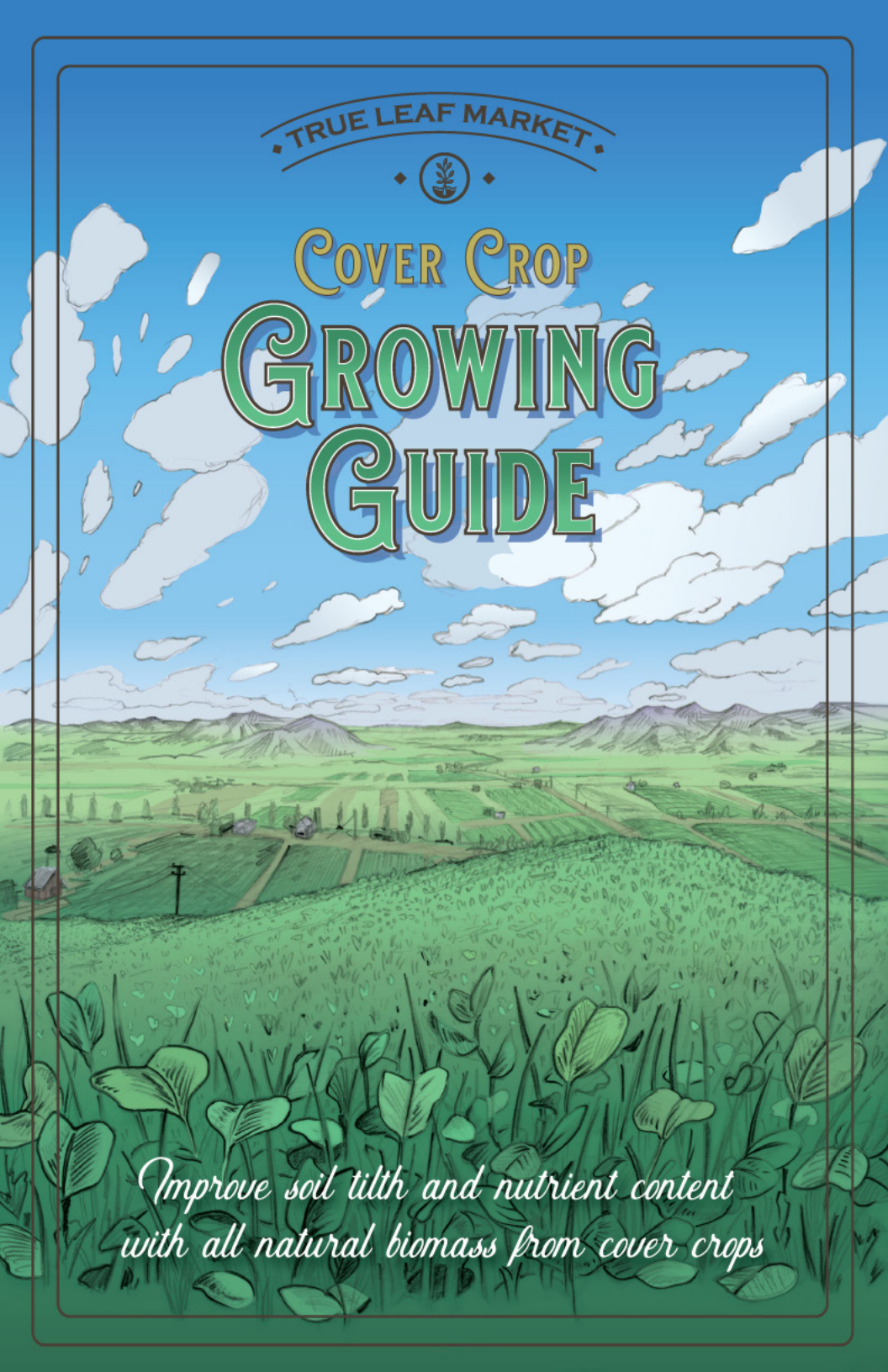
TRUE LEAF MARKET
Cover Crop
Growing Guide
Improve soil tilth and nutrient content
with all natural biomass from cover crops

Welcome to the True Leaf Market Cover Crop Growing Guide. This booklet is intended for novice to experienced gardeners that would like to learn more about the practice of growing cover crops so they can start reaping the benefits next season.

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The information in this booklet assumes that the reader has a basic knowledge of gardening, such as a basic knowledge of hardiness zone, light exposure, and why nitrogen is so important for vegetable crops. If not, see our Vegetable Planting Guide or our Herb Planting Guide for more details. Cover crops is an additional step you implement into your current gardening regiment for the year. In these pages, you will learn the basics of what cover crops are, why cover crops are beneficial to all kinds of soils, and how to start growing them yourself! Instead of diving into the scientific jargon of cover crops and how they specifically affect the environment, we want to provide you with the basic essentials to get started. We firmly believe that learning by doing is the best way to become familiar in the garden.

What are Cover Crops

Cover crops are seeds that are planted en masse for several reasons that benefit the soil and/or the local environment. Most often cover crops are grown by farmers in rotation with their cash crops to protect and rejuvenate the soil, a practice that goes back centuries.

Evidence of cover crop use can be found in different times and places throughout history: The Native Americans had a system of agriculture called “The Three Sisters” that utilized cover crop properties of beans, squash, and corn by planting them together, cycling nutrients through the soil, creating a synergy between the crops. Chinese Milk Vetch has been used for millennia as a cover crop in China, being planted just after a rice harvest in the same ground. And in southeast Asia, soybeans have been grown as a cover crop in tea estates for generations. Even George Washington, a diligent farmer as well as statesman, was known for his “crops grown to replenish the

soil.”

These examples throughout history and around the world, illustrate to us the various benefits and uses of cover crops. They attract pollinators, promote erosion control, preserve moisture, and suppress weeds when growing. When cover crops are mowed down to decay, nutrients are cycled back into the soil which subsequent vegetable crops profit from. Cover crops return nitrogen to the soil, but most notably through a process called “nitrogen fixing” where the plants convert the nitrogen from the air into the soil.

In traditional agriculture, the practice of growing cover crops has changed little over the centuries. Today, fertilizers have overshadowed the use of cover crops, but they are making a comeback as large-scale growers are experiencing first-hand how growing cover crops not only keeps soils healthy and organic, but cuts down on the reliance of pesticides. Although the practice of growing cover crops can seem complicated, one just needs to become familiar with basic seed types and their role in soil

health.

Legumes: Alfalfa, Clover, Chickpea (Garbanzo), Soybean, Pea, and Lentil

Plants in the Fabaceae family, legumes are the primary nitrogen fixers of the cover crop world. While other seed types return nitrogen through decaying matter, legumes convert nitrogen from the air and return it to the soil with the aid of rhizobia bacteria. Legumes popularly require inoculation before planting, an easy process to ensure germination. See *Inoculating Legumes* at the back of the booklet.

Grains and Grasses: Wheat, Rye, Barley, and Triticale

Grain cover crops are great protectors of soil while also scavenging for nitrogen and potassium. A terrific organic matter producer. The very same seed for making wheat flour, Hard Red Wheat, is a fantastic biomass producer.

Brassicas: Radish, Mustard

Not all brassicas work as cover crops, but mustards and radishes do. They help significantly control pests because they contain a higher amount of glucosinolate than other brassicas, a chemical compound that wards off harmful insects. When the plant cells are ruptured the plant releases the glucosinolate. Mustard and Radish are known for their rapid fall growth, which makes them an ideal weed suppressor.

