Grazing control

- This type of control involves the use of livestock which consume invasive plant species as a control method
- Recent studies have shown sheep to be particularly effective in the control and eradication of giant hogweed. Moreover, there appears to be no negative effects to the animals with regards welfare
- Grazing control works well for dealing with young and immature plants
- Larger plants that are unreachable by sheep will still need to be manually removed to ensure further seeds are not dispersed
- The best way to approach this method is to start grazing low numbers of animals and work up as the grazing season continues to avoid over grazing
- Sheep can always be left to graze for an extra few weeks at the end of the season to clear any remaining plants but ensure they are removed before they cause bare patches of land which are much harder to resolve

Benefits of grazing control:

- Effective method for clearing large areas of infested land
- Sheep will feed on everything from new saplings to plants up to 1.5m
- Minimal time commitment required from land owner
- Avoids adding unnecessary chemicals to the environment
- Cheaper method of control

Limitations of grazing control:

- Animals will sometimes need penned into an area of giant hogweed at the start of a grazing season until they develop a ‘taste’ for the plant
- Too many sheep or leaving sheep too long on a patch of land can lead to over grazing. This will leave bare ground and potentially prime the land for further seeds to germinate

- Larger plants that sheep are unable to reach will need cut down before going to seed
- Annual inspections and periodic monitoring still required
- Important to research which breed of livestock is best suited to the site – larger animals such as cattle may cause damage (poaching) and others may need fencing to encourage animals to graze on the desired target species.

For further information, please visit - https://www.invasivespecies.scot/giant-hogweed-and-sheep-trial

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Chemical treatment

- The Department will always encourage landowners to attempt to treat invasive plants without the use of herbicides wherever possible - Chemical treatment must only be considered as a last resort
- If a particular brand of herbicide is mentioned in the management measures, the land manager must have checked that it is approved for their planned use. This can be done by accessing the HSE approved pesticides register - https://secure.pesticides.gov.uk/pestreg/ProdSearch.asp
- As a government agency we cannot recommend a specific branded product, we can only recommend the generic type such as Glyphosate systemic based herbicides which are the most successful for dealing with invasive non-native plants and many are also approved for use near water
- Herbicides can be applied by a variety of means including boom sprayers (tractor or quad mounted), weed wipers, back pack sprayers, hand lance, spot spraying and stem injection
- Selection of herbicide should depend on other crops or plants on site, environmental considerations, and meeting your management measures objectives
- Large infestations, infestations near water, or infestations on steep slopes may be too costly or too environmentally sensitive to control by chemical means. In these situations, it is important to look at other management measure options

First, consider if the location is suitable for application of herbicides:

1. Is it on a designated site and have you got 'consent' from NIEA CDP team
2. Are there any protected species on site that could be damaged by applying herbicides in a non- target manner
3. Is it an adequate distance away from watercourses and ditches
4. Is it away from existing amenity areas, lawns, and gardens with large amount of footfall
5. Is it free from disturbance by people or livestock
6. Is it a suitable distance away from neighbouring properties

Also, if chemical control leaves a site bare, it is important to consider, before you apply a herbicide regime, how you plan to re-vegetate the site so that control is achieved over the long-term (see notes on Site Restoration).

Factors that can affect the effectiveness of herbicides include:

- Invasive plants are most susceptible to systemic herbicides, such as those that contain glyphosate, during its active growth stage, so timing of treatment is critical
- Soils with high organic matter or clay content may require higher rates of chemical than sandy soils
- Soil moisture and pH can also affect persistence and effectiveness of some herbicides
- DAERA – Code of Practice for Using Plant Protection Pesticides
- The 'DAERA – Code of Practice for Using Plant Protection Pesticides' is commonly referenced, although published in 2011, much of the document is still relevant and of use. However just note that, with regards spraying pesticides *'grandfather rights'* no longer exist & the document also states that "*Before you use any product approved for use in or near water (this is usually a herbicide used to remove plants in or around water) first contact the NI Environment Agency (NIEA) on 028 9263 3445*." As mentioned previously this is not the case anymore, there is no requirement to contact NIEA, unless it is in a designated site/ASSI/SAC etc. when you must get 'consent' from the Conservation Designation & Protection (CDP) team

Benefits of chemical control:

- Effective tool for new and small infestations
- Will kill target plants via spot treatment, cut and paint or stem injection methods
- Can have residual control of seedbank for future years depending on the chemical selected
- Less labour intensive than alternative mechanical and manual methods

Limitations of chemical control:

- Giant hogweed seeds can remain dormant in the soil for 15 years. Even if you treat the plants with herbicides and they die, several thousand seeds are waiting in the ground below for the opportunity to take their place - any control programme needs to continue for several years, including checks for new growth
- When managing giant hogweed it is important to maintain a healthy grass sward, either by using selective herbicides or by sowing grass mixes – a dense grass sward helps to prevent giant hogweed seeds from germinating
- Precautions need to be taken to limit the effects on surrounding non-target plants
- Precautions must always be taken to avoid spraying or applying herbicides where pollinators are actively feeding, i.e. when plants are in flower
- Limited use in environmentally sensitive areas or steep slopes
- May have limitations on certain soil conditions or presence of water
- Some concern from public/community groups and local councils about the use of glyphosate based products
- Not always successful

