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Jimsonweed

Datura stramonium L. syn. D. tatula, D. stramonium var. tatula (Aka thornapple, angels/devil's trumpet, stinkwort, hell's bells, devil's cucumber)

Alberta Regulation: Unregulated

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Overview:

Jimsonweed is an erect, bushy annual herb of the Solanaceae Family. Its exact origin is uncertain - some literature says the tropical Americas, others Asia - but it is now a weed in many countries around the world.[1] Jimsonweed has been introduced to many countries as a contaminant of agricultural seed. It was first recorded in the eastern U.S. in the late 1600's and eastern Canada in the late 1800's.[1]

Jimsonweed is foul-smelling and reproduces by seed only. The seed capsule is large, ovoid, and densely covered with spines, hence the common name 'devil's cucumber.' Dense stands of jimsonweed will yield an average of 1300-1500 seeds per plant. Mature seeds have a coating that generally requires a dormancy period before germination. Seed longevity is high, especially for deeply buried seed.[1]

All parts of Jimsonweed are toxic to humans and other mammals. The plants contain dangerous levels of the alkaloids classified as anticholinergics (block neurotransmitters) and have been used for its psychoactive effects. The concentration of toxins varies greatly from plant to plant making the risk of fatal overdose high.[2]

Jimsonweed is a strong competitor for moisture and light, reducing crop yields, and large, coarse plants interfere with harvesting equipment.[3] Additionally, jimsonweed is an alternate host plant for a number of pests (insects, viruses, fungi) of Solanaceous crops such as soybeans, potatoes, and tomatoes.[3]

D. stramonium may be confused with D. inoxia, a North American plant. D. inoxia is described as "Perennial, flowers 10-20 cm long and10-angled, nodding or inclining capsule, not valvate, but dehiscing irregularly, leaf margins entire or only slightly angled, plant pubescent."[3]

Habitat:

Jimsonweed can be found on moist soils but prefers nutrient-rich soils. Nitrogen rich soils favour growth.[3] Being sub-tropical in origin; it prefers plentiful rainfalls but can survive on less. It can grow at sea level and has been recorded at 2750 m in the Himalayas.[1]

Identification:

Stems: Are erect, hollow, extensively branched, green to purplish, hairless or with minute hairs, and grows 0.5 to 2 m tall.[1,3] Roots may be shallow and highly branched, or a stout taproot with stringy lateral roots.[1]

Leaves: Cotyledons are large - 2-4 cm long - narrow and shrivel but persist on the developing seedling.[3] First true leaves are ovate with pointed tips and few/no lobes. Later leaves are alternate, simple, and borne on petioles up to 12 cm long. Blades are 5-25 cm long and 4-25 cm wide, ovate to elliptical, the tips acute, and the bases wedge-shaped.[3] Leaves are hairless, the margins unevenly toothed,[1] dark green on the tops,[3] and foul-smelling when crushed.

Flowers: Are trumpet-shaped, 5-lobed, 5-10 cm long, and borne singly on short stems in the axils of branches. Corolla (petals) are white or purplish, have 5 stamens of equal length attached near the base, a long style with a 2-lobed stigma, and are foul smelling. The calyx is 3-5 cm long with 5 unequal teeth 3-10 mm long.[1]

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Jimsonweed (Continued)

The fruit is an erect, oval shaped capsule, 3.5-6.5 cm long and 2.5 cm wide and densely covered with fairly equal spines up to 15 cm long. Fruits are rarely smooth. The fruits open by 4 valves and contain numerous dark brown to black, flat, kidney-shaped seeds with a pitted surface and are 3-4 mm long and 2-3 mm wide.[1]

Prevention:

Since non-native Datura species are available as ornamentals, do not purchase and grow any of them. Crop seed should have a seed analysis completed before purchase. Refuse any crop seed contaminated with jimsonweed or any other regulated weed. Learn to recognize jimsonweed and report/remove any new infestations you find. Wear protective clothing and dispose of bagged plant material in landfill-bound garbage.

Control:

Grazing: Poisonous. Livestock will not readily consume jimsonweed when suitable grazing is available, however it will be consumed mixed in baled forage or silage. Symptoms of poisoning include pupil dilation, increased heart and breathing rate, and hallucinations.[3] Invasive plants should never be considered as forage.

Mechanical: "Seedlings of D. stramonium are readily killed by tillage operations. Older plants may regenerate from the lower nodes if clipped or trampled. Seed capsules on branches which have been severed or damaged after fertilization has occurred, often will continue to ripen. Fall tillage may promote seed survival because seeds decay more rapidly on the soil surface than when buried.[3] Any hand pulling should be done before seed production. Wear protective clothing and dispose of bagged plant material in landfill-bound garbage.

Chemical: Bentazon, metribuzin, acifluorfen, chlorthal, and glyphosate are just some of the active ingredients registered for use on jimsonweed. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: A number of fungal pathogens have been identified as a potential biological control, however none have been researched further. [1]

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