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Changes in Producer Attitudes Towards Windbreaks in Eastern Nebraska, 1983 to 2009

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Changes in Producer Attitudes Towards Windbreaks in Eastern Nebraska, 1983 to 2009

By

Kim Tomczak

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Changes in Producer Attitudes Toward Windbreaks in Eastern Nebraska, 1983 - 2009

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Abstract

Windbreaks are rows of trees or shrubs arranged on the landscape to reduce wind speed. In agricultural landscapes we find them as farmstead windbreaks, livestock windbreaks and field windbreaks. While farmstead and livestock windbreaks are well accepted by the agricultural community, field windbreaks are often viewed differently. A 1982 study of the attitudes of farmers in Eastern Nebraska indicated that many of the producers were around the age of 50 and that they used different types of windbreaks. This study repeated that survey in the same. When compared to data from 1982, farmers today are not educated about the benefits of windbreaks therefore do not see windbreaks as a benefit and do not care to see them on their land.

Table of Contents

Introduction.....	5
Results/Discussion.....	8
Conclusion.....	16
References.....	17
Appendix.....	18

Acknowledgements

I would like to extend my sincere thanks and gratitude to my thesis advisor, James Brandle for his excellent guidance and support throughout the completion of this thesis. Thank you to my reader Katja Koehler-Cole for providing help with analyzing the data, and helping complete the survey. Thank you to my other reader John Quinn for his insight into the completion of this thesis.

Introduction

Windbreaks are physical barriers set up on farms or in urban areas to reduce wind speed. They may consist of either perennial plants such as trees, shrubs or tall grasses, annual crops such as corn or sunflowers, or other materials such as slat fence (Brandle 2004). There are many types of windbreaks but three are commonly found on farms; farmstead windbreaks, livestock windbreaks and field windbreaks. Farmstead windbreaks are used to protect farm buildings and houses; livestock windbreaks are used to protect feedlots and confinement areas; and field windbreak are used to protect crops and farmland (Dearmont 1984).

The porosity (amount of open space) and tree height of the windbreak are the main factors in determining how effective the windbreak will be (Cleugh 1998). A well designed windbreak will protect an area downwind of approximate 10 to 15 times the height of the windbreak. Thus, a 30 foot tall windbreak will protect an area 300 to 450 feet downwind. Soils in protected zones are protected from wind erosion, crops in protected zones do better and yield more, homes in the protected zone use less energy, and livestock in protection are healthier and gain more weight per unit of feed.

Windbreaks are used for soil conservation and as a component of crop production systems (Dearmont 1984). They protect farmland by stopping the wind from damaging the crops. Some of the crops windbreaks are able to protect include winter wheat, soybean, tomatoes, snap beans, rye, barley and corn. Windbreaks are also used to alter a variety of microclimate factors including wind speed, soil temperature, evaporation and air temperature (Dearmont 1984). An example of altering a microclimate factor is using a livestock windbreak on a feedlot to protect cattle from the cold winds in the winter. In addition, many windbreaks are also set up to reduce the smell and dust associated with farm operations.

Windbreaks are used in a variety of different places and ways and overall are beneficial to a farmer and the farmer's neighbors. Windbreaks can support a variety of wildlife and they can act as a corridor for wildlife when traveling from one place to another. Windbreaks contribute to making the land more scenic. They attract wildlife and thus increase biodiversity. The people who own the land benefit from the beauty of the land. Even though they are beneficial, some windbreaks are being removed for different reasons such as conflict with irrigation development, the condition of the windbreak, or conflict with other farming practices.

Around the 1900s, demand for windbreaks by producers began to increase (Dearmont 1984). Windbreaks became more recognized in the 1930s with the beginning of the Prairie States Forestry Project. This program established field and farmstead windbreaks to control wind erosion due to extensive agricultural cultivation compounded by the drought of the Dust Bowl (Dearmont 1984). In 1983, the Nebraska Game and Parks Commission created a 10 year lease agreement which gave landowners the option to take part in a habitat program where they were paid, if they maintained a windbreak on their land, which in turn, encouraged more producers to plant more windbreaks (Dearmont 1984). This was mainly due to the fact that people during this time were starting to understand the ecological processes in the environment. I believe now that more windbreaks are being adopted because of our increased knowledge on how they work and the additional benefits they provide.

