

Cover crops on small farms

Booklet



Attract
pollinators



Stop
erosion



Loosen
soil



Feed
animals

Summary

Cover crops are important for your farms health. They protect and add nutrients to the soil.

You can plant cover crops in the spring, summer and fall.

Learning Objective

- Use this guide to learn more about growing cover crops on your farm.
- Try growing cover crops using one of the example cover crop plans on pages 9 to 12.

Developed via

LSI Global Greens

Zone 5a/b, mid-western USA

Gratitude

- **Made by** Sandelis Miller
- **Photography** by Karla Conrad, Kathryn Gamble and Sandelis Miller
- **Illustrations** by Taylor Fourt and Sandelis Miller

Thanks to...

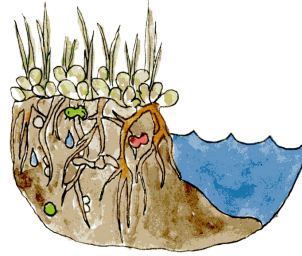
Firmin Ntakimazi, Jennie Erwin, Katie Painter, Taylor Fourt, Tika Bhandari and Zachary Couture for feedback and review.

Sponsored by ISED Solutions. Funded by the USDA National Institute of Food and Agriculture, Grant # 2020-49400-32320. Protected by Creative Commons License CC BY-NC

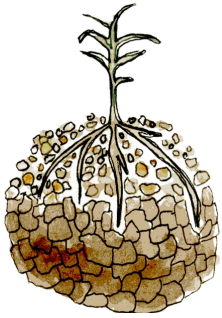
Cover crops can do many things for your farm or garden.



**Attract
pollinators**



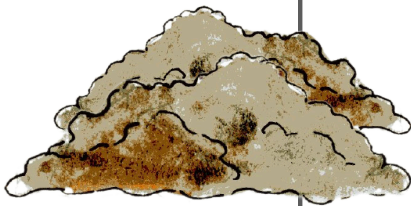
**Stop
erosion**



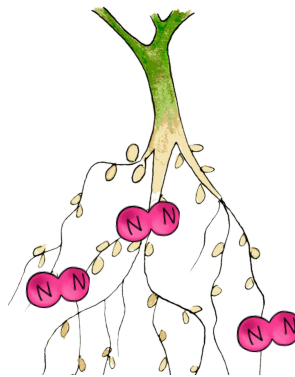
**Loosen
soil**



**Feed
animals**



**Make
soil**



**Add
nitrogen**



**Control
weeds**

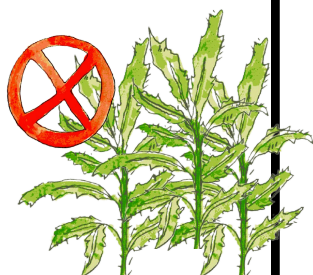
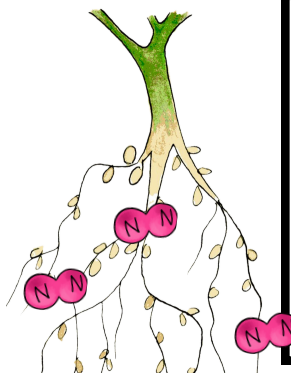
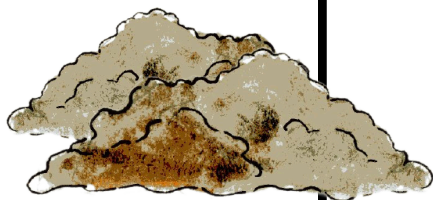
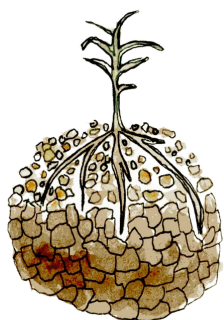
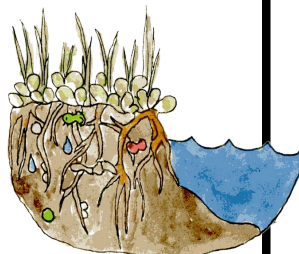


