Condor®

HERBICIDE

PRODUCT GUIDE

Swoop on broadleaf weeds in wheat, barley and oats.

SIPCAM

RAPID WEED CONTROL

APPLICATION

The main active ingredient in Condor, pyraflufen-ethyl controls broadleaf weeds by desiccating or burning leaf tissue. Pyraflufen-ethyl is a contact herbicide, so only affects tissue that it contacts. The second active ingredient MCPA is taken up by the plant and translocated to meristematic tissue, however coverage of the leaf surface is still important to gain the benefit of both the active ingredients.

Condor should be applied in 80 to 150 L/Ha of water. The higher water rates should be used where weed density is high or the crop is dense, and shielding could occur. Condor should be applied with nozzles that provide a fine to medium droplet spectrum to ensure good coverage of weeds. Ideal coverage would be indicated by 30 to 40 droplets per square centimetre. This is best achieved by using flat fan nozzles and pressure suitable for producing a droplet size of 200 to 300 micron VMD.

ADJUVANTS

The addition of a non-ionic surfactant (wetter) may improve weed control. Add 100mL/100L of a 1000 g/L alcohol alkoxylate non-ionic surfactant eg BS1000. The addition of wetter may improve weed control, however, some herbicidal symptoms in the form of leaf spotting may appear, particularly on barley. Provided the crop is not under stress from herbicides, disease, insect damage, frost, dry or excessively moist conditions, the development of the crop should be unaffected.

Caution should be taken when Condor is mixed with other products as the use of surfactant may not always be appropriate. Seek advice from Sipcam or refer to the label.

Do not add any other surfactants, crop oils or adjuvants.

CROP ROTATION

Condor does not provide any residual control of weeds and there are no plantback restrictions or crop rotation restrictions following use.

RESISTANCE MANAGEMENT

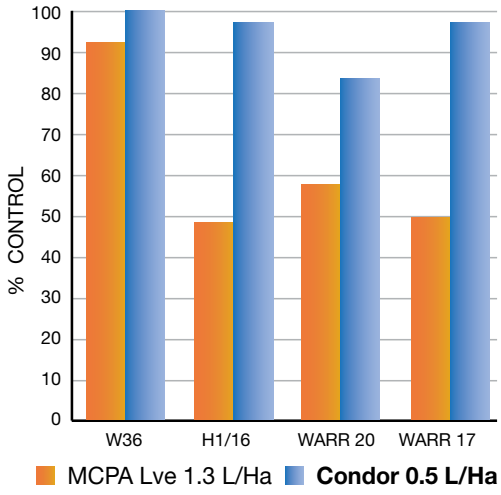
There is no known resistance to Group G herbicides (eg pyraflufen-ethyl) in Australia (CropLife Herbicide resistance Management Strategies 2018). Resistance to Group I herbicides (eg 2,4-D and MCPA) in Australia has been slow to develop compared to other herbicides, but has increased in recent years (Goggin et al, 2,4-D and dicamba resistance mechanisms in Wild Radish: subtle, complex and population specific? Annals of Botany Vol 122, Issue 4 Sept 2018 pp627-640.)

The combination of two modes of action (effective on the same weed) is a CropLife recommended strategy to help delay the onset of resistance.

Importantly, the synergy between pyraflufen-ethyl and MCPA not only gives good performance on susceptible weeds, it can help control weeds with demonstrated resistance to MCPA.

In a trial conducted by AHRI, it was shown that Condor was able to control 3 populations of resistant Wild Radish which MCPA alone was not able to control.

375 G/L MCPA Potassium + 10 G/L pyraflufen-ethyl



The benefit of two modes of action and synergy observed with Condor is highlighted in another one of the trials conducted by Plant Science Consulting.

