



PRODUCT GUIDE
SUGARCANE

AmiTron[®]

TERMINATES WEEDS WITH EXTREME PREJUDICE

AmiTron®

700 WG

Product	AmiTron®
Active	amicarbazone
Chemical Group	Group C1 Triazolinones
Mode of action	Inhibition of photosynthesis - Photosystem II
Formulation	Wettable granule (700 g ai/kg)
Registered Crops	Sugarcane (plant & ratoon)

AmiTron® is a UV stable broad-spectrum herbicide for sugarcane with both pre-emergent and post-emergent activity against grass, broadleaf weeds and some sedges.

It is especially effective against vine weeds e.g. *Ipomoea* species.

KEY BENEFITS OF AMITRON

UV STABLE

– resistant to photodegradation

MOVES THROUGH TRASH

– excellent straw transposition

EASILY ACTIVATED

– minimal rainfall required for activation (2-5mm)

RESIDUAL CONTROL

– extended residual control on applications to soil

WIDE WEED SPECTRUM

– grass and broadleaf weeds (especially vines), some sedges

POST-EMERGENCE ACTIVITY

– from foliar contact on small weeds

VERSATILE

– short or long-term residual efficacy depending on rate used

COMPATIBLE

– ideal tank mix partner especially with other UV stable products

USE PATTERNS IN SUGARCANE

With both pre- and post-emergent capability and activity against a wide spectrum of important weeds, AmiTron is a versatile herbicide for use in sugarcane.

Because AmiTron does not break down in sunlight, is activated on minimal rainfall, and has the ability to pass through cane trash mulch layers, it is an excellent tool for all cane districts.

Suggested use patterns:

1. Broadcast or banded sprays in early plant cane
2. Banded sprays (on row mound) in furrow irrigated cane (e.g. Burdekin)
3. Broadcast or banded sprays in ratoons immediately after harvest
4. Directed sprays in plant cane (up to canopy closure)
5. Directed sprays in ratoons (up to canopy closure)
6. Late sprays in ratoons or plant cane (after canopy closure) to control vine weeds

Refer to the AmiTron User Guides for more information.



Untreated versus AmiTron @ 1 kg/ha, 57 days after broadcast pre-emergent application over trash soon after harvest. Innisfail, 2018.

Mode of action

AmiTron controls susceptible weeds by inhibiting the photosynthesis process.

Uptake into plants

Uptake via roots

Uptake of AmiTron into plants occurs primarily by the roots when applied to the soil, providing excellent control of target weed species if the herbicide is present in the root zone prior to weed seed germination.

Uptake via emerging coleoptile

Nil. There is little uptake directly into coleoptiles as they emerge after seed germination – the herbicidal effect depends on root uptake alone in this situation.

Uptake by foliar application

Significant absorption directly into leaf tissue can occur via foliar spray application of AmiTron, allowing effective post-emergent weed control on many weed species if weed growth is not too advanced. To enhance post-emergent (contact) effect, the addition of wetter-type adjuvants to foliar applications can be effective, particularly if weeds are small.

Translocation within plants

Once AmiTron is in the plant, translocation from the site of uptake is in the acropetal (upward and outwards) direction through the xylem tissues.

Symptoms of herbicidal effect

Symptoms in weeds after application of AmiTron include chlorosis, necrosis and stunting.

The first symptoms appear on older leaves or the lower leaves on the weeds. Symptoms then become apparent higher up the plants in younger tissue as translocation occurs.

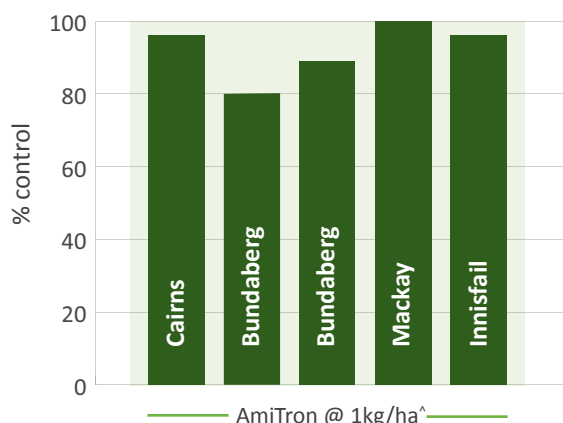
Symptoms can appear quickly if weeds are actively growing and plant death can occur within five days.



