

Managing fleabane in dryland cotton farming systems

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Fleabane has become one of the most difficult-to-control weeds in dryland cropping systems in recent years. The weed problem is thought to have resulted from recent changes in farming practices toward greater use of zero tillage, and possibly from recent seasonal conditions that have favoured fleabane growth.

Some preliminary studies on fleabane biology indicated that the seed emerged only on or near the soil surface, and that seed persistence was relatively short. The weed seemed to emerge throughout the year, but peak emergence was during spring, particularly under wet conditions. One mature plant can produce an average of 110,000 seeds.

There are a few non-chemical control options for fleabane. The strategic use of tillage will control mature and stressed weeds, which would be useful in fallows and for inter-row cultivation in wide row crops such as sorghum and cotton. Cultivation is not likely to reduce subsequent fleabane emergence, unless the tillage operation inverts the soil to bury seed below 2cm.

Fleabane flourishes in bare fallow or in poorly competitive crops. Consequently, in paddocks heavily infested with fleabane it is important to grow more competitive crops, such as winter cereals and to avoid less competitive crops, such as chickpea, dryland cotton and sunflower.

In the last few years, many herbicide treatments have been tested on fleabane in fallows in this region. In general, none of the herbicides provided consistent effective control. Weed size and growing conditions had a major influence on herbicide performance. Recent research by DPI&F showed that glyphosate alone was not effective, and control was reduced from 88% mortality for weeds 5cm in diameter to 13% mortality for weeds 10cm in diameter or larger. However, a number of unregistered glyphosate mixes provided better control of young plants at the rosette stage. Atrazine also provided residual control of several flushes. Split applications of glyphosate followed by Sprayseed or paraquat were also very effective. These follow-up treatments need to be applied at higher water volumes. When choosing the tank mixture with glyphosate, plant-back periods and crop rotation need to be taken into consideration.

For known infestations of fleabane, a strategic approach based on IWM principles is needed to tackle the problem in different parts of the cropping system. Firstly, choose crop

rotations, such as winter cereals and sorghum, and planting configurations to maximise competition against fleabane. Throughout the cropping system, it is important to closely monitor fleabane emergence to ensure treatment of young seedlings, which will maximise herbicide effectiveness. When developing a management strategy, it is also important to take into account the risk for development of herbicide resistance, particularly resistance to Group B and M herbicides in fleabane and other weeds.

More information on fleabane is in the proceedings of the workshop held recently, which is available at the website for the CRC for Australian Weed Management (www.weeds.crc.org.au).