
Oregon State University
EXTENSION SERVICE
MASTER GARDENER
METRO AREA
Planning and Planting a Fall and Winter Vegetable Garden

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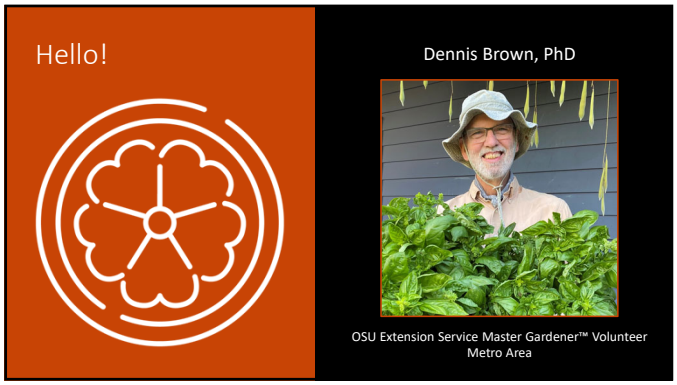
Hello!
Dennis Brown, PhD
OSU Extension Service Master Gardener™ Volunteer Metro Area

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Oregon State UNIVERSITY
Extension Service
Oregon State University Extension Service
Master Gardener™ Program
METRO AREA

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## OSU Master Gardener™ Mission

Cultivating resilient and healthy communities throughout Oregon through sustainable horticulture education and gardening projects that are rooted in science and that are supported by OSU Extension volunteers.

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## OSU Master Gardener™ Program

- Helps Oregonians grow healthy gardens
- Provides gardening information rooted in science
- More than 3,000 trained volunteers provide 200,000 volunteer hours and 250,000 contacts annually
- Requires annual volunteer recertification

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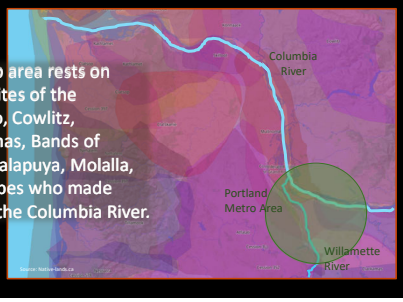
## Land Acknowledgement

The Portland Metro area rests on traditional village sites of the Multnomah, Wasco, Cowlitz, Kathlamet, Clackamas, Bands of Chinook, Tualatin Kalapuya, Molalla, and many other tribes who made their homes along the Columbia River.

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## Fall and Winter Gardening

Now's the time to plan and plant!

Benefits
- Grow and eat your own vegetables year round
- Maximize production in a small space
- Use less water
- Manage fewer pests

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## Fall and Winter Gardening

- Select the Right Location
- Test and Amend the Soil
- What to Plant
- When to Plant
- Growing Tips
- Hands-on Activity
  - Make-Your-Own Pots and Plant Seeds

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## Location… Location… Location

- Level Site or Lay Out Rows Perpendicular to Slope
- Raised Beds
- Sunlight
- Warmth
- Good Drainage
- Water
- Accessibility
- Wind Protection

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## Fall is a Great Time to Test Your Soil

A soil sample will tell you what your soil needs to help your crop grow.

It provides information on the capacity of your soil to supply adequate nutrients and helps you select the correct mix of fertilizer and liming materials.

https://extension.oregonstate.edu/video/how-do-i-collect-soil-sample-testing

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## Collect and Analyze a Soil Sample

Sample Collection
- Multiple location composite
- Root zone: top 6 to 8 inches

Sample Analysis and Interpretation
- Macronutrients (N, P, K, Ca, Mg, S)
- pH
- Organic Matter
- Micronutrients

- Wait to add nutrients until next year

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## Fall is a Really Great Time to Amend Soil pH

Pacific Northwest soils west of the Cascades are mildly acidic: pH 5.5-5.8

Good for blueberries and lingonberries that grow best at pH 4.5-5.5.

