

1950

ANNUAL REPORT

**DICKINSON EXPERIMENT STATION
DICKINSON, NORTH DAKOTA**

SECTION II

CEREAL INVESTIGATIONS

By

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Table of Contents

	Page
Spring Wheat Varietal Trials:	1
Varietal Field Plot Trials	1
Uniform Regional Spring Wheat Nursery	1
Intrastate Nursery	2
Elimination Nursery	2
State V Nursery	3
Advanced Station Nursery	3
Dickinson Spring Wheat Nursery	4
Mr. J. A. Clark's Nurseries	4
Uniform Bunt Nursery	5
Dickinson Bunt Nursery	5
Wheat Breeding – 1950	5
Oat Yield Trials:	
Varietal Field Plot Trials	8
Uniform Early Oat Nursery	8
Uniform Midseason Oat Nursery	8
Station Oat Nursery	9
Barley Yield Trials:	
Varietal Field Plot Trials	10
Uniform Great Plains Barley Nursery	10
Station Barley Nursery	10
Flax Yield Trials:	
Varietal Field Plot Trials	11
Uniform Regional Flax Nursery	11
B. 5577 Selections	11
Corn Trials:	12
Miscellaneous Crop Trials:	
Sunflowers	13
Winter Rye Varietal Trials	13
Safflower	13
Winter Wheat Trials:	
Uniform Winterhardiness Nursery	14
Supplementary Winterhardiness Nursery	14
Summary of Seasonal Factors affecting crops in 1950	15
Summary of Cooperating Stations and Personnel	16
Summary of Personal Activities	20
Appendix to Section II	22

SPRING WHEAT YIELD TRIALS

Varietal Field Plot Trials:

Twenty-two varieties of hard red spring wheat and two varieties of amber durum were seeded in the 1950 field plot trials on May 19th, the latest seeding date of record at the Dickinson Experiment Station. Germination and early growth of the crop was good because of excellent soil moisture conditions at time of seeding, but rainfall for May, June, July and August was below normal which resulted in lowered yields, although the yields for 1950 were nearly twice those recorded for 1949. The five highest yielding hard red spring wheats in the Dickinson trials this year were: Cadet which averaged 21.2 b.p.a.; Mida, 20.5 b.p.a.; N. No. 1843-41, a Regent x Mida cross produced at the Dickinson Experiment Station, 20.4 b.p.a.; N. No. 2115, N. No. 1750 x N. No. 1753, 19.8 b.p.a. and N. No. 2211, N. No. 1764 x Henry, 19.7 b.p.a.

Test weights were excellent in this trial with only four of the twenty-four entries, Cadet, Rival, Redman and N. No. 2012, weighing less than 60.0 pounds per bushel. Highest test weights was made by N. No. 1953, a Pilot x Mida cross and a consistently heavy wheat. Mida in this trial weighed 60.0 pounds per bushel.

A long term yield comparison shows the varieties Mida, Pilot, Cadet and Rival have averaged practically the same for the past ten years. Thatcher, the only other variety in the Dickinson trials that is widely grown in this area has a ten year average of 93% of the yield of Mida. N. No. 2012, a Pilot x Mida cross, has averaged 103% of Mida's yield for the five year period it has been included in these trials. All other hard red spring wheats in these trials have yielded significantly less than Mida in long term comparisons. Mindum, the highest yielding of the two durum wheats included in these trials has outyielded Mida slightly, averaging 1 b.p.a. more for the ten year period 1941-1950, inclusive.

Mida has outyielded three obsolete varieties, still being carried in the Dickinson trials for purposes of comparison, by a wide margin, For the last ten year period, 1941-1950, inclusive, Haynes Bluestem, Red Fife and Marquis have respective yields of 70, 75 and 77% of the yield of Mida.

Comparative yields for wheat varietal trials from 1941-1950, inclusive, at the Dickinson Experiment Station are given in table 1 of the appendix.

Uniform Regional Nursery: 26 varieties or strains-triplicated three row plots-grown at 18 stations in the spring wheat region.

The composite report for this nursery is not yet available. Highest yield here was 24.0 b.p.a. from N. No. 2118, a selection from the cross N. No. 1585 x Cadet, the lowest yield was from a Henry x N. No. 1907 cross with a 14.9 b.p.a. average. Two Dickinson Experiment Station entries, N. No. 1924-44, (N.No. 1552 x Mida), and N. No. 2223, (N. No. 1556 x Mida), ranked 10th and 16th in yield with respective averages of 19.0 and 18.5 b.p.a. Thatcher used as a check in this trial yielded 19.5 b.p.a. Test weights were good throughout the entire trial ranging from 57.0 to 63.0 pounds per bushel.

A complete summary of stations and personnel cooperating in the various nursery trials is included in the appendix to this report.

Results of quality trials on the 1950 Uniform Regional Spring Wheat Nursery will not be available in time to be included in this report.

Intrastate Nursery: 26 varieties or strains-quadruplicate single rows-grown at 3 N. Dak. stations; Fargo, Langdon and Dickinson.

Three station averages for this nursery are not yet available. Yields in the Dickinson trial ranged from a high of 25.8 b.p.a. made by Ns. 3714 to 18.0 b.p.a. from Ns. 3704, both strains produced by Dr. L. R. Waldron of the N. Dak. Agr. Experiment Station. Highest yielding of the five entries from the Dickinson Experiment Station was N. No. 2286, a Regent-Mida x 1552-Mida cross which averaged 24.1 b.p.a., and lowest yielding was N. No. 2308, also a selection from a Regent-Mida x 1552-Mida cross, which averaged 19.4 b.p.a. Thatcher used as a check in this nursery averaged 21.6 b.p.a.

Test weight were fairly good in this trial ranging from 55.0 pounds to 62.0 pounds per bushel with 80% of the entries weighing 58.0 pounds or better.

Results of quality trials on samples from the 1950 Intrastate nursery will not be available in time to be included in this report.

Elimination Nursery: 101 varieties or strains-single row-grown at 3 N. Dak. stations; Fargo, Langdon, and Dickinson.

Three station averages for this nursery are not yet available. The spread in yield in the Elimination nursery at this Station was considerably wider than was the case in either the Uniform Regional or Intrastate nurseries, ranging from a low of 12.0 b.p.a. to a high of 26.6 b.p.a. Newthatch and Lee checks in this trial had respective yields of 22.6 and 20.0 b.p.a. of the twenty Dickinson Experiment Station entries included in this nursery ten yielded better than 21.0 b.p.a. and four of those produced 24.0 b.p.a. and four of these produced 24.0 b.p.a. or better.

