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IPM - Least Toxic Integrated Pest Management Policy

Adopted March 2, 1999

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1. Introduction

Synthetic pesticides were first used primarily in agricultural and public health operations and not by the general public. Over the past decades, new products and new uses for old products have led to the widespread use of pesticides in urban and suburban as well as agricultural settings. Many government and public agencies have incorporated routine pesticide use into their public buildings and grounds maintenance programs.

In recent years, human health and environmental concerns have produced a heightened sensitivity to pesticide use. Such public concern has created an awareness of the need for alternatives to dependence on pesticides. A primary alternative approach is "integrated pest management", or IPM. Many public and private pest managers are adopting formal IPM policies and shifting their practices to IPM.

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2. Definition of Integrated Pest Management

IPM is a catchall term that has a variety of definitions. The State of New York defined IPM (in Senate Bill #7358A, April 22, 1998) as, "a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risk." "Least Toxic IPM", such as being implemented in Carrboro, gives preference to the safest control methods and uses conventional chemical pesticides only as a last resort.

IPM is a process rather than any specific actions. It is thoughtful and proactive rather than reactive. It seeks to understand the causes of pest problems, to implement long-term solutions, and to employ means of prevention rather than mere treatment of symptoms. It can best be understood as a series of steps, which constitute an IPM plan. Carrboro seeks to establish an integrated pest management program which:

- includes pre-implementation pest site inspection or assessment and a listing of non-chemical materials and methods proposed for use;
- establishes an inspection and monitoring program to identify infested zones, monitor pest levels, and set thresholds at which action should be taken;
- describes procedures for selecting the appropriate pest management technique (s) for the identified pest;
- provides education to employees and facility users to understand and help implement the program; and,

- emphasizes prevention and recommends appropriate changes in facility construction or maintenance to prevent re-infestation.

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3. **Goal**

The goal of the IPM policy is to develop a systematic course of action to prevent pest infestations, and to manage pests successfully, while minimizing adverse effects on people and the environment.

The IPM policy will be a cornerstone of the IPM program. The program will include all aspects of pest management, including pests of structures, rights-of-way, and parks and landscapes within the Town's maintenance jurisdiction.

The purpose of establishing an IPM program is to assure municipal employees, visitors, and residents that no unacceptable public or environmental health risk is taken to control pests.

The adoption of an IPM program will provide the Town with long-term cost-effective control of pests and invasive weeds as well as maintenance of rights-of-way, landscapes, and parks that have an impact on Town employees, residents, and visitors.

The Least Toxic IPM Manual will be a working document which provides pest management decision makers with information about pest biology, monitoring guidelines, options relative to action or treatment thresholds and pest management and general procedures. It will also include the Department IPM plans and specific site plans. The manual will be revised on an ongoing basis as the Town gains further experience with IPM in facing specific pest situations.

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4. **Policy Applies to Town Property**

The IPM policy applies only to town operations and not to those of its residents and businesses. It is hoped that it will serve as an example of how varied pest problems can be controlled with least toxic IPM that residents and others will follow voluntarily, though they are under no obligation to do so.

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5. **Policy**

A. The Town of Carrboro's IPM policy and program is a comprehensive approach that gives priority to prevention and management of pests including insects, weeds and plant disease by the least toxic method. The policy will reduce the environmental health risk to municipal employees, visitors and town residents. The policy will result in greater safety of public grounds, buildings and sports fields, reduced exposure to chemical pesticides by those engaged in pest management and by the environment, and as an example to residents and others. The policy recognizes that there may occasionally be circumstances in which conventional pesticides may be required as a part of the IPM program and/or in the event of an urgent non-routine circumstance. As a matter of policy, the Town of Carrboro will not adopt any method that would pose an unacceptable public health or environmental risk in its pest management practices.

B. The IPM Coordinator will develop a manual that will include a list of pesticides that may be used by the Town as needed that meet the US Environmental Protection Agency's "minimal risk" criteria and that have been substantially deregulated by the EPA under FIFRA, the federal pesticide law (Section 25(B)). It will also include a procedure for approving the limited use of other pesticides in emergency and/or unusual situations as detailed in Section 16 of this policy.

As an example, weed control will be managed through the IPM program of least toxic weed control agents and the use of cultural practices designed to control or suppress weeds. However, if all practical non-chemical control methods fail, the use of least toxic pesticides (herbicides) may be deemed necessary.

