WASHINGTON STATE UNIVERSITY EXTENSION

GROWING PARSNIPS IN WESTERN WASHINGTON

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Abstract

Parsnips are a long-season crop that thrive in western Washington. This publication provides basic guidelines for successful parsnip production as well as common problems that parsnip growers in this region face.

Crop at a Glance

Growing season: Spring, summer, and fall.

Time of planting: Sow seeds in mid spring when soil temperatures are steadily above 50°F.

Spacing: Plant seeds 3 inches apart in rows spaced 12–18 inches apart. Row spacing for mechanical harvest is 18–30 inches apart.

Days to harvest: 100–120 days (average range) depending on the cultivar.

Average yield: 18 lb per 10-foot row, or 29 tons per acre.

Common starting method: Direct seeding into the soil.

Introduction

Parsnips are a long-season crop that thrive in western Washington's temperate growing region. Parsnip cultivation dates back to Greco-Roman times when the crop was used as a sweetener in many cuisines as well as for medicinal purposes. These sweet-tasting root vegetables are a great addition to any diet as they provide potassium, folic acid, and many other vitamins and minerals.

Selecting Types to Plant

While there are many parsnip cultivars to choose from, it is important to assess soil and pest conditions before selecting a cultivar to plant. Some cultivars, such as Albion and Warrior, are highly resistant to parsnip canker and are well-suited for western Washington growing conditions (Tozer Seeds, n.d.; Thompson and Morgan 2018).

Parsnip cultivars vary in root length and type and can range from cream-colored to white. When ordering seed, growers can choose between heirloom and F1 cultivars. Heirloom Parsnip cultivars vary in root length and type and can range from cream colored to white. Select a cultivar that meets market expectations or requirements in your area. Growers may need to consider selecting open-pollinated heirloom cultivars, like Hollow Crown or The Student, that allow the grower to save their own seed from season to season. Parsnips can cross-pollinate with wild parsnips; 200 ft of isolation is necessary to reduce the likelihood of cross-pollination (Gough and Moore-Gough 2011). Large-scale producers tend to select F1 hybrid cultivars like Javelin and Gladiator. Hybrid cultivars have been developed for good vigor, canker resistance, and overall aesthetics. Table 1 exhibits a basic comparison of commonly grown F1 cultivars. More information on these and other cultivars can be found on the Tozer Seeds America website.

Table 1. Cultivar comparison for the selected trial cultivars.

Cultivar	Javelin	Albion	Warrior	Viking
Average Length	9–10"	11"	11"	10"
Days to Maturity	110	120	120	120
Canker Resistance	Excellent	Good	Strong	Strong
Coloring	Cream	White	White	White

There are several types of parsnips:

- Bulbous: These bulb-shaped parsnips have rounded shoulders, and their compact nature makes them ideal for growers with limited space or heavier soils. They are also favored by food processors. Examples of bulbous type are cultivars Avonresister and White Gem.
- Wedge: These parsnips are longer than bulbous parsnips and have broader shoulders. Examples of wedge type are cultivars All American and Gladiator.
- Bayonet: These long and narrow cultivars are the most common of the three types grown today. Examples of bayonet type are cultivars Hollow Crown and Arrow.

Choosing a Planting Site

Parsnips grow in a similar manner to carrots and do well with similar soil conditions. Select a site with well-drained soil, free from clods and debris. Avoid clay or rocky soils as the long reaching taproots do not grow well with obstruction. As with carrots, parsnips do require irrigation; maintain an even moisture level throughout the growing season. Depending on the soil type and rainfall, one inch of water applied every 7–10 days throughout the growing season should be sufficient. Parsnips require full sun light, but as a cool-season crop they do well with a temperature range of 60°F to 65°F, not exceeding 75°F. Field storage is an option if the planting site does not experience severe freezing. Many areas of western Washington fit all of these requirements. Refer to How to Determine Your Garden Microclimate (McMoran et al. 2015) to determine the microclimate of your planting site.

Planting Guidelines

Prepare the soil depth according to the root length of the cultivar you are planting. The soil must have adequate levels of nitrogen, phosphorus, and potassium, and a slightly acidic pH ranging from 6 to 7. Fertilization requirements are similar to those of carrots. Nutrient application rates are 65–135 lb /acre of N, 45–90 lb/acre of P, and 45–180 lb/acre of K (Rubatzky and Yamaguchi 1999). Successful parsnip growth can occur on ground that had recently received manure, but a soil test should be taken to ensure the soil has sufficient nutrients. Additionally, growers should consult the Food Safety Modernization Act (FSMA) regulations regarding fertilizer and manure application. Fertilizer and soil amendments should be applied prior to planting to obtain adequate nutrient levels.

Always use fresh seed as germination viability decreases dramatically each year. As reference, USDA standards for germination rates in first year parsnip seed is 60% as set by the Federal Seed Act. For best results, sow seed in April or May. Optimum germination will take place when soil temperatures are sustained between 50–54°F.

Parsnips are direct seeded into the ground and should be planted ¼ to ½ in. deep in rows spaced 12–18 in. apart for hand harvest and 18–30 in. spacing for mechanical harvest. Emergence can take 14 to 21 days and, as with carrots, maintaining consistent moisture during germination is critical for emergence of a consistent stand. Consistent moisture also helps in avoiding development of a soil crust from forming over the parsnip seeds, which can impede emergence. Parsnips is a long-season crop that requires 100 to 120 days from a spring seeding to a late autumn harvest.

