

LUCERNE CROP GUIDE

Establishing and maintaining your crop

Simple steps to produce a highly effective lucerne crop



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Introduction to Lucerne

Lucerne crops are a good source of high quality grazing and supplementary feed particularly in dryland farming situations. A well established and maintained crop can produce significant amounts of high quality feed for many years.

The establishment costs for lucerne can be high. It is important to have a good plan to ensure that this investment is not wasted. Weeds left uncontrolled can prevent adequate lucerne establishment and there are many instances where farmers have had to re-sow — a very expensive exercise.

Weed control in lucerne can be limiting. It is important to start early in the crop growth and establishment where possible rather than relying only on winter dormant options.

Nufarm has compiled this easy to use guide to help you select the best herbicide and insecticide options to control weeds and pests, and ultimately keep your lucerne stand productive, for longer.

Plan early

Correct preparation of a paddock prior to sowing lucerne is crucial to ensure a good start and to maximise the life of a stand. Many farmers are looking to sow lucerne into run out pastures which typically have significant weed issues.

The best advice that can be given is to select a paddock that does not have major weed problems, particularly those not well controlled by the available lucerne herbicides. Once the paddock is chosen, do everything possible pre-sowing to minimise weeds, and check the spray history of the paddock to ensure that residual herbicides used prior will not be an issue for the emerging stand.

Use an effective spray out

Where hard to control perennial weeds are a problem (especially couch, mercer grass, paspalum, kikuyu, Californian thistle and browntop), planning at least one year ahead with options such as a brassica crop over the summer months followed by an annual ryegrass or cereals over the winter and early spring is beneficial to allow multiple opportunities for control using CRUCIAL® and other in-crop herbicides. Lucerne is sensitive to a number of herbicides so it is important to check plant-back intervals when using herbicides during the preparation phase.

Alternatively consider a double spray out programme (this is recommended where not using a cropping programme to maximise the effectiveness of the spray out and subsequent kill of the prior crop weeds). This has the added benefit of conserving soil moisture to allow a more even strike of the lucerne (and weeds). Spray the existing crop or pasture and leave fallow before making a second application of CRUCIAL with Pulse® Penetrant and cultivating. Correct timing of herbicides is more easily achieved when crop/weed emergence is rapid and even.

CRUCIAL application rates

APPLICATION RATES FOR CRUCIAL		PULSE PENETRANT RATES
Annual ryegrass, cereals	1.8–2.4L/ha	100ml/100L water
Browntop, kikuyu, mercer grass	3.6L/ha	100ml/100L water
Couch, paspalum	1.8–3.6L/ha	100ml/100L water
Perennial ryegrass, Californian thistles	2.4L/ha	100ml/100L water
Red fescue, docks	5.4L/ha	100ml/100L water

Note: Many old pastures contain hard to kill weeds and will need at least 3.6L/ha CRUCIAL.

Tips to maximise CRUCIAL performance

For maximum absorption, you need at least 5–10 cm of actively growing leaf (minimum 10–15 cm if couch is present). Spray first then wait 1 day for annual species and 3 days for perennial species before grazing. If a spike is added, follow the grazing withholding period of the spike.

Add Pulse Penetrant at 100ml/100L water to:

- Improve CRUCIAL adhesion, penetration and uptake.
- Ensure control of perennial ryegrass.
- Aid rain-fastness of CRUCIAL
15 minutes* vs. 2 hours without Pulse Penetrant.



Hard to kill weeds

If necessary, add companion herbicides to control weeds that are not well controlled by CRUCIAL and Pulse Penetrant alone.



NAIL® 600EC

Add Nail 600EC to improve speed of brownout, and assist control of weeds such as mallows, nettles and polygonum species. Use at 20–40ml/ha.



RELAY® SUPER S

Add Relay Super S to improve control of weeds such as hemlock, ragwort, storksbill and thistles. Use at 1.0–2.0L/ha.



SERO® 750WG

Add Sero 750WG to improve control of weeds such as clover, sheep's sorrel and yarrow. Use at 40g/ha.



KAMBA® 750

Add Kamba 750 to improve control of weeds such as dandelion, docks and willow weed. Use at 400ml/ha.



CHARTER® 750WDG

Add Charter 750WDG to aid control of weeds such as buttercup and large docks. Use at 20g/ha.

Observe the relevant plant-back intervals and grazing withholding periods for the above herbicides for lucerne (for further advice where these are not known, please contact your local Nufarm Territory Manager).