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6. **Updating of IPM Program**

In practice, integrated pest management is continually evolving. The program/policy/manual should reflect such changes and be subject to regular review and revision.

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7. **Applicators**

A. The IPM coordinator shall maintain relevant individual North Carolina pesticide application certifications and licenses. Other employees regularly involved in pesticide applications shall be encouraged to become certified as appropriate.

B. Any pesticide application determined to be needed by the IPM Coordinator must be applied at the direction of the Coordinator.

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8. **Role and Function**

The cessation of pesticide use represents a major change in the way the Town manages pests in structures and landscape maintenance. Upon adoption of this IPM policy, all pesticide use will be phased out over the succeeding three to five years. All department heads and supervisors need some knowledge of and involvement in the program. Rather than depend on outside assistance for pest control, each department needs to take some responsibility for pest prevention. Each department or relevant section of town government should have an IPM coordinator, generally the department head or designee.

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9. **Participation by Town Staff**

Successful implementation of integrated pest management requires that all Town employees work together to identify, control and eliminate pests on Town owned properties within their scope of work. For most, this will be no more than an awareness of potential problems, means of prevention, and whom to notify of pest problems around their personal work spaces. Often, employees benefit directly from their efforts by adhering to proper food storage and housekeeping habits to protect their own work environment.

All Town staff will be given appropriate level of training to acquaint them with basic pest identification and control. Each department or relevant section of town government will designate an IPM coordinator who will consult with the Town IPM Coordinator concerning control procedures, prevention and implementation.

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10. **IPM Coordinator**

The Director of Public Works shall designate an IPM Coordinator for the town. The IPM coordinator will assist with and assure that the program functions smoothly. The coordinator will interact directly at the individual department level in pest prevention or control and conduct training sessions for the departments as needed.

The IPM coordinator shall:

- be a licensed and certified pesticide applicator by the North Carolina Department of Agriculture, in a major classifications such as agriculture pest, plants and horticulture
- assist each department or relevant section of town government with pest control management within their area and provide contact information for questions regarding pest management
- disseminate relevant information to departments and ensure employees can respond appropriately to concerns and questions posed by the general public or, if unable, to forward such concerns and questions to the IPM coordinator for a response
- maintain records of pest problems, prevention and control activities
- compile a list of successful least-toxic methods, to include least chemical cultural methods
- establish a data bank of pest control methods employed and their outcomes, with analysis where possible; make data bank accessible by internet to the North Carolina Department of Agriculture & Consumer Services (NCDA & CS) and NC Cooperative Extension; thus providing these agencies with training material
- ensure all department IPM coordinators have pesticide labels and Material Safety Data Sheets (MSDS) available in their departments for all pesticides used; this applies to applications by the town and by private contractors

for departments with significant public interest in their pest management program, such as the Recreation and Parks Department, organize a group of interested parties to discuss pest problems and their solutions; meetings may include the general public, town officials or interested town employees.

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11. **Town employees responding to concerns and questions of the general public**

The town has been following IPM practices and procedures for more than a decade. However, the adoption of a written policy by the Board of Aldermen will formalize such

practices and instill greater public confidence that the town is and will continue to effectively promote least toxic methods in its structures, rights-of-way, landscape and park maintenance. In order for further public understanding of the program, it is imperative that town employees who respond to questions of the general public have an awareness of the IPM policy and program and can appropriately address such questions or refer the individual to those town employees who can. The town will develop a fact sheet on the program for use in answering basic questions which contains contact information for the IPM Coordinator and others involved with the program.

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12. **IPM Plans**

Each department or relevant section of town government as determined by the Manager and IPM Coordinator shall have a written IPM plan, which describes the unit's role in the program. Departmental plans shall be prepared in consultation with and reviewed by the IPM Coordinator.

A. The Departmental plans may be simple and should include general housekeeping requirements and contact information for reporting situations that need attention. A typical plan could include information and/or policies on:

- how snacks and other food are to be contained:
  - whether food is allowed at desks or work stations or only in break rooms
  - ensuring that window screens and windows are tight
  - containment of trash/ frequency of collection
  - policies for employee break areas frequency of cleaning
  - policy for containing and emptying recyclable (cans, bottles, newsprint, mixed paper)
  - responsibilities for seeing that the policies are carried out
  - information on the identification of the various pests likely to be encountered and
  - basic control strategies in an accessible way that will assist staff in their roles in the
  - IPM program.
- contact information for pests that need attention of the IPM coordinator
- contact information for repairs, such as drips or broken screens

Departments will maintain detailed records of pesticide applications and provide copies of such records to the IPM Coordinator within 5 business days of any pesticide application.

