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Wind Protection for Rural Michigan
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WIND PROTECTION

for rural michigan



*Windbreaks
Shelterbelts
Snowbreaks*

MICHIGAN STATE UNIVERSITY
Cooperative Extension Service • East Lansing

Use Trees to Protect Farm Buildings, Fie

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Windbreak

A straight or L-shaped band of trees designed to protect farm buildings from the wind is called a windbreak.

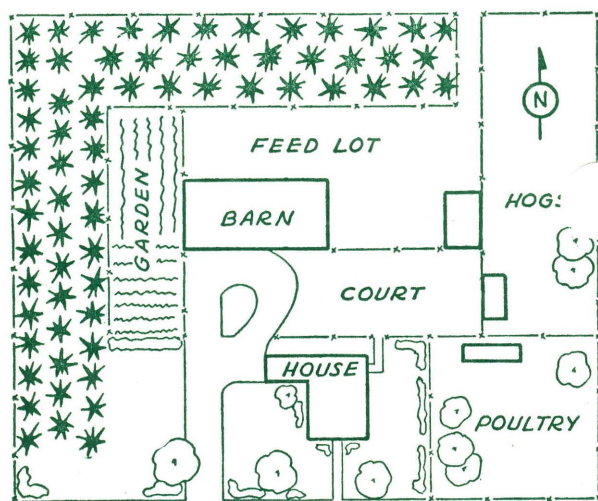


Fig. 1. Locate your windbreak 80 to 150 feet from the buildings in a position to protect them from the prevailing winds in your area.

Location of Windbreak

Plan your windbreak carefully so it will protect all buildings and the farm yard (Fig. 1). The prevailing wind during January is from the southwest in all counties south of a line from Oceana to Bay counties. North of that line, the winter winds blow from the northwest.

Locate the windbreak 80 to 150 feet from buildings.

Spacing of Trees

Plant three rows of trees with 8 feet between and 10 feet between trees in the rows.

Alternate the trees in the middle row with the trees in the first and third rows (Fig. 2).

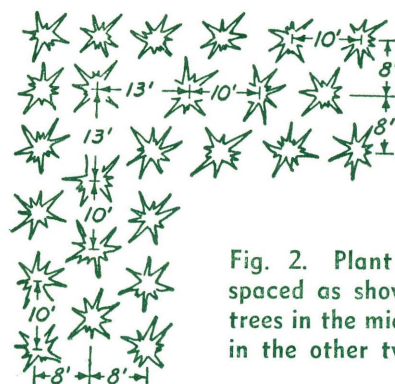


Fig. 2. Plant three rows of trees spaced as shown, and alternate the trees in the middle row with the trees in the other two rows.

Species of Trees

Evergreen trees are best because they give protection in the winter when it is most needed. Norway and white spruce and white, red, jack, and Scotch pine are desirable species.

You can get information on soil needs for these species in M. S. U. Extension Bulletin 264, *Forest Trees and Shrubs*, page 11.

Size of Planting Stock

Use transplants 8 to 12 inches high. Larger planting stock will give earlier protection. If you are planting trees taller than 18 inches, be sure the roots are balled with soil.

Planting the Windbreak

Plow and fit the soil where you are to plant the trees. Plant the trees in straight rows so you can



Fig. 3a. Make sure the hole is big enough to hold the roots without crowding them.



Fig. 3b. Pack the dirt in firmly around the tree, being sure that the tree is held in the center of the hole.

Ids and Orchards

cultivate them. Measure the location for each tree and mark the spot with a stake.

Dig a hole large enough to hold all the roots without crowding (Fig. 3a). Hold the tree in the center of the hole and pack the soil firmly against the roots (Fig. 3b).

Care of Windbreak

Cultivate the trees at least three times a year for the first 3 years. Protect them from grazing animals and replant losses.

Shelterbelt

A barrier of trees which protects farm fields and orchards from wind damage is called a shelterbelt.

Location of Shelterbelt

During the spring and summer months, the prevailing winds blow from the west and southwest, south of a line from Manistee to Iosco counties. North of that line, the prevailing winds blow from the northwest. Plant the trees on the side from which the wind blows in your area.