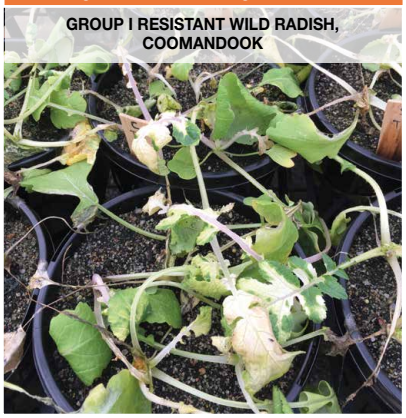
In photos of the trial below, it can be seen that Wild Radish resistant to MCPA could be controlled by Condor but not by a mixture of diflufenican + MCPA (even though diflufenican was effective on that Wild Radish population).

Tigrex® 1.0L/Ha 21 DAT
25 g/L difufenican + 250 g/L MCPA 2EH

SUSCEPTIBLE WILD RADISH

Tigrex® 1.0L/Ha 21 DAT
25 g/L difufenican + 250 g/L MCPA 2EH

GROUP I RESISTANT WILD RADISH, COOMANDOOK



Condor
1.0L/HA + 100mL NIS 21 DAT

GROUP I RESISTANT WILD RADISH, COOMANDOOK

(Source: Plant Science Consulting)

It should be noted that not all Group I resistant Wild Radish populations are the same in response to herbicides, as there are multiple modes of resistance, eg reduced translocation, enhanced defence mechanisms (Goggin et al op cit).

WHAT IS CONDOR?

A NEW HERBICIDE FROM SIPCAM

for post-emergent control of broadleaf weeds in cereals.

Condor has two active ingredients, pyraflufen-ethyl and MCPA in the Potassium salt form.

Pyraflufen-ethyl is a GROUP G herbicide which has no known cases of resistance in Australia. MCPA is a GROUP I herbicide well known in Australia.

When combined with pyraflufen-ethyl the two active ingredients are very complementary.

Pyraflufen-ethyl works quickly to desiccate plant foliage while MCPA is translocated to the growing points resulting in excellent weed control of a wide range of broadleaf weeds.

Condor controls weeds quickly by desiccating and burning leaf tissue that it contacts and symptoms such as spots and burnt blotches appear within a few days.

Regrowth is prevented due to the MCPA concentrating in the actively growing parts of the plant, whether that part of the plant is initially contacted or not.

THE FORMULATION

The Condor formulation is an altogether new technology. As raw materials the two active ingredients are relatively incompatible. In the past it has been difficult if not impossible to co-formulate the two ingredients without significantly affecting the performance of one or both products whilst still maintaining acceptable crop safety. The very latest in formulation technology has allowed us to not only co-formulate MCPA and pyraflufen-ethyl, but also provide an optimal state for both actives to express maximum chemical activity.

Synergy: ***The interaction or co-operation of two or more substances, or other agents to produce a combined effect greater than the sum of their separate effects"*** *- Oxford Dictionary*

Fundamental to the performance of Condor on broadleaf weeds is the synergy between the 2 active ingredients. A series of trials conducted at Plant Science Consulting have demonstrated true synergy between pyraflufen-ethyl and MCPA. In essence, the combination of the two active ingredients provides greater weed control than either of the two actives alone or the expected additive effect of using the two actives in combination.

The benefit of synergy observed with Condor is highlighted in one of these trials. In the following photos of the trial, a low rate of pyraflufen-ethyl or MCPA on their own could not control Wild Radish. The combination at the same rates gave complete control, even of the plants known to be resistant to MCPA.

CONTROL WEEDS EARLY WITH CONDOR

Condor has excellent crop safety and can be applied as early as the 2-leaf stage of the crop. Not only is this the best time for return on investment, early application also contributes to superior weed control because weeds are smaller and there is less shading from the crop. Weeds that germinate early in the crop have the greatest effect on yield, especially Wild Radish. The number of tillers per plant and the grains per head are heavily influenced by the first 2 to 5 weeks of growth after crop emergence. The greatest return on investment is from early weed control.

Cold, wet and cloudy conditions are typical in most years when cereals are getting established. Some herbicides which act slowly when it is cold, wet and cloudy may not allow crops to reach their yield potential.

