

# Organic System Plans: Market Farms and Greenhouses



This document was developed in 2006 by the National Center for Appropriate Technology (NCAT) with funds provided by the USDA National Organic Program (NOP). It provides a realistic example of an organic system plan based on best interpretations of the National Organic Standard by NCAT and a team of representatives from the wider organic community. It is not an official NOP document and should not be treated as such. Distribution is provided by NCAT's ATTRA - National Sustainable Agriculture Information Service project.

## **Acknowledgements:**

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**Introduction.** If you want to certify your farm as organic, you will need to complete an application form. This guide was developed to assist you in completing that application by explaining just what information certifiers want and why that information is required.

**Our example.** Some of the best tools for teaching are practical examples. That is what we’ve provided in this guide. Our example is a model small market farm operation. We have chosen to locate it in the Arkansas Ozarks, where farms like this are fairly common. The model has a number of features—some typical and some not—that organic and transitioning farms might have. These include:

- ◆ Transitional acreage
- ◆ Split greenhouse production
- ◆ Compost production
- ◆ Restricted inputs
- ◆ Perennial crops
- ◆ Postharvest operations
- ◆ Wild-crop harvest
- ◆ Irrigation
- ◆ Previous certification history
- ◆ Fertility issues

The application form we have chosen is based on a recommended template that the National Organic Standards Board (NOSB) endorses because of its thoroughness and adherence to the National Organic Regulations. There is a good chance that the application form your certifier gives you will resemble this one.

**Why are applications for certification so long and detailed?** An application for certification serves two purposes. First, it provides basic contact and background information that the certifier needs to assess your compliance with the Organic Foods Production Act and the USDA Organic Regulations. Second, it meets the specific requirement of the National Organic Regulations for an organic system plan, as specified in §205.201. Your organic system plan explains how you plan to farm in compliance with the Organic Regulations. When you and your certifier agree on the details, it becomes a contract and roadmap that you are expected to follow.

**Will I have to complete such a long form every year?** Not necessarily. Under most circumstances, you will only need to complete a lengthy, detailed application for your first year of production. Thereafter, most certifiers allow you to submit much shorter “update” forms that list any planned changes and bring your field history record up to date.

In the example we use for this guide, we chose a farmer who is applying for certification through a different certification agency and is required to complete a full application form. Doing so allows us to hint at what a good, compliant organic farm might look like after several years.

**Navigating this guide.** The guide provides an example of what a good application and system plan might look like. Notes are provided wherever supplementary information is appropriate. There will also be references to ATTRA publications and other helpful materials.

The application document has four main sections:

- a) Farm map page 6
- b) Field history form page 8
- c) Main application form page 12
- d) Supplementary documents page 59

This is also consistent with the way many organic applications are arranged.

**What about agronomic crops? Livestock?** This guide features small-scale horticultural crop production. However, many organic farms are much larger operations that produce grains, forages, and/or horticultural crops on a field scale. Even though these producers complete the same application form as small farmers, the details are often different. To address this difference, we've produced *Organic System Plans: Field and Row Crops and Pasture and Range Systems*. For organic livestock enterprises, we've developed *Organic System Plans: Livestock Production*.

**Need further background on organic farming and the regulations?** To read the National Organic Regulations, see the National Organic Program Web site at: [www.ams.usda.gov/nop/NOP/NOPhome.html](http://www.ams.usda.gov/nop/NOP/NOPhome.html). To understand what strategies, techniques, and basic system design organic production entails, see ATTRA's *Organic Crop Production Overview*. For information on organic certification and background on organic regulation, ask for ATTRA's *Organic Farm Certification and the National Organic Program*. For guides on transitioning your operation to organic production, try NCAT's *Organic Crops Workbook* and the *Organic Livestock Workbook*. To aid in getting ready for a key step in the certification process, ask for ATTRA's *Preparing for an Organic Inspection: Steps and Checklists* and *Organic Certification Process*. ATTRA publications can be found on the Web at [www.attra.ncat.org](http://www.attra.ncat.org). Print copies can be requested by calling 1-800-346-9140.

**More on our example farm.** Our market farm model occupies about 22 acres in the Ozark Mountains of Arkansas. It is owned by Andy and Suzi Wannabee, and their large, hard-working family. The farm focuses on intensive production of vegetable crops and small fruits. There is also greenhouse production of carnations for the conventional market, and vegetable transplants for sale and for use on-farm. In addition, there is wild harvest of ginseng roots. Sales of all organic production are direct, except for the ginseng, which goes to a local broker.

In late 2005, the Wannabees purchased a field contiguous to their property. The new field was established in highbush blueberries in 2002 and is now in production. The Wannabees are transitioning this acreage to organic production.

Most field operations are done using walk-behind tractors and other small-scale equipment. When needed, a larger tractor with tilling, mowing, and transplanting equipment is rented from a neighbor.

The farm has been in organic production for more than two decades, beginning several years before the owners chose to become certified. For all this time, they relied heavily on poultry litter from nearby chicken houses for their fertility base. This has led to excessive soil phosphorus levels and created some challenges the owners are trying to address.

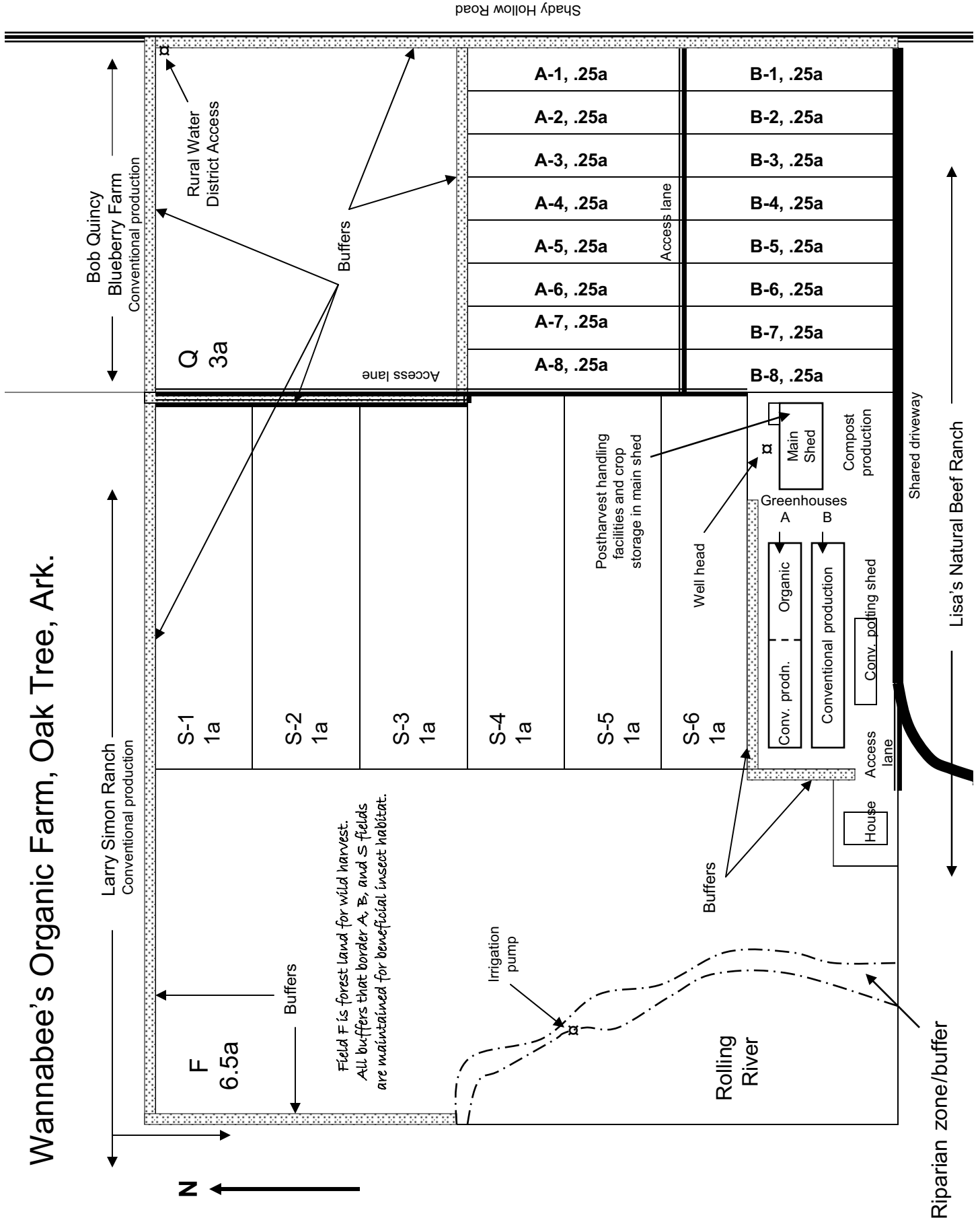
#### **What the organic regulations say about organic system plans**

§205.201 Organic production and handling system plan.

(a) The producer or handler of a production or handling operation, except as exempt or excluded under §205.101, intending to sell, label, or represent agricultural products as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s))” must develop an organic production or handling system plan that is agreed to by the producer or handler and an accredited certifying agent. An organic system plan must meet the requirements set forth in this section for organic production or handling. An organic production or handling system plan must include:

- (1) A description of practices and procedures to be performed and maintained, including the frequency with which they will be performed;
  - (2) A list of each substance to be used as a production or handling input, indicating its composition, source, location(s) where it will be used, and documentation of commercial availability, as applicable;
  - (3) A description of the monitoring practices and procedures to be performed and maintained, including the frequency with which they will be performed, to verify that the plan is effectively implemented;
  - (4) A description of the recordkeeping system implemented to comply with the [recordkeeping] requirements established in § 205.103 [of the National Organic Regulations];
  - (5) A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances; and
  - (6) Additional information deemed necessary by the certifying agent to evaluate compliance with the regulations.
- (b) A producer may substitute a plan prepared to meet the requirements of another Federal, State, or local government regulatory program for the organic system plan: Provided, That, the submitted plan meets all the requirements of this subpart.

# Wannabee's Organic Farm, Oak Tree, Ark.



## Map notes

**Are field maps required?** There is no provision in the Organic Regulations specifically requiring field maps. However, maps are the chief means for demonstrating that you meet the requirement of §205.202(c), stating that organic fields must have “distinct, defined boundaries and buffer zones...” Furthermore, maps are customary and most certifiers will expect you to provide one.

Essential features of a good field map include:

- ◆ Locations of fields with numbers or names
- ◆ Locations of roads and utility rights-of-way
- ◆ Hydrological features such as ponds, streams and wells
- ◆ Other natural features, such as woodland and protected areas
- ◆ Locations of buildings and other structures
- ◆ Adjoining land use
- ◆ Orientation, such as an arrow indicating compass directions
- ◆ Prevailing wind direction during growing season
- ◆ Locations of field buffers. Buffers are strips of land that separate organic fields from conventional fields or other sources of contamination. No prohibited substances may be used in a buffer zone; however, any crops grown in there may not be sold as organic.

**Field names or numbers.** Choose names or a numbering system that is clear and not confusing either to you, your farm staff, or the certifier. A combination of a letter with a number, as the Wannabees have done for most of their fields, is recommended. It is important that field names or numbers be consistent with those used on the field history sheets and throughout your application.

**Is a separate facility map necessary?** When an operation has split or parallel crop production, and the farmstead layout is complex, an additional facility map might be appropriate. The scale of the Wannabee’s map allows them provide the necessary detail on a single map, so a facility map is not necessary in their case. See *Organic System Plans: Field and Row Crops and Pasture and Range Systems* for a practical example of a facility map.

**Keep it simple.** Maps must be sufficiently accurate to reflect the actual circumstances. They do not need to be elaborate. In fact, artistry and extraneous details can be confusing and are discouraged. While the Wannabee’s map was drawn with a computer, free-hand drawing is acceptable as long as it provides a clear and accurate picture. It is also common for applicants to use Farm Service Agency (FSA) aerial photos, with details added using a pen or pencil.

FIELD HISTORY SHEET

Code: O = organic; T = in transition/conversion to organic; C = conventional  
 Producer name: Andy & Suzi Wannabee

Code	Field No.	Acres/ha.	Year 2006		Year 2005		Year 2004		Year 2003	
			Crop	Inputs	Crop	Inputs	Crop	Inputs	Crop	Inputs
O	A-1	.25 a	summer squash/rye & vetch	legume inoc., fish emulsion, kelp extract, gypsum, compost, Zn chelate, M-Pede, Pyganic, ThermX	potatoes/ clover & wheat	legume inoc., compost, fish emulsion, kelp extract, Zn chelate, Mycotrol, ThermX	okra	compost, fish emulsion, kelp extract, Humax, H2O2	broccoli & cabbage / clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Bt, Safer's Soap, Humax, H2O2
O	A-2	.25 a	sweet potatoes	gypsum, compost, kelp extract, Zn chelate, ThermX	summer squash/ clover & wheat	legume inoc., compost, fish emulsion, kelp extract, M-Pede, ThermX	potatoes/rye & vetch	legume inoc., compost, fish emulsion, kelp extract, Novodor, Humax	okra	compost, aglime, fish emulsion, kelp extract, Humax, H2O2
O	A-3	.25 a	beans/rye & vetch	legume inoc., fish emulsion, gypsum, compost, kelp extract, Zn chelate, ThermX	sweet potatoes	compost, kelp extract, Zn chelate, ThermX	summer squash/rye & vetch	legume inoc., compost, fish emulsion, kelp extract, Pyganic, Humax, H2O2	potatoes/ clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Novodor, Humax
O	A-4	.25 a	tomatoes	gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, calcium chloride, Bt, M-Pede, ThermX	beans/ clover & wheat	legume inoc., compost, fish emulsion, kelp extract, M-Pede, ThermX	sweet potatoes	compost, kelp extract, Humax	summer squash/ clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Safer's Soap, Pyganic, Humax, H2O2
O	A-5	.25 a	peas/fall greens	legume inoc., gypsum, compost, fish emulsion, kelp extract, Zn chelate, Bt, ThermX	tomatoes	compost, fish emulsion, kelp extract, Zn chelate, calcium chloride, Bt, M-Pede, ThermX	beans/rye & vetch	legume inoc., compost, fish emulsion, kelp extract, Humax	sweet potatoes	aglime, compost, kelp extract, Humax
O	A-6	.25 a	broccoli & cabbage/rye & vetch	legume inoc., gypsum, compost, fish emulsion, NANO3, kelp extract, Zn chelate, Bt, M-Pede, ThermX	peas/fall greens	legume inoc., compost, fish emulsion, kelp extract, Bt, ThermX	tomatoes	compost, fish emulsion, kelp extract, Bt, M-Pede, Humax, H2O2	beans/ clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Humax
O	A-7	.25 a	okra	gypsum, compost, fish emulsion, kelp extract, Zn chelate, ThermX	broccoli & cabbage/ clover & wheat	legume inoc., compost, fish emulsion, kelp extract, Bt, M-Pede, ThermX	peas/fall greens	legume inoc., compost, fish emulsion, kelp extract, M-Pede, Bt, Humax, H2O2	tomatoes	aglime, compost, fish emulsion, kelp extract, Bt, Humax, H2O2
O	A-8	.25 a	potatoes/rye & vetch	legume inoc., gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, M-Pede, Mycotrol, ThermX	okra	compost, fish emulsion, kelp extract, Zn chelate, ThermX	broccoli & cabbage/rye & vetch	legume inoc., compost, fish emulsion, kelp extract, Humax, H2O2	peas/fall greens	legume inoc., aglime, compost, fish emulsion, kelp extract, Safer's Soap, Humax, H2O2



## Field history notes

**Field history records for the upcoming season and the three previous years are required.** Field history forms are intended to demonstrate your compliance with §205.202(3), which states that no prohibited substances may be applied in the three years prior to harvest of an organic crop; and §205.205, which requires crop rotation.

**Conventional production?** In a split operation where organic and conventional production are adjoining or nearby and equipment and storage are dual use, it is necessary to provide field histories for conventional fields as well.

**Record all crops and cover crops.** Be certain to indicate cover crops and double crops. When more than one crop is grown in a season, it can be shown using a slash (/) between the names of the crops. The Wannabees use this method throughout their application.

**Record ALL inputs used.** All input materials used in crop production must be recorded. Among those that are often overlooked but need to be written down are seed coatings, seed treatments, inoculants, spray tank adjuvants and surfactants, and irrigation line cleaners. Remember also to include seed treatments and inoculants that might be used on cover crops.

