Declared Plant Policy
under the Natural Resources Management Act 2004

yellow burrweed (*Amsinckia* spp.)

Yellow burrweed is a herbaceous annual crop weed. It is tolerant of some herbicides and is difficult to control by cultivation prior to cropping due to staggered germinations. It may also hinder lucerne establishment.

**Management Plan for yellow burrweed**

**Outcomes**

- No losses to cereal crops or pasture yellow due to yellow burrweed outside the areas where it is already established.

**Objectives**

- Prevent seed movement to uninfested areas.
- Smaller isolated infestations located and destroyed according to regional management plans.
- Larger infestations of yellow burrweed contained and their impacts reduced.

**Implementation**

- High priority infestations on public or private land destroyed under supervision of regional NRM authorities.
- High priority infestations on road reserves controlled by regional NRM authorities and costs recovered from adjoining landholders.
- Other infestations controlled in accordance with the priorities in regional management plans.
- NRM authorities to ensure contaminated seed and fodder is not brought into, or distributed within, the control area.

**Regional Implementation**

Refer to regional management plans for further details.

<table>
<thead>
<tr>
<th>NRM Region</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelaide and Mount Lofty Ranges</td>
<td>Destroy infestations</td>
</tr>
<tr>
<td>Alinytjara Wilurara</td>
<td>Limited action</td>
</tr>
<tr>
<td>Eyre Peninsula</td>
<td>Contain spread</td>
</tr>
<tr>
<td>Kangaroo Island</td>
<td>Destroy infestations</td>
</tr>
<tr>
<td>Northern and Yorke</td>
<td>Contain spread</td>
</tr>
<tr>
<td>South Australian Arid Lands</td>
<td>Limited action</td>
</tr>
<tr>
<td>South Australian Murray Darling Basin</td>
<td>Manage weed</td>
</tr>
<tr>
<td>South East</td>
<td>Contain spread</td>
</tr>
</tbody>
</table>
Declaration

To implement this policy, yellow burrweed is declared under the Natural Resources Management Act, 2004 throughout the whole of the State of South Australia. The movement or transport of the plant on a public road, by itself or as a contaminant, or the sale by itself or as a contaminant is prohibited. NRM authorities in the Adelaide and Mount Lofty Ranges, Eyre Peninsula, Kangaroo Island, Northern and Yorke, SA Murray Darling Basin and South East NRM regions may require land owners to control yellow burrweed plants growing on their land. NRM authorities in these six regions are required to control plants on road reserves and may recover costs from the adjoining land owners.

Yellow burrweed is declared in category 2 under the Act for the purpose of setting maximum penalties and for other purposes. Any permit to allow its movement or sale can only be issued by the Chief Officer pursuant to section 188. Under the Natural Resources Management (General) Regulations 2005, the transport or movement of grain for milling or wool for cleaning is exempt from the operation of sections 175 and the sale of wool or grain is exempt from section 177(2) if at the time of the sale the person believes on reasonable grounds that the purchaser will remove the plant from the wool or grain before any re-sale.

The following sections of the Act apply to yellow burrweed throughout each of the NRM regions noted below:

<table>
<thead>
<tr>
<th>Sections of Act</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>175(1) Prohibiting entry to area</td>
<td>AMLR</td>
</tr>
<tr>
<td>175(2) Prohibiting movement on public roads</td>
<td>AW</td>
</tr>
<tr>
<td>177(1) Prohibiting sale of the plant</td>
<td>EP</td>
</tr>
<tr>
<td>177(2) Prohibiting sale of contaminated goods</td>
<td>KI</td>
</tr>
<tr>
<td>180 Requiring notification of infestations</td>
<td>NY</td>
</tr>
<tr>
<td>182(1) Landowners to destroy the plant on their properties</td>
<td>SAAL</td>
</tr>
<tr>
<td>182(2) Landowners to control the plant on their properties</td>
<td>SAMDB</td>
</tr>
<tr>
<td>185 Recovery of control costs on adjoining road reserves</td>
<td>SE</td>
</tr>
</tbody>
</table>

Review

This policy is to be reviewed by 2020, or in the event of a change in one or more regional management plans for yellow burrweed.

Weed Risk

Invasiveness

Yellow burrweed will grow in most soils but is most invasive in light sandy soils. It favours disturbed areas. Plant density is higher in overgrazed pastures, as well-maintained pastures can provide competitive control.

Once it does establish, the rapid growth of yellow burrweed provides competitive advantage against existing pasture species. However, it requires seed production to maintain a population, thus paddocks adjacent to infestations of yellow burrweed can be free of the weed.
Fodder is important as a means of spread and it is commonly spread in pasture and crop seeds. Seed may also be carried in the gut of sheep and on fleece, and via contaminated machinery.

Human activities, notably the movement of contaminated equipment, vehicles, fodder and livestock, are the most important pathways of spread.

**Impacts**

Yellow burrweed is a problem of crops and pastures as it is a strong competitor for light, nutrients and particularly nitrogen. It is very competitive with cereal crops and can reduce tiller number in wheat. Before the widespread use of sulfonyl-urea herbicides, cereal crop yields could be reduced by more than 20 percent when infested with yellow burrweed.

