

1961 ANNUAL REPORT

RAYMOND J. DOUGLAS, Superintendent

North Dakota should be geared to a balanced Agriculture. Each year points up the importance of this type of farming operation not only for the western part of North Dakota, but that it is also essential for the entire state.

Not only do we need to use the best methods and practices in the handling of the operating unit, but the planning of the North Dakota farmer and rancher must be such that each enterprise developed will be organized to live permanently with the conditions and circumstances under which we operate. This thinking and organization must carry through our Conservation practices, crops and livestock enterprises. There is no substitute for using the best methods and practices adapted to each individual farm or ranch. This means that the best Conservation practices, varieties of grain and livestock selection, and handling should be with an eye to the needs of each farm or ranch.

Feeding out cattle and hogs for market must be built around homegrown feeds adapted to the unit, properly supplemented. Economy of operation should never be overlooked; every dollar saved is the same as having earned an extra dollar, and the days of earning the easy dollar in Agriculture are gone, perhaps forever.

Some examples of the consideration that should be given practices are as listed below:

1. Windstripping should not be used when the proper practice for the land is strip cropping on the contour.
2. The highest yielding variety of oats or feed barley should be planted if feed is desired.
3. Feeding out cattle and hogs should be built around the highest yielding grains and roughages that can be produced on the farm or ranch.
4. Grass should be seeded in place of small grains, when it can be utilized for grazing and return a higher income than from small grains.
5. Economy of operation can be emphasized by using an electric fence in place of the conventional type four-barbed wire fence. There may be cases such as small lots where an electric fence is not desirable in the eyes of the operator and when such a circumstance exists, the conventional type fence can be used; from the standpoint of reducing overhead, the electric fence should

be considered.

Our job at the Dickinson Experiment Station is to improve the income for the men and women making their living off the land. This will provide their families and the generations to come with a better way of life. We as a part of the North Dakota State University point our efforts towards improving the Agriculture of our state for this and future generations. Our efforts must be geared to this type of program which requires the following improvements, projects and needs at the Station for the future:

I. LAND

1. In April, 1961, the last payment of \$2250.00 and interest was made on the SW 1/4 of Section 32-140-96. The deed has been recorded and the land is now owned by the State for the exclusive use of the Agricultural Experiment Station. This land was purchased without an appropriation with all payments being made from oil-lease payments, and station sales of livestock and grain.
2. In 1962, the first step will be taken in the construction of Highway 94 through the Dickinson Experiment Station just north of the headquarters and across one mile of Station land. The attached map shows where this road will be located in relation to Experiment Station land.
3. We have a projected plan for increasing the size of Pyramid Park to give us an additional grazing acreage in the Badlands. This land must be secured through the Forest Service and we hope will be realized in the not too distant future. We need to add about three quarters or 480 acres to our present grazing, and is essential for the management of our herd under range conditions. While we are grazing one-third of our cow herd at the Dickinson Experiment Station headquarters each summer, it would be desirable to graze the whole herd, in the Badlands each year from about June 15 to October 15 in three separate pastures for grazing two-thirds of our herds in two separate pastures. Our present grazing area in the Badlands has only sufficient acreage for grazing two-thirds of our herd in two separate pastures.

II. IMPROVEMENTS

During 1961, the following projects were completed:

1. New office at the Livestock Farm.
2. The garage on the Livestock Farm was moved to a new location so that the site where it was located would be available for

the office building in accord with plans for the expansion and improvement of the Dickinson Experiment Station.

The poultry house was moved to a new location along with making the following improvements:

1. New foundation and cement floor.
2. The sills were replaced.
3. New insulation added in the walls.
4. Inside walls were sealed up with new lumber.
5. Building was re-shingled with asphalt shingles.
6. Lap siding was purchased to re-side the entire outside of the building.
7. New nests were installed.
8. Most of the hog fence in need of repair at the Livestock Farm was replaced in 1961.
9. Ten new hog houses, 8' x 10' were built in 1961. These houses replace straw sheds previously used.
10. The driveway at the elevator on the Agronomy Farm was improved, leveled out and graveled.
11. An electric hoist was purchased for the grain elevator, and will be installed early in 1962.
12. The old platform scale on the Agronomy Farm was removed.
13. All broad leaf trees were removed from the shelter belt planting north of the farmstead on the agronomy Farm. This will

be followed in 1962 and re-planted to trees probably in 1963 unless it should be decided to follow the acreage a second year. The trees were in such a condition that it was felt the only way to renovate the planting was to remove all but the pines and re-plant the belt.