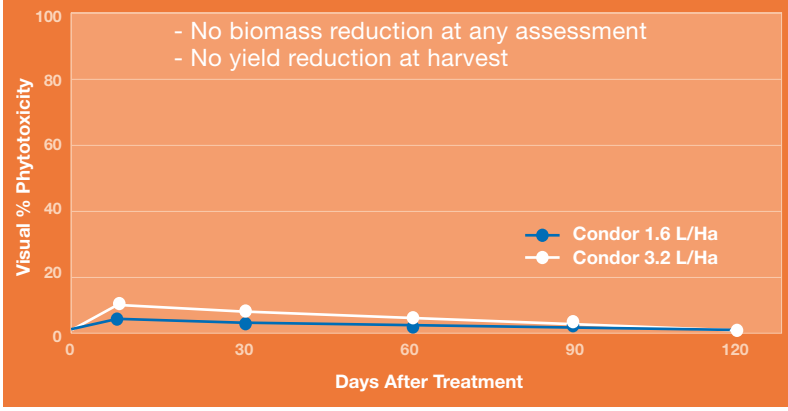
Condor acts very quickly after application, stopping weeds from robbing moisture and nutrients almost immediately. The activity of Condor is noticeably faster than herbicides from other mode of action groups and is not affected by cold, wet or cloudy conditions.

	Group I Resistant WILD RADISH, Coomandook	SUSCEPTIBLE WILD RADISH
Ecopar 400mL PFE 8g/Ha 24 DAT		
MCPA750 400mL 300g/Ha 24 DAT		
CONDOR: PFE 8g + MCPA 300g/Ha 24 DAT		

CROP SAFETY

Field trials as well as famer applied trials over several years in all states has shown Condor safe to wheat, barley and oats when used according to the directions for use. Condor can be applied from the 2-leaf stage to mid tillering (Zadoks 12-25). Some leaf spotting may be visible within the first few days after application, particularly in tank mixtures or where surfactant is used. The crop quickly grows away and subsequent growth is unaffected. Sipcam trials over several years have shown that even where leaf spotting appears quite widespread due to various environmental conditions, yield is unaffected where other factors such as drought or disease do not prevail.

VISUAL % PHYTOTOXICITY
Mean values for wheat, barley and oats from 3 sites.



This biological synergy means that **Condor** is able to control a broader spectrum of weeds, it works quickly and is even effective on Wild Radish with resistance to MCPA.

A PARTICULAR STRENGTH OF CONDOR IS THE CONTROL OF WILD RADISH

Condor® HERBICIDE

- Wild Radish is one of the most aggressive weeds in Australian cropping systems.
- Plant for plant, Wild Radish is 5 to 10 times more competitive with wheat than annual ryegrass.
- Just 25 plants per square metre can reduce wheat yields by 11%.
- Many trials have shown that early control of Wild Radish is very important.

In trials conducted by the NSW Department of Agriculture it was shown that wheat yield was reduced by 78% if Wild Radish was controlled at late tillering instead of the 3-leaf stage.

In Victoria it was shown that Wild Radish emerging more than 4 weeks after the crop had no detectable effect on the wheat yield.

Early germinations must be controlled as early as possible, waiting for future germinations whilst perhaps having future management advantages decreases yield.

As few as one Wild Radish per 20cm square is enough to warrant control. Yield damage is done in the first 4 to 5 weeks after crop emergence. Condor can be used as early as the 2-leaf stage of the crop.

The prolific nature of Wild Radish has necessitated frequent and repeated use of herbicides in cereal crops. As a result, Wild Radish has developed tolerance to several herbicide modes of action.

Populations (particularly in WA) have developed resistance to herbicides in the mode-of-action (MOA) Groups B, C, F and I. Group B resistance is the most common, followed by Group F.

