

BEST PRACTICE SERRATED TUSSOCK WEED HYGIENE GUIDE



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Published by Victorian Serrated Tussock Working Party (VSTWP)
Bacchus Marsh, Victoria
August 2020
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This project is supported with funding from Agriculture Victoria and the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.



Australian Government
Department of Agriculture,
Water and the Environment



ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Traditional Owners of the Country that we work on throughout Australia and recognise their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging and the Elders of other Aboriginal and Torres Strait Islander communities. Moreover, we express gratitude for the knowledge and insight that Traditional Owner and other Aboriginal and Torres Strait Islander people contribute to our shared work.

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Above: A serrated tussock plant hidden by native grasses
(Photo: M. Ludeman)

The purpose of this guide is to improve weed hygiene practices and reduce the spread of serrated tussock along linear reserves and land subject to planning permits.

This directly aligns to the strategic action 'Pathways Management' in the Victorian Serrated Tussock Working Party (VSTWP) Strategy 2018–2023.

1.1 OVERVIEW

Weed hygiene is one of several biosecurity measures used to prevent the spread of weeds. Invasive plants are a threat to agricultural production and the environment and land owners, managers and contractors all have a role to play in preventing the introduction and spread of weeds.

Weed hygiene is most successful when:

- There has been an effort within the organisation to establish protocols
- There are clear weed hygiene systems in place e.g. markers on roadsides identifying infestations for slashers (as described in **section 3**)
- When there is widespread education around weed hygiene (see **section 4.2**) (Gill et al, 2018).

This guide recommends methods for planning site works, implementing weed hygiene measures, and contract oversight. It aims to increase the capacity of local government, linear reserve managers, land managers and public land managers to manage serrated tussock.

1.2 WHO NEEDS TO CONSIDER WEED HYGIENE?

It is everyone's responsibility to consider weed hygiene, particularly if you are:

- A land owner, land manager or employee who moves vehicles, machinery, agricultural produce, livestock, gravel, soil, lime or other materials between properties or different geographic locations
- A land owner, land manager or contract worker undertaking agricultural, utility, maintenance, earthmoving, weed control, on-site consultation or assessment, deliveries or other land management work in areas where weeds are present.

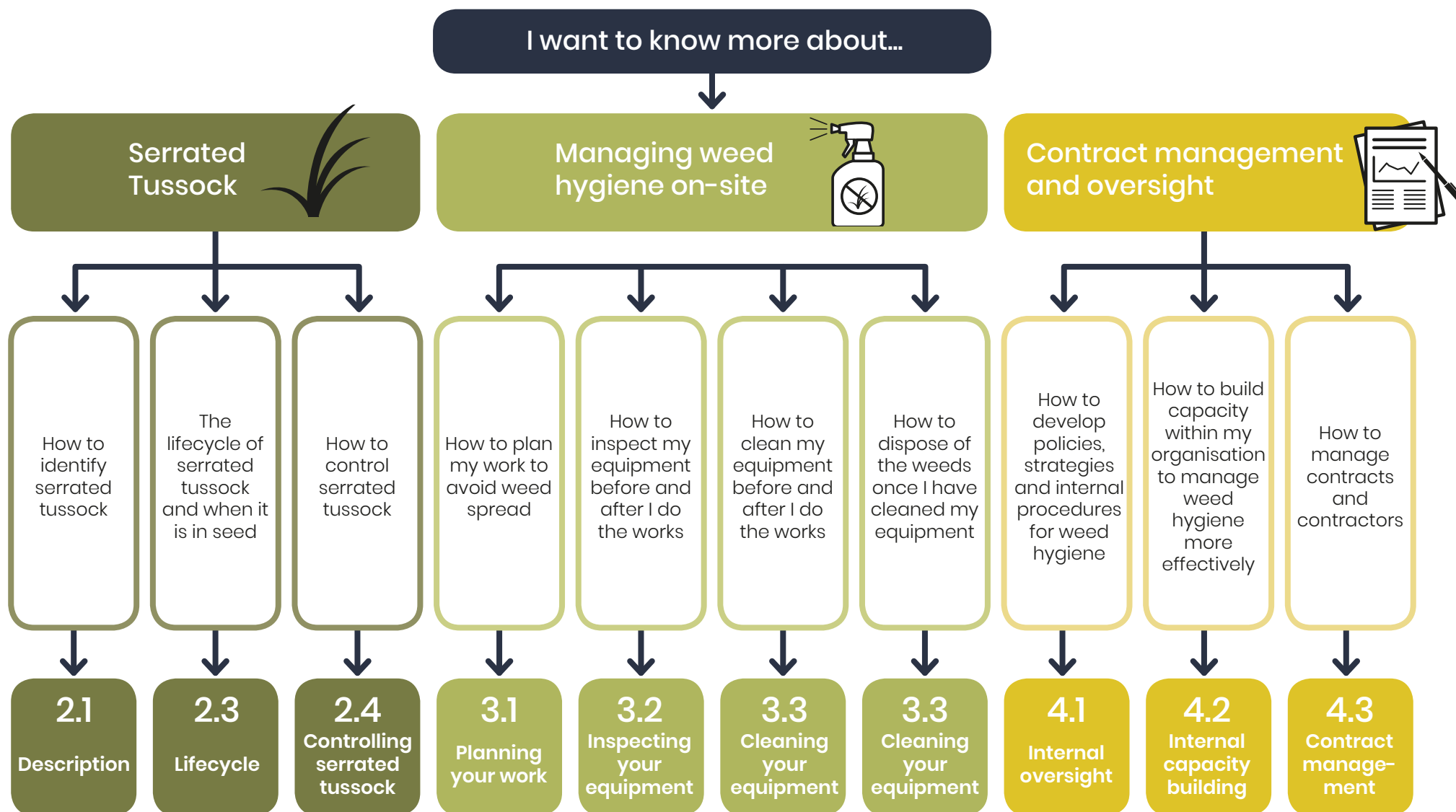
1.3 WHY IS WEED HYGIENE IMPORTANT?

