



Guidelines for Certification of Vegetable Crops

Vermont Organic Farmers (VOF)

Northeast Organic Farming Association of Vermont (NOFA-VT)

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The following guidelines are based on the USDA National Organic Standards. Farmers planning to become certified should consider all of the following areas required for compliance with the certification standards.

Transitioning fields to organic production

The NOP Standards state: Any field or farm parcel from which harvested crops are intended to be sold as organic, have had no prohibited substances applied to it for a period of three years immediately preceding the harvest of the crop. Prohibited substances include synthetic fertilizers, herbicides and insecticides and seeds treated with synthetic fungicides. In general, non-synthetic materials are allowed including manure, compost, limestone (not hydrated lime), and other mineral amendments, provided they do not contain any synthetic additives. The VOF office has a list of materials that are approved as inputs on organic crops. If you are unsure if a material is allowed, call the office for confirmation before applying it. Use of a prohibited material would disqualify a field from organic production for three years.

If some of your fields qualify as organic, but others have had recent applications of prohibited products, your farm may still be able to get certified. Those fields that qualify could produce organic crops, while the fields that still have to go through the rest of their 3-year transition would be considered non-organic.

Example to determine if a field qualifies:

A farmer's last fertilizer application is on May 31, 2005

On May 31, 2006 he (or she) has ended his first transitional year

On May 31, 2007 he (or she) has ended his second transitional year

On May 31, 2008 he (or she) has ended his third transitional year.

This means crops harvested after May 31, 2008 can be certified organic.

If you lease land from a neighboring farm and will continue to do so, that land may be certified as well. You may include the neighbor's land under your certification. **If you include another farm's field(s) in your application, you are taking responsibility for the management of that field and that crop can only be sold by you.**

Buffer requirements (205.202)

If an adjoining farm is applying prohibited substances to their land (such as pesticides, herbicides or synthetic fertilizers), an adequate barrier/distance between certified crops and the neighboring farm needs to be in place. The size of the required buffer depends on the method of application of the prohibited material and/or the physical nature of the border (open, hedgerow, etc.). The buffer needs to be sufficient to prevent prohibited substances used on the conventional farm from contacting the organic crops. VOF recommends a minimum 50 foot buffer zone, unless the buffer consists of a dense hedgerow. In this case, a 30 foot minimum buffer may be sufficient.

For example, an organic vegetable crop field immediately adjacent to a conventional cornfield would have to create at least a 50-foot buffer. Buffer zones must be maintained for at least three years after the last application of prohibited pesticides or fertilizers on the adjacent land.

If an organic field is adjacent to a non-organic field, but the neighboring landowner does not apply any prohibited substances, the current fence line can be maintained along the non-organic field if a signed statement is obtained from the neighboring land owner that verifies prohibited materials are not applied within 50 feet of the property line.

Other buffer considerations

As development is increasing in rural areas, many fields also border residential properties. VOF has determined 15 feet to be an appropriate buffer distance between organic fields and residential properties. Again, if a signed statement can be obtained from the neighboring property owner that prohibited materials are not applied along the property line, the current fence line can be maintained.

Railroads are often sprayed with herbicide applications for weed control on the tracks. The spray area generally extends 15 feet from the center of the tracks. VOF recommends a 50 foot buffer from the edge of the rail bed.

Guardrails on state roads are sprayed with herbicide applications for weed control in these areas. Again, VOF recommends a 50 foot buffer where organic crops are adjacent to guardrails.

Many utility companies have a policy that they do not spray herbicide around poles on land that is in current agricultural use. If power poles are in your field, please confirm the company's spray policy. If poles run adjacent to a field, a signed statement will be needed from the power company to verify these poles will not be sprayed.

Soil Fertility (205.203)

"The primary management goal for organic farmers should be to build healthy soils on their farms. A healthy soil is the foundation for healthy plants, healthy animals, and therefore a healthy farm."

