



## AGRONOMY TECHNICAL NOTE – MAY 2010 POST EMERGENCE WEED CONTROL IN MAIZE FOR 2010 SIMON DRAPER – MGA AGRONOMIST

Only a few years ago the number of post emergence herbicides available to UK maize growers could be counted on the fingers of one hand (three fingers to be exact), however as a consequence of the increasing crop area and the loss of Atrazine, a raft of new materials have become available, providing lots more opportunities for good weed control as well as a slightly more complicated decision as to what to apply where. This technical note will attempt to provide some insight in to the options available.

### **Early pre-emergence sprays (1 leaf stage of the maize)**

Trials conducted by the MGA have shown that it is very important to remove all weed competition in the first three weeks post maize crop emergence. With this in mind where a pre-emergence herbicide has been used, it may be possible to sit back and wait to see what weeds emerge and treat accordingly. On the other hand where a crop has yet to receive any herbicide treatment then a prompt spray at the first sign of weed growth should be done.

*PLEASE NOTE THAT PRE-EMERGENCE  
SPRAYS SHOULD NOT BE APPLIED IF ANY  
OF THE CROP HAS EMERGED*

Where, as yet, no herbicide has been applied then the field should be checked for weeds as soon as the crop has emerged. Do not only check for weed seedlings above ground but also look for the white weed stalks just below the surface, by drawing back the soil with your hands.

### **Early post emergence treatment options**

In most fields where a pre-emergence treatment has not been applied then it is likely that there will be sufficient weed seedlings present to warrant an early post emergence spray.

The available options have been ranked on speed of application after crop/weed emergence

1. Pendemethalin (e.g Stomp, Blazer, Alpha Pendimethalin)

Pendemethalin can be used on its own in this early spray window but does rely on rainfall after spraying for it to become active. If the soil remains dry after application and the weeds develop to the 2-4 leaf stage before the chemical becomes active then control is likely to be poor. For this reason Pendemethalin is best applied as the weeds start to emerge. Due to its potentially slow rate of activity the full recommended rate should be used.

2. Pendimethalin + Terbutylazine (Bullet XL)

The addition of Terbutylazine to the mix improves the early activity compared to straight Pendimethalin at this early growth stage. Unfortunately as soon as the weeds start to emerge control is more limited – see below. Bullet XL should be considered instead of Pendimethalin where conditions are predominately dry at time of application (but still must be applied early).

**Susceptibility of weeds to Pendimethalin + Terbutylazine (Bullet XL) pre and post crop emergence**

Weed	Susceptibility at 2.7 l/ha rate of use on maize	
	Pre-emergence	Post-emergence
Annual meadow-grass	S	-
Black bindweed	S	S to 3 true leaves
Black nightshade	S	-
Charlock	MS	-
Common chickweed	S	S to 10 cm across
Fat hen	S	S to 8 true leaves
Field pansy	S	S to 4 true leaves
Fumitory	S	-
Groundsel	S	-
Knotgrass	S	-
Red dead-nettle	S	-
Shepherd's-purse	S	-
Speedwell spp	S	S to 10 cm across

S – susceptible MS – moderately susceptible – not susceptible

1. Terbutylazine + Mesotrione (Calaris)

Whilst still advantageous to spray as early as possible from the point of view of weed competition, Calaris is more active on bigger weeds and therefore is a more practical alternative where spray applications cannot be precision timed. Calaris does control a wide range of weeds as is shown on the star chart below. It is more effective on grass weeds than any other herbicide in this early application window. While more expensive than some of the alternatives, Calaris should be the mainstay of a weed control program when relying on contractors to spray and when spray timing may not be as precise. Calaris can also be used where weed levels are relatively low and a single application may achieve season long weed control.

2. Terbutylazine + Bromoxynil (Templar)

Templar is likely to be slightly cheaper than Calaris and will control bigger weeds due to its Bromoxynil content. Unfortunately the spectrum of weeds it tackles will be smaller than Calaris. Templar also provides noticeably poorer control of grass weeds. Compared to Pendimethalin alone or Bromoxynil alone, it does have two advantages in that it can be applied later than Pendimethalin and that the Terbutylazine content (a relative of Atrazine) gives it a wider spectrum than Bromoxynil alone.

