Straw Bale Gardening Instructions

What is Straw Bale Gardening, or SBG? SBG consists of using a straw bale as a growing medium for flowers and veggies. A straw bale consists of the dried stalks of cereal grain leftover from harvest. There should be few, if any seed heads. Bales should be "no-spray".

How does SBG work? A straw bale is able to support seed germination and plant life because you condition the bale for 12 to 14 days before planting. "Conditioning" is treating the bales with a high-nitrogen fertilizer and water. This accelerates the decomposition inside the bale, which creates nutrition for plants.

Why garden with straw bales?

1. SBG are highly adaptable to large or small garden areas.
2. SBG is a good solution if your garden soil is poor.
3. Start-up costs are relatively low.
4. Raised height of bale means less bending over.
5. Fewer garden tools are needed, just a trowel and a way to water bales.
6. Weeds are practically non-existent, so less labor for you.
7. Bales retain water well, and are also impossible to overwater.
8. Soil-borne diseases are not an issue and crop rotation practices are not necessary.
9. Bales can be planted on their tops and sides, lots of growing area in a small space.
10. Bales create excellent compost after the growing season is over.

6 Basic Steps to Straw Bale Gardening:

1. PLACE the bales on your chosen surface.

2. FERTILIZE the bales for 12-14 days.

3. PRIMP the bales by installing trellises & soaker hoses if you want them.

4. PLANT your seeds and seedlings. Water & feed them. Wait.

5. HARVEST your fruits and vegetables. Enjoy!

6. COMPOST the remains of your bales to mulch other parts of your garden.

STEP 1: PLACING THE BALES…

How to choose a spot for your SBG:

- ✓ Choose a sunny place, and make sure the cut side of the bale faces **UP**.
- ✓ Try to locate your SBG near a convenient watering source.

- ✓ If planting on a slope, position your bales so the long dimension runs down the slope. *[This will make them less likely to tip over in wind].*
- ✓ If you wish to make your bales higher, you can stack two, or stack a few wooden pallets and place bales on top.

- ➢ **Suitable SBG surfaces:** A flat surface is easiest and the most stable. Grass, asphalt, concrete, stone, wood chips, wooden pallets.

- ➢ **Unsuitable SBG surfaces:** Wood surfaces, like decks, because the bottom of a straw bale has constant moisture and can warp wood and damage paint & stain. Plastic is also a poor choice because the constant moisture can make things slippery and dangerous.

STEP 2: FERTILIZE THE BALES…

Fertilizer 101 (What's the deal with N-P-K?)

A fertilizer bag has 3 numbers on it that represent the macro-nutrients used by plants. These numbers represent:

Nitrogen **(N)**
Phosphorus, aka phosphate **(P)**
Potassium, aka potash **(K)**.

The bag below has the numbers 29-3-4 and contains 29% nitrogen, 3% phosphorus, and 4% potassium by volume. *[The numbers are always in that order: N-P-K]*

READ YOUR LABELS CAREFULLY!
Lawn fertilizer is a cheap source of high nitrogen, like the bag to the left. Try to buy a bag with at least 20% N.
WARNING!! Don't buy a bag that contains ***weed killer*** or says ***"crab grass control"***
Avoid a ***slow-release*** formula! On the back, this bag lists only 4% Nitrogen is slow release, that's ok.
(More than 12% slow release slows conditioning.)

You will begin the conditioning process using a high nitrogen (N) fertilizer. 10 days into the process you will switch to a balanced fertilizer that contains equal percentages of nitrogen, phosphate, and potash. **Fertilizer with a 10-10-10 label is what to buy.**

How do I apply the fertilizer??

- ✓ First measure out how much you need to apply
- ✓ Use a tool to stab holes in the bale's top (rebar, broken ski pole, etc)
- ✓ Sprinkle fertilizer all over bale's top, then water completely.

How much of each fertilizer do I need??

- ✓ Each bale you condition will require about 1 pound (lb) of high N.
- ✓ Each bale you condition will also require 1 cup of 10-10-10.
- ✓ A fertilizer bag will list how many pounds is it. It's ok to buy more than you need because it doesn't go bad and can be used next year. Or share with a friend.

Traditional Fertilizer SBG Conditioning Schedule

(The amounts noted are per bale)

DAY IN PROCESS	AMOUNT OF FERTILIZER	WATER
1	½ cup	water to saturation
2	-	water to saturation
3	½ cup	water to wash in fertilizer
4	-	water to saturation
5	½ cup	water to wash in fertilizer
6	-	water
7	¼ cup	water
8	¼ cup	water
9	¼ cup	water
10	1 cup 10-10-10	water to wash in fertilizer
11	-	skip
12	plant today!	water new plants & seeds

What to expect while your bales are conditioning:

As the conditioning process continues, changes occur. The bales are decom-posing and creating nutrients for your future plants. Here's what you may find:

Stinkiness! Lasts only a few days then mellows out. Relax, it's a plant rot smell vs. the neighbors thinking you have carrion rotting in the yard.

Shrinkage! The bales may look a bit shrunken in places, or the nylon twine that bind the bale may need to be tightened. Your choice to fuss with twine, it'll be ok for the season probably.

Sprouting Grass! There may be a few rouge grain seeds left in your bale. They may sprout and suddenly give your bales a grassy look. Just pull them out. No straw bale is perfect.

Heat! Compost piles generate heat; it's a good sign that all is well. The trick is to not plant until the heat becomes more ambient. Stick a thermometer 6 inches into bale to see how hot.

Mushrooms! DO NOT EAT THESE! They are harmless to the bale; I usually ignore them or pull them (wearing gloves) and bury them into the bale. Mushrooms are a sign decomposition is progressing nicely. This is what you want to happen.