**Winter-
kill**



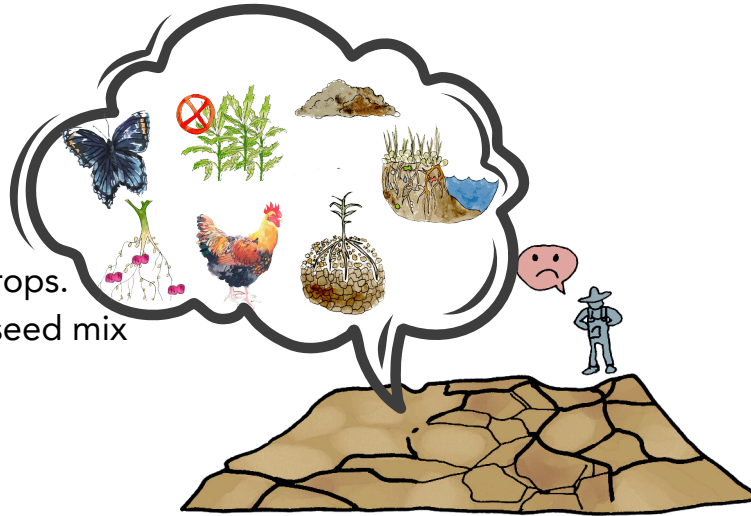
Cover crops Review

Fill in each box with the cover crop benefit.



Plan

Decide **when** you want cover crops.
Then decide, **what** cover crop seed mix
you want.



Plant

Plant seeds by hand, with a broadcast seeder or mechanical seeder. Rake or lightly till into the soil. Water responsibly.



Terminate

The cover crop benefits you most if
you kill it when it is flowering. Then its
energy goes to the soil instead of
making seeds.








What do you need to do to grow cover crops on your farm?

Make a plan. Plant seeds and water seeds. Decide how and when you will terminate your cover crops.

Do what nature does!

Nature has **biodiversity**. Biodiversity is the variety of life on earth, living and working together. The opposite of biodiversity is uniformity or one thing living and working on its own.

You can plant one kind of **seed (uniformity)** or a **seed mix (biodiversity)**.
Seed mixes are more biodiverse because there are more species in one mix.

<p>Seed</p>  <p>Type: Buckwheat</p>	<p>Benefit</p> 	 <p>This pea soup is better than no soup. But it has less biodiversity and less benefits.</p>
<p>Seed Mix</p>  <p>Type: Summer max mix</p>	<p>Benefit</p> 	 <p>This vegetable soup is full of biodiversity, with more benefits and nutrition.</p>



Which has more benefits? Seed or seed mix?

Seed mixes have more benefits for the soil.

More biodiversity = more benefits.

Where can you grow cover crops?

You can grow cover crops in raised beds, backyard gardens, community gardens, small farms and large farms.

This guide will focus on raised beds, community gardens and small farms.



This symbol is what you can do.

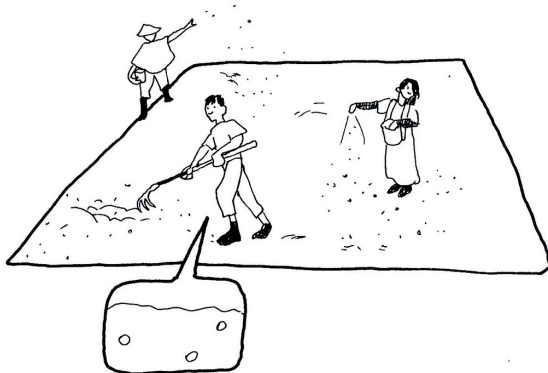


• Raised bed

Raised beds cannot feed themselves.



Plant cover crops that make soil and attract pollinators.

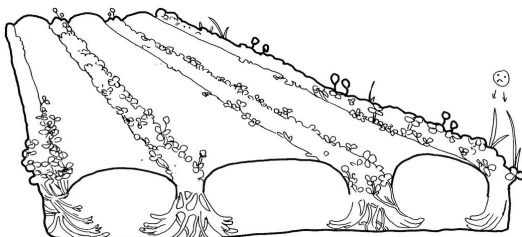


• Community garden

Community gardens feed a lot of plants and a lot of people.



Plant cover crops that make soil, control erosion and attract pollinators.



• Small farm plot

Small farm plots grow in succession.



Plant cover crops before or after cash crops or in pathways.