Broadleaf Species

Includes both legumes and brassicas. Broadleaf crops are plants that produce wide protective leaves. Nearly all flowering cover crops are broadleaf species. If you are looking to attract pollinators with your cover crop, a broadleaf species is essential.

Cover Crop Mixes

Often, different varieties of seed are combined to create unique cover crop mixes. The idea is to harness several benefits to allow them to

work in tandem, with each variety boasting their unique benefits, as found in the Garden Cover Crop Mix. Some mixes are blended for specific regional application, such as the Pasture Blend and Dryland Mix.

None of the varieties above are specific to spring or fall. The terms “spring” and “fall” cover crops are used to describe the time of year the cover crop seed is sown and grown rather than a classification of the seed itself. For example, mustard can be planted as a cover crop seed both in spring and fall.

Spring vs. Fall:

Spring Cover Crops are often planted in the early spring and allowed to grow until a few weeks before planting when it is mowed down. Some varieties of cover crop seeds are sown in late fall after the frost and allowed to lie dormant until spring comes when they germinate in a process called “overwintering”.

Fall Cover Crops are planted when summer temperatures are waning, giving the cooler

season seeds time to germinate in the necessary autumn conditions. Once mature, usually around the first frost, these cover crop varieties are mowed down and allowed to decompose over winter.

Why Should You Use Cover Crops

Simply put, they improve your soil and positively influence the local environment. Growers not only use cover crops to protect their soil and to keep their soil healthy but to also attract beneficial pollinators to the region. During the colder months, cover crops protect against winter erosion, prevent soil compaction, and feed the soil by leaving behind biomass in the spring. This leftover biomass is widely known as “green manure” because it feeds the soil with organic matter the way traditional livestock manure does.

You don’t need to have a huge plot to benefit from cover crops. The smallest piece of land can benefit from even one or two cover crops. Using cover crops gives your future crops the advantage from the moment they’re sown.
We all want a stunning, bountiful garden, right? Well, that all starts from the ground up! What’s in your soil?

Soil Protection and Health

Certain regions of the US are known to be challenging on the soil in different ways. For example, in the midwest topsoil has been known to be lost in high winds. One of the benefits of cover crops is that it protects this vulnerable topsoil from getting blown away. The root systems of cover crop plants protect the soil when living and, when decaying, the remnants of the root system provide a drainage system and a sort-of "road map" where the roots of future crops can follow. Winter Rye is a great example of a cover crop that is essential for its production of biomass and extensive root system that protects soils over the winter. Cover crops can remedy soils known to be heavy, hard, and clay, while improving soil structure and tilth.

Provides Nitrogen and Other Nutrients to Future Crops

There are three basic ways cover crops add nutrients to your soil: (1) Legume varieties convert nitrogen from the air making it available in the soil through nodules on their roots. (2)

Brassica varieties scavenge for nutrients that are already present in the soil, making it available when terminated. (3) Grasses and broadleaf varieties provide large amounts of biomass that become one with the topsoil.

Plant Diversity and Adaptability

Many cover crops exhibit similar properties, so why choose one over the other? Well, that may depend on your region. You may choose one cover crop over another based on how it is suited to your climate. For example, most cover crops are cool-weather crops but, if you need to plant during the heat of late summer, you may opt to plant buckwheat or mustard as they are more suited to heat and have shorter life cycles, allowing you to mow these varieties down sooner.

Keeps Soil Active in Off-Seasons

Always having plants growing in your soil not only helps maintain structure but keeps it microbially active. Allowing a piece of ground to go fallow over the off-season can lead to an infestation of weeds, a depletion of soil nutrients, and a loss of structure due to the elements.

Similarly, raised beds are improved by cover crops, while still producing unseasonably robust blooms. Hairy Vetch will flower in the cool days of late fall when others will not, turning your raised beds into flower boxes until the snow comes.

Attracts Beneficial Pollinators

Using flowering cover crops as companion plants to your vegetable crops is another common practice. Planting clover in between garden rows attracts beneficial pollinators, providing them with an environment free of pesticides, while replenishing nitrogen, especially if you plant an inoculated flowering legume such as clover. Your vegetable crops will benefit from the nitrogen transfer immediately. You may just want to set aside a few small plots next to your vegetable garden to plant a flowering broadleaf such as buckwheat to bring the pollinators nearer during the growing season.

How to Grow Cover Crops

1. Understanding the climate of your local environment is key. Contact your local agricultural extension for details about the typical lengths of the warm and cool seasons, the average first and last frosts, and the peak high and low temperatures of the year. These pieces of information should give you an idea of the best times to plant. Timing is very critical to a successful cover crop for both fall and spring applications. It is a game of timing essentially. You wait until temperatures match the ideal requirements for the seed, then you plant!

2. Before determining what seeds you'll plant, assess the state of your soil. Get out there and feel it. Is it compact? Thick with clay? Is it light and dusty? Do you have a weed problem? Just feeling your soil will give you a good idea of what might benefit it when reading about cover crop varieties. For ex-

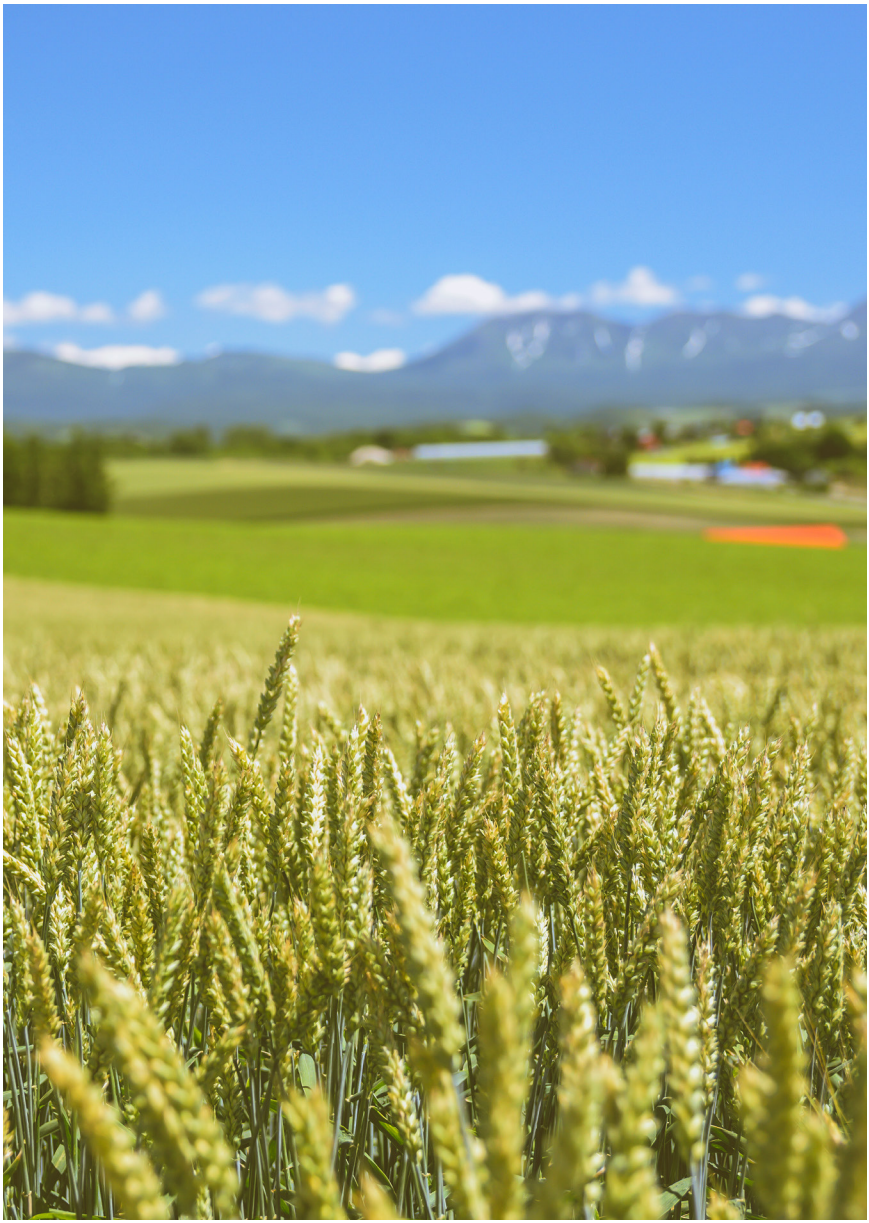
ample, a soil thick with clay would benefit from a Winter Rye cover crop that has a tenacious root system that will break up that clay. Rye and mustard cover crops also suppress weeds.

