Central West Farming Systems
FARMERS ADVANCING RESEARCH
PO Box 171 CONDOBOLIN 2877 Ph. 02 6895 1025 Fax. 02 6895 2688
Website: www.cwfs.org.au
Email: jodie.dean@dpi.nsw.gov.au

"Your Questions Answered"

HERBICIDE RESIDUES AFTER DROUGHT

Most herbicides are broken down by water, microbes from the soil or a combination of both. The rate of breakdown is controlled by moisture, temperature and soil characteristics such as pH and clay content. When conditions are dry, the breakdown of residues can be greatly reduced and often there will be enough herbicide left in the soil to damage the following year's crop. Therefore, testing for residues, their effect and choice of crop for the following year are critical.

Product labels provide accurate and specific information on the persistence of herbicides and soil conditions that are likely to influence their breakdown. Most products require 250-300mm of rainfall after application and some also require a specified amount of time to pass. To avoid issues of herbicide residues it is important to have a good knowledge of the soil pH in each paddock and rainfall since herbicide application.

The paddocks of highest concern are those that have received less rainfall and are higher in pH and clay content. However the rate of breakdown does vary between products so it is important to check the label of each individual product. Accurate record keeping is important when planning rotations - details of application dates, rate and herbicide products used are a legal requirement under the NSW Pesticides Act but more importantly, these records are vital in planning crop rotations to avoid crop damage caused by residual herbicide. Table 1 outlines some of the herbicide groups, commercial products in each and the symptoms of herbicide damage that may be evident in susceptible/sensible plants.

Herbicide Group		Indicator Plants	General Symptoms
B	Glean®, Logran®, Ally®, Flame®, Spinnaker®, Oust®, Arsenal®, Broadstrike®	Cotton, sunflower, mungbean, chickpea & lucerne	Stunting, yellowing on new growth, particularly between the leaf veins. "Onion' leafing and reduced tillering in cereals. Leaf-cupping in legumes.
C	diuron, simazine, atrazine, cyanazine, fluometuron, terbutryn	Oats, canola & faba beans	Stunting of growth – yellowing of leaves between veins, often leading to browning/death starting at leaf margins. Faba beans show blackening of leaves, particularly around margins.
D	trifluralin, Surflan®, Stomp®Xtra	Sorghum & millet	Reduced emergence. Stunted growth, thickening of roots with little or no secondary root development. Trifluralin causes crinkling of leaves and Stomp®Xtra gives rounded tips in grasses.
I	Lontrol®, Tordon®, dicamba, 2,4-D, Starane®200, Garlon®600	Cotton, chickpeas & faba beans	'Onion-leafing', reduced tillering and stunting in cereals. Twisting and distorted leaf development such as 'strapping' and 'cupping'. Increased development of fibrous roots.

Table 1. Indicator Plants and Symptoms of Herbicide Damage (*NSW DPI "Weed control in Summer Crops 2005-06")*

Testing for Herbicide Resistance

There are several ways in which you can test for herbicide residues including"*Pot tests".* Pot tests will not give you an exact measure of the amount of residue present but will indicate whether there is enough herbicide present to damage sensitive crops. The test involves taking soil samples from cropping paddocks, adding powdered charcoal to half of these samples and planting seeds of the planned crop to determine if these are residues present. The charcoal neutralises the effects of the herbicide so these pots are used as a control, and both the charcoal and non-charcoal pots must be repeated 3 times to ensure accurate results are collected. This test takes 3-4 weeks to complete so needs to be planned and completed prior to sowing crops. NB: It is important to remember that these tests are only as good as the soil samples taken. Soil should be taken at sowing depth and below as herbicides can leach into the soil profile which could mean that symptoms may occur well after germination.

Possible damage can also be assessed by observing what is happening in the paddock prior to sowing. If there are weeds present which are susceptible to the herbicide used which show no signs of damage, it is likely there are no residues present. However, take care to check that the weeds have not germinated from above or below the possible herbicide band.

Further information

- *NSW DPI **"Weed Control on Summer Crops"** 2005-2006 Guide* (Detailed information on completing pot tests)
- *NSW DPI **"Weed Control in Winter Crops"** 2007 Guide (Brand new edition)*
- *NSW DPI **"Herbicide residues after drought"** fact sheet, November 2006*
- *NSW DPI **"Herbicide carryover on winter crops"** Agnote fact sheet 439 November 2004*

If you would like a copy of any of these publications please contact me directly and I will be able to forward you a copy. The fact sheets listed can also be downloaded from www.dpi.nsw.gov.au Alternatively, contact your agronomist for more information.

Information for this fact sheet was sourced from the above publications and Mr Nathan Border, District Agronomist NSW DPI Condobolin ph:6895 1025

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Central West Farming Systems

PO Box 171
CONDOBOLIN NSW 2877

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