Departments will post a notice at major points of entry when pesticides are employed.

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13. **Least Toxic IPM Manual**

The IPM Coordinator shall prepare and be responsible for updating the overall IPM Manual. It shall include:

A. The individual department or section IPM plans.

B. Identification of each specific pest likely to be encountered (note, for example, that some ants and cockroaches have different subspecies that require different control methods)

C. Description of Monitoring procedures
- Traps
- Sticky cards
- Food lures
- Chemical sex attractant

D. Discussion of routine prevention and management practices. Description of routine management procedures for common pests using prevention and least toxic control methods. These methods include, for example, for buildings: caulking, crack and crevice applications of boric acid baits, improved sanitation, etc.; for landscaping: selecting resistant varieties, replacing pest infested plants, adjusting mowing heights and frequencies, use of flamers and mulch, etc.

E. Discussion of procedures should conventional chemical control be necessary. If a situation dictates the use of chemical pesticides, the IPM coordinator will select the least toxic method to control the target pest. If a structural problem arises that requires a licensed structural applicator, the IPM coordinator will select a pest control contractor. Outside contractors must supply the IPM coordinator with a list of control recommendations including chemicals, baits or traps suggested for use. At all times the least toxic method will be chosen.

F. Development of site specific policies for each pest problem or type of situation encountered with updates as necessary based on changing experience. Selection of methods to be used for pest management will be governed by considerations of risk and effectiveness. Least toxic methods will be given preference and conventional pesticides will be used only as a last resort under provisions of Section 17 of this policy.

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14. **Policy. Applicable to Town Contractors**

Pest control contractors who work for the town are required to understand and abide by this policy.

Such pest control contractor shall provide the IPM Coordinator with a copy of relevant North Carolina Department of Agriculture and Consumer Services (NCDA & CS) pesticide license, the names of the employees who will be applying any pesticides, a description of the methods proposed to be used including a list of all controls, chemical and non-chemical, and a report at the completion of the job of what was actually done including pesticides, if any, that were used with amounts and concentrations.

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15. **Hazard Categories**

Some factors which are used to categorize the relative danger/safety of pesticides:

1. Toxicity: the inherent capacity of a substance to produce an injury or death
2. Hazard: hazard is a function of toxicity and exposure; the potential threat that injury will result from the use of substance in a given formulation or quantity
3. Risk: the probability that an outcome may happen

The U.S. EPA groups pesticides into four basic categories based on their capacity to do harm. The categories emphasize "acute" toxicity--the ability to cause harm from a single exposure. Acute effects include damage to eyes, skin rashes, respiratory problems, nerve damage and death. The rankings are, however, influenced by "chronic" exposures, the ability to cause harm from repeated low dose exposures over time. Chronic effects include the ability to cause cancer, damage to organs such as the liver and kidneys, birth defects, genetic mutations, etc.

Category I:

- Environmental Protection Agency (EPA) lists as the most toxic
- "DANGER" product label; some must also say "poison" on label
- Most are classified as "restricted use pesticides" thus requiring a license to purchase, apply and store
- This category of pesticide has not been used by the town since 1987

Category II:

- Environmental Protection Agency (EPA) lists as the next most toxic (moderately toxic)
- "Warning" product label
- This category of pesticide has been minimally employed by the Town, less than 1 pint annually, and has never been applied to plant beds

Categories III & IV Least toxic categories:

- "Caution" product label
- The pesticides of this category employed by the town are primarily in the form of "Roundup" herbicide primarily for weed control under fences, street right-of-way and equipment storage areas

Common to all Categories of Pesticides:

- "Keep out of reach of children" must appear on label.
- Departments will post notices when pesticides are employed.

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16. **Hazard Category III Pesticides - Phasing Out**

Upon adoption of this IPM policy, the town will explore alternative methods to allow it to phase out the use of even Category III pesticides. It will, for example, explore the expanded use of methods already employed, such as mulches and string trimmers for weed control, as well as the use of alternatives including steam generators and propane torches ("flame weeders"). Such methods will be phased in over a 3 to 5 year period; experience must be gained by the town's staff to determine the effectiveness and application time of these different methods of weed control.