Twenty Dickinson entries have a combined average of 20.3 b.p.a. which compares favorably with the average of 19.3 b.p.a. for the balance of the nursery.

The spread in test weights was also considerably wider for this nursery than for either the Uniform Regional or Intrastate nurseries ranging from 52.0 to 62.0 pounds per bushel with the majority of the entries falling in the 55.0 to 59.0 pound bracket.

Promising strains from this nursery are advanced to Intrastate and Regional trials as rapidly as space becomes available.

State Nursery: 10 entries-quadruplicate 3-row plots.

This nursery, included in the 1950 trials at the request of Dr. L. R. Waldron, Plant Breeder, N. Dak. Agr. Experiment Station, was also grown at Fargo, Edgeley, Langdon, Minot, Williston, Brookings, S. Dak, and Crookston, Minn. All entries in this nursery except Thatcher and Lee checks were developed by Dr. L. R. Waldron.

Yields in the Dickinson trial were comparable to other nursery yields obtained this year, the highest average being 22.8 b.p.a. from Ns. 3681. Thatcher and Lee checks in this trial averaged 21.3 and 20.0 b.p.a., respectively.

Test weights were good with neither very high nor very low weights represented. Weight range was from 58.0 to 60.0 pounds per bushel.

Five of the eight numbered entries in this nursery were entirely free from leaf rust, the remaining three and Lee check having a trace of leaf rust infection. Thatcher in this trial was considered 10% infected.

Advanced Station Nursery: 18 varieties or strains-triplicated-3 row plots.

This nursery is made up of the most promising strains of wheat produced at the Dickinson Experiment Station, and from which are selected candidates for Advanced State and Regional nursery trials. Quality trials are made on 16 of the most promising strains each year by the cereal technology section of the Bureau of Plant Industry, USDA.

Yields in this trial were quite comparable to yields from other nursery trials here this year with the Thatcher check averaging 21.2 b.p.a. and with seven Dickinson strains equaling or exceeding this yield. Highest yielding entry was a selection from the cross N. No. 1556 x Pilot made by Mr. Ralph W. Smith, former agronomist at this Station, which averaged 25.9 b.p.a., followed by a selection from the cross Regent x Mida, also made by Mr. Smith, which averaged 25.5 b.p.a. Lowest yield in this trial was 16.1 b.p.a. from the cross Regent x Mida².

Test weights were good in this trial with half of the entries weighing 60.0 pounds or more, the lowest test weight being 56.0 pounds per bushel.

Dickinson Spring Wheat Nursery: 221 varieties or strains-triplicate single rows.

The highest yielding check variety, Pilot, which averaged 26.1 b.p.a. in this trial was equaled or exceeded by 30 Dickinson Experiment Station strains, the best of which was a selection from the cross N. No. 1556 x Pilot which made 30.7 b.p.a. Thatcher checks in this trial averaged 23.9 b.p.a. and were equaled or exceeded by 75 Dickinson strains.

Test weights in this trial were very good, ranging from 55.0 to 63.5 pounds per bushel, with well over 50% of the nursery weighing 60.0 pounds or more per bushel.

This nursery is made up of selections from crosses made at the Dickinson Experiment Station and provides the initial yield trials for strains produced at this station. Material that shows promise in this nursery is advanced to larger station trials and subsequently to state and regional trials.

Arrangements have been made with the Department of Cereal Technology, N. Dak. Agricultural College, to check fifteen of the most promising strains from this nursery for milling and baking quality each year beginning this year. This quality information coupled with the agronomic data collected here will greatly aid in the selection of material for advanced state and regional trials.

Mr. J. A. Clark's Nurseries: 100 varieties or strains-single rows- 18 varieties or strains-triplicate single rows.

Entries in these nurseries were strains being tested for Mr. J. A. Clark, Senior Agronomist, Wheat Investigations, USDA.

Best yielding cross in the single row nursery was Lee x Frontana, two selections of which produced 29.6 and 27.0 b.p.a. Yields which exceeded those made by Mida and N. No. 1831, included in this trial as checks, were also recorded for several selections from the cross Lee x 1831.

Thatcher and Mida checks in the triplicate single row nursery averaged 28.7 and 27.0 b.p.a. respectively, these yields being exceeded by a selection from the cross Henry x Cadet, N. No. 2373 which averaged 30.7 b.p.a.

Test weights were good in both nurseries ranging from 56.0 to 63.0 pounds per bushel, and several strains in both nurseries were completely free from leaf rust infection this year.

Strains in these nurseries which show exceptional promise for this area are incorporated into this station's wheat breeding project.

Uniform Bunt Nursery: 50 varieties or strains-duplicate 8' rows.

This nursery, which contains current uniform plot varieties, wheats from the Uniform Regional Spring Wheat Nursery, promising hybrid strains from other nurseries and several check varieties was seeded at 5 stations in the spring wheat region. Composite results are not yet available. Smut infection in the Dickinson trial was very low this season, the highest infection percentage recorded being 10% for Ulka, a very susceptible variety and one usually heavily smutted. Two strains from the Dickinson Experiment Station, N. No. 1924-44 and N. No. 2223, showed no infection in the local trial.

Dickinson Bunt Nursery: 915 varieties or selections-4' rows

Wheats included in this nursery, all of which have been developed at the Dickinson Experiment Station with the exception of standard checks, showed marked resistance to smut in 1950. Several hundred selections were made from this trial for future use.

Wheat Breeding-1950

Wheat breeding at the Dickinson Experiment Station has been difficult in many past years because of windy weather during the time this work is being done. No greenhouse facilities are available here and all of the wheat breeding is done in the field.

To overcome the difficulties encountered in crossing wheat in the field during windy weather a portable shelter has been devised by station personnel, the use of which permits breeding work to proceed unhampered by the wind.

Three feet wide, four feet long and 4 and one-half feet high, and equipped with a set of wheels it can easily be rolled from place to place by one man, and is light enough to be carried by two men.

