

CHAPTER 2

PESTICIDE REGULATIONS AND USAGE, AND OTHER REGULATORY CONSTRAINTS

A. INTRODUCTION

This chapter provides an overview of the pesticide registration and enforcement processes. New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency (USEPA) each have pesticide registration requirements that are applicable in New York State. The chapter also discusses in brief the Westchester County Pesticide Reduction Law and Pesticide Notification Laws as well as regulations that apply to pesticide applicators specifically. This chapter also provides a description of the State's reporting requirements for pesticide users, and the latest available estimates of overall pesticide usage in Westchester County and New York State. A discussion of the National Organic Program, which outlines the procedures for farms to be registered as organic is also provided.

This chapter is intended to provide a broad description of the regulations that affect the registration of products, which may be considered for use in the *Comprehensive Mosquito-Borne Disease Surveillance and Control Plan (Comprehensive Plan)*, along with information on past usage. Details analyses of the potential environmental impacts from the proposed *Comprehensive Plan* are contained in Chapter 3, "Overview of Assessment of Impacts of the *Comprehensive Plan*," and its subchapters.

A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pesticides can include insecticides that target insects, fungicides that target fungi, herbicides that target weeds and other unwanted plants, and rodenticides that target rodents, among others.¹ Insecticides include adulticides that target adult mosquitoes, and larvicides that target mosquito larvae and pupae. Under the Proposed Action, Westchester County could select from among several registered adulticide and larvicide products for the *Comprehensive Plan*. The Material Safety Data Sheets (MSDS) and product labels for each adulticide and larvicide considered for use by Westchester County under the *Comprehensive Plan* are included in Appendix 2I.

NYSDEC pesticide registration information discussed below was largely excerpted from the "Agenda for NYSDEC Division of Solid & Hazardous Materials, Bureau of Pesticides & Radiation, Pesticide Product Registration Workshop, December 12, 1995," and NYSDEC's website (www.dec.state.ny.us). Code of Federal Regulations (CFR), which codifies the rules established by Federal agencies, and USEPA's website, are the primary sources of information for the discussion on USEPA's pesticide registration process. The CFR provisions referred to in this chapter (e.g., 40 CFR Part 152, may be found on the Internet at www.access.gpo.gov/nara/cfr/waisidx_00/40cfrv11_00.html).

¹ U.S. Environmental Protection Agency. Office of Pesticide Programs.
<http://www.epa.gov/opp00001/whatis.htm>. 1/26/01.

B. DESCRIPTIONS OF NYSDEC AND USEPA REGISTRATION PROCESSES

In order for a pesticide to be distributed, sold, or used in the United States, it must first undergo rigorous registration processes at the Federal and State levels. Products must first be registered with USEPA before NYSDEC conducts its registration process. At each level throughout the process, the potential adverse impacts from pesticides are examined, and in the end, a series of restrictions are applied to the products to make sure that potential adverse effects are minimized. This registration process must be undergone for all pesticide products, including both larvicides and adulticides.

This section provides an overview of NYSDEC and USEPA pesticide registration processes. It is important to note that NYSDEC has one additional pesticide registration procedure that USEPA does not have: the “Registration to Meet Special Local Needs.” Furthermore, the New York State legislature requires NYSDEC Commissioner to register pesticides independently of the Federal registration process and adopt rules and regulations that, among other things, prevent damage or injury to wildlife. USEPA weighs the risks of using a particular pesticide against possible advantages in a cost-benefit analysis. The parameters that result in a favorable cost-benefit on a national scale might be unfavorable on a local scale. Therefore, it is necessary for New York State to reexamine USEPA decisions on products that successfully pass the Federal registration process in order to protect human health, the environment, and the fish and wildlife resources of the State, as required by State law. Products that are not registered for use as pesticides by USEPA may not be registered for use as pesticides by NYSDEC. The following sections give a general description of USEPA and NYSDEC registration processes.

USEPA PESTICIDE REGISTRATION PROCESS

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. §136 et seq. (1947), provides Federal control of pesticide distribution, sale, and use. USEPA was given authority under FIFRA not only to study the consequences of pesticide usage but also to require users (farmers, utility companies, and others) to register when purchasing pesticides. Through later amendments to the law, users also must take exams for certification as applicators of pesticides. The New York State certification process is conducted by NYSDEC. The applicator certification process is discussed further in the sections below.

As mentioned previously, all pesticides used in the United States must be registered (licensed) by USEPA. Registration assures that pesticides will be properly labeled and that, if used in accordance with USEPA specifications, are not expected to result in any unreasonable adverse effects on humans, the environment and non-target species. To prevent such effects, USEPA can limit the distribution, sale, or use of any pesticide that is not registered in accordance with FIFRA.

Registration of a pesticide is a scientific, legal and administrative process through which USEPA examines the composition of the pesticide; the particular site or crop on which it is to be used; the amount, frequency and timing of its use; and storage and disposal practices. A pesticide product is composed of “active” and “inert” ingredients. As discussed in Chapter 1, “Description of the Proposed Action,” a product’s active ingredient is the chemical component intended to target and eradicate the pest. Inert ingredients are generally added to pesticides as solvents and/or dispersion aids. Unlike active ingredients, inert ingredients are not required to be identified on the product label. However, they may need to be listed individually if they pose a hazard to public health or the environment. In most cases, only the total percentage of all inert ingredients must be publicly

disclosed. In general, detailed information on inert ingredients is considered confidential business information for proprietary purposes and is not available to the public, or to local health departments.

In evaluating a pesticide registration application, USEPA assesses a wide variety of potential human health and environmental effects associated with use of the product. The producer of the pesticide must provide data from tests done according to USEPA guidelines. These tests must determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish and plants, including endangered species and non-target organisms, as well as possible contamination of surface water or groundwater from leaching (soaking into the ground), runoff (surface drainage following rain event) and spray drift. Testing for the pesticide's environmental effects enables USEPA to understand its "environmental fate," or persistence within the environment. Potential human risks evaluated include short-term toxicity and long-term effects such as cancer and reproductive system disorders. USEPA must also approve the language that appears on each pesticide label. Some of the language that appears on the label, such as "warning" or "caution," is required based on the product's toxicity. A pesticide product can only be stored, handled, used, and disposed of according to the directions on the label accompanying it at the time of sale. During the registration process, USEPA classifies pesticides into two categories: General Use pesticides and Restricted Use pesticides. Restricted Use pesticides — which make up about a quarter of total pesticides used — may be applied only by or under the direct supervision of trained and certified applicators. USEPA does not normally classify products for General Use; products that are not restricted remain unclassified (40 CFR Part 152.160). General Use pesticides may be applied by anyone, but restricted-use pesticides may only be applied by certified applicators or persons working under the supervision of a certified applicator. Unclassified pesticides are not limited in any manner, except in cases where a product bears labeling limiting the use to a specific user group such as veterinarians.

