the barley and corn stubble, with the highest survival in the former. Sixty-foot rows of a number of selections sown without protection totally winterkilled. A number of crosses made last year between bearded winter wheat and Buffum's Winter, C. I. No. 3330, sown without protection show about 50 per cent survival.

Maximum temperature for the week, 79 degrees; minimum, 34 degrees; no precipitation.

UTAH:

Nephi Substation. April 26. Spring-sown crops are beginning to emerge and are in good condition. Fall-sown crops at the substation and in the vicinity are looking well. Several farms on the Levan Ridge have been reseeded on account of winterkilling of the fall-sown crops. Cool, partly cloudy weather has prevailed during the past week. Maximum temperature for the week was 72 degrees (April 19); minimum, 36 degrees (April 2 1); precipitation, 0.21 inch.

May 1. The weather has been rather cold and stormy during the past week. It has been too wet to do any field work since April 28. Most of the spring crops have been seeded and are emerging well. The plowing for fallow will undoubtedly be late, due to the wet weather. The temperature dropped to 16 degrees on April 30 and undoubtedly did considerable damage to alfalfa, which was about 12 inches high. It is too early to tell just what effect the frost had on the cereals.

Mr. Ellison leaves this evening for Washington.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

May 14, 1915.

OFFICE NOTES.

To avoid confusion with the Weekly Newsletter of the Department, the designation of the newsletter of this Office has been changed with the present issue to "Notes of Cereal Investigations."

In the Notes of April 16 there appeared an announcement of the Cereal Conference in California. Attention is called to the following changes: The conference will meet at Stockton instead of Merced on Tuesday, June 1, instead of May 25; on June 2 the conference proper will begin at Berkeley; on June 3 the program will be continued at University Farm, Davis; and on June 4 Chico will be visited.

As stated in the Notes of May 7, Dr. Ravn's itinerary will be continued as follows: El Paso, Texas; Tucson, Casa Grande, Sacaton, and Yuma, Arizona; El Centro, San Diego, Los Angeles, Merced, Stockton, Berkeley, Davis, Chico, San Francisco, Sacramento, and Chico, California. Lectures will be given by Dr. Ravn at the following places: Ithaca, N. Y., May 14-15; Lafayette, Ind., May 16-17; Madison, Wis., 18-19; Lincoln, Nebr., May 20; Manhattan, Kans., May 21-22. The lecture at the latter place is the last one. In the next issue of the Notes Doctor Ravn's itinerary will be continued. As stated last week, Dr. Leighty will accompany Dr. Ravn as far as Manhattan, where Dr. Harlan will join him and continue with him to Stockton, Cal.

Mr. Carleton returned to the Office on Monday morning, May 10, after meeting Dr. Ravn on the latter's arrival from Denmark and accompanying him, with Dr. Leighty, to New Brunswick, N. J., where Dr. Ravn delivered his first lecture, of a semi-popular nature, on the plant diseases of Denmark in relation to agricultural development.

Mr. C. W. Warburton left Washington Saturday afternoon, May 8, to visit points in Georgia, Alabama, Tennessee, and North Carolina in the interests of oat investigations. He expects to return about May 19.

Mr. A. D. Ellison arrived in Washington Saturday morning, May 8, to take charge of the cereal work on the Arlington Experiment Farm to succeed Mr. T. R. Stanton.

All field men are requested to send to this Office any agronomic note books which they do not expect to use this season. This is required so that there may be as many as possible on hand to fill requests for these books for immediate use, pending receipt of a new supply.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. May 13. Winter wheat and barley in plats are almost fully headed. Winter barley in the nursery is beginning to ripen, and winter wheat in the nursery is almost fully headed.

Previous to the rain of May 12 the crops had suffered to some extent from the dry, hot weather. Maximum temperature for the past week, 82 degrees (May 8); minimum, 41 degrees (May 6); precipitation, 0.90 inch (May 12).

TEXAS:

Amarillo Cereal Field Station. May 8. Field work has been in progress all week, with the exception of May 6, which was cold, windy and disagreeable. Flax varieties in both field and nursery plats were seeded.

The freeze of May 6 did practically no damage to wheat and oats. Fruit and shade trees were not in full leaf and expanding leaves were damaged. Many seedling weeds that had grown to a height of half an inch were killed. Maximum temperature, 72 degrees; minimum, 29 degrees; precipitation, 0.08 inch.

WYOMING:

Cheyenne Experiment Farm. (Archer) May 7. During the past week the field plats of durum wheat, barley, and early forage crops were sown. The seeding of the oat nursery has been completed, but the sowing of the date-of-seeding plats was delayed for several days on account of bad weather. One series of the increase plats of Kherson oats and Arnautka wheat was seeded. Ten acres of a mixture of peas and oats were sown in the large field as a forage crop. All preparation of seed beds on the Dry Land Agriculture plats is finished, and all field crops with the exception of flax and corn have been sown.

The weather has been cold and unsettled, with a snowfall on the 5th and snow flurries several times during the week. Maximum temperature for the week, 61 degrees; minimum, 23 degrees; precipitation, 0.75 inch. During 6 nights the temperature has been below freezing.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) May 10. The soil was too wet for field work the first four days of the week. The ground for the irrigated grains was harrowed and staked and the varietal plats of irrigated wheat and oats were seeded. Another set of the date-of-seeding tests of wheat and flax was seeded. Maximum temperature for the week, 67 degrees; minimum, 28 degrees; precipitation, 0.16 inch.

Highmore Substation. May 8. All grains are growing rapidly and look excellent. The first three days of the week were wet and cold, 1.17 inches of rain having fallen during that time. On the night of the 5th a temperature of 25 degrees was registered and the ground was frozen until nearly noon of the next day. This severe freeze did very little damage considering its severity. The millets in the date-of-seeding test sown on April 12 were killed, but apparently this was all the damage done to cereals. Some flax seedings were just emerging, but even these were not injured. Temperatures of 31 and 32 degrees were registered on the nights of May 6 and 7 respectively, but these frosts did no further damage.

MINNESOTA:

University Farm, St. Paul, Minn. May 8. Seeding of the bulk hybrid selections was completed on April 29. Since that date there have been seeded the following: The rust-selection-in-wheat experiments; the nursery increase plats of rust-wheat hybrids; the loose-smut experiment (wheat and barley); material for crossing; and natural-and-commercial-fertilizer plats for wheat rust tests. All plantings that have emerged are making good growth and conditions are excellent.

The weather for the past week has been cold and wet. Maximum temperature, 58 degrees (May 5); minimum, 32 degrees (May 7).

NORTH DAKOTA:

Dickinson Substation. May 8. The seeding of the nursery is completed with the exception of prosos and grain-sorghums. The flax varietal plats were seeded this morning. All the varieties on plats and the wheat varieties in the nursery have emerged. The germination of crops has been retarded by the cold, blustering weather of the past week, but the severe freeze of this morning

seems not to have done any damage. Maximum temperature, 59 degrees (May 8); minimum, 22 degrees (May 8); precipitation, 1.07 inches, mostly in the form of snow on May 2 . The much-needed moisture soaked into the ground with a minimum of evaporation.

Williston Substation. May 8. Field work has progressed during the week and all the seeding is nearly finished. In the nursery only flax and proso remain to be seeded, and in the field plats only proso is to be sown. Corn and potatoes are being planted. The rather dry spring has been favorable for field work, and farm work in the vicinity of the substation is well advanced.

Maximum temperature for the week, 64 degrees; minimum 17 degrees (May 8); no precipitation. The freeze this morning severely affected all the wheat and oat plants, which were about an inch high. The leaves were blackened and wilted but the plants probably will revive.

UTAH:

Nephi Substation. May 8. Practically all the spring seeding is done. The soil is too wet to plow except where considerable growth has taken place this spring. Cold, stormy weather has prevailed during the past week. Temperatures of 32 degrees or lower have been recorded each day, and the fruit crop in this section of the State has been quite extensively damaged.

OREGON:

Eastern Oregon Dry-Farming Substation. (Moro) April 30. All spring seeding, including that of corn and sorghums, has been completed. Spring grains have emerged with good stands in most cases. Winter rye is beginning to head. Present indications are that the harvest season this year will begin about two weeks earlier than usual. Though the spring has been warm and the rainfall slight, no cereals appear to be suffering for moisture.

In eastern Oregon the weather for the months of March and April has been favorable for the growth of all crops. The rainfall has been but little more than normal for these months, but the temperatures have been considerably higher than normal and the wind movement less than normal.

The mean temperature for the month of March was 46 degrees, two degrees higher than the mean temperature for any previous March. The mean temperature for April was 51 degrees, four degrees higher than any previous record for the month. The highest temperature for March was 70 degrees on the 21st; the lowest, 30 degrees on the 24th and 25th. The highest temperature for April was 75 degrees on the 16th and 27th; the lowest, 32 degrees on the 8th. The total precipitation for March was 1.27 inches; for April, 0.65 inch. The total evaporation for April was 5.227 inches, the highest for the month of April since 1911.

Harney Branch Experiment Station. (Burns) May 1. Work is progressing satisfactorily. The spring wheat varieties were seeded on the 19th of April, and the oat varieties on the 22d. A fertility rotation series containing 105 plats has been started, and tillage and alkali correction series have been laid out, containing 20 and 12 plats each. The orchard has been replanted.

Maximum temperature for April, 83 degrees (April 28); minimum, 24 degrees (April 8, 15 and 23); precipitation, 0.90 inch, compared with a normal of 0.84 inch. There were 18 nights with temperatures below freezing. On April 30 and May 1 the average wind velocity was 25 miles an hour for the 48 hours, accompanied by snow, and temperatures ranging between a maximum of 37 degrees and a minimum of 25 degrees. Little damage was done for the reason that very little of the spring seeding had emerged. Early seeded plats of spring wheat, oats, barley, and spring rye were frosted but not seriously damaged, with the exception of Early Baart wheat, which probably was reduced 50 per cent in stand.

It is likely that barley sown some time ago in the vicinity of the station will be damaged by this frost and the fruit crop probably will be ruined.

Professor Scudder, Agronomist of the Oregon Experiment Station, and Professor French, State Leader of County Demonstrations, were visitors at the sub-station during the month of April.

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

May 21, 1915.

OFFICE NOTES.

Attention is again called to the necessity for becoming thoroughly familiar with the new Fiscal Regulations, dated February 1, 1915, especially with regard to details of travel reimbursement. This will save much trouble and possible loss to the traveler.

In this connection it should be noted that there are issued from time to time amendments to the Fiscal Regulations. These are printed in the form of leaflets corresponding in size to the Fiscal Regulations and are sent to all users thereof. Careful attention should be given to these amendments.

In accordance with Memorandum from the Chief of the Bureau for Heads of Offices, B. P. I., dated April 20, 1915, copies of which have been mailed to interested field men, requests for appointments should be sent in early enough to have the appointments made and received before the date it is desired to have the appointees begin work.

The first number of the Departmental Circular was issued on May 10. Copies of this number have been sent to each member of the Office. The matter which it contains, as stated in the Foreword, is intended to give Department employees a more complete knowledge of the work and purposes of the Department. The publication will be of a similar nature to the "house organ" of large business houses.

Dr. Humphrey left Saturday, May 15, for points in Tennessee, Louisiana, Texas, Arizona, California, Oregon, Washington, Idaho, Utah, Colorado, Minnesota, and Wisconsin for the purpose of inspecting work with cereal diseases and to attend the Cereal Conference at Stockton, Berkeley, Davis, and Chico, Cal. He will return to Washington about July 6.

Dr. Harlan left Washington on May 15 for points in Illinois, Kansas, Texas, Arizona, California, Oregon, Washington, Idaho, Montana, North Dakota, Minnesota, and Wisconsin to confer with experiment station officials and others concerning work with barley, to meet Doctor Ravn at Manhattan, Kans., and to attend the Cereal Conference at Stockton, Berkeley, Davis, and Chico, Cal. He will not return to Washington until about the second week of August.

Mr. Rothgeb left Washington on May 18 for Woodward, Okla., and Amarillo, Tex., to plant broomcorn and the grain sorghums on the Woodward Field Station and the Amarillo Cereal Field Station. He will return about June 15.

Mr. Ball left on May 20 to visit points in Texas, New Mexico, Arizona, California, Oregon, Washington, Idaho, Utah, and Nevada in the interests of western wheat investigations. He will return about September 1.

Mr. Chambliss left Washington on May 20 for points in Louisiana, Texas, Arizona, California, Minnesota, Wisconsin, and Illinois in the interests of rice investigations, and to attend the Cereal Conference at Stockton, Berkeley, Davis, and Chico, Cal. He will return about June 25.

Mr. Warburton returned from his southern trip on the 19th. He reports a large increase in the cereal acreage in the Southeastern States, due to the low price of cotton last fall and the general desire of southern farmers to produce a larger portion of their feed stuffs. The greater part of the increased acreage is in oats, though there is also a considerable increase in the acreage of wheat. Severe and unusual cold weather in November and December caused material injury to late-sown grain. The crop was further injured by the low rainfall of March and April, but was benefited to a considerable extent by good rains from May 7 to 11.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. May 20. Barley in the field plats is beginning to ripen. Oats in field plats are almost fully headed, and winter wheat in both field plats and nursery is in good condition and fully headed. Rogueing of the cereal plats has been in progress during the week.

Cool, windy weather has prevailed during the past week. Maximum temperature, 81 degrees (May 13); minimum, 41 degrees (May 18); precipitation, 0.30 inch.

GEORGIA:

State College of Agriculture. (Athens) May 18. As a result of the heavy rains from the 8th to the 11th instant, all small grains are much improved. The earlier varieties of barley were harvested on May 14 and 15. The earlier varieties of oats are beginning to ripen.

At the Ashburn and Quitman substations all earlier varieties of barley and oats were harvested during the first two weeks in May.

Mr. C. W. Warburton, of the Office of Cereal Investigations, visited the three stations during the past week.

TEXAS:

Amarillo Cereal Field Station. May 15. The strong winds of the past week have caused a rapid drying of the surface soil. Winter rye is 50 per cent headed. Winter wheat is nearing the first heading stage, while barley is just past it. Flax has emerged.

The Office of Dry-Land Agriculture is erecting a soil-drying room on the farm. It is a frame building covering 10x12 feet of ground space.

Some of the farmers in the immediate vicinity of the station are beginning to seed grain sorghums.

WYOMING:

Cheyenne Experiment Farm. (Archer) May 14. All growing crops are making rapid progress because of the warmer weather. Winter rye has already jointed and is now from 8 to 10 inches high. Winter wheat has finished tillering and is beginning to joint. The present prospects for this crop are excellent. The spring grains,- common wheat, durum wheat, barley, and oats in the increase plats,- have just emerged or are emerging. All nursery seeding has been finished, while the oats and some of the barleys in the nursery have emerged.

The flax varieties have been treated with formalin solution preparatory to seeding. The work was facilitated by the use of a hand spray after the seed was spread thinly on a canvas. This method has been found more effective and satisfactory than sprinkling by hand.

A gas tractor was used during the past week to plow 25 acres of stubble land for silage corn. The land was rather wet for traction plowing and the seed bed was left lumpy, but the subsurface packer is being effectively used.

Over 3,000 trees, including ash, pine, and arbor vitae, were set out during the week. It is expected that they will make a good start, as the soil is well supplied with moisture.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) May 17. The varietal tests of barley and flax were seeded on the irrigated land. Some grain mixtures were also seeded under irrigation. The varietal and rate-of-seeding tests were sown on the dry land. The seeding of the nursery was completed and the counting of stands was begun.

Highmore Substation. May 15. Weather conditions during the week have been favorable for field work and plant growth. A precipitation of 0.31 inch on the night of the 14th prevented field work the next morning, but the regular date-of-seeding tests were sown in the afternoon. All crops are making good growth.

MINNESOTA:

University Farm, St. Paul. May 15. The weather has continued cool, with frequent showers. All cereal seeding is completed and plants are making good growth.

Mr. Parker left St. Paul on the 16th. He will spend a day at Ames, Ia., and a week at Manhattan, Kans., studying cereal rust problems.

NORTH DAKOTA:

Dickinson Substation. May 15. The warm weather of the past week has hastened the germination of the cereals. In the nursery everything except a few head-row seedings have emerged. The stand is quite uniformly good in both plats and nursery.

The rate-of-seeding tests of Hannchen barley were sown May 10 and the flax in the environmental experiments May 13. The few surviving plants in the unprotected winter-wheat plats have been transplanted to the nursery in order that the ground might be sown to other crops and the growth of weeds prevented.

Mr. Manley Champlin, of the South Dakota station, visited the substation on May 14.

The maximum temperature for the week was 79 degrees; minimum, 37 degrees; precipitation, 0.75 inch.

Williston Substation. May 15. All the small grains that were affected by the freeze mentioned last week have fully recovered and are making good grow th. Flax had not emerged sufficiently to be hurt.

The week has been one of almost continuous high winds. The precipitation for the week was 0.28 inch. During an electrical storm on May 14, 0.50 inch of rain fell. Rain has also fallen continuously today. Maximum temperature for the week, 85 degrees; minimum, 35 degrees.

UTAH:

Nephi Substation. May 15. The weather for the past week has been favorable for plant growth. All winter cereals were harrowed on the 12th and 13th. Spring seeding was finished on the 11th. Spring plowing for fallow is progressing.

CALIFORNIA:

Biggs Cereal Field Station. May 10. The cool weather continues, with a recent precipitation of 1.25 inches. There has been no warm weather during the past four weeks. Rice which was watered 3 weeks ago has not emerged, though it has germinated well.

Much of the early sown rice on commercial fields has rotted and reseeding will probably be necessary. As nearly as it is possible to estimate, about 30,000 acres will be sown to rice in California this year, but the crop will be late because of the unfavorable spring.

NOTES

~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

May 28, 1915.

OFFICE NOTES.

Dr. Leighty returned to the Office on the morning of the 25th. He met Dr. Ravn in New York upon the latter's arrival from Denmark on May 6 and accompanied him to 8 colleges of agriculture, these being New Jersey, Massachusetts, Pennsylvania, New York, Indiana, Wisconsin, Nebraska, and Kansas. Dr. Ravn delivered one or more of the following addresses at each place: "The Development of Plant Pathology and Modern Agricultural Progress in Denmark;" "Heredity and Plant Diseases;" and "Possibilities of Determining Losses in Cereals Due to Fungous Diseases."

From Manhattan, Kans., Dr. Leighty returned to Washington and Dr. Ravn proceeded to the southwest and to California to attend the Cereal Conference beginning at Stockton on June 1.

Dr. Ravn, after attending the Cereal Conference in California, will continue his journey to the following points: San Francisco, June 5-6; Sacramento, June 7; Chico, June 8; Medford, Ore., June 9; Corvallis, Ore., June 10; Portland, Ore., June 11. His further itinerary will be given in future "Notes."

Mr. Carleton left Washington on May 27 for points in Kansas, Texas, Arizona, California, Oregon, Washington, Montana, Idaho, Utah, Wyoming, and Colorado for the purpose of inspecting cooperative cereal work and consulting with pathologists, millers, grain dealers and others interested in cereal investigations and to attend the Cereal Conference in California from June 1 to 4.

Dr. Humphrey, writing from Lake Charles, La., under date of May 21, gives the following notes regarding his trip. In southwest Virginia the cereal crops were suffering from the effects of the long drought and much of the wheat hardly will be worth cutting. At the Tennessee station the three Helminthosporium diseases common to barley throughout the upper Mississippi Valley States were noted. Between New Orleans and Baton Rouge, La., thousands of acres of rice in very fair condition were seen. In the vicinity of Crowley, La., conditions have been very unfavorable to the sowing of rice, as there has been little rain since early March. It has not been possible to prepare a suitable seed bed, hence much of the rice in this district is being sown in rough, dry soil. In the neighborhood of Lake Charles there has been more rainfall and the rice crop is in much better condition.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. May 27. The harvesting of winter barley in the nursery is in progress. Most of the winter barley in field plats is over 50 per cent ripe and harvesting will begin this week. All cereal crops are filling well since the recent rains.

Maximum temperature for the past week, 88 degrees (May 22); minimum, 41 degrees (May 20); precipitation, 1.15 inches.

TEXAS:

Amarillo Cereal Field Station. May 22. All grains are making good growth. The rainfall of the past week will be of much benefit, particularly to the wheat crop. The wheat and oat plats are being trimmed.

Mr. B. B. Holland was appointed on the 17th instant to assist in the grain-sorghum work.

Maximum temperature for the past week, 85 degrees; minimum, 36 degrees; precipitation, 1.10 inches.

OKLAHOMA:

Woodward Field Station. May 22. Mr. Rothgeb, who arrived at Woodward on May 21 to plant grain sorghums and broomcorn at the Woodward Field Station, writes that due to an unusually heavy rainfall the ground was too wet for cultivation. From Jan. 1 to May 22 about 15 inches of rain have been recorded, which equals the total precipitation for the entire year 1914. Winter wheat on the station has made excellent growth and is almost fully headed. Except for some development of leaf rust, which may yet affect the crop, the indications are favorable for an excellent yield. Spring wheat and oats have not made very much growth. Corn has emerged and promises to make a good stand.

KANSAS:

Hays Branch Experiment Station. May 18. All the corn and a small acreage of kafir have been planted. Cutting has begun on the 360 acres of alfalfa to be harvested.

Mr. W. W. Burr, of the Office of Dry-Land Agriculture, visited the station on May 15 and 16.

The weather is cold and rainy today.

May 20. There are reports of considerable damage from Hessian fly in the vicinity of Wichita and the eastern part of the State, but there is no indication of this trouble in the winter wheat on the station.

May 25. The early date-of-planting test of grain sorghum, seeded May 10, will make a fair stand.

the week. Monday night, May 17, rain began to fall. This soon turned into snow, which continued two nights and a day, covering the ground to a depth of 8 inches. This snowfall stopped the seeding of grain.

Maximum temperature for the past week, 58 degrees; minimum, 23 degrees; precipitation, 0.7 inch.

SOUTH DAKOTA:

Bellefourche Experiment Farm. May 24. The last plats in the date-of-seeding test with wheat and one set in the same test with flax were sown during the week. The ends of all plats were trimmed and the roads were scraped to remove weeds. Practically all of the spring-sown grains have emerged and are growing rapidly.

Maximum temperature for the past week, 65 degrees; minimum, 30 degrees; precipitation, 0.31 inch.

Highmore Substation. May 22. Nearly all the grain sorghum and corn is planted and the varietal plats of millets and prosos will be sown early next week. Damp, misty, cold weather on the 20th and 21st prevented field work. Frost on the 17th, 18th, and 19th with minimum temperatures of 28, 27 and 28 degrees, respectively, did practically no damage to cereal work other than to kill back the early seedings of millet and proso. Corn and grain sorghums are not believed to be injured, as germination scarcely had begun.

Maximum temperature for the week, 66 degrees (May 19); minimum, 27 degrees (May 18); precipitation, 0.41 inch (May 20 and 21).

NORTH DAKOTA:

Dickinson Substation. May 24. All unprotected winter wheats were almost entirely winterkilled. The low percentage of survival probably was caused as much by dry, windy weather in the early spring as by lack of protection from snow in winter. The more ex-

posed plats of winter rye show a survival of less than 50 per cent, while those less exposed show good stands. Winter rye will head in a few days. The germination of flax in the nursery has been retarded by the cold weather. Freezing weather on May 17, 18 and 19 did some damage to emerging flax on the varietal plats. Barley and wheat were slightly injured.