3. Now comes the time to dig into the individual characteristics of cover crop varieties. In this introduction you've read about the different types of cover crop seeds (i.e. legumes, grains, and brassicas) but now it's time to dig into the individual seed pages in this booklet. Get creative and imagine which specific variety might be right for you! Juxtapose the crop information with what you learned about your own climate to determine when and how to plant what you choose. A successful cover crop can be due to you recording the process and the development of the crop over the course of its life cycle in a journal and to always keep in mind what comes next. The latter is very important from the beginning. When choosing a seed, imagine three steps ahead and troubleshoot. Ask yourself, when am I going to terminate the cover crop? How will

I terminate it? Am I going to do a till or no-till method (a question we will go into detail later)?

4. Now comes time to sow and grow the seeds. Broadcasting is the sowing method for cover crops. Using a broadcaster is the best way to get as even a spread as best as you can. You may need to seed a bit heavy to account for possible germination loss. Prepare the soil by dicing or lightly turning it so the seeds can achieve some planting depth. If you intend to not till whatsoever, then cover the seeds with a light layer of topsoil or mulch. The seed rate varies for each variety. On each seed page, we've indicated a seed rate that will help you understand how heavy or how light to sow the seeds. Water heavily and follow the specifications for the seed variety that you've chosen to grow. As long as you understand what your cover crop requires in terms of light, temperature, and moisture, and you check it every day, your cover crops should grow healthy.

*****We've stated growing and terminating specifications for each seed variety on their respective pages in this booklet.*****



Till vs. No-Till: The Ultimate Question

Generally, most growers opt for a no-till system, a system by which you grow your cover crops and mow down to leave them. After several weeks, the biomass will decay, settle, and incorporate back into the soil. The reason for not tilling is to not disturb the current soil structure that the cover crop has worked to create. The decaying matter can also act as a mulch that preserves moisture and warmth as your garden crops germinate and mature.

Many opt for a no-till method, while others swear by a tilling method that works for them. We choose to let you decide which method suits your needs the best.

Basic Tilling

When tilling, the idea is to get the organic matter into the top layer of soil immediately because it will lose it's nitrogen to the atmo-

sphere very quickly. If you shred the mowed down cover crop, it will decompose and return the nitrogen to the soil faster. Depending on the amount of “green manure” left behind, it may take 2 to 3 weeks for the matter to break down. Make sure soil stays moist, but not soggy, during this time as it aids in decomposition. After this decaying period, you are ready to plant your vegetable crops!

We hope that now you have the confidence and knowledge to begin utilizing the incredible beneficial properties of cover crop seeds.

The Cover Crops

ALFALFA

Medicago sativa -
Perennial Legume

Overview:
Alfalfa is an upright cool season variety cover crop, ideal for spring and late summer to early fall sowing, requiring a lot of water and attracting pollinators. Adapts well to most gardens. Often interseeded with small grains during the summer and grown after grain is harvested in the fall. Seed in the spring for early summer growth and mid to late summer mowing. Recommended to be grown as a forage crop.

Beneficial Nutrients:
Organic Biomass. Alfalfa fixes nitrogen, repairing nodules on lateral and main taproots.

Pest Management:
Beware of the alfalfa weevil, which can cause serious damage. Alfalfa stem buds can be weakened by the stem nematode.

Erosion Control:
Alfalfa has an aggressive root system and, when grown in rotation over several years, lessens soil compaction. Improves soil infiltration and permeability.

Methods of Use:
Tillage, Forage Crop, Interseeded with corn and smaller summer grains.

Growing Tips:
Alfafa doesn't like too much moisture, which can lead to mold. Make sure the ground has sufficient drying time between waterings.
Those living in cooler climates can plant alfalfa in spring while milder regions should opt for fall late summer sowing.
Grow alfalfa through winter until crops are ready to be planted in spring or until their purple flowers appear. Mow it down or till, or simply leave it to overwinter as the alfalfa shoots will break down. The organic biomass will then fertilize the soil as well as stimulate microbial activity.

Seeding Rate: ~.5 lbs/1000 sq ft

Barley

Hordeum vulgare -
Annual Cereal Grain

Overview:
Barley is an upright annual cereal grain and is one of the fastest growing members of the cereal grain family. Barley prefers cooler temperatures and thrives in early spring. Depending on which season barley is sown, its root system differs in size. These plants were among the first grains to be cultivated around 10,000 years ago. Barley is still a popular grain used to make breads, soups, malts, and animal fodder.

Beneficial Nutrients:
As a cover crop, barley plants grow quickly and act as an exceptional weed suppressant. As a winter cover crop, barley provides just as many nutritional values when grown in spring, but also is an ideal soil protectant as the plants decompose over the span of several months. Once it's time to winterkill, barley releases more nitrogen as it's tilled back into the soil.

Pest Management:
These plants can help reduce the invasion of aphids and leafhoppers, but are also susceptible to cutworms. In order to reduce the likelihood of disease or harmful pests, it's recommended to sow barley in soil that provides enough alkaline levels and isn't too moist.

Erosion Control:
As a spring crop, barley does well at controlling wind and water erosion.

Methods of Use:
Barley is an excellent weed suppressant and can fix large amounts of nitrogen which replenishes the soil. Even though barley is less hardy than winter rye, it can still withstand colder temperatures as low as 20°F. However, these plants can be tricky to consistently overwinter and are recommended to be sown as early as January for spring gardens.

Growing Tips:
Sow barley seeds when the temperatures are still fairly cold, but have reached at least 36 degrees fahrenheit. Barley can overwinter in regions with more mild winters. As a winter cover crop, sow seeds in October and harvest 60 days after they've matured in spring. These plants prefer well-drained soil with a pH level of 6.0-8.5, as barley grows better in higher alkaline than other small grains. Germination for these plants will occur in 3-5 days and don't need frequent watering. These plants prefer a cool and dry environment to grow in, but can tolerate some moisture. Barley can grow up to 2 to 4 feet tall. These plants are grown and terminated similarly to wheat, by cutting or using a scythe once the stalks have turned yellow. Be sure to wear a long-sleeved shirt to avoid skin irritation. Termination for barley is typically through a smothering process where a tarp is laid down for a few weeks as the plants decompose. You can overturn the soil through a low-mow method or use a grass herbicide before the plants go to seed.

