



Pest Management In Organic Facilities

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Products labeled “Organic,” once the stock in trade of natural-foods co-ops and health-food stores but difficult to find elsewhere, are now found in increasing abundance everywhere, including mainstream grocery supermarkets. The range and variety of products available in Organic versions is ever-widening, and includes not only packaged foods, but also meat and poultry items; dairy products; produce and grains; and even soft drinks, snack foods, and alcoholic beverages. The demand for Organic foods, and the attractiveness of this market to food producers, can only increase in the future.

Created in Congress under encouragement both from the consuming public and from independent Organic certifying agencies, the Organic Foods Production Act of 1990 gave rise to the National Organic Program (NOP) which, after a false start or two, finally went into full effect in October of 2002. Its purpose is to provide a uniform set of standards that growers, processors, packagers and warehouse operators can follow in producing food that is to be marketed as Organic. The NOP also supplies a set of guidelines that Certifying Agents, who are responsible for ensuring compliance with the Program, must follow. Under the NOP, handlers of food can become Certified, and can display the word

“Organic” and the USDA Organic logo on their products. Depending on the actual percentage of Organic content in their product, manufacturers can label product as:

- 100% Organic (containing only ingredients produced under NOP rules and certification; the manufacturer may display the words “100% Organic” and the USDA Organic logo on the packaging).
- Organic (containing at least 95% Organically-produced ingredients, with up to 5% non-Organic inputs, as may be the case when one or more minor ingredients are not available in an Organic version; the manufacturer may display the word “Organic” and the USDA Organic logo on the product packaging).
- Made with Organic Ingredients (containing at least 70% Organically-produced ingredients; the manufacturer may indicate “Made With Organic Ingredients” and may list up to three Organic ingredients on the product’s name panel, but may not label the product as “Organic” or display the USDA Organic seal.
- In products with less than 70% Organically produced ingredients, manufacturers may list the Organic ingredients as such in the ingredients statement on the product’s packaging; but they may not display the USDA Organic logo, nor can they advertise the product as Organic on the product name panel or display the USDA Organic logo.

Both within the food-processing industry and among pest management professionals (PMPs), there is much to rejoice about now that the National Organic Program is in place. After years of uncertainty about exactly what constitutes acceptable pest management practice in Organic facilities, there are finally some concrete guidelines that

handlers and PMPs can follow. Now, food growers, processors and packagers can expect that PMPs will serve this growing branch of the food industry with well-designed service programs. And the Organic Certifying Agents charged with the responsibility of ensuring compliance can expect that PMPs will know what to do in order to prevent and control pests, while staying inside of established regulations.

From the standpoint of a progressive pest management professional, the Organic rules do not pose troublesome restrictions; on the contrary, the rules support the pest management industry's commitment to responsible Integrated Pest Management.

What is meant by “Organic” growing, handling, and processing?

To say that “Organic” means that food is produced without chemicals, without synthetic additives, without preservatives, without pesticides, or using only “natural” ingredients, is misleading and inaccurate. It is more accurate to say that the National Organic Program supports a general agenda of ecologically sustainable practices, environmental stewardship, and non-reliance on synthetic chemicals.

The National Organic Program, administered by the USDA's Agricultural Marketing Service (AMS), is considered a marketing program, not a food-safety program; no claims are made concerning the quality, safety, nutritional value or wholesomeness of Organic food as opposed to food produced under non-Organic standards. Basically, a producer of food, by adhering to the standards of the NOP, secures the right to place the USDA-sanctioned Organic logo on the packaging of its product.

Under the rules of the USDA-administered National Organic Program, any activity that is conducted within a facility that labels product as “Organic” must be undertaken in such a way that the Organic integrity of the product is strictly safeguarded, and that unacceptable inputs do not find their way into the food. This goes for pest management operations as well. The good news is that it should not be as difficult to conform to the new Federal Organic standards as PMPs might have feared. The challenge that will face food handlers, PMPs and Organic Certifying Agents will be to work in partnership with one another to ensure that food is produced, packaged and stored under pest-free conditions, while conforming both to the letter of the NOP’s rules – and to the spirit and philosophy that gave birth to it.