Red convolvulus displaying symptoms of chlorosis from AmiTron uptake in Far North Queensland.

GRASS WEED CONTROL

Guinea grass control in plant and ratoon cane up to 4 weeks after pre-emergent* application



AmiTron is highly effective on grasses when applied at the right time. Use of a UV stable specialist grass herbicide mixing partner with AmiTron is recommended to extend grass weed control over a longer period of time.

Wider weed spectrum, longer periods of efficacy and reduced risk of crop effects can be achieved with smart tank mix choices.

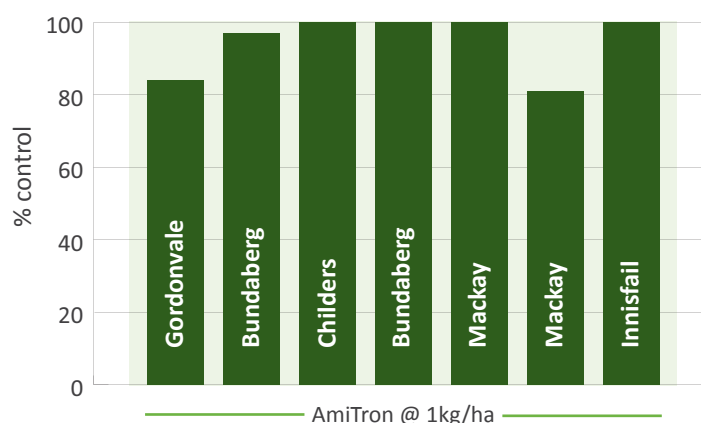
* The Mackay trial was an early emergent application, and the AmiTron application was mixed with Agral® 600 wetting agent to enhance post-emergent activity.

[^] Please note AmiTron is registered for guinea grass control at 800g/ha. The 1kg/ha also shows good control when targeting other weeds.

®Agral is a registered product of a Syngenta group company

TOUGH ON VINES

Bellvine control in plant and ratoon cane 6–8 weeks after pre-emergent application



A wide spectrum herbicide, with good activity on most common grasses and broadleaf weeds, AmiTron has proved to be particularly effective on vine weeds.

Several trials from Childers to Gordonvale showed an average 94.6% control of bellvine up to eight weeks from application.

In the Innisfail trial AmiTron was applied over the trash blanket after harvest as a pre-emergent in ratoon cane, demonstrating 97% control of red convolvulus 10–14 weeks after application.

Trials were precision scientific trials submitted for review by the APVMA as part of the registration process.

REDUCING RISK OF ADVERSE CROP EFFECTS

1 SELECT APPROPRIATE RATES FOR SOIL TYPES

- Use lower rates to reduce risk on lighter soils.
- DO NOT use on very sandy soils (>90%).
- Select rates of tank mix partners appropriate to soil type.

3 REDUCE SPRAY CONTACT ON LEAF IN PLANT & RATOON CANE (advanced stages)

- Use directed sprays when cane is advanced. Beware of possible crop leaf interference on spray patterns and use low throw nozzles, leaf lifters, directed nozzle configurations e.g. Irvin legs etc. as appropriate to achieve good coverage of both weeds and soil.
- Nozzles need to give good coverage yet not cause drift. Droplets should not be finer than medium category.

2 CHECK PLANTING DRILL SHAPE AND SOIL COVER FOR PLANT CANE (EARLY STAGES)

- Make sure soil cover over sett is adequate. At least 75 mm, more on light soils.
- Ensure a wide open-profile drill to prevent slippage of treated soil to the zone over top of sett. Open out drill with a light cultivation if drill shape is too steep in loose soil types.
- In double disc opener planting systems, ensure soil cover over plant slit.

4 CHECK SHOOT HEIGHT IN EARLY APPLICATION TIMING IN RATOONS (immediately after harvest)

- Preferably apply before or just after shoot emergence with this use pattern. Add paraquat if shoots are advanced beyond about 4-5 leaf stage to reduce leaf uptake.
- Consider use of banded sprays directed only over the top of row mounds in furrow irrigated situations so that excessive water flux in the inter-row is not a risk of movement of the active to the crop root zone.