Thesis Objective

In 1982, Dave Dearmont, James Brandle and Bruce Johnson conducted a study and published a paper titled "The Field Windbreak: Perceptions of Agriculture Producers and Professionals in Eastern Nebraska." In their study, 2,500 producers from 41 counties in Eastern Nebraska were given a survey to determine their attitude toward field windbreaks.

In this study, I am going to determine if 1) producer's attitudes towards windbreaks have changed between 1983 and the present and 2) how this has or has not led to the development of more windbreaks in Eastern Nebraska.

The purpose of this study was to learn how people use windbreaks today in Eastern Nebraska. Producers' perceptions were analyzed and compared to the results of the 1983 study.

Hypotheses

1. Producers will have a more positive attitude toward field windbreaks in 2009 than they did in 1982.
2. Producers are better educated today and thus have a more positive attitude toward field windbreaks
3. Younger farmers are more environmentally aware. When the younger generation starts farming, they might use windbreak practices to benefit their farm.

This research will help us better understand how farmers' views about windbreaks may have changed and why these changes have occurred. It will allow us to make changes to current programs targeted at windbreaks and could lead to a better incorporation of windbreaks in farming practices.

Methods and Materials

I obtained the mail survey that was used in 1983 and modified it slightly to correlate with today's production practices. The survey (see Appendix 4, page 21) consists of questions that ask the producers if they have field windbreaks, what they use them for, and about their attitudes concerning the value of their field windbreaks. For this survey, we obtained the names and addresses of 1,500 farmers from the same counties that were sampled in 1983. The addresses were purchased from the Marketing Systems Group, a survey research group.

On March 16, 2009 a first-class pre-notification letter explaining the survey was sent out to the selected farmers. Undelivered letters were returned and the total potential sample reduced accordingly. One week later, the questionnaire, cover letter and self-addressed business-reply envelopes were mailed. A postcard was sent on April 13, 2009 thanking participants for completing the survey and/or to remind those producers who had not completed the survey to please do so. To increase the return rate, University of Nebraska stationery was used and each of the pre-notification and cover letters was personally signed. This project was approved by the University of Nebraska Institutional Review Board, according to requirements for research involving human subjects.

Data were entered into Excel Files and analyzed with PROC FREQ in SAS. Frequencies and percentages were obtained for all questions, as well as means for the questions with continuous variables (age and acres farmed).

Results and Discussion

As of April 20, 2009, the response rate for the survey was 28%. There were 82 surveys that were undeliverable because of address changes, and there were 20 letters and phone calls that were received saying the producer had retired, was deceased or that they did not have any windbreaks.

Farm Characteristics

The average number of farmed acres per respondent was 836 acres. Farmers owned an average of 460 acres and rented an average of 619 acres. Farmers grew mainly corn and soybean, but also alfalfa, winter wheat or other crops (such as grass for hay, tomatoes and grapes). The percentage of producers that said they irrigated was 54.89% while those that did not irrigate was 45.11%. Today, of those that responded, the number of farmers having windbreaks has

increased by approximately 9% from 1983. In 2009, 95.16% of those returning surveys, had windbreaks with 97.72% having farmstead windbreaks, 68.07 % having livestock windbreaks and 40.38% having field windbreaks. In 1983, 86% had farmstead windbreaks, 57% had livestock windbreaks, and 27 % had field windbreaks.

Demographics

The age of people that completed the survey has increased considerably. In 1983, the average age was 50 and today it was 60.5. According to the USDA census bureau in 1987, 33% of farmers were under the age of 45 while only 22% were in the age group of 45 to 54, 22% 55 to 64 and 21% that were 65 and older (agcensus). Today those numbers have shifted to an age of around 60) . In 1983 when the last survey was distributed, producers were younger, whereas farmers today are near the age of retirement. In 1983, there were more people that only had a high school diploma whereas today it is spread out between high school, some college and a college degree.

