

PESTICIDE SENSITIVITY REGISTRIES:

**DESCRIPTIVE SUMMARY OF A SURVEY OF STATE PESTICIDE
SENSITIVITY REGISTRIES**

AND

**EVALUATION OF LOUISIANA'S REGISTRY FOR PESTICIDE
HYPERSENSITIVE INDIVIDUALS**

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Abstract

Pesticides are chemicals designed to repel pests, such as insects (insecticides), weeds (herbicides), or rodents (rodenticides). Pesticides are widely used around homes, buildings, and schools, on crops, right-of-ways, parks, and other public spaces. Exposure to pesticides may pose health risks for people with health conditions such as asthma and allergies. Due to adverse health effects from pesticide exposure, protective public health measures have been enacted in some states, including Louisiana. The Louisiana Department of Health and Hospitals' Office of Public Health (LDHH-OPH) conducted a survey in March 2000 to determine which states have prior notification registries for concerned or pesticide sensitive individuals and how the state registries operate.

LDHH-OPH surveyed a representative from each state's Department of Agriculture. Survey results indicate that 11 states have pesticide sensitivity programs or registries. Eight of the 11 states (73%) require physician certification of pesticide sensitivity for placement on the registry. Nine of the 11 states (82%) require mandatory notification of registrants by applicators. The majority of states (64%) require pre-notification solely for turf and ornamental (landscape) applications. Only 3 states require pre-notification for agricultural applications. A summary description of the survey results is presented in this report.

LDHH-OPH also evaluated Louisiana's Registry for Pesticide Hypersensitive Individuals. Louisiana's registry requests commercial pesticide applicators and pest control operators to voluntarily notify registrants prior to pesticide applications within 100 feet or adjacent to their property. To evaluate the effectiveness of the registry, LDHH-OPH conducted a telephone survey of all registrants in March 2000.

Of the 61 households on the registry, 37 participated in the survey. Primary reasons for non-participation include incorrect telephone number (13 households, or 21%) and inability to contact after 10 telephone attempts (5 households, or 8%). Fifteen of the surveyed households (41%) reported notification every time there was a pesticide application within 100 feet or adjacent to their property. Twelve households (32%) were reportedly notified on some occasions, and 10 households (27%) reported never receiving notification of pesticide applications. All 37 surveyed households thought the registry would be more effective if notification was mandatory. Most surveyed households (76%) also felt that 100 feet was not a sufficiently protective distance. A descriptive analysis of the survey results is presented in this report.

INTRODUCTION

Pesticides are chemicals designed to repel pests, such as insects (insecticides), weeds (herbicides), or rodents (rodenticides). Pesticides are widely used around homes, buildings, and schools, on crops, right-of-ways, parks, and other public spaces. Exposure to pesticides poses health risks for people with health conditions such as asthma, allergies, and multiple chemical sensitivity. Due to adverse health effects from pesticide exposure, protective public health measures have been enacted in several states, including Louisiana.

These protective measures usually take the form of registries for pesticide sensitive individuals. Typically, the registries require pre-notification to registrants of impending pesticide applications in their vicinity. Included in this report are descriptive summaries of two surveys: Survey of States' Pesticide Sensitive Registries and the Evaluation of Louisiana's Registry for Pesticide Hypersensitive Individuals.

The Louisiana Department of Health and Hospitals' Office of Public Health (LDHH-OPH) interest is in determining which states have prior notification registries for concerned or pesticide sensitive individuals and how the registries operate. To ascertain this information, a representative from each state was contacted and interviewed about the state's registry program. The report, Survey of States' Pesticide Sensitive Registries, summarizes the results of the survey.

Another interest of LDHH-OPH is evaluating Louisiana's Registry for Pesticide Hypersensitive Individuals. The registry was established in 1989, and is jointly administered by the Louisiana Department of Agriculture and Forestry's Office of Agricultural and Environmental Sciences and LDHH-OPH.

To evaluate the registry, LDHH-OPH conducted a telephone survey of all registrants. The objective of the survey was to determine if registrants are notified when pesticide applications are made within 100 feet or adjacent to their property and to assess registrants' satisfaction with Louisiana's registry system. The report, Evaluation of Louisiana's Registry for Pesticide Hypersensitive Individuals, summarizes the results of the survey data.

SURVEY OF STATE PESTICIDE SENSITIVE REGISTRIES

METHODS

Sample Selection

To ascertain if a state had a registry, in March 2000 the Louisiana Department of Health and Hospitals' Office of Public Health (LDHH-OPH) contacted a representative from the Department of Agriculture in each of the 50 states. From this initial contact, 11 states (22 %) were identified as having registries or programs devoted to informing registrants prior to the application of pesticides in the vicinity of their homes (Appendix 1: Contact Information: State Pesticide Sensitivity Registries). These states are Connecticut, Colorado, Florida, Louisiana, Maine, Maryland, Michigan, Pennsylvania, Washington, West Virginia, and Wisconsin.

Collection of Data

A telephone survey was administered to a representative from each of the 11 states. The survey instrument included 23 open-ended questions about how the registry operates (e.g., the application and renewal process, fees, number and type of allowable addresses), type of pesticide applications covered by the registry, notification requirements, and number of current registrants (Appendix 2: State Pesticide Sensitivity Registry Questionnaire). State representatives were also requested to send LDHH-OPH relevant written material concerning their registry such as regulatory laws, application forms, and registry evaluations.

Administration of the Survey

One interviewer conducted all telephone surveys. Each survey took approximately 20 minutes to administer.

Study Period

The design and administration of the survey and preparation of the final report spanned a total of 200 hours through the months of January through March 2000.

Table 1: Summary Information Of State Pesticide Sensitivity Registries (11 States)

State	Year Program Initiated	# of Registrants in 2000	Fee	Register at Additional Addresses	Annual Renewal	Physician Certification	Purpose of Registry	Notification Requirements	Methods of Notification	Notification Information	Property Requirement	Penalties for Non-compliance
Colorado	1992	40	0	Yes; residential only	Yes	Yes-update every 2 years	Turf and ornamental; non-agriculture	Mandatory; 24 hours prior	Telephone, mail, in person, notice on door	Date and approximate time of application	Abutting	Written notice, civil fines
Connecticut	1989	160	0	Yes; no restrictions	Yes	No	Commercial ; non-agriculture	Mandatory; 24 hours prior	Not specified	Date and time of application	Abutting	\$90
Florida	1991	130	\$50	Yes; \$50 fee, residential only	Yes \$10 fee	Yes	Turf and ornamental; non-Agriculture	Mandatory; 24 hours prior	Telephone, mail, in person, fax	Location and information on the type of pesticide to be used	Adjacent, contiguous, or specified by physicians	Advisory notices, warning letters, and fines
Louisiana	1989	68	0	Yes; no restrictions	No	Yes	Commercial and PCO	Voluntary; 24 hours prior	Not specified	Not specified	100ft or adjacent	No penalties
Maine	1999	10	\$20	Yes; \$20 fee, residential only	Yes \$20 fee	No	Turf and ornamental; non-agriculture	Mandatory; 6 hrs to 14 days	Telephone, mail, in person, notice on door	Date, alternative date, start time, location, brand name, EPA registration number of pesticide used, name, and telephone number of applicator	250ft	1 st offense: \$1,500
Maryland	1988	150	0	No	Yes	Yes	Turf and ornamental; non-Agriculture	Mandatory; day before to time of	Telephone, mail, in person, notice on door	Not specified	Adjacent or contiguous	Letter, notice of warning, civil penalty, license restriction
Michigan	1993	87	0	No	Yes	Yes	Turf and ornamental; non-Agriculture	Mandatory; 24 hours prior	Telephone, mail	Date, time, location, brand name of pesticide, and name, address, and telephone number of applicator,	Adjacent	1 st offense: warning letter, 2 nd offense: \$50 to \$500
Pennsylvania	1991	570	0	Yes; place of employment, school, or vacation home	Yes	Yes	Commercial and public	Mandatory; not less than 12 hours not more than 72 hours	Telephone, mail (certified), notice on door	Date, start time, finish time, location, brand name and EPA registration number, active ingredient, and name, telephone number, and business license number of applicator	500ft	1 st offense: \$100
Washington	1992	125	0	No	Yes	Yes	Turf and ornamental; non-Agriculture	Mandatory; 2 hours prior	Telephone, mail, in person	Date and time of application	Abutting	1 st offense: notice of correction; 2 nd offense: civil penalty
West Virginia	1991	27	0	Yes; no restrictions	Yes	Yes	Commercial	Voluntary	Not specified	Not specified	Not specified	No penalties
Wisconsin	1993	1,100	0	Yes; residential only	Yes	No	Turf and ornamental; non-Agriculture	Mandatory; 12 hours prior	Telephone, notice on door	Date, brand name of pesticide, and name, address, and telephone number of applicator	Block or adjoining block	1 st offense: \$100; 2 nd offense:\$500

RESULTS

Summary results of the survey information from the 11 states are shown in Table 1 (Appendix 3: State Survey Summaries). Ten of the 11 states (91%) initiated their registries in the late 1980s or early 1990s. Maine's registry was initiated in 1999. All 11 registries were created through legislation. The number of registrants per registry ranges from 10 (Maine) to 1,100 (Wisconsin). The average number of registrants per registry is 223.

