

## INFO BULLETIN-EFFECTIVE FARM SHELTER

In order to make suggestions about tree species and spacing it is essential to have knowledge of what the purpose of the shelter belt:

- S & SW shelter
- E shelter
- NW shelter

### ***Southerly & Southwest Shelter***

Use single or multiple rows of conifer species with dense foliage to block off cold polar winds.

Leyland Cypress, Macrocarpa, Pinus radiata

### ***Easterly Shelter***

Use a single row of deciduous trees to filter cold summer easterlies and allowing the sun to pass through in the winter.

Birch, Poplars, Alders, Willows

A double row can be planted of low growing natives to enhance the shelter and provide a low visual barrier in the winter.

Pittosporum, Toe toe, Flax

### ***Northwester Shelter***

For greater effectiveness and strength two rows of shelter are better. 50% of the wind must be allowed to pass through in a strong gale. Fast growing primary shelter trees should be planted on the downwind side of the two rows. These will give effective shelter up to 20 times their height.

Alders, Eucalyptus, Douglas Fir, Pinus radiata, Macrocarpa, Poplars, Leyland Cypress, Willows

A second row of slower growing low shelter species on the windward side of the shelterbelt will improve the stability of the fast growing trees and also give longer term shelter.

Western Red Cedar, Lawson Cypress, Arizona Cypress, Himalayan Cedar, Corsican Pine, Ponderosa Pine, Pittosporum, Toe toe, Flax.

**Horticultural Shelter**

As for easterly shelter but keep trees close (800-1000mm apart). Poplar "Crows Nest" is tall, narrow and fast growing. Willows gain their leaves earlier than poplars and lose them later. Alders are deep rooting and fix nitrogen.

**Inland High Country Shelter**

On inland high country sites only very hardy wind firm trees should be planted. Planting 2 - 5 rows of Ponderosa pine or Hybrid Pinus radiata x Pinus attenueta would be very effective.

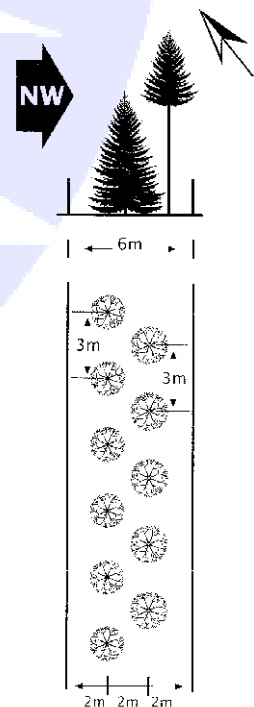
**Suggested varieties to plant**

*Fast Primary Shelter*

- Alders
- Eucalypts
- Douglas fir
- Pinus radiata
- Macrocarpa
- Poplars
- Leyland Cypress
- Willows

*Slower Low Shelter*

- Western Red Cedar
- Lawson Cypress
- Arizona Cypress
- Atlas Cedar
- Himalayan Cedar
- Corsican Pine
- Ponderosa Pine
- Pittosporum
- Toe toe
- Flax



## Permeability

Effective shelter needs to allow some wind to filter through, providing shelter over a large distance. Dense windbreaks cause turbulence and offer shelter for only a short distance.

NB. Care must be taken to select the plant variety and spacings that best suit your local conditions. Please ask nursery staff for assistance if you are unsure.

## Shelter Spacings

Spacing for either a single or double row of trees for shelter is really based on personal preference but is also dependent upon the species being planted.

The following spacing should be utilised as a guide:

<i>Alnus cordata</i> *	1.5 - 2.0m	Horticultural shelter
<i>Cedrus deodara</i>	2.0 - 3.0m	1 or 2 row shelter
<i>Cedrus atlantica</i>	2.0 - 3.0m	1 or 2 row shelter
<i>Ch.lawsoniana</i> *	1.0m	Single row (dense hedge)
<i>Ch.lawsoniana</i> *	2.0 - 3.0m	2 row shelter
<i>Cord. toe toe</i>	1.0 - 2.0m	1 or 2 row shelter
<i>Cup.arizonica</i> *	1.0 - 1.5m	Single row (dense hedge)
<i>Cup.arizonica</i> *	2.0 - 3.0m	2 row shelter
<i>Cup. leylandii</i> *	2.0 - 3.0m	1 or 2 row shelter
<i>Cup. macrocarpa</i> *	1.0m	Dense hedge
<i>Phormium tenax</i>	1.0 - 2.0m	1 or 2 row shelter
<i>Pseudo.menziesii</i> *	1.0 - 3.0m	1 or 2 row (high country-good rainfall)
<i>Pinus nigra</i>	2.0 - 3.0m	2 plus rows shelter (high country)
<i>Pinus ponderosa</i>	2.0 - 3.0m	2 plus rows (high country)
<i>Pinus radiata</i> *	1.0m	Dense hedge row
<i>Pinus radiata</i> *	2.0 - 3.0m	2 row shelter
<i>Pinus sylvestris</i>	3.0m	Part of 2 row shelter
<i>Populus-Crows Nest</i> *	0.8 - 1.5m	Horticultural shelter
<i>Pop. Tasman</i> */ <i>Veronese</i> *	2.0 - 3.0m	1 or 2 row shelter
<i>Salix matsudana</i> *	0.8 - 1.5m	Horticultural shelter

The species marked with an asterix (\*) may be trimmed.