Seeding Rate: ~.5 lbs/1000 sq ft

Fava Bean

Vicia faba -
Perennial Legume

Overview:

Fava beans is an upright annual variety cover crop that can be sown in almost any month, other than the peak of winter. Fava bean thrives when grown in cold to moderate temperatures. Quick to germinate, slower to grow. Adapt to cold climates and shade. Does not need much water. Grow to harvest, or trim near base and allow to compost.

Beneficial Nutrients:

Organic biomass, natural fertilizer. Releases nitrogen into soil, roots continue to do so even after the plant has been cut, feeding bacteria into the soil.

Pest Management:

Fava plant roots help suppress weeds. Beware of fungal diseases. Keep leaves dry.

Erosion Control:

Fava bean roots are strong and grow vigorously, leading to more structured, stronger soil over time. Prevents erosion and improves soil infiltration.

Methods of Use:

Tillage, Harvest Crop, Filler in unused patches of soil.

Growing Tips:

Fava bean does not grow well in wet environments. Do not allow leaves to remain moist to avoid mold and diseases.

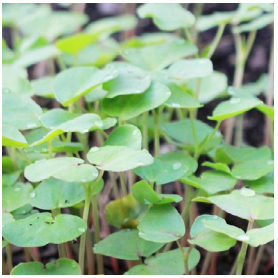
Fava bean can be grown at almost any time of the year, but functions as a cover crop best in very early spring or late fall.

Plants can be grown until they have flowered or until beans are ready for harvest, or prematurely, three weeks prior to sowing new seeds. Till or mow them down to 6 to 10" keeping roots in the garden to decompose and act as a natural fertilizer that will rejuvenate soil with nitrogen and other nutrients.

Seeding Rate: ~ 3 lbs/1000 sq ft

Buckwheat

Fagopyrum esculentum
Perennial Subshrub



Overview:
Buckwheat is an upright perennial subshrub. It is a cool season variety that is ideal as a winter cover crop. It forms flowers quickly and is a well-known weed-killer. Can be sown in as a summer buckwheat, but is susceptible to blasting during the heat. Buckwheat thrives in colder, wet conditions, but can't withstand the frost. The grain can be planted in late spring to early summer and blooms in late summer to early fall.

Beneficial Nutrients:
Blossoms attract pollinating insects and extracts soil phosphorus from soil, making it a unique powerhouse type of grain that helps feed your soil. Buckwheat also has nitrogen-fixing bacteria, but may need some more fixed nitrogen added to boost fertility.

Pest Management:
Buckwheat is known for being especially hardy against thrips and other insects

Erosion Control:
If you choose to till, don't over-till the soil so the buckwheat has a chance to overpower the weeds. Buckwheat is not winter hardy, which makes it easier to terminate. If you're going for a winter cover crop, buckwheat is able to grow and thrive until late summer to early fall then dies back with a low-mow method. The decaying biomass acts as a cover protectant for the soil throughout winter and decomposes until spring.

Methods of Use:
You can use buckwheat as an annual summer cover crop. Plant in June for flowers to bloom in 2 to 10 weeks. They can last until September and often leave the summer ground bare after termination.

Growing Tips:
Once the soil is warm enough to plant, germination can begin as soon as a couple weeks and last up to 4 weeks until it starts to flower.

Seeding Rate: ~ 1.2–2.5 lb per 1000 sq. ft

Crimson Clover

Trifolium incarnatum
Winter or Summer Annual Legume

Overview:
Crimson clover, an upright winter or summer annual legume, provides speedy growth in both spring and fall and is a great attractor for pollinators. Crimson clover does well in shade and decomposes quickly.

Beneficial Nutrients:
Crimson clover is a great nitrogen source and also attracts honey bees. This plant is often called a "winter-killed annual" because of how its rapid growth helps start a late summer ground protectant. This starts an early decomposition, so you can maintain your crop throughout winter. Once spring comes, the leftovers should be easier to handle because of how well it decomposes.

Pest Management:
Crimson clover is often said to not attract honey bees, which simply is not true. This plant appeals to many pollinators, including honey bees, with its shorter flowers.

Erosion Control:
Crimson clover is a preferred cover crop for farmers because it helps prevent water runoff.

Methods of Use:
As a winter annual, plant by September and it will grow throughout autumn, sometimes winter, but should grow back in the spring. If you decide to keep the Crimson clover after flowering, it's often used in conjunction with other warm season crops, as a way to reseed the garden after harvest.

Growing Tips:
As a winter annual, sow by September or before the frost. As a summer annual, sow in early spring, or once the frost has passed. Vibrant berry reds add color and scenery to your garden. If used as a winter annual cover crop, don't plant too early in the fall, or else it might seed before the ideal period which allows early regrowth in spring. Mid-August to September is best for northern gardens, while in southern regions, you can plant in mid-July
.

Seeding Rate: ~ 1.2–2.5 lb per 1000 sq.ft

White Clover

Trifolium repens
Perennial Legume

Overview:
White clover is an upright perennial legume and one of the strongest within the clover family. White clover plant has a reliable, thick, and interwoven root system that can be sown in early spring through late summer. This plant has often provided medicinal benefits and its flowers can be used in tea.

Beneficial Nutrients:
Traditionally, white clover has been used for blood purification and can be made into an ointment used to treat gout. This plant is nitrogen-fixing, rich in minerals, protein, and provides sweet edible flowers.

Pest Management:
White clover can attract pollinators for nectar but, during the fall if growth isn't managed, it can also create a hotbed for pygmy crickets. To avoid this issue, consider including an insecticide that won't harm bees, or sow in seeds after the first fall freeze.

Erosion Control:
White clover can provide effective erosion control in more moist soil and can help with weed control.

Methods of Use:
This plant is one of the best living mulches to fortify your garden. White clover is often sown in between other irrigated crops. Ideal as a companion crop, white clover can supplement nitrogen to grasses and nutrients to neighboring plants.

Growing Tips:
Sow about 40 days before the fall frost to give enough time for growth. White clover can sprout as soon as 3 days in the summer and about a week in the springtime with ideal soil conditions. White clover grows to be up to a foot tall and, after the first year, can reseed and sustain regrowth for the following seasons. White clover requires minimal mowing, but some use a low-mow method in midsummer to help control growth.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Garbanzo Bean

Cicer arietinum
Annual Legume

Overview:
Garbanzo bean is an annual legume that is drought tolerant and prefers warmer temperatures. These plants are among the oldest domesticated vegetables roughly 7,500 years ago in the Middle East. Garbanzo bean grows as a bush and has a deep taproot system that produces violet self-pollinating flowers. Also commonly known as "chickpea", garbanzo is a popular substitution for meat in vegetarian diets.

Beneficial Nutrients:
These plants are unique because of how they don't host many beneficial pollinators because they are able to self-pollinate. Garbanzo bean cover crop is a robust nitrogen-fixer and a great source of energy, boosting overall heart health.

