



ARE YOU COVERED?

Crop rotation has long been viewed as a sustainable farming practice with many benefits. Adding cover crops to your rotation provides numerous benefits, including weed control, nutrient management, the soil's improved ability to hold water and greater organic matter production.

WHAT ARE COVER CROPS?

Cover crops are grasses, legumes or brassicas planted to provide seasonal soil cover on cropland between harvest and planting.

Common cover crops in Mississippi include wheat, rye, oats, vetches, peas, clovers and radishes. Cover crops are best suited to areas of the state with plenty of water available

in the soil for both the cover crop and the main crop.

COVER CROP BENEFITS

Cover crops are best viewed as a long-term investment in soil productivity. The specific benefits of a cover crop also depend on the species and growing environment. For example, while legume cover crops can fix

valuable nitrogen (N) for next year's corn and soybean crop they generally take longer to establish in the fall than grasses and are not as well suited for scavenging nutrients, suppressing weeds and protecting the soil from erosion. Selecting the right cover crop for your farming operation begins with identifying the specific functions you want the cover crop to provide.

Numerous rewards may be gained from planting cover crops. Consider all of the following:

- **Organic matter:** Cover crops can increase the amount of organic matter in your soil. According to Ohio State University assistant professor and extension educator James Hoorman, it takes approximately 10 tons of decomposed plant residue and 1,000 pounds of N per acre to increase soil organic matter by 1 percent. Using cover crop mixtures can increase organic matter levels in a much more cost-effective way. Increased organic matter also increases the soil's water-holding capacity, which will pay off during dry spells.
- **Improved soil structure:** Cover crops increase the soil's porosity, improving internal drainage and decreasing compaction.
- **Weed control:** Planting a cover crop can help suppress weed growth by competing for nutrients and sunlight that would otherwise be free for the weeds' taking.
- **Soil erosion:** Cover crops help hold soil in place that may otherwise be susceptible to erosion, lessening runoff and keeping valuable nutrients in place for the next crop to use.

- **Additional N:** Legume cover crops fix N as they grow. This N mineralizes after the cover crop is terminated and becomes available for use by future crops.

A farmer does assume some additional cost and risks when using cover crops, but most, if not all, can be avoided with well-timed management. It's important to get cover crops planted in early fall to give them 60 to 90 days of growth before winter. This may require inter-seeding with the corn or soybean crop still in the ground. Cover crops left to grow too long in the spring may dry out the soil for the next crop, especially if using cereal rye or winter rye.

COVER CROP SELECTION

Grasses, including winter cereals such as rye and wheat are the most widely used cover crops in corn and soybean cropping systems. Winter cereals are typically planted in late summer through late fall and





produce a small to moderate amount of root and above-ground biomass. Vigorous growth resumes in early spring, and large amounts of biomass are produced by mid- to late spring.

In some instances, winter cereals produce more biomass than is easily managed prior to planting the next crop.

Grass cover crops are well suited for:

- Scavenging soil nutrients, especially N
- Preventing soil erosion
- Producing large amounts of biomass that helps to increase soil organic matter
- Suppressing weeds

Legumes are valued as cover crops primarily for their ability to fix N. Common

legumes used as winter cover crops in Mississippi corn and soybean cropping systems include hairy vetch, crimson clover and berseem clover. Legumes can be seeded in early summer through early fall. The amount of N added by legumes varies among species but is directly proportional to the amount of biomass produced. For this reason, spring management of legume cover crops can involve a trade-off between early corn planting and waiting for more biomass and N production by the legume.

Brassica cover crops provide many of the same benefits as grasses but with residues that break down more rapidly in the spring. Certain brassicas are also becoming well known for their ability to produce a large taproot that is effective at breaking soil compaction. Common brassicas used in Mississippi include canola, forage radish

and turnip.

Management information for common Mississippi cover crop species is shown in Table 1.

PLANTING DATE

Planting date is critical for the success of winter cover crops. Cover crops should be planted early enough to:

- Establish adequate stands, achieve ground cover and attain growth before

the onset of low temperatures

- Achieve the desired growth for biomass production
- Achieve adequate growth for significant N fixation, specifically in legumes
- Achieve growth that is sufficient to suppress winter weeds

TABLE 1

Cover Crop	Planting Date	Seeding Rate (lbs./acre)	Cost of Seed* (\$/lb.)	Kill Stage
Hairy vetch	30-45 days before frost**	15-20	\$1.90-\$2.10	Full bloom
Crimson clover	6-8 weeks before frost**	15-20	\$1.50-\$1.70	Full bloom
Berseem clover	Aug. 30–Oct. 15	10-12	\$2.15-\$2.20	Full bloom
Wheat	Sept. 15–Oct. 15	75–90	\$0.25	Soft dough
Cereal rye	late summer– early fall	65-80	\$0.25-0.35	Flowering

*Estimated from Center Seeds and Green Cover Seed.

**Average frost date for a location. See Planting Date and Temperature article on mssoy.org for Mississippi locations.

For more information on cover crops, visit mssoy.org.