WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR THE WEEK ENDING JULY 6, 1929.

HAVRE:

With no rain since June 18 and hot, drying weather conditions, crop prospects in this section of the State have decreased very rapidly during the last two weeks. However, the last two days have been cool and partly cloudy.

The poorer methods began burning first followed by fall plowing and spring plowing. Practically everything excepting real good fallow has now burned enough to decrease the yields materially. With the reserve of moisture there was in good fallow, it does not seem to be seriously hurt as yet. Because of their extra growth, the early seedings are injured more than the later seedings.

Alfalfa, both dry land and irrigated, is up and domestic grasses are cut, all showing very good yields.

Corn is growing very rapidly. Should there be rains in the next two weeks this crop will undoubtedly be well matured this fall.

Mr. I. J. Jensen, from the Moccasin Substation, accompanied by Mrs. Jensen was a station visitor on June 27 to 29.

Maximum temperature 97; minimum 46; precipitation 0.

JUDITH BASIN:

The weather continued warm and dry during the week with only a trace of precipitation being recorded. Drying winds have drawn on soil moisture. All crops are in need of early rains.

Winter wheat is headed and yields will undoubtedly be reduced by lack of moisture. Spring grains are suffering more severely from need of moisture and normal development is being retarded. Corn and other intertilled crops are growing well.

Alfalfa has been cut on some of the experiments and in the big field. Yields are a little below average. Sweet clover yields are better although it matured rapidly.

JUDITH BASIN, continued:

This crop continues to demonstrate good carrying capacity in the pasture experiment. Grasses are showing need of moisture.

Trees in the orchard and shelterbelt are making good growth.

Maximum temperature 93; minimum 48; precipitation Trace.

HUNTLEY:

Good growing conditions for corn and similar cultivated crops have prevailed during the past week. The temperatures have been high and plenty of moisture has been available to promote rapid growth without wilting. Close-drilled crops have burned badly on all plots and some of the heaviest stands of winter wheat appear to be drying ripe.

Field work has consisted of rogueing the variety test plots, cultivating row crops and plowing under the green manures. All green manure plots are very dry and are breaking up in a very cloddy condition.

The annual Project Picnic was held in the Park adjoining the station grounds on July 4. The attendance was estimated at between 3,000 and 4,000 people.

Station visitors during the week included Chancellor Brannon, of the University of Montana, Director Linfield, of the State Experiment Station, and Mr. W. P. Baird, of the Mandan Field Station.

Maximum temperature 97; minimum 47; precipitation none.

SHERIDAN:

The weather continued warm and dry throughout the week. There were two light showers, but no rain of consequence. Practically all grain except on some of the fallow is firing some. Spring plowing seems to have fired the worst so far, it being in worse condition at present than where stubbled in, either on disking or where duckfooted.

SHERIDAN, continued:

Peas for green manure were turned under during the week. The growth of peas was fair. Corn was thinned to stand and hoed in the row, and the rotations are being cultivated. Work with hay was continued throughout the week. Spring wheat headed during the week.

Mr. W. P. Baird, of the Mandan Field Station, stopped at the station a short time to-day enroute to Cheyenne.
Maximum temperature 96; minimum 49; precipitation .18 inch.

DICKINSON:

Dry weather with moderate temperatures continued through the week. The soil is now becoming dry and all crops would be greatly benefited by rain.

Early planted grains are beginning to head at about average heights.

Plowed fallow on the rotations was worked with the duckfoot cultivator. Brome-grass hay was cut. Orchard and potatoes were sprayed. The shelterbelt planted this spring was cultivated.

Visitors included Dr. C. F. Marbut, Mr. Thomas D. Rice, and Mr. A. P. Dachnowski of the Soil Survey, Bureau of Chemistry and Soils, and Mr. W. P. Baird, Mr. Earnest George, and Mr. Borresen of the Mandan Field Station.
Maximum temperature 91; minimun 45; precipitation Trace.

MANDAN:

Agronomy

The past week has been warm and dry, with a high wind on three days. The entire week was spent in putting up hay. The hay will all be up to-day with the exception of the forage crop plots. The yield of hay is very good, and the entire lot has been put up in excellent condition.

MANDAN, continued:

Agronomy, continued.

Small grains deteriorated during the week. On fall plowing it is practically burned up, and some other tillage methods are showing the effects of the drought. Wheat is about fully headed out. Corn still looks good but needs rain.

The rainfall for June was .99 of an inch, compared with the 50-year average of 3.43 inches for June. The total precipitation for the year to date is 8.00 inches, compared with the 50-year average of 9.37 inches.

The crop prospects on June 1 were excellent and on July 1 very poor.

Maximum temperature 93; minimum 46; precipitation none.

Cooperative Grazing Experiment

Grass in the pastures has dried up rapidly during the past week. Cattle on the smaller pastures will soon be out of feed.

The 10-acres of brome-grass (formerly the sweet clover pasture) contains an excellent growth of brome. The eight steers from the regular brome pasture were turned into the 10-acres the first of the month. This was done in an effort to graze the grass down so that it would not seed.

The cattle all made good gains during the month of June. Those in the 50-acre pasture put on somewhat higher gains than those in the larger ones. This was because the May gains for the smaller pasture were much less than those from the larger pastures. The following gains were made in June:

		Gain per head. Lbs.	
Pasture (Acres)	No. of steers.	June gain	Season gain to date
100	10	103.5	166.0
70	10	106.0	167.0
50	10	117.0	156.0
30	10	93.5	106.5
Rot.(70)	14	96.8	141.8
Brome (25)	8	100.0	164.4
Brome (10)*	4	100.0	172.5

* Formerly the sweet clover pasture.

MANDAN, continued:

Arboriculture

The spraying of one and two-year-old caragana seedlings with lead arsenate, against injury by blister beetles, has been the only work performed in the shelterbelt project during the past week.

Reports from shelterbelt inspectors indicate that five and ten-year-old plantings are very satisfactory, also stands in 1929 plantings. The reports also state that all crops west of the Missouri river in North Dakota and northern South Dakota, are badly in need of rain.

Horticulture

With the weather continuing hot and dry, it has been necessary to concentrate on thinning of the various crops in order to secure a yield. Apples and plums have been thinned in the Acre garden. So far all the crops have seemingly held their own, but there are signs of suffering from the drought in shrivelling and yellowing of the leaves. Tomatoes, as yet, show no injury, and have set a heavy crop of fruit.

The currant worm on Golden currant has again put in an appearance, and an effort is being made to eradicate the pest by means of hand picking of all damaged berries, which are afterwards destroyed.

The only ripe fruit at the present time is native Juneberry selections (Amelanchier alnifolia) and notes are being taken on the various selections.

Golden elder, Japanese lilac, Spirea rosea and sorbifolia, Philadelphus grandiflora and rugosa roses and hybrids, are at present in bloom on the campus. Perennials such as late Peonies, Lilium elegans, Coreopsis, Gaillardia, and Gypsophila, also add their bit to the color display on the lawns.

BELLE FOURCHE:

Comparatively hot weather has prevailed during the week, and the nights have been abnormally warm. A few light showers were received during the fore part of the week, and a heavy rain of 1.14 inches precipitation occurred on July 5. The rain was received at a very opportune time as crops had just commenced to suffer from lack of moisture. Soil samples taken on spring wheat plots the first of the week showed most of the available moisture in the soil on plowed land to be exhausted and the soil to be quite dry to a depth of 2.5 feet on land fallowed in 1928. The recent rain, however, has apparently added sufficient moisture to the soil to produce fair crops of all small grains.

The warm weather has been favorable to a rapid growth of all crops. Corn has made an especially good growth, and sorgo has made distinct advancement. Oats and barley are fully headed, and spring wheat is heading. Alfalfa has resumed a vigorous growth since the harvesting of the first crop and has attained a height of about 4 inches. Field peas were plowed under for green manure.

Maximum temperature 93; minimum 54; precipitation 1.45 inches.

ARDMORE:

The weather during the first part of the week was hot and dry, and all crops that were short of moisture suffered further damage. The latter part of the week was hot and sultry. There were three violent thunder showers accompanied by hail in localities adjacent to the station. High winds caused some grain to lodge and broke down some corn.

Some of the early strain of oats and barley were beginning to ripen at the end of the week. All row crops made a good growth. Millet in the variety test plots was showing some damage by drought by the first of the week but seemed to recover immediately following the rain storms.

Summer tillage plots were cultivated with the duckfoot for the first time this season. Corn, beans and sorgo plots were cultivated as were all roads and shelterbelts.

ARDMORE, continued:

The gains of the steers in the different pastures during the month of June were as follows:

80 acre pasture	129.5 pounds
150 acre pasture	147.0 "
160 acre rotation pasture	108.4 "
320 acre reserve pasture	142.0 "

The precipitation for the week was 1.48 inches. The greater part of this amount came in a shower of .97 of an inch the night of July 4. This is the largest amount of rain received in twenty-four hours this year. The total precipitation for June was 2.21 inches.

Maximum temperature 97; minimum 53.

CENTRAL GREAT PLAINS FIELD STATION:

The rain of July 5 was preceded by a hailstorm of short duration that did some damage to young corn. Gopher damage to the corn has also been noted. Root crops, lettuce, peas and beans are making good growth.

The foundation walls for the headhouse of the Greenhouse were run July 1. Forms for the headhouse slab were completed and the reinforcing steel was placed July 5. The slab was run July 6.

