9948 HOUSE LABOR & COMMERCE

Who Is Eligible?

Any person is eligible for the ACHIA plan if he or she:

*is not currently covered by any other health plan or health insurance policy;
*is not eligible for coverage under AS 21.56, Small Employer Health Reform;
*has been a resident for the past 12 months and continues to be a resident of Alaska; and
*at least one of the following:
- has received from two health insurers notice of rejection for health insurance dated within the last six months; [1999 legislation changed this to only one rejection]
- has received restrictive riders that substantially reduce coverages; or
- has any of the conditions listed below:

Acquired Immune Deficiency Syndrome (AIDS)
Alzheimer's
Angina Pectoris
Anorexia Nervosa
Arteriosclerosis Obliteran
Artificial Heart Valve
Ascites
Brain Tumors
Cardiomyopathy
Cerebral Palsy
Chronic Pancreatitis
Cirrhosis of the Liver
Coronary Insufficiency
Coronary Occlusion
Crohn's Disease
Cystic Fibrosis
Dermatomyositis
Diabetes
Epilepsy
Friederich's Disease
Heart Disorders
Hemophilia
Hepatitis C (Active) (1998)
HIV+
Hodgkin's Disease
Huntington's Chorea
Hydrocephalus
Intermittent Claudication
Kidney Failure
Lead Poisoning with Cerebral Involvement
Leukemia
Lupus Erythematosus Disseminate
Malignant Tumor (if treated or has occurred within last 4 yrs)
Mental Retardation
Metastatic Cancer
Motor or Sensory Aphasia
Multiple or Disseminated Sclerosis
Muscular Atrophy or Dystrophy
Myasthenia Gravis
Myotonia
Obesity - Morbid
Open Heart Surgery
Paraplegia or Quadriplegia
Parkinson's Disease
Peripheral Arteriosclerosis (if treatment within last 3 yrs)
Poliomyelitis
Polyarteritis (Periarteritis Nodosa)
Polysystic Kidney
Postero-lateral Sclerosis
Psychotic Disorders
Rheumatoid Arthritis
Sickle Cell Anemia
Silicosis
Splenic Anemia (True Banti's Syndrome)
Still's Disease
Stroke (CVA)
Syringomyelia
Tabes Dorsalis (locomotor Ataxia)
Thalassemia (Cooley's or Mediterranean Anemia)
Topectomy and Lobotomy
Ulcerative Colitis
Wilson's Disease

Individuals covered by Medicare may still be eligible for coverage under this plan.

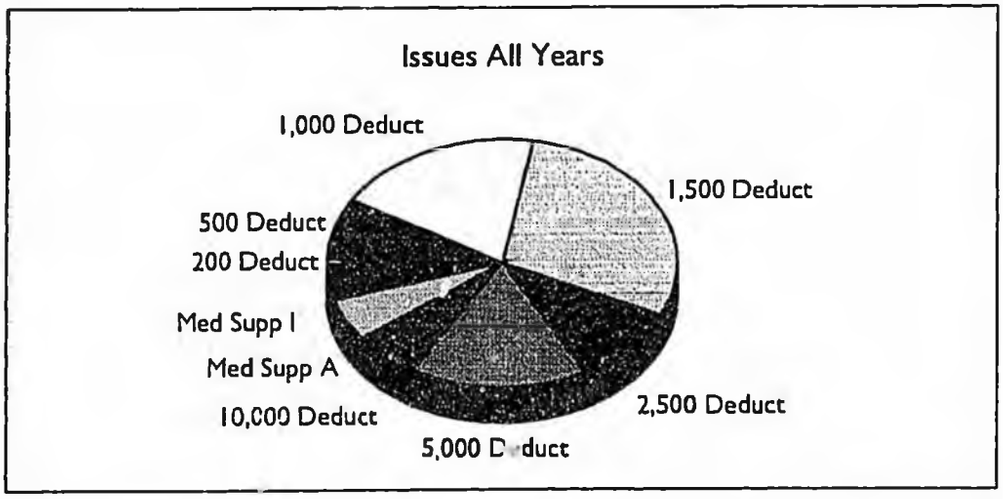
Additionally, effective July 1, 1997, a 'federally eligible individual' may purchase ACHIA coverage provided they are a resident of Alaska at the time of application (see page 7 of this report).