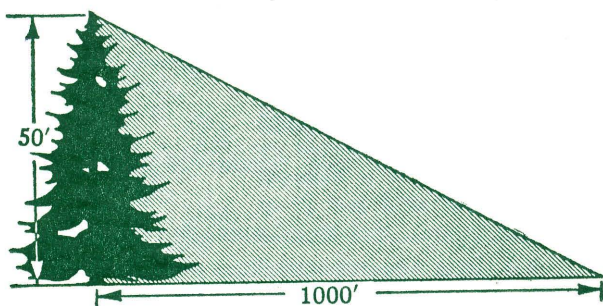
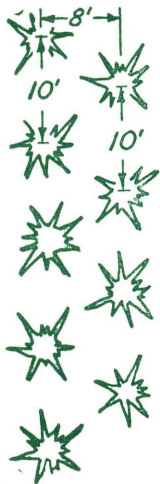


Fig. 4. You can protect 1,000 feet of soil from major wind erosion and loss of soil moisture with a shelterbelt of trees 50 feet tall.

Effective Distance

A shelterbelt gives the most protection at a distance of 5 to 15 times the height of the trees. At a distance 20 times the height of the trees, the surface will cut only 10 percent. Trees 50 feet tall will protect 1,000 feet of ground from major wind erosion and loss of soil moisture (Fig. 4).



Number of Rows and Spacing

Do not plant trees so close together in a shelterbelt that the wind cannot get through. Two rows (8 feet apart) with the trees spaced from 10 to 14 feet apart is suggested (Fig. 5).

Species of trees, size of planting stock, planting methods, and care of the trees is the same as for windbreaks.

Fig. 5. Do not plant the trees in a shelterbelt as close together as in a windbreak. You need only two rows, spaced as shown.

Snowbreak

A snowbreak is a band of trees planted parallel to a highway or farm lane to prevent snow from drifting on the road.

The cost of snow removal is paid by those who use highways. Money saved on snow clearance can be used for highway improvement. Snow control is very important to the rural property owner because he uses the road that passes his property more than any other person. Snowbreaks may be the cheapest barriers to keep snow from drifting on the highways.

Where Snowbreaks Are Needed

Plant snowbreaks only where the worst drifting occurs. This includes:

1. In narrow valleys where snow piles in the road.
2. On side hills where snow drifts over the bank.
3. In cuts where snowbreaks are usually needed on both sides of the highway.
4. On level land where roads are not elevated.
5. On sharp curves.

Put snowbreaks on the windward side of roads. For roads running north and south, this would usually be the west side. For east-west roads, the north side is best for planting a snowbreak. In some places where drifting is very bad, put snowbreaks on both sides of the road.

The superintendent of the local county road commission can give you information on where snow protection is needed most.

Where Snowbreaks Are Not Needed

Do not plant snowbreaks where they are not needed because they will cut off the view from the highway. This includes:

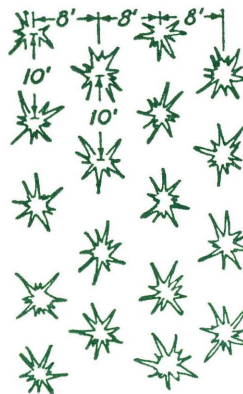
1. Where the lay of the land naturally keeps snow from drifting.
2. On raised, windswept highways.
3. Where timber is standing $\frac{1}{8}$ mile or closer to the windward side of the road.
4. Where a pleasing view would be hidden and snow drifting is not a problem.

Species of Trees

Trees for snowbreaks (best ones first) are: Scotch pine, jack pine, Austrian pine, red pine, and white pine.

Spacing and Number of Rows

Plant the snowbreak 75 to 150 feet from the center of the road. This will leave room for snow to drift before it reaches the highway. Plant from three to five rows of trees 8 feet apart, and leave 10 feet between the trees in the rows (Fig. 6). At 75 feet from the center of the road, you will need five rows, while three rows will give good protection at 100 to 150 feet.



Size of planting stock is the same as suggested for windbreaks.

Fig. 6. Five rows of trees, spaced as shown, will give you a good snowbreak if they are as close as 75 feet from the road. If you plant it 100 to 150 feet from the road, you will need only three rows of trees for good protection.

Where to Get Trees

Forest Nursery, Michigan State University, East Lansing, Michigan.

Forestry Division, State Conservation Department, Lansing 13, Michigan.

Private tree nurseries.

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