The bristly calyx is vegetable fault in wool, and the seeds can taint and discolour flour.

Yellow burrweed is potentially toxic to stock as it contains pyrrolizidine alkaloids similar to those in salvation Jane, and can cause liver damage in stock grazed plants over an extended period.

**Potential distribution**

Yellow burrweed has the potential to grow in agricultural areas throughout the State. Light sandy soils are most at risk.

**Feasibility of Containment**

**Control costs**

Yellow burrweed is easily controlled in cereal crops but is more difficult to control in pastures. It is difficult to control due to the staggered germination of seed. Cultivation is not an effective means of control because of the multiple germination events. Even after several years of cropping, yellow burrweed can still germinate in pastures. To safeguard cereal crop yields, yellow burrweed should be eliminated during the first few weeks of growth.

Mowing treatment in clover at flowering can greatly reduce population through reduction of seed set. Hand pull and spot spray may be effective for isolated infestations. Although it is not susceptible to phenoxy-acid herbicides, it can be suppressed by some other herbicides routinely used in cereal cropping. Application in the early stages of cereal growth can control yellow burrweed and increase yields.

In marginal cropping areas especially in sandy soils where herbicides are rarely used, the extra cost of yellow burrweed is increased herbicide use and reduction in pastures due to the herbicide use. In heavier soils and higher rainfall areas, it is less of a threat as herbicides are already widely used and the additional costs are likely to be small.

**Persistence**

As yellow burrweed is an annual plant, its only method of dispersal is seed. Seed production is high with up to 1600 seeds per plant. The hard seed may remain viable in soil for at least five years and thus can germinate up to several years later. Only a small proportion of the seed germinates at one time.
Yellow burrweed is most abundant in the season following cropping in rotational systems. Plants germinate in large numbers after the autumn break as well as staggered germinations after subsequent rains.

Current distribution

Yellow burrweed is found in isolated infestations throughout the agricultural areas of the State. It is present in all NRM regions except the Alinytjara Wilurara. It is most common and widespread in the northern Murray Mallee area of the SA Murray Darling Basin region.

State Level Risk Assessment

Assessment using the Biosecurity SA Weed Risk Management System gave the following comparative weed risk and feasibility of containment scores by land use:

<table>
<thead>
<tr>
<th>Land use</th>
<th>Weed Risk</th>
<th>Feasibility of control</th>
<th>Response at State Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing southern</td>
<td>medium</td>
<td>low</td>
<td>manage sites</td>
</tr>
<tr>
<td></td>
<td>88</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Grazing rangeland</td>
<td>low</td>
<td>high</td>
<td>monitor</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Crop pasture</td>
<td>high</td>
<td>very high</td>
<td>destroy infestations</td>
</tr>
<tr>
<td></td>
<td>139</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Irrigated vegetables</td>
<td>negligible</td>
<td>very high</td>
<td>monitor</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Considerations

Risk assessment indicates that crop and pasture land uses should be protected through a combination of managing sites, monitoring and destroying infestations. In practice, this is implemented according to the level of infestation in each region. Infestations in the Kangaroo Island, and Adelaide and Mount Lofty Ranges regions are small enough to be targeted for destruction. The South Australian Murray Darling Basin manages the weed where it occurs. In the other regions spread is contained by management of established sites and preventing transport of contaminated produce. Yellow burrweed may be targeted for control at high priority sites. Only limited action is required in the Alinytjara Wilurara and South Australian Arid Lands regions to prevent its establishment.

Restrictions on movement are necessary to prevent spread and in particular contaminated hay and fodder must not be transported. Extension is an important component of control - buyers must be aware of the risk of fodder and seed contamination. In areas where yellow burrweed is common, efforts should focus on ensuring fodder and grain is free of the weed rather than control of growing plants in paddocks. It is important to keep this weed off clean properties or to recognise and destroy infestations before they spread.

The possibility of biological control is being investigated in California where some Amsinckia species are native.
yellow burrweed policy

Synonymy

*Amsinckia* spp., the following names have been applied in S.A.


Basionym:


Taxonomic synonyms:


*Amsinckia hispida* (Ruiz & Pav.) I.M.Johnston, Contr. Gray Herb. 73:75 (1924)

*Lithospermum hispidum* Ruiz & Pav., Fl. Peruv. 2: 5 (1799)


Basionym:

*Echium menziesii* Lehm., Nov. Stirp. Pug. 2: 29 (1830)

Taxonomic synonyms:


Basionym:


In South Australia *Amsinckia* is treated as one complex due to hybridisation and possible heterostyly. Within this complex, *A. lycopsoides* is often a clearly definable species here, but intermediates with other unidentified taxa exist.

Other common names include amsinckia, bugloss fiddleneck, fiddleneck, tarweed, yellow forget-me-not and yellow gromwell.

---

Hon Ian Hunter MP  
Minister for Sustainability, Environment and Conservation  
Date: 28 July 2014