

“How-to” Fact Sheet for Two Approaches to Farm-Grown Nitrogen

Most Useful Application: Small to medium organic market gardens. Also useful in home gardens

Issues addressed:

- **One:** Certain market crops such as basil need nitrogen throughout the growing season. Small market gardeners, with little capital and few employees, need less expensive and/or time-consuming nitrogen options to fish emulsion or the objectionable blood meal (due to unanswered questions re: Mad Cow Disease).
- **Two:** Small acreages (< 5 acres) are farmed/gardened intensively and don't have as much flexibility for “fallow time” or “down time” to re-build soil nutrients. This project designs soil fertility building into the market season in conjunction with the growing of the market crop.

Idea: Except for its cost and local unavailability, ground alfalfa meal is a good soil fertility amendment and is a certified organic nitrogen product. Approach 1: Adapt this N source by growing it in the garden and mow/apply the wet clippings to the market crop with the common lawnmower. Approach 2: Bale your own legume hay (alfalfa or red clover) or buy it and use it as a mulch around market crops during the growing season.

Approach 1: See notes below about establishment of the legumes. The key to this approach is to have a non-mulching (so it doesn't clog), side-discharge lawnmower with a baffle attachment so the wet clippings don't hit the basil plant and damage the leaves. Most new lawnmowers have a “mulching” blade so you will likely have to find a used lawnmower. The baffle attachment is easy to make (see materials list) OR if you have a small enough planting, you could even use a stiff piece of cardboard set next to the basil plants as you mow. The wet clippings laid down at the base of the basil plants is what you want for their high nitrogen content.



Materials list for baffle attachment:

- 4 U-bolts with 4 wing nuts
- 10" x 34" galvanized sheet metal
- Two 2 ft. by 3/4 in. galvanized electrical conduit
- Two 1/4 by 1 1/4 inch hex bolts with nuts
- 21 in. by 6 inch aluminum flashing
- 12 sheet metal self-driving screws
- flat washers and lock washers
- pop rivets as needed



Approach 2: In addition to the above approach, we also established our own hayfield of legumes to use as dry baled mulch. If you can't grow your own hayfield of legumes, seek out the names of dairy farmers (legume hay is generally fed to dairy cows) through your local feed supply store to see if they might have extra bales of legume hay for sale. It will be more expensive than regular hay but would be a good option for very small gardens. We grew our own and use every bale in our garden. Our experiment using it in 3 different amounts under acorn squash showed that the best yield and highest chlorophyll readings (measuring adequate N) were on Treatments 2 and 3 on which we used 6 bales and 9 bales respectively of hay mulch around the squash hills. I believe the plants received benefit not only from the slow nitrogen release but from the mulch itself in a drought-prone year. Another tremendous benefit to this hay will be its organic matter addition to the soil.

Logistics/cautions: I don't recommend using alfalfa. A key bit of information I didn't have when I started this experiment two years ago is that alfalfa mosaic virus can be transferred to another crop by chopping and spreading infected material on that crop. We did have 2 basil plants in the alfalfa section with bright yellow blotches which could possibly be from the virus. (The virus can't be spread by using dry alfalfa hay.) To grow clover, make a fine seedbed as you would for direct-seeded lettuce. Test soil previous fall. Test results will tell you if you need any soil amendments. If so, apply and work lightly into top 2" of soil (with hand rake or rototiller). Broadcast seed by hand or, in larger areas, with a handcrank broadcast spreader (or seed with a grain drill pulled behind a tractor). Roll seed to be sure it is in contact w/soil. If seeding early (March/April), also seed a nurse crop such as oats that will help protect the emerging seedlings until they get bigger. Leave 1 foot wide bare soil alley for basil down the center of the seeded legume strip. Will only need 1 lb. legume seed (remember to inoculate legume seeds before planting) for a 6' x 40' plot. Set basil plants out in late May or early June. Mow legumes when 8-10" tall. They will need cutting maybe 3 times in the growing season. Depending on your winters (we are in Zone 5), don't mow much past early Sept. so legumes will have time to recover and be strong to make it through the winter. The legume seeding will last several years. When you rotate your basil planting out of this area, you'll probably want to turn under the legumes in the autumn of that year. Plant a very nitrogen-needy crop subsequently—such as corn—as there will be nitrogen nodulation on the roots of the former legume now available to the following crop.

Further notes: Clover also appears to be more pest resistant than alfalfa. In our experiment, we planted sections of each to see if there were significant N release differences. Overall, the clover performed better than the alfalfa. And for reasons stated above, I don't recommend growing alfalfa within the vegetable garden during the growing season.