Specific registration criteria can be found in Appendix 2IIA, "USEPA Pesticide Registration Process," which discusses in detail the types of registration, registration priorities, re-registration, special review, data requirements and testing, label requirements, toxicity categories and precautionary labeling, and exemptions.

NYSDEC PESTICIDE REGISTRATION PROCESS

New York State's Environmental Conservation Law (ECL) §33-0701 requires every pesticide product used, distributed, sold, or offered for sale in New York State to be registered with NYSDEC. Starting in 1993, products must be registered every two years. Pesticide products generally include any pesticide product registered or required to be registered by USEPA. More specifically, NYSDEC registration is required for:

- Products with basic USEPA registrations.
- Supplemental (distributor) registrations (each must be registered as a separate product).
- Additional brand names (each must be registered as a separate product).
- Products for which there is a Special Local Need (SLN), whether it is a new product or an additional use for an existing USEPA registered product.
- Experimental use products used pursuant to a Federal EUP, regardless of whether the product is sold or given free to cooperators. NYSDEC does not require a State EUP or registration for other proposals for testing of experimental use products. However, notification requirements apply.
- Any amendment to an existing registration that entails:

- A major change in labeling.
- A major change in use pattern.
- Addition of a major crop in New York State that will significantly increase acreage.
- Significant increase in application rate.
- Any change that increases the exposure and, thereby, the potential risk to nontarget organisms.
- Changes in formulation except:
 - ◆ Changes in formulation allowed by notification to USEPA, such as a change in the source of an active ingredient.
 - ◆ Minor changes in either active ingredient percentages, or inert ingredient percentages; modification of fertilizer percentages in pesticide-fertilizer mixtures.
 - ◆ Adjustments to percentages of ingredients resulting from changes in methods of analysis.
- Changes in ownership of the product. A change in the company name of the registrant without a change in the ownership does not require a new registration, providing product names do not change. If there is no change of ownership, label changes may be made under amended registration procedures.

Products not registered for use as pesticides by USEPA may not be registered for use as pesticides by NYSDEC. Products not requiring registration by NYSDEC include:

- Products specifically exempted from the Federal pesticide registration process (FIFRA); and
- Plant strains developed from USEPA-registered transgenic (i.e., genetically modified) plant pesticide material.

A detailed discussion of the NYSDEC registration process and requirements can be found in Appendix 2IIB, "NYSDEC Pesticide Registration Process," and includes discussion of data requirement for registration and review procedures.

C. PESTICIDE APPLICATOR CERTIFICATION AND PROTECTION

Pesticides classified by USEPA as General Use are available for purchase and use by the general public. Therefore, they may be applied by anyone, unlike Restricted Use pesticides, which must be applied by applicators meeting specific NYSDEC requirements, as described below. The County would ensure, through its procurement policy, that any contracted or County staff applicators of pesticides under the *Comprehensive Plan* would be certified for pesticide application (See Appendix 2.IIC, "County Procurement Policy.")

Recommendations for protection during mixing, loading or application are indicated on the pesticide labels (i.e., use of personal protection equipment, use of masks and/or respirators if warranted, gloves, proper handling of pesticides). However, additional protection for pesticide applicators is provided by Occupational Safety and Health Administration (OSHA) regulations and standards, New York State Public Employees Safety and Health (PESH) regulations and standards, and USEPA's 1992 Worker Protection Standard (WPS). These regulations are also described in the sections below.

PESTICIDE APPLICATOR CERTIFICATION AND TRAINING

Certification and training programs are conducted by each state in accordance with national standards set by EPA's Office of Pesticide Programs². Pesticide applicators are trained by each state's Cooperative Extension Service pesticide applicator training programs and are certified by pesticide State Lead Agencies. The NYSDEC, Division of Solid & Hazardous Materials, is the lead agency for regulating the application of pesticides in New York State and is responsible for compliance assistance and public outreach activities to ensure enforcement of State pesticide laws, Article 33 and parts of Article 15 of the Environmental Conservation Law, and regulations, Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York Parts 320-329³. Section 325 of this law pertains to pesticide application and requires:

- pesticides be used in such a manner and under such wind and other conditions as to prevent contamination of people, pets, fish, wildlife, crops, property, structures, lands, pasturage or waters adjacent to the area of use;
- pesticides are to be used only in accordance with label and labeling directions or as modified or expanded and approved by the department;
- all equipment containing pesticides and drawing water from any water source shall have an effective anti-siphon device to prevent backflow; and
- and during pesticide use, the certified applicator, certified technician or commercial pesticide apprentice must have in their custody a copy of the label for each pesticide being used.

The law also provides provisions for certification of pesticide applicators. Commercial applicators can apply for commercial pesticide applicator certification in specific categories or subcategories (ie. Forest pest control, agricultural pest control, etc.) after providing the appropriate eligibility requirements, such as verifiable experience as a technician or certification in another state with which New York State has reciprocity. In addition the applicant is required to pass two separate written examinations: a core examination and a category or subcategory examination which must be specific to the commercial or private category or subcategory in which the applicant has applied to be certified. State pesticide application laws, including certification, supervision and handling requirements of applicators are provided in greater detail in Appendix 2IID, "New York State Pesticide Application Laws."

PESTICIDE APPLICATOR PROTECTION

Occupational Safety and Health Administration (OSHA)⁴

The United States Occupational Safety and Health Act of 1970 (OSH Act) assures safe and healthful working conditions for working men and women by: authorizing enforcement of the standards developed under the Act; assisting and encouraging the States in their efforts to assure safe and healthful working conditions; providing for research, information, education, and training in the field of occupational safety and health. In addition to the OSH Act, OSHA enforces detailed regulations called "standards," published in Title 29 of the Code of Federal Regulations, which are known as permissible exposure limits or PELs, for workers to minimize to the extent possible potential

² <http://www.epa.gov/oppfead1/safety/applicators/applicators.htm>

³ <http://www.dec.state.ny.us/website/regs/325.htm#325.11>

⁴ <http://www.nycosh.org/lawsregs.html>

exposures to chemicals. PEL's for potential pesticide exposure to applicators are discussed in Chapter 3.C, "Public Health."

