Organic Certification of Vegetable Operations

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Introduction

All farms and ranches, including vegetable growers, who sell over $5000/year of organic products, must be certified in order to sell their products as "organic." Land used for the production of organic vegetables must not have had prohibited fertilizers, pesticides, GMOs, or other prohibited substances applied for at least 36 months prior to the first harvest of an organic crop. Farmers who sell under $5000 per year of organic produce must still follow all provisions of the USDA organic regulations, but are not required to be certified as organic. Non-certified organic growers who sell less than $5000/year can only sell their products directly to retailers and consumers. Their products cannot be sold as organic feed or as organic ingredients that will be further processed and subsequently labeled as organic. Farms can be certified as organic as a whole farm or on a field-by-field basis.

Organic vegetable producers, including farmers market vendors, need to follow all applicable National Organic Program requirements in order to sell their products as "organic."

Transitioning to Organic Production

When you begin transitioning your vegetable operation to organic production, choose a USDA-accredited certification agency, and request an Organic System Plan (OSP) questionnaire or application packet. During the final 12 months of the 36-month transition period, you should begin the application process, so that your operation can become certified as soon as your transition is complete. For most growers, the application, inspection, and approval process takes between three to six months, so don't wait until the last minute to seek certification.

Visit www.ams.usda.gov/nop to obtain a list of USDA-accredited certification agencies and to download the National Organic Program (NOP) regulation.

It is important to document the last date when a prohibited substance was applied, in order to demonstrate to your certification agency that the field has been free of prohibited substance applications for 36 months and is eligible for organic certification. This is especially important for vegetable growers who produce crops such as lettuce or spinach, which might be harvested early in a given year. In such cases, if you can document the last application of a prohibited substance as being in May of transition year one, for example, then you can harvest organic crops from that field in June of transition year three, since the 36-month transition period has elapsed.

The University of Minnesota's Student Organic Farm, "Cornercopia," located on the St. Paul campus, has completed its transition to certified organic vegetable production.

You will need to develop and submit to your certifier a field history sheet, showing the crops grown and inputs applied for at least the past 3 years, for all fields requested for certification. If the land has not been under your control for 36 months prior to the projected harvest of your first organic crop, you will need to obtain and submit a signed statement

from the previous farm operator (owner or renter) providing information on the crops grown, inputs, and production practices during the transition period.

During transition, you should establish a soil-building crop rotation and develop effective fertility, pest, disease, and weed management strategies using preventive practices and natural fertility inputs, such as compost, mulch, and cover crops. If needed, you may use non-synthetic (natural) biological, botanical, or mineral inputs, or, if these are not effective, synthetic substances that appear on the National List of Approved and Prohibited Substances, which is part of the NOP regulation.

Where prohibited substances are or will be applied to fields, roadsides, drainage ditches, railroad right-of-ways, or under utility lines that adjoin your organic production areas, you should establish buffer zones wide enough to prevent drift of prohibited substances onto the land you are transitioning. During the entire 36-month transition, as well as when you are certified organic, you must: discontinue all uses of prohibited substances, including fungicide-treated seeds, chemical fertilizers, and non-approved synthetic pesticides; implement conservation practices; and set up an appropriate record-keeping system, so that you can track all seeds, seedlings, inputs used, and crops harvested, stored, and sold.

Certified Organic Seed

Organic seeds and approved inputs are becoming readily available for both small-scale and large-scale organic vegetable producers

You are required to use certified organic seed for crops you wish to have certified, unless you can document that the seed you need to plant is not commercially available from organic sources in the form, quality, quantity, or equivalent variety that you need for your operation. Proof must be provided to your certifier that you made good-faith efforts to obtain organic seed. This proof can consist of written records documenting telephone calls, results from searches in seed catalogs, or letters from organic seed suppliers stating that certified organic seed was not available. High price is not an acceptable reason for not purchasing organic seed. If certified organic seed is documented as not available, untreated, conventionally-grown seed may be used. Genetically engineered seeds cannot be used. A "Non-GMO Affidavit" should be obtained from seed suppliers for all purchased non-organic seed that has a GMO equivalent. Cover crop seeds used for incorporation as a green manure are also required to be certified organic, unless you provide evidence that organic seed is commercially unavailable.

Organic Seedlings and Transplants


Organic Pulsar melon plants at the University of Minnesota's Southwest Research and Outreach Center, Lamberton, MN.

Annual seedlings used for organic crops must be certified organic. "Annual seedling" is defined by the NOP as, "a plant grown from seed that will complete its life cycle or produce a harvestable yield within the same crop year or season in which it is planted." This means that organic seedlings must be used for crops such as tomatoes, peppers, many brassicas, and other crops that are not direct-seeded. The only exception is for organic crops destroyed by natural disasters, in which case the certifier, if approved by the NOP based on a declaration of natural disaster, can grant a temporary variance for the crop to be re-planted using conventionally-grown seedlings. In all other instances, use of nonorganic annual seedlings will jeopardize your organic certification for that year, as well as possibly for future years.

Planting stock, used for the production of potatoes, or for perennial crops such as raspberries, strawberries, or apples, falls under a different requirement. "Planting stock" is defined by the NOP as, "any plant or plant tissue other than annual seedlings but including rhizomes, shoots, leaf or stem cuttings, roots, or tubers, used in plant production or propagation." First, the organic producers must attempt to source organic planting stock, just as you must attempt to source organic seeds. If organic planting stock is documented as commercially unavailable, conventionally-grown planting stock may be used to produce organic crops. The planting stock itself can only be sold as "organic" after it has been grown organically for one year. The crop harvested from the planting stock can be sold as "organic."

Greenhouses

In order to produce organic seedlings, or to produce organic crops in high tunnels or other structures, greenhouses must use organic methods and approved inputs, and they need to be described in the operation's Organic System Plan, or certified on their own. The greenhouse operator, whether on-farm or off-farm, needs to list all organic and non-organic crops grown, and list all fertility, pest, and disease inputs used or planned for use in the greenhouse. Natural materials, such as compost, sand, peat, vermiculite, perlite, and natural rock minerals are commonly used in soil mixes or to fertilize in-ground organic greenhouse production. Carefully review the ingredients in purchased soil mixes -- synthetic wetting agents, fumigants, or synthetic fertilizers are not allowed. Often, these ingredients do not appear on product labels, so check with the manufacturer or your certifier to make sure the product is allowed.

Tomatoes can produce high yields of top quality, uniform fruits, when grown in high tunnels or other greenhouse structures.

Rock Spring Farm in Northeast Iowa grows a wide variety of organic vegetables, flowers, and herbs.

Natural botanical, biological, or mineral inputs may be used for pest and disease control. If needed, approved synthetic substances on the National List may also be used. It is always a good idea to check with your certifier before purchasing and applying any input, to make sure that it is allowed for organic production. Make sure to keep receipts and label information for all inputs used or planned for use.