Can I condition my SBG with organic fertilizer instead of traditional?
HOW DO I DO THAT?? What are the differences?

It takes more fertilizer to condition organically because organic fertilizers generally have lower nitrogen percentages then conventional fertilizers. It may take more time for conditioning to complete because of that.
Organic fertilizer is labeled with the N-P-K numbers too.

SOURCES OF ORGANIC FERTILIZER

NITROGEN

- "Milorganite" (dead microbes that have consumed organic matter in waste water, it has about 5% N and is slow release)
- Blood Meal (about 12-15% N)
- Fish Emulsion
- Composted Chicken Manure
- Feather Meal

PHOSPHORUS

- Bone Meal (also has a good dose of Calcium, which plants need)
- Fish Meal

POTASSIUM

- Sifted Wood Ashes
- Kelp Meal
- Greensand

Organic Fertilizer SBG Conditioning Schedule

(The amounts noted are **per bale**)

DAY IN PROCESS	AMT. ORGANIC FERTILIZER	WATER
1	3 cups	water to saturation
2	-	water to saturation
3	3 cups	water to wash in fertilizer
4	-	water to saturation
5	3 cups	water to wash in fertilizer
6	-	water
7	1 ½ cups	water
8	1 ½ cups	water
9	1 ½ cups	water
10	3 cups P & K source	water to wash in fertilizer
11 - 16	-	-
17	-	water new plants & seeds

STEP 3: PRIMP THE BALES…

Building a trellis for your SBG: Do I have to do this?
***No**, it's optional.*

Why a trellis is helpful:

- ✓ A trellis can support vines and heavy vegetables

- ✓ A trellis can support plastic sheeting to extend the growing season.
- ✓ A trellis can support row covers to protect crop from insects.

Anatomy of a trellis:

- ✓ Two 6 - 8 foot posts. (You should use a post pounder and mallet to install)
- ✓ 14 gauge galvanized wire to run between the posts a several heights (10")
- ✓ 2x4 or 2x6 piece of lumber to connect the two posts. (If the posts are over 12 feet apart use 2x6 lumber.)
- ✓ Screws to connect the 2x4 to the fence posts.
- ✓ Optional: Row cover fabric to prevent flying insect damage
- ✓ Optional: Plastic sheeting to prevent cool temps from damaging crops.
- ✓ Optional: Clothes pins or similar clips to secure plastic or row cover to trellis and bales.
- ✓ Optional: Jute or twine to tie sprawling plants to galvanized wire.

Installing a soaker hose system: Do I have to do this?
No, using a regular hose with a sprayer is *just fine*. So is a watering can.

- ➢ Soaker hoses are helpful as a time saving device. If your SBG is small you needn't bother.
- ➢ YouTube is a good source for figuring out the best way to design a system.
- ➢ Plan your design on paper first, based on your SBG layout, then lay out your hoses and fittings *before* you start cutting and splicing hoses and fittings.

STEP 4: PLANT THE BALES…Two ways of planting…

➢ DIRECT SEEDING A STRAW BALE

The decomposition that takes place in a conditioned straw bales generates warmth that helps seed germination. If you direct seed your straw bale, you will need to first put down a layer of sterile planting medium or potting soil mix to plant seeds into. This layer should be about 1-2 inches deep. Be sure to pat it down firmly and water *before* seeding. This will keep seeds in place and retain water during germination. Eventually the roots of the germinated plant will grow down into the bale. Please **DO NOT use garden soil** for the seedbed because this can introduce diseases. *Water seedbed after planting*. Check frequently and water as needed.

➢ TRANSPLANTING SEEDLINGS TO A STRAW BALE

Before you plant seedlings, it is important to *make sure the internal temperature of the bale is not too hot*. If you place a thermometer 6 inches into the bale and it is 105 degrees or more, *wait a day or 2 for it to cool down*.

To plant a seedling, remove it carefully from its pot—even if it is a "compostable" peat pot. Use a trowel to stab into the bale and work it back and forth to make a hole. Use sterile planting mix or potting soil to "heal in" around the transplant to ensure the roots are covered and not at risk to dry out. *Again, **DO NOT use***

garden soil *in order to avoid introducing soil-borne pathogens!!* Water transplants.

CARING FOR YOUR PLANTS IN A SBG Continue to water and feed your plants throughout the season. Use your favorite fertilizers as you normally would.

STEP 5: HARVEST THE BALES…

Enjoy the bounty! If one crop finishes, consider reseeding the area with another. Plastic sheeting can protect plantings well into the fall, so take advantage of the bales while you can. Once the warm weather crops are done, plant cooler season crops.

STEP 6: COMPOST THE BALES…

After the season ends you can fluff your bales into piles for further composting or top dress other spots in your garden. This year's bales can even be reconfigured into bales for next season. Bale material, once composted, makes great fill for raised beds elsewhere in your garden.

FOR MORE INFORMATION…

Book: "Straw Bale Gardens Complete" by Joel Karsten

Online:
Bonnie Plants has a great online tutorial: https://bonnieplants.com/library/how-to-condition-and-plant-a-bale-of-straw/

Rodale's Organic Life has another tutorial: https://www.rodalesorganiclife.com/garden/straw-bale-gardening

YouTube has many, many tutorials to watch. *Most less awkward than mine* ;->

Parting Thoughts…

- ✓ Relax!! This is pretty hard to mess up.
- ✓ If you miss a day of conditioning, the world will go on! Just pick up where you left off.
- ✓ Gardening is supposed to be fun, so don't drive yourself nuts trying to be perfect at any of this.
- ✓ Nature always wins. Hail storms, cold snaps, deer and groundhogs—don't take them personally. *Having a straw bale garden won't protect your crops from deer, but a fence might!*

Enjoy your garden adventures this year!!

Please share any questions, tips, or photos to: ind-director@sals.edu