**Field names or numbers.** It is important that field names or numbers be fully consistent with those used on the field maps and elsewhere throughout the application.

FIELD HISTORY SHEET

Code: O = organic; T = in transition/conversion to organic; C = conventional  
 Producer name: Andy & Suzi Wannabee

O	B-1	.25 a	spring greens/winter squash	gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, NANOS, M-Pede, Bt, Pyganic, Thermx	plow-down peas/potatoes	legume inoc., compost, fish emulsion, kelp extract, Mycotrol, Thermx	ornamental corn	compost, fish emulsion, kelp extract, Humax, vegetable oil	buckwheat/broccoli & cabbage	aglime, compost, fish emulsion, kelp extract, Safer's Soap, Bt, Humax, H2O2
O	B-2	.25 a	onions, beets & carrots/rye & vetch	legume inoc., gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, M-Pede, Thermx	spring greens/winter squash	compost, fish emulsion, Pyganic, Thermx	plow-down peas/potatoes	legume inoc., compost, fish emulsion, kelp extract, Mycotrol, Humax, H2O2	ornamental corn	aglime, compost, fish emulsion, kelp extract, Humax, vegetable oil
O	B-3	.25 a	southern peas/rye & vetch	legume inoc., gypsum, compost, kelp extract, Zn chelate, Thermx	onions, beets & carrots/ clover & wheat	legume inoc., compost, kelp extract, Thermx	spring greens/winter squash	compost, fish emulsion, kelp extract, Pyganic, Humax, H2O2	plow-down peas/potatoes	legume inoc., aglime, compost, fish emulsion, kelp extract, Mycotrol, Humax, H2O2
O	B-4	.25 a	peppers & eggplant	gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, Calcium chloride, M-Pede, Bt, Thermx	southern peas/ clover & wheat	legume inoc., compost, kelp extract, Thermx	onions, beets & carrots/ rye & vetch	legume inoc., compost, fish emulsion, kelp extract, M-Pede, Humax, H2O2	spring greens/winter squash	aglime, compost, fish emulsion, kelp extract, Bt, Pyganic, Humax, H2O2
O	B-5	.25 a	cucumbers/rye & vetch	legume inoc., gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, M-Pede, Mycotrol, Thermx	peppers & eggplant	compost, fish emulsion, kelp extract, calcium chloride, M-Pede, Bt, Thermx	southern peas/rye & vetch	legume inoc., compost, kelp extract, Humax	onions, beets & carrots/ clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Safer's Soap, Humax, H2O2
O	B-6	.25 a	buckwheat/broccoli & cabbage	gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, M-Pede, Bt, Thermx	cucumbers/ clover & wheat	legume inoc., compost, kelp extract, Mycotrol, Thermx	peppers & eggplant	compost, fish emulsion, kelp extract, M-Pede, Bt, Humax, H2O2	southern peas	legume inoc., aglime, compost, kelp extract, Humax
O	B-7	.25 a	ornamental corn	gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, Thermx, vegetable oil	buckwheat/broccoli & cabbage	compost, fish emulsion, M-Pede, Bt, Thermx	cucumbers/rye & vetch	legume inoc., compost, fish emulsion, kelp extract, Mycotrol, Humax, H2O2	peppers & eggplant	aglime, compost, fish emulsion, kelp extract, Safer's Soap, Bt, Humax, H2O2
O	B-8	.25 a	plow-down peas/potatoes	legume inoc., gypsum, compost, feathermeal, fish emulsion, kelp extract, Zn chelate, M-Pede, Mycotrol, Thermx	ornamental corn	compost, fish emulsion, Thermx, vegetable oil	buckwheat/broccoli & cabbage	compost, fish emulsion, kelp extract, M-Pede, Bt, Humax, H2O2	cucumbers/ clover & wheat	legume inoc., aglime, compost, fish emulsion, kelp extract, Mycotrol, Humax, H2O2

FIELD HISTORY SHEET

Code: O = organic; T = in transition/conversion to organic; C = conventional  
 Producer name: Andy & Suzi Wannabee

O	S-1	1.0 a	strawberries	gypsum, feathermeal, fish emulsion, kelp extract, Zn chelate, Bordeaux mix, DE, ThermX	sweet corn/ clover & wheat	legume inoc., fish emulsion, kelp extract, ThermX, feathermeal, vegetable oil	sweet clover	poultry litter	oats/ sweet clover	legume inoc., aglime, poultry litter
O	S-2	1.0 a	strawberries	gypsum, feathermeal, fish emulsion, kelp extract, Zn chelate, Bordeaux mix, DE, ThermX	strawberries	fish emulsion, kelp extract, feathermeal, Bordeaux mix, DE, ThermX	sweet corn/ rye & vetch	legume inoc., fish emulsion, kelp extract, Humax, poultry litter, vegetable oil	sweet clover	aglime, poultry litter
O	S-3	1.0 a	strawberries/oilseed radish	gypsum, feathermeal, fish emulsion, kelp extract, Zn chelate, Bordeaux mix, DE, ThermX	strawberries	fish emulsion, kelp extract, Bordeaux mix, DE, ThermX	strawberries	fish emulsion, kelp extract, Bordeaux mix, DE, Humax, H2O2	sweet corn/ clover & wheat	legume inoc., aglime, fish emulsion, kelp extract, Humax, poultry litter, vegetable oil
O	S-4	1.0 a	oats/ sweet clover	legume inoc., gypsum, feathermeal,	strawberries/ oilseed radish	fish emulsion, kelp extract, Bordeaux mix, DE, ThermX	strawberries	fish emulsion, kelp extract, Bordeaux mix, DE, Humax, H2O2	strawberries	aglime, fish emulsion, kelp extract, Bordeaux mix, DE, Humax, H2O2
O	S-5	1.0 a	sweet clover	gypsum	oats/ sweet clover	legume inoc.,	strawberries/ oilseed radish	fish emulsion, kelp extract, Bordeaux mix, DE, ThermX, H2O2	strawberries	aglime, fish emulsion, kelp extract, Bordeaux mix, DE, Humax, H2O2
O	S-6	1.0 a	sweet corn/rye & vetch	legume inoc., gypsum, fish emulsion, kelp extract, Zn chelate, ThermX, vegetable oil	sweet clover	none	oats/ sweet clover	legume inoc., poultry litter	strawberries/ oilseed radish	aglime, fish emulsion, kelp extract, Bordeaux mix, DE, Humax, H2O2
O	F	6.5 a	wild-harvest ginseng	none	wild-harvest ginseng	none	wild-harvest ginseng	none	wild-harvest ginseng	none
T	Q	3.0 a	blueberries	sulfur, feathermeal, K-Mag, fish emulsion, kelp extract, ThermX, M-Pede, Bt, lime sulfur, sawdust	blueberries	ammonium sulfate, KCl, lime sulfur, diuron, paraquat, glyphosate	blueberries	ammonium sulfate, lime sulfur, oryzalin, paraquat, glyphosate, metaxyl	blueberries	ammonium sulfate, lime sulfur, diuron, paraquat, glyphosate, sawdust

## RAZORBACK ORGANIC CERTIFIERS

**Please fill out this questionnaire if you are requesting organic farm/crop certification. Use additional sheets if necessary. Sign this form. You must submit farm maps and field history sheets with this form. Attach all other supporting documents (soil, tissue or water tests, rented or recently purchased land histories, etc.) outlined in section 9 of this questionnaire. You may use this form or an update form to update certification.**

SECTION 1: General information			NOP Rule 205.401
Name <i>Andy &amp; Suzi Wannabee</i>	Farm name <i>Wannabee's Organic Farm</i>	Type of farm/crops <i>Horticultural crops &amp; greenhouse production</i>	
Address <i>123 Shady Hollow Road</i>		City <i>Oak Tree</i>	For office use only
			Date received
State <i>Arkansas</i>	Zip code <i>72700</i>	Date <i>2/28/06</i>	Date reviewed
			Reviewer initials
Phone <i>479-581-0000</i>	Fax <del><i>479-581-0000</i></del> Email <i>asnatureintended@natural.net</i>	Fees received	
		Inspector	
Legal status <input checked="" type="checkbox"/> Sole proprietorship <input type="checkbox"/> Trust or nonprofit <input type="checkbox"/> Corporation <input type="checkbox"/> Cooperative <input type="checkbox"/> Legal partnership (federal form 1065) <input type="checkbox"/> Other (specify)			
Year first certified <i>1993</i>	List previous organic certification by other agencies <i>Mid-South Organics (1993-2000) Ozark Organic Certification Services (2001-present)</i>	List current organic certification by other agencies <i>None</i>	Year when complete Organic Farm Plan Questionnaire was last submitted <i>2001</i>
List all crops or products requested for certification. <i>vegetables, small fruits, vegetable transplants</i>			
Have you ever been denied certification? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, describe the circumstances: <i>In 1992, my first application for certification was denied by Mid-South Organics because of prior use of prohibited potassium chloride.</i>		
Do you understand the current organic standards? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Do you have a copy of current organic standards?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Do you have a copy of current OMRI Materials List?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Do you intend to certify any livestock (slaughter stock, dairy, or layers) this year? If yes, have you filled out an Organic Livestock Plan Questionnaire? <i>Not applicable.</i>			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
Please note that you must have an Organic Livestock Plan Questionnaire on file to certify any livestock. Contact the certifying agent to obtain an Organic Livestock Plan Questionnaire.			
Do you have any off-farm or on-farm processing done? (cleaning, bagging, bottling, etc.) If yes, have you filled out an Organic Handling Plan Questionnaire? <i>Not applicable.</i>			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
Please note that you must have an Organic Handling Plan Questionnaire on file to certify the processing/handling portion of your operation. Contact the certifying agent with your questions or to obtain an Organic Handling Plan Questionnaire.			
Give directions to your farm for the inspector. <i>Shady Hollow Road is precisely 3.5 miles east of the only stop sign in Oak Tree, on Highway 13. Our farm is 1/4 mile north on Shady Hollow. Driveway is on the left hand side. Go about 250 yards straight to the house.</i>			
When are you available to contact?	<input type="checkbox"/> Morning <input type="checkbox"/> Afternoon <input checked="" type="checkbox"/> Evening		
When are you available for the inspection?	<input checked="" type="checkbox"/> Morning <input checked="" type="checkbox"/> Afternoon <input checked="" type="checkbox"/> Evening		

## Section 1 notes

**Certification history.** You must disclose your previous history of organic certification, including any denials or suspensions. Such information is specifically required in the Regulations under §205.401(c). Divulging this information should not adversely affect your current application if you are currently in compliance with the National Standard. Concealing such information might be grounds for decertification when discovered.

In our example, the applicants were previously certified by two different organizations. They are making application to Razorback Organic Certifiers for the first time in 2006. This explains why a complete farm system plan is being submitted after 13 years of prior certification. Typically, a complete plan is only submitted once to a certifier. Much shorter update forms are submitted each year thereafter to continue certification.

**Different kinds of certification.** Sometimes certifiers offer further certification services in addition to the USDA's National Organic Program. For example, they might also be accredited to certify operations to the Japanese Agricultural Standard (JAS) or European Union (EU) standards. If so, this will probably be indicated on the first page of the application form. If so, discuss your needs with the certifier to determine whether you would benefit from additional certification and what the additional costs and requirements would be.

**OMRI List.** OMRI is the Organic Materials Review Institute, a nonprofit organization that reviews products for use in organic agriculture. Many certifiers rely on the OMRI list of approved products as their main resource when deciding whether an input should be allowed for use. However, while widely respected, OMRI is not a regulatory agency and individual certifiers may elect not to use it. Check with your certifier to learn their criteria for verifying compliance of inputs.

**On-farm processing.** There is often a fine line between postharvest handling and on-farm processing. For example, washing produce before taking it to the farmers market or placing it in an open box is NOT viewed as processing by most, but not all, certifiers. Instead, it is considered postharvest handling. You would NOT need to complete an additional system plan for handling for postharvest handling. However, if you produce, pack and seal the produce in plastic bags for sale, it is on-farm processing, and another system plan would be required. Since interpretations vary, it is wise to discuss your situation with your certifier in advance.

**Directions to your farm.** Be clear and precise. Inspectors may add lost time and extra mileage to the cost of the inspection.

**SECTION 2: Farm plan information**

NOP Rules 205.201(a) and 205.202(a) and (b)

Please complete the table below and attach updated field history sheets that show all fields [organic (O), in transition (T) or conventional (C)], field numbers, acres, crops planted, projected yields, and inputs applied. The acreages listed in this table must equal field histories and maps. Pastures are considered a crop and must be listed on each form. At least 36 months of histories are required for all fields.

CROPS REQUESTED FOR CERTIFICATION	FIELD NUMBERS	TOTAL ACRES PER CROP	PROJECTED YIELDS (VOLUME)
Summer squash	A-1	0.25	7,500 lbs
Winter squash	B-1	0.25	9,500 lbs
Spring mixed leafy greens	B-1	0.25	1,700 lbs
Fall mixed leafy greens	A-5	0.25	1,700 lbs
Sweet potatoes	A-2	0.25	5,000 lbs
Onions	B-2	0.10	3,000 lbs
Carrots	B-2	0.10	3,000 lbs
Beets	B-2	0.05	900 lbs
Green beans	A-3	0.25	2,100 lbs
Southern peas	B-3	0.25	2,200 lbs
English peas	A-5	0.25	750 lbs
Cucumbers	B-5	0.25	5,000 lbs
Tomatoes	A-4	0.25	5,000 lbs
Peppers	B-4	0.20	3,600 lbs
Eggplant	B-4	0.05	1,000 lbs
Broccoli	A-6, B-6	0.30	3,000 lbs
Cabbage	A-6, B-6	0.20	5,000 lbs
Decorative corn	B-7	0.25	3,900 ears
Potatoes	A-8, B-8	0.50	14,000 lbs
Okra	A-7	0.25	2,500 lbs
Sweet corn	S-6	1.00	1,300 dozen
Strawberries	S-1, S-2, S-3	3.00	12,000 lbs
Wild-harvest ginseng	F	6.50	350 lbs
Vegetable transplants	Greenhouse A	700 sq. ft.	1,250 6-plant flats (sale only)

**Have you managed all fields for three or more years?**  Yes  No

If no, you must submit signed statements from the previous manager stating the use and all inputs applied during the previous three years on all newly rented or purchased fields.

**Are all fields requested for certification located at the main address listed in Section 1?**  Yes  No

**Complete this information for main farm address and each parcel that is in a separate location from the main farm address.**

FIELD NUMBERS	PARCEL ADDRESS/ LEGAL DESCRIPTION	NUMBER OF ACRES: ORGANIC (O), TRANSITIONAL (T), CONVENTIONAL (C)			RENTED (R) OR OWNED (O)
		O	T	C	
A-1 through A-8, Q, and portions of B-1 through B-8, F.	N 1/2 of NW 1/4 of NW 1/4 of Section 9, Osage Township, Ozark County	15.3	3	0	0
Portions of B-1 through B-8, F	N 1/10 of S 1/2 of NW 1/4 of NW 1/4 of Section 9, Osage Township, Ozark County	1.2	0	0	0

## Section 2 notes

**Crops requested for certification.** Your certifier needs to know what you are seeking to certify. The certifier needs enough detail so that there is no confusion about what is and isn't being covered by that certification. There are times when you need to be quite specific about crop type. For example, you should indicate whether lettuce is head lettuce or leaf lettuce, especially if you happen to produce both. In this example, the Wannabees produce bulk salad mixes that consist of a variety of lettuces and other greens. Because it is the only crop of that type, and because they are not also producing it conventionally, it is sufficient to simply write leafy greens.

Exactly how specific you need to be can vary with the context in which the crop is grown and the perspective of the certifier. When in doubt, ask the certifier how detailed you should be.

**Crops requested for certification: field numbers.** Note that this section is limited to crops requested for certification. Do not list crops that are only produced conventionally, or the conventional or transitional field numbers. Some certifiers, however, may also ask for that information.

**Crops requested for certification: projected yields.** If you are trying a new crop and there is no local information available, you can use standard yield figures from conventional publications. While you must try to be realistic, provide optimistic yield estimates. Certifiers compare these estimates to actual sales to see if the producer is selling more organic product than he or she actually produced. If your yield estimate is much lower than the actual harvest, it might appear that you are selling conventional production as organic.

