Case Study: Pest Control

Cape May County, New Jersey

Type: Rural
Population: 1998 projection: 107,975
County Annual Budget: $84,618,803 (FY 1997-98)

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County Profile

Cape May County is made up of several small towns and a major fishing port on the Atlantic Ocean 40 miles south of Atlantic City, New Jersey. Tourism brings to the county nearly $3 billion annually in sales. Nearly 90 percent of the county's offices are located in the county administration building, though the county manages approximately 50 other facilities including the county courthouse, county clerk building, corrections center, senior centers, libraries, nursing home, youth shelter, election board offices, and public safety training center.

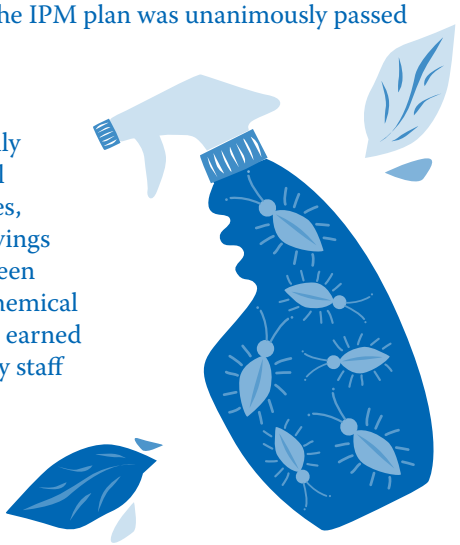
Program Summary

Efforts to formulate a safer, more environmentally-friendly pest management program in Cape May County began in 1992 when the Board of Chosen Freeholders was approached by local residents and the New Jersey Environmental Federation who expressed concern about the county's use of potentially harmful chemical pesticides and herbicides. The residents indicated to the board that commonly used pesticides and herbicides could pose significant risk to the health of humans and other animals, causing deleterious effects on the central nervous system and other bodily organs. In addition, pesticide and herbicide products are a potential contaminant to local water resources.

The residents provided the board examples of successful pest management programs that minimized use of toxic chemicals and substituted safer products and alternative pest control techniques. Citizen representatives also suggested the county could save money through a reduction in the purchase of traditional pest products.

The board appointed a committee to review alternative pest management models and recommend an appropriate plan for the county. An Integrated Pest Management (IPM) Plan, that monitors and identifies pests prior to selecting an appropriate treatment, was submitted by the committee to the county board. The plan proposed using sanitation; mechanical, physical, or biological means; and the least environmentally active pesticide available for pest control. Applicable to all county facilities and grounds, the IPM plan was unanimously passed by resolution 819-92.

Cape May County's IPM plan has successfully reduced use of chemical pesticides and herbicides, and has resulted in a savings of nearly $45,000 (between 1993-98) by reducing chemical usage. The program has earned the confidence of county staff and the public.



Purchasing Process

Services for IPM are contracted out by the county, and are handled by the county purchasing department as a service contract.

Because the IPM program was predicted to cost less than conventional pest management, the county purchasing department welcomed the changes.

The primary role of the purchasing department centers on the bidding process which entails gathering technical and legal information from other localities, compiling a bidders' list, verifying budget estimates, receiving proposals, and awarding the contract. After the contract is awarded, the purchasing department drafts a purchase order.

The purchasing department is also responsible for drafting IPM bid specifications. Using technical information provided by the facilities and services department and vendors, the purchasing department drafts specifications for IPM services (see attached county IPM specifications). The specifications require all prospective pest control vendors to submit proposals for an IPM program only. Other types of pest control, such as random and routine spraying, are unacceptable.

The director of facilities and services and the county purchasing department refer to their state contract vendor list to select an appropriate pest control contractor. Before bids are considered, vendors are required to attend a pre-bid meeting where a "walk-through" is conducted to familiarize prospective vendors with county facilities and IPM needs. Securing an experienced IPM service provider has made program implementation readily achievable.

> **"The Cape May County Board of Freeholders shares the view that this program has been most beneficial to the county by eliminating pests using the least toxic approach."**
>
> — Freeholder Director Dan Beyel

Implementation Strategy

Gaining Program Support and Staff Involvement

The full support of the Cape May County Board of Chosen Freeholders has empowered the facilities and services department to fully implement IPM strategies.