* Performance guarantee

Controlling pests pre-planting

Springtails



Springtails can be a hugely damaging pest at crop emergence, with numbers present in pasture often 30,000/m² or more, so early control measures should always be applied.

DEW™ 600 OR CHLORPYRIFOS 500EC



Add Dew 600 at 400ml/ha at spray-out to control springtails. Dew 600 has a nil stock withholding period. Where a double CRUCIAL spray programme is used, add Dew 600 to the second application.

Other insecticide options include Nufarm Chlorpyrifos 500EC at 200ml/ha (7 day withholding period).

Slugs



Slugs feed on seeds and germinating or emerged seedlings, reducing establishment. They are a major problem in no-till situations, therefore SlugOut® should be applied as a matter of course.

SLUGOUT



SlugOut's unique dust-free granules give excellent coverage per square metre, ensuring effective control of crop-destroying slugs. Broadcast at 10–15kg/ha either in a single application, or in a split application, half (5–7.5kg/ha) applied around a week prior to planting, the other half at planting.

Pre-emergence weed control

TRIFLURALIN

Apply immediately before planting where conditions are favourable for rapid germination. Apply at least 14 days pre-planting under cold, wet soil conditions.

TRIFLURALIN SUSCEPTIBLE			
Amaranth spp.	Annual poa	Red dead-nettle	Barnyard grass
Catchfly	Chickweed	Spurrey	Wireweed
Witchgrass	Redroot	Scarlett pimpernel	Fathen
Cleavers	Cornbind	Yellow gromwell	Range of grasses

TRIFLURALIN RESISTANT			
Nightshade	Clovers	Fumitory	Mallows
Shepherd's purse	Storksbill	Twin cress	Wild turnip
Willow weed	Thistles	Daisies	



Post-emergence weed control

Close attention to crop and weed emergence during the establishment phase of a lucerne crop, and taking steps to control weeds early will set up a lucerne crop well for a lifetime of great productivity. The weeds present (broadleaf and grasses) will dictate which post-emergence herbicides are the most suitable. Most post-emergence herbicides can be used in both new and established lucerne crops.

Broadleaf weed control



KYTE™ 700WDG

Kyte 700WG will control or suppress grass and broadleaf weeds during pre-emergence and up to 4 leaf stage. Kyte 700WG can be applied from the 2 trifoliate leaf stage of the establishing lucerne crop, and when weeds are up to the 4 leaf stage.

Kyte 700WG is a useful winter option for lucerne under one year old. It can shorten lucerne stems but plants quickly recover, and yield is unaffected. Do not graze for 42 days after application.



DEBUT®

Debut can be used for seedling broadleaf weed control during warm conditions, where the active 2,4-DB can be converted into the more active 2,4-D form in weeds. Safe on lucerne from 1–2 trifoliate leaf stage, allowing control of weeds before they compete with the crop. Debut can be mixed with Dictate® 480 to improve nodding thistle and storksbill control. It can be used in established lucerne however crop suppression may occur. Graze heavily before application to reduce suppression.



VALDO® 800WDG

Valdo 800WG controls or suppresses many broadleaf weeds without damaging the crop. Apply once lucerne reaches 4–6 trifoliate leaves but before the onset of flowering. Do not graze for 14 days after application.



DICTATE 480

Dictate 480 can be used for control in autumn. Best used during warm conditions when the crop is established and plants have at least 4 trifoliate leaves.



DOCKSTAR®

A selective systemic herbicide that controls docks. Use on lucerne from the first winter. Best control is achieved when used in spring as soon as docks break dormancy and develop leaves. Can be used in autumn three weeks after the last cut has been taken.

Grass weed control



SEQUENCE®

SeSequence can be applied during establishment or after cutting/grazing for the control of a wide range of grasses. Active growth of weeds is preferred but control will also occur during the winter – although it will be very slow to act. SeSequence is compatible with triazine herbicides used during the dormancy period. Do not mix with Debut or Kyte 700WG. SeSequence has a 3 week non-grazing period.