Nine states (82%) do not require a fee for placement on their registries. Two states, Maine and Florida, require an initiation and renewal fee. Registrants are required to annually renew their application in every state except Louisiana. Registrants are required to obtain physician certification of sensitivity to pesticides in 8 states (73%). Three states, Connecticut, Maine, and Wisconsin, do not require physician certification.

Eight states (73%) allow registrants to register additional addresses. Connecticut, Louisiana, and West Virginia do not have restrictions on the types of additional addresses that may be listed. Pennsylvania limits additional addresses to places of employment, schools, or vacation homes. Colorado, Florida, Maine, and Wisconsin restrict additional addresses to residential. Furthermore, Florida and Maine require completion of another application and payment of appropriate fees in order to list additional addresses. Maryland, Michigan, and Washington do not allow additional addresses.

States vary in the type of pesticide applications that require prior notification. Seven states (64%) - Colorado, Florida, Maine, Maryland, Michigan, Washington, and Wisconsin - require prior notification for ornamental and turf applications. Two states, Connecticut and West Virginia, require prior notification for commercial pesticide applications. Louisiana requires prior notification for commercial pesticide applications and for pest control operators, and Pennsylvania requires notification for commercial and public application of pesticides. Three states (27%) - Louisiana, Pennsylvania, and West Virginia - provide notification for agriculturally related pesticide applications.

Mandatory notification of pesticide applications from applicators is required in 9 states (82%). Louisiana and West Virginia do not require mandatory notification. Colorado, Connecticut, Florida, and Michigan require applicators to provide notification to registrants 24-hours prior to pesticide applications. Wisconsin requires 12-hour prior notification, and Pennsylvania requires notification 12 to 72 hours prior to application. Maine requires applicators to provide notification 6 hours to 14 days prior, and Maryland requires notification 24 hours or up until the time of the application. Louisiana requests applicators to provide notification 24 hours prior to application, and West Virginia does not specify a time frame for notification.

Applicators may provide notification by various methods. Colorado, Maine, and Maryland require that applicators notify registrants by telephone, mail, in person, or with a notice on the registrant's door. Florida allows the same notification methods, but a fax can be used in place of a notice on the door. Pennsylvania also requires notification by the same methods excluding notification in person. Washington requires notification by the same methods except for notice on the door. Michigan requires that registrants be contacted by telephone or

mail. Wisconsin requires notification by telephone or notice on the door. Three states, Connecticut, Louisiana and West Virginia, do not specify method of contact.

In 8 states (73%), applicators are required to provide certain information to registrants concerning the application. Colorado, Connecticut, and Washington require applicators to provide registrants with the date and time of the application. Maine, Michigan, and Pennsylvania require applicators to provide information on the location, time, and date of the pesticide application and information on the pesticide(s) used and the applicator. Florida requires information on the location and pesticide(s), and Wisconsin requires information on the date, pesticide(s), and applicator. Three states, Louisiana, Maryland, and West Virginia, do not specify notification information.

Applicators must notify registrants of pesticide applications to properties within close vicinity of a registrant's property. Three states specify distances for which notification is required. Louisiana suggests 100 feet or adjacent to the registrant's property, Maine requires 250 feet, and Pennsylvania requires 500 feet. Colorado, Connecticut, Michigan, Maryland and Washington require notification when applications are made to properties abutting or adjacent to registrant's property. Florida requires notification if the property is adjacent, contiguous, or within a distance specified by a physician. Wisconsin requires notification when the property is on the same block or adjoining block as the registrant's property.

With the exception of Louisiana and West Virginia, all states impose penalties for noncompliance. These penalties range from written notices, warning letters, and license restrictions to monetary fines.

EVALUATION OF LOUISIANA'S REGISTRY FOR PESTICIDE HYPERSENSITIVE INDIVIDUALS

METHODS

Sample Selection

All registrants listed on Louisiana's Registry for Pesticide Hypersensitive Individuals were included in the survey. The Registry list used for the survey was from April 29, 2000 and contained 61 residences and 68 registrants. Four households had multiple individuals on the registry. One person per household was contacted to complete the telephone survey. The survey was administered to the registrant identified on the registry list. In the event the registrant was not home, the survey was administered to a household member over the age of 18. Ten telephone attempts were made per household after which no further attempts were made.

Collection of Data

The 49-question survey collected information on health, geographic location, satisfaction with the registry, notification provided by applicators, and suggestions for improving the registry (Appendix 4: Questionnaire for Louisiana's Registry of Pesticide Hypersensitive Individuals).

Administration of the Survey

One interviewer administered all of the surveys and expressed confidentiality to all study participants. Each survey took approximately 25 minutes to administer.

Data Analysis

Survey responses were entered into a database and descriptive statistical analysis were performed on the data.

Study Period

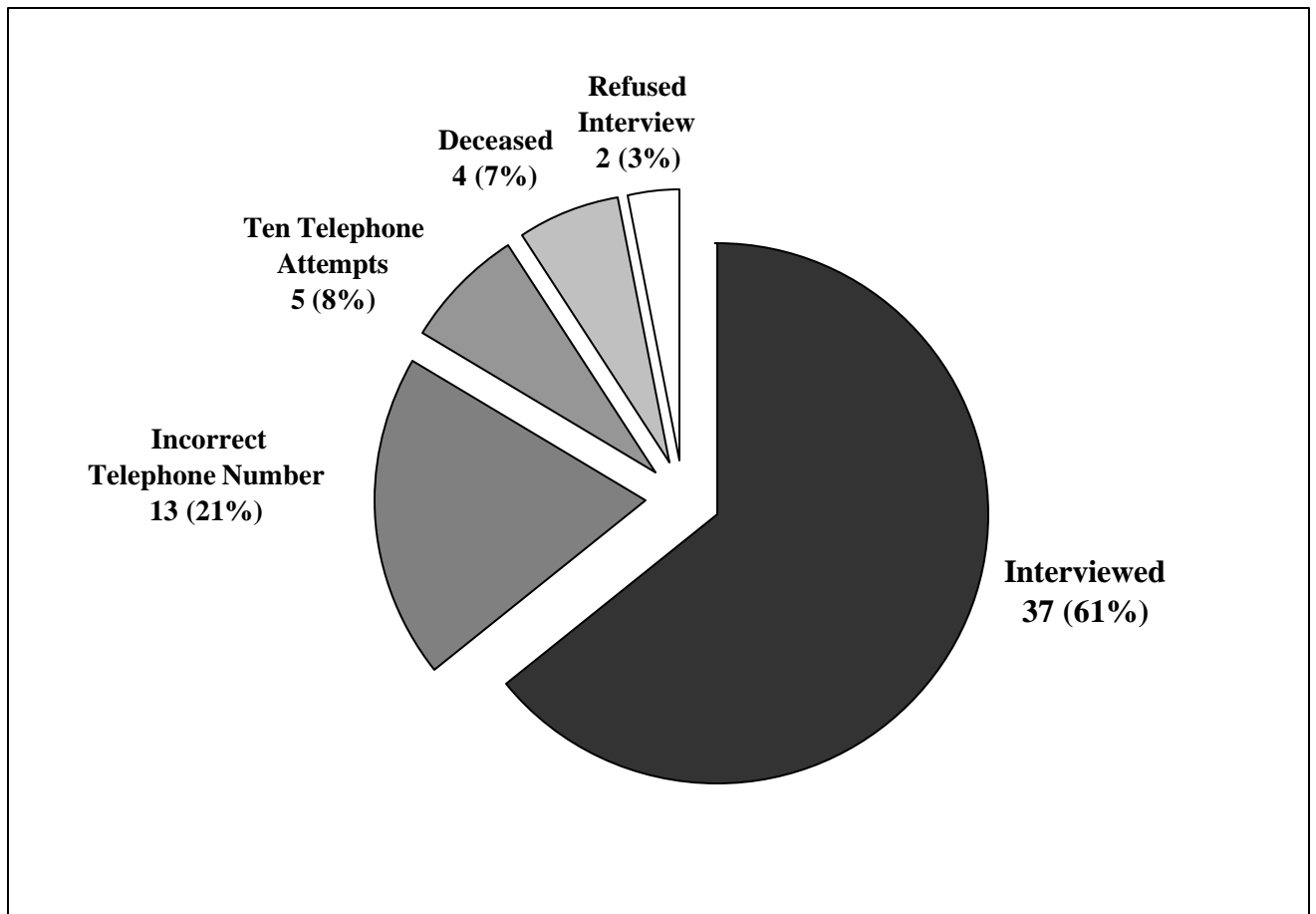
The design and administration of the surveys, database development, data entry and analysis, and final report preparation spanned a total of 300 hours through the months of March to July 2000.

