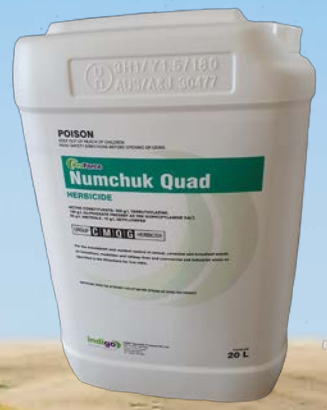


indigo
SPECIALTY PRODUCTS

ProForce

Numchuk Quad

Herbicide

Quad Control Industrial Herbicide Technology

What is ProForce Numchuk Quad Herbicide

- **Numchuk Quad** is a non-selective knockdown and residual herbicide featuring ‘Quad Control Herbicide Technology’ to provide effective post and pre emergence weed control for up to 12 months.
- **Numchuk Quad** contains 100g/L Glyphosate, 60g/L Amitrole, 15g/L Oxyfluorfen and 350g/L Terbuthylazine, 4 herbicides from different mode of action groups.
- **Numchuk Quad** is registered to control most annual, perennial and broadleaf weeds in commercial and industrial areas including rights of way, roadsides, railway lines, guideposts, powerlines and substations, aerodromes, public utilities and fencelines.

Key Features of Numchuk Quad Herbicide

- Contains Quad Control Technology, multiple modes of action, reducing potential weed resistance issues.
- Very effective on hard to kills weeds like Fleabane and Giant Rats tail.
- Substantial labour saving for weed management on road and rail situations.
- Provides both knockdown and residual control - Reducing need for additional tank mixes.
- Has strong activity on both grasses and broadleaf weeds.
- Provides long term residual control – Up to 12 months or greater.
- Can be used via handgun or boom application.
- Safe to established trees and ornamentals, as long as spray drift doesn’t occur.

Mode of Action

- Glyphosate, one of the active ingredients in **Numchuk Quad Herbicide**, controls weeds by inhibiting the activity of the EPSP enzyme (5-enolpyruvylshikimic acid-3-phosphate synthase), which is necessary for the formation of the aromatic amino acids within the plant.

- Amitrole's mode of action isn't well understood, but it is believed to be an inhibitor of several important enzymes. One of which is lycopene cyclase which is involved in carotenoid production. Carotenoids are essential components of photosynthesis, playing an important role in preventing photo-oxidative damage.

indigo SPECIALTY PRODUCTS

Group	C M Q G	Herbicide

ProForce

www.indigospecialty.com.au

Mode of Action

- Oxyfluorfen targets a specific enzyme, protoporphyrinogen oxidase (PPO), in the chlorophyll pathway. Inhibiting PPO in plants leads to an accumulation of phototoxic chlorophyll precursors which, in the presence of light, rapidly disrupt cell membrane integrity.

- The mode of action for Terbuthylazine appears to be due to a herbicide-produced deficiency in the growth regulator photosynthtate, caused by inhibition of photosynthesis.

indigo SPECIALTY PRODUCTS

Group	C M Q G	Herbicide

ProForce

www.indigospecialty.com.au

Numchuk Quad Herbicide Soil Half Life Data

Herbicide	Soil Half Life DT50*
Amitrole	16
Glyphosate	23.79
Oxyflourfen	73
Terbuthylazine	72

*Source: University of Hertfordshire: Pesticide Properties Database

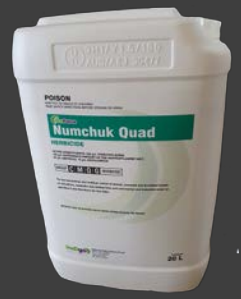
ProForce

Numchuk Quad Herbicide Soil Koc Data

ProForce

Herbicide	Soil Half Life DT50*
Amitrole	16
Glyphosate	23.79
Oxyflourfen	73
Terbuthylazine	72

*Source: University of Hertfordshire: Pesticide Properties Database



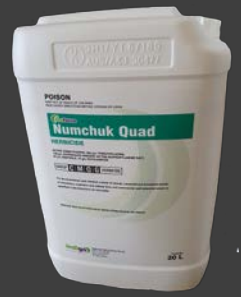
Numchuk Quad Use Rates

Numchuk Quad – Use Rates & Label Recommendations

SITUATION	WEEDS	RATE	COMMENTS
Commercial and Industrial areas including rights of way, roadsides, railway lines, guideposts, powerlines and substations, aerodromes, public utilities and fencelines	Most annual, perennial and broadleaf weeds	**Boom Spray:** 20-25L/ha **Handgun:** High pressure spraying 1.8L/100L Low pressure spraying 180mL/10L	Apply in autumn or spring when weeds are actively growing. Do not apply under drought conditions. For best results add 120mL/100L of tallow amine ethoxylate surfactant. Suitable rainfall (20-30mm) to wet the soil through the weed root zone is necessary within 2-3 weeks after application. **Boom Spray:** Apply sufficient spray to obtain even coverage. **Handgun:** For high pressure spraying apply 1100L spray volume per hectare.