The National List

Under NOP rules, certain inputs and ingredients are “allowed,” and certain inputs and ingredients are “prohibited;” these allowed and prohibited substances are listed in a lengthy portion of the NOP rules, titled the “National List.” The National List catalogues those synthetic substances that can be used in the production of a food product without compromising its status as “Organic.” The National List also names those synthetic and non-synthetic substances that are prohibited, i.e. that cannot be allowed to become part of an Organic food product. The concepts of “allowed” and “prohibited,” however, are the source of some misconceptions concerning what is actually allowed and what is actually prohibited when conducting pest management operations in an Organic facility. The National List itself is the subject of some faulty understanding where pest management

operations are concerned. It is sometimes assumed that only materials named on the National List can be used when conducting pest management activities within or around an Organic facility, and that a material is automatically approved for use if it is found on the National List. If the NOP rules were this rigid, it would be bad news indeed, since only a few effective pest management materials are named on the National List, and indiscriminate use of those materials that are named on the List might be unwise or irresponsible in many cases. The fact is that, under NOP rules, even pest control materials that are specifically named as “allowed” on the National List are allowed for use only after certain non-chemical measures have been taken; and provisions exist that, in some cases, permit the use of pest management materials not named in the National List. These rules will be explained below.

Whom does the Organic Foods Production Act affect? Who is exempt from Certification?

Briefly stated, all growers, processors, and packagers of food who wish to market their product as Organic, and who intend to display the USDA Organic logo on their product’s packaging, are considered Organic handlers; they must be Certified under NOP and conform to its standards. A handler might be someone who grows a crop, raises livestock for slaughter, processes food, packages it, or holds it in storage.

Handlers that produce less than \$5,000.00 in yearly sales of Organic product are exempt from the requirement to be Certified under NOP. Grocery stores, grocery distribution warehouses, and restaurants offering Organic food are also exempt. Though exempt from

the certification requirement, these facilities are still required to prevent contact between Organic product and prohibited substances. And some exempt establishments will insist on conforming to all the same requirements as Certified facilities, as a way of demonstrating their commitment to their customers' preference for Organically produced foods. They may even submit to inspection by auditors from Organic Certifying Agencies.

What is a Certifying Agent?

Prior to enactment of the Organic Foods Production Act and the creation of the National Organic Program, there were numerous private Organic certifying agencies, independent of the government and of each other. Some of these were the Organic Crop Improvement Association (OCIA), the Organic Growers and Buyers Association (OGBA), and Oregon Tilth. The creation of a National Organic Program did not by any means put these organizations out of business; they, along with others, now function as Organic Certifying Agents supporting the NOP; they are accredited by USDA. There are currently just under 100 companies accredited under NOP as Organic Certifying Agents; some are domestic and some operate out of foreign countries. A Certifying Agent is not an individual; it is an agency that audits food facilities' conformance with the standards of the NOP. Of course, individual auditors or inspectors employed by these agencies are responsible for conducting site visits and assessing compliance.

What is an Organic Handling System Plan?

An Organic Handling System Plan is written documentation, created by the handler (grower, processor, or packager), that describes in detail all of the steps that will be taken, in all stages of food production, in order to protect the Organic integrity of a food commodity or product from field or farm to table. Exactly how to compose an Organic Handling System Plan is outside the scope of this article; for guidance, the reader is referred to the NOP home page at www.ams.usda.gov/nop. This site provides access to a wide variety of information, including the full text of the law upon which the NOP is based, as well as frequently asked questions, consumer information, guidance for handlers and Certifying Agents, and much more.

Part of a facility's Organic Handling System Plan must be a description of how pest management will be accomplished in accordance with the NOP rules. Guidelines for composing the pest management portion of the Handling System Plan are given below.

The Facility Pest Management Standard

Paragraph 205.271 of the National Organic Program Regulatory Text spells out the steps that must be taken in carrying out pest management operations in an Organic facility.