The weather during the past week has been cold, with several showers. Maximum temperature, 56 degrees; minimum, 24 degrees; precipitation, 0.55 inch.

Williston Substation. May 22. All grains except kaoliang have been seeded. Most of the small grains are from 1 to 2 inches high and the stands are generally good. The rain of a week ago materially aided germination. Seeding is practically finished throughout the farming district.

The past week has been very cold and vegetation has made little growth. Maximum temperature, 63 degrees; minimum, 28 degrees (May 17 and 18); precipitation from May 10 to 15 inclusive, 1.06 inches.

UTAH:

Nephi Substation. May 22. All crops appear to be growing well in spite of the cold, stormy weather, although little field work has been done. The first series of soil samples has been taken and the results show a relatively low percentage of moisture to the depth of 6 feet.

Maximum temperature for the past week, 82 degrees (May 17); minimum, 36 degrees (May 22); precipitation, 2.33 inches, most of which fell on May 17, 18 and 19.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

June 4, 1915.

OFFICE NOTES.

Revised itineraries for all travel to be performed after June 30, 1915, should be sent to this Office at the earliest possible moment so that new authorizations may be requested for the coming fiscal year; otherwise, they will be prepared according to itineraries now in hand. Transportation requests will be mailed in time for travel on July 1 in cases where itineraries have been supplied.

If unforeseen changes must be made in itineraries effective July 1, telegraphic communication concerning them should reach this Office not later than June 28.

Page proof of Farmers' Bulletin 678, entitled "Growing Hard Spring Wheat," by Messrs. Ball and Clark, was read during the week; also galley proof of Farmers' Bulletin 680, entitled "Varieties of Hard Spring Wheat," by the same authors.

Mr. C. R. Letteer has been transferred from the Office of Western Irrigation Agriculture to take charge of cereal investigations at the Woodward Field Station, Woodward, Okla., this work being mainly with grain sorghums and broomcorn. Mr. Letteer begins his duties with this Office on June 15.

Mr. J. A. Clark left Washington on June 1 for points in Texas, Kansas, Colorado, Wyoming, and South Dakota in the interests of western wheat investigations. He will return about September 1.

Mr. G. H. Godfrey returned on May 30 from his visit to southern points and reports a profitable trip in the interests of cereal diseases.

On May 28 Mr. Stanton inspected grain fields in the vicinity of Laurel, Md. There appears to be an increased acreage of winter grains, particularly of wheat. Wheat is just past the heading stage and is quite free from smut. While the straw will be shorter than usual, the heads apparently are filling well and indications are favorable for an excellent yield. Winter barley is ripening rapidly and a good crop will be harvested. The one large field of winter barley that was inspected was badly infested with covered smut. Winter oats are not so promising, as the crop was more or less winterkilled. Spring oats are making vigorous growth and are looking well.

Mr. C. H. Clark returned from his trip through the Southwestern States on May 29. He reports that at Phoenix, Ariz., and Bard, Cal., he found the experimental fall seedings of flax making a very promising growth, particularly the varieties from India and Abyssinia. These varieties mature earlier than the others under test, afford more time for subsequent crops, and are likely to yield better. At San Antonio, Tex., and at Davis and Chico, Cal., the unusually cool and wet season has favored the growth of some of the early northern varieties, as conditions have been very similar to those which prevail in the northern flax-growing section in normal years. The tests made this season appear to indicate that flax is a promising crop for the irrigated areas of New Mexico, Arizona, and southern California, and also, perhaps, for some of the dry-farmed areas in the Southwest if suitable varieties are sown.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. June 3. Harvesting of winter barley in nursery and field plats is in progress. The recent rain has lodged all cereal crops considerably. Maximum temperature for the week, 80 degrees (May 31); minimum, 41 degrees (May 27); precipitation, 3.54 inches, of which 3.27 inches fell between 10 P. M., June 1, and 8 A. M., June 3. The rainfall during this period was not torrential at any time, so that there was little run-off. The total rainfall for May was 2.74 inches; the normal for the month is 3.83 inches.

GEORGIA:

State College of Agriculture. (Athens) May 31. The earlier varieties of oats and the later varieties of barley were harvested during the past week. Some of the earlier varieties of wheat are ready to harvest, but cutting is being delayed by rain.

At the Quitman and Ashburn substations harvesting was finished during the past week with the exception of one variety of oats and one of rye.

TEXAS:

Amarillo Cereal Field Station. May 29. In the May 14 issue of "Notes" mention was made of the fact that practically no damage was done to wheat and oats by the freeze of May 6. It appears now, however, that the leaves have been injured from some cause, although it is impossible to tell whether this is due to lack of moisture or to the freeze. The condition is local in extent, no entire plat being affected. It is seriously interfering with the heading of the plants. The seeding of all grain sorghums, with the exception of some late date-of-seeding tests, was finished on May 28. Maximum temperature for the week, 91 degrees; minimum, 46 degrees; precipitation, 0.66 inch.

OKLAHOMA:

Woodward Field Station. May 29. Mr. Rothgeb reports as follows: Planting of broomcorn and grain sorghums was completed today. The past week has been so rainy that field work could be done on only 2 ½ days. Practically all row crops on the station which were planted before the rains of the past two weeks will have to be replanted. Rainfall for the past week 1.30 inches.

Poor stands have resulted from the early planting of row crops throughout this section. The heavy rains either have washed the seed out or covered it to so great a depth that the young plants can not emerge. Numerous inquiries have been received at this station for seed of kafir and milo. Some of the farmers claim that they will have to replant their entire acreage of these crops.

KANSAS:

Hays Branch Experiment Station. June 1. Very little field work has been done during the week. A part of the corn planted before the recent rains will have to be replanted, as will also some kafir listed in about May 15. Wheat has made a rank growth and the earliest sowing is just beginning to head, indicating a late harvest. There is some rust and loose smut. Spring grains are beginning to head and good yields are expected. Alfalfa is starting second growth, though very little of the first crop has been cut or stacked.

The month of May was cold and wet. The mean maximum temperature for the month was 69.9 degrees and the mean minimum, 46.6 degrees. The absolute maximum was 93 degrees and the absolute minimum 33 degrees. There were 15 rainy days during the month, with a total rainfall of 6.62 inches. This is 3.51 inches above the normal for May. The total rainfall for the year to date is 14.17 inches, 6.01 inches above normal.

COLORADO:

Akron Experiment Farm. May 29. Winter cereals are making rapid growth. Rye is beginning to head. The cold, rainy weather has delayed the seeding of prosos and grain sorghums. Field plats are being labeled. Maximum temperature for the week, 77 degrees; minimum, 37 degrees; precipitation, 1.57 inches.

WYOMING:

Cheyenne Experiment Farm. (Archer) May 28. Winter wheat and rye are looking exceptionally well; the latter is from 12 to 20 inches high, some being in boot and some heading. Spring seeding is nearly finished. During the past week sorgos, prosos, corn, and potatoes were planted in field plats. About 25 acres of silage corn and 10 acres of millet were also sown. The cold weather of last week did little damage except to the leaves of the young trees. Winter rye was slightly injured. Maximum temperature for the week, 78 degrees; minimum, 35 degrees; precipitation, 0.34 inch.

Mr. W. W. Burr, of the Office of Dry-Land Agriculture, visited the Farm on May 23 and 24.

SOUTH DAKOTA:

Highmore Substation. May 29. All crops have been sown except the late date-of-seeding tests with millet, proso, and flax and the varietal tests with millet and proso. Winter rye is over 50 per cent headed. The winter rye seeded early in the spring on the roads is stooling heavily, so that the entire road surface is covered. The frosts of last week and the cold weather of this week have destroyed a large part of the weed growth. Weather conditions have been favorable for plant growth but unfavorable for field work. Precipitation for the past week, 2.02 inches.

Agricultural Experiment Station. (Brookings) May 27. Mr. Manley Champlin, Collaborator with this Office, reports as follows on the cereal investigations work at the various South Dakota stations:

Brookings. All cereal nurseries have emerged and are in excellent condition. All varietal plantings are in good condition, winter grains having survived exceptionally well.

Cottonwood. Seedings of wheat, oats, and barley in the varietal and rate-of-seeding tests were finished last week. All of the seedings of flax in the date-of-seeding tests are completed, except the June 1st and 15th dates. The seeding of wheat, oats, and barley was delayed by heavy and frequent rains, so that the work w a was not completed until about 3 weeks later than usual. All of the small-grain seedings at this station are put in by the three-row group method, which has been devised for growing cereals on dry land, except certain plats for comparison in each farm system.

Eureka. Corn planting has been finished. All cereals are growing and in good condition in spite of freezing weather during the week. Winter wheat has survived the winter well under a mulch of 3 tons of straw per acre applied in the fall, though the same variety completely winterkilled on fallow and corn ground without the mulch.

Highmore. Planting of corn and grain sorghum in the nursery was completed during the week. Freezing weather injured the early seeded millet and thinned the stands of some of the durum wheat plats.

Vivian. Sixty Day oats is the only small grain sown. The land is being prepared as rapidly as possible for planting corn and grain sorghum.

NORTH DAKOTA:

Dickinson Substation. May 31. Prosos and grain sorghums were seeded in the nursery on May 28 and 29. Winter rye is almost fully headed. The germination

of flax is uneven because of freezing weather. All crops are in good condition because of recent rains, but the continued cool weather had retarded growth. Maximum temperature for the week, 72 degrees; minimum, 35 degrees; precipitation, 1.54 inches (May 26). Precipitation for the month, 3.90 inches, compared with a normal of 2.60 inches.

Williston Substation. May 29. Seeding of all grains has been completed and the trimming of plats is now in progress. The weather has continued cool but all crops are growing well. Maximum temperature for the week, 78 degrees, minimum, 37 degrees; precipitation, 1.02 inches.

MONTANA:

Judith Basin Substation. May 22. Flax was seeded in the nursery and on the varietal plats May 6; this completed the seeding of the cereals. All the spring grains have emerged with good stands but have made little growth during the past ten days because of the cold weather. The past week has been cold and cloudy, with considerable wind.

IDAHO:

Aberdeen Substation. May 27. Spring wheat stands are only fair on the dry land. On irrigated land all crops are in excellent condition, with good stands in practically all cases. Cut worms are seriously damaging alfalfa and small grains, particularly alfalfa and winter wheat on the dry land. All cultural and rotation plats are now being blocked and squared up. Recent heavy rains have been of great value to crops on the substation and in the surrounding country. The weather has been cold for the past two weeks and crops are growing very slowly.

NOTES

NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

June 11, 1915.

OFFICE NOTES.

Mr. Anthony left on the 10th instant to take notes on and harvest the cooperative barley nursery at the University Farm, St. Paul, Minn. He will not return until the middle of September.

Mr. Rothgeb returned from Woodward and Amarillo on June 7.

The annual meeting of the Great Plains Cooperation Experiment Association will be held at Mandan, N. Dak., July 14-16, 1915. A tentative program for this meeting has been mailed to the field men in the Great Plains area.

Farmers' Bulletin 678, entitled "Growing Hard Spring Wheat", by Messrs. Carleton R. Ball and J. Allen Clark, was issued on June 10, 1915.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. June 10. The harvesting of winter barley in the nursery has been completed. Winter wheat and oats in nursery and field

plats are beginning to ripen. Birds are doing considerable damage to wheat and oats. This pest completely destroyed many rows in the barley nursery. The weather of the past week was fair and warmer. Maximum temperature, 83 degrees (June 7); minimum, 49 degrees (June 3); no precipitation.

TEXAS:

Amarillo Cereal Field Station. June 5. With a precipitation of 0.84 inch in four separate showers it was not possible to work continuously in the field. During this period work was done on the line fences on the Farm. Maximum temperature for the week, 86 degrees; minimum, 48 degrees; precipitation, 0.84 inch.

Mr. J. A. Clark arrived June 4 to study the wheats in the classification nursery.

KANSAS.

Hays Branch Experiment Station. June 5. Very little field work was done during the week because of the continuous rains. Wheat in experimental tests on fallow is in very bad condition, being badly lodged and twisted by the wind. Rye and winter barley are not lodged. Wheat on fallow is just beginning to head generally, though several strains are 50 per cent headed. Winter wheat on the commercial field which was stubbled in is heading. Three spring barleys, Beldi, Gatami, and Mariout, are 50 per cent headed. A pedigreed strain of Burt x Sixty Day oats is 5 days earlier in heading than common Burt. The 5 varieties of winter barley which were given the modified hot water treatment and planted in tenth-acre plats show no loose smut and only two plants infested with covered smut have been found. There is again quite a little loose smut of wheat this year.

Precipitation for the week, 1.04 inches.

WYOMING:

Cheyenne Experiment Farm. June 4. All spring seeding is now finished. During the week the last of the date-of-seeding tests with flax and 10 acres of sorghum for forage were sown. The Dry-Land Agriculture and Cereal Investigations plats have been trimmed. Maximum temperature for the week, 69 degrees; minimum, 37 degrees; precipitation, 0.79 inch.

SOUTH DAKOTA:

Bellefourche Experiment Farm. June 7. All grains are making excellent growth. Winter rye is fully headed. The ground was too wet for field work during the greater part of the past two weeks, and it has not yet been possible to plant the sorghums. Maximum temperature for the past week, 75 degrees; minimum, 41 degrees; precipitation, 1.01 inches.

MINNESOTA:

University Farm, St. Paul. June 2. Mr. Parker returned from Manhattan, Kans., on May 28 and reports that 3 sets of rust inoculations have been made in the nursery at the University Farm. These are to be continued and spore-spraying will be begun during the month. Maximum temperature for the two weeks ending May 31, 72 degrees (May 31); minimum, 26 degrees (May 18); precipitation, from a trace to 0.53 inch nearly every day, with about an inch of snow on May 18. Frosts occurred on May 18 and 21, but cereals were not damaged.

NORTH DAKOTA:

Dickinson Substation. June 5. Winter rye is fully headed and winter wheat will soon be heading. All crops are in excellent condition.

The varietal plats were staked during the week and notes taken on stands. Continuous rainy weather has interfered with field work. Rain has fallen every day since June 1, with a total precipitation of 1.28 inches for the week. The weather was cool and cloudy between the numerous showers thus causing little evaporation. Maximum temperature for the week, 77 degrees; minimum, 45 degrees.

Williston Substation. June 5. All small grains are in excellent condition. Wheat, oats, and barley are from 4 to 6 inches high. Flax and proso and the millets have germinated well and the stands are good. Corn and potatoes are coming up. The week has continued cool and rain has fallen much of the time since noon of June 2, making field work impossible. Since the 2d there has been a total precipitation of 1.16 inches, in the form of a steady rain, with no run-off. Maximum temperature for the week, 80 degrees; minimum, 43 degrees.

UTAH:

Nephi Substation. June 5. All crops are looking well. Chul wheat and a few of the winter barleys are beginning to head. The trimming of the plats was finished. Plowing for fallow is being delayed frequently because of the rain. Maximum temperature for the week, 79 degrees (June 1); minimum, 29 degrees (June 3); precipitation, 1.04 inches.

OREGON:

Harney County Dry-Farming Substation. June 1. Winter rye is heading. Winter wheat is in the boot and will soon begin to head. All seeding was finished during May with the exception of small plats of corn, sorghum and other tender crops and excellent stands have been obtained. The rains during April and May have greatly improved the outlook for crops on the substation and in the vicinity. The cool weather of the past month has prevented crops from making too rapid growth early in the season, thus -

avoiding heading of the grain before the last of the spring frosts. For the month of May the maximum temperature was 76 degrees (May 8 and 27); minimum, 25 degrees (May 2) and 27 degrees (May 20 and 25); precipitation, 1.54 inches; evaporation, 3.605 inches; and total wind mileage, 2,897 miles.

17

NOTES

~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

June 18, 1915.

OFFICE NOTES.

Dr. H. H. Love, of the Department of Plant Breeding, Cornell University, was a visitor at the Office on June 15 and 16. He devoted most of his time to a study of Dr. Leighty's wheat hybrids on Arlington Farm.

Mr. L. E. Rast, of the Department of Agronomy, Georgia State College of Agriculture, who is in the city on work in connection with the standardization of cotton grades, called at the Office on June 17. He also inspected the cereal crops on Arlington Farm.

Inventories.

Duplicate lists of government property are being sent to field men for verification. Any articles purchased and not yet reported to this Office should be added. If, for any reason, any article listed is not on hand, explanation should be made. Small articles that may be worn out should be returned to the Office by mail, when they will be removed from the inventory. The original copy of each list should be signed and returned without delay for use in preparing the 1915 inventory.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. June 18. Harvesting of winter wheat and oats in field plats is in progress. There has been considerable lodging of the cereals as a result of recent storms and harvesting is difficult. Maximum temperature for the past week, 92 degrees (June 14-15); minimum, 56 degrees (June 10-11); precipitation 3.06 inches.

GEORGIA:

State College of Agriculture. (Athens) June 15. Harvesting of all cereals was finished during the past week. The work was somewhat delayed by rains and some oats were badly damaged.

At the Quitman substation thrashing has just begun and will probably be finished within the week.

TEXAS:

Amarillo Cereal Field Station. June 12. Winter barley plats will be ready for harvest in a few days. Winter wheat has passed the full heading stage. Field plats of proso and Kursk millet were seeded during the past week. Some extra plats have been seeded to feed crops, such as Amber and Sumac sorgo and feterita. The young sorghum plants were damaged by the high wind of the 6th, but have recovered somewhat. Hot, drying winds prevailed on the 10th and 11th, during which time the maximum temperature was 98 degrees. This caused the wheat leaves to roll, and the heads of some of the less resistant durum wheats have turned white, as if dead. Heading of the plants seems to have stopped temporarily.

KANSAS:

Hays Branch Experiment Station. June 14. Weather conditions have been favorable for field work since June 8. All the experimental grain sorghums have been planted. Varietal tests of corn on upland and bottom land have been cultivated. Roads and alleys in the fields sown to winter and spring grains have been cleared of growing grain and the ground from which rye hay was cut the last of May has been plowed in preparation for a crop of sudan grass for seed. The experimental plats of winter grains growing on fallow have been damaged by wet weather, winter wheat being badly lodged and rusted. Yields will undoubtedly be low and harvesting difficult. Spring barleys are fully headed, oats are about 50 per cent headed, and durum wheats are beginning to head. Winter rye is well filled and will soon begin to ripen. Precipitation during the past week was 0.16 inch, in the form of light showers, which did not stop field work.

COLORADO:

Akron Experiment Farm. June 9. Winter wheat which did not germinate last fall because of the drought, and which is appearing now in the spring-wheat series,has been removed. To date the precipitation for the year has been more than 15 inches. This heavy rainfall, together with the late frosts and generally low temperatures, has delayed crop growth, but conditions are now more favorable. The cool, wet weather has not been suitable for planting the grain sorghums. The late date of planting will indicate whether or not the sorghums are of value as a catch crop for this section. Proso seeded in small plats is making slow growth. Very little disease is evident as yet in the various cereals, even in the infected seedlings.

WYOMING:

Cheyenne Experiment Farm. June 11. All crops are growing rapidly. All prosos, flaxes,

most of the sorgos, and all of the corn has emerged. Winter wheat is about 2 feet high and in the boot. A frost on June 7 killed most of the buckwheat to the ground. There was little difference between the two varieties, Tartarian and Mountain, in withstanding frost. Nearly all field plats have been trimmed. During the past week the weather has been warmer than at any time during the year and showers have been of daily occurrence. Maximum temperature for the week, 78 degrees; minimum, 30 degrees; precipitation, 0.82 inch.

SOUTH DAKOTA:

Highmore Substation. June 12. Weather conditions during the past week have been favorable for field work and plant growth, but temperatures have been low for the growth of corn and grain sorghums. Most of the replanting of corn and sorghum was done during the past week. Temperatures have been so low during the past month, however, that some of the grain sorghums are only just emerging. Total precipitation for the past week, 1.71 inches, of which 0.09 inch fell on June 11 and 1.62 inches during the night of June 11 and 12. The latter caused considerable run-off on plats not protected by growing crops.

NORTH DAKOTA:

Dickinson Substation. June 14. The small grain crops are stooling well, but growth is slow. Notes on stands, though delayed by frequent rains, were completed during the week, and cultivation of the nursery was begun. Maximum temperature for the week, 77 degrees; minimum, 28 degrees (June 8); precipitation, 2.65 inches. Rain fell almost continuously for 24 hours on June 11 and 12. The latest killing frost ever recorded at the substation occurred on June 8. Potatoes and beans were considerably damaged, while about 50 per cent of the corn was cut to the ground.

The unusually cold, wet weather of May has continued into June. The mean temperature for the first 2 weeks of June is the lowest recorded at the substation since 1908. The precipitation for the same period was 3.95 inches, the normal for the month being only 3.04 inches.

Williston Substation. June 9. A heavy white frost on June 8 seriously damaged corn, potatoes, and buckwheat. Prosos and millets were damaged only slightly. The flax plats adjoining the buckwheat plats were hardly affected. Plats of wheat, oats, and barley show no ill effects from the freeze.

June 12. Wheat, oats, barley and flax are from 6 to 10 inches high. There is plenty of moisture in the ground and crops are making good growth. The small grains, particularly wheat, have stooled very heavily. The freeze of June 8 did more damage to wheat, oats and barley than at first reported. Corn and potatoes are coming up from the roots. Buckwheat is entirely destroyed. The millets and prosos that had just emerged were frosted to the extent of about 25 to 50 per cent and some plants still show no signs of recovery. The weather has continued very cool. Maximum temperature for the week, 68 degrees; minimum, 27 degrees (June 8); precipitation, 0.34 inch.

UTAH:

Nephi Substation. June 12. The past week has been very favorable for plant growth. Practically all the winter wheat varieties in field plats are beginning to head, as well as a large number of the rows in the increase plats. Garden crops were damaged to some extent on June 12 by a light frost, but field crops apparently were not affected. Maximum temperature for the past week, 82 degrees; minimum, 28 degrees.

17

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

June 25, 1915.

OFFICE NOTES.

Mr. Carleton returned to the Office on the 22d from his trip through the West.

Yearbook Separate 649, entitled "Hard Wheats Winning Their Way," by M. A. Carleton, has just been issued.

During the week galley proof was read of Department Bulletin No. 270, entitled "Cereal Experiments at the Williston Substation," by F. Ray Babcock.

On June 23 Mr. Stanton inspected the cooperative cereal work at the Maryland experiment station. Harvesting of winter wheat in the large increase plats was in progress. There has been a great deal of lodging as a result of the recent severe storms. The crop as a whole is only fair, as the stand was materially reduced by winterkilling. The heads in most of the varieties appear to be well filled, however, and apparently an excellent quality of grain will be obtained. The stands of winter oats and barley were also greatly reduced by winterkilling, and of the two cereals the latter had the greater survival. The winter oat nursery was completely winterkilled.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. June 25. Harvesting of winter wheat in nursery and field plats is

in progress. Winter barley has been harvested, and thrashing has begun. Maximum temperature for the past week, 88 degrees (June 20); minimum, 54 degrees (June 23); precipitation .66 inch.

