



Centre for
Ecology & Hydrology

NATURAL ENVIRONMENT RESEARCH COUNCIL

Centre for Aquatic Plant Management

INFORMATION SHEET 27: RAGWORT

Common Ragwort (Benweed, Staggerweed, Tansy Ragwort; St. James's Wort), *Senecio jacobaea* L., is probably the most common poisonous plant growing on riverbanks, roadsides, waste ground, pasture and agricultural land in Britain. It is one of the five species listed as a noxious weed in the

Weeds Act 1959, which requires landowners to prevent Ragwort from spreading on their land, or land under their control, when served notice upon so to do. Ragwort poisoning of cattle in England and Wales causes greater economic losses than all other poisonous plants combined.

Ragwort usually grows as a biennial, but can be perennial in some circumstances. It is usually between 30 and 90 cm tall, although can grow to 1.5 m, with a basal rosette of leaves, from which rise stems which are often tinged red at the base. The stems branch towards the top. The leaves are finely dissected with jagged lobes and dark green in colour. The flowers are flat topped and deep yellow in colour. They have the typical Compositae (Asteraceae) flower form with a central disc and ray florets, known botanically as a capitulum. The seeds are borne singly and have a downy appendage (pappus) aiding easy wind-dispersal.

Toxicity and poisoning

There are about 20 species of *Senecio* native to the UK, only 2 of which are toxic. The other species is Groundsel, *Senecio vulgaris*. World-wide there are thought to be about 100 toxic species of *Senecio*, with the same basic toxic components. Ragwort toxicity is due to the presence of pyrrolizidine alkaloids, the most poisonous of which are the cyclic diesters. The effects are most obvious on the liver where the toxins are metabolized into compounds which are more toxic to the liver. The alkaloids are not destroyed by drying and so the plant remains toxic after cutting.

Ragwort poisoning is slow to develop in animals and may occur between a week and several months after the plant has been consumed. This makes diagnosis very difficult. Cattle and horses are most susceptible, although sheep and pigs are also susceptible to a lesser extent. Sheep fed small amounts of Ragwort for 2 weeks showed no clinical signs of toxicity, but some animals suffered impaired liver function and 70% mortality occurred in the next 6 months. Clinical signs of poisoning in cattle and horses are digestive system disturbances, abdominal pain, emaciation, jaundice and nervous disorders which result in uncoordinated movements and restlessness. Animals may appear to be blind and collide with walls and become partially paralysed. General weakness usually precedes liver failure and death. There appears to be little correlation between severity of symptoms and the amount or duration of ingestion. There is no specific treatment for poisoning, but removal of animals from infested pastures may assist recovery, and dietary protein should be limited during recovery. It is unlikely that humans in the UK would be exposed to sufficient concentrations of alkaloids (for example in cows' milk) to be affected.

Most poisoning incidents occur as a result of eating hay or cut grass in which Ragwort is present. The loss of unpalatability allows consumption of greater quantities of dried, than of live material, therefore increasing the relative exposure to alkaloids. Indeed, the material may even become

attractive to livestock when cut. It is therefore very important when controlling this species that livestock are excluded from the site until after complete decomposition of the plant has taken place.

Mechanical control

Hand-pulling is practised where infestations are low and where access may be difficult. It is important to remove the plant from pasture and from areas where livestock may have access. These areas can include roadsides, riparian areas where occasional horse-riding may take place. Ploughing of heavily infested areas is recommended.

Chemical control

Ragwort is susceptible to MCPA and 2,4-D. These herbicides will not affect grasses and can be used in pasture and riparian areas where retention of some grass cover is desirable. Glyphosate is also effective for spot-treatment in small areas. It is unlikely that a single treatment will be effective and re-treatment after one month is usually necessary. Treatment with 2,4-D causes an increase in water-soluble carbohydrates and an increase in alkaloid content. This increases both palatability and toxicity and so MCPA is preferred. Spot treatment with glyphosate as Roundup Pro Biactive is also effective, and should be applied with a weed wiper at an appropriate height to avoid killing surrounding vegetation. The effects on alkaloid content or increased palatability from glyphosate treatment are unknown, but likely to be similar to those of MCPA.

An alternative treatment using citronella oil as the main ingredient is Barrier H (MAFF No 101360 (details available at http://www.chemspec.co.uk/barrier_h.htm). It is available from Barrier Animal Health Care in Norfolk (01953 456363). The product appears to be rapidly effective. Side effects on toxins are not known. It can be used all year round, but it is best to spot spray when at the rosette stage, from February to the end of July. Wilting starts within 1 hour of treatment, within 8 hours it is visibly dying and after 48 hours the plant is dead. Barrier H can be applied to flowering plants but the effects are slower. A second application may be required to thick and woody stemmed plants.

Best Option

- ? Hand pull small infestations and burn dead material
- ? Spray with MCPA , 2,4-D amine, glyphosate or Barrier H
- ? Plough dense infestations
- ? Remove livestock from area until **all** plant material has decomposed or been removed or burnt.

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MCPA & 2,4-D amine products: HY-D, BASF MCPA Amine 50, Dormone, Atlas 2,4-D