**Relative control of key weeds from post emergence herbicides available to UK growers**

	Templar	Calaris	Bromoxynil		Templar	Calaris	Bromoxynil
<b>Knotgrass</b>	****	*	***	<b>Poppy</b>	*	-	*
<b>Redshank</b>	***	*****	****	<b>Black Nightshade</b>	***	*****	****
<b>Pale Persicaria</b>	***	*****	****	<b>Orache</b>	*****	*****	****
<b>Black Bindweed</b>	***	*****	***	<b>Fat Hen</b>	*****	*****	****
<b>Mayweed</b>	**	*****	***	<b>Cleavers</b>	**	**	*
<b>Chickweed</b>	*****	*****	**	<b>Annual Nettle</b>	**	**	**
<b>Sowthistle</b>	**	-	**	<b>Groundsel</b>	*****	****	****
<b>Pansy</b>	*	*****	*	<b>Blackgrass</b>	*	*	-
<b>OSR</b>	*	****	-	<b>Wild Oats</b>	-	-	-

	Templar	Calaris	Bromoxynil
<b>Volunteer Cereals</b>		-	-
<b>Rye Grass</b>	**	**	-
<b>Annual MG</b>	***	****	-
<b>Barnyard grass</b>		****	-

*Please note that the full star chart showing the effectiveness of all the herbicide options was sent out with the April mailing. Additional copies are available via the office or web site.*

**Where pre emergence herbicides have been applied but a follow up spray is required (most situations)**

1. Bromoxynil (e.g Butryflow, Alpha Bromolin)

Bromoxynil has been a tried and tested herbicide over a long period of time and farmers who use it effectively can get very effective, cheap weed control. Effective use of Bromoxynil is all about timings, size of weeds and rates. Rates can drop as low as 0.5 l/ha and still provide good control on the weeds which Bromoxynil is active on (fat hen and black nightshade are its forte) as long as the weeds are small enough. Weeds MUST NOT BE any bigger than cotyledon size. Where weeds have developed past the cotyledon stage then higher rates of Bromoxynil will work, but serious yield losses may have already occurred.

2. Mesotrione (Callisto)

Callisto is much more of a heavyweight herbicide which will control much larger weeds and therefore can be used both early and late. As an early post emergence application Mesotrione is best applied as Calaris as the residual Terbutylazine within the mix will also give some extra persistence. When the crop has reached the 4 – 6 leaf stage then Callisto ought to be the choice as by then the weeds are bigger and the residual element is not required. The best role for Callisto therefore is a second spray after a pre-emergence application when the weeds are known and it is being used as a cleanup treatment.

3. Prosulfuron + Bromoxynil (Jester)

Jester is probably the best fit in terms of a good all round herbicide and particularly important where problem weeds such as mayweed and the polygonums (knotgrass, redshank and black bindweed) are present. As with others Jester is a herbicide that is best used as a second spray after a pre-emergence herbicide and should be considered as a mop up/ final spray. It does however have a major drawback in that it does not control grass weeds and therefore where grasses present a problem, Samson Extra will be required. Unfortunately both Jester and Samson Extra are Sulphonyl ureas and only one of these can be used on the maize crop in any given year. If this situation arises another broadleaved herbicide should be used.

4. Nicosulfuron – Samson Extra

Samson Extra is really a grass herbicide with some level of broad leaved weed activity. It is excellent on grass weeds but can only be applied once in a season. Applications of Samson Extra should be delayed as long as possible to allow as much grass weed germination as possible (particularly important where barnyard grass is the major problem). Samson Extra should then be applied at the 6 leaf stage.

At this late growth stage the grass weeds that have germinated early in the crops life will be having a negative effect on crop yield, however the best option, to clean the field up in the long run, is still to make the application at the 6 leaf stage of the crop.

Samson Extra can be tank mixed with Callisto and as such gives brilliant weed control. The mix is expensive and should only be used late in the 'fire engine' slot. That said it is reassuring to know that should the weeds get away from you it is possible to get them under

control. Such a late application will not however prevent weed competition impacting on crop yield with losses up to 65% being recorded when treatment is left until late in the season.

### **My choice.**

In previous newsletters I have suggested using a pre-emergence mixture as a hold, to ensure that weeds don't get too big too early. If you have adopted this strategy you can afford to wait and see what, if any, weed threat develops. Wait until the 4 leaf stage of the maize and if some weeds are starting to germinate at this stage then apply Bromoxynil alone at 0.75l/ha. This rate needs to be increased where the weeds are bigger.

Where there are grass weeds, then Samson Extra could be used as a replacement for the Bromoxynil. A mix of Samson + Callisto should be used at the 6 leaf stage to allow time for all the grass weeds to have germinated. Providing that other weeds have not got too big in the meantime, MGA trials have shown that a two thirds of the standard rate should give sufficient control. Application rates should be increased where the weed size is larger than 2 – 4 leaves.

Finally, if you haven't managed to get on a pre-emergence spray, your best option is to use Calaris, which probably provides the best all round weed control, even if it is more costly than some of the other options. It may be worth having a word with your agronomist to see if he can suggest cheaper alternatives on a field by field basis.