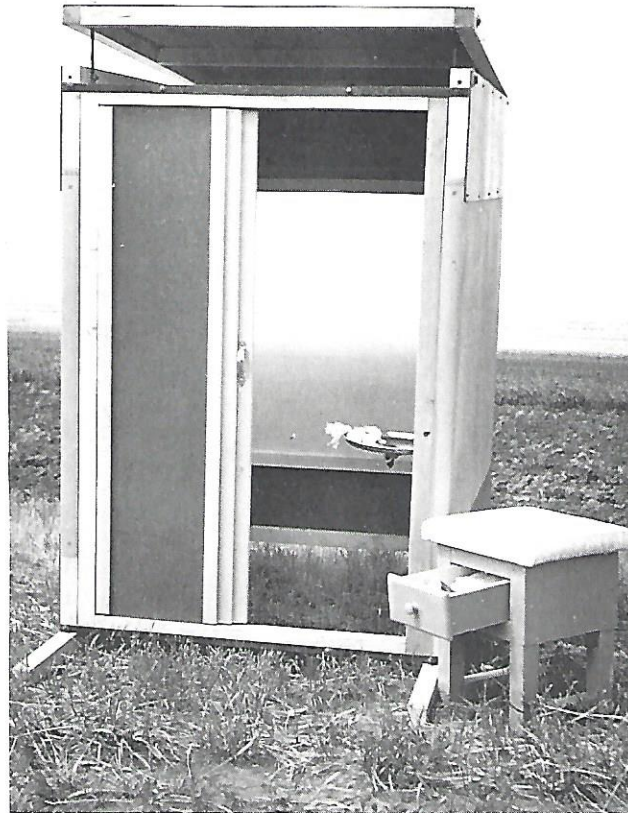
The two side panels and one end panel are fabricated separately from 2 x 2 inch lumber framework covered with presdwood and celloglass, and are fastened together by two sets of 4" door hinges placed on the inside. The roof is built of 2 x 2 inch lumber framework covered with presdwood and is also hinged to the end panel. This arrangement makes it possible to raise the roof for ventilation in moderately windy periods. The telescoping presdwood door opens from either side, and is conveniently out of the way when not needed.

The device is easily taken apart for storage after crossing has been completed for the season by simply knocking out the hinge pins. The separate panels can then be stacked one on top of the other.

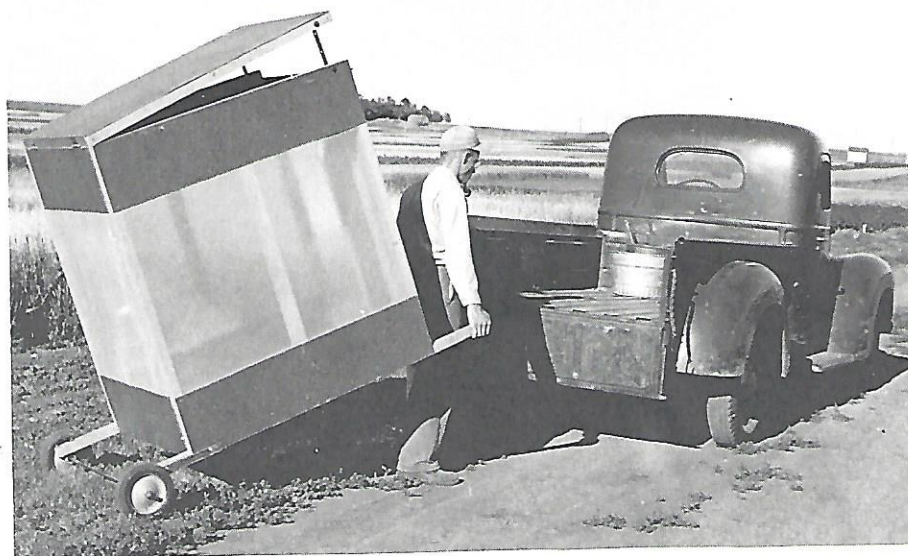
Constructed at a cost of about \$25.00 the shelter has more than paid for itself in one season in time saved by its use.

In addition to providing shelter from the wind it offers protection from the sun and also from mosquitoes which are very troublesome in some years. The more comfortable conditions resulting from the use of this shelter makes possible more rapid and uninterrupted work, four times as many crosses being completed this year, the first year the shelter was used, as were made in 1949.

To make the most effective use of this device, a separate “breeding nursery” of lines scheduled for use in the current crossing projects was seeded, with sufficient room being left around this planting to permit one man to wheel the shelter from row to row and place it where desired.



The portable shelter devised at the Dickinson Experiment Station to facilitate crossing wheat during windy weather. It has proven very satisfactory.



OAT YIELD TRIALS

Varietal Field Plot Trials:

Sixteen varieties of oats were seeded in the 1950 varietal field plot trials on May 19th, the latest seeding date of record at the Dickinson Experiment Station. Top yielding oat variety in 1950 was Ajax, and early maturing variety which has averaged nearly the same as Gopher early oats in the 8 years it has been included in the trials here. James, a new hulless oat from South Dakota, made a good showing in its first field plot trial here averaging 40.8 b.p.a. Midseason oat varieties, most of which have long term averages equaling or exceeding the yield of Gopher early oats, were outclassed this year by the five top early oats. Highest yielding midseason variety this year was Bridger which averaged six b.p.a. less than Ajax, the top early oat in these trials.

Two very productive strains of oats from the oat nursery were seeded in duplicate field plots, shortage of seed supplies preventing a full scale trial. Both strains performed well in this trial and will be included in the full scale variety trials at this station in 1951.

A "red leaf disorder", tentatively identified as *Septoria avenae*, was present in the 1950 oat crop here. Infection varied from zero on Ajax to a heavy infection on Zephyr. Most varieties were only lightly infected however.

Test weights were excellent this year varying from a low of 34.0 pounds per bushel to 40.0 pounds per bushel and with two-thirds of the entries weighing 36.0 pounds or more per bushel.

Uniform Early Oat Nursery: 30 varieties of strains triplicate single rows.

The top yield in this trial, 56.8 b.p.a., was made by the double cross (Anthony-Bond) x (Richland-Fulghum). The highest yielding check variety in this trial, Marion, averaged 52.9 b.p.a. and was outyielded by only one other strain, a Clinton x Marion selection, besides the above mentioned double cross.

Test weights were excellent in this trial also, varying from 35.0 to 41.0 pounds per bushel.

Uniform Midseason Oats: 30 varieties or strains-triplicate single rows.

Clinton, the highest yielding check in this trial averaged 60.9 b.p.a. and was outyielded by reselection 3021 of the cross Clinton x Marion, O. I. 5329, which averaged 65.1 b.p.a., and by James hulless oats which average 61.9 b.p.a. Clinton's yield was equaled by reselection 3006 of the cross Clinton x Marion. All other entries in this trial were outyielded by Clinton.

Test weights were excellent in this trial, as was the case in all oat trials at this station in 1950, ranging from 34.5 to 39.0 pounds per bushel for the hulled oats and 42.5 to 45.0 pounds per bushel for the hulless oats.

Station Oats Nursery: 45 varieties or strains-triplicate single rows.

Exeter, Marida and Ajax, top yielders in this trial averaged 65.5, 63.9 and 61.2 b.p.a. respectively. Aberdeen number 6658, the best number strain in this trial averaged 60.4 b.p.a. Lowest yielders were Oarry averaging 46.0 b.p.a., and Nemaha which yielded 46.1 b.p.a.

