

How Does GP Flupropanate Granule Work?

Unpalatable tussock grass weeds, such as giant Parramatta grass, Parramatta grass and serrated tussock from South America, are exceptionally invasive in Australia where they have no natural diseases and insect predators. They produce huge numbers of seeds that are efficiently spread by the wind.

These weed already cover immense areas of eastern Australia, from far north Queensland to South Eastern South Australia.



The chemical flupropanate is a powerful and critical tool in the fight against these prolific tussock grass weed species.



Tussock grass weeds often grow in areas where aerial application of flupropanate is the preferred option because of the need to treat;

- (1) large pastoral areas,
- (2) rough or steep terrain or,
- (3) country that is timbered.

Ground spray from booms is not well suited to these conditions. Pastoralists find it too difficult to find labor to man boom sprays and

they are not an option in rough or steep areas either.

Much of the country invaded by these tussock weeds has trees. In fact, these weed often first establish themselves in timbered areas where they build up their number which provide a massive seed bank to be blown across nearby paddocks.



Liquid flupropanate products applied from the air have problems wherever weeds and trees occur together. The foliage of trees intercepts the flupropanate spray droplets stopping them from reaching the soil to kill the weeds underneath. Even though most of a liquid flupropanate is absorbed through the roots some is absorbed through the leaves. This means that liquid flupropanate can get into the leaves of trees that have been inadvertently sprayed. Little work has been done on the safety of flupropanate liquid on Australia native tree species. A 2004 DPI study in Central Victoria did show that spraying liquid flupropanate over native tree species of that region (black wattle, varnish wattle, drooping sheoak, grey box and yellow gum) significantly reduced tree survival at the label rate of 1.49kg ai/ha.

When spraying above the height of trees aircraft have a much greater risk of causing drift and damaging plants in off target areas. Regardless of the size of the droplet that leaves the plane, flupropanate spray droplets evaporate as they fall to the earth becoming smaller and even more prone to drift. Last year the government body regulating the safe use of herbicides in Australia, the APVMA, brought out new strict regulations on the requirements for applying herbicides from the air. This makes it almost impossible to apply liquid flupropanate by air into areas where trees are present.



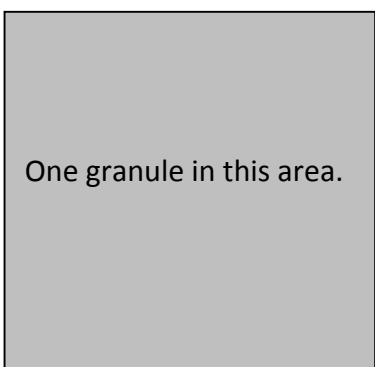
Granular herbicides are well suited to application from air into timbered areas. Granules do not evaporate when they travel from a height towards the ground as do flupropanate spray droplets. With a density of approximately 2.5g/ml they are far denser than water too. They readily bounce off and fall through foliage, making their way to the weeds growing below.

The novel GP Flupropanate Granule was designed, developed and tested in Australia, specifically for Australian conditions. The benefits of a granular flupropanate were first identified as long as thirty years ago but all efforts to make effective granules failed. The problems were that the granules disintegrated, the flupropanate decomposed in the granule or the bio-efficacy was reduced.

Granular Products worked with Eureka! AgResearch, Australia's leading agchem product development specialists, to overcome these problems. This development project took more than six years but resulted in a new, high efficacy granular flupropanate product the was ideally suited to application by air or by hand.

The granules have a hardy clay carrier with the flupropanate and other formulation aids present both on the surface and absorbed within the clay core. This allows the granule to have a two phase release with the flupropanate being rapidly released from the surface of the granule and then more slowly released from within the clay core. This allows for better weed control.

The granules are small enough to allow for excellent distribution across the surface of the soil. There are approximately 400,000 granules per kg and so an application rate of 13kg/ha delivers more than 520 granules/m². Flupropanate is very soluble in water which carries the chemical through the soil to the weed's roots. The tussock grass weeds have dense root systems including many surface roots which allow them to take advantage of light rainfall during the dryer months. Such a high density of flupropanate granules, coupled with the high solubility of flupropanate and the dense surface root systems makes for an efficient weed control system.



After all the flupropanate has left the granule all that is left is a small granule of clay.