Off-label use permit PER13406 allows the use of glyphosate for the control of hymenachne in non-agricultural areas, native vegetation, pasture and aquatic areas. PER81265 permits aerial application of haloxyfop (helicopter only) by licensed operators.

Prior to using the herbicides listed under PER81265 and PER13406 you must read or have read to you and understand the conditions of the permit. To obtain a copy of the permits contact your local government or visit www.apvma.gov.au.

Further information

Further information is available from your local government office, or by contacting Biosecurity Queensland on 13 25 23 or visit www.biosecurity.qld.gov.au.

Table 1. Herbicides for the control of hymenachne

Situation	Herbicide	Rate	Comments
Non-agricultural areas, native vegetation, pasture and aquatic areas (aquatic areas include all bodies of fresh and brackish water which may be flowing, non-flowing or transient, also on margins of streams, lakes, dams and channels)	Glyphosate 360 g/L, 540 g/L or 700 g/kg Registered for control of emerged weeds in aquatic sitiuations (e.g. Roundup® Biactive, Nufarm Credit® or Gulf Ag Clearup 700 Bio-dri) 114 g/L Alkylethoxyphosphate, Trolamine salt (Nufarm Bonus Adjuvant)	Products containing: 360 g/L: 14 L/ha 540 g/L: 9.3 L/ha 700 g/kg: 7.2 L/ha Plus 1–2 L Nufarm Bonus Adjuvant/ha if required	Boom, handgun, knapsack or aerially (helicopter) up to four times per year PER13406 (expires 30/06/2017) Restricted to persons who are trained and experienced in the use of agricultural pesticides
	520 g/L haloxyfop (e.g. Verdict 520 herbicide) 114 g/L alkylethoxyphosphate, trolamine salt (Nufarm Bonus Adjuvant)	Apply 770 mL of product/ha Plus 1–2 L Nufarm Bonus Adjuvant/ha	Aerial application (helicopter only) using boom spray or shielded spot spray PER81265 (expires 30/06 2020) Restricted to licensed aerial perators

The above herbicdes are permitted under APVMA PERMITS PER13406 and PER81265. Use of Bonus surfactant is permitted under PER81236. Restrictions apply, please read permits carefully.

Read the label carefully before use. Always use the herbicide in accordance with the directions on the label.

This fact sheet is developed with funding support from the Land Protection Fund.

Fact sheets are available from Department of Agriculture and Fisheries (DAF) service centres and our Customer Service Centre (telephone 13 25 23). Check our website at www.biosecurity.qld.gov.au to ensure you have the latest version of this fact sheet. The control methods referred to in this fact sheet should be used in accordance with the restrictions (federal and state legislation, and local government laws) directly or indirectly related to each control method. These restrictions may prevent the use of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, DAF does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.

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09/17

Department of Agriculture and Fisheries

Biosecurity Queensland

Restricted invasive plant

Hymenachne or olive hymenachne

Hymenachne amplexicaulis and hybrids

Hymenachne was introduced to Australia from South America to provide ponded pasture for cattle. Hymenachne has become an unwanted pest of stream banks, wetlands and irrigation ditches in coastal and central areas of Queensland. In some areas it has invaded low-lying sugarcane, fish habitats and natural wetlands with high conservation value.

Hymenachne can increase flooding by reducing the flow capacity of the drainage networks.

Under flood conditions, plant material builds up at fences and bridges, collecting other floating debris. The combined weight may cause such structures to collapse.

Hymenachne infestations are a physical barrier for aquatic and semi-aquatic animals, restricting their territorial movements and breeding activities. Fishery biologists believe that carrying capacity and fish populations available for both commercial and recreational uses are being significantly reduced.

Hymenachne has been recognised as a Weed of National Significance.

Queensland Government

Legal requirements

Hymenachne is a restricted invasive plant under the *Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO). This fact sheet gives examples of how you can meet your GBO.