Fiscal Year	
1999-2000	Procure and institute the use of steam equipment Continue to employ herbicide, "Roundup," as needed
2000-2001	Evaluate need to continue the employment of this category of pesticides Evaluate need to procure additional alternate eradication equipment
2001-2002	Determine if total elimination of this category of pesticides is possible Provide a general overview of effectiveness

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17. **Use of Conventional Pesticides / Unusual Circumstances**

A goal of this program is to phase out the use of conventional pesticides. However, the town recognizes that certain rare circumstances may arise in which alternative methods may not be practical. If a situation is determined by the IPM Coordinator to be urgent and non-routine and requiring the use of a conventional pesticide to achieve satisfactory levels of control, then the following steps shall be followed:

- The IPM coordinator must receive approval from the Director of Public Works to employ conventional pesticides
- The Director of Public Works shall inform the Town Manager of his decision to employ to conventional pesticides at the time of or as soon as possible afterwards
- In the affected area, the IPM coordinator shall make a good faith effort to notify those employees and others who may be affected including the posting of notices at principal points of entry
- The use of occasional wasp or hornet sprays by employees or contractors who may otherwise be at risk of insect stings shall not be covered by this section except that reports of such use shall be made to the IPM Coordinator and persons who may be affected shall be given advance notice if time permits.
- The use of pesticides under Section 5.13. of this policy are not covered by this section.

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18. **Antimicrobials Not Included**

Antimicrobials, such as those used for cleaning as sterilizers in public facilities are not covered by this policy.

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19. **General**

A. The State of North Carolina's Department of Agriculture & Consumer Services (NCDA & CS) separates pest control administratively and for types of licenses into two areas:

Structural:	All pest control within or to protect a building; includes termite and cockroach control; the NC Structural Pest Committee adopts rules and sets license requirements for such applications. The structural pest control program is administered by the Structural Pest Control Division of the NCDA & CS.
Non-Structural:	All other pest control and vegetation management in an outdoor environment, including agriculture and landscaping; the NC Pesticide Board adopts regulations and sets license requirements for such applications, which include "public operator licenses" for town employees. This pesticide program is administered by the Pesticide Section of the NCDA & CS.

Note: Licenses are not interchangeable but apply only to that specific category or class of application

B. Definitions

"Pesticides" are defined as "anything sold to kill or control or mitigate a pest." Hence they include "insecticides" for use against insects, "herbicides" for use against weeds, "fungicides" for use against plant diseases, and "rodenticides" which kill rats and mice. Such products must be registered by EPA under the Federal pesticide law (The Federal Insecticide, Fungicide and Rodenticide Act, or "FIFRA") and, in North Carolina, by the North Carolina Department of Agriculture and Consumer Services (NCDA & CS) under the NC Pesticide Law before, they can be legally sold or used. They each carry a label which prescribes how the product must be used: for what pests in what sites and at what rates. Use inconsistent with the label is a violation of state and federal law.

"Pests" are organisms where they are not wanted and which may cause economic (or aesthetic or ecological) damage. In this context, a "weed" is a social, economic, and legal term, not a biological one. Hence, an oak in a pine plantation can be a weed.

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Revised Friday, February 26, 1999

Carrboro Using Hot Water to Control Weeds

Leaders of Carrboro, North Carolina, have tested a weed control machine which uses hot water instead of herbicides to kill unwanted plants.

The equipment, made by Waipuna International Ltd. of New Zealand, superheats water and then dispenses it in a steady stream under low pressure. Weeds are killed when the waxy outer coating of their leaves is melted by hot water. The apparatus is self-contained and mounted on a small truck with insulated hoses connected to long-handled applicator wands. The water inside the machine is actually heated to a temperature as high as 220°F. Almost immediately upon contact, plants darken and wilt like cooked spinach. Within a few hours, sprayed plants turn brown, appearing similar to plants treated with a contact herbicide, however, with the added advantage of no pesticide residues being left behind.

Carrboro tested the equipment as part of implementation of the town's Least Toxic Integrated Pest Management policy adopted by the Town Council in March 1999. The policy seeks phasing out the conventional use of pesticides on publicly owned property. Other approaches taken by the Public Works Department have included the use of a propane flamer to singe and kill unwanted plants and the application of a biodegradable pre-emergent herbicide made from corn gluten. Although the town leaders recognize that the cost of quality grounds maintenance will increase significantly due to the adopted policy, they feel that this approach is justified by a possible reduction in environmental contamination.

