conservation science

genetics™

COVER CROP
Product Guide

INCREASING THE VALUE OF YOUR LAND

Conservation Science Genetics™ is a progressive cover crop program developed to benefit growers by providing species and mixes that improve soil tilth, increase crop yields, break disease & pest cycles, reduce soil erosion, increase water infiltration and recycle valuable nutrients

Cover Crop Benefits

- Weed Control - Seeding at higher rates or by selecting species like brassicas or triticale with dense leaf canopies will help suppress weeds
- Reduce Compaction - Radishes create pilot holes to promote water infiltration and better root penetration while annual ryegrass and hairy vetch simply shatter the soil layers with their high density root system.
- Nitrogen Fixation – Hairy Vetch, Crimson Clover and Austrian Winter Peas can produce up to 200 pounds of nitrogen per acre by spring when planted in late summer.
- Nematode Control – Many brassicas are natural bio fumigants with studies showing decreased nematode populations.
- Organic Matter – All cover crop species produce significant amounts of biomass that can be worked back into the soil to increase organic matter.
- Erosion Control – Species with quick germination and excellent ground cover such as ryegrass and brassicas will help eliminate erosion issues.

Straight Cover Crop Products

Eco-Till Radish
- Superior, deep penetrating taproot
- Reduces soil compaction
- Builds organic matter
- Improves nutrient recycling
- Enhances soil tilth

Fria Annual Ryegrass
- Breaks up natural and manmade hardpans
- Deep root penetration
- Captures and keeps nitrogen and phosphorus in the plant
- Winterhardy

DH-3 Annual Ryegrass
- Breaks up natural and manmade hardpans
- Deep root penetration
- Captures and keeps nitrogen and phosphorus in the plant
- Cold tolerant

Purple Bounty Hairy Vetch
- Ability to fix large quantities of nitrogen
- Excellent cover crop which produces high biomass
- Winterhardy

Cover Crop Mixes

Custom Cover Crop Mixes Also Available

CSG 100 Mix - 10-15 lbs. per acre
Eco-Till Radish 35%
Fria Annual Ryegrass 65%
- Improves soil permeability for increased air and water penetration: reduces soil compaction, breaks up hardpans & increases root development potential of the following crop.
- Recycles nutrients that would have been lost to leaching or runoff.
- Holds surface soil in place.
- Fast establishment.
- General purpose soil improvement which can benefit any following crop and improve the soil.

CSG 200 Mix - 25-30 lbs. per acre
Eco-Till Radish 15%
Triticale 85%
- Rapid establishment to prevent wind and water erosion.
- Improves soil permeability for increased air and water penetration: reduces soil compaction, breaks up hardpans & increases root development potential of the following crop.
- Improves organic matter: carbon sequestration.
- Recycles nutrients that would have been lost to leaching or runoff.
- Best for use after high nutrient input crops or before legume crops.

CSG 300 Mix- 15-20 lbs. per acre
Eco-Till Radish 19%
Crimson Clover 50%
Fria Annual Ryegrass 31%
- Rapid establishment to prevent wind and water erosion.
- Improves soil permeability for increased air and water penetration: reduces soil compaction, breaks up hardpans & increases root development potential of the following crop.
- Recycles nutrients that would have been lost to leaching or runoff.
- Fixes significant atmospheric nitrogen for increased soil nitrogen levels.
- Best used prior to corn, wheat or the crop requiring significant nitrogen inputs.

CSG 400 Mix- 10-15 lbs. per acre
Eco-Till Radish 30%
Crimson Clover 70%
- Recycles nutrients that would have been lost to leaching or runoff.
- Improves soil permeability for increased air and water penetration: reduces soil compaction, breaks up hardpans & increases root development potential of the following crop.
- Fixes significant atmospheric nitrogen for increased soil nitrogen levels.
- Improves soil organic matter
- Widely adapted mix where soil erosion s an issue.

