Technical Information

PRE-HARVEST SORGHUM SPRAYING

Grain sorghum is a perennial plant capable of continued growth beyond physiological maturity.

Pre-harvest treatment of grain sorghum with glyphosate is a useful method of providing early termination of crop growth at the end of grain fill. The primary aim of pre-harvest application is to prevent further growth of sorghum. Further growth will deplete soil water and may delay grain harvest and reduce efficiency of the harvesting operation.

The Technique:

Glyphosate should be applied to grain sorghum when the crop has completed grain fill. The grain must have achieved physiological maturity or “Black Layer”, which can be seen as a black spot on the grain. As a guide, average grain moisture of 25 – 30% should be considered a threshold for treatment .This equates to the ‘dough’ stage. Treatments applied to plants which have grain at the milky dough stage or earlier will not be as effective as those which have tillers bearing mature grain. However, treatments applied to plants bearing late tillers which have not commenced grain fill will suppress continued development.

Plants will need to have sufficient green leaf at the top of the canopy to absorb the herbicide. Provided there are no symptoms of moisture stress (leaf rolling, blue green discolouration), uptake should be satisfactory. Treatments will need to be applied by ground rig with suitable clearance or by aircraft. It is important to use at least 20**l** /ha spray volume and not to exaggerate swath width of aircraft particularly when treating dense crops. Increasing spray volume up to 30L/ha with aerial application may be beneficial in enhancing coverage of leaves associated with late tillers at the base of the canopy. Swath width should be in the range of 16-22 m depending on the type of
aircraft and prevailing wind conditions.

Harvest aid:

Many growers have found pre-harvest treatments to be helpful as a harvest aid. Glyphosate can suppress or prevent the continued growth of immature tillers, provide desiccation of leaf material and provide acceleration of the natural dry-down of grain. Grain dry-down is affected by a number of factors thus:

(1) **Physiological growth stage.** As sorghum is a perennial plant, translocation of Glyphosate and, therefore, the speed and completeness of control are affected by the growth stage of treated plants. Prior to the completion of grain-fill and particularly during the early reproductive growth phase, translocation of carbohydrates produced by the crop tends to be upward. This means that translocation of glyphosate applied at this stage generally does not provide the same complete plant death and desiccation associated with mature plants which have completed grain fill.

(2) **Ambient temperature and evaporation.** The higher the temperature and evaporation, the greater the speed of dry-down. Under warm to hot day temperatures (28 C) with warm (16 C) night temperatures, dry-down of grain from 25-30% to 13% is often achieved in 10-14 days. Warmer temperatures also favour rapid desiccation of leaf material.