Concrete floors were run in the garages in the rear of the office and superintendent's residence. The swinging doors for these two garages were also completed during the week but not hung.

Teams when not engaged in hauling sand and gravel have been restoring earth to the roof of the storage cellar, using fresno scrapers. It is now covered to a depth of about one foot.

Fencing the west side of Section 16 has continued through the week.

Tractor plowing of Section 16 continued through the week.

CENTRAL GREAT PLAINS FIELD STATION, continued:

Mr. B. Y. Morrison, Senior Horticulturist, Foreign Plant Introduction, visited the station July 5, enroute from Washington, D. C., to Chico, California.

Mr. Wm. DuBois, Collaborator and Architect, inspected the reinforcing work in the headhouse July 6, prior to running the concrete slab.

Maximum temperature 91; minimum 49; precipitation .69 inch.

ARCHER:

The drought was broken July 1 with a rain of 1.03 inches of precipitation. This was followed by a rain of .85 of an inch during the afternoon of July 5. While the rains have been local a number have occurred, so this section has, generally, received rainfall.

The rains have greatly improved crop and pasture conditions. However, hay operations which were just beginning, at the station, were stopped.

Work at the station has consisted of hauling dirt from the septic tanks, cutting plots of alfalfa, crested wheat grass and clover on Series A. and B., oiling the floors of the dairyman's house, hauling gravel for yards, repairing machinery and repairing hay yard fences.

Prof. Goodrich, Head of Civil Engineering Department, and Director W. L. Quayle, of the University of Wyoming, were station visitors during the week.

Maximum temperature 94; minimum 44; precipitation 1.88 inches.

NORTH PLATTE:

Hot, dry weather continues. Electric storms have occurred almost every night during the week, but when accompanied by rain the showers have been very local. Several heavy showers have fallen in North Platte but the station has been on the dry edge each time.

NORTH PLATTE, continued:

Small grains are burning in spots. A few plots of rye and barley have been cut. A large number will be ready for the binder next week. Row crops are growing rapidly with the exception of potatoes which are now showing a marked moisture shortage effect.

COLBY:

This was another hot, dry week, and the small grains continued to ripen prematurely. All the small grains were cut during the week except those on summer fallow ground. These seem to be filling well in spite of the unfavorable weather. They will probably be ready to harvest this coming week.

Corn on the D.L.A. plots received its second cultivation Wednesday, July 3. Thinning of the milo, kafir and feterita was finished Saturday, June 30. All the fallow plots were cultivated withthe new duckfoot machine.

Harvest has become quite general in the vicinity. The early barley and wheat were rather badly shriveled by the hot weather, but those heading out later seem to have filled quite well. The indications are that the average yield will be fair. Of the wheat tested so far the protein content has ranged from 10.9 to 15.3, averaging about 12.3.

Maximum temperature 103; minimum 55; precipitation .02 inch.

GARDEN CITY:

The fourth date of planting of sorghums was finished, July 3. All row crops are making good growth. The stands of all row crops are good. Germination this spring was satisfactory and only four milo plots which were lister planted had to be replanted. The last date of planting of sorghums and the kafir, which was drilled last week, will probably be slow in coming up on account of lack of sufficient moisture in surface for rapid germination.

All row crops are getting their second general cultivation at this time. Ground is getting a little bit crusted and hard on top.

GARDEN CITY, continued:

By the last of next week we hope to have all small grain threshing finished. Weather is excellent for curing shocked grain.

Professor E. C. Chilcott and Mr. E. F. Chilcott were station visitors July 1. General rountine work has occupied most attention this week.

Maximum temperature 102, minimum 56; precipitation none.

TUCUMCARI:

Three light showers totaling .18 inch the past week were of no value to crops and rolling and firing is continuing. Seventeen showers, the heaviest measuring .20 inch, since May 12 have totaled .91 inch. In spite of very favorable early May moisture conditions all crops are showing acute need of rain. Practically all crops are rolling extensively, while some plants are dying. Crops on fallow land seem without exception to be suffering as greatly as those on fall or spring plowed or listed land, continuously cropped.

During the week progress has been made in thinning, but this work is slow and difficult, due to dry, hard condition of the surface soil. Early planted plots had satisfactory stands, but a number of late plots have not as yet shown full germination. The dry soil not receiving sufficient moisture from occasional showers prevented the seed from germinating.

Wheat farmers on the plains are making rapid headway with harvesting and the crop is being marketed as fast as combined. Yields are higher than anticipated and the market is holding in the near vicinity of 90 cents.

Maximum temperature 95; minimum 57; evaporation 2.029 inches.

Wind velocity 4.3 miles per hour.

DALHART:

The past week has been very favorable for crop growth even though no precipitation of consequence has fallen. The temperatures have not been unusually high during the day and with seasonably warm temperatures at night. The sorghums have made good growth during the week. This also holds true for the corn.

The thinning of the row crops was completed with the exception of the last date of seeding for the varieties and that replanted in the lister furrows. The June 15, last date of seeding the sorghum varieties, planted sorghums did not all emerge to uniform stands in the row before the rain of June 23 and 24. After this rain a few skips, from the first emergence, were filled out by this second emergence. This latter emergence was hardly large enough for thinning this week. It is planned to thin this on Monday, July 8. The thinning force was used for hoeing a few weeds missed in cultivation the last day and a half of the week.

With the exception of the listed plots and a part of one terraced field all of the row crops were cultivated during the week. Other field work consisted of soil moisture samples, mowing around the buildings, care of shrubbery, trimming plots in one field, harvesting the rowed-wheat, disking trees and windbreaks, and thinning sorghums and the last date of seeding cotton.

The cotton was cultivated and hoed during the week. This crop has not made satisfactory progress to date. Uniform stands have been secured for all dates and varieties.

Maximum temperature 94; minimum 55; precipitation .02 inch.

BIG SPRING:

Three rains totaling 2.56 inches during the past week have improved crop conditions in this section of the country to a great extent. Although cotton was still growing well, some of the feed stuff was beginning to roll. These rains have so thoroughly soaked the soil that all crops are making a fine growth.

BIG SPRING, continued:

The July 1 date of seeding of sorghums and cotton was made on the first. With the exception of cotton, all plots are up to a good stand. Cotton is up to about a half stand. Thinning of all plots except the late dates was completed this week as was also most of the increase fields of milo and kafir. One cultivator has been kept busy every day that the soil was dry enough to work.

Maximum temperature 102; minimum 68; precipitation 2.56 inches.

WOODWARD:

Work of the week has been of a miscellaneous nature, consisting of cultivating, hoeing, thinning of sorghum crops, and other odd jobs.

Wheat harvest over the country is drawing toward a close, most wheat having been combined in good condition. The few farmers operating headers have had a great deal of trouble obtaining help for this out-of-date class of hard work.

A fine rain is falling as this is being written, which should put soil in excellent condition for rapid growth of the sorghums.

Maximum temperature 96; minimum 58; precipitation .43 inch.
Wind velocity 8.1 miles per hour; evaporation 2.581 inches.

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REPORT FOR THE WEEK ENDING JULY 13, 1929.

HAVRE:

Temperatures during the week were not excessive, but with practically no rainfall crop damage continues. Two light showers amounting to .28 inch were recorded on July 7 and 8 but these only afforded temporary relief.

A few plots of small grain on fall plowing are burned beyond recovery. Practically all methods have been damaged, but with one good rain all spring wheat on fallow would make a fair yield. Early seedings of wheat that headed during the hottest weather shows almost 100 per cent blight on the tip of the head. The medium dates of planting headed at a more favorable time.

Corn continues to grow very nicely and shows no sign of burning. As it is only about knee high, it is not pulling very heavily on soil moisture.

Range grasses are drying up rather rapidly, but with the more than usual spring growth the cure was to no disadvantage.

The 4-H Club camp was held at the station from July 7 to the 11th. There were about 85 boys and girls in attendance which is the largest club camp we have had at the station. The annual picnic was held on the 11th. There were about 1000 present which is about the average number that attend our picnic.

Mothers camp began the morning of the 12th and will be finished on the 14th. There are about 40 in attendance.
Maximum temperature 87; minimum 43; precipitation .28 inch.

JUDITH BASIN:

The rain, amounting to .62 inch, which was received on the 6th and 7th, combined with cooler weather was very beneficial to crops in the Judith Basin. Winter wheat, which was just filling, is coming along in good shape. There is enough moisture in the fields seeded on better methods to produce reasonably good crops. Outstanding differences are noticeable in different cultural methods with winter wheat this season. Spring grains are growing rapidly with better methods having an advantage.

JUDITH BASIN, continued:

More moisture will be needed to produce a fair crop. Poorer methods are showing lack of timely preparation. Spring grains are heading. Flax is blossomed and corn is making steady growth.

The first cutting of forage crops is practically completed with good yields being obtained in sweet clover, and fair yields in alfalfa and grasses. Pastures are showing noticeable shortage of moisture. Sweet clover is maintaining the highest carrying capacity.

The Central Montana County Agent Conference was held at the station on the 11th. The group studied the experimental work and discussed problems of importance for the various counties. Those in attendance included Director Taylor, Mr. Fred Bennion, County Agent Leader, Mr. L. D. Kurtz, Extension Agronomist, County Agents Mountjoy, Noble, McKee, Jones, Peterson, and Ward and Smith-Hughes workers DeAlton, Lamphere and Haight.

