

Cover Crops in the Home Garden

Mountain View Garden Club
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What is a Cover Crop?

A cover crop is a crop generally recognized by agricultural experts as agronomically sound for the area for erosion control or other purposes related to conservation or soil improvement.

To “cover crop” is to grow a crop of grass, small grain or legumes primarily for seasonal protection and soil improvement.



What are Green Manures?

Green manures are a subset of cover crops that are grown specifically to increase soil organic matter and nutrients.

In agriculture, **green manure** is created by leaving uprooted or sown crop parts to wither on a field so that they serve as a mulch and soil amendment.



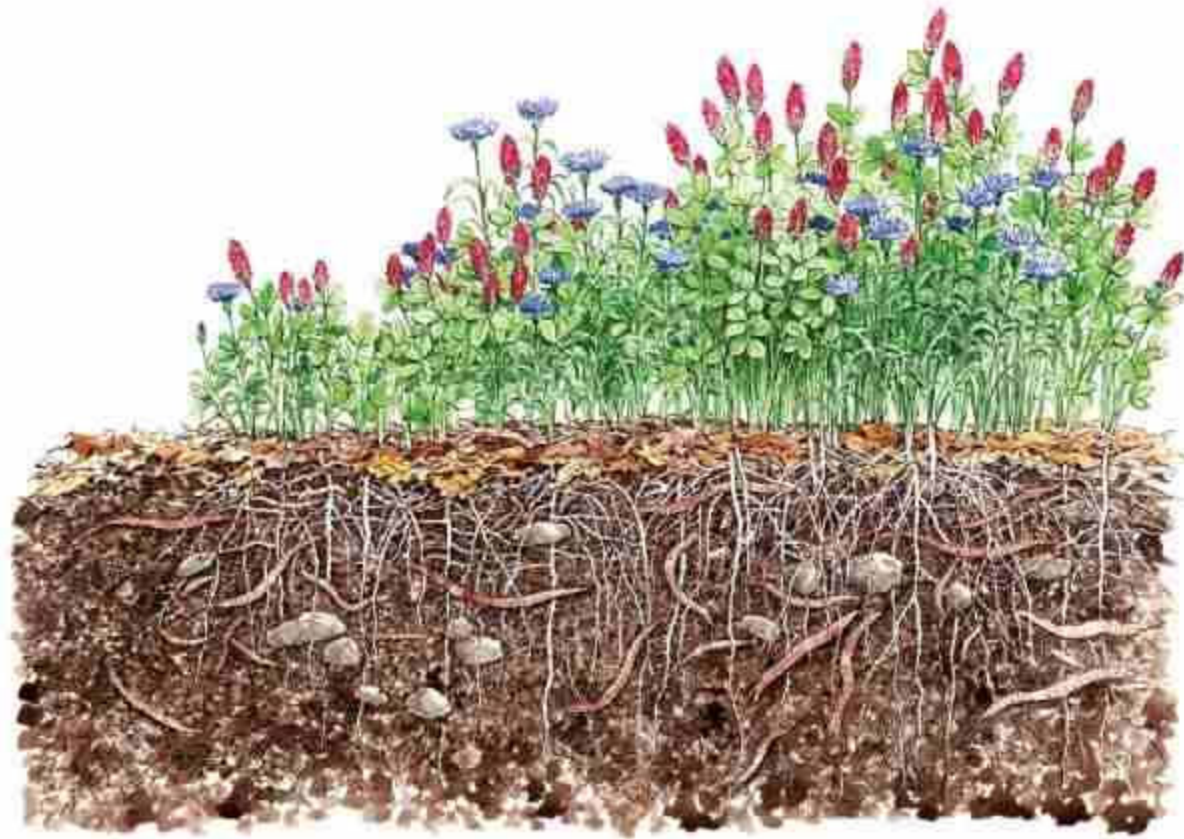
Benefits of Cover Crops

- prevent erosion
- improve soil's physical and biological properties by increasing infiltration and aeration of the soil
- supply nutrients
- suppress weeds
- improve the availability of soil
- break pest cycles along with various other benefits

The species of cover crop selected along with its management determine the benefits and returns.



Cover Crop Above and Below



What to Plant

- It depends.....
- What you plant is determined by different factors
 - What is the purpose of the crop?
 - How quick do you need the benefit?
 - Are you intercropping with it?
 - Is it “just” a cover crop or to be used for more?
 - Do you want an annual or a perennial?