Group B sulfonureas (eg; chlorsulfuron)
Group B sulfonamides (eg; metosulam)
Group B imidazolinones (eg; imazapic)
Group C triazines (eg; atrazine, simazine)
Group C triazinones (eg; metribuzin)
Group F nicotinanalides (eg; diflufenican)
Group I phenoxies (eg; 2,4-D, MCPA)

As a result, newer herbicides belonging to Group H mode-of-action (eg; pyrasulfotole) have been relied on heavily over recent years.

Recent testing also indicates the prevalence of herbicide resistance to multiple herbicide groups in the eastern states of Australia. Resistance to herbicides from Group I, F and B is now prevalent in Wild Radish populations Australia wide.

Testing by Plant Science Consulting has confirmed that Condor will control Wild Radish from all currently known resistant populations, including Wild Radish resistant to Group I Phenoxy herbicides.

Condor has no known resistance and can be a valuable tool in rotating herbicide groups. Many populations of weeds like Wild Radish have a long history of herbicide use from Group I, F and B and more recently Group H herbicides. Condor is an ideal option to rotate from these groups.

Condor acts very quickly after application, stopping weeds from robbing moisture and nutrients almost immediately.

The activity of **Condor** is noticeably faster than herbicides from other mode-of-action groups.

CONDOR COMPATIBILITY

Condor is compatible with any 1 of the following products - Esteem® (600 g/Kg metsulfuron-methyl) do not apply metsulfuron methyl tank mixes on oats, Sipgran® (750 g/kg triasulfuron), Sylon® 750 SG (750 g/kg clopyralid), Volley® SG (700 g/Kg dicamba), Rover® (400 g/L dimethoate), Alphasip® Duo (100 g/L alpha-cypermethrin (up to maximum 100mL/ha)), Le-Mat (290 g/L omethoate), Slipstream® (250 g/L propiconazole), Overture® (125 g/L epoxiconazole) and certain trace elements. As formulations of other manufacturer's products are beyond the control of Sipcam, mixtures with other formulations or products should be tested prior to using commercial quantities. Do not pre-mix products together but add each to the spray tank separately. All mixes should be sprayed immediately and agitated until the spray tank is empty. For further information contact Sipcam or your local advisor.

WITHHOLDING PERIOD

Harvest: not required when used as directed. **Grazing:** wheat, oats: do not graze or cut for stock food for 14 days after application.

DIRECTIONS FOR USE

CROP	WEEDS CONTROLLED	RATE/ HA	CROP STAGE	WEED STAGE	CRITICAL COMMENTS
Wheat, barley, oats	Bedstraw (Galium tricornutum), Bifora (Bifora testiculata), Capeweed (Arctotheca calendula), Indian hedge mustard (Sisymbrium orientale), Long storks bill (Erodium botrys), Marshmallow (Malva parviflora) Prickly lettuce (Lactuca serriola), Volunteer canola (Brassica napus), Volunteer lupin (Lupinus sp), Wild turnip (Brassica tournefortii) Wild Radish (Raphanus raphanistrum)	0.8 L	Minimum 2 leaf	2-4 leaf	Apply as a post-emergence treatment to actively growing weeds. The addition of a non-ionic surfactant (wetter) may improve weed control. Add 100mL/100L of a 1000 g/L alcohol alkoxylate non-ionic surfactant eg BS1000. The addition of wetter may improve weed control, however, some herbicidal symptoms in the form of leaf spotting may appear, particularly on barley. Provided the crop is not under stress from herbicides, disease, insect damage, frost, dry or excessively moist conditions, the development of the crop should be unaffected. Under favourable growing conditions some weed regrowth may occur. A follow up application of a suitable herbicide may be required as part of a good weed management strategy.
		1.0 L	Minimum 3 leaf to end of tillering	4-6 leaf	
		1.6 L	Minimum 3 leaf to end of tillering	6-8 leaf	

Always read the label prior to use.
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For further information please call Sipcam or visit our website: sipcam.com.au
Phone: +61 3 5223 3746

APVMA Approval No: 86923

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