



Windbreaks for *Energy* and Odor Abatement

VISUAL APPEAL WITH PRACTICAL BENEFITS

With fuel costs on the rise, rural properties need ways to improve their energy efficiency. Both warmed and cooled air is lost by *conduction* through the walls and windows to the outside of a building, while *infiltration* allows outside air to seep into a building through cracks, doors and other openings.

Windbreaks help reduce your property's energy costs year-round.

In tests that compare heating costs from homes on protected and unprotected sites, researchers found that windbreaks reduce fuel use by 18 to 25 per cent. These savings are a result of reduced wind speed, which lowers the rate of both conduction and infiltration. Realized savings from your windbreak depends on the height of the trees and windbreak porosity, with the denser and taller windbreaks found most effective.

When production and processing facilities or croplands produce odors that are objectionable to surrounding communities, resident complaints and government citations often result. If the company wants to continue its venture and stay in good stead with its neighbors, but cannot reduce the odors with facility modifications, odor abatement may be the answer.

How does a windbreak work?

- 1) **Windbreaks modify airflows**, which protect and insulate buildings and also dilute and disperse odors.
- 2) **Odorous dusts and aerosols fall** to the windward and leeward sides of windbreaks and collect on leaves, needles and branches.
- 3) **Chemical constituents of odors collect and store** in tree wood.
- 4) **Odors are physically contained** within the parameters of windbreaks.
- 5) **Wind erosion is reduced** on adjacent crop fields.
- 6) **Screened views improve aesthetic appearances** and show that the facility made positive efforts.

Planting windbreaks around the entire facility perimeter is ideal.

Windbreaks upwind of the facility move airflow up and over odor sources and help dilute odors and those downwind of the odor source filter air and trap odors and dust. Windbreaks must be at least 75 to 100 feet from access roads and driveways to prevent snowdrift accumulation.

Getting started

Sounds complicated, but getting started is as simple as meeting with your local Natural Resources Conservation Service (NRCS) agent. The agent will either visit the site in person or look at it from aerial photos.

The location and size of your property can help the agent determine the project scope and cost and if any **cost share opportunities** are appropriate for your project, for example, through the NRCS. Drip irrigation for your windbreak is cost-shared by NRCS and is sometimes required. Continuous weed mat or mulching is also recommended and cost-shared.

Additional cost share programs are included in the Environmental Quality Incentives Program (EQIP), which was reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill).

The **final approvals on these cost-share benefits rest with NRCS**. You can **find your local NRCS** office on the Internet at www.nrcs.gov, or by calling Forrest Keeling Nursery 800-356-2401.

Specific plant materials planted in windbreak-style also help neutralize objectionable smells and reduce negative views.