Public Employees Safety and Health (PESH)

OSHA regulations apply only to private employers and employees. Under the proposed *Comprehensive Plan*, County or other public employees may also be applying pesticides. In New York State, state and local government workers are under the jurisdiction of the Public Employee Safety and Health Bureau of the New York State Department of Labor (PESH). PESH operates under the authority of Sections 27 to 32 of the New York State Labor Law, which adopts all safety and health standards promulgated under the OSH Act and enforces standards that are almost identical to OSHA standards. The PESH program inspects workplaces, equipment and work procedures to ensure that they meet OSHA standards. Safety and Health Inspectors and Industrial Hygienists also investigate complaints of discriminatory actions taken against employees by their employers when related to safety and health activities. Public employers violating PESH laws are issued compliance orders and can be assessed civil penalties for non-compliance.

USEPA Worker Protection Standard (WPS)

USEPA's 1992 Worker Protection Standard (WPS) is a regulation aimed at reducing the risk of pesticide poisonings and injuries among agricultural workers and pesticide handlers. The Worker Protection Standard offers protections to over three and a half million people who work with pesticides at over 560,000 workplaces. The Worker Protection Standard contains requirements for pesticide safety training, notification of pesticide applications, use of personal protective equipment, restricted entry intervals following pesticide application, decontamination supplies, and emergency medical assistance. Effective implementation of the WPS substantially lowers the risk of pesticide poisonings among agricultural workers and pesticide handlers (USEPA, Office of Pesticide Programs, 2001).

Below is a summary of Worker Protection Standard Requirements (40 CFR Subpart I, 170 details information on Worker Protection Standard):

- Applicators are prohibited from applying a pesticide in a way that will expose agricultural workers or other persons. Agricultural workers are excluded from areas while pesticides are being applied.
- Restricted-entry intervals must be specified on all agricultural plant pesticide product labels. Agricultural workers are excluded from entering a pesticide treated area during the restricted entry interval, with only narrow exceptions.
- Personal protective equipment must be provided and maintained for handlers and early-entry workers.
- Workers must be notified about treated areas so they may avoid inadvertent exposures.
- Handlers and workers must have an ample supply of water, soap, and towels for routine washing and emergency decontamination.
- Transportation must be made available to a medical care facility if a worker or handler may have been poisoned or injured. Information must be provided about the pesticide to which the person may have been exposed.
- Training is required for all workers and handlers, and a pesticide safety poster must be displayed.

Handlers and workers must be informed of pesticide label requirements. Central posting of recent pesticide applications is required.

D. COUNTY PESTICIDE REGULATIONS

In addition to registration and application requirements set forth by Federal and State entities, Westchester County has also developed regulations pertaining to pesticide application. These laws are summarized below.

WESTCHESTER COUNTY PESTICIDE REDUCTION LAW

The purpose of this Local Law Number 17-2000, Chapter 690 of the Laws of Westchester County known as the Westchester County Pesticide Reduction Law, is to employ pest control strategies, which are the least hazardous to human health and the environment and adopt an Integrated Pest Management (IPM) program.

In furtherance of this purpose, the law requires the County to phase-out pesticide use by County government on County property for many pest control purposes, and to adopt a pest control policy that substantially relies on non-chemical pest control strategies. For example, the Westchester County Pesticide Reduction Law restricts the use of pesticides by County employees and persons under contract to the County. Currently the law states that no person shall apply any pesticide classified as Toxicity Category I (Toxicity Categories for pesticide products are provided in Appendix 3.AI, "Adulticide Characteristics," and 3.AIII, "Larvicide Component of the *Comprehensive Plan*") by the USEPA or any pesticide classified as a known, likely, or possible carcinogen by the USEPA on County property and effective as of January 2001, no person shall apply any pesticide classified as Toxicity Category II by the USEPA, or any pesticide classified as Restricted Use by the USEPA or the NYSDEC on County property except as provided in the exceptions and exemption provisions of the law. Lastly, effective January, 2002, no person is to apply any pesticides on County property except as provided in the exceptions and exemptions of the law. The law also states that the County can only use chemical pesticides when there is no feasible alternative, and that these pesticides must have the least toxic effect of the possible choices available. All pesticide applicators shall be trained and certified in conformity with county, state and federal regulations.

The Law also provides for the formation of a Pest Management Committee (PMC), which is to act as a resource for the County on pest management issues, and is to evaluate and monitor pest problems within the County providing guidelines and recommendations for County staff.

There are exceptions to the Westchester County Pesticide Reduction Law, which permit limited use of pesticides on County property under certain narrowly defined circumstances, such as public health emergencies. There is also a provision, which authorizes the Pest Management Committee to grant a "single-use waiver" upon application by a particular County department. The Westchester County Pesticide Reduction Law is discussed in detail in Appendix 2IIE, "County Pesticide Regulations," and includes discussions of all exemptions and exceptions.

As described earlier in Chapter 1, "Description of the Proposed Action," the understanding of the potential adverse impacts from the various adulticides products and active ingredients, which are disclosed in this GEIS, would be balanced with the expected or observed control of the mosquito species of concern under the *Comprehensive Plan*.

PESTICIDE NOTIFICATION LAW

The purpose of this Local Law Number 22-2000, Chapter 691 of the Laws of Westchester County, known as the Pesticide Notification Law, is to adopt special notice requirements for commercial and residential applications of pesticides to lawns as established by the State of New York and as set forth in Section 33-1004 of the New York State Environmental Conservation Law. The Pesticide Notification Law requires all retail establishments that sell General Use pesticides for commercial or residential lawn application to display warning notice directing consumer's to follow label instruction, information about the requirements of the Pesticide Notification Law, and a recommendation that the customers notify neighbors prior to the application of pesticides all of which must meet the standards established by the Commissioner of the NYSDEC.