What to Plant

Cover Crop Plant Types

- Grasses
- Grain crops
- Brassicas
- Legumes



When to Plant

There are both
COOL season
and
WARM season
cover crops



When to Plant

Warm Season

Plant in spring or summer, before or in place of a vegetable crop.

Benefits:

- grow quickly in a garden
- preventing weeds from establishing
- protecting bare soil from water erosion and crusting.



When to Plant

Cool Season

Cool season cover crops are planted in late summer to early fall after vegetables are harvested.

Plant early enough to establish some growth before the winter



When to Plant

Cool Season

Some plants may be killed by freezing winter temperatures

- good choice for gardeners needing to immediately work the soil in the spring to plant early crops such as spring greens, peas, and radishes

Some plants may go dormant during the winter and resume growth in the spring.

- need to be terminated by tillage prior to planting vegetables
- are a good choice for areas that may be planted to summer crops such as tomatoes, peppers, and squash.



An Experiment in Controlling Weeds

Aberdeen Idaho – commercial wild grass and flower seed producers
experiment with radishes as a cover crop



An Experiment in Controlling Weeds

Benefits Identified:

- Radishes take up excess soil nitrates – literally scavenging nitrates
- Radishes “quick release” nitrogen in quality similar to legumes
- Radishes give off a chemical that delays the growth of weeds



An Experiment in Controlling Weeds

More Benefits Identified:

- Root holes reduce soil compaction through the deep taproots
- Root holes cause earlier soil warming
- Help control parasitic soil nematodes



Recommend blending with other cover crops to maximize soil benefits



How Do I Grow a Cover Crop

- Clear the planting area of any large stones and other debris
- Rake the area smooth and broadcast seed by the seed provider
- Rake the area again to incorporate the seeds into the soil & lightly water
- Cut down plants when or just before they start to flower by hand, or by using a trimmer, brush cutter, or mower.
- Incorporate cut plants into the soil (using a shovel, pitch fork or rototiller)
- Allow approximately 2-3 weeks for cover crop to decompose before planting into the soil.



General Information

- When your cover is at it's end stage, you “terminate” it. Each type of plant has a method specific to its termination.
- Avoid mixing Brassicas with Legumes and Cereals – Brassicas release biochemicals that dissuade certain root dwelling organisms
- Don't confuse Interplanting Cover Crops with Companion Planting



SPECIFICS ON SOME PLANTS

- 1. Cereal Rye Grass**
- 2. Hairy Vetch**
- 3. Buckwheat**
- 4. Red Clover**



Cereal Rye Grass

- Grass
- Plant in late summer or early fall
 - OK to plant with existing vegetables
- Quick Germination
- In spring cut and turn into soil
- Great Biomass
- Pair with a legume family cover crop



HAIRY VETCH

- Legume
- Plant in Late Summer or Early Fall
- Valued for Nitrogen-fixing Ability
 - Should be inoculated *
- In Spring Cut and Turn into Soil
- Great Biomass



Inoculate? What???

An inoculant will:

- Make nitrogen more readily available to plants
- Produce sturdier plants with more vigorous growth
- Increase pathogen resistance
- Increase the nitrogen in the soil

An inoculant is generally a powdered or liquid form of bacteria or fungus that is added to the soil by means of coating the pea or bean seed with the inoculant prior to planting

There are some liquid inoculants available, but the majority are powders

Be careful to use the inoculant that is specific to the legume you're planting



Hairy Vetch and Cereal Rye in April



BUCKWHEAT

- Grain
- Mother's Day to late August
- Quick Growing
- Sensitive to Cold
- Invigorates Soil
- Minimizes Weeds - a "smother crop"
- Seriously attracts beneficial insects



RED CLOVER

- Legume
- Spring to Early Autumn planting
- Great for intercropping
- Creates a plenty of nitrogen and green manure
- Beautiful



Cover Crop Chart

GROWTH CYCLE	PLANT ARCHITECTURE	RELATIVE WATER USE
A = Annual	γ = Upright	♠ = Low
B = Biennial	* = Upright-Spreading	♠♠ = Medium
P = Perennial	≡ = Prostrate	♠♠♠ = High

