

Living Snow Fence – Lessons Learned

Overview

Every winter season, PennDOT is faced with the challenge of blowing and drifting snow on its roadways. Snow drifts can jeopardize public safety and emergency services and increase road maintenance costs. As an alternative to traditional methods, PennDOT is looking to use living snow fences across Pennsylvania, where possible. Living snow fences consist of rows of living plants such as grasses, shrubs and other plants, which cause blowing snow to settle in a designated area.

Transportation Challenges Addressed

Traditionally, PennDOT has used plastic construction fences to help minimize snow drifting during winter weather events, and before that, wood fence was used; however, those traditional methods can be labor intensive to install, maintain and remove following the winter season. Living snow fences are strategically planted windbreaks that have been specifically designed to reduce blowing and drifting snow. While a variety of plants can be used for this purpose, PennDOT is focusing its efforts on using corn for the living snow fence. Like a plastic snow fence, a living snow fence traps blowing and drifting snow and prevents it from covering the plowed roadway.

Where has it been used in PA?

PennDOT piloted this innovation on Mount Zion Road in Lebanon, Pa. Two PennDOT employees asked a local farmer to leave rows of corn standing, and in exchange, the employees hand-picked the corn on a day off from work.

The photos below show two views of Mount Zion Road. The first photo shows the roadway covered in snow in the foreground with orange, plastic fencing off to the right side. In the background, cornstalks stand to the right of a significantly clearer roadway.



The second view shows the same road approaching from the opposite direction. In the foreground, the photo shows a clear road, with a corn fence standing to the left. In the background, some snow has drifted past the plastic fencing and onto the road. Both photos show the living snow fence serving as a superior barrier to plastic fencing.



Lessons Learned and Best Practices

Late summer or early fall is the recommended timeframe to discuss the program with farmers and invite them to participate. The development team created a decision tree to help identify which farms qualify to provide a Living Snow Fence (see Appendix A). In particular, the farm shall be along a PennDOT maintained road, where blowing and/or drifting snow is a concern. The farm shall have planted corn along the prevailing wind side of the roadway.

A Living Snow Fence shall be left standing between 20 to 40 feet from the edge of the PennDOT right of way and shall consist of eight to 16 rows of corn. The development team created a diagram showing this (see Appendix B). Payment to the farmer is determined via a standardized calculation that converts the rows of standing corn into acres. PennDOT will initially pay \$3,000 per acre up to \$10,000. The contract allows for up to two renewal terms and increases the price per acre for each renewal. The farmer must be a [Commonwealth of Pennsylvania registered vendor](#) to qualify for the program.

PennDOT employees can access information about implementing a Living Snow Fence in the [PennDOT Maintenance Manual, Publication 23, Chapter 4](#), page 4-34. A standard agreement is shared in [Publication 23, Chapter 4](#), Appendix J located on page 4-87, and it can be used in situations where the total cost of the snow fence is under \$10,000. Guidance for calculating the fence's cost is provided within the contract.

The Standard Living Snow Fence Agreement

While other vegetation may form a snow barrier, PennDOT has approved using cornstalks as the only type of living snow fence at this time. While soybean plants and other types of brush may also prevent snow from drifting onto the roadways, the team has only tested using corn. Additional studies need to be done to confirm that other plants provide equal benefits to cornstalks before they could be added to the contract.

Cost/Benefit Information

The cost of a living snow fence is approximately half of the cost of the plastic construction fence. Traditional snow fence costs \$7.50 per foot, including labor and materials. Through this program, PennDOT will be paying farmers \$3 per foot.

Process

1. Assistant County Managers and County Managers shall discuss locations that could benefit from a Living Snow Fence.
2. Use the Living Snow Fence Decision Tree (see Appendix A) to determine if a farm qualifies for compensation for standing corn.
3. Approach the farmer to discuss the program and register as a Commonwealth of Pennsylvania business partner. Refer to [Publication 23, Chapter 4](#) for details.
4. Obtain a signed agreement, using the Legal Approval Tracking System (LATS).
5. Verify that the farmer left the cornstalks standing at the beginning of the winter season according to the contract's Corn Windbreak diagram before issuing the first payment.
6. Verify that the farmer left the cornstalks standing for the duration of the winter season according to the contract's Corn Windbreak diagram before issuing the final payment.

Additional information can be found in [Publication 23](#).