This Law also requires that persons or businesses that perform "Commercial Lawn Applications" of pesticides, as defined under this Law, post written notices to abutting property owners at least 48 hours prior to application. The content of these notices should comply with the standards established by the Commissioner of the NYSDEC and must consist of at least the following: address of premises where the application is to be done; name and telephone number and pesticide business registration number or the certified applicator number of the person providing the application; the specific date of each of each pesticide application and two alternative dates to the proposed date of each application in case application is postponed due to weather (alternative dates must be on consecutive business days to the proposed date); the common and scientific name of the pesticides to be used as well as the USEPA pesticide registration number and a prominent statement to read:

"This notice is to inform you of a pending pesticide application to neighboring property. You may wish to take precautions to minimize pesticide exposure to yourself, family members, pets or family possessions. Further information about the product or products being applied, including any warnings that appear on the labels of such pesticide or pesticides that are pertinent to the protection of humans, animals or the environment can be obtained by calling the National Pesticides Telecommunications Network at 1-800-858-7378 or the new York State Department of Health Center for Environmental health INFO LINE at 1-800-458-1158."

As is the case with the Pesticide Reduction Law, the Pesticide Notification Law also provides several narrowly defined exceptions to notification, including an exception for emergency applications. The Pesticide Notification Law is discussed in detail in Appendix 2.IIE, "County Pesticide Regulations," and includes all exemptions and exceptions.

E. PESTICIDE USAGE IN NEW YORK STATE

NYSDEC REPORTING REQUIREMENTS

The New York State Pesticide Reporting Law (PRL), (ECL §33-1201(2)), enacted on July 8, 1996, requires certified commercial applicators of Restricted Use pesticides and commercial permit holders (i.e., anyone involved in the distribution, sale, or re-sale of Restricted Use pesticides) to submit annual reports to NYSDEC detailing their pesticide activities for the prior year. Certified pesticide applicators are required to report the name of the product applied, the product's USEPA registration number, the quantity applied, the date of application, and the location of the application by address (including zip code). Commercial permittees must report for each sale the name of the product purchased, its USEPA registration number, the quantity purchased, and the location of intended application by address (including zip code). If the address is unavailable by town or city (including

zip code), the permittee must indicate whether the location of intended application differs from the billing address that appears on the record.

NYSDEC is responsible for collecting data in compliance with this law. NYSDEC is currently assisted by Cornell University to organize the data in a computer database and to summarize the data in annual reports, which are known as the “Annual Reports on New York State Pesticide Sales and Applications.”

To enforce the PRL, NYSDEC imposes penalties on commercial applicators and commercial permit holders that either fail to report, or fail to meet the statutory deadline of February 1st (the date on which data from the prior calendar year must be submitted to NYSDEC). In addition, NYSDEC can revoke their certification, business registration, or commercial permit.

REPORTED PESTICIDE USAGE IN WESTCHESTER COUNTY

To present the best available estimates on background pesticide usage in New York State and Westchester County, data was extracted from NYSDEC’s “Final Report on New York State 1999 Pesticide Sales and Applications” dated July 1, 2001. The 1999 Final Report from NYSDEC provides estimates of the total amount of pesticides applied; amount of pesticides sold to private applicators; and amount of pesticides sold to distributors. In 1999, a total of 14,509 commercial applicators (95 percent) and 408 commercial permittees (97 percent) reported their activities in the State of New York.

A summary of the amount of pesticides applied by commercial applicators and sold by commercial permittees in New York State and Westchester County during 1999 is shown below in Table 2-1. Commercial permittees are required to report the following:

- Sales of Restricted Use pesticides to other commercial permit holders for resale;
- Sales of Restricted Use pesticides to commercial applicators for end use; and
- Sales of restricted pesticides and General Use agricultural pesticides to private applicators.

As reported in the 1999 NYSDEC Final Report, Table 2-1 lists also the approximate total amounts of Restricted Use pesticides applied by commercial applicators in the Westchester County. Almost 179,999 gallons plus 1,883,786 pounds of Restricted Use pesticides were used by commercial applicators in Westchester County. It is noted in the 1999 Final Report, the quantity of pesticides commercially applied is the sum of the gallons and pounds reported above. In other words the gallons and pounds in Table 2-1 do not reflect two ways of speaking about a single volume of pesticides. Instead, since some applicators report usage in pounds and others in gallons, the total sum must be described as gallons and pounds.

To date, there are no comprehensive studies that show actual background use of all pesticides, specifically. General Use or “over the counter” pesticide products used by the general public are not required to be reported. NYSDEC’s 1999 Final Report contains only reported usage of Restricted Use pesticides, with the exception of General Use pesticides used for agricultural purposes.

Table 2-1 Pesticides Applied by Commercial Applicators¹ in 1999 in Westchester County and New York State			
Location	# Pesticides	Amount²	
		Gallons	Pounds
Westchester County	922	179,999	1,883,786
All of New York State	3,159	2,375,450	20,916,790

Source: NYSDEC, Division of Solid and Hazardous Materials: "Final Report on New York State 1999 Pesticide Sales and Applications." July 1, 2001. NYSDEC, 2000: Table 1, "Final Summary of Total Quantities Statewide, Calendar Year 1999."
¹ Reported by a total of 14,159 applicators.
² The quantity of pesticides commercially applied is the sum of the gallons and pounds reported. In other words, the gallons and pounds in the table do not reflect two ways of presenting the same amount of pesticides.

The 1999 Final Report from NYSDEC includes caveats with respect to the accuracy of data.⁵ While these caveats recognize uncertainties and data gaps in the 1999 Final Report, the report should provide reasonable order of magnitude estimates of reported pesticide usage in New York State, including Westchester County. However, as noted above, General Use or "over-the-counter" pesticides used by the general public are not required to be reported. The caveats of the 1999 Final Report are discussed in detail in Appendix 2IIF, "Caveats of the Final Report on NYS 1999 Pesticide Sales and Applications."

INSECTICIDES USED BY WESTCHESTER COUNTY TO COMBAT WEST NILE VIRUS

As discussed in Chapter 1, "Description of the Proposed Action," Westchester County proposes to apply adulticides and larvicides as needed as part of its *Comprehensive Plan*, which would largely be implemented by WCDOH. Below is a summary of the larvicides and adulticides that have been used to control the outbreaks of West Nile since 1999, and Table 2-2 provides the approximate amount of pesticides applied for these years.

Larvicides

Table 2-2, summarizes the larvicide products that have been used, their active ingredients, and the amounts applied during the year 2000—the year in which larvicides were first used by the County on a large-scale basis to control mosquito-borne viruses as well as larvicides applied in 2001. The products fall into two categories based on their active ingredients: methoprene-based larvicides and biological larvicides. Methoprene, a chemical compound in Altosid XR, inhibits the growth of mosquito larvae by mimicking the insect's growth regulation hormone. The biological larvicide, Vectolex CG, relies on toxins released by microorganisms (bacteria) to destroy mosquito larvae (i.e., *Bacillus sphaericus*).