Pest Management:
If the cover crop isn't maintained properly, the most common type of insect that can invade garbanzo beans are either corn earworms or native budworms.

Erosion Control:
Even though garbanzo bean isn't ideal for reducing wind and erosion due to its lighter residue, this cover crop helps replenish the soil and works well as a rotational crop with wheat or flax.

Methods of Use:
You can harvest the green pods and eat them fresh like snap beans. If you live in a region with mild winters, garbanzo planted as a fall cover crop can help reduce weeds for the spring season. Hummus is popularly made from chickpea and is best made with other garden veggies such as peppers.

Growing Tips:
Garbanzo bean cover crops are a nice medium in terms of temperature conditions, tolerating a light spring frost, and also doing well in the heat during its blooming phase. Germination will take 10 to 14 days while thriving in full sun. You can terminate by cutting back the stems, leaving the base of the plant to till back into the soil. These plants are known to have an indeterminable growth habit and will continue to bloom until the frost.

Seeding Rate: ~ 80-95 lbs per 1000 sq. ft

Hairy Vetch

Vicia villosa
Biennial

Overview:
Hairy vetch is a cool season biennial legume native to western Asia and much of Europe. These gorgeous trailing plants have been commonly cultivated as forage with long-reaching stems that can grow up to 5-feet long, yet growing at a slower rate during the fall.

Beneficial Nutrients:
Hairy vetch is often grown as a cover crop in the fall to be mulched back into the soil in the spring as an organic green manure. Not only can hairy vetch be tilled into an organic biomass dense in phosphorus and potassium, but it is known to convert more nitrogen back into the soil than other legumes and cover crop grains.

Pest Management:
The most common pests to feed on hairy vetch are insects in the alfalfa family such as cutworms, pea aphids, and corn earworms. It is recommended to plant nematode-resistant crops such as painted daisy, French marigold, or castor bean nearby in the garden to ward off disease-carrying pests and leafhoppers.

Erosion Control:
The long vines produced by the flowering hairy vetch help keep the soil healthy, free of weeds, and always rich in nitrogen. Hairy vetch can cover the ground with its broad, trailing growth and long vines preventing weeds from taking over and protecting the soil from seasonal water run-off and erosion.

Methods of Use:
Plant common vetch alongside hairy vetch plants as a rotational crop, especially when working with untilled soil. Harvest hairy vetch once it has flowered, but before gone to seed.

Growing Tips:
Hairy vetch seeds can be sown 30-45 days before final frost in either early spring for a summer harvest or in early autumn for a winter mulching. As a cover crop,

hairy vetch is intended to grow in poor, depleted soils and can grow in a wide range of climates and conditions. Broadcast hairy vetch directly and lightly tamp.

Seeding Rate: ~ 1-2 pounds of seeds for every 1,000 square ft.

Lentils

Lens culinaris
Annual

Overview:
Lentils make for a terrific cover crop because of its nitrogen fixing ability and it's spreading habit. Usually, lentils are a companion cover crop, planted in front of grains. The lentil plant leaf structure makes a great ground cover while letting light through to allow grains to grow strong and healthy. Heat resistant and frost tolerant also make it an ideal fall cover crop.

Beneficial Nutrients:
Along with nitrogen-fixing, lentil cover crops produce loads of biomass that also return nitrogen and other nutrients back to the soil.

Pest Management:
Susceptible to cutworms and powdery mildew.

Erosion Control:
Because of the lentil's spreading habit and deep roots, it protects soil from getting blown or washed away by wind or water erosion. Keeps grain seeds protected while they germinate.

Methods of Use:
Plant a few weeks ahead of grain seed cover crop.

Growing Tips:
Lentils ideal germination temperature is 68°F, so if planting as a fall or a spring cover crop along with grains, timing is crucial. After the seed has been inoculated, broadcast a couple weeks a head of grains. Mow down grain and lentils altogether when the time is right.

Seeding Rate: ~ 2 lbs per 1000 sq. ft.

Mustard

Brassica juncea
Perennial Brassica

Overview:

Mustard is an upright perennial in the brassica family. It is an ideal cover crop to break down contents and return organic matter back into the soil. This spicy plant provides biofumigation and its seeds can be ground up to make homemade mustard. This plant is ideally sown in late summer to early fall. Mustard is generally cold-hardy for the first light frost in late fall but will die back in the winter unless in warmer winter zones.

Beneficial Nutrients:

The mustard plant is a strong biomass producer, returning plentiful amounts of nitrogen to the top layer of the soil. Mustards, in general, have a thick taproot growing between 2 to 6 feet deep. A terrific weed suppressor, due to such a complex root system.

Pest Management:

Mustard cover crops attract helpful pollinators such as honey bees and butterflies. As far as pests go, mustard is a natural insect repellent and is especially tolerant in its ability to kill off unwanted pests that may try to lay eggs.

Erosion Control:

Mustard suppresses weeds and provides protection against erosion. Mustard also suppresses soil borne diseases and gives nitrogen back to the soil acting as an ideal green manure. The long taproot breaks up soil compaction and reduces water runoff.

Methods of Use:

Mustard is often incorporated into vegetable rotations because of a natural insect-repelling chemical called glucosinolate. The natural pesticide only works when the cover crop is mowed down, rupturing and releasing the chemical.

Growing Tips:

Mustard can be planted in early spring, if your region has mild winters. Generally, late summer to fall is the ideal season to start sowing mustard and will produce more as a cover crop. Sow in early August for fall harvest. Mustard is fairly quick to germinate with warm enough soil and can sprout in 4 to 5 days. Termination should be 40 to 45 days after seeding by low-mowing the crop and incorporating the leafy biomass into the

soil. If mustard is in a zone that has colder winters, it won't overwinter. Termination is ideally 6 weeks before the first frost, or after the mustard flowers, but before it goes to seed.

Seeding Rate: ~ 15 -20 lbs/Acre or 8 oz per 1000 sq f

Oat

Avena sativa
Annual Cereal Grain

Overview:
Oat is a cool weather crop that can withstand light frost but will die back in the winter or at temperatures below 5 to 10°F. This plant is an upright annual cereal grass that thrives in moderate to cooler temperatures with moist soil. Oats have fibrous roots and can be sown earlier in the spring than many other annuals, allowing this plant to collect and reuse an abundance of soil nitrates in a short amount of time.

Beneficial Nutrients:
Oats grown as cover crops are ideal for controlling weeds, and softening your soil as it also draws in substantial amounts of nitrogen through its fibrous root system. These plants are also generous crops in that they provide the excess nitrogen to other companion legumes that may need the extra boost.

Pest Management:
As oat cover crops help suppress pests, the most common type of disease that you want to be aware of is a crown rust. A way to avoid this issue, is to sow a variety of oat seeds that are resilient and fresh. You can also allow them to establish earlier in the season in order to manage and protect the plants from their more vulnerable stage.
As oat cover crops help suppress pests, the most common type of disease that you want to be aware of is a crown rust. A way to avoid this issue, is to sow a variety of oat seeds that are resilient and fresh. You can also allow them to establish earlier in the season in order to manage and protect the plants from their more vulnerable stage.

Erosion Control:
Oat cover crops are effective soil protectants that also minimize erosion.