Post-emergence weed control

HERBICIDE	WEEDS	APPLICATION RATE	APPLICATION TIMING
Kyte 700WG	Broadleaf weeds including fathen, mallow, spurrey, wireweed. Grasses controlled include annual poa, barnyard grass, smooth witchgrass and summer grass	100–140g/ha depending on target weed species. Add Contact™ Xcel at 200ml/100L water	Apply from the 2 trifoliate leaf stage of the crop, up to the 4 leaf stage of the weeds. Ensure a good uniform emergence of lucerne has occurred since lucerne cannot be re-sown within 6 months of applying Kyte 700WG.
Debut	Fathen, thistles, and plantains	Debut alone at 4.8–6.4L/ha or 1.6L/ha Debut + 1.5L/ha Dictate 480	Apply from the 1–2 trifoliate leaf stage
Valdo 800WG	Fathen, shepherd's purse, annual buttercup, chickweed, spurrey, willow weed, giant buttercup, sorrel, and stinking mayweed	50–65g/ha depending on target weed species. Add Bonza® Gold at 500ml/100L water except if mixing with triazine herbicides	Apply to seedling weeds after grazing/cutting but before the onset of flowering
Dictate 480	Nodding thistle and storksbill	Dictate 480 alone at 4L/ha or 1.5L/ha Dictate + 1.6L/ha Debut. Apply in water of at least 300–500L/ha	Apply during warm conditions in autumn when the crop is established (at least 4 trifoliate leaves)
Dockstar	Docks	3.1–4.1/ha in 200L water/ha or spot application	Apply in spring as soon as the docks develop leaves or at least 3 weeks after the last cut in autumn. Do not apply between cuts in spring/summer.
SeQuence	Grass weeds including ryegrasses, and annual summer grasses	0.25–1.0L/ha. Add Bonza Gold at 500ml/100L water	Apply to seedling grass weeds if possible. If using between cuts or grazing, allow grass weeds to freshen prior to application.

Note: Check label for weeds controlled and correct rate depending on weed species and size.

Post-emergence pest control

Aphids



Aphids cause stunting and reduced plant vigour. They can be particularly damaging when lucerne is under stress.

After mild winters, aphid numbers can build up rapidly. Check stands regularly in spring.

Sitona Weevil

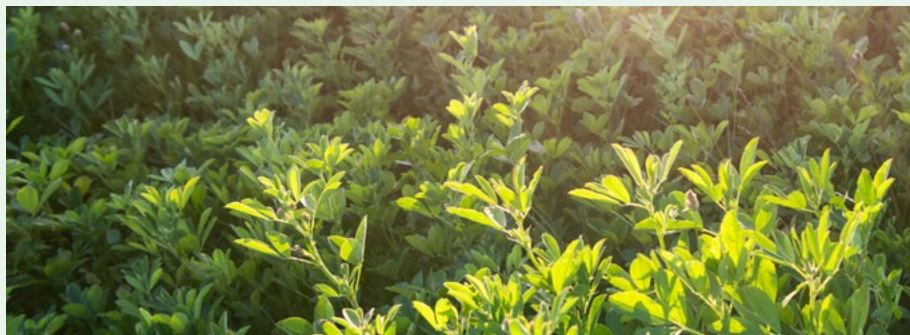


Sitona weevil larvae live in the soil and feed on lucerne roots and nodules, while the adults are foliar feeders. This damage severely restricts seedling development and growth, causing stunting or plant death.



CHLORPYRIFOS 500EC

Chlorpyrifos 500EC is an option for controlling aphids and Sitona weevil in new and established lucerne. For Aphids, apply 300–450ml/ha. Use a higher rate on tall leafy crops. For Sitona weevils, apply 600–800ml/ha between May and early August. Do not apply to flowering crops. There is a 7 day withholding period before cutting or grazing.



Application rates and timing

PEST	PRODUCT	RATE	NOTES
Springtails	Dew 600	400ml/ha	Use at sprayout to control springtails. There is a nil stock withholding period.
Slugs	SlugOut	10–15kg/ha	Either in a single application at planting or in a split application – half (5–7.5kg/ha) applied about a week prior to planting, the other half at planting.
Aphids	Chlorpyrifos 500EC	300–450ml/ha	Apply as soon as aphids appear. Use the lower rate on short crops with little leaf and the higher rate on tall crops. Do not spray plants in flower. There is a 7 day grazing withholding period.
Sitona Weevil	Chlorpyrifos 500EC	600–800ml/ha	Apply between May and early August. Do not apply to flowering crops. Use the high rate for dense stands. There is a 7 day withholding period.



Adjuvants

Using the correct adjuvant with your crop protection product can achieve higher efficacy, improved deposition, coverage and penetration. It can also reduce drift, water use and over-spraying or crop damage, resulting in safer more sustainable spraying practices.



AMIGO®

Amigo reduces driftable fines and gives a more uniform droplet size. It increases droplet retention and has an excellent anti-foam system. It has low use rates and is shear tolerant.