Landholders and land managers spend millions of dollars each year controlling serrated tussock (and other weed species) in Victoria. Seed is easily spread through civil construction works, land management activities, and via livestock and wildlife.

Of all the management activities for serrated tussock and other high threat weeds, reducing spread is the cheapest and most effective method of control. Preventing spread through effective hygiene is becoming increasingly important as resistance to herbicides increases, such as flupropanate.

1.4 HOW TO USE THIS GUIDE

This guide is split into easy-to-use sections that provide practical guidance on identifying and controlling serrated tussock, weed hygiene practices in the field, and contract management and oversight. Follow the steps below to get to the section you need.



2

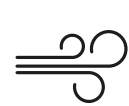
ABOUT SERRATED TUSSOCK

2.1 DESCRIPTION

Serrated tussock (*Nassella trichotoma*) is a perennial grass that can grow up to approximately 60cm in height and a diameter of 75cm when in full flower. The dense fibrous root system exists mainly in the top 20cm of soil. Other key characteristics include:

- **Germination** occurs mainly in autumn and winter, but it can occur at any time following a significant rainfall or soil disturbance. Seeds remain dormant for 6 months before germinating
- **Seedlings** are slow growing and are more likely to establish where there is limited competition from other plants, such as bare ground
- **Established plants** actively grow in autumn, spring and early summer when there is enough soil moisture. Thousands of seeds can be produced by a mature plant
- **Flowering** stems (up to 35cm long) emerge from the base of the plant. Around 10% of the flowers open for cross pollination with other serrated tussock plants, whereas the remaining 90% of flowers self-pollinate. This creates a clone of the parent plant and has implications for herbicide resistance
- **Seeds** mature in 8-10 weeks once the flowering stems have emerged. Once seeds are ripe, the entire flowering stem detaches and is dispersed. The seed is mainly spread by wind, water, vehicles, animals and agricultural products like hay.

HOW SERRATED TUSSOCK SPREADS



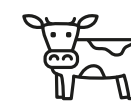
WIND



WATER



VEHICLES



ANIMALS



PRODUCTS



Above: A serrated tussock plant (*Nassella trichotoma*)

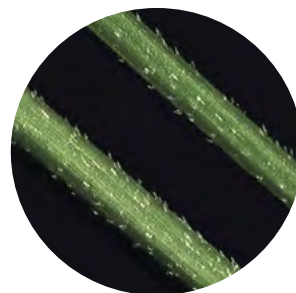
2.2 IDENTIFICATION

Serrated tussock (below) can look similar to native tussocks and other tussocks at various times of the year. The following points (right) help to identify it.



Top: Serrated tussock (*Nassella trichotoma*) in seed

Bottom: Serrated tussock (*Nassella trichotoma*) plant removed from the ground



LEAVES

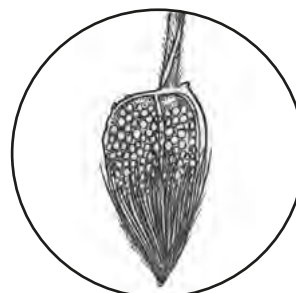
Leaves are tightly rolled, white at the base and up to 50cm long. They are finely serrated and green but start to bleach when they become mature.

Image: DPI Victoria



FLOWER HEADS AND STEMS

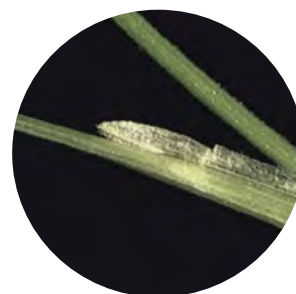
Flower heads have a distinct purple colour as seeds ripen in late spring and summer. The whole branch breaks off in summer with seed attached.



SEED

Seed is 1-2mm long and enclosed in red/brown glumes which are 6mm long. The seed has a tuft of white hairs at one end and a twisted awn at the other.

Image: David McLaren



LIGULE

Ligule is 1mm at the junction of the leaf and the stem. It is white and hairless. This ligule is a key defining characteristic as it is different to similar native tussocks.

2.3 LIFECYCLE

A general indication of lifecycle, growth pattern and optimum control period for Victoria is provided in Table 2-1 below. Timing can vary depending on rainfall, temperature and soil fertility¹.