The NOP Standards state: "A producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of the soil and minimize soil erosion." [205.203 (a)]

Producers must meet the above standard to qualify for certification.

Fertility should be managed through rotations, cover crops, manure, compost, plant residues and applications of approved soil amendments:

- Non-synthetic mineral amendments with non-synthetic additives, such as rock phosphate, bone and blood meal, limestone, and sul-po-mag are allowed
- Wood ash is allowed from approved sources
- Synthetic soluble fertilizers and hydrated lime are prohibited
- Chilean (sodium) nitrate use is restricted to no more than 20% of a crop's total nitrogen requirement
- Whey from approved sources is allowed, but is prohibited if the material is mixed with the grey water of the processing facility
- Manure (including off-farm sources) is allowed. (For more information on the requirements for manure application on vegetable crops, see below)
- Synthetic micronutrients (boron, zinc) are restricted to use when soil/plant deficiency is documented by soil or tissue testing

The VOF office can provide a complete listing of allowed and prohibited fertilizers and soil amendments. If you are unsure if a material is allowed, call the office for confirmation before applying it. Use of a prohibited material would disqualify a field from organic production for three years.

VOF strongly recommends soil testing for monitoring soil fertility. If soil tests are not used, a producer must demonstrate that they are adequately monitoring the fertility of their soils through other methods.

Use of Manure (205.203)

Animal manure can be one of the most valuable substances for organic food production. Many of the beneficial effects of manure, however, can be wasted by improper management. In addition to stabilizing nutrients to avoid leaching loss and enhance long-term soil fertility, composting manure is recommended because it promotes the decomposition of possible contaminants such as antibiotic residues and pesticides, and it is an effective means of reducing the population of

pathogens that may cause plant, animal or human illness. Given the increasing public concern about food safety, every effort should be made to assure that uncomposted manure does not come in contact with edible plant parts during the growing season, during harvest or during post-harvest handling.

Application rates of manure, raw or composted should be based on soil test recommendations, ideally in combination with a manure or compost analysis. The primary aim should be to meet but not exceed the nitrogen needs of the crop.

For crops for human consumption, animal manure must be incorporated into the soil at least 120 days before harvesting a crop whose edible portion has direct contact with the soil (ex. lettuce, carrots) or at least 90 days before harvesting a crop whose edible portion does not have direct contact with the soil (ex. corn, apples). Manure from off-farm sources is acceptable provided it does not pose a risk of contaminating the organic crop with a prohibited material.

Please note that aged manure (no matter how old) must be treated as raw manure unless it has met the specific guidelines for compost outlined below.

Use of Compost (205.203)

The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.

There are no specific regulations for composting when feedstock is made up of only **plant materials**.

Compost that contains manure must meet the specific guidelines as described by the NOSB Compost Task Force Recommendation as follows, “Compost is acceptable if made from only allowed feedstock materials, the compost undergoes an increase in temperature to at least 131° F and remains there for a minimum of 3 days, and the compost pile is mixed or managed to ensure that all of the feedstock heats to the minimum temperature” or as by the NOP Rule Section 205.203(c)(2)(ii), maintain a temperature of between 131F and 170F for 3 days using an in-vessel or static aerated pile system.

Static aerated piles do not have to be turned. Compost piles must have an intentional aeration techniques, such as perforated pipes connected to blowers, to qualify as ‘static, aerated’.

Compost which meets the above guidelines can be applied at any time. Sufficient records must be kept to show that these guidelines were met (including temperatures and dates turned).

If it cannot be verified that the compost has reached the required temperature, then the compost must be treated as raw manure and the regulations on the number of days between application and harvest must be met. Compost tea must be prepared from compost that meets the above guidelines or else it must be applied according to the manure guidelines.

