Center for Regenerative Agriculture
University of Missouri

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Cover Crops for Home Gardens

Cover crops are a tool used by gardeners and farmers large and small to protect and improve soil. They are planted between growing seasons when your garden crops are not present to provide a living cover for the soil. Continually growing fruits and vegetables can deplete soil nutrients but cover crops can add organic matter back to the soil and build soil carbon, in addition to helping soil retain nutrients. Over time, this can decrease the need for chemical inputs. Cover crops also provide more structure for your soil, reducing compaction and boosting its productivity for future crops.

Initial Considerations

Integrating cover crops into your home garden system takes some planning, and management depends on your goals. There are several different types of cover crops which offer varied benefits. Legumes like crimson clover can fix their own nitrogen, which then can be used by subsequent crops when the legume residue breaks down. Types of cover crop species also vary by the amount of plant material, or biomass, that they produce. In a garden or smaller plot of land, cover crops that produce lower quantities of biomass may be easier to manage. Annual species of cover crops are most often used in gardens.

You will need to consider:

- Which cover crops are easiest to grow in your area
- What time of year you want to grow a cover crop
- Termination method

Cover Crop Options

The following is a short list of cover crop species for the garden, but there are many other species that can also be useful. Some gardeners will plant a mix of cover crops to get more biodiversity, which can help not only the soil but also pollinators and other beneficial insects.

For summer planting:

- Buckwheat *(Fagopyrum esculentum)*

For fall planting:

- Crimson clover *(Trifolium incarnatum)*
- Oilseed radish *(Raphanus sativus)*
- Oats *(Avena sativa)*

Buckwheat (*Fagopyrum esculentum*)



Buckwheat is a warm-season summer annual that is quick to establish, making it a great short-season cover crop option. Buckwheat is useful for weed management, as it does a good job smothering warm-season weeds. It has a fibrous root system which can improve soil tilth. Buckwheat is a flowering plant, which serves to attract beneficial insects including bees, ladybugs, and lacewings. That said, it can also attract Japanese beetles, so be cautious using buckwheat if subsequent or surrounding crops are susceptible to Japanese beetle damage.

Planting in Missouri: From mid-May through September 1st.

Termination: Buckwheat is not cold-tolerant, so will easily winterkill. If terminating earlier, you can use tillage, mowing, or a herbicide.

Crimson Clover (*Trifolium incarnatum*)



Crimson clover is a winter annual legume that is an effective soil builder, in addition to suppressing weeds and preventing erosion. It grows quickly, is easy to establish, and sequesters nitrogen. In

Missouri, it typically starts flowering in early May in the northern half of the state or in the latter part of April in the southern half of the state. Its flowers are also attractive to pollinators.

Planting in Missouri: Seed between early August and early October. Choose seed inoculated with the appropriate rhizobia bacteria to enable nitrogen fixation.

Termination: Spring growth on the clover can be terminated by using a tarp or boards for about two weeks or, after it is flowering, can be mowed very closely to the ground or rototilled to terminate it.

Oilseed Radish (*Raphanus sativus*)



Oilseed radish is cool-season annual that builds soil structure, reduces compaction, and is a strong nitrogen scavenger. It has large roots that penetrate deeply into soil, which helps to break up compacted layers. Oilseed radish is also good for suppressing weeds and soilborne pests. The tubers are edible.

Planting in Missouri: Seed between late July to late September.

Termination: In the northern two-thirds of Missouri, radishes will normally be killed by temperatures in the low 20s or below, so no additional termination steps are needed in the spring. However, in a mild winter, it is possible that radishes will survive in the southern third of Missouri. In this case, they will need some termination action to prevent them from going to seed the next spring. They can be mowed down at flowering stage (late April) or, if the desire is to terminate them earlier, can be killed by smothering with tarps or boards for about two weeks. They can also be terminated by rototilling.

Oats (*Avena sativa*)



Oats are a rapidly growing cool-season grass cover crop with fibrous roots that improve soil structure and add organic matter. Oats are also good at scavenging nitrogen and other excess nutrients. They are effective in suppressing winter weeds like henbit, and can provide some mulch on the soil surface over winter and early spring.

Planting in Missouri: Fall plant from late July to mid-October, or they can be seeded in early spring (March or early April) for temporary spring cover.

Termination: In most of Missouri, oats that are the "spring oat" type will die once temperatures reach the low twenties or below in early winter. If a type of "winter oat" is used, it's possible it may overwinter if winter conditions are mild in southern Missouri. For any oats that do survive the winter, they can be terminated by laying tarps or boards on them for about two weeks in spring or by tilling into the soil. Alternatively, once they have started pollinating and producing seed heads, they can be killed by mowing, if mowed very close to the ground.

Resources

- Hendrickson, J., and Stute, J. (2012). Cover Crops for the Home Garden. Cooperative Extension of the University of Wisconsin--Extension.

- Midwest Cover Crops Council. (n.d.). Cover Crop Decision Tool. Midwest Cover Crops Council. Retrieved June 27, 2022, from https://mccc.msu.edu/covercroptool/

- SARE Outreach. (2012). Managing Cover Crops Profitably, 3rd Edition (3rd ed.). Sustainable Agriculture Research and Education (SARE). https://www.sare.org/resources/managing-cover-crops-profitably-3rd-edition/

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