



Note Number: AG0860

Published: March 2002

Updated: October 2008

Using Buffer Zones and Vegetative Barriers to Reduce Spray Drift

This Agriculture Note outlines the potential value of buffer zones and vegetative barriers when applying pesticides to cropping and horticultural crops. Often these are seen only of value to protect from herbicide spray drift between broadacre cropping and horticulture. However, the risk is equally important with fungicide and insecticide use in horticulture causing contamination of broadacre crops.

What is a buffer zone?

An area left designated as a no spray zone between a sensitive area and a crop being sprayed is known as a buffer zone. A buffer zone often forms a strip of unsprayed paddock, but may also contain a vegetative barrier within it.

The required distance of a buffer zone will vary a great deal and may be different from day to day as you must take into account:

- The product you are using, some require buffer to be used in order to legally use the product. When using products that specify a required buffer distance it is important to make a note that this was observed when making a record of use.
- The type of application equipment as a boom sprayer applying a coarse spray quality is less prone to drift than a mister applying a fine spray quality.
- The nature of the sensitive area you are trying to protect as different distances may be required for crops compared to residential housing etc.
- The environmental conditions on the day, especially the wind direction and speed.

What is a vegetative barrier?

A row of trees, or shrubs or tall grasses can be planted in strategic lines to reduce the extent of spray drift of agricultural chemicals. They can achieve this by filtering out spray droplets in air passing through their foliage.

Limitations of buffer zones and vegetative barriers:

It is important to be aware of the following limitations:

- They are not a substitute for good agricultural practice (GAP). If it is too windy then you should not be spraying as either a buffer zone or a vegetative barrier may not be able to stop drift. They are intended to reduce the risk spraying in nearly ideal conditions and help protect against unpredictable gusts.
- They will not stop vapour drift or odour occurring, this is purely a consequence of the product itself and the weather conditions.



Figure 1. These young trees are already acting as a vegetative barrier for this orchard a few years after planting

Why plant a vegetative barrier?

A good vegetative barrier works by allowing air to pass through foliage while filtering out spray particles and reducing possible damage to human health, the environment, crops and livestock.

Other benefits of vegetative barriers include productivity gains from improved crop and livestock shelter, filtered noise and dust levels, reduced complaints from concerned neighbours, lowered water tables, habitat for wildlife and increased aesthetic values.

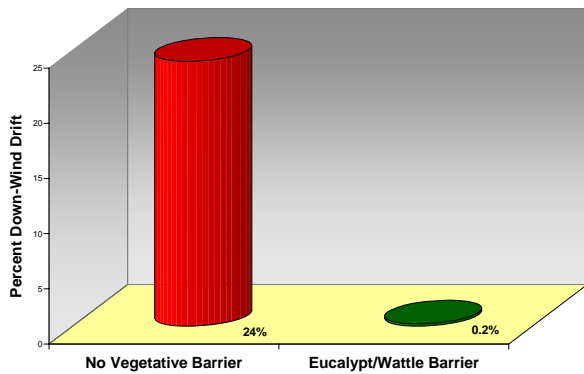


Figure 2. Percentage downwind drift of a pesticide (trial conducted February 1997 using an eucalypt/wattle buffer)

Effective vegetative barriers

A good vegetative barrier should be:

- Semi-permeable - you should just be able to see through it. This allows air to pass through foliage, filtering out spray particles and dust.
- At least 50% taller than the target plant.
- Located in consideration of sunlight and prevailing wind direction.
- Multi-rowed if possible.
- Made up of species with long, thin, rough foliage, eg: Casuarina.

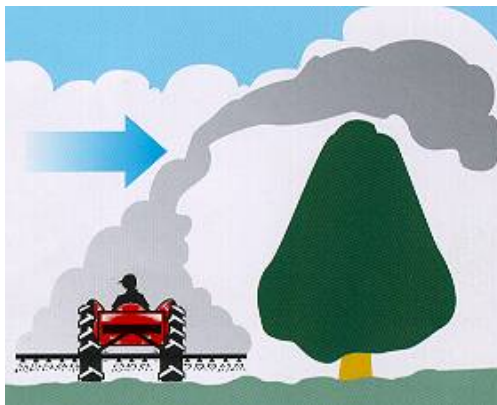


Figure 3. Avoid solid barriers which force spray to be pushed over the barrier and drift further

What to plant?

Some examples are:

Trees:

- Casuarina and she-oaks are ideal species.

Shrubs:

- Tea-tree, eg: Leptospermum, Melaleuca.
- Banksia.

Tall grasses:

- Grass buffer belts are useful for low growing crops only.
- Rye corn.
- Sorghum.

Where to plant?

- On crop boundaries.
- Next to sensitive areas.
- Between blocks or paddocks.
- Along sprinkler rows (low growing crops only).



Figure 4. A tall row of rye corn planted along the sprinkler row is a suitable buffer beside this lettuce crop

Further References

See:

- Your local nursery for advice on what to plant in your area
- Product labels and manufacturers or your local reseller, agronomist or consultant to determine what buffer zone distances may be required.
- DPI Chemical Standards Officers

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Acknowledgments

Spray drift field trials and production of this brochure were funded by the Department of Human Services, Victoria

This Agnote was developed in March 2002, – by Biosecurity Victoria - Chemical Standards Branch

It was reviewed:

David Rumbold, October 2008, Farm Services Victoria - Chemical Standards Field Services.

ISSN 1329-8062

Published and Authorised by: Department of Primary Industries
1 Spring Street
Melbourne, Victoria

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