14. Approximately 80 acres were added to the grazing area at Pyramid Park, which was land owned by the State, but never included in our grazing area. This area added was fenced in with a new three-wire barbed wire fence and steel posts.
15. A new dugout and dam of approximately 3,000 cubic yards was added to Pyramid Park grazing area.

NEW OFFICE BUILDING AT LIVESTOCK FARM



Office building, 18 feet by 14 feet with basement, constructed on the Livestock Farm at a cost of approximately \$1,000.00

NEW TYPE HOG HOUSE BUILT IN 1961



These hog houses, 10 feet by 8 feet are of wood construction with a metal roof. The sills are 4 inches by 4 inches firmly braced to be used as runners. The cost of each building was about \$80.00.

III. IMPROVEMENTS

Improvements to be made in 1962:

1. Paint all buildings if possible on both farms in 1962. This project was delayed because of the other essential jobs in 1961.
2. Replace dead trees especially spruce on both farms. The new planting of evergreens in cooperation with the Extension Service has made excellent progress, but will also need some replacements in 1962.
3. Build a new entrance to the root cellar on the Agronomy Farm.
4. Enlarge the building and put a basement under the drying house which is to be used for drying all samples; these changes are necessary to provide the additional space required. The drying room will be equipped with a new burner to provide adequate drying facilities.
5. Repair fence for one-half mile on the Agronomy Farm along the South side of the SE 1/4 of Section 32.
6. Level and improve rotation and tillage plots on the Agronomy Farm.
7. Build another new machine shed at the Agronomy Farm about the size of the one built in 1960. Funds for this to be derived from Station sales.
8. Work has been started on the renovation of the shelter belt North of the farmstead on the Agronomy Farm. Thus far, the deciduous trees have been removed and the area is to be fallowed in 1962 and not planted to trees before 1963 or 1964. This will serve as a shelter belt and a storage place for machinery when not in use during the summer months.
9. Re-locate the feed shed adjacent to the chicken house at the Livestock Farm.
10. Re-locate fuel tanks on the Livestock Farm.
11. Re-work the shelter belt on the Livestock Farm.
12. Install a leg in the elevator in the feed house at the hog barn. We would also like to increase the feed storage capacity of this

elevator from 650 bushels to approximately 1000 bushels.

13. Replace all hog fences at the Livestock Farm not replaced or improved in 1960 or 1961.
14. Construct new doors on the South side of the machine shed at the Livestock Farm.
15. Remove upright silos, if time permits, and construct a bunker-type silo.
16. Level, fertilize, and seed the yard on the Livestock Farm. Re-plant trees that died in summer 1961 to varieties better adapted to the area.
17. Re-work the fence on the South and East of our grazing land at Pyramid Park to include about ten additional acres presently not enclosed but owned by the State. Remove the old wire and posts previously used but not included in the new fence line.
18. Do the necessary repair work needed on the cabin at the Pyramid Park. This included sealing up the inside of the building with a mouse-proof composition board, repairing the walls and floor.
19. Move the seed house on the Agronomy Farm to a location East of the elevator; put it over a basement and remodel the interior.
20. Construct ten more new hog houses the same as those built in 1961.

IV. MODEL PROJECTS

Our poultry house was re-located and improved in 1961. This project should be easier to handle and more profitable in 1962 than it has been in the past. It is our opinion that the size of this project is about in line with the size poultry flock a farmer or rancher should have, provided he keeps a flock of chickens.

The model garden needs to be improved, perhaps most important would be moving to a more favorable location to improve soil and moisture conditions.

V. INFORMATION

A program is carried out each year acquainting ranchers and farmers with the results of the projects being carried on at the Dickinson Experiment Station. This material is released in publications, news articles, tours, classes, and Field Days. When projects are completed, they are written up and released through the North Dakota Farm Research, Bimonthly Bulletin. Two thousand copies of the Livestock Research Roundup report with 1600 being distributed on the day of the Roundup were prepared.

