LANDOWNER CONSTRAINTS TO THE ADOPTION OF LIVING SNOW FENCES

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Outline

- Research Project
- Living Snow Fences
- Focus Groups
  - Costs
  - Constraints
  - Other factors
- Payment Calculator
  - Landowners Costs
- Recommendations
Research

Research and Assess the Farmer and Mn/DOT Economic and Environmental Costs and Benefits of Living Snow Fences, Including Carbon Impacts

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Research Project Tasks

- Field survey of cost and constraints to landowners
- Financial analysis of costs to landowners
- Carbon emission and payment estimation
- Mn/DOT’s costs savings
- LSF & Corn Row Payment Calculator
Living Snow Fences (LSF)
Living Snow Fences

40-50 Feet Wide
Average 1 acre of land

Landowner Costs & Constraints

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Blowing Snow Problems

Blow-Ice

Drifting Snow

Living snow fences
Landowner Costs & Constraints

MnDOT
3,700 Blowing Snow Problem Areas

- Field Survey Data
Without LSF

With LSF

Living snow fences
Landowner Costs & Constraints

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Focus Groups

Sierra Schroeder
Focus Groups

What are the costs and constraints of living snow fence adoption & implementation?

- Funnel sequence questioning route
- 5 Study Sites in Minnesota
- 45 Landowners in existing snow problem areas
- With and without living snow fences

- Costs
- Constraints
- Other adoption factors
Focus Groups: Costs

- Establishment
  - Conservation program cost share
  - Mn/DOT covers remainder

- Maintenance
  - Most frequently discussed cost
  - Rejuvenation

- Removal
  - Compensation to return to tillable land

- Opportunity Cost
  - Rising Land Values/Rent

- Current Compensation Insufficient
Focus Groups: Constraints

- **Risk**
  - Die-off
  - Biggest constraint

- **Hassle**
  - Locating planting stock
  - Farming around LSF

- **Time**
  - Full schedules

- **Contract**
  - Length
  - Rigidity
Focus Groups: Other Adoption Factors

- Awareness
  - Unaware before focus group

- Relative Advantage
  - Marginal cropland

- Program Perception
  - Conservation
  - Social responsibility
Landowner Costs

Dinesh Paudel – Interviews, Mn/DOT Financial Documents
David Smith – Economic Data and Modeling
Living snow fences
Landowner Costs & Constraints
Establishment Costs per acre

- Mat: $350
- Tree Planter & Seedlings: $80
- Native Grass Seeds: $44
- Tillage: $34
- Grass plantation: $18
- Herbicides: $10

Total: $1,725

Living snow fences
Landowner Costs & Constraints

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Conservation Programs

Environmental Quality Incentives Program (EQIP)

- Any Type of Land
- Establishment
  - Preparation
    - $19/acre cropland & grassland
    - $136/acre shrub/brush
    - $1078/acre tree removal
    - $66 per 100 feet per row
- Land that has been cropped four out of six years
  - 50% Establishment Cost Share
  - Annual rental payment based on soil type
  - $10/acre signing bonus
Maintenance Costs of Living Snow Fences

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<th>Year</th>
<th>Handpicking</th>
<th>Spot Spraying</th>
<th>Replanting</th>
<th>Mowing</th>
<th>Watering</th>
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Landowner Costs

Real $ per acre

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<tr>
<th>Year</th>
<th>Yield Reduction near Fence</th>
<th>Maintenance</th>
<th>Inconvenience</th>
<th>Rent</th>
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Rental Rate

Source: MN Land Economics
Minimum Payments to Landowner

Living snow fences
Landowner Costs & Constraints

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Recommendations

- Shorter more flexible contracts (15 y CRP)
- Increase compensation at locations with positive net benefits (67% of snow problem areas in Minnesota)
- Payment adjusted for inflation
  - Tie payment to index (land value, corn price)
- Increase payment in years 1-3 for maintenance
- Reduce risk & liability to landowner
  - Compensate for replanting
- Contract maintenance services
- Increase awareness
- Targeted recruitment from local contact
Thank You!

MnDot Advisors
- Dan Gullickson
- Dean Current

Regional Extension Advisors
- Gary Wyatt
- Diomy Zamora

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Questions?

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