The Standard can be briefly paraphrased as follows:

1. Prior to considering the use of any pest control material – whether it is named on the National List or not – the facility must practice responsible non-chemical pest management measures, such as good sanitation and pest exclusion. Also to be considered prior to the application of any pest control chemicals, and used where

appropriate, are physical control measures such as temperature and humidity modification, light management, sound, and trapping (traps may be passive or may incorporate pheromones).

2. If non-chemical measures as described above are not effective to control or prevent pests, a pest control material consistent with the National List may be applied.
3. If non-chemical measures and the use of products consistent with the National List are not effective to prevent or control pests, then a pest control material not found on the National List may be used, provided that the handler and the Certifying Agent agree on the material to be used, *and* provided that measures are taken to prevent contact from occurring between the Organic product and the material applied.
4. Notwithstanding the rules outlined above, pest control materials may be applied in order to prevent or control pests in accordance with other Federal, state, and local laws and regulations, provided that measures are taken to prevent contact between the material used and the Organic product. On page 55 of the NOP Final Rule with commentary, this paragraph is explained as follows: “This rule recognizes that certain local, State and Federal laws [. . .] may require intervention with prohibited substances before or at the same time substances allowed in paragraphs (b) [mechanical and physical controls] and (c) [materials named as “permitted” on the National List] are used. To the extent that this occurs, this rule permits the handler to follow such laws and regulations to market a product as organically handled,

provided that the product does not come into contact with the pest control substance used.” This in effect gives handlers conditional permission – NOT the green light – to use materials not named as “allowed” in the National List; and it also places the responsibility on handlers to have a written plan in place, as part of their Organic Handling System Plan, that describes (1) the non-chemical measures they plan to take in order to minimize the need for any pesticides; and (2) the measures they will take in order to ensure no contact occurs between “prohibited” substances and Organic product.

5. Handlers must update their Organic Handling System Plan to show what materials they plan to use and what measures they will take in order to ensure that no contact will occur between the materials used and the Organic product.

The statutory language of the NOP Facility Pest Management Standard, as well as the explanatory text included in the NOP Final Rule plus commentary (a 554-page document), shed useful light on the NOP standards in terms of which pest management practices really are – and are not – allowed within Organic facilities.

Most important of all is the emphasis that is placed on sanitation (described in the rule as “removal of pest habitat, food sources and breeding areas”); exclusion, or pest-proofing (“prevention of access to handling facilities”); and the use of physical controls.

Progressive PMPs have long advocated the use of such non-chemical IPM strategies in food plants; under NOP, they become more indispensable than ever.

A careful look at the Facility Pest Management Standard debunks the myth that only materials named in the National List may be applied in Organic facilities, and that, if a material is named on the National List, it may be applied indiscriminately and without first taking other action. Instead, the NOP rules provide a three-step decision tree: first, non-chemical strategies must be used in order to prevent pest activity from being a problem in the first place; second, should non-chemical controls be inadequate, chemicals listed on the National List may be applied. Third, a material not named on the National List can be used if the first two steps are inadequate to prevent or control pests. The rules demonstrate the importance of being ready for all contingencies by having a written pest management program as part of the facility's Organic Handling System Plan. In this written pest management plan should be described: the pest control materials intended for use within the plant; the non-chemical measures that will be taken in order to make use of any pest control material unnecessary; and the measures that will be taken when using any pest control material in order to prevent commingling between Organic product and pest control materials. By having a written plan in place concerning the use of pest control materials – a plan that is approved in advance by the handler and the Organic Certifying Agent – needed pest management work can proceed smoothly in those events when a pest control material must be employed.

The NOP Final Rule with commentary explains that the National List is not in itself the hard and fast “recipe” that must be followed when selecting pest control materials for use within Organic facilities. It states, “[. . .] we believe that handlers should update their

organic handling plans to account for the use of pest control or prevention substances, particularly if the substances are prohibited substances. The update should include a description of the application methods used and the measures taken to prevent contact between the substance used and the organic product [. . .].

The National Organic Program rules, including both the statute itself and the accompanying commentary, clearly state that pest management operations in Organic facilities must rely first and foremost on good sanitation, exclusion and physical pest management practices. The rules explain that the use of a material named on the National List should be considered when simple non-chemical measures are not enough, and that a material not found on the National List may be used when non-chemical strategies and materials from the National List are not going to get the job done.