Most vegetables crops grow best at a pH 6.0-7.5

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## Add Lime to Neutralize Acidity

- Neutralize soil acidity; raise the soil pH
- Supply calcium and magnesium
- Promote root growth
- Create an excellent environment for soil organisms that break down organic matter
- Improve soil structure
- Reduce damage from some soil-borne pathogens

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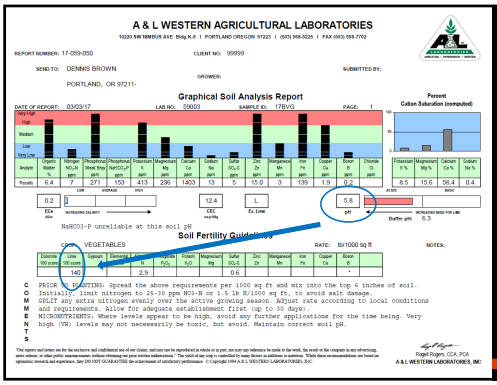

A & L WESTERN AGRICULTURAL LABORATORIES

Graphical Soil Analysis Report

Soil Fertility Guidelines

- Low pH
  5.8
- Recommendation
  - Add 140 lbs of '100-score lime' per 1,000 sq ft

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## How Much Lime Should I Add?


- Soil test recommends 140 lbs 100-score lime per 1,000 sq. ft.
- Lime product has an Oregon Lime Score of 90
- My garden is 200 sq. ft.

(140/0.9) X (200/1,000) =
156 X 0.2 =

32 lbs per 200 sq. ft.

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## Soil pH Testing


Lab Testing
- pH only: $12 plus sample shipping
- pH, N-P-K, and organic matter: $15.
- pH, N-P-K, organic matter and micronutrients: $35.

Home Testing
- pH kit (10 tests): $7
- pH (4 tests) and N-P-K (2 tests each) kit: $8

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## What to Plant

Choose cool season crops

Select fastest maturing varieties for late plantings

Crops should be well established but not yet mature if you want to leave in ground for winter harvest (e.g., carrots, beets, turnips)

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## Cool Season Crops for Fall and Winter

Root Vegetables
- Beet*
- Carrot
- Leek
- Radish*
- Rutabaga
- Turnip*
- Garlic


Leafy Vegetables
- Asian Greens
- Cabbage
- Chard
- Kale
- Lettuce
- Mustard / Arugula
- Spinach


Edible Flowers and Seeds
- Broccoli
- Cauliflower
- Fava Bean
- Peas


* Tops are edible as greens

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## When to Plant

Plants need time to mature before cold weather and short days

Number of days from seeding or transplant to harvest

- Days from seed or days from transplant
- Average harvest period
- Two week Fall factor - plants grow more slowly during the cool temperatures and short days of fall and winter

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## Turnip

**Varieties:** Purple Top White Globe (photo), Golden Ball, Tokinashi

**Planting and Spacing:** Direct seed and thin, 12-16" row spacing; 4-6" plant spacing

**Cultural Information:** 3-10 days to germinate; 50 days to harvest; store in garden; min. temp. 10°


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## Beet

**Varieties:** Lutz Green Leaf, Albina Verduna, Boldor, White Albino, Red Ace

**Planting and Spacing:** Direct seed and thin, 12-16" row spacing; 4-6" plant spacing

**Cultural Information:** 7-10 days to germinate; 60 days to harvest; harvest when roots reach desired size or store in garden under straw mulch; older roots can be woody; harvest before temperatures reach 15-20; min. temp. 15°


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## Carrot

**Varieties:** Bolero, Merida, Royal Chantenay

**Planting and Spacing:** Direct seed (seed tape); 12-16" row spacing; 2-3" plant spacing

**Cultural Information:** 10-17 days to germinate (slow to germinate – don't give up); 70 days to harvest; store in garden; min. temp. 15°


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## Asian Greens

**Varieties:** Pac Choi, Bopak, Joi Choi (photo), Violetta (purple), Ching Chiang (dwarf)

**Planting and Spacing:** Direct seed and thin or use transplants; seed for transplants July 1 - Aug 15; transplant 4-6 weeks later; 18-36" row spacing; 12-18" plant spacing

