



VELVETLEAF

Farm Management Plan

Author: _____



Personalised velvetleaf farm management plan

Objectives

To assist farmers affected with velvetleaf.

1. Prevent the spread of this weed to uninfested properties;
2. Limit the spread of the weed within properties already confirmed as having a velvetleaf outbreak;
3. Provide management options that may lead to the elimination of the weed over time.

Developing a plan and using best farm management practices will assist in protecting your farm from the risks posed by velvetleaf and minimise disruption of normal farm practises. Implementing a good plan now will reduce the problem and costs later.

Key messages

- Velvetleaf seed is very hardy. It can survive through the silage process, pass through an animal digestive tract and remain viable in the soil for decades.
- Stop the spread of velvetleaf to new areas through overall vigilance, active paddock monitoring, direct control of the weed and keeping stock off infested areas for 24 hours prior to moving them.
- Minimum tillage or no tillage is recommended. Ploughing, deep ripping, discing or rotary hoeing should not be used.
- Crop choice is important, if possible avoid tall growing crops such as maize, sweet corn, forage brassicas and triticale. Re-sowing infested paddocks into permanent pasture, low-growing crops and early maturing crops (harvested before the end of January) is recommended.

Good farm plans will restrict the spread of this weed and will minimise the impact into the future. MPI and the Industry have developed documents to ensure you have good plans for minimising the impact in future, please refer to these as you develop your farm plan.

<http://www.mpi.govt.nz/protection-and-response/long-term-pest-management/velvetleaf/>

A 'ute guide' has been completed by MPI and it can be viewed here: <http://www.mpi.govt.nz/document-vault/12357>

Key points to consider and include in a personal plan are:

- All parties entering the farm are informed of the velvetleaf risk status of the farm.
- Surveillance in next growing season and beyond.
- Machinery hygiene.
- Stock management and movement.
- Land use – crop options



- Land use – soil management and cultivation.

Any information you provide in developing a plan will only be used for the purpose provided.

Unwanted organisms and velvetleaf

“Unwanted organism” is a legal term given to organisms (e.g. plants, animals, bacteria, viruses) that are believed capable of causing harm to the environment (including farms) or human health.

Organisms are classified as “unwanted” by a Chief Technical Officer (CTO) – an experienced official in the Ministry for Primary Industries appointed to carry out the role on behalf of the Director-General.

Making an organism “unwanted” means the Ministry can place specific legal controls on the movement of the organism, for example velvetleaf.

Legal controls on velvetleaf movement

Velvetleaf is an unwanted organism under the Biosecurity Act 1993. It is illegal to knowingly communicate (move), cause to be communicated, release, or cause to be released, or otherwise spread any pest or unwanted organism except under certain conditions including—

- In the course of and in accordance with a pest management plan; or
- With written permission from the CTO.

Be aware that velvetleaf seeds have the potential to be moved (communicated) in soil attached to the hooves of stock, attached to machinery, or after stock have eaten an infested crop.

What does all this mean for you?

- You must not move velvetleaf plants and seed or allow them to be moved off your property.
- You need to find, remove and dispose of any velvetleaf plants as explained in the ute guide.
- If velvetleaf plants have set seed in any crop on your farm, it is illegal to remove that crop from the property.
- It is vital that you remove any velvetleaf plants before they flower and set seed.

If you have velvetleaf on your property, we highly recommend you attend our workshop (see enclosed letter). There will be experts there to help you develop a personalised farm management plan to guide farm management options that may lead to the elimination of velvetleaf over time.

Good on-farm biosecurity practices will help to reduce all pest impacts.



FARM PLAN

If velvetleaf seed is allowed to mature it can remain in paddocks for decades, severely affecting crops and yield. The management of velvetleaf is likely to be expensive. Conversely, if velvetleaf plants can be pulled before seed set, disturbance to normal farm practices will be minimised and management costs reduced.

Velvetleaf's main mode of spread is through mechanical distribution (human mediated, machinery, stock etc.), therefore it is imperative that farmers work to reduce the spread and contain velvetleaf. It will be up to farmers and local industry to ensure there are good on-farm biosecurity practices to contain velvetleaf. The spread of velvetleaf into new paddocks or new farms will increase the impact across New Zealand and the impact to the primary sector economy. Managing this weed locally now will help to reduce its impact in the future.

Preparation of plan	(Delete as appropriate) Plan completed in person, facilitated by: (name of facilitator) Plan completed by phone, facilitated by: (name of facilitator)			
Farm physical address:				
	Owner	Farm manager	Contractor	Consultant
Email:				
Phone number				
Postal Address				
Farm type				
Paddock identification				



Brief summary:	Source of incursion (e.g. contaminated fodder beet seed, received maize silage etc.). Previous crop and variety, presence of velvet leaf plants, were they destroyed before going to seed, herbicides applied etc.
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Aerial photo or map of farm or part of farm showing infested or at risk paddocks and the points in paddocks that were infested:

Include areas where velvetleaf went to seed.