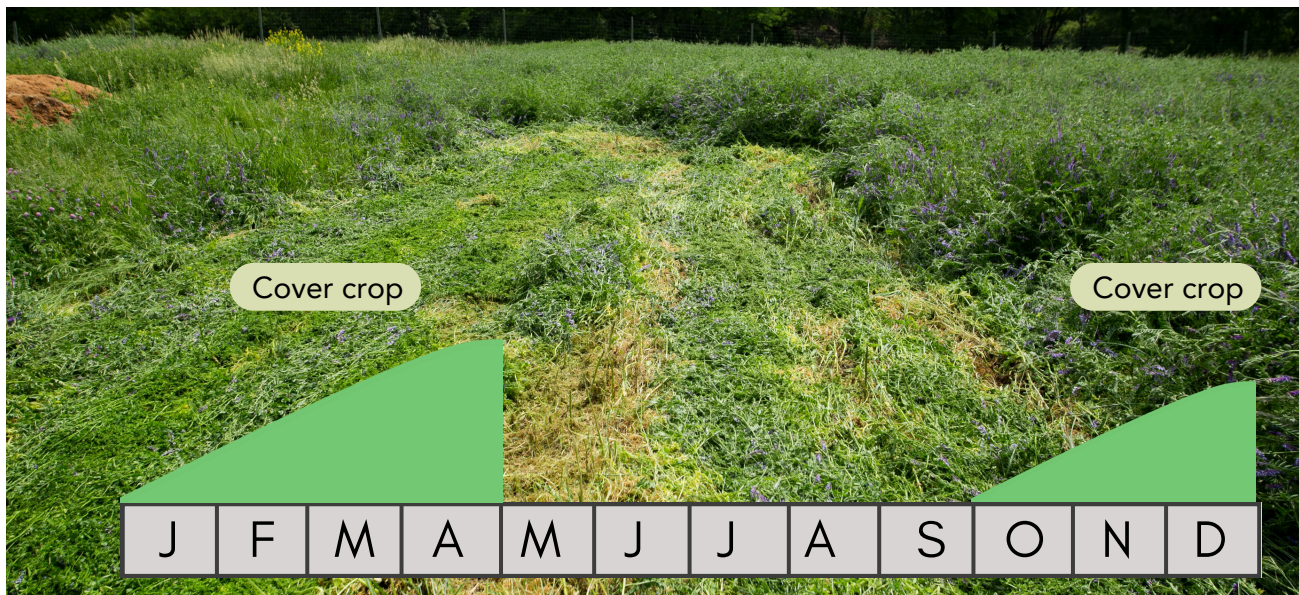


When can I plant cover crops?

- Plant cover crops when they want to grow!
- Include cover crop planting times in your cover crop plan.



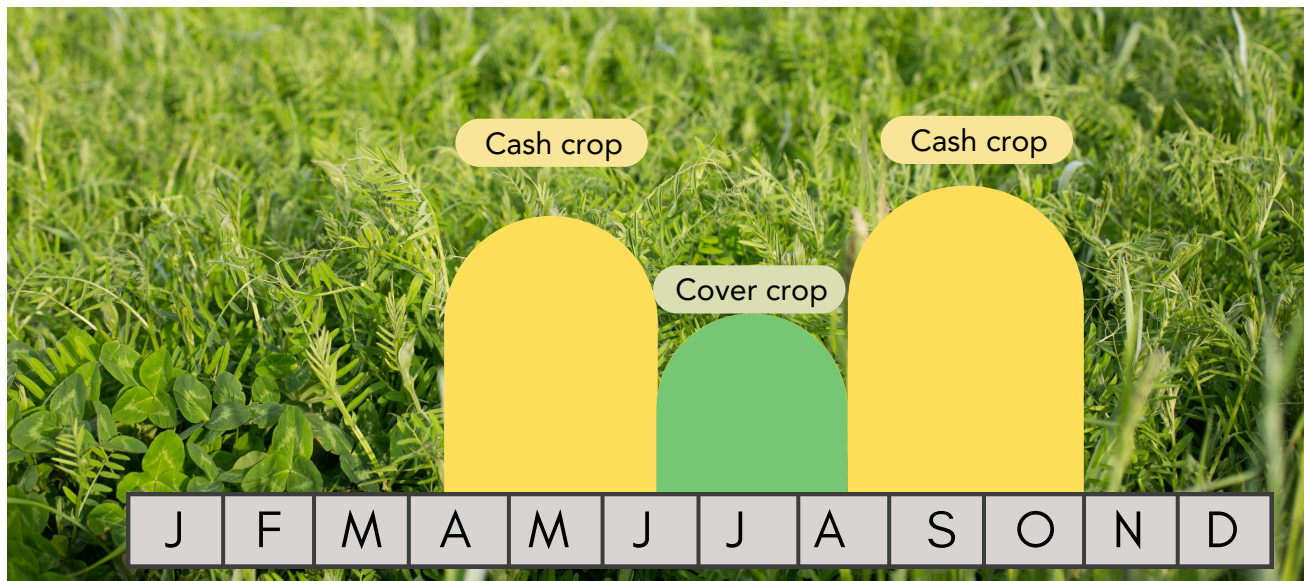
Fall and Spring Cover Crops



Plant fall and spring cover crops from October to April.