Planting trays, pots, and irrigation lines can be cleaned and sanitized using hot water, alcohols, chlorine materials, hydrogen peroxide, ozone gas, peracetic acid, or soaps. Once again, check with your certifier to make sure that the substance you plan to use is approved. Both active ingredients and secondary ingredients must be approved for items that are in compounded materials.

If the greenhouse is also used for the production of non-organic plants, there must be clear separation between the organic and non-organic areas to prevent contamination, and clear identification and tracking of the organic vs. non-organic plants. If synthetic fertilizers are injected into the water system for the non-organic crops, the injection system must be disabled or a separate watering system used, to assure that the prohibited fertilizers are not used on the organic seedlings or crops.

Treated Lumber

The NOP prohibits the use of lumber treated with arsenate compounds or other prohibited substances for new installations or replacement purposes, where the lumber will contact the crop, soil, or livestock. This means that treated wood should not be used for plant trays, trellises, or posts, where the treated wood will come in contact with organic crops or soil used to produce organic crops. ATTRA has numerous helpful publications, including "Organic Alternatives to Treated Lumber" available at: www.attra.org/organic.html (Note - Not all wood preservatives listed in the ATTRA publication are approved for organic use. Check with your certifier before using any treated wood.) If treated lumber was in place before organic certification, then it may remain, but be aware that some of the toxins in the lumber may be taken up by plants growing nearby.

Crop Rotation

NOP section 205.205 requires all organic producers, including organic vegetable growers, to implement crop rotations that include, but are not limited to "sod, cover crops, green manure crops, and catch crops" to: a) maintain or improve soil organic matter content; b) provide for pest management; c) manage deficient or excess nutrients, and d) provide erosion control.

The NOP defines "crop rotation" as, "the practice of alternating the annual crops grown on a specific field in a planned pattern or sequence in successive crop years so that crops of the same species or family are not grown repeatedly without interruption on the same field. Perennial cropping systems employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation."

Grass is planted between rows of broccoli to build soil; prevent compaction during harvest; and help confuse insect pests.

All organic vegetable producers must implement crop rotations, which meet the objectives listed above. Using crop rotations to break insect, disease and weed cycles and improve soil fertility can aid the organic vegetable grower in producing high quality crops.

Manure and Compost

Animal manure must be composted prior to application, or be incorporated into the soil at least 120 or 90 days prior to harvest of vegetable crops.

The NOP regulation has strict requirements on the use of manure and compost in organic production systems. All animal manure must be composted if applied to vegetable crops destined for human consumption, or else certain restrictions apply. If the manure is fresh, or has not gone through a complete composting process, it must be incorporated into the soil at least 120 days before a vegetable crop will be harvested, if the edible portion of the crop comes into contact with the soil or soil particles. In regions where cold limits the growing season, all raw manure should be incorporated in the field during the fall prior to vegetable crop planting, in order to comply with the 120-day waiting period. If the edible portion of the crop does not come into contact with the soil (e.g. sweet corn), raw manure may be incorporated into the soil at least 90 days before harvest.

Compost may be applied at any time. "Compost" is defined by the NOP as, "the product of a managed process through which microorganisms break down plant and animal materials into more available forms suitable for application to the soil. Compost must be produced through a process that combines plant and animal materials with an initial C:N ratio of between 25:1 and 40:1. Producers using an in-vessel or static aerated pile system must maintain the composting materials at a temperature between 131 F and 170 F for 3 days. Producers using a windrow system must maintain the composting materials at a temperature between 131 F and 170 F for 15 days, during which time, the materials must be turned a minimum of five times."

Organic producers making their own compost must keep records of their composting operation to demonstrate that the compost was produced according to the definition cited above. If the compost is purchased, the grower should ask for documentation from the supplier showing that the compost meets NOP requirements. Keep this documentation, along with purchase receipts, with your other records. If the compost is 100% plant-based, without any animal excrement or by-products, there is no requirement for heating or turning.

Heat-treated, processed manure may be used as a supplement to a soil-building program, without a specific interval between application and harvest. Producers are expected to comply with all applicable requirements of the NOP regulation with respect to soil quality, including ensuring the soil is enhanced and maintained through proper stewardship.

According to the NOP's July 17, 2007, ruling, "processed manure products must be treated so that all portions of the product, without causing combustion, reach a minimum temperature of either 150° F (66° C) for at least one hour or 165° F (74° C), and are dried to a maximum moisture level of 12%; or an equivalent heating and drying process could be used. In determining the acceptability of an equivalent process, processed manure products should not contain more than $1x10^3$ (1,000) MPN (Most Probable Number) fecal coliform per gram of processed manure sampled and not contain more than 3 MPN Salmonella per 4 gram sample of processed manure."

As always, organic vegetable growers should get label information and check with their certifiers, before using purchased compost or processed manure products.

Prohibited and Approved Inputs

This potato crop in northern Minnesota is free of pest and disease pressure due to an extended crop rotation and good cultural practices.

Prohibited substances are typically synthetic substances that are not allowed under the NOP, although there are a few natural substances that fall into this category as well. Prohibited substances include chemical fertilizers and synthetic herbicides, fungicides, and insecticides, as well as genetically engineered organisms, which are referred to as "excluded methods" by the NOP. Prohibited substances include items such as seeds treated with Captan, Thiram or with genetically modified rhizobial bacteria. All synthetic materials are prohibited for use, unless they have been specifically approved by the NOP and appear on the National List. All natural products are allowed, unless they are specifically listed as prohibited on the same list. As stated, the National List is part of the NOP regulation, in sections 205.600 through 205.606.

The organic regulation mandates that a hierarchy be followed for pest, disease, and weed control. You must start with cultural controls (i.e. disease-resistant varieties or the timing of planting), mechanical controls (i.e. the use of row covers or flaming weeding), or biological (i.e. the use of beneficial insects). If these methods are documented as ineffective, then natural products can be used. If natural products are not effective, then approved synthetic products can be used.

For pest control products, the active ingredients and the inert ingredients must be allowed for organic production. The acceptability of brand name products should be verified with your certification agent. You may also check a product's acceptability by seeing if the product is listed as approved by the Organic Materials Review Institute at www.omri.org

Mulches

Mulching is an approved weed control option, with natural materials such as straw, tree leaves, or grass clippings being allowed, so long as the mulch does not pose a risk of contamination with herbicide residues (such as lawn clippings from chemically-treated lawns). Plastic mulches are allowed, but must be removed at the end of the growing or harvest season.

Conservation and Biodiversity

Cover crops, such as buckwheat, are grown to smother weeds, build soil, and provide food for pollinators.

The NOP defines "organic production" as a "production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity." Promotion of ecological balance and conservation of biodiversity are inherent to organic production.