Plant Maintenance

Because of the long germination window, parsnips are often over-seeded in an effort to combat poor emergence and seedlings then thinned to 3–6 in. apart. Thinning on small acreage can be accomplished using a narrow collinear hoe or a warren hoe. This practice is not always cost effective, so it is advised to evaluate your own system before incorporating this practice.

Another consequence of slow germination and slow crop canopy development is that parsnips require intensive weed management during the first months of growth. It may be necessary to apply a pre-emergent herbicide shortly after planting; apply all herbicides according to the manufacturer's instructions. More information on using crop protection products in the Pacific Northwest (PNW) can be found in the Pacific Northwest Pest Management Handbook. Overcrowding and nutrient

competition from weeds can be avoided by shallow soil cultivation. Once the crop canopy is established, the need for weed management subsides.

Irrigation

Water requirements depend on soil type, weather, and the irrigation system. Consistent soil moisture is the key to establishing a vigorous parsnip crop. Variability in soil moisture is associated with parsnip cracking and bitterness, while over-watering increases splitting. Light mulching of parsnip stands in the summer can aid in moisture retention while also reducing weed pressure.

Common Production Problems

Common insect and disease problems for parsnips grown in western Washington include carrot rust fly, wireworm, parsnip canker, cracking, and forking. The table below provides a brief description of each problem along with some suggested corrective actions. For management information using pesticides, see the Pacific Northwest Pest Management Handbook.

Common Problems

*Carrot Rust Fly (*Psila rosae*) (Figure 1)*

Figure 1. Parsnip infected by carrot rust fly. Photo: Kate Seymour, WSU Skagit County Extension.

Symptoms: Surface tunneling on the root with associated rust coloring. Presence of small, white maggots.

Corrective Action: Carrot rust fly larvae does the most damage to parsnips; as such, delaying tillage until after larvae has hatched can reduce risk exposure. Carrot rust flies do not travel long distances, so they can also be managed by rotating fields annually. Manage surrounding weeds as they can act as a host for the pest. Employ a row cover after planting to reduce access for adult carrot rust fly. For more information on floating row covers refer to How to Install a Floating Row Cover (Parker et al. 2012).

Wireworm (larval stage; Figure 2)

Figure 2. Multiple wireworms in the larval stage. Photo: Dr. Tim Waters, WSU Franklin County Extension.

Symptoms: Tunneling through the root and base of the foliage. Presence of cream, orange, or brown beetle larvae.

Corrective Action: Avoid planting in newly dug grassland or poorly drained soil. Crop rotations with both alfalfa and brassica crops can be effective in reducing wireworm larvae populations. Employ an

integrated pest management (IPM) program. In their adult stage, wireworms are known as click beetles, which spread via winged travel. Utilizing a row cover after planting has shown to reduce access for the adult click beetle (Figure 3).

Figure 3.Click beetle pinned for collection. Photo: Virgene Link-New, WSU Master Gardener.

Parsnip Canker (Figure 4)

Figure 4. Parsnip heavily infested with parsnip canker. Photo: Kate Seymour, WSU Skagit County Extension.

Symptoms: Cankers develop on the top or shoulders of the root and are caused by the fungus *Itersonilia pastinacae*, which lives and builds up in the soil. The fungus will enter the roots through mechanical and insect damage. Cankers decay later in the season. Dark lesions develop on both root and foliage.

Corrective Action: Mulch to cover exposed root shoulders. Employ crop rotation and select cultivars with known resistance.

Cracking (Figure 5)

Figure 5. Parsnip with large, spiraled cracking. Photo: Kate Seymour, WSU Skagit County Extension.

Symptoms: Crack develops laterally along the parsnip root.

Corrective Action: Maintain even soil moisture.

Forking (Figure 6)

Figure 6. Forked parsnip roots. Photo: Charlie Gundersen, WSU Skagit County Extension.

Symptoms: Root splits, forming two or more independent offshoots.

Corrective Action: Choose loose, well-drained soil free of rocks or other obstructions. Maintain even soil moisture throughout the growing season.

Harvest and Storage

Gloves and protective outerwear should be worn when working with parsnips as the foliage can cause skin burns known as phytophotodermatitis. Parsnips can be harvested as early as September, once they reach full size, but are best after exposure to a light frost. Temperature records and historical frost dates for areas throughout western Washington can be found at AgWeatherNet.com. Freezing temperatures allow the root to convert starch into sugars, increasing the overall palatability and sweetness of the root.

A crowner (commonly used for harvesting carrots) can be used to top, or remove, the parsnips before harvest. Topping is necessary before harvesting mechanically. For hand harvest, use a fork or mechanical lifter to loosen soil around the parsnips, taking care not to snap the sometimes brittle root as it is extracted from the soil. For mechanical harvest, a modified potato digger can be used. Overwintered parsnips should be harvested at or before the first signs of foliage growth, as they will transition to a reproductive stage and become woody and unpalatable.

End Uses

Parsnips can be served raw but are best when cooked. There are many recipes available that include baking, boiling, steaming, roasting, and even fermenting parsnips. They are a nutritious way to incorporate sweetness into many dishes.

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