1961 LIVESTOCK RESEARCH ROUNDUP



*Guests began arriving about 8:15 A.M.
The program started at 9:00 A.M.
December 6, 1961*



Visitors inspect cattle on feed at Dickinson Experiment Station



Tour advances to hospital barn and breeding herd at the Dickinson Experiment Station



Visitors attending the program at the Community Building in downtown Dickinson

VI. WEATHER RECORDS AT THE DICKINSON EXPERIMENT STATION INCLUDE:

1. Maximum, minimum and 7:00 a.m. temperature reading each day.
2. Wind velocity over each 24-hour period.
3. Free surface evaporation, April 1 to October 1 each year.

4. Daily precipitation.
5. Snow fall and depth of snow on the ground each day.
6. A thermograph record of the daily temperature changes as they occur each day along with the soil temperature at a depth of 8 inches.

Month	1892 - 1961				Last 10 Years		
	1961	Summary*	Average	Accumulative Average	Year	April - July	Annual
Jan.	.05	30.74	.44	.44	1952	6.07	11.97
Feb.	.59	31.03	.43	.87	1953	13.44	19.38
March	.50	52.18	.75	1.62	1954	5.59	16.33
April	1.89	87.53	1.25	2.87	1955	10.14	14.65
May	1.44	153.33	2.19	5.06	1956	7.30	12.70
June	2.82	243.83	3.48	8.54	1957	14.76	22.15
July	1.66	151.22	2.16	10.70	1958	8.14	12.18
August	1.68	124.47	1.79	12.49	1959	6.15	13.45
Sept.	3.05	85.29	1.22	13.71	1960	6.22	10.23
Oct.	.11	59.31	.85	14.56	1961	7.81	13.90
Nov.	T	37.89	.54	15.10	1941**	21.20	31.16
Dec.	.11	27.99	.40	15.50	1936***	2.03	6.72

70-Year Average Precipitation = 15.50

70-Year Average Precipitation, April-July = 9.08

*Total Precipitation in inches per month for 70 years

**Greatest of record

***Least of record

1961 - Greatest 24 hour precipitation, June 30, 1.82 inches

GENERAL INFORMATION

Latest Killing Frost in Spring			Earliest Killing Frost in Fall		
1915	June 16	30° F	1917	Aug. 9	30° F
1961	May 2	29° F	1961	Sept. 15	29° F
Frost-Free Season		Shortest of Record		Longest of Record	
1961 136 days		69 days - in 1915-1917		164 days - 1952	
Temperatures		Lowest of Record		Highest of Record	
		1936, Feb. 16, -47° F		1936, July 6, 114° F	
		1961, Dec. 12, -26° F		1961, Aug. 16, 100° F	

VII. LIVESTOCK PROGRAM

Improving the cow herd.

1. An effort is being made to improve the productivity of the cow herd. The same ration is fed all animals which this winter is hay and straw/and limited barley. We would rather feed some silage in their ration but have not been feeding any so far this winter in order to save the silage for the animals on feeding trials and for the breeding herd during the last several months of the pregnancy period.
2. We have approximately 100 breeding animals in the cow herd; our winter lots and range will handle this number in a very satisfactory manner.
3. The breeding heifers are put back in the breeding herd each year. In order to be a replacement heifer, a calf must be of average weight or better as compared to all heifers raised in the current calf crop from which the heifers are being selected.
4. Selection is then made on a basis of thickness, type, quality, and breed character.

5. The cow herd is culled each year to make room for the replacement heifers with the animals being removed on the basis of the following:
 - a. Defects; lump jaw, cancer eye, bad feet, etc.
 - b. Age
 - c. Temperament
 - d. Dry cows
 - e. Quality, thickness, type and weights of calf at weaning
6. It is our plan to add at least one bull calf to the herd each year. His gaining ability and quality is observed each year, and if he develops in satisfactory manner, is saved for the breeding herd. Bulls are culled out after being entered in the breeding herd on the following basis:
 - a. Lacking in ability to sire good gaining calves of the right thickness, type and weight at weaning.
7. To improve our breeding herd and the quality of our feeder calves; the following bulls will be used in 1962:
 - a. AP Zato Heir 18 Number 9,359,270; May 22, 1956; Calves bred by A.W. Powell, Sisseton, South Dakota
 - b. AP Zato Heir 64 Number 10,620,922; Calved February 1, 1959; Bred by A.W. Powell, Sisseton, South Dakota
 - c. DGH Rupert Aster Number 10,148,644; Calved October 13, 1957; Bred by the Turner Ranch, Sulphur, Oklahoma
 - d. TTT Lodge Heir 3 Number 11,643,726; Calved April 3, 1961; Bred by Thor Tagestad, Towner, North Dakota
 - e. TTT Anxiety Number 11, 643,725; Calved April 3, 1961; Bred by Thor Tagestad, Towner North Dakota

