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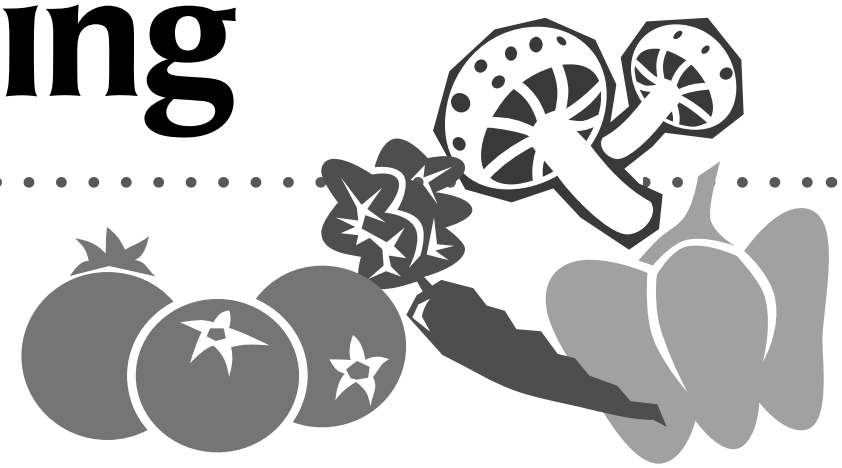
Organic Gardening Tips



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Organic gardening revolves around preventative pest management, rotations, soil fertility and nurturing the natural enemies of the pests in your garden.

Certification

There are two types of organic vegetable production in North Dakota, certified vegetable production and non-certified vegetable production.

Certified vegetable production refers to raising produce under the production standards of the certifying organizations.

The Organic Foods Production Act of 1990 is working policy toward a national standard for organic production. The goal of this act is to standardize organic production. Currently there are a number of certification groups with their own standards of organic production in the United States.

Commercial organic producers are all certified by one verifying system or another. Certificates are necessary because it is impossible to market organic vegetables commercially without this certificate. Wholesale buyers demand it.

The principle certification organizations in North Dakota are:

FVO—Farm Verified Organic

OCIA—Organic Crop Improvement Association

OGBA—Organic Growers and Buyers Association

Fees are charged for certification or membership. Remember, in order to be certified, guidelines set forth by the organization must be followed.

Home gardeners can practice organic production without certification. Most of the vege-tables produced are consumed at home with a few marketed at farmers' markets for extra income.

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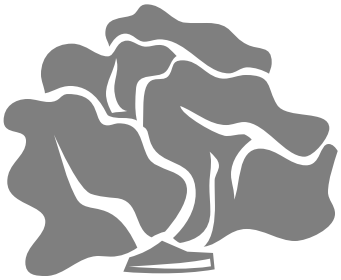


Growing Organic Vegetables

Seed used in certified organic production must be free of chemical treatments. If a certain crop is unavailable in non-treated form, authorization from the certifier is necessary before making purchase. The burden of proof is on the grower to certify through OCIA. Check with the certifier to be sure.

Select varieties with the best disease and insect resistance. Select early maturing cultivars. The earlier plants mature the less time insects and diseases have to compete for the vegetables. Late maturing vegetables are more prone to disease and insect problems.

Rotating Vegetables

Some vegetable rotations that have been used in the Northeastern United States by organic growers are the following:

Potatoes after sweet corn, sweet corn after the cabbage family, peas after tomatoes, tomatoes after beans, root crops after cucurbits and potatoes before root crops. When picking a rotation, remember that vegetables from the same plant family usually have the same problems.

Here are some vegetables that do well when they are planted together: beans-potatoes; peas-carrots; peas-turnips; cabbage-beets; kohlrabi-beets; spinach-cauliflower; spinach-eggplant; corn-cucumbers and corn-beans.

Attractants

Dill attracts the tomato hornworm, so plant it on the opposite side of the garden from tomatoes.

Repellents

Sage repels cabbage moths and black flea beetles. Don't count on sage working under heavy pressure from these insects, but it might be worth while to plant a little sage with cabbage, cauliflower and broccoli. Chives have some repellant properties for aphids. Marigolds will repel a variety of insects.

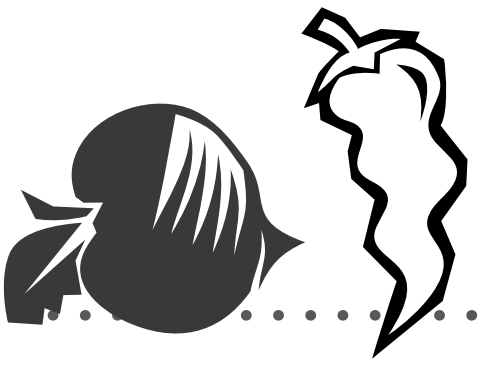
Fertility

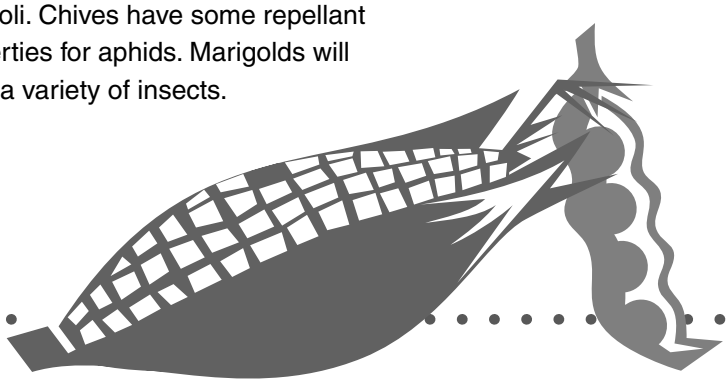
Non-organic fertilizer is forbidden under any organic production system, but that does not mean the nutrients the plant needs cannot be supplied from organic sources. Soil testing is suggested to determine what nutrients need to be added to the garden. (Gardeners note: Too much nitrogen can harm the garden. Know what levels exist before applying more).