The hot water trials were conducted under the direction of Chris Gerry, Landscape and Grounds Supervisor of the Carrboro Public Works Department. Gerry concluded "everywhere we used it,

it's done a yeoman's job. This is the least toxic approach to weeds that I can imagine. Our biggest weed problem is along miles of fences around sports fields and other facilities, and along roadsides where the grass encroaches onto the pavement. The flamer does a good job, but weather conditions have to be right; you can't use it when things are very dry and there's a risk of fire. This you can use just about any time."

"It's important to understand that it is not a panacea. It has its limitations; it's tethered to a truck, for one thing. But it is one of the tools, and it's done a great job for us so far."

For information on this equipment, contact:

Paul Hellwig , Landscape and Grounds Supervisor
Public Works Department
301 Main Street
Carrboro, NC 27510
919-918-7431

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Direct site comments to: webmaster@townofcarrboro.org

Integrated Pest Management

IPM going strong - Carrboro's Chris Gerry talks hot water & more

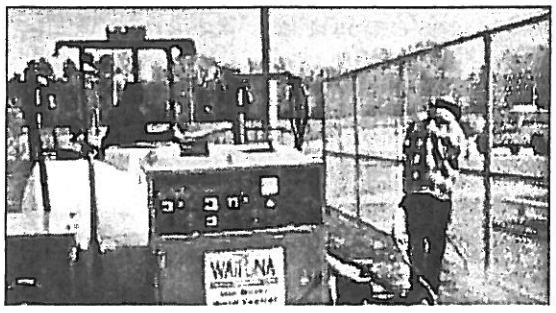
In 1999 the Carrboro Board of Alderman approved a least-toxic pest control policy for the town that included, among other measures, the use of a Waipuna hot-water machine to kill weeds with steam instead of chemicals. The policy and the techniques have drawn attention from around the world, and still continue to generate interest. We bring you an update on the program through this interview with its progenitor and manager, Chris Gerry. ARC met with Chris at his office in Carrboro's Public Works building, where a framed clipping calling Carrboro one of the Pesticide Industry's "Top 10 anti-pesticide hot spots" hangs on the wall behind his desk.

Interview by Fawn Pattison - Agricultural Resources Center

Photos by Allen Spalt and Chris Gerry

FP: Would you talk a bit about how the policy was developed here – it started with outdoor uses, is that right?

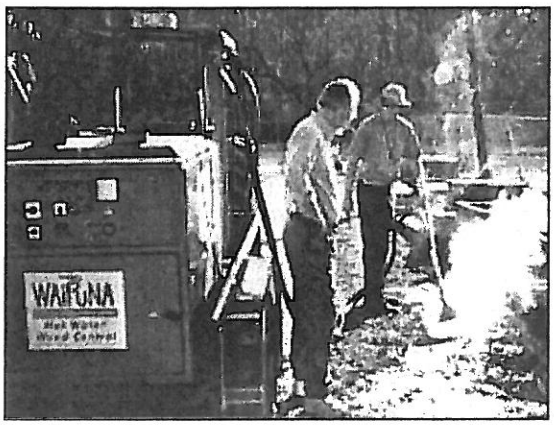
CG: When I came here, knowing that Carrboro was not a place people like to use pesticides, I thought, what a great place to start weaning back the program. I did not want any employees exposed to soil-absorbed chemicals when they're working in the soil with their hands. So I got rid of insecticides, and we finally got to the point where the only chemical we were using was glyphosate (Roundup) for weed control. Allen Spalt (ARC's President, then director) got elected and discussed it with the (Carrboro) Board (of Aldermen).



The Board said this is a good thing for Carrboro, so they approached me and asked if we could in fact wean back on our chemical use. We did an overview for them, and we basically were only using glyphosate. So my people said, okay, come up with something that's an alternative, and come up with a price. This took about a year. And using the group from California and their great catalog (BIRC),

I found the Waipuna people. They had the steam machine for the herbicide end of our control program.

I also had to deal with the weeds in our sports fields. I was told by a couple of Phd's at NC State that I would probably be sued for the condition of our fields if I did not start using chemicals. I had to come up with a cultural method, so we decided to mow them daily with high fertilization – no additives. None of these noxious weeds can tolerate being mowed every 48 or 36 hours at 3/4 inch in non-irrigated fields. Then I proposed that we over-seed the fields on an annual basis with a variety of blends of hybrid Bermuda grass, and eventually convert the fields from cool-season to warm-season grasses. They'd be far more resilient to play. You fall into this trap, when you get into cool-season grasses, because a cool-season grass requires 6 pounds of fertilizer per 1,000 square feet three times a year, average. And Bermuda grass requires a whole lot less.