Daikon Radish

Eco-Till radish is a true variety that ensures consistency and produces more root mass than turnips or mustards. This extra large root system allows Eco-Till to pull nitrogen and other nutrients from deep within the soil and bring them back to the surface. Upon decomposition, the nitrogen and other nutrients become available to the next crop. Eco-Till radish reduces soil compaction ,increases soil organic matter, improves soil tilth and also enhances soil aeration.

Annual Ryegrass

DH-3 diploid annual ryegrass was developed for quick establishment, excellent crown rust resistance, frost tolerance and high forage yield. DH-3 exhibits excellent seedling vigor, and medium maturity, allowing consistency in forage yield throughout the season with good transition back into warm-season forage grasses further south. **Fria** is a late maturing, widely adapted diploid annual ryegrass with exceptional cold tolerance. Other benefits include improved disease resistance to crown rust, gray leaf spot resistance, helminthosporium leaf spot resistance, excellent root penetration and erosion control.

Hairy Vetch

Purple Bounty is a winterhardy, early maturing hairy vetch variety developed for high nitrogen fixation (up to ½ of a subsequent crop's nitrogen requirements),increased biomass for a thicker mulch and earlier flowering for more flexibility in planting succeeding crops. Hairy vetch forms ground cover slowly in the fall, but root development continues throughout the winter with substantial biomass production in the spring. For best results, Purple Bounty should be in full bloom to allow for peak nitrogen contribution and to mow, roll or spray for maximum vetch kill. Spring oats or winter grains can also be planted with Purple Bounty to act as a protective cover for improved winter survival and increased erosion control. Purple Bounty is an excellent cover crop for nitrogen fixation, erosion control, biomass and weed suppression.

Crimson Clover

Crimson Clover has erect stems, grows quickly and has larger seeds than the more commonly used red clover. Crimson clover's primary advantages are rapid growth during cool weather, shade tolerance, nitrogen fixation and good reseeding potential. Crimson clover can be planted early in the spring or fall for weed control, overseeded in corn at second cultivation or in soybeans at leaf drop. Because of its shade tolerance and reseeding potential, crimson clover is also effective as a living ground cover in orchards. Crimson clover has been used effectively to suppress weeds when planted in the early fall following a short-season crop such as potatoes, snap beans, vegetables or following winter wheat. Planting with a grass such as oats, which is also fast-growing, gives additional weed control in these situations.

Austrian Winter Peas

Austrian Winter Peas are a cool-season, annual legume with good nitrogen-fixing capabilities. Austrian winter peas are a low-growing, viney legume which has been shown to fix over 200 pounds of nitrogen per acre per year under good conditions. It has hollow, slender and succulent stems, 2 to 4 feet long. The foliage is pale green, and the flowers are colored, usually purple, pink or reddish. The leaf consists of one to three pairs of leaflets and terminal branched tendrils. Pods are 1.5 to 2.5 inches long with three to five round, dark-colored seeds. Seed color is commonly gray with purple or brown mottles.

Berseem Clover

Berseem Clover is an annual non bloating legume that resembles alfalfa in appearance and can be used as a cover crop, pasture or hay. Berseem clover is not winterhardy but can create significant biomass and fixate large amounts of nitrogen due to its rapid establishment and fast growth (1.5 times that of alfalfa). An excellent choice for erosion control and weed suppression especially when planted with oats.

Triticale

Triticale is a hybrid small grain created originally by crossing wheat and rye. The name 'triticale' is derived from the combined scientific names of the two crop species wheat and rye .The versatility that triticale offers as a grain, a forage, for straw and as a cover crop adds to the economic viability that sustains the interest in this crop.

Oats

Oats are very versatile as they can be planted during various times of the season and used as an excellent cover and forage crop. Oats work well alone, but especially well in mixes with radishes, turnips, berseem clover, crimson clover and Austrian winter peas. Oats perform well for erosion control and are very good nutrient scavengers. Oats (and mixes with radishes or turnips) work very well for manure nutrient management.