The NOP requires that organic producers must maintain or improve the natural resources of their operations, including soil and water quality, and minimize soil erosion. Organic vegetable growers comply with these requirements by implementing conservation practices, such as crop rotations, cover crops, grass waterways, and contour strips. Many grow annual and perennial flowering plants, which provide food and habitat for pollinators and other beneficial organisms. Some also erect bird and bat houses to enhance biodiversity, while improving pest control for crops.

Harvest and Storage

During and after harvest, certified organic produce must be kept separate from non-organic produce. There can be no commingling of organic and non-organic products or contamination through contact with prohibited substances. Equipment that is used to harvest conventional crops as well as organic crops must be thoroughly cleaned prior to organic harvest. The grower must document equipment cleaning activities on a "Cleaning Affidavit" or such record. Wagons made from treated wood should be covered with a tarp to avoid direct

Organic crops should be cured and stored separate from non-organic crops during post-harvest handling.

contact with organic produce. Treated wood bins or waxed boxes that previously held nonorganic produce should not be used for organic crops.

Storage areas used for organic products must be separate and labeled as such, especially if organic and non-organic products are stored in the same facility. If a walk-in cooler is used for organic and non-organic products, the organic products should NEVER be stored below non-organic products, as contaminated water could easily drip onto the organic products.

Recordkeeping

Organic certification requires an extensive recordkeeping system to document that the products and practices used by the grower comply with NOP requirements. The documentation required of an organic producer is part of the quality system that contributes to consumer confidence in organic foods and results in a premium for organic products.

Many of the records listed below can be combined in one document - for example, field activities, inputs, monitoring, seed planting, and harvest information can be documented either by year or by field on one record.

Examples of the documentation needed include the following:

- Completed Organic System Plan (OSP), listing all crops requested for certification, proposed production for each field, all inputs used and planned for use, steps taken to protect organic integrity, a description of the record keeping system, and other information requested by the certifier
- Three-year field history for all fields to be certified, showing all crops grown and inputs used
- Detailed map(s) of all fields, with identifying field numbers, and showing adjoining land uses
- Documentation of previous land use for fields not owned or operated by the applicant for the previous 3 years
- Neighboring land use affidavit, if a buffer zone is not needed, to document that no prohibited substances are applied on adjoining land
- Map of farmstead illustrating post-harvest processing and storage locations
- Proof of organic seed or documentation of attempts to obtain organic seed
- Non-GMO affidavits for all purchased seed that is not certified organic, for species where GMO crops are grown
- Soil test or tissue test results as justification for use of micro-nutrient fertilizers
- Complete ingredient listings for all blended fertilizers
- Invoices, receipts, labels and/or tags for all purchased inputs
- Calendar, field history sheet, or field activity book
- Detailed records of all input applications including date, rate, and location
- Monitoring records including soil, tissue, and water tests, as well as any observational monitoring records (e.g. journal)
- Date and location of tillage, cultivation, and pest control activities
- Date, location, and yields of harvest
- On-farm cleaning affidavits, when equipment and storage areas are also used for conventional crops
- Storage records including location, identification, amount, and cleaning activities for storage facilities

- Sales of organic produce from storage or fields
- Shipping records including scale tickets, dump station tickets, or bills of lading for large-volume growers
- Processing license, if products are processed after harvest
- Transaction certificates for large-volume sales

ATTRA, the National Sustainable Agriculture Information Service, has organic market farm documentation forms available for download at: www.attra.org/organic.html.

You have flexibility to create and maintain records that are appropriate and well-adapted to your operation, but they must disclose all activities and transactions. Under the NOP, records must be maintained for 5 years beyond their creation. Make every effort to keep your records up-to-date, well organized, and readily accessible. And remember – good records lead to better management, improved yields, and higher profits.

For more information regarding recordkeeping for organic vegetable operations, please see appendix A.

Choosing a Certification Agency

Before choosing a certification agency, talk with other organic farmers about their experiences with their certifiers. Also talk to the various certifiers and visit their websites to learn more about their services. The following questions will help you get started:

1. Which agency or agencies do farmers you know and trust use?
2. Are the farmers happy with the services they've received?
3. Does the certification agency answer the farmers' questions quickly and clearly?
4. Does the agency complete the certification process in a timely manner?
5. How much does organic certification cost?
6. Does the agency provide other services, in addition to organic certification?

Specific questions to ask certifying agencies include:

1. Do you certify farms in my region?
2. What other services, if any, do you provide?
3. Do you sponsor any educational activities and/or field days?
4. Are you a membership-based organization, and, if so, what is the membership fee?
5. Is there a fee to receive the application packet?
6. What is the application processing (certification) fee?
7. Is there a user fee?
8. Is there an additional inspection fee?
9. What are the office hours?
10. Is someone readily available to answer questions during office hours?

You can also talk to your potential buyers and ask them which agencies they prefer. It is recommended that you carefully select a certifying agency, as it is advisable, but not required, to stay with that agency for many years. Once you've contacted a certifying agency, they will send you a packet containing the NOP regulation and an Organic System Plan application form. Some agencies charge a fee for the application packet - others do not. Some certifiers have posted their forms on their websites, available for download.

The Application and Inspection Process

The Organic System Plan questionnaire included in the application packet requires you to provide the past three years' field histories for all fields used for organic production; maps of all fields; a list of all pest management strategies and planned inputs; soil fertility program and planned inputs; a list of all seeds and seedlings to be used; harvest, storage, and sales plans for your farm; and a description of your recordkeeping system. OSP forms are typically 15 pages long, and will likely take about 2-8 hours to complete. Though similar, each certifying agency issues its own OSP forms. When re-certifying in subsequent years, the process will go more quickly, as you generally are asked to complete an abbreviated OSP update form.

Once the certification agency has received your OSP, they will review your answers and any supporting documentation to make sure it is complete and you have demonstrated the ability to comply. When all documents have been received and reviewed, the certifier will pass the OSP and associated materials to an inspector, who conducts an on-site inspection. The on-site visit may take two to four hours or more, depending on the size, complexity, and layout of your farm. The inspection will be scheduled when a knowledgeable representative of your farm will be present, and when crops and practices can be observed. The inspector is present to verify whether or not you are following your plan, and that your management practices and inputs are compliant with the organic regulation. Although they cannot give specific advice to aid you in your organic certification process, organic inspectors can answer questions about the organic regulation and discuss farming practices in a general way.

The inspector will verify that the information on the OSP is correct. The inspector will also walk through the fields you are requesting to be certified, observing the conditions of the crops, soil, weeds, insects, conservation practices, etc. The inspector will look at the borders of organic fields that adjoin conventionally-managed land to make sure that adequate buffers are maintained to prevent pesticide drift or overspray from contaminating the organic crops. You will also be asked specific questions about your weed control strategies, pest management practices, and fertility program. The inspector will want to know your long-term soil building plans, crop rotation schedule, and efforts to maintain or increase biodiversity, to be assured that you are taking a holistic approach to organic crop production.