Summer Cover Crops



Plant summer cover crops from mid-June to mid-August in between cash crop plantings.



Start with these simple ideas:



Before cash crop



After cash crop

1

Cover crops can help the soil, nutrient levels and add organic matter so the soil is ready for your next cash crop.



In between
cash crops



2

Let 1 or 2 garden beds rest in between cash crops. If you harvest greens in the early summer, you can plant a cover crop before your fall planting.



Emergency

3

When the soil is weedy, hard and plants have poor germination or if your crops have failed, your soil needs help! You can let your field rest for a full year and let it enjoy the benefits of many rotations of cover crops.

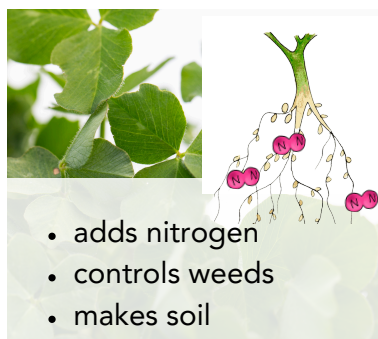
Winter cover crops

Rye



- makes soil
- harvests nutrients
- protects the clover to survive winter.

Crimson Clover



- adds nitrogen
- controls weeds
- makes soil

Winter Mix

- Winter rye
- Crimson clover

You can add hairy vetch, Austrian winter peas or winter wheat for diversity and benefits.

Start here

SEPTEMBER



Seed by mid fall.



Cover crops survive winter.

MAY



Crimp and tarp in **late spring** when rye seed heads are in the milk and dough stage



JUNE



Remove tarp after 3 to 4 weeks.



Transplant summer crops.

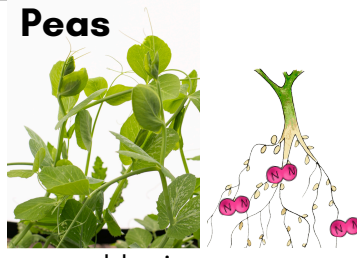
Spring cover crops

Oats



- make soil
- make trellis for vining peas.

Peas



- adds nitrogen
- harvests nitrogen
- makes soil

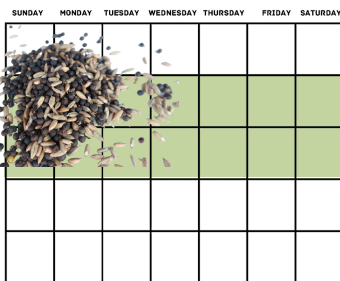
Spring Mix

- Oats
- Peas

You can add more legumes like hairy vetch for diversity and biomass.

APRIL

Start here



Seed by **mid spring**.



You can **eat or sell** pea tendrils.

Crimp and tarp in early summer.



Remove tarp after 2-8 weeks.



Rake mulch into the paths and direct seed summer crops into furrows.



Summer cover crops

Sorghum sudangrass



- adds biomass
- controls weeds
- adds oxygen to the soil

Sunn hemp



- adds biomass to the soil
- attracts beneficial microorganisms

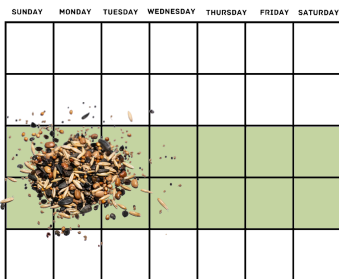
Summer Mix

- Sorghum sudangrass
- Sunn hemp

You can add other heat loving crops like buckwheat, clover, cowpeas and millet to put carbon into the soil.

Start
here

MAY



Seed in **late spring** when the soil is 60 F or 15 C.



Crops **winterkill** or die in the winter and make mulch.