Table 2-1: Lifecycle and optimum control periods

	SPRING			SUMMER			AUTUMN			WINTER		
	S	O	N	D	J	F	M	A	M	J	J	A
Germination												
Bleaching due to frost												
Flowering												
Seed formation												
Seed drop												
Optimum control period												

Indicates general pattern of growth

Indicates potential growth under favourable conditions e.g. high rainfall

Optimum serrated tussock control period

Control under favourable conditions



Above: Serrated tussock can be identified by its purple flowers as seeds ripen in late spring and early summer

¹ Sourced from: Osmond et al 2008, Serrated Tussock National Best Practice Management Manual, Victorian Department of Primary Industries and VSTWP

2.4 CONTROLLING SERRATED TUSOCK

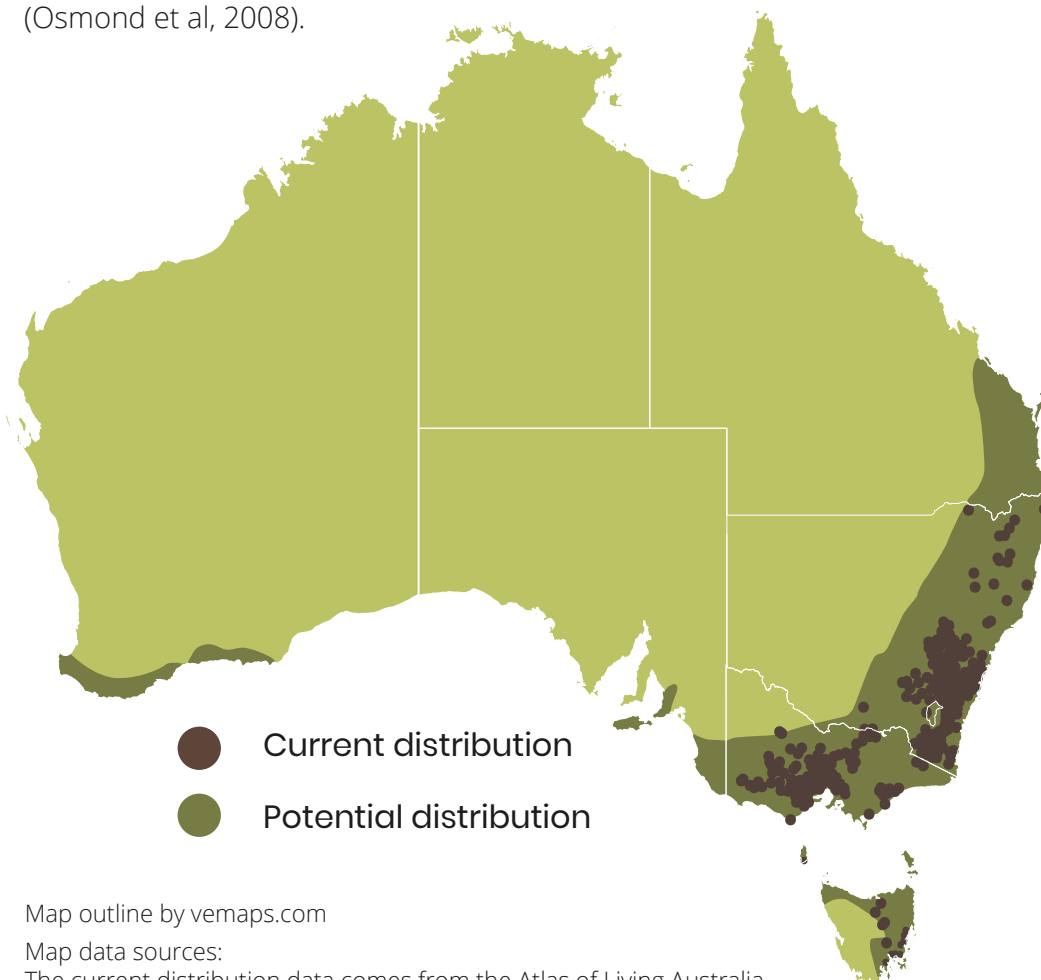
Using a combination of techniques is desirable for controlling serrated tussock growth and spread. The general principles are provided in Table 2-2 below. These are presented in priority order to take a risk-based approach to pathway management.

Table 2-2: Techniques for controlling serrated tussock

PRINCIPLE	TECHNIQUES FOR CONTROL
Prevent incursions	<ul style="list-style-type: none"> • Learn how to identify serrated tussock both when it is in flower and not flowering • Prevent serrated tussock from entering the property • Control invasions early • Prevent serrated tussock from seeding • Do not slash or mow when serrated tussock is in seed
Destroy plants	<ul style="list-style-type: none"> • Destroy adult plants by physically removing the plant using a mattock, herbicide or a combination of slashing and spraying the plant • Rotate use of herbicides to prevent resistance (glyphosate and flupropanate)
Outcompete seedlings	<ul style="list-style-type: none"> • Maintain a high level of ground cover of desirable grass species • Improve pastures • Avoid over grazing to maintain ground cover
Undertake follow-up	<ul style="list-style-type: none"> • Regularly monitor control efforts and high-risk areas e.g. tracks and fence lines • Always follow up with suitable treatments for density and location

2.5 DISTRIBUTION

The dense infestations of serrated tussock are mostly concentrated in southern Victoria from Colac, to Geelong, as far west as Ballarat, Bacchus Marsh and centrally around Melbourne. There are scattered infestations throughout Victoria (Agriculture Victoria, 2020). Modelling has shown that serrated tussock has the potential to invade up to 32 million hectares across south eastern Australia and southern Western Australia if left unchecked (Osmond et al, 2008).



Map outline by vemaps.com

Map data sources:

The current distribution data comes from the Atlas of Living Australia

The potential distribution data comes from a CSIRO climate model for species distribution.