The IPM Committee, which included the county superintendent of schools, superintendent of the mosquito commission, director of facilities and services, chief sanitation inspector and county health officer, was responsible for reviewing IPM models, surveying the county's use of pesticides, defining the IPM plan and recommending an implementation strategy. Once the board adopted the plan, the purchasing department became involved in drafting specifications and securing bids, and the department of facilities and services was appointed to manage the program. An IPM-certified, pest control contractor was hired to provide the IPM service.

There were no significant barriers to gaining support for the program. The IPM program was cost effective and immediately demonstrated reductions in pesticide and herbicide applications. It also proved effective at meeting or exceeding the county's pest control standards.

Developing Environmental Criteria

The pest control contractor, which employs a pest control operator and entomologist,[1] researches product alternatives to determine which products and strategies would achieve the goals of the IPM plan. Pest control strategies/products were evaluated according to the following criteria:

a. least hazardous to humans,
b. least probable to come in contact with humans, and
c. most readily biodegradable.

Structural Pest Management

First and foremost, the pest control contractor replaced routine spraying with routine inspections. As pests are encountered, the contractor seeks to eradicate them using preventative measures such as caulking cracks in walls or floors, eliminating food sources that attract pests, recommending additional housekeeping in problem areas or physically removing pest populations.

When the use of chemical pesticides are necessary, the first strategy considered is the use of baits. Insects that are social in nature live in colonies and leave pheromone[2] trails. Baits are placed along these trails for these insects to ingest and/or carry to their colony.

The second control measure considered involves the use of insect growth regulators which work particularly well with ants, roaches and fleas. The material sticks to the insects' legs and when they attempt to clean it off, they ingest the material. Depending on the growth stage of the insect, the growth regulator may not be effective until the second generation. It is important to note that these growth regulators do not affect humans.

A third measure involves the use of insect adulticides. The pest control contractor is responsible for choosing the most environmentally preferable option based on the county's three primary environmental criteria specified above. Referring to product labels, material safety data sheets and product fact sheets supplied by the pesticide manufacture/vendor, the pest control contractor is able to compare toxicity levels among products by their lethal dose, 50 (LD50)[3] results and percentage of active ingredients. Products that contain known or suspected carcinogens or that cause reactions to persons with heightened chemical sensitivities are avoided.

Pyrethrin-based[4] insecticides have been the product of choice and are primarily used in cracks and crevices. Pyrethrins biodegrade quickly and are low in volatile organic compounds (VOC)[5]. The outdoor perimeter of buildings may also be treated using granule baits.

Few situations arise where environmentally preferable alternatives are unable to eradicate pests. In the event that the use of chemicals with higher toxicity are necessary, county staff in the area to be treated are notified ahead of time, and the treatment is performed after hours with proper ventilation.

Vegetation Management

The county has reduced the use of herbicides wherever possible. Again, the county chooses vegetation control strategies that best meet the three primary environmental criteria – least hazardous, least probable to come in contact with humans and most readily biodegradable.

Ground covering plants such as ivy have been planted to discourage weed growth, and roadside mowing is performed instead of using plant growth regulators or herbicides. Herbicide use is very limited and is only used for selective applications where undesirable vegetation appears. In fact, roughly 99 percent of herbicides used are at the regional airport in accordance with aviation safety regulations—mainly to keep weeds from growing under electric fences and along runways. Herbicides used along the airport's perimeter fence have been reduced from a six-foot span on each side to 1.5 feet per side.

Locating and Testing Alternative Products/Services

The county purchasing department reviewed IPM service providers contracted by the State of New Jersey and also advertised a request for proposals using the local media. The contractor that performed pest control services for the county immediately prior to the adoption of the IPM plan was awarded a contract in 1992 to provide the county's IPM services. The pest control contractor is responsible for locating and evaluating products to be used for the county's IPM program and is required to establish an "approved materials list" that is tailored to fit the needs of the county. All products on the list must be approved by the county.

Product Substitution

Routine applications of pesticides have been permanently discontinued. Instead of spraying, inspectors bring flashlights and place baits or traps where appropriate. If pests are sighted, they are accurately identified and their residence confirmed.

Non-chemical techniques, including improved housekeeping, eliminating openings or cracks, vacuuming and landscaping are considered. The primary group of pesticides that have been eliminated by the county and replaced by alternatives are those that contain organophosphates. These chemicals can be highly residual in the environment and are toxic to humans and other animals. In fact, even trace amounts have been linked to causing severe ill effects in people with heightened chemical sensitivities. The pest control contractor has stopped using organophosphates in all of its other service accounts.

