

North Dakota Teacher Use Of NDSU Agricultural Bulletins

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High school instructors in North Dakota were surveyed to determine extent and methods of using NDSU extension bulletins, experiment station bulletins, and research reports. It was found that vocational agriculture instructors made extensive use of many of these publications. That use varied greatly according to subject matter and complexity of the publication. Instructors in biology and general science made little use of the publications. Those most often used by biology and general science instructors were related to plant and soil science.

This study was initiated in 1969 with a primary goal of answering the question, "How frequently are publications written by the North Dakota Agricultural Station and the North Dakota Cooperative Extension Service being used in high school teaching?" A mail survey was conducted of 189 vocational agriculture, high school biology and junior high school general science instructors in North Dakota. One hundred forty-seven instructors returned usable responses. Follow-up letters were sent to encourage the instructors to reply.

Extension Bulletins

Responses from 147 North Dakota instructors show that **Trees and Shrubs for North Dakota** is the most frequently used extension bulletin. Eighty-four instructors (57.1 per cent) reported using this bulletin. The second most frequently used extension bulletin, **How Cereal Crops Grow**, was used by 52 instructors (35.4 per cent). Forty-four instructors reported using **Salt Affected Soils in North Dakota**, while 36 instructors used **Tillage for Profit in North Dakota**. The fifth most frequently used extension bulletin was **Sewage Disposal Systems for Your Farm Home**. Thirty-four instructors reported that they used this bulletin. **Plants in Your Home** was used by 31 instructors, while 28 instructors indicated they used **Hired Farm Labor — Wages and Benefits**. Only 22 instructors reported using **Growing Season**

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Precipitation Probabilities in their teaching program. The remaining extension bulletins were used by less than 10 per cent of the respondents. A complete list of Extension Bulletins and Frequency of use is found in Table I.

TABLE 1. FREQUENCY OF USE OF EXTENSION BULLETINS AS REPORTED BY 147 SELECTED NORTH DAKOTA INSTRUCTORS

Extension Bulletin	Respondents Using publication	
	Number	Per cent
Trees and Shrubs for North Dakota	84	57.1
How Cereal Crops Grow	52	35.4
Salt Affected Problem Soils in North Dakota	44	29.9
Tillage for Profit in North Dakota	36	24.5
Sewage Disposal Systems	34	23.1
Plants in Your Home	31	21.1
Hired Farm Labor — Wages and Benefits	28	19.1
Growing Season Precipitation Probabilities	22	14.9
Nutrition of Growing Turkeys	12	8.1
Trade Area Survey — Devils Lake	10	6.8
Potato Storage Ventilation	6	4.1

Use of extension bulletins as reported by 147 instructors is as follows: the most frequently used extension bulletin, **Trees and Shrubs for North Dakota**, was used by 52 instructors in lesson plan preparation, by 21 instructors as an occasional reference, by 37 instructors as a student reference in classroom teaching, and by 25 instructors as an occasional reference for students. Forty respondents reported using **How Cereal Crops Grow** in lesson plan preparation, while five instructors indicated they used the bulletin as an occasional reference, 31 instructors reported using the bulletin as a student reference in classroom-

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teaching, and 14 used the bulletin as an occasional reference for students. **Salt Affected Problem Soils in North Dakota** was used by 25 respondents in lesson plan preparation, by 16 respondents as an occasional reference, by 12 respondents as a student reference in classroom teaching, and by 21 respondents as an occasional reference for students. Twenty-three instructors used **Tillage for Profit in North Dakota** in lesson plan preparation, 13 used the bulletin as an occasional reference, seven used it as a student reference in classroom teaching, and 14 used it as an occasional reference for students.

The fifth most frequently used extension bulletin, **Sewage Disposal Systems for Your Farm Home**, was used by 13 respondents in lesson plan preparation, by 18 respondents as an occasional reference, by nine respondents as a student reference in classroom teaching, and by 16 respondents as an occasional reference for students. **Plants in Your Home** was used by 10 instructors in lesson plan preparation, while 19 respondents used it as an occasional reference, three used the bulletin as a student reference in classroom teaching, and 15 respondents used it as an occasional reference for students. **Hired Farm Labor — Wages and Benefits** was used by 13 instructors in lesson plan preparation and 14 instructors used the bulletin as an occasional reference, five instructors as a student reference in classroom teaching, and eight used it as an occasional reference for students. Seven respondents utilized **Growing Season Precipitation Probabilities** in lesson plan preparation, 13 used it as an occasional reference, and nine used the bulletin as an occasional reference for students. The remaining extension bulletins were used by less than 10 per cent of the respondents.

