



**CONSIDERING A COVER CROP THIS WINTER?
CONSIDER ANNUAL RYEGRASS FROM KB SEED SOLUTIONS.**

If you're thinking about planting a cover crop post harvest, consider this: KB Seed Solutions Annual Ryegrass not only improves your soil, it can help improve your yield. Even during dry seasons, annual ryegrass can contribute to larger yields because its deep roots create channels that crop roots readily follow.

Impact your business for seasons (and generations) to come.



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KB Seed Solutions Annual Ryegrass:

- Increases organic matter in your soil
- Helps improve soil structure faster in a continuous no-till system
- Breaks up hard, compacted soil (both natural and manmade) over time
- Will capture residual nitrogen in soil
- May reduce soybean cyst nematode pressure

KB Seed Solutions does more than provide you with seed. We will bring leadership to your operation and help answer your questions. We have worked with growers all across the country, and we look forward to working with you, too.



Annual ryegrass roots can create channels of three to five feet, establishing deep pathways for your crop's roots.

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Seeding of Annual Ryegrass as a Midwest Cover Crop

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Planting annual ryegrass as a cover crop is a relatively new practice in the Midwest. There are several planting management decisions which will affect the risk and the likelihood of a successful experience.

- **Seeding date** – The ideal time to plant annual ryegrass is from the middle of August to the end of September. Seeding up to mid October is possible but more weather dependent, especially in the Central Corn Belt. Annual ryegrass will germinate in 7-10 days with sufficient soil moisture. Dry soil conditions will delay germination and early growth. Ideally annual ryegrass needs 60 days of growth before a hard killing frost. A dormant seeding in December through February is also a possibility (but not the preferred method).
- **Seeding method & depth** –The preferred method to seed annual ryegrass is with a no-till drill (main box works fine) about ¼ to 3/8" deep. This provides optimal seed to soil contact. Other options include, mixing seed with fertilizer and using an airflow or broadcasting with a fertilizer spinner. Running a fluffing harrow (like a Phillips or Phoenix) after the airflow or broadcasting will improve seed placement. However, dry soil conditions will still delay germination and early growth. Annual ryegrass seed is lighter than fertilizer and will not spread as far with a spinner (will need to split the middles to get uniform application). Aerial seeding (airplane or high-boy sprayer with electric-motor spinner) into a standing crop just prior to leaf drop is an option but results may be disappointing without rainfall. All of these seeding methods will work (with rain) though some are more efficient than others. However, in dry soil conditions or if seeding in October, it is highly recommended that a drill be used.
- **Seeding rate** – Annual ryegrass is normally seeded at 10-20 lbs/ac. Increase the seeding rate to 25-30 lbs/ac if aerially seeding or using a dormant seeding and 18-25lbs/ac if broadcasting or if seeding in October. For setting drills to seed annual ryegrass, use the recommended setting for tall fescue at 15 lbs/ac. This equals annual ryegrass at 20 lb/ac.
- **Burndown** – If winter annuals are present at planting time, then a burndown herbicide (Roundup and/or 2,4-D) should be applied prior to planting the annual ryegrass. Winter annuals will compete aggressively with the annual ryegrass the following spring if they have germinated prior to seeding annual ryegrass.
- **Nitrogen** – Apply 30 -50 lb/ac of Nitrogen (DAP works well) to stimulate fall growth. This is especially important if seeding in October.
- **Expected growth** – If properly seeded (instructions above followed) one can expect to see 2-4" of top growth before a hard killing frost. Snow cover in northern areas will help protect annual ryegrass from winterkill. Even a thin stand with little fall growth maytiller and with good weather conditions in the spring may reach 4-8" in height by the second week of April. This is ideal time for the burndown to be applied.
- **Caution** - Annual ryegrass may persist without proper management. Avoid using annual ryegrass in fields with wheat in the crop rotation unless a high level of management is used. **Annual ryegrass should never be allowed to head out and go to seed.**

Info compiled by Oregon Ryegrass Seed Commission & Ag Conservation Solutions.