Buckwheat

Buckwheat, when used as a cover crop, can reduce both the emergence and growth of weeds, thereby presenting an easy and economical alternative to herbicides. Buckwheat is a short-duration broadleaved annual species which provides very effective weed suppression due to its rapid early growth that establishes a canopy faster than most weeds.

Cereal Rye

Cereal Rye is a fall planted, winterhardy species with deep root penetration. The extensive root system enables cereal rye to capture high levels of nitrogen and other nutrients from the soil and reduces soil compaction issues. Cereal rye has the added benefit of late fall and early spring grazing as well as spring silage or hay.

Phacelia

Phacelia is a plant that is native to the United States, but was adopted and improved by Europeans for use as a cover crop. Phacelia is quick to establish and will winterkill at 18 degrees Fahrenheit. Phacelia is an excellent source of high quality nectar and pollen which increases the population and diversity of beneficial insects. Phacelia will begin to flower 6-8 weeks after emergence and will continue to flower for 4-6 weeks. Phacelia is comparable to buckwheat in many ways, but is more tolerant to cold and drought. Phacelia can also be used for forage, as a green manure crop, nematode control and a nitrogen trap crop.

Sunn Hemp

Sunn Hemp is a tropical legume that acts like a summer annual in the United States and is an excellent choice for increasing organic matter, nitrogen fixation, nematode suppression and weed control. Sunn hemp, (seed inoculation required) can produce over 5,000 pounds of biomass and over 100 pounds of nitrogen per acre in 8 to 12 weeks of frost free growth conditions. It is recommended that sunn hemp be mowed back to 12 -18 inches high when it reaches 6 feet tall to allow the residue to break down faster. A killing frost will eliminate sunn hemp.

COVER CROP CHARACTERISTICS

FOR SPECIFIC PURPOSE	DAIKON RADISH	BRASSICAS	BUCK-WHEAT	WINTER PEAS	CEREAL RYE	ANNUAL RYEGRASS	OATS	TRITICALE	CRIMSON CLOVER	HAIRY VETCH	PHACELIA	SUNN HEMP	BERSEEM CLOVER
ORGANIC MATTER	X	X	X	X	X	X	X	X	X	X	X	X	X
NITROGEN FIXATION				X					X	X	X	X	X
NUTRIENT RECAPTURE	X	X	X	X	X	X	X	X	X	X	X	X	X
REQUIRES NO HERBICIDE TO KILL	X	X		X						X		X	X
REDUCE SOIL COMPACTION	X	X				X				X		X	
QUICK FORAGE / GRAZE	X	X			X	X	X	X	X			X	X
DROUGHTY SOILS			X									X	
HAY CROP					X		X	X	X			X	X
WEED CONTROL	X	X	X		X			X		X		X	X
ENHANCE NO TILL	X	X			X	X	X	X		X			
PREVENT SOIL EROSION	X	X	X	X	X	X	X	X	X	X		X	X
TOLERATE WET SOILS					X	X	X	X	X				X
COLD TOLERANT	X	X	X	X	X	X	X	X	X	X	X		
NURSE CROP			X		X		X	X					
BROADCAST SEEDING	X	X			X	X	X	X	X	X		X	X
NEMATODE CONTROL	X	X									X	X	
SEEDING RATE ALONE	8-15#/A	2-8#/A	50-60#/A	40-50#/A	90-120#/A	30-40#/A	64-120#/A	90-120#/A	20-30#/A	20-30#/A	7-18#/A	15#/A	10-20#/A
SEEDING RATE IN MIX	2-7#/A	2-6#/A	*	20-30#/A	60-90#/A	6-10#/A	60-90#/A	60-90#/A	5-8#/A	*	5-9#/A	3-10#/A	12-15#/A
SEEDING DEPTH	1/4"-1/2"	1/4"-1/2"	1/2"-1"	1/2"-1"	1"-2"	1/4"-1/2"	1"-2"	1"-2"	1/4"-1/2"	1"	1/4"	1/2-1"	1/4-1/2"