The number of producers that had only a high school diploma or primary education has decreased from 81% to 37%. There has been a significant increase in the number of respondents who indicated having a college degree from 20% to 58%, probably because a college degree is more accessible and acknowledged in today's society, whereas in the 1980s more people had only a high school diploma and then continued into the work force. The younger farmers account for the increased education level because the older producer's age increased but their education remained the same. Producers today have higher levels of education than back in 1983, but because of their old age, they may still not be as environmentally conscious as the future generation will be. In the years to come there is going to be a change in farming towards

practices that will be better for the environment, whereas now, most of the people that were surveyed might not know proper conservation techniques, such as the use of windbreaks.

Eighty percent of the people returning surveys were full time farmers. Other occupations included educators and truck drivers. Other people did not consider themselves farmers anymore as they have retired. In some cases, as farmers retire, their children take over the farm. There was a decrease in 2009 of producers that will have their children take over their farm someday. It decreased from 54% to 44%. However, it seems like there are less children that will take over the family farm as more people are going to college to pursue other options than farming. The number of respondents that either did not know or said their children would not take over the farm declined from 1983 to 2009. The ones that said they would not take over the farm declined from 14% to 29% while the ones that did not know went from 14% to 27%. Between 1983 and 2009, the percentages for those having outdoor hobbies that are enhanced by the presence of trees or wooded areas stayed about the same.

Demographic Characteristics	Year	
	1983	2009
Mean Age	50	60
How many years of formal education have you completed		
Primary.....	13	2
High School.....	68	35
Some College.....	8	29
College Degree.....	12	29
Graduate Degree.....		6
Is farming your primary Occupation		
Yes.....	86	82
No.....	14	18

Do you have outdoor hobbies which are enhanced by your presence of trees and wooded areas?

Yes.....	59	56
No.....	41	44

Do you expect any of your children or their families to someday farm all or part of the land you are farming?

Yes	54	44
No.....	14	29
Don't know.....	14	27

Perceptions about Windbreaks

In 2009, there are fewer people that value field windbreaks as a conservation practice. The percentage of people that thought there was definite value in field windbreaks as a conservation practice decreased from 51% to 32%, while the percentage of people that see no value at all in windbreaks as a conservation practice double from 7 to 14%. Currently, other conservation practices such as no-till or minimum-till are being used mainly to prevent soil erosion. These practices are reflected in the number of the producers that think there is some value of field windbreaks as a conservation practice, It is surprising, however, to see that there is not a higher percentage that thinks there is a definite value because people today are more environmentally cautious I would have thought they would use more windbreaks as they are a environmental practice. Producers today use more conservation practices such as no till, crop rotation or crop cover to protect their crops. They might value these conservation practices more than windbreaks for the purpose of preventing soil erosion.

While before, about two-thirds of producers believed there is an increase in farmland value associated with windbreaks, now less than half of them do. There is also a decrease in

producers that think there are yield increases on farmland value. About twice as many people as in 1983 now believe there are yield decreases associated with windbreaks. It increases from 14% to 24%. This may be due to the fact that producers think that field windbreaks take up space on their farmland. Producers often try to maximize production in order to stay efficient and might enlarge the arable area of their farm by taking out windbreaks. The percentage of producers that perceived the presence of mature field windbreaks had no effect on crop production yields stayed about the same at 21%.

Less than 10% of respondents in 1983 and 2009 believed there are sizable economic returns from the effect of windbreaks on crop yields. The number of respondents perceiving that there is some additional return from windbreaks has dropped significantly from 53% to 36%. The percentage of people thinking there is some economic loss from windbreaks has increased by a third. This may show that producers do not think windbreaks should be planted as it may take away from their profit. Windbreaks do help with soil conservation, but farmers might perceive no-till and other soil conservation practices as more efficient and less costly. Windbreaks also increase diversity, but unless farmers are enrolled in CPR, they do not receive financial compensation for increasing biodiversity on their land. It is also possible, that some producers simply do not care for conservation and consequently only use practices that increase their yield and hence their income.

The average number of rows that producers think are necessary in a field windbreak to be effective has decreased by a small amount, both being around three rows. A very dense field windbreak though is less efficient than one that is moderately dense. Wind is allowed to pass through the windbreak, it provides a greater amount of protected area to the leeward side. So an effective windbreak would be around one or two rows. As the number of rows of trees increases

in a windbreak, they provide a more solid barrier therefore stopping more wind (USDA).