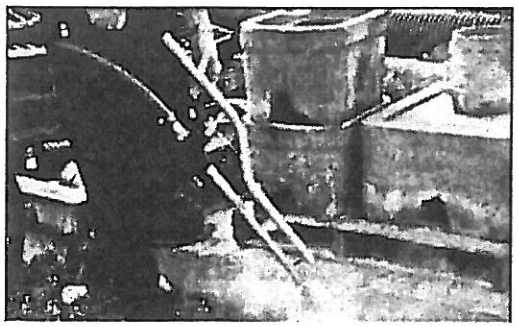


The next thing we had to come up with was a program for structural pesticide application. We had unregulated control here. If somebody saw a termite somewhere they would pump hundreds of gallons of insecticide into the foundations and walls of our buildings. So we came up with a proposal and got the glue traps, bait stations, fly traps, moth traps, and education: empty the trash cans regularly, break areas have to be clean, banana peels are a no-no in trash cans overnight, if you like cookies and candy that's fine, but you've got to bring them in tupperware. For roaches, we used boric acid and sticky traps with pheremones, this type of thing. So I put all this together in a program form and came up with around $200,000 to kick it off, because I also had to hire another person, which was part of the program ...and the guffaws that I received! If you've ever been to a Board meeting, we are a frugal society here. We would make thrift shops look very generous, the way we manage our budgets.

We implemented the program, and we've gone around the state speaking. If it hadn't been for Allen Spalt, his common-sense approach and ability to get the idea across to the broad spectrum of people without seeming to be what they would consider a salivating fanatic... That was probably the most important thing in this whole process was his presence as an elected official, and his newsworthy approach to what we were doing.

It has been a fight daily to keep this program going. There are people within this world, within the academic community, within local government, who are just absolutely opposed to this type of thing taking root.

FP: The term 'Integrated Pest Management' means different things to different people. At ARC we define it as using the cultural and mechanical methods first, and saving out the least-toxic chemicals as a last resort. But the industry folks like to say that chemicals are an important part of the 'IPM Toolbox.' What do you think is the appropriateness of chemicals in an IPM program?



CG: Our policy is set up so that we can fall back on chemicals if all else fails, but I am committed to never doing that. This is our third year without using chemicals. If you can go three years and not use chemicals, you don't have to use chemicals ever.

FP: Is the IPM Policy cost-effective compared to conventional methods?

CG: It does cost more, but the benefits far outweigh the costs. Glyphosate's cheap because they want you to buy great amounts of it. But if I was using glyphosate (Roundup) I would have to have a tractor and a water tank, just like I'm using now, with a mix in there, and a man on the ground using the spray nozzle and a man on the tractor behind him. That hasn't changed. I have found that this works as good as glyphosate, and it lasts as long as glyphosate. I don't need a licensed applicator, so I don't need to send them to school. I can do it when it's raining or very damp, or when the wind's blowing. You can't use chemicals legally when any of these things are occurring, so that's a big plus.

FP: What are the biggest benefits and drawbacks of the program?

CG: It costs a little more, because we've got to maintain the machinery, and we've got to have people who are qualified, and pay them for those qualifications. The drawbacks: it ain't a popular program. It's a daily fight. Good people get into that old ingrained thing of 'Where is my spray can? When I see an insect that's bothering me, I want somebody here right now to spray this place!' That's the kind of thing we have to put up with.

The benefits are no chemicals. We don't blow our own horn, but if a family goes to use any public grounds in Carrboro, be it a picnic or the Farmer's Market, a soccer game at Anderson park, or a day rolling in the grass at Wilson Park – chemical free. Now where can you go to get that? You don't have to travel far, but if you travel outside of Carrboro, you don't know what's on the ground. They don't advertise what they put on the ground. That's a major benefit to the health and well-being of the citizens of Carrboro.

Chris is a great resource for institutions looking to manage their facilities without toxics, and frequently offers demonstrations of the famed weed-killing machine. He can be reached in his office at (919) 918-7431. The Town's IPM policy is available on the web at www.townofcarrboro.com.

The Agricultural Resources Center is a private, nonprofit public interest organization dedicated to reducing human and environmental exposures to toxic pesticides. Find them on the web at http://www.ibiblio.org/arc, or call (919) 833-5333.

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