Field histories, weekly notebooks, storage records, input records, sales records, product labels, seed tags, and input receipts will all be reviewed during the inspection. The inspector will also visit post-harvest handling, input, and crop storage areas; examine production and harvesting equipment; and review labels and market information. You may be asked to provide yield and sales information for your organic crops, to determine if you have adequate land to produce the quantity of organic crops sold. At the conclusion of the inspection, the inspector conducts an "exit interview," sharing observations, identifying any additional information needed, and reviewing all issues of concern. The inspector does not make the decision on your certification status, however.

After the site visit, the inspector submits an inspection report, along with any additional documentation collected at the visit, such as fertilizer tags or seed receipts, to the certification agency. After reviewing the inspection report and your complete file, the certification agency will decide whether your farm meets NOP requirements to become certified.

There are four possible outcomes:

1. approval of certification, with no conditions;
2. approval of certification, with minor noncompliances, which must be addressed as detailed by the certifying agent;

3. deferred, pending additional information; or
4. notification of noncompliance and denial of certification, with reasons for denial specified, along with information on how to appeal or rebut the certifier's decision.

Notice of Noncompliance and Denial of Certification

If a certifying agent finds that the applicant is not in compliance with NOP requirements, a written notice of noncompliance is issued to the applicant. In many cases, the applicant can be certified, if certain changes are made. The notice of noncompliance will include a description of the violation(s), as well as a date by which correction(s) must be completed. It will also provide information about documentation that the grower must submit to the certifier to verify that corrective actions have been taken. A follow-up site visit may be necessary to assure that the correction(s) have been made. If an applicant doesn't comply or fails to respond, a denial of certification will be issued. Similarly, if correction is not possible, a denial of certification will be issued.

Applicants who receive a notice of noncompliance or a denial of certification can apply for certification with another agency, but prior notices of noncompliance and/or denial must be revealed to the new agency, along with a description of all corrective actions.

Continuation of Certification

Once you become certified, you must maintain your certification each year by paying your fees, submitting an updated OSP that describes changes from the previous year, and having an annual on-site inspection. If there were any minor noncompliances identified, verification of correction must also be submitted as part of your OSP update before your annual inspection. The inspector typically performs one inspection of each operation per year, during which the inspector reviews your OSP, conducts a complete site visit, and writes a report based on evidence and observations. The inspector's report is submitted, along with your updated OSP, to the certifying agency for review. Though most inspections are scheduled in advance, there is the possibility that you will receive an unannounced inspection to verify the OSP is being following and your operation is in full compliance with NOP requirements.

Suspension or Revocation

If a certified operation commits fraud or otherwise violates the NOP regulation, the operation's organic certification may be suspended or revoked. If so, the certification agency sends the operator a written notification of proposed suspension or revocation, stating the:

- reasons for suspension or revocation;
- proposed effective date;
- impact on future eligibility for certification; and
- right to request mediation or file an appeal.

The operator has 30 days to request mediation or file an appeal with the USDA. If the mediation or appeal is successful, certification is reinstated. If the mediation or appeal fails, certification is revoked. Revoked operations are not eligible for certification for five years. Submitting an appeal is a long and cumbersome process and entails presenting clear documentation - it is best to be complete and transparent with your organic operation's information before the process gets to this point.

If the certified operator has signed a licensing agreement to use the certifying agent's seal, the certifying agent can directly suspend or revoke the operator's right to use the seal.

Violations of the NOP

Any certified operation that makes a false statement or knowingly sells or labels a product as organic that is not produced in accordance with the Organic Foods Production Act of 1990 shall be subject to:

- provisions of section 1001 of title 18, United States Code; or
- up to $10,000 fine per violation.

Conclusion

Organic vegetable production is a rewarding experience that provides the grower with an opportunity to truly be a part of the natural system, while producing safe, healthy, and abundant organic food. Certification may be somewhat cumbersome when you are first starting out, but it helps to protect the organic claim, provides a level playing field for all producers, and is well rewarded in the marketplace. Hopefully, after a few years, you will be comfortable with your paperwork system, will understand the details of the organic regulation, and look forward to your annual organic inspection!

Acknowledgements

Becoming a Certified Organic Fresh Market Grower" by Karen Delahaut, Fresh Market Vegetable Outreach Specialist and Harriet Behar, Independent Organic Inspector. Published in 2003 by University of Wisconsin-Madison College of Agricultural and Life Sciences. www.cias.wisc.edu/

IFOAM/IOIA International Organic Inspection Manual" by James A. Riddle and Joyce E. Ford, International Organic Inspectors Association, Broadus, MT, December 2000. ISBN 3-934055-09-5. www.ioia.net

MOSES Fact Sheet "Transitioning to Organic Vegetables," FS 608 Updated November 2007, Midwest Organic and Sustainable Education Service, Spring Valley, WI 54767. www.mosesorganic.org

Organic Vegetable Operation Record Keeping Systems" by James A. Riddle and Joyce E. Ford, developed for the Carolina Farm Stewardship Association, 2003.

Photographs courtesy of Jim Riddle.

APPENDIX A - RECORDS FOR ORGANIC VEGETABLE OPERATIONS

The National Organic Program's (NOP) Final Rule, at §205.103, states, that "a certified operation must maintain records for production, harvesting and handling of organic agricultural products…" These records must "be adapted to the particular business that the certified operation is conducting; fully disclose all activities and transactions of the certified operation in sufficient detail as to be readily understood and audited; be maintained for not less than 5 years; and be sufficient to demonstrate compliance" with the NOP rule. These records must be "available for inspection and copying during normal business hours" by the organic inspector or other authorized persons.

Because vegetable operations vary widely in the types of crops grown, amount of acreage, number and size of fields in production, and marketing through farmers markets, on-farm stands, CSA and/or wholesale, it is difficult to create a template or system that fits all types of certified organic vegetable operations. The record keeping system presented below attempts to walk organic vegetable growers through recordkeeping options to develop systems of records pertinent to their specific operations. The requirements for each type of record are given and an example of that type of record is shown.

Vegetable operation records that meet NOP requirements can be grouped into the following categories:

1. Farm and field maps
2. Field history sheets
3. Seed purchase records
4. Input records (soil amendments, foliar sprays, pest control products, compost production record)
5. Activity logs
6. Harvest records
7. Storage records
8. Lot numbering system for wholesale sales
9. Sales records
10. Other records

The operation’s record keeping system must be sufficient to be "readily understood and audited." In other words, the ability must exist to trace each crop from field to harvest, storage and sales, including information on the seeds, seedlings, soil amendments, pest or disease control products, and other inputs used by the operation. You need to be able to track crops to your farm or fields and show how and where they were grown. The records that provide an “audit trail” for your operation include field history sheets and harvest, storage and sales records, (including a lot numbering system for operations that sell wholesale.) Other records listed above verify compliance with specific standards in the rule, such as the use of organic seeds.

