



A PROGRAM DEVELOPED BY SOUTHEAST AGRISEEDS



Helping you optimize productivity on every acre!

INTRODUCTION TO COVER CROPS

Cover crops can improve soil health and water quality while meeting a variety of other needs on the farm. During the growing season, the cover will keep the nutrient cycle in place. Any nutrients that are highly mobile in the soil will be absorbed by the cover will work to keep those nutrients in place. Additionally, some plants can create (legumes) or mine the soil (brassicas) for nutrients with their diverse root systems. After the cover crop is terminated, the dying plant material builds organic matter and provides a habitat for microorganisms which, in return, help to cycle those nutrients. This all translates to greater resilience in the face of many risks, including drought and flooding. If soil is covered year-round it is also less vulnerable to erosion and runoff. Anchoring and shielding the soil with cover crops is a simple step to preserve topsoil. Select cover crops that accomplish the goals of the farm - whether it be building up nitrogen or organic matter, breaking the hard pan, suppressing weeds, or interrupting a disease cycle.



MISSION

To serve southeast agriculture producers by equipping local dealers with the products, services and support needed to optimize productivity per acre.

VISION

To be the most knowledgeable and service oriented agricultural distributor in the southeast.

CORE VALUES

Honesty and integrity in business. Dedication to the success of producers.

GOAL VALUES

To be distinguished from competitors by product quality, knowledge of production systems and degree of service.

UNDERSTANDING SOIL HEALTH



Soil productivity, usually measured in terms of crop yield, is influenced by physical, biological, and chemical components that all interact. Visual indicators include exposure of the subsoil, change in soil color, gullies, ponding, runoff, plant condition, blowing soil and deposition.

Physical indicators involve the arrangement of the soil particles and pores; we can understand these factors by observing topsoil depth, bulk density, porosity, aggregate stability, texture, crusting and compaction. Physical indicators affect root growth, seedling emergence, water infiltration and movement within the soil profile.

CHEMICAL INDICATORS

A soil test will be needed to give you a chemical profile of your soil. Critical chemical soil characteristics to look for are pH, major nutrients (nitrogen, phosphorus, potassium), secondary nutrients (sulfur, calcium, magnesium), and micronutrients (especially boron, copper, manganese, zinc; but also iron, molybdenum, chlorine, selenium, and cobalt). pH is important to know because it influences the availability of most nutrients.

Biological indicators of soil health include the effects of the micro and macro-organisms, their activity and/or their byproducts, which contribute to the formation and stability of the organic matter portion of the soil. Many are also critical to supplying nutrients to the living plants, as their population is greatly concentrated in the rhizosphere (or growing root zone of the living plants). Several important soil indicators include:

- Aggregate Stability
 - The ability of soil aggregates to resist disruption when outside forces (usually associated with water) are applied.
- Infiltration
 - Water movement in the soil as a result of soil texture, crusts, compaction, aggregation and structure, water content, frozen surfaces, organic matter, and pores.
- Bulk Density
 - The ratio of dry soil mass to bulk soil volume (including pore spaces). This can be measured and expressed in grams per cubic centimeter, and is largely a function of relative pore space and organic matter content. Bulk density influences water infiltration and plant root health, and reflects the degree of soil compaction.
- pH
 - Negative logarithmic scale that measures the “Potential of Hydrogen” concentrations in aqueous solutions.



Soil pH influences the solubility, and therefore the availability, of several plant nutrients. It also affects the activity of microorganisms responsible for breaking down organic matter, as well as chemical transformations in the soil. The type and population densities of soil microorganisms change with pH. A pH of 6.6 to 7.3 is favorable for microbial activities that contribute to the availability of nitrogen, sulfur, and phosphorus in soils.

UNDERSTANDING SOIL HEALTH

- Soil Crusts
 - Created by the breakdown of soil structural units by flowing water or raindrops, or through freeze-thaw action. Crusts reduce water infiltration and increase runoff, restrict seedling emergence, reduce surface water evaporation, and increase wind erosion in sandy soils. Heavier clay soils and surface-applied manure are particularly prone to crusting.
- Organic Matter
 - Soil organic matter is the fraction of the soil composed of anything that once lived. Organic matter gives soil a sponge-like quality that allows it to soak up about twelve times its weight in moisture, which helps prevent nutrients from leaching out and makes your system less “leaky.” Soil food web organisms derive their energy from feeding off of organic matter inputs.
- Available Water Capacity
 - Available water near the surface is especially important at the seedling and transplant stage when the roots are very shallow and not yet fully developed.
- Soil Biodiversity
 - The mix of living organisms in the soil that comprise the “soil food web,” such as insects, worms, and microorganisms, whose interaction and biological activity influence many soil processes, such as nutrient cycling, residue decomposition, and the entry and storage of water into the soil and resistance to erosion.