Because of this, when people do have windbreaks it is important that they have enough rows to ensure the windbreaks are efficient. Only 44% of farmers are aware of economic incentive programs for windbreaks.

There has been a decrease in the amount of people that feel that wind erosion is a problem and a slight increase in people that said it was not a problem. One third recognizes soil erosion as a problem. This may be due to the change in farming practices since 1983, such as the increased use of no-till. In many cases, some of the producers commented claiming that these practices are effective at reducing wind erosion. There was also a small increase in people that said they were not sure.

Producers from 1983 to today have shown a considerable decrease in desiring more field windbreaks being established in their county in the coming years and a double-fold increase in those that do not want to see more windbreaks. There is a decrease from 50% to 37% that would like to see windbreaks while there is an increase from 13% to 28% that would not like to see windbreaks. This is surprising as half of the people that responded in the 1983 survey had a desire to see more field windbreaks in their area. This correlates with the previous responses on the value of windbreaks that were tied directly to farmland values and crop yields. However, this question is a general one and not related to the value for windbreaks on farming. One must assume that farmers do not value windbreaks much for other purposes, such as scenic views and habitat for wildlife.

The responses on whether producers plan to establish field windbreaks were similar between 1983 and 2009. Half of the respondents do not want to establish more windbreaks which is slightly more than in 1983. Only 15% want to establish more windbreaks, less than in 1983.

Thirty-five percent of respondents were not sure. Given the overall positive attitude towards windbreaks in 1983, it is surprising that not more farmers wanted to plant windbreaks back then. Today, with a less enthusiastic attitude on windbreaks, the number of farmers planning on establishing new windbreaks has not decreased as much.

Overall, many producers that were surveyed within these 41 counties of eastern Nebraska would not like to see more windbreaks established at this time. This may be because they are not educated on the benefits of windbreaks. The demographics show that many of the people that took this survey were older, therefore may have not gotten the education about conservation practices or about the benefits of windbreaks. As these producers begin to retire though, there may be an establishment of more windbreaks as more producers will have college educations and will be conservation minded.

Another reason why producers do not plant windbreaks is because of lack of funds. There are many tree planting programs which a producer can use or other agencies that help with establishing new windbreaks including EQIP, WHIP and NRD. However, only 12% of respondents had consulted professionals about windbreaks, so it is likely that farmers may not know enough about the benefits of windbreaks.

Perceptions of Windbreaks	Year	
	1983	2009
How do you perceive the value of field windbreaks as a conservation practice?		
Definite Value.....	51	32
Some Value.....	42	54
No Value.....	7	14
How do you perceive the presence of mature field windbreaks on farmland values?		
Sizable yield increase.....	15	11

Some yield increase.....	50	33
No yield effect.....	23	34
Some yield decrease.....	12	22
Sizable economic loss.....	0	3

How do you perceive the effect of mature field windbreaks on crop production yields in fields?

Sizable yield increase.....	11	5
Some yield increase.....	52	47
No yield effect.	21	22
Some yield decrease.....	14	24
Sizable yield decrease.....	1	3

Given your comments above concerting yield effects as well as consideration of farmland taken out of production by the presence of windbreaks, how do you perceive the net economic effect of establishing field windbreaks to protect cropland?

Sizable economic returns.....	8	6
Some additional returns.....	53	36
No effect on economic returns.....	20	28
Some economic loss.....	18	27
Sizable economic loss.....	1	3

Are you aware of any economic incentive programs which encourage landowners to establish field windbreaks

Yes.....		44
No.....		56

How many rows of trees do you think are necessary in a field windbreak for it to be effective?

Mean Number of Rows.....	3	3
--------------------------	---	---

If you currently own a field windbreak, do you feel that the land it occupies is in its best use?

Yes		73
No.....		27

Do you feel that wind erosion is a problem in your area?

Yes.....	44	38
No.....	44	46
Not sure.....	13	16

Do you have a desire to see more field windbreaks

being established in your county in the coming years?