**Managed for three or more years.** If you are seeking certification for land that has been managed by another person during any portion of the last three years, you must obtain a signed affidavit from that person attesting to how the land was treated. Specifically, the certifier wants to know if any prohibited materials or sewage sludge was applied. The certifier also wants to know if any treated seeds, which indicates use of a prohibited substance, or genetically engineered crops were planted. A copy of such an affidavit is among the attachments in this document. It is adapted from the land use history verification form that is provided in ATTRA's *Forms, Documents, and Sample Letters for Organic Producers*.

The blueberry field (Q) is in transition to organic and the Wannabees are not seeking certification for it. Because of this, the land use history verification is not critical to the Wannabee's application and the certifier probably would not expect it.

NOP Rule requires the use of organically grown seeds, unless the variety is not commercially available. If using nonorganic seeds, you must have records of your attempts to source organic seed. Synthetic seed treatments are prohibited unless included on the National List. Genetically engineered or modified (GMO) seeds and inoculants are prohibited in organic production. NOP Rule uses the phrase "excluded methods" to refer to GMO products. Please save all seed and inoculant labels, and documentation of commercial unavailability of organic seeds to show the inspector.

List all seeds used or planned for use in the current season. Check the appropriate boxes and provide other information as needed. Attach additional sheets if necessary.

No seeds used     All seeds are organic     Some untreated seed used     No GMO seeds purchased/planted

SEED/VARIETY/BRAND	ORGANIC (✓)	UNTREATED (✓)	TREATED (✓)	GMO (✓)	TYPE/BRAND OF TREATMENT		WHAT ATTEMPTS DID YOU MAKE TO USE ORGANIC/UNTREATED SEED?
					FUNGICIDE	INOCULANT	
Zucchini Elite F1	✓						
Multipik F1	✓						
Golden Scaloppini	✓						
Bush Delicata	✓						
Buttercup Burgess	✓						
Waltham Butternut	✓						
Aust. Yellow Lettuce	✓						
Black-Seeded Simpson Lettuce	✓						
Deer Tongue Lettuce	✓						
Winter Density Lettuce	✓						
Arugula	✓						
Dandy Red Leaf Chicory	✓						
Red Russian Kale	✓						
Full Heart Escarole	✓						
Early Yellow Globe Onion	✓						
Danvers 126 Carrots	✓						
Detroit Dark Red Beets	✓						
Black Valentine Stringless Bush Beans	✓					✓	
Provider Bush Beans	✓					✓	
Mandy Cowpeas	✓					✓	
Miragreen Peas	✓						
Black Beauty Eggplant	✓						
Orion Pepper	✓						
H-19 Little Leaf Cucumbers		✓					Checked 3 sources
De Cicco Broccoli	✓						
Hermes Cabbage		✓					Checked 3 sources
Glacier Tomato	✓						
Brandywine Tomato	✓						
Arkansas Traveler Tomato	✓						
Amish Paste Tomato	✓						



## Section 3 notes

**Organic seed is required.** Organic seed must be used unless the variety you seek, or its equivalent, is not commercially available. In such instances, untreated, non-genetically engineered conventional seed may be used (§205.204). An equivalent variety is understood to mean a cultivar of the same type with similar plant characteristics when compared to the original preferred variety. For these purposes, type refers to the basic plant type, such as head type lettuce versus leaf lettuce type. Characteristics refers to factors such as color, pest resistance, and maturation.

According to the Regulations, an equivalent variety of seed or planting stock would be considered commercially unavailable if the farmer could not locate an organic supplier.

It might also be considered commercially unavailable if the organic supplier could not provide seed in the quantities needed, or if the available seed quality were substandard. Factors that might make seed quality substandard include the presence of seed-borne disease, very low germination percentages, high noxious weed seed content, and more. The higher cost of organic seed and propagation materials is NOT considered an acceptable reason for using nonorganic seed.

Ultimately, the certifier must make the final decision on whether the use of nonorganic seed or planting stock is justified. You must present ample documentation to support your decision to use nonorganic seed, including a record of attempts to locate organic seed sources. Traditionally this entails records of phone calls, letters, or e-mails to and from seed suppliers documenting your efforts. Most certifiers want clear indication that you have contacted at least three suitable suppliers. There are handy forms for documenting the search for organic seed in ATTRA's *Organic Field Crops Documentation Forms*.

**What about cover crops and green manure crops?** The organic seed requirement applies to cover crop seed as well.

**Seed treatments.** When the term treated seed is used, it usually refers to seed that has been coated with some form of prohibited pesticide—usually a fungicide. There are, however, a growing number of seed treatments that are allowed. These include non-genetically engineered legume inoculants, which have been around a long time, and natural pelleting compounds. It is expected that allowable biofungicidal seed treatments will soon be on the market, if they are not already. If you are using or might be using an allowed seed treatment that does not fall into an obvious category in the table, attach a note or additional sheet that provides an explanation.

**Finding organic seed.** Finding sources for organic seed can be challenging. A good place to begin is ATTRA's Web database resource *Suppliers of Seed for Certified Organic Production*.

**A long seed list?** It is common for market farmers, and others with diverse operations, to have very long seed lists. If there is insufficient space on the application to include all the seeds you plan to plant, simply continue your list on a regular sheet of paper and attach it to the application.

SEED/VARIETY/BRAND	ORGANIC (✓)	UNTREATED (✓)	TREATED (✓)	GMO (✓)	TYPE/BRAND OF TREATMENT FUNGICIDE      INOCULANT		WHAT ATTEMPTS DID YOU MAKE TO USE ORGANIC/UNTREATED SEED?
Mini-Orange Tomato	✓						
Early Jalapeno Pepper	✓						
Sweet Chocolate	✓						
Doe Hill Golden Bell Pepper	✓						
Marketmore Cucumbers	✓						
Louisiana Green Velvet Okra	✓						
Painted Mountain Corn	✓						
Xtra-Tender 277A Sweet Corn		✓					Checked 3 sources
Oilseed Radish		✓					Checked 3 sources
Aroostook Rye	✓						
Hairy Vetch	✓					✓	
Common Buckwheat	✓						

**SECTION 4: Source of seedlings and perennial stock**

NOP Rule 205.204

Annual seedlings must be produced according to organic standards. Nonorganic perennial plants (planting stock) must be managed organically for at least one year prior to harvest of crop or sale of the plant as certified organic planting stock. Organic seedlings and planting stock must be used if commercially available. Contact the certifying agent if you need to use non-organic seedlings because of an emergency. A prohibited treatment may be used if such treatment is a federal or state phytosanitary requirement.

**A. DO YOU PURCHASE ORGANIC SEEDLINGS?**

Yes  No  Not applicable

Who are the suppliers?

If certified, by which agents?

Do you purchase non-organic seedlings?

Yes  No

If yes, state why and describe your attempts to purchase organic seedlings.

**B. IF YOU GROW ORGANIC SEEDLINGS ON-FARM:**

Not applicable

What type and size is your greenhouse?

2 old-style glass houses. Each is 20ft X 80ft.

Do you raise potted plants or plant crops directly in the ground in the greenhouse?

Everything grown in pots and/or transplant trays.

If treated wood is used in any part of your greenhouse, where is it used?

Treated wood is used on the baseboard around the perimeter. Organic transplants are grown on tables and are not in contact with the treated wood. Potting mixes are prepared in a bin constructed of untreated wood. No inputs are stored in contact with treated wood.

## Section 4 notes

**Not applicable?** Many sections of an application may not apply to your operation. In such instances, be sure to check the “not applicable” box. If the certifier has not provided a check box, take the time to write not applicable, or N/A. Leaving a section blank suggests that you might have overlooked the question.

**Sorting seeds, seedlings, and planting stock.** Few people question what seed is. There is some confusion, however, about seedlings and planting stock. Seedlings are young plants produced by germinating seed and used, in most cases, as transplants to produce an annual crop. The seed used to grow organic seedlings is subject to the same sourcing requirements already described for crops grown directly from seed. Seed must be organic unless not commercially available. If organic seed is not commercially available, untreated non-genetically engineered seed may be used and your search for organic seed must be documented. Organic seedlings must also be grown using organic methods and allowed inputs.

There is NO commercial availability provision that allows the use of conventional seedling transplants. However, in the event that your organic transplants are destroyed or damaged by drought, wind, flood, excessive moisture, hail, tornado, earthquake, fire, or other business interruption, a temporary variance may be given to use conventional seedlings [§205.290(a)(2)].

Planting stock refers to vegetative propagation materials, such as roots, tubers, and bulbs. It also applies to the nursery stock of fruit and nut trees, cane fruits, and strawberries, as well as asparagus crowns. Planting stock is subject to the same sourcing requirements already described for seed. Planting stock must be organic unless not commercially available. If organic planting stock is not commercially available, untreated non-genetically engineered stock may be used and your search for organic planting stock must be documented. Note that if seed, seedling, or planting stock treatments are required by state or federal phytosanitary laws, they are allowed in organic production.

**On growing seedlings organically.** See ATTRA’s *Plug and Transplant Production for Organic Systems* and *Potting Mixes for Certified Organic Production*.

**Treated wood.** Producers must not use lumber treated with arsenate or other prohibited materials where it can contact producing soil or crops [§205.206(f)]. In the field this includes tomato stakes, trellis posts, and landscape timbers for raised beds. In the greenhouse, treated wood may only be used in places and circumstances where it cannot cause contamination. If there is any treated wood in the structure, explain what steps you take to protect your organic plants and organic inputs. For more information see ATTRA’s *Organic Alternatives to Treated Lumber*, and section XV in NCAT’s *Organic Crops Workbook*.

**For more organic greenhouse information.** See ATTRA for publications including *Organic Greenhouse Vegetable Production* and *Herbs: Organic Greenhouse Production*.

List all soil mix ingredients, fertility products, foliar sprays, and/or pest and disease inputs used or planned for use in your organic greenhouse operation. Attach labels or have labels available for inspection, as applicable.

PRODUCT	BRAND NAME OR SOURCE	STATUS: APPROVED (A) RESTRICTED (R) PROHIBITED (P)	IF RESTRICTED, DESCRIBE COMPLIANCE WITH NOP RULE ANNOTATION	CHECK IF GMO (✓)
Compost	Made on-farm	A		
Leaf mold	Made on-farm	A		
Sphagnum peat moss	Black Gold Peat Moss	A		
Ag-lime	SFA	A		
Dolomite lime	Bonide	A		
Blood meal	Bonide	A		
Bone meal	Bonide	A		
Sharp sand	Arkansas Builder's Supply	A		
Fish emulsion	Alaska Fish 5-1-1	A		
Kelp extract	Maxicrop Soluble Powder 1-0-4	A		
Insecticidal soap	M-Pede	R	Will be used only if an outbreak occurs. Use yellow sticky cards for monitoring.	
Diatomaceous earth	Perma-Guard	A		
Bordeaux mix	Bonide	R	Will use only if scouting reveals evidence of disease. Copper accumulation not a greenhouse issue.	
Chlorine bleach	Wal-Mart	R	Rinse all surfaces with clear well water following chlorine treatment.	

**What equipment do you use in your watering system?**

Hand watering using hose and spray wand.

**How do you prevent seedling diseases and/or insect problems?**

We make our own clean soilless potting mix. Re-usable trays and pots are sanitized with chlorine. Control airflow. Release lace-wing predators.

**C. IF YOU GROW BOTH ORGANIC AND NON-ORGANIC PLANTS IN YOUR GREENHOUSE:**

Not applicable

**What organic and non-organic crops are grown?** List varieties if the same organic and non-organic crops are grown (parallel production).

Organic transplants for farm use and sale: tomatoes, peppers, eggplant, onions, sweet potatoes, broccoli, cabbage.

Conventional plants for sale to local retailers: Carnations.

**How do you separate and identify organic and non-organic growing areas?**

There are two greenhouses. Organic transplant production occupies about 1/2 of greenhouse A on the east end. A wood-framed, double-plastic wall with a door separates the organic and conventional production areas.

**How do you label organic and non-organic seedlings/plants?**

The organic and conventional greenhouse plants are distinctly different kinds of plants. The containers in which they are grown are distinctly different. In addition, organic transplants produced for sale are marked "organically grown."

## Section 4 notes (continued)

**Soil mix ingredients, pesticides, and other greenhouse inputs.** Organic greenhouse production is subject to the same general requirements as organic field crop production. However, the 36-month transition period is not required unless production is done in the ground. Production in pots, trays, bags, and similar methods does not require a transition period.

You are expected to determine whether a material or product is allowed, restricted, or prohibited for use. Obviously, if you had plans to use a prohibited material, you need to re-consider. Materials are considered “restricted” when the Organic Regulations place some limitation on their use. For example, raw manure may not be used within 90 or 120 days of harvest if the crop is intended as human food. The 120-day wait is required if the edible portion of the crop contacts the soil; 90 days if it does not. Since most seedlings produce their crop in less time than this, uncomposted manure is usually an unwise choice as an ingredient.

Other restrictions appear as annotations in the National List. There are two categories of the National List that apply to crop production: §205.601 “Synthetic substances allowed for use...” and §205.602 “Nonsynthetic [natural] substances prohibited for use...” In our example, the Wannabees use chlorine bleach as a disinfectant for reused pots, trays, and potting tools. Chlorine is listed in §205.602 for such purposes. The annotation, however, requires that anything treated with bleach solution be properly rinsed with potable water before coming back into contact with soil, crops, or organic inputs.

A good discussion specifically on allowed soil mix ingredients can be found in ATTRA’s *Potting Mixes for Certified Organic Production*.

**Split-production greenhouses: both organic and conventional.** Split production in greenhouses raises many concerns about commingling, or mixing conventional plants with organic plants, and contamination (contact of organic plants with and soil with prohibited materials). Most of the questions in this subsection are posed to determine the steps you will take to prevent both commingling and contamination. Since the Wannabees are not involved in parallel production—organic and conventional production of the same crop—their task is a bit easier. Commingling is not a problem.

If you are involved in parallel production, focus on the circumstances and steps you take that prevent conventional plants or crops being mistaken for organic.

For more information on how to address commingling and contamination hazards in split greenhouse operations, see section XIV in NCAT’s *Organic Crops Workbook*.

List all soil mix ingredients, fertility products, foliar sprays, water system additives, and/or pest and disease inputs used or planned for use in your non-organic greenhouse operation. Attach labels or have labels available for the inspector, as applicable.

PRODUCT	BRAND NAME OR SOURCE	STATUS: APPROVED (A) RESTRICTED (R) PROHIBITED (P)
Sphagnum peat moss	Black Gold Peat Moss	A
Ag-lime	SFA	A
Dolomite lime	Bonide	A
Sharp sand	Arkansas Builder's Supply	A
Perlite	SFA	A
Soluble fertilizer	Osmocote 19-6-12 With Micronutrients	P
Soluble fertilizer	Osmocote 14-14-14 With Micronutrients	P
Bordeaux mix	Bonide	R
Mancozeb	Dithane	P
Abermectin	Abamectin	P
Acephate	Orthene	P
Diazinon	Spectracide	P
Chlorine bleach	Wal-Mart	R

**How do you prevent commingling of organic and non-organic soil mixes during mixing and storage?**

Conventional potting mixes are made up and stored in the conventional potting shed. Organic potting mixes are made up in far east end of the organic section of greenhouse A.

**Where do you store inputs used for non-organic production?**

Ingredients and all conventional pesticides and fertilizers are stored in the conventional potting shed. Organic potting mix ingredients are stored either in the organic end of greenhouse A or in the main shed.

**How do you prevent drift of prohibited materials through ventilation and/or watering systems?**

The double-plastic wall between the organic and conventional sides of the greenhouse has been sealed against cross ventilation. Separate "end venting" was constructed to ensure that there would be no flow of air from the conventional to the organic production areas. There are outside doors at the organic and conventional ends of the split-production greenhouse, so there is very little cross-traffic. Both organic and conventional injection systems are equipped with one-way valves to prevent back-flow of any solutions to the water supply system.

**How do you clean seedling containers and equipment?**

Use bleach solution followed by a non-chlorinated well water rinse. We also keep the trays used in organic transplant production separate from the pots and trays used for conventional carnation production. There is no cross-use.