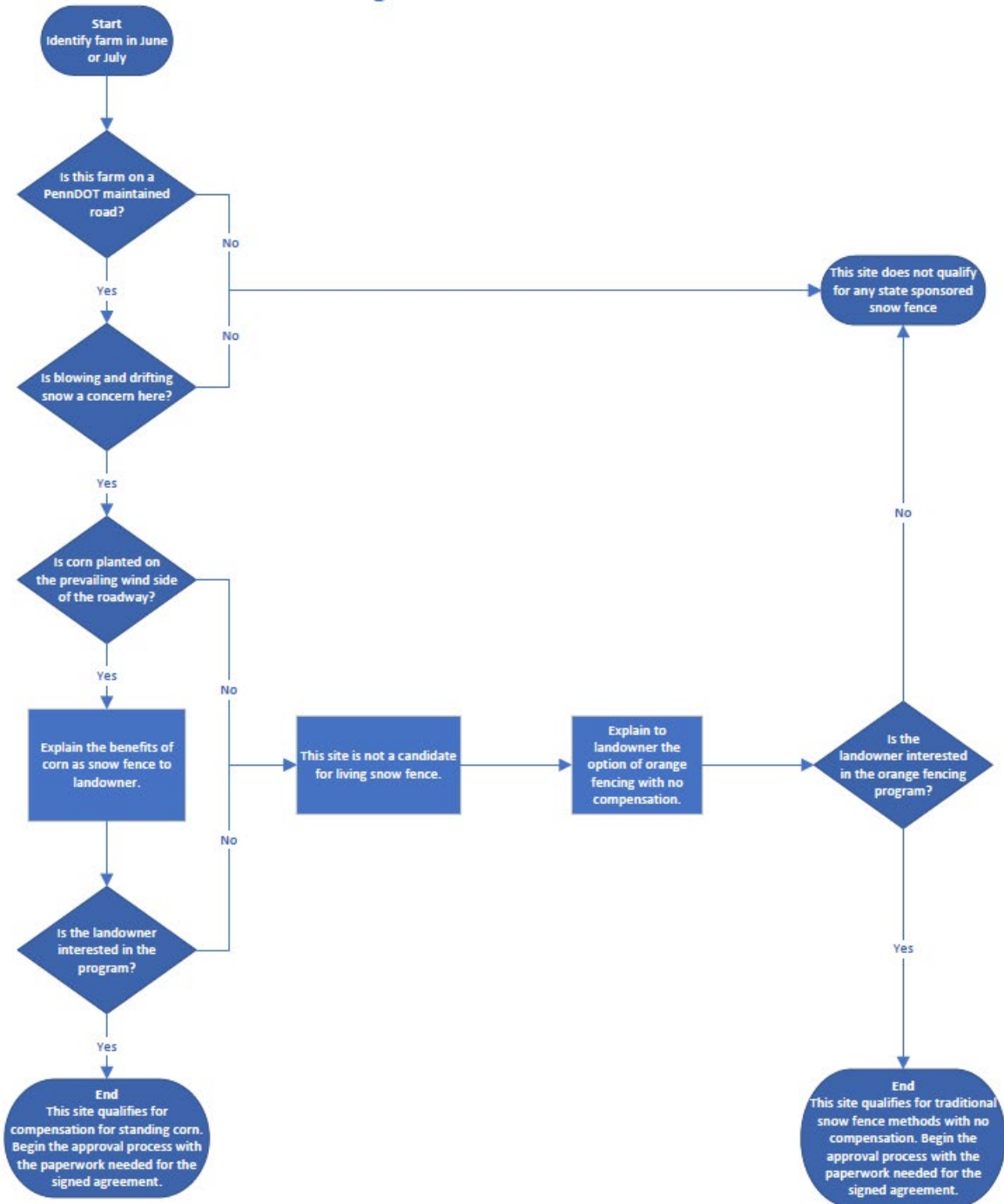
Next Steps

Following the pilot, PennDOT worked to create an agreement that can be used to work with farmers across the state. The template agreement has been approved by PennDOT's Office of Chief Council and is available in LATS, and the Department has started to enroll farmers in the program for the upcoming winter season.

Contact penndotstic@pa.gov with questions.

Appendix A – Living Snow Fence Decision Tree

Living Snow Fence Decision Tree



Aug. 2024

Appendix B – Diagram Showing Ideal Corn Remnants