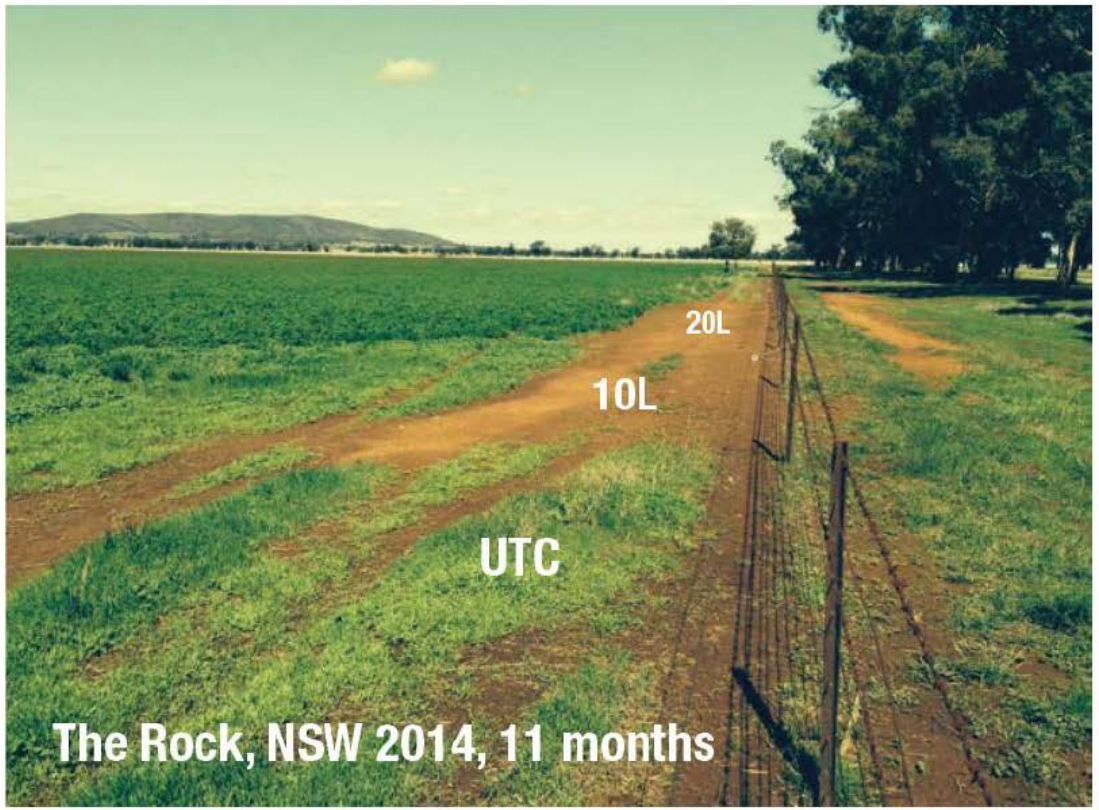
ProForce

www.indigospecialty.com.au



Numchuk Quad Residual Performance

www.indigospecialty.com.au



Peracto Trial: Sassafras, Tasmania, 2013-14.

indigo
SPECIALTY PRODUCTS

Residual control of grasses at 6, 8 and 12MAA

No.	Treatment	Rate (g ai/ha)	Residual control of grasses* (Biomass reduction as % untreated control)					
			6MAA		8MAA		12MAA	
1	Untreated control	Nil	0	c	0	c	0	c
2	Numchuk Quad plus Terwet 3780	5250 2L/100L	70	b	69	ab	58	b
3	Numchuk Quad plus Terwet 3780	10500 2L/100L	81	ab	79	ab	65	b
4	Numchuk Quad plus Terwet 3780	21000 2L/100L	94	a	94	a	93	a
5	Weedmaster Duo + Associate 600 WG + Pulse Penetrant	2160 12 200mL/100L	65	b	60	b	60	b
LSD (5% level)			16.3		27.8		15.1	

Means followed by the same letter are not significantly different (P = 0.05, LSD)
MAA: Months after application
* Grass species include a mix of hairy fingergrass, barnyard grass, winter grass, oatgrass and cocksfoot

indigo SPECIALTY PRODUCTS

Residual Grass Weed Control with Numchuk Quad.

