

New Jersey School Integrated Pest Management (IPM) Program

Low Impact Pesticides

INTRODUCTION

The School IPM Law requires that after non-chemical means of pest control have been considered and exhausted and pesticide use is deemed necessary, preference be given to using a pesticide that is classified as "low impact". The use of a low impact pesticide prevents the need for the school to post warning signs or send notices to all staff and parents. This section is designed to clarify what pesticides or pesticide ingredients fit into this classification, and how reducing risk is a process that goes beyond mere product selection.

The law's preference for pesticides it classifies as low impact is an attempt to reduce exposure risk by choosing pesticides that the law considers to be of relatively minimal risk compared to other pesticides. This leads to a very important point for IPM programs and pesticide use in general. Pesticides have some degree of risk associated with them, including those that the law considers "low impact". In order for a pesticide to be truly low impact, other considerations beyond the choice of pesticide product must be considered, including the timing, methods, and site of the pesticide application. Actual risk reduction from pesticide use can only be achieved by careful and knowledgeable product selection, well placed product application and appropriately timed applications.

For example, when a pesticide such as boric acid is classified as "low-impact", consumers or school officials may be led to believe that it can be used without risk. However, children may have adverse reactions when exposed to oral or dermal contact with the product due to improper application. Boric acid will repel and kill cockroaches when it is applied as a fine dust in wall voids inaccessible to people. When applied in this fashion, boric acid could appropriately fulfill its designation as low impact; it has a low volatility and is relatively low in risk to mammals. However, when applied in clumps along baseboards and heating elements where it can become airborne or picked up and handled by small children, this particular application of boric acid is not fulfilling the intent of its low impact designation. In this scenario, boric acid poses a high risk of exposure to children.

In order for a pesticide selection to truly reduce risk in an IPM program (whether or not it is classified as low impact under the law), the following questions must be asked:

- What is the pesticide being used for?
- When will it be used?
- Where is it going to be applied?
- What methods will be used to apply the pesticide?
- What organisms will it potentially effect other than the target organism?
- How much control does the pest control professional or school official have over the application of this pesticide (will it drift? translocate? be carried around?)

Now that it is clear that reducing pesticide risk goes beyond the selection of the product, it is time to discuss the actual list of pesticides and categories of pesticides deemed "low impact" under the law.

LIST OF LOW IMPACT PESTICIDES

Low impact pesticides as defined in the School IPM Law can be classified in two categories. The first category is pesticides or substances that the Federal Environmental Protection Agency (EPA) has decided are not necessary to regulate, generally because of the minimal risk they represent. The second is a group of other pesticide ingredients or formulation types that the School IPM Law considered to be of lesser risk because of the nature of the product formulation, the ingredient, or how it is used. Become familiar with the products described or listed here. If your IPM decision-making leads you to the conclusion that pesticide use is needed, consult with the pest control professional for your school to determine if any of these pesticides will adequately solve the problem. Questions about whether a product qualifies as low impact should be directed to the Pesticide Control Program at (609) 984-6568.

1. EPA Exempt Pesticides or Substances

The following pesticides have been determined by EPA to not require regulation, and are listed in the federal regulations (for exact text of this federal regulation, please visit the following text excerpted from the Code of Federal Regulations: 40 CFR § 152.25).

- a. Treated articles or substances - for instance, wood treated to repel insects. Although the wood has been treated with a pesticide, the wood itself is not considered a pesticide.
- b. Pheromones or pheromone traps - substances produced by insects that can be used to lure or trap insect pests of the same species.
- c. Preservatives for biological specimens, such as embalming fluids, when used for that purpose.
- d. Food - food products used to attract pests.
- e. Cedar wood - blocks, shavings, chips, etc., used to repel insects.
- f. "Minimum risk" pesticides. The following lists "active" ingredients (the ingredient with the pesticide value) that are exempt from EPA regulation assuming the product meets certain conditions. If these ingredients are in a product that is properly labeled with all ingredients (both active and "inert"), does not claim to control disease-carrying pests, and does not make false or misleading claims, they are considered "minimum risk" and thus able to be used as a low impact pesticide under the law.