Following are some average figures for a ton of manure per acre. These are average figures, as manure will vary in nutrient content. Values are for what a ton of wet manure fertilizer will supply for nutrients.

	Actual Nitrogen	Actual Phosphorus	Actual Potassium
Beef	14 lbs.	9 lbs.	11 lbs.
Hog	10 lbs.	7 lbs.	8 lbs.
Poultry	20 lbs.	16 lbs.	8 lbs.
Sheep	18 lbs.	11 lbs.	20 lbs.

Be sure manure sources are **well composted** to maximize weed seed kill and residual disease carryover.





Organic Insect Control

Rotations are the first and best way to preventi insect problems. The next best option is hand removal of old plant residue if working in a small garden. Organic growers tend to use organic insecticides as a last resort. Note: Check with your certifier to see if they are acceptable. Sabadilla is certified acceptable under OCIA as a restricted use organic product, which means it is to be used only if no other alternatives are feasible. Bacil-lus thuringiensis (Bt) is an acceptable product but cannot contain petroleum distillates in the formulation, according to OCIA.

Insecticidal soaps (**not** household) can control a wide range of plant destructive insects, especially aphids.

CABBAGE WORMS — For control use Bacillus thuringiensis (Bt). Read and follow label directions. Hand picking is also an alternative.

COLORADO POTATO BEETLES — Hand pick insects or use an application of Bt.

Bt should be applied when first instar larvae are present in the field. Bt takes time to work and is best on larvae control.

CUCUMBER BEETLES — Rotation ... Rotation ... Rotation!! Rotate the garden plants and sites.

FLEA BEETLES will most likely be one of the most difficult insects to control. Early maturing varieties may help lessen the time plants have to tolerate them. Properly acclimated (hardened) transplants are not as attractive to flea beetles as emerging seedlings.

SLUGS, ROOT MAGGOT AND CUTWORMS — Diatomaceous earth

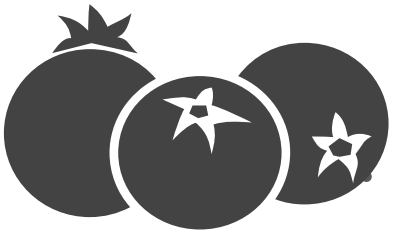
APHIDS can be controlled by high populations of lacewings and lady bugs. Surrounding the vegetable production area with a mix of wildflowers helps maintain a population of predatory insects.

Diseases

- Keep plants healthy.
- Rotate vegetable plants and sites.
- Space vegetables further apart to allow more air flow.
- Plant to take advantage of the prevailing winds so air flow is increased down the row.
- Don't go into the garden when plants are still wet.
- Sanitation is important. Remove and destroy all parts of dead plants. They are a source of disease. Do it immediately after they are no longer useful! When thinning, remove thinned plants immediately.
- Don't harvest vegetables when plants are wet.
- Avoid overhead watering. Drip irrigation can efficiently deliver water and keep foliage dry.

Crucifer Disease

- Aerate the soil.
- Leave adequate space between plants and rows.



Organic Controls

Copper, sulfur and Bordeux mixes have been used with limited success on vegetables in eastern United States. Some organic producers will not use these as they feel the products leave a chemical residue. However, such residues are easily washed off.

Marketing Organic Vegetables

Price premiums have historically been 10 to 50 percent above conventional prices in northeastern United States. The northeast and California have the biggest markets for organic vegetables.

Selecting Vegetables to Market

Organic vegetable producers take great pains to sell only high quality products. Detractors regularly say the quality of organic vegetables is not as high as that of conventional vegetables, but organic producers generally cull harder and market less of their produce to keep the quality high.

Organic vegetables are traditionally sold on the perception that they are healthier than the traditionally grown vegetables. Marketing would be very difficult if low quality vegetables were offered for sale. Perception is everything in the organic food markets!

Summary

Organic food production is as much a state of mind as it is a production system. The biggest barrier most people face when switching to organic production is the **change in thinking that must occur** to make it successful. We have long been taught to treat individual insects and diseases separately instead of looking at things as a whole. The organic gardener must understand how everything is inter-related and how one set of circumstances will influence other factors in how the plant grows. Prevention is the first and best defense against pests in organic vegetable production.

There has been a perception by some people that organic vegetable production is farming through neglect. Nothing could be further from the truth! A strong, healthy plant is much more important in an organic system then a conventional system. A two to three year **learning curve** must be accepted by anyone intending to switch from conventional to organic gardening. What works one year may fail the next. Management skills are challenged.

WARNING!

There are many organic certification organizations, each with its own set of standards and acceptable products. While most agree on the major points, they differ on what they will or will not accept.

REMEMBER TO CHECK WITH YOUR CERTIFICATION ORGANIZATION BEFORE APPLYING A PRODUCT WHICH IS QUESTIONABLE. USE OF AN UNACCEPTABLE PRODUCT MAY RESULT IN NON-CERTIFICATION AND IMPACT SALES OR RESULT IN NO SALE.

Don't get into organic garden pro-duction just for the hope of premiums. They may or may not be there. It is a long, hard struggle, but most organic producers would tell you it is worth it once you master the skill, patience and perceptive abilities.

Reference Material

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Secrets of Companion Planting for Successful Gardening. Louise Riotte.

For more information on this and other topics, see: **www.ag.ndsu.edu**

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