**Cultural Information:** 2-14 days to germinate; 40 days to harvest; direct seed or transplant at 4-5 true leaves; min. temp. 10° (possibly lower)


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## Lettuce

**Varieties:** Photo starting in lower left and going clockwise: Continuity, Artic King, Drunken Woman Frizzy, Rhodos (endive); Winter Density (romaine), Oak Leaf

**Planting and Spacing:** Direct seed and thin or use transplants; seed for transplants Aug 1-31; transplant ~4 weeks later; 16-18" row spacing; 6-8" plant spacing

**Cultural Information:** 2-15 days to germinate; 60 days to harvest


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## Mustards / Arugula

**Varieties:** Mizuna, Dragon Tongue, Arugula

**Planting and Spacing:** Direct seed and thin (broadcast or in rows); 16-18" row spacing; 2-3" plant spacing

**Cultural Information:** 2-15 days to germinate; 45 days to harvest for baby greens; min. temp. 20° (possibly lower)


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## Pea

**Varieties:** Green Arrow (photo, shelling), Alaska Early (shelling), Oregon Sugar Pod II

**Planting and Spacing:** Direct seed; 18-24" row spacing; 1-2" plant spacing

**Cultural Information:** 8-25 days to germinate; 65 days to harvest; min. temp. 20° (possibly lower); harvest frequently to keep plants producing; climbing cultivars require support


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## Fall and Winter Growing Tip

### Use Row Covers…

- Row covers offer protection from rain, wind and cold weather
- Adds warmth
- Year-round protection from insects but…
- Monitor closely for pests that might get under the cover and find the perfect microclimate in which to proliferate (e.g., aphids)

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## Mulch and Cover Crops: Benefits

Both…
- Inhibit weed growth
- Reduce erosion
- Improve water infiltration
- Increase organic matter
- Reduce soil compaction

Mulch+
- Protect crops from cold weather

Cover Crops +
- Retain or add back nutrients

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## Mulch

Each material offers a different set of benefits
- Forestry bi-products (shredded bark, wood chips, sawdust, etc.)
- Coffee bags
- Straw
- Shredded leaves
- Lawn clippings
- Newspapers or cardboard

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## Cover Crops

Cover crops are plants grown to both cover and improve the soil. They may be used as a mulch on the soil surface, or they can be tilled into the soil as a "green manure."

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## Cover Crops: Grasses and Legumes

Use grasses to compete with weeds, establish quickly (reducing erosion), and capture available nitrogen left over at the end of the growing season.

Use legumes to add nitrogen to your soil.

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## Cover Crops: Planning and End Game

In the Fall:

- If you intend to plant crops in March: plant a grass
- If you intend to plant crops in April or May: plant a legume

In the Spring:

- Terminate cover crop by cutting, mowing or tilling into soil
- Terminate before cover crop goes to seed and at least 2 to 4 weeks before planting spring crops; allow more time if growth is very dense

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## Cover Crops: Helpful Hints


- Purchase seed early
- Plant a small area of your garden to compare performance
- Use a succession of cover crops as areas come out of summer production

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## Cover Crops: Legumes

| Crop | Benefits and Notes* | Planting Rate in Cups per 100 ft² | Planting Dates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aug | | | Sept | | | Oct | | |
| | | | Begin | Middle | End | Begin | Middle | End | Begin | Middle | End |
| Hairy vetch | Reliable legume | 0.5 | | | ■ | ■ | ■ | ■ | | | |
| Common vetch | | 0.5 | | | ■ | ■ | ■ | ■ | | | |
| Crimson clover | Erosion fighter, easy to incorporate | 0.25 | | | ■ | ■ | ■ | ■ | | | |
| Red clover | Competes with weeds, good for poor soils | 0.125 | | | ■ | ■ | | | | | |
| Austrian winter pea | Quick growth, not for wet soils | 1 | | | | ■ | ■ | ■ | | | |
| Fava bean | Leave some in place for spring harvest | 1 | | | | | | | ■ | | |

*These legumes are recommended for planting during the cool season west of the Cascades. Other crops are better suited to planting during the summer months. All are nitrogen sources and soil builders.

