

# Soil Amendments

## How to Enhance Gardens Organically

**ORGANIC:** Using amendments (additives) that are derived from organic sources, such as plants or animals, that better the soil and garden environment instead of using synthetic herbicides, fungicides, and pesticides. These additives encourage beneficial insects and microorganisms that help plants grow while working with nature's pre-existing food web. This also includes using cultural practices.

### Benefits

- Less harmful to environment (by-products of organic sources like plants and animals)
- Enhances food web in garden
- Safer produce to eat

## Nutrients in the Soil

### Micro and Macronutrients

- Macronutrients-main nutrients plants need
  - N-Nitrogen promotes leaf and stem development
  - P-Phosphorous promotes roots, blooms, and fruiting
  - K-Potassium promotes root and stem development
- Micronutrients- needed in much smaller amounts
  - Boron (B), Chlorine (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo), and Zinc (Zn)



If you're unsure of which fertilizer to use, buy an at-home soil test kit to know what nutrients you need to add into the soil. This will help identify the correct fertilizer for your garden.

# Common Soil Amendments

## What is used in Jan's Garden:

### Compost

- Adds beneficial microorganisms that enhance the soil
- Helps soil retain moisture
- Creates essential air pockets for plants to breath
- Amount needed is based on desired depth of compost

### Dried Molasses

- Boosts beneficial organisms in the soil as well as fertility
- Adds micronutrients to the soil
- 42% sugar level is best
- Use 10-20 lbs./1000 sq. ft.



### Cottonseed Meal (many –meals: chicken meal, feather meal, alfalfa meal, bone meal, soybean meal, fish meal)

- By-product of cotton manufacturing
- Slow release fertilizer (plants take it up longer) with high organic matter
- Less chance of burning plants since slow release
- Bone meal
  - Dried animal blood
  - Adds N to soil quickly
  - Raises acid levels



### Dirt Diet from Wells Bros. in Plano

- All around organic fertilizer
- Ingredients: Alfalfa Meal, Cottonseed Meal, Dried Molasses, Soft Rock Phosphate, Sulphate of Potash, Vegetable Oil
- Use 20 lbs./1000 sq. ft. for newer garden or 10 lbs./1000 sq. ft. for established garden

Sources: Garrett, H. (2020). "Dry Molasses". Dirt Doctor. [https://www.dirtdoctor.com/garden/Dry-Molasses\\_vq1884.htm](https://www.dirtdoctor.com/garden/Dry-Molasses_vq1884.htm)  
Gasch, C., DeLong-Hughes, J. (2019). "Soil Organic Matter in Cropping Systems". University of Minnesota Extension. <https://extension.umn.edu/soil-management-and-health/soil-organic-matter-cropping-systems#stable-organic-matter-1388661>

# Other Organic Treatments

## Foliar Sprays

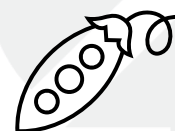
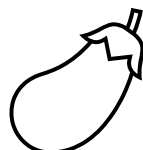
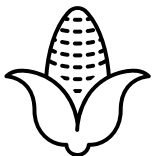
### Liquid Kelp

(also comes in powders)

- Contains many micro and macronutrients needed for plant growth
- Nutrients are in “ready to use” form and taken up quickly by the plant
- Provides beneficial growth hormones for rapid plant growth

### Fish Emulsions

- High amount of fast-acting N for fruit and veggie growth
- Made from fish parts



## Herbicides

### Corn Gluten Meal


(pre-emergent)

- Prevents weeds from creating roots after germination
- Apply after desired plants are established (only attacks new, upcoming plants)
- Multiple applications may be required
- Application must be watered in, followed by a dry spell so weeds do not establish roots
- Timing is crucial but tricky!
- Mixed results found


Sources: Burke, K. (2019, Aug. 14). “Corn Gluten: An Organic Pre-Emergent Herbicide”. The Spruce. <https://www.thespruce.com/corn-gluten-herbicide-careful-timing-2152947>  
Espiritu, K. (2019, Jan. 18). “The Many Benefits of Liquid Kelp Fertilizer”. Epic Gardening. <https://www.epicgardening.com/benefits-of-liquid-kelp-fertilizer/>

# Tips for Organic & Synthetic Products

 When using synthetic products, be careful of leaching and applying on windy days

 Always read and follow instructions on labels

 Water in fertilizer after applying to break it down

 Best times to apply fertilizers are in the morning or evening to prevent burning plants

 May need to reapply after heavy rain