The NOP rules recognize the pre-eminence of other laws such as the Federal Food, Drug and Cosmetic Act which, among other of its provisions, makes it unlawful to produce food under conditions whereby it may become contaminated. In other words, compliance with the rules of NOP must not result in non-compliance with another law! This provision of the NOP rules does not clear the way for routine use of pest control materials; it does provide justification for considering, in some instances, the use of the safest and most effective materials that will get the job done.

And the rules dictate that handlers must describe in writing, as part of their Organic Handling System Plan, how they are going to accomplish pest management while protecting their products' Organic integrity.

These are rules we can live with. In fact, following the rules of the NOP will enable food handlers and PMPs to safely and effectively accomplish a high level of pest control while satisfying the demands of their customers.

The “How To”

Food growers, processors and packagers intending to market their product as Organic must develop an Organic Handling System Plan. The pest management professional must contribute the written pest management program that becomes part of the Plan. Here is how to go about designing a pest management program that complies with the rules of the National Organic Program, and that can be integrated into a facility's Organic Handling System Plan.

First, the PMP should submit a formal, written pest management program that includes:

- A statement of the program's commitment to the principles of Organic food production and responsible Integrated Pest Management practices
- A statement that pest control materials (pesticides) are to play a secondary role in the facility's pest management program, and are never to be applied on a scheduled basis

or in situations where non-chemical methods, such as sanitation or physical controls, can be practically implemented and are likely to achieve the desired results

- A description of the monitoring practices and procedures to be performed and maintained, including the frequency with which they will be performed
- A list of each substance to be proposed for use, along with a description of the management practices and physical barriers established to prevent contact of organically produced products with prohibited substances (details below)

The core of the formal pest management program will be a Material Authorization Form, listing materials to be used – this is probably best done in table format. This list should be signed off on by the handler after obtaining approval of the program from the Organic Certifying Agent. The form should spell out, for each material that is to be included in the plan:

- Date authorized (provide a blank for client's signature or initials and the date)
- Material brand name, manufacturer, and EPA Registration No.
- Description of areas where the material is to be applied
- Description of the purpose for which the material is to be applied

- Application method that will be used when applying the material
- A description of non-chemical measures that will be employed prior to applying the material
- Measures to be taken when using the material, intended to prevent contact of the organically produced products or ingredients with the substance used

Record-keeping is essential when doing pest control work in any food processing plant, and it becomes even more important when working in an Organic facility. Well-written log reports must be submitted by the PMP upon every service visit. They serve several functions:

- Documentation of sanitation defects that were found by the PMP, as well as needed structural repairs and employee practices that might be conducive to pest invasion; log reports enable the PMP to submit recommendations to the food processing client concerning remediation of the defects
- Documentation of pest activity found, which is needed to provide justification for application of pest control materials

Since application of pest control materials is intended to be of secondary importance under Organic programs, and since any use of a pest control material must be justified under the Facility Pest Management Standard, record-keeping and written communication assume immense importance. A pest control log book should be used in order to allow the PMP to communicate with his or her client. The PMP should document all inspections, significant findings, and pesticide applications.

The Service Visit

What a pest management professional, whether an in-house employee or an outside contractor, will actually do on a typical service visit within an Organic food plant is fundamentally the same as would be prudent in any food processing plant. The elements of a service visit are described as follows:

1. The PMP arrives on site; checks in according to the facility's security procedures, and talks to the designated contact person; usually, this is a Quality Assurance manager or someone designated by that person. This is an opportunity for the plant contact person to report to the PMP any pest sightings by plant personnel since the last service; the PMP and the contact person should also discuss any sanitation-related action taken, structural improvements made, physical controls implemented, etc., based on recommendations offered by the PMP during previous service visits.
2. Next, the PMP must perform a careful inspection of the facility, inside and (in warm months) outside. Look for any conditions that could admit pests, such as missing or