Soil Erosion and Water Quality (205.203)

A farm with erosion or other conservation problems must demonstrate a program which halts and/or corrects the damage to maintain their organic certification. Producers with erosion issues on the farm must submit a written plan along with a timeline for coming into compliance. Assistance is available through the Natural Resource Conservation Service, the Farm Service Agency, the Vermont Department of Environmental Conservation or the US Fish and Wildlife Service.

A producer must select tillage and cultivation practices that maintain or improve the physical, chemical and biological condition of the soil and minimize erosion.

Crop Rotation (205.205)

Crop rotations are a required part of the farm plan. Continued production of one type of crop in the same field leads to depletion of specific nutrients and encourages disease and pest problems. The producer must implement a crop rotation including, but not limited to: sod, cover crops, green manure crops, and catch crops that provide the following functions:

- Maintaining or improving soil organic matter
- Providing pest management
- Managing plant nutrients
- Providing erosion control

Other crop rotation possibilities may include:

- Nitrogen fixing crops
- Deep rooting crops/shallow rooting crops
- Alternation of heavy and light feeders
- Plants with allelopathic or mineral accumulation properties
- A diversity of plant families

Perennials are an exception to the crop rotation rule. Perennial cropping systems should employ strategies to introduce biodiversity such as:

- Alley cropping
- Intercropping
- Hedgerows

Seeds and Planting Stock (205.204)

Producers of organic crops are required to source certified organic seed if it is commercially available. If organic seeds are not commercially available, non-organic untreated seeds may be used.

Commercial availability means that the seed is available in the appropriate variety, quality or quantity the producer needs. By equivalent form, a producer should look at size, grade, hot water treated etc. By quality a producer should look for cleanliness, germination, etc. By equivalent variety, a producer should look for growing habits, days to maturity, insect and disease resistance, etc.

Cost cannot be used to determine commercial availability. The producer must document that purchased untreated seed was not available in organic form.

There is no allowance for seed treated with prohibited materials. Captan, Thimet, Thiram and similar chemical fungicides are not permitted. If your seed is covered in a pink or orange powder, it is a good indicator it is prohibited. Crops grown from treated seeds cannot be sold as organic and the use of treated seed disqualifies the field from organic production for a period of three years.

Seed treatments such as inoculants on legumes must be approved for use in organic production. Some inoculant products are not allowed for use due to the presence of genetically modified bacteria in the product.

Pelleted seed is not typically an approved substance for use in organic production unless the seed is coated in an organically approved pellet. There is no commercial availability clause allowing the use of the unapproved pellet.

Organic seed is required for edible sprout production (with no commercial availability clause).

Purchased annual seedlings must be from a certified organic source (with no commercial availability clause).

Planting stock (seed potatoes, garlic bulbs, onion sets) may be produced from non-organic sources if organic stock is not commercially available.

Perennial plants must be grown out for one year before selling them as organic nursery stock. If grown for a harvested crop, non-organic perennial stock may be used to produce an organic crop if organic stock is not commercially available.

Please contact the VOF office for a list of organic seed and planting stock suppliers.

Greenhouse Practices

Greenhouse management must comply with all aspects of previously stated soil management with the exception of crop rotations. Greenhouses must be managed to maintain or improve the physical, biological and chemical conditions of the soil. VOF encourages the use of innovative techniques in managing greenhouses, such as biological controls.

In the construction of new greenhouses, growers shall not use prohibited substances in their construction, including lumber treated with arsenate or other prohibited materials in places that will come in direct contact with soil or livestock (ex. baseboards).

In existing greenhouses, where crops are to be grown in the ground, the producer shall comply with the standard three year period without applications of prohibited substances. Treated wood in contact with soil in an existing greenhouse may either have to be removed or have some type of barrier put in place to prevent any potential contamination.

Potting soil – Certified organic growers who make their own potting soil mix must use approved materials. Purchased commercial potting mixes must be approved and not contain synthetic fertilizers, wetting agents or other prohibited substances. When growing crops in a compost-based potting mix which will be harvested in less than 120 days, please refer to the compost guidelines above. VOF has a list of brand name products approved for use in organic production available through the office.