TEXAS:

Amarillo Cereal Field Station. July 19. The plats of winter barley were harvested during the week. Winter rye and wheat are ripening rapidly. Farmers in the vicinity are beginning to harvest winter wheat. The first ripening of oats in field plats was noted on June 17. Maximum temperature for the week, 99 degrees; minimum, 50 degrees; no precipitation.

OKLAHOMA:

Woodward Field Station. June 19. Mr. Letteer arrived at Woodward on June 17 to take charge of the work for the Office. It was found necessary to replant the milos and kafirs because the stands secured from the first seeding were poor. Broomcorn is in excellent condition and will only need to be thinned out. The weather during the past week has been warm, and sorghum crops are making good growth.

KANSAS:

Hays Branch Experiment Station. June 21. The past week has been cool, with frequent showers. A hailstorm on June 15 damaged the plats of winter wheat, rye, and barley and all the spring-sown grains at least 50 per cent. Seven small tornadoes swept over Ellis County on June 17, doing considerable damage.

In the district southeast of Hays wheat is in excellent condition. In the southwestern portion of Ellis County wheat is very poor because of a shortage of rain last fall.

The State Educational Administration Board, together with President Waters and Dean Jardine, spent June 18 and 19 at the station.

Mr. J. Allen Clark, of the Office, and Mr. L. E. Melchers, collaborator in cereal disease work at the Kansas Station, visited the station on the 15th and 16th.

COLORADO:

Akron Experiment Farm. June 19. Because of the favorable weather of the past week plant growth has been satisfactory. Winter wheat is beginning to head, while winter rye is fully headed. Kaoliang planted 6 days is beginning to emerge. Flax is beginning to bloom. Proso was seeded in field plats on June 17; varieties sown early in small areas are making good growth. A stock-proof fence was built around the nursery.

WYOMING:

Cheyenne Experiment Farm. June 18. Winter rye is now fully headed, while winter wheat is quite generally in the boot. All field plats with the exception of those seeded to flax have again been trimmed. The germination and growth of forage crops has been very slow and uneven until the past week. Some plants of nearly all varieties of sorgos emerged over a week ago, while others are just emerging. The germination of corn has also been slow and uneven. The cold weather and the depredations of striped ground squirrels have caused a poor stand in some parts of the field, while in others it is fair to good.

A cement floor is being laid in the dairy barn. Gravel walks, bordered with cobblestones, connecting the various buildings are being laid.

Mr. Carleton and Mr. J. A. Clark, of this Office, and Mr. J. S. Cole, of the Office of Dry-Land Agriculture, were visitors at the Farm on June 18.

SOUTH DAKOTA:

Bellefourche Experiment Farm. June 14. Proso and sorghum varieties and the date-of-seeding plat of flax were sown during the past week. Stands were counted

on 132 plats of spring-sown grain. The alleys and plats were weeded and some other plats were rogued. Maximum temperature for the week, 72 degrees; minimum, 33 degrees; precipitation, 1.94 inches, some in the form of hail.

June 21. Winter wheat is very vigorous, and is now partially headed. Maximum temperature for the week, 77 degrees; minimum, 41 degrees; precipitation, 1.18 inches. The precipitation so far this year has been 11.04 inches, while during the entire year of 1914 the total was only 11.70 inches.

Mr. C. S. Scofield visited the Farm during the week.

Highmore Substation. June 19. A tornado passed one-half mile south of the substation on June 15. Hail which accompanied it injured the winter rye and the early seedings of barley and oats. These crops were beginning to head about 15 per cent. Winter wheat is also heading, but it was not damaged as severely as the other crops. During the week the weather has continued cold, with a precipitation of .67 inch. Because of the cold, wet weather, it was necessary to replant the grain sorghums almost entirely.

MINNESOTA:

University Farm, St. Paul. June 16. The weather during the first two weeks of June was generally cool and cloudy, being suitable for small grains, but not for other crops. The conditions also have been favorable for the development of the cereal rusts. Frosts and continued wet weather have caused damage to crops in some sections of the State. Maximum temperature for the past two weeks, 83 degrees (June 5); minimum, 34 degrees (June 9); precipitation, 1.85 inches. Hand inoculations and spore spraying are being continued in the rust nursery and weeding will be finished in about a week.

Mr. Potter will return from leave of absence on the 21st to remain until the completion of loose smut work early in July.

Mr. Anthony arrived on the 12th to remain until early in September.

Contracts have been let by the Station for the erection of the pathology field house and for the piping of water to the cereal disease plats.

NORTH DAKOTA:

Dickinson Substation. June 19. Winter rye is in blossom. Other cereal crops are looking well but will be late in heading. The cultivation of the nursery was finished during the week and the plats have been trimmed and the alleys cultivated. The record for late frosts was again broken by a severe frost on June 16. Not much damage was done, however, as all tender plants were pretty well destroyed by the frosts in May and on June 8. The cereal crops seem not to have been injured to any extent with the exception of flax, the stand of which was badly reduced by frost during the germinating period. There has been considerable cool, cloudy weather during the past week. Maximum temperature, 79 degrees; minimum, 30 degrees (June 16); precipitation, 0.07 inch.

Williston Substation. June 19. The corn and potatoes, which were making slow growth from the roots after the freeze of June 8, were again frozen back on the morning of the 16th. The potatoes probably will recover, but it is doubtful if the corn will. The stand of the millets was reduced from 10 to 30 per cent. Buckwheat was entirely killed, as already reported, and is being reseeded. Wheat, oats, and barley are in excellent condition. Maximum temperature for the week, 82 degrees; minimum 26 degrees (June 16); precipitation .07 inch. In addition to the heavy freezes of June 8 and 16, there were white frosts on June 7, 15 and 19, though the mean temperatures were above 32 degrees.

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

July 2, 1915.

OFFICE NOTES.

Page proof of Dept. Bulletin No. 270 was read during the week.

Mr. Chambliss returned on June 28 from his trip through the southern States and California.

Mr. C. H. Clark left on June 26 for points in North Dakota, Montana, South Dakota, Minnesota, Idaho, Oregon, and Washington in the interest of flax investigations.

Mr. Warburton left Washington on June 26 for Ames, Ia., to inspect the cooperative experiments with oats. He will also visit points in Minnesota, South Dakota, North Dakota, Montana, Idaho, Washington, Oregon, California, Nevada, Utah, Wyoming, Colorado and Nebraska, returning to Washington about the end of August.

All unused transportation orders issued for the fiscal year 1915, not already returned, should be mailed to this Office immediately. The promptness on the part of those who have already returned such orders is appreciated.

A special meeting of cereal pathologists will be held at the College of Agriculture, St. Paul, Minn., July 6 to 9, for the purpose of conferring on cereal disease problems of mutual interest and discussing plans for future work.

Dr. Ravn is at present at the Agr. Exp. Station, Madison, Wis., in conference with Prof. L. R. Jones. He expects to attend the meeting of the cereal pathologists at St. Paul, Minn., and from there will proceed to points in North Dakota, Iowa, Illinois, and New York. He will arrive about July 20 in Washington, D. C., where he will remain for a short time before returning to Denmark.

The Interstate Cereal Conference met at the University of California, Berkeley, at 10:00 A. M., June 2, 1915. Dr. J. W. Gilmore was elected chairman and Mr. Chas. E. Chambliss secretary. The executive committee consists of the officers and Messrs. M. A. Carleton, F. S. Harris, and Bert D. Ingels. There was an attendance of 37, classified as follows: University of California, 12; Department of Agriculture, 11, (2 bureaus and 5 offices represented); Utah Agricultural Experiment Station, 1; Nevada Agricultural Experiment Station, 1; Wisconsin Agricultural Experiment Station, 1; Leland Stanford University, 1; the Royal Landbohøjskolens, Copenhagen, 1; Sperry Flour Co., 2; Globe Mills, 2; Grain Trade Association of San Francisco, 1; grain dealers of San Francisco, 2; and grain ranchers, 2. Nine formal papers were read at the morning and afternoon sessions.

On June 1 the cereal crops in the vicinity of Stockton, Cal., were inspected by many in attendance at the Conference.

The second day of the Conference, June 3, was spent at the University Farm at Davis. After the inspection of the cereal work on the farm, six papers were presented.

The cereal experiments at Chico and rice experiments at Biggs, of the Office of Cereal Investigations, were inspected on June 4.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. July 2. Winter wheat in the nursery and on field plats was harvested during the week, while the harvesting of the winter oat nursery is in progress. Thrashing of winter barley on field plats was finished and thrashing of winter wheat in field plats was begun. The weather of the past week was generally fair with a maximum temperature of 85 degrees on June 29 and 30; minimum, 50 degrees (June 24); precipitation 0.05 inch (June 26).

TEXAS:

Amarillo Cereal Field Station. June 26. During the week some harvesting was done in the nursery but none in the field plats. Notwithstanding the three weeks of dry weather grains have been slow in ripening. A maximum temperature of 106 was recorded on June 20. The day was clear, with strong west winds. A rain of 0.32 inch on the night of June 25, accompanied by a strong wind, caused the ripest oat plants to lodge.

Mr. Ross accompanied Mr. H. M. Bainer, Agricultural Demonstrator of the Santa Fe system, on a single day's trip in an inspection of the wheat fields in the vicinity of Amarillo.

KANSAS:

Hays Branch Experiment Station. June 26. The past week has been cloudy and wet and little field work has been accomplished. The army worm is doing considerable damage, particularly in fallowed wheat. Poisoned bran mash has been used on the experimental plats and has been spread over some of the commercial fields by the station.

Professor Call, of the Kansas State Agricultural College, visited the station on June 26.

COLORADO:

Akron Experiment Farm. June 28. All crops are growing fast. Winter wheat and early oats are heading, while spring wheat has begun to head. Barley is partly headed. Flax is beginning to bloom, and late-sown proso and grain sorghums have emerged.

The annual picnic was held on June 24 and was attended by about 1,500 people. Mr. J. A. Clark visited the Farm on June 21 and 22.

WYOMING:

Cheyenne Experiment Farm. June 25. All winter wheats, with the exception of Buffum's No. 17, have begun to head. Winter rye is flowering. The weather during the past week has been favorable for plant growth. No crops are suffering from lack of moisture, except the winter wheats in the heavier rate-of-seeding tests, in which there is some tip burn of the leaves at the top of the plants and yellowing and drying of culm and leaf near the roots. No plant diseases have yet been found in the winter wheat or other grain, but in the barleys in the cereal disease nursery three diseases have been discovered.

Dr. A. G. Johnson, pathologist, of the Wisconsin Agricultural Experiment Station, visited the Farm on June 25.

SOUTH DAKOTA:

Bellefourche Experiment Farm. June 28. Winter wheat and the earlier varieties of spring wheat and barley are almost fully headed. Early oats are about 50 per cent headed. Stands were counted on the remainder of the plats and nursery rows. The soil is drying rapidly and is beginning to crack. Maximum temperature for the past week, 84 degrees; minimum, 44 degrees; precipitation 0.08 inch.

Mr. J. A. Clark visited the Farm on June 24.

MINNESOTA:

University Farm, St. Paul. June 25. The weather during the past two weeks was cool and cloudy. Maximum temperature, 71 degrees (June 21); minimum, 34 degrees (June 17); precipitation, 1.78 inches, of which 1.46 inches fell on June 18.

Mr. Parker spent June 12 at Cass Lake, Minn., inspecting the barley plats and collecting specimens for Dr. A. G. Johnson.

Mr. Chambliss visited the Farm on June 22, 23 and 24.

NORTH DAKOTA:

Dickinson Substation. June 26. Winter wheat and Gatami barley are beginning to head. The early varieties of spring wheat will be heading in a few days. The entire nursery and some field plats were weeded during the past week. Cereal crops are in excellent condition. Maximum temperature, 85 degrees; minimum, 43 degrees; precipitation, 1.94 inches, of which 1.59 fell this morning.

Williston Substation. June 26. All small grains are in excellent condition. Gatami barley, Sixty-Day and Kherson oats, and barley in the first date-of-seeding tests are heading. Spring rye is headed. Potatoes are making good growth since the last freeze. Corn generally is in a weak condition, a large per cent having been entirely killed as previously reported. Many farmers in the vicinity are disking their corn fields and are sowing barley, oats, or millet for hay. Maximum temperature for the week, 87 degrees; minimum, 44 degrees; precipitation, 0.38 inch.

MONTANA:

Judith Basin Substation. (Moccasin) June 22. Because of the cool, wet weather all grains have made slow growth. Winter wheat and several early varieties of barley are heading. Precipitation has been recorded on all but three days so far this month, making a total for the month of 3.92 inches, which is nearly an inch above normal. This condition has retarded work in the field and allowed weeds to get a good start. All plats have been trimmed, and the roads are being plowed and graded.

UTAH:

Nephi Substation. June 26. Winter wheat on the field plats is almost fully headed, and grains in the winter nursery are rapidly heading. The weather during the week has been favorable for plant growth and spring grains are in good condition. Coast barley and Sixty Day oats are beginning to head. Potatoes, corn, grain sorghums, and millet were cultivated during the week. Two plats of peas and two of spring grain, in the green-manure test, were plowed and harrowed on the 25th. Roguing of plats is practically finished. The plowing of fallow was finished on June 17 and harrowing was done on June 18 and 19. Maximum temperature for the week, 91 degrees.

Dr. Humphrey, of the Office, and Dr. A. G. Johnson, pathologist at the Wisconsin experiment station, visited the substation on June 19.

CALIFORNIA: (State) July 2.

California Rice Acreage by Counties, 1915.

Sacramento Valley

	Acres	
Butte County	14,350	
Yolo County	1,880	
Glenn County	800	
Yuba	1,100	
Colusa County	7,900	
Sutter County	1,000	27,030

San Joaquin Valley

San Joaquin County	20	
Stanislaus County	30	
Fresno	1,275	
Tulare	540	
Kern	1,261	3,126
Total for State		30,156
Increase over 1914		14,156

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

July 9, 1915.

OFFICE NOTES.

Mr. Godfrey left on July 4 to visit points in Wisconsin, Minnesota, Nebraska, Colorado, Utah, Idaho, Washington, Oregon, California, Arizona, Texas, Louisiana, Georgia, Arkansas, Alabama, Florida, South Carolina, and Virginia to investigate diseases of rice and other cereals. He will return to Washington about September 15.

Mr. Stanton left on July 6 for Ames, Ia., to assist in harvesting the cooperative oat nursery at the experiment station. He will also visit points in Minnesota, Wisconsin, Michigan, and New York in the interest of oat investigations and will return to Washington about August 1.

Mr. Warburton writes from Ames, Ia., under date of June 29 that the cool, wet weather has been very favorable for oats and that crop prospects are excellent. The crop is at least ten days late and even the earliest varieties will not be ready to harvest before July 15. Unless there are storms to lodge them or other unexpected events, some of the Sixty Day and Kherson pure lines will make immense yields.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. July 9. The harvesting of cereals was finished during the week.

Thrashing of winter wheat and winter barley in the nursery is in progress. Maximum temperature for the week, 88 degrees (July 3); minimum, 56 degrees (July 6); precipitation, 0.42 inch.

GEORGIA:

State College of Agriculture. (Athens) July 3.

Quitman Substation: With the exception of rye all grains gave low yields. The highest yielding varieties of the different cereals are as follows: Georgia Bluestem wheat, 6.66 bu.; Mammoth barley, 7.8 bu.; Early Ripe oats, 26 bu.; South Georgia rye, 17.96 bu., Abruzzes rye, 17.63 bu.

Ashburn Substation. July 3. All grain was shocked in the field and thrashing has been slow because of the continued rains. A few plats were thrashed on June 28 and 30.

TEXAS:

Amarillo Cereal Field Station. July 3. Harvesting is well under way. Spring wheat and some plats of oats remain to be cut. The weather has been cool and cloudy during the past week. Light showers have hindered harvesting operations. Maximum temperature for the week, 97 degrees; minimum, 58 degrees; precipitation, 0.19 inch.

KANSAS:

Hays Branch Experiment Station. July 3. Continued rain has delayed harvesting indefinitely. The experimental winter grains are in such condition that yields probably will be valueless. Winter rye which is damaged over 50 per cent by hail is ready for harvest. There were 20 rainy days in June, with a total precipitation of 3.97 inches, which is 0.89 inch above the normal. The total rainfall for the six months ending June 30 is 18.14 inches,- 6.90 inches above the normal.

WYOMING:

Cheyenne Experiment Farm. (Archer) July 2. All small grains are making very rapid growth because of the favorable weather conditions. Spring Turkey wheat, C. I. No. 4154, and Emerson oats, C. I. No. 459, seeded April 16 have begun to head. Two barleys, Blackhull, C. I. No. 878, and Gatami, C. I. No. 575, seeded May 5, have also begun to head. Because of the cool weather, corn, sorgos, prosos and Sudan grass are growing slowly. All row crops on the field plats have been cultivated. Maximum temperature for the week, 79 degrees; minimum, 44 degrees; precipitation, 0.10 inch. The total precipitation for the month of June was 1.83 inches, which is 0.23 inch above normal. The average mean temperature at Cheyenne (44-year average) is 61 degrees for the same month. The average temperature for June was 57 degrees.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) July 5. Winter wheat, barley, and early varieties of spring wheat and oats are now fully headed. Flax has begun to bloom. Crops have not yet suffered from lack of water, though the available soil moisture is almost exhausted. Many varieties of wheat and barley appear to be slightly infected with loose smut. Maximum temperature for the week, 81 degrees; minimum, 41 degrees; precipitation, 0.74 inch. The total rainfall for June was 4.74 inches.

SOUTH DAKOTA:

Agricultural Experiment Station. (Brookings) June 30. Mr. Manley Champlin, collaborator with this Office, reports as follows on the cereal investigations work at the various South Dakota stations:

Brookings: Small grain nurseries and field plats are in excellent condition. Corn and grain sorghums are not growing well because of the cool, wet weather. Rye and winter wheat show some trace of rust. A severe frost on June 9 killed about half the winter rye, which was then in blossom.

Cottonwood: Some of the experiments were abandoned because of the excessive precipitation, and the land will be summer fallowed and seeded to winter grain in the fall. Crops are in good condition, particularly the cereals that are sown in three-row groups and cultivated.

Eureka: Conditions are excellent and wheat, oats, and barley promise a very good crop.

Highmore: Wheat, oats, and barley are in excellent condition, but the grain sorghums and millets which have been giving good results for the past three years have not done well during the past month on account of the cold, wet weather. Several plats had to be replanted.

Vivian: Sixty Day oats are very promising at this date. Plantings of corn, kaoliang, and other sorghums were made June 10 to 15; the late planting was due to excessive rain which delayed the work in the spring.

NORTH DAKOTA:

Dickinson Substation. July 5. Crops although maturing late are in good condition. Early varieties of barley, oats, and wheat are heading. Prelude (C. I. No. 4323), the new variety of wheat, is nearly fully headed, while Manchuria, apparently the next early variety, is just beginning to head.

ing the week six hundred flowers of winter wheat have been crossed. Cool, cloudy weather has prevailed during the past week. Maximum temperature, 78 degrees; minimum, 37 degrees; precipitation, trace. The mean temperature for June was more than 5 degrees below normal, while the precipitation for the month was 5.89 inches, - 2.73 inches above normal.

Williston Substation. July 3. All small-grain crops are doing well and apparently are not being injured by drought. Prelude wheat practically is fully headed, being the first of the wheats to head. Ghirka and Manchuria wheats are also heading, as are several varieties of oats and all the barley plats. The present indication is for good crops of all the small grains. Flax varieties look well and are beginning to bloom. The annual "farmers' picnic" is to be held at the substation on July 10. Maximum temperature for the past week, 83 degrees; minimum, 39 degrees; precipitation, 0.25 inch. For the three months, April, May, and June there was recorded precipitation of 0.71, 2.08 and 2.02 inches, respectively. The 36-year average for these three months is 1.17, 2.17 and 3.52 inches, respectively.

UTAH:

Nephi Substation. July 3. Crops as a whole are looking well, though the spring crops are beginning to show the effect of the continued dry weather. Winter cereals are fully headed and spring cereals are beginning to head. Maximum temperature, 89 degrees; minimum, 27 degrees; no precipitation.

OREGON:

Harney Branch Experiment Station. (Burns) July 1. Winter wheat is headed and looks unusually well, while early varieties of spring cereals are be-

ginning to head. Most crops are looking well, but the heavier rates of seeding in the rate-of-seeding tests, an early-seeded plat of barley, which made too abundant growth early in the season, and all continuously cropped plats in the rotation series show the effects of the long drought. Unless unusually heavy rains occur in July it is probable that yields will be light on the drier portions of the station and that the crops on somewhat similar lands in the vicinity will be a practical failure. Frost on June 20 slightly injured the durum wheat foliage, killed all pea pods and pea blooms which had emerged, froze alfalfa and potatoes, and killed an occasional head of winter wheat. Maximum temperature for June, 87 degrees (June 22 and 23); minimum, 29 degrees (June 20); precipitation, 0.3 inch (four showers); evaporation, 7,714 inches; total wind mileage, 5,652.

NOTES

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

July 16, 1915.

OFFICE NOTES.

Mr. Rothgeb left Washington on July 13 to visit points in Texas, Oklahoma, Arizona, New Mexico, and California in the interest of grain sorghum and broomcorn investigations. He will return about the latter part of September.

Dr. Humphrey returned on the 10th instant from his trip through the south and west mentioned in "Notes" of May 21.

Through Pullman tickets between points of official travel should be purchased, without reference to the fact that a change of cars will be necessary. If ticket agent does not give through ticket upon request, that fact should be shown when reimbursement voucher is submitted and the difference between price of through ticket and price actually paid will be taken up with the Pullman Company direct by the Office of Records in all cases where transportation requests are used. In other cases the difference between the through rate and amount paid will be suspended from the reimbursement account.

FIELD NOTES.

GEORGIA:

State College of Agriculture. (Athens) July 13. Thrashing of the grain on field plats is now under way. All land on which grain was sown has been planted in cowpeas.

Ashburn Substation. Thrashing was finished during the past week. The highest yielding varieties of the different cereals are as follows: Fulghum oats, 48.42 bushels; Bluestem and Georgia Red wheats, 19.58 bushels; Greece barley, 19.27 bushels; South Georgia rye, 30.35 bushels.

LOUISIANA:

Rice Experiment Station. (Crowley) July 10. Rice plats on the station are in good condition. The transplanted rices are beginning to grow. The rain on July 2, 3, 4, and 5 was very much needed, as the irrigation streams were getting low and there was danger of salt water. Rice in the vicinity of Crowley is not as far advanced as usual at this season, but it looks well and is clean. Maximum temperature for the past week, 92 degrees (July 9); minimum, 73 degrees (July 4); precipitation 2.05 inches.

TEXAS:

Amarillo Cereal Field Station. July 10. Harvesting of the small grains in both field and nursery plats is very nearly finished. A cottage for the teamster, Mr. J. F. Stump, has been moved on the station farm and will be ready for occupancy within a few days. Messrs. John F. Ross and L. N. Jensen will attend the meeting of the Great Plains Cooperative Experiment Association at Mandan, N. Dak., July 14 to 16. The weather remains hot and dry. Maximum temperature for the week, 98 degrees; minimum, 50 degrees; precipitation, trace.