Yes.....	50	37
No.....	13	28
Indifferent	37	35

Within the next 5 to 10 years, do you plan to establish field windbreaks on land you own or encourage your landlord (s) to do so on land you rent?

Yes.....	18	15
No.....	45	50
Don't know.....	37	35

Conclusion

This research on farmers' attitudes towards windbreaks has produced some surprising findings. From the current movement towards more sustainable farming practices, we hypothesized that farmers in 2009 were valuing windbreaks more than in 1983. However, the results showed some rather drastic drops in the perceived value of windbreaks. Some of these drops can be explained with the rise in soil conserving cultivation methods, such as no-till and crop rotation, which farmers perceive as being more cost effective than windbreaks in reducing soil erosion. This is reflected in the perception that soil erosion is not as problematic as it was in 1983. Fewer farmers desire to see more windbreaks. Overall, the attitudes of farmers towards windbreaks have turned more negative, yet the number of farmers planning on establishing new windbreaks has only slightly decreased. More research is needed to determine what, if anything, farmers value about windbreaks. For now, it can be recommended to increase educational efforts about the benefits windbreaks have for purposes other than soil conservation, such as being habitat for wildlife and insect predators. To encourage producers to plant more windbreaks, incentive programs need to be more widely known. However, since the average age of farmers is now close to retirement and only 44% of them know that their children will take over the farm, a long-term investment such as planting a windbreak might not seem practical.

This study was important as it showed that the trend toward more environmentally-friendly production methods did not correlate with an improved attitude towards windbreaks. Efforts should be made to raise awareness of the many benefits windbreaks have and about the incentive programs available for farmers interested in establishing new windbreaks.

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(http://www.agcensus.usda.gov/Publications/1992/Quick_Facts/us92br06.gif).

Appendix I



[First name] [Last name]
[Address]
[City], NE [Zip Code]

January 27, 2008

My name is Kim Tomczak and I am an environmental studies major at the University. I am writing to you to inform you that within the next couple weeks you will be receiving a survey that deals with producers attitudes towards windbreaks. For my senior thesis I am surveying producers from 41 counties in Eastern Nebraska to ask them how they value windbreaks and how we can improve them.

Within the next week you will be receiving a survey in the mail. Please fill it out and return it in the prepaid envelope. We really appreciate your participation in this study.

Please feel free to contact me or my advisor Dr. James Brandle with any questions or comments about this study. My phone number is 402-980-7294 and my e-mail address is ktomczal@yahoo.com. Dr. Brandle can be reached at 402-472-6626. Please contact the investigator if you want to voice concerns or complaints about the research or in the event of a research related injury. Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 for the following reasons: you wish to talk to someone other than the research staff to obtain answers to questions about your rights as a research participant, to voice concerns or complaints about the research, to provide input concerning the research process, in the event the study staff could not be reached. There are no known risks involved in participating in this study.

Thank you very much for helping with this study.

Sincerely,

Kim Tomczak
Project Director
School of Natural Resources
Lincoln, NE 68583-0982

Appendix 2

School of Natural Resources

[First name] [Last name]
[Address]
[City], NE [Zip Code]

January 28, 2008

I am writing to you because I would like to know your opinion on how you use windbreaks. My name is Kim Tomczak and I am an environmental studies major at the University. For my senior thesis I am trying to learn how people in Eastern Nebraska value windbreaks and how we can improve them.

We are conducting a survey titled "How the Attitudes of Producers toward Windbreaks in Eastern Nebraska have changed since 1983." The survey was given out to 1,000 producers like yourself in Eastern Nebraska. This survey has been conducted in 1981 and I am redoing this survey as part of my senior thesis. We are interested in seeing how people view windbreaks, what they use it for and if they use it for conservation purposes. The survey is being used for research purposes.

You were selected from a random sample of the population of 41 counties in Eastern Nebraska. Your response to this survey is important. Only by hearing from many different people will we be able to accurately describe the opinions of the farmers Eastern Nebraska. The results of this survey will be used to help shape the use of windbreaks in the future.

