

## Survey of Nursery Professionals

Dear nursery professional,

Personnel at Iowa State University are conducting a research study on knowledge of and attitudes toward plant material sources for restoration projects conducted in the state of Iowa. You have been selected as a participant because you are an important stakeholder by potentially providing plants for restoration. We would like to invite you to participate in a short online survey that will offer us insight into your opinions on this issue. Please carefully consider if you are willing to participate.

There are no direct risks or benefits to you should you choose to participate in this study. Your participation is completely voluntary and you may skip any questions that you do not wish to answer or that make you feel uncomfortable.

Records will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy project records for quality assurance and data analysis. These records may contain private information. If the results of this study are published, your identity will remain completely confidential.

Your participation in this research project is very important to us. We thank you for considering participating in this important study.

This survey should take 10-15 minutes to complete.

By clicking 'NEXT' now, you will become a participant in our study.

- For further information about the study or if you have questions regarding the study, contact Dr. Jan Thompson (jrrt@iastate.edu) or Emily Altrichter (emilya1@iastate.edu), Department of Natural Resource Ecology and Management, 339 Science II, Iowa State University, Ames, IA.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294- 4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.



5 Please indicate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am familiar with the ecological value of native plant communities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am familiar with the functional value of native plant communities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stay up-to-date on changes in best management practices for native plant community restoration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am knowledgeable about local ecotypes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Species selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stock type selection (seed vs. plant stock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeding techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bare root planting techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Species selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stock type selection (seed vs. plant stock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeding techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bare root planting techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



For the following questions, please use these definitions for different types of plant material:

*Native plants:* species that are indigenous to North America and occur naturally within Iowa.

*Prairie plants:* native species that occur in prairie ecosystems, including grasses (graminoids) and forbs (herbaceous flowering plants).

*Woodland species:* native species that occur in forest and woodland ecosystems.

*Woody plants:* trees and shrubs.

*Woodland herbaceous perennial species:* any non-woody vascular plants less than three feet tall that thrive in shady forest understories.

*Plants grown from source-identified seed:* any plant material that is known to have originated in a specific place and has undergone an origin-certification process.

7 Please indicate how long you have been growing the following groups of species in your nursery:

	Not applicable	0-2 years	3-5 years	6-10 years	>10 years
Native plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prairie plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grasses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forbs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woodland species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woody plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woodland herbaceous perennial species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plants grown from source-identified seed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For the following questions, please use this definition of local ecotype:

*Local ecotype:* A population of plants that originated in a specific area and have genetic adaptations to the environment in that area.

8 What are your primary sources of information about local ecotypes? Please check all that apply.

- Trade journals (HortTechnology, American Nurseryman, etc.)
- University extension office (Iowa State University Horticulture or Forestry Extension)
- Scientific literature (Environmental Horticulture, Ecological Restoration, etc.)
- Professional training (workshops, trade shows, special training)
- School coursework (general biology, forestry, botany, horticulture, restoration classes)
- Trusted authority (supervisor, colleague, friend, etc.)
- I am not familiar with this term
- Other (please specify) \_\_\_\_\_

For the following questions, please use the following definitions:

*Local ecotype*: A population of plants that originated in a specific area and have genetic adaptations to the environment in that area.

*Plants grown from source-identified seed*: any plant material that is known to have originated in a specific place and has undergone an origin-certification process.

9 Please rate how much you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I believe that it is important to keep track of where plant material is originally collected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it is appropriate to plant non-local-ecotype plant material in an urban garden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that native plant communities are a valuable natural resource.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to restore native plant communities regardless of the plant material source.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that the source of plant material for restoration projects is not important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that those conducting restoration should use only local ecotype plant material when working in/near a high-quality remnant plant community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that it is important to use local ecotype plant material whenever possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that using non-local plant material would be detrimental to an existing plant community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For the following questions, please use the following definitions:

*Local ecotype:* A population of plants that originated in a specific area and have genetic adaptations to the environment in that area.

*Plants grown from source-identified seed:* any plant material that is known to have originated in a specific place and has undergone an origin-certification process.