damaged door-bottom sweeps; missing or damaged door and window screens; and any openings in the structure that pests could exploit in order to get inside. The PMP should look for conditions that might make it possible for pests to survive once inside, such as poorly cleaned equipment; buildups of food residue on surfaces and equipment; clogged or inadequately cleaned drains; leaking ingredient conveyors or supply lines; missing or damaged floor tiles beneath or behind which debris or water could collect; or any other condition that could admit pests or foster their survival in or on the building. The PMP and the handler must both keep in mind that they do not have the option of indiscriminately reaching for a chemical “quick fix” like an insecticide spray or dust; under the NOP rules, non-chemical options must be exhausted first. Therefore, sanitation and exclusion (pest-proofing of the structure) are of paramount importance. In the daily pest control log report, the PMP should detail significant findings and recommend specific action to be taken by plant personnel in order to correct the sanitation and structural defects found.

3. The PMP should work with his or her client to implement sanitation, exclusion, physical controls, and other non-chemical strategies. Here are some typical non-chemical strategies a PMP might employ, on the job, in order to accomplish management of pests without resorting to the use of a pest control material:

- Sweeping down spider webs using a “web getter” brush and extension pole
- Using a vacuum cleaner to physically remove insect pest infestations and/or the accumulations of food debris in which insects could potentially breed

- Closing gaps that might admit mice, using copper mesh, replacement door sweeps, concrete, or sheet metal
- Caulking cracks so as to limit the number of hiding places available to insects
- Installing a fan in order to dry out a damp area infested by fungus-feeding insects such as springtails or psocids
- Heating a limited area, a piece of equipment, or even an entire plant in order to kill pest insects (insects cannot tolerate temperatures of over 120° F. for more than a couple of hours)
- Placing an infested piece of equipment, or a quantity of infested ingredient, into a freezer in order to kill insects
- Modifying trusses, beams, ledges and sills that are inhabited by birds in such a way that birds can no longer roost or land on them – perhaps by covering them with netting, or by installing taut wires or spikes on them to prevent birds from landing; or by changing the slope of the surfaces to make them unsuitable as roosting sites
- Installing and maintaining ultrasound-type devices, distress calls, or visual repellent devices to repel pest birds
- Changing the type of lamps used in lighting fixtures to take advantage of the fact that insects are much less attracted to sodium-vapor lamps than to mercury-vapor lamps

4. The pest management program itself should be structured around a system of monitoring that includes insect monitors (sticky traps or zone monitors; pheromone

traps; and insect light traps. An important part of the PMP's service routine is to check insect monitoring devices, record activity found, and interpret the data collected on each service visit, as well as interpret trap catch data collected over time (trend analysis). This type of short- and long-term analysis of inspection and monitoring findings is a valuable decision-making tool for the pest management professional.

5. Rodent control devices (typically mechanical or multiple-catch mouse traps inside; and traps and/or bait stations outside) also serve a monitoring function, and effective use of this program component goes far beyond mere "trap checking." Information pertaining to number of mice caught and location where mice were caught inside, or rodent activity noted outside, should be recorded. This information must then be used in order to suggest ways the plant's defenses can be shored up so that future rodent activity is prevented. A mouse, when caught inside of any food plant, is not just a mouse: it is proof that there is a structural fault (possibly a door-related problem) or a cultural practice (acceptance of infested raw ingredients, perhaps) that is permitting mice to get into the plant. In an Organic plant, where one cannot automatically reach for a pesticide, it is doubly important to take action whenever a rodent is caught inside, and look for the hole in the plant's defenses that the mouse exploited in order to get inside. The "gap in the armor" might be a damaged door sweep or threshold, or a dock door that does not fit properly, or any number of other causes that will lead the PMP to request action on the part of the handler.