Maximum temperature 86; minimum 42; precipitation .62 inch.

HUNTLEY:

Showers early in the week brought temporary relief to crops and will be of considerable value to winter wheat which had reached a critical stage in its development whereby moisture was needed to fill the grain. The last few days have been hot and winter wheat has rapidly approached maturity. Winter rye has ripened and is being harvested to-day.

Sorghums, beans, corn and potatoes have made good growth since the rain but they are not yet up to normal development for this date.

Rogueing variety test plots, plowing under green manure, and plowing late fallow plots has constituted field work during the week.

Maximum temperature 93; minimum 49; precipitation .49 inch.

SHERIDAN:

Rain amounting to .45 inch with some cloudy and cool weather during the week helped crop conditions here considerably. Firing of the small grains apparently is little worse than at the end of last week. Winter wheat has begun to turn and seems to be fairly well filled. Winter rye is ripening quite rapidly, but is fired badly and the crop will be light. Corn has been making a good growth, but is only just beginning to tassel.

The remainder of the hay was put up during the week. Bangalia peas were cut for forage, but have not cured sufficiently for dry weights. There is practically no second growth of alfalfa except where watered by melting snow from drifts after the ground had thawed in the spring sufficiently to take up the water.

Maximum temperature 94; minimum 40; precipitation .48 inch.

DICKINSON:

A light shower on the 6th and another the 13th were of some benefit to crops, but most of the week was hot and dry.

All crops now show effects of the dry weather. Grains are almost fully headed. Where the moisture conditions are best, as on fallow, wheat is over three feet high but on some of the less favored methods the straw is short. Corn has made a fair growth, but it also would be benefited by rain. Alfalfa in rows is about a foot high but on some of the dry areas the drilled stands have made little recovery after cutting.

Crested wheat grass and brome-grass promise a good seed crop but slender wheat grass, which headed later, appears to be affected more by dry weather.

Visitors included Mr. Dan Hansen and Mr. A. E. Seamans, Huntley, Montana, Mr. Hastings, of Western Irrigation Agriculture, Dr. H. B. Humphrey and Mr. J. A. Clark, Cereal Crop and Diseases, and Mr. R. L. Shotwell, Bureau of Entomology.

Maximum temperature 95; minimum 43; precipitation .34 inch.

MANDAN:

Agronomy

Several showers occurred during the week which were of some benefit to crops. On the night of the 6th a quarter of an inch of rain fell at the station and 1.02 inches at the pasture.

Fallow was cultivated with the duckfoot for the first time this season. All corn and sorgo plots were cultivated.

Alfalfa, crested wheat grass and white sweet clover, were cut during the week in the forage crop trials.

Two of the hottest days of the season occurred during the week.
Maximum temperature 98; minimum 48; precipitation .95 inch.

Cooperative Grazing Experiment

The good rain of a week ago at the pasture helped the grass and filled the dam.

The cattle appear to continue to put on good gains, and are now in very good condition.

Horticulture

Fruit thinning and hoeing of potatoes was completed in the early part of the week. The potatoes were sprayed with arsenate of lead on Thursday, blister beetles having descended en masse on the plants. The regular July spraying of orchards and test blocks was started Friday, and is being continued.

The earliest varieties of raspberries were picked July 10. The quality was fair although berries were somewhat under size. Currants are being picked. The yield is very good and fruit of excellent quality.

The recent thunder showers have helped vegetables, flowers and lawns considerably. Gills Ea. Market, Sunshine and Golden Bantam sweet corn varieties, are tasseling with occasional plants out in silk. The Acre garden is now yielding carrots, beets, cauliflower, cabbage, and peas.

MANDAN, continued:

Horticulture, continued.

The only crop showing some injury from the drought appears to be wax beans. The early planting of these presents a sickly appearance, and no pods have formed to date.

Weeds in the experimental fields are growing apace, and cultivating, duckfooting and hoeing is being carried on as vigorously as the labor supply will permit.

Visitors of the week included Dr. H. B. Humphrey, Cereal Pathology Investigation, Mr. J. Allen Clark, Western Wheat Investigations, Mr. A. E. Seamans and Mr. Dan Hansen, Huntley Experiment Farm, Mr. A. B. Hastings, In Charge, Division of State Cooperation, Forest Service, and Mr. A. C. Dillman, Seed Flax Investigations.

Mr. J. M. Stephens left on July 8 for an inspection trip to the northern group of stations.

ARDMORE:

The rains of July 4 and 5 were of material benefit to corn and other row crops, and they grew rapidly during the week. Grain crops were too far advanced to recover from drought injury, but the rain no doubt enabled them to fill better than they otherwise would have.

Oats on some of the plots and fields are ripe, and a few plots of barley are ready to cut. Rain the morning of July 13 prevented any harvesting this week.

Farm work consisted largely of cultivating and hoeing row crops.

The Farm Picnic was held on July 11. Governor W. J. Bulow made the principal address.

The weather during much of the week was hot and sultry, but only a few showers occurred. Hail has been reported from several points in the county, but there has been none in the immediate vicinity of the station.

Maximum temperature 96; minimum 42; precipitation .74 inch.

CENTRAL GREAT PLAINS FIELD STATION:

Insect damage to cabbage, peas and beans in the vegetable plot has been noted the past week. The plants have been sprayed with arsenate of lead. Rain is needed badly.

The framing and sheathing of the headhouse for the greenhouse is complete and carpenters will commence shingling the first of next week. The underpinning and slab support forms have been removed from the basement and the basement cement floor will be run Monday.

Teams have been engaged the past week in restoring earth to the roof of the storage cellar to a depth of about 4 feet and covered with a top surface of good soil, the work being completed July 13.

A 600-foot drain ditch from the septic tank has been laid out and about 300 feet of the ditch excavated to a depth of 4 feet to receive six inch standard farm drain tile.

Tractor plowing of the S ½ Section 16 continued through the week.

Mr. W. P. Baird, of the Mandan Station, visited the station July 8 enroute to Woodward, Oklahoma.

Superintendent Wilson, accompanied by Mr. A. L. Nelson, of the Archer, Wyo., station, attended a meeting of extension workers at the Akron, Colorado, Field Experiment Station, July 8 and 9.

Mr. J. M. Stephens, Superintendent of the Mandan Station, spent July 10, 11 and 12 at the station, leaving for Akron, Colo. July 12.

Mr. Wm. DuBois, Collaborator and Architect, went over the construction work on July 11.

ARCHER:

The weather has been favorable for field work. The temperatures have been typical of summer weather in this section. The rains of July 1 and 5 have greatly improved crop conditions. Crops which were badly burned have recovered considerably and others have made rapid growth.

ARCHER, continued:

Winter wheat has headed and spring wheats are heading. Some of the early oats and barleys have headed and some of the late varieties are ready to head. The pasture grasses have made considerable growth but due to the shortage on pasture land for the station dairy herd the milk flow has dropped considerably.

Work at the station has consisted of cultivating the corn and sunflowers in the dairy field, the hoeing of row crops in the experimental field and the cultivation of alleys, roadways and some of the plots in the experimental field.

Mr. J. M. Stephens, of the Mandan Station, and Superintendent Wilson, of the Central Great Plains Field Station, were station visitors July 10.

Maximum temperature 88; minimum 43; precipitation Trace.

AKRON: Report for the week ending July 6, 1929.

June passed with a total rainfall of only 1.15 inches, failing miserably in making up the low May rainfall. The total rainfall for both May and June this year was only 2.34 inches, being 2.38 inches below the 21-year average for the same two months. The present May-June drought is only exceeded by the May-June drought of the year 1921 of the whole series of 21 years that rainfall records have been kept.

The past week has been cooler since the season's maximum of 102 wasreached on May 29. Also there have been three rains of approximately one-third of an inch each.

The Cereal Variety fallow was spring-tooth-harrowed for the first time since having been plowed May 26. Other work consisted of seeding the hay and grain millet variety experiment, the mounting of a new windmill, the repairing of fences, the rogueing of cereal varieties, and the hoeing of weeds, principally Russian Thistles.

The thinning of the experimental corn was completed. Corn stands are only moderately satisfactory. We have had better stands at this season of the year and within the writer's memory we have had worse.

AKRON, continued: Report for the week ending July 6, 1929.

Stands this year were effected by lack of surface moisture, by cut worm injury, and by ground squirrel injury.

Mr. F. A. Coffman, of the Office of Cereal Crops and Diseases, visited the station Tuesday.

Maximum temperature 102; minimum 55; precipitation .72 inch.

AKRON:

The first harvesting of the season was accomplished during the past week. Burt 916 oats on last year's bean variety experiment, the rotation and sheep rotation barley and certain early varieties of the barley variety experiment as well as certain early varieties of the oat variety experiment were harvested. Winter wheat which promised to be ripe is holding since the light rains of last week and it now appears that we may have a fair crop on extremely short straw.

The row crops in the general forage variety experiment were cultivated. The sowed oats, barley, and spring rye in the forage variety experiment for hay purposed were harvested.

To-day some bind weeds are being sprayed. The orchard is also receiving its second spraying for the season to-day. This is some two weeks later than the optimum date but the delay was unavoidable being occasioned by delay in securing new spray pump.

Professor Parker, of the Kansas Station, accompanied by Extension Agronomist Clapp and County Agent Roussin, of Rawlins County, met Doctor Robertson, of the Colorado Station, accompanied by Professors Sjogren and Hawkinsmith at this station Sunday.