10 Please rate how much you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My customers have requested local ecotype plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My customers have requested source-certified plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my customers requested local ecotype plant material, I would be willing to obtain it for them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my customers requested source-certified plant material, I would be willing to obtain it for them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do (or would) charge more for local ecotype/source-certified plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11 Please indicate the longest period of time that you would engage in the following activities:

	I would not try to cultivate these species.	6 months-1 year	1-2 years	3-4 years	>5 years
Cultivate species that are difficult to grow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultivate species that are difficult to grow but financially valuable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultivate species that are difficult to grow but have high customer demand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12 Do you supply local ecotype or source-certified plant material?

- Yes (please proceed to questions 13-14)
- No (please proceed to question 15)

If you do supply local ecotype or source-certified plant material, please answer the following questions, and then proceed to question 16.

13 Please respond to the following:

	0	1-5	6-10	11-25	>25
Currently, about how many customers per year specifically request source-certified plant material?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At the time when you began selling source-certified plant material, about how many customers per year specifically requested it?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



14 Please indicate how you would characterize the following:

	Consistently decreasing	Variable, but generally decreasing	Stable	Variable, but generally increasing	Consistently increasing
Current demand for local ecotype plant material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current demand for source-certified plant material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anticipated future demand for local ecotype plant material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anticipated future demand for source-certified plant material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you do not supply local ecotype or source-certified plant material, please answer the following question, and then proceed to question 16.

15 Please indicate your level of agreement with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am currently considering selling local ecotype plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would never consider selling local ecotype plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Currently, demand for local ecotype plant material is low.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am currently considering selling source-certified plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would never consider selling source-certified plant material.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Currently, demand for source-certified plant material is low.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would sell local ecotype or source-certified plant material if more of my customers asked for it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would sell local ecotype or source-certified plant material if I knew that I could make a profit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Locating and selling source-certified plant material is a hassle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following items are for demographic description purposes only.

16 Are you:

- Male
- Female

17 In what year were you born?

18 Approximately how many years have you lived in Iowa?

19 Approximately how many years have you been involved in the nursery industry?

20 What is the highest level of education you have completed?

- 9th to 12th grade, no diploma
- High school graduate
- Some college, no degree
- Associate degree
- Bachelor's degree
- Graduate or professional degree
- Prefer not to answer

## Survey of Conservation Professionals

Dear conservation professional,

Personnel at Iowa State University are conducting a research study on knowledge of and attitudes toward plant material sources for restoration projects conducted in the state of Iowa. You have been selected as a participant because you are an important stakeholder in conservation and restoration. We would like to invite you to participate in a short online survey that will offer us insight into your opinions on this issue. Please carefully consider if you are willing to participate.

There are no direct risks or benefits to you should you choose to participate in this study. Your participation is completely voluntary and you may skip any questions that you do not wish to answer or that make you feel uncomfortable.

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Your participation in this research project is very important to us. We thank you for considering participating in this important study. This survey should take 10-15 minutes to complete.

By clicking 'NEXT' now, you will become a participant in our study.

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First, we'd like to confirm your role.

1 Please select your primary group affiliation:

- Nursery owner
- Nursery operator
- Professional horticulturist and/or landscaper
- Governmental natural resource manager and/or conservation professional
- Non-governmental natural resource manager and/or conservation professional
- Woodland landowner
- Other (please specify) \_\_\_\_\_

2 Please select your secondary group affiliation, if applicable:

- Nursery owner
- Nursery operator
- Professional horticulturist and/or landscaper
- Governmental natural resource manager and/or conservation professional
- Non-governmental natural resource manager and/or conservation professional
- Woodland landowner
- Other (please specify) \_\_\_\_\_
- Not applicable





5 Please indicate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am familiar with the ecological value of native plant communities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am familiar with the functional value of native plant communities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stay up-to-date on changes in best management practices for native plant community restoration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am knowledgeable about local ecotypes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Species selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stock type selection (seed vs. plant stock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeding techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bare root planting techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Species selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stock type selection (seed vs. plant stock)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeding techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bare root planting techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





For the following questions, please use these definitions for different types of plant material:

*Native plants:* species that are indigenous to North America and occur naturally within Iowa.

*Prairie plants:* native species that occur in prairie ecosystems, including grasses (graminoids) and forbs (herbaceous flowering plants).