PHYTOTOXICITY/CROP INJURY RISK

Phytotoxicity in sugarcane crops

AmiTron is tolerated very well by sugarcane when used as per label instructions. AmiTron phytotoxicity in sugarcane plants can be evident as very mild or negligible colour changes to cane leaves resulting from foliar uptake, or a more severe stunting effect resulting from excessive root uptake.

Symptoms:

1. Very slight yellowing might be seen for short periods of one to three weeks after broadcast (over the top) applications until rainfall or irrigation triggers growth.

In most circumstances, no symptoms at all are evident but direct contact of AmiTron on young cane leaf tissue may allow some foliar uptake. Occasionally this results in very mild transient chlorosis. Note that this effect is exaggerated if a wetting agent is added.

For this reason, directed sprays rather than broadcast sprays are recommended as soon as practicable once the crop is advanced past about five leaf stage.

2. Root uptake in crops on very light soils can be a more serious effect, and the growth of the crop can be severely stunted.

The latter symptom is rare, and usually means that a high rate of AmiTron has been applied on a very light soil followed soon after by a heavy precipitation event moving active ingredient down to the crop root zone.

Select lighter rates on lighter textured soils. Do not use at all on very sandy soils (>90% sand).

Tank Mixtures

Products that have been successfully tank mixed with AmiTron and applied on sugarcane crops without adverse effects include: ametryn, diuron, metribuzin, pendimethalin, imazapic, isoxaflutole, 2 4-D amine, diuron+hexazinone, paraquat, glufosinate, S-metolachlor, isoxaflutole+glufosinate, isoxaflutole+paraquat, and imazapic+paraquat.

Note: imazapic+glufosinate is not a recommended tank mix option for use with AmiTron because of risk of enhanced foliar uptake of imazapic into crop plants.

Managing loss of AmiTron in runoff

- Adopt weed control strategies so that risk of extreme rainfall events soon after application of herbicides is minimised. e.g. utilise UV stable products over cane trash immediately or very soon after harvest in early season harvest rounds when risk of extreme rainfall is much reduced.
- Do not spray if soil is saturated.
- Do not spray if heavy rainfall or irrigation is expected or planned within 48 hours.
- Do not irrigate for at least two days after application if possible.
- Incorporate soil management processes so that compaction is prevented (e.g. controlled traffic). Compacted soil increases surface runoff significantly.
- In furrow (flood) irrigation systems, consider very early timings of banded applications centred over rows. This means that the AmiTron might not be exposed to the very heavy water flows with inundation of the flooded inter-rows, but would still provide excellent pre-emergent weed control within the band over the rows.
- In irrigated systems, optimise watering so that runoff from paddocks is negligible.
- Where possible, retain all irrigation tailwater on-farm.
- If volume of the first irrigation after application can be manipulated, a light irrigation is preferable to a heavy irrigation. This would move AmiTron off the surface into the shallow soil layers and allow soil adsorption processes to start to bind the herbicide in the weed root zone.
- Do not spray AmiTron on steep lands without major adaptations to reduce rates of surface runoff e.g. contoured field configurations, green cane trash retention, minimal or zero cultivation systems, row spacings and machinery setups to avoid soil compaction.

Managing loss of AmiTron through leaching

Some movement of the product through soil with water is necessary to get the herbicide into the layer of soil where weed seeds germinate. Managing this movement to prevent excess leaching out of the root zone involves understanding soil type (particularly texture), and then adjusting timing and rates of application so risk of excessive water flows soon after application is minimised.

- Avoid applications on very light soils
- Do not spray if soil is saturated
- Avoid risk of heavy precipitation or irrigation soon after application
- Use the lowest feasible rate
- In furrow (flood) irrigation systems, consider banded applications so that the flooded inter-row is not treated with AmiTron

Management of headlands, drains and buffers

Managing water flows after runoff exits field is also important in reducing the contamination of natural waterways.

Slowing water flows can allow time for processes such as degradation, reabsorption into soil and uptake into covering vegetation, all of which can significantly reduce the quantity of contaminant moving from fields into natural systems.

The following can help slow and reduce runoff:

- Slope adjustments and other erosion control practices
- Vegetation near the site of application
- Conservation tillage systems that leave vegetation or crop residue
- Buffer zones and vegetative filter strips with dense cover

Management of off-site movement in spray drift

The AmiTron label has legally binding restraints regarding spray drift. There are also restraints on the label for slope and certain no-spray windows. Always check a current label for restraints and recommendations.