Monday afternoon some 35 county agents and experiment station workers, in Akron to attend the Second Annual Conference of County Agents and Experiment Station Workers, spent the afternoon at the station.

On Field tour with the County Agents and Experiment Station Workers beginning Wednesday and taking in St. Francis, Atwood, Colby, and Goodland.

AKRON, continued:

Kansas crop conditions were noted as especially good everywhere except in the immediate vicinity of the station. Crop conditions at the Colby Station were also good.

Storms threatened this week-end, but only small amounts of precipitation were recorded at this station.

Mr. J. M. Stephens is spending the afternoon at this station to-day, July 13.

Maximum temperature 94; minimum 49; precipitation .14 inch.

COLBY:

This has been another hot, dry week, although rain threatened seriously several times. Corn and the sorghums made rapid growth, but during the last two days the surface planted corn began to fire rather badly. All of the milo, kafir, and feterita plots received their first cultivation this week.

The summer fallow plots of oats, spring wheat and winter wheat were cut Friday and Saturday, practically ten days since the continuous cropped plots were harvested. This is a much longer time than usual between the dates of ripening of the various plots. Even the fallow plots as late as they ripened, ripened prematurely and show shriveled grains.

The earlyfall plowed and listed plots for winter wheat were plowed and listed Saturday. The plowed plots were packed immediately after plowing with a disk run straight and weighted.

Grasshoppers were rather numerous on the wheat and when this was cut they congregated in large numbers on some of the isolated corn plots, threatening their destruction. Poisoned bran mash was put out immediately, checking their ravages.

A group of Colorado County Agents, Dean Gillette, Prof. Kezer and other members of the Colorado Agricultural College staff and Supt. Brandon of the Akron Station, together with Dean Call visited the station Thursday, July 11.

Maximum temperature 103; minimum 51; precipitation .29 inch.

GARDEN CITY:

Threshing on the D.L.A. Project was finished this week. Yields were calculated and final notes taken. The lowest yielding plot produced 7.17 bu. per acre, while the highest yielding plot produced 35.5 bu. per acre. Fallow plots as an average produced about 32 bu. per acre. The MC-A plot produced 12.6 bu., B plot 18.75 bu. and C plot produced 26.17 bu.

Most of the plots produced grain slightly shriveled, caused by the hot, dry weather at the most critical stage, just before ripening. We will list and plow the early prepared wheat plots as soon as possible.

Hoeing and trimming of plot ends, cutting weeds out of the roadways and alleyways, and general cleaning up of the project occupied most of the time of the irregular help the past week.

Row crops are growing nicely. At present they do not show any signs of lack of water. Sudan in the first date of planting on May 15 is beginning to head.

Maximum temperature 99; minimum 57; precipitation .17 inch.

TUCUMCARI:

Station work the past week has consisted of cultivating and thinning plots. The latter work is nearly completed, with late stands in many cases deficient. All crops are rolling to varying extent, with plants dying in some instances.

Precipitation since May 12 totals 1.07 inches, received in 17 showers. Precipitation received since April 1, 3.72 inches, is considerably below the 24-year average of 7.05 inches for this period. Moisture below the first foot is satisfactory, but apparently the roots of young plants are not penetrating to reach this moisture. Acute injury from drought is apparent on the MCA, B, and D milo plots, where the surface foot contained early in the week from 7.0 to 8.4 per cent, while the second foot on these plots contained from 10.6 to 13.1 per cent moisture.

TUCUMCARI, continued:

The peak of the wheat harvest in the plains sections of the county has been reached and weather conditions which are so disastrous to row crop farmers are ideal for harvest. Yields are better than expected and there has been practically no hail damage.

Maximum temperature 99; minimum 60; precipitation .16 inch.
Wind velocity 6.2 miles per hour; evaporation 2.366 inches.

DALHART:

The past week was characterized by two rains which fell on the nights of July 8 and 9. This rainy period brought a total of 1.40 inches of rain. For the rest of the week field work was out of the question except for some tillage work as a preparation for fall seeded crops. This consisted of plowing, listing, and early fall disking.

The thinning of the sorghums was completed with the exception of seven listed plots which have been replanted and are hardly tall enough for thinning.

The north fence was completed during the period that the teams were kept out of the fields. The old posts were removed and hauled in. Other work, other than hoeing weeds, consisted of cleaning the road of weeds that were let go during the rush of field work.

All row crops are doing fine and with the moisture present now should grow fine for another month without additional rain. A few plots are weedy but for the most part they are in good condition. Cultivation of all row plots was completed ahead of the rain. It is now planned to cultivate all plots this coming week.

Maximum temperature 98; minimum 58; precipitation 1.40 inches.
Wind velocity 6.7 miles per hour; evaporation 2.124 inches.

LAWTON:

Threshing of all small grains was completed July 13. Only part of the grain has been cleaned and the yields calculated. They are as follows:

Crop	Preparation	Previous crop	Bu. per acre
Wheat	Early fall plowed	Wheat	9.7
	Late fall plowed	"	9.1
	Subsoiled	"	9.5
	Listed	"	8.5
	Listed and manured	"	6.2
	Disked	"	6.1
	Early fall plowed	Oats	9.3
	Early fall plowed	Barley	9.5
	Disked	Cowpeas	11.8
	Disked and topdressed	Cowpeas	15.7
	Green manure	Cowpeas	13.9
	Drilled	Cotton	9.4
	Drilled and topdressed	Cotton	9.8
	Fallow		15.7
	Fallow and manured		22.3
	Fallow and topdressed		24.2

Wheat was of poor quality, light in weight and shriveled. The protein content was high.

A rain of 1.30 inches July 1 was valuable to all row crops, but at the present time everything is showing the need of additional moisture.

Most of the grain sorghums planted April 15 are fully or about 50 per cent headed. Birds are numerous and hard to drive out of the field. Dwarf hegari headed much earlier than any other variety and the grain has been completely destroyed by birds. Sufficient protection to the remaining plots can probably be provided. Broom corn is practically all headed. Chinch bug damage to this crop has been heavy and the plot yields will be very spotted and irregular. Alfalfa is ready for the third cutting but the yield of hay will be very light. Cotton is responding to the hot, dry weather by making a very satisfactory growth.

Maximum temperatures during the past week have been running around 96. The wind movement has been low and the heat oppressive.

WOODWARD:

The month's drought which this section of the country has been suffering was broken the early part of the week by a total precipitation of 2.33 inches, extending over three days. The late wheat harvesting was delayed a few days, and threshing of headed and bundle grain did not start until the latter part of the week. Rowed crops are making very rapid growth and the moisture in the soil is sufficient to support them for some time.

Station work for the week consisted of thinning sorghum plots, cultivating rowed crops on plots, threshing wheat from plots, picking fruit, and miscellaneous odd jobs.

Maximum temperature 94; minimum 61; precipitation 2.33 inches.
Wind velocity 8.9 miles per hour; evaporation 2.016 inches.

WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR THE WEEK ENDING JULY 20, 1929.

HAVRE:

The drought beginning the middle of June continued during the past week. Crops, especially spring wheat, are in a bad way. Oats and barley do not seem to have suffered quite as much as spring wheat.

Corn has begun rolling and some of the early seeding has tasselled. Flax, while not weedy, is suffering from the drought. Prospects are extremely poor for much of a wheat crop in this part of Montana. Two-thirds of the fields are burned badly now and rains would be of little benefit. Reports are that this condition exists through the entire northern part of the State from here to the Dakota line. A few pieces of winter wheat that were seeded last fall and came through the winter will produce yields of from 20 to 30 bushels to the acre.

While the acreage of rye was limited, the yield of this crop will also be fairly good.

Range grasses are curing in very fine shape and there should be excellent grass for finishing beef and wintering sheep.

Dr. H. B. Humphrey and Mr. J. Allen Clark, Office of Cereal Crops and Diseases, were at the station from July 17 to 19, and Mr. B. B. Bayles, from the Judith Basin Substation at Moccasin, was here on the 19th.

Maximum temperature 98; minimum 48; precipitation Trace.

JUDITH BASIN:

Warm weather continued during the week with no precipitation being recorded. High evaporation and heavy sapping of available moisture occurred.

Winter wheat is ripening and is in fairly good condition. More rain would have assisted the crop to fill better. However, average yields will probably be obtained on the better methods. Summer fallow for next season's crop is in good condition. Better and more timely tillage methods are being practised.

JUDITH BASIN, continued:

Spring wheat is heading short and has already been damaged by the extended drought. Better methods are far superior to stubbled-in fields. Moisture would be very beneficial to all spring crops, especially the later seeded fields. Corn and inter-tilled crops are making good growth.

Grass pastures are drying rapidly. Sweet clover, although maintaining high carrying capacity, is short and shows marked tendency for setting seed.

Orchard and shelterbelt plantings are making good growth, although thick plantings are showing need of moisture.

Visitors included Mr. J. M. Stephens of the Mandan Station, Mr. R. S. Towle of Sheridan, Mr. L. W. Kephart from the Forage Crop Office, Mr. J. Allen Clark and Mr. H. B. Humphries from the Office of Cereal Crops and Diseases and Mr. M. A. Bell from the Northern Montana Station.

Maximum temperature 93; minimum 51; precipitation none.