Peat pots – Please be aware that Kord fiber pots are prohibited as they are manufactured with a prohibited fungicide. Jiffy peat pots are allowed.

Weed, Pest and Disease Control (205.206)

Organic production does allow for the use of approved inputs for disease and pest control; these inputs must be non-synthetic or appear on the National List of approved synthetic substances (205.601). Producers are cautioned that many 'natural' pest controls contain synthetic "inerts", which make them prohibited.

Weeds – The control of weeds can be one of the most difficult parts of an organic system. Growers must use management practices to prevent weed problems.

Accepted weed controls

- Timely mechanical or hand cultivation
- Crop rotations and use of smother crops
- Mulches with fully biodegradable materials or intercrop plant species
- Sanitation to prevent introduction of weed seeds into fields
- Flame weeding
- Mowing
- Selection of varieties that out compete weeds
- Plastic mulches if removed from the field at the end of the growing season
- Non-organic mulch materials (straw, grass clippings, sawdust)
- Newspaper with no color inks
- Use of biological or botanical substances or a substance from the National List, only when the above practices are insufficient

Prohibited weed controls

- Synthetic mulches or remnants left to photo-degrade in the field
- Synthetic herbicides (unless allowed by the National List)
- Newspaper with color inks
- Bio-Plastic mulch

Insect Control – All planning of production schedules, choice of crops and varieties, location and size of plantings, and soil management practices should take pest prevention into consideration. Growers must use management practices to prevent pest problems. Again, once prevention fails, methods of control having the lowest ecological impact should be the first choice. All pesticides, no matter how they are derived, should be handled with caution and used only in accordance with the labeled instructions and Vermont State Law.

Accepted insect controls

- Resistant varieties
- Timing of planting
- Intercropping and rotations
- Mechanical controls (traps, repellants, vacuuming, physical barriers)
- Biological controls (natural predators and parasites, biodiversity)

Only when the above practices are insufficient, a producer may use biological or botanical substances or a synthetic substance from the National List. **VOF has a list of brand name products approved for use in organic production available through the office.**

Prohibited insect controls

- Pesticides containing prohibited substances (including inerts)

Vertebrate Animal Control – Please note, vertebrate repellants may only be used as labeled. Growers must use management practices to prevent pest problems.

Accepted practices

- Providing habitat for natural predators
- Habitat modification to discourage vertebrate pests
- Trapping to control mammals and birds using any legal trap
- Shooting of mammals and birds in accordance with VT State Law
- Physical barriers such as fencing, netting and row covers
- Repellants derived from natural sources (blood meal, hot pepper, hair, predator scents, provided synthetic additives are not used).

Only when the above practices are insufficient, a producer may use biological or botanical substances or a synthetic substance from the National List, including:

- Vitamin D3 – It cannot be the sole means of rodent control and other methods must be documented.
- Sulfur smoke bombs for underground rodent control
- Ammonium soaps (as large animal repellant only), no contact with soil or crops allowed.

Disease Control – Preventative measures detailed under ‘insect control’ are also applicable to disease problems. Growers must use management practices to prevent disease problems. In greenhouse environments particularly, proper control of environmental factors such as ventilation, humidity and temperature will reduce susceptibility to disease. Relatively mild materials such as copper and sulfur based fungicides are often used in ecological systems, but can be toxic to humans, and can accumulate in the soil, posing a threat to soil organisms.