KANSAS:

Hays Branch Experiment Station. . July 9. Harvesting this month has been delayed by continuous rain, the precipitation to date being 5.85 inches. Harvesting of spring barleys was begun July 9 with a mower and windrowing attachment. Winter barleys have been ripe for two weeks, but have not yet been harvested. Little more than the return of seed from them and winter rye will be secured, as they were cut down and badly scattered by the hail of June 15.

Winter wheat in experimental plats will have to be harvested with the mower, and except for furnishing seed the yields will be of little value. Continuously cropped wheat is looking much better and will give fair yields. The production for Ellis County will be about 25% less than in 1914.

COLORADO:

Akron Experiment Farm. July 9. The warm weather of the past week has caused a rapid growth of all plant life. The grain on nearly all field plats is fully headed. Herbarium samples are being collected of all varieties sufficiently mature. Leaf rust is noted at from 5 to 25 per cent, the average being about 10 per cent. Loose smut is much less abundant than usual. Hail has done considerable damage to grain in the surrounding country.

WYOMING:

Cheyenne Experiment Farm. (Archer) July 9. All winter wheats, with the exception of Buffum's No. 17, and Turkey (C. I. No. 1571) and Ghirka (C. I. No. 1438) in the latest date-of-seeding test, are fully headed and in good condition. Barleys and oats are heading. Two varieties of common spring wheat in the earliest date-of-seeding test (Turkey, C. I. No. 4154, seeded April 16, and Manchuria, C. I. No. 2492) have begun to head. In the earliest date-of-seeding test with flax, N. Dak. No. 1215 (C. I. No.3) has begun to bloom. A light hail and rain storm on July 5 injured about 5 per cent of the small grains; corn and similar crops were too short to be damaged. Grain just ready to head was slightly injured by being torn from the boot. The forage field of winter rye has been cut for hay.

A cottage for occupancy by the superintendent, which has been under construction for over a month, is now completed.

NORTH DAKOTA:

Dickinson Substation. July 12. All early varieties of wheat, oats and barley have begun to head. Crops are making rapid growth and the indications are favorable

for good yields. Winter rye was slightly damaged by frost during the blossoming period. Corn and potatoes are recovering from the effects of frost and continued cold weather. Flax varieties are beginning to bloom. Maximum temperature for the past week, 82 degrees; minimum, 40 degrees; precipitation, 1.05 inches.

Dr. F. K. Ravn, of Copenhagen, Denmark, Prof. H. L. Bolley, of the North Dakota Agricultural College, Dr. E. C. Stakman, of the University of Minnesota, and Dr. A. G. Johnson, of the University of Wisconsin, visited the substation on July 16.

Williston Substation. July 10. Because of the warm weather of the past week crops have made excellent growth. Small grains were beginning to show the effects of the drought but rain last night and this morning caused them to revive. Prelude wheat, C. I. No. 4323, is fully headed and all other varieties of wheat are heading. Sixty Day and Kherson oats and most of the 6-rowed barleys are in full head. Maximum temperadutr for the past week, 88 degrees; minimum, 41 degrees; precipitation, 0.71 inch. The picnic to be held at the substation on July 10 was postponed until July 24.

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

July 23, 1915.

OFFICE NOTES.

Dr. F. Kølpin Ravn, Plant Pathologist from Copenhagen, arrived in Washington on the 18th instant and expects to remain here during the remainder of the month.

An informal reception was tendered Doctor Ravn on Monday evening by Mr. Carleton at his home in Takoma Park, to which various pathologists of the Department and members of the Office of Cereal Investigations were invited. The Botanical Society of Washington gave a dinner in honor of Doctor Ravn on Thursday evening at the Cosmos Club.

Doctor Ravn has visited twenty states since his arrival in this country in May. He discovered the yellow leaf rust of wheat (Puccinia glumarum Eriks. and Henn.) in a field near Sacaton, Ariz. About the same time Dr. A. G. Johnson, agent of this office located at Madison, Wis., discovered the same disease on Hordeum murinum in southern California. This rust was afterwards found in considerable abundance at various places in Oregon and Washington, and to some extent in other states. An account of this is given in an article by Mr. Carleton in Science, issue July 9.

FIELD NOTES.

TEXAS:

Amarillo Cereal Field Station (Amarillo) July 17. Harvesting of small grains has been finished and much work has been done in selecting ripe heads of wheat for herbarium specimens. The rains which have fallen during the week will be of great benefit to row crops. Maximum temperature for the week, 104 degrees; minimum, 60 degrees; precipitation, 2.44 inches.

KANSAS:

Hays Branch Experiment Station, July 19. Nearly 8 inches of rain has fallen during the month of July. An average of about five days of harvest has been accomplished in Ellis County, while in the immediate vicinity of the station there have been only three days when binding or heading could be done. The ground is very soft and machinery runs with difficulty, while nearly as much straw must be handled by the header as would ordinarily pass through the binder. Only about half of the cereals in experimental plats has been harvested. Winter barley and rye and spring barley and oats were cut with the mower fitted with a windrowing attachment. Cultivation tests and rate and date tests were harvested with the binder. Two hundred and ninety two strains in experiment C were pulled in order to secure a small amount of pure seed. Such of the cereals in the remaining varietal and strain tests as are needed for this purpose will be harvested in the same manner, the rest being discarded. The yields have been rendered valueless by hail, rain and the ravages of the army worm.

WYOMING:

Cheyenne Experiment Farm, (Archer) July 16. Crops as a whole are looking exceptionally well, particularly the spring wheats, most varieties of which are now heading. All flax, except the latest date-of-seeding test, is in full bloom. On July 13 rainstorms accompanied by hail damaged the oats to some extent, by stripping them from the boot.

Maximum temperature for the week, 92 degrees; minimum, 49 degrees; precipitation .36 inch.

MINNESOTA:

Minnesota Agricultural Experiment Station, (St. Paul) July 17. Practically all wheat varieties and most of the hybrid selections are fully headed. Crossing work is in progress, and spore sprayings in the rust nursery are being continued. An abundance of leaf rust is present and some stem rust is developing. A severe rain storm on July 14 lodged some of the grain in the nursery plats.

Small grains are in excellent shape in this part of the State but conditions are said to be not so favorable in Red River Valley. Harvest will be one to three weeks late in most sections. Winter rye, which is usually cut by July 4 was still green on July 10. Maximum temperature for the period from July 1 to 15, 87 degrees (July 12, 13); minimum, 47.5 degrees (July 5); precipitation July 3, .04 inch; July 4, .19 inch; July 6, 1.82 inches; July 10, .04 inch; July 14, 2.60 inches; July 15, .57 inch; July 16, .04 inch.

Mr. J. A. Clark spent July 7-10 at the station, collecting herbarium specimens from the classification wheats. Mr. J. R. Holbert, Assistant in Cereal Disease Investigations, spent several days at the station, leaving on July 16 for points in Minnesota. Messrs. John Ross of Amarillo and Mr. C. R. Letteer of Woodward called at University Farm on July 17 en route from Mandan.

NORTH DAKOTA:

Dickinson Substation. (July 19). All cereal crops are in good condition though late. Early varieties of wheat, oats and barley are fully headed, while late varieties are just beginning to head. The weather during the week has been cool and for a large part of the time cloudy, with frequent showers. Maximum temperature for the week, 85 degrees; minimum, 40 degrees; precipitation, 1.3 inches.

Mr. J. A. Clark, of the Office of Cereal Investigations, arrived at the station July 17 and will remain during the week engaged in work with the wheat classification nursery. The visitors at the station during the week were as follows: Mr. J. O. Belz, Office of Biophysical Investigations; Messrs. Brown, Grace, Hallstead, Jacobson, Jensen, Kuska, Matthews, Mundell, and Smith of the Office of Dry Land Agriculture; Mr. Getty of the Office of Forage Crops; and Messrs. J. D. Morrison and J. H. Martin of the Office of Cereal Investigations.

CALIFORNIA:

Biggs Rice Field Station. (Biggs) July 13. Favorable rice weather continues and the crop looks remarkably well at this time. On the whole the stands are not good but the rice is stooling heavily. The minimum temperatures have been running about 60 degrees or slightly above, while the maximum temperatures for the past two weeks have been ranging from 90 to 102 degrees, averaging about 93 degrees.

Thrashing of the grains at Chico has been finished. The yields were light. Wheat yields in the Sacramento and San Joaquin Valleys were disappointing, the best fields producing about twelve to fifteen bushels to the acre. Barley yields in the State are much below expectation.

OREGON:

Eastern Oregon Dry-Farming Substation. (Moro) July 14. Winter wheat and spring barley have been cut, and Sixty-Day and Kherson oats are in shock. A Cushman binder engine is being used and so far has proved very satisfactory. Thrashing will probably begin next week.

With the exception of the last week in June, when high temperatures prevailed, the weather conditions during that month were favorable for crops. The month was cool and dry, the precipitation being only .36 inch as against a normal rainfall of .96 inch for June. There has been no rainfall of benefit to crops since May 24. Maximum temperature for June 93 degrees (June 30); maximum for the year 95 degrees (July 1). Since July 5 the weather has been considerably cooler than normal.

Crop prospects in Eastern Oregon were excellent until late in June, when much of the winter wheat, which this season had made a taller and ranker growth than usual, seemed to dry before ripening normally. The best looking wheat on the best cultivated land has suffered most. In the northern half of the County, where thrashing has been started, the yields of winter wheat are from 20 to 25 bushels per acre, just a little more than half of the yields which were expected. The quality of the wheat also is poor, much of it not testing more than 53 lbs. to the bushel.

"Farmers' Day" was held at the station on June 12. Professor Scudder and several of the Extension Service Staff of the Oregon Agricultural College were in attendance. Messrs. Carleton and Johnson, of Cereal Investigations, and Dr. Ravn visited the station on June 12. Other Department visitors were Dr. Shantz of Alkali and Drought Resistant Crop Investigations, Dr. Harlan, of Cereal Investigations, and Mr. Westover, of Forage Crop Investigations. Mr. Ball spent the last week of June and the first week of July studying wheat varieties on the station and will return on the 19th instant. Mr. Jeffrys of Grain Standardization spent the first week in July studying wheat varieties on the station. On June 30 Mr. Byron Hunter, of the Washington State College visited the station and a week later returned with six of the County Agents of the Columbia Basin counties of Washington. Professor Schafer and Mr. McCall, of the Washington State College, inspected the station on July 7 and 8. President W. J. Kerr and a committee of the Board of Regents of the Oregon Agricultural College inspected the station on July 12.

VIRGINIA:

Arlington Farm. Thrashing of winter wheat in varietal field plats and rod rows has been completed and thrashing of winter rye is under way. Stormy weather during the past week delayed the thrashing. Cereal crops in the shock have been damaged somewhat by molding.

Maximum temperature for the week ending July 21 was 94 degrees, July 16-19; minimum, 63 degrees, July 21; precipitation 1.97 inches.

TEXAS:

San Antonio. Crop conditions generally have been about normal this season. Dwarf milo, the only grain sorghum planted on the station this year, has been harvested and thrashed. The yields on the various plats range from 5 to 39 bushels per acre. This wide range in yield is due largely to damage by midge and birds. This damage was estimated as high as 60 per cent in some plats while in others the damage was very slight.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

July 30, 1915.

OFFICE NOTES.

Dr. Humphrey left Washington on July 24 for points in Wisconsin, Minnesota, North Dakota, South Dakota, Iowa and Indiana. He hopes to perfect plans for the year's cereal disease work in the field and to collect data with reference to diseases induced by root-destroying fungi. He will also investigate a wheat-disease epidemic in the vicinity of LaFayette, Indiana. He expects to return to the Office about August 6.

Dr. Harlan returned to the Office from St. Paul, Minn., on the 27th instant. He reports that the season is unusually cold and backward in Minnesota with the result that the winter wheat is not yet ripe, although it is now some two weeks past the ordinary time of harvest. This season forcibly illustrates the differences between the growing requirements of wheat and barley. The cold weather, although retarding the wheat to a considerable extent, has had little effect on the barley which is very nearly as far advanced as normal.

The corn crop is even more backward than wheat and, unless warm weather comes very soon, it is probable that a great portion of this crop will not be mature enough to be used for seeding purposes next spring.

FIELD NOTES

VIRGINIA:

Arlington Experimental Farm. July 29. Thrashing of cereals from field plats was completed today. Thrashing of winter wheat grown in eight-rod rows will be completed this week.

The weather the past week has been generally fair with .03 inch precipitation.

LOUISIANA:

Rice Experiment Station (Crowley) July 24. The weather was unusually cool on the 21st., 22nd., and 23rd., for this season of the year. Maximum temperature on these days was 88, 83 and 86 degrees. The wind was brisk and from the north.

TEXAS:

Amarillo Cereal Field Station. July 24. All row crops are growing nicely. Thrashing of small grains has been delayed by wet weather. Maximum temperature for week, 95 degrees; minimum, 52 degrees; precipitation, .67 inch.

During the week the station was visited by Messrs. B. E. Rothgeb of this Office, H. P. Gould, of the Office of Horticultural and Pomological Investigations, and E. F. Cauthen, State Experiment Station, Auburn, Ala. Mr. Cron, of Mulvane, Kansas, and Mr. Abell, student of animal husbandry from the College of Agriculture, Idaho, also visited the station.

Mr. Rothgeb reports from Big Springs, Texas, that crop conditions this season have been rather favorable, though at present rain is needed. Grain sorghums are in good condition and unless dry weather continues too long Dwarf milo, feterita, and Dwarf kafir will make good yields of grain.

COLORADO:

Akron Experiment Farm. July 26. Harvesting of barley on the rotation plats has been commenced. Harvest on C. I. plats will be begun as soon as wind will permit. An electric light plant is being installed for station use. Farmers in the vicinity have cut much grain with binders and those using headers are now beginning operations. Maximum temperature for the week, 92 degrees; minimum, 48 degrees. The weather continues dry, only .04 inch of rain having fallen during the week.

Mr. Getty, of Hays, visited the station on his return from Mandan.

SOUTH DAKOTA:

Highmore Substation. July 24. Crops on the station farm are in excellent condition. Grain sorghums, corn and millets have made good growth during the past two weeks. It is believed that they will make a crop of seed if reasonably warm weather prevails from this time. Heavy rains have fallen recently, causing considerable lodging on the plats treated with manure or commercial fertilizer. However, the crops can be harvested by cutting one way. Winter rye and early barley and oats will be ready for harvesting about the middle of next week.

IOWA:

Experiment Station (Ames). July 24. In spite of frequent showers excellent progress has been made in harvesting oats in field plats on the station farm. About 50 per cent of the varieties and selections in the nursery are now fully ripe. The work of taking herbarium material in the oat classification nursery was completed on July 23. Harvesting oats throughout the greater part of the State has been delayed by wet weather, but apparently the crop has not been damaged seriously by the unfavorable weather.

Mr. Stanton leaves tonight for St. Paul. Minn.

NORTH DAKOTA:

Dickinson Substation. July 26. Cereal crops are in excellent condition and all except a few of the later varieties are fully headed. Winter rye is beginning to ripen but if the present cool weather continues the main harvest will not begin before August 15.

Maximum temperature for the week, 81 degrees; minimum, 40 degrees; precipitation .65 inch, .54 inch of which occurred this morning.

Williston Substation. July 26. Gatami and most of the six-rowed barleys are beginning to ripen and will be ready to harvest the latter part of the week. Sixty-Day and Kherson oats also will soon be ripe. Mr. Babcock reports that the general condition of small grain crops

between Mandan and Minot (about 200 miles), and also in vicinity of Minot is very good and the indications are that yields will be large. In the immediate vicinity of Williston, however, the prospects are not so good except on new or fallowed land. This is prabably due to the fact that during the period from July 1 to 10, just when the small grains were beginning to head, the district around Williston failed to get the local showers which were fairly general outside of this district. Since that time the climatic conditions have been fairly favorable. It is said that about 20 miles to the north of Williston the small grains are in excellent condition and unusually good yields are expected.

Rain interfered with the annual "farmers' picnic" which had been postponed from July 10 to 24. Some 20 or 30 persons living close to the station gathered there on the latter date and remained an hour or two. There will be no further attempt to have the picnic this year.

The maximum temperature for the month has not exceeded 90 degrees. The precipitation for July to the present date has been 2.24 inches, as compared with a normal total rainfall for July of 1.99 inches.

Mandan. July 24. A slight hail storm yesterday shattered the oats to some extent, but did little damage to flax. Cancer as well as a considerable quantity of rust has made its appearance on the flax, but the plantings look well at this time.

IDAHO:

Aberdeen Substation. July 22. Crops on the irrigated land on the station are in good condition. The shortage of water is being felt over the tract and much grain which would have yielded well if water had been available will make only a partial crop. Spring grains are practically a failure and some of them will not even be cut. Winter wheat on the station was frosted about June 10th. Some of the early plats will not yield a bushel to the acre while the later plats will yield from a third to a half crop. Harvesting winter wheats and winter barleys was completed yesterday. This has been the driest year in the history of this section of the State, and dry-land crops over the entire area are showing the effects of the

extreme drought. Summer-fallowed land in some of the better dry-farming sections will yield from one-half to two-thirds of a crop, while in other sections there will be less than half a crop. Spring grains are a total failure with the exception of those on summer-fallowed land near the base of the mountains. Frost on July 18 cut off the tops of the potato vines and injured the corn on the station. Maximum temperature on July 21, 96 degrees; minimum for same day, 47 degrees.

Messrs. Stephen A. Regan, of the Office of Grain Standardization, and George Godfrey, of the Office of Cereal Investigations, were visitors at the station last week. Mr. Ball is expected today and Mr. Warburton at the end of the week.

UTAH:

Nephi Substation. July 24. The weather continues hot and dry and nearly all winter cereals are ripening rapidly. Practically all the winter nursery will be ready for harvesting next week. Winter oat and barley varieties were harvested July 19, and about half of the winter wheat varieties was harvested during the week.

Messrs. C. W. Warburton, of the Office of Cereal Investigations, and George Stewart, of the Utah Agricultural College, were visitors at the station on July 23.

OKLAHOMA:

Woodward Field Station. July 27. Dry weather has prevailed during the last two weeks so that the surface soil is becoming dry. The broomcorn and grain-sorghum crops are making rapid growth, but have lately begun to show the effects of drought by wilting considerably in the middle of the day. The grain sorghums and especially the milos have tillered to an unusual extent this season. This is possibly due to the wet weather during the early part of the growing period of the plants. The broomcorn is more than waist high and some of the earliest varieties in the classification nursery have begun heading. Due to the late date of replanting, the grain sorghums are rather small.

SOUTH DAKOTA:

Bellefourche Experiment Farm (Newell) July 26. Three inches of rain, which fell since July 14th., has insured a heavy crop in this section. Early grains are just beginning to ripen. All of the small grains are about headed. A considerable infection of rust is noticeable on the winter wheat and on the earlier spring wheats.

Maximum temperature 88 degrees; minimum 46 degrees; precipitation .05 inch.

A farmers' picnic was held at the Experiment Farm on July 24th., about 200 being present.

NOTES

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OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

Aug. 6, 1915.

OFFICE NOTES.

Department Bulletin No. 270, "Cereal Experiments at the Williston Station," by F. R. Babcock, is now ready for distribution.

Mr. Edward C. Johnson of Manhattan, Kans., was a visitor in the office on the 2nd instant.

Dr. Humphrey is expected to return to Washington this afternoon from his trip to Minnesota, Wisconsin, Iowa and Indiana.

Mr. Potter returned to the office from St. Paul, Minn., on the 4th instant, after an absence of three months in the field.

Mr. Stanton returned on the 31st ultimo from his trip through Iowa, Minnesota, southern Michigan, Wisconsin and New York. He reports that in all the states visited the wet and backward season has been favorable to oats and the prospects are excellent for a large crop, though there has been considerable lodging as a result of frequent and more or less severe storms. Spring wheat in Minnesota will be very late in maturing. In Wisconsin the crop was beginning to ripen and considerable blight or scab was noticed in the varieties at the experiment station. In southern Michigan, where the harvesting of winter wheat was in progress, the indications are that an average or better than average yield will be obtained. In New York much of the winter wheat is over ripe but the wet weather has made the land too wet to permit the use of a binder.

FIELD NOTES

VIRGINIA:

Arlington Experimental Farm. Aug. 5, 1915. Practically all thrashing of cereal crops has been completed.

Cleaning and grading of cereals are underway.

Maximum temperature for the week ending Aug. 4 was 99 degrees, Aug. 1; minimum 69 degrees, Aug. 4; precipitation 2.64 inches.

GEORGIA:

Georgia State College Station (Athens). Thrashing has been completed on all field plats. Some of the nursery has also been thrashed. A statistical study of some of the nursery selections is now being made.

COLORADO:

Akron Experiment Farm. July 31. Treatment for smut has proved very effective as only occasionally infected heads are found. The average height of winter wheat is approximately four feet. About half of the winter wheat and a third of the barley has been harvested, while Burt and Sixty-Day oats are in shock. Harvesting Prelude spring wheat has been completed and other grains will be cut as soon as possible. The weather during the past week has been generally favorable for harvesting. There has been some wind with light showers but no heavy rain. Maximum temperature for the week, 85 degrees; minimum, 51 degrees; precipitation, .34 inch.

WYOMING:

Cheyenne Experiment Farm. (Archer) July 31. Red rust of wheat is very plentiful, especially in the spring wheats. The varieties showing greatest infection are common spring, C. I. No. 1541, and Erivan, C. I. No. 2397, which show an infection of from 8 to 10 per cent. The common wheat showing the greatest rust resistance seems to be Marquis, C. I. No. 3641, which shows an infection of about 2 per cent. With the exception of Pelissier, C. I. No. 1584, very little rust is found in the durums. Several timely rains during the past two weeks have kept all crops in excellent condition.

Mr. C. W. Warburton visited the station July 21.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) July 31. All of the spring grain and flax below the ditch was irrigated during the week. Some of the grain is lodged badly. Nearly all the dry land oats and barley varieties are fully ripe and winter wheats are partially so. The irrigated winter grains also are ready to cut, but harvesting has not been commenced because of frequent rains. Maximum temperature for the week, 78 degrees; minimum, 49 degrees; precipitation, 1.37 inches. The total precipitation for July was 5.74 inches, the highest monthly rainfall ever recorded here. The total rainfall for the year is 17.8 inches and the seasonal (March to July inclusive) rainfall, 15.54 inches as compared to an average annual rainfall of 13.11 inches for the seven previous years and an average of 7.65 inches for the growing season during the same years.

Highmore Substation. July 31. Corn and grain sorghums are growing rapidly. During the past week there has been 1.56 inches precipitation, consisting principally of light showers of .25 to .5 inch, most of which have been at night. These showers have kept the ground wet on the surface, making it difficult to harvest winter rye and early barley and oats. The greater portion of the grain is lodged badly, making it necessary to cut only one way. Harvesting, although about a week later than usual, is proceeding as rapidly as possible, and yields promise to be excellent.

Agricultural Experiment Station (Brookings). July 31. More scab than usual is in evidence on all wheats - Kara, Marquis, and Kubanka being most severely affected. Rust is developing rapidly in the spring varieties and will doubtless reduce the yield from ten to fifty per cent, the quantity present varying with the date of ripening. Neither Turkey nor Kharkov winterkilled, the only two varieties of winter wheat grown. These have been harvested with prospect for a good yield. Winter rye also has been harvested but the yield will be light because of a freeze when most of the florets were appearing.