MEHLICH I SOIL EXTRACTION PARAMETERS

Element	Low	Moderate	Adequate	High	Very High
Phosphorus	<40.0	41-80	81-120	121-150	>150
Potassium	<70.0	71-150	151-250	251-325	>325
Magnesium	<80.0	81-120	121-170	171-200	>200
Calcium	<400.00	401-700	701-900	901-1200	>1200
Sulfur	<25	25-50	51-70	71-100	>100
Boron	<0.5	0.6-1.0	1.1-1.5	1.6-2.0	>2.0
Zinc	<3.0	3.1-5.0	5.1-8.0	8.1-10.0	>10.0
Manganese	<20.0	21-30	31-40	41-50	>50
Iron	<8.0	9-11	12-24	25-30	>30
Copper	<0.8	0.9-1.2	1.3-1.6	1.7-2.7	>2.7

MEHLICH III SOIL EXTRACTION PARAMETERS

Element	Low	Moderate	Adequate	High	Very High
Phosphorus	<40	41-100	101-150	151-200	201+
Potassium	<125	126-225	226-325	326-425	426+
Magnesium	<100	101-150	151-250	251-300	301+
Calcium	<600	600-1000	1001-1400	1401-1800	1801+
Sulfur	<25	26-50	51-75	76-100	101+
Boron	<1.0	1.0-1.5	1.6-2.0	2.1-2.5	2.6+
Zinc	<4.0	4.0-6.0	6.1-10.0	10.1-14.0	14.0+
Manganese	<30	31-60	61-200	201-400	401+
Iron	<50	51-100	100-200	201-400	401+
Copper	<1.5	1.6-3.0	3.1-6.0	6.1-12.0	12.1+

Above charts help to better understand soil sample results.

MIXTURES

RYEGRASS BASED MIXTURES

Ray's Crazy Fall Mix

A diverse mixture complete with 8 different species of grasses, legumes, and brassicas. Annual ryegrass, triticale, and a spring oat provide heavy biomass and staggered growth throughout the fall, winter, and early spring seasons. A blend of crimson clover, Austrian winter pea, and hairy vetch work to add nitrogen to the soil. Barkant turnips and daikon radish round out the mixture by mining deep into the soil for nutrients, aerating, and addressing compaction issues.

Rate: 50lbs/A

Depth: $\frac{1}{2}$ " - $\frac{3}{4}$ "



Soil Builder Plus

A robust mixture of triticale, annual ryegrass, crimson clover, hairy vetch, and daikon radish. This combination of species anchors soil and provides weed suppression with its diverse canopy, also protecting soil from erosion over winter. The diverse overwintering root structures also build organic matter and feeds soil microbes, contributing to long-term soil health and fertility.

Rate: 60-90lbs/A

Depth: $\frac{1}{2}$ " - $\frac{3}{4}$ "



Southern Broadcaster

This blend is perfect for those without a drill or who want to seed a cover crop with ease. Annual ryegrass, crimson clover, FixationN balansa clover, along with daikon radish and Barkant turnip all broadcast without incorporation very well. This mix will cover the soil, suppress weeds, and fix nitrogen throughout the growing season.

Rate: 25lbs/A

Depth: Broadcast or $\frac{1}{4}$ "

NON-RYEGRASS MIXTURES

Corn Supreme

A mix designed to create and accumulate nitrogen while providing a heavy mat to suppress weeds well after planting corn. Abruzzi rye, regarded as the heaviest biomass producer, pairs well with a true winter oat for extended spring growth. Austrian winter pea and crimson clover work all winter long to create nitrogen that will be broken down after termination and made available as a "slow-release" fertilizer. For maximum nitrogen fixation, do not terminate until legumes have begun to flower.

Rate: 100lbs/A

Depth: $\frac{1}{2}$ " - $\frac{3}{4}$ "



Soy Supreme

Soybeans are not the most competitive plants, and this cover crop mix was designed with this in mind. Abruzzi rye, TriCal 815 triticale, and the Cosaque winter oat provide aggressive growth from planting until termination, leaving behind a mat that weeds struggle to penetrate. Soybeans can fix their own nitrogen, so no legumes are necessary in this mix. The daikon radish will aerate soil, address soil compaction issues, and make nutrients soybeans love available right in the root zone.

Rate: 100lbs/A

Depth: $\frac{3}{4}$ " - 1"



BOOSTER MIXES

While wheat or cereal rye are a good backbone of any cover crop program, they lack diversity. By adding booster mix to your winter cover, your soils may improve more quickly. By adding different species, you are better able to build organic matter, mine for nutrients, and break up disease cycles. Booster mixes are intended to be added to any small grains already on-farm to improve your existing cover crop program. Individual seeding preferences may vary, but recommended booster rates are best at the listed seeding rates when paired with 80-100lbs/A of cereal rye or wheat.