2.6 OTHER IMPORTANT WEED SPECIES

There are other highly invasive weed species that grow in similar conditions to serrated tussock that everyone should look out for:

- Chilean needle grass (*Nassella neesiana*)
- Mexican feather grass (*Nassella tenuissima*)
- Lobed needle grass (*Nassella charruana*)
- Cane needle grass (*Nassella hyaline*)
- Texas Needle Grass (*Nassella leucotricha*)
- African feather grass (*Pennisetum macrourum*)
- African lovegrass (*Eragrotis curvula*)

The hygiene practices and contract management recommendations in this guide are also relevant to these other weed species.

2.7 FURTHER INFORMATION

Click [here](#) for the list of state prohibited weeds and how to identify them.

Click [here](#) for the list of Weeds of National Significance.

Click [here](#) for the list of weeds on the National Environmental Alert list.

Click [here](#) for a list of all noxious weeds in Victoria.

Click [here](#) for more information on how to identify serrated tussock.

Click [here](#) for more information on how to manage serrated tussock.

Click [here](#) for more information on weeds in the early stages of invasion and how to manage them.

The full website addresses for the above information are provided in the [reference list](#) at the back of this guide.

3

HYGIENE PRACTICES

3.1 PLANNING YOUR WORK

BEFORE YOU START

Before undertaking any work on a site:

1. Conduct a site assessment to determine if serrated tussock or other noxious weeds are present.
2. Locate areas of weed infestation and map them. Ensure the map is provided to the team undertaking the works.
3. Assess the seasonal and weather conditions when planning work to avoid wet conditions and increase cleaning costs. Do not undertake works while serrated tussock is in seed.
4. Fence off or install markers that identify the weed infestation on-site.
5. Manually remove or chemically treat weeds throughout the site before commencing work.
6. Plan the works to progress from clean areas that are free from weed infestation and finish in areas where infestations are present, especially during seeding.
7. Designate clean down areas on-site and locate these on the site map. These are generally near entry and exit points.
8. Identify disposal methods for weed seed and plant material from clean down areas.



TOP TIP

Advice for contractors

Before submitting a quote, ask for a site-specific weed assessment or map from the client that indicates what weed species are present and where they are located.

If this is not available include a site assessment and potential weed hygiene measures in your quote.

Always ensure that your quote includes time for vehicle and machinery inspection and cleaning.

MANAGING HYGIENE ON-SITE

These simple measures can prevent the spread of weeds:

- Conduct vehicle and machinery inspections prior to entering a site
- Undertake site inductions and training on weed hygiene measures
- Avoid all unnecessary movement across site by people, vehicles and machinery, particularly when serrated tussock is in seed
- Seek weed free declarations for any material bought onto site.

Checklist for planning your work

<input type="checkbox"/>	BEST PRACTICE
<input type="checkbox"/>	I have developed a site map that includes: <ul style="list-style-type: none"> • Entry and exit points • List of weeds present on-site and locations of infestations • Clean down areas • Protocols for moving across the site from clean areas into infestations
<input type="checkbox"/>	I have assessed the seasonal conditions and seed load of weeds when planning my work
<input type="checkbox"/>	I have installed markers for weed infestations and designated clean down areas or check points
<input type="checkbox"/>	I have undertaken weed control prior to seeding and before works commence on-site
<input type="checkbox"/>	I have developed inspection protocols for entering and exiting site
<input type="checkbox"/>	I have undertaken site inductions for all team members (including contractors) that includes weed hygiene measures and an overview of the site map
<input type="checkbox"/>	I have obtained weed free declarations for all materials I'm planning to bring onto site

3.2 INSPECTING YOUR EQUIPMENT

Undertaking inspections is an important part of ensuring machinery, vehicle and equipment cleaning protocols are being followed. There is accredited training available for inspecting equipment (see **further information**).

When undertaking inspections, ensure you have completed a safe work methods statement or follow your organisation's standard operating procedure for this task.

Ensure all inspections are:

- Documented in a vehicle or machinery logbook to demonstrate compliance with weed hygiene policies and protocols
- Undertaken in a safe location as per your organisations occupational health and safety guidelines.

TOOLS FOR INSPECTING EQUIPMENT



gloves



safety glasses



tools for removing covers



bags or trays for weed material



torch



mirror



rod or probe



ID guides

WHEN TO INSPECT

Inspecting machinery, vehicles or equipment must be undertaken:

- Before leaving the depot
- Before entering the site
- At designated clean down or check points when moving across the site
- Before leaving the site.