Test weights were above average for all oat trials at this station in 1950 and entries in this nursery were no exception. A high of 39.5 and a low of 35.0 pounds per bushel were recorded in this trial.

BARLEY YIELD TRIALS

Varietal Field Plot Trials:

Barley yields were high in the 1950 varietal field plot trials at this station, the leading varieties, Tregal, Titan and Spartan averaging 45.8, 44.7 and 39.0 b.p.a. respectively. Frontier, a new variety from Wyoming included in trials here for the first time this year, was low yielder with the disappointing average of 19.0 b.p.a., nearly 27.0 b.p.a. less than the yield recorded for Tregal. Titan and Vantage, two varieties being grown in these trials for the second year, are apparently both adapted to this area with Titan appearing to be the more promising of the two. Both varieties have ranked among the top five for yield in the two years they have been included in trials here.

All varieties of barley included in the 1950 varietal field plot trials produced plump, well filled seed. Heaviest test weight was 51.0 pounds per bushel from Steigum 2-rowed barley.

Comparative yields for the barley varietal trials from 1941-1950 inclusive at the Dickinson Experiment Station are given in table 3 of the appendix.

Uniform Great Plains Barley Nursery: 20 varieties or strains-triplicate single rows.

Titan barley, mentioned as promising in the foregoing field plot trial report, was high yielder in this trial averaging 51.9 b.p.a. with Munsing ranking a close second averaging 51.8 b.p.a. Utah BG4-68, C.I. 8054, ranked third and Neb. 383999 ranked fourth averaging 49.8 and 49.5 b.p.a. respectively. Low yielder in this trial was Flynn 37 averaging 38.6 b.p.a. which was 13.3 b.p.a. lower than the yield for Titan. All strains produced plump, well filled seed, although test weights recorded for this trial were light in many instances due to awns which the nursery thresher does not cleanly remove.

Station Barley Nursery: 35 varieties and strains triplicate single rows.

Dickinson selections ranked high in this trial in comparison with standard varieties, Dickinson selection No. 45-15 averaging well above all other strains with a yield of 57.9 b.p.a. followed by Dickinson No. 45-435 and No. 45-297 which averaged 53.0 and 51.5 b.p.a. respectively. Steigum and Munsing highest yielding named varieties in this trial averaged 53.7 and 51.7 b.p.a. respectively.

Dickinson selection No. 45-15 has been a consistently good yielder since its inclusion in this trial and will be increased and included in field plot trials here in the near future, and will be considered for inclusion in the Uniform Great Plains Barley Nursery.

FLAX YIELD TRIALS

Varietal Field Plot Trials:

B. 5128, with an average of 12.1 b.p.a., was highest yielding flax variety in the Dickinson field plot trials this year, followed closely by Victory, Dakota, B. 5577 and Arrow, all of which averaged 10.0 bushels or more per acre. Lowest yielders were Redwood and Bison with respective averages of 8.4 and 8.9 b.p.a. Test weights were only fair ranging from 53.0 to 57.0 pounds per bushel, with only two of the fourteen entries, Arrow and B. Golden, C.I. 977, weighing 56.0 pounds or more per bushel.

A comparison of long term averages shows that all of the newer varieties which have been in trials here for at least six years have equaled or exceeded the yield of Bison, which is used as the comparison standard in these trials. B. 5577 and B. 5128, two of Dr. H. L. Balley selections, have been the best yielding strains in trials at this station followed closely by Dakota; Royal; B. Golden, C. I. 977; Victory and Dakota. Comparative yields for the flax varietal trials from 1941-1950 inclusive are included in table 4 of the appendix.

Uniform Regional Flax Nursery: 25 varieties and strains-triplicate 3 row plots.

The large Regional flax nursery, consisting of 25 entries, was seeded at this station for the first time in 1950 instead of the smaller trial of 10 entries which had previously been used. There was no outstanding new material included in this years nursery, the highest yields being made by the check varieties Dakota and Bison. Test weights were closely grouped in this trial ranging from a low of 55.0 to a high of 57.5 pounds per bushel.

B. 5577 Selections:

One hundred and fifty-five single plant selections were made from a field of B. 5577 at this station in 1949. This strain is heterozygous, containing a mixture of both fiber and oil seed types of varying heights and degrees of maturity. B. 5577 is one of the higher yielding strains in this stations field plot trials, and it is felt that some improvement in yield is possible by the elimination of the fiber types particularly and the lower yielding oil seed types.

CORN TRIALS

Seed of 12 varieties or hybrids and 10 experimental double crosses was furnished by Mr. William Wiidakas for trial at this station in 1950, and Kingscrot numbers KF-1, KE-3 and Wheatland blend were added at this station.

The 1950 season was too cool and too dry for good yields of mature corn. The minimum temperature recorded at the Dickinson Experiment Station on the night of August 20 was 33° but so much injury developed on corn, beans, tomatoes, and potatoes in this area that it is necessary that August 20th be recorded as the date for the first killing frost. Damage was most severe in low spots and areas with poor air drainage. Corn on ridges, hills and other well drained situations escaped damage from this particular frost, and material in this trial was not injured.

Highest shelled corn yield was produced by Experimental double cross number 712 which averaged 27.2 b.p.a. Experimental double cross number 417, 447 and 483 all averaged 24.6 b.p.a. Yields of fodder were fairly good in this trial with No. 712 averaging slightly better than 2½ tons and with the other top ranking numbers yielding well over 2¼ tons per acre.

Highest shelled corn yields in the variety trial were recorded for Falconer(Newday), Nodak 208, Rainbow, Falconer, Nodak 201 and Nodak 203, all averaging better than 20.0 b.p.a. Fodder yields were fair in this trial, most entries averaging 2 tons or more per acre.

Long term comparisons of the fodder yields of corn in varietal trials at this station give Falconer, o.p., the advantage over all strains except Rainbow flint, Nodak 301, Kingscrot KF-1, and Experimental number 435 and 447. Falconer has equaled or exceeded the shelled corn yield of all entries in trials at this station for the 8-year period 1943-1950.

Tables 5 and 6 of the appendix summarize average fodder and shelled corn yields in the Dickinson trials for the 8-year period 1943-1950.

MISCELLANEOUS CROP TRIALS

Sunflowers:

Because of the extremely late spring, sunflower seeding was delayed until early June. Yields varied widely with Advance averaging approximately 700# per acre. Sunrise yielding about half as much, 336# acre and Advance F-2 and Dornacker hybrid both producing only about 25% of the yield recorded for Advance.

