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Cover Crops for Home Gardens

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Cover crops planted in late summer are an inexpensive way to build better soil for gardening. Cover crops often are called *green manure crops.* They are grains, grasses, or legumes that will grow during fall and winter and that you can plow, spade, or till under in the spring.

During their growth, cover crops help reduce soil compaction and prevent erosion. Their roots penetrate and help loosen heavy-textured soils, allowing better air and water penetration.

Inoculated legume cover crops add nitrogen to the soil. When you turn cover crops under, they add organic matter to the soil—building better soil structure and fertility.

A deep-rooted cover crop allowed to grow for two seasons in problem soil can help break up a hardpan and greatly improve soil tilth.

Cover crops also are called *catch crops.* In the rainy part of Oregon, this might be one of the more economical reasons for planting a cover crop. A growing grass or legume crop catches and uses the nitrogen and other mineral nutrients that winter rains normally leach away.

When you turn the cover crop under in the spring, these nutrients return to the soil, ready for your crop of vegetables.

Nearly all garden soil needs organic matter to maintain the bacteria, fungi, earthworms, and other forms of life needed to make a healthy, fertile soil.

However, organic matter is quickly used in the food chain of earthworms and other soil organisms—so you will need a continuous supply. In addition to green manure crops, manures, sawdust, bark dust, and composts also supply organic matter.

Which crop should I use?

Cover crops for home vegetable gardens should grow quickly, cover the area to shade out weeds, and be easy to work into the soil in the spring. Table 1 lists some suggested cover crops for garden soils. You can combine a legume with a grass or cereal plant crop to produce and store nitrogen. Vetch with rye or oats, or Austrian peas or garden peas with winter wheat or rye make good combinations for the home garden.

Know your soil's needs

Depending on your soil type and pH, you may need lime or sulfur to correct deficiencies in plant nutrients or pH extremes. A soil test could indicate needs. Generally, west of the Cascades, use 80 to 100 lb of ground limestone or dolomite lime per 1,000 square feet, about every other year. (Dolomite lime contains magnesium and is recommended for acid, low-magnesium soils.) East of the Cascades, lime seldom is necessary.

Preparing your soil

You can plant cover crops in your garden from about mid-August until late September. Plant them early enough to be well established before cold weather arrives. If fall vegetable crops are still growing in your garden, plant the cover crops between the rows.

Fertilizing for grasses and cereals. You have two basic choices—either will get your cover crop off to a good start:

- ✔ *Use a complete fertilizer* such as 15-15-15 at 10 lb per 1,000 square feet. (The figures 15-15-15 tell you the *percentage* of nitrogen, phosphorus, and potassium.) Be sure the fertilizer provides 1.5 to 2 lb of nitrogen and 1 lb of sulfur per 1,000 square feet.
- ✔ *Use enough manure* (about 200 lb or 1 cubic yard) to supply 1 to 2 lb of actual nitrogen per 1,000 square feet.

Fertilizing for legumes. These have little need for nitrogen. However, you will need to till phosphorus, potassium, and lime into your soil before you plant (lime to pH 5.8 or above). Use any low-nitrogen formulation of fertilizer that will supply 1 to 2 lb each of phosphorus and potassium per 1,000 square feet.

Wood ashes. If you plan to use these in your garden, see EC 1503, *Fertilizing Your Garden: Vegetables, Fruits, and Ornamentals*

Tilling your soil. Prepare your seedbed by tilling or spading to loosen the top 6 inches of soil. Rake to break it up into a fine seedbed.

Planting your cover crop

Plant your cover crop early enough to permit 4 weeks of growth before cold weather stops that growth.

After preparing the soil, you can plant large-seeded cover crops (peas, vetch, and wheat) in shallow, closely spaced furrows. Broadcast small-seeded crops (ryegrass, buckwheat) over the surface and cover with a light raking. If the soil is dry, irrigate often enough to keep the soil damp and germinate the seeds.

In the spring, as soon as the ground dries enough for tilling or plowing, turn the cover crop under. To allow time for the organic matter to decompose, turn the cover crop under at least 3 weeks before you intend to plant. If the cover crop is too tall to turn under easily, mow it first. Do not allow cover crops to go to seed. (Some, such as vetch, may become weeds in the garden if they are allowed to spread seeds.)

Organic matter additions to the soil are a continuing necessity. You can supply organic matter through manure, compost, or other vegetable or animal matter—or through an annual planned program of cover-crop planting and management.

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Table 1.—Some suggested cover crops for garden soils.

Type	Legume/ Non-legume	Amt to sow/ 100 sq ft (oz)	When to sow	When to turn under	Effects	Notes
Alfalfa	L	1/2	Spring Late summer	Fall/Spring	Fixes 150–250 lb N/ac/yr. Deep roots break up hard soil, trace elements to surface.	Loam, fairly fertile soil; needs warm temps for germination. Lime if pH is low. Hardy. In mountains sow by Aug. 10. Drought-tolerant. Inoculate.
Austrian field peas	L	3	Fall	Spring	—	Rank growth; may need to mow before turning under.
Barley	N	4	Fall/Spring	Spring/Fall	Adds organic matter, improves soil aggregation.	Prefers medium-rich loam soil. Lime if pH is low. Not as hardy as rye. Tolerates drought.
Buckwheat	N	2 1/2	Spring/ Summer	Summer/Fall	Mellows soil; rich in potassium.	Must leave part of garden in cover crop during season. Grows quickly. Not hardy.
Crimson clover	L	1/3	Spring/Fall	Fall/Spring	Fixes 100–150 lb N/ac/yr.	Not reliably hardy. Sow before mid-Sept. Not drought-tolerant. Lime if pH is low. White clover somewhat hardier.
Fava beans	L	Plant 8" apart	Early spring Late summer	Early summer Fall	Some types fix 70–100 lb N/ac in as little as 6 weeks. Use small-seeded rather than large-seeded table types.	Will grow on many soil types. Medium drought tolerance. Likes cool weather. Good for mountain areas. If planted in early spring, can grow late vegetables. Inoculate with bacteria as for hairy vetch.
Garden peas	L	3	Fall	Spring	—	Use for edible crop and winter cover.
Oats	N	4	Spring/Fall	Summer/ Spring	Adds organic matter; improves soil aggregation.	Needs adequate manganese. Not hardy. Tolerates low pH.
Rye, annual	N	3 1/2	Fall	Spring	Adds organic matter; improves soil aggregation.	Very hardy. Can plant until late October.
Vetch, hairy	L	2 1/2	Early fall	Spring	Fixes 80–100 lb N/ac/yr.	Inoculate; slow to establish. Fairly hardy. Till under before it seeds; can become a weed.
Wheat, winter	N	4	Fall	Spring	Adds organic matter; improves soil aggregation.	Same as barley.

For Further Reading

Fertilizing Your Garden:Vegetables, Fruits, and Ornamentals, EC 1503, by J. Hart and R. McNeilan (Oregon State University, Corvallis, 1998). $1.50

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