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## Cover Crops: Grasses

| Crop | Benefits and Notes* | Planting Rate in Cups per 100 ft² | Planting Dates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aug | | | Sept | | | Oct | | |
| | | | Begin | Middle | End | Begin | Middle | End | Begin | Middle | End |
| Cereal rye | Competes with weeds, hardy, reliable | 1 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| Winter wheat | Soil builder | 1 | | | | | ■ | ■ | ■ | ■ | |
| Winter oats | Competes with weeds | 1.5 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| Annual ryegrass | Soil builder, tolerates wet soils | 0.5 | | | ■ | ■ | | | | | |
| Spring barley | Erosion fighter, competes with weeds, may winterkill | 1 | | | | ■ | | | | | |
| Spring oats | Competes with weeds, winterkill likely | 1.5 | | | ■ | ■ | | | | | |

*All are nitrogen scavengers, grow quickly to provide cover in the fall, and recommence growth rapidly in the spring.

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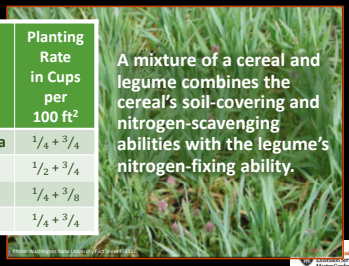
## Cover Crops: Try a Mixture

| Crop Mixture | Planting Rate in Cups per 100 ft² |
|---|---|
| **Annual ryegrass + Austrian winter pea** | $^1/_4 + ^3/_4$ |
| Winter oats + common vetch | $^1/_2 + ^3/_4$ |
| Annual ryegrass + crimson clover | $^1/_4 + ^3/_8$ |
| **Cereal rye + Austrian winter pea** | $^1/_4 + ^3/_4$ |



**A mixture of a cereal and legume combines the cereal's soil-covering and nitrogen-scavenging abilities with the legume's nitrogen-fixing ability.**

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## Favas

**Varieties:** Aquadulce; Sweet Lorane, Windsor (photo)

**Planting and Spacing:** Direct seed in rows or broadcast (as cover crop); 12-30" row spacing; 3-6" plant spacing

**Cultural Information:** 8-15 days to germinate; 240 days to harvest; overwinter as cover crop and mulch in early spring or harvest in May; if using as cover crop, cut back one month before spring planting to allow time for some decomposition; min. temp. 15°

Dec Mar May/June


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## Starts

Materials
- Seeds
- Six packs or other small containers (e.g., yogurt cups)
- Potting soil
- Labels

Benefits
- Start fall crops while summer crops are still in the ground
- Better weed control

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## Make-Your-Own Pots

Use low-cost, widely available materials to make small pots in which to grow starts for transplant.

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## Low-Cost Transplant Pots

Materials

- Small soda or tomato sauce can
- Plastic salad container or similar
- Newspaper
- Potting soil
- Seeds
- Skewer or large toothpick
- Pencil or permanent marking pen

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## Fall and Winter Gardening

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- Hands-on Activity
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## Resources

- *Sustainable Gardening, The Oregon-Washington Master Gardener Handbook*, Oregon State University and Washington State University Extension Services, April 2013
- *Fall and Winter Vegetable Gardening in the Pacific Northwest* (PNW 548), P. Patterson, Oregon State University, University of Idaho, Washington State University, June 2001
- *Vegetable Gardening in Oregon* (EC871), Oregon State University, August 2005
- *The Winter Harvest Handbook*, Eliot Coleman, March 2009
- *Territorial Seed Company*, Fall and Winter Catalog, 2022

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## Where you can find us…

- On the web

www.metromastergardeners.org

- Twitter

@TheRealDirt

- Facebook

@MetroMasterGardeners

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## What questions do you have?

Metro Area Master Gardener™ Program

Oregon State University Extension Service

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Ask a Master Gardener™!
www.metromastergardeners.org
Use web form, email, or voicemail.

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