



DOVE
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Information

Anti-transpirants

Transpiration

The loss of water from a plant by evaporation is known as transpiration. Up to 95% of the water passing into the root is transpired out of the plant. It is the cooling process for plants when ambient temperatures or light levels rise, causing the plants to heat up. Most water is lost through openings like stomata (pore spaces) and the rate of this loss depends on air temperature and solar radiation. Conditions like low humidity and windy conditions can create a vapour gradient between the plant and the air surrounding the plant. Also, if the pore spaces within the compost or soil are wide, root water uptake is impeded. This low rate of capillary rise can mean inadequate water supply for all the plant's functions.

When the soil or compost is moist, there is usually sufficient water available to cover the soil/compost particles and aid water movement upwards to the root zone. When dry, however, a dry layer can develop beneath the root zone inhibiting the upward movement of capillary water causing a capillary lag. The plant ultimately wilts as it cannot extract enough water to meet the increasing demand for water during warm seasons. A stress situation like this can lead to opportunistic pests and pathogens becoming quickly established on a crop.

At the planting or potting process of bare root plants considerable damage occurs to the root hairs and the plant, whilst having a good root system is unable to gain water from the soil. This situation occurs until the root hairs re-grow, a process taking around two weeks during the growing season.

In either a drought or damaged root situation products sprayed onto the leaf surface prevent the loss of plant moisture and provide limited support during vulnerable periods.

Anti-transpirants

Using anti-transpirants will lower the surface tension of water, which increases the efficiency of water penetration but reduces the build-up of water droplets on the plant. This can lead to a reduction in the incidence of scorch during bright weather conditions and the time available for any fungal spores to try and germinate on the leaf surface. Some products coat the leaf surface with a thin plastic film which prevents water loss.

Use plant protection products safely. Always read the label and product information before use

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When it is applied to plant tissue it forms a very thin, transparent layer over the leaves and stems. Application is recommended early in the morning or late afternoon. Once dry, the coating allows gases to permeate but not liquids, which allows normal plant respiration but reduces transpiration by up to 80%. They have also been used effectively at reducing foliage damage to roadside trees during periods of salt applications.

Products available

Wiltpruf S600 (Vitax)

This is a concentrated emulsion containing di-1-p-menthene which comes from pine oil. Depending on the dilution rate, this product can last for several weeks or months. The application rate for normal conditions is 1:10, which translates to 1 litre in 10 litres of water. In severe circumstances, this can be reduced to 1:5. The rate of use also depends on the amount of foliage (height and density).

Orosorb (Plant Solutions Ltd)

This product originates from South Africa, containing various surfactants plus a by-product of the citrus oil industry. Its primary objective is as a plant conditioner but it does have anti-transpirant qualities. Orosorb forms a protective layer by using the natural waxes present on the leaf surface. Water volume depends on the amount of foliage present. For good coverage, use water rates of 250l/ha for young plants and up to 1000l/ha for dense crops.

	Product Rate (ml)	Water Rate (litres)
Protected Crops	200	100
Field Crops	500	100

Application needs to be made prior to the introduction of biological control. It can be applied as a spray, drench or through the irrigation system and has some compatibility with insecticide and fungicide products (see label). Use every 7-10 days depending on the weather conditions. Avoid spraying over flowering crops and during periods of intense sunlight because of the risk of scorching. Leave at least 10 days before applying if a copper-or sulphur-based product has been used.

Sprayfast/Spraygard (Taminco)

For use with a range of pesticides. Rapid uptake can be slowed down and products spread out over foliage by incorporating these products in the tank-mix. They will also reduce transplant shock when trees, shrubs, turf and other plant types are planted out. Retains fungicides and makes them rainproof after 30 minutes.

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