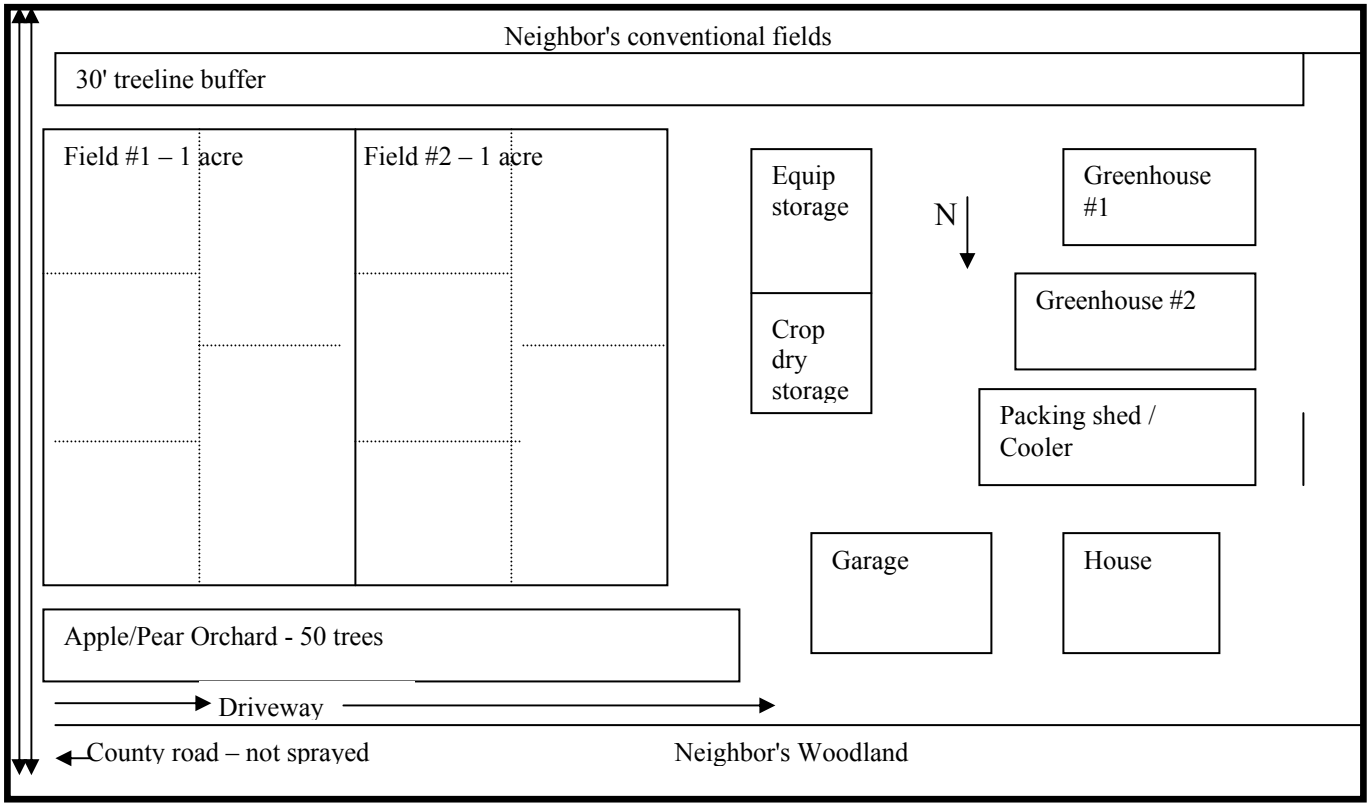
Not every operation needs all of the records listed above. As a certified organic producer, you need to determine which types of records you need, so that your records are “adapted to your operation,” yet "disclose your activities and transactions."

General Tips:
1. Develop generic record templates or spreadsheets, typing or writing as much information as possible, so that you need only check a column, write in a date, or record an amount, when keeping the information up to date.
2. Keep the records relevant and simple. They should be useful to you in making management decisions, as well as showing compliance to the Organic Rule.
3. Keep the record in a location that is accessible to use. For example, keep the cooler log outside the cooler door. When you put vegetables into the cooler or take them out, it is easy to quickly enter the products, amounts, and date.
4. Keep records up to date. It is much harder to go back and reconstruct records after the fact.
5. At the end of the year or season, gather all records from clipboards and file them in a ring binder, or enter the data into your computer.

STEP 1: Develop or draw a farm map. Start with an FSA, NRCS, plat map, surveyor map, or hand or computer drawn map of your farm or fields. Mark all fields, roads, and adjoining land uses such as conventional fields, pastures, or neighboring residences. Indicate locations of wild areas such as woodlands, beneficial habitat areas, and other landmarks. Mark on the map areas where you maintain permanent waterways, windbreaks, retention ponds, buffer zones, or other landmarks. Each field or plot should be numbered. Show relevant farm buildings. Indicate which direction is "North". The size or acreage can be added, if there is room. Boundaries should be clearly delineated. See Sample # 1.

Tips:
1. Do not use color markers, as these maps are copied and the colors do not show when copied.
2. Do not show individual annual crops on this general farm map. Annual crops change from year to year.
3. Minimize changing field acreages and field numbers from year to year.

Sample 1: Wiscoy Organic Produce Farm Map



STEP 2: Develop field history sheets. You may be required to use the field history sheets provided by the certifying agent as part of the Organic System Plan (OSP) questionnaire**.** The certifier's forms may prove difficult to use, as they are often designed for fields where single crops are grown. Because they may be filled out and submitted to the certifier prior to planting, the Field History Sheet attached to your Organic System Plan application may not be totally accurate. Changes or corrections to the Field History Sheets should be made prior to or during your inspection. Field History Sheets can be filled out with general categories of vegetable crops, such as brassicas, sweet corn, greens, or alliums, listing all soil amendment and/or pest or disease control inputs used on that field. This record is used to determine the actual crops and fields you are requesting for certification, the year of organic eligibility for new fields, and to assess your crop rotation and soil fertility program.

Sample 2a: Field History Sheet in your Organic Farm Plan Questionnaire

Year: 2008

Field #	O-Organic T-Transitional C-Conventional	Acreage	Crops	Inputs			Expected Yield
				Input	Date of Use	Rate of Use	
#1	O	1.0	Mixed vegetables	Compost Lime	4/18/08	50 lb/600 sq. ft. 25 lb/600 sq.ft.	Variable
#2	O	.75 .25	Sweet corn Squash	Compost Lime	4/18/08	1 ton/acre	Variable
Orchard	O	50 trees	25 Pear and 25 Apple	Compost	4/18/08	200 lb/acre	250 bushels

If you grow multiple types of crops in a single field, a good way to track crops grown is to draw an individual field map for each field, delineating plots, rows or beds. Number each plot, row or bed. An example of a numbering system is Field #1-1, #1-2, #1-3, Field #2-1, #2-2, #2-3, etc, where a 1-acre field is divided into plots and then into beds. All plots or beds growing the same crops and receiving the same inputs can be tracked together, rather than tracking every plot or bed separately.