Your participation in this study is completely voluntary. You are free to decide not to participate or to refrain from answering any specific questions without affecting your relationship with the investigators or the University of Nebraska-Lincoln. However, you can help us very much by filling in the enclosed questionnaire and returning it in the self-addressed stamped envelope that has been provided. This should take less than 15 minutes of your time. Your answers will be kept strictly confidential and will be combined with all the other answers so that no individual names can be identified. The number on the back of each survey is for mailing purposes only.

Please feel free to contact me or my advisor Dr. James Brandle with any questions or comments about this study. My phone number is 402-980-7294 and my e-mail address is ktomczak1@yahoo.com. Dr. Brandle can be reached at 402-472-6626. Please contact the investigator if you want to voice concerns or complaints about the research or in the event of a research related injury. Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 for the following reasons: you wish to talk to someone other than the research staff to obtain answers to questions about your rights as a research participant, to voice concerns or complaints about the research, to provide input concerning the research process, in the event the study staff could not be reached. There are no known risks involved in participating in this study.

Thank you very much for helping with this study.

Sincerely,

Kim Tomczak
Project Director
School of Natural Resources
Lincoln, NE 68583-0982

407 Hardin Hall, Lincoln, NE 68583-0974; Phone: (402) 472-6626 Fax: (402) 472-2946
E-mail: jbrandle1@unl.edu

Appendix 3



School of Natural Resources

[Date]

Last week, a questionnaire seeking your opinion on windbreaks was mailed to you. Your name was randomly selected from a list of all producers in 41 counties.

Thank you so much for completing and returning the questionnaire to us. If you have not yet returned your questionnaire, please do so soon. We are especially grateful for your response because we believe the information you provide will be helpful to local policy makers in shaping programs better targeted to your needs.

If you did not receive a questionnaire or it was misplaced, please call me at 402-980-7294 or e-mail me at ktomczal@yahoo.com and I will mail another one to you immediately.

Thank you kindly,

Kim Tomczak
Project Director
School of Natural Resources
407 Hardin Hall
Lincoln, NE 68583-0982

Appendix 4

Please check if you would like a copy of the results.

Field Windbreak Survey in Eastern Nebraska

I. FIELD CHARACTERISTICS & GENERAL INFORMATION

- A. How many acres are you farming this year? _____ acres
 Of these, how many are: (1) Owned _____, (2) Rented _____ acres
- B. Is any of the farmland you operate irrigated? Yes No
- C. Please list your primary crops in 2008 and the approximate acreage in each
- | <u>Crop</u> | <u>Acres</u> |
|-------------|--------------|
| _____ | _____ acres |
| _____ | _____ acres |
| _____ | _____ acres |
| _____ | _____ acres |
- D. Were you operating all or part of this farm in 1999? Yes No
 If yes, was the farm operation in 1999 compared with the present:
 About the same acreage Fewer acres More acres

II. CURRENT INVENTORY OF WINDBREAKS

The Natural Resources Conservation Service (NRCS) identifies several purposes for establishing windbreaks (or shelterbelts). Three key purposes include:

- FARMSTEAD, planted primarily to protect dwellings and farm buildings.
- LIVESTOCK, planted primary to protect feedlots and other livestock confinement areas
- FIELD, planted primarily to protect crops and farmland.

Are there any windbreaks on the farm you operate? Yes No

If yes, please note what type (s) is (are) on your farm.

- Farmstead Windbreak? Yes No
- Livestock Windbreak? Yes No
- Field Windbreak? Yes No

If you have one or more FIELD windbreaks on the farm you operate, please describe each in terms of the following (Starting with the oldest/largest windbreak)

Individual Field Windbreak	Approx. Age (years)	Size Characteristics		Primary Tree Species	Current Condition Use Codes 1 Excellent 2. Good 3. Fair 4 Poor	Years of Remaining Useful Life (Years)
		Length (miles)	# of rows			
Windbreak #1				(List)	(Circle) 1 2 3 4	
Windbreak #2					1 2 3 4	
Windbreak #3					1 2 3 4	
All Other Field windbreaks combined					1 2 3 4	

Is(are) the FIELD windbreak (s) described above on land owned by you?

- Windbreak #1? Yes No
- Windbreak #2? Yes No
- Windbreak #3? Yes No
- All other Windbreaks? Yes No

Will the FIELD windbreak (s) described above be replaced by a new windbreak in the future if it needs to be replaced?