RESULTS

Survey Participants

Louisiana's Registry of Pesticide Hypersensitive Individuals contains 68 registrants from 61 households; 4 households had multiple registrants. There was a 63% response rate at the individual level (43 registrants) and a 61% response rate at the household level (37 households). Twenty-four households (39%) did not participate in the survey. Reasons for non-participation include incorrect telephone number (13 households, or 21%), inability to contact after 10 telephone attempts (5 households, or 8%), deceased (4 households, or 7%) and, refusal to participate (2 households, or 3%). Directory assistance was obtained for the 13 households with incorrect telephone numbers, but new telephone numbers were not available. This information is illustrated in Figure 1.

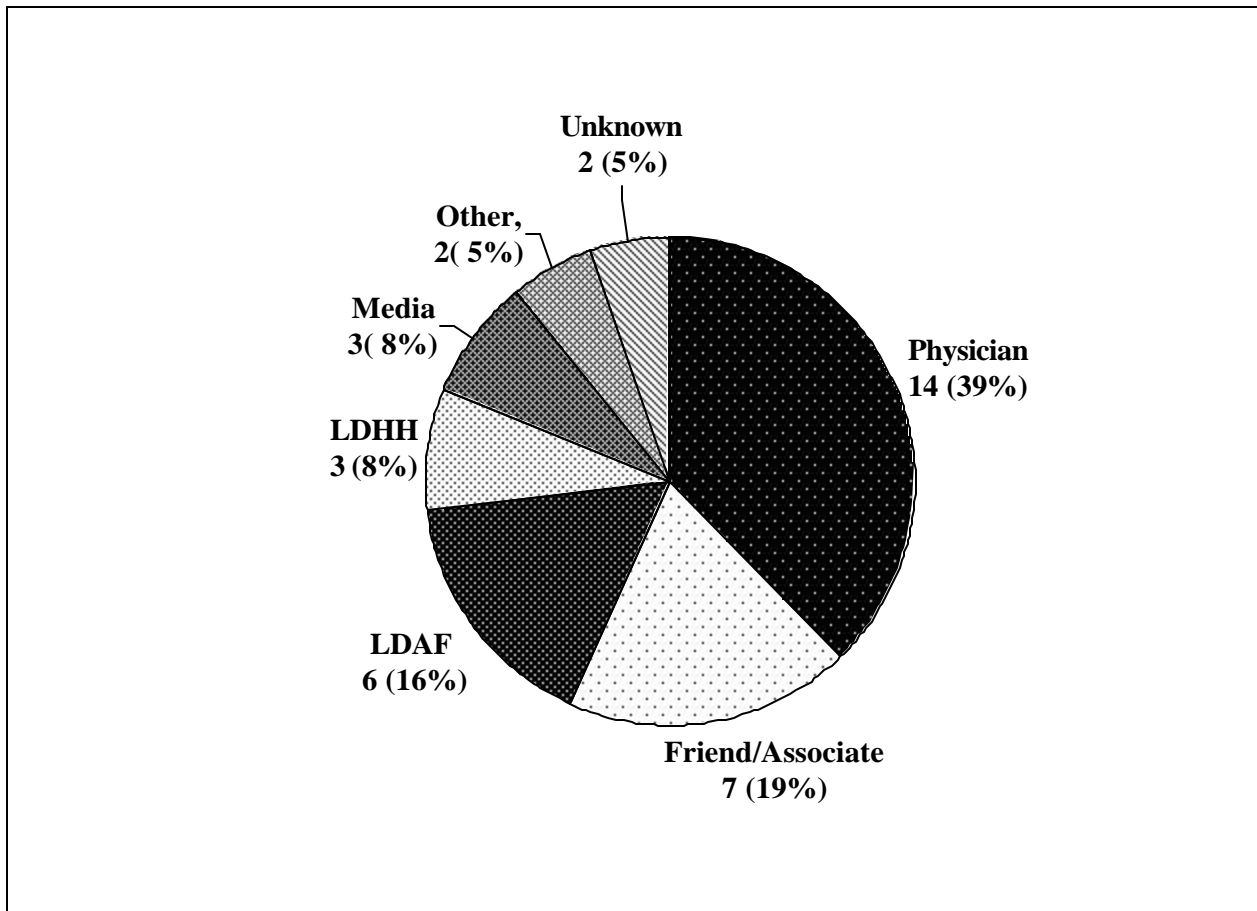
Figure 1: Survey Participants (61 Households)



Sources of Information about the Registry

The most commonly reported sources of information about the registry include physicians (14 households, or 39%), a friend or associate (7 households, 19%), and the Louisiana Department of Agriculture and Forestry (6 households, or 16%). The remaining sources of information include the Louisiana Department of Health and Hospitals (3 households, or 8%), and the media (3 households, or 8%). The category “other” includes Federal Aviation Administration (1 household or 2.5%) and Poison Control Center (1 household, or 2.5%). The initial source of information was unknown for 2 households or 5%. This information is illustrated in Figure 2.

Figure 2: Sources of Information about Louisiana’s Registry of Pesticide Hypersensitive Individuals (37 Households)



Surveyed Registrants: Demographics

A demographic summary of surveyed registrants is presented in Table 2. Seventy-two percent (31 registrants) of the surveyed registrants are female, and 81% (35 registrants) are Caucasian and/or European descent. Registrants' median age is 53 years. The most commonly reported occupations include retired (13 registrants, or 30%) and homemaker (8 registrants, or 19%). Seventy-seven percent of registrants (33 registrants) spend the majority of their day at home. Of those who spend the majority of their day away from home, 30% (3 registrants) made special provisions to protect themselves from pesticide exposures while away from home (e.g., installing air filter in car, notifying people at work about their pesticide sensitivity). The majority of registrants (24 registrants, or 56%) have been on the registry for more than 3 years.

Table 2: Demographic Information of Surveyed Registrants (43 Registrants)

	Number	%
Age (years)		
0-19	7	16
20-49	7	16
50-59	14	33
60-69	10	23
70 and over	5	12
Sex		
Female	31	72
Male	12	28
Race/Ethnicity		
Caucasian/European Descent	35	81
Native American	6	14
Hispanic	2	5
Occupation		
Retired	13	30
Homemaker	8	19
Student	7	16
Disabled	7	16
Full-time Employment	6	14
Farmer	2	5
Location Where Majority of Day is Spent		
Home	33	77
School	6	14
Work	2	5
Other*	2	5
Number of Years on the Registry		
1-3	19	44
4-6	10	23
7-10	14	33

* The category "other" consists of day spent away from home participating in hobbies or day spent in town.

Surveyed Registrants: Health Information

Ninety-one percent of the registrants (39 registrants) stated that they have medical conditions, and 63% (27 registrants) stated that they have been diagnosed with multiple chemical sensitivity (MCS) or environmentally related illness. Other commonly reported medical conditions include asthma (7 registrants, or 16%) and allergies (6 registrants, or 14%). In addition to experiencing symptoms when exposed to pesticides, exposures to other substances also cause some registrants to experience symptoms: perfume (7 registrants, or 16%), gasoline fumes (4 registrants, or 9%), and cleaning products (3 registrants, 7%).

Geographic Information

Table 3 provides a geographic breakdown of surveyed households. Sixty-two percent of the surveyed households (23 households) are located in a rural area, and 49% (18 households) are located adjacent to a farm. Sixteen percent of surveyed households (6 households) are on a farm that grows crops for profit. The most common types of properties within 100 feet of the surveyed households include residences (20 households, or 54%) and farms (18 households 49%).

Table 3: Geographic Information of Surveyed Households (37 Households)

	Number	%
Location of Residence		
Rural	23	62
Urban	14	38
Is Residence on a Farm that Grows Crops for Profit		
No	31	84
Yes	6	16
Types of Properties Within 100 feet of Property Line*		
Residences	20	54
Farms	18	49
Other**	9	24

*The figures for the types of properties does not total 100% because surveyed households could have more than one type of property within 100 feet or adjacent to their property.

**The category “other” includes golf course, park, field, railroad, post office, and school.

As shown in Table 4, surveyed households are located in 23 of Louisiana’s 64 parishes (36%). Parishes with the largest number of surveyed households are located in the Acadiana Region of the state: Iberia (4 households, or 11%) and Lafayette (4 households, or 11%).

Table 4: Surveyed Households by Parish (37 Households)

Parish	Number	%
Iberia	4	11
Lafayette	4	11
East Baton Rouge	3	8
Ouachita	3	8
Acadia	2	5
Calcasieu	2	5
Natchitoches	2	5
West Carroll	2	5
Other*	15	41

*Includes 15 parishes with only one household per parish.

Types of Pesticide Applications

Surveyed households were asked about the types of applications made within 100 feet of their property. Fifty-seven percent of the households (21 households) reported pesticide applications to crops within 100 feet or adjacent to their property, 27% (10 households) reported residential applications, and 22% (8 households) reported right-of-way pesticide applications. In response to the question, “do you spray or have someone spray your yard or home with pesticides,” 89% of surveyed households (33 households) responded “no.” This information is illustrated in Table 5.