⁵ See NYSDEC website for the full report: www.dec.state.ny.us/website/dshm/prl/1999prl.htm

Year	Product	Application Amount	Application Area
1999	Anvil (a.i.- sumithrin)	1,610 gal.	Aerial
2000	Vectolex CG ³ (a.i. – <i>Bacillus sphaericus</i>)	43 lbs.	Catch Basin
2000	Altosid XR ³ (a.i. – methoprene)	2,863 lbs.	Catch Basin
2000	Anvil (a.i.- sumithrin)	1,661 gal.	Truck ULV
2001 ^{1,2}	Altosid ³ (a.i. – methoprene)	4,371 lbs.	Catch Basin
Notes:			
a.i. – active ingredient			
ULV – ultra low volume application			
¹ Applications were made to 54,640 of the total 57,879 inspected catch basins (3,239 were not treated, as they do not retain water).			
² No adulticide applications in 2001.			
³ Larvicide product			
Source: Westchester County Department of Health, 2001			

As shown in Table 2-2, in 2000 Westchester County applied approximately 2,863 pounds of the methoprene-based larvicide called Altosid XR Briquets. (A briquet is a block that is placed in the water where mosquitoes breed. It releases concentrated larvicide slowly over weeks to months.) Of the biological larvicides, approximately 43 pounds of Vectolex CG Biological Larvicide (*Bacillus sphaericus*) were applied. In 2001, approximately 4,371 pounds of Altosid XR were applied.

In addition, the County was required to obtain NYSDEC Permits for the Use of Pesticides for the Control or Elimination of Aquatic Insects (Environmental Conservation Law (ECL) Article 15/Part 329 of the New York Compilation of Codes Rules and Regulations (6NYCRR)), and would likely be required to obtain these permit for future larviciding control actions under the *Comprehensive Plan*. Information on larvicide permits submitted by the County to NYSDEC is provided in Appendix 3.AII, “Larvicide Component of the *Comprehensive Plan*.”

Adulticides

In 1999, approximately 1,610 gallons of the adulticide product Anvil (which contains the active ingredient sumithrin with the synergist piperonyl butoxide and inerts) were applied aerially by Westchester County to help control the outbreak of mosquito-borne diseases (see Table 2-2). In the following year, 2000, Westchester County applied approximately 1,661 gallons of Anvil via ground applications (i.e., Ultra Low Volume {ULV} applications by truck mounted gear).

By comparing the reported usage (by gallons) County-wide values in Table 2-1 with the gallons of adulticides applied to control mosquito-borne diseases which are reported in Table 2-2 for 1999, over 100 times more restricted-use pesticides were applied throughout the County (for the purposes of home roach control, rat and mouse control, etc.) as compared to the 1,610 gallons of adulticides applied for the adulticiding actions. The volume of adulticides that were applied represented less than 1 percent of all the estimated Restricted Use pesticides applied throughout the County during the same year. Data on applications of restricted-use pesticides for the year 2000 are not available at this time. These comparative estimates do not include the applications of General Use, or “over-the-counter,” pesticides, which are not required to be reported and the quantities used are therefore not available.

F. PESTICIDES THAT WOULD LIKELY BE USED FOR COMMUNITY-SCALE APPLICATIONS

Table 2-3 below lists 25 larvicide products and Table 2-4 lists the 17 adulticide products registered for use in New York State that are indicative of products that could be applied on a community-scale basis. While the State's pesticide laws do not make a distinction between pesticides applied on a community-scale basis and those applied to small areas, these products are generally considered more likely for community-scale use.

Table 2-3 Larvicides Currently Registered in New York State that could be Applied on a Community-Scale Basis		
Product	Active Ingredients	USEPA Registration Number
Vectolex CG Biological Larvicide	<i>Bs</i>	00275-00077
Vectolex WDG Biological Larvicide	<i>Bs</i>	00275-00135
Vectobac G- Biological Mosquito Larvicide	<i>Bti</i>	00275-00050
Vectobac CG	<i>Bti</i>	00275-00070
Vectobac 12AS Aqueous Suspension Biological Larvicide	<i>Bti</i>	00275-00102
Aquabac XT	<i>Bti</i>	62637-00001
Aquabac (200G)	<i>Bti</i>	62637-00003
Bactimos Pellets	<i>Bti</i>	00275-00127
Bactimos Granules	<i>Bti</i>	00275-00128
Bactimos Wettable Powder	<i>Bti</i>	00275-00123
Summit Bti Briquets	<i>Bti</i>	06218-00047
Teknar HP-D	<i>Bti</i>	70051-00051
Altosid Liquid Larvicide Concentrate	Methoprene	02724-00446
Altosid Briquets	Methoprene	02724-00375
Altosid XR Extended Residual Briquets	Methoprene	02724-00421
Altosid Pellets	Methoprene	02724-00448
Altosid Liquid Larvicide Mosquito Growth Regulator	Methoprene	02724-00392
Altosid SBG Single Brood Granule	Methoprene	02724-00489
Arosurf MSF	POE isoctadecanol	42943-00008
Agnique MMF Mosquito Larvicide and Pupicide	POE isoctadecanol	02302-00014
Agnique MMF Mosquito Larvicide and Pupicide	POE isoctadecanol	53262-00028
Abate 4-E Insecticide	Temephos	00241-00132
Abate 5-CG Insecticide	Temephos	00241-00150
Abate 2-CG Insecticide	Temephos	00241-00151
Abate 1-SG Insecticide	Temephos	00241-00174
Notes: * New York State Pesticide Product Ingredient and Manufacturer System (PIMS) database http://pmep.cce.cornell.edu/pims/index.html Bti- <i>Bacillus thuringiensis israelensis</i> , Bs- <i>Bacillus sphaericus</i>		

