



# Ag Connection

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<http://agebb.missouri.edu/agconnection>

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## Benefits and Options of Cover Crops in Missouri

Cover crops have the potential to provide multiple benefits including:

- Lessening soil erosion
- Reducing fertilizer cost by planting legumes
- Improving crop productivity by enhancing soil health
- Increasing net farm income
- Reducing soil compaction
- Conserving soil moisture
- Reducing pesticide cost (herbicide, fungicide and insecticide)
- Providing forage for livestock

Benefits from cover crops are typically seen in the long term rather than short term. Adding plant residues into the soil improves organic matter content and adds biodiversity to the cropping system. Cover crops also provide food for microorganisms in the soil. This may also help to increase microbial biomass, diversity and balance in the soil, which leads to less disease pressure in corn and soybean fields.

There are different species of cover crops available for planting in Missouri. The most common are cool-season plants used as cover crops include grasses, legumes, small grains and brassicas. Factors to consider when selecting cover crop species include: season, purpose, soil type and weather.

Cool-season plants grow better in fall and spring, while warm-season plants perform better in summer. Winter annuals grow better in winter.

Planting grass species on highly sloping land will help reduce erosion. Legume cover crops fix atmospheric nitrogen reducing the amount of nitrogen fertilizer needed for the next field crop. Well-adapted annual legume cover crops include crimson clover and hairy vetch, with seeding rates of approximately 15 pounds per acre when drilling, or 20 pounds per acre when broadcasting.

Cereal rye is a popular small grain cover crop. It is cold hardy and can be planted later than other cover crops. It provides excellent erosion control and has very good growth in spring. Cereal rye may help suppress weeds. In a study conducted at the University of Missouri Greenley Memorial Research Center, cereal rye, planted as a cover crop, provided up to 92% control of common chickweed and 88% control of henbit prior to corn and soybean planting. During six years of the study, cereal rye produced more than 3,500 pounds forage dry matter per acre per year. The recommended seeding rate for cereal rye is 70 to 80 pounds per acre when drilling or 100 to 120 pounds per acre when broadcasting. Triticale, wheat and oats are other small grain species used as cover crops.

Brassica species, like oilseed radishes and forage turnips, are also widely used as cover crops. The recommended seeding rates for brassicas are 5 to 6 pounds per acre when drilling or 8 to 10 pounds per acre when broadcasting.

In general, when soybeans follow the cover crop, plant either cereal rye or a mixture of oilseed radishes and oats, and before corn, use a mixture of oats and crimson clover or a mixture of triticale and crimson clover.

For more information about cover crops see University of Missouri publication G4161, "Cover Crops in Missouri: Putting Them to Work on Your Farm". It is available online at <http://extension.missouri.edu/p/G4161>.

University of Missouri Strip Trial program has initiated on-farm trials. The cover crop trial compares three treatments: cereal rye, wheat and no cover crop. For more information about participating in the on-farm trials, contact your extension agronomist or visit <http://striptrial.missouri.edu/>.

**Source:** *Dhruba Dhakal, agronomy specialist*



## The American Rescue Plan Act

The American Rescue Plan Act (ARPA), passed on March 11, 2021, follows the Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020, which provided unprecedented funding with short implementation deadlines to address the early phases of the pandemic.

Beginning in 2021, the ARPA legislation targets longer-term effects with four overarching focus areas: 1) households and individuals; 2) businesses; 3) state, local, and tribal governments; and 4) exacerbation of pre-existing disparities.

States, tribal governments, territories, and local entities, such as counties and cities/towns, will receive \$350 billion. Funds will come in two payments. The first allocation is available now and will be half of the designated total amount which can be found here for counties: <https://www.naco.org/resources/featured/state-and-local-coronavirus-fiscal-recovery-funds> and for cities/towns: <https://cdn.ymaws.com/www.mocities.com/resource/collection/475F7CA7-8A09-46B8-80D6-696EE2AA6170/Mo.ARPA.Payments.MML.Estimates.6.1.2021.pdf> in Missouri.

The calculations were based on population estimates. For many counties and cities/towns, these funds will be more than they generate from any one source of revenue and for smaller towns, closer to their total yearly budget. The remaining balance can be requested twelve months after the first transaction.

Counties will receive a direct allocation from the federal government. The cities/towns will receive their allocations through the state. The process to get these funds transferred takes time, planning, and an overall proactive approach from county and city/town officials. Cities/towns are required to get a DUNS (Data Universal Numbering System) number, register on the SAM.gov website and have an active vendor form on file with the state.

Within the context of these focal areas, funding can be used on 1) public health and economic impact; 2) premium pay; 3) revenue loss; and 4) investments in infrastructure.

**Public Health and Economic Impact:** Research shows some groups experienced more negative economic impacts than others. These included communities of color-, low- and moderate-income households, individuals with lower educational attainment and rural communities. Due to these disparities along racial, ethnic, and socio-economic lines, more flexibility is granted in these areas called Qualified Census Tracts (QCT). If a community does not have these, then they can use reliable, local data to prove negative economic impacts.

**Premium Pay:** This is additional wages which can be paid to essential workers who continued to work throughout the pandemic. This provision is capped at an extra \$13/hour or 150% of county or state average wage.

**Revenue Loss:** In 2020, many counties gained revenue due to residents buying locally. This provision allows revenue to be calculated as of four points in time. These points in time are December 31 of 2020, 2021, 2022, and 2023. The calculation uses a formula and includes an estimated growth rate of 4.1%. This essentially means, if an eligible recipient falls under this growth rate, then that is considered loss of revenue. The calculation for loss of revenue is more clearly defined for the governmental recipients than it is for entities the local government may financially support.