BONZA GOLD

Bonza Gold is a blend of esterified canola oil with emulsifiers and surfactants to enhance wetting and spreading of agricultural chemicals, uptake of systemic herbicides and as an aid for modifying spray droplet quality and to preserve droplet survival.



CONTACT XCEL

Contact Xcel is non-ionic surfactant specifically formulated to reduce the surface tension of spray droplets, causing them to spread out evenly over sprayed surfaces upon impact. This provides an increase in the number of droplets retained by the target which then merge to form a continuous film, allowing maximum sites for chemical action or uptake.



FLUME®

Flume is a superior non-penetrating super spreader that improves coverage of horticultural and agricultural products. It reduces surface tension of spray solutions, allowing spray to spread rapidly over plant surfaces. It is used in low water volumes. Flume saves in time, water and spray costs and can be used in aerial applications.

Winter weed control in established crops

Most lucerne has a dormant phase over the winter months. However there are different levels of dormancy depending on the cultivar grown. Semi-dormant or winter active lucerne cultivars can be prone to herbicide damage. Likewise in warm climates growth may continue slowly over the winter.

The dormant phase allows the selective use of soil residual herbicides and paraquat with minimal crop damage. Extra care is required when lucerne is a high fall dormancy rating and may not go dormant over winter. It is particularly important to remove all foliage by grazing/cutting prior to application. Choose herbicides wisely and get timing correct to reduce the risk of damage. In all situations lucerne must be grazed hard/cut and weeds allowed to freshen for 10–14 days before application.

If applications are left until very late winter (late-July or later) then there is a risk of damage to new growth as dormancy breaks. Yield reduction in the first cut can be expected in such cases. The soil residual herbicides will result in soil residues for 6 or more months following application. If the lucerne stand is nearing the end of its life, then choose carefully to prevent plant-back issues in subsequent crops. To minimise the risk of resistance developing to these herbicides consider a resistance management strategy which rotates these herbicide options every 2–3 years to maintain their efficacy.

Dormant phase — greater than one year old



FLOWABLE ATRAZINE 500 AND NU-TRAZINE™ 900DF

Atrazine has soil and some foliar activity. If lucerne is not dormant or large amounts of foliage are present crop damage can occur. Residual activity is short term. Apply to closely grazed stands during winter months when the lucerne is dormant.



Allow a few days after grazing or cutting before spraying. Do not apply when frost is still on the ground or when ground conditions are excessively wet. Do not apply to stands less than 1 year old. Apply 1.5–2.0L/ha Flowable Atrazine (0.8–1.0kg/ha Nu-Trazine 900DF) + 1.6–2.4L/ha paraquat (250g/L) in 200–300L water/ha. Use the higher rate only when storksbill is the dominant weed and is >4 leaf in size.



CHATEAU®

Chateau is a soil residual herbicide, that acts through pre-emergence control of broadleaf and grass weeds. Lucerne must be at least one year old prior to application. Apply in late autumn or winter soon after grazing or cutting. This will minimise lucerne leaf and maximise bare ground. Apply at 140–280g/ha with 1.6–2.4L/ha paraquat (250g/L), in 200–300L water/ha.

Adequate soil moisture and 15mm of rainfall within 3 weeks of application maximise efficacy. Do not graze or cut lucerne for 28 days after application.

Winter weed control

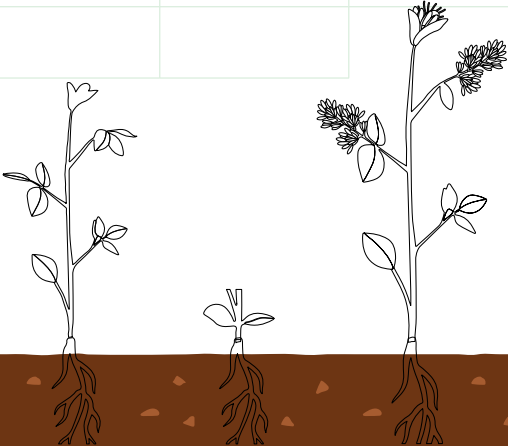
HERBICIDE	WEEDS	APPLICATION RATE	APPLICATION TIMING
Chateau	Prevents the germination of broadleaf and grass weeds for 2–4 months. Particularly effective for pre-emergent control of horehound and dandelion.	140–280g/ha + 1.6–2.4L/ha paraquat (250g/L), in 200L water/ha. Use higher rates for maximum residual activity.	Apply in late autumn or winter soon after last graze/cut.
Flowable Atrazine 500 and Nu-Trazine 900DF	Broadleaf weeds including shepherd's purse, subterranean clover, storksbill, barley grass and rigput brome.	Apply 1.5–2.0L/ha Flowable Atrazine (0.8–1.0kg/ha Nu-Trazine 900DF) + 1.6–2.4L/ha paraquat (250g/L), in 200–300L water/ha.	Apply to closely grazed stands during winter months when the lucerne is dormant.

