



WEED MANAGEMENT PLANNING GUIDE

BLUE HELIOTROPE

A PLAN OF ATTACK

The aggressive summer-active perennial, Blue Heliotrope – *Heliotropium amplexicaule* – is a major agricultural weed in NSW that requires a long term strategy for successful control. Left unchecked, this drought-hardy invasive weed will out-compete depleted pastures and rapidly populate bare ground. Blue Heliotrope is notoriously difficult to manage and costly to control often leaving a blue haze across paddocks and a dent in farm profit margins from Spring right through to Autumn. The South American native herb is readily identifiable featuring clusters of small mauve, yellow-centred flowers along a coiled stem with hairy soft green foliage and a pungent odour. The spreading plant rapidly populates cropping and pasture paddocks regenerating from fragments of its strong tap root and from sticky seed heads which commonly hitch a ride on machinery, native animals and livestock. First identified in the Hunter over 100 years ago, Blue Heliotrope is toxic to all classes of livestock with high levels of alkaloids causing liver damage and potentially, stock deaths. Although animals tend to only graze the weed when hungry and alternative pasture is scarce, the weed is toxic both fresh and dried so careful management is required for grazing, spraying or making hay in infested paddocks.

Hunter Local Land Services is committed to assisting producers access advice to combat problem weeds. LLS Upper Hunter partnership demonstration sites have shown effective control of Blue Heliotrope requires commitment to an integrated management strategy where soil health and nurture of beneficial plant species is as vital as suppressing the weed invader. This guide is designed to step you through the process to form a plan of management for controlling this major agricultural weed on your property. The aim is through engaging a mix of tools tailored for your farm business to minimise potential production losses and establish a path to long term success.

DESIGNING YOUR CONTROL PLAN

1. IDENTIFICATION



Map where Blue Heliotrope occurs on your property. Is it in an arable or non-arable country? How much of your production area is infested with the weed? How heavy is the infestation – scattered plants or the weed represents more than 50% of your plant species? What are productive plant species present, broad-leaf and grasses? Rate the potential productivity of your paddock areas assuming they were weed-free. How effective is your Farm Biosecurity Plan for minimising weed spread? Do you regularly clean down machinery and equipment and minimise stock movements when Blue Heliotrope goes to seed?

2. PLANNING



Once you have identified the extent and severity of your Blue Heliotrope problem, you are ready to design a plan of attack for your property. The key to successful Blue Heliotrope management is to set a plan and then stick to it. Do not get ahead of yourself. Work on one section at a time to bring the weed under control before moving onto the next stage of your plan. Monitor your successes and failures. If applicable, start with arable country to bring any previously cropped paddocks that are now predominately Blue Heliotrope, back into your production system. In pasture paddocks, identify the heaviest infestations and make those your priority. Once you have achieved reasonable control of Blue Heliotrope in these paddocks, prioritise your focus in order of productivity or carrying capacity.



3. MANAGEMENT TOOLS



Blue Heliotrope is successful at invading your pasture systems purely due to its ability to rapidly grow after a rainfall event either with limited competition from established pastures or as an opportunist on bare ground. For this reason, you need to “fight fire with fire”, as Central NSW-based agronomist, Bob Freebairn recommends, and ensure your pasture system has the competitive edge against this aggressive weed. Avoid over-grazing non-arable country and combine pasture management with a timely chemical control program. On arable country, the key to success is reducing weed numbers, sowing a competitive pasture mix and improving soil health so that your preferred species are fit and ready to out-compete Blue Heliotrope in the battle for nutrients, sunlight and moisture. Adopt and stick to a strict farm biosecurity plan managing all machinery and stock movements.



Merriwa Pasture Demonstration Site

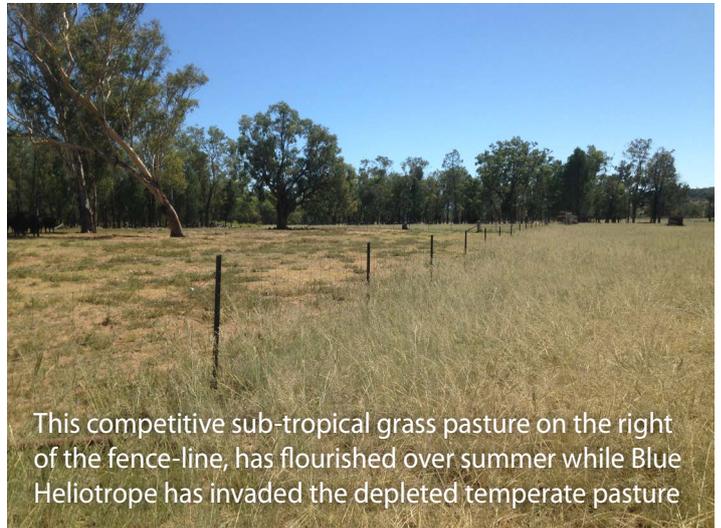
HUNTER LLS MERRIWA PASTURE DEMONSTRATION SITE

The Hunter LLS Merriwa Pasture Demonstration Site was established in 2016 to assess the performance of sub-tropical grass species on the heavy black soils in the Upper Hunter. The successful site has developed to host a mix of sub-tropical grasses, temperate and tropical legume species, a Hunter Soil Moisture Network soil-probe and weather station, all in an active pasture system on the Alker family’s ‘Alcherinca’ property. Managed by LLS Agricultural Extension Officer, Sarah Giblin in partnership with seed companies, the accessible site is just 10km from Merriwa on the Scone Road. Promising performers through the drought with potential for inclusion in local farming systems and weed management plans include sub-tropical grasses, Purple Pigeon, Gatton Panic and Blue Flouren, and new improved winter legumes, sub-clovers and medics. Also impressive was the drought-hardy and bloat resistant sub-tropical legume, Desmanthus. Visit the Hunter LLS website for links to video and event updates on the Pasture Demonstration Site and access to the Hunter Soil Moisture Network platform for live updates on soil moisture and weather from across the region.