HUNTLEY:

Ripening of all small grain crops has been considerably hastened by the hot and dry weather of the past week. Practically all winter wheat in this locality is mature enough to be harvested with a binder, but the moisture content is still too high for the crop to be safely handled with a combine. Oats and spring wheat have turned color but the grain is still in the dough. Barley is still green in patches but most of it has dried ripe, and is very short.

Corn has made a good growth during the last few days and is now almost fully tasselled out. Beans are in blossom but are beginning to show the need of rain. Potatoes are also beginning to look dry although no serious burning is yet in evidence.

Field work has consisted of miscellaneous cultivating, soil sampling and harvesting the winter wheat nursery.

Station visitors have included Mr. J. M. Stephens and Mr. R. S. Towle.

Maximum temperature 100; minimum 52; precipitation none.

DICKINSON:

The weather continued to be hot and dry.

Grain crops are showing some burning in places though most fields are standing up well considering there has been only about half an inch of rain during the past thirty days.

Work has consisted mainly of weeding about plots and roguing of grains.

Visitors included Mr. J. M. Stephens, Mr. M. P. Ostby, County Agent, Wibaux, Montana, Dr. E. G. Booth, Extension Agronomist, Mr. Evan Hall, Agricultural Supervisor, Milwaukee Railroad; Mr. J. A. Clark and Dr. H. B. Humphrey, Cereal Crops and Diseases.

Maximum temperature 99; minimum 54; precipitation Trace.

MANDAN:

Agronomy

A number of thunder storms came up during the week, but no rain of value was received. The week was the hottest for this season.

Crops are looking fair for some methods yet, but are going fast with the hot weather. Very hot winds blew one afternoon and corn curled badly.

Winter rye was cut and will make a fair yield. Alfalfa and grass plots were weighed up. The yield was good.

Maximum temperature 102; minimum 52; precipitation .05 inch.

Cooperative Grazing Experiment

The cattle in the rotation pasture were moved from C. to B. on July 15. While grass is drying up at the pasture, it is in better condition than at the station.

MANDAN, continued:

Arboriculture

The shelterbelt inspectors all report crops badly in need of rain. The stand of trees in the new plantings is in most cases very good this year, and so far they do not seem to have been seriously affected by the dry conditions.

Cultivating, hoeing and the picking of Caragana seed have been the main field work during the week.

Horticulture

Currants and Juneberries have been picked during the week. The yield and quality of the former were good to excellent. Some of the newer varieties such as Ruby Castle, Grossiliers Red Improved, Transparent Blanche appear to be of good value for this region.

Gooseberries, Chinese cherries and Golden currants are starting to ripen. The gooseberries are somewhat damaged by the heat, being practically scalded and are dropping off.

The fields are being gone over again with cultivators and hoes. Weeds do not mind dry weather and are rather troublesome this year.

Shrubbery groups on the grounds are being pruned and renovated. Much dead wood was found in spirea and dogwood groups. Bagging, selfing and crossing of earliest strains of sweet corn varieties is being carried on.

The Congressional Committee on Agricultural Appropriations, accompanied by Major Robert Y. Stuart, Chief of the Forest Service, made a hurried trip through the station on July 20. The party consisted of Congressmen Dickinson, Summers, Landlin and Buchanan. They were met with cars at the Bismarck Depot and returned to the train in Mandan. Mr. J. W. Haw, Director of Agricultural Development, Northern Pacific Railway, was accompanying them as far as Yellowstone Park.

BELLE FOURCHE:

Aside from two relatively cool days the first of the week, the weather has been comparatively hot, the nights being exceptionally warm. A beneficial rain of .75 inch precipitation was received July 13 and several lighter showers occurred during the remainder of the week. Soil samples taken July 17 indicate that there is sufficient moisture in the soil for all small grain to mature in a normal manner. At no time during the season to date have any of the crops except alfalfa and brome-grass suffered seriously from lack of moisture, and excellent yields of small grain on all cultural treatments, with the possible exception of spring plowing, seem assured. An excess of moisture and crusting of the surface soil earlier in the season injured the stand and condition of crops on spring plowing.

The warm weather has been very favorable to the growth and maturing of crops. Corn is beginning to tassel and is over three feet tall on fall plowing. Winter rye was harvested, and winter wheat is nearly ripe. Barley, oats, and flax are turning color. The second crop of alfalfa is only 7 to 8 inches high and is commencing to blossom.

The annual farm picnic was held at the station July 20, and a normal crowd was in attendance. Speakers for the occasion were Congressman W. Williamson, and Mr. F. Kriebs, State Secretary of Agriculture.

Visitors during the week were Mr. J. L. Emerson and Mr. W. P. Baird, of the Mandan Station, and Mr. R. Smith of the Ardmore Station.

Maximum temperature 94; minimum 61; precipitation 1.26 inches.

ARDMORE:

Hot days and warm nights occurred throughout the week. A hot wind on the 19th caused small grains to ripen rapidly, and caused the corn to roll during the hot part of the day. Millets are firing to some extent.

Harvesting of small grains began on July 15. All oat fields and all oat and barley plots in the rotations were harvested during the week. One plot of wheat in Field 5 was harvested on July 20. In the variety test all early varieties of oats and barley, and Reward wheat were harvested.

ARDMORE, continued:

Corn grew rapidly during the week and all fields and plots were showing tassels by the end of the week. The corn variety test was planted nearly two weeks later than the fields and only one variety, White Floue, commenced to tassel. Prospects for a good corn crop at the station and in the vicinity of the station are probably better than they have been for five years.

Mr. J. M. Stephens and Mr. W. P. Baird, of the Mandan Station, were station visitors during the week.

Maximum temperature 96; minimum 57; precipitation .24 inch. The rainfall for July to date is 2.46 inches.

CENTRAL GREAT PLAINS FIELD STATION:

The vegetable garden has shown marked improvement since the showers of the past week. The tree nursery also is doing nicely. Both have been cultivated this week. The rain came too late to save the oat crop, which is practically a total loss.

The roof of the headhouse has been shingled and about one-third of the sides. Grading for the greenhouses has been under way the past few days. The teams were engaged in grading about the barns and implement shed the fore part of the week.

An outside cement drinking trough has been placed in the corral and connected up; swinging corral gates were hung.

A septic tank for the headhouse has been dug. The forms were placed and the cement was run to-day, July 20. The sewer line connecting this septic tank with the headhouse has been dug and ready for the six inch sewer pipe.

A mile of fence has been strung on the west side of Section 16, and workmen are now engaged in digging postholes and setting posts on the south side of that section, using new, creosoted posts.

Tractor plowing of Section 16 was finished the 17th, for the present. The tractor, with rotary scraper, has been engaged since then in grading about the buildings, leveling roads, etc.

CENTRAL GREAT PLAINS FIELD STATION, continued:

Mr. S. R. DeBoer, Collaborator and Landscape Architect, with his assistant, Mr. Larson, went over the work the 16th.

Superintendent Wilson attended a farmers' meeting at the Archer Field Station the afternoon of July 16.

Maximum temperature 85; minimum 56; precipitation .88 inch.

ARCHER:

The weather has been warm, at times humid and at times dry. There have been three light showers at the station with rather heavy rains in some of the surrounding country. However, the crops in general are in need of rain.

Corn, sunflowers, potatoes and beans have made a marked growth. Potatoes are in full bloom, beans are blooming and the first tassels of the corn are beginning to show. Most of the spring cereal crops are heading or have headed. These crops are especially in need of rain.

During the fore part of the week the work consisted of weeding and preparing for the Wyoming-Colorado Farmers' Field Day, July 16. Since this date the work has consisted of weeding, hauling hay and cutting and raking winter wheat for hay.

On July 16 about 500 people from Wyoming and Colorado visited the station. Through the cooperative efforts of the Extension Workers of the adjoining counties of the two States, specialists from both States took part on the programs. There were distinct programs for both men and women.

Maximum temperature 91; minimum 54; precipitation .22 inch.

AKRON:

Showers have been general throughout this region the past week. This station profited by two showers one of .44 of an inch on Monday, July 15, and another of .82 of an inch Tuesday evening, late. These rains have put a different color on the late crops and should aid materially in the production of corn, beans, potatoes, millet, and the forage sorghums.

AKRON, continued:

This station is in the midst of its annual weed problem, with harvesting also urgently demanding attention. Russian thistles, Pig weeds, and Lambs Quarter have sprung very prominently into the picture during the past ten days. Rains early in the week interfered with weed control measures and harvesting this week-end has prevented the diversion of men and teams to this important problem. This station this week-end presents the most unkept appearance of any time during the season. It is hoped that by next week-end some relief can be had from the weeds.

Harvesting has been the order the latter part of the week, two binders being in the field the last three days. Small grains have become dead ripe since the rain earlier in the week.

The Tuesday evening's rain was accompanied by a very high northwest wind and by a slight showing of hail. This damaged the nearly ripe standing oat plots anywhere from 30 to 60 per cent through shattering. There was no apparent shattering on any of the winter wheat plots.

Approximately 60 farmers and their wives from the Deertrail-Strasburg-Bennett region under the leadership of County Agent Allyn Tedman paid the station a visit Tuesday afternoon. These people were from Arrapahoe County.

The barley and some of the oat varieties from the nursery were harvested this week-end, Professor John W. Sjogren from the College overseeing this work. Mr. Wayne Austin came down this week-end to relieve Professor Sjogren for important work at Fort Collins. Mr. Austin will remain until after the threshing of the Cereal Small Grains.

