Shelterbelt management

AGRICULTURE VICTORIA

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INTRODUCTION

Shelterbelts make an important contribution to a farm environment. Shelterbelts require correct care and maintenance if they are to provide the desired benefits to a property.

Management aims to maintain the health and vigour of individual trees and shrubs while maintaining the overall structure of the shelterbelt as an effective barrier to the wind. Practices such as weed control, pest animal control, pruning, insect and disease control and fire may need to be implemented to maintain a highly effective shelterbelt. If correctly managed a shelterbelt can provide numerous benefits over a long period of time.

NEWLY ESTABLISHED SHELTERBELTS

Newly established shelterbelts are generally the most vulnerable, as they are highly susceptible to grazing by animals, dry conditions and weed competition.

Thorough site preparation and weed control can maximise the amount of moisture available to young plants. Good soil moisture during the first growing season ensures good root and above ground growth. Faster growth reduces the plant's susceptibility to grazing, fire, insect attack and weed competition. This in turn leads to higher rates of survival.

Losses of plants are likely to be highest during the first few years. Dead plants should be replaced as soon as possible to maintain even heights and densities within a shelterbelt. It is harder to establish new plants in an advanced shelterbelt due to competition for water and shading by the older plants.

WEED CONTROL

Grasses and weeds compete with shelterbelt plants for water, light, space and nutrients. Weed species should be controlled for the entire lifetime of a shelterbelt in order to maintain its' effectiveness. However it is particularly important that effective weed control is undertaken during the first five years of a shelterbelt after establishment.

Weed control should be undertaken within and between the rows of a shelterbelt. This will give the shelterbelt plants the best opportunity to become established. Weed control is undertaken between rows to remove the source of weed seeds. This can be achieved by mowing weed species prior to them setting seed. Complete removal of the weeds is more appropriate in dry areas.

OLDER PLANTINGS

Older plantings also benefit from weed control. The growth and health of a shelterbelt will be improved if weed species are removed. This means that a shelterbelt that has effective weed control from establishment on, will become effective earlier and last longer.

It is recommended that weed control be undertaken for up to 10 years following the establishment of a shelterbelt. Following this time it should be undertaken as required to ensure that no serious weed infestations occur. If weeds within a shelterbelt are not controlled then the shelterbelts may become a source of weed seeds that enter other areas of the property.

As a shelterbelt matures weed control should become less time consuming. Litter from the trees and shrubs will fall and create a mulched area. Weeds will find it more difficult to get sufficient sunlight and moisture to become established.

PROTECTION FROM ANIMALS

Grazing of either newly established or older shelterbelts can cause significant damage. A range of animals can damage new and old shelterbelts, both domestic and wild.

Livestock may lean on or pass through fences to graze on the shelterbelt plants. Grazing damage and trampling can destroy a newly established shelterbelt.

Livestock within a well-established shelterbelt can reduce the health of shelterbelt species by:

- Grazing on shelterbelt plantings
- Compacting the soil
- Increasing nutrient levels within the site
- Rubbing and chewing on the trunks of plants
- Preventing the regeneration of new plants within the shelterbelt.

Rabbits, hares and other grazing animals can enter a shelterbelt and cause significant damage. Regular observations should be made to ensure any issues are quickly addressed.

All shelterbelts located in areas where they may be grazed should be fenced to ensure grazing can be controlled. Grazing may be used for short periods to reduce the fire risk. Some shelterbelts benefit from crash grazing to promote bushiness.

PRUNING

Pruning of windbreaks is not advised unless for a particular purpose. Pruning a shelterbelt may reduce its potential to deflect wind by reducing its density or creating gaps. Any pruning therefore must be carefully considered before being undertaken.

Damaged or dead branches may be removed if their removal is not likely to alter the density or profile of the shelterbelt. This removal may be undertaken annually to enhance the shape, density and longevity of a shelterbelt.

Pruning should be undertaken using appropriate equipment. A clean cut out from the main stem is ideal, as it will reduce the chance of infection of the tree. If there is the possibility of trees having a disease, the pruning equipment should be sterilised between each use to prevent infection of subsequently pruned trees.

Pruning may be an integral part of the management of shelterbelts for the production of timber products such as sawlogs. Agriculture Victoria can provide further advice on techniques for pruning timber species.

STRUCTURAL MANAGEMENT

The overall structure of a shelterbelt determines its effectiveness. Therefore structural management should take into consideration the ideal cross sectional profile, height and density of a shelterbelt.

As trees grow, the relationships among them change. The density and position of tree crowns alter in relation to height above ground and neighboring trees. These changes are usually small however they may sometimes alter the shelterbelt to such a degree that it doesn't achieve the desired objective.

An example of this is where a shelterbelt may be a higher density than desired. High-density shelterbelts do not protect as large an area as medium density shelterbelts. This may be addressed through selective removal or pruning of plants to retrieve the original design.

A shelterbelt with a density lower than desired can be improved through inter-planting within the shelterbelt.

Felling trees close to the ground to create coppice (regrowth) from the tree stump is another method that can be used to increase the density of an aged or low-density shelterbelt. Multiple stems re-grow from the stump creating a denser stand of vegetation. Tree removal can also promote regeneration of new plants.

The shelter provided by coppice is lower than that provided by mature Eucalypt species. Some trees may not re-grow following felling. This technique is only appropriate for certain species.

Altering the structure of a shelterbelt can be difficult. It is important to keep the original objective and desired structure in mind at all times.

CONCLUSION

All shelterbelts require some level of maintenance to ensure they continue to achieve the objectives for which they were established.

Regular attention to weed control, pruning, insect and disease control and structural maintenance are required to maintain a healthy and effective break over the long-term.

The level of management required to maintain a shelterbelt generally decreases as the shelterbelt becomes established.

FURTHER READING

Bird, P.R. (2000) *Farm Forestry in Southern Australia.* Pastoral and Veterinary Institute Hamilton, Centre State Printing.

Burke, S. (1998) Shelterbelts

Shelterbelt design: https://agriculture.vic.gov.au/farm-management/soil/erosion/effective-shelterbelt-design

Shelterbelts and Wildlife: https://agriculture.vic.gov.au/farm-management/soil/erosion/shelterbelts-to-protect-wildlife

Shelterbelts for control of wind erosion: https://agriculture.vic.gov.au/farm-management/soil/erosion/shelterbelts-for-control-of-wind-erosion

FURTHER INFORMATION

For more information contact your local Agriculture Services Extension Officer, or call the customer service centre on 136 186.

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