(Cottonwood) A hail storm which occurred last week nearly destroyed the cereal crops. Winter rye has

been harvested and, in spite of heavy loss due to the hail, is yielding about ten bushels to the acre. Recovery from damage by hail is noticeably greater in some varieties of corn than in others, Minnesota No. 13, and Silver King being the most seriously injured.

(Eureka) Crop prospects are still good with the exception that some of the earlier grains are quite seriously lodged and difficult to harvest. Harvest of barley varieties is under way, Gatami being completed. The only winter wheat on the station is that which survived under a straw mulch of a few tons per acre. This promises to produce a good yield.

(Vivian) Because of the cold wet weather grain sorghums are backward, but are making good growth at this time. Sixty-Day oats are nearly ready to harvest.

Rainfall at all stations has been about double the normal, amounting to approximately five inches throughout the State during July.

Mr. Manley Champlin will spend the week beginning August 2 visiting the various substations.

NORTH DAKOTA:

Dickinson Substation. August 2. Winter rye is ready for harvest. Gatami barley and Sixty-Day oats are beginning to ripen. Late varieties of wheat and oats are almost fully headed. All the crops have a rank growth of straw and the frequent rains have caused some lodging among the weak-strawed varieties in the nursery. The prospect is good for large yields of all cereals, both at the station and in the surrounding country. Cool, rainy weather continues. Maximum temperature for the week was 76 degrees; minimum, 46 degrees; precipitation 1.28 inches.

Dr. William A. Taylor visited the station July 28.

Williston Substation. July 31. The weather during the week has continued to be very favorable for small grains and ripening has not been unusually rapid. Most of the six-rowed barleys are ready for harvest and will be cut the first part of next week. Gatami barley is ripening at the same time as the other six-rowed types. It does not appear that Prelude wheat will mature earlier than Ghirka or the bearded fifes, all of which together with spring rye, Sixty-Day oats, and Kherson oats, will be ready for harvest in another week. A large percentage of wheat winterkilled and that which survived is not yet ripe. Maximum temperature for the week, 79 degrees; minimum, 44 degrees; precipitation, .34 inch.

Mr. J. D. Morrison of Highmore S. Dak., visited the station on the 20th.; Mr. Cole, Office of Dry Land Agriculture, on the 22nd.; and Mr. J. A. Clark on the 30th and 31st.

CALIFORNIA:

Biggs Cereal Field Station. July 28. The condition of the rice crop has improved greatly during the past month, the weather conditions recently having been very favorable. The average maximum temperature for the past two weeks was about 98 degrees, the highest being 107 on the 24th. The average minimum temperature for the same period was about 66 degrees, the highest being 73 and the lowest 60 degrees. All of the station rices look exceptionally well. The Italian varieties are headed and Wataribune will soon be in the boot. Much time was spent last month in an effort to eradicate the large quantity of water grass on the station resulting from floods of last winter.

NOTES

~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

Aug. 13, 1915.

OFFICE NOTES.

Dr. Harlan, in charge of barley investigations, underwent an operation for appendicitis at the Garfield Hospital in Washington on August 2. There were no complications and his recovery has been steady and rapid. He is yet unable to be up but hopes to be before long, although he may not be ready for office duty until the latter part of the month.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Aug. 12. Thrashing of selected heads of winter wheat and oats for fall planting in rod-rows is under way. Sorghums in the environmental test are beginning to head, and are making vigorous growth since the recent rains. Cultivated rices are heading, and the transplantings made on May 28 are in good condition.

Maximum temperature for the week ending Aug. 11, 90 degrees (Aug. 9); minimum, 64 degrees (Aug. 11); precipitation, 1.52 inches on Aug. 5, 6, 9, 10, 11.

Varietal Test of Winter Wheat
(Average yield in bushels per acre of triplicate, 1/40 acre, plats).

C.I. No.	Variety.	Average Yield.
1923	Fultz	40.4 bu.
1923 Sel.	Imp. Fultz.	33.5
1733	Dawson Golden Chaff	32.6
1957	"Near" Purple Straw	32.0
1915	Purple Straw	31.4
1933	Jones Winter Fife	31.2
1979	Poole	31.2
180	China	31.1

C. I. No.	Variety.	Average Yield.
3614	(Hybrid)	31.1
1930	Rocky Mountain	30.8
4204	"Near" Bearded Winter Fife	30.0
2980	Stoner (Miracle)	29.0
1912	Bluestem	28.9
2008	Mammoth Red	28.0
1945	Lancaster	28.0
1744	Early Genesee Giant	27.6
3612	(Hybrid)	27.2
1974	Martin Amber	27.1
3326	Currell Prolific	26.5
1942	Bearded Winter Fife	26.0
1969	Michigan Amber	25.8
3608	(Hybrid)	25.7
1911	Bearded Purple Straw	25.1
1981	Dietz Longberry (average 13 check plats)	23.7
3613	(Hybrid)	23.3
1973	New Amber Longberry	23.2
3277	Virginia	18.7

GEORGIA:

Georgia State College of Agriculture (Athens). Thrashing of cereal nursery is nearly completed. Through the cooperation of the County Farm Demonstration agent an estimate has been compiled showing an average loss of 10 per cent of the oat crop, due to loose smut. The forecast of the monthly crop report for Georgia on June 1 was 16,416,000 bushels of oats. Figuring on this basis the loss to the state is 1,824,000 bushels this season from smut.

LOUISIANA:

Crowley Rice Experiment Station. Prof. W. R. Dodson, Director of the Louisiana experiment stations, and Mr. W. J. Morse, Office of Forage Crop Investigations, were visitors at the station during the week.

Early rices are heading in the nursery.

The continued hot, dry weather is getting serious. Irrigation streams are low and it is reported that deep wells west of the station are failing. Cultivated crops have been greatly damaged and unless there is rain soon corn will be almost a total failure.

TEXAS:

Amarillo Cereal Field Station. Aug. 7. Nursery thrashing has been in progress all week. Thrashing the field plats of small grain has not yet commenced owing to the necessity of moving and rebuilding the machine shed and moving the scales. A second cutting of Sudan grass has been made from some of the earliest seeded plats. Maximum temperature for the week, 95 degrees; minimum, 54 degrees; precipitation, 0.02 inch.

Mr. Rothgeb left during the week for a trip including Chillicothe, Texas, and Lawton and Woodward, Oklahoma.

OKLAHOMA:

Woodward Field Station. Aug. 7. Throughout the week the weather has continued favorable for crop growth, the rain the previous week having put the soil in good condition in regard to moisture. A rain this afternoon of 1.27 inches occurred just in time to furnish needed moisture for the grain sorghum and broomcorn crops. A large part of the broomcorn and some of the earlier grain sorghums have headed. The prospects are that heavy yields will be produced. Work during the week has consisted of taking notes, making counts of the broomcorn stands, and roguing bulk plantings of the various crops.

KANSAS:

Hays Branch Experiment Station. Aug. 9. During the month of July rain fell almost continuously, precipitation being recorded on eighteen days of the

thirty-one, with a total of 8.18 inches, 4.66 inches above normal. As a result harvest in Ellis County and over the whole of western Kansas has been slow and laborious, much wheat being cut with binders and by mowing and raking. Wheat was so wet when stacked that thrashing must be delayed for several weeks. Some grain is still being harvested. In the eastern part of the county where the wheat crop was largest and where most rain fell many acres have been abandoned and will be burned. Sorghum has done well where stands were secured, but very few of the station fields give promise of profitable yields. Mr. Getty's experimental forage sorghums and the experimental grain sorghums have made fair stands and will produce good yields. The early plat of Manchu brown kaoliang was fully headed July 30. Feterita, Dwarf milo, and Dwarf kafir are heading. Some experimental thrashing was done on Thursday and Friday of last week but rain on Saturday and Sunday, amounting to 1.56 inches will delay further work for several days.

COLORADO:

Akron Experiment Farm. Aug. 7. Spring wheat is maturing rapidly. Harvesting field plats of winter wheat and spring barley has been completed and nursery harvesting is under way.

The farm was inspected on Thursday by Dr. Wm. A. Taylor, Chief of the Bureau. Dr. Briggs left for Washington Thursday evening.

WYOMING:

Cheyenne Experiment Farm. (Archer) Aug. 6. The warm weather and frequent rains have been very favorable to the development of rust. Spring wheat is badly infected, many varieties showing 20-50 per cent of infection. Harvesting winter wheat was commenced during the past week. Ripening generally has been quite uniform, although slow. All other grain crops are fully headed but none except the early seeding and varietal tests of oats and barley are beginning to ripen. Corn, although scarcely two feet high, is beginning to tassel. Much more warm weather is needed to produce anything except forage.

Maximum temperature for the week, 87 degrees; minimum, 43 degrees; precipitation, 0.41 inch.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell). Aug. 7. All of the earlier grains are now fully ripe. The irrigated grains and some of the dry-land, medium-early spring wheats are beginning to ripen. The grain this season shows a considerable amount of rust infection and some loose and covered smut, while the durum wheats are slightly infected with wheat scab. Harvest was commenced on August 5. Maximum temperature for the week, 82 degrees; minimum, 50 degrees; precipitation, 0.34 inch.

Mr. Champlin visited the farm today.

Highmore Substation. August 7. With the exception of Monday, weather conditions have been ideal the past week for harvest and rapid growth of sorghums, corn and millet. All barleys are harvested with the exception of a few late varieties in rod rows. Early oats have been harvested. Winter wheat is ripening rapidly. Throughout the state harvesting barley and oats is over and yields promise to be the greatest in the history of the state.

NORTH DAKOTA:

Dickinson Substation. Aug. 7. Warm, clear weather during the latter part of the week has hastened the heading of late cereal crops and aided the ripening of early varieties. Two plats of winter rye were harvested August 5, while Gatami barley and possibly Sixty-Day oats will be ripe next week. Considerable work has been done in roguing the varieties in plats and nursery. All crops in the vicinity look well. Harvest will be about two weeks later than usual. Maximum temperature for the week, 84 degrees; minimum, 45 degrees; precipitation, 0.11 inch.

Williston Substation. Aug. 7. With the exception of the first two days the weather during the week has been hot, causing the grains to ripen very rapidly.

Nearly all of the barleys in the nursery have been harvested, while all of the six-rowed varieties in the field plats have been cut and the two-rowed varieties will be ready about Monday the 9th. The Sixty-Day and Kherson oats and spring rye have been harvested, and the midseason oats will be ready to harvest in three or four days. Winter wheat and rye have been slow in ripening but are now ready to cut. Prelude wheat ripened on the 4th and Pioneer on the 7th instant, these being the earliest wheats on the station this season. The Preston, Ghirka and Marquis wheats will be ripe in three or four days. Maximum temperature for the week, 90 degrees; minimum, 39 degrees; precipitation, 0.05 inch.

MONTANA:

Judith Basin Substation (Moccasin). Aug. 7. Winter wheat and early barleys are ripening rapidly and harvest of winter wheat will be commenced in four or five days. All grains are filling well and should be of good quality. Because of the cool, wet weather during June and July grain has ripened rather slowly and harvest will be a week or ten days later than last year. The total precipitation for July is 3.54 inches, 1.8 inches above normal.

UTAH:

Nephi Substation. Aug. 7. Harvesting of winter cereals in nursery and field plats and of spring oats has been completed. Spring wheat varieties are ripening rapidly. Several heading outfits are at work in this vicinity, practically all winter wheat being ripe. With the exception of sorghum, sudan grass and proso, all intertilled crops look well. The weather during the summer has been dry, the precipitation for the period since June 5 being only 0.13 inch.

CALIFORNIA:

Biggs Cereal Field Station. Weather continues favorable and rices are making a splendid growth. Italian rices are heading (July 31). Mr. Warburton visited the Biggs and Chico stations August 6 and 7.

OREGON:

Harney County Dry-Farming Substation (Burns). July 31. Hogging-off tests with alfalfa, rape, and field peas and a lambing-off test with field peas have been started. Considering the cold, dry season crops on the station generally look well. Frost on July 16 damaged field peas by injuring the young pods and the bloom, decreasing the total crop by probably 25 per cent. Because of this frost a small percentage of seed of the winter cereals will be shriveled, while some of the less resistant spring varieties were damaged slightly. Harvest will be commenced during the first week in August. Maximum temperature for the month, 97 degrees (July 21-23 inclusive); minimum, 27 degrees (July 16); precipitation, 0.295 inch; evaporation, 8.835 inches; total wind velocity, 3,011 miles.

The annual "Farmers' Day" meeting was held on July 17. Official visitors at the station during the month included President W. J. Kerr and Committee of Regents of the Agricultural College; Professors Scudder and Reynolds; and Messrs. C. R. Ball of the Office of Cereal Investigations, and D. E. Stephens, Superintendent of the Eastern Oregon Dry-Farming Substation, Moro, Oregon.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

August 20, 1915.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Aug. 19. During the past week the weather has been generally fair. The work of cleaning and grading of grain is still in progress. Maximum temperature, 90 degrees (Aug. 15-16); minimum, 53 degrees (Aug. 18); precipitation, 1.56 inches, Aug. 12, 13 and 16.

Below is given a table showing the average yield, in bushels per acre, of winter oats in the varietal test in duplicate twentieth-acre plats:

C.I.No.	Variety.	Average yield.
274-20	Winter Turf selection	76.6 bus.
427	Winter Turf	75.4 "
431	" "	69.0 "
435	" "	57.7 "
273-19	Culberson selection	48.4 "
651	" "	44.1 "
206-10	Bicknell selection	39.6 "
518-3	Red Rustproof selection	38.6 "
708	Fulghum	37.4 "
699	"	31.4 "
206	Bicknell selection	30.5 "
259-11	Red Rustproof selection	29.4 "
206-7	Bicknell selection	27.5 "
701	Ruakura Rust-resistant	16.1 "
206-3	Bicknell selection	15.3 "
518-37	Red Rustproof selection	13.1 "
273	Culberson, average of 11 checks	51.9 "

The following table shows the yield, in bushels per acre, of winter oat selections in twentieth acre plats:

C.I.No.	Variety.	Yield
541-4	Winter Turf selection	83.6 bus.
435-4	" " "	79.0 "
274-I-22	" " "	78.0 "
748	Culberson selection	72.2 "
273-I-14	" "	71.5 "
236-1	Red Rustproof Selection	69.4 "
439-10	" " "	62.1 "

OKLAHOMA:

Woodward Field Station. Aug. 16. Broomcorn both in the rate-of-seeding and varietal tests is fully headed and will soon be ready for harvest. Some broomcorn in the vicinity of the station is now being pulled. The earlier varieties of grain sorghums are fully headed. A precipitation of 3 inches during the first part of the week was very beneficial to the broomcorn crop.

Mr. Rothgeb spent the first three days of the week at the station.

WYOMING:

Cheyenne Experiment Farm (Archer). Aug. 13. All winter wheats have been harvested, with the exception of Buffum's #17, and the latest planted plats of Ghirka and Turkey in the date-of-seeding tests. Harvesting of winter wheats in the nursery is in progress. The earlier varieties of oats and barley will be ready for harvest in a few days. Durum and the common spring wheats are just beginning to ripen.

Mr. W. W. Burr, of the Office of Dry Land Agriculture, visited the station August 11 and 12.

Maximum temperature for the week, 81 degrees; minimum, 44 degrees; precipitation, 0.71 inch.

NORTH DAKOTA:

Dickinson Substation. Aug. 17. During the past week winter rye and Gatami barley were harvested. Early oats and winter wheat will be harvested this week. The weather has been favorable for the ripening of grain. Maximum temperature for the past week, 85 degrees; minimum, 50 degrees; precipitation, trace.

Messrs. Ball and J. A. Clark arrived at the substation on August 16.

Williston Substation. Aug. 16. Since August 1 the temperature has been between 85 and 90 degrees nearly every day, with practically no precipitation. Grain has ripened very rapidly. All cereals in the varietal tests have been cut, and a large portion of the cereal nursery has been harvested. Nearly all the wheat, oats, and barley on the rotation plats has been harvested. Outside of the Williston Valley grain is somewhat later in ripening and wheat and oats are just maturing.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Aug. 16. Spring wheats are beginning to ripen on both the dry-land and irrigated plats. All of the dry-land oats and barley is fully matured, while flax is only partly so. All of the winter wheats and most of the winter-wheat nursery have been harvested. Dry-land oats and barley are entirely harvested. Part of the spring wheat and oats in the nursery has been cut. In spite of the large quantity of straw, heavy yields of grain will be obtained from nearly all of the dry-land plats. The maximum temperature for the past week, 84 degrees; minimum, 57 degrees; precipitation, trace.

Highmore Substation. Aug. 14. All barleys and all oats, with the exception of a few late varieties, have been harvested. Most of the winter wheats have been harvested, with the exception of a few plots in the date-of-seeding tests. The weather during the past week has been excellent for harvesting small grain and for the growth of corn and sorghums.

17

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

August 27, 1915.

OFFICE NOTES.

Mr. Ball returned to the Office on August 25 after an absence of over three months in the western States in the interest of western wheat investigations. After a few days in Washington he will spend two weeks in New England on vacation.

For the present fiscal year $1,500 has been transferred to this Office for flax work and under this additional allotment work will be done at Fargo, N. Dak., in cooperation with the State Experiment Station. Mr. Theodore Stoa has been appointed Scientific Assistant in this work with headquarters at Fargo.

Mr. C. R. Letteer, since June 15 in charge of the grain sorghum and broomcorn investigations at the Woodward Field Station, Woodward, Okla., was transferred back to the Office of Western Irrigation Agriculture on August 23, 1915, to return to the San Antonio Experiment Farm.

A new form of transportation request is now being issued. All receiving these should give particular attention to the instructions printed on the reverse side of each request and also to the general instructions on the inside of the cover. Failure to do so may result in disallowances.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Aug. 27. Below is given a table showing the yield of barleys in bushels per acre in twentieth-acre plats.

C.I.No.	Variety.	Yield.
705	Black Russian	46.2
206-1	Han River	45.5
583	Union	44.5
898	Omar	44.5
541a	Selection 32	41.5
754	Nakano Wase	39.6
221	Greece	39.0
257	Tennessee (average of 7 checks)	35.1
519-VIII	Wisconsin Winter	33.8
895	(Hybrid)	27.2
277	Scottish Pearl	22.4
901	(Hybrid)	21.9
646	Tenkau	21.9
737	Niver	21.5
703	Hansee Hull-less	21.1
223	Argentine	20.4
702	Arlington Awnless	20.4
702-XVI	Arlington Awnless selection	15.9
194	Telli	13.7
731	Pontius	9.8
187	Swan Neck	7.5
--	S.P.I.No.38536 selection	7.0

TEXAS:

Amarillo Cereal Field Station. Aug. 21. The prospects are good for a large yield of grain and forage sorghums.

The rainfall thus far in August has amounted to 3.43 inches. The frequent showers have seriously interfered with threshing operations and some of the small grain in the shock is considerably damaged.

Messrs. J. S. Cole and W. W. Burr of the Office of Dry Land Agriculture, and Mr. F. L. Goll, in charge of Bureau of Plant Industry exhibits for the Dry Farming Congress, visited the station during the past week.

Mr. Rothgeb left on the 19th of August for Bard, Cal., but will return to Amarillo about September 1.

WYOMING:

Cheyenne Experiment Farm. (Archer) Aug. 21. The harvesting of barley and oats in the field plats is in progress, while nearly all the winter wheats are harvested, with the exception of some varieties in the nursery. All varieties of oats, particularly those nearly ripe, were badly shattered during a severe rain and hail storm on August 17. Counts were made of a number of representative heads from each of several varieties and in many cases as many as 35 per cent of empty glumes were found. Wheat was shattered somewhat, while barley was considerably damaged. There have been frequent hail storms in this section of the state during the entire summer. In many cases crops have been destroyed.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Aug. 23. During the week the harvesting of the dry-land plats was practically completed. A large part of the nursery was also harvested. Flax is ready to harvest, proso is beginning to ripen, and the grain sorghums are heading. Maximum temperature for the past week, 85 degrees; minimum, 55 degrees; precipitation, 0.10 inch. The ground is beginning to crack badly, although the growing crops do not show any injury from lack of moisture.

Highmore Substation. Aug. 21. During the past week weather conditions have been very favorable for harvesting and threshing. Indications from the plats threshed are that the yields will be the highest ever obtained on this substation. Oats are averaging over 100 bushels to the acre over whole acres in the rotation work, and 85 bushels per acre is the lowest yield thus far recorded on field plats. The Swedish Selection as a general rule is yielding 10 to 20 bushels per acre less than the Sixty Day.

The yields of Swedish winter rye in the rate-of-seeding test are as follows:

Rate-of-seeding	Yield in bus. per acre
2 pecks per acre	26.9
3 " " "	27.2
4 " " "	28.8
5 " " "	29.4
6 " " "	29.9

MINNESOTA:

University Farm, St. Paul, Minn. Aug. 17. Most of the grain on the varietal plats is cut and harvesting is progressing in the rust nursery but will not be completed until the end of the month, which is fully two weeks later than usual. Since the 5th of August the weather has been favorable for the ripening of all grains and for harvest work. Maximum temperature for the first two weeks of August, 87 degrees (Aug. 15); minimum, 48.5 degrees (Aug. 5); precipitation, 2.92 inches.

Mr. Parker visited the experiment station at Brookings, S. Dak., on Aug. 14.

NORTH DAKOTA:

Dickinson Substation. Aug. 21. During the week there were harvested the early varieties of barley in plats and nursery, as well as the winter

wheat plats and the Sixty Day and Kherson oats. Harvesting is in progress in the rotation plats of barley and oats. Maximum temperature for the past week, 84 degrees; minimum, 50 degrees; precipitation, 0.08 inch

Messrs. C. R. Ball and J. A. Clark spent four days at the substation during the past week. Mr. A. C. Dillman, of the Office of Alkali and Drought Resistant Plant Investigations, and Mr. W. R. Porter, Superintendent of Demonstration Farms for North Dakota, were also visitors during the week.

Several fields of oats and early wheat in the vicinity are being harvested and in a few days the harvest will be general. From present indications the yields will be as large as those of any previous year.

Williston Substation. Aug. 21. With the exception of proso and flax all cereals on the varietal plats and in the nursery have been harvested. Grains on the rotation plats have been cut and wheat and oats on the larger fields are being cut. Winter wheat was sown today but it is doubtful if its germination will be strong, even with the precipitation of 0.21 inch on the 19th instant.

Harvesting of wheat in the vicinity has begun. It is later than usual.

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

September 3, 1915.

OFFICE NOTES.

Mr. Warburton returned on August 30 from his western trip begun on June 28.

Mr. Potter left on August 31 to make investigations in the interest of cereal investigations in Iowa, Indiana, Ohio, and Pennsylvania, to inspect experiments in the treatment of head smut of sorghum at Amarillo, Texas, and to take notes on experiments with the infection and prevention of corn smut at the experiment station at Manhattan, Kans. He will return to Washington about the latter part of September.

Mr. J. A. Clark returned to Washington on September 1 from his trip begun on June 1 in the interest of western wheat investigations.