Feeding Trials. Our program is geared to develop a feeding program in North Dakota so that it will live over the years and be a stable enterprise. To do this, the ration must be built around home-grown feed properly supplemented. Probably the best ration for the majority of our feeders will be a roughage ration with grain added in the amount preferred by each feeder. Each feeder is to aim towards marketing his animals whenever the marketing fits his program, and to give him the best possible income. Feeding beef cattle has the greatest potential

of the Agricultural enterprises presently being developed in North Dakota.

Our experimental work is built around getting sound answers to the following problems:

1. Roughing calves through the winter followed by one of the following:
 - a. Dry lot fattening following the wintering period.
 - b. Spring and summer grazing following the winter feeding period with finishing in dry lot starting in early fall.
2. Feeding steers and heifers in dry lot from weaning until finished to determine the following:
 - a. Value of stilbestrol implants in steers and heifers
 - b. Rations to give maximum gains at lowest possible cost until ready for slaughter.
 - c. High roughage rations with:
 1. No grain
 2. Limited grain
 3. Heavy grain
 4. Beet pulp alone and in combination with grain
 5. Testing of new additives showing promise
 6. Self-feeding grain
 7. Pelleting of grain and roughage
 8. Adding vitamins to the ration

Quality Feeds

1. Late maturing corn, compared to corn recommended for the area as having the best chance of maturing.

Swine Program

1. Breeding Program

a. Improve the type, gaining ability and quality by selection of the best gilts, and use of best boar we can obtain. This year we are using the following boars:

1. DDTO Tostmaster 297; Born March 6, 1960; Bred by Donald Trapp, Claremont, Minnesota
2. DTTO Atlas 175; Born March 3, 1960, Bred by Donald Trapp, Claremont, Minnesota
3. KWT9 Special Englishman; Bred by Keith Thurston, Madelia, Minnesota

b. Only gilts with the best type, quality and gaining ability are saved each year.

2. Feeding Trials

a. Presently winter wheat seeded in the spring is used as a temporary pasture crop. Other crops will be tested when available.

b. Dry lot with concrete floors is being compared to pasturing of pigs.

c. Limited feeding is being compared to full feeding on pasture.

d. Winter rations

e. Comparing new rations and new supplements

f. Additives showing promise will be tested

g. Small hog houses, 8 feet by 10 feet, with metal roofs for both winter and summer quarters have been substituted for the straw sheds previously used.

h. New methods of cleaning and disinfecting farrowing quarters are being used.

- i. Injectable iron is given all pigs at from three to seven days of age.
- j. Efforts are made to reduce the cost of producing 100 pounds of pork.
- k. Economy of operation is our goal in all phases of hog production.
- l. Farrowing pen construction, litter, and improved handling methods are being studied each year.

VIII. GRASS AND LEGUME INVESTIGATIONS

Grasses for Hay

1. New varieties and best methods of handling all varieties for quantity and quality production
2. Winter hardiness
3. Grasses alone
 - a. Grasses with legumes
 - b. Grasses fertilized
 - c. Protein content of grasses and of grass-legume mixtures
 - d. Renovation of grasses
 - e. Nitrate content of fertilized grasses

Alfalfa

1. Winter hardiness and yield determinations

Sweet Clover

1. Hay yields of low-coumarin varieties

Pastures

1. For early spring grazing
 - a. Crested Wheatgrass
 - b. Crested Wheatgrass with Alfalfa
 - c. Crested Wheatgrass fertilized
2. Pastures for late spring and summer grazing.
 - a. Delay grazing of crested wheat and other grass and grass-legume mixture until about June 20 or July 1.
 - b. Use of the following grasses:
 1. Russian Wildrye
 2. Russian Wildrye with Alfalfa
 3. Lincoln Brome Grass
 4. Lincoln Brome and Alfalfa

IX AGRONOMY PROGRAM

Tillage practices and crop rotations are being continued as follows:

1. Spring plowing as compared to fall plowing.
2. Comparing different tillage practices on small grain stubble.
 - a. Before seeding small grain in the spring

- b. Fall preparation of land for fallow or small grain the following spring.
- c. Disking and mold board plowing of cornland in the spring for small grain crops.