Above: A serrated tussock plant in seed can blow up to 20kms in the wind

Checklist for inspecting your equipment

BEST PRACTICE STANDARDS ²			
<input type="checkbox"/>	Lights and accessories <ul style="list-style-type: none"> • Lights • Toolboxes • Tynes and rippers • Support frames • Hoses 	<input type="checkbox"/>	Slashers <ul style="list-style-type: none"> • Top • Underside • Recesses • Crevices
<input type="checkbox"/>	Underside of the vehicle/plant <ul style="list-style-type: none"> • Guards and plates • Chassis rails and brackets • Recesses • Around fuel tank • Axle housing / spare tyres • Ledges / gaps / crevices 	<input type="checkbox"/>	Wheels and steering <ul style="list-style-type: none"> • Treads • Outside and inside rims • Wheel arches • Mud flaps • Brackets and brakes • Steering components
<input type="checkbox"/>	Track area (for excavators) <ul style="list-style-type: none"> • Shoe • Links • Sprockets • Idler wheels • Track adjuster guards • Lubrication points • Inside the track area 	<input type="checkbox"/>	Cabin <ul style="list-style-type: none"> • Carpets • Mats • Footwells • Pedals • Controls • Seats • Air conditioner
<input type="checkbox"/>	Engine <ul style="list-style-type: none"> • Chain cases • Plates • Radiator fins and grille • Between cooling cores • Engine mounts • Recesses • Floor of the engine bay • Air filter • Battery box 	<input type="checkbox"/>	Blades, buckets and arms (for excavators) <ul style="list-style-type: none"> • Front and back of cutter edge • Teeth • Pivot points • Turning Circle • Hydraulic rods • Inside and back of bucket • Hoses • Wear plates

² Civil Contractors Federation, 2011, A Guide for Machinery Hygiene for Civil Construction

3.3 CLEANING YOUR EQUIPMENT

Regularly cleaning equipment is an essential component to reducing weed spread after all other proactive steps have been taken. Cleaning time and cost varies depending on whether the plant material is wet or dry, for example, wet grass or mud will take longer compared to dry grass and dust.

While cleaning can be more efficient when works are undertaken in dry conditions, this may not always be possible due to other risks. It is important that all risks are taken into account when planning works, for example, bushfire risk is higher in dry conditions when slashing than in damp conditions.

WHEN TO CLEAN

Cleaning machinery, vehicles and equipment must be undertaken:

- After working in a weed infested area
- Before machinery, vehicles or equipment move between infested and clean areas on-site (including roadsides when slashing)
- If the machinery is contaminated with weed seed or plant material
- Before leaving the site.

CHOOSING DESIGNATED CLEANING AREAS

Cleaning areas must be fit for purpose and be:

- Included on the site plan
- Mud free, to ensure machinery, vehicles and equipment is not recontaminated
- At least 30m from a waterway or drainage line
- On level ground to reduce run-off
- Free from fuel, oils or grease.

METHODS FOR CLEANING

When choosing a cleaning method, it is important to consider the type of work undertaken, site conditions, and species of invasive plants located on-site. Serrated tussock seed and other *Nassella spp.* are very small and are likely to be found in lots of recesses and crevices on the equipment you are using, particularly if works are undertaken when it is in seed. Depending on the conditions a combination of the following methods may be required:

1. **Hand removal** of plant seed or material
2. **Washing with a high-pressure hose** – particularly for when work is undertaken in wet or damp conditions (more suitable to depot washdowns)
3. **Air blasting** – suitable in dry conditions
4. **Vacuuming** – removing plant materials from machinery and vehicle interiors.



Above: A serrated tussock plant can produce well over 10,000 seeds per annum, which allow it to spread rapidly



TOP TIP

How to reduce your cleaning time and costs

Plan work to be undertaken in dry conditions where possible (e.g. not slashing in wet, damp or dewy conditions) to reduce the time and costs of cleaning machinery, vehicles and equipment. The estimated costs for cleaning in:

Dry conditions – cleaning using an air compressor on dry plant material can be done within an hour, which is an estimated labour cost of under \$100.

Wet conditions – if plant material is wet and the machinery is covered in mud, cleaning can take up to a full day, which can have an estimated cost of \$1,500 or more for large machinery such as an excavator or dozer.

Adapt machinery where possible to reduce likelihood of trapping seed or plant material. Measures include installing guards and filters and using silicone to fill crevices provided it doesn't affect the safe operation of the equipment.



DISPOSING OF WASTE AT WASH DOWN SITES

Plant material from noxious weed species must be disposed of in a way that ensures no seeds, roots, or other reproductive parts of the plant are spread.

There are two ways to dispose of weed seed and plant materials from wash down sites:

1. Bag all plant material and apply for a permit from Agriculture Victoria to transport and dispose of noxious weeds at a designated location. If there are plant diseases present on-site such as myrtle rust, material must be buried on-site. If this is not possible then bag and seal the material and then seal in a second bag and spray the outside with a solution of 70% ethanol and 30% water before disposing off-site.
2. Destroy weeds and seed at the cleaning site by burning or burying the material more than 60cm below the ground. Note that this method may not be 100% effective as seed may be inadvertently deposited on the surface layers.

A noxious weed permit application form can be downloaded from the Agriculture Victoria website (see **further information**). To find your local weed disposal point, contact your local government organisation. It is illegal to transport material containing declared noxious weeds without permission. This is regulated by the *Catchment and Land Protection Act 1994* (Victoria).

LOGBOOKS

Following inspection and clean down, all records should be entered into a vehicle or machinery logbook. The logbook should include:

- Driver details
- Date and time
- Site details and uses
- Record of inspection and clean down activities for the vehicle or machine.

Checklist for cleaning

<input type="checkbox"/>	BEST PRACTICE STANDARDS
<input type="checkbox"/>	I have undertaken inspections: <ul style="list-style-type: none"> • Before and after machinery, vehicles and equipment work on-site • After working in a weed infested area • When equipment is visibly contaminated with weed material.
<input type="checkbox"/>	I have chosen designated cleaning areas that are fit for purpose and: <ul style="list-style-type: none"> • Mud free • At least 30m from a waterway • On level ground • Free from fuel, oils and grease.
<input type="checkbox"/>	I have the right tools on-site to clean my equipment.
<input type="checkbox"/>	I have cleaned my equipment as per the equipment checklist.
<input type="checkbox"/>	I have planned how I will dispose of waste at wash down sites and applied for the necessary permits where applicable.