Trial: Evaluation of FLNX Weed Buster Plus for the roadside control of broadleaf and grass weeds Sassafras, Tasmania, 2013-14

Peracto Pty Ltd

Residual weed control at 8 and 12MAA

No.	Treatment	Rate (g ai/ha)	Residual weed control (Biomass reduction as % untreated control)							
			Blackberry				Cutleaf cranesbill		Wandering speedwell	
			8MAA		12MAA		8MAA		8MAA	
1	Untreated control	Nil	0	b	0	c	0	c	0	c
2	Numchuk Quad plus Terwet 3780	5250 2L/100L	98	a	52	b	96	ab	100	a
3	Numchuk Quad plus Terwet 3780	10500 2L/100L	100	a	65	ab	89	b	97	ab
4	Numchuk Quad plus Terwet 3780	21000 2L/100L	100	a	88	a	97	a	99	a
5	Weedmaster Duo + Associate 600 WG + Pulse penetrant	2160 12 200mL/100L	100	a	78	ab	94	ab	81	b
LSD (5% level)			3.4		28.4		tA		tA	

Means followed by the same letter are not significantly different (P = 0.05, LSD)
MAA: Months after application
tA: Data transformed using x = Arcsine square root percent (y)

indigo SPECIALTY PRODUCTS

Residual Grass Weed Control with Numchuk Quad.

Trial: Evaluation of FLNX Weed Buster Plus for the roadside control of broadleaf and grass weeds Sassafras, Tasmania, 2013-14

Peracto Pty Ltd

Numchuk Quad – Whole plot weed control at 1, 2, 4, 5, 8 and 11MAA

No.	Treatment	Rate (g ai/ha)	Whole plot weed control (% visual)					
			1MAA	2MAA	4MAA	5MAA*	8MAA	11MAA
1	Untreated control	Nil	0	0 c	0 ^	0 c	0 d	0 d
2	Numchuk Quad plus Terwet	5250 120 mL/100	100	66 b	87 b	50 b	48 c	17 c
3	Numchuk Quad plus Terwet	10500 120 mL/100	100	100 a	95 a	88 a	85 b	43 b
4	Numchuk Quad plus Terwet	21000 120 mL/100	100	100 a	98 a	91 a	95 a	68 a
LSD (5% level)			NSD	1.7	4.7	5.3	5.0	5.0

Means followed by the same letter are not significantly different (P = 0.05, LSD)

MAA: Months after application

^ Treatment was excluded from statistical analysis to correct for skewness

* Replicate 1 was excluded from statistical analysis to correct for skewness

NSD = No significant difference due to a P-value > 0.05

indigo SPECIALTY PRODUCTS

Numchuk Residual Herbicide Trial Performance

Trial: Evaluation of FLNX Weed Buster Plus for the control of broadleaf and grass weeds along fence lines

The Rock, New South Wales, 2013-14, Peracto Pty Ltd.

Numchuk Quad Knockdown Control @ 1 Month After Application

Trial Date: 30th August, 2013.

Evaluation of FLNX Weed Buster Plus for the control of broadleaf and grass weeds along fence lines

The Rock, New South Wales, 2013-14. Peracto Pty Ltd.

Numchuk Quad Treated – 6 weeks after application

Untreated Areas

Numchuk Quad Kockdown Performance

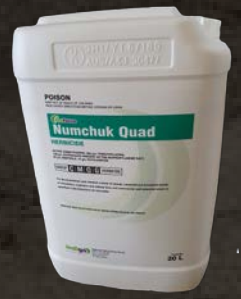
ProForce

indigo
SPECIALTY PRODUCTS

Untreated

Numchuk Quad Treated 6
Weeks after treatment.