At a local level, each local government must have a biosecurity plan that covers invasive plants and animals in its area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws. Contact your local government for more information.

Description

Hymenachne is a robust, rhizomatous, perennial grass that can grow to a height of 2.5 m. Its stems are erect and contain white pith. Roots may be produced at the lower nodes. The leaf blades are 10–45 cm long and up to 3 cm wide, and strongly clasp the stem at the leaf base.

Flowers heads are spike-like, cylindrical, 20–40 cm long and sometimes branched. Main flowering occurs from April to June.

Hymenachne is capable of growing in permanent wetlands up to 1.2 m in depth. Cases have been reported of hymenachne growing up to 3 m water depth for at least a nine-month period and up to 4 m as a floating raft.

Commonly known as 'olive hymenachne' or 'olive' (derived from the cultivar name). This helps differentiate between the native hymenachne (*Hymenachne acutigluma*), which is widespread in Northern Territory and parts of northern Queensland.

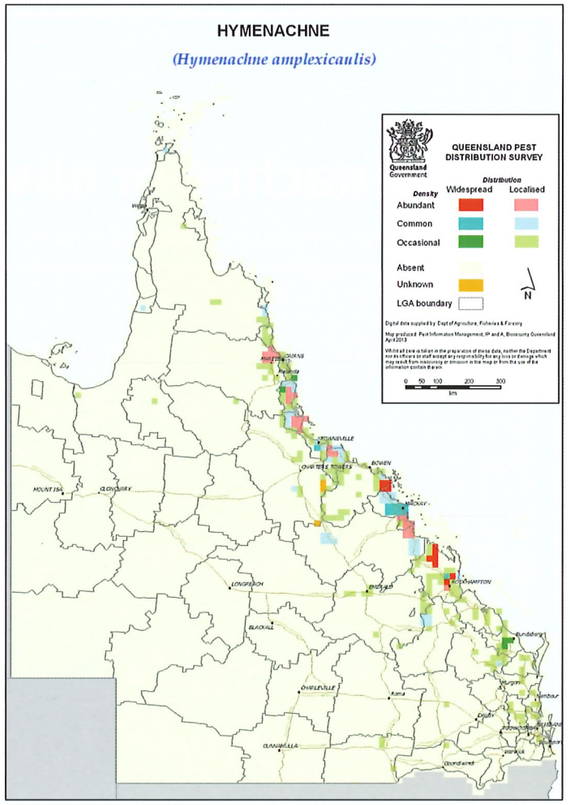
Related native species

Native hymenachne (*Hymenachne acutigluma*) is found in northern Australia, Papua New Guinea, Assam, Burma, Malaysia, Vietnam and Polynesia. Care should be taken not to confuse native hymenachne with the introduced, weedy hymenachne (*Hymenachne amplexicaulis*). The introduced hymenachne has distinctive stem-clasping leaf bases, whereas native hymenachne does not.

Native hymenachne is a tropical species and does not grow south of Mackay. Native hymenachne is not considered invasive or a threat to agriculture or other areas.

In 2010, it was confirmed that olive hymenachne and the native species has hybridised with plants found in Northern Territory and northern Queensland. This hybrid has intermediate characteristics of both the parent plants and it will be named a separate species.

Map 1. Distribution of hymenachne in Queensland



Life cycle

Hymenachne grows from seed and from broken stem fragments.

In Queensland, the main flowering period usually occurs from April to June, depending on location, with seeds set from late autumn to early spring. However, plants have been observed flowering between March and September. There is anecdotal evidence that the plant can flower and set seeds over a longer period of time in unusually wet years.

A single flower stalk can produce more than 4000 seeds and there is the likelihood of a large soil seed bank. Trial work indicates that in field conditions seed viability is still 8–24% after eight years.

Methods of spread

Two main vectors for seed dispersal are water movement and migratory aquatic birds. Stem fragments are readily moved by flowing water and, in suitable conditions, provide rapid establishment of hymenachne in new locations.