**Table 5: Types of Pesticide Applications Reported by Surveyed Households
(37 Households)**

	Number	%
Types of Pesticide Applications Made in the Vicinity of Residence*		
Crops	21	57
Residential	10	27
Right-of-way	8	22
Mosquito	6	16
Structural	5	14
Livestock	2	5
Other**	3	8
Household Pesticide Use		
Never	33	89
Monthly	2	5
Weekly	1	3
Yearly	1	3

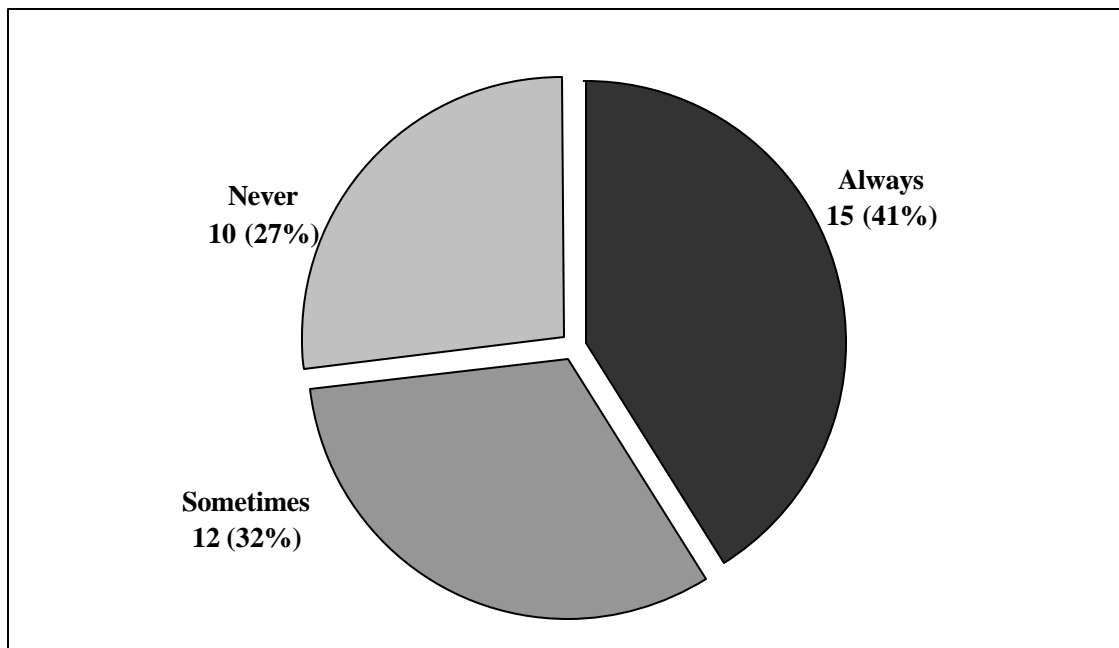
*The percentages for types of pesticide applications do not total 100% because a household could report more than one type of pesticide application.

** The category “other” includes herbicide applications to parks and fields.

Rate of Notification

Of the 37 surveyed households, 15 (41%) reported notification everytime there was a pesticide application within 100 feet or adjacent to their property, and 12 (32%) were reportedly notified on some occasions. Ten households (27%) reportedly were never notified of pesticide applications even though they occurred within 100 feet or adjacent to their property. This information is illustrated in Figure 3.

Figure 3: Rate of Notification of Pesticide Applications Reported by Surveyed Households (37 Households)



Notification Information

Of the 27 households reporting that they were always or occasionally notified of pesticide applications, 23 (85%) stated that they received notification by telephone. Information commonly received includes the approximate time of the application (21 households, or 78%) and location (19 households, 70%).

Notification was received within 24 hours of application for the majority of households: 33% (9 households) reportedly received notification from the applicator within 12 hours of application, and 33% (9 households) reportedly received notification 12 to 24 hours prior to application. Seventy-four percent of the households (20 households) stated that the time between notification and application was adequate. When notified, 52% of the household residents (14 households) reportedly stayed inside their home. This information is illustrated in Table 6.

**Table 6: Notification Information Provided to Households by the Applicators
(27 Households)**

	Number	%
Ways Notification is Provided By Applicator*		
Telephone	23	85
In person	3	11
Media	2	7
Letter	2	7
Information Provided to Registrant by Applicator*		
Approximate Time of Application	21	78
Location of Application	19	70
Date of Application	13	48
Brand Name of Pesticide Used	5	19
Other**	3	11
Length of Time Between Notification and Application		
Less than 12 Hours	9	33
12-24 Hours	9	33
Greater than 24 Hours	6	22
Immediately Before	3	11
Is the Time Between Notification and Application Adequate		
Yes	20	74
No	7	26
Precautions Taken to Avoid Exposure		
Stay Inside Home	14	52
Leave Home	7	26
Stay Inside Home or Leave Home	6	22

*The percentages do not total 100% because a household could receive notification by more than one method and be provided with several types of information about the application to be performed.

** The category "other" includes wind speed and applicator information.

Notification Information Preferred by Surveyed Households

Surveyed households were questioned about their preferred notification method and information provided by the applicator. As shown in Table 7, 78% of surveyed households (29 households) preferred to receive a telephone call at home. Households mentioned a range of information they would like to obtain from the applicator: approximate time of the application (27 households or 73%), location of pesticide application (23 households or 62%), date of pesticide application (19 household, or 51%), and brand name of the pesticide(s) (19 households, or 51%). Thirty percent of the households (11 households) preferred more than 2 days notice, and 27% (10 households) preferred 12 to 24 hours between notice and pesticide application.

**Table 7: Preferred Notification Information
(37 Households)**

	Number	%
Preferred Method of Notification*		
Telephone Call	29	78
Letter	9	24
In person	4	11
Fax	1	3
No Response*	2	5
Preferred Information Provided by the Applicator*		
Approximate Time of Application	27	73
Location of Pesticide Application	23	62
Date of Application	19	51
Brand Name of the Pesticide Used	19	51
Other**	7	19
No Response***	2	5
Preferred Length of Time between Notification & Application		
Greater than 2 Days	11	30
12-24 Hours	10	27
1-2 Days	7	19
Less than 12 Hours	5	14
Immediately Before	2	5
No Response***	2	5

*The percentages for preferred method of notification and information provided by the applicator do not total 100% because a household could provide more than one preferred choice of notification.

** The category “other” includes notification information such as Material Safety Data Sheet, name and telephone number of the person or company making the application, method of pesticide application, length of time the chemical remains in the air, wind information, and the direction of the plane.

*** The “no response” category contains households that did not want any pesticides applied near their property.

Pesticide Applications Made without Prior Notification

Of the 37 households surveyed, 10 (27%) were reportedly never notified of pesticide applications, and 12 (32%) reported occasional notification. Of these 22 households, 10 (45%) households reported that they could identify the applicator.

The 10 households that were able to identify the applicator contacted the applicator and requested notification of future applications. Of these 10 contacted applicators, 2 provided notification on subsequent applications.

Suggestions and Comments for Registry Improvement

Surveyed households were asked about ways to improve the registry. Seventy-six percent of households felt that 100 feet was not a sufficiently protective distance. All surveyed households felt that notification by applicators should be mandatory. Seventy percent would be willing to pay a small fee in exchange for mandatory notification. This information is illustrated in Table 8.

Table 8: Registrants' Opinion of Louisiana's Registry of Pesticide Hypersensitive Individuals (37 Households)

	Number	%
Do You Feel that 100 feet is a Protective Enough Distance?		
No	28	76
Yes	9	24
Would You be in Favor of Making the Registry Mandatory?		
Yes	37	100
No	0	-
Would You be Willing to Pay a Small Fee in Exchange for Mandatory Reporting?		
Yes	26	70
No	11	30

DISCUSSION

Pesticide registries provide an important public health role by limiting inadvertent pesticide exposure to individuals with pesticide sensitivities. In 2000, Louisiana was 1 of 11 states with a pesticide registry. The survey of registrants on Louisiana's Registry of Pesticide Hypersensitive Individuals gathered demographic and health data in addition to detailed information about type and timeliness of applicator contact. This is the first evaluation of Louisiana's registry since its inception in 1989.

The survey results have several limitations. A primary limitation is the low response rate: only 61% of registry households participated in the survey. Although data were not collected from non-responders, it is likely that a majority of these households do not receive applicator notification. Non-responders include 13 households with incorrect telephone numbers and 5 households that were unreachable after 10 telephone attempts. Since most applicator contact takes place via telephone, these 18 households were unlikely to have been contacted by the applicator. Another potential limitation is recall of events occurring in the past. Survey participants were asked to provide detailed information about applicator activity since they have been on the registry. There is value in obtaining information for a long time period because it increases the amount of information, especially for infrequent events such as applicator notification. However, recalled information becomes less accurate the longer the time period. Finally, survey results are limited by subjective questions such as asking respondents to identify pesticide applications made within 100 feet of their property line. Despite these limitations, the survey results reflect the overall effectiveness of the registry, and they can be used to guide improvements and changes to the registry.

Of the 11 states with registries, Louisiana is the only state that does not annually renew registrants. An annually updated registry would ensure that contact information, such as telephone number, is correct. The large number of individuals with incorrect telephone numbers or who were unreachable after 10 telephone attempts suggests that either the contact information on the registry was incorrect or that registrants have moved or changed their telephone numbers. An updated, accurate registry would reduce time spent by applicators attempting to contact registrants who have moved, died, or no longer wish to be contacted.