6. It is easy to see that effective communication is a vital component of Integrated Pest Management inside of any food plant, and this is especially true within Organic facilities. The PMP must communicate to the customer what steps need to be taken in order to keep the plant pest-free, and must make realistic, doable recommendations, in writing, pertaining to needed cleanup and structural repair. Then, the food-processing client must take action swiftly. It is not possible in Organic food plants to accomplish effective pest management if facility personnel are sluggish in making requested improvements in sanitation and structural integrity.
7. In the event a pest infestation does occur in spite of having implemented non-chemical preventive strategies, the PMP should consider whether any physical controls might help, such as modifying air flow or temperature; attracting a pest to a trap; or drying out a damp or moldy area using fans or dehumidifiers.
8. Should sanitation, exclusion and physical methods need to be supplemented by a chemical material, the NOP rules allow the PMP to employ pest control materials. Materials found in the National List must be considered first. If these are found to be inadequate to solve a pest problem, materials not named on the National List may be used, provided the Organic Certifying Agent has approved their use beforehand, and provided measures are taken to prevent contamination of the Organic product.

There are some pest control materials named on the National List that can be effective at controlling pests. For example, many leading insecticide baits for ant control

contain boric acid as an active ingredient; boric acid is listed on the NOP National List. Vitamin D3, another active ingredient named on the National List, is available commercially for the control of rodents. Several progressive insecticide manufacturers have developed entire product lines of insect-control materials whose active ingredients consist of EPA-“exempt” essential oils and other low-impact active ingredients. Products such as these, if they are deemed likely to be effective, can be used when simple sanitation, exclusion and physical controls are not enough.

In the event it is deemed necessary to apply a pest control material not named on the National List, it is helpful if the material has been explained to and approved by the food handler and Organic Certifying Agent in advance, via the process of creating a Pest Control Materials Authorization form, described above. Many low-impact materials are available that can be relied upon to control a wide variety of pests in and around food processing facilities, and to do so safely and effectively. Included among such materials are insecticide baits, which can be applied precisely into suspected pest harborages in such a way that exposure of people and processes is minimized. Also included are liquid residual sprays that can be applied as barrier treatments outside of the plant, thereby reducing the need to battle pests once they have gotten inside.

Some pest control materials, however, are ruled out for use in an Organic processing facility by virtue of the fact that they cannot be used in such a way that commingling is prevented between Organic product and the proposed material. For example,

fumigation using one of the commercially available fumigants could not be done in accordance with the rules of the NOP; since fumigants penetrate most materials, there would be no way to prevent contact from occurring between the pest control material and the Organic product. Prior to fumigation of a structure, it would be essential to remove any Organic product, and re-introduce it only after the building is demonstrably clear of the prohibited pest control material.

Summary

Progressive pest management companies have long been offering to the food processing industry effective Integrated Pest Management programs that are in fundamental agreement with the rules set forth by the National Organic Program. What is needed in order to bring food-plant IPM into full compliance with the NOP is largely a matter of formalizing the PMP company's commitment to the philosophy of Organic handling. A carefully designed pest management program must be integrated into the Organic handler's overall Organic Handling System Plan. In the pest management professional's contribution to the plan, the PMP company must spell out its commitment to IPM and to the principles underlying Organic production. The PMP must commit to a philosophy under which pest control materials play a secondary role, and non-chemical controls and preventive practices are used whenever it is practicable to do so. And then the PMP must put the plan into practice, not just pay lip service to Organic principles.

Central to the PMP's contribution to an Organic Handling System plan is a written program that spells out how the PMP company plans to work in conformance with the

rules set forth in the NOP Facility Pest Management Standard: First, non-chemical prevention and control strategies (sanitation, exclusion and physical methods) will be used; only when non-chemical strategies have been considered and deemed in need of supplemental action, an appropriately selected pest control material might be applied.

By providing Organic handlers in advance with a Material Authorization Form that describes how the materials proposed for approval will be used, the PMP can simplify things for later instances when the use of a pest control material is needed. The PMP's Material Authorization Form should list, at the very least: product names; EPA Registration Numbers; a description of the purpose for which the proposed product might be applied; a description of how the material will be used; and, most important of all:

- A description of non-chemical IPM methods that will be employed in order to make use of any pest control material unnecessary; and
- An explanation of measures that will be taken, should it be necessary to use the material, in order that no contact will occur between the pest control material used and Organic product.

Once all of this is in place, it is a simple matter of following the program perfectly; communicating with the client; periodically evaluating the program and adjusting it according to needs; and keeping perfect records.