



Cover Crops for Home Vegetable Gardens

Cover crops cover and improve the soil. They may be planted in the fall to cover fallow areas or planted in the spring as part of crop rotation. Many plants, including legumes, grasses, and broadleaf perennials serve this purpose.

Benefits

- Add organic matter to soil and improve soil tilth
- Legumes supply nitrogen
- Protect soil from compaction
- Suppress weeds
- Recycle nutrients and prevent leaching
- Protect soil from erosion
- Provide food (pollen and nectar) for pollinators and other beneficial insects

How to Choose

There are many candidates for cover crops, each has its merits and drawbacks. In general, they produce biomass during a time when the garden is fallow. This biomass, after termination, becomes a source of organic matter to improve water and nutrient-holding capacity of the soil. Cover crops increase soil organic matter whether they are cut and used as a mulch or are incorporated into the soil.

Legumes fix nitrogen in the air and store them in root nodules. When the plant is terminated (killed), soil microbes break it down and release the nitrogen for plant use. Legume cover crops reduce the need for nitrogen fertilizer.

Grasses establish fast to prevent soil erosion and suppress weeds. Their deep roots condition soil and capture remaining nitrogen in the soil at the end of a growing season to prevent nutrient leaching. When grasses are used alone, there is a potential of depleting nitrogen from the soil. Use grass and legume together to reap the greatest benefits from cover crops.

Other forbs (herbaceous plants other than grass) like buckwheat and phacelia have higher nitrogen content than grasses, but less than legumes. They can supply some nitrogen to the next crop and usually don't deplete soil nitrogen. They are also easy to incorporate. They flower prolifically and can provide food for pollinators and other beneficial insects.

How to Start

Selection

If you are new to cover crops, choose options, such as oats and daikon, that will likely be killed in the winter. These plants do not require extra steps for termination before planting the next crop. Otherwise, select cover crop based on desired benefits. Some common species are listed below:

COOL SEASON

Cover Crop	Fix Nitrogen	Suppress Weeds	Build Soil	Control Erosion	Feed Pollinator
Crimson Clover	X			X	X
Austrian Winter Pea	X	X		X	X
Cereal Rye		X	X	X	
Oats		X	X	X	
Forage Radish		X	X	X	
Winter Wheat		X	X	X	

Common Vetch	X			X	X
Phacelia		X		X	X
WARM SEASON					
Cover Crop	Fix Nitrogen	Suppress Weeds	Build Soil	Control Erosion	Feed Pollinator
Buckwheat		X			X
Common Vetch	X			X	X
Sorghum-Sudangrass		X	X	X	
Phacelia		X		X	X

Timing

To cover the soil during the fall and winter, plant cover crop in late summer into fall. Water before rain comes for good germination and strong growth. For covering the soil during spring and summer, plant in late spring when the soil becomes workable and is warm enough for germination.

Sowing

Sow seeds directly into a prepared area. Follow the instruction that comes with seeds for application rate. Broadcast by hand or a hand-held seed broadcaster. Rake the surface and gently press with a piece of wood to improve contact with the soil. Water well for good germination.

If planting in an area where summer crop is done, plant over an entire bed. Remove mulch, clear vegetation, loosen the top 1-2 inches of soil, then sow seeds. If the summer crop is not done, remove mulch, loosen the top layer of soil, and sow cover crop seeds between summer vegetables.

Termination

Terminate cover crops during early flowering to return the maximum benefit of biomass and nutrients. If termination takes place after seed formation, the cover crops become a weed for the next crop.

Termination involves mowing or bending the stems to kill the top and laying them on top of the soil (no-till approach) or incorporating into the soil. Cover the area with a tarp can speed the process. Plant materials incorporated into the soil should be chopped for faster decomposition. Allow 3-4 weeks before planting the next crop.

Resources

Managing Cover Crops Profitably, USDA Sustainable Agriculture Research and Education

<https://www.sare.org/resources/managing-cover-crops-profitably-3rd-edition/>

Washington State University Extension Publications <https://pubs.extension.wsu.edu/>

- *Cover Crops for Home Gardens West of the Cascades* FS111E
- *Cover Crops for Home Gardens East of the Cascades* FS117E
- *Methods for Successful Cover Crop Management in Your Home Garden* FS119E

Master Gardener™ Advice

- Call Home Horticulture Helpline: 503-655-8631 (Clackamas County), 503-821-1150 (Washington County), 503-445-4608 (Multnomah County).
- Visit www.cmastergardeners.org/10-minute-university for 10-Minute University™ handouts and videos

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