3.4 FURTHER INFORMATION

Click [here](#) for noxious weed permit information from Agriculture Victoria.

Click [here](#) for further environmental guidelines for civil construction. Click [here](#) for further information on planning works for weed hygiene and weed material disposal.

Click [here](#) for more information on destroying and transporting weed material.

Click [here](#) for more information on WeedStop training at Longernong College

See the **reference list** at the back of this guide for the full website addresses and publication details for the above information.

You can also visit the **Agriculture Victoria** or the **Victorian Serrated Tussock Working Party** websites.



Above: Serrated tussock is not eatable to stock and can reduce the holding capacity of agricultural assets

4.1 INTERNAL OVERSIGHT

HOW DO I EMBED WEED HYGIENE IN MY ORGANISATION?

Weed hygiene can be integrated into your organisation through:

- Co-design of internal strategic documents and operating procedures with staff from the relevant departments and those who are responsible for doing field work
- Commitment to develop and enforce weed hygiene protocols in internal strategic plans and policies, such as a biodiversity strategy, roadside management strategy, and/or parks and landscapes strategy
- Make machinery hygiene a permit condition for any development works, road construction and maintenance through the planning scheme (applicable to local government only)
- Develop standard operating procedures or standard work instructions for preventing the spread of weeds by maintaining machinery, vehicle and equipment hygiene
- Include weed hygiene measures in induction manuals for new staff
- Include weed hygiene protocols in performance descriptions and performance indicators for contractors
- Develop or enable access to weed identification and hygiene guides for staff and contractors
- Elect a designated contact person (or people) within your organisation for weed hygiene.

HOW DO I DEVELOP A POLICY OR STRATEGIC PLAN?

Setting a policy on weed hygiene

A policy outlines the organisations agreed position on weed hygiene and should be developed internally. During the development of the policy, engage with your co-workers to ensure the policy is reflective of what the organisation wants to achieve. A policy should contain the following:

- **Title** – a clear and concise title using descriptive words. For example: Weed hygiene to prevent the spread of weeds within the *[add the name of your region or specific geographic location]*
- **Effective date** – this is the date the policy was put into practice
- **Contact** – the contact person or department to be consulted when there are questions or queries about the policy
- **Purpose** – this should clearly articulate the purpose, or main aim, of the policy. For example, *to promote best practice weed hygiene within the [XYZ] Shire*
- **Context and links to other strategies** – this should contain enough information to contextualise and introduce the policy and demonstrate clear links to other policies or strategic directions
- **Policy Statement** – this is the policy itself and can be divided into sections. It generally includes statements and rules. Policies do not include procedures; they are covered in the operational documents.

Developing a strategy

A strategy or strategic plan operationalises the policy. The strategy should set out how you are operating now (current context) and what you want to achieve in the future (goals), how you are going to do it (actions) and how you will monitor and evaluate your progress (against targets). A strategy should be developed in consultation with other departments in your organisation and with the broader public where appropriate. The document should have a set timeframe and include:

- **Context** – how you are operating now
- **Vision** – overarching statement of what you want to achieve in the long term
- **Goals** – what you want to achieve in the shorter term (e.g. low weed density)
- **Actions** – how you are going to achieve your goals (this can be focus on providing educational resources, changes to how staff operate, changes to the way the organisation engages or manages contractors)
- **Targets** – a target should be specific, measurable, assignable, relevant and time-based (SMART). Targets should measure the impact of the actions you are going to take (e.g. increasing the use of weed hygiene measures and reducing the density and spread of weeds across the region)
- **Implementation** – timeframe and responsibilities for implementing the actions
- **Monitoring and evaluation** – when and how you are going to monitor and evaluate the actions you have taken against the targets set.

For local government agencies, consider including the following components in the planning scheme:

- Weed control prior to site disturbance as a permit condition for any works
- Machinery and vehicle hygiene measures as permit conditions
- Machinery and vehicle hygiene measures for all works conducted within the Shire in the planning scheme.



TOP TIP

What if my organisation already has strategies in place but weed hygiene is not included?

Many organisations already have strategies in place such as roadside management strategies, biodiversity strategies and pest plant and animal strategies. If weed hygiene is not already addressed in one of these strategies, consider including it when the strategy comes up for review. In the meantime, look at how weed hygiene can be included in other operational documents.

WHAT DO I INCLUDE IN INTERNAL OPERATIONAL DOCUMENTS?

This section provides guidance on what to include in the following operational documents:

- Standard operating procedures
- Hygiene records
- Induction manuals

Standard operating procedures

A standard operating procedure for the prevention of weed spread should be developed for all staff. This procedure should be applicable to any employee required to do off road works, regardless of their department. It should include:

- Reference to a weed identification guide
- Identifying weed risks and hazards and how to record them
- General principles for weed hygiene (as per **Section 3**)
- Vehicle washing protocol (as per **Section 3**)
- Maintaining a vehicle logbook.