AmiTron and herbicidal effects on marine reef organisms

As a herbicide, AmiTron has inherent potential to affect plant life in many environments, making it important to minimise off-target movement of the compound. In the sugarcane regions in Queensland, the rivers flow toward the Great Barrier Reef lagoon so this product has the potential to be a hazard to marine flora such as seagrass and also corals. It belongs to the PSII activity class, some of which (i.e. diuron) have been shown to exhibit toxic effects to this marine flora.

Recent studies by the Australian Institute of Marine Science have shown that not all herbicides belonging to the PSII activity class pose the same risk. AmiTron has been shown as much less of a risk to seagrasses and corals than other PSII herbicides such as diuron and hexazinone (up to ten fold less of a risk).

However the objective should still be to reduce risk of any contamination off-target by using sensible practices.

The sugar industry Best Management Practice Guidelines should be reviewed for current advice prior to using AmiTron in any crop.

amitron.com.au

Always refer to the label for complete details

® AmiTron is a registered trademark of an Arysta LifeScience Group Company

Arysta LifeScience Australia Pty Ltd shall not be liable in any manner whatsoever for errors, omissions, results, loss or damage whether consequential or otherwise resulting from the use of and / or access to information.

AMITRON RATE SELECTION

Pre-emergent & early post-emergent control

Higher rates give longer periods of control. Higher rates may be necessary on heavier soil types. Problem weeds may need higher rates or tank mixtures.

Rates	Weed control period *	Application
500 g/ha	short term e.g. up to 4–6weeks	Broadcast early
800 g/ha	medium term e.g. 6–8 weeks	Directed early
1 kg/ha	long term e.g. 8 weeks or longer	Directed late (prior to canopy closure) Directed very late (after canopy closure)

*guidelines only - residual period varies with soil type

Post-emergent control

Rates	Weed stage at Application	Weeds controlled #
500 g/ha	Up to 4 leaf	Most label species if at small stages. Add wetter for better post-emergent effect.
800 g/ha	Up to 6 leaf	Larger label grass weeds may need paraquat or Basta to assist knockdown.
1 kg/ha	Up to 6 leaf Up to flowering for some	

#guidelines only - see label for recommendations for each species

WEEDS CONTROLLED

See label for rate recommendations for each species.

<p>VINE WEEDS</p> <p>Calopo (<i>Calopogonium mucunoides</i>) Centro (<i>Centrosema pubescens</i>) Bellvine (<i>Ipomea plebeia</i>) Pink convolvulus (<i>Ipomoea triloba</i>) Morning glory (<i>Ipomea purpurea</i>) Red convolvulus (<i>Ipomoea hederifolia</i>)</p>	<p>BROADLEAF WEEDS</p> <p>Bluetop/Billygoat weed (<i>Ageratum spp.</i>) Cudweed (<i>Gnaphalium sp.</i>) Common pigweed (<i>Portulaca oleracea</i>) Paddy's lucerne (<i>Sida rhombifolia</i>) Green amaranth (<i>Amaranthus viridis</i>) Pink burr (<i>Urena lobata</i>) Rattle pod (<i>Crotalaria spp.</i>) Thickhead (<i>Crassocephalum crepidioides</i>) Common sensitive plant (<i>Mimosa pudica</i>) Fat hen (<i>Chenopodium album</i>) Bittercress (<i>Coronopus didymus</i>) Joint vetch (<i>Aeschynomene indica</i>) Phyllanthus (<i>Phyllanthus sp.</i>) Common sowthistle (<i>Sonchus oleraceus</i>) Potato weed (<i>Galinsoga parviflora</i>) Sesbania pea (<i>Sesbania cannabina</i>) Milkweed (<i>Euphorbia heterophylla</i>) White eclipta (<i>Eclipta prostrata</i>) Wild rose (<i>Cleome aculeata</i>)</p>
<p>GRASS WEEDS</p> <p>Awnless barnyard grass (<i>Echinochloa colonum</i>) Guinea grass (<i>Panicum maximum</i>) Crowsfoot grass (<i>Eleusine indica</i>) Green summer grass (<i>Brachiaria subquadripara</i>) Summer grass (<i>Digitaria ciliaris</i>)</p>	<p>SEDGES</p> <p>Annual sedges, including some <i>Cyperus</i> spp. but not nutgrass (<i>Cyperus rotundus</i>)</p>

Always refer to the label for complete details