Winter Rye Varietal Trials:

Stands in this trial in the spring of 1950 were less than 10% for all varieties, mainly the result of poor soil moisture conditions at time of seeding. The trial was considered killed out 100%.

Safflower:

Field plots of safflower seeded along with the flax varietal trial were plowed up because of extremely poor germination.

Uniform Regional Safflower Nursery: 9 varieties-quadruplicate 4-row plots.

Highest yielding entries in this nursery were Indian and N. No. 2377 followed closely by Neb. 852, N. 10 and N. 6 Dakota flax was low yielder in this trial.

Safflower is not a popular crop in this area. Several farmers who have raised it as a cash crop had considerable difficulty marketing the seed, because the crushers who will handle this seed are located long distances from this area and shipping rate are prohibitive at the present time.

WINTER WHEAT TRIALS

Uniform Winterhardiness Nursery: 27 varieties or strains-triplicate 3 row plots.

Supplementary Winterhardiness Nursery: 100 strains-duplicate 8' rows.

Zero survival was recorded for both of the winterhardiness nurseries seed at this station in 1949-1950.

Both nurseries were seeded for the 1950-51 crop of October 5, 1950 and had emerged by October 17th with good stands for all entries. Survival counts made in the spring of 1951 will be included in the annual report for that year.

SUMMARY OF SEASONAL FACTORS AFFECTING CROP YIELDS IN 1950.

January, 1950, mean temperature of -8.8° was the coldest of record. Precipitation on 14 days was .77" which was .31" above normal. Mostly moderate weather prevailed throughout February. Snowfall of 6.1" was only slightly above normal. The heaviest March precipitation since 1945 was very favorable, providing moisture for the start of the 1950 crop. April, 1950 was probably the coldest April on record but without extremely low temperatures. Snow was all gone from the fields on April 17th and fields were about dry enough to work on the 23rd. Rain and snow on the night of the 23rd followed by freezing weather delayed the work until May. Water from melting snows soaked into the soil and runoff was not heavy, soil moisture being measured to 6' on fallow and 4' on stubble at the beginning of the season. Precipitation for May was 2.13" which was slightly below the 58 year normal for this month. Wheat variety seeding was begun in May 19th this year, which is the latest seeding date of record at this station.

Dry windy days early in June dried out surface moisture and caused soil blowing on light soil areas. Light showers early in the month benefited crops and 1.4" of rain on the 23rd to 25th soaked into the soil to provide some reserve. Mostly cool temperatures prevailed. Crop prospects greatly improved with the good rainfall and the outlook at the end of the month was for better than average grain yields, with hay and pastures above normal. July was very dry, with less than one-third of the normal rainfall. The heaviest shower of the month, .18", was too light to provide reserve moisture and crops were drawing on subsoil moisture all month. Cool temperatures generally favored crop growth. Dry weather continued through August with only 50% of normal precipitation. The accumulated deficit was 1.62" to August 31. Dry weather aided in ripening the small grains and combining in this area was well advanced by the end of the month. Frost killed about half the corn and other tender crops on the morning of August 20th when the minimum was only 33° at the station weather yard. Damage was mainly in low areas, crops on elevations or well drained spots were not hit. Moderate temperatures prevailed after the first week in September which was quite hot during the day. The first heavy frost was on the night of September 29th when a minimum of 26° killed most of the tender vegetation remaining after the August 20 and September 12 frosts.

The 1950 crop year in this area was marked by the absence of crop pests and diseases. Very little loose smut on wheat and leaf rust was present. Only an occasional pustule of stem rust could be found, infections not being of sufficient amount to make readings. Grasshoppers were the only insects which were present in sufficient numbers to cause damage to the crops, but were successfully controlled by the use of chlordane and toxaphene spray.

SUMMARY OF COOPERATING STATIONS & PERSONNEL

Spring Wheat Projects:

Uniform Regional Spring Wheat Nursery: Mr. J. A. Clark, Senior Agronomist, Wheat Investigations, USDA, in charge.

Cooperating Station

Madison, Wisc.
St. Paul, Minn.
Waseca, Minn.
Morris, Minn.
Crookston, Minn.
*Fargo, N. Dak.
*Langdon, N. Dak.
Minot, N. Dak.
Mandan, N. Dak.
*Dickinson, N. Dak.
Brookings, S. Dak.
Alliance Nebr.
Fort Collins, Colo.
Akron, Colo.
Bozeman, Mont.
Moccasin, Mont.
Havre, Mont.
Laramie, Wyo.
Beltsville, Md.

Personnel

R. O. Shands
E. R. Ausemus(St. Paul)
Do
Do
Do
L. R. Waldron
R. M. Heermann(Fargo)
Do
R. W. Carpenter
T. J. Conlon
V. A. Dirks
L. P. Reitz(Lincoln)
T. E. Haus
J. F. Brandon
F. H. McNeal(Bozeman)
Do
Do
D. W. Bohmont
J. A. Clark (Plant Industry Sta.)

*Stations also cooperating in the Intrastate and Eliminations nurseries.

Uniform Regional Bunt Nursery: Mr. J. A. Clark, Senior Agronomist, Wheat Investigations, USDA, in charge.

Cooperating Stations

St. Paul, Minn.
Fargo, N. Dak.
Dickinson, N. Dak.
Aberdeen, Idaho
Bozeman, Mont.

Personnel

E R. Ausemus
L. R. Waldron
T. J. Conlon
J. A. Clark
F. H. McNeal

State Nursery: Dr. L. R. Waldron, Plant Breeder, N. Dak. Agricultural Experiment Station.

Cooperating Stations

Fargo, N. Dak.
Edgeley, N. Dak.
Langdon, N. Dak.

Personnel

Dr. L. R. Waldron
J. P. Tiernan
Ruben Heermann

State Nursery: (Continued)

Cooperating Stations

Minot, N. Dak.
Dickinson, N. Dak.
Williston, N. Dak.
Brookings, S. Dak.
Crookston, Minn.

Personnel

Gus Geiszler
T. J. Conlon
Arlon Hazen
V. A. Dirks
Dr. O. C. Soine

Oats Projects:

Uniform Early-Maturing Oat Nursery: Mr. F. A. Coffman, Senior Agronomist, Oat Investigations, USDA, in charge.

Cooperating Stations

Ithaca, N. Y.

New Brunswick, N. J.

State College, Pa.

Beltsville, Md.
Blacksburg, Va.

Morgantown, W. Va.

Columbus, Ohio
Urbana, Ill.