Once you have designed the blank template map, make copies. This detailed field record, showing plots, rows or beds, is your key to a simple record keeping system. The template can be used as an activity log showing dates of plantings; as an input use record showing applications of foliar sprays, pest or disease control products, and soil amendments; and as a harvest record. Record the activity or product and date for the corresponding bed or row. If you have employees, interns or volunteers, it can be used to provide work instructions. You can use the template to plan your crop rotation and subsequent fertilizations, and know from year-to-year exactly where everything will be grown. Use the same basic template every year.

If you double-crop or plant cover crops, record these crops in the field history sheet.

If you know each plot or bed size, or row length, you can determine approximate yields of various vegetables to help in your market planning.[1] For instance, in Sample #2b, each bed measures 150 ft. by 4 ft, or 600 sq. ft. This square footage yields approximately 320 pounds of tomatoes.

[1] See *Knott's Handbook for Vegetable Growers*, authored by Oscar A. Lorenz and Donald N. Maynard, New York: Wiley-Interscience Publication/John Wiley & Sons, Third Edition, 1988, pg. 333-334.

Sample 2b: Field History Template Map Field # 1 Year 2008

Each bed is 150 feet long by 4 feet wide (600 sq. ft.), with 2 feet between each bed for a pathway. Type in what is planted each year.

Plot #1 – 8 beds Bed #1-1 Lettuce	**Plot #4 – 12 beds** Bed #1-25 Tomatoes
Bed #1-2 Assorted spring greens mix	BBd #1-26 Tomatoes
Bed #1-3 Snow peas	Bed #1-27 Green bush beans
Bed #1-4 Snap peas	Bed #1-28 Yellow bush beans
Bed #1-5 Spinach	Bed #1-29 Tomatoes
Bed #1-6 Lettuces	Bed #1-30 Tomatoes
Bed #1-7 Green peas	Bed #1-31 Pole green beans
Bed #1-8 Green peas	Bed #1-32 Bush green beans
Plot #2 – 8 beds Bed #1-9 Broccoli	Bed #1-33 Broccoli
Bed #1-10 Cabbage	Bed #1-34 Cabbage
Bed #1-11 Red Norland potatoes	Bed #1-35 Yellow onions
Bed #1-12 Red Norland potatoes	Bed #1-36 Yellow onions
Bed #1-13 Kale	Bed #1-37 Late potatoes
Bed #1-14 Cauliflower	Bed #1-38 Late potatoes
Bed #1-15 Red Norland potatoes	Bed #1-39 Red salad onions
Bed #1-16 Red Norland potatoes	Bed #1-40 Red salad onions
Plot #3 - 8 beds Bed #1-17 Sweet basil	Bed #1-41 Late potatoes
Bed #1-18 Parsley	Bed #1-42 Late potatoes
Bed #1-19 Early tomatoes	Bed #1-43 Carrots
Bed #1-20 Early tomatoes	Bed #1-44 Carrots
Bed #1-21 Assorted greens	Bed #1-45 Carrots
Bed #1-22 Lettuces	Bed #1-46 Carrots
Bed #1-23 Early tomatoes	Bed #1-47 Assorted perennial herbs
Bed #1-24 Cherry tomatoes	Bed #1-47 Assorted perennial herbs

STEP 3: Develop seed purchase records. Because vegetable operations often purchase many varieties of seeds from different seed suppliers, maintaining seed records can be quite a challenge. For those of you who are computer users and purchase the same seeds from year to year, a spreadsheet, such as Excel, can greatly reduce the time you spend on this record by entering in as much standard information as possible.

Seed purchase records include copies of your seed orders, actual labels, seed tags or seed packets, and a record of your attempts to purchase organic seeds and reasons for purchasing non-organic untreated seed. Do not purchase treated seeds – seeds treated with synthetic substances, such as Captan, are prohibited.

You should also keep receipts of your organic seedlings and perennials purchased and verification that the annual seedlings were certified organic. If you grow your own seedlings, greenhouse records or an activity log for the greenhouse will be needed, showing: how many flats were planted; planting dates; information regarding the inputs used in your soil mix; and products used for foliar sprays or pest or disease control need to be kept. Use a clipboard to record the information in the greenhouse.

All seed purchase records should contain the following information: crop; variety; supplier; whether the seed is certified organic (0), untreated non-organic (U), or treated non-organic (T); type and brand of treatment (if known); and whether the seed is non-GMO. If the seed is organic, the seed will also be non-GMO. Planting GMO seed is prohibited and will result in de-certification for the portion of the field for 3 years. Be sure to use non-GMO rhizobial inoculants.

Your seed orders should show crop, variety, and supplier. Some suppliers use the "OG" designation in the product code to identify the seed as organic. Indicate on your copy of the seed order which seed is certified organic.

Remember that organic seeds and organic seedlings are required for organic certification. Exceptions may be granted by the certification agent, if organic seeds are not commercially available. Non-organic seedlings can only be used if you lose your crop as the result of a natural disaster, and USDA grants a temporary variance. The NOP defines “commercial availability” as, "the ability to obtain a production input in an appropriate form, quality, or quantity to fulfill an essential function in a system of organic production or handling, as determined by the certifying agent in the course of reviewing the organic plan." With regard to seeds, the NOP has expanded commercial availability to include “equivalent varieties.”

If you purchase non-organic seed, you must document your attempts to purchase organic seed and have appropriate reasons for needing to use that specific variety. Specific reasons might be that a variety of lettuce is heat resistant; the 500 pounds of seed potatoes you need to purchase are not available from an organic supplier; a variety of peppers that turns red in your Northern climate is not available in organic form; or that you need pelleted carrot seed and can’t find it organically. (If you use pelleted seeds, check to insure the pelletizing agent is an approved material, such as kaolin clay. The Organic Materials Review Institute lists several approved pelletizing agents.)

Tips:

1. Do not plant treated or genetically engineered seed, as this will disqualify that portion of the field from certification for 3 years.
2. Make copies of your actual seed orders for your records. Mark all organic seeds with "OG" if not already in the product code.
3. Keep seed packages, labels, and seed tags to show the inspector. Keep labels of all inoculants used.