**D. PLANTING STOCK: (Use additional sheets if necessary)  Not applicable**

TYPE	PLANTING STOCK SOURCE	ORGANIC (✓)	NON-ORGANIC (✓)	IF NON-ORGANIC, DATE PLANTED	IF NONORGANIC, EXPECTED HARVEST DATE	IF NONORGANIC, DESCRIBE ATTEMPTS TO OBTAIN ORGANIC PLANTING STOCK
Earliglow, Cardinal, & Lateglow Strawberries	Boston Mountain Nurseries		✓	April 1, 2006	May, 2007	Checked 3 sources.
French Fingerling, All Blue, & Dark Red Norland Potatoes	Saved tubers on-farm from 2005 season	✓				
Yukon Gold Potatoes	Johnny's Selected Seeds	✓				
Beauregard & Jewel Sweet potatoes	Saved roots from 2005 season to produce slips.	✓				

## Section 4 notes (continued)

**Listing inputs for nonorganic greenhouse production.** Be certain to list all inputs used in the conventional part of your greenhouse operation, even when they are the same as those you use for the organic enterprise. Your certifier might or might not ask you to indicate whether these materials are allowed, restricted, or prohibited.

**Addressing contamination hazards.** If your production is split, be sure to explain how you store organic and conventional inputs so they do not mix. This is a contamination hazard the Wannabees face. They deal with it, in large part, by having a separate potting and storage shed for conventional inputs, and using one end of the organic greenhouse area for organic inputs.

Be sure to address any possible water contamination issues—a big concern in greenhouses where chemicals are injected into the watering system. Also explain how drift of sprayed or fogged pesticides are excluded from organic production areas. The Wannabees face these hazards and outline the measures they take.

If you are making dual- or cross-use of pots, trays, or other propagation items, be clear as to how you clean them before organic use. If using chlorine or any other sanitizing material from the National List, be sure you explain how you address any annotations.

**Planting stock...if nonorganic, provide the expected first harvest date.** The fifth column of Table D asks for the expected harvest date when nonorganic planting stock is used. Not all certifiers will ask for this information, though a few will. The reason centers on a unique interpretation of §205.204 (a)(4), which holds that nonorganic perennial planting stock must be under organic management for at least 12 months before the harvest can be organic. There is disagreement among certifiers on the precise meaning of the provision that has not been settled by the National Organic Program at this time. So if you plan to start an orchard, vineyard, perennial vegetable, or berry planting, ask your certifier about expectations. If you are not able to find organic planting stock, ask whether you must wait 12 months before you can harvest an organic crop.

**Further details on seeds, seedlings, and planting stock.** See section XIII in NCAT's *Organic Crops Workbook*.

**A. GENERAL INFORMATION AND EVALUATION:**

**What are your general soil types?** *Sandy loam*

**What are your soil/nutrient deficiencies?**

No deficiencies

*Soil is naturally low in pH, low in organic matter, and deficient in most nutrients. The land we have had in production for many years is now well-supplied with nutrients. However, we have an excess of phosphate which has led to a zinc deficiency.*

**How do you monitor the effectiveness of your fertility management program?**  soil testing

microbiological testing  tissue testing  observation of soil  observation of crop health

comparison of crop yields  crop quality testing  other (specify)

*Attach copies of available test results. See attached.*

**How often do you conduct fertility monitoring?**  weekly  monthly  annually  as needed

other (specify) *Soil test every year on rotations. Will soil test annually on blueberries and tissue test as needed beginning in 2006.*

**Rate the effectiveness of your fertility management program.**  excellent  satisfactory  needs improvement

*What changes do you anticipate? Will no longer be using poultry litter due to high phosphorus accumulation and concern over arsenic. Will use more feathermeal when nitrogen is needed. Looking for alternative feedstocks for on-farm compost production; have found a source of horse manure, but quantities are limited.*

**What are the major components of your soil and crop fertility plan?**

crop rotation  green manure plowdown/cover crops  interplanting  incorporation of crop residues

subsoiling  summer fallow  compost  on-farm manure  off-farm manure  soil amendments

side dressing  foliar fertilizers  biodynamic preparations  soil inoculants  other (specify)

*legume inoculants*



## Section 5 Notes

**Fertility monitoring.** §205.203(a) of the National Organic Regulations states that “the producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of the soil...” Questions about soil and crop monitoring deal with how you go about assessing your progress at maintaining or improving fertility.

Monitoring is broadly interpreted and can include something as simple as routine observation of crop performance and contrasting yields from year to year. However, most certifiers like to see evidence of scientific testing. The use of basic soil audits, plant tissue analysis, and soil microbiological tests, alone or in tandem, are preferred, if not expected.

The Wannabees include basic soil nutrient auditing as part of their monitoring system. Copies of their test results are included in the application, in the supplementary documents section. Note that they have a problem with excessively high soil phosphate levels. Since phosphate ties up zinc, they also had tests done on zinc. The results document a deficiency and justify their use of a zinc micro-nutrient fertilizer as required by §205.601(j)(6). The Wannabees also paid for tests on soil copper levels. Growers that use copper-based fungicides must document that copper is not accumulating to toxic levels [§§205.601(i)(1) and 205.601(i)(2)].

**Components of your soil and crop fertility program.** Building soil fertility and sustaining agricultural production is at the heart of organic farming. Traditionally, organic strategy stresses system design and cultural techniques, such as crop rotations that include sod crops, green manures, crop residue management, and conservation of on-farm manures. This is in contrast to the conventional notion that soil fertility must be managed solely by bringing nutrients in from elsewhere.

Most organic farms strike a balance between traditional self-regenerating methods and importing fertilizers and soil amendments. Biointensive farms, like the Wannabees, are often limited on production space. They tend to relay and multiple crop as much land as possible, making little or no use of cover crops or green manures, or perennial sod crops that regenerate the soil. To compensate, farms are much more reliant on off-farm composts, manures and other organic materials. For many years, the Wannabees brought in large amounts of poultry litter to use as fertilizer. Overfertilization with poultry litter, which is rich in phosphate, is the cause of the excessively high phosphorus levels they must now deal with.

To better understand the available options for organic soil fertility management, see ATTRA's *Organic Crop Production Overview*.

List all fertility inputs used or intended for use in the current season on proposed organic and transitional fields. All inputs used during the current year and previous three years must be listed on the Field History Sheet.  Not applicable

PRODUCT	BRAND NAME OR SOURCE	STATUS: APPROVED (A) RESTRICTED (R) PROHIBITED (P)	NUMBER OF APPLICATIONS PER YEAR	REASON FOR USE
Compost	Made on-farm	A	1	Organic matter, nutrients
Aglime	SFA	A	1	pH adjustment; calcium
Feathermeal	Jorje's Poultry By-Products	A	1-2	Nitrogen supplementation
Sulfate of potash-magnesia	K-Mag	A	1	For sulfur, potassium & magnesium supplementation.
Calcium sulfate (gypsum)	Cal-Sul	A	1	For calcium & sulfur supplementation
Sulfur	SFA	A	1	pH adjustment on blueberries
Sodium nitrate (NaNO <sub>3</sub> )	Bonide	R	1-3	Foliar fertilization
Calcium chloride	Plant AMP (Cutting Edge Solutions)	R	1-2	Foliar fertilization; used when blossom end rot is a problem
Fish emulsion	Alaska Fish 5-1-1	A	1-3	Foliar fertilization
Kelp extract	Maxicrop Soluble Powder 1-0-4	A	1-3	Foliar fertilization
Liquid Zinc Chelate	Peaceful Valley Farm Supply	R	1-3	Foliar fertilization to correct zinc deficiencies
Legume inoculant (peas & vetch)	Cell-Tech: Pea & Lentil	A	1	Nitrogen fixation
Legume inoculant (beans & southern peas)	Peaceful Valley Farm Supply	A	1	Nitrogen fixation

**If you use or plan to use restricted (R) fertility inputs, how do you comply with the annotation?**  Not applicable  
 Sodium nitrate is used to supplement foliar sprays in small amounts. The amount of nitrogen supplied totals less than 5 lbs per acre per year, which is well below 20% of any of the treated crops' total nitrogen requirement. Calcium chloride is used only on tomatoes, peppers & eggplant, and only when instances of blossom-end rot appear. Zinc chelate is being used to counterbalance zinc deficiency caused by excess soil phosphate. Soil test (attached) shows deficiency.

**If you use fertilizers with high salt content (sodium nitrate, potassium sulfate, etc.), how do you prevent salt build-up?**  Not applicable  
 Calcium chloride and sodium nitrate are used as foliar sprays. Therefore, the amounts used are too small to result in salt build-up. The sulfate of potash-magnesia will be used sparingly on the blueberries. The combined rainfall and irrigation ensure salt build-up will not occur.

**Do you burn crop residues?**  Yes  No  
 If yes, please describe what materials are burned and why.

**Do you apply sewage sludge to fields?**  Yes  No  
 If yes, list fields where applied.

## Section 5 notes (continued)

**Fertility inputs for organic and transitional fields.** It is important that you list all the fertilizer and amendment products and materials you are using, plan to use, or might use in the coming season. Be certain to include crop and cover crop seed inoculants and seed coating products, even though you might not consider these to be soil fertility inputs. If you apply soil or foliar fertilizer sprays, you must also list any adjuvants or surfactants. Keep in mind that this list should be consistent with the input column for the current year on your field history sheet(s).

If you are using compost, you do not need to list all the individual feedstock materials in this section as long as they are either described later in the section on compost use or are detailed in compost product literature obtained from a manufacturer.

You are expected to determine whether a material or product is allowed, restricted, or prohibited for use. Obviously, if you had plans to use a prohibited material, you need to reconsider. If you have already used something prohibited, it will effect the certification of field(s) where it was applied. Materials are considered restricted when the Organic Regulations place some limitation on their use. For example, raw manure may not be used within 90 or 120 days of harvest if the crop is intended as human food. This restriction is detailed in §205.203(c)(1) of the Regulation and will be addressed again later in the application.

Other restrictions appear as annotations in the National List. There are two categories of the National List that apply to crop production: §205.601 “Synthetic substances allowed for use...” and §205.602 “Nonsynthetic [natural] substances prohibited for use...” In our example, the Wannabees are using three restricted materials. For a good discussion of how to determine which inputs are allowed or prohibited see Text Box 6C in NCAT’s *Organic Crops Workbook*.

**Complying with annotations.** When using any restricted material, you should explain how you address each restriction as written in the Regulation. The Wannabees do this by explaining how they ensure that sodium nitrate use accounts for less than 20 percent of the crop nitrogen requirement as required in §205.602(g); that they only use calcium chloride to address disease-like conditions related to calcium uptake as required by §205.602(c); and that use of zinc is justified by a documented soil deficiency [§205.601(j)(6)].

**Controlling salt build-up.** Very few salt-based materials are allowed in organic production. Many, like sodium nitrate, have restrictions, or annotations written into the Regulations. If you are using a non-restricted salt-based fertilizer, like natural potassium sulfate, you should still indicate how you plan to prevent salt build-up, if there is potential for that problem in your region.

**Burning crop residues.** Burning crop residues is prohibited unless there is a need to control disease or to stimulate seed germination [§205.203(e)(3)].

**Sewage sludge.** Prohibited as per §205.105(g) and §205.203(e)(2).

**B. COMPOST USE:**

NOP Rule 205.203(c)(2) requires that the composting process include a C:N ration of between 25:1 and 40:1 and maintenance of temperatures between 131°F and 170°F for a specific number of days, depending on the method of composting. Keep a compost production record to verify compliance.

**List all compost ingredients/additives.**  Not applicable  
*Horse manure w/straw bedding, rotted hay, feathermeal, gravel dust, Pfeiffer's Bio-dynamic Compost Starter*

**What composting method do you use?**  in-vessel  static aerated pile  windrows  other (specify)

**What is your C:N ratio?**  
*We try to keep the starting C:N at about 30:1.*

**Do you monitor temperature?**  Yes  No  
 If yes, what temperature is maintained. *We ensure that the temperature reaches the required range of 131°-170°F.*

**How long is this temperature maintained?**  
*We make sure it holds the required temperature for at least for 3 days as required. A log is maintained.*

**If compost is windrowed, how many times are materials turned?**  
*Not applicable.*

**C. MANURE USE:**

NOP Rule 205.203(c)(1) requires that raw manure be fully composted unless applied to fields with crops not for human consumption or incorporated into the soil 120 days prior to harvest for crops whose edible portions has direct contact with the soil, or 90 days prior to harvest for all other crops for human consumption.

**What forms of manure do you use?**  none  liquid  semi-solid  piled  fully composted  
 other (specify)

**What types of crops do you grow?** Check all boxes that apply.  
 crops not used for human consumption  
 crops for human consumption whose edible portion has direct contact with the soil or soil particles  
 crops for human consumption whose edible portion does not have direct contact with the soil or soil particles

**If you grow crops for human consumption and use raw manure, complete the following table.** *If composting manure, please fill out Section B above. Not applicable.*

CROP(S)	FIELD NUMBERS	DATE MANURE IS APPLIED	EXPECTED DATE OF HARVEST

**What is the source of the manure you use?**  on-farm  off-farm  Not applicable

**List all sources of off-farm manure.**  
*Horse manure with straw bedding. From Cunningham's Riding Stables, Smithville, Arkansas*

**List all manure ingredients/additives.**  
*None.*

**If you use manure, what are the potential contaminants (pit additives, feed additives, pesticides, antibiotics, heavy metals, etc.) from these sources?** *Attach residue analysis/additive specifications for manure, if available.*  
*Horse manure may have small amounts of fly-spray residues.*

## Section 5 notes (continued)

**Compost.** §205.2 of the Regulation defines compost as a product derived by decomposing plant and animal feedstocks using specified means. These means are detailed in §205.203(c)(2). There are requirements for initial carbon-to-nitrogen ratio, temperatures, timing, and turning. Only through this tightly defined means of composting can manure be converted so that it is not limited by the 90- and 120-day rules in §205.203(c)(1) that constrain raw manure applications.

It is helpful to know that the composting and manure provisions were created primarily to address food safety concerns in organic food production. Livestock manures are a significant source of human pathogens. High temperature composting and prolonged exposure to the soil environment are two means for controlling these pathogens.

Note that the Wannabees make their own compost on-farm using mostly off-farm manures and wastes. The compost is compliant with the Regulations and is applied to most of their vegetable crops without any restrictions.

If you need more information on composting, see ATTRA's *Farm-Scale Composting Resource List*.

**Manure use.** The Wannabees are composting all of the manure they currently use on the farm. In previous years, when they were still using large amounts of chicken litter, some of it was applied to non-food cover crops as a means to avoid dealing with the 90- and 120-day requirements.

Conventional livestock manure is allowed in organic production. However, manure derived from concentrated animal feeding operations (CAFOs) may contain high levels of contaminants that prohibit their use in organic production. Certifiers may require that the producer provide evidence that a manure source is acceptable. At the present time, certifiers and the National Organic Program are most concerned about the presence of heavy metals, as these do not degrade through composting or other natural processes. Pesticides and antibiotics, because they do decay with time, are of less concern, though this could change.

For more information on manure, see ATTRA's *Manures for Organic Crop Production*.

#### D. NATURAL RESOURCES:

NOP Rule 205.2 defines Organic Production as a production system managed in accordance with the Act and its regulations to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. NOP Rules 205.200 and 205.203(a) require that production practices maintain or improve natural resources (soil and water quality, wetlands, woodlands and wildlife) of the operation.

##### Biodiversity management: whole farm biodiversity considerations.

**Does your field map include features such as hedgerows, woodlands, wetlands, riparian zones, and special habitats?**

Yes  No

**List native plants present and wildlife seen moving through farm:** *(note priority species)*

*Typical Ozark woodland ecology, dominated by mixed oak and sweetgum trees. Typical native grasses, forbs, and shrubs in forest understorey and on the borders of intensely cultivated fields. Wildlife seen include opossum, raccoon, rabbit, squirrel, white-tailed deer, coyote, bobcat.*

**What steps do you take to plan and provide for biodiversity conservation?**  understand farm's location within watershed

ascertain what native plants and animals existed on the land before it was a farm  learn about regional natural areas and conservation priorities  work with neighbors/others to enhance biodiversity (connectivity, restoration, etc.)

other (describe/explain) *Developed refugia for beneficial insects and wildlife in buffer zones of intensely cultivated fields. Have developed a short-term biodiversity plan (see attached). It will evolve into a long-term plan.*

**How do you manage water for the needs of crops and livestock, native species and riparian ecosystems?**

plant regionally appropriate crops  conserve water  manage water for priority species  retain/restore vegetated riparian buffers/wetlands  protect/improve natural hydrology/ecological function of riparian area  other (describe/explain)

##### Biodiversity management: uncultivated area biodiversity.

**What actions do you take to provide habitat for pollinators, insect predators, birds and bats?**  bird/bat/bee boxes

hedgerows/windbreaks  maintain/provide natural roosting/nesting/foraging sites  other (describe/explain)

**How are you restoring and protecting natural areas?**  manage for native plants/wildlife specific to the site

preserve/restore wildlife corridors  establish legal conservation areas  native habitats not converted to farmland since certification  other (describe/explain) *Riparian vegetation buffer and the adjacent forest land serve as a wildlife corridor.*

**List problem invasives:**

*Bermudagrass, johnsongrass, armadillos*

**What actions do you take to control invasive plant and animal species, especially those threatening natural areas?**

learn about invasives  use weed- and pest-free seed/planting stock/soil amendments/mulches  monitor for new introductions and control immediately  suppress invasives using organic methods  other (describe/explain)

##### Biodiversity management: cropland area biodiversity.

**How do you conserve and provide habitat for wildlife?**  companion planting/intercropping  crop diversity

wildlife-friendly fences  manage fallow fields for wildlife  other (describe/explain)

**How do you schedule farm practices to benefit wildlife?**  avoid nests during breeding season  stagger

mowing/tilling practices  plan fields to leave food/cover for wildlife  other (describe/explain)

## Section 5 notes (continued)

**Natural resources and biodiversity.** Included in the definition of organic production, in §205.2, is the statement that it is a system that conserves biodiversity. In 2005 the National Organic Standards Board (NOSB) added detailed questions on conservation and biodiversity to its model organic system plan template to help ensure that this goal not be overlooked.

