



# Shelterbelt Design

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**Shelterbelts or windbreaks can deliver substantial financial and environmental benefits to the modern dairy farm. Windbreaks alter the speed of the wind moving through paddocks and create a microclimate. This microclimate can often be warmer and reduce evaporation. This means grass grows better and production will increase as animals use less energy maintaining body temperature. Reduction in evaporation means paddocks hang on longer into the dry.**

Shelter belts can improve appearance of the farm leading to increased sale prices and attractiveness to buyers. Using local species can encourage wild life, particularly birds which can assist in pest insect control. Shelter belts can also offer reduce the carry of bush fire by locally reducing wind velocity and used in conjunction with firebreaks can create effective containment lines.

## **How much area**

Shelter belts will have effect to 20 times the height of the trees. However the greatest effect will be to about 12 times the height of the trees (at 12 times effect is 25% to 50% reduction in wind speed). Shelter belts should be generally 10 metres wide and heavily planted to create the greatest breaking effect although any line of trees will have some impact on wind speed.

**HEYTESBURY SOIL AND WATER  
DAIRY ACTION PROGRAM**



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## Layout Design

Incredibly some farmers have planted 10% of their farms to shelter and maintained or gained productivity.

Always identify prevailing wind direction before starting. There may be seasonal variation although generally colder winter winds are the ones to exclude. The optimum placement of shelterbelts will be at 90 degrees to those winds although L-shaped belts will also be effective.

Shelterbelts reduce wind speed on the wind side as well as the sheltered side. This means belts can be planted one paddock in from the boundary. Plant the belts in long continuous runs, as wind deflected through gaps and around the ends at an increased speed.

Shelterbelts do not stop the wind they divert it over and around, and poorly placed belts can create areas of higher wind speed creating other problems.

## Shadows and less evaporation

While shelterbelts can reduce evaporation from pasture they will also reduce drying of inundated ground by reducing wind driven evaporation and in winter can cast long shadows blocking sunlight. This may be beneficial in summer but a problem in the wetter months, so plan carefully. Additionally these factors mean that shelterbelts on the north side of water storages will reduce evaporation.

Also be aware of shelterbelts planted adjacent to dairy tracks. On the north side of the track will provide shade for cattle in summer but can prevent tracks from drying in winter.

Shelterbelts may also cause hotter conditions in sheltered paddocks on hot days by restricting air movement.

## Porosity

If you can see through a shelterbelt wind can blow through. If this "porosity" is high fill gaps with more trees or shrubs.

## Key Messages:

- Shelterbelts create a warmer microclimate and reduced evaporation
- Layout right angled to the prevailing wind and in longest runs possible
- Native species will encourage biodiversity and increase bird activity which may reduce pest insect species

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