Castor oil (U.S.P. or equivalent)	Eugeno	Potassium sorbate
Cedar oil	Garlic and garlic oil	Rosemary and rosemary oil
Cinnamon and cinnamon oil	Geraniol	Sesame (includes ground sesame plant) and sesame oil
Putrescent whole egg solids	Geranium oil	Sodium chloride (common salt)
Citric acid	Lauryl sulfate	Sodium lauryl sulfate
Citronella and citronella oil	Lemongrass oil	Soybean oil
Cloves and clove oil	Linseed oil	Thyme and thyme oil
Corn gluten meal	Malic acid	White pepper
Corn oil	Mint and mint oil	
Cottonseed oil	Peppermint and peppermint oil	
Dried blood	2-Phenethyl propionate (2-phenylethyl propionate)	
Zinc metal strips (consisting solely of zinc metal and impurities)		

1. These active ingredients listed above may be combined with any of a number of "inert" ingredients from a list published by EPA. This list of minimum risk inert ingredients is known as List "4A". The current up-to-date list can be obtained from EPA's website for List 4A ingredients.

2. Other Pesticides the School IPM Law Considers "Low Impact"

The following ingredients or types of pesticides are also considered low impact.

a. Formulation Types - gels, pastes, or baits. Ant traps and insecticide gels are good examples of this class of low impact pesticides. Rodent baits also fit into this designation, although rodent baits should be rare in an effective school IPM program.

b. Antimicrobial products - pesticides used to kill microorganisms such as bacteria and fungus. Disinfectants, cleaners, mold and mildew removers all fall into this classification. The full definition of these products from state pesticide regulations at N.J.A.C. 7:30-1.2 is as follows:

"Antimicrobial agents" means:

1. Disinfectants intended to destroy or irreversibly inactivate infectious or other undesirable bacteria, pathogenic fungi, or viruses on surfaces or inanimate objects;
2. Sanitizers intended to reduce the number of living bacteria or viable virus particles on inanimate surfaces, in water, or in air;
3. Bacteriostats intended to inhibit the growth of bacteria in the presence of moisture;
4. Sterilizers intended to destroy viruses and all living bacteria, fungi, and their spores, on inanimate surfaces; or
5. Fungicides and fungistats intended to inhibit the growth of, or destroy fungi (including yeasts) pathogenic to man or other animals on inanimate surfaces;
6. Commodity preservatives and protectants intended to inhibit the growth of, or destroy bacteria in or on raw materials (such as adhesives or plastics) used in manufacturing, or manufactured products (such as fuel, textiles, lubricants, and paints); or
7. General use algicides labeled for use in:
 - i. Swimming pools, hot tubs, whirlpools, spas, ornamental ponds, fountains, fish tanks, and waterbeds;
 - ii. Water, wastewater and sewerage treatment plants, but only where there is a controlled inlet and outlet; and
 - iii. Industrial, commercial, and manufacturing processes.

c. Specific Active Ingredients - Specific pesticide ingredients the School IPM Law has added to the low impact designation are:

1. boric acid
2. disodium octoborate tetrahydrate
3. silica gel
4. diatomaceous earth

d. Microbe based insecticides - the most common example of this would be bacillus thuringiensis or "Bt", a widely used microbe that is the ingredient in many home and garden products, mosquito larvicides, and gypsy moth control products.

e. Botanical insecticides (not synthetic) - a common example of this would be pyrethrins, extracted from the chrysanthemum plant, or neem oil that is extracted from kernels of the neem plant. **Synthetic versions of botanicals or those that contain chemical synergists to enhance the potency do not qualify as low impact.**

f. Biological, living control agents - a common example of this would be a pesticide that uses parasitic nematodes (a small worm-like organism) as its active ingredient. These nematodes are used to control a wide variety of insects. Beneficial insects would be another type of control agent that would fit into this category. For more information, see the New Jersey Department of Agriculture's website about beneficial insects.

CONCLUSION

When pesticide use is needed, careful product selection and consideration of low impact pesticides, good communication with the school's pest control professional (if this service is contracted for), and a realization that risk reduction is more than just product selection are the keys to remember.