For more information on farming in ways that support biodiversity, see *Biodiversity Conservation: An Organic Farmer's Guide*. This document is available from the Wild Farm Alliance, PO Box 2570, Watsonville, CA, 95077, or can be downloaded from their Web site at [www.wildfarmalliance.org](http://www.wildfarmalliance.org).

**Priority species.** Priority species include endangered species, threatened species, species of special concern, and keystone species. Endangered species are those in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range. Threatened species are those likely to become endangered in the foreseeable future.

Species of special concern include those potentially at risk, declining in numbers, or in need of concentrated conservation actions to prevent decline. Keystone species are those whose impacts on the ecosystem are often greater than would be expected from their abundance or biomass. Because a keystone species makes a significant contribution to the maintenance and modification of its ecosystem, its decline would lead to the decline of many other species. For example, the beaver is not endangered, but it is essential to its ecosystem because it actively expands and maintains the riparian habitats and functions upon which many other species depend.

**Riparian zones.** These are areas of transition from aquatic to terrestrial ecosystems. Riparian zones can be located adjacent to lakes, reservoirs, estuaries, potholes, springs, bogs, or streams. For more information on riparian zones, see ATTRA's *Protecting Riparian Areas: Farmland Management Strategies*.

**Native plants.** Native plants are preferred for habitat plantings. These species evolved with the native wildlife and generally provide the best shelter and food value.

**Natural hydrology.** This refers to the natural flows of streams and the natural wetlands. Preserving these helps ensure the proper recharge of groundwater.

**Ecological function of riparian areas.** These functions include the filtration of sediments, removal of nitrates, and the breakdown of toxins. Healthy riparian areas also aid in flood control and provide wildlife habitat.

**Invasives.** This term refers specifically to non-native aggressive plants and animals that invade production fields, uncultivated areas, or both. Invasive species not only compete with crops, they may have profound ecological effects, such as driving out native plants and animals. Invasives can also move from farms to protected natural areas, such as parks, reserves and refuges, where they can be particularly destructive.

**Biodiversity management: when livestock are involved.** *Not applicable.*

**How do you protect riparian areas and sensitive habitats?**  fence without impacting wildlife  control sensitive area access  prevent bank erosion  animals fed away from water  other (*describe/explain*)

**What are you doing to improve your pasture or rangeland?**  prevent overgrazing  reseed trampled/eroded areas  plant native pasture  active grazing management system  prescribed burning  other (*describe/explain*)

**What wildlife-friendly management practices do you use?**  guard animals  grazing scheduled when predation pressure low  livestock spend night in protected area  circumstances of livestock death documented  other (*describe/explain*)

**List problems with predators or other wildlife:** *Armadillos cause burrowing damage around out buildings. We have constructed a partially-buried fence around the house to prevent damage there and it has been successful to date.*

**Have you assessed the farm for biodiversity problems and greatest opportunities, and developed goals and a timeline for biodiversity conservation?**  Yes  No (If yes, describe/explain) *See attached plan.*

**How do you monitor farm biodiversity?**  visually  species counts  other (*describe/explain*)

**Biodiversity management: wild harvest enterprises.**

**How do you maintain or improve the sustainability of the harvested species?**  harvest from stable populations  minimize disruption of priority species/sensitive habitats  avoid erosion  allow re-establishment  monitor wild crop sustainability  other (*describe/explain*) *A diversity of native trees and shrubs are encouraged in the forested area. Ginseng is encouraged by collecting and re-distributing seed from the wild plants. The riparian area is not disturbed.*

**Soil conservation**

**What soil conservation practices are used?**  terraces  contour farming  strip cropping  winter cover crops  undersowing/interplanting  conservation tillage  permanent waterways  windbreaks  firebreaks  tree lines  retention ponds  riparian management  maintain wildlife habitat  other (specify)

**What soil erosion problems do you experience (why and on which fields)?**  none

**Describe your efforts to minimize soil erosion problems listed above.**

**Describe how you monitor the effectiveness of your soil conservation program.** *Visual observation.*

**How often do you conduct conservation monitoring?**  weekly  monthly  annually  as needed  other (specify) *Always check fields after heavy rains.*



## Section 5 notes (continued)

**Biodiversity management when livestock are involved...Predator problems.** For examples of how these issues are dealt with in an application, see ATTRA's *Organic System Plans: Field and Row Crops and Pasture and Range Systems* and *Organic System Plans: Livestock Production*. Also, see ATTRA's *Predator Control for Sustainable and Organic Livestock Production*.

**Goals and timeline for biodiversity conservation.** A simple but written plan is recommended. Highlight problems and opportunities. The Wannabees have a simple plan for their farm. It is included in the Supplementary documents section.

**Wild harvest.** §205.207 defines the standard for harvest of organic wild crops. §205.207(b) specifically requires that harvesting or gathering be done in ways that are not environmentally destructive and which allow sustained growth of the plant being harvested.

**Soil conservation practices.** This includes many practices traditional in organic production, such as the use of cover crops, mulch tillage, and deep mulching with organic materials. For more information on conservation techniques and options, contact your local Natural Resources Conservation Service (NRCS) office. Their staff is trained to provide technical assistance in techniques and methods for conservation. It is their job to help private landowners plan and implement conservation measures.

**WATER USE:** none irrigation  livestock  foliar sprays  washing crops  greenhouse  other (specify)**Source of water:**  on-site well(s)  river/creek/pond  spring  municipal/county  irrigation district other (specify) Well water is used for all post-harvest operations, the greenhouse, and for foliar spraying. River water is used for irrigation. Have access to water district, but won't use unless access to other sources is restricted or cut off.

Attach current water tests for nitrates and coliform bacteria, per certifying agent policy. See attached, for well water only.

**Type of irrigation system:** none drip  flood  center pivot  other (specify) Moveable overhead sprinklers. Hand-held wands.**What input products are applied through the irrigation system?** none**What products do you use to clean irrigation lines/nozzles?** none

ThermX 70

**Is the system shared with another operator?** Yes  No

If yes, what products do they use?

**Is the system flushed and documented between conventional and organic use?** Yes  No

Not applicable.

**What practices are used to protect water quality?** fencing livestock from waterways  scheduled use of water to conserve its use  tensiometer/monitoring  
 laser leveling/land forming  drip irrigation  micro-spray  sediment basin  compost/fertilizer stored away from water  other (specify)**List known contaminants in water supplies in your area.** Attach residue analysis and/or salinity test results, if applicable.

Potential for phosphate and organic contamination from nearby poultry operations. Not a known problem at present.

**Describe your efforts to minimize water contamination problems listed above.** Not applicable

Produce is washed only with water from the well.

**Describe how you monitor the effectiveness of your water quality program.**

Water tests for coliforms and chlorine. Visual evaluation of river source.

**How often do you conduct water quality monitoring?**  weekly  monthly  annually  as needed other (specify)**SECTION 6: Crop management**

NOP Rules 205.205 and 205.206

NOP Rule requires a crop rotation plan that maximizes soil organic matter content; prevents weed, pest, and disease problems; and manages deficient or excess plant nutrients. Your crop rotation may include sod, cover crops, green manure crops, and catch crops. Producers must utilize sanitation measures to remove disease vectors, weed seeds, and habitat for pests. Cultural practices, including selection of plant species and varieties adapted to site-specific conditions, must be used to enhance crop health.

**A. CROP ROTATION PLANS:** (Use one line for each rotation used) Note: "CC" denotes green manure "Cover Crop."

CROP ROTATION PLAN	FIELD NUMBERS WHERE PLAN IS FOLLOWED	ANTICIPATED CHANGES
Summer squash/CC→sweet potatoes→beans/CC→tomatoes→peas/ fall greens→spring cole crops/CC→okra→spring potatoes/CC→repeat cycle	A-1 through A-8	None
Spring greens/winter squash→root crops/CC→southern peas/CC→peppers & eggplant→cucumbers→CC/fall cole crops→corn→CC/fall potatoes→repeat cycle	B-1 through B-8	None
Oats/sweetclover→sweetclover→ sweet corn/CC → strawberries→strawberries→strawberries/oilseed radish→repeat cycle	S-1 through S-6	Seeking a good companion grass for the sweetclover.

## Section 5 notes (continued)

**Water use.** There are two main issues with water where organic compliance is concerned: 1) The water you use must not be contaminated; and 2) Your farm operation must not contaminate either surface or groundwater. Take the opportunity to write down the steps you take to ensure that neither problem occurs.

**Water testing. Do I need a water test? What do I test for?** Whether you need a water test of any kind depends on the way you use water on the farm and the requirements of your certifier. When water is used to wash produce or process food crops, you should assume that a potability test will be necessary. It is probably required by regulations beyond that of the NOP. In instances like this, the certifier will be most concerned about coliform levels in the water. The Wannabees have anticipated this requirement and included a copy of their most recent water test in the Supplementary documents section.

Unless there is reason to suspect a high level of contamination from pesticides, fertilizers, sewage, manure, or industrial chemicals, a water test may not be necessary for irrigation water. If the certifier requires it, you will be advised.

## Section 6 notes

**Crop rotation requirement.** §205.205 of the Regulation requires that crops be rotated for the purposes of maintaining or improving organic matter, controlling pests, managing nutrients, and controlling erosion. §205.2 defines crop rotation as “the practice of alternating the annual crops grown on a specific field in a planned pattern or sequence in successive years so that crops of the same species or family are not grown repeatedly without interruption on the same field...”

**What about perennial crops like tree fruits, vineyards, permanent pasture, and range?** §205.2 continues: “...Perennial cropping systems employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation.” In perennial cropping systems, therefore, biological diversity is managed spatially—each field has a mix of plants. For example, an orchard has trees and an understory cover crop. By contrast, crop rotation is a temporal means for managing diversity, meaning diversity is managed over time. A five-year rotation cycle may feature three or more crops and cover crops over that time span.

**Crop rotation plans.** In this part of the application, the certifier wants to see your plan for crop rotation. Therefore, it need not reflect the mix of crops or their sequence as shown on your Field history sheet, though the Wannabee’s rotation plans happen to do that.

There is no single way of presenting or writing down a crop rotation sequence when completing your application. The Wannabees use an arrow between crops in the sequence. When two crops or cover crops occupy the field in the same growing season, they separate the names with a slash (/). Finally, at the end of a planned cycle, they write “repeat cycle.”

## Section 6 Notes (continued)

**The importance of crop rotation.** When it comes to vegetable crops, rotation is key to organic control of diseases, insects, and weeds, as well as being an important part of fertility management. What constitutes an acceptable rotation, however, is not always clear to new organic growers. Because of its importance and because it is not well understood, especially by novices, additional notes on crop rotation are provided.

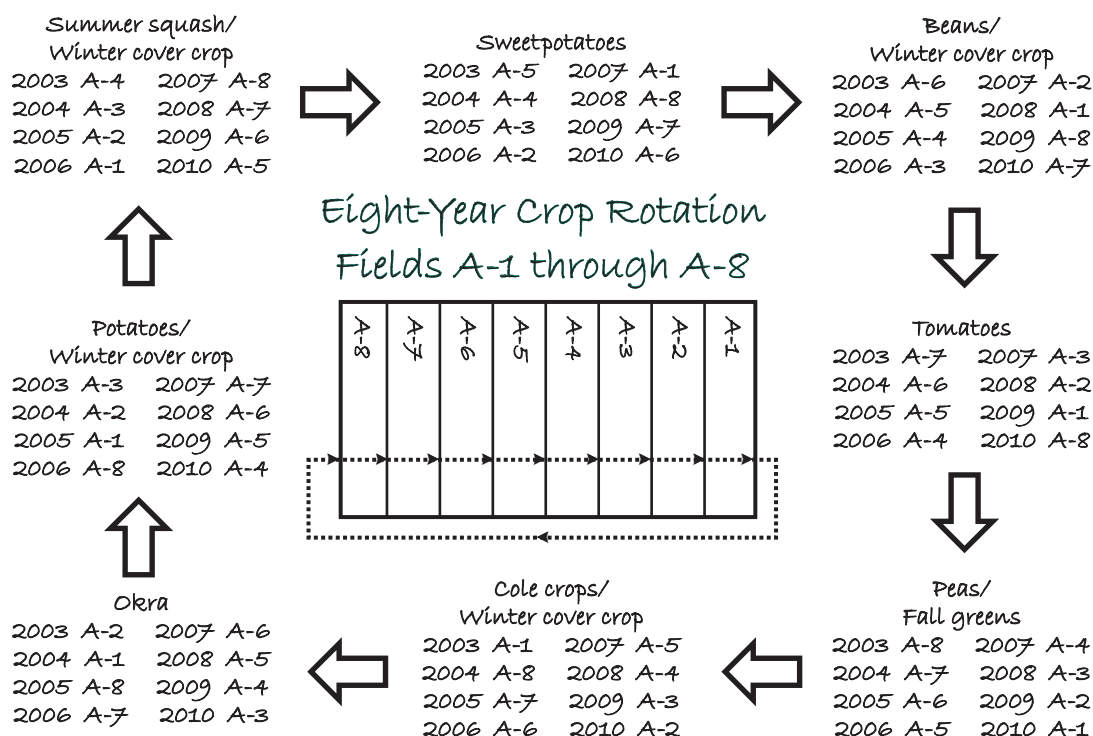


Figure 6-a

**Long rotations.** The Wannabees have two sets of fields labeled A and B that have eight-year crop rotations. They chose these long rotation cycles after reading about an example in Eliot Coleman's popular book, *The New Organic Grower*. Figure 6-a shows how they adapted Coleman's model—intended for the Northeast—to their mid-South climate and crops.

The eight-year rotation has several notable features of a well-planned rotation:

**Disease management.** While many vegetable crop diseases can be managed with two or three years of rotation, some—like clubroot in cole crops—require seven years. Since most diseases are shared among crops of the same family, long rotations allow planting popular relatives more than once in a rotation cycle, such as the Wannabees have done with potatoes and tomatoes, both solanaceous crops.

**Weed control.** Root crops, such as sweetpotatoes, radishes, carrots, and beets, are poor weed competitors. By contrast, summer squash, potatoes, and okra are more competitive and relatively easy to mulch or cultivate; they are sometimes called cleaning crops because they help eliminate many problem weeds in advance of a more vulnerable crop.

**Fertility management.** Several cover crop or green manure crops have been incorporated into the rotation. These provide a significant amount of nitrogen and organic matter, but fertility must be supplemented with added compost and fertilizers.

