United States Department of Agriculture

Natural Resources Conservation Service
Bismarck Plant Materials Center
Bismarck, ND 58504

May 2025

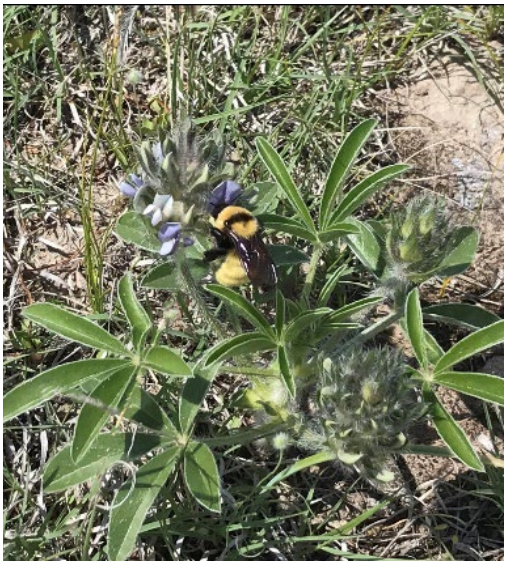
Prairie Turnip Propagation

Pediomelum esculentum (Pursh) Rydb.

Alternative Names

Large Indian breadroot, breadroot scurfpea, timpsula, tipsina, prairie potato, pomme blanche

Description



Prairie turnip plant with a bee visiting the flower. Photo by Greg Morgenson

General: Prairie turnip is a short, perennial legume that was traditionally used by the American Indians indigenous to the Great Plains. The plant has a tuberous thickened taproot that has been an important food source to tribes. It blooms in early summer from late May to July. The leaves are palmately compound, divided into five leaflets which are nearly smooth above and hairy beneath. Its light blue/purple flowers form in a dense spike. Mature seeds are relatively large and are brown in color. Upon maturity the plant stem breaks near the soil line and the dry plant tumbles away. The tumbling plant disperses ripe seeds.
Distribution: It is commonly found in native rangeland on well drained soils.

Propagation by Seed

Seed Collection: Seeds are found in spike type heads after the flowers are gone. Each seedhead has several flattened pods that are covered with coarse hairs and hold single seeds. The best time for collecting prairie turnip seed is from July through August before detachment of the plant from the root. Only mature seeds should be harvested. Mature seeds will be brownish in color and firm to the touch. Green seeds are a sign of immaturity. To maintain wildland prairie turnip populations, it is vital to leave some seeds on a plant for natural regeneration. *Obtain permission and required permits prior to collecting plant material on public or private land.*

Seed head of prairie turnip

Seed treatment: Seed of prairie turnip is known to have dormancy caused by its seedcoat, which is common in native legumes. Scratching (scarifying) or making small openings in the seedcoat of prairie turnip seed allows quicker water absorption, which provides faster and improved germination. Improper scarification can cause severe damage to the seed, which will hinder germination. The seedcoat of a properly scarified seed will be intact and have visible scratch marks. If the seedcoat is scarified too aggressively, the white/yellow colored endosperm beneath the seedcoat becomes visible or the seed breaks apart. Some methods for scarifying small quantities of seed include scratching with sandpaper, lightly scraping with a knife, or nicking the seedcoat with a sharp point. Large quantities of seed can be scarified via an electric/hand crank scarifier. Soaking seed in warm water for 12-24 hours is another method of enhancing the seed to imbibe water and germinate. Soaked seeds that are ready for planting should be somewhat swollen.

Prairie turnip seed that has not been scarified

Prairie turnip seed properly scarified. Seedcoat scratches are visible.

Prairie turnip seed scarified too aggressively. Damage is fatal.

Field Seeding: Spring seeding prairie turnip is recommended. When planting in the spring, scarify the seed and then plant approximately ½ inch deep into a firm seedbed. If dormant seeding (soil temperatures below 40 degrees), the seed does not need mechanical scarification, as overwintering helps break down the seedcoat. Success of dormant seedings has been sporadic and plants have been slower to establish compared to spring seedings. Whether planting in a garden plot or larger field, tuber growth and harvest should be considered when determining between row and within row spacing. Between row spacing of 18 inches or greater and within row spacing of at least 4 inches is recommended. Establishing propagation beds/gardens of prairie turnip is a way to supply a convenient location for future seed or tuber harvest and reduce pressure on native plant communities.

Greenhouse/Indoor Seeding: Scarified seed of prairie turnip can readily germinate in the greenhouse. However, it can be difficult to maintain and grow plants in a greenhouse environment or indoors. Low light, high humidity, and poor container drainage can cause seedlings to die prematurely. Seedlings can be difficult to successfully transplant because of their delicate taproot.

Harvest of Root

Prairie turnip roots are generally harvested in the flowering or fruiting stage; after the flowers blossom but before the leaves and stem dry and the plant tumbles away. This is generally from May through July. Tubers continue to increase in size if left unharvested. It can take up to 4 years after seeding before tubers are of a desired size for harvesting. If a small piece of the root remains after harvesting, new plants may be generated from that piece.

Prairie turnip roots harvested 1, 2, and 3 years after seeding. (left to right)

With this and other work, the Plant Materials Program aims to share plant solutions that solve local and national conservation problems. For additional information on specific species of plants mentioned, please see the USDA PLANTS database. Technical information and guidance on the use of conservation plants to address resource concerns can be found on the Plant Materials Program website or contact the nearest Plant Materials Center or plant materials specialist.