Habitat and distribution

Originally from South and Central America, hymenachne was released to the Queensland grazing industry in 1988 for use in ponded pasture.

It is now found in various locations from Cape York to as far south as Casino in New South Wales and in the Top End of the Northern Territory. There is potential for hymenachne to colonise suitable habitats over much of coastal, northern Australia.

Hymenachne will not persist in water with moderate to high concentrations of salt for part or all of the year.

Control

Managing hymenachne

The GBO requires a person to take reasonable and practical steps to minimise the risks posed by hymenachne. This fact sheet provides information and some options for controlling hymenachne.

A control program requires a realistic view of how hymenachne impacts on overall property management and the control of hymenachne should be integrated in the overall property management plan.

1. **Identify and prioritise problem areas**
   - Map hymenachne areas on your property.
   - Prioritise areas for control and identify seed sources, seed and plant dispersal routes and areas prone to weed invasion.
   - Focus initial efforts on small, isolated infestations.
2. **Determine control options**
   - Decide on the most appropriate control methods in the given situation.
   - Consider integrating control techniques by using chemical, mechanical and good land management practices with regular follow-up treatments.
3. **Schedule control activities**
   - Note essential control periods on calendar.
   - Consider how effective various control methods will be at different times of the year.
   - Make hymenachne control a regular part of property management and allow for monitoring and follow-up after initial treatment. Ensure follow-up occurs within three months.
4. **Managing existing populations**
   - Heavy grazing in the dry season can decrease seed production and, combined with chemical control, can be a very effective control method.
   - Treat populations in flood-prone areas first.
   - Use an appropriate herbicide.
   - Wherever possible, treat small, actively growing plants as they should be easier to kill.

A management plan should be structured yet flexible enough to allow for uncontrollable external influences such as drought, floods or fluctuating commodity prices.

Priority times throughout the year will vary slightly by regions; however, this should occur prior to flowering, which starts in April. Therefore, surveillance and control should be conducted in March, spring and early summer following initial storm rain.

The best approach is usually to combine different control options. Whatever methods are used, always follow-up and monitor progress.

Prevention and early detection

The best form of weed control is prevention. Always treat weed infestations when they are small. Weed control is not cheap but it is cheaper now than next year, or the year after. As there is no 'quick-fix' for the control of hymenachne, developing a management plan and committing to it is essential for long-term effectiveness.

Floodwater can deposit hymenachne in dams, lagoons, wetlands, rivers and creeks. Monitoring a short time after flood events should allow identification of new incursions. Treatment of new infestations should then be carried out to prevent establishment. You should also:

- reduce nutrient/sediment loads entering waterbodies since hymenachne thrives under nutrient-rich conditions
- maintain vegetation along riparian areas since hymenachne does not like shade or competition from trees.

Mechanical or physical control

Mechanical or physical control will not completely eradicate hymenachne because of the plant's ability to reproduce vegetatively from very small pieces. The use of heavy earth moving machinery to remove hymenachne from drains has met with some success in North Queensland.

Fire

Fire is a tool for the dry season. When integrated with other control methods, fire can improve overall results and reduce the cost of other management methods.

Grazing control

In western shires, constant heavy grazing in dry conditions has removed hymenachne from the ponded pasture system.

Biological control

There have been no biological control agents released for hymenachne control in Australia. Should a biological program commence, agents sought would need to be specific for olive hymenachne to ensure that there are no impacts on the native species (*Hymenachne acutigluma*) or other desirable grasses.

Herbicide control

No herbicides are currently registered for control of hymenachne; however; there are two off-label minor use permits (see Table 1).

Spraying an entire heavy infestation can cause hymenachne to sink and result in biological hazards from the rotting vegetation. Large masses of decomposing hymenachne may use all the oxygen in the water leading to fish kills. This problem can be avoided by spraying strips of the weed.