## Section 6 notes (continued)

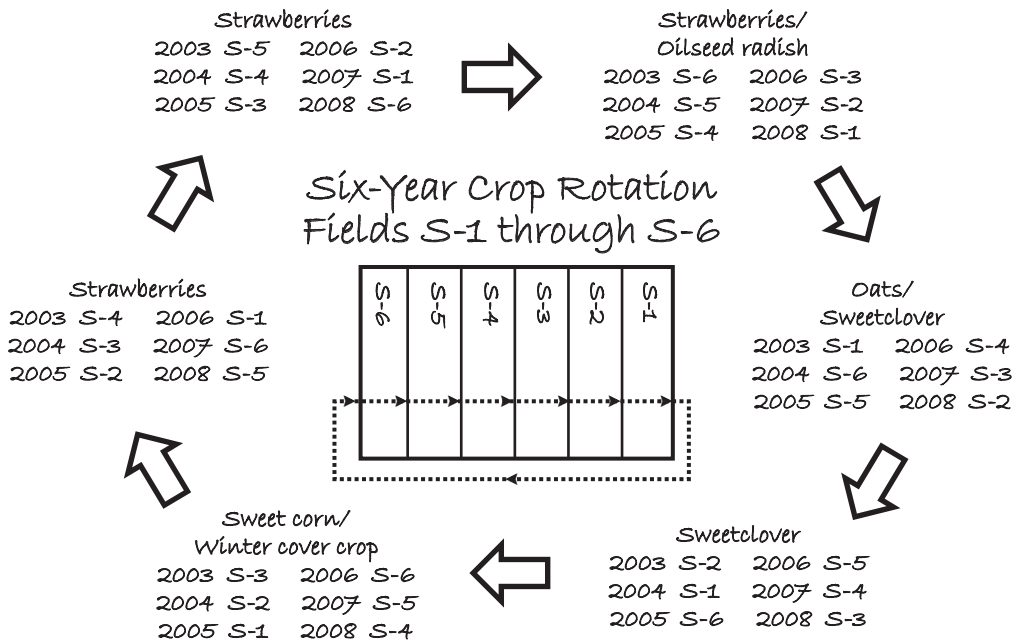


Figure 6-b

**Rotations for sustainable fertility.** While the Wannabees stopped using poultry litter due to soil phosphate overloading, they miss the nitrogen and the organic matter that this cheap local resource provided. The horse manure they now use is more balanced, but quantities are limited. They have added feathermeal, but it is expensive and does not provide all the benefits of manure-based compost. As a result, they have shifted to the rotation shown in Figure 6-b. This will build the soil using a biennial or perennial sod crop, in this case, sweetclover, as well as winter cover crops. As a rule of thumb, crop rotations that keep the soil in sod crops and cover crops for about half of the full cycle, or six years in this case, are probably sustainable in terms of organic matter maintenance. It is also worth noting that the oilseed radish is included as a cover crop and green manure because of its value as a soil bio-fumigant that suppresses many disease organisms that may have built up after three years in strawberries.

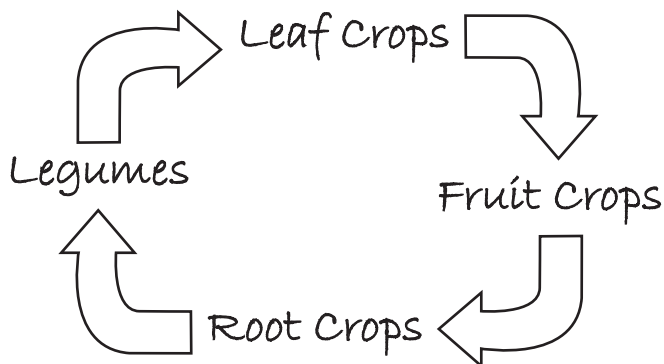


Figure 6-c

**Shorter rotations.** While long rotations are a good idea culturally, they are not required by the Regulations, challenging to design, and may not be suitable for your operation. Figure 6-c shows a rotation concept advanced by Shepherd Ogden, a well-known organic consultant. It is another sound notion of how the benefits of rotation can be pursued.

**For more information on crop rotation.** See ATTRA's *Organic Crop Production Overview*, and section V in the *Organic Crops Workbook*.

**B. WEED MANAGEMENT PLAN:**

No weed problems

**What are your problem weeds?** *Bermudagrass, johnsongrass, horsenettle*

**What weed control methods do you use?**  crop rotation  field preparation  prevention of weed seed set

delayed seeding  monitoring soil temperature  soil sterilization  use of fast emerging varieties

mechanical cultivation  use of hand tools  hand weeding  mowing  livestock grazing

flame weeding  steam weeding  electrical  smother crops  black fallow  non-synthetic mulch

synthetic mulch  corn gluten  soap-based herbicides  other (specify)

**Do you keep a record of how often you utilize these weed control methods, such as dates and fields when you cultivate or flame weed?**  Yes  No

*All inputs used or intended for use during the current year and used in the previous three years must be listed on your field history sheet.*

**USE OF RESTRICTED WEED MANAGEMENT STRATEGIES:**

none used

**If you use plastic or other synthetic mulches, is the mulch removed at the end of the growing or harvest season?**

*Not applicable.*

Yes  No

If no, why not?

**If you use corn gluten, is the corn genetically modified?** *Not applicable.*

Yes  No

If no, what verification do you have?

**If you use soap-based herbicides, list all areas where used.** *Occasional use around the outside of greenhouses, farm buildings.*

**If you use newspaper or other recycled paper for mulch, do you use paper with glossy or colored inks?**  Yes  No

*Not applicable.*

**EVALUATION:**

**Rate the effectiveness of your weed management program:**  excellent  satisfactory  needs improvement

**What changes do you anticipate?** *Will need to evolve some new strategies on the blueberry acreage which is now in the first year of transition. Weed control on the A, B, S, S rotations is becoming easier with time.*

**How do you monitor the effectiveness of your weed management program?**  weed counts

observation of weed types  comparison of crop yields  records kept of observations/counts

other (specify) *Overall visual assessment of weed pressure.*

**How often do you conduct weed monitoring?**  weekly  monthly  annually  as needed

other (specify)

## Section 6 notes (continued)

**Weed problems.** According to virtually every survey of producers, weed control is the major cultural challenge of organic crop production. The certifier does not expect you to list every weed that grows on your farm, only those that are a particular challenge to control.

**Weed control methods.** The Organic Regulations for weed and pest control are written so that producers will use systems-based and cultural practices first, before using herbicidal materials, even though they are allowed. In weed management this means that crop rotation, rotations with cover crops, sanitation practices, competitive crops, and timely planting, for example, would be among your first line of defense against weeds. This would be followed and supported by such traditional practices as mechanical weeding, mulching with organic materials, mowing, grazing and hand-weeding. Non-biodegradable mulches and organically acceptable weed sprays should be treated mainly as final choice or supplementary control measures. With this hierarchy of options in mind, the certifier will want to see that your weed control methods include one or more systems-based tools, as well as second and third tier choices. To better understand the weed and pest control hierarchy, see section VII in NCAT's *Organic Crops Workbook*.

**Keeping a record.** All field operations must be recorded. There are convenient forms for this purpose in ATTRA's *Organic Market Farm Documentation Forms*.

**Restricted practices.** Restricted practices and materials are those that have some specific limitation(s) placed on their use by the Regulations. On this application, the nature of the restriction is obvious in most cases. Plastic mulches must be removed so that they do not degrade and leave petrochemical residues in the soil. Soap-based herbicides are limited to use in ornamental crops and for weed management on non-production ground, such as roadsides and around building.

**Weed control “...getting easier with time.”** Recognizing the challenges of organic weed control, the Wannabee's comment that weed management gets easier with time is worth a comment. Though it is never really easy, many organic producers report that weeds become easier to manage as time goes on. In part, this is certainly due experience and progression along the learning curve. But it is also due to the cumulative effects of a sound production system. A good rotation, for example, changes the nature and timing of tillage and mowing practices year to year. This reduces the chances that any particular weed can dominate. Also, soil fertility improvements and increased biological activity favor crop competition, work against many problem weeds, and deplete the weed bank in the soil. Tillage also becomes easier and uses less fuel.

**C. PEST MANAGEMENT PLAN:**

No pest problems

**What are your problem pests?**  insects (list) *On vegetables & strawberries: squash vine borer, squashbug, aphids, thrips, cabbage worms, flea beetles, cucumber beetles, slugs, potato beetles, corn earworm/tomato fruitworm, tomato hornworm. On blueberries, anticipate problems with mites, cranberry & cherry fruitworm complex, cutworms.*

rodents  gophers  birds  other animals (specify) *Deer*

**Do you work with a pest control advisor?**

Yes  No

If yes, give name and contact information.

*Casey Jordan, Ozark County Cooperative Extension Service, P.O. Box 13, Brushy Creek, AR 72701 479-586-0000*

**What strategies do you use to control pest damage to crops?**

none used

- crop rotation  selection for plant species/varieties  development of habitat for natural enemies
- timing of planting  companion planting  frog ponds  bat houses  bird houses  hand picking
- monitoring  trap crops  physical barriers  physical removal  traps  lures  IPM
- insect repellents  animal repellents  release of predators/parasites of pest species
- use of approved products  use of restricted products  limited use of prohibited products
- other (specify) *Noise makers, reflectors, scarecrow devices, solar-powered electric fencing for deer.*

**Do you keep a record of how often you utilize these pest control methods, such as dates when you scout or apply inputs to a specific field or crop?**

Yes  No

**List all pest control products used or intended for use in the current season on organic and transitional fields.** *All inputs used or intended for use during the current year and in the previous three years must be listed on your field history sheet.*

Not applicable

PEST PROBLEM	CONTROL PRODUCT	STATUS: APPROVED (A) RESTRICTED (R) PROHIBITED (P)	IF RESTRICTED, DESCRIBE COMPLIANCE WITH NOP RULE ANNOTATION	CHECK IF GMO (✓)
Slugs	DE. (diatomaceous earth)	A		
Mites	Sulfur	R	<i>Used as a back-up control if cultural methods and biological controls are not adequate, and if more benign, "allowed" pesticides don't do the job.</i>	
Cabbage worms, tomato fruitworm, & hornworm, fruitworms, cutworms	Dipel 2X (Bt)	A		
Colorado potato beetle, cutworms,	Mycotrol O (B. bassiana)	A		
Aphids, mites, thrips, squashbug	M-Pede (insecticidal soap)	R	<i>Use only if pest numbers exceed threshold recommended by Coop. Extension.</i>	
Squashbug, cucumber beetle, potato beetle	Pyganic (pyrethrum)	R	<i>Use only if pest numbers exceed threshold recommended by Coop. Extension.</i>	
Wetting agent	Therm X 70	A		
Corn earworm	Vegetable oil	A		

**EVALUATION:**

**Rate the effectiveness of your pest management program?**  excellent  satisfactory  needs improvement

*Except for corn earworm, most vegetable pest problems are sporadic and require only a few treatments.*

**What changes do you anticipate?**

*Don't know how difficult organic pest control will be on the blueberries in the transitional period. May need to use additional control inputs. Will advise in advance.*

*Anticipate arrival of Japanese beetles eventually. Not a problem as yet.*



## Section 6 notes (continued)

**Problem pests.** As with weeds, the certifier will want to know only those pests that cause significant damage and require specific action to control.

**Pest control methods.** The Organic Regulations for weed and pest control are written so that producers will use systems-based and cultural practices first, before using pesticidal materials, even though they are allowed. In insect pest management this means that crop rotation, sanitation practices, tolerant varieties, and timely planting, for example, would be among your first line of defense against insect pests. This would be followed and supported by cultural practices such as traps, natural repellents, introducing beneficial predator and parasite species, and establishing refuges for native predators and parasites. Organically acceptable insecticides should be treated mainly as final choice or supplementary control measures when other practices are insufficient. With this hierarchy of options in mind, the certifier will want to see that your pest control methods include one or more systems-based tools, as well as second and third tier choices. To better understand the pest control hierarchy, see Section VIII in NCAT's *Organic Crops Workbook*.

**Keeping a record.** All field operations must be recorded. There are convenient forms for this purpose in ATTRA's *Organic Market Farm Documentation Forms*.

**Pest control products.** List all the pest control products and materials you are using, plan to use, or might use in the coming season. Also list any spray tank additives such as adjuvants or surfactants. Keep in mind that this list should be consistent with the input column for the current year on your field history sheet.

You are expected to determine whether a material or product is allowed, restricted, or prohibited for use. Obviously, if you had plans to use a prohibited material, you need to reconsider. If you have already used something prohibited, it will affect the certification of field(s) where it was applied. Materials are considered restricted when the Organic Regulations place a specific limitation(s) on their use. For example, The Wannabees use M-Pede, a brand of insecticidal soap, and Pyganic, a botanical pesticide. Both insecticidal soaps and botanicals are considered restricted because they should only be used when systems-based and cultural methods are not adequate, as was explained in the pest control methods comment, above. The Wannabees indicate that a scouting threshold will be used to trigger application of these materials. They were less specific about the use of sulfur on mites, mainly because the economic threshold of scouting is less well-defined for blueberries—the crop they will probably need to treat.

For a discussion of how to determine which inputs are allowed or prohibited see Text Box 6C in NCAT's *Organic Crops Workbook*. When in doubt, be sure to consult your certifier.

**How do you monitor the effectiveness of your pest management program?**  insect monitoring with traps  
 observation of crop health  comparison of crop yields  crop quality testing  monitoring records kept  
 other (specify)

**How often do you conduct pest monitoring?**  weekly  monthly  annually  as needed  
 other (specify) *Am constantly in the field during season. Crops are watched closely during traditional periods when pest outbreaks might be expected.*

**D. DISEASE MANAGEMENT PLAN:**  No disease problems

**What are your problem crop diseases?** *vegetables & strawberries: powdery mildew, clubroot, downy mildew, anthracnose, early blight, late blight, gray mold, blossom-end rot. Blueberries: twig blight, mummy berry.*

**What disease prevention strategies do you use?**  crop rotation  field sanitation  plant spacing  
 selection of plant species/varieties  timing of planting/cultivating  vector management  soil balancing  
 solarization  companion planting  compost/tea use  use of approved materials  
 use of restricted materials  limited use of prohibited materials  other (specify)

**List all disease management inputs used or intended for use on your organic and transitional fields/crops.** *All inputs used or intended for use during the current year and used in the previous three years must be listed on your field history sheet.*  
 Not applicable

DISEASE PROBLEM	CONTROL PRODUCT	STATUS: APPROVED (A) RESTRICTED (R) PROHIBITED (P)	IF RESTRICTED, DESCRIBE COMPLIANCE WITH NOP RULE ANNOTATION	CHECK IF GMO (✓)
Powdery Mildew, downy mildew, anthracnose, early blight, late blight, gray mold	Bordeaux Mix	R	Monitor weather conditions; soil test for copper levels	
Twig blight	Lime sulfur	R	Will use only for disease control when evidence of disease occurs.	
Wetting agent	Therm X 70	A		

**EVALUATION:**

**Rate the effectiveness of your disease management program?**  excellent  satisfactory  needs improvement  
*Disease incidence is most common with weather stress. Most problems do not re-occur every year.*

**What changes do you anticipate?** *May need additional disease control agents on the blueberries during transition. Will advise in advance.*

**How do you monitor the effectiveness of your disease management program?**  soil testing  
 microbiological testing  observation of soil  observation of crop health  comparison of crop yields  
 crop quality testing  monitoring records kept  other (specify)  
*Attach copies of your test results, if applicable.*

**How often do you conduct disease monitoring?**  weekly  monthly  annually  as needed  
 other (specify) *We are constantly in the field during season. Crops are watched closely during traditional periods when disease outbreaks might be expected.*

## Section 6 notes (continued)

**Problem diseases.** As with weeds and other pests, the certifier will want to know only those diseases that cause significant damage and require specific action to control.

**Disease control methods.** As with weed and pest control, the Organic Regulations for disease control are written so that producers will use systems-based and cultural practices first, before using pesticidal materials, even though they are allowed. For disease management, for example, this means that crop rotation, sanitation practices, and resistant varieties would be your first line of defense. This would be followed and supported by cultural practices such as vector control and biosecurity measures. Organically acceptable fungicides, especially allowed synthetics, should be treated mainly as final choice or supplementary control measures. With this hierarchy of options in mind, the certifier will want to see that your disease control methods include one or more systems-based tools, as well as second and third tier choices. To better understand the disease control hierarchy, see section VIII in NCAT's *Organic Crops Workbook*.

**Keeping a record.** All field operations must be recorded. There are convenient forms for this purpose in ATTRA's *Organic Market Farm Documentation Forms*.

**Disease control products.** List all the disease control products and materials you are using, plan to use, or might use in the coming season. Be certain to also list spray tank additives such as adjuvants or surfactants. Keep in mind that this list should be consistent with the input column for the current year on your field history sheet.