Surveillance

If the farm had velvetleaf last year, a surveillance programme on the paddock and the broader farm is essential.

Risk	Surveillance activity	Action - plants found location and maturity.	Dates monitored/ person
Velvetleaf plants that went to seed last year	Intensively monitor (systematically walk the whole paddock) the paddock where plants were found, every three weeks from 1 January until the end of April. Also monitor these paddocks and any other risk areas on the farm (eg stock camps, adjacent to tracks etc). Monitor high risk areas last then clean your boots etc.		
Seed transported on Machinery	Monitor beside tracks and the first round of the paddock every month from mid- January until the end of April.		
Stock feed.	Monitor infested paddocks after grazing as stock will not eat velvet leaf plants. Monitor areas where fodder beet or infested cultivars or potentially infested maize silage were fed and stored every four weeks from mid –January until end of April.		

Any velvetleaf that is detected – record the location and remove and destroy the plant. If it has developed seed heads record the location for next year’s surveillance and dispose of plant material in an offal pit.

Note: In the surveillance activity you could transport seed or plants. Clean all footwear thoroughly on exiting a paddock and ensure no seeds are on clothing or in footwear.



Machinery hygiene

Cultivation using minimum tillage is advised. Clearly tag your paddock gate to show it had velvetleaf. Any machinery arriving on and leaving your property should must be free of soil and plant material irrespective of where it has come from. Any machinery moving off an area of your farm infested with velvetleaf must also be clean of soil and plant material.

The type of cleaning required will depend on the machine and what it has been used for.

Machine type	Cleaning required	Action to be taken	Machine owner Date / person
Cultivation machinery, Seed drills Fodder beet harvesting machinery and muddy wheels.	Remove all soil using high pressure water. If leaving a contaminated paddock this should be done in the paddock to prevent soil being removed from the paddock. Remember quad bikes and utes also need cleaning. If available a specialised clean down facility could be used and all soil trapped.		
Silage and grain harvesting machinery	Harvest infested areas of paddocks first so any seed is dislodged within the paddock. Harvesting machinery is extremely difficult to clean thoroughly. Remove all loose material before exiting the paddock. Use a vacuum or compressed air in a confined space to remove all other plant material. Remember to clean radiators.		
Sprayers and spreaders	Use water and /or compressed air to clean the equipment if it has been used in an infested paddock at a suitable clean down facility.		

Monitor all areas where machinery was cleaned down for velvetleaf plants between January and May for five years.



Stock management and movement

Any stock grazing on infested paddocks or on infested forage (fodder beet or maize silage) must be managed to minimise the risk of stock transferring seed within the paddock or to non-infested areas. It is also important to avoid pugging which will place any velvetleaf seed at depth in the soil where it could survive for decades.

Risk	Stock management practice	Action to be taken	Date / person
Grazing velvetleaf infested areas of paddocks	<p>Wherever possible exclude stock from grazing areas where velvetleaf has seeded.</p> <p>Graze the infested part of the paddock first and then exclude stock from the grazed part of the paddock.</p> <p>Avoid pugging the infested part of the paddock.</p> <p>Hold stock for at least 24 hours in the grazed paddock or in a holding paddock before moving them to another paddock.</p> <p>Record the paddock the stock move to next. Monitor all paddocks for velvetleaf for the next five years.</p>		
Feeding infested fodder beet or maize silage	<p>Hold stock for at least 24 hours in a holding paddock before moving them to another paddock. Record the paddock the stock moved to next. Monitor all paddocks for velvetleaf.</p>		
Receiving stock that has grazed infested crop	<p>Hold stock for at least 24 hours in a holding paddock before moving them to another paddock. Record the paddock the stock moved to next. Monitor all paddocks for velvet leaf.</p>		

Note: Velvetleaf seed is known to survive the silage ensiling process and to pass through animals. Thus it is important that stock movements are managed carefully. If your stock are moving from an infested farm you need to inform both the transport company and the new farm manager.



Crop and pasture options¹

If you have had a velvetleaf infested paddock on your property the decision as to the next crop could markedly influence the ability you have to control the weed. The crop choice may vary slightly if you had velvetleaf plants that set seed as compared to no seed set. **Sowing pasture is the best option.**

Risk	Crop selection criteria	Action to be taken	Date crop sown / person
Paddock with mature velvetleaf seed.	<p>Select a short growing, early season harvested crop so velvetleaf plants are easily seen or are harvested before seed set – e.g. peas, beans, cereal silage, pasture.</p> <p>Select early sown crops that are established before soil temperatures favour velvetleaf seed germination – cereal silage or pasture.</p> <p>Use a herbicide fallow throughout the summer.</p> <p>Select crops which allow repeat use of selective herbicides that kill velvetleaf e.g. monocots.</p> <p>Do not plant tall growing crops or late developing crops, particularly crops that are not competitive (open soil) e.g. maize, sweetcorn, forage brassicas, fodder beet or potatoes.</p> <p>Monitor paddock regularly from January to May for velvetleaf.</p>		

Note if any velvetleaf plants are found record the location and remove and destroy the plants.