- Windbreak #1? Yes No Don't know
- Windbreak #2? Yes No Don't know
- Windbreak #3? Yes No Don't know
- All other Windbreaks? Yes No Don't know

III. HISTORY OF FIELD WINDBREAK REMOVAL?

A. Since 1999 have any FIELD windbreaks (or portions thereof) been removed from the farm you now operate?

Yes No Don't know

If yes,

Approximately, how many miles of FIELD windbreaks were removed?

_____Miles

How many rows did the windbreak(s) have? _____Rows

What was the condition of the windbreak when removed? (CIRCLE ONE)

Excellent, Good, Fair, Poor

B. For what reason(s) was the FIELD windbreak(s) removed? Check ONE primary reason and as many secondary reasons as apply.

<u>Primary</u>	<u>Secondary</u>
<u>Reason</u>	<u>Reason</u>

- | | | |
|-------------------------------|--------------------------|---|
| (1) <input type="checkbox"/> | <input type="checkbox"/> | Age and condition of windbreak |
| (2) <input type="checkbox"/> | <input type="checkbox"/> | Preparation for new windbreak |
| (3) <input type="checkbox"/> | <input type="checkbox"/> | Windbreak competing with crops |
| (4) <input type="checkbox"/> | <input type="checkbox"/> | Conflict with farming practices |
| (5) <input type="checkbox"/> | <input type="checkbox"/> | No economic value of land in windbreak |
| (6) <input type="checkbox"/> | <input type="checkbox"/> | Conflict with irrigation development |
| (7) <input type="checkbox"/> | <input type="checkbox"/> | Caused excessive snow accumulation on roads |
| (8) <input type="checkbox"/> | <input type="checkbox"/> | Right-of-way expansion for road |
| (9) <input type="checkbox"/> | <input type="checkbox"/> | Consolidation of added fields |
| (10) <input type="checkbox"/> | <input type="checkbox"/> | Other, Please Specify |

IV. HISTORY OF FIELD WINDBREAK ESTABLISHMENT AND MAINTENANCE

A. Since 1999, have any FIELD windbreaks been established on the farm you now operate?

Yes No Don't know

If yes,

About how many miles, were established on land which you own? _____Miles

Please describe this windbreak in terms of:

Number of Rows: _____

Tree Species: _____

Year Planted: _____

About how many miles, if any, of FIELD windbreaks were established on land which you rent?

Number of Miles: _____

Please describe this windbreak in terms of:

Number of Rows: _____

Tree Species: _____

Year Planted: _____

B. For what reason(s) was the FIELD windbreak established? Check ONE primary reason and as many secondary reasons as apply.

Primary Secondary
Reason Reason

- | | | |
|------------------------------|--------------------------|---|
| (1) <input type="checkbox"/> | <input type="checkbox"/> | Crop yield improvements |
| (2) <input type="checkbox"/> | <input type="checkbox"/> | Soil conservation (erosion control) |
| (3) <input type="checkbox"/> | <input type="checkbox"/> | Aesthetic (appearance) considerations. |
| (4) <input type="checkbox"/> | <input type="checkbox"/> | Cattle protection during winter grazing |
| (5) <input type="checkbox"/> | <input type="checkbox"/> | Increase value of property |
| (6) <input type="checkbox"/> | <input type="checkbox"/> | Snow management |
| (7) <input type="checkbox"/> | <input type="checkbox"/> | Provide wildlife habitat |
| (8) <input type="checkbox"/> | <input type="checkbox"/> | Trees to be used for firewood, pests, etc |
| (9) <input type="checkbox"/> | <input type="checkbox"/> | Other. Please Specify _____ |

C. Since 1999, have you or anyone else conducted maintenance program for the FIELD windbreaks on the farmland you now operate?

Yes No

If yes,

Please check the activities which you carried out.