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Building Better Roots with Annual Ryegrass

Dan Towery - Ag Conservation Solutions
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Annual Ryegrass as a cover crop in the Midwest has seven different potential benefits for growers depending on their objectives. Growers may use annual ryegrass primarily for one objective but usually there are several other benefits associated with its use. Potential benefits include the following:

- Breaking up natural hardpan (fragipan) or manmade compaction - Soils with natural hardpans or fragipans would predominately be found in Southern Ohio, Indiana, Illinois, Kentucky and Missouri. Annual ryegrass roots have been found to grow through this restricted layer when planted every fall for approximately 4 years (4-6" fragipan) and combined with continuous no-till. The annual ryegrass roots create macropores which corn and soybean roots can then follow and reach the moisture under this restricted layer (which is normally not available). In a dry year this will enable significantly higher yields due to the additional moisture being available. In addition, planting annual ryegrass for 2 years may be a substitute for running a ripper on soils compacted by tillage or implement traffic.
 - Actual results are dependent on soil type.
- Improving nutrient cycling, primarily nitrogen - The high price of Nitrogen has growers looking for way to be more efficient. Using annual ryegrass may provide 30-60 lbs/ac or more of nitrogen for the following crop. This alone could more than pay for the cost of the seed. Adding annual ryegrass to continuous no-till will also increase the rate organic matter increases in the soil. An increase in organic matter will also result in more nitrogen being available. In addition, after several years more phosphorus may become available as unavailable phosphorus (P_2) is transformed to available phosphorus (P_1).
- Improving nutrient cycling after manure application - Growers applying manure are being required to apply manure in a more environmental fashion. Annual ryegrass helps keep the nitrogen in the soil profile and available for the crop the following year (percentage of nitrogen actually available will depend on a number of factors). Initial trials have documented 500 to 700 lbs of N being taken up by the annual ryegrass with 70-80% possibly being available the following year. Growers who empty their pits or lagoons after wheat harvest or after corn silage are prime candidates for adding annual ryegrass to their manure management system.
- Ground cover after harvesting corn silage, seed corn, or vegetables - The earlier harvest and lack of residue makes annual ryegrass a good fit after corn silage, seed corn, and vegetables. It will provide cover to reduce erosion, break up compaction, and scavenge nitrogen in the soil profile.
- Soybean cyst nematodes results in lower soybean yield - Preliminary results indicate that if annual ryegrass can be planted early enough so that it is established for at least 40 days with the soil temperature about 50 degrees, then soybean cyst eggs hatch in the fall. This then results in a very low, if not elimination of this pest the following year. Fields in the Southern half of Illinois,

Indiana, Ohio, and Missouri are potential candidates since the odds of meeting the 40 days above 50 degrees requirement are much more likely. Additional research is needed.

- Speeding up the soil's transition to continuous no-till - When a grower changes to no-till or acquires a farm that is new to no-till, it commonly takes approximately 5 years for key soil properties (aggregate stability, organic matter, increased infiltration, pore space, fungi, etc) to change. Adding annual ryegrass as a cover crop may reduce this transition period by half (actual results will depend on soil type).
- Utilize annual ryegrass as a forage and a cover crop. Growers who plant after wheat or corn silage may be able to take a cutting of haylage in the fall and possibly in the spring and then no-till into the annual ryegrass. This will provide high quality forage (1.5 to 4 tons/ac and over 22% protein). Growers in Southern Ohio, Indiana Illinois, Kentucky and Missouri may be able to graze the annual ryegrass over winter or take a cutting of haylage in the spring.

Mike Starkey

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Burndown & Control of Annual Ryegrass and Weed Control Tips

www.ryegrasscovercrop.com

Annual ryegrass should be killed before it reaches the joint stage (this will vary depending on the date planted, amount of fall growth and winter and early spring weather). Spraying can be delayed until after jointing under warm weather conditions. Annual ryegrass can be a challenge to burndown if the burndown herbicide is applied at a time when there is cool, wet and cloudy weather. Spraying should typically occur when the annual ryegrass is 6-9" tall.