Methods of Use:
Oat seeds are sown in the spring as a companion cover crop that benefits legumes and boosts their nutrients, such as winter peas. Oat cover crops have been planted as winterlong covers that you could let stand and die off without termination. These plants also make an ideal cover crop for suppressing weeds. When it comes time to harvest,

some gardeners let their oat stand and die back themselves. This way, the plants can become a low-maintenance soil cover that will continue to decompose throughout winter and provide fertile ground for your spring planting. However, be aware of how some viable seeds could be left to germinate next season. To avoid this, you can harvest the mature crops through a low-mow method, or by using a no-till roller crimper.

Growing Tips:
Sow oat seeds in either fall for an early autumn harvest, or in the spring for a late summer harvest. It is recommended to sow 6 to 10 weeks before your region's final frost, as oats are frost hardy and can withstand cold temperatures as low as 5-10°F. Germination will take 3 weeks as oat plants are quicker to sprout. These plants prefer moist, well-drained soil and require more watering than other grains, growing up to 4 feet tall and maturing around 60 days. If you decide to terminate as your harvesting method, you can use a non-tilling method such as adding an herbicide that's compatible with the type of crop you want to plant next.

Seeding Rate: ~ 30-100lbs/Acre or 0.0007-0.0023 sq. ft

Austrian Field Pea

Pisum sativum
Annual Legume

Overview:

Austrian field pea is an annual vine winter legume often referred to as "winter or black pea." As one of the oldest domesticated crops, this plant has a hollow, shallow stem, prefers temperate climates and is frost tolerant down to 10°F. These plants are in the bean and pea family and are sensitive to the heat. These types of pea plants are known to be an ideal crop for fixing high amounts of nitrogen. To gain the most health benefits from Austrian field pea crops, plant in winter so you can add an abundance of nitrogen and organic matter back into the soil.
Austrian field pea has been used traditionally for human consumption, livestock forage, and is popular as a protein supplement in vegetarian diets.

Beneficial Nutrients:

It's often grown to specifically replenish nitrogen, as Austrian field peas are noted for their strong ability to draw large amounts from the air. The blossoms of these plants will also provide an extended source of nectar for honeybees.

Pest Management:

These plants help reduce crop diseases such as leaf fungus. However, Austrian field pea as a cover crop is susceptible to some diseases such as hosting nematodes. It's recommended to rotate crops and not to grow these same plants in concurrent years in order to avoid certain pathogens. Instead, Austrian field pea can be sown with cereal rye plants as a companion.

Erosion Control:

Austrian field pea has a root system that contains the protective bacteria, nodules. This field pea also acts as a ground cover providing erosion control throughout winter.

Methods of Use:

Austrian field pea isn't ideal for controlling weeds long term, but can boost nitrogen back into your soil and prepare a healthy environment quickly for your next crop. The nitrogen will be at its peak once Austrian field pea is in full bloom. Once this has occurred in 80 to 90 days from sowing date, harvest and terminate by using a low-mow method to control the vines, while the in-

tegrated plants will provide a green manure for your soil. You can also harvest for forage such as hay. This will help increase the fertility of your vegetables for the next crop due to the high levels of nitrogen that these plants put back into the soil. Austrian field peas also make a good winter crop companion to sweet corn and should be planted before.

Growing Tips:
Sow Austrian field pea in late summer from August to September for a fall harvest, or in early spring as a summer annual. However, it's recommended to plant as a winter crop because of its susceptibility to matting, becoming slimy, and not easily terminating in the springtime. The growth of Austrian field pea seeds will decrease and plants will blast if left in temperatures higher than 85°F. Germination will occur in 10 to 14 days. Austrian field pea requires full sun with regular light watering, as these plants don't like being left in soil that's too wet. It's also recommended to terminate through a low-mow or plow method, rather than let them stand throughout winter. These vine-like legumes thrive in cold temperatures, but will die back in the winter.

Seeding Rate: ~ 7-8 lb per 1000 sq. ft

Dun Pea

Pisum sativum subsp. arvense
Annual Legume

Overview:

Dun Peas are the most common type of field pea grown in Western Austria and the most hearty among the pea plants. They are a trailing annual vegetable and cool season crop that have a stronger ability to provide weed control in the pea plant family. In North America, Dun peas are grown in the Pacific Northwest and more recently in the Great Plains. These plants contain high amounts of protein and have fundamental amino acids such as lysine. The different field pea types are often distinguished by their differing seed coats, colors and sizes. Dun pea seeds are greenish brown with yellow cotyledons and are sometimes dimpled.

Beneficial Nutrients:

This plant is rich in amino acids and carbohydrates. Historically, the original growth of Dun pea crop was substandard for human consumption, but the plants made suitable forage for livestock. Now, Dun pea plants as cover crops are better able to succeed because of various conditions and harvesting methods. Dun peas also make a great protein substitute and can be added to salads as a fresh garnish.

Pest Management:

Dun pea cover crops are known to help break up or resist certain soil-borne pathogens that cause plants to suffer from disease. While pea plants in general aren't the strongest of cover crops to resist weeds, depending on your location, Dun pea plants can provide better weed control than others. To help avoid insects from invading, keep the soil for Dun pea plants moist, but not too wet. Water consistently as the plants' vines start to flower and pods form.

Erosion Control:

Dun pea cover crops defend the soil from erosion and replenishes with nitrogen fixation.

Methods of Use:

Dun pea plants make a great green manure crop and are often rotated and grown alongside cereal crops, as pea plants help increase the concentration of protein overall. Dun pea plants grow best in mid-to-cooler temperatures ranging from 50 to 70°F. Water regularly during the plants' growth and slightly more during

its blooming phase. In the summertime, it's recommended to water early before the temperatures rise. These plants grow best in full sun but can stand partial shade. If it gets too hot, the buds will drop and seeds will reduce.

Growing Tips:
Sow Dun pea in early spring or once the soil is at least 40°F. In zones 6 and above, you can sow seeds in the spring. In zones 5 and below, sow Dun pea in late summer to early fall. In cooler regions, germination can take 20 to 30 days, but in warmer environments, these plants can sprout in 7 to 14 days. These plants flower later on, which makes Dun peas an ideal cover crop for sowing early. Dun Pea plants can reach 2 to 4 feet tall, but grow more as a trailing vine. These plants can grow in a variety of soils, but won't do well with acidic soil. Dun pea also won't thrive if the plants are grown under irrigation, as the excessive water will make the crop more susceptible to disease. For termination, 60 days from the sowing date is when you can use a low-mow method or by using a herbicide. Terminate in order to better incorporate the pea plants into the soil for nitrogen and carbon crop benefits.

Seeding Rate: ~ 4 lbs per sq. ft

Yellow Pea

Lathyrus aphaca
Annual Legume

Overview:
Yellow pea is a cold hardy annual legume and often thought of as a "defense crop". Yellow pea provides substantial plant health for the following crops that are sown after and are easy to grow. Yellow pea plants have a shallow root system and replenish an average of 100 lbs of nitrogen per cover crop.

Beneficial Nutrients:
Yellow pea plants not only fix high amounts of nitrogen, but they also accelerate the amount of microorganisms in the soil. Yellow peas are particularly rich in iron and magnesium while also being attractive to important pollinators.

Pest Management:
Younger pea plants are susceptible to being eaten by birds. To avoid this issue, lay down netting after pea seeds are sown to keep birds and mice from invading the crop.

Erosion Control:
The extensive root systems of yellow pea perform very well at protecting soil.

