Using the growth stages of cereal crops to time herbicide applications

The recommended timing for applying each herbicide is indicated in the chemical control tables in this guide.

The terms 'early tillering' and 'late tillering' are not definitive and are commonly used in a very general sense. The number of fully emerged main shoot or stem leaves, together with the number of tillers when there is more than one, is the only accurate measure of the growth stage of a cereal plant. See the diagrams, and Cereal growth stages – Zadoks on page 4.

Table 1. Growth stages for herbicide application

Product	Chemical	Cereal growth stage – Zadoks scale							
		2 leaf	3 leaf	4 leaf	5 leaf–early till	Mid till	Late till	Full till–jointing	Booting
		12	13	14	15–21	25	29	30–36	40–49
2,4-DB									
2,4-D ester	2,4-D LV ester								
Achieve® WG	Tralkoxydim								
Agtryne® MA	Terbutryn + MCPA								
Amicide® Advance 700	2,4-D amine								
Aptitude®	Metribuzin + carfentrazone-ethyl								
Associate®	Metsulfuron-methyl								
Atlantis® OD	Mesosulfuron-methyl		wheat only						
Axial® Xtra	Pinoxaden + cloquintocet-mexyl								Up to Z49
Broadside®	Bromoxynil + MCPA + dicamba								
Bromicide® 200	Bromoxynil		low rate only at 3–5 leaf stage						
Bromicide® MA	Bromoxynil + MCPA								
Broadstrike™	Flumetsulam								
Chlorsulfuron 750 WG	Chlorsulfuron								
Condor®	MCPA + pyraflufen-ethyl		Wheat and oats only. Low rate only at 2-leaf stage						
Decision®	Diclofop-methyl + sethoxydim								
Diuron 900 WG	Diuron				to Z14				
Eclipse® 100 SC	Metosulam							1st node	
Ecopar®	Pyraflufen-ethyl								
Eliminar®C	Bromoxynil + picolinafen								
FallowBoss® Tordon®	Picloram + 2,4-D + aminopyralid								
Flight® EC	MCPA + picolinafen + bromoxynil								
Frequency	Topramezone								
Hotshot®	Aminopyralid + fluroxypyr							1st node	
Hussar® OD	Iodosulfuron-methyl-sodium								
Igran® 500 Flowable	Terbutryn								
Intervix®	Imazamox + imazapyr								
Jaguar®	Bromoxynil + diflufenican								
Kamba® 750	Dicamba								
Kamba® M	MCPA + dicamba								
Lontrel™ Advanced	Clopyralid								
LVE MCPA 570	MCPA 570 g/L								
Sulfosulfuron 750 WG	Sulfosulfuron			wheat and triticale only, 1st–2nd tiller stage					
OnDuty®	Imazapic + imazapyr								
Paradigm®	Florasulam + halauxifen		DO NOT apply after full flag leaf emergence (Z 39) for oats; and DO NOT apply after first awns are visible. (Z 49) for wheat, barley and triticale						
Paragon®	MCPA + picolinafen								
Pixxaro®	Fluroxypyr + halauxifen							flag leaf	
Precept®	MCPA + pyrasulfotole								
Rexade®	Pyroxsulam + halauxifen		Wheat and triticale only (not durums)					1st node	
Starane® Advanced	Fluroxypyr								
Stinger®	Aminopyralid + metsulfuron-methyl							1st node	
Talinor®	Bicyclopyrone + bromoxynil + cloquintocet-mexyl						to Z32		
Tigrex®	MCPA + diflufenican								
Topik® 240 EC	Clodinafop-propargyl							wheat only	
Triathlon®	MCPA + bromoxynil + diflufenican		3 leaf to fully-tillered Z13–Z30						
Trooper® 242	Picloram + MCPA								
Velocity®	Pyrasulfotole + bromoxynil								
Vortex®	Florasulam + 2,4-D ester							2nd node	

Recommended and preferred timing

Less preferred timing

The recommended application timing has been determined after significant research by the marketing company, aiming to minimise crop damage and maximise yield. Pay attention to two vital stages of crop development: at 3–5-leaf stage or when tillering starts; and at the start of jointing.

In many cereal crops:

3 leaf (on main stem) stage is before tillering.

5 leaf (on main stem) stage coincides with early tillering.

6–7 leaf (on main stem) stage coincides with mid to fully tillered stage.

Jointing or node formation indicates the start of the reproductive phase in the crop, and tillering can be said to be complete, i.e. fully tillered.