Spraying giant hogweed with herbicide:

Photo credit: Tom Richards - Wye and Usk

On – site biosecurity

- Strict biosecurity measures must be put in place on treatment sites to ensure land owners/ contractors/ members of the public do not act as vectors in spreading invasive plant species

- To reduce the spread of the invasive species, it may be necessary to set up cordoned off areas/ exclusion zones to stop people entering these areas whilst treatment is ongoing (example of appropriate signage shown in image overleaf)

- Create an exclusion zone (should include a buffer zone if possible) - put up signs to make people aware, especially as giant hogweed poses a public health risk

- Ensuring recreational (boats, boots, angling) and mechanical equipment is drained if operating in infested riparian locations and cleaned before leaving any infested water body CHECK CLEAN DRY - https://invasivespeciesni.co.uk/what-can-i-do/check-clean-dry/

- Restrict access and cordon off stands or infestations until treatment is complete

- Thorough inspection and removal of contaminants by brushing is recommended for all tools and equipment used on site - this should include clothing and boots - if carrying-out management, check and clean any equipment, e.g. clean soil off spade

- Ensure that soils from within infested areas are not spread to other areas, treat contaminated soils carefully

- If manual removal has to take place after the plants have flowered/seeded, make sure plant heads are placed in bags and sealed off to prevent further seed dispersal when the plant head is cut off (see image overleaf)

Plant head removal

Photo credit: Pete Kelly

Example of appropriate signage

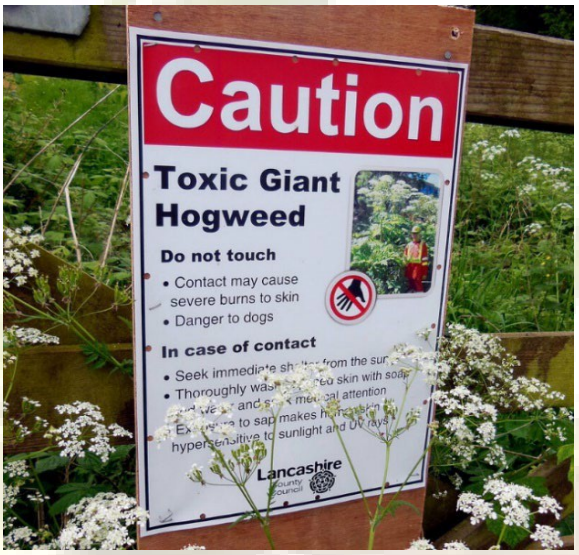

Photo credit: 70023VENUS2009/CC BY-ND

Disposing of Plant Material

- Ideally, management should take place before the plant goes to seed
- Provided the plant has not yet gone to seed, plant material generated from treatment can be composted on site
- Care must be taken when composting on site. Wrap the plant material in a barrier membrane such as tarpaulin to prevent re-rooting/regrowth
- If the plant has already gone to seed when treatment takes place, plant material generated from treatment will now be considered as ‘controlled waste’
- This plant material can either be buried on site or transported off site as controlled waste
- Any wastes (with or without propagules) being transported off-site, must be appropriately transported by a licensed waste carrier who is informed that the waste material contains an invasive species as part of the waste transfer documentation
- It is important to contact the licensed landfill site in advance to ensure they will accept the waste material
- Failure to inform the landfill site that the material contains an invasive species would be an offence under both wildlife and waste legislation

Site restoration

- This will depend on the site in question and what its main characteristics are – location, soil types, designation status etc.

- Many plant invasions can be reversed, halted or slowed, and in certain situations, even badly infested areas can be restored to healthy systems dominated by native species

- An invasive plant control regime is best viewed as part of an overall restoration program - focus on what should be in place of the invasive plant species after removal, rather than simply eliminating the weed then thinking about what is to go in its place afterwards

- This is especially important along riverbanks (riparian habitats) due to the potential erosion and bank instability that could be caused by removing the invasive plant species

- Establishing a good sward of grass soon after treatment will help reduce the risk of re-colonisation of the same or other INNS – this can also help supress regrowth of seedlings from the seedbank

- When selecting control methods, keep in mind that the ultimate purpose of the work is to preserve native species, communities, and/or functioning ecosystems

- Restoration management aims at restoring habitat functions and processes on sites disturbed by human activities - it requires that you replace the invasive non – native plants that have been removed with native plants which are able to provide the desired habitat structure and functions

- It is recommended you consult a professional ecologist to assist selection and sourcing on native species to plant

- Make sure all necessary precautions are taken to ensure that any topsoil brought onsite for restoration purposes is certified free from invasive plant species