

## The Guide to Windbreaks

### Introduction

Gales and storms can wreak havoc amongst many horticultural crops. Fresh and strong breezes can adversely affect some crops at certain times. They will reduce temperatures and affect germination, plant growth and fertilisation. Windbreaks, both living and artificial, offer ways of ameliorating the worst effects of wind.

One of the earliest methods of improving the climate for growing crops must have been the use of windbreaks. They have an important part to play in modern horticulture today by providing shelter from all ill effects of wind on plants, soil, buildings and people. Windbreak may be grouped as:

### Living

- Tree or shrubs which are semi-permanent
- Sown plants which give temporary shelter for specific short periods

### Artificial

- Timber fencing, netting etc

### Distance between windbreaks:

Reduction of wind speed occurs up to a distance of 20-30H (H being equal to the height of the windbreak) to the leeward of a windbreak with 50% permeability. At this distance the wind will have almost regained its original speed. Maximum benefit to crop yield occurs at a distance of up to 10H from a windbreak.

Single rows of trees 7-9m high every 70-90m therefore provide a good shelter without making too much land unproductive. In very windy situations it may be necessary to use windbreaks much closer than this, or to use double staggered rows of one or more types.

### Length of Windbreaks

The length of a windbreak is also important: if it is too short, wind is deflected around it, leading to increased wind speed at certain points. Since wind speed is never constant, the ratio of length to height must be at least 12:1 to take full advantage of the protection given by the windbreak.

## Artificial Windbreaks

Artificial windbreaks have the advantage of giving immediate protection with constant permeability and they take up little space. They do not compete with crops for water and nutrients and can be used either as temporary or permanent shelter. They are ideal for protecting units of container grown nursery stock. They are also useful for protecting crops and living windbreaks until the living windbreaks become established.

The most effective materials are those with a whole area of about 50%. More dense materials reduce wind speed more markedly at first, but this effect extends over a much shorter distance downwind. Those with greater hole area give protection over a longer distance, but there is a smaller reduction in wind speed.



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