On August 27 page proof was read of Farmers' Bulletin 680, Varieties of Hard Spring Wheat, by Messrs. Ball and Clark.

Second page proof of Farmers' Bulletin 686, Uses of Sorghum Grain, by Messrs. Ball and Rothgeb, was read on August 31.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Sept. 2. The work of thrashing and preparing cereals for sowing in the nursery is in progress. Sorghums in the environmental test are heading well and are in vigorous condition.

Maximum temperature for the past week, 83 degrees (Aug. 30); minimum, 53 degrees (Sept. 1); precipitation, 1.97 inches (Aug. 28 and 30).

LOUISIANA:

Rice Experiment Station. (Crowley) Aug. 21. High winds and heavy rains occurred from the afternoon of Aug. 15 to the afternoon of Aug. 19. The wind velocity was 20 miles during the hour from 8:30 to 9:30 on the morning of Aug. 17, which is the highest recorded at the station during the period mentioned. The average velocity recorded from 5 P. M. on Aug. 16 to 5 P. M. on Aug. 17 was 14.6 miles. The damage to rice in the vicinity was very small. The Honduras variety, which was in flower, seems to have suffered most. Young corn was badly damaged, the leaves being mutilated and the stalks blown down flat.

Aug. 28. The recent storms did little damage to the rice crop in the vicinity. Where the growth of Honduras rice was heavy and the crop was nearly or quite mature, there was some lodging. A large part has been cut or is ready for cutting. Some damage reported to young rice just heading probably was due largely to insects and disease.

TEXAS:

Amarillo Cereal Field Station. Aug. 28.

Broomcorn and the brown kaoliangs are ready for harvest. A rainfall of 1.09 inches during the first of the week again retarded thrashing operations. Grain sorghums and cowpeas are in excellent condition.

A Farmers' Institute and Short Course was held at Amarillo from August 26 to 28 inclusive.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Aug. 30. During the week the work of harvesting the nursery was almost completed. The flax varieties were also harvested. The grain mixtures, as well as part of the wheat and oats and the remainder of the barley varieties, all under irrigation, were cut. Practically all of the small grains are ripe and ready for harvest. The prosos are nearly ripe and the sorghums are partly headed. Maximum temperature during the past week, 81 degrees; minimum, 40 degrees; no precipitation.

Highmore Substation. Aug. 28. Weather conditions during the past week have been favorable for thrashing and general field work, but the temperatures have been too low for the best growth of grain sorghums. Kaoliangs are just emerging from the boot. Unless there are no frosts until late in the season, the later-maturing varieties will hardly ripen this season.

The following table gives comparative yields in the rate- and depth-of-seeding tests of Sixty Day and Swedish Select oats:

	Variety.	
Rate-of-Seeding per acre.	Sixty Day Bus. per acre	Swedish Select Bus. per acre
4 pecks	100.0	68.8
5 "	100.0	93.8
6 "	131.3	100.0
7 "	112.6	93.8
8 "	128.1	100.0
Depth-of-Seeding Inches		
1 in.	128.1	87.5
2 "	129.7	93.8
3 "	106.3	90.6
4 "	121.9	90.6

NORTH DAKOTA:

Dickinson Substation. Aug. 28. Sixty-Day and Kherson oats, Prelude, Pioneer, and Manchuria wheats, and all the barley varieties on the cereal plats have been harvested. The barley varieties and some of the oats and wheat in the nursery have been harvested. On the rotation plats all the barley and some oats and wheat have been harvested.

Probably fifty per cent of the harvest in the vicinity is finished.

Maximum temperature for the week, 82 degrees; minimum, 30 degrees; precipitation, 0.24 inch. A frost on Aug. 24, only 69 days since the killing frost of June 16, did considerable damage to corn in the vicinity but very little to crops on the substation.

During the week Mr. F. J. Piemeisel, Agent in the cooperative cereal disease investigations in Minnesota, and Mr. Wm. Mercer, of the North Dakota experiment station, visited the station to inspect the crops with regard to diseases. Both leaf and stem rust of wheat is prevalent at the substation as well as in the vicinity. Oats are not so badly affected.

MONTANA:

Judith Basin Substation. (Moccasin) Aug. 28. Harvesting has been in progress since the 10th of August. The weather during that time has been almost ideal, with only a few small showers to interfere with the work. All the grain except flax has been cut, and oats, barley and winter wheat have been thrashed. The highest yielding variety of each grain is as follows:

Winter wheat (Kharkov, C. I. 1583)	61.30 bu.
Oats (Swedish Select, C. I. 134)	115.00 bu.
Barley (Coast, C. I. 690)	81.00 bu.

UTAH:

Nephi Substation. Aug. 25. Maximum temperature for the past week, 96 degrees (Aug. 23); minimum, 29 degrees (Aug. 28); no precipitation.

The following table gives the yields of the leading varieties of winter cereals included in the plat tests this season:

C.I.No.		Variety	Av. Yield.
1783	(Winter Wheat	(From Oklahoma)	39.7 bus.
2908	dup. 1/20	Malakof	37.8 "
3055	A. plats.)	Turkey	37.5 "
1439		Ulta	36.7 "
1560		Banat	36.7 "
2998		Turkey	35.1 "
			Yield
1544	(Winter Wheat	Beloglina	49.5 bus.
2042	single 1/20	Hungarian	47.0 "
1756	A. plats.)	(From Missouri)	44.3 "
1596		Fretes	43.7 "
2979		Alberta Red	43.3 "
3019		White Australian	43.3 "
480	(Winter Oats	Boswell Winter	64.4 "
274	single 1/10	Winter Turf	50.0 "
708	A. plats.)	Red Rustproof	35.6 "
518		Fulghum	35.5 "
592	(Winter Bar-	Utah Winter	53.5 "
711	ley, single	Turkestan	50.2 "
521	1/10 A. plats.)	Bulgarian	49.6 "

OREGON:

Eastern Oregon Dry-Farming Substation. (Moro) Aug. 23. During July and up to August 20 the weather was dry and moderately warm, with no precipitation of benefit to growing crops. The highest temperature recorded was 96 degrees; minimum, 40 degrees.

The following table gives the ten highest-yielding varieties of winter wheats in the varietal tests, the yields being the average of triplicate twentieth-acre plats:

C.I.No.	Variety.	Av. Yield per Acre
----	Wash. Hybrid No. 123	34.6 bus.
4066	Wash. Club	32.7 "
4155	Dale Gloria	29.0 "
4067	Bluestem	26.6 "
----	Fortyfold (local)	26.5 "
2998-1	Turkey	26.5 "
1571	Turkey	26.5 "
2979	Alberta Red	25.5 "
1569	Argentine	25.0 "
1561	Theiss	24.7 "

In the environmental experiments with Turkey wheat, C. I. No. 1558, the yields were as follows:

Utah seed, 26.6 bus. per acre.
Moro " 26.3 " " "
Montana " 25.5 " " "

In a rate-of-seeding test with Turkey wheat, C. I. No. 1558, in duplicate tenth-acre plats, the following average yields were obtained:

8 pecks per acre, 146 lbs.
7 " " " 148 "
6 " " " 144 "
5 " " " 142 "
4 " " " 134 "
3 " " " 98 "
2 " " " 102 "

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

September 10, 1915.

OFFICE NOTES.

Mr. R. Page Bledsoe, of the Department of Agronomy, Kansas State Agricultural College, Mr. W. C. Etheridge, of the Department of Agronomy, University of Florida, and Mr. S. P. Coker, of Hartsville, S. C., were visitors at the Office on the 9th instant.

Mr. C. H. Clark writes from Mandan, N. Dak., on September 1, that the weather is favorable for the ripening of flax. Oats on the rotation plats are yielding well, one plat on summer-fallowed breaking yielding about 115 bushels.

Mr. Rothgeb writes from Amarillo, Texas, on September 6 that the grain-sorghum work is in excellent condition and that the main crop will be ripe about September 20.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Sept. 9. The work of cleaning and grading grain has been finished. The area of land to be devoted to cereal investigations the coming season is in cowpeas, a part of which will be turned under as green manure. The greater part of the abundant crop is being cut for hay, however. Maximum temperature for the past week, 93 degrees (Sept. 8); minimum, 57 degrees (Sept. 2); precipitation, 0.75 inch (Sept. 6 and 7). Since January 1 there has been recorded a rainfall of 35.53 inches, compared with a normal annual precipitation of 43.61 inches.

KANSAS:

Hays Branch Experiment Station. Sept. 6. The month of August was cold and wet and generally unfavorable to the growth of the grain-sorghums and to the work of thrashing. Eighteen rainy days were recorded with a total precipitation of 4.11 inches, which is 1.08 inches above normal. The excessive rains have interfered with the curing of headed wheat in the stack and with thrashing throughout the country. But little plowing has been done and stubble land is in poor condition for stubbling in the crop this fall. A 100-acre field of feterita near the station will require two weeks of favorable weather to produce a satisfactory crop of grain. On September 4 the first seeding in the rate-and-date test with winter wheat was made on fallow and on continuously cropped land.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Sept. 7. All crops are almost mature with the exception of the sorghums, which are well headed. Most of the proses are ripe, and about two-thirds have been harvested. Thrashing has been started in the vicinity of the farm. The harvesting of the small grains and the flax was finished during the past week. The first sowing in the date-of-seeding test with winter wheat was made on September 1. Maximum temperature for the past week, 100 degrees; minimum, 40 degrees; precipitation, 0.03 inch.

Highmore Substation. Sept. 4. During the past week weather conditions have been favorable for field work and thrashing. There have been high temperatures and frequent winds. Thickly planted corn and sorghums are in need of moisture. The kaoliangs and Early amber sorgo have almost completely headed during the week and probably will make a crop of seed if frost does not occur until the last of the month. Yields of 65 to 80 bushels per acre have been obtained from the barley plats thrashed during the week. Indications are that the crop yields throughout the State will be the largest ever recorded.

Agricultural Experiment Station. (Brookings) Sept. 1. Mr. Manley Champlin, collaborator with this Office, reports as follows on the cereal investigations work at the various South Dakota stations:

Brookings. Thrashing of wheat and oats is finished. Winter wheat, Turkey, S. Dak. No. 144, yielded from 35 to 47 bushels per acre. The latter probably is the largest yield ever obtained at the station and in the county.

Eureka. Thrashing is finished and record yields of oats and barley have been obtained. Sixty Day oats yielded 106 bushels per acre and Gatami barley made 65 bushels to the acre.

Highmore. Thrashing is well advanced and record yields are being obtained. In the cereal breeding work one of the 1909 selections of Sixty Day oats made the enormous yield of about 140 bushels per acre, an increase of about 10 per cent over the parent variety.

NORTH DAKOTA:

Williston Substation. Sept. 4. Harvesting of small grains has been finished. In the vicinity of the substation harvesting is in progress and thrashing has begun. Only one-half inch of rain fell during the month of August. The dry weather was favorable for the growth of corn. No frost has been recorded, the minimum temperature being 37 degrees.

The Williams County Fair was held in Williston from September 1 to 3 inclusive.

MINNESOTA:

University Farm. (St. Paul) Sept. 4. Harvesting of the selections of hybrid wheats in the rust nursery was finished on Sept. 1, - about ten days or two weeks later than usual. Thrashing is now in progress. During the last two weeks of August the weather was favorable for maturing the small-grain crop

in the spring-wheat States and for harvest operations. Maximum temperature, 87 degrees (Aug. 15); minimum, 37.5 degrees (Aug. 30); precipitation, 0.26 inch (Aug. 23, 28, 29).

Mr. F. J. Piemeisel, agent in the cooperative cereal disease investigations, returned Aug. 28 from an inspection of cereal disease work in North Dakota. He reported having found considerable black rust but that it apparently caused only slight damage.

NOTES
NEWSLETTER

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

September 17, 1915.

OFFICE NOTES.

Mr. Anthony returned on September 11 from Minnesota where he spent three months in work on the cooperative barley nursery at the University Farm.

Mr. Ball returned on September 15 from his vacation in New England.

Galley proof of Department Bulletin No. 297, entitled "Cereal Investigations at the Belle Fourche Experiment Farm," by Mr. Cecil Salmon, was read during the week.

Travel Authorizations.

Every man to whom a travel authorization is issued should be careful to note when his funds are running low or are insufficient for any additional work for which he asks amendment, so that the proper increase may be included in such amendment. He should likewise bear in mind that if the duration of his trip is to exceed the time stated in his authorization, the Office should be advised of this fact also, so that proper amendment may be made. This is a matter which must be given the individual attention of each traveler.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Sept. 16. The weather during the past week has been unusually warm and humid, with no precipitation. Maximum temperature, 95 degrees (Sept. 9-11-13); minimum, 66 degrees, Sept. 11.

GEORGIA:

State College of Agriculture. (Athens) Sept. 13. The work of cleaning and grading grain for fall seeding is nearly finished. All oats are being treated for loose smut. Corn has been removed from all plats that are to be devoted to cereal investigations and the land has been double-disked with a disk harrow.

The rainfall from Jan. 1 to July 1 was 21.02 inches, compared with an average of 27.47 inches for the period.

Belle Fourche Experiment Farm. (Newell) Sept. 13. Thrashing was begun on the 9th but was stopped by rains on the night of the 10th. The winter wheat varieties on irrigated land, wheat in the dry-land rate-of-seeding test, and part of the winter wheat varieties on dry land were thrashed during the week. So far the highest yield of winter wheat on dry land is 73.3 bushels per acre. Maximum temperature for the week, 80 degrees; minimum, 35 degrees; precipitation, 0.23 inch.

Highmore Substation. Sept. 11. Weather conditions have continued favorable for thrashing and field work. Grain sorghums of the earlier types are fully headed, and the late ones, such as broomcorn, milo, and kafir-durra, are heading. A precipitation of 0.85 inch on the 9th was of much benefit to the growth of corn and grain sorghums and to the germination of winter grains.

During the week thrashing of durum wheat was begun. The results in the date-of-seeding tests with pedigreed selection 284 from Kubanka durum wheat, C. I. No. 1516, are as follows: The plat sown April 12 yielded at the rate of 56.7 bushels per acre; that sown April 22, 40.0 bushels; and that sown May 7, 25 bushels.

NORTH DAKOTA:

Dickinson Substation. Sept. 8. During the week winter wheat was seeded in the varietal tests. Harvesting is finished with the exception of the flax varieties, White Russian oats, and a few nursery rows. Harvesting in the vicinity of the substation is nearly finished and thrashing will soon begin. Maximum temperature for the week, 97 degrees; minimum, 46 degrees; precipitation, 0.45 inch.

Mr. Thomas Cooper, Director of the North Dakota Experiment Station, inspected the substation during the week.

Sept. 14. During the past week varieties of winter rye and winter wheat were seeded in standing corn. The seeding of the winter-wheat nursery, delayed by late harvesting and rainy weather, will be finished today. Maximum temperature for the week, 83 degrees; minimum, 28 degrees; precipitation, 0.55 inch. Corn and vegetables were considerably damaged by a severe freeze on the morning of Sept. 10.

Williston Substation. Sept. 13. The work of thrashing was interrupted by rain on the 11th. White frosts were recorded on Sept. 9 and 10. Corn and other similar crops were killed as the result of a heavy frost of 24 degrees on the morning of Sept. 13. This was followed by a wet snow and in the afternoon by rain, resulting in a precipitation of 0.20 inch. For August there has been recorded a precipitation of 0.48 inch, compared with a normal of 1.58 inches. The precipitation for September to date has been 0.84 inch.

MONTANA:

Judith Basin Substation. Sept. 11. Cool, wet weather has much delayed thrashing operations. In the Judith Basin the work of thrashing is well under way and some good yields are reported. Wheat is of good quality, although most of the fields have a small percentage of smut. The excessive rains have affected the quality of wheat.

Since the first of the month there has been recorded a precipitation of 2.01 inches, most of which fell in the form of rain, but 0.73 inch of which came in the form of snow on Sept. 11th. This was followed by a killing frost with a minimum temperature of 27 degrees on the night of Sept. 11.

Farmers who have obtained seed of Kharkov wheat from the substation report that it is much better than the Turkey. One farmer reports a yield of 57.5 bushels from an 80-acre field of Kharkov, while adjoining fields of Turkey sown under the same conditions are yielding about 10 bushels less.

OREGON:

Harney Branch Experiment Station. (Burns). Sept. 8. With the exception of part of the flax and alfalfa seed plats, the harvesting and thrashing of all crops on the station was finished during the month of August and the first week of September.

The following table gives in bushels per acre a summary of the highest and lowest yields obtained from the varietal plats:

Winter wheat	15 to 55 bus.
Spring wheat	13 to 38 "
Spring oats	8 to 40 "
Spring barley	2 to 32 "
Field peas	2 to 8 "

Maximum temperature for August, 98 degrees; minimum, 34 degrees; precipitation, 0.03 inch; evaporation, 8.700; total wind mileage, 2522. The total precipitation for 1915 to date is only 5.20 inches. August was unusual in that no frost occurred, whereas the growing season usually closes about the middle of the month.

NOTES
[redacted]

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

September 24, 1915.

OFFICE NOTES.

Farmers' Bulletin 688, "The Culture of Rice in California," by Messrs. Chambliss and Adams, was issued on September 18, 1915.

Farmers' Bulletin 686, "Uses of Sorghum Grain," by Messrs. Ball and Rothgeb, was issued on September 22, 1915.

FIELD NOTES.

WYOMING:

Cheyenne Experiment Farm. (Archer) Sept. 18. Weather conditions are unusually favorable for the growth of corn and similar cultivated crops. Field corn is in roasting ear and from all indications will make good silage. The varieties of flax in field plats are being harvested. All winter wheat varieties with the exception of those in the nursery have been thrashed. The following table shows the average yield for triplicate 1/30-acre plats of the most promising varieties:

Variety.	C.I.No.	Yield in bushels.
Crimean	1559	38.6
Diehl Mediterranean	1359	38.0
Alberta Red	2979	37.8
Ghirka	1438	37.6
Malakov	2908	37.6
Kharkov	1442	37.1
Beloglina	1543	36.8

No freezing temperatures have been recorded this fall.

SOUTH DAKOTA;

Bellefourche Experiment Farm. (Newell) Sept. 20. During the week the work of thrashing the following grains was finished: Varietal plats of winter wheat, spring barley and emmer, the date-of-seeding test of winter wheat, and the winter wheat selections. Light showers interfered with the work early in the week. The average yield of the 12 varieties of winter wheat was 60.4 bushels per acre. The average yield of the 9 varieties of barley was 68.2 bushels. A single plat of Coast barley, C. I. No. 690, yielded 88 bushels per acre.

The second sowing in the date-of-seeding test with wheat was made on Sept. 15.

Maximum temperature for the week, 80 degrees; minimum, 31 degrees; precipitation, 0.33 inch. Frost on the 14th instant slightly injured the corn and kaoliang but seriously affected milo, kafir, and feterita.

Highmore Substation. Sept. 18. During the week the varietal plats of winter grains and the second date-of-seeding test with winter grains were seeded. The heads from the nursery rows were thrashed.

A precipitation of nearly 2 inches so far this month has benefited the winter grains previously seeded and has put the soil in fine condition for fall plowing. Considerable grain in the shock has sprouted as a result of the warm, wet weather, but the extent of the damage will not be determined until large quantities of grain are received at the elevators.

MONTANA:

Judith Basin Substation. (Moccasin) Sept. 11. The high yields reported in the Notes of September 3 were averages for five 1/50-acre plats. The highest yields obtained in single 1/50-acre plats are as follows:

Winter wheat,	Kharkov,	C. I. No. 1583	. . . .	70 bushels
Oats,	Swedish Select,	" " 134	. . . .	125 "
Barley,	Franconian,	" " 680	. . . .	93.7 "

In the environmental experiments with Turkey wheat, C. I. No. 1558, the average yields from five 1/50-acre plats are as follows:

Montana seed	61.8 bushels
Utah "	61.3 "
Oregon "	59.8 "

UTAH:

Nephi Substation. Sept. 19. All thrashing is finished and practically all plowing for fall seeding has been done. Grading of the fall cereals was completed yesterday. Frost on Sept. 13, 14 and 15 made it necessary to harvest the corn and grain-sorghum varieties, some of which were in the milk stage. A precipitation of 0.96 inch on Sept. 3 and 4, the first considerable rain since early in June, has put the soil in fair condition for fall work.

Indications are favorable for the completion this month of nearly all thrashing operations in the vicinity of the substation. Winter wheat yields are ranging from 15 to 35 bushels per acre.

OREGON:

Eastern Oregon Dry Farming Substation. (Moro) Sept. 9. All thrashing has been finished. The results obtained for different cultivation methods for winter-wheat production under the summer-fallow system are noted in the following table:

Disk fall plowing, early	22.3	bushels	per	acre
Moldboard fall plowing, early . .	22.8	"	"	"
Disk fall plowing, late	23.1	"	"	"
Moldboard fall plowing, late . .	21.7	"	"	"
Early spring plowing (April 1). .	26.3	"	"	"
Medium early spring plowing (May 1)	25.2	"	"	"
Late spring plowing (June 1) . .	21.4	"	"	"

These yields are averages of from 4 to 8 1/10-acre plats for each cultivation method. In a test of the effect of spring harrowing on winter wheat the average yield of 8 1/10-acre plats where the wheat was given two light harrowings in the spring was 23.6 bushels per acre; where no harrowing was given, the average yield was 23.3 bushels per acre.

In the spring-wheat varietal test, in duplicate 1/20-acre plats, the following were the five highest yielding varieties:

Variety.	C.I.No.	Yield per acre. (Bushels)
Koola	2203-2	33.2
Karun	2200-1	29.0
Early Baart	1697	26.5
Ghirka	1517	26.1
Washington Club	4066	26.0

In the spring-barley varietal test of 25 varieties in duplicate 1/20-acre plats, the five following gave the highest yields:

Variety.	C.I.No.	Yield per acre. (Bushels)
Mariout	261	54.5
Common California	626	51.2
Local beardless	---	51.1
White Smyrna	658	49.8
Beldi	190	48.8

In the spring-oat varietal test, also in duplicate 1/20-acre plats, the following five varieties gave the highest yields:

Variety.	C.I.No.	Yield per acre. (Bushels)
Storm King	522	63.0
Siberian	635	58.2
Sixty Day	165-1	57.2
Sixty Day	165-1-1	57.0
Shadeland Climax	---	55.3

The hottest weather of the year was recorded during the last two weeks of August. There were 9 days with a maximum temperature above 90 degrees, the maximum being 100 degrees on Aug. 28. The lowest temperature recorded was 37 degrees on Sept. 8. The total rainfall since August 1 has been only 0.05 inch.

917

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

October 1, 1915.

OFFICE NOTES.

Beginning with this issue the "Notes of the Office of Cereal Investigations" will appear every other week until further notice.

Recently it has been noticed that in the letters transmitting items for "Notes" other matter is included, such as requests for supplies, information about experiments, etc. It is requested that items for "Notes" be transmitted separate from all other matter, and that they be mailed to reach Washington not later than the Thursday afternoon before issuance of the "Notes."

It is requested that subvouchers be numbered separately for each individual expense account.

When leave is taken en route, it is necessary to note <u>in all accounts</u> the date and hour of beginning leave and the date and hour of returning to duty.