Richmond cherries are dead ripe and practically all picked by this week-end. Montmorency cherries are ripe enough to pick and English Morellos are turning.

Maximum temperature 98; minimum 60; precipitation 1.26 inches.

NORTH PLATTE:

Harvest which commenced July 5 has been progressing steadily and will be completed by the 22nd. Corn has been making very rapid growth.

NORTH PLATTE, continued:

The second cutting of alfalfa is well under way. The irrigation plant has been operated every day for the past three weeks. A rain of .61 inch fell during the afternoon of the 17th. This is the first rain amounting to over one-fourth of an inch since June 7. There was some hail with it but very little damage was done.

COLBY:

Not much precipitation has fallen this week, but there has been enough rainy weather to interfere with harvesting, especially where the harvesting is being done with a combine. Wheat coming from the combines the fore part of the week was unusually dry, containing less than twelve per cent of moisture, while that from the same fields averaged around sixteen per cent the latter part of the week after the showers, even though it appeared to be sufficiently dry to combine well. The showers not only increased the moisture content of the wheat, but were untimely in that they prevented continuous marketing while the price was rising just preceding the drop.

The weather was not so hot this week, and being damp was excellent for corn and the sorghum crops. The sorghums which have been rather backward all season made very rapid growth. Corn is beginning to tassel.

Harvesting on the station was completed Wednesday and threshing was started Friday. None of the D.L.A. plots have been threshed yet.

Maximum temperature 99; minimum 60; precipitation .17 inch.

HAYS:

A total of little more than five inches of precipitation during the past two weeks has kept the ground too wet for tillage work most of the time, and has made slow work of combine harvesting for those who were unable to finish early. There is still considerable wheat standing and in the winrow. The Experiment Station was caught with about 150 acres in the winrow. However, it is expected a couple more days dry weather will be sufficient to finish the wheat, after which the barley will be threshed. Most of this crop is in the winrow.

HAYS, continued:

Combine threshing of winter wheat plots on the project was finished July 4. Yields of winter wheat ranged from 4.5 to 39.5 bushels per acre, with an average considerably above normal. Barley, oats and spring wheat all produce some very good yields with averages above normal.

Corn and sorghums are making very good growth and now bid fair for yields above normal. Brome-grass sod plots would make good pasture, and alfalfa is making fair growth for a second crop which is unusual on the upland.

Maximum temperature 95; minimum 58; precipitation 1.60 inches.

TUCUMCARI:

Crop conditions remain in a critical condition in this immediate vicinity. The only precipitation received totaled .20 inch. This brings the total for the month to .43 inch, following a total in June of .38 inch. Early crops seem less injured by the drought than late planted fields. In many instances both corn and sorghum plants are dying, while cowpeas and cotton do not seem injured, although growth is slow.

The writer accompanied a party of about sixty some seventy miles from Tucumcari this week to view the proposed dam site on the Canadian river. It is hoped that through the inclusion of this dam in the Mississippi flood control project some 100,000 acres or more of land lying near Tucumcari may be irrigated. In the viewing party were a number of New Mexico State officials, including the Governor; one U. S. Senator; several members of the State Engineering Department; Army officials assigned to flood and levee work on the Mississippi in the Memphis district; and about forty local residents. The Federal engineers are now in Santa Fe, where it is probable they will state their opinion of the feasibility of the Canadian project.

Senator Sam G. Bratton visited the station July 20 and showed great interest, not only in the proposed improvements, but in the crop and shade tree work. Mr. J. R. Horton, of Wichita, is at present making southwestern stalk borer survey on plots carried cooperatively for this purpose.

TUCUMCARI, continued:

Maximum temperature 98; minimum 63; precipitation .20 inch.
Wind velocity 4.1 miles per hour; evaporation 2.798 inches.
The moisture deficiency is shown below:

	Jan.1--July 20	Apr. 1--July 20	May 12--July 20.
24-year average	9.18"	7.65"	5.24"
1929	6.33	3.92	1.27
Deficiency	2.85	3.73	3.97

DALHART:

The past week has been characterized by relatively uniform summer temperatures and with an almost absence of wind which made the days seem much warmer than they were. This was especially true for Monday and Tuesday, July 15 and 16, as the wind velocity for these two days was 1.6 and 1.7 miles per hour for a 24-hour average. The maximum temperatures for those days was 95 and 96 degrees. This calm weather with a low evaporation is excellent growing weather for the sorghums. Most of the sorghums have practically doubled in growth this week. They are looking fine with the exception of a few rotations. The early kafirs, the feteritas, and the milos are heading in the first date of seeding.. The heading started the first of the week.

The soybeans are growing fine and are presenting a good appearance. The earlier varieties are starting to bloom. This is likewise true for the cowpeas. Up to date the soybeans have put forth more growth than the cowpeas.

Field work during the week has consisted of cultivation of all the rowed crop and the working of the fallow areas. The tree varieties and windbreak were also worked during the week. A few weeds were mowed and the rest of the plots were trimmed. The rest of the thinning for the replanted listed kafir and milo was thinned during the week. Some scattering weeds were hoed.

Mr. M. W. Talbot, Senior Botanist in charge of Weed Investigations, visited the station on July 16, 17 and 18 and tentatively planned some blueweed eradication and control experiments.

Maximum temperature 99; minimum 61; precipitation None.
Wind velocity 4.1 miles per hour; evaporation 2.183 inches.

WOODWARD:

The first part of the week was very hot, maximum temperatures ranging from 95 to 105, but a rain of .39 inch occurred Thursday afternoon, July 18, and the weather has been rather cool and cloudy since.

Wheat threshing in the vicinity has been in progress during the week, and yields are reported to be somewhat lower than was expected. Feed and rowed crops over the country are looking good generally.

Station work consisted of preparing wheat and rye plots for next year's crop, cultivating and thinning row crops, and disking orchard, vineyards, and nursery. Also, some fruit was picked.
Maximum temperature 105; minimum 64; precipitation .39 inch.
Wind velocity 5.7 miles per hour; evaporation 2.358 inches.

SHERIDAN:

The weather continued hot and dry, with temperatures above 90 degrees on five days out of the week. Scattered showers have occurred, but practically no rain has fallen near the station.

Winter wheat is ripening fast, some plots being practically ripe now. Oats are beginning to ripen, as well as barley and field peas. The most of the grain seems to be filling fairly well, and firing seems but little worse than at the end of last week. On the lower part of the rotation field spring wheat, Kubanka, has blighted badly. Some plots appear to be over 50 per cent blighted heads.

Wild oats were rogued from the rotation plots, and rotation plots from which it is intended to save seed, and the variety plots of small grain were rogued of mixtures. Fencing of land for pastures has been in progress throughout the week, the fencing south of the railroad being nearly completed.

Mr. J. M. Stephens was a station visitor early in the week.
Maximum temperature 97; minimum 54; precipitation .04 inch.

WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR THE WEEK ENDING JULY 27, 1929.

HAVRE:

Crop conditions during the past week were unusually severe. Maximum temperatures were well above 90 every day during the week and on July 24 it reached 105 which is the highest maximum in over 20 years for this locality. Temperatures have not only been above normal but the wind movement has been higher than usual. This has caused premature ripening of small grains where they were not too badly damaged and is beginning to cause damage to corn.

Harvesting of spring grain is started and from present conditions will continue. Some of the early seeded barley and oats will show fair yields. Wheat on fallow is filling fairly well but it is doubtful if the maximum yield of this crop will be much over 15 bushels to the acre. Several plots of spring grain will be almost a total failure.

Ranges are drying rapidly and there is now danger of prairie fires as the early grass made fairly heavy growth.

The drought is having quite a serious effect on the fruit trees. A large part of the fruit is beginning to wilt and a great deal of it will drop off. Currants and gooseberries, however, were not affected, the currants being picked during the past week.

On July 22, County Agent A. L. White headed a delegation of between 20 and 25 farmers from Glacier and Toole counties, and on July 26, we had a delegation from Phillips county numbering 31 headed by County Agent H. L. Lantz. Mr. E. J. George, of the Mandan Field Station, was a station visitor on July 25.

Maximum temperature 105; minimum 47; precipitation none.

JUDITH BASIN:

The past week has been very dry and hot with excessive evaporation. The maximum temperature exceeded 90 degrees on five days of the week. A maximum temperature of 99 degrees was recorded on July 25 and a minimum of 45 degrees was recorded for the 21st. No precipitation was received.

JUDITH BASIN, continued:

The hot, dry weather during the week hastened the maturity of winter wheat, with the result that combining will in all probability start in the Basin during the next week. Winter wheat on the rotations and some of the varietal plots at the station was cut during the latter part of the week. Due to the forced maturity of this crop only fair returns can be expected on the better cultural methods, with yields materially reduced on poorer methods.

Spring grains generally have gone back badly during the past week due to the extended drought. Rain at this late date would fail to have much beneficial effect on grains seeded on poorer methods while crops on better methods would be helped to the extent that a fair yield might be obtained.

Alfalfa on the hog lots is very dry and short with sweet clover in slightly better condition. Cows on pasture test were moved from brome-grass and crested wheat grass pastures, which had been pastured very short, to the mixed grass pastures, which had not been previously pastured. Native pastures have dried up and the grass cured. Pastures generally are very dry and short.

Trees in the shelterbelt are withstanding the extended drought well with the closer plantings in evident need of moisture. Caraganas around the grounds, where the snow was not held as well as in the experimental belts, are showing a decidedly yellow appearance and some leaves are beginning to drop.