*Woodland species:* native species that occur in forest and woodland ecosystems.

*Woody plants:* trees and shrubs.

*Woodland herbaceous perennial species:* any non-woody vascular plants less than three feet tall that thrive in shady forest understories.

*Plants grown from source-identified seed:* any plant material that is known to have originated in a specific place and has undergone an origin-certification process.

7 Please indicate how long you have been using the following groups of species in restoration projects, if applicable:

	0-2 years	3-5 years	6-10 years	>10 years	Not applicable
Native plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prairie plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grasses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forbs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woodland species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woody plants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woodland herbaceous perennial species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plants grown from source-identified seed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For the following questions, please use this definition of local ecotype:

*Local ecotype:* A population of plants that originated in a specific area and have genetic adaptations to the environment in that area.

8 What are your primary sources of information about local ecotypes? Please check all that apply.

- Trade journals
- University extension office (Iowa State University Horticulture or Forestry Extension)
- Scientific literature (Ecological Restoration, Restoration Ecology, Ecology, etc.)
- Professional training (workshops, special training)
- School coursework (general biology, forestry, botany, horticulture, restoration classes)
- Trusted authority (supervisor, colleague, friend, etc.)
- I am not familiar with this term
- Other (please specify) \_\_\_\_\_

For the following questions, please use the following definitions:

*Local ecotype:* A population of plants that originated in a specific area and have genetic adaptations to the environment in that area.

*Plants grown from source-identified seed:* any plant material that is known to have originated in a specific place and has undergone an origin-certification process.

9 Please rate how much you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I believe that it is important to keep track of where plant material is originally collected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it is appropriate to plant non-local-ecotype plant material in an urban garden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that native plant communities are a valuable natural resource.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to restore native plant communities regardless of the plant material source.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that the source of plant material for restoration projects is not important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that those conducting restoration should use only local ecotype plant material when working in/near a high-quality remnant plant community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that it is important to use local ecotype plant material whenever possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that using non-local plant material would be detrimental to an existing plant community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



11 Does your organization have specific guidelines for obtaining source-certified or local ecotype plant material?

- Yes (please proceed to question 12)
- No (please proceed to question 16)

12 What are your organization's recommended boundaries for obtaining plant material for restoration? Please check all that apply.

- State lines
- County lines
- Maximum radius from restoration site
- Variable based on type of restoration project (high quality remnant, new restoration, urban park, etc.)
- Variable based on biotic and abiotic environmental conditions (topography, moisture, soil type, plant community, etc.)
- Other (please specify) \_\_\_\_\_

13 If there is a maximum distance from a restoration site from which your organization recommends obtaining plant material, what is that distance? Please include units.

14 How long has your organization been recommending local ecotype plant material? If your organization does not recommend local ecotype plant material, write 'N/A.'

15 How long has your organization been recommending source-certified plant material? If your organization does not recommend source-certified plant material, write 'N/A.'

16 Do you have preferred guidelines for obtaining source-certified or local ecotype plant material?

Yes (please proceed to question 17)

No (please proceed to question 21)

17 What is your preferred distance limit for obtaining plant material for restoration? Please check all that apply.

- State lines
- County lines
- Maximum radius from restoration site
- Variable based on type of restoration project (high quality remnant, new restoration, urban park, etc.)
- Variable based on biotic and abiotic environmental conditions (topography, moisture, soil type, plant community, etc.)
- Other (please specify) \_\_\_\_\_

18 If there is a maximum distance from a restoration site from which you prefer to obtain plant material, what is that distance? Please include units.

19 How long have you been recommending or using local ecotype plant material? If you do not recommend or use local ecotype plant material, write 'N/A.'

20 How long have you been recommending or using source-certified plant material? If you do not recommend or use source-certified plant material, write 'N/A.'



The following items are for demographic description purposes only.

21 Are you:

- Male
- Female

22 In what year were you born?

23 Approximately how many years have you lived in Iowa?

24 Approximately how many years have you been involved in the conservation industry?

25 What is the highest level of education you have completed?

- 9th to 12th grade, no diploma
- High school graduate
- Some college, no degree
- Associate degree
- Bachelor's degree
- Graduate or professional degree
- Prefer not to answer