Kanawha, Iowa
Ames, Iowa
Brookings, S. Dak.
Madison, Wis.
St. Paul, Minn.
Fargo, N. Dak.
Langdon, N. Dak.
Dickinson, N. Dak.

Moccasin, Mont.

Havre, Mont.
Lincoln, Nebr.
Manhattan, Kans.

Stillwater, Okla.

Cherokee, Okla.

Personnel

H. H. Love
Neal F. Jensen
G. H. Ahlgren
Robert S. Snell
Clarence S. Bryner
John B. Washko
F. A. Coffman
Ed Shulkcum
T. M. Starling
Collins Veatch
Blair C. Ritter
C. A. Lamb
Geo. H. Dungan
J. W. Pendleton
H. C. Murphy
H. C. Murphy
Victor A. Dirks
R. O. Shands
H. K. Hayes
R. M. Heermann
Do
Leroy Moomaw
T. J. Conlon
R. M. Williams
Robt. Eslick
M. A. Bell
L. P. Reitz
Dale Weible
E. G. Heyne
A. M. Schlehuber
T. H. Johnsonston
Do

Uniform Midseason Oat Nursery: Mr. F. A. Coffman, Senior Agronomist, Oat Investigations, USDA, in charge.

Cooperating Stations

Ithaca, N. Y.
New Brunswick, N. J.
State College, Pa.
Morgantown, W. Va.
Wooster, Ohio
East Lansing, Mich.
LaFayette, Ind.
Kanawha, Iowa
Ames, Iowa
Brookings, S. Dak.
Madison, Wis.
St. Paul, Minn.
Fargo, N. Dak.
Langdon, N. Dak.
Dickinson, N. Dak.

Personnel

H. H. Love – Neal F. Jensen
Gilbert Ahlgren – Robert S. Snell
Clarence S. Bryner – John B. Washko
Collins Veatch – Blair C. Ritter
C. A. Lamb
Kenneth J. Frey – E. E. Down
G. H. Cutler
H. C. Murphy
H. C. Murphy
Victor A. Dirks
R. O. Shands
H. K. Hayes
R. M. Heermann
V. Sturlaugson – R. M. Heermann
Leroy Moomaw – T. J. Conlon

Flax Project:

Uniform Regional Flax Nursery: Dr. J. O. Culbertson, Agronomist, Division of Cereal Crops and Diseases, in charge.

Cooperating Stations

Corvallis, Ore.
Klamath Falls, Ore.
Pullman, Wash.
Moscow, Idaho
Bozeman, Mont.
Havre, Mont.
Moccasin, Mont.
Dickinson, N. Dak.
Morden, Manitoba
Lincoln, Neb.
Alliance, Neb.
Stillwater, Okla.
Ashland, Wis.
Croton, Ohio

Personnel

W. H. Foote
A. E. Gross
O. A. Vogel
K. H. Klages
Erhardt Hehn
V. C. Hubbard
R. M. Williams
T. J. Conlon
W. J. Breakey
C. E. Classen – A. Hoffman
Do
T. H. Johnston
Harry Lowe
L. E. Thatcher

Safflower Project: Albert Hoffman, Chemurgy Project, University of Nebraska, in charge.

Cooperating Stations

Mesa, Ariz.
Davis Calif.
Akron, Colo.
Ft. Collins, Colo.
Moscow, Idaho
Altona, Manitoba, Can.
Havre, Montana
Huntley, Montana
Lambert, Mont.
Sidney, Mont.
Alliance, Neb.
North Platte, Neb.
Scottsbluff, Neb.
Dickinson, N. Dak.
Fargo, N. Dak.
Mandan, N. Dak.
Moro, Ore.
Brookings, S. Dak.
Highmore, S. Dak.
Newell, S. Dak.
Chillicothe, Texas
Moses Lake, Wash.
Prosser, Wash.
Pullman, Wash.
Torrington, Wyo.

Personnel

R. L. Matlock
P. F. Knowles
J. F. Brandon
T. E. Haus
K. H. Klages
E. D. Putt
L. O. Baker
R. Eslick
A. Rehbein, Sr.
W. B. Nelson
C. E. Claassen-H. Chapman
C. E. Claassen-J. C. Adams
C. E. Claassen- L. Harris
T. J. Conlon
T. E. Stoa
R. W. Carpenter
W. E. Hall
C. J. Franzke
C. J. Franzke
C. J. Franzke
J. R. Quinby
F. Viets
J. A. Jackobs
S. Kellenbarger
L. Paulus

Winterhardiness Nursery: Dr. L. P. Reitz, USDA, in charge

Cooperating Stations

Alliance, Neb.
Laramie, Wyo.
St. Paul, Minn.
Waseca, Minn.
Brookings, S. Dak.
Havre, Mont.
Dickinson, N. Dak.
Lethridge, Alta.

Personnel

H. Chapman – L. P. Reitz
Dale Bohmont
E. R. Ausemus
R. E. Hodgson
J. E. Grafius
M. A. Bell – L. O. Baker
T. J. Conlon
B. C. Jenkins-W. D. Hay

Personal Activities:

Scientific conferences

Annual conference of branch station superintendents, N.D.A.C., Fargo, N. Dak., Jan. 17-20, 1950.

Correspondence:

Seventy-eight(78) letters concerning station work have been written since November 15, 1949. Individual reports of the various projects in which we cooperate were included with correspondence to the personnel in charge of these projects.

Public meetings attended in N. Dak. since November, 15, 1949 at which the audience was largely farmers:

1. Stark County Extension Agent's radio program, "Farm News Time", over radio station KDIX on the following dates.

March 1, 1950	Results of wheat varietal trials at the Dickinson Experiment Station.
March 2, 1950	Results of oat varietal trials at the Dickinson Experiment Station.
March 3, 1950	Results of barley varietal trials at the Dickinson Experiment Station.
March 4, 1950	Rates and dates of seeding.

2. Fifth Annual Farm Home Week. Feb. 21-23, 1950, State Teachers College, Dept. of Agriculture, Stark County Extension service and the Dickinson Experiment Station cooperating. Estimated attendance 200.

3. Meetings with the members of the Veterans Agricultural Training Program of the State Teachers College, Dickinson, N. Dak.,

Jan 18, 1950	Varietal trials in 1949.
May 1, 1950	Tour of the Station with particular emphasis on grass and forage plantings.
Sept. 29, 1950	Tour of the station shelterbelt and tree plantings.
Oct. 10, 1950	Classroom meeting to discuss the varietal trials of small grains at the Dickinson Experiment Station. Estimated attendance each meeting 50.

