

Mini data sheet on *Solanum carolinense*

Solanum carolinense was added to the EPPO A2 List in 2022. A full datasheet will be prepared, in the meantime you can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2020 - deleted in 2022).

Solanum carolinense (Solanaceae, horsenettle)

Why

Solanum carolinense (Solanaceae, horsenettle) is a weedy species in its native range (North America) where it can have a negative impact on agriculture and crop yields. It has already been recorded in crops such as maize and sugar beet in Germany and Northern Italy and projections of climatic suitability under current climate conditions reveal considerable scope for further invasion in Central European countries.

Due to its extensive root system and rapid growth, effective control is difficult. Thus, yield losses and control costs are potentially high.

Geographical distribution

EPPO region: Austria, Germany, Italy, the Netherlands.

Asia: Bangladesh, China, India, Japan, Nepal, South Korea.

North America: Canada, Mexico, USA (native).

South America: Brazil.

Oceania: Australia, New Zealand.

Morphology

S. carolinense is a perennial, herbaceous species. 30-120 cm tall, erect, loosely branched. Stems armed with slender yellowish spines up to 5 mm long.

Leaves: ovate to oblong, irregularly wavy-toothed or lobed, 4-14 cm long by 2-6 cm wide, both surfaces stellate pubescent with yellowish hairs, petioles up to 20 mm long.

Flowers: in open cymose racemes on prickly pedicels, calyx lobes 6-7 mm long, spineless, corolla violet or occasionally white, 5 lobed, approximately 3 cm in diameter, mature berry globose, 10-20 mm in diameter, pale orange or yellow, smooth and glabrous.

Seeds: 2 mm long, obovate, flattened, granulose, yellow or light brown.

Biology and Ecology

S. carolinense reproduces by seed and roots. Each fruit can produce between 40-170 seeds. It can grow in a wide range of soil types and grows well in sandy or gravelly soils. The extensive root system (both vertical and horizontal) has adventitious buds. The seedbank longevity can be up to 4 years when buried at depths of 8-12 cm.

Habitats

Ruderal habitats, roadsides, riverbanks and urban habitats (gardens), agricultural habitats (grain and vegetable fields, orchards and pastures).

Pathways for movement

Contaminant of seed (soybean and maize). There is also the potential that the species may enter the EPPO region as a contaminant of grain, as well as with water and soil movement.

Impacts

Yield losses attributed to the weed have been reported in maize, groundnut and bean in the USA. It is also reported as a weed in vegetable fields and orchards. It is also poisonous to livestock and can be an alternate host to a variety of insect pests.

Control

Any control of established populations can be very difficult due to the extensive root system and therefore preventing the establishment of the species is the most effective control measure. *S. carolinense* is susceptible to a wide range of herbicides. Chemical control (e.g. glyphosate) can be effective when used at the fruit bearing stage.

Sources

Bassett IJ, Munro DB (1986) The biology of Canadian weeds: 78, *Solanum carolinense* L. and *Solanum rostratum* Dunal. *Canadian Journal of Plant Science* **66**, 977-991.

Follak S (2019) Distribution and small-scale spread of the invasive weed *Solanum carolinense* in Austria. *EPPO Bulletin*, <https://doi.org/10.1111/epp.12644>