In addition, consider developing a standard operating procedure for field staff or contractors who are undertaking works on the ground (where it does not already exist) for:

- Undertaking weed control
- Planning works in conservation areas, roadsides and parks and gardens (as per **Section 3.1**)
- Machinery and vehicle hygiene (as per **Section 3.2** and **Section 3.3**).

Hygiene records

Daily hygiene records are a useful tool to continuously monitor weed hygiene measures in place on-site and to ensure compliance. Daily hygiene records are more site specific than logbooks, which are vehicle specific. Records must be maintained by those undertaking the work that specifically documents:

- Equipment identification
- Whether the machinery, vehicle or equipment was clean upon arrival and if not, what measures were taken to ensure it was clean before commencing work
- Whether all the equipment required for clean down was provided and appropriate
- Details of the person who conducted the inspections and clean downs
- Any weed species observed on-site that were not previously recorded.

Internal induction manuals

Induction manuals should cover the following to ensure a common understanding and expectation for new staff on weed hygiene:

- Your organisation's policy on weed hygiene
- References to weed identification and hygiene guides
- Specific responsibilities for weed hygiene for the various department roles within the organisation
- General principles on managing weed hygiene (**Section 3**).

Checklist for internal oversight

<input type="checkbox"/>	BEST PRACTICE
<input type="checkbox"/>	My organisation has a policy on weed hygiene.
<input type="checkbox"/>	Strategies within my organisation include reference to implementing and enforcing best practice weed hygiene measures.
<input type="checkbox"/>	There are standard operating procedures (or similar operational documents) in place that are focussed on preventing weed spread and reference machinery and vehicle hygiene for all staff.
<input type="checkbox"/>	There are standard operating procedures (or similar operational documents) in place for field staff that are specific for on-ground works such as undertaking weed control, planning works and ensuring machinery and vehicle hygiene.
<input type="checkbox"/>	Hygiene records are maintained across sites.
<input type="checkbox"/>	Weed hygiene measures are included in internal induction manuals as well as reference to other weed hygiene related policies and strategies.



Above: An actively growing serrated tussock infestation in the northern suburbs of Melbourne (Photo: M. Ludeman)

4.2 INTERNAL CAPACITY BUILDING

This section explains how to build the capacity of staff to implement the policies and procedures discussed in **Section 4.1** by training staff and embedding that training into everyday practice.

ENGAGING WITH STAFF

Whenever you are setting a new strategy or developing new operational material, consider working closely with those who are responsible for onground works and colleagues from other departments that may be impacted by any policy changes. This is an important step for creating awareness and buy-in from colleagues within your organisation. You can do this by:

- Host a meeting to introduce why change is needed, the proposed changes and outline the opportunities for staff input
- Host meetings as required to develop the content for the policy, strategy and/or standard operating procedure
- Circulate the draft content for comment before finalising it.

For staff who need training in weed hygiene, there are multiple ways it can be delivered, including:

- Provide staff with access to external training on weed identification and weed hygiene measures to implement when working in the field (as per **Section 3**). See further information on WeedStop training
- Provide internal training to staff on the organisation's policies and procedures, or regular refresher courses as part of their ongoing professional development (as discussed in **Section 4.1**)
- Develop a mentor program where a senior member of staff works closely with a more inexperienced or junior member of staff over a longer timeframe to transfer knowledge and practices on weed hygiene. This can be tailored based on the needs of your organisation
- Provide staff with audit training and protocols for when they are engaging a contractor.

EMBEDDING YOUR TRAINING INTO PRACTICE

Staff meetings and toolbox meetings

Include weed hygiene on the agenda for general staff meetings to reflect on:

- How well current weed hygiene measures are working
- Challenges or benefits from managing weeds or hygiene
- What could be improved.

Toolbox meetings or pre-start meetings for field crews should also cover what works will be undertaken for the day and the implications for weed hygiene (as guided by **Section 3**).

Performance reviews

Include adherence to standard operating procedures and policies as an item in performance reviews for any field-based staff and focus on whether they have:

- Met the organisations expectations for implementing standard operating procedures (including weed hygiene measures) based on the relevant policies, plans and strategies
- Maintained up to date logbooks in vehicles

Checklist for internal capacity building

<input type="checkbox"/>	BEST PRACTICE
<input type="checkbox"/>	There is a multifaceted training program for staff that includes a mix of internal and external weed hygiene training opportunities.
<input type="checkbox"/>	Weed hygiene principles and implementation is discussed at general staff meetings and/or toolbox meetings.
<input type="checkbox"/>	Weed hygiene principles and implementation are covered in performance reviews for relevant staff.

4.3 CONTRACT MANAGEMENT

This section covers how to choose a contractor, what to include in contracts and compliance with weed hygiene measures.

CHOOSING A CONTRACTOR

When choosing contractor, ask the following questions:

- Do they have the appropriate insurances and licences for the task?
- Is the contractor experienced with the types of work you require?
- Is the contractor well known and do they have a good reputation?
- Does the contractor meet the tender requirements?
- Have they completed accredited weed hygiene training?

During the tendering process or in the early stages of appointment, support contractors to meet legislative requirements and understand the weed hygiene risks and measures. There are a number of ways to do this:

- Undertake a number of site inspections with the contractor to identify areas where there are infestations and determine relevant hygiene risks or hazards
- Provide contractors with a detailed site map of weed infestation as discussed in **Section 3**
- Provide contractors with a specifications manual that outlines the organisation's policy and requirements for pest plant management and hygiene
- Provide contractors with access to weed identification guides where required.