Page proof of Department Bulletin No. 297, entitled "Cereal Investigations at the Belle Fourche Experiment Farm," by Mr. Cecil Salmon, was read during the week.

Mr. Potter returned on the 21st of Sept. from his trip in the interests of cereal disease investigations begun on Aug. 31.

Mr. Chambliss left Washington on Sept. 25 to visit points in Louisiana, Texas, California, Georgia, South Carolina, and Florida in the interests of rice investigations. He will not return until the second week in November.

Mr. Godfrey returned on the 30th ultimo from his trip begun on July 4 in the interests of diseases of rice and other cereals.

Mr. C. H. Clark and Mr. J. H. Parker returned to Washington on the 30th ultimo from field investigations during the summer.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Sept. 30. Seeding of winter oats in field plats was begun today. Maximum temperature, 81 degrees (Sept. 26); minimum, 42 degrees (Sept. 23-29); no precipitation.

LOUISIANA:

Rice Experiment Station. (Crowley) Sept. 18. Rices are maturing rapidly and harvest will begin on the 20th. Maximum temperature during the past week, 94 degrees (Sept. 12); minimum, 70 (Sept. 18); precipitation, 0.29 inches.

COLORADO:

Akron Experiment Farm. Sept. 28. Seeding winter wheat and rye in field plats was finished during the week. The thrashed grain is being cleaned. Grain sorghums are ripe and will be cut soon. Winter grain that has emerged is looking well.

WYOMING:

Cheyenne Experiment Farm. (Archer) Sept. 25. All varieties of wheat and oats in field plats have been thrashed. The work of thrashing was interrupted today by rain. Seeding of winter wheat, including field plats and nursery, is finished.

The following list gives the highest average yields of common spring wheats, durum wheats, and oats in duplicate twentieth-acre plats:

Spring wheats yielding over 20 bushels per acre:

Erivan, C. I. No. 2397	22.0	bushels
Galgalos, C. I. No. 2398	21.1	"
Marquis, C. I. No. 3641	20.5	"
Turkey (amber chaff)	20.3	"

The remaining spring wheats yielded from 4.0 bushels up.

Durum wheats yielding over 25 bushels per acre:

Beloturka, C. I. No. 1520	28.9	bushels
Kubanka, C. I. No. 1516	27.6	"
Pererodka, C. I. No. 1350	26.0	"
Yellow Gharnovka, C. I. No. 1444 .	25.9	"
Kubanka, C. I. No. 1440	25.6	"

The average minimum yield obtained was 13.0 bushels.

Oats yielding over 50.0 bushels per acre:

Abundance, C. I. No. 731	52.4	bushels
Swedish Select, C. I. No. 134 . .	52.1	"
Colorado No. 37, C. I. No. 619 . .	51.5	"

Average minimum yield per acre, 26.5 bushels.

Maximum temperature for the week, 83 degrees; minimum, 34 degrees; precipitation, trace; wind velocity, 7 miles; evaporation, 1.402 inches.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Sept. 27. Thrashing of the remainder of the oat varieties and most of the spring wheat varieties was finished during the week. The best plat of oats produced 130 bushels per acre, the poorest about 84 bushels. The yields of spring wheat ranged from 32 to 62 bushels per acre. Maximum temperature for the week, 85 degrees; minimum, 30 degrees; precipitation, trace.

A Farmers' Institute and Fair was held at Newell on September 24 and 25.

Highmore Substation. Sept. 25. On Sept. 20 a light frost damaged tender vines but did not injure corn or grain sorghums. It is doubtful if the grain sorghums will mature seed, but corn has matured sufficiently so that seed can be obtained.

NORTH DAKOTA:

Dickinson Substation. Sept. 21. The work of thrashing begins today. In the vicinity of the substation thrashing has been under way since Sept. 16. Many farmers find their grain shrunken, particularly the bluestem wheat which is commonly grown in the vicinity.

The rain of last week furnished sufficient moisture to germinate all grain seeded this fall, and winter wheat and rye are emerging with uniform stands. Maximum temperature for the week, 79 degrees; minimum, 26 degrees (Sept. 21); precipitation, trace.

Williston Substation. Sept. 25. All the cereals on the varietal plats were thrashed during the week. Rain has again interrupted the work, of which

much still remains to be done. The durum wheats have produced higher yields than other varieties. The average yield of the durums is over 40 bushels to the acre. Oats are averaging 80 to 90 bushels, while barleys are averaging from 40 to 60 bushels.

MONTANA:

Judith Basin Substation. (Moccasin) Sept. 24. Weather conditions during the past ten days have been favorable for thrashing. All plats have been thrashed and work is now under way on the increase fields.

The three highest yielding plats of spring wheat in the replicate plats are as follows:

Fretes, C. I. No. 1596	42.5	bushels
Marquis, C. I. No. 3641	42.3	"
Pelissier, C. I. No. 1584 . . .	42.2	"

The highest yielding plat of flax was C. I. No. 3, seeded April 9, which yielded 29.4 bushels.

The yield of the winter wheat varieties in the acre plats are as follows:

Crimean, C. I. No. 1437	51.0	bushels
Crimean, C. I. No. 1435	49.5	"
Kharkov, C. I. No. 1583	49.4	"
Crimean, C. I. No. 1559	49.2	"
Turkey, C. I. No. 1558	49.2	"
Alberta Red, C. I. No. 2979 . .	49.1	"
Kharkov, C. I. No. 1442	49.0	"

CALIFORNIA:

Biggs Cereal Field Station. Sept. 18. Several of the early varieties of rices that are being increased on the station have been harvested. Messrs. S. H. McCrory and W. W. Mackie were recent visitors at the station.

During the week rice plantings in the vicinity of Gridley, Colusa, Princeton and Marysville were inspected. Prospects for a good rice crop in California have never been better.

NOTES

[redacted]

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

October 15, 1915.

OFFICE NOTES.

Mr. Carleton left on the 9th instant for points in Kansas, Minnesota, Wisconsin, North and South Dakota, Montana, Idaho, Washington, Oregon, California, Wyoming, Utah, Colorado, Oklahoma, Texas, and Louisiana in the interests of cereal investigations.

Mr. Rothgeb returned on the 13th instant from his summer's work with grain sorghums and broomcorn in Texas and Oklahoma.

Farmers' Bulletin 680, entitled "Varieties of Hard Spring Wheat," by Messrs. Carleton R. Ball and J. Allen Clark, was issued on Oct. 7, 1915.

FIELD NOTES.

GEORGIA:

State College of Agriculture. (Athens) Oct. 11. The soil is in excellent condition as a result of rain last week. Seeding of the plats of varietal tests of oats was begun today. The first frost of the season was recorded on October 8. Very little vegetation was killed.

An exhibit of small grains will be shown at the State Fair to be held at Macon, Ga., from October 26 to November 4.

TEXAS:

Amarillo Cereal Field Station. Oct. 9. Harvesting of the grain sorghums, corn, and forage crops is progressing rapidly. The weather has been cool but there has been no killing frost. Minimum temperature for the past week, 35 degrees (Oct. 7).

Mr. Louis Wermelskirchen has resigned his position to become superintendent of the experiment farm of the Agricultural Experiment Station, College Station, Texas.

COLORADO:

Akron Experiment Farm. Oct. 6. The yields of durum wheat varieties ranged from 22.2 to 33.6 bushels to the acre. The five highest yielding durum varieties, with the number of plats of each and the average yield per acre, were as follows:

Name.	C.I.No.	Number of plats.	Average yield.
Bledur	1517	1	33.6
Pelissier	1584	2	31.6
Kubanka	1516	2	31.3
Yellow Gharnovka	1444	1	31.2
Velvet Don	1445	2	28.1

The five highest yielding common spring wheats were:

Name.	C.I.No.	Number of plats.	Average yield.
Prelude	3423	1	29.5
Pioneer	3424	1	28.7
Marquis	3641	2	26.5
Preston	3081	2	26.2
Galgalos	2398	2	24.4

The following yields were obtained in the rate-of-seeding tests with Beloturka and Galgalos wheats:

Name.	C.I.No.	2 pks.	3 pks.	4 pks.	5 pks.	6 pks.
Beloturka	1520	30.0	29.5	29.5	29.5	30.2
Galgalos	2398	20.0	18.6	20.0	21.2	20.8

White Spring emmer, C. I. No. 1524, produced an average yield of 69 bushels on two plats.

The winter wheat varieties yielded from 18.4 bushels to 31.3 bushels to the acre. Winter rye, C. I. No. 30, yielded at the rate of 27.2 bushels; and Black winter emmer, C. I. 2337, was a failure.

The five highest yielding winter wheats were as follows:

Name	C.I.No.	Number of plats.	Average yield.
Alberta Red	2979	2	31.3
Kharkov	1583-9-10	1	30.6
Malakov	2908	2	30.5
Kharkov	1583	7	29.2
Crimean	1559	2	29.0

In the rate-of-seeding test with Crimean and Kharkov wheats the following yields were produced:

Name.	C.I.No.	1 pk.	2 pks.	3 pks.	4 pks.	5 pks.	6 pks.
Crimean	1559	25.6	29.6	33.6	33.3	36.0	34.6
Kharkov	4207	29.0	31.3	32.3	31.6	35.3	34.3

In the date-of-seeding test with Kharkov wheat, C. I. No. 1583, the following yields were produced:

Sept. 16.	Oct. 5.	Oct. 19.	Nov. 5.
27.3	34.2	25.8	26.6

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell). Oct. 4. During the week the following grains on the dry land area were thrashed: The spring wheat and flax in the time- and rate-of-seeding tests, the flax varieties, and the remainder of the spring wheat varieties. The barley and flax from the irrigated plats were also thrashed.

The third seeding in the date-of-seeding test with winter wheat was made on Oct. 1.

Maximum temperature for the past week, 76 degrees; minimum, 30 degrees; precipitation, 0.56 inch. On Oct. 2 hail did considerable damage to grain in the shock, besides stripping the leaves from corn and sorghum and breaking many of the stalks.

NORTH DAKOTA:

Dickinson Substation. Sept. 27. Thrashing and other field work has been much interrupted since early in September by the damp, cloudy weather. Twenty-five tenth-acre rotation plats of Kubanka No. 8 durum wheat in the D. L. A. series were thrashed last week, the average yield being 36.3 bushels per acre. The highest yield, 45 bushels, was secured from the plat on which a green manure crop of peas was plowed under; the lowest yield, 25 bushels, was obtained from a plat continuously cropped to wheat for 8 years. Yields reported from farms in the vicinity of the substation will average about 20 bushels for wheat. There is considerable shrunken grain as the result of rust and damage from frost.

Winter wheat and rye are looking well. Maximum temperature for the past week, 82 degrees; minimum, 29 degrees; precipitation, 0.65 inch.

Oct. 5. The weather continues rainy and is unfavorable for the work of thrashing, of which but little has been done in the vicinity of the substation. Maximum temperature for the past week, 71 degrees; minimum, 33 degrees; precipitation, 1.53 inches.

Williston Substation. Oct. 9. The work of thrashing has been prevented by rains since September 24. Probably more than 50 per cent of the thrashing around Williston remains to be done. The ground is too wet for plowing. The temperature on the 8th instant reached 22 degrees. On the 7th there were flurries of snow.

The average yield of all spring wheat varieties was 44.1 bushels per acre. Six durum varieties averaged 46.8 bushels; 3 bluestems, 44.3 bushels; 6 fifes, 43.8, and 4 Prestons, 43.2. The 5 highest yielding durums and the 5 highest yielding common wheats were as follows:

Durum wheats.

Name.	C.I.No.	Bushels per acre.
Taganrog	1570	49.4
Kubanka	1440	47.3
Australian	3657	46.7
Kubanka	4063 (Dick. No. 8)	45.9
Arnautka	4064	45.7

Common wheats

Defiance	3703	47.7
Ghirka	4413 (Dick. No. 4)	46.1
Haynes	3021 (N.D.No.779)	45.5
Power	3697 (N.D.No.313)	45.1
Dakota Bluestem	3083 (N.D.No.316)	44.6

Winter Wheat.

The following yields are averages from plats sown in barley stubble and in standing corn shocks.

Name.	C.I.No.	Bushels per acre.
Beloglina	1543	12.8
Buffum's No. 17	3350	6.4
North Dakota 1997	3084	6.1

Emmer, Spelt, and Rye.

Emmer, spelt and rye yields were as follows:

Name.	C.I.No.	Bushels per acre.
N.D.No.305, Spring emmer,		94.5
White Spring emmer,	1524	84.0
White Spring spelt,	2968	94.0
Spring rye,	169	32.3

Oats.

The average yield of all oat varieties was 92.7 bushels per acre. The 5 highest yielding varieties were:

Name.	C.I.No.	Bushels per acre.
Golden Rain	754	108.1
Swedish Select	134	101.7
Hvitling	736	101.4
Silvermine	714	100.0
Victory	742	99.7

Barley.

The average yield of all barley varieties was 71.9 bushels. Eight 2-rowed varieties averaged 74.9 bushels, while ten 6-rowed varieties averaged 69 bushels. The 5 highest yielding varieties were:

Name.	C.I.No.	Bushels per acre.
Hannchen (2-rowed)	531	83.4
Hanna (2-rowed)	203	80.2
Proskowetz (2-rowed)	893	80.0
Harlan's Selection No. 26,		80.0
Oderbrucker,	888	75.8

Flax.

Eight flax varieties and selections averaged 23.8 bushels, the highest yielding varieties being:

Name.	C.I.No.	Bushels per acre.
N. D. No. 155,	17	26.5
N. D. No. 1221,	16	26.1
Montana,		24.9
N. D. R. No. 52,	8	24.6
N. D. No. 1215,	3	24.0

MONTANA:

Judith Basin Substation. (Moccasin) Oct. 6. The total precipitation for September was 2.65 inches, which is more than an inch above normal. The wet weather has greatly delayed thrashing throughout the Judith Basin. At the substation all thrashing has been finished with the exception of a small part of the nursery.

Seeding of winter wheat was finished some time ago and good stands have been obtained. Throughout the Basin but little winter wheat has been seeded so far. There was not much fallow ground, as most of the farmers planned to fall plow or stubble in, and in many cases the crop has not been removed from the land that is to be reseeded. If the unfavorable weather continues the winter wheat acreage will be small, and poor stands may be expected on the fields that are being seeded now.

UTAH:

Nephi Substation. Oct. 3. Most of the fall seeding has been done, but there is not sufficient moisture in the first few inches of the soil to germinate the grain. The fallow land has plenty of moisture below the first 6 inches. The weather is ideal for fall work. Maximum temperature for the past week, 79 degrees; minimum, 29 degrees; precipitation, 0.18 inch.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

October 29, 1915.

OFFICE NOTES.

Attention is called to Memorandum No. 150 (Secretary's Office), which transmits an important amendment to Paragraph 33 of the Administrative Regulations as follows:

"33. Reports of employment of Temporary Labor. - Officials will make a monthly report of the employment of temporary assistants and labor outside of the District of Columbia, which report must include a statement of the specific kind of labor or duties performed in every case by those so employed. Each monthly report will include all temporary assistants in classified competitive positions employed during the month under letters of authorization issued to officials in charge of field work. Temporary assistants in positions excepted from examination (Forest guards, field assistants, cooks, rodmen, chainmen, etc.) and temporary labor in unclassified positions, employed under letters of authorization issued to officials in charge of field work, may be reported monthly, semi-annually (December 31 and June 30), or annually (June 30), giving a consolidated statement for each employee covering all employment within the period of the report."

D. F. Houston,
Secretary.

All field men will please remember to keep for ready reference their copies of the Administrative Regulations, together with Memorandum No. 143, which contains in bound form (a pamphlet of 35 pages) amendments to these regulations issued prior to July 1, 1915. If additional copies are desired they will be supplied upon request.

Each field man is requested to examine carefully the metal calendar-pad stands in use and promptly advise this Office of the name of the pad and the manufacturer which he will find thereon. This information is desired so that the Office may be able to order the corresponding calendar pads for the year 1916.

Nearly 3,000 packets of winter wheat have been prepared by Messrs. C. R. Ball and J. A. Clark for sowing in the classification and identification nursery at six different stations in the West as follows:

Manhattan, Kans.	529	Aberdeen, Idaho	307
Akron, Colo.	302	Moro, Ore.	691
Nephi, Utah	430	Chico, Cal.	498

Additional material will be prepared for the Chico nursery before sowing time.

The material for the winter wheat nurseries includes the varieties and selections of the hard red winter wheats from the Plains and the soft winter wheats of the far West. It includes also a considerable number of winter wheats from Sweden, Russia, India, Australia and South Africa, obtained through the Office of Foreign Seed and Plant Introduction.

The mounting of specimens collected this summer for the cereal herbarium is progressing rapidly and material soon will be ready for study. Already more than 2,000 sheets have been mounted.

Mr. Chas. W. Hungerford was appointed scientific assistant in plant pathology on October 11 to conduct cereal disease work in cooperation with the Wisconsin experiment station.

Mr. J. B. Sieglinger was appointed from the roll of Assistant Agriculturist to fill the vacancy caused by the resignation of Mr. C. R. Letteer from the position of assistant in charge of grain-sorghum and broomcorn investigations at Woodward, Okla. Mr. Sieglinger reported for duty on the 18th. instant.

Mr. Louis Wermelskirchen having resigned his position at the Amarillo Cereal Field Station, Mr. F. J. Schneiderhan was appointed to succeed him. He will not report for duty, however, until Jan. 1, 1916.

FIELD NOTES.

VIRGINIA:

Arlington Experiment Farm. Oct. 28. The seeding of cereal crops in nursery and field plats was finished on Oct. 23. The earlier sown varieties emerged during the first part of the month and are making vigorous growth and those seeded between Oct. 11 and 13, inclusive, have emerged and are growing well. The weather has been excellent for crop growth. Maximum temperature since October 1, 83 degrees (Oct. 4 and 15); minimum, 34 degrees (Oct. 25); precipitation, 6.61 inches (Oct. 1 to 27).

TEXAS:

Amarillo Cereal Field Station. Oct. 16. The emmer and wheats seeded on the 5th. instant emerged on the 15th., showing fine germination. This showing is better than was expected, since the wheats were

very low in weight per bushel this year and were wet several times before thrashing.

The grain-sorghums have nearly all been harvested. The standard varieties of kafir and the feterita in the rate-of-seeding tests are still standing, although the feterita is ready to harvest. The wet weather has caused considerable delay in the ripening and harvesting of theseccrops. Maximum temperature for the week, 82 degrees; minimum, 41 degrees; precipitation, 1.01 inches.

KANSAS:

Hays Branch Experiment Station. Oct. 23. Fall work on the station has been completed with the exception of gathering corn on the bottom land and thrashing the grain-sorghums. The grain-sorghums were harvested during the first week of October on account of frosts at that time. None of them were fully mature except those in the early date-of-seeding tests and the kaoliangs. Dwarf kafir, feterita, and two varieties of the blackhull kafir were nearly mature, and all of the others were sufficiently mature to make fair grain yields.

Wheat seeding was delayed by rain, but seeding of the experimental plats was finished on Oct. 9. There are still 200 acres of commercial fields to be seeded on the station.

WYOMING:

Cheyenne Experiment Farm. (Archer) Oct.15. Thrashing has been finished with the exception of a few nursery oats and barley and the nursery flaxes. All corn and sorghums in the field plats are in the shock. In spite of the lateness of the season, none of the latter crops matured seed. Winter wheat is in good condition. The first killing frost occurred on Oct. 3. Maximum temperature for the past week, 79 degrees; minimum, 24 degrees; precipitation, 0.28 inch.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell) Oct. 18. Thrashing of all plats has been finished. Seeding of all winter grains except some head rows

has been completed. The sorghum varieties have been harvested. None of them matured seed. Maximum temperature for the two weeks ending Oct. 16, 80 degrees; minimum, 21 degrees; precipitation, 0.69 inch.

Oct. 25. Part of the winter wheat in nursery plats has been thrashed and 300 head rows of winter wheat have been seeded. The nursery thrasher has been remodeled and a fan placed in the machine. Maximum temperature for the past week, 81 degrees; minimum, 32 degrees.

Highmore Substation. Oct. 23. Weather conditions have been generally favorable for all field work. Frosts on the nights of Oct. 6 and 7 killed all grain-sorghums and corn. Only a few of the earliest selections of kaoliang made a fair crop of grain, and this is hardly mature enough for seed. Corn as a general rule will be light and chaffy. Field work is progressing favorably, but all work is about 3 months later than usual. Thrashing will soon be finished. Grain still in the shock has deteriorated greatly, causing a loss which will more than equal the cost of stacking. Crops are yielding well, but prices are very low. Winter grains are making good growth.

NORTH DAKOTA:

Williston Substation. Oct. 25. Thrashing on the substation was finished on the 19th instant, weather conditions having been generally favorable. The greater portion of the grain in the vicinity has now been thrashed. A 3 h. p., 220 volt electric motor has been purchased for use on the substation, which will be used for thrashing the nursery grains.

The following yields were obtained in the rate-of-seeding and date-of-seeding tests. These yields are averages from duplicate 40th-acre plats with the exception of the rate-of-seeding test with Power Fife wheat and the rate- and date-of-seeding tests with Siberian oats. In these latter tests the yields from only one set of plats are given, the duplicates having been damaged. These tests were made on new land broken in 1914 and kept free from weeds until seeding time.

Rate-of-Seeding Tests.

	Pecks per acre						
	1	2	3	4	5	6	8
Power Fife wheat			50.0	48.0	48.7	52.6	
Siberian oats		82.5		101.1		103.8	130.0
Williston No. 170 barley		56.9		60.9		56.9	58.8
N.D.No.155 flax	27.9	30.0	30.0				

Date-of-Seeding Tests

	Date-of-Seeding			
	Apr. 15	May 1	May 17	June 1
Power Fife wheat	52.3	43.0	33.7	
Siberian oats	108.7	94.4	72.5	
Williston No.170 Barley	61.5	60.6	60.5	40.8
N.D.No.155 flax	15.7	28.9	22.5	17.5

The following yields were obtained from cereal varieties grown on the 2 acres of upland 2½ miles northwest of the substation, which was rented last spring for varietal tests. This land is a rather heavy loam representative of the soil type which is most common throughout the Williston district. It was cropped to wheat in 1914 and was fall plowed. Because of late spring frosts and the growth of weeds no yields were obtained from flax, proso and millet. These yields are averages from duplicate 40th-acre plats.

Wheat, Emmer and Spelt

C. I. No.	Name	Bus. per acre.
1517	Ghirka	17.5
3083	Dakota	17.3
3641	Marquis	15.5
3698	Preston	15.4
1570	Taganrog	15.2
3700	World Beater	14.8
1440	Kubanka	14.2
1524	White Spring emmer	26.5
2968	White Spring spelt	23.0

C. I. No.	Name	Bus. per acre
	Oats	
134	Swedish Select	36.6
741	Siberian	34.8
732	White Russian	29.5
165	Sixty Day	24.7
	Barley	
882	Williston No. 170	18.3
888	Oderbrucker	17.1
531	Hannchen	16.1

MONTANA:

Judith Basin Substation, (Moccasin) Oct. 14. An automobile trip of about 250 miles through the eastern part of Fergus County was taken by Mr. Donaldson and the County Agriculturist and a large number of farmers were visited. Harvesting is later than usual in that section of the State. As stacking is commonly practiced, however, it has been possible to resow most of the land to wheat. Winter wheat is the principal crop grown, although some spring grains and corn are raised. There seems to be considerable difference of opinion among the farmers as to the relative value of durum and Marquis wheats. Some claim that the Marquis gives better yields, while others hold that it is more susceptible to frost and hence the quality of grain is likely to be poor. The Kahla group of durum wheat is grown to some extent. Some of the farmers are growing durum varieties with black glumes, belonging to the Kahla group.