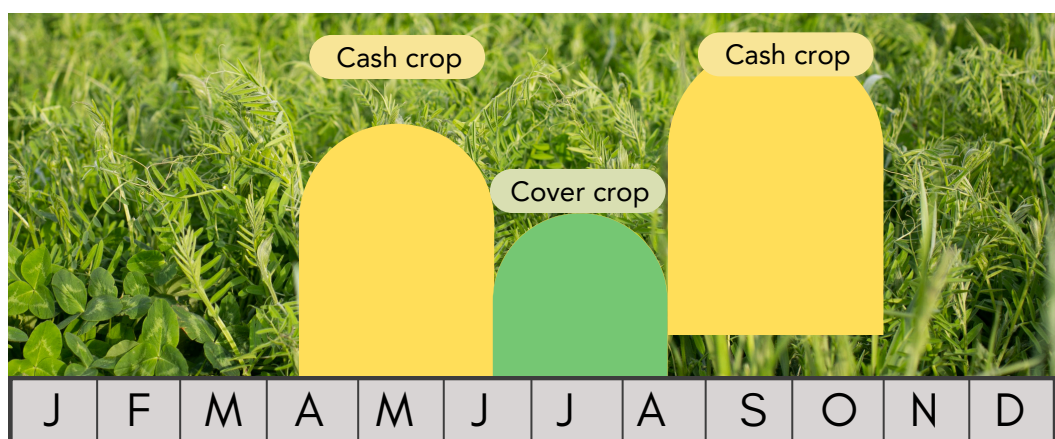


APRIL



Transplant into **mulch** or **strip till** in the spring.

Plant summer cover crops from mid-June to mid-August in between cash crop plantings.



Fall cover crops

Peas



- add nitrogen to the soil
- controls weeds.

Oats



- make soil
- controls erosion

Radish



- aerates the soil

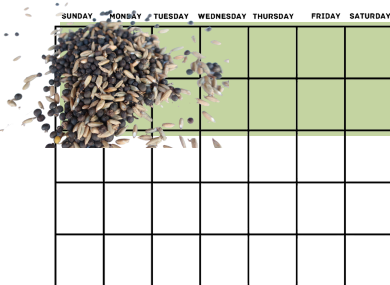
Fall Mix

- Peas
- Oats
- Radish

You can add barley, berseem, clover, fava beans and any other plants that do not survive the winter.

Start here

SEPTEMBER



Seed in **early fall**.

Late August or early September.



These cover crops grow quickly in cool weather.



Crops **winterkill** or die back when temperatures get too cold.



The cover crops turn into crop residue.

You can bury this as organic matter or mulch your pathways with it

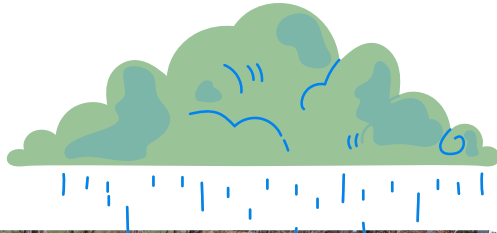


Rake the pea, oat, and radish **mulch** into your pathways.



Direct seed spring cash crop into beds in early-spring.

Water your cover crops



Plant cover crops right **before a rain.**

Look at the weather forecast.

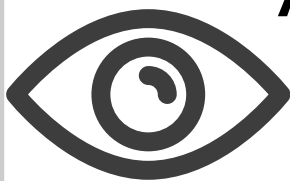
- **Is it going to rain?**
- Plant cover crops



Irrigate

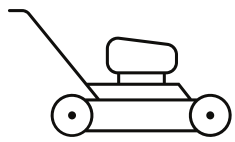
You can use

- Hose
- Sprinkler
- Irrigation system



Always look at your field conditions.

- If it is too wet your equipment can get stuck or damaged.
- If it is too dry, the seeds will not germinate.



Terminate your cover crops

- Terminate cover crops to get **more benefits**.
- Crimping and tarping builds soil and mulch at the same time.
- Chopping cover crops adds organic matter faster.
- Winterkill is easy.



Crimp

- Best weed control.
- Need equipment or additional time.



Silage tarp

- No-till soil building.
- Needs more time.



Mow

- Fast soil building.
- Need fuel.



Winterkill

- Easy, little work.
- Needs more time.



Weed whack or scythe

- Fast soil building.
- Additional time.



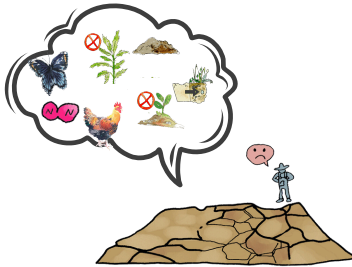
Till

- Fast soil building.
- Need fuel.

Cover Crop Review

Answer these questions to help you remember what you learned.

What are three things you will do to make your cover crop **plan**?

☐☐☐

What are two important things to remember when you **plant** cover crops? Hint: Seeds and water.

☐☐

What are three different ways you can **terminate** your cover crop?

☐☐☐