You are expected to determine whether a material or product is allowed, restricted, or prohibited for use. Obviously, if you had plans to use a prohibited material, you need to reconsider. If you have already used something prohibited, it will affect the certification of field(s) where it was applied. Materials are considered restricted when the Organic Regulations place a specific limitation(s) on their use. For example, the Wannabees use Bordeaux mix, which is a blend of copper sulfate and hydrated lime, both of which are allowed synthetics. In order to use synthetic copper materials, they must show that copper is not accumulating to toxic levels in their soil [§205.601(i)(2)]. This is the reason that soil tests are done for copper. See the soil test report in the Supplemental documents section for more information. Hydrated lime is also restricted in that it may only be used for disease control [§205.601(i)(3)]. It may not be applied directly to the soil as an amendment, manure additive, or compost feedstock. Certainly some of the spray will reach the soil, but this application is considered incidental and indirect. For a discussion of how to determine which inputs are allowed or prohibited see Text Box 6C in ATTRA's *Organic Crops Workbook*. When in doubt, be sure to consult your certifier.

**A. ADJOINING LAND USE:**

NOP RULE requires that organic production areas have distinct boundaries and buffer zones to prevent the unintended application of a prohibited substance or contact with a prohibited substance that is applied to adjoining land not under organic management. Adjoining land includes crop land, pastures, residential property, fallow land, etc. Buffer areas may change annually, depending on contamination potential from adjoining land uses. The width of the minimum buffer is dependent on certifying agent policy. The NOP Rule requires that the buffer must be sufficient in size or other features (windbreaks, diversion ditches) to prevent the unintended contact by prohibited substances applied to adjacent land areas. Crops within the required buffer must be left unharvested or harvested, stored, and disposed of as nonorganic crop, with records kept of crop disposition. Indicate buffer zones and show all adjoining land uses on your field maps.

List specific buffer areas you maintain. (Show all adjoining land uses on your field maps.)  Not applicable

LOCATION OR FIELD NUMBER	TYPE OF BUFFER (CROP LAND, TREELINE, HEDGEROW, WILDLIFE PLANTING, GRASS STRIP)	WIDTH OF BUFFER	ADJOINING LAND USE	IF CROP IS HARVESTED FROM BUFFER, DESCRIBE USE (SALE, NON-ORGANIC LIVESTOCK FEED, SEED, ETC.)
N sides of S-1, Q & A-1 through A-8; E sides of Q, A-1, B-1, S-1, S-2, & S-3; S side of S-6.	Beneficial insect habitat using natural vegetation, & overseeded cover crops & wildflowers.	25 ft	Conventional crop production on NW and N boundaries (no aerial chemical applications); roadside maintenance with possible spot-spraying of weeds	No harvest
N, NW, & SE sides of F	Un-harvested zone	25 ft.	Conventional crop production on NW & N boundaries. Conventional greenhouse production on the SE.	No harvest
SW side of F	River and riparian area	Min. 35 ft	Waterway	No harvest
S sides of F, B-1 through B-8	None	Not applicable	Production with no prohibited chemical use.	Not applicable

If crops are harvested from the buffer zones with equipment used for harvesting organic crops, what safeguards do you use to protect organic crops from contact with buffer crops during harvest? *Not applicable*

What additional safeguards do you use to prevent accidental contamination?  none

Written notification to:  highway departments  electric companies  aerial spray companies/airports  
 adjoining landowners  drainage commissions  farm service office  other (specify)

Have you posted "No Spray" signs along roadsides that adjoin organic fields?

Yes  No

Do any fields or portions of fields flood frequently? (more than once every ten years)

Yes  No

If yes, list field numbers *Portions of F flood. In most years, flooding does not exceed the boundary of the riparian zone/buffer.*

## Section 7 notes

**Organic integrity in the field.** According to the Regulations, organic crops must be protected against contamination from spray drift and other prohibited materials [§205.202 (c)]. Precisely how you intend to accomplish this must be made clear in your application and organic system plan and be approved by your certifier.

**Buffers.** There are several ways you can protect a field from contamination. Buffers are probably the most common. Traditionally, certifiers have accepted a buffer zone of 25 feet in width, but such details are not specified in the Regulations, only that contamination be prevented. Therefore, a 25-foot buffer might be perfectly adequate for crops adjacent to fields where chemicals are applied using ground rigs, but inadequate where aerial application is used.

Buffer zones are often used as lanes for moving farm equipment, wildlife areas, beneficial insect habitats, or windbreaks. They can also be planted to harvestable crops, but these cannot be sold or used as organic. Notice that the Wannabees have a diversity of buffers, none of which happen to be harvestable crops. For an example of how buffer crop harvest can be addressed, see ATTRA's *Organic System Plans: Field and Row Crops and Pasture and Range Systems*.

A buffer is not necessary when the adjoining land is not a potential contamination source, as would be the case if your neighbor were also an organic grower. Of course, you will need to provide some evidence that this is the case. The Wannabees include a letter from their neighbor to the south (see supplemental documents), who runs a natural beef operation and does not use synthetic sprays or fertilizers.

**Written notification.** Another means for preventing contamination and ensuring integrity for organic crops is to notify road crews and utilities of your organic certification. You might even arrange to manage the brush and weeds yourself. Though the Wannabees do not go quite this far, they have provided letters of notification to the road crews and to their conventional neighbors. These are included in the supplementary documents section. Draft copies of notification letters can be found in ATTRA's *Forms, Documents, and Sample Letters for Organic Producers*.

**“No Spray” signs.** Certifiers like to see producers use these signs, especially along roadsides, utility rights-of-way, and on fields abutting conventional production, where a lot of custom spraying is done. For a list of vendors, ask for ATTRA's *Sources of “Spraying Prohibited” Signs for Organic Farms*.

**Flooding.** If a field is frequently flooded with water bearing high loads of conventional fertilizers, pesticides, or other prohibited materials, you might be denied certification for the affected land. However, you must be given the opportunity to demonstrate that no significant contamination has actually occurred. The Wannabees have experienced flooding only within the forested wild-harvest field. In most years it has been limited to the area designated as the riparian zone, which they treat as a buffer. This has been acceptable to their previous certifiers and is likely to be acceptable to Razorback Organic Certifiers.

**How do you monitor for crop contamination?**  visual observation  residue analysis  GMO testing  
 photographs  wind direction/speed data  other (specify)

**How often do you conduct crop contamination monitoring?**  weekly  monthly  annually  as needed  
 other (specify) *I check the boundaries of fields as soon as I know the neighbors or road crews have been spraying.*

**Do you grow the same crops organically, as well as in transition, and/or conventionally?**  Yes  No  
 This is called 'parallel production'. If yes, list specific crop varieties in the next table for both organic and transitional/conventional crops.

**If you grow any conventional or transitional crops, please fill out the following tables.**  Not applicable

SPECIFIC CROPS/ VARIETIES	FIELD NUMBERS	TRANSITIONAL (T) OR CONVENTIONAL (C)	CHECK IF GMO (✓)	TOTAL ACREAGE	PLANNED USE OF CROP (SALE, SEED, NONORGANIC LIVESTOCK FEED, ETC.)	SAME AS ORGANIC CROP? Y OR N
Blueberries	2	T		3 a	Sale	N

**Prohibited soil amendments used on conventional crops:**

PRODUCT NAME	WHO APPLIES? SELF (S) OR CUSTOM (C)	FIELD NUMBERS WHERE APPLIED	WHERE STORED? (ON-FARM OR OFF-FARM; WHERE ON FARM?)
Not applicable.			

**Prohibited herbicides/pesticides used on conventional crops:**

PRODUCT NAME	WHO APPLIES? SELF (S) OR CUSTOM (C)	FIELD NUMBERS WHERE APPLIED	WHERE STORED? (ON-FARM OR OFF-FARM; WHERE ON FARM?)
Not applicable.			

## Section 7 notes (continued)

**Monitoring for contamination.** The kind and frequency of monitoring should depend on the threats to integrity and how often they occur. The Wannabees have some threats from drifting chemicals, mostly on the north and east boundaries. Because of the crops they produce and the part of the country they live in, genetic drift from genetically engineered crops is not an issue as yet. For an example of how this issue might be addressed, see ATTRA's *Organic System Plans: Field and Row Crops and Pasture and Range Systems*.

**For more information.** For more details on the options for buffers and maintaining field integrity, see section IV in NCAT's *Organic Crops Workbook*, and the ATTRA workshop handout *Preventing Contamination and Seeking Compensation*, on the ATTRA Web site [www.attra.ncat.org/downloads/organic\\_cert/preventing\\_contamination.pdf](http://www.attra.ncat.org/downloads/organic_cert/preventing_contamination.pdf).

**Recording conventional crops and inputs.** Entries in this section should be consistent with those shown on the field history sheet for the current year, as should the field numbers showing where they are applied. You do NOT need to write down your conventional greenhouse inputs if you have already listed them in Section 4 or wherever your application addresses greenhouse production.

The Wannabees do not have any conventional crops. The blueberries are transitional and, therefore, will receive only allowed and transitional inputs.

**B. EQUIPMENT:**

To prevent commingling and contamination, all equipment used in organic crop production must be free of nonorganic crops and prohibited materials. Equipment used for both organic and nonorganic farming must be cleaned and flushed prior to use on organic fields or crops. Keep records of equipment clean and flush activities.

List equipment used for planting, tillage, spraying, and harvesting.

Not applicable

Note: "Conventional" use below refers to operations on transitional blueberry field, @. No other conventional use.

EQUIPMENT NAME	OWNED (O), RENTED (R), OR CUSTOM (C)	CHECK IF USED ON BOTH ORGANIC AND CONVENTIONAL (✓)	HOW IS EQUIPMENT CLEANED BEFORE USE ON ORGANIC FIELDS?
BCS 948 walking tractor	O	✓	Vegetation & dirt clods removed
BCS rotary plow	O		
BCS tiller w/middlebuster	O		
BCS brush mower	O	✓	Vegetation & dirt clods removed
Craftsman lawn tractor	O	✓	Vegetation & dirt clods removed
Gravelly walking tractor	O	✓	Vegetation & dirt clods removed
Gravelly cultivator	O		
Gravelly brush mower	O	✓	Vegetation & dirt clods removed
Gravelly tiller	O		
Small manure/compost spreader	O		
Small dry material spreader	O	✓	Only hauls allowed amendments and fertilizers
Small trailer sprayer	O	✓	Only applies allowed materials
Backpack sprayer	O	✓	Only applies allowed materials
Planet Jr. seeder	O		
Earthway seeder	O		
2 wheel hoes	O		
Assorted hoes, etc.	O	✓	Vegetation & dirt clods removed
Small trailer	O	✓	Vegetation & dirt clods removed
Ford Powermaster tractor	R	✓	Vegetation & dirt clods removed
Rotavator	R	✓	Vegetation & dirt clods removed
Transplanter (strawberries)	R	✓	Vegetation & dirt clods removed; fertilizer tank and lines thoroughly flushed
Ford pick-up truck	O	✓	Vegetation & dirt clods removed

Is your equipment maintained so that fuel, oil and hydraulic fluid do not leak?

Yes  No  Not applicable

If you use a sprayer:

What type?

Did you purchase it new or used?  new  used

Have two sprayers, both purchased new. Trailer sprayer has 40-gal tank and a gas driven pump both for ground and high pressure spraying in the blueberries. Back-pack sprayer also used. Both sprayers are dedicated to organic use only.

Other equipment:

Could any equipment you use have been contaminated by previous uses?

Yes  No

If yes, describe: Only the rented transplanter presents a hazard since the transplant solution tank routinely carries conventional fertilizers. Strict protocols are used to clean the tank and hoses prior to organic use. Log is maintained.



## Section 7 notes (continued)

**Equipment.** Be certain to list all equipment you use in organic production and note if it is also used on conventional or transitional fields. For dual-use equipment, indicate how you clean it prior to organic use. For complex planting, field application, and harvesting equipment, it is expected that you will be able to provide a clear set of written protocols and a clean out log for the inspector to see during the annual visit.

Don't neglect to mention custom or rented equipment. Most of these will be dual use. Be prepared to provide the same documentation of protocols and clean-out logs as you do for owned equipment. You can find forms to assist you in ATTRA's *Organic Market Farm Documentation Forms*.

**Engine fluids.** Oil, gasoline, diesel fuel, and engine coolants are all considered prohibited substances that should not contact soils or crops. During annual inspection, the inspector will look at all your tractors and other engines to ensure that they are not leaking.

**Sprayers.** Most certifiers will not allow continued dual use of spray equipment. Once a sprayer has been thoroughly cleaned for organic use, it should be dedicated to organic production thereafter. Be certain to document the date and procedures used when converting such equipment to organic use.

**Recommended reading.** A good overall guide to read in advance of the annual inspection is ATTRA's *Preparing for an Organic Inspection*. For more information regarding farm equipment and organic integrity, see section XX in NCAT's *Organic Crops Workbook*.

**C. HARVEST:**

NOP Rule 205.272(b)(1) and (2) requires that containers, bins, and packaging materials must not contain synthetic fungicides, preservatives, or fumigants. All reusable containers must be thoroughly cleaned and pose no risk of contamination prior to use.

**How are your organic crops harvested?**  mechanical  by hand

**Are any organic crops custom harvested?**  Yes  No

If yes, provide name and address of custom harvester.

**Describe steps taken to protect organic crops from commingling and contamination during harvest.**

*Because we do not have parallel production, there is no hazard of commingling. We use only clean, uncontaminated containers and tools for harvesting.*

**What containers are used for harvesting?**  gravity wagons/boxes  truck boxes  cardboard/waxed boxes  
 wooden totes  plastic containers  other (specify)

**Are containers new or used?**  new  used

If used, what did they contain prior to organic use? *used containers have only had prior harvest and storage use on this farm, on organic and transitional crops.*

**Are the containers used for organic crops only?**  Yes  No

*Some of the harvest containers are also going to be used to harvest the transitional blueberry crop.*

**Describe potential contamination or commingling problems you have with harvest of organic crops.**  none

**D. POSTHARVEST HANDLING:**  Not applicable

NOP Rule 205.201(a)(5) requires that postharvest handling procedures do not contaminate organic products with nonorganic crops or prohibited materials. For on-farm processing, you may need to complete an organic Handling Plan Questionnaire.

**Describe your postharvest handling procedures and equipment.**

*Washing greens, trimming stems and outer leaves, brushing dirt from tubers and roots, sorting and culling.*

**Is the processing area and equipment used for both organic and nonorganic products?**  Yes  No

If yes, describe steps taken to prevent commingling and contamination. *The only nonorganic crop that we'll deal with in this post-harvest area will be transitional blueberries. The blueberries are not in parallel production so there is no hazard of commingling. Since the blueberries are in transition, no prohibited materials are involved to cause contamination.*

**Does packaging present any contamination problems for your organic products?**  Yes  No

If yes, what are they?

**Check types of packaging material used:**  bulk  paper  cardboard  wood  glass  metal  
 foil  plastic  waxed paper  aseptic  natural fiber  synthetic fiber  other (specify)

**In what form are finished products shipped?**  dry bulk  liquid bulk  tote bags  tote boxes  paper bags  foil bags  metal drums  mesh bags  cardboard drums  cardboard cases  plastic crates  
 other (specify) *Not applicable. All products are direct marketed.*

## Section 7 notes (continued)

**Commingling.** Commingling refers to contact between organically and nonorganically produced crops that risks conventional product being sold or represented as organic. Commingling is a big concern on split operations, especially when the same crop is produced both organically and conventionally as in parallel production. This is not of great concern on an operation like the Wannabee's, either during harvest or postharvest operations. If the Wannabees also used their washing and sorting facilities for conventional fruits and vegetables, the certifier would expect them to reference protocols and other tools they use to prevent commingling. They would not need to detail the protocols in their application, but would be expected to demonstrate and explain them to the inspector during annual inspection.

For an example of parallel production and how an organic producer addresses it in a system plan, see ATTRA's *Organic System Plans: Field and Row Crops and Pasture and Range Systems*.

**Contamination.** Contamination refers to the contact of an organic product with a prohibited substance. At harvest, one major concern is field totes and boxes. Certifiers want to know that the containers you use are NOT impregnated with fungicides or insecticides. If they were used for nonorganic harvest prior to this time, were they adequately cleaned?

**Contamination concerns continue at postharvest.** Any washing agents that contact food or are used on food-contact surfaces must be allowed materials. Prohibited materials must be stored away from the area or in such a way that accidental contamination of organic food cannot occur. Any containers used during postharvest handling may not be impregnated with fungicides or insecticides.