The four most frequently used extension bulletins were related to plant and soil science, while the most frequently used bulletin was related to horticulture.

Experiment Station Bulletins

The frequency of use of the eight most frequently used experiment station bulletins as reported by 147 North Dakota instructors was found to be as follows: fifty-six (38.1 per cent) of the respondents used **The Major Soils in North Dakota**. **Woody Ornamentals** was used by 51 respondents. The third most frequently used experiment station bulletin, **Fertilizer for Small Grain on Summerfallow**, was used by 45 instructors. Forty-four respondents reported using **Soil Survey Report**.

North Dakota Agricultural Statistics and Suggestions on Father-Son Agreements were used by 40 North Dakota instructors. Thirty-nine instructors reported they used **Dwarfism in Cattle**, and **Alfalfa Production in North Dakota** was used by 37 instructors. The 53 remaining experiment station bulletins were used by less than 25 per cent of the respondents. A complete list of experiment stations bulletins and frequency of use is found in Table 2.

TABLE 2. USE OF EXPERIMENT STATION BULLETINS AS REPORTED BY 147 SELECTED NORTH DAKOTA INSTRUCTORS

Experiment Station Bulletin	Respondents using publications	
	Number	Per cent
	(N=147)	
S472 The Major Soils in North Dakota	56	38.1
S399 Woody Ornamentals	51	34.7
S461 Fertilizer for Small Grain on Summerfallow	45	30.6
S473 Soil Survey Report	44	29.9
S408 North Dakota Agricultural Statistics	40	27.2
S457 Suggestions on Father-Son Farming Agreements	40	27.2
S403 Dwarfism in Cattle	39	26.5
S448 Alfalfa Production in North Dakota	37	25.2
S463 Family Estate Planning	36	24.5
S417 Improving Farm Leases in North Dakota	35	23.8
S423 Agricultural Credit Problems and Practices	33	22.5
S424 Use of the Contract for Land Purchases	33	22.5
S479 Determining Least - Cost Machinery Combination	33	22.5
S444 Farm Tenancy Laws in North Dakota	30	20.4
S471 Liability and Farm Liability Insurance	30	20.4

Forty-one instructors used **The Major Soils in North Dakota** in lesson plan preparation, 10 used the bulletin as an occasional reference, 26 used the bulletin as a student reference in classroom teaching, and 14 used the bulletin as an occasional reference for students. Twenty-nine respondents used **Woody Ornamentals** in lesson plan preparation, 16 used the bulletin as an occasional reference and as a student reference in classroom teaching, and 26 used it as an occasional reference for students. The third most frequently used experiment station bulletin, **Fertilizer for Small Grain on Summerfallow**, was used by 29 instructors in lesson plan preparation, by 10 instructors as an occasional reference, by 22 instructors as a student reference in classroom teaching, and by 11 instructors as an occasional reference for students. **Soil Survey Report** was used by 32 respondents in lesson plan preparation, by 11 respondents as an

occasional reference, by 18 respondents as a student reference in classroom teaching, and by 12 respondents as an occasional reference for students. **North Dakota Agricultural Statistics** was used by 23 instructors in lesson plan preparation, by 17 instructors as an occasional reference, by seven instructors as a student reference in classroom teaching, and by 16 instructors as an occasional reference for students. Twenty-four respondents indicated they used **Suggestions on Father-Son Agreements**, while 14 used the publication as an occasional reference and as a student reference in classroom teaching, and 16 respondents used the publication as an occasional reference for students. Twenty-one instructors used **Dwarfism in Cattle** in lesson plan preparation, 15 used it as an occasional reference, eight used the publication as a student reference in classroom teaching, and 16 used the publication as an occasional reference for students.

The four most frequently used experiment station bulletins by 147 instructors were related to plant and soil science. Only eight of the 61 experiment stations bulletins were used by more than 25 per cent of the respondents.