Nitro Boost

This blend is heavy in legumes (crimson clover, berseem clover, and Austrian winter pea) to create nitrogen for the upcoming cash crop, along with The Cover Crop radish to mine nitrogen left from the previous season. The radish will grow quickly in the fall and winter kill after several days of 20 degree weather. This rotting root will then slowly release nutrients into the soil, creating organic matter and cycling nutrients more efficiently. Terminate after legumes have begun to flower for the highest nitrogen production. The plant tissues will degrade slowly, releasing the nitrogen throughout the growing season. Recommended for use the season prior to heavy nitrogen users, such as corn or milo.

Rate: 15lbs/A

Depth: 1/2-3/4"

Boost Extend

Wheat and cereal rye finish their life cycle fairly early in the season, leaving behind several weeks to more than a month of no nutrient uptake. The addition of TriCal 815 triticale and Cosaque, a true winter oat, will extend that growth season, providing that heavy mat that is so critical for building soil organic matter, keeping the soil cool during the heat of the summer, and holding moisture. The Cover Crop radish, CCS 779, will work to pull macro and micro nutrients from deep in the soil that the following crop needs to be aggressive. Recommended to use the season prior to a legume crop.

Rate: 50lbs/A

Depth: 3/4"- 1"



CALIBRATING A DRILL

Calibration of equipment by trial and error over several acres into planting can be costly in many ways and quite often profitable for your seed supplier. Seed lots and species vary in their flowability. To calibrate your seeding equipment correctly, all you need is a calculator, measuring tape, a small accurate scale, and something to collect seed before it is planted. A postage scale or dietary scale are adequate. It really does not take a lot of time and pays off in the big picture. Call us with your row spacing and we can send you a calibration chart.

Steps to a Drop-Seeder Calibration

1. Place tray or Half PVC Pipe under seed dispenser.
2. Make sure the Tray or Half PVC is attached to the drill securely.
3. Engage seeder and drive 100 feet.
4. Measure the amount of seed dispensed in grams or oz.(convert grams or ounces to lbs.)
5. Using the chart below, calculate the acceptable amount of seed.
Ex. If you have an 8 foot seeder, then take the number beside the desired lbs/A and multiply by 8
6. If depth or rate is off, make adjustments and redo until acceptable.
7. Check for seed to soil contact. Soil needs to be firm.

Small Seed Establishment Tips

1. Note soil types (droughty, wet, etc.)
2. Soil test and apply fertility before tillage. Lime should ideally be applied 6-12 months in advance.
3. Control perennial weeds prior to land preparation.
4. Select appropriate mixture for soil types, livestock and marketing needs and harvest management.
5. Determine ideal seeding time for your local area.
(Late winter to early spring or late summer is usually ideal.)
6. Prepare a level, firm seedbed, or if using no-till, control vegetation prior to seeding with appropriate non residual herbicide.
7. Calibrate seeder for appropriate seeding rate and depth.
 - a. Our mixtures work best in the large box.
 - b. Call for a calibration sheet. Need to collect and weigh seed over a small distance to determine seeding rate.
 - c. Seed at 1/8 to 1/4" with about 10% of seed on surface.
 - d. Press wheels and/or cultipacking are critical to a good seeding. If conditions are dry, cultipacking twice is very beneficial.

Example: 5.5" Row Space Drill		Example: 7.5" Row Space Drill		Example: 7" Row Space Drill	
Goal	Collection Per Row Needed	Goal	Collection Per Row Needed	Goal	Collection Per Row Needed
10 lb/acre	0.17 oz or 4.8 grams	10 lb/acre	0.23 oz or 6.5 grams	10 lb/acre	0.21 oz or 6.1 grams
15 lb/acre	0.25 oz or 7.2 grams	20 lb/acre	0.46 oz or 13 grams	20 lb/acre	0.43 oz or 12.2 grams
20 lb/acre	0.34 oz or 9.6 grams	30 lb/acre	0.69 oz or 19.5 grams	30 lb/acre	0.64 oz or 18.2 grams
25 lb/acre	0.42 oz or 11.9 grams	40 lb/acre	0.92 oz or 26.1 grams	40 lb/acre	0.86 oz or 24.3 grams
30 lb/acre	0.51 oz or 14.3 grams				



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Farming is a challenging system that requires a balance of inputs and outputs for long term success. As technology increases, it has become easier to find this balance, but making a profit in a commodity system is still a common struggle. In an effort to reduce input costs without sacrificing quality, one of our greatest technologies to date is the cover crop. Reduced weed pressure, increased organic matter, production of nitrogen, and the ability to scavenge for nutrients are just a few of the many benefits of utilizing a cover crop system. Selecting, planting, and managing a cover crop can be overwhelming, so Southeast AgriSeeds is proud to introduce Cover 365, a program developed to make these steps seamless for your operation. Our network of dealers are equipped and ready to help you select the cover crop that meets your goals, provide you with high quality seed, and offer long term technical service.



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