

APPENDIX J

Shelterbelt Guidelines for Manitoba Pig Producers

Adapted from Agriculture and Agri-Food Canada's Basic Shelterbelt Establishment Guidelines for Prairie Livestock Facilities.

Introduction

Properly planned shelterbelts around a livestock facility provide many benefits. Shelterbelts reduce the expense of snow removal by trapping snow, and reduce heating and maintenance costs of buildings by reducing wind velocities. Protected livestock are generally healthier and require less feed. Shelterbelts have the potential to effectively control odor, particularly when used in combination with other methods. Shelterbelts help blend the physical features of the facility with the landscape, and provide a more pleasant working environment.

Planning a Shelterbelt

Proper planning of a shelterbelt involves reviewing your present requirements, assessing your future needs, estimating the quality of existing shelterbelts, and planning new shelterbelts to achieve the benefits.

Most livestock facilities would have had some scale ground plans that provide the necessary measurements and locations of existing trees, sloughs, buildings, manure storages, corrals, access roads and power lines. If not, it is recommended to measure and map the area, keeping in mind prevailing wind directions and areas where excessive snow accumulations can cause problems.

To eliminate problems with snow buildup, it is recommended that all shelterbelts be at least 30 m (100 ft) from main buildings, manure storages and access roads. Compliance with shelterbelt

setback regulations established by Rural Municipalities is strongly recommended, in addition to regulations set by the Canadian railroad and the provincial highways and transportations departments, where applicable.

Shelterbelt Design

There is no one ideal shelterbelt design with a set number of rows, planting width or species for every livestock facility. Factors such as soil conditions, operational activities, and layout among buildings, lagoons and roads must be taken into consideration to ensure the success and usefulness of the shelterbelt over the long-term.

For odour protection, a three-row shelterbelt is recommended where space is not limited, to obtain basic wind and snow protection (**Figure 1**). Up to five or six rows of trees can be planted on sides of the property most subject to prevailing winds, or in areas where greater shelter is required to reduce wind or to trap snow.

Shelterbelt Maintenance

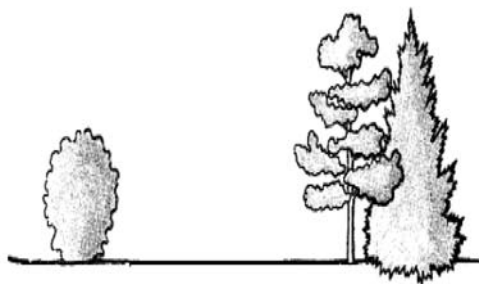
Use of plastic mulch greatly reduces the growth of weeds and grass within the rows and allows trees to thrive in the early years. Mowing or tilling between the rows is still required to help control weeds. Trees should be planted at least 30 m away from manure storages to allow access.



(Figure 1)

The shelterbelt design should consist of a combination of dense shrubs, tall deciduous and coniferous material. Fast-growing trees can be planted to provide benefits sooner, but long-lived trees should also be considered for lasting effect. This can be accomplished by using a variety of species, each possessing at least one of the desired characteristics.

The outside row of a shelterbelt acts as a snow trap and starts to deflect the wind current upwards. This row should be a dense shrub, 15 to 30 m (50 to 100 ft) from the inside tree rows. This row acts as a trip line, and reduces the size of snowdrifts that build up on the inside of the tree rows (Figure 2). The tree rows should consist of a fast to moderate-growing species and a long-lived species at a minimum. If space allows, additional tree rows closer to the site could be tall, dense and long-lived conifer species. (Figure B)



----- 15 to 30 m -----
(Figure 2)

Establishing an alley crop system with distances up to 30 m (100 ft) between tree rows would achieve the benefits of a traditional shelterbelt system, and allow for the production of crops and/or forage between the tree rows. This would allow for greater utilization of the land surrounding the livestock facility.

A proper shelterbelt design for a livestock facility should be developed separately for each site and circumstance. On-site consultation ensures that all soil and site conditions are assessed accordingly, and that no other activities surrounding pig production are compromised with the establishment of a shelterbelt. For more information and technical assistance with the development and establishment of an appropriate shelterbelt design, contact Manitoba Agriculture, Food and Rural Initiatives, Agriculture and Agri-Food Canada, or Prairie Farm Rehabilitation Administration.