Table 2-4 Adulticides Currently Registered in New York State that could be Applied on a Community-Scale Basis		
Product	Active Ingredients and Synergists*	USEPA Registration Number
ORGANOPHOSPHATES		
Atrapa Insecticide VCP	Malathion	1812-407
Atrapa Insecticide ULV	Malathion	1812-407
Dibrom Concentrate Insecticide	Naled	59639-19
Formula MU-17	Naled	5011-71
Fyfanon ULV Ultra Low Volume Concentrate Insecticide	Malathion	4787-8
Trumpet EC Insecticide	Naled	59639-90
PYRETHROIDS		
Anvil 2+2 ULV	Sumithrin, PBO	1021-1687-8329
Anvil 10+10 ULV	Sumithrin, PBO	1021-1688-8329
Aqua-Reslin	Permethrin, PBO	432-796
Biomist 1.5+7.5 ULV	Permethrin, PBO	8329-40
Biomist 3+15 ULV	Permethrin, PBO	8329-33
Mosquito Beater 2-2	Permethrin, PBO	4-389
Flit 10 EC	Permethrin	4816-688-8329
Mosquito Beater 4-4	Permethrin, PBO	4-390
Permethrin 57% OS	Permethrin	8329-44
Scourge Insecticide with SBP-1382/PBO 4%+12% MF Formula II	Resmethrin, PBO	432-716
Scourge Insecticide with SBP-1382/PBO 18%+54% MF Formula II	Resmethrin, PBO	432-667
Notes: * New York State Pesticide Product Ingredient and Manufacturer System (PIMS) database. http://pmep.cce.cornell.edu/pims/index.html PBO=Piperonyl Butoxide, which is neither an active ingredient nor an inert ingredient but a synergist. However, the technical analyses treat PBO as an active ingredient.		

The products listed below are available for use and are all currently registered by the USEPA and NYSDEC. Two active ingredients with Restricted Use product changes occurring within the last six months are piperonyl butoxide and permethrin. These two active ingredients are listed on the USEPA Restricted Use Products (RUP) Report Six Month Summary List updated September 17, 2001. The “Restricted Use” classification restricts a product, or its uses, to use by a certificated pesticide applicator or under the direct supervision of a certified applicator (40 CFR Subpart I, 152.160 details information on the “Restricted Use” Classification).

Larvicides can be categorized based on their active ingredients: biological (*Bacillus sphaericus* [Bs] and *Bacillus thuringiensis israelensis* [Bti]), biochemical (methoprene), chemical (Temephos) and physical (surface films).

The adulticides are also classified into two major categories based on their active ingredients: organophosphates and pyrethroids. The organophosphate products listed below contain one of the following active ingredients: malathion or naled, which represent 2 of almost 40 different types of organophosphate compounds. Not included in Table 2-4 are pyrethrin products. As compared to

organophosphates and pyrethroids, pyrethrins are less likely to be used for community-scale applications because they are expensive and difficult to produce in large quantities.

Pyrethrin is a naturally occurring insecticide derived from the flowers of chrysanthemum plants. The pyrethroid products are based on pyrethrin's synthetic equivalent. These products usually contain the synergist piperonyl butoxide (PBO) in addition to the pyrethroid ingredient. (A synergist is a chemical that enhances the effectiveness of another chemical.) There are three types of pyrethroid ingredients found in the products listed above: sumithrin, permethrin, and resmethrin.

These pesticide products also contain inert ingredients. Whereas, active ingredients are those intended to target and eradicate the pest, inert ingredients, comprising the remainder of the product, are used as solvents or to facilitate dispersion of the product.

A general description of each active ingredient and a general discussion of the inert ingredients for both adulticides and larvicides is included in the discussion below. However, in addition to the constituency of these products, it is important to understand the mechanisms by which they could be applied, and the amounts of each constituent that can be applied based on label recommendations, and the relative toxicity categories of products determined from label human hazard warnings and environmental hazard statements. Additional information related to these factors are included in Appendix 3.AI, "Adulticide Characteristics and Limitations of Use," and Appendix 3.AII, "Larvicide Component of the *Comprehensive Plan*."

LARVICIDE COMPOSITION

Active Ingredients⁶

Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), an active ingredient is defined as one that prevents, destroys, repels or mitigates a pest, or is a plant regulator, defoliant, desiccant or nitrogen stabilizer.

As shown in Table 2-3, the 25 New York State registered products that could be applied on a community-scale basis each contain one of the following active ingredients: methoprene, Bti, Bs, temephos, or surface films.

Methoprene

Methoprene (Isopropyl (2E-4E)-11-methoxy-3, 7,11-trimethyl-2, 4-dodecadienoate) is classified by the U.S. Environmental Protection Agency (EPA) for General Use as both an insecticide and a growth regulator. Methoprene is referred to as an insect growth regulator because it interferes with the maturation stages through which an insect goes: from egg, larvae, and pupa, to adult. Growth regulators make it impossible for insects to mature to the adult stage of development. Methoprene is considered a biochemical pesticide because rather than controlling target pests through direct toxicity, it interferes with the insects' life cycle and prevents them from reaching maturity or reproducing. In order to be effective, it is essential that this growth inhibitor be administered at the proper stage of the target pest's life cycle. Methoprene is not toxic to the pupal or adult stages. Treated larvae will pupate but adults do not emerge from the pupal stage. Methoprene is also considered a larvicide since it is effective in controlling the larval stage of insects. Methoprene is used in the production of a number of foods including meat, milk, eggs, mushrooms, peanuts, rice and cereals. It is also used in aquatic areas to control mosquitoes and several types of ants, flies, lice, moths, beetles and fleas. It is available in liquid, solid and aerosol formulations.

⁶ <http://pmep.cce.cornell.edu/profiles/insect-mite/index.html>, March 23,2001.

Bacillus thuringiensis israelensis –Bti

Bacillus thuringiensis israelensis (Bti) is a microbial insecticide originally registered in 1961 as a General Use Pesticide. *Bacillus thuringiensis (Bt)* is a naturally occurring soil bacterium that produces poisons which cause disease in insects. *Bti* is used specifically for the control of the larvae of mosquitoes and black flies. *Bti* must be eaten by insects in the immature, feeding stage of development referred to as larvae. It is ineffective against adult insects. Monitoring the target insect population before application insures that insects are in the vulnerable larval stage.

Bacillus sphaericus –Bs

Bs is also a microbial insecticide, which controls insects in a similar manner as Bti. However, this product is classified as a Restricted Use pesticide in New York State, because it is labeled for direct application to surface waters.

Temephos

Temephos is a non-systemic organophosphorus insecticide used to control mosquito, midge and black fly larvae. It is a General Use Pesticide often used in lakes, ponds and wetlands. It also may be used to control fleas on dogs and cats and to control lice on humans. Typical of other organophosphate insecticides, temephos inhibits the action of the group of enzymes called cholinesterases in the insect.