**Investments in Infrastructure:** Currently, this is focused on water, sewer, and broadband. Other types of infrastructure can be addressed with funding from the calculated loss of revenue. Water and sewer

projects align with the Environmental Protection Agency's Clean Water State Revolving Fund and the Drinking Water State Revolving Fund. Broadband infrastructure may include the middle mile, end mile, or end connection for a group (like a school) or individuals. The end goal is to have a download speed of 100 Mbps and 100 Mbps of upload speed. At a minimum, projects would need to have 100 Mbps download and 20 Mbps upload with the capacity to scale up to 100 Mbps.

The interim final rules can be found here: <https://home.treasury.gov/system/files/136/FRF-Interim-Final-Rule.pdf> for more details.

The comment period ended July 16, 2021 with the Final Rules expected late fall. The governmental recipients determine how these funds are spent within the guidelines. Even if an expense is eligible, it does not mean it is a priority for the county or city/town. Funds have to be incurred by December 31, 2024, but related projects have until the end of 2026 to be completed.

A team of MU Extension specialist in the Northeast Region is working with local governments on the CARES and ARPA funding. Contact the local MU Extension office to learn more about these efforts.

**Source:** *[Darla Campbell, ag business specialist](#)*

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## Fall Gardening

### Vegetables

The cooler days of fall and less insect and disease pressure make it an ideal time to grow vegetables. Some vegetables, like green beans, may actually produce a better fall crop than summer. Leafy greens, such as lettuce and spinach, and root crops, like radish, can still be planted in early September for harvest later in the fall. Cool weather enhances the flavor of many crops as plant metabolisms change with cooler temperatures. Sugars accumulate in plant tissues of cool-weather crops as temperatures drop. Leafy crops, such as lettuce, are sweeter tasting in cool weather. Brussels sprouts, kale, and parsnips are noticeably more flavorful when exposed to cooler temperatures and even frost. Row covers and cold frames can be used to extend the season as late as December in northern Missouri. Fall is a good time to add manure, compost, or leaf mold to garden soils for increasing organic matter content. It is also a good time to do a soil test, apply nutrients and allow them to work in the soil during the winter months.

### Fruits

Several fruits ripen in the fall in Missouri. A native persimmon is not fully ripe until it is soft and are best harvested after they have fallen from the tree. They can be used to make cookies and other baked goods. Pawpaw fruit is nick named Missouri's banana because the trees produce a tropical-like fruit with a unique taste similar to a banana. Pawpaws ripen in September and October. Pawpaw trees grow in colonies and can be found in dense shade on moist lower slopes along streams and at the base of wooded bluffs. They can also be grown in a home orchard. Pears should be picked before they are fully ripe and stored in a cool, dark location, like a basement. Pears often rot if left on the tree to ripen. Check peach tree trunks just below the soil line for gummy masses caused by borers. If found, probe holes with a thin wire to puncture borers. Apples ripen in the fall with 'Arkansas Black' being one of the latest maturing. It originated in the mid-19<sup>th</sup> century in Benton County, Arkansas. The apples are very dark red and get darker as they ripen. They have a sweet to tart flavor and are an excellent keeping apple under the right storage conditions.

### Ornamentals

Yellowing or browning of the inner needles on evergreens is normal and is especially noticeable on pine trees. Pine needles can be used for mulch around ornamental plants. Chrysanthemums and asters provide a splash of color in fall landscapes, along with various fall blooming wildflowers. Snapdragons, pansies and flowering kale are annuals that can be added among perennials in beds and containers. They tolerate cooler weather and perform their best when temperatures drop below 70 degrees. Now is a good time to plant both evergreen and deciduous trees and shrubs. All plants have cultural requirements. Think about the plant's needs before investing money into a plant that will not do well.

Things to look for on the plant tag include:

- Is the tree or shrub adapted to the soil?
- Does it prefer sun or shade?
- Does it need a moist or dry location?
- Is it cold hardy?

Follow the planting directions on the tag. Do not fertilize the tree or shrub after planting. Wait until early spring and even then, go lightly. Heavy applications of fertilizer may burn and injure the root system and possibly kill the plant. At the time of transplanting, soak the root ball and surrounding soil. A thorough watering every 7 to 10 days increases the success rate. More frequent watering may encourage root rot. More trees and shrubs fail from over-watering than from

under-watering. Now is the time to plant spring flowering bulbs. They should be planted any time before the soil freezes, but it is best to plant them early enough to allow their root systems to become established before cold weather arrives and the ground freezes. Divide spring flowering perennials like peonies now. Enrich the soil with compost and mulch the plants to keep in moisture and control weeds.

### **Lawns**

Fall is the best time for reseeding a lawn. The cooler days and nights make it ideal with fewer weeds and insects. Lawns should be raked, dethatched, core-aerified, fertilized, and seeded. Seeds need to have good soil contact. A fescue blend is recommended for north Missouri lawns. After seeding, keep the lawn moist. Do not allow it to dry out. Seeding of lawns should be completed by October 15 to allow grass to become established before the ground freezes.

Newly seeded lawns should not be mowed until they are at least 2-3 inches tall. Established cool-season lawns are best fertilized in the fall. Make two applications, one in September and a winterizer in November. Do not exceed rates recommended by fertilizer manufacturer.

**Source:** *Jennifer Schutter, horticulture specialist*

### **MU Variety Testing Program**

The 2021 variety testing results for **wheat** are posted online at <https://varietytesting.missouri.edu/wheat/> You can also stop by your county extension office and look online at the results.

The objective of the University of Missouri's performance testing program is to provide producers a reliable, unbiased, up-to-date source of information that will permit valid comparisons among available seed varieties.