Protect and maximise your crop

Lucerne crop lifecycle

NEWLY-ESTABLISHED LUCERNE				
SPRAY OUT	PRE-PLANT	PRE-PLANT, PRE-EMERGENCE	2 TRUE LEAF	4 TRUE LEAF
CRUCIAL <small>ADVANCED TECHNOLOGY HERBICIDE</small>	9	Trifluralin	3	Debüt™
Relay* <small>SUPER S</small>	4			Kyte 700^{WG}
SERO ⁷⁵⁰ 2				Naform DICTATE 480
Charter™ <small>600 750WG</small> 2				Naform VALDO <small>800WG</small>
Kamba 750* 4				seQuence <small>CONCENTRATE</small>
NZHL 600	14			BONZA GOLD
PULSE <small>PENETRANT</small>				CONTACT XCEL
amigo				
Naform Dew 600	1			
	SlugOut⁵⁰			
Chlorpyrifos <small>500EC</small>			1	
<div> <div>PRE-PLANT</div> <div>PRE-EMERGENCE</div> <div>POST EMERGENCE</div> </div>				

* Note: Relay Super S and Kamba 750 have a plant-back of at least 1 month for lucerne. Use only in the 1st spray of a double spray program.
 ** Note: To be used during winter dormancy once lucerne is greater than one year old.

			ESTABLISHED LUCERNE	
8 TRUE LEAF	FIRST CUT/ GRAZE	FLOWERING	> 1 YEAR OLD	> 2 YEARS OLD
4			Debut™	4
2			Kyte 700 ^{WG}	2
	6		Nufarm DICTATE 480	6
	2		Nufarm VALDO 800WG	2
	1		seQuence HERBICIDE	1
			Nufarm DOCKSTAR™	18
			CHATEAU™ HERBICIDE	14
			Nu-Trazine 900DF ^{**}	5
			Nufarm Alrazine ^{**}	5
			Paraquat	22
			amigo	
			BONZA GOLD	
			FLUME...	
			CONTACT XCEL	
			Chlorpyrifos SODEC	1
			MATURE PLANT	

Working out what you need

	APPLICATION RATE PER HA*	TOTAL HA'S REQUIRED	AMOUNT REQUIRED
SPRAY OUT			
CRUCIAL	1.8–5.4L/ha		
Pulse Penetrant	100ml/100L water		
Nail 600EC	20–40ml/ha		
Sero 750WG	40g/ha		
Charter 750WDG	20g/ha		
Kamba 750	400ml/ha		
Relay Super-S	1.0–2.0L/ha		
Amigo	**		
PRE-EMERGENCE			
Trifluralin	1.5–2.5L/ha		
PRE-PLANTING PEST CONTROL			
Dew 600	400ml/ha		
SlugOut	10–15kg/ha		
POST-EMERGENCE WEED AND PEST CONTROL			
Kyte 700WG	100–140g/ha		
Valdo 800WG	50–65g/ha		
Dictate 480	1.5–4.0L/ha		
Debut	1.6–6.4L/ha		
Dockstar	3.1–4.1L/ha		
Sequence	0.25–3.0L/ha		

	APPLICATION RATE PER HA*	TOTAL HA'S REQUIRED	AMOUNT REQUIRED
POST-EMERGENCE WEED AND PEST CONTROL (CONTINUED)			
Chlorpyrifos 500EC	300–800ml/ha		
Bonza Gold	500ml/100L water		
Contact Xcel	200ml/100L water		
DORMANT PHASE >1 YEAR OLD			
Chateau	140–280g/ha		
Flowable Atrazine 500	1.5–2.0L/ha		
Nu-Trazine 900DF	0.8–1.0kg/ha		
Paraquat (250g/L)	1.6–2.4L/ha		
Amigo	**		
Flume	**		

*Please refer to product labels for specific application rates and use directions.

**See your Nufarm Territory Manager for rates.



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