Monomolecular Surface Films (MSF)

The two most common monomolecular surface films (MSF) registered with the USEPA and New York State as mosquito larvicides are Arosurf MMF[®] and Agnique MMF[®]. Both belong to a group of surfactants that have been used extensively in detergents and cosmetics, and to contain small oil spills. This is a General Use Pesticide that can be applied to semi-permanent or permanent fresh water (including potable and irrigation sources) or salt-water habitats. As a surfactant, it forms a film over the surface of the water to which it is applied. Its mode of action is considered to be physical rather than chemical in that it reduces the water surface tension, resulting in suffocation of the larvae and pupae.

Inert Ingredients

In addition to active ingredients larvicide products contain “inert” or “other” ingredients. These are simply defined as ingredients with no pesticide activity. As described above, registrants of pesticide products are not required to publicly disclose detailed information on the inert ingredients in their products unless they pose a hazard to public health or the environment. Only the total percentage by weight of all inert ingredients must be disclosed on the product label. However, as part of USEPA’s review during the registration process, registrants must disclose detailed information on each product’s complete chemical composition, including inert ingredients, by submitting a Confidential Statement of Formula (CSF). CSFs must also be submitted to NYSDEC for all products registered in New York State. In preparing the analyses for this GEIS, Westchester County made numerous efforts to obtain information on the inert ingredients of each larvicide product being considered for the *Comprehensive Plan*. In an effort to obtain information on inert ingredients, Westchester County conducted interviews with representatives of the pesticide industry, in an attempt to reach an acceptable agreement on both receiving and disclosing inert information. Ultimately, after several attempts, Westchester County was unable to obtain the inert information for the purposes of this GEIS although some general information was provided by vendors for a few products.

In most of the larvicide products, inert ingredients make up 90 percent or more of the the complete product. Percent active ingredient and inert ingredient which make up the larvicide product can be

found in Appendix 3.AII, “Larvicide Component of the *Comprehensive Plan*.” Although generalized information was obtained from some larvicide vendors no specific information was released due to its proprietary nature. For both Vectolex and Vectobac products both natural grains and fish derivatives are used as inert ingredients. Aquabac (200G) inerts consist primarily of corn cob particles and a type of food grade oil. *Bti* briquets use a granulated cork product and Teknar-HP-D uses a fermentation solid as types of inert ingredients. No other inert ingredient information was obtained for other larviciding products.

The GEIS does not include a detailed technical risk assessment analysis on larvicide products but instead provides a comprehensive assessment of the effects of larviciding looking at the active ingredients involved with these products. Information used in this analysis including physical and chemical properties, biochemical nutritional characteristics, fate and effects of larvicides when released to the environment as well as toxicity data are provided in Appendix 3.AII, “Larvicide Component of the *Comprehensive Plan*.”

ADULTICIDE COMPOSITION

Active Ingredients⁷

As shown in Table 2-4, the 17 New York State registered products that could be applied on a community-scale basis each contain one of the following active ingredients: malathion or naled (organophosphates); or permethrin, resmethrin, sumithrin and piperonyl butoxide (pyrethroids). While the products and their specific formulations may be relatively new, the active ingredients have been used as pesticides for many years.

Organophosphates

Malathion

Malathion, introduced in 1950, is one of the earliest organophosphate insecticides developed. It is suited for the control of sucking and chewing insects on fruits and vegetables, and is also used to control mosquitoes, flies, household insects, animal parasites, and head and body lice. Malathion is available in emulsifiable concentrate, wettable powder, dustable powder, and ULV liquid formulations. Malathion may also be found in formulations with many other pesticides.

Naled

Naled, introduced in 1959, is a fast acting organophosphate insecticide used to control aphids, mites, mosquitoes, and flies on crops and in greenhouses, mushroom houses, animal and poultry houses, kennels, food processing plants, and aquaria. Liquid formulations can be applied to greenhouse heating pipes to kill insects by vapor action. It has been used by veterinarians to kill parasitic worms (other than tapeworms) in dogs. Naled is available in dust, emulsion concentrate, liquid, and ULV formulations.

Pyrethroids

Permethrin

Permethrin was developed in 1973 as the first synthetic pyrethroid⁸ that is relatively stable in sunlight. It is a broad-spectrum synthetic pyrethroid insecticide, used against a variety of pests on nut,

⁷ <http://pmep.cce.cornell.edu/profiles/insect-mite/index.html>, March 23,2001.

⁸ <http://www.pestmanagement.co.uk/culture/history.html> and <http://home.donga.ac.kr/~pesticides/history.html>, March 23, 2001.

fruit, vegetable, cotton, ornamental, mushroom, potato, and cereal crops. It is used in greenhouses, home gardens, and for termite control. Permethrin is also used as a household pesticide to control cockroaches and flying insects, and for the treatment of ectoparasites (parasites on the surface of the body) such as lice living on humans. It may cause a mite buildup by reducing mite predator populations. Permethrin is available in dusts, emulsifiable concentrates, smokes, ULV, and wettable powder formulations. For adult mosquito control, ULV applications are typically used.

Resmethrin

Resmethrin, first developed in 1968, is a synthetic pyrethroid and is used for control of flying and crawling insects in homes, greenhouses, indoor landscapes, mushroom houses, and industrial sites.⁹ It is also used for fabric protection, pet sprays and shampoos, and it is applied to horses or in horse stables.

Sumithrin

Sumithrin (d-phenothrin) is a synthetic pyrethroid and a general-use insecticide that has been in use for over 30 years. Sumithrin is used against many adult mosquito species and is used as an insecticide and miticide in commercial, industrial and institutional non-food areas. Sumithrin is also used in homes and gardens and greenhouses, and in pet quarters and on pets.

Piperonyl Butoxide (PBO)

As discussed above, the pyrethroid products contain PBO, a synergist, in addition to their active and inert ingredients. A synergist is a chemical that enhances the effectiveness of another chemical. Synergists are added to the pyrethroid products in order to slow down or prevent the metabolism of pyrethroids, thereby enabling a smaller amount of pyrethroids to have the same pesticide effect. In some cases, PBO can function as an active ingredient.