Research Reports

Frequency of use of the 11 most frequently used Research Reports as reported by 147 North Dakota instructors is as follows: **Woody Ornamentals in the Northern Plains** was the most frequently used Research Report. Thirty instructors (20.4 per cent) indicated they used the publication in their teaching program. **Barley Rations for Swine** and **Anemia in Suckling Pigs** were used by 28 and 27 instructors, respectively. Twenty-six respondents reported using **Oats and Barley for Fattening Swine**, while **Pelleted Feeds: Effect on Swine** was used by 23 respondents. Twenty-one instructors (14.3 per cent) reported using **Evaluation of Nutrients for Growing Swine**. **Effects of Herbicides on Shelterbelts** was used by 20 (13.6 per cent), **Weed Development Notes**, **Oats in Rations for Cattle**, and **Selection for Carcass Merit** were used by 19 instructors. Only 18 respondents reported using **Fertility in Beef Heifers**. Less than 12 per cent of the respondents reported using the 19 remaining Research Reports. A compilation of data pertaining to research reports and frequency of use is found in Table 3.

An examination of data reveals that 17 instructors used **Woody Ornamentals in the Northern Plains** in lesson plan preparation, 12 used

TABLE 3. USE OF RESEARCH REPORTS AS REPORTED BY 147 SELECTED NORTH DAKOTA INSTRUCTORS.

Research Report	Respondents using publication	
	Number	Per cent
Woody Ornamentals in the Northern Plains	30	20.4
Barley Rations for Swine	28	19.1
Anemia in Suckling Pigs	27	18.4
Oats and Barley for Fattening Swine	26	17.7
Pelleted Feeds: Effect on Swine	23	15.7
Evaluation of Nutrients for Growing Swine	21	14.3
Effects of Herbicides on Shelterbelts	20	13.6
Weed Development Notes	19	12.9
Oats in Rations for Cattle	19	12.9
Selection for Carcass Merit	19	12.9
Fertility in Beef Heifers	18	12.3

the report as an occasional reference, and nine used the report as a student reference in classroom teaching and as an occasional reference for students. The second most frequently used Research Report, **Barley Rations for Swine**, was used by 16 instructors in lesson plan preparation, by 11 instructors as an occasional reference, by 10 instructors as a student reference in classroom teaching, and by eight instructors as an occasional reference for students. Fourteen respondents utilized **Anemia in Suckling Pigs** in lesson plan preparation, while nine used the report as an occasional reference, 13 used the report as a student reference in classroom teaching, and six used the report as an occasional reference for students. **Oats and Barley for Fattening Swine** was used by 14 instructors in lesson plan preparation, by eight instructors as an occasional reference, by 10 instructors as a student reference in classroom teaching, and by six respondents as an occasional reference for students.

Fifteen instructors used **Pelleted Feeds: Effect on Swine** in lesson plan preparation, seven used the report as an occasional reference, six used the report as a student reference in classroom teaching, and eight used the report as an occasional reference for students. Nine instructors indicated they used **Evaluation of Nutrients for Growing Swine**, **Effects of Herbicides on Shelterbelts**, **Weed Development Notes**, **Oats in Rations for Cattle**, and **Fertility in Beef Heifers** in lesson plan preparation, while only eight instructors used **Selection for Carcass Merit** in lesson plan preparation. Eleven instructors used **Evaluation of Nutrients for Growing Swine** as an occasional reference, five

used the report as a student reference in classroom teaching, and six used the report as an occasional reference for students. **Effects of Herbicides on Shelterbelts** was used by 10 instructors as an occasional reference, by four instructors as a student reference in classroom teaching, and by six instructors as an occasional reference for students. Five respondents used **Weed Development Notes** as an occasional reference, one respondent used the report as a student reference in classroom teaching, and seven respondents used the report as an occasional reference for students. **Oats in Rations for Cattle, Selection for Carcass Merit, and Fertility in Beef Heifers** were used by eight instructors as an occasional reference. Four instructors used **Oats in Rations for Cattle, Selection for Carcass Merit,** and seven instructors used **Fertility in Beef Heifers** as a student reference in classroom teaching. **Oats in Rations for Cattle** was used by one respondent as an occasional reference for students. Six respondents used **Selection for Carcass Merit** and five respondents used **Fertility in Beef Heifers** as an occasional reference for students.

Eleven of the 30 Research Reports were used by more than 12 per cent of the respondents. The most frequently used publication was related to horticulture.

Summary

Vocational agriculture instructors in North Dakota make extensive use of a large number of publications prepared and distributed by the Cooperative Extension Service and the Agriculture Experiment Station at North Dakota State University.