Methods of Use:
Pea is relatively quick to grow and harvest, especially in comparison to other legumes that take longer such as soybeans. Yellow pea cover crops are known to make a beneficial rotational crop during the fall sowing season in replacement of wheat plants. These plants also contain high amounts of protein and a balanced diet for livestock.

Growing Tips:
Sow yellow pea in early spring from mid-March to April for a July-August harvest, or 3 weeks after the last frost. In regions with less harsh winters, you can sow yellow peas in late summer to early fall for a winter harvest. Germination will take up to 30 days in cooler regions and 14 days in warmer. It's recommended to trellis to help support the trailing growth of yellow peas and to decrease weed growth. Yellow pea plants prefer moist soil that isn't too wet and don't do well with fertilizer. Harvest yellow peas for fresh use once the crop is in full bloom around 60 to 70 days

from sowing. It's also suggested when growing yellow peas to include an inoculant in the soil before planting. When it comes time to terminate, herbicides such as Gramaxone are often used.

Seeding Rate: ~ 3 - 4 lbs per 1000 sq. ft

Daikon Radish

Raphanus sativus var. longipinnatus
Annual Legume

Overview:

Daikon radish is an upright annual root legume and cool season crop. These root crops have become more popular as a cover crop within the last decade because of their ability to protect the soil from weeds, while adding nutrients back to the soil. Recent studies show how daikon's hardy and solid roots are able to provide deep channels in the soil that enrich neighboring and subsequent crops. Daikon radish is considered a winter radish and should be sown in the late summer to allow leafy crowns to fully grow.

Beneficial Nutrients:

Daikon radish plants have high levels of vitamin C and enzymes. In general, radish plants' roots act as water channels that freeze over winter, which is how they earned the nickname "tillage radish". Daikon radish roots can grow a little over 1 foot long. These secure roots dig deep and soften the soil, while increasing the quality of water for companion crops. Daikon radish are over-wintering plants that terminate easily.

Pest Management:

As radish plants are known to be vulnerable to certain pests such as aphids, cutworms or flea beetles, it's recommended to use fabric rows and rotate your radish crops so you can avoid these pest issues. Daikon radish plants are also insect pollinated and are ripe for cross pollination.

Erosion Control:

Daikon radish cover crops are known to suppress weeds during the growing seasons because of their large leaves which protect the ground. These plants also are able to help control erosion, as their long root systems are able to oxygenate the soil.

Methods of Use:

Daikon radish is particularly nutrient-rich when it comes to a highly effective living mulch that protects the ground. This is due to their lengthy roots acting as recycling systems that can reuse nitrogen from the previous year and also create ideal soil drainage. Daikon radish is also a very popular microgreens cultivar.

Growing Tips:
Sow daikon radish seeds 6 weeks before your region's first frost in either August or September. It's recommended to plant daikon radish a little earlier than your typical over-wintering crop, so you can allow its large leaves to establish and the roots to grow. Germination can happen as early as 3 to 6 days in warmer temperatures that are at least 60°F and up to 1 month in cooler regions. Daikon radish plants can grow up to 2 feet tall and should be terminated by either a low-mow method or herbicide before the plants fully bloom in order to prevent seed regrowth. You can terminate the crop or harvest the daikon radish to eat around 60 to 70 days from the sowing date.

Seeding Rate: ~ 2 - 4 lb per 1000 sq. ft

Winter Rye

Secale cereale
Perennial Cereal Grain

Overview:
Winter rye is an upright perennial and robust cereal grain that prefers cooler seasons with deep roots. It's different from other ryegrass, as winter rye is a type of grain. This plant is a variety of grain that has similar growing requirements as winter wheat, but grows well in substandard soil conditions and is more cold-tolerant than wheat.

Beneficial Nutrients:
Winter rye as a cover crop is also an excellent provider of nitrogen through organic matter to boost soil health. These plants are also known to break up soils heavy with clay to prevent compaction.

Pest Management:
Winter rye grows quickly and tall enough to act as a wind protectant for surrounding plants, while minimizing pest infestation. When winter rye is grown in the fall as a cover crop, they help reduce soil-borne diseases.

Erosion Control:
Due to winter rye's ability to slow down the germination process of surrounding plants, also known as "allelopathy", it provides strong defense against weed growth. Winter rye plants also grow a deep root system that helps loosen up the soil and control erosion.

Methods of Use:
Winter rye is more drought-tolerant than other cereals and can act as a mulch by providing the option of leaving biomass on top of the soil when it comes time for termination. However, because winter rye is a hardy perennial, it has the potential to grow back if the crop isn't terminated during the proper time. To avoid this, be sure to look for flowering on the plants and terminate once this occurs.

Growing Tips:
Plant winter rye seed in either early fall before winter temperatures set in or in spring once the soil is workable. As a cold-hardy cover crop, winter rye does well in substandard soil conditions. These plants can germinate as early as 10 days. In general, grains grow best in a sunny area. As winter rye is more drought tolerant, you can lightly water as

the seedlings sprout and mature. All grains are typically harvested with a scythe. You can use larger shears to cut and trim back the stalks. You can also terminate by using a herbicide or through a mowing method. It's recommended that specifically with winter rye cover crops, you use a low-mow method and proceed by using a garden tiller to efficiently turn over the soil.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Soybean

Glycine max L. Merr
Annual Legume

Overview:
Soybean is a warm season annual legume in the pea family. Out of all the legumes, soybean plants contain the highest amount of protein. These bushy plants originate in East Asia and serve many uses in culinary traditions such as tofu and soy sauce. Soybean is also an ingredient in several non-consumable items, like crayons or ink.

Beneficial Nutrients:
Soybean is one of the most popular meat replacements as it contains 68 grams of protein per cup. These plants also have essential minerals such as phosphorus and manganese.

Pest Management:
Since soybean has a low risk for soil-borne pathogens or pest invasion, it's not recommended to use any pesticides.

Erosion Control:
Soybean is a strong soil-protectant plant that reduces water and wind erosion.

Methods of Use:
Soybean cover crops are best used to suppress weed growth, improve soil health, and nitrogen replenishment. These plants are known to be a conservation cover crop in regards to how soybean assists in nitrogen-fixation for other companion crops. Soybean also makes healthy forage for livestock.

Growing Tips:
Sow soybean 2 to 3 weeks after final spring frost or once the soil has reached warmer conditions of 60°. Plant soybean seeds in narrow rows and in full sun. Germination will occur in 2 days, but may emerge in a week. These plants prefer loamy soil and, growing fast in the heat, will require 2½" of water per week throughout the season. These plants can tolerate poor soil and partial shade. Soybean cover crops will be ready for fresh harvest in 40 to 60 days from the sown date or once the pods are plump are bright-green. For termination, you can use a low-till or mowing method to incorporate the soybean residue back into the soil.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Triticale

×*Triticosecale*

Perennial & Annual Cereal Grass

Overview:

Triticale is a perfect hybrid of wheat (triticum) and rye (secale), a cool season cover crop that acts similarly to cereal rye plants that are often grown alongside other annual rye grass crops to increase shared nutrients and forage benefits.

Beneficial Nutrients:

Triticale planted as a cover crop provides ideal soil tilth, controls soil erosion, and helps with weed suppression. As triticale is mixed with wheat, these plants contain sufficient amounts of protein and types of vitamin B. These plants provide 50% more fiber content than wheat and are suggested to help balance blood sugar levels.