UTAH:

Nephi Substation. Oct. 20. Seeding has been finished with the exception of some nursery classification rows. Most of the work was done during the latter part of September, but none of the plantings have yet emerged. The surface six inches of soil is very dry, but on fallow land there is ample moisture below this depth. A rain of 0.5 inch on Oct. 15 probably will germinate the grain sown on fallow land, but that sown on land cropped this year probably will lie dormant until more moisture falls.

OREGON:

Harney Branch Experiment Station. (Burns) Oct. 8. Thrashing was finished during the month of September. Plowing is under way, though the land is so dry that progress is rather slow. Winter cereal varieties were sown on Oct. 7. This is rather late, but the soil is still so dry that germination will not take place until rain comes and possibly not until next spring. Maximum temperature for September, 87 degrees; minimum, 23 degrees; total precipitation, 0.04 inch; total evaporation, 5.841 inches; total wind mileage, 2,910.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

November 12, 1915.

OFFICE NOTES.

Mr. Chas. W. Hungerford's headquarters are to be Washington, D. C., and not Madison, Wis., as stated in "Notes" of October 29. His status will be the same as that of other scientific assistants in the cereal disease work.

In cases where it is desirable for any of the men in charge of field work to assist in State extension work or to attend meetings without expense on the part of the Department, the data for such work should be received in this Office in time to have authorization prepared in the regular form for approval by the Secretary. Where possible, about two weeks' time should be given.

Department Bulletin No. 297, entitled "Cereal Investigations at the Belle Fourche Experiment Farm," by Mr. Cecil Salmon, formerly of this Office, was issued on October 28.

FIELD NOTES.

VIRGINIA:

Arlington Farm. Nov. 12. Practically all of the late-sown varieties of winter wheat, emmer, and spelt have emerged, but are making slow growth. Early-sown varieties of winter wheat, oats, and barley are

looking well. Rain is much needed to further the development of all cereals.

During the week the cereal nursery was weeded.

TEXAS:

Amarillo Cereal Field Station. Oct. 30. Seeding of the small grains in the varietal tests was finished early in the week. Harvesting of the grain-sorghums was nearly completed. Some plowing and thrashing were also done. Maximum temperature, 80 degrees (Oct. 20); minimum, 41 degrees (Oct. 12 and 13).

SOUTH DAKOTA:

Belle Fourche Experiment Farm. (Newell) Nov. 8. All fall-sown grain has emerged and is still growing. Thrashing of the nursery rows is progressing rapidly. The seeding of the date-of-seeding test is finished. The sorghum varieties were weighed and hauled in. None of the grain-sorghums matured seed this season.

Thrashing on farms in the immediate vicinity is about completed, although there is a large quantity of grain on the Project which is not yet thrashed.

Highmore Substation. Oct. 30. The weather has been excellent for field work. The yields of grain from the grain-sorghums just thrashed are very disappointing, the best selections for earliness yielding only 7 bushels per acre. The corn yield is the best recorded in 6 years. Fall work on farms in the vicinity is well advanced and some plowing is being done.

Nov. 6. Weather conditions continue favorable. Fall plowing and corn husking on the substation will be finished in a few days. Thrashing in the vicinity is about completed, but very little corn has been husked. The quality of the corn that has arrived on the local market is fair to good. Most of this crop that has been grown in the State will be rather soft and will be fed rapidly.

NORTH DAKOTA:

Dickinson Substation. Nov. 6. Thrashing is completed with the exception of a part of the nursery grain. In the vicinity of the substation thrashing is unfinished, although the weather has been favorable for this work for the past three weeks.

Maximum temperature for October, 85 degrees; minimum, 17 degrees; precipitation, 1.78 inches.

Following is a list of the average yields obtained from the principal cereals in the varietal tests this year.

Wheat.

C. I. No.	Variety.	Average yield.
4063	Kubanka No. 8	51.5 bus.
3320	Durum No. 1	50.1 "
1440	Kubanka	48.5 "
4064	Arnautka	44.8 "
	Average of 4 durums....	48.7 "
3314	Crossbred Bluestem	23.7 "
2874	Haynes "	22.9
	Average of 2 bluestems	23.3 "
3641	Marquis	32.8 "
3022	Rysting	25.6 "
3697	Power	25.3 "
3329	Red Fife	25.3 "
1517	Ghirka	24.3 "
4413	Ghirka No. 4	23.2 "
	Average of 6 fifes.....	26.1
4323	Prelude	31.8 "
2492	Manchuria	28.0 "
3315	Huron	26.0 "
3328	Preston	25.9 "
4324	Pioneer	25.2 "
3081	Preston	24.8 "
	Average of 6 bearded common	27.0

Oats

C. I. No.	Variety	Average yield.
165	Sixty Day	104.0 bus.
459	Kherson	92.5 "
	Average of 2 early varieties	98.3 "
560	Victory	123.9 "
493	Golden Rain	122.5 "
741	Siberian	121.8 "
169	Golden Beauty	121.2 "
160	Banner	117.8 "
659	Silvermine	117.3 "
354	-------	110.3 "
658	Big Four	109.8 "
358	-------	108.4 "
656	Early Mountain No. 2	105.3 "
134	Swedish Select	101.5 "
449	-------	86.3 "
	Average of 12 medium varieties	112.2 "
551	White Russian (late)	99.8 "

Barley

532	Primus	66.0 bus.
531	Hannchen	62.8 "
203	Hanna	62.0 "
187	Svanhals	61.0 "
658	Ouchac	41.3 "
	Average of 5 2-rowed varieties	58.6 "
863	Manchuria	49.3 "
575	Gatami	39.7 "
663	Chile	36.8 "
	Average of 3 6-rowed varieties	41.9 "
893	Proskowetz	61.7 "*
262	Nepal (Hull-less)	33.2 "**

* Not comparable.
** Sixty pounds per bushel.

Flax.

C. I. No.	Variety.	Average yield
14	N.D.R. No. 73	17.8 bus.
8	N.D.R. No. 52	15.9 "
3	N.D. No. 1215	15.5 "
13	N.D.R. No. 114	13.3 "
19	Russian	13.1 "
12	Primost	11.2 "
30	-------	11.2 "
	Average from 7 varieties.....	14.0 "

The highest yields from individual plats are as follows:

Kubanka wheat No. 8.....	56.0	bus. per acre.
Victory oats.....	147.0	" " "
Primus barley.....	72.5	" " "
N.D.R. No. 73 flax.....	17.8	" " "

Williston Substation. Nov. 6. Since October 11 the weather has been excellent for field work on the substation and on farms in the vicinity. The ground is in good condition for fall plowing, which is still under way.

The electric motor has been installed on the substation and thrashing of the grain from nursery rows is now in progress.

UTAH:

Nephi Substation. Nov. 4. Because of the slight precipitation, very little of the fall-sown grain has emerged. All field work on the substation is finished and Mr. Jones expects to leave for Logan, Utah, on the 5th. to prepare his annual report in cooperation with the officials of the State station.

OREGON:

Harney Branch Experiment Station. (Burns) Nov. 1. The grains seeded on October 7 show no signs of germination as yet because of the lack of precipitation. Fall

disking and plowing is progressing, but the work is slow, due to the very dry condition of the soil.

Total precipitation for October, 0.03 inch; evaporation, 3.525 inches; wind mileage, 2,827; maximum temperature, 80 degrees; minimum, 6 degrees. Precipitation for the past three months, 0.10 inch; for the past five months, 0.70 inch; for the past year, 5.76 inches.

NOTES
~~NEWSLETTER~~

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

VOLUME VII

1915

November 26, 1915.

OFFICE NOTES.

Mr. Chambliss returned to the office on November 20 after an eight weeks' trip in the rice districts of Louisiana, Texas, and California. Six weeks were spent in California.

Mr. Carleton returned to Washington on the 20th instant from his trip in the West begun on October 9. During his stay at San Francisco he made arrangements with officials of the Panama-Pacific Exposition for the transfer to this office of samples of cereals from several of the most important foreign exhibits, particularly those of Argentina and China. Through Mr. Chambliss many samples of rices will also be obtained from the exhibits of the Philippines, Japan, Siam and other foreign countries.

Mr. V. H. Florell, scientific assistant in charge of cereal investigations at the Cheyenne Experiment Farm, Archer, Wyo., arrived in Washington on November 22 to spend the winter months in the preparation of his annual field report and in laboratory work with grains. Mr. Florell is the first of the field men to arrive in the office this fall.

Beginning with the fiscal year 1916 additional work with flax was inaugurated in North Dakota at Williston, Hettinger, and Langdon. Similar work will be begun at Fargo next spring. The field observations are under the direct charge of Mr. Theodore Stoa.

GEORGIA:

State College of Agriculture. (Athens) Nov. 18. The first killing frost of the season occurred on the night of Nov. 15. The last plats of the date-of-seeding test with oats were seeded today. The rainfall for October was 5.59 inches, being 3.09 inches above normal.

Ashburn Substation. Nov. 6. The following lines of work are being conducted: Varietal tests with oats, wheat, barley, and rye; date-of-seeding tests with oats; and tests of the application of nitrate of soda to oats. Seeding of all varieties was completed today.

Quitman Substation. Nov. 11. The lines of work are the same as those carried at the Ashburn Substation. Seeding of all varieties was finished today.

LOUISIANA:

Rice Experiment Station. (Crowley) Nov. 20. The first killing frost occurred on the 15th instant and the first ice on the 16th. Fall conditions have been ideal and the entire rice crop has been thrashed and housed. The precipitation on the 14th was very beneficial to soil that is to be plowed. Land that has been drained all summer is too hard to be well plowed. Maximum temperature, 84 degrees (Nov. 14); minimum, 30 degrees (Nov. 16); precipitation, 1 inch.

Thrashing has been finished and the seeding of oats has been in progress in this section for several weeks. The indications are that a larger acreage of oats will be sown this fall than ever before.

SOUTH DAKOTA:

Bellefourche Experiment Farm. (Newell). Nov. 22. The growth of winter grain has practically ceased with most of the plants in the second leaf stage. Stands were counted

on the plats and rows. The stand is rather thin in many cases. Thrashing of the grain from the nursery rows has been completed. The cleaning and testing of grain is now in progress. Maximum temperature for the past two weeks, 57 degrees; minimum, 13 degrees; precipitation, 0.07 inch.

NORTH DAKOTA:

Williston Substation. Nov. 20. Most of the grains in the nursery were thrashed this week, only the oats in the rod-row test remaining. A wet snow fell on the 7th instant and has remained on the ground since. The ground was frozen the next day to a sufficient depth to prevent plowing.

NOTES

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

VOLUME VII

1915

December 10, 1915.

OFFICE NOTES.

A special order from the Secretary of Agriculture, dated December 1, permits employees of the Department half holidays on the days before Christmas and New Years, beginning at 12 o'clock noon. Application for three hours' annual leave on the days mentioned may entitle employees to a full day.

A memorandum from the Chief of the Bureau of Plant Industry, dated November 29, reads as follows:

> "Attention is called to Secretary's Memorandum 152, dated November 23, which amends Paragraph 103 of the Administrative Regulations of the Department so as to require official communications with diplomatic and consular officers and other representatives of foreign governments, both in the United States and foreign countries, to be conducted through the Secretary of State. As the effect of this amendment is to prohibit direct correspondence with representatives of foreign governments, all letters involving such correspondence, whether initiated by this Department or of the nature of replies to inquiries, should be prepared for the Secretary's signature."

The following interesting statement concerning the bountiful crops of the past season is taken from "Commerce Reports" of Oct. 19, 1915:

> "The estimates of the Department of Agriculture show record crops in the United States of wheat, oats, barley, and hay, and a corn crop closely approaching the record. The returns indicate a production of

approximately three billion bushels of corn, one and a half billion bushels of oats, one billion bushels of wheat, almost a quarter billion bushels of barley, and a hundred million tons of hay, if the twenty million estimated tons of wild hay, a crop not heretofore reported upon, be included."

Mr. E. L. Adams, of Biggs, Cal., is now at San Francisco engaged in the work of selecting and shipping samples of cereals from foreign exhibits at the Panama-Pacific International Exposition to Washington, D. C.

The following memorandum from the Chief of the Bureau of Plant Industry is very important to all persons who travel under authorization from the Department:

"There appears to be some misunderstanding regarding the amount for which reimbursement may be claimed in case employees of the Government are traveling under letter of authorization and are accompanied by persons whose expenses are not covered by authorization. The decisions of the Comptroller of the Treasury covering this point are as follows:

'Where equal accommodations are furnished to and shared by a Government employee and his wife jointly at a certain fixed price for the two, the Government employee if in a travel status, is entitled to reimbursement for one-half of the total amount so expended if within his fixed maximum allowance.'
(Comp. 291. XXI)

'Where a Government employee who is traveling on official business occupies a room in a hotel jointly with his wife, only one-half of the hotel's charge for room paid by the employee may be reim-

bursed to him, notwithstanding that the charge for the room when occupied by the employee alone was greater than one-half of the charge for joint occupancy, and the additional charge for the wife's joint occupancy was fixed by the hotel at less than one-half of the charge for occupancy for both.'

(Comp. 599. XXI)

'Where joint expenses of subsistence are incurred by a Government employee and his wife while such employee is absent from headquarters on official business for the Government, reimbursement is authorized for one-half of the total amount so expended if within his fixed maximum allowance.'

(Comp. 622. XXI)

(Expenses for infant 2 years old not considered by Comptroller.)

When traveling on official business, accompanied by wife or other person whose expenses are not covered by the letter of authorization but whose expenses are being paid by the Department employee traveling under letter of authorization, subvouchers should be obtained for the total amounts paid for lodging or for meals and lodging, and one-half of these sums, and one-half of other items of joint expense should be claimed in the reimbursement account, provided this amount is within the fixed maximum allowance. In case more than one person accompanies the official traveler the same principle of proportional division of the expense should be applied in claiming reimbursement.

This limitation governs reimbursement for expenses including livery or automobile hire, even if the additional person is a Departmental employee engaged upon official work.

Very truly yours,

Wm. A. Taylor

Chief of Bureau."

FLAX EXPERIMENTS IN THE SOUTHWEST.

Because of the very favorable results obtained from the nursery seedings of flax made in the Southwest in the fall of 1914, both as regards yield of grain and yield of oil, the flax nurseries were materially increased in that region this year and field plat tests were begun at five stations. Varieties have been sent from the Office this fall as follows:

State	Station	For field plats.	For nursery rows.
Arizona	Phoenix	6	15
	Sacaton	5	
California	Bard	5	15
	Davis	6	17
Texas	San Antonio	5	12

At Crowley, La., where results this year were not so promising, the series sown last year is being continued without increase. At Phoenix, Sacaton, and Bard the tests are conducted on irrigated land, while at Davis, San Antonio, and Crowley no irrigation is used for the growing of the crop. At the stations where the crop is grown under irrigation the field plat series is seeded in intertilled strips as well as in ordinary drill rows.

In addition to the above work, date-of-seeding tests have been started at Bard, Cal., and San Antonio, Tex., as well as a study of the development of basal branches in the flax plant under conditions of different row spacings.

So far as possible, the varieties in field plats at all of the stations are identical and represent the Russian, North Dakota Resistant, Smyrna, Indian, and Abyssinian groups. Varieties of the last three groups have given exceptionally promising results in the Southwest. A still wider range of types is being tested in the nursery row trials.

FIELD NOTES.

SOUTH DAKOTA:

Belle Fourche Experiment Farm. Dec. 6. The work of cleaning and testing the grain from the plats has been finished and the weighing and testing of the grain from the nursery rows is nearly done. The ground is still bare of snow, is rather dry at the surface and beginning to crack. For the past two weeks the maximum temperature has been 54 degrees; minimum, 7 degrees; precipitation, 0.05 inch.

NORTH DAKOTA:

Dickinson Substation. Dec. 1. The work of thrashing and cleaning the grains from the nursery is finished. The results from the nursery tests are practically the same as those from the plat tests, the durum wheats showing much higher yields than common wheats, due partly to greater rust resistance.

A considerable amount of shock thrashing remains to be done in some parts of Stark County. On Nov. 24 a 3-inch snowfall, preceded by rain, prevented further operations. Maximum temperature for the month of November, 61 degrees (Nov. 4); minimum, -2 degrees (Nov. 29); precipitation, 1.20 inches.

The highest yielding winter grains are as follows:

Kharkov wheat, 30 bushels,
Selection No. 5 of N. Dak. No. 959 rye, 49 bushels.

The only winter wheat yields obtained were from seed sown in standing cornstalks; the wheat seeded on fallow both in the plats and in the nursery was entirely winterkilled.

NOTES

OF THE

OFFICE OF CEREAL INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

VOLUME VII

1915

December 24, 1915.

OFFICE NOTES.

Mr. J. B. Sieglinger, recently appointed Scientific Assistant in charge of grain-sorghum and broomcorn work at the Woodward Field Station, Woodward, Okla., arrived in the Office on the 14th. instant to write a report on the work of the past season.

Mr. J. F. Ross, Superintendent of the Amarillo Cereal Field Station, Amarillo, Texas, reached Washington on the 15th. instant and will spend some time in the preparation of his annual report and a manuscript for publication.

The following memorandum has recently been received from the Chief of the Bureau of Plant Industry and is of interest to employees who travel:

> "As some misapprehension apparently exists regarding the policy of the Bureau with reference to payment to employees of the Bureau for materials furnished or services rendered, it is suggested that all members of your force be reminded that in no case will such payments be made under general letters of authorization nor unless specifically authorized. Payment of an employee for transportation in his personally owned and operated vehicle, of another employee can not legally be made, as such transportation involves personal service for which additional compensation can not be allowed.
>
> Yours very truly,
> Wm. A. Taylor,
> Chief of Bureau."

Wheat Classification Nursery at Chico, Calif.

A total of 756 wheat varieties has been sent Mr. Adams for the wheat classification nursery at Chico. The lot includes 402 classified common wheats; 107 classified club wheats; 179 unclassified wheats, mostly common, from Africa, Australia, India, and Russia; and 68 poulards, emmers, spelts and einkorns. Since there is little distinction in behavior between winter wheats and spring wheats in California, this nursery includes both classified together in one series. Such a study is not possible at any other field station of this Office.

Some Results with Flax at Mandan, N. Dak., in 1915.

The flax thrashing at Mandan, which was delayed by slow ripening and adverse drying conditions and was left in charge of Messrs. John Sarvis and Arthur Schulz of the Office of Dry-Land Agriculture, has been completed. The field-plat varieties and the varieties and selections sown in eight-rod rows were cleaned and the weights recorded at the station. Seed samples of these, together with the uncleaned seed of the 650 head-row seedings, have been received at the office.

The average yield of the 15 varieties seeded in 0.0182-acre (1/55 acre) plats and replicated five times is given below, together with the yields of 5 varieties grown in single plats of 0.0182 acre each.

C.I.No.	Group	Average Yield per Acre, Bushels.
17	European seed flax	19.0 ± 1.3
19	do.	19.3 ± 1.2
1	do.	20.3 ± 1.8
3	do.	17.6 ± 1.5
2	do.	19.3 ± 1.3
5	do.	16.9 ± 1.1
16	do.	16.7 ± 1.4
18	do.	14.9 ± 1.2
8	do.	17.1 ± 1.7
15	European short fiber	13.4 ± 1.3
4	do.	13.5 ± 0.9
14	do.	13.9 ± 1.0
13	do.	12.5 ± 0.6
12	do.	9.8 ± 1.3
30	Turkestan	5.1 ± 0.3
47	European short fiber	10.7
24	do.	16.5
36	Abyssinian	8.2
38	do.	7.3
20	Indian	8.4

In this wet and cold season the slower maturing flaxes of the European seed type outyielded the shorter seasoned short-fiber types. The advantage was more pronounced than under conditions where hot, dry weather is experienced as the flax is nearing the ripening stage. C. I. No. 30, which made phenomenal yields last year when dry weather prevailed during the latter part of the summer, was practically a failure this year. The cold growing season retarded both its growth and ripening and it was almost destroyed by rust before it produced seed.

C. I. No. 24, a white-flowered European short-fiber flax, was exceeded in yield only by one plat each of C. I. Nos. 14 and 15. Neither of these is of as pure type as the short fiber and the larger yields were obtained in one of the replications which gave a higher average yield. The Abyssinian and Indian varieties were not expected to give favorable results but were sown to obtain seed stocks for the fall seedings in the Southwest.

The three North-Dakota-Resistant varieties seeded in continuously cropped tenth-acre plats gave the following results:

C.I.No.	N. Dak. No.	Yield in Bu.
8	N. Dak. Res. No. 52	17.1
13	N. Dak. Res. No. 114	12.7
14	N. Dak. Res. No. 72	13.2

Although C. I. No. 13 was least affected by disease, it yielded less than the others because the season was unfavorable to the short-fiber type of flax to which it belongs.

In the rate-of-seeding test plats sown at 20 pounds per acre gave the highest yields. In the date-of-seeding test best results were obtained from seedings made on May 1. The average yields obtained in these tests follow:

Rate-of-Seeding Test.

C. I. No. 19 sown in duplicated twentieth-acre plats.

Rate of Seeding. Lbs.	Average Yield Bu.
10	22.5 ± 0.8
15	24.0 ± 1.3
20	25.4 ± 0.0
25	24.1 ± 0.5

Date-of-Seeding Test.

Date of Seeding.	Average Yield. Bu.
April 17	16.6*
May 1	22.0 ± 0.2
May 18	18.8 ± 0.7
June 1	19.1 ± 0.5

C. I. No. 3 sown in duplicated twentieth-acre plats.

* Tenth-acre plat, no duplication.

The highest yields obtained in the entire test were those obtained from the two plats of C. I. No. 19 sown in the rate-of-seeding test at 20 pounds per acre. Both of these plats yielded 25.4 bushels.

SOUTH DAKOTA:

Highmore Substation. Dec. 8. Farmers in the vicinity of the substation are husking corn; the quality is poor, not over 30 per cent being fit to crib. From reports from other parts of the State the corn in this section is better then the average.

NORTH DAKOTA:

Dickinson Substation. Dec. 18. Measurements and counts are being made of samples of wheat, oats and barley gathered from the nursery at harvest time. In the vicinity of the substation a few farmers are thrashing stacked grain. Some shocked grain probably will remain unthrashed until spring. So far, the weather has been mild with a maximum temperature of 44 degrees; minimum, 4 degrees. There has been no precipitation, except about 2 inches of snow.

OREGON:

Harney Branch Experiment Station. (Burns) Dec. 1. Except for the first eight days of November it was impossible to do field work on the station on account of snow and cold weather. Maximum temperature for the month, 58 degrees; minimum, -10 degrees; precipitation, 1.16 inches; total wind mileage, 2,500.

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