

## Selecting Plants for Spray Drift Buffers and Windbreaks in the Top End of the NT

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Selecting the most effective species to plant for a spray drift buffer is important because the physical characteristics of leaves and branches can have a big influence on the capture of droplets.

Ideally, spray drift buffers should consist of a variety of plants with different leaf shapes, growth habits and heights. The density of a tree buffer has a big effect on how well it filters air. The denser the buffer the more likely it is that drift will simply be deflected over it rather than pass through it. This has the result that a drift cloud may be lifted higher and become more turbulent after passing the buffer.

Buffers should be dense enough to filter air, but porous enough to allow air to pass through them. Droplets can be carried through a less dense buffer and this increases the chance of capture within the structure.

The most effective trees are those with narrow leaves, especially narrow cylindrical leaves like sheoaks (*Casuariana equisetifolia* or *Casuarina cunninghamiana*). Another suitable species is cypress pine. Such species are effective because they do not deflect wind as much and small particles of spray tend to drift into them rather than flow past. Large leaves that are covered in small hairs can also be very efficient at removing droplets. Many plants may have a complex rough surface comprising of small protruding spikes or hairs and leaf veins. All these factors help to increase the efficiency of the plant to catch droplets. The movement of the leaves caused by the flow of air around shrubs and trees can also increase the catch efficiency.

About 30–60% of the trees in the buffer should consist of this type of species.

Other species, which would be suitable to plant in the buffer include fine-leaved eucalypts such as red river gum (*Eucalyptus camaldulensis*, *E. herbertiana*, *E. papuana*), long-lived wattles such as Darwin black wattle (*Acacia auriculiformis*) and some of the paperbarks (*Melaleuca argentea*, *M. leucadendra* and *M. cajuputi*).

Tree species planted in a buffer zone should be carefully selected to complement each other, so as to create a network of foliage with low density from the ground up. Plants should be mixed randomly for maximum variation in canopy height.

Spray drift buffers and windbreaks are not the same thing. Drift buffers are designed much like wind breaks in their structure except that buffers are more open (less dense), are generally wider and contain specialised species with better filtering capacity. Drift buffers and windbreaks may need to be located in different places.

Windbreaks are generally planted perpendicular to prevailing winds, whilst drift buffers are planted close to spray release areas or protected areas such as houses or watercourses.

Selection of species to be planted as windbreaks is less specific and high value timber trees are an option. This could give the grower some income 10-30 years into the future. Species of interest are African mahogany (*Khaya senegalensis*), teak (*Tectona grandis*), rosewood (*Pterocarpus indicus*, *P. macrocarpus*) and red mahogany (*Eucalyptus pellita*).

The ideal property layout for drift capture and wind shelter would have belts of trees on all boundaries and in rows perpendicular to prevailing winds about 100 metres apart across the property. This is not always practical and could be very costly in terms of land and maintenance.

Tree planting can make a significant contribution to reducing the drift from agricultural chemical spray operations, but trees can never be a substitute for best practice in spray drift application. Some agricultural chemicals have the potential to cause damage to neighbouring crops, watercourses and neighbouring residents if they are not used correctly.

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