Methods of fallowing for most complete weed control, water conservation and the preventing of both wind and water erosion.

1. The implements list being used in this investigation:
 - a. Moldboard plow
 - b. One-way disk
 - c. Victor blade
 - d. Medium-sized cultivator shovels

The following small grain varieties are tested for yield and adaptability to the area:

1. Spring wheat
2. Durum wheat
3. Winter wheat
4. Barley
5. Flax
6. Rye

Crop Rotations

1. Most productive for western North Dakota:
 - a. Continuous cropping
 - b. Alternate cropping
 - c. Three-year rotation comparing cornland and fallow

d. Four-year rotation with green manure

Fertilizer under following conditions:

1. First year on:
 - a. Cornland planted to small grain
2. Residual effects in following years.
3. Placement in fertilizing of corn.

Comparing the following:

1. Corn with all types of roughage adapted to the area, including:
 - a. Recommended varieties of 85-87 day corn
 - b. Late maturing varieties including 120-day corn
 - c. Sudan
 - d. Sorghum
 - e. Cane
2. Corn Spacing Trial
 - a. For greatest tonnage silage

Spring moisture in the soil, on small grain acreage of the previous year.

1. Standing stubble

2. Stubble one-wayed in fall
3. Tillage with victory blade in fall

Small grain nurseries using new varieties where only limited amounts of seed are available. To determine adaptability in western North Dakota.

1. Wheat breeding program
2. Making several new crosses each year
3. New varieties tested for:
 - a. Yield
 - b. Quality
 - c. Resistance to disease
 - d. Comparing maturity date strength of straw, etc.

X. GENERAL FARMING OPERATIONS

Feed on hand November 1, 1961:	
175 tons hay @ \$20.00	\$3,500.00
1500 tons corn silage @ \$7.24	\$10,860.00
4000 bushels of barley @ \$.70	\$2,800.00
2000 bushels of oats @ \$.55	\$1,100.00

XI. EQUIPMENT

1. Model 6 Fords Hydraulic Truck Lift
2. Cub tractor
3. Cultivator for Cub tractor
4. Tool bar for Cub tractor
5. Mower for Cub tractor
6. Shadle Precision Sickle Sharpener
7. Anscomatic Slide Projector
8. 4AS Ritchie Livestock Waterer
9. Allis-Chalmers 6-ton trailers (2)
10. Used Combine Grain Hoppers for grain and feed bins (3)
11. No. 19 New Idea Manure Spreader
12. Water tank
13. 16-inch Power Chain Saw
14. Gas heater for new office on Livestock Farm
15. Air compressor
16. Tub, sink, and Toilet in Superintendent's residence
17. Diesel tractor
18. 25-pound ABC All-Class Fire Extinguisher
19. 5-pound ABC All-Class Fire Extinguisher

XII. LIVESTOCK

1. 2-Hereford bull calves
2. 30-Calves for feeding trials
3. 1-Yorkshire boar
4. 500-Special mated straight-run White Rock Chickens
5. 1-Yearling Hereford bull
6. 2-Purebred Yorkshire gilts
7. 25-head of yearling steers for trials

XIII. MEETINGS AND TOURS

Date	Meetings	Attendance
Jan. 9	Annual Experiment Station Conference	
Jan. 14	Sidney Feeders Tour "Feeding Silage"	200
Jan. 26	Hettinger County Feeder Tour	200
Jan. 30	Exchange Club "North Dakota Agriculture"	20
Feb. 2	Bottineau-Renville Agriculture Imp. Ass'n. "Increasing our Income from Livestock"	200
Feb. 7	Stutsman County Farm Institute "Foreign Agriculture"	500
Feb. 9	Dunn County Livestock Tour "Improving Our Roughage and Grazing"	100
March 6-7	Valley City Winter Show	
March 13	Stockmen from South Dakota Tour of Station	6
March 14	FFA Annual Banquet at Watford City "Russian Agriculture"	10
March 28	Annual Farmers' Night at Watford City "Our Agriculture"	75
April 27	Sixth Grades from Dickinson Visited Weather Station	60
May 1	Alfred A. Skrede, Meteorologist Visited Weather Station	
May 3	M. L. Buchanan, T. W. Gildersleeve Tour of Station	2
May 12	Warren C. Whitman and class Tour of Station	15
May 12	SCS Luncheon	30