The Twentieth Annual Judith Basin Farmers' Picnic was held on the station grounds on July 25. A crowd of over 5,000 people were in attendance. A well balanced program for the day was carried out as planned. This consisted of field tours over the station, boys' and girls' club exhibits and various sports entertainment. A large crowd attended the speaking program. Visiting speakers included Governor J. E. Erickson, Chancellor M. A. Brannon, Director F. B. Linfield, and Congressman Scott Leavitt.

Visitors at the station during the week included Dr. Hurley Fellows, Pathologist of the United States Department of Agriculture, Dr. P. A. Young, Pathologist of the Montana Experiment Station at Bozeman, and Mr. F. A. Coffman, of the Office of Cereal Crops and Diseases.

Maximum temperature 99; minimum 45; precipitation none.

HUNTLEY:

Hot, drying weather has continued throughout the week. All crops not already mature are beginning to burn. Corn and beans are showing the greatest need of water although potatoes and sorgo are wilted during the warmest portion of the day.

Harvest of winter wheat was begun on neighboring farms this week. As the crop is generally quite short, headers and combines are being used almost exclusively. All winter wheat, rye and oats were cut on the plots on July 22 and 23, and the cutting of spring wheat, barley and flax was begun on July 26. Peas in the pasture check rotation dried up before setting pods. This crop was mowed and the total weight taken.

Station visitors during the week included Mr. J. A. Clark and Dr. Humphrey of the Cereal Office.
Maximum temperature 100; minimum 51; precipitation none.

SHERIDAN:

Continued hot weather with no rain, and with heavy wind on several of the warmest days, caused winter wheat and oats to ripen rapidly, and reduced the prospective yield of all crops. The maximum temperature was as low as 90 degrees on only one day and was over 100 degrees on two days.

The most of the winter wheat has been harvested, and oats in the rotations, and some of the earlier varieties, are being harvested to-day, July 27. Fencing for pastures was continued throughout the week.

Mr. J. A. Clark visited the station early in the week.
Maximum temperature 105; minimum 53; precipitation .02 inch.

DICKINSON:

Extremely high temperatures and dry soil have dried out crops rapidly during the week. Wheat had held up well until the heat of the past few days, with a maximum of 106 on Friday, July 26, when even that on fall showed premature drying.

DICKINSON, continued:

Corn was cultivated for the third time on July 22. This crop is tasselling short and wilted badly on several days during the week. The outlook now is for a light yield though later rains probably would greatly improve the prospect.

Brome, crested wheat, and slender wheat grasses were cut for seed on the 24th. Field peas are about mature. Grain hays were cut on the 26th in the soft dough stage of maturity. Prolific spring rye made a greater yield than either Marquis wheat or Victory oats.

May 1 and 15 dates of duckfoot fallow received the third working with the duckfoot on July 27.

About 60 students, members of the classes in agriculture of the Dickinson State Normal School, were shown over the station on Wednesday. A group of farmers and their families numbering about 100 people from Slope County visited the station on the 27th under the leadership of County Agent Garfoot, of Amidon.

Official visitors this week included Messrs. T. R. Stanton, Senior Agronomist and F. A. Coffman, Associate Agronomist, Oat Investigations, Cereal Crops and Diseases, R. H. Black, Senior Marketing Specialist, Grain Cleaning Investigations, Bureau of Agricultural Economics, Minneapolis, M. B. Johnson, Agent in Animal Husbandry, Bureau of Animal Industry, Spearfish, South Dakota, and Rex Williard, Farm Economist, North Dakota Experiment Station.

Maximum temperature 107; minimum 47; precipitation Trace.

MANDAN:

Agronomy

The hottest and driest week in the history of the station has just closed. Several afternoons the wind was scorching hot.

The maturing of crops has been greatly hastened by the extreme heat. Wheat harvest has started in spots. Grain is badly shriveled and will weigh only a little over 50 pounds per bushel. The yield will be very light. Corn curled badly on every day of the week. A good rain might still make a fair corn crop.

MANDAN, continued:

Agronomy, continued.

Bagging of plants in the corn breeding block was in progress all week. The 15 acres of fallow in field P were duck-footed, and the fallow plots in the rotations.

The maximum temperatures for the past week starting on the 20th have been, 97, 100, 85, 94, 96, 108. The last mentioned is the second highest that has ever been recorded at this station. In July 1921 it reached 110.

Maximum temperature 108; minimum 59; precipitation .21.

The precipitation was made up of three showers.

Cooperative Grazing Experiment

The cattle still remain on all pastures, but will have to be moved soon from some of the smaller one. Grass has dried up badly during the week.

Horticulture

The continued dry weather and hot winds have been very trying to horticultural plants. Gooseberries and a few currants were "cooked" on the bushes and spoiled for use. Golden currants are standing the dry weather very well, and fair to good crops will be produced. Raspberries are doing as well as could be expected under the dry conditions, but the quality of the fruits is not up to standard. Black raspberries are especially poor. Chinese cherries are bearing a fair crop in the selection blocks. These and the Golden currants, will be gone over carefully next week, in order to make selections.

The lawns have been irrigated during the week. Cultivation and hoeing of orchards and gardens, has been in progress.

Farmers from all parts of North Dakota and the neighboring States, have visited the station during the week. A large number have called at the station office with definite inquiries. All roads being in good shape for travel, a much larger number than usual have been in town for the annual Missouri Slope Fair, and many of these visitors would come with the intention of looking over the station at the same time.

MANDAN, continued:

A conference was held at the station regarding the policy of distribution of shelterbelt trees from the State nursery under the Clark-McNary Act. Those taking part were, Messrs. C. F. Munroe, Director Extension work, North Dakota Agricultural College, F. E. Cobb, State Forester, Bottineau, North Dakota, Lewis S. Matthew, Forestry Extension Agent, Bottineau, North Dakota, Geo. Will, President O. H. Will and Co., Nurseries, Bismarck, North Dakota, E. C. Hilborn, President, Northwest Nursery Company, Valley City, North Dakota, C. A. Carmen, President, Hankinson Nursery Company, Hankinson, North Dakota.

Among the visitors during the week were , Messrs. Herbert N. Wheeler, Chief Lecturer, U. S. Forest Service, Washington, D. C., J. M. Devine, Immigration Agent, State of North Dakota, H. E. Rilling, State Leader Boy Club work, Agricultural College, Fargo, North Dakota, F. A. Coffman, Cereal Agronomy Investigations, Washington, D. C., J. A. Barnes, Asst. Dairy Commissioner, Fairmount, North Dakota, Hayne T. Theiser, Barberry Eradication Agent, Hazleton, North Dakota, F. A. Garfoot, County Extension Agent, Slope County, North Dakota, A. L. Norling, County Extension Agent, McLean County, North Dakota, T. Ray Stanton, In Charge, Oat Investigations, Washington, D. C., and Robert H. Black, Grain Statistician, Washington, D. C.

BELLE FOURCHE:

Hot weather has prevailed throughout the week, temperatures of 90 or above being recorded every day, and the nights have been abnormally warm. Strong, hot winds occurred during the latter part of the week, and an excessively large amount of evaporation took place. No precipitation was received, and the soil has become quite dry to a depth of 3.5 feet.

The hot winds and high temperatures have greatly hastened the maturing of small grain. Most of the winter wheat, barley, and oats have been harvested. The yield of all late seeded grain will be very light, but most of the early seeded small grain, with the exception of spring wheat, was far enough advanced to escape serious injury from the adverse climatic conditions. Spring wheat is beginning to turn color and the grain will be badly shriveled. The yields of spring wheat will be further reduced by foot-rot disease which is quite prevalent on some of the plots. Corn is suffering from lack of moisture and is curling badly.

BELLE FOURCHE, continued:

Visitors during the week were Mr. S. H. Hastings, of the Office of Western Irrigation Agriculture, and Mr. A. C. Dillman and Mr. J. A. Clark, of the Office of Cereal Crops and Diseases.
Maximum temperature 101; minimum 55; precipitation none.

ARDMORE:

The week was one of the hottest and driest ever experienced at this station. The average maximum temperature for the week was 98 and the lowest maximum 94. On July 26 a temperature of 105 was recorded. This is the second highest temperature ever recorded at this station. Minimum temperatures were unusually high. Only one minimum below 60 occurred, and the average minimum was 64.

The extreme dryness of the air is shown by the evaporation. The average daily evaporation was .346 inch.

Grain crops ripened rapidly and all crops except flax, the delayed seeding wheat, and a few late varieties of oats and barley were in the shock at the end of the week. A few loads of oats from field 27 were threshed in order to get the new threshing machine adjusted. The oats from this field are of fairly good quality, but the yield will be light.

Prospects of a good crop of corn were reduced considerably. Shortage of moisture combined with the extreme heat caused all fields to commence to fire. The damage is not widespread as yet, but a continuation of the present type of weather for a few days longer, would cause nearly a complete failure of ear corn. The corn is now tasseling, and much drought damage at this time would prevent fertilization.

Field work during the week consisted of harvesting small grains, cleaning up corn and sorgo fields, cutting alfalfa where the amount of second growth was enough of justify cutting, and putting, and putting up Sudan grass silage.

Messrs. A. C. Dillman and J. A. Clark, of the Office of Cereal Investigations, visited the station during the week.
Maximum temperature 105; minimum 58; precipitation .44 inch. The shower occurred the afernoon of July 20.