TOP TIP

Finding a contractor with a proven track record

Ask your colleagues or other agencies for recommendations for contractors who have done similar work in the past. Always check the references supplied by the contractors and ask them about the contractors work history and whether they maintained a high standard of machinery and vehicle hygiene.



Above: Note the purple seed mass on a seeding serrated tussock, which helps identify the plant in late spring and early summer

WRITING CONTRACTS

Contract conditions and clauses

Always consult professional legal advice when writing a contract. When writing a contract consider including the following conditions:

- Contractors must demonstrate how machinery, vehicle and equipment hygiene will be maintained e.g. submit a standard operating procedure
- Machinery and vehicles must arrive to site clean, stay clean (as reasonably practical) and leave the site clean
- Contractors must wash down at nominated cleaning areas
- Contractors must provide proof of clean down procedures e.g. evidence of collected plant material from clean down sites, logbook entries, photos of cleaned machinery, GPS data of tracks travelled
- Contractors must maintain logbooks
- Contractors must work from clean areas into infested areas
- Contractors must be able to identify noxious weeds present within the site
- Contractor performance will be regularly monitored, and may be audited onsite at any time during their appointment.

These conditions can be included directly in the contract or a supporting document to the contract. Below is an example contract clause, which can be modified to suit each individual organisation:

Contractors must adhere to the requirements for weed hygiene as detailed in the <insert organisations name> <insert document name and version date>. Written approval must be received from <insert organisations name> prior to any deviation from the requirements.



TOP TIP

Supporting contract compliance

Always make sure that there is enough budget set aside to accommodate for contractor cleaning costs (labour, equipment and safe clean down areas) when entering in to a new contract.

Supporting documents

A detailed specifications manual for contractors is useful to outline the organisation's policy and requirements for pest plant management and hygiene. This can be a supporting document to the contract and may include (but is not limited to):

- Purpose of the document
- General requirements for the contractor
- Specific requirements (e.g. outcome sought, weed hygiene measures, disposing of weed material, herbicide use, weather conditions and timing, compliance, environmental considerations)
- Work requirements (e.g. location, hours of work and equipment, record keeping)
- Variations, constraints and regulations
- Monitoring, reporting and compliance.

MANAGING CONTRACTORS: COMPLIANCE

Compliance can be monitored by regularly reviewing performance against the contract conditions and clauses. This should include:

- Review logbooks, including machinery and vehicle GPS data of areas travelled (if available)
- Review daily hygiene records
- Analyse photos of cleaned machinery at sites with time and date stamp
- Undertake site inspections before, during and after works are complete
- Undertake random audits periodically through the contract
- Ensure follow-up site inspections six months post project completion.

All contractors should be subject to inspections on-site at any time while engaged by the organisation. Monitoring must be undertaken regularly across representative geographic locations throughout the duration of the contract.

The following checklist provides a high-level overview of the questions that should be asked to ensure weed hygiene is being upheld on-site.

Checklist for managing contractors

CHECKLIST	YES, PLUS EXPLANATION	NO, PLUS CORRECTIVE ACTIONS
Are vehicle and machinery logbooks maintained daily?		
Are daily hygiene records completed on time?		
Is work being undertaken as per the contract conditions and clauses (based on site inspections and/or GPS data if available)?		
Is the vehicle or machine clean (follow the inspection checklist from Section 3.2)? If not, why?		
Are wash down procedures being followed (as guided by Section 3.3)? If not, why?		
Are there any other issues on-site that are preventing weed hygiene measures from being followed?		

HOW DO I DEAL WITH NON-COMPLIANCE?

If weed hygiene measures are not implemented correctly on-site and you suspect there may be a breach of contract conditions, the following steps could be undertaken:

1. Meet with the contractor to determine why weed hygiene measures are not being followed. If possible, come to an agreement on how the noncompliance can be resolved so hygiene is maintained.
2. Always provide formal written feedback after site inspections, audits or at completion of contract (use a feedback form proforma to simplify the process and include any corrective action). Keep a copy on file for future reference.
3. If non-compliance persists, issue the contractor with a formal written warning about breaching weed hygiene protocols, provided they were included the original contract.
4. If non-compliance continues to persist after discussion and a formal warning has been issued, seek professional legal advice on your situation and any other available corrective actions (e.g. penalties).
5. If the contract has expired and you are not satisfied with the contractor performance or weed hygiene outcome (for example at the 6 month follow-up site inspection), use a different contractor from your preferred provider list in the future.

4.4 FURTHER INFORMATION

Click [here](#) for more information for Councils.

Click [here](#) for more information on contracts and their implementation.

Click [here](#) for more information on contract clauses and implementation.

The full website addresses for the above information are provided in the [reference list](#) at the back of this guide.



Above: Dead serrated tussock plants in amongst Australian native grasses in the northern suburbs of Melbourne (Photo: M. Ludeman)

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<https://www.longy.com.au/study-longy/short-courses>

Links from section 4.4 FURTHER INFORMATION, page 22

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Above: If we can prevent the further spread of serrated tussock, we can begin to contain and remove it from many landscapes



BEST PRACTICE SERRATED TUSSOCK WEED HYGIENE GUIDE

www.serratedtussock.com

This project is supported with funding from Agriculture Victoria and the Australian Government's Agricultural Competitiveness White Paper



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Water and the Environment



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