--COOL--										--WARM--									
--GRASS--			--BROADLEAF--														--GRASS--		
			LEGUME																
A ANNUAL FESCUE			A/B CAMELINA	A/P MUSTARD	A BALANSA CLOVER	A CHICKPEA	A/P MEDIC	A COWPEA	A CLUSTER BEAN	A AMARANTH	A BROWNTOP MILLET								
A BARLEY																			
A OAT																			
A SPELT	A PHACELIA	A/B CANOLA	A BERSEEM CLOVER	A PEA	A LUPIN	A/P LABLAB	A/P JACK BEAN	A BUCKWHEAT	A PEARL MILLET										
A WHEAT	A FLAX	A RADISH	A CRIMSON CLOVER	A LENTIL	A FABA BEAN	A/P FENUGREEK	A VELVET BEAN	A QUINOA	A PROSO MILLET										
A CEREAL RYE	A KALE	B TURNIP	B/P RED CLOVER	A/P LESPEDEZA	A/B SWEET CLOVER	A/P PIGEONPEA	A MUNG BEAN	A CHICORY	A GRAIN SORGHUM										
A TRITICALE	A SPINACH	B BEET	P WHITE CLOVER	P BIRDSFOOT TREFOIL	P ALFALFA	A PARTRIDGE PEA	A SOYBEAN	A CUCURBITA	A SUDAN GRASS										
P SALINE TOLERANT	A/B CHARD	A/B CARROT	P KURA CLOVER	A/B VETCH	P SAINFOIN	A SUNNHEMP	A/P PEANUT	A SAFFLOWER	A TEFF										

Cover Crops Solutions Chart

Use these charts only as a general guide to help you choose the best cover crop for your growing situation. Remember that this type of chart has inherent limitations. For example, although crimson clover is marked "Tolerates mowing," you should not mow it in mid-late spring because it needs to grow during that time in order to re-seed itself. Information provided is referenced from PFV&GS catalog and staff, our vendors, and *Managing Cover Crops Profitably* by Sustainable Ag Network.

Peaceful Valley Farm & Garden Supply Grow Organic...For Life!	Fixes nitrogen	Good for forage or hay	Good weed competitor	High soil erosion	Nematocidal effects reported	Adds significant organic matter to soil	Grows quickly	Attracts beneficial insects	California native	Low growing, to 12"	Mid-height, 13 to 36"	Tall, over 36"	Cold hardy, down to 25°	Tolerates poor drainage	Survives in soils < 40°F	Somewhat drought tolerant	Tolerates mowing/ grazing	Loosens a heavy soil	Easily established	Shade tolerant	Requires summer water
Austrian Winter Peas	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Barley, Bearded	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Barley, Beardless	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Bell Bean	•	•	•	•	•	•	•	•				•	•	•	•	•	•	•	•	•	
Biomaster Peas	•	•	•	•	•	•	•	•					•	•	•	•	•	•	•	•	
Blando Brome Grass	•	•	•	•	•	•	•	•			•		•	•	•	•	•	•	•	•	
California Medic Mix	•	•	•	•	•	•	•	•			•		•	•	•	•	•	•	•	•	
Clover, Alsike	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Berseem	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Crimson	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Dryland Mix	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Hylton Rose	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Nitro Persian	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Overton Rose	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Red Double-Cut	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Subterranean	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Clover, Sweet	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Dakota	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Fava Bean, Windsor	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Flax	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Foennugreek	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Garbanzo Bean	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Legume Oat Mixes	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Low-Growing Colorful Border Mix	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Mustard	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Mustard Mix	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Oats, California Red	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Oats, Cayuse White	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Oats, Montezuma Red	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Oilseed Radish	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Phacelia	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Rape, Canola	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Rye, Cereal	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Rye, Merced	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Ryegrass, Oregon Annual	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Ryegrass, Tetraploid Annual	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Sod Buster	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Soil Builder Mix	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Soil Builder (Budget)	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Soil Builder (Cold Zone)	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Triticale, Trios	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Vetch, Common	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Vetch, Hairy	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Vetch, Lana	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Vetch, Purple	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Wheat, White Winter	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Winter Edible Cover Crop	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Black Eyed Peas	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Buckwheat	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Chicory	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Cowpeas, Red	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Crotalaria Juncea	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Japanese Millet	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Sesame	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Sesbania	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Soybeans	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	
Sudangrass	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	

Annual Cool Weather Cover Crops

Warm Weather Cover Crops

Annual Cool Weather Cover Crops

Warm Weather Cover Crops



<http://www.groworganic.com/media/pdfs/solution-covercrops-2012.pdf>



In Closing

- Using cover crops is the perfect way to improve your soil naturally
- There are a wide range of plants that function as a cover crop
- You can cover crop virtually year-round

Try it – You may LOVE IT!

