Soil Care

Feed the soil, not the plant

Vitamins for Your Plants

- Change your thinking from fertilizing plants to conditioning soil
- Feed the soil, not the plants

Analogy of caring for your gut to caring for your soil:

- Think of soil conditioners as vitamins for your soil
- Probiotics: in your gut, probiotics are good bacteria, protect your gut, help fight disease and illness
- Prebiotics: in your gut, prebiotics act like a fertilizer for probiotics
- Certain amendments act like "probiotics": providing nutrients your plants need for overall health.
- Certain amendments act like "prebiotics" (helping make nutrients more available for plants to absorb).
- Healthy soil = healthy plants. Period.

Questions to think about:

- What kind of fertilizers/soil conditioners/amendments have you used in the past?

- What have you liked? What have you disliked?

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Types of Gardens

- In-ground: Can deal with heavy clay or sandy soil, may need extra conditioning. Use compost and garden soil.

- Raised bed: Regular conditioning = healthy beds. Overworked, depleted raised beds need extra conditioning and/or may need to lay fallow for a season. Use compost and garden soil.

- Container: organic potting soil, tend to come with good conditioning blend, requires more watering, replace soil every year or so.

Things to consider with in-ground and raised beds:

- Maybe allow your garden beds to lay fallow if overworked

- Good crop rotation: Do your best to not plant the same thing in the space year after year.

- Consider growing a cover crop over Fall/Winter: adds nutrients, improves soil quality

Questions to think about:

- What kind of garden space do you have? Or what kind of garden space would you like to build?

- What kind of soil do you have? Sandy? Clay? Etc….

- What kind of success/failures have you had in your gardening space?

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Synthetic vs. Organic

Synthetic:

- Usually derived from petroleum byproducts
- Cheaper, worse for the soil long term
- Kill off good bacteria in soil that help break down the organic matter into nutrients
- Think taking antibiotics vs. improving gut health/immune system
- Tends to be a quick release of nutrients, not good long term, tends to require more applications

Organic:

- Derived from plant, animal part or residue
- Slow release of nutrients
- Slow release it can (in most cases) be hard to over fertilize
- As they break-down, they improve quality of soil
- OMRI (Organic Material Review Institute): a private, nonprofit organization that determines whether or not a product qualifies as organic under the USDA's National Organic Program (NOP). Goods that are found to comply are listed on the **OMRI** Brand Name Products List

Action Steps:

- Follow the OMRI (@OMRIorganics) on Facebook (they are on Instagram, but not as active).
- Begin to look for the OMRI label where you buy your gardening supplies.

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Demystifying Fertilizers

- What do those numbers stand for (0-0-0)??
- N-P-K
- N= Nitrogen: causes leaf growth, gives plants energy to grow, involved in giving plant food to grow through photosynthesis.
- P= Phosphorous: encourages root growth, produces blossoms, fruit and seeds, also helps fight off disease.
- K= Potassium (some list as Potash): produces strong stems/plant structure, essential in plant growth.
- Many different sources of N, P, and K
- Soil ph: how acidic or alkaline your soil is. Adjust soil ph by adding more or less of Nitrogen, Phosphorous or Postassium
- Good balance for plants. i.e.: too much nitrogen can give you beautiful plants with no fruit.
- For a vegetable garden, you want a good balanced conditioner
- We'll talk more specifics about which conditioners below
- Soil tester (Luster Leaf 1601 Rapitest Soil Test Kit)

Questions to think about:

- Have you ever grown a garden before? If so, have you ever had issues with growing plants/plant health? If so, what were some of your issues/

Action Steps:

- Consider doing a soil test on your garden if it's new to you, you've over-worked your soil or your plants have had growing issues in the past

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When to condition

Before Planting:

- Add ½" of well-aged chicken manure across beds (organic where you can find it)
- 1-2 inches of well-aged compost (organic where you can find it)
- Add soil conditioner blend of choice (following amount listed on package) and mix in (by hand or with a rake) into top few inches of soil.

At the time of planting:

- I add a scoop of worm castings in each plant hole
- Small scoop (around 1tsp) of soil inoculate (mycorrhizae) in each planting hole
- Water with fish emulsion/seaweed extract fertilizer once you've planted

During the season:

- Fertilize with fish emulsion/seaweed extract once or twice during growing season
- Worm casting tea occasionally during growing season

Action Steps:

- Make a trip to your local garden supply store and check out the soil conditioners they have in stock (after watching the next video to see recommended conditioners). Also check out Amazon! In some cases Amazon is cheaper and sometimes it's cheaper to hit your local store.
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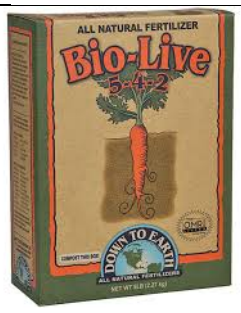
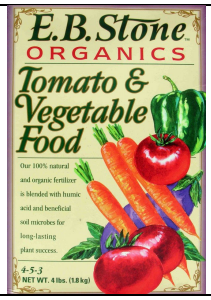
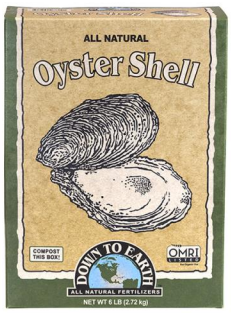
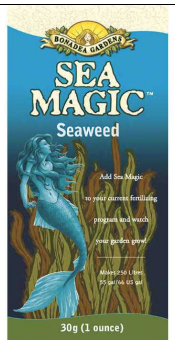
Bonus: Favorite Conditioners