Seven of the 11 extension bulletins were used by more than half of the respondents, while all of the extension bulletins were used by more than 10 per cent of the respondents. Extension bulletins used most frequently were used primarily in lesson plan preparation.

Eighteen of the 61 experiment station bulletins were used by more than 50 per cent of the respondents, while 30 bulletins were used by more than 20 per cent but by less than 50 per cent of the respondents. Experiment station bulletins dealing with some phase of agricultural economics made up 10 of the 18 most frequently used. The two most frequently used experiment station bulletins were related to soils. The experiment station bulletins used most frequently were used in lesson plan

preparation, while the less frequently used bulletins were used as reference for students and instructors.

Fourteen of the 30 research reports were used by more than 25 per cent of the respondents. Ten of the 14 most frequently used research reports dealt with livestock and nutrition. Most frequent use for research reports was in lesson plan preparation.

Vocational agriculture instructors used all 11 extension bulletins, all 61 experiment station bulletins and all 30 research reports in the study. Twenty-seven of the publications were used by more than 50 per cent of the respondents.

General science instructors in North Dakota made little use of the publications that are prepared and distributed by the Cooperative Extension Service and the Agriculture Experiment Station at North Dakota State University. Only four of the 11 extension bulletins were used by general science instructors. Two of these were horticulture bulletins.

General science instructors used 13 of the 61 Experiment Station Bulletins, but only four of these bulletins were used by more than one respondent. The most frequently used experiment station bulletins were concerned with plant and animal science and were used primarily in lesson plan preparation.

Three Research Reports out of 30 were used by general science instructors and only one of these publications was used by more than one respondent.

Only two publications were used by more than 10 per cent of the general science instructors.

High school biology instructors made very little use of extension bulletins, experiment stations bulletins and research reports. Biology instructors used six of the 11 extension bulletins. The three most frequently used extension bulletins related to plant science and were used primarily in lesson plan preparation and as an occasional reference.

Thirteen of the 61 Experiment Station Bulletins were used by biology instructors. Only two, however, were used by more than 10 per cent of the instructors. The experiment station bulletins were used primarily as a reference for students and instructors.

Only three of the 30 research reports were used by biology instructors. Two of the three

publications were related to the study of grasshoppers.

Three of the 22 total publications used by high school biology instructors were used by more than 10 per cent of the respondents.

Conclusions

1. Vocational agriculture instructors made much more use of extension bulletins, experiment stations bulletins, and research reports than did junior high school general science instructors and biology instructors.

2. Junior high school general science instructors and biology instructors made little use of

extension bulletins, experiment station bulletins and research reports published by North Dakota State University.

3. The publications most frequently used were used in lesson plan preparation and as a student reference in classroom teaching, while the less frequently used publications were used as an occasional reference for instructors and students.

4. Research reports were used by fewer respondents than were extension bulletins and experiment station bulletins. This could be due in part to the relative complexity of the research reports.

Readership Profile Of Farm Research Bulletin

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This is a summary of a 1973 study to develop a profile of North Dakota Farm Research Bimonthly Bulletin readers, to determine how much of the bulletin was read and reader reactions to certain aspects of the publication.

Specific objectives of the study were:

1. To determine the age, place of residence, type of farmer or other occupation, years of formal education, and the size of farm operation of Farm Research readers.
2. To determine reader evaluations of reading level and the number of pictures used in each issue.
3. To determine other readers of **Farm Research** in addition to those people whose names appear on the mailing list.

The mailing list of **Farm Research** on February 1, 1973, included 13,896 names. This entire population was sent a survey questionnaire which was inserted in the January-February, 1973, issue of the publication.

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A reminder card was included inside the front cover of the March-April, 1973, issue of the publication asking those who had not filled out and sent in the questionnaire to do so.

A follow-up letter and questionnaire were mailed to 10 per cent of the farm readers who had not returned the original questionnaire by March 26, 1973.

Questionnaires returned on or before April 30, 1973, were included in the data for this report. At that time, 2,186 (15.7 per cent) usable questionnaires had been returned, including the respondents to the follow-up study.

Information received from the returned questionnaires is summarized in the following tables.

Age Of Readers

Most of the farm respondents (75.8 per cent) were between 31 and 60 years of age. Only 6.9 per cent of the farm respondents were 30 years of age or younger.