¹ For further crop options see appendix one



Growing maize

Velvetleaf has been identified on a number of commercial maize growing operations. These present a significant risk for the dispersal of velvetleaf across the region through the sale of maize silage containing velvetleaf seeds. This management plan is designed to eliminate or minimise the risk of this contamination.

Risk	Management options	Action to be taken	Date crop sown / person
Significant risk of seed dispersal within the farm boundaries and dispersal to other farms via maize silage or other maize crops via machinery contamination	<p>Register detailing recipients of maize silage from the property since velvetleaf was identified is compiled and updated annually.</p> <p>Consider growing cereal silages or maize for grain. Both these options lessen the risk of seeding velvetleaf being inadvertently harvested and exported in a way that will result in germination.</p> <p>Maize crop should receive a pre-emergence and post-emergence herbicide sprays. Seek advice about which specific sprays should be used.</p> <p>Inspect all crops prior to harvest.</p>		

Note if any velvetleaf plants are found record the location and remove and destroy the plants.



Crop establishment soil management

Velvetleaf seeds can survive for long periods of time, decades, buried in the soil. Thus it is very important to minimise the risk of burying seed to depth during cultivation or through pugging and risking bringing it to the surface in a subsequent soil movement.

Risk	Soil management	Action taken	Date / person
Paddocks where velvetleaf seeded	<p>Do not deep cultivate – do not plough, deep rip, disc or rotary hoe.</p> <p>Establish crops using minimum or no tillage.</p> <p>Cultivate the infested part of the paddock last and always cultivate this part in the same direction to minimise seed movement.</p> <p>Thoroughly clean machinery before leaving the infested part of the paddock.</p>		

Note: If it is not possible to cultivate infested areas last cultivate these first so any velvetleaf seed is dislodged within the paddock. The seed drill is part of the cultivation process and should be used in the same manner.



Next Steps

- This farm management plan is a template. A spreadsheet or paddock recording system could be an efficient way to keep track of dates and actions you have taken to control this unwanted organism
- Please incorporate this velvetleaf farm management plan into your existing on farm management plan
- You may like to contact industry experts for further information about anything within this plan
- Actions outlined in your personalised farm management plan may be monitored to ensure management of this unwanted organism on your property. Remember to record all major activities on you property – eg movement of stock on or off property, harvesting of crops, crops changes and machine hygiene

Additional Comments



APPENDIX 1. OPTIONS FOR CONTROL OF VELVETLEAF ON INFESTED SITES

1. Move to a pasture phase.

- The pasture phase is considered a holding option only until suitable control is available. It is important to note that any seed deep in the soil may enter dormancy and remain viable until other crops are planted in place of pasture. This may be several decades later.
- Pros: the velvetleaf plants are easy to spot and can be hand pulled or if in large numbers can be controlled with 2,4-D at any time (providing the plants are still small).
- Cons: without ongoing soil disturbance and with a close canopy cover the velvetleaf seed in the soil are likely to be forced into dormancy and remain so for a long period of time.

2. Winter cereal silage.

- Pros: the crop is planted in March after most velvetleaf has germinated, and harvested in November/December before velvetleaf sets seed. The farmer could grow a crop of grass over the summer where velvetleaf could be controlled with 2,4-D as above in point 1.
- Cons: How to use the cereal silage, possibly lower production than other crops. Might need to control cereal diseases.

3. Summer cereal silage.

- Pros: crop planted in July-October after velvetleaf has died, and harvested in March/April before velvetleaf sets seed. Velvetleaf could be controlled with 2,4-D in the crop over summer.
- Cons: How to use the cereal silage, possibly lower production than other crops. Might need to control cereal diseases.

4. Fodder brassicas including the Cleancrop Brassica System.

- Pros: in ordinary brassicas Radiate could possibly be used to control velvetleaf but this is untested. In Cleancrop brassicas Telar Herbicide is used and this has a label claim in the USA for controlling velvetleaf.
- Cons; as above, a lack of full knowledge on the herbicide options. In some tall growing brassica crops it may be difficult to spot escaped velvetleaf plants. There may also be a withholding period for herbicides applied late in the crop.

5. Other options would be vegetable production crops such as peas or beans that are harvested before velvetleaf sets seed although if in high numbers the woody nature of the velvetleaf stems is likely to interfere with harvest. After harvest the site could move into a grass phase as above.