



## **CLIMATE-SMART URBAN AGRICULTURE**

Supporting Historically Underserved Producers





# ORGANIC NITROGEN

Nitrogen is the main nutrient found in fertilizers and needed in the largest quantity. Finding organic nitrogen sources is becoming increasingly important, for sustainability and supply chain reasons. Prices of chemically sourced fertilizers have skyrocketed in price, according to Agricultural and Resource Economics Jan/Feb 2022 Update, prices have doubled in the last two years and are continuing to rise.

If prices continue to rise, growers and hobbyists will turn to organic sources. There are a multitude of different sources that can be used. There is no singular solution to organic N application as most sources come from various plant and animal sources differing in composition.





## SOURCES

**Alfalfa Meal** – Rich in nitrogen, contains trace minerals and the growth hormone triacontanol.

**Bone Meal** – Contains some nitrogen, potassium, and calcium. High in phosphorus.

**Blood Meal** – High nitrogen content, also contains phosphorus and potassium. Blood meal can also lower pH.

**Green Manure** – Incorporating already green plant biomass as an amendment. Increases N fixation (conversion of atmospheric N to more reactive compounds such as ammonia, nitrates and nitrites) increases organic matter and soil humus.

**Cottonseed Meal** – Generally

found with a NPK ratio of 6-0-4, it is recommended for plants favoring acidic conditions.

**Feather Meal** – High in nitrogen but is slower to break down by soil microbes than blood meal.

**Soybean Meal** – High nitrogen content, is considered a slow-release fertilizer.

**Fish Emulsion** – Made with fresh fish, it is one of the fastest acting organic fertilizers. Containing nitrogen, some potassium and phosphorus.

**Grass Clippings** – Grass clippings are a free way to add nitrogen, as they contain 3-4% nitrogen by weight.

**Worm Castings** – Contains a small amount of nitrogen but releases nitrogen quickly.





## Organic Basil Grown at Merchants Garden – Tucson, AZ

# CONSIDERATIONS

Organic fertilizers have some drawbacks, especially for hydroponic growers. Most organic N containing fertilizers need to be broken down in order to be up taken by plants. This is a stark difference from chemical fertilizers broadly used. Using a soilless media also means that the organic fertilizer must be made water soluble, or at least be able to travel in water to reach plants. There are methods to turn organic fertilizers more water soluble such as mixing with water and boiling, agitating, and letting fertilizers sit for days to weeks. This may work but there likely is going to be a chemical change in the fertilizer.

## REFERENCES

Smith, A. (2022). The Story of Rising Fertilizer Prices (pp. 1–4). <https://s.giannini.ucop.edu/uploads/pub/2022/02/24/v25n3.pdf>

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