If you choose to record all seed purchases, here is an example of a format to use:

Sample 3a: Seed Purchase Record

Year: 2008
Supplier Key: 1 - Fedco 2 - Johnny's Selected Seeds 3 - Garden City Seeds
4 - Ronniger's Potato Farm 5 – Seeds of Change 4 – Harris Seed

Seed		Supplier	Organic (O) Untreated non-organic (U), Treated non-organic (T)	Type and brand of treatment	Check (√) non-GMO seed	Commercial availability reason #	Attempts to purchase organic seed
Crop	Variety						
Lettuce Summer Crisp	Anuenue	2	U	-	√	Heat resistant - 1	Looked at Fedco, Harris, Garden City and Seeds of Change

If you record only the non-organic seeds purchased, here is an example of a format to use:

Sample 3b: Non-Organic Seed Purchase Record

Year: 2008
Supplier: Johnny's Selected Seeds

Seed		Type and brand of treatment	Check (√) non-GMO seed	Commercial availability reason #	Attempts to purchase organic seed
Crop	Variety				
Lettuce Summer Crisp	Anuenue	Untreated	√	Heat resistant - 1	Looked at Fedco, Harris, Garden City and Seeds of Change

STEP 4: Develop input records. Input records must show what product(s) are used, the location (field or bed #), date of use, and application rate. Inputs include soil amendments, foliar sprays, pest and disease control products, and products applied with irrigation. Depending on how many products you use, you may need more than one type of input record. Your individual field template showing individual beds works well to record specific soil amendments applied, and the date and rate of application.

Tips:

1. Keep the input record clipboard where you store your application equipment or products used.
2. If you use a standard application rate or combine soil amendments or pest control products in your own formula, write this information once at the top of the record and use a key number or other identifier to enter the information in the appropriate column.
3. Use a different sheet/map template for soil amendments (minerals, compost and manure), from the form used for pest and disease control products.
3. If micronutrients are applied, keep copies of soil or tissue tests to justify agronomic need.

Sample 4a: Soil Amendment Use Record

Year: 2008

Key: A – Cow manure, composted, 50 lb. per 600 sq. ft. bed
B – Calcitic limestone, 25 lb. per 600 sq. ft. bed
C – Micronutrient recipe according to soil tests for 600 sq. ft. beds (rock phosphate-10 lb., boron-3 oz., Sul-Po-Mag-5 lb.)

Field #-Bed #	Soil Amendments	Date Applied	Rate of Application
Field #1-19, 20, 23, 24, 25, 26, 29, 30,	A, B	June 15, 2008	As recipe above
Field #2- Plots #1, 2 and 3	A, B	June 17, 2008	Per plot: 200 lb. lime 400 lb manure
Field #2 – Plots #4 and 5	B	June 20, 2008	300 lb. lime

Sample 4b: Pest Control Product Use

Year: 2008

Field #-Bed #	Pest Problem	Pest Control Product	Date Applied	Rate of Application
Field #1 and #2-all around; in grass	Japanese Beetle	Milky Spore	4/14/08	1 tsp/3 ft.
Field #1-11, 12, 15, 16, 37, 38, 41, 42	Colorado Potato Beetle	Novador Bt	6/30/08	1.5 oz./gal

STEP 5: Develop an Activity Log. This record might be an individual activity log per field kept on a clipboard, calendar, journal, pocket notebook, personal data assistant (PDA), computer, or ring binder. The field activity log is the easiest way for many operators to record activities. Examples of information you might record include: planting dates with bed # and crop; observations of plant health or disease problems; specific weed populations or problem locations; planting rates and dates; harvest activities; equipment settings; weather conditions, i.e., heavy rains, soil erosion noted; or pest monitoring activities. Inspectors review these records to verify compliance and assess your monitoring program.

Sample 5a: Journal

Journal entries:

3/9/08 Planted Red Norland potatoes, beds #1-11 and #1-12
Disced field #2 – noticed a patch of thistle emerging in plot #5

3/10/08 Heavy rains today; 2.5 inches in rain gauge; no erosion noted

STEP 6: Harvest Records. Whether the vegetable grower is selling at a farmers market, on-farm stand, CSA, or wholesale orders to grocery stores, food cooperatives, or restaurants, harvest records of some type must be kept. Required information is the crop harvested, date of harvest, amount harvested, and location where harvested (field, plot, bed or row #). This information is invaluable to the grower in planning for the future, especially when determining what crops were most profitable, when to plant specific crops for a continuous supply, or how much to grow in the future. Inspectors, on behalf of certifying agents, review these records to determine that you actually grew and harvested what you say you sold.

Simple harvest records can consist of a single sheet of paper for each type of crop (Sample 6a - advantage is that you can easily add up your total harvest.) You can also use a map template to write in the amount harvested from each bed, or a computer spreadsheet, whichever is easiest for you. Keep these records where vegetables are packed so that they can be kept at the time you are packing each vegetable.

Sample 6a: Harvest Record Per Vegetable

Field #: 1 Crop Harvested: Lettuce, Red

Bed #	Amount Harvested	Date of Harvest
1	24 head (1 box)	6/4/08
1	30 head	6/6/08
1	24 head (1 box)	6/11/08
1	48 head	6/13/08
1	48 head	6/20/08
Total Harvested	134 head	

Sample 6b: Harvest Record Per Date

Date June 25, 2008

Crop Harvested	Bed #	Amount Harvested
Lettuce, red	1	30 head
Asst. spring gr mix	2	45 bunches
Spinach	5	50 bu
Lettuce, gr	6	35 head

For larger growers, a useful harvest record is a template of all products sold. Sample 6c lists all crops, with columns that show the beds and amount harvested. Use a single sheet for each harvest day. Alphabetize the list. List each type of vegetable, including different varieties, if needed. Lot codes may be used if the operation is selling wholesale. This record may be used to take wholesale orders over the phone. The original serves as a "pick order," with items checked as the order is filled. Putting the basic ID for each vegetable or fruit's lot code on this column helps the person remember the correct lot code. See also the section below on developing lot codes. The lot code column is not needed for a small operator who sells direct. If the vegetable or fruit is only harvested from one field, plot, or bed, write in the location # on your template for the season. With this record, not all vegetables are harvested every week. See Sample 6c below.

Sample 6c: Larger Operation Harvest Record (a single sheet is used for each harvest day)

Date:

Crop Harvested	Lot Code Initials	Expected Harvest Date	Field, Plot or Bed #	Amount Harvested	Walk-in Cooler (√)
Apples, Red Delicious	ARD	Sept-Oct.	Orchard		
Apples, Yellow Delicious	AYD	Sept.-Oct.	Orchard		
Basil, Sweet	BS	June-Oct.	#17		
Beans, Green	BG	July-Oct.			
Beans, Yellow	BY	July-Oct.			
Carrots	C	July-Oct.			