**Post-harvest handling and on-farm processing.** As discussed earlier in the notes on Section 1, there can be a fine line between postharvest handling and on-farm processing. For example, washing and sorting produce before taking it to market, as the Wannabees do, is treated as postharvest handling. Were they to pack and seal the same produce into labeled bags, it would likely be considered on-farm processing. In that case, an additional system plan for handling would be required. If your postharvest activities exceed the most basic washing, sorting, and cooling steps, you should talk to your certifier.

**For more information.** For maintaining organic integrity at harvest, see section XVII in NCAT's *Organic Crops Workbook*; for similar guidance during postharvest handling and on-farm processing see section XIX. For technical information see ATTRA's *Postharvest Handling of Fruits and Vegetables* and the University of California Cooperative Extension publication 7254, *Postharvest Handling for Organic Crops*.

**E. CROP STORAGE:**

No organic crop storage

Operators must keep organic and nonorganic crops in separate storage areas and prevent commingling and contamination. Storage records must be maintained.

**Describe your storage locations.**

STORAGE ID #	TYPE OF CROPS STORED	TYPE OF STORAGE	CAPACITY/SIZE	ORGANIC (O), TRANSITIONAL (T), BUFFER (B), CONVENTIONAL (C)
Cooler	Highly perishable vegetables & fruits	Walk-in cooler	200 sq. ft.	O, T
Cellar	Root crops, squash	Root cellar	110 sq. ft.	O

**Do you use the same storage areas for organic, transitional, buffer, and/or conventional crops.**

Yes  No

If yes, how do you segregate organic crops from nonorganic crops? *The only nonorganic crop in storage is transitional blueberries which are easily distinguishable from organic vegetables and strawberries. Blueberries are never stored above organic produce.*

**How do you clean storage units prior to storage of organic crops?** *Sweep it out.*

**How do you prevent/control insect pests in crop storage areas?**

No insect problems

**How do you control rodents in crop storage areas?**

No rodent problems

*Mechanical traps. Keep cats on farm.*

**What stored crop inputs have you used in the last three years?**

none

- synthetic fumigants  rodenticides  sprouting inhibitors  ripeners  growth regulators  
 preservatives  oils  coloring agents  waxes  other (specify)

**Are any stored crop inputs used or planned for use on organic crops?**

Yes  No

If yes, specify input and retain labels.

**F. TRANSPORTATION:**

Not applicable

**Who is responsible for arranging transportation of organic products?**  self  buyer  other (specify)

**Describe how organic products are transported.** *Use owned van truck and pick-up truck to haul produce to farmers markets, restaurants and other buyers.*

**What potential contamination or commingling problems do you have with the transport of organic crops?**

none

**What steps are taken to protect the integrity of organic products during transport?**

- dedicated organic only  inspecting transport units prior to loading  cleaning transport units prior to loading  
 use of clean truck affidavits  letter/contract with transport company stating organic requirements  
 other (specify) *Will only be hauling our own organic and transitional produce.*

## Section 7 notes (continued)

**Details for the farm map.** Farm crop storage areas should be indicated on your farm map. The certifier will want to know where storage areas are located relative to possible sources of contamination and so that the inspector can check them during annual inspection. If the scale of your map does not allow for adequate detail, draw an additional facility map and include it in your application. For an example of a facility map see ATTRA's *Organic System Plans: Field and Row Crops and Pasture and Range Systems*.

**Dual-use storage.** Ideally, organic storage is dedicated space, but this is not always possible, especially on split operations. In such cases certifiers are most concerned about commingling organic and conventional produce. Your application should indicate that you are taking basic steps to prevent this, such as using shelf labeling and color-coded tags and containers; always storing organic product on upper shelves; and more. The Wannabees are making dual use of their cold storage unit when they use it to hold harvested blueberries from their transitional field. Because there are no organic blueberries being stored, and because blueberries can easily be distinguished from their other crops, they have no serious commingling hazards. Still, the certifier may want to know that record is being made of cooler storage and cleanouts. For some blank forms that can be adapted to this purpose, see ATTRA's *Organic Market Farm Documentation Forms*.

**Stored crop inputs.** If you think you might use some storage inputs in the upcoming season, be certain to list them here. Like field inputs, these must be either non-synthetic (natural) materials or synthetics that are on §205.601 of the National List. See section XVIII of NCAT's *Organic Crops Workbook* for more details on storage issues, and section XXII on buildings and facilities.

**Integrity in transport.** Whenever you are responsible for the transport of your product, you continue to be responsible for ensuring its organic integrity. This entails making sure that your truck, or any rented or contract vehicle, is clean and appropriate for the purpose at hand. Except for the produce sold directly off of their farm, the Wannabees haul all their own produce to the farmers' markets, restaurants, and other customers they serve. They are responsible for ensuring that the van and the pick-up truck do not present any contamination hazards.

For more information on integrity in transport, see section XXI of NCAT's *Organic Crops Workbook*.

NOP Rule requires that records disclose all activities and transactions of the operation, be maintained for five years, and demonstrate compliance with the NOP Rule. Organic products must be tracked back to the field or location where they were produced and harvested. All records must be accessible to the inspector.

**A. RECORDS:** *Please have these records available for the inspector.*

**Which of the following records do you keep for organic production?**

- field maps
- field activity log(s)
- field history sheets (previous three years)
- documentation of previous land use for rented and/or newly purchased land
- input records for soil amendments, seeds, manure, foliar sprays, and pest control products (keep all labels)
- documentation of attempts to source organic seeds and/or planting stock
- documentation of organic seedlings
- residue analyses of inputs (such as manure sourced off-farm)
- compost production records
- monitoring records (soil tests, tissue tests, water tests, quality tests, observations)
- equipment cleaning records
- harvest records that show field numbers, date of harvest, and harvest amounts (including custom harvest records)
- label records
- storage records that show storage location, storage identification, field numbers, amounts stored, and cleaning activities
- clean transport records
- sales records (purchase order, contract, invoice, cash receipts, cash receipt journal, sales journal, and more)
- shipping records (scale ticket, dump station ticket, bill of lading)
- transaction certificates
- audit control summary
- complaint log
- other (please specify)

**How long do you keep your records?**

*I have detailed records going back to 1993.*

**Which of the following records do you keep for conventional production?**

Not applicable

- |   |   |
|---|---|
| <input type="checkbox"/> field maps           | <input type="checkbox"/> labor records    |
| <input type="checkbox"/> field history sheets | <input type="checkbox"/> storage records  |
| <input type="checkbox"/> input records        | <input type="checkbox"/> sales records    |
| <input type="checkbox"/> harvest records      | <input type="checkbox"/> shipping records |
| <input type="checkbox"/> other (specify)      |   |

## Section 8 notes

**Record keeping.** It should be clear that you will need to document everything you claim you are doing to comply with the Regulations. You have laid this out in your application, which is also your organic system plan. The task may seem daunting. But good farmers already keep most of those records as a tool for assessing their farming system and making decisions. If you already have a good system in place, be sure to use it. Take a look at ATTRA's *Organic Field Crops Documentation Forms* for further ideas.

**Audit trail.** Perhaps the most important indicator that your recordkeeping system is adequate is whether it provides a clear audit trail for organic products from field to final sale or use. In other words, if the purchaser or a regulator were to inquire about a particular box or case of produce, you would have the documentation available to show when and from which field(s) it was harvested, what variety or varieties were planted, and how the produce was grown.

**B. MARKETING:**

**Type of marketing:**

- farmers' market    direct to retail    CSA/subscription service    wholesale    on-farm retail  
 bulk commodities to processor    contract to buyer    other (specify)

**Do you use or plan to use the USDA organic seal on product labels or market information?**       Yes    No

**Do you use or plan to use the seal of the certifying agent on product labels or market information?**       Yes    No

*Attach copies of all organic product labels.*

**SECTION 9: Affirmation**

I affirm that all statements made in this application are true and correct. No prohibited products have been applied to any of my organically managed fields during the three-year period prior to projected harvest. I understand that the operation may be subject to unannounced inspection and/or sampling for residues at any time as deemed appropriate to ensure compliance with the Organic Foods Production Act of 1990 and National Organic Program Rules and Regulations. I understand that acceptance of this questionnaire in no way implies granting of certification by the certifying agent. I agree to provide further information as required by the certifying agent.

Signature of Operator           *Andy Wannabee*                Date           2/28/06          

I have attached the following documents:

- Maps of all parcels/fields (showing adjoining land use and field identification)  
 Field history sheets  
 Documentation for fields owned or rented for less than three years, if applicable  
 Water test, if applicable  
 Soil and/or plant tissue tests, if applicable  
 Residue analyses, if applicable  
 Input product labels, if applicable  
 Organic product labels, if applicable
- I have made copies of this questionnaire and other supporting documents for my own records.

**Submit completed form, fees, and supporting documents to:**

**RAZORBACK ORGANIC CERTIFIERS**

**P.O. Box 456**

**Twin Bridges, AR 72500**



## Section 8 notes (continued)

**Regarding labels.** Certifiers like to see mock-ups of labels in advance, even if they are hand-drawn. It is wise to include them with your application as opposed to waiting for the inspector.

**Use of the USDA and certifier seals.** Use of either USDA or certifier seals is optional. However, it is important for the certifier to know whether you choose to use them on your labels. There are quite a few specific requirements regarding labeling (§§205.300–205.311) that your certifier will want to review and make certain you are in compliance with.



## Section 9 notes

**Make copies.** Do NOT forget to make copies of your complete application, including all attachments. You are required to keep a copy of the document and there is always the risk that the original document might get lost along the way. You can save yourself a lot of time and frustration should a loss occur.

**Special delivery?** Ask your certifier whether you should send your application or other documents in a manner that requires a signature for delivery. Some may prefer the security and documentation this provides.

## Supplementary documents

The last part of this sample application features a selection of supplementary documents similar to those that a certifier might expect or require. Templates for some of the letters shown can be found in the ATTRA publication *Forms, Documents, and Sample Letters for Organic Producers*.

## Final note

Remember that your completed application constitutes your organic system plan and functions like a contract. If you need to modify, update, amend, or otherwise deviate from this plan, be sure to consult your certifier. Do so in advance if at all possible.



# SUPPLEMENTARY DOCUMENTS

Notification letters

Adjoining land-use letter

Land use history verification

Biodiversity conservation plan

Soil test audit

Water test

Feb. 10, 2006

Len St. Jude  
Town of Osage Road Maintenance Department  
PO Box 17  
Oak Tree, AR 72700

Dear Mr. St. Jude,

I am writing again, as I have in the past, to remind you and the other township employees that Wannabee's Organic Farm has organically managed fields on the west side of Shady Hollow Road, three-quarters of a mile north of the junction with Highway 13. I know that the town continues to manage most roadside vegetation with mowers. Should this practice change, I ask that you please advise us.

Sincerely,

*Andy Wannabee*

Andy Wannabee  
Wannabee's Organic Farm  
123 Shady Hollow Road  
Oak Tree, AR 72700

Feb. 10, 2006

Bob Quincy  
Thrill On A Hill Blueberry Farm  
137 Shady Hollow Road  
Oak Tree, AR 72700

Dear Bob,

I am writing to remind you and my other neighbors that the Wannabee farm is an organic operation. To maintain my certification, I must make every effort to reduce chemical drift onto my crops. I would greatly appreciate your attention to wind direction when spraying or broadcasting chemicals on fields adjacent to my farm. If there is anything I can do in return, please don't hesitate to ask.

Your grateful neighbor,

*Andy Wannabee*

Andy Wannabee  
Wannabee's Organic Farm  
123 Shady Hollow Road  
Oak Tree, AR 72700

Feb. 10, 2006

Larry Simon  
Simon & Simon Ranch  
1222 Rocky Road  
Oak Tree, AR 72700

Dear Larry,

I am writing to remind you and my other neighbors that the Wannabee farm is an organic operation. To maintain my certification, I must make every effort to reduce chemical drift onto my crops. I would greatly appreciate your attention to wind direction when spraying or broadcasting chemicals on fields adjacent to my farm. If there is anything I can do in return, please don't hesitate to ask.

Your grateful neighbor,

*Andy Wannabee*

Andy Wannabee  
Wannabee's Organic Farm  
123 Shady Hollow Road  
Oak Tree, AR 72700

Lisa's Natural Beef Ranch  
119 Shady Hollow Road  
Oak Tree, AR 72700

Jan. 5, 2006

To Whom It May Concern:

I am writing to confirm that all of my farm acreage, adjacent to Wannabee's Organic Farm in Osage Township, Ozark County is under my direct management. This land is managed without the use of synthetic herbicides and other pesticides. Furthermore, no synthetic fertilizers are used, only lime and poultry litter.

Sincerely,

*Lisa Quarles*

Lisa Quarles  
(479) 555-1000

# Land use history verification

**Organic Producer Name:** Andy & Suzi Wannabee      **Crop Production Year:** 2006

I, Robert Quincy, declare that the parcel(s) of land described below were farmed by me or were under my control during the crop years of 2003 to 2005. ~~I also declare that during this time, to the best of my knowledge, there were no herbicides, pesticides, fungicides, fungicide treated seed, genetically engineered seed, synthetic fertilizers, or other prohibited materials applied to this land.~~ RQ *AW*

Description of land parcel(s) by field #, section #, township, and county (or other regulatory description)

NE ¼ of the NE ¼ of the NW ¼ of NW ¼ of Section 9, Osage Township, Ozark County

Number of acres in parcel(s): 3 acres

If any materials were applied to any of these fields, describe what was applied, the specific date of application, and field # or parcel. (last application dates shown)

Field # or Parcel	Material Applied	Date
Q	ammonium sulfate	7/5/05
Q	potassium chloride	3/10/06
Q	lime sulfur	3/12/06
Q	diuron	3/15/06
Q	paraquat	8/15/06
Q	glyphosate	7/20/06

I submit that the above is true and accurate on this date of November 5, 2005

Name (printed): Robert Quincy

Signature: Robert Quincy      Date November 5, 2005



Biodiversity conservation plan  
Wannabee's Organic Farm

Goal: Enhance biodiversity of the farm with an eye to protecting wildlife, encouraging native plants, and optimizing natural pest control.

2006 objectives:

- 1) Identify invasive plant species and map farm locations where these appear. Develop long-term management plan that includes steps to re-establish native vegetation.
- 2) Re-introduce at least two native flowering plant species into beneficial insect refuges.
- 3) Fully develop the new buffers on the north and east sides of Q to include only native plant species. Monitor progress and remove weeds as needed.
- 4) Build at least two bat houses for installation in field Q. Monitor for occupancy and report to Arkansas Game and Fish Commission.
- 5) Make contact with and join "Friends of the Rolling River."
- 6) Meet as group at the end of 2006 to set 2007 and 2008 objectives.

2007 objectives:

- 1) Implement invasive plant species management plan developed in 2006.
- 2) Objectives as set forth in the "end-of-2006" meeting.

Agreed to on this date of November 30, 2005:

*Andy Wannabee*    *Suzi Wannabee*    *Eric Wannabee*    *Eugene Wannabee*  
*Easter Wannabee*    *Eddie Wannabee*  
*Eustace Wannabee*    *Elrod Wannabee*    *Ethyl Wannabee*

# GAIA Soil Analysis Service

112 3rd St., Balfour, IA 50300 (515) 555-0002

Date printed: April 15, 2005

Client:

Andy Wannabee  
 Wannabee's Organic Farm  
 123 Shady Hollow Rd.  
 Oak Tree, AR 72700

## Soil Test Results

	A rotation	B rotation	S rotation	Q	Sample ID												
Organic Matter	4.50%	4.40%	4.60%	4.00%													
Soil pH	6.5	6.6	6.4	5.3													
Buffer pH																	
Bray-1 Phosphorus	180 lbs	176 lbs	120 lbs	25 lbs													
Potassium	210 lbs	205 lbs	190 lbs	160 lbs													
Calcium																	
Magnesium																	
Sulfur																	
Boron																	
Copper	7 lbs	7 lbs	7 lbs	5 lbs													
Iron																	
Manganese																	
Zinc	4 lbs	5 lbs	8 lbs														
Sodium																	



**Organic System Plans: Market Farms  
and Greenhouses**

By George Kuepper

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Katherine Adam and Holly Michels, Editors  
Cynthia Arnold and Robyn Metzger, Production

This publication is available on the Web at:

[www.attra.ncat.org/attra-pub/marketfarmplan.html](http://www.attra.ncat.org/attra-pub/marketfarmplan.html)

or

[www.attra.ncat.org/attra-pub/PDF/marketfarmplan.pdf](http://www.attra.ncat.org/attra-pub/PDF/marketfarmplan.pdf)

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