

The implication of high flotation applicators in Australian agriculture

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High flotation applicators in Australia are a new concept which could have a very significant impact on agriculture in the future. High flotation is a system by which loads can be transported while exerting a minimum pressure on the surface over which the unit is travelling. With the growing adoption of minimum or zero tillage systems it may be necessary to utilise equipment which minimises wheel compaction.

A search of Australian literature yields little data on the effect of wheel compaction on crop yield. One of the major benefits attributable to high flotation applicators is the reduced soil compaction which occurs on all soil types. High flotation applicators will also be valuable where crops have to be sprayed or fertilized in their early stages of growth. The use of ground applicators for spraying or spreading is likely to increase as the cost of aviation fuel increases and its availability becomes more uncertain.

The concept of high flotation for agriculture was developed in the United States by contractors involved in fertilizing (both solid and liquid) and spraying pesticides. The development of Terra tires 1680 mm diameter, 1090 mm wide with a working pressure of between 100 kPa and 130 kPa gave the flotation necessary for payloads in excess of 7 tonnes. A wide variety of high flotation machines are now available in the United States. These types of machines are now being used in the United Kingdom, South Africa, Sweden and USSR. During 1978, Consolidated Fertilizers purchased the revolutionary U.S. designed spreading unit, the Big A. Mounted on three large flotation tyres the machine can operate under wet conditions where conventional units would bog down or cause wheel tracks.

Farmers can benefit from high flotation machines through:-

- Lower soil compaction which leaves the soil more friable,
- The elimination of wheel tracks left by standard vehicles when moving through crops.
- Longer periods of application as a result of being able to get onto the ground sooner after rain,
- Faster ground coverage as these machines are capable of travelling over cultivated land at up to 35 kph.

With the advent of new agricultural systems based on minimum or zero tillage, high flotation machines will have further benefits. Compaction must be minimised. In some cases where fertilizing and spraying may involve three workings after the crop has emerged, high flotation machines will be required to minimise crop damage.

In Australian agriculture, the use of high flotation applicators is just emerging and it is expected that their use will mushroom very quickly as systems of agriculture are modified with the climate of change now prevailing throughout the world.