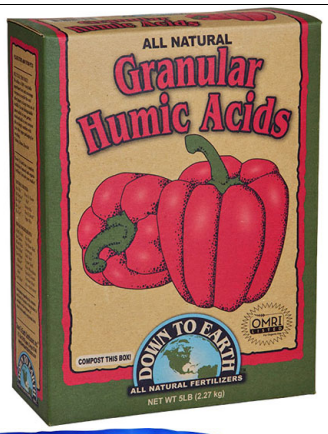
Organic Soil Conditioner Blends:
(the "multi-vitamins" for your soil)

Name	N-P-K	Benefits	Photo
Vegetable Garden (Down to Earth Organics)	4-4-4	Good balanced soil conditioner. Broad nutrient profile. Also includes some great "prebiotic" organisms.	
Bio-Live (Down to Earth Organics)	5-4-2	A diverse, marine-based blend with 30 species of mycorrhizal fungi and beneficial bacteria (those good "prebiotic" organisms).	
All Purpose Plant Food (EB Stone Organics)	5-5-5	Blend of natural, organic ingredients formulated for use throughout the garden.	

Tomato and Vegetable Food (EB Stone Organics)	4-5-3	Blended with humic acid (see below) and beneficial soil microbes for long-lasting plant success	

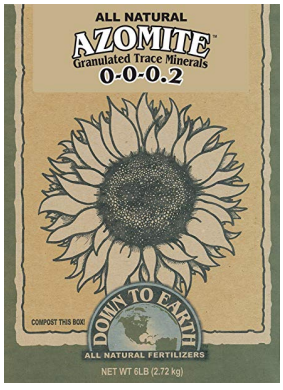
Additional soil conditioners you may want to add to your blends:
(Additional supplements you may want to add in with your "multivitamin")

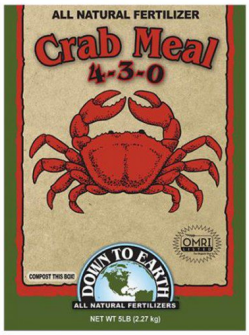
Name	Benefit	Photo
Oyster shell	Ground up deposits from oysters. High in calcium. Small, medium and large particles for sustained calcium availability and soil improvement. There is calcium in the cell wall of every plant. Calcium deficiency can be detrimental to plants.	
Sea Magic Plant Growth Stimulant	Made from seaweed. Sea Magic micro-nutrients, amino acids, growth-promoting and disease-fighting powers help improve soil and increase yields. Add this at the time of planting and once or twice through the course of the growing season.	

Mycorrhizal (soil inoculate)	Mycorrhizae are beneficial soil organisms that have a symbiotic relationship with plants, and play a vital role in soil health and plant health. Use at the time of planting (in hole you dig for your plants). A good "prebiotic" for your soil.	
Humic Acid	Help a plant's ability to take up micronutrietns from the soil. They also tie up toxins, making them less available to plants. Another good "prebiotic" for your soil.	
Worm Castings	Micronutrients and minerals, facilitate nutrient absorption, full of beneficial bacteria to help ward off soil and plant disease by breaking down toxins. Can a scoop in each plant hole and/or make a "worm compost tea" to use once or twice through growing season.	
Coffee Grounds	Adds organic matter to soil, help good microorganisms and attracts worms.	

Egg Shells	Dried and ground into a powder, adds calcium to soil.	

Organic Single-Ingredient Soil Conditioners:
(If you're running extra low on 1 or 2 of your NPK's, bump it up with 1 or 2 of these)

Name	N-P-K	Benefits	Photo
Alfalfa Meal	2.5-0.5-2.5	Good balanced soil conditioner	
Azomite	0-0-0.2	Granulated trace minerals. Formed from the dust of an ancient volcano, contains soluble potash, calcium and magnesium, helps with root system growth, yields and quality. Helps depleted soils and improve plant growth,	

Bone Meal	3-15-0	Phosphorus and calcium, strong root development	
Crab Meal	4-3-0	Improves aeration, drainage, enhances soil microorganisms, good calcium, helps with root knot nematodes (in ground pests that infect root systems).	
Kelp Meal	1-0.1-2	Rich, natural source of potassium	
Neem Seed Meal	6-1-2	Ground up cake left over extraction of oil from the Indian Neem Tree, slow release nitrogen fertilizer for green and young plants. Helps ward off diseases in soil	