Physician certification of pesticide sensitivity is required for placement on registries in 8 of the 11 states, including Louisiana. Almost all Louisiana registrants stated they have a medical condition, and a majority of registrants reported a diagnosis of multiple chemical sensitivity (MCS) or environmentally related illness. Registrants also complained of experiencing symptoms when exposed to other products (e.g., perfume, gasoline, and cleaning solvents) which are consistent with sensitivities reported by MCS patients.

Eight of the 11 states with pesticide registries (including Louisiana) allow registrants to list more than 1 address for pre-notification. In Louisiana, a registrant has never requested to register at more than 1 address. Most surveyed registrants stated that they spend the majority of their day at home: 65% were either retired, a homemaker, or disabled.

Fourteen percent of the surveyed registrants spend the majority of their day at school. Louisiana schools are required to maintain a hypersensitive student registry. As stated in the Louisiana Pesticide Law, “the legislature finds that exposure of school children to pesticides poses known and, as of yet, unknown risks to their health and well-being (Louisiana Revised Statutes 3:3381-3389).” To protect children from pesticide exposures while at school, the Louisiana Pesticide Law requires schools to maintain a hypersensitive student registry, develop an Integrated Pest Management Plan, and maintain records of pesticides used on school properties. The Integrated Pest Management Plan encourages schools to use the least toxic method of pest control.

Almost all surveyed registrants stated that they do not use any pesticides on their property. This finding reveals the importance surveyed registrants place on limiting their exposure to pesticides, both inadvertent pesticide exposure and household exposure. Contrary to surveyed registrants’ limited pesticide use, a Louisiana Department of Health and Hospitals survey on household pesticide use revealed that over 90% of respondents used household pesticides (LDHH-OPH, 1999).

Demographic data do not reveal a pattern regarding parish of residence. Registrants live in 23 of Louisiana’s 64 parishes. The number of households per parish ranges from 1 to 4. Most registrants live in rural areas, although only a small percentage of rural registrants grow crops for profit.

The types of properties bordering registrants are primarily farms and residences. Despite the large percentage of households bordering residences, only a quarter of households reported residential pesticide applications made in the vicinity of their home. Registrants reported pesticide applications to agricultural crops were the most common type of pesticide applications made within 100 feet of their property. The interface of residential and agricultural areas in Louisiana provides unique pesticide exposure problems. Residences situated in close vicinity of agricultural crops may be affected by aerial applications of pesticides. Individuals with chemical sensitivities may be particularly sensitive to aerial pesticide applications, even when correctly applied.

Seven of the 11 state registries provide notification solely for turf and ornamental applications. In Louisiana, pre-notification is provided for all commercial applications, in addition to pest control applications. Commercial applications in Louisiana primarily refer to agriculturally related applications.

Applicator notification of pesticide use is mandatory in 9 of 11 states with registries, excluding Louisiana and West Virginia. Pennsylvania’s voluntary notification program was established in 1991 and replaced with mandatory notification in 1995. In Louisiana, the majority of surveyed households reported they were not notified every time a pesticide application was made within 100 feet of their home. In 10 instances, non-compliant applicators were contacted by registrants and asked to provide notification for future applications. It was reported that despite registrants’ requests, only 2 applicators provided future notification. This finding demonstrates that Louisiana’s voluntary system has not induced compliance from the majority of applicators, even after notification by registrants.

Although LDAF encourages applicators to provide notification 24 hours prior to an application, the majority of registrants were contacted within 24 hours of the pesticide application. Most surveyed registrants, however, were satisfied with the amount of time between notification and application. When notified, surveyed registrants reported that they either remain inside their homes or leave home.

The time period for notification preferred by surveyed registrants varies between more than 24 hours and less than 24 hours. The range in notification times is also reflected in notification requirements in other states. Of the 9 states with mandatory notification, 4 require notification 24 hours prior to application, and 5 allow notification to occur within 24 hours of application.

The registrants who were notified prior to pesticide applications reported that applicators generally contact them by telephone. Surveyed registrants stated a preference for telephone contact, the most widely used method of notification in other states.

Applicators typically provide registrants with the location and approximate time of the pesticide application. In almost half of the notification instances, registrants were provided with the date of application. Registrants preferred notification information that included the date of pesticide application, approximate time of application, location of pesticide application, and brand name of pesticide(s) used during the application.

Pesticide products' brand name may not be very useful because it does not reveal the pesticide's active ingredient (s). Other states, such as Maine and Pennsylvania, require notification of a product's EPA registration number and active ingredient. Four states also require applicators to provide registrants with the name and telephone number of the applicator.

Surveyed registrants were asked about ways to improve the registry. All respondents agreed that applicator notification should be mandatory. Eighty-two percent of states with registries require mandatory notification. Non-compliance in these states results in license restriction, civil penalties and/or monetary penalties. In Louisiana, there is no penalty for non-compliance. Most surveyed registrants expressed willingness to pay a small fee in exchange for mandatory notification. Of the 9 states with mandatory notification, only 2 require fees. Registrants also felt that 100 feet was not a sufficiently protective distance. In other states, notification distances range from abutting properties to any property within the block or adjoining block. As previously noted, registries in other states are primarily concerned with turf and ornamental applications, such as landscape applications. In Louisiana, however, aerial applications of agricultural pesticides are a concern for many registrants.

The survey revealed that Louisiana's Registry of Pesticide Hypersensitive Individuals provides the potential of protection from inadvertent pesticide exposure. The voluntary nature of the program, however, limits registrant contact. Important findings include 1) a large percentage of households have incorrect contact information; 2) the majority of households are located in a rural area; 3) agricultural pesticide applications are the most frequent type of application affecting registrants; and 4) approximately 25% of surveyed households were reportedly never notified.

RECOMMENDATIONS

The Louisiana Department of Health and Hospitals' Office of Public Health (LDHH-OPH) recommends the following:

- LDHH-OPH and LDAF should periodically meet to review the operation of the registry in order to ensure its efficiency and effectiveness.
- Registrants should periodically renew their application in order to ensure that contact information is correct.
- The registry should be more widely publicized.

REFERENCES

LDHH-OPH Report: Methyl Parathion (MP) and Other Pesticides. August 1999.

Louisiana Revised Statutes. Title 3. Sections 3381 – 3389.

APPENDICES

Appendix 1: Contact Information: State Pesticide Sensitivity Registries

- Colorado:** Department of Agriculture
Division of Plant Industry
700 Kipling Street, Suite 4000
Lakewood, CO 80215-5894
Telephone: (303) 239-4146
- Connecticut:** State of Connecticut
Waste Management Bureau/Pesticides Management Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106
Telephone: (860) 424-3369
- Florida:** Department of Agriculture and Consumer Services
Bureau of Entomology and Pest Control
Division of Inspection
Post Office Box 210
Jacksonville, FL 32231
Telephone: (352) 955-2270
- Louisiana:** Louisiana Department of Agriculture & Forestry
Office of Agricultural & Environmental Sciences
Pesticides & Environmental Programs
Post Office Box 3496
Baton Rouge, LA 70821-3596
Telephone: (225) 925-3763
- Maine:** State of Maine
Department of Agriculture, Food, & Rural Resources
Board of Pesticides Control
Deering Building, AMHI Complex
Augusta, ME 04333
Telephone: (207) 287-2731
- Maryland:** Maryland Department of Agriculture
Pesticide Regulation Section
50 Harry S. Truman Parkway
Annapolis, MD 21401
Telephone: (410) 841-5710

Michigan: State of Michigan
Department of Agriculture
P.O. Box 30017
Lansing, MI 48909
Telephone: (517) 241-1169

Pennsylvania: Pennsylvania Department of Agriculture
Bureau of Plant Industry
2301 N. Cameron Street
Harrisburg, PA 17110-9408
(717) 772-5214

Washington: State of Washington
Department of Agriculture
P.O. Box 42560
Olympia, WA 98504-2560
Telephone: (360) 902-2073

West Virginia: West Virginia Department of Agriculture
1900 Kanawha Boulevard, East
Charleston, WV 25305-0170
Telephone: (304) 558-2209

Wisconsin: Department of Agriculture, Trade, and Consumer Protection
2811 Agriculture Drive
Madison, WI 53718-6777
Telephone: (608) 224-4500

Appendix 2: State Pesticide Sensitivity Registry Questionnaire

State:

1. What is the name of the agency/agencies responsible for the registry?
2. Is the notification voluntary or mandatory?
3. How long has the state had the registry?
4. How often is the registry updated? If information on the initial application changes, how long does the registrant have to make changes (i.e., new address or new telephone number)? What are the repercussions if the individual does not make the necessary changes?
5. Is there a fee to have your name placed on the registry or is it free?
6. If yes, how much is it?
7. Is there an annual renewal fee?
8. If yes, how much is it?
9. Are there any conditions for renewal (i.e., another physician certification or reapplication)?
10. How often does renewal occur (e.g., first of the year, middle of the year)?
11. How many people or households (registrants) are on the registry?
12. Who is on the registry? How does a person get on the registry (i.e., physician certification or application)? Are there any specific requirements a person must meet in order to be placed on the registry? Can any hypersensitive person be placed on the registry or is it for specific medical conditions?
13. Can a person be registered at more than one address?
14. If yes, are there any specifications for which addresses can be included (i.e., vacation home, place of employment)?
15. How does an individual know his/her name has been added to the registry?
16. What types of applicators receive the registry list (i.e., commercial or PCOs)?
17. How often are applicators sent an updated registry list (i.e., once a year, twice a year)?
18. What are the property requirements for applicators concerning notification for spraying (i.e., 500 feet, abutting, or adjoining properties)?
19. What are the time requirements for applicators concerning notification for spraying (i.e., 24 hours or 48 hours prior to application)?
20. What are the methods of notification an applicator can use (i.e., phone call, letter)?
21. What are the penalties for applicators and PCOs who violate these notification guidelines?
22. Has there ever been a survey conducted concerning the effectiveness of the registry?
If yes, is it possible to obtain survey results and a copy of the survey?