Chemicals that are accepted for use in the county's IPM program include botanicals, biologicals, inorganics, synthetic pyrethroids, insect growth regulators and pheromones. Other materials utilized include glueboards, mechanical traps, caulk, copper mesh, concrete, fly grids, fly sticky paper, insect baits and rodenticides.

Resources Used

Staffing Resources

The adoption of the IPM program has not resulted in increased labor costs. The IPM program has shifted the county contractor's responsibilities from routine chemical applications to site monitoring, pest identification, and IPM strategies that utilize chemical treatments as a last resort. The pest control contractor is responsible for providing technical information including lists of active ingredients and quantities of pesticides/herbicides applied during the year.

The director of facilities and services oversees the IPM service. Facilities and services coordinates "after-hours" chemical applications with the pest control contractor, prepares annual reports and maintenance work orders for the program and provides educational outreach to employees about the program including notification of scheduled pesticide applications. IPM training for county employees has not been necessary. When pests are observed, they are reported to the pest control contractor for mitigation.

Program Costs and Financing

Start up costs for the program were non–existent because IPM replaced the conventional pest control program at a lower cost. In 1993, the county's first year for implementing IPM, the program cost $18,577, a reduction of 24 percent from the 1992 pre-IPM cost of $24,488. In 1994, IPM services cost $11,787, representing a 52 percent savings compared to 1992 costs. In 1997, the county spent $18,044 for the program. The reduction in cost is primarily attributable to reductions in pesticide use.

IPM is financed by the department of facilities and services pest control budget. Continued funding is relatively assured.

Technical Resources

The county IPM committee reviewed IPM models from the State of New Jersey and from the New Jersey Environmental Federation to develop its own IPM plan.[6]

Outcome and Accomplishments

By selecting IPM over conventional pest control, the county has substantially reduced its use of pesticides and herbicides. Prior to the IPM program, it was common for the county to apply more than 50 pounds of active ingredients in the form of pesticides in its facilities annually[7]. Through IPM and the elimination of routine chemical applications, the county now applies less than a pound of active ingredients in its facilities per year,[8] greatly reducing potential health and environmental impacts.

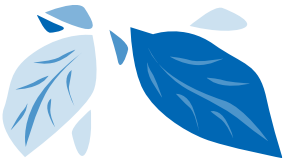
The IPM program has maintained or exceeded standards for pest eradication, and has cumulatively saved nearly $45,000 through 1998. County employees and the public have been supportive of the program and are pleased with the results.

Available Resources

Cape May County IPM Resolution No. 819-92 and IPM Plan. Contact Cape May County Department of Facilities and Services.

Lessons Learned

- Support for IPM from the county board expedited the process of designing and implementing an IPM plan.
- Estimated savings that could be achieved through IPM strategies helped to gain the county purchasing department's support for the program.
- Minimal internal communications and training was necessary. The facilities and services department is the only division that has needed to adjust to the change in pest management policies.
- Record keeping is an important part of the program. It provides an audit trail including quantity and type of active ingredients and chemicals applied.
- The IPM program placed more emphasis on chemical reduction than on chemical replacement to achieve the goals of the county IPM plan.
- IPM is an effective method for eradicating structural and grounds pests and substantially reduces the use of chemicals.



Footnotes

[1] The contractor's entomologist first confirms the presence of the reported pest, identifies the pest, and recommends the most appropriate eradication method in accordance with county IPM guidelines.

[2] Pheromones are chemical substances secreted by animals, such as ants, which are used to convey information to others of the same species.

[3] Lethal dose, 50% (LD50) is a toxicity test performed on laboratory animals to determine the amount of a specific toxin that will kill at least 50 percent of the animal test population.

[4] Pyrethrins are a naturally occurring poison originating from the pyrethrum daisy.

[5] VOC's, or volatile organic compounds, are chemicals that readily evaporate and may contribute to the formation of air pollution when released into the atmosphere. Many VOC's are classified as toxic and/or carcinogenic.

[6] Numerous resources are available regarding IPM and the use of pesticides/herbicides. Examples include: (1) Pesticide Action Network North America (PANNA) 415-981-1771; www.panna.org/panna. (2) National Coalition Against the Misuse of Pesticides 202-543-5450; www.ncamp.org. For more information, please refer to the Environmental Purchasing Resource List within the Starter Kit.

[7] Figures are for standard monthly service over period from August 1991 through July 1992. They do not include "one-time" treatments for uncommon or "special" pests, and do not include use of herbicides.

[8] Figures are for 1997 standard service. They do not include "one-time" treatments for uncommon or "special" pests, and do not include use of herbicides.