4. Annual Field Day-Dickinson Experiment Station. July 11, 1950. Estimated attendance 150.

5. Annual Farmers Institute and Grain Show, New England, N. Dak., Feb 16 and 17, 1950, in the capacity of judge of small grains the first day and as speaker for an afternoon crops session the second day. Estimated attendance 1000.

6. Acted in the capacity of judge of small grains and vegetables at the following harvest festivals in 1950.

Golden Valley Harvest Festival, Beach, N. Dak., Sept. 28, 1950 Attendance several hundred.
Stark County Harvest Festival, Dickinson, N. Dak., Sept. 22,23, 1950. Attendance several thousand.

7. Speaker for the Second Annual County Agents Conference-Slope Area-December 6, 1949.
8. Attended the Farmers Union Elevator men's Conference held in Dickinson Oct. 26, 1950.
9. Acted as chairman of the 1950 Agricultural Committee of the Dickinson Chamber of Commerce which had the following events included in the 1950 program.

Spring Market Hog Show-March 17 and 18, 1950

Soil Conservation Tour for Business Men-Aug. 16, 1950

Annual Harvest Festival-Sept. 22, 23, 1950

Aberdeen Angus Show and Sale-October 11, 1950

Tri State Hereford Futurity-October 22, 23, 1950

APPENDIX

<u>Table No.</u>	<u>Description</u>
1	Comparative Yields-Wheat Variety Trials.
2	Comparative Yields-Oat Variety Trials.
3	Comparative Yields-Barley Variety Trials.
4	Comparative Yields-Flax Variety Trials.
5	Comparison of Fodder Yields-1943-1950.
6	Comparison of Shelled Corn Yields-1943-1950.

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 1 Comparative Yields-Wheat-Variety Trials-1941 thru 1950 ^{1/}

Variety or No.	^{2/}		1943	1944	1945	1946	1947	1948	1949	1950	Avg.	%of Mida	No. Yrs. Compared
	1941	1942											
Mida	7.3	27.1	19.6	23.4	25.0	18.1	24.3	35.9	11.9	20.5	21.3	100	10
Pilot	7.4	28.6	21.9	20.0	19.1	15.7	25.6	39.8	13.6	18.5	21.0	99	10
Rival	9.7	27.9	14.7	22.6	24.3	19.9	27.6	35.8	11.3	19.5	21.3	100	10
Thatcher	7.6	24.0	21.5	20.2	20.0	16.3	26.2	33.0	10.8	18.2	19.8	93	10
Ceres	6.3	24.6	20.7	16.8	21.0	14.0	18.6	36.3	12.5	19.2	19.0	89	10
Marquis	4.1	14.9	16.3	16.4	18.1	15.0	16.7	34.5	10.9	17.8	16.5	77	10
Red Fife	3.3	11.8	13.5	16.8	17.0	16.5	16.0	34.5	11.0	18.5	15.9	75	10
Haynes Bluestem	3.3	12.7	13.4	15.9	13.9	14.9	14.5	34.9	8.6	16.7	14.9	70	10
Cadet	6.4	29.3	20.6	21.4	20.2	17.7	25.3	37.8	13.0	21.2	21.3	100	10
Mindum durum	4.7	27.4	20.6	22.1	22.1	19.8	32.8	43.0	12.0	19.1	22.3	105	10
N. No. 1843-41	---	---	25.3	20.0	20.3	15.4	23.3	32.5	12.3	20.4	21.2	95	8
N. No. 2012	---	---	---	---	---	18.2	30.3	36.0	11.4	18.2	22.8	103	5
Rescue	---	---	---	---	---	19.9	25.4	32.7	9.6	19.0	21.3	96	5
Redman	---	---	---	---	---	---	---	31.4	8.9	19.6	20.0	88	3
N. No. 2083	---	---	---	---	---	---	---	37.5	10.0	17.5	21.7	95	3
Rushmore	---	---	---	---	---	---	---	28.0	9.8	18.9	18.9	83	3
Nugget (Ld 303)	---	---	---	---	---	---	---	29.4	9.4	20.2	19.7	86	3
Lee (M-2776)	---	---	---	---	---	---	---	32.2	9.4	19.1	20.2	89	3
Ns. 3274	---	---	---	---	---	---	---	---	9.4	18.4	13.9	86	2
N. No. 1953	---	---	---	---	---	---	---	---	11.3	19.6	15.5	96	2
Wahpeton	---	---	---	---	---	---	---	---	---	18.3	---	---	1
N. No. 2211	---	---	---	---	---	---	---	---	---	19.7	---	---	1
N. No. 2174	---	---	---	---	---	---	---	---	---	18.9	---	---	1
N. No. 2115	---	---	---	---	---	---	---	---	---	19.8	---	---	1

^{1/} Grown on fallow in 1945, 1947, 1948, 1949 and 1950. All other years 2 plots each on fallow and cornland.
^{2/} Yields reduced by hail.

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 2 Comparative Yields-Oats-Varietal Trials-1941 thru 1950

Variety	^{1/} 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Avg. % of Gopher	No. Yrs. Compared	
Early Oats:													
Gopher	11.5	69.3	48.2	64.8	61.9	45.6	63.3	93.6	21.4	43.3	52.3	100	10
Marion	10.4	64.9	43.0	55.2	59.9	47.7	65.7	92.0	22.9	42.3	50.4	96	10
Ajax	---	---	45.9	56.3	56.6	55.5	63.6	92.8	22.5	45.1	54.8	99	8
Clinton	---	---	---	52.5	52.7	42.9	65.1	85.6	19.6	40.2	51.2	91	7
Andrew	---	---	---	---	---	---	---	---	19.8	40.7	30.3	94	2
Shelby	---	---	---	---	---	---	---	---	---	37.1	---	---	1
Zephyr	---	---	---	---	---	---	---	---	---	33.2	---	---	1
Midseason Oats:													
Bannock	19.1	82.9	49.6	81.3	60.9	50.7	57.4	95.1	17.9	38.6	55.4	106	10
Rainbow	12.5	80.0	45.0	60.0	52.1	54.9	64.2	91.5	23.5	37.9	52.2	100	10
Victory	19.6	81.6	45.8	68.6	62.4	57.6	56.6	95.3	17.9	38.4	54.4	104	10
Marida	27.3	86.5	46.7	76.7	62.2	54.4	55.6	109.0	17.7	36.3	57.2	109	10
Bridger	---	80.8	48.5	70.5	59.2	58.8	53.9	99.0	16.7	39.2	58.5	103	9
Mission	---	---	---	---	---	---	60.1	93.5	23.1	34.5	52.8	95	4
^{1/} Yields reduced by hail.													