Inert Ingredients

As described above, registrants of pesticide products are not required to publicly disclose detailed information on the inert ingredients in their products unless they pose a hazard to public health or the environment. Only the total percentage by weight of all inert ingredients must be disclosed on the product label (See Appendix 3.AI, "Adulticide Characteristics and Limitations of Use"). CSFs must also be submitted to USEPA and NYSDEC for all registered adulticide products. In preparing the analyses for this GEIS, Westchester County made numerous efforts to obtain information on the inert ingredients of each adulticide product being considered for the Proposed Action. In an effort to obtain information on inert ingredients, Westchester County formally submitted Federal FOIA (Freedom of Information Act) and State FOIL (Freedom of Information Law) requests to USEPA, NYSDEC, and NYSDOH. In order for these agencies to release such confidential data, the individual registrants must grant approval for the release of their proprietary information. In addition to the FOIA/FOIL requests, Westchester County conducted interviews with representatives of the pesticide industry, in an attempt to reach an acceptable agreement on both receiving and disclosing inert information. Ultimately, after several attempts, Westchester County was unable to obtain the inert information for the purposes of this GEIS.

In general, pyrethroid products such as Anvil 10+10, Aqua-Reslin, Biomist 1.5+7.5 ULV, and Scourge contain a higher proportion of inert ingredients (e.g., up to 80 percent), as compared to the

⁹ <http://home.donga.ac.kr/~pesticides/history.html>, March 23, 2001.

organophosphate products, with the exception of Formula MU-17 which contains up to 80 percent inerts. The pyrethroid product Biomist 1.5+7.5 ULV contains over 90 percent inert ingredients.

Inert Ingredients in Organophosphate Products

Information on the specific inert ingredients in the organophosphate products is not available. Only the proportion of inert ingredients appears on each product's label and MSDS. As discussed above, organophosphate products generally contain a small percentage of inert ingredients (with the exception of Formula MU-17, which contains up to 80 percent inerts) as compared to the pyrethroid products. The amounts of inerts found within organophosphate products range between 4 percent (Atrapa Insecticide VCP) and 80 percent (Formula MU-17). Since organophosphates are typically applied at technical grade and pyrethroid products have much larger percentages of inerts, the discussion and analysis of impacts from inerts in the products are presented under the pyrethroid products sections in the GEIS.

Inert Ingredients in Pyrethroid Products

A review of each product's MSDS indicates that pyrethroids generally contain petroleum-based inert ingredients called "petroleum distillates," which are also known as "hydrocarbons" or "petrochemicals." Petroleum distillates include a broad range of compounds that are extracted by distillation during the refining of crude oil. They contain both "aromatic" hydrocarbons (they have an odor and include a chemical structure with carbon rings) and "aliphatic" hydrocarbons (they are odorless and have a chemical structure with straight carbon chains). Examples of the types of petroleum distillates found in the pyrethroid products include:

- Anvil 2+2 and 10+10: white mineral oil and aromatic hydrocarbons
- Aqua-Reslin: odorless mineral spirits
- Mosquito Beater 2-2 and 4-4: aromatic solvent carrier, parafinic solvent carrier
- Scourge Insecticide: aromatic petroleum solvent

Petroleum distillates are found in a wide variety of consumer products, including lip-gloss, liquid gas, fertilizer, pesticides, furniture polish, plastics, paint thinners, and motor oil, among many others.¹⁰

G. PESTICIDES AND ORGANIC FARM CERTIFICATION

The National Organic Program, under the Code of Federal Regulations (7 CFR 205), regulates agricultural operations producing crops, livestock, livestock products, or other agricultural products that are intended to be sold, labeled, or represented as "organic." The certifying agent under these regulations, which in Westchester County is the Northeast Organic Farming Association of New York, indicates when a specific agricultural product contains pesticide residues or environmental contaminants that exceed the Food and Drug Administration's (40 CFR 180) or the USEPA's (21 CFR 109 and 509) regulatory tolerances. The certifying agent must promptly report such data to the Federal health agency whose regulatory tolerance or action level has been exceeded.

When residue testing detects prohibited substances at levels that are greater than 5 percent of the USEPA's tolerance or exceed USFDA's action levels for the specific residue detected or unavoidable residual environmental contamination, the agricultural product can not be sold, labeled, or represented as organically produced.

¹⁰ www.epa.gov/seahome/housewaste/house/petrol.htm

In case of a prohibited substance applied to a certified operation due to a Federal or State emergency pest or disease treatment program, the certified operation which otherwise meets the requirements of the regulation, will not lose its certification status as a result of the emergency application, provided that any harvested crop, plant part or livestock that has come in contact with the prohibited substance applied is not sold, labeled, or represented as organically produced.

Although agricultural farms within Westchester County, such as the Cabbage Hill Farm located in Representative Area 7, which is discussed later in Chapter 3.B, “Land Use, Community Facilities, Public Policy, and Zoning,” produce products without the use of chemicals and may be considered organic, none of the farms in Westchester are presently certified as organic operations under this regulation. ♦

CHAPTER 2	2-1
A. Introduction	2-1
B. Descriptions of NYSDEC and USEPA Registration Processes	2-2
USEPA Pesticide Registration Process	2-2
NYSDEC Pesticide Registration Process	2-3
C. Pesticide Applicator Certification and Protection	2-4
Pesticide Applicator Certification and Training	2-5
Pesticide Applicator protection	2-5
Occupational Safety and Health Administration (OSHA)	2-5
Public Employees Safety and Health (PESH)	2-6
USEPA Worker Protection Standard (WPS)	2-6
D. County Pesticide Regulations	2-7
Westchester County Pesticide Reduction Law	2-7
Pesticide Notification Law	2-8
E. Pesticide Usage in New York State	2-8
NYSDEC Reporting Requirements	2-8
Reported Pesticide Usage in Westchester County	2-9
Insecticides Used By Westchester County to Combat West Nile Virus	2-10
Larvicides	2-10
Adulticides	2-11
F. Pesticides That Would Likely be Used for Community-Scale Applications	2-12
Larvicide Composition	2-14
Active Ingredients	2-14
Inert Ingredients	2-15
Adulticide Composition	2-16
Active Ingredients	2-16
Inert Ingredients	2-17
G. PESTICIDES AND ORGANIC FARM CERTIFICATION	2-18
2-1 Pesticides Applied by Commercial Applicators ¹ in 1999 in Westchester County and New York State	2-10
2-2 Pesticide Usage Summary to Control West Nile Virus 1999 through July 2001	2-11
2-3 Larvicides Currently Registered in New York State that could be Applied on a Community-Scale Basis	2-12
2-4 Adulticides Currently Registered in New York State that could be Applied on a Community-Scale Basis	2-13