	"Plan for Livestock Research Roundup"	
May 26	A. E. Mead, Commissioner Tour of Station	
June 7	Grant County Agriculture Ass'n. "Cattle Feeding"	85
June 12	North Dakota Stockmen's Ass'n. Annual Meeting	300
June 16	Area 4-H Livestock Judging Contest	50
June 28	Medora Grazing Ass'n. "Cattle Feeding"	75
July 10	Barons Club Tour of Station	30
July 12	Crops Field Day Tour of Projects	225
July 13	Agriculture Class, DSTC Dickinson Experiment Station	30
July 19	Rotary Club Tour of Station	60
July 21	Extension 4-H Meeting Livestock Judging Contest	75
August 8	Redwood Falls, Minnesota Productive Credit Ass'ns. "Livestock in Western North Dakota"	200
September 14-15	Austin Barrow Show	
October 11	SCS District Meeting "Remarks"	60
October 13	Chamber of Commerce Agric. Committee	7
October 18	Nelson County Agric. Imp. Ass'n. "Livestock Production"	75
October 19	Rugby Farmer Businessmen Meeting "Russian Agriculture"	600
October 23	Mandan Production Credit Ass'n. "Winter Rations for Beef Cows"	700

October 24	Rotary Farmer's Night	70
October 25	Tri-County Livestock Panel, Dickinson	200
October 25	SCS Administrative Staff Tour of Station	5
October 26	McLean County Farm Bureau "Russian Agriculture"	130
November 6	Rolette County Agriculture Imp. Ass'n. "Livestock Production"	50
November 13	Dickinson Central High School Career Day	120
November 27	Barnes County Agriculture Imp. Ass'n. "Livestock Research Roundup"	35
November 28	McLean County Agriculture Imp. Ass'n. "Livestock Research Roundup"	
December 6	Twelfth Annual Livestock Research Roundup	1350
December 12	Bottineau County Agriculture Imp. Ass'n. "Balanced Farming"	85

XIV. RADIO

Date	Programs
January 12, 1961	Getting Ready for the Spring Pig Crop
February 12, 1961	Improving Our Pastures
March 16, 1961	Pastures and Spring Grazing
April 6, 1961	Creep Rations for Pigs
April 27, 1961	Early Spring Pastures
May 18, 1961	Growing Out Spring Pigs
June 22, 1961	Crops Day A Plastic Cover for the Silo
July 20, 1961	Watch that Feed Supply

August 17, 1961	Fall Tillage
September 7, 1961	Feeding Out Yearlings
October 26, 1961	Livestock Research Roundup Winter Rations for the Beef Herd
November 9, 1961	Roughage Production Trial for 1961
November 30, 1961	Livestock Research Roundup
December 7, 1961	Wintering the Beef Herd
December 21, 1961	Corn Production

XV. PUBLICATIONS

July - August	North Dakota Farm Research Vol. 21, No. 12 Spring Moisture Yields Thomas J. Conlon, Raymond J. Douglas
July - August	North Dakota Farm Research Vol. 21, No. 12 Stubble Tillage Practices Thomas J. Conlon, Raymond J. Douglas

XVI. GENERAL SUMMARY

	Farm Visits	No. Tours	People at Meetings and Tours	Meetings Attended	Station Calls	Radio Talks	News Articles
January	11	2	420	4	12	1	0
February	14	1	800	3	14	1	0
March	1	1	91	4	8	1	0
April	2	1	60	0	8	2	0
May	0	3	49	5	14	1	0
June	2	0	510	4	9	1	2
July	3	1	420	5	10	1	1
August	2	0	200	1	9	1	0

September	1	0		1	9	1	0
October	0	0	1847	9	8	1	1
November	0	0	120	1	5	2	7
December	1	1	1435	2	6	2	1
Total	37	10	5952	39	112	15	12