Temperature

- Daytime temperatures in 50's and night time temperature in the 40's are needed for decent translocation of glyphosate.
- The desired burndown may not be achieved if daytime temperatures are in the 40's and night time temperatures are consistently below the mid 30's.
 - With these temperatures it may take 3-4 weeks and a second application for a complete kill.
- One night of mid 30's should not drastically affect performance.
- Cloudy and wet weather may further slow glyphosate translocation.
- Every weed species is different in the glyphosate translocation/temperature interaction.

Time of Application

- If night time temperatures are in the 30's or low 40's, spraying before 2 pm will allow additional time for translocation. The timing of spraying is not an exact science but generally the more time for translocation, the more effective the burndown.
 - Allowing 4-5 hours of sunlight after spraying improves translocation if night time temperatures are expected below the mid30's. A second burndown application is frequently needed to kill annual ryegrass with cool weather conditions

Application rate

- Glyphosate – use full label rate of 44 oz/ac (check glyphosate formulation for labeled rate)
- Add 8oz/ac of 2,4-D to help control winter annuals
- Carrier – only apply 7-10 gals/ac with cold conditions; applying 15 to 20 gal/ac dilutes the glyphosate and reduces performance (compounded with cool temperatures); apply 15 gals/acre with warmer temperatures
- Adding AMS or citric acid to adjust the water's pH is critical for expected results
- May want to add 0.25% more surfactant if using generic glyphosate
- Adding crop oil decreases glyphosate uptake

Other herbicides

- Simazine can be added to the glyphosate tank mix
 - Simazine requires 4" of rainfall to be fully activated
 - Simazine is absorbed by the new shoots and prevents them from growing
- Atrazine or 28% should not be added to the tank mix (these products cause leaf burn and reduce glyphosate absorption) unless temperatures are warm.
- Atrazine can be applied 14-21 days after glyphosate application at a rate of 2-2 1/2 lbs/ac plus cop oil (atrazine needs 2" of rainfall to activate)

Nozzles

- Flat fan nozzles should be used at 20-40 psi
- DO NOT use flood jet nozzles
- Do not use an air induction sprayer
- Excessive boom bounce can cause improper overlap and result in "streaks".

Water

- Water should be free of any clay particles (pond water) as it will tie up the glyphosate.
- A softening agent may enhance performance if hard water is being used.

Tips for Using Gramoxone as a Burndown

- Provides quicker burndown but is not translocated
- Apply at 30-40 psi and with 20-40 gal/ac of carrier using flat fan nozzles
 - Higher volume is needed for taller annual ryegrass
 - Use clean water as a carrier that is free of clay particles.
 - 28% N or other clear liquid fertilizer can be used as a carrier
- Add nonionic surfactant
- Simazine or atrazine added to the tank mix reduces uptake and results in slower kill.
- Add crop oil to mixture.
- Adding 8 oz/ac of 2,4-D helps kill winter annuals

Order of Mixing

- Fill spray tank ½ full of carrier
- Begin tank agitation and continue while mixing and spraying.
- Add any dry and then liquid formulations.
- Add either Glyphosate or Gramoxone to tank
- Then add nonionic surfactant

- Fill remainder of tank

Post Applied Options

- If glyphosate tolerant crops were planted, wait until there is 2-4" of annual ryegrass regrowth before spraying
- Conventional corn options - Annual ryegrass should be less than 6" in height and temperature 70 degrees
 - Atrazine (2 to 2 1/2 lb/ac) and crop oil
 - Steadfast - 3/4 oz/ac, include adjuvant, 28%, Crop oil concentrate, 15 gal/ac water; 20-40 psi with flat fan nozzles
 - Option - 1.5 oz/ac; include adjuvant, 28%, yellowing of corn may occur; use of organophosphate insecticide may increase crop injury -see label
 - Accent – 2/3 oz/ac; can be used on bigger corn; include adjuvant, 28%, Crop oil concentrate

Mention of any product does not constitute any type of endorsement or guarantee.

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Links:

[Management That Makes Nitrogen More Efficient](#) - Mike Starkey is a consultant with KB Seed Solutions and uses KB Seed products.

[Oregon Grown Annual Ryegrass Brochure](#)

[Annual Ryegrass Cover Crops](#)

[Oregon Ryegrass Growers Seed Commission](#)

[Corn & Soybean Digest](#) - *an article on the benefits of annual ryegrass as a cover crop*