Accepted disease controls

- Resistant varieties
- Rotations
- Plant spacing
- Raised beds to improve drainage

- Sanitation and removal of diseased plant materials
- Control of insect and weed vectors

Only when the above practices are insufficient, a producer may use biological or botanical substances or a synthetic substance from the National List. **VOF has a list of brand name products approved for use in organic production available through the office.**

Post-Harvest Handling (205.270 – 205.272)

Accepted practices

- Drying and curing of field crops to appropriate moisture levels by natural field drying, aeration, or other mechanical drying apparatus.
- Chilling of perishable crops through water baths, cold rooms, or icing as appropriate, and maintaining constant low temperatures at every stage of transport and distribution.
- Controlled atmosphere (carbon dioxide or nitrogen) storage. VOF recommends proper safeguards against injury of personnel.
- Hot water dips or vapor heat treatments for reducing spoilage organisms or infestations of fruit flies
- Non-synthetic materials, such as rock powders, diatomaceous earth, and herbal preparations to repel storage pests, consistent with the National List.
- Monitoring of tissue nitrate levels in leafy crops grown under low light conditions.
- Proper sanitation at all levels of handling, transport and storage.
- Use of disinfectants (chlorine materials, hydrogen peroxide) applied to storage containers and handling equipment must be consistent with the National List.
- Re-use of boxes. We encourage box recycling, but many boxes have been impregnated with fungicides. Boxes carrying conventional citrus or soft fruit are likely to have been treated and should not be re-used. Re-used bags or boxes must pose no risk of contact between the organic product and any prohibited substance.
- Treated baling twine is allowed as alternatives are not yet widely available.

Irrigation and Wash Water (205.272)

Ground and surface waters are a potential source for a wide range of contaminants. To minimize food safety risks associated with microbial pathogens, VOF recommends vegetables that have visible soil or organic matter residues on their surface be thoroughly washed before sale. Washing should be done with potable water only.

VOF requires that all wash water not from municipal sources must be tested every 2 years for fecal coliform. We recommend that wash water is tested for nitrates as well. If water tests positive for coliform, follow the guidelines as recommended by the Vermont Department of Health. **To obtain a testing kit, contact the Vermont Dept. of Health Lab at 800-660-9997.**

Commingling and contact with prohibited substances (205.272)

Washing protocol for sprayers previously used in conventional production – used equipment must be cleaned so that organic crops will not be contaminated with prohibited substances. VOF recommends that organic farmers using equipment previously used for conventional production replace all plastic and rubber hoses and tips. All tanks, valves and metal parts should be washed with detergent and triple rinsed.

With the advent of commercial fertilizer companies supplying both approved and prohibited fertilizers, farmers are required to secure a written statement (known as a clean truck affidavit) that provides evidence that the delivery truck has been sufficiently cleaned to prevent the commingling of prohibited and approved materials. Please contact the VOF office for a blank form.

If crops are to be custom harvested by another producer who also harvests crops on non-organic fields, a written statement must be obtained that verifies the equipment was cleaned and/or purged prior to harvesting organic crops.

Record Keeping (205.103)

Written field records must be kept on an ongoing basis. **You will be required to supply a years worth of records when you reapply for certification each year.** Records are essential, as organic certification is about verifying your farming practices to a third party. It is believed that keeping records can help producers improve their management. VOF has record keeping forms available or you can use your own system.

Records required for organic certification include the following:

- Three year history and signed affidavit for all new fields
- Field production logs that include crops planted, dates and rates of manure, compost, fertilizer or other input applications
- Greenhouse records
- Spray records
- Harvest yields for each crop
- Sales records
- Current and updated farm maps with all boundaries, buffer areas and natural features
- Purchase records for all inputs (ex. amendments, pest controls)
- Receipts for all purchased seeds
- If untreated non-organic seed is purchased, documentation must be available that organic versions were commercially unavailable
- Untreated and/or inoculated seed labels (to verify that the product has not been treated with prohibited substances)
- Signed statements from neighboring landowners regarding their management practices
- Production, harvest and/or sales records for buffer crops, transitional or conventional crops

Please refer to the VOF Certification Guidelines book for a more detailed explanation of the National Organic Program Standards. If you have any questions regarding the standards or the application process, please call the office.

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