CENTRAL GREAT PLAINS FIELD STATION:

Three sides of the headhouse have been shingled; the south side is being left uncovered for the greenhouse units approach. Work on the inner stairs is under way and cement stairs for the east and north entries and to the cellar are finished. Teams and tractor have been hauling earth from about the storage cellar to bring the greenhouse unit site up to a level with the headhouse first floor.

The cement retaining wall and septic tank for the cowbarn were finished.

A mile of fending has been strung along the south side of Section 16 and approximately half of the east side of this section.

Framing for the messhouse garage was begun July 27.

County Agent Johnson, Mr. J. A. Clark, Office of Cereal Crops and Diseases, Mr. V. I. Clark, of the Ardmore Field Station, and Mr. J. L. Emerson, Shelterbelt Inspector from the Mandan Field Station, were station visitors the past week.

Maximum temperature 90; minimum 56; precipitation .33 inch.

ARCHER:

During the week the weather has been warm with considerable humidity most of the time. A few light showers occurred with a total precipitation of .13 of an inch. Since the afternoon of July 5 there has only been .35 of an inch of precipitation distributed in five showers, hence everything is becoming very dry. The corn is rolling badly and the sunflowers are beginning to wilt. Small grains generally are either burning or are badly in need of moisture.

Work at the station has consisted of hauling winter wheat hay from the dairy field and the perennial hay from the plots. The plots of peas for green manure have been plowed and the fallow and roadways duckfooted. Considerable hoeing has been accomplished.

Winter rye in the experimental plots is about ready to harvest as is also a portion of the Smyrna barley in the dairy field. Small spots of winter wheat are beginning to turn yellow. The prairie grasses are quite dry.

ARCHER, continued:

Mr. J. A. Clark, of the Cereal Office, and Mr. V. I. Clark, of the Ardmore Field Station, were station visitors July 24. Prof. R. D. Goodrich and Director W. L. Quayle, of the University of Wyoming, visited the station July 25 and 26, respectively.

Maximum temperature 93; minimum 54; precipitation .13 inch.

AKRON:

Rains are coming to be the rule rather than the exception. Rain of 1.41 inches late Monday evening interfered with harvesting and weed control measures early in the week. Nevertheless this week-end finds all the harvesting completed even to the nursery, and much of the necessary cultivation accomplished. Recent rains are very encouraging for feed crops, corn, late potatoes and beans.

The orchards, the rotation fallow and greenmanure plots, and the cereal variety fallow were spring-tooth-harrowed this week-end. Station roadways and open blocks of fallow were duckfoot cultivated during the week. The cultivation of weedy row crops also received attention.

The picking of the ripe cherries received attention during the week.

Maximum temperature 97; minimum 61; precipitation 1.41 inches.

NORTH PLATTE:

Dry weather continues. No precipitation has been recorded during this week. Temperatures were moderate early in the week but have been high with strong winds prevailing for the past three days. Corn is showing the effects of drought.

Harvest was finished on July 25 and the thresher started on the 26th. The best wheat plot so far threshed, after fallow, yielded 28 bushels per acre. From continuous cropped land, yields are running from 9 to 15 bushels per acre.

COLBY:

A half inch of rain which fell the forepart of the week revived the corn and sorghums so that they withstood the hot winds of the last few days without wilting much. While only a half inch was recorded at the station, reports of much heavier rains came in from various parts of the county.

Threshing was resumed at the station after the bundles became dry enough after the rain. None of the D. L. A. plots have been threshed so far. The varieties were finished Saturday. There was a great variation in the yield and test weight of the barley varieties. The spring wheat varieties yielded unusually well and the quality of the grain was unusually good. The winter wheat varieties yielded considerably less than expected.

Most of the harvesting in the county is finished. About all that remains is that which was wind rowed early and will now be picked up with the combines. Practically all the wheat yielded less than it looked like it would, particularly the summer fallow fields. No yield of as much as 30 bushels has been reported, while yields of less than 10 bushels are common.
Maximum temperature 100; minimum 62; precipitation .53 inch.

GARDEN CITY: Report for Week Ending July 20, 1929.

Mr. L. E. Call, Dean of the Division of Agriculture, and Mr. R. I. Throckmorton, Head of the Department of Agronomy of the Kansas Experiment Station, and Mr. E. F. Chilcott, of the Woodward Field Station, spent Monday, July 17, at the station.

No work of particular significance was done on the project the remainder of the week ending July 20.
Maximum temperature 105; minimum 61; precipitation .89 inch.

GARDEN CITY:

Monday and Tuesday, July 22 and 23, the wheat plots which are seeded on early prepared seed beds were listed and plowed. The methods of fallow wheat plots were rod weeded the past week. Sudan on rotations 83 and 213 was cut the past week also the Sudan on the first two dates of planting. It had headed well and made a very good growth and produced an excellent sorghum hay.

GARDEN CITY, continued:

At the present time we are cutting weeds on the project where the cultivator has not got them. Some of the milo plots are beginning to show the effect of shortage of soil moisture. They are beginning to roll and wither pretty bad. Feterita is showing effects of lack of moisture. Scattering heads are showing up in the milo plots, also some in the kafir plots. Broomcorn has headed, also early sumac.

Kafir drilled on seed bed preparation plots is just beginning to come good after the .89 inch of rain which fell on July 17. These plots were drilled the last of June but not enough moisture was in the surface of the soil to permit germination.

Maximum temperature 99; minimum 61; precipitation .06 inch.

TUCUMCARI

The drought continues, with .45 inch since July 1; .81 inch since June 1; and 1.27 inches in 20 showers since May 11, a period of exactly eleven weeks. Crops at last seem to have rooted below the surface foot of soil and some at least seem to be recovering to an extent. Rolling is less severe than ten days ago, and, although heading is occurring on considerable milo not over a foot high, the general appearance of the crop is slightly better than early this month.

Wheat harvest on the plains is nearing completion. The market opened at about 90¢, rapidly went to $1.00, and has held around $1.10 the past week. Yields have been higher than anticipated, a close county survey indicating an average yield of about 18 bushels.

Work the past week on the station has included plant counts, mowing of weeds, hoeing, and cultivation of fallows. Considerable water has been hauled to young trees and comparatively few have died as the result of drought.

Crops on fallow continue to appear inferior to the majority of those on 1928 cropped land. Soil moisture samples show very little loss of moisture below the first two feet, with the surface foot baked and hard.

TUCUMCARI, continued:

Mr. G. W. Ware, in charge of the Hope, Arkansas, Substation, visited the station this week, en route home from the coast on an official trip to a number of State and Federal stations.

Maximum temperature 98; minimum 64; precipitation .02 inch.
Wind velocity 6.3 miles per hour; evaporation 2.587 inches.

DALHART:

The week remained dry and moderately warm for the season of the year. It was excellent weather for the sorghums to grow, but they used up the reserve of moisture very rapidly. The rotation milo plots are starting to head. All, except the latest varieties, of the first date of seeding sorghum varieties are either headed or nearly so. Very little evidence of lack of moisture has been noticed for any of the varieties or plots. On a few days some slight rolling has been in evidence. A rain is needed now or else the sorghums will start suffering. Rogueing of sorghums has been started.

Work during the week consisted principally of cutting and hoeing the weeds which were missed or had grown since the last cultivation or mowing. The small grain plots were also threshed. The results are briefly given below.

Crop	L.F.P.	E.F.P.	E.F.D.	E.F.L.	Fallow
W. Wheat	13.3 bu.	24.3 bu.	14.7 bu.	18.7 bu.	29.8 bu.
Oats		43.1 bu.			47.8 bu.
W. Rye	2.9bu.	17.3 bu.			20.5 bu.

The above are the MC series. Rotation rye plots were quite similar in yield, while rotation oats were not so good. The quality of all the grain was excellent.

Maximum temperature 97; minimum 61; precipitation none.
Wind velocity 6.5 miles per hour; evaporation 2.277 inches.

LAWTON:

Maximum temperatures of 103 to 105 with but little wind movement the fore part of the week caused all row crops to wilt. Three rains amounting to 1.57 inches the latter half of the week and maximum temperatures of 85 to 93 were of immense benefit to vegetation of all kinds.

LAWTON, continued:

Row crops, at present, show a thrifty, vigorous growth. Chinch bugs are plentiful and are doing considerable damage to grain sorghums, depending on the date of planting and the variety

Practically all of the 4/15 and 5/1 plantings are in full head. Kafir and feterita on the rotation plots are beginning to head and the MCH plot of sorgo is fully headed. General rains the past week complete the assurance of a pretty good crop of corn in the southwestern part of the State.

Cowpeas have made a rank growth this year and a good crop of seed is setting. Soybeans although planted late have grown rapidly.

July weather, as a whole, has been favorable to the growth of cotton and the crop at present is in very good shape. Some fruiting is now developing.

WOODWARD:

Weather during the past week was favorable for field operations and much preparing of land for next year's wheat crop was observed over the country. A good rain would be welcomed by most of the farmers at this time, however.

Station work for the week was carried on uninterrupted by the weather, and all field crops, as well as orchard, vine-year, windbreaks, and nursery were put in good condition by cultivating and hoeing. The orchard was sprayed, and cotton was dusted for plant lice. Alfalfa hay was harvested and stored in the barn loft.

Maximum temperature 95; minimum 64; precipitation none.
Wind velocity 6.6 miles per hour; evaporation 2.220 inches.