Numchuk Quad Knockdown Performance



indigo
SPECIALTY PRODUCTS

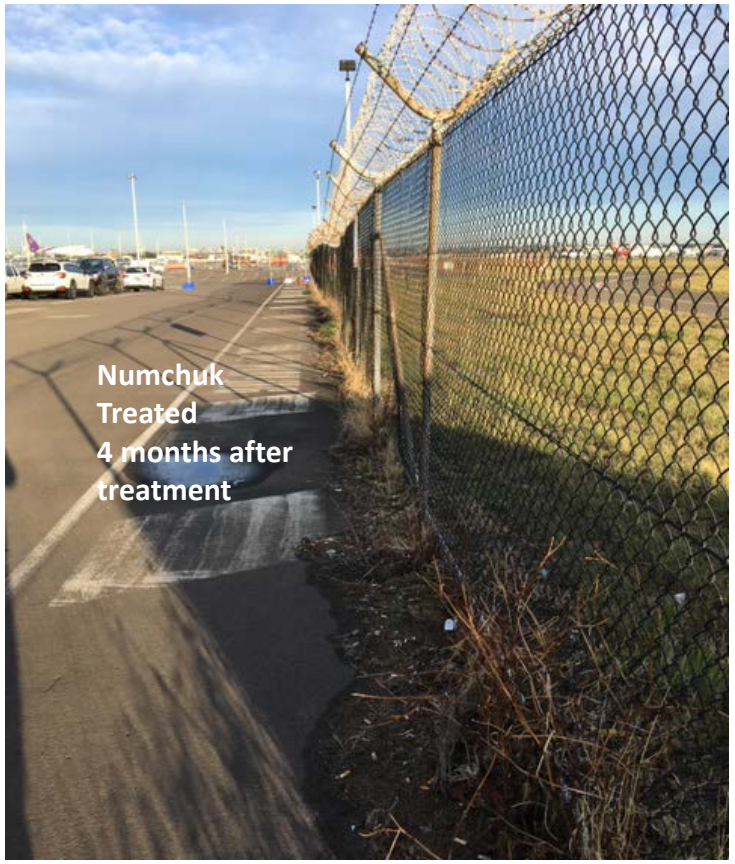
Untreated

Numchuk Quad Treated 6
Weeks after treatment.

Numchuk Quad Knockdown and residual performance

indigo
SPECIALTY PRODUCTS

Numchuk Quad Knockdown and residual performance



- Sydney Airport Fence Line Trial.
- Rate of Numchuk Quad Used was 20L/ha.
- Application Date: Oct, 2019.
- Assessment Date: Feb, 2020.
- Key weeds on site:
  - Grasses: Rhodes grass, Pigeon Grass.
  - Broad leaves: Fleabane, Singapore Daisy, Balloon Vine.

Maximising Performance with ProForce Numchuk Quad Herbicide

- ✓ Don’t apply if heavy rains or storms that are likely to cause runoff are forecasted within 3 days. Avoid application to waterlogged soils.
- ✓ Don’t apply with spray droplets smaller than a course spray droplet size.
- ✓ Avoid application when wind speed is less than 3 or more than 20 kilometres per hour, as measured at the application site.
- ✓ Do not apply during surface temperature inversion conditions at the application site.
- ✓ For best results add 120mL/100L of water of a suitable adjuvant / surfactant.
- ✓ Application should give 8-12 months effective weed control. Duration and effectiveness of control depends on the amount of chemical applied, soil type, rainfall, weed species and other conditions. Sufficient rainfall (20 to 30 mm either as rainfall or irrigation) to wet the soil through the weed root zone is necessary within 2-3 weeks of application to make the product effective. A delay in rainfall beyond 3 weeks may result in weeds germinating from depth and surviving. Heavy rainfall on light soils may cause movement of the herbicide out of the weed seed zone, resulting in reduced weed control.

Costing Comparison per Rate per 100L of water (handgun application)

- **Numchuk Quad**
  - Rate = 1.8L/100L of water.
  - Cost = $35.55 + gst ($395.00 per 20L).
- **Armoury**
  - Rate per 100L of water = 700mL - 1L/100L.
  - Armoury Cost per 100L of water = $22.05 – 31.50 + gst ($315.00 per 10L)
- **Trimac**
  - Rate = 100g/100L of water.
  - Cost = $21.00 + gst ($210.00 per 1kg).
- **Cavalier 500SC**
  - Rate = 190mL/100L of water.
  - Cost = $7.60 + gst ($400.00 per 10L)*.
  - Not specifically registered for use in IVM. Permit should not be used without permit holder's approval.
- **Uragan**
  - Rate = 150g/100L of water.
  - Cost = $11.55 + gst ($385.00 + per 5kg).
- **Rotary Max / Unimaz**
  - Rate = 410mL/100L of water.
  - Cost = $29.52 + gst ($360.00 + gst per 5L).

indigo
SPECIALTY PRODUCTS

THANK YOU

Phone: +61 402 735 887
Email: peterk@indigospecialty.com

www.indigospecialty.com