Appendix 3: State Survey Summaries

COLORADO REGISTRY OF PESTICIDE-SENSITIVE PERSONS

In 1992, the Colorado Department of Agriculture's Division of Plant Industry established its Registry of Pesticide-Sensitive Persons. The purpose of the registry is to notify individuals of nonagricultural turf and ornamental applications in the vicinity of their home. Applicator notification is mandatory. Registrants are required to obtain physician certification of pesticide sensitivity.

There are 40 individuals on the registry. An individual's name is placed on the registry when he/she has completed an application. The application includes the applicant's name, address, telephone number(s), list of abutting properties, and physician certification. The physician must be licensed to practice medicine in Colorado. The medical conditions of individuals on the registry range from chemical sensitivity to asthma. An individual can register at more than one address provided he/she completes another application with physician's certification. Additional addresses must be residential. A registrant is sent a registration confirmation letter and placards once his/her name has been placed on the registry. The placards include the registration number and can be displayed as the registrant sees fit.

Registry renewal occurs every November. A registrant is sent a renewal form to be completed and returned to the Department of Agriculture. Every two years a registrant must provide physician certification of pesticide sensitivity, in addition to the renewal form. Any change in the information provided on the application or renewal forms must be reported to the Department of Agriculture within fifteen days of the change. Every January, an updated registry list is distributed to all Colorado licensed and registered pesticide applicators.

Registrants are notified by commercial, limited commercial, and public applicators of turf and ornamental pesticide applications made to abutting properties. Applicators must notify a registrant 24 hours prior to application. Notification must be made by mail, telephone, or in person. If the applicator is unable to contact the registrant at least 24 hours before the application, the applicator can notify him/her immediately before the application. If the applicator is still unable to notify the registrant, the applicator can leave a notice on the door of the residence stating that an application has occurred and that notification was attempted. Notification must include the date and the approximate time of the application.

Applicators who violate notification guidelines are subject to penalties ranging from a written notice to civil fines. Penalties depend on the circumstances of the situation and prior history.

CONNECTICUT PESTICIDE NOTIFICATION REGISTRY

In 1989, Connecticut's Department of Environmental Protection established its Pesticide Notification Registry. The purpose of the registry is to enable individuals to be notified of nonagricultural, commercial pesticide applications in the vicinity of their home. Notification from an applicator is mandatory. The registry is open to anyone who wishes to be notified of pesticide applications in their area.

There are 160 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes an applicant's name, address, telephone number, and list of abutting properties. An individual may register more than one address. There are no restrictions on the type of additional residences (e.g., vacation home, school). No type of confirmation is sent to the applicant once his/her name is added to the registry.

Registry renewal occurs annually in December. A registrant is sent a renewal form to be completed and returned. At this time a registrant can make changes to his/her address, telephone number, or list of abutting properties. An updated registry is sent to all regulated pesticide application businesses. Agricultural applications are not included in the registry.

Registrants are notified by applicators of pesticide applications made to abutting properties listed on the registry. Applications to areas greater than 100 yards from the registrant's property line do not require notification. Applicators must notify a registrant 24 hours prior to application. Notification can be made by any practical method the applicator decides to use. The most commonly used method is a telephone call. Notification must include the time and date of application.

Applicators in violation of these notification guidelines are subject to a ninety-dollar civil penalty.

FLORIDA REGISTRY OF PERSONS REQUIRING NOTIFICATION OF THE APPLICATION OF PESTICIDES

In 1991, Florida established its Registry of Persons Requiring Prior Notification of the Application of Pesticides. The registry is controlled by the Florida Department of Agriculture and Consumer Services' Bureau of Entomology and Pest Control. The purpose of the registry is to enable individuals to be notified of pesticide applications to a lawn, plant bed, or exterior foliage in the vicinity of their home. Notification from an applicator is mandatory. Notification is voluntary for agricultural pesticide applications. The registry is open to individuals who obtain certification from a physician stating that prior notification of a pesticide or class of pesticides is necessary to protect their health.

There are 130 individuals on the registry. An individual's name is placed on the registry upon completion of an application and payment of an initial registration fee of fifty dollars. The application includes the applicant's name, primary residence address, telephone number, physician's certification, and list of addresses contiguous or adjacent to their property. Additional properties can also be included if specified by a registrant's physician. The physician must be licensed to practice medicine in Florida. An individual can be registered at more than address for an additional fifty-dollar fee. Additional addresses must be residential. A registrant is sent a confirmation letter and a copy of the registry once his/her name has been added to the list.

Registry renewal occurs once a year. To reapply, a registrant must submit a physician's certification of pesticide sensitivity and ten-dollar renewal fee. The registry is updated quarterly to include new individuals on the registry list. A copy of the updated registry is sent to all commercial, limited commercial, and government agencies.

Registrants are notified by applicators of pesticide applications made to adjacent or contiguous properties, or within a distance specified by their physician. Physicians board certified in allergy, toxicology, or occupational medicine, may specify a notification distance of up to a half-mile. Applicators must notify registrants 24 hours prior to a pesticide application. Acceptable methods of notification include telephone, mail, personal delivery, or fax. Notification must include the location of application and type of pesticide.

Applicators who violate these notification guidelines are subject to the appropriate penalties. These penalties include advisory notices, warning letters, and fines. Penalties depend on prior history and the circumstances of the situation. The maximum fine imposed to date has been five hundred dollars.

LOUISIANA REGISTRY OF PESTICIDE HYPERSENSITIVE INDIVIDUALS

In 1989, Louisiana established its Registry of Pesticide Hypersensitive Individuals. The Louisiana Department of Agriculture & Forestry and the Louisiana Department of Health & Hospitals maintain the registry. The purpose of the registry is to enable individuals to be notified of commercial and pest control applications in the vicinity of their home. Notification from an applicator is voluntary. The registry is open to individuals who obtain a physician's certification of pesticide hypersensitivity.

There are 68 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes the applicant's name, primary residence, telephone number(s), and physician's certification. The physician must be licensed to practice medicine in Louisiana. Registrants can request to register more than one address for prior notification. The Registry does not specify the type or number of

addresses that can be listed on the application. A confirmation letter is not sent to an applicant once his/her name is placed on the registry.

There is no registry renewal. A registrant remains on the registry list for life. The registry list is updated April 1st. in order to include new registrants and make changes to inaccurate information for previous registrants. An updated registry is sent annually to all licensed commercial applicators and structural pest control operators.

Registrants are voluntarily notified by applicators of pesticide applications made to adjacent properties or properties within one hundred feet of their property. Applicators are requested to notify registrants 24 hours prior to application. There are no stipulations as to which notification methods should be used. Likewise, there are no penalties for non-compliant applicators.

MAINE PESTICIDE NOTIFICATION REGISTRY

In 1999, Maine's Department of Agriculture's Board of Pesticide Control established its Pesticide Notification Registry. The purpose of the registry is to enable individuals to be notified of outdoor, nonagricultural pesticide applications in the vicinity of their home. Applicator notification is mandatory. The registry is open to anyone who wishes to be notified of pesticide applications in their area.

There are 10 individuals on the registry. An individual's name is placed on the registry when he/she has completed an application and paid a twenty-dollar fee. The application includes the registrant's name, mailing address, listed registry residence, daytime and evening telephone numbers, and the names and addresses of all landowners or lessees within 250 feet of the boundary of the listed registrant's residence. An individual can register more than one residence by completing another application and paying the necessary fees. Additional addresses must be residential. A registrant is sent a confirmation letter once his/her name is added to the registry.

Registry renewal occurs once a year. A registrant is sent an application in November and must reapply and pay a renewal fee of twenty dollars. At this time an individual can make changes to his/her address, telephone number(s), and adjoining property list. A registrant must return the application by December 31. An updated registry is sent to all licensed commercial applicators by March 1.

Registrants are notified by licensed commercial applicators and neighbors regarding pesticide applications within 250 feet of their property. Each registrant receives a form to give to landowners and lessees whose properties are within 250 feet of the registrant's property boundary. The form requests pre-notification in the event of any outdoor, non-agricultural pesticide application within 250 feet of the registrant's residence.