Tips:

1. Larger vegetable operations with employees may keep more complicated records that have columns for packing goals and amounts actually packed, and are linked to computer spreadsheets.
2. Use standardized box sizes, such as 24 head of lettuce per box. Then you can just enter how many boxes you packed.
3. Attach a lot number sticker or date stamp, when packing wholesale boxes.

STEP 7: Develop storage records. If you harvest the day of market and do not use a walk-in cooler, you do not need to keep storage records. But if you are a fairly large vegetable operation, with deliveries several days a week, inventory records are essential. Likewise, storage records are important for crops such as potatoes, carrots, and apples. Inventory records for a walk-in cooler help the grower know what he/she has available that needs sold and how much to harvest for projected sales. Dates are important because produce needs to be sold on a first-in, first-out basis.

Required information is crop stored, amount stored, and date stored. Adding a column to the Seasonal Harvest Record template for storage information makes it also useful as a storage record. In Sample 6c above, the person need only check that the produce went into the cooler. This will work if all stored produce is likely to be sold the following day and you don't need inventory records.

Sample 7: Walk In Cooler Inventory Record (Organic only, 10'x12')

Cooler #: _____#1_____

Crop Stored	Lot #	Amount Stored	Storage Date	Date and Amount Sold	Date and Amount Returned	None Left in Inventory (√)
Lettuce, red	LR155	1 box	6/4/08	6/5/08 – all		
Lettuce, gr	LG155	1 box	6/4/08	6/5/08 – all		
Spinach	SP155	2 box	"	6/5/08 1.5	½ box 6/5/08	6/6/08

Tips:

1. If a walk-in cooler is also used for non-organic products, store organic and non-organic products in separate areas. Maintain separate storage records.
2. If you cannot separate, store organic produce on higher shelves so non-organic produce does not drip onto organic produce. Label organic and non-organic storage areas for easy identification.

STEP 8: Lot Numbering System. If you are selling wholesale, you need to be able to track each specific box of produce to the date of harvest. A lot numbering system should be established. A simple lot number can indicate the date of harvest, such as 6/9/08, or 6908. You may want to identify the product with a product code, such as LR for Lettuce, Red. The lot number for red lettuce harvested on June 9 would be LR6908. Only you and your employees need to be able to decipher the lot number. Some growers use the Julian Date Calendar, a 3-digit number designated for each day of the year, starting with 001 for January 1. Since produce does not have a long shelf life, the year may be eliminated from the lot number to keep it short.

If you are selling wholesale and harvest the day of delivery, the invoice number can serve as your lot number. Be sure to write the lot number or invoice number on each box.

The lot number should be written next to the product on the invoice and also should be stamped or have a label affixed to the cartons being delivered. There may be different lot numbers for various products on the same invoice. If a buyer has a question about a particular lot, you will be able to identify when it was harvested, from what bed, and when it was stored and shipped. By using lot number in storage, you can easily identify which products were harvested first, in order to sell them first.

If you use a product code for each crop, your sales order template should include a column for the code.

STEP 9: Develop sales records. Sales records may simply be a list of the vegetables you took to the farmers' market and total sales for the market day. These do not have to be broken down by each type of vegetable sold. A daily sales total is sufficient. If you are going to multiple farmers markets, a table with a column for each market is a simple way to keep track of your total sales. At the end of the season, just total the columns. To save time, you can type in the names and dates of your markets ahead of time.

Sample 8a: Farmers Market Total Sales Record

Date of Market	Winona Farmers Market (Saturday)	Winona Farmers Market (Wednesday)	Rochester Farmers Market (Saturday)
6/7/08	245.00		368.00
6/11/08		219.00	
6/21/08	304.00		397.00
Total Sales	**549.00**	**219.00**	**765.00**

For a CSA, the total sales are known at the beginning of the season, since subscriptions are sold in advance. But you should keep a record of the vegetables and amounts delivered to each CSA member in their weekly boxes. The Larger Operation Harvest Record (sample 6c) could be modified to record CSA deliveries. Just check the vegetables and fruits put into each box with the amounts. It is a good idea to keep a record of CSA member dates of deliveries and pick-ups. If there is ever a question, you will know if a member picked up their box. This record is not required for certification. See Samples 8b and 8c.

Sample 8b: CSA Weekly Box (Tuesday pick-ups)

Week of: 9/23/08

Vegetable/Fruit	Amount
Apples, Red delicious	3 lb.
Apples, Yellow delicious	2 lb.
Basil, sweet	1 bunch
Beans, green	1 lb.
Beans, yellow	½ lb.
Carrots	1 lb.

Sample 8c: CSA Weekly Pick-up Record

Delivery Month: June

CSA Member	Pick-up Location	6/3/03	6/10/03	6/17/03	6/24/03
Adams, Jim and Linda	350 Oak Ave, Winona	√			
Bates, John and Mary	"	√			
Collins, Ted and Brenda	"	√			
Darby, Richard	225 Washington St, Winona	√			
Jackson, Art and Lorraine	"	√			

If you are selling to multiple restaurants, grocery stores, food cooperatives, or other retailers, your sales records should at least consist of invoices and an overall record of total sales. Invoices should contain the date, name of buyer, name of seller, products sold, lot #, amounts sold, and cost of products, with a total amount. Pre-printed invoice books can be easily purchased at office supply stores. Each invoice is individually numbered and comes in duplicate or triplicate, so you can keep a copy for your own records. Computer bookkeeping software systems, such as Quickbooks, offer another type of invoicing system that will automatically track various types of information, such as how much of specific vegetables are sold.

A total wholesale sales spreadsheet can keep track of all your wholesale sales. You can easily total the "Amount" columns at the end of the season to know your yearly sales. This record can help you plan for next year's sales, how much to grow, and what markets or products you may want to expand or delete.

Sample 8d: Wholesale Sales Record

Insert invoice number into the column for each wholesale order.

Date	BCC		PFC		Publix		Lucia's Restauant	
	Inv. #	Amt.	Inv. #	Amt.	Inv. #	Amt.	Inv. #	Amt.
6/2/08	10000	36.00	10001	48.00	10003	48.00	10004	36.00
6/9/08	10005	48.00	10006	60.00	10008	60.00	10009	60.00
6/16/08	10010	48.00	10011	60.00	10013	60.00	10014	60.00

STEP 10: Other Records

There are other types records, which may or may not be needed to verify compliance, depending on your situation. Examples include: non-organic or buffer crop usage forms; documentation of previous land use for rented and/or newly purchased land; neighbor notification letters; documentation of adjoining land use; residue analyses of soil, crops, or inputs; labels and product information for all inputs; compost production records; split operation records; equipment cleaning records; transportation records, such as bills of lading; audit control summaries; and complaint logs.

Templates for many of the documents listed in this article, and more, are found in a publication entitled, "Organic Market Farm Documentation Forms" from ATTRA/NCAT, which can be downloaded at: http://attra.ncat.org/attra-pub/PDF/marketforms.pdf