

SOIL WETTING AGENTS

Soil wetting agents are designed to overcome water repellence in soils. Sandy soils, soils high in organic matter and potting mixes are the most likely to become hydrophobic. When these types of soils are watered with a hose, the water simply rolls off and is not absorbed. This can be a trap for gardeners who think they have watered their plants when in fact the water has simply rolled to the sides of the pot and out the drainage holes without wetting the soil at all. So "well-watered" pots can often be seriously drought stressed. It is important to do what you can to avoid allowing soil and potting medium to dry out to the point where it becomes hydrophobic.

Soil wetters help to overcome the effects of waxy organic coatings on the surface of the soil and the surface of organic matter so allowing the water to penetrate and be absorbed. Soil wetters do not change the structure of the soil. They do not improve soil as such. Slow rates of water infiltration can also be the result of factors such as soil compaction and heavy clays. Soil wetters will not solve these problems and other strategies need to be employed. These include cultivation, the addition of organic matter and/or gypsum, or the use of "clay-breaking" products which affect the chemical composition of the soil so that particles clump together and create pore spaces through which water and air can move.

Soil wetting agents work basically by making water wetter! Soil wetters are essentially the same as detergents. They reduce the surface tension of the water and allow it to wet the waxy surface of the soil particles allowing water to move into the soil through the pores. Soil wetting agents belong to a class of chemicals called surfactants. There are different kinds of wetting agents/ surfactants and they are used for different purposes. In horticulture, as well as soil wetting, surfactants are used to allow various products such as herbicides, fungicides and fertilisers to spread out over the leaf blade of plants and be more readily absorbed by the leaf tissue. These "spreaders" are designed to work quickly but do not last long.

For soil wetting agents to work effectively, they cannot be too readily bio-degradable or their effectiveness will be very transitory. Ordinary washing up detergent for example will promote water penetration in soil but the effect would only last a few days. Many standard laundry detergent powders contain levels of chemicals such as sodium and boron which can be damaging to plants and that these should not be applied to soils. Commercial soil wetting agents will continue to work for a considerable period, but they will eventually be degraded by soil micro-organisms. However detergents can interfere with the life-cycles of some aquatic organisms, and care should be taken to prevent run off of these products into streams, and excess product should not be washed down gutters. Concentrated detergents can be poisonous, so need to be used and stored with caution. Always read and follow the directions on the label.

Because soil wetters break down the waxy cuticle that protects leaves, some product labels warn users to avoid applying the product to foliage. If in doubt, ask the manufacturer for clarification. Doing a test patch before a general application of a product is also wise practice.

Granular products are easier to use than liquid products and can be readily incorporated into potting mixes. With granular products, the soil wetting agent is incorporated into granules of either clay or organic material such as coir. The wetting agent is then leached out gradually whenever the granules are watered or when it rains.