Pest Management:

Triticale is heavily resistant to pests. Triticale is also similar to other grains in breaking up clay soil and suppressing weeds.

Erosion Control:

With triticale's fibrous root system, this hybrid cultivar is able to lend effective protection against soil erosion. The deep roots of these plants also increase nitrogen scavenging and provide nutrients for the next crop.

Methods of Use:

Triticale contains a high amount of lysine and therefore can be used as a protein replacement often for livestock.

Growing Tips:

Plant triticale seeds in either late summer or early fall before freezing conditions or a couple of weeks before your region's recommended wheat sowing date. Germination can take 2 weeks. These plants prefer well-drained soil with a pH around 5.5-6.0. It's common to harvest triticale for forage before termination, as these plants can die back during winter and regrow in the spring. Triticale plants can grow up to 3 to 5 feet tall. Once you see the seeds of plants' heads begin to emerge, terminate the triticale cover crop by cutting them back or through a low-mow method.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Hard Red Spring Wheat

Triticum aestivum
Annual Cereal Grain

Overview:
Hard red spring wheat is an upright annual cereal grain that has the potential with the right climate to overwinter as a cool season winter annual. As a member of the wheat family, these plants also have a fibrous and deep root system which helps with soil erosion. Hard red spring wheat and winter wheat cover crops have both been noted to be beneficial especially in the Pacific Northwest region, because of their low-mow to no-till termination methods as environmental options.

Beneficial Nutrients:
Hard red spring wheat cover crops are noted for their ability to minimize weed invasion, boost organic matter in the soil and break up compaction.

Pest Management:
When hard red spring wheat is grown as a cover crop, pests and disease aren't likely to become a problem.

Erosion Control:
Hard red spring wheat as a cover crop helps control soil erosion, as its vast root systems sustain the soil.

Methods of Use:
Both winter and spring wheat varieties that are "hard red" are used most for baking and can be sown as either a cool or warm season crop. It's less common to plant wheat cover crops as a spring or summer annual, but in the right conditions, hard red wheat as a spring cover crop is particularly beneficial when it comes to weed suppression and when they're sown in with a legume crop. Although, spring wheat cover crops will provide slightly less nutrition overall. These plants are often grown in the spring if the crop was less successful in overwintering or to help control weeds alongside a companion crop.

Growing Tips:
Plant spring wheat in early spring to keep the plants from growing in too warm of conditions and to allow the root system to fully establish. The germination period for wheat can sprout in 30 days, but typically will take 4 weeks and will need to be watered 1" per week. Spring wheat is simple when it comes to termination of

the crop with a compatible herbicide as an ideal option. You can also use a low-mow method in late summer, but it's recommended to use no-till methods, as spring wheat leaves little residue behind and puts nutrients back into the soil.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Hard Red Winter Wheat

Triticum aestivum
Annual Cereal Grain

Overview:
Hard red winter wheat is an upright annual cereal grain. Winter wheat should be planted in August to September in order to allow the plants' longer germination period to occur while the soil is still workable. This plant is strong when it comes to weed suppression and grows ideally as an early fall cover crop that overwinters.

Beneficial Nutrients:
Hard red winter wheat is a sufficient nitrogen-fixing cover crop that provides straw and fertile soil tilth. This plant also helps balance and boost the cycling of phosphorus and potassium.

Pest Management:
Hard red winter wheat plants are unique in that they are able to go dormant during the winter. This allows for winter wheat cover crops to not be too susceptible to pests, as well as being noted for their weed-suppressing abilities and disease resistance. However, it's recommended to check the Hessian fly-free date for your region before planting winter wheat, as sowing the crop too early in the summer-to-fall season could make the cover crop vulnerable to catching crown disease due to fly invasion. Always check your region's dates to know when it should be safer to plant your crop.

Erosion Control:
With winter wheat's fibrous root system, these grains do well at controlling soil erosion.

Methods of Use:
Hard red winter wheat is able to control weed growth by protecting the soil. Before sowing winter wheat seeds, consider placing a thin layer of straw over soil to help retain moisture and defend against birds. These plants are also known to be a strong crop companion to other legumes, such as potatoes by helping suppress the weeds that can take over vegetable crops.

Growing Tips:
The majority of grains are a cool-season crop, such as hard red winter wheat plants. Plant hard red winter wheat seeds in early fall and harvest in late spring to early summer the following year. Winter wheat is able

to overwinter in zones 3 to 7. Winter wheat should be sown early enough in either August or September to allow its longer germination period which can take up to 4 weeks. In zones 8 and warmer, sow seeds in late fall. It's recommended to use a seed-spreader in order to evenly distribute for ideal growth. Keep these plants moist until the seeds sprout. Winter wheat will require less water than warm-season grain crops and is noted to yield more wheat. You can use a scythe to harvest for grain or terminate the crop by using a plowing, or disking method before the seeds mature.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Cover Crop Mixes

Garden Cover Crop Mix

Overview:
All of these elements of soil health were considered in compiling this carefully chosen cover crop seed blend. This cover crop seed blend is great for either fall or spring. Recommended to till the plants in before they bear seeds.

Beneficial Nutrients:
There are four legumes to set nitrogen in the soil, three hardy grains for rapid cover and biomass, a deep-rooted radish to help break up and aerate the soil, and a great collard for forage and additional biomass.

Pest Management:
One yellow mustard variety and one radish variety provide the natural biofumigation properties notable to that species.

Erosion Control:
The grains in the mix provide excellent weed suppression along with the ability to break-up clay soils. The daikon radish variety also helps to ward of harmful insects

Methods of Use:
Grown in garden beds, raised beds, and even large containers. Intended for small-scale to large-scale use.

Growing Tips:
Use a broadcaster to sow seeds after the ground has been diced. Water heavily on the sow date and pay close attention to soil moisture. Cut down or till under a minimum or 3 to 4 weeks before planting your garden, so the biomass can begin to decompose and provide its benefits to the soil.

Seeding Rate: ~ 2–4 lb per 1000 sq. ft

Inoculation Instructions

Legume cover crops have a tight relationship with rhizobia bacteria, a common soil bacterium that aids in converting nitrogen from the air into a consumable form. Rhizobia forms nodules on the roots of the legume plant that expedite the transfer of nitrogen from the air to the soil. Although rhizobia are present in soils, the low numbers make it insufficient for nitrogen fixing.

To get the most nitrogen-fixing out of your legume crop, you will need to pre inoculate your seeds. We prefer to inoculate seeds using a powder inoculant. The process is super easy and should be planted within 12 hours of the inoculation process.

Below is a chart laying out the amount of inoculant and water needed for a certain amount of seed:

Seed	Inoculant	Water
1 LB	.05 OZ	1/4 TBSP
2 LB	.10 OZ	1/2 TBSP
5 LB	.25 OZ	1 1/3 TBSP
25 LB	1.25 OZ	1/2 CUP
50 LB	2.5 OZ	1 CUP

Inoculate Your Legume Seeds in 4 Easy Steps

Pour the desired amount of legume seed as shown in the chart above in a large mixer, bucket, or container

Pour the said amount of water into the mixer and mix to moisten seeds so inoculate can stick to seeds.

Pour the amount of inoculate needed into the container and mix thoroughly.

Plant seeds within 12 hours before the inoculation wears off.

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