- | | |
|------------------------------|------------------------------------|
| (1) <input type="checkbox"/> | Tree trimming and thinning |
| (2) <input type="checkbox"/> | Removal of dead and diseased trees |
| (3) <input type="checkbox"/> | Replanting |
| (4) <input type="checkbox"/> | Fencing |
| (5) <input type="checkbox"/> | Spraying for tree pests |
| (6) <input type="checkbox"/> | Other. Please Specify _____ |

D. Since 1999, have you consulted a professional with regard to FIELD windbreaks?

Yes No

If yes, please check the professional(s) contacted.

- | | |
|------------------------------|-------------------------------|
| (1) <input type="checkbox"/> | District forester |
| (2) <input type="checkbox"/> | Extension Educator |
| (3) <input type="checkbox"/> | NRCS District Conservationist |
| (4) <input type="checkbox"/> | NRD manager |
| (5) <input type="checkbox"/> | Other. Please |

Specify _____

CI. PERCEPTIONS ABOUT FIELD WINDBREAKS

- i. How do you perceive field windbreaks as a soil conservation practices?
(CHECK ONE)?

- Definite Value Some Value No Value
- ii. How do you perceive the presence of mature field windbreaks on farmland values? (CHECK ONE)?
- Sizeable increases in value
 - Some increase in value
 - No effect on value
 - Negative effect on value
- iii. How do you perceive the affect of mature field windbreaks on crop production in fields protected by windbreaks? (CHECK ONE)
- Sizeable yield increase Some yield decrease
 - Some yield increase Sizable economic loss
 - No yield effect
- iv. Given your comments above concerning field effects as well as consideration for the farmland taken out of production by the presence of windbreaks, how do you perceive the net economic effect of establishing field windbreaks to protect cropland? (CHECK ONE)
- Sizeable economic returns Some economic loss
 - Some additional returns Sizable economic loss
 - No effect on economic returns
- v. Are you aware of any economic incentive programs which encourage landowners to establish field windbreaks Yes No

If yes, please check the program(s) you are aware of in your area which are available to landowners.

- (1) Technical assistance
 - (2) Government cost-sharing for establishing field windbreaks
 - (3) Conservation Reserve Program (CRP)
 - (4) Environmental Quality Incentives Program (EQIP)
 - (5) Wildlife Habitat Incentives Program (WHIP)
 - (6) NRD Conservation Trees for Nebraska Program
 - (7) Other – Please specify: _____
- vi. How many rows of trees do you think are necessary in a field windbreak for it to be effective? _____ Rows
- vii. If you currently own a field windbreak, do you feel that the land it occupies is in its best use? Yes No
- viii. Do you feel that wind erosion is a problem in your area?
- Yes No Not Sure
- ix. Do you have a desire to see more field windbreaks being established in your county in the coming years?
- Yes No Not sure
- x. Within the next 5 to 10 years, do you plan to establish field windbreaks on land you own or encourage your landlord(s) to do so on land you rent? Yes No Don't know
- xi. Other comments.
- _____
- _____
- _____

CII. DEMOGRAPHICS OR BACKGROUND INFORMATION

- A. What is your age? _____
- B. How many years of formal education have you completed? Please check highest level completed. Primary High School Some College College Degree Graduate Degree
- C. Is farming your primary occupation? Yes No
If no, please specify your primary occupation.

D. Your annual gross receipts from farm marketing will average: (CHECK ONE)
 less than \$100,000 \$100,000-\$250,000 \$250,000- \$500,000 \$500,000-\$1,000,000 \$1,000,000 or more

E. Do you have outdoor hobbies which are enhanced by your presence of trees and wood areas? Yes No

F. Do you expect any of your children or their families to someday farm all or part of the land you are now farming? Yes No Don't know

G. Have you participated in any of the conservation programs administered by agencies such as NRCS, NRD's, ?
If yes, briefly describe the programs in which you have participated.

If you have any questions about your rights as a research participant that have not been answered by the investigator or to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board, telephone (402) 472-6965.

This concludes our survey. Thank you again for your cooperation with this study! Your help is greatly appreciated. If you have any additional comments, please write them below.

Please return your completed questionnaire in the postage paid envelope to:

Kim Tomczak
407 Hardin Hall
Lincoln, NE 68583-0914
Phone: 402-472-6626

If you would like to receive a copy of our final report, please contact me at the address above or by e-mail, at ktomczal@yahoo.com.

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