Applicators and neighbors must notify a registrant 6 hours to 14 days prior to an application. Notification can be made by telephone, in person, or mail. An applicator or neighbor who notifies a registrant by phone can leave a message on his/her answering machine or give it to a member of the household. If two telephone attempts are unsuccessful, a notice can be left on the principle entry (usually the backdoor).

Notification must include location of the application, date and approximate start time, and in the event of inclement weather, alternative date(s) on which application may occur. In addition, notification must include the pesticide brand name, the U.S. EPA registration number of the pesticide product(s), and name and telephone number of the person or company making the pesticide application.

Violation of the notification guidelines may result in a monetary penalty. For a first offense the penalty is \$1,500. However, to date, there has only been one offense and the penalty was \$500.

MARYLAND PESTICIDE SENSITIVE INDIVIDUAL NOTIFICATION PROGRAM

In 1988, Maryland established its Pesticide Sensitive Individual Notification Program. The registry is controlled by the Maryland Department of Agriculture's Pesticide Regulation Section. The registry's purpose is to provide individuals with pre-notification of ornamental and turf pesticide applications in the vicinity of their home. Notification from an applicator is mandatory. The registry is open to any individual whose physician certifies that he/she is sensitive to pesticides or has a diagnosed condition or ailment that would be exacerbated by pesticide exposure.

There are 150 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes the applicant's name, address, telephone number(s), addresses of adjacent properties, and a physician's certification. An individual can only register at one address. A registrant is sent a copy of the registry list when his/her name has been added.

Registry renewal occurs once a year. At this time, changes can be made to a registrant's address, telephone number, or list of adjacent properties. An updated registry is sent in February to all individuals licensed or permitted to perform ornamental and turf pest control services. For the past couple of years, an updated registry has been sent to applicators twice a year to incorporate new registrants.

Registrants are notified by applicators of pesticide applications to adjacent properties. Applicators may notify a registrant the day before the application to the time of the application. Notification must be made by telephone, mail, or in person. If an applicator is unable to contact a registrant prior to application, he/she must leave a notice at the registrant's residence at the time of the application. Notification must include the location of the application.

Applicators who violate these notification guidelines are subject to the appropriate penalties: letter, notice of warning, civil penalty, or license restriction. Penalties depend on prior history.

MICHIGAN PESTICIDE NOTIFICATION REGISTRY

In 1993, Michigan established its Pesticide Notification Registry. The registry is controlled by the Michigan Department of Agriculture's Pesticide and Plant Management Division. The purpose of the registry is to enable individuals to receive notification of nonagricultural lawn or ornamental pesticide applications in the vicinity of their home. Notification from applicators is mandatory. The registry is open to individuals who obtain a physician's certification stating that he/she is sensitive to pesticides used for lawn care.

There are 87 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes the applicant's name, address, telephone number(s), physician's information, physician's certification, and list of addresses of adjacent properties. The physician must certify that the applicant is currently a patient under a physician's care, the applicant's current diagnosed condition or ailment, and the recommended notification distance. In most cases, the applicant can only list one address; however, an exception was made in one instance. The address can be a vacation home, place of employment, school, or other location. A confirmation letter is not sent to an applicant when his/her name is added to the registry.

Registry renewal occurs annually. A registrant is sent an application at the end of October. The registrant must complete the application, including a physician's certification and list of addresses of adjacent properties. The application form must be returned by February 1 to be included on that year's registry. An updated registry is sent March 15 to all licensed commercial pesticide applicator companies.

Registrants are notified by applicators of pesticide applications to adjacent properties or properties within the physician's recommended distance. Applicators must notify a registrant 24 hours prior to a pesticide application. Notification can be made by telephone, letter, or an applicator can obtain written authorization from the registrant for alternate methods of notification. If telephone notification is unsuccessful, the applicator can leave a written notice at the registrant's residence at the time of application. In each case, notification must include name,

address, and telephone number of the commercial applicator or firm that makes the application, anticipated date and approximate time of the application, location of the application, and common name of the pesticide(s) applied.

Applicators who violate the notification guidelines are subject to the appropriate penalties. An inspector is sent to speak with the complainant and the company involved in the complaint. If negligence is found, a first offense results in a written warning notice. For a second offense, a civil penalty is given which can range from fifty to five hundred dollars.

PENNSYLVANIA PESTICIDE HYPERSENSITIVITY REGISTRY

In 1991, Pennsylvania established its Pesticide Hypersensitivity Registry. The registry is controlled by the Pennsylvania Department of Agriculture's Bureau of Plant Industry. The purpose of the registry is to enable individuals to be notified of pesticide applications made by a commercial or public pesticide application business in the vicinity of their home. Notification from an applicator is mandatory. The registry is open to individuals who have been certified by a physician to be excessively or abnormally sensitive to pesticides.

There are 570 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes the applicant's name, mailing address, daytime telephone number, evening telephone number, alternate telephone number, and physician's certification. An individual can be registered at a maximum of four addresses. The additional addresses must be either a place of employment, school, or vacation home. Registrants are sent a copy of their application once their name has been added to the registry.

Registry renewal occurs every January. A registrant is sent a renewal form that must be completed and returned to the Department of Agriculture. At this time, a registrant can make any necessary changes to his/her address(s) or telephone number(s). In order to include new registrants, an updated registry list is sent four times a year to each licensed commercial and public pesticide application business.

Registrants are notified by applicators of pesticide applications within five hundred feet of their property. Applicators must notify a registrant between 12 and 72 hours prior to application. Notification must be made by telephone or certified mail. A message left on an answering machine is considered to be appropriate notification. If two telephone attempts are unsuccessful, a door hanger is used, but it must be placed 12 hours prior to application. Notification must include date, location, earliest possible start time and latest possible finish time of application, brand name, U.S. EPA registration number, active ingredient, common name of all pesticide products, and name, telephone number, and pesticide business license number.

Applicators who violate these notification guidelines are subject to the appropriate penalties. Penalties range from a warning letter to a fine based on prior history. For a first offense the fine is one hundred dollars. In one instance, a third offense resulted in a \$1,800 fine.

WASHINGTON PESTICIDE SENSITIVE REGISTRY

In 1992, Washington established its Pesticide Sensitive Registry. The registry is controlled by the Washington Department of Agriculture's Pest Management Division. The purpose of the registry is to enable individuals to be notified of landscape or right-of-way nonagricultural pesticide applications in the vicinity of their home. Notification from an applicator is mandatory. The registry is open to individuals who obtain a physician's certification of sensitivity to pesticides.

There are 125 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application consists of the applicant's name, address, telephone number, physician's certification, and the addresses of abutting properties. For multifamily dwellings, an individual must include the manager's name, address, and telephone number. The physician must be licensed to practice medicine in Washington State. A registrant cannot be registered at more than one address. However, exceptions were made for two individuals that had summer and winter residences. There is a place on the application that the Department of

Agriculture marks once they have added an individual's name to the registry. A copy of the application is then sent to the registrant.

Registry renewal occurs once a year. A registrant is sent a renewal form in October and must return it by December 1. At this time changes can be made to the registrant's address, telephone number, and list of abutting properties. An updated registry list is sent January 1 and June 15 to all certified landscape and right-of-way pesticide applicators.

Registrants are notified by applicators of pesticide applications to properties abutting their own. Applicators must notify a registrant at least two hours prior to the scheduled application, or in the case of an immediate service call, the applicator must provide notification at the time of the application. An applicator can notify a registrant by telephone, letter, or in person. Notification must include the date and approximate time of the application.

Applicators who violate these notification guidelines are subject to the appropriate penalties. The registrant first makes a complaint. If willful negligence is determined, the penalty for a first offense is a notice of correction, which states what the applicator did and what he/she should have done. For a second offense, the penalty is a hearing or civil penalty which can be monetary.

WEST VIRGINIA REGISTRY OF PESTICIDE HYPERSENSITIVE INDIVIDUALS

In 1991, West Virginia established its Registry of Pesticide Hypersensitive Individuals. The registry is controlled by the West Virginia Department of Agriculture. The purpose of the registry is to enable individuals to be notified of pesticide applications in the vicinity of their home. Notification from an applicator is voluntary. The registry is open to individuals who obtain a physician's certification of pesticide sensitivity.

Currently, there are 27 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes an applicant's name, address, telephone number(s), and physician's certification. Physician certification of illness must be obtained from an immunologist, allergist, respiratory pulmonary specialist, or a physician of similar qualification. An individual can be registered at more than one address. There are no restrictions on secondary addresses (e.g., business, school, or vacation home). There is no confirmation sent when an applicant's name is placed on the registry.

Registry renewal occurs once a year in January. A registrant is sent a renewal form. At this time, a registrant can make changes to his/her address(s) or telephone number(s). An updated registry is sent in March to all licensed pesticide application businesses.

Registrants are voluntarily notified by applicators of pesticide applications that may drift onto their property. Inclusion on the registry does not guarantee that pesticides will not be applied near a registrant's property. The registry provides a pesticide sensitive individual a link with the pesticide applicator and the possibility of an early warning of imminent, nearby pesticide applications. There are no notification requirements for applicators or penalties for noncompliance.