Sub-Tropical Pastures

Sub-Tropical Grasses are one of the best plant species equipped to out-compete Blue Heliotrope and bring your paddocks back into production. Sub-tropical grasses are equally if not more aggressive ONCE ESTABLISHED than Blue Heliotrope with a rapid growth rate critically subduing the weed’s activity through the summer months. Sub-tropicals out compete Blue Heliotrope for ground cover, sunlight, nutrients and moisture during this period unlike many temperate grass species. Sub-tropical pastures can be hard to establish, so a management plan must be implemented to ensure success. Even though established plants are aggressive in growth habit, tropical grass seedlings are quite the opposite. Annual Grass weeds such as Liverseed grass and summer grasses need to be controlled for three years prior to sowing of a sub-tropical pasture. Ground cover is also important when establishing sub-tropicals to keep the seedbed moist and insulated from drying out. Species selection will vary according to soil type and location so please consult your local agronomists and seed merchants.



This competitive sub-tropical grass pasture on the right of the fence-line, has flourished over summer while Blue Heliotrope has invaded the depleted temperate pasture



Sub-tropical Purple pigeongrass has performed well at the Merriwa site!

Herbicide Control

Herbicide Control of Blue Heliotrope in high plant populations is an essential component of a broad integrated management strategy. Blue Heliotrope is not an easy plant to kill in pastures with a chemical application. The key learnings from the 2020 Hunter LLS Blue Heliotrope Management Demonstration at Merriwa include:

- **Timing of chemical application was critical.** Often this weed is sprayed too late for optimum results and control and “the horse has bolted”. The best chemical control results were achieved when the weed was sprayed 1-2 days following a rainfall event before summer temperatures started to stress the weed and before chemical contact/coverage was impeded by grasses in the top of the canopy. When Blue Heliotrope was sprayed 14 days post rainfall and after some hot weather, a reduction in chemical control was observed.
- **Water rates were an important factor in successful control.** To achieve maximum kill results when broadcast spraying Blue Heliotrope, a water rate of no less than 100L/ha should be applied. This ensures good coverage of the chemical on the plant leaves.
- **Chemical treatment and rate selection require individual decisions for each situation.** Observations were made at the Hunter LLS Blue Heliotrope Demonstration site of a variety of chemical treatments and the relative effectiveness of control options. Selections will vary depending on cropping rotation and pasture species mixes. Consult your local agronomist or advisor to discuss which chemical treatment suits your individual production system as recommendations will vary.



Blue Heliotrope Demonstration Site



Blue Heliotrope in flower

Soil Health

Soil Health plays an important role in the management of Blue Heliotrope, especially in native pastures. If the pasture system is not performing, how can it compete against an aggressive weed? Have your pastures enough legumes (eg. clovers) in the pasture composition during winter to drive summer production? Are your soil phosphate and sulphate readings at a level to promote productive pasture growth? Are your productive species under pest attack? Not only will soil health improve the pasture quality, but it will also promote pasture growth to increase ground cover. Monitor your soil and plant health in consultation with your local agronomist.



Hunter Soil Moisture Network 'Alcheringa' weather station at Merriwa

Biological Control

Biological Control options in Australia for this South American native weed are limited to an introduced Blue Heliotrope leaf-beetle – *Deuterocampta quadrijuga* – which has proved difficult to establish. The beetle is not adapted to our long hot summers however will thrive in cooler sheltered riparian zones stripping Blue Heliotrope plants of foliage.



Blue heliotrope leaf-beetle feed on all parts of the plant.
Photo: A Johnson



4. TIME



Blue Heliotrope takes time to manage. It cannot be controlled in just one strategy or one spray therefore a plan of attack needs to be implemented to meet the goals of your farming system. Where possible partner and network with your neighbours and share learnings to improve outcomes for your district. Remember, plant competition and chemical treatment timing are critical tools when engaging an integrated control program for this weed. Seek advice – formulate a plan –and stay focused in the battle to control Blue Heliotrope and improve your farm productivity.



Merriwa beef producer, Col Bates has established sub-tropical pastures as part of a long-term Blue Heliotrope control plan.



HUNTER LLS BLUE HELIOTROPE CONTROL DEMONSTRATION

Upper Hunter beef producer, Col Bates and his family have been battling Blue Heliotrope for the past five years. After a Hunter LLS field trip to Binnaway with agronomist, Bob Freebairn in 2016, they learnt about the benefits of harnessing tropical pastures to suppress summer weed activity and set about establishing a long-term weed control plan for their 'Kingslyn' property on the Merriwa River. Three years down the track, 'Kingslyn' was chosen as the perfect site for the Hunter LLS Blue Heliotrope Control Demonstration in partnership with the Bates family and agronomist, Dan Clydsdale of Clydsdale Rural. In January 2020, a series of chemical treatments, rates and spray timings were applied to a native pasture system infested with Blue Heliotrope and the results compared. This planning guide has drawn together many of the key learnings from this property and tips to maximise herbicide control success. In addition, the Bates family has provided valuable feedback on a variety of tropical pasture mixes they have established to out-compete Blue Heliotrope and boost pasture production. Visit the Hunter LLS website for links to the Drought Recovery video series including the Weed Management - Blue Heliotrope episode filmed at the Demonstration site on 'Kingslyn'.



For assistance with your plan contact Agriculture Extension officer: Sarah Giblin 0409 785172

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