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 3 Comparative Yields-Barley-Varietal Trials-1941 thru 1950

Variety	<u>1/</u>										Avg. %Manch	No. Yrs. Compared	
	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950			
6-rowed													
Manchuria	4.0	38.3	30.5	33.3	40.4	20.1	38.2	52.9	3.9	32.1	29.4	100	10
Trebi	4.2	42.5	30.9	40.2	36.3	25.7	47.3	63.7	6.9	37.1	33.5	114	10
Tregal	3.7	44.2	30.1	35.8	28.8	24.7	41.2	62.2	10.7	45.8	32.7	111	10
Kindred	---	---	---	---	31.5	18.0	35.4	59.7	6.5	33.2	30.7	98	6
Montcalm	---	---	---	---	---	28.4	31.7	55.4	7.8	30.5	30.8	105	5
Feebar	---	---	---	---	---	---	45.7	53.8	8.3	30.7	34.6	109	4
Plains	---	---	---	---	---	---	31.7	48.4	4.4	34.6	29.8	94	4
Moore	---	---	---	---	---	---	---	60.1	5.3	31.0	32.1	108	3
Gem	---	---	---	---	---	---	---	53.4	7.8	26.8	29.3	99	3
Titan	---	---	---	---	---	---	---	---	10.5	44.7	27.6	153	2
Vantage	---	---	---	---	---	---	---	---	10.6	36.5	23.6	131	2
Frontier	---	---	---	---	---	---	---	---	---	19.0	--	---	1
2-rowed													
Steigum	4.4	35.1	28.5	37.8	39.5	29.8	37.6	55.4	10.3	35.8	31.4	107	10
Hannchen	4.6	35.8	28.7	36.1	35.6	27.4	39.2	49.8	12.0	34.8	30.4	103	10
Spartan	3.7	40.4	24.2	27.3	28.6	18.9	33.3	52.3	7.2	39.0	27.5	94	10
<u>1/</u> Yields reduced by hail.													

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 4 Comparison of Average Yields of Flax Grown in the Dickinson Varietal Trials-1941 thru 1950

Variety	C. I. No.	<u>1/</u>										Avg.	% Bison	No. Yrs. Compared
		1941	1942	1943	1944	1945	1946	1947	1948	1949	1950			
Bison	389	7.0	13.8	7.2	5.6	6.9	9.7	11.3	7.4	0	8.9	7.9	100	10
B. 5577	---	5.7	16.5	10.4	10.0	10.7	10.5	14.1	6.2	0	10.2	9.4	119	10
B. Golden	977	8.3	16.3	10.5	7.7	7.8	9.7	16.0	5.9	0	9.4	9.2	116	10
B. Golden	644	3.2	14.3	6.8	7.6	10.7	9.8	13.0	3.3	0	9.1	7.8	99	10
Koto	852	---	13.0	8.5	7.3	7.2	10.0	11.0	10.6	0	9.1	8.5	108	9
B. 5128	---	---	---	12.2	8.6	8.2	8.7	14.6	5.0	0	12.1	8.7	121	8
Royal	---	---	---	8.6	7.9	8.3	10.7	12.0	7.0	0	11.5	8.3	115	8
Victory	1045	---	---	10.3	8.7	8.6	9.1	10.1	5.4	0	9.5	7.7	107	8
Dakota	1071	---	---	---	7.5	9.3	9.1	10.8	10.7	0	10.9	8.3	115	7
Sheyenne	1073	---	---	---	6.2	6.5	9.3	14.0	4.5	0	9.5	7.1	99	7
Arrow	1070	---	---	---	---	11.4	9.6	11.0	3.8	0	10.0	7.6	103	6

1/ Yields reduced by hail.

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 5 Comparison of Average Fodder Yields of Flax-Dickinson Trials-1943 thru 1950

Variety or No.	FODDER					PER	ACRE			% of Falconer
	1943	1944	1945	1946	1947		1948	1949	1950	
Falconer	3920	7236	4874	3072	4422	5320	2567	4408	4477	100
Rainbow Flint	5233	8384	4774	3406	5557	5671	2755	4343	5015	112
Minn. 13(Haney)	3313	7729	4320	2793	3811	3748	2115	3945	3972	89
Nodak 201	3248	7054	3881	2568	4050	4388	2363	3365	3865	86
Nodak 203	2090	5771	2903	2400	4012	3078	2201	3585	3255	73
Wisconsin 240	3621	7709	4289	2976	4382	3936	1877	3200	3999	89
Wisconsin 279	3766	7864	4320	2942	4887	4240	2457	4292	4346	97
Nodak 301		7985	5644	3600	4050	5096	2644	3945	4709	103
Kingscrot KF-1			5867	3572	4925	4320	2730	3611	4171	101
No. 785				3573	4582	4435	2736	3950	3855	97
No. 435				3264	5407	4664	2941	4449	4145	105
N. D. 302A						4556	2823	4151	3843	94
Nodak 304						3848	2331	3341	3173	77
Nodak 208						4503	2406	4112	3674	90
No. 447						4772	2804	4854	4143	101

DICKINSON EXPERIMENT STATION, DICKINSON, NORTH DAKOTA

Table 6 Comparison of Average Shelled Corn Yields-Dickinson Trials-1943 thru 1950

Variety or No.	Shelled Corn - Bushels					Per Acre				% of Falconer
	1943	1944	1945	1946	1947	1948	1949	1950	Ave.	
Falconer	20.1	43.9	29.9	18.6	31.8	31.9	13.8	23.0	26.6	100
Rainbow Flint	19.0	38.9	22.6	18.4	38.9	34.2	14.3	23.1	26.2	98
Minn. 13(Haney)	9.9	34.2	20.9	12.1	25.3	24.6	8.5	16.3	19.0	71
Nodak 201	14.8	40.2	26.3	15.0	27.9	30.2	11.5	20.4	23.3	88
Nodak 203	9.6	28.7	17.3	14.1	25.8	21.9	12.2	20.7	18.8	71
Wisconsin 240	18.6	40.7	26.2	15.02	29.8	26.8	10.7	16.9	23.1	87
Wisconsin 279	15.1	37.3	22.4	10.6	32.6	28.4	8.2	18.7	21.7	82
Nodak 301		42.3	29.9	16.9	27.9	34.9	12.7	19.6	26.3	96
Kingscrost KF-1			26.1	15.5	30.8	27.0	10.0	16.7	21.0	85
No. 785				18.5	31.9	32.7	12.6	22.0	23.6	99
No. 435				15.8	39.3	31.4	12.0	21.7	24.0	101
						30.2	8.3	17.4	18.6	81
						31.9	14.7	25.3	24.0	105
						28.6	14.5	15.8	19.6	86
						32.7	12.4	24.6	23.2	101