WISCONSIN LANDSCAPE PESTICIDE APPLICATION ADVANCE NOTICE REGISTRY

In 1993, Wisconsin established its Landscape Pesticide Application Advance Notice Registry. The registry is controlled by the Wisconsin Department of Agriculture, Trade, and Consumer Protection. The purpose of the registry is to enable individuals to be notified of commercial lawn and landscape pesticide applications in the vicinity of their home. Notification from an applicator is mandatory. The registry is open to anyone who wishes to be notified of pesticide applications in their area.

There are 1,100 individuals on the registry. An individual's name is placed on the registry upon completion of an application. The application includes the applicant's name, address, telephone number, and a list of neighboring addresses for which the applicant wants notification. Neighboring addresses are limited to the registrant's block, or adjoining block. An individual can register more than one residence. However, additional addresses must be residential. No confirmation is sent when an individual's name is added to the registry.

Registry renewal occurs once a year. A registrant is sent a copy of her application from the previous year in order to verify the information. The registrant must return this form by February 1 with any necessary changes. An updated registry is sent to all licensed commercial lawn care or landscape companies once a year.

Applicators must notify a registrant 12 hours prior to application. Notification must be made by telephone or written notice. Written notices may be left on the registrant's door or mailed. If a letter is mailed, it must be postmarked 2 days prior to application. Notification must include name, business address, telephone number of the person making the application, address of landscape to be treated, scheduled date of application, brand name, and product name or common chemical name of each pesticide that may be applied.

Applicators who violate these notification guidelines are subject to the appropriate penalties. The penalty for a first offense is one hundred dollars and five hundred dollars for a second offense. The Department of Agriculture prefers to do stipulated agreements or restrict licenses as opposed to imposing a monetary fine.

Appendix 4: Questionnaire for Louisiana's Registry of Pesticide Hypersensitive Individuals

Date of Survey: ____/____/____

1. Survey #: ____

Registrant information as listed on Registry:

2. Name(s): _____

3. Address: _____

4. City: _____

5. Zip Code: _____

6. Parish: _____

7. Telephone Number: () _____ - _____

8. Is the above information correct?

a. Yes

b. No (IF NO, CORRECT INFO)

9. # of Years on Registry (taken from application): _____ years

Health Information for Registrant

10. Registrant's name: _____

11. Age: _____

12. Sex: Male or Female

13. Ethnic Heritage: _____

14. Occupation: _____

INSTRUCTIONS: I am now going to read you a series of questions. Please answer these questions to the best of your ability. Please save any comments you may have until the end of the survey.

15. Where do you spend the majority of your time during the day?

a. Work

b. Home

c. School

d. Other: _____

16. If majority of day is spent away from home, have you made any special provisions to protect yourself from pesticide exposure while away from home?

17. Have you ever been diagnosed with multiple chemical sensitivity or environmentally related illness?

a. Yes

b. No

18. Do you have any medical conditions?

a. Yes

b. No

If yes, list: _____

19. What types of exposures cause you to experience symptoms?

20. How did you become aware of the Pesticide Hypersensitivity Registry? What were your reasons for wanting to be placed on the registry?

21. Has your response to the previous question been addressed by being on the registry?

a. Yes

b. No

Why or why not?

INSTRUCTIONS: I am now going to read a series of questions and their responses. Please say which answer best applies to you.

22. Do you live in an urban or rural area?
- a. Urban (IF URBAN SKIP TO QUESTION 25)
 - b. Rural
23. If rural, do you live on a farm that grows crops for profit?
- a. Yes
 - b. No
25. Do you spray or have someone spray your yard or home with pesticides?
- a. Never use pesticides
 - b. Weekly: # of times per week _____
 - c. Monthly: # of times per month _____
 - d. Yearly: # of times per year _____

INSTRUCTIONS: I am going to read a series of questions and their possible answers. Please respond with yes or no to each of the answer choices.

26. Individuals on the registry are voluntarily notified when a pesticide application occurs within 100 feet or adjacent to their property line. What is within a 100 feet of your property line? (Circle all that apply)
- a. Farm
 - b. Residences
 - c. Golf course
 - d. Other: _____

27. What types of pesticide applications are *primarily* made in the vicinity of your home (within 100 feet of your property)?

- a. Crops
- b. Residential
- c. Right-of-ways
- d. Livestock
- e. Golf course
- f. Structural
- g. Other: _____
- h. None

INSTRUCTIONS: I am now going to read a series of questions. Please answer these questions to the best of your ability.

28. Approximately how many times have you been notified of pesticide applications since you have been on the registry? (IF NEVER NOTIFIED SKIP TO QUESTION 30)

Total # of times _____
of times in last month _____
of times in last year _____

29. How is notification concerning pesticide applications provided to you? (Circle all that apply)

- a. Telephone
- b. Letter left at your door
- c. Message left on answering machine
- d. Letter mailed to you
- e. Fax
- f. Other: _____
- z. Not Applicable (no notification)

30. How would you prefer notification be provided to you? (Circle all that apply) (SKIP TO QUESTION 34 IF ANSWER TO QUESTION 28 WAS NEVER NOTIFIED)

- a. Telephone call at home
- b. Letter left at your door

- c. Telephone call at work
- d. Letter mailed to you
- e. Fax
- f. Other: _____
- z. Not Applicable (no notification)

31. How long before an application is notification usually received?

- a. Immediately before
- b. Less than 12 hours
- c. 12-24 hours
- d. Greater than 24 hours
- z. Not Applicable (no notification)

32. Do you feel that you are provided with enough time between notice and application?

- a. Yes
- b. No

33. When provided with a notification, what precautions do you take?

34. How long before an application would you prefer notification be received? (SKIP TO QUESTION 36 IF ANSWER TO 28 WAS NEVER NOTIFIED) (DO NOT MENTION POSSIBLE RESPONSES)

- a. Immediately before
- b. Less than 12 hours
- c. 12-24 hours
- d. 1-2 days
- e. Greater than 2 days

35. What advance notification information is provided by the commercial service(s)? (Circle all that apply)

- a. Location of the outdoor pesticide application
- b. Date of the pesticide application
- c. Approximate time of the application
- d. Alternative date(s) on which application may occur due to inclement weather
- e. Brand name of the pesticide(s) used
- f. EPA registration number of the pesticide(s) used
- g. Name and telephone number of the person or company performing the application
- h. Other: _____

36. What advance notification information would you prefer a commercial service(s) provide? (Circle all that apply) (DO NOT MENTION POSSIBLE RESPONSES)

- a. Location of the outdoor pesticide application
- b. Date of the pesticide application
- c. Approximate time of the application
- d. Alternative date(s) on which application may occur due to inclement weather
- e. Brand name of the pesticide(s) used
- f. EPA registration number of the pesticide(s) used
- g. Name and telephone number of the person or company performing the application
- h. Other: _____

37. Was a pesticide application(s) made within 100ft of your property or to properties adjacent to yours for which you were not notified?

- a. Yes
- b. No (IF NO SKIP TO QUESTION 45)

38. If yes, approximately how many applications were made for which you were not notified? (Includes all applications)(Includes all applications)

Total # of applications: _____
 # of application(s) in last month: _____

of application(s) in last year: _____

39. How close to your property was the application(s)?

of feet: _____

40. Can you identify the applicator that did not notify you?

a. Yes

b. No

Name(s): _____

41. Did you contact the company and explain your need to be notified?

a. Yes

b. No (IF NO SKIP TO QUESTION 43)

Why or why not?

42. If yes, what was the company's response?

43. Did you contact the Louisiana Department of Agriculture and Forestry or the Department of Health to notify them of the problem?

a. Yes

b. No

Why or why not?

44. Did you receive notification from that particular company(s) for subsequent applications?

a. Yes

b. No

45. Do you feel that 100 feet is a protective enough distance?

a. Yes

b. No

46. Would you be in favor of making notification for the Pesticide Hypersensitivity Registry mandatory?

a. Yes

b. No

47. Louisiana's Registry is voluntary. Registries in some other states are mandatory, but registrants must pay a fee to be included on the registry. Would you be willing to pay a small fee in exchange for mandatory reporting?

a. Yes

b. No

48. Do you have any comments you would like to share about the Hypersensitivity Registry?

a. Yes

b. No

Explain:

49. Do you have any comments you would like to share about this survey?

a. Yes

b. No

Explain

Appendix 5: Contact Information: Louisiana

Louisiana Department of Agriculture and Forestry (LDAF)

Office of Agricultural & Environmental Sciences
Pesticide & Environmental Programs
P.O. Box 3596
Baton Rouge, LA 70821-3596
24-hour Pesticide Hotline: (225) 925-3763
Website: <http://www.ldaf.state.la.us/>

Contact LDAF to obtain an application for the *Registry of Hypersensitive Individuals* or to find out about the School Pesticide Safety Laws (Integrated Pest Management Plan and the Hypersensitive Student Registry).

Louisiana Department of Health & Hospitals (LDHH)

Office of Public Health
Section of Environmental Epidemiology & Toxicology
325 Loyola Avenue, Suite 210
New Orleans, LA 70112
Toll-free Number: 1-888-293-7020
Website: <http://oph.dhh.state.la.us/>

Contact LDHH for information regarding this report.