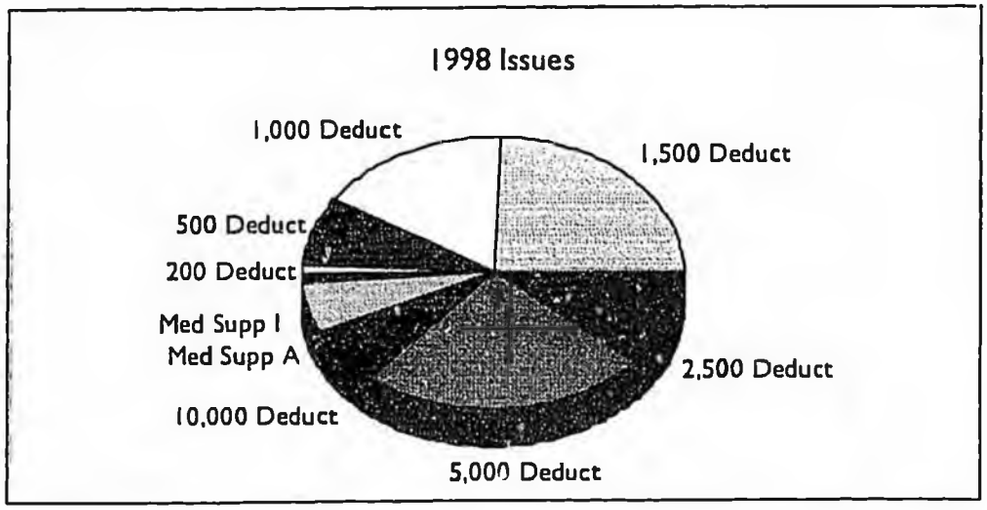
What Deductible Options are Available?

Seven deductible options were available during 1998, $200, $500, $1,000, $1,500, $2,500, $5,000, and $10,000. As of December 31, 1998, the plan insured the following:

1998 Year End Active Policyholders by Plan Type

	Deductible							Medicare Supplement		
Issues	200	500	1,000	1,500	2,500	5,000	10,000	A	I	Total
All	2	27	66	100	35	56	21	19	16	342
1998	1	7	14	21	10	21	6	5	1	86





What were the Rates?

Major Medical Rates, 1993 - June 30, 1996

Deductible:	$500		$1,000		$1,500	
Out of Pocket Maximum :	$2,000		$2,000		$2,000	
Age	Mon	Qrtly	Mon	Qrtly	Mon	Qrtly
-18	135.00	405.00	98.00	294.00	89.00	267.00
19-24	240.00	720.00	175.00	525.00	159.00	477.00
25-29	243.00	729.00	180.00	540.00	163.00	489.00
30-34	289.00	867.00	212.00	616.00	193.00	579.00
35-39	306.00	918.00	225.00	675.00	204.00	612.00
40-44	363.00	1,089.00	268.00	804.00	243.00	729.00
45-49	418.00	1,254.00	308.00	924.00	279.00	837.00
50-54	510.00	1,530.00	380.00	1,140.00	344.00	1,032.00
55-59	586.00	1,758.00	438.00	1,314.00	397.00	1,191.00
60-64	694.00	2,082.00	520.00	1,560.00	471.00	1,413.00

Deductible:	$2,500		$5,000		$10,000	
Out of Pocket Maximum :	$3,500		$7,500		$10,000	
Age	Mon	Qrtly	Mon	Qrtly	Mon	Qrtly
-18	74.00	222.00	52.00	156.00	38.00	114.00
19-24	131.00	393.00	92.00	276.00	67.00	201.00
25-29	135.00	405.00	94.00	282.00	68.00	204.00
30-34	159.00	477.00	112.00	336.00	81.00	243.00
35-39	169.00	507.00	118.00	354.00	86.00	258.00
40-44	201.00	603.00	141.00	423.00	102.00	306.00
45-49	230.00	690.00	162.00	486.00	118.00	354.00
50-54	284.00	852.00	199.00	597.00	145.00	435.00
55-59	328.00	984.00	230.00	690.00	167.00	501.00
60-64	389.00	1,167.00	273.00	819.00	198.00	594.00

Medicare Supplement Rates, 1993 - June 30, 1996

	Plan A		Plan I	
Age	Monthly	Quarterly	Monthly	Quarterly
-69	79.00	237.00	182.00	546.00
70-74	90.00	270.00	205.00	615.00
75-79	96.00	288.00	222.00	666.00
80+ .	102.00	306.00	236.00	708.00

What are the Rates?

Current Major Medical Rates, first effective July 1, 1996

Deductible:	$ 200		$ 500		$1.000		$1.500	
Out of Pocket Maximum :	$2.000		$2.000		$2.000		$2.000	
Age	Mon	Qrtly	Mon	Qrtly	Mon	Qrtly	Mon	Qrtly
-18	285.25	855.75	182.00	546.00	141.75	425.25	117.25	351.75
19-24	425.25	1,275.75	273.00	819.00	211.75	635.25	175.00	525.00
25-29	484.75	1,454.25	309.75	929.25	243.25	729.75	201.25	603.75
30-34	540.75	1,622.25	344.75	1,034.25	269.50	808.50	224.00	672.00
35-39	609.00	1,827.00	388.50	1,165.50	306.25	918.75	253.75	761.25
40-44	705.25	2,115.75	449.75	1,349.25	353.50	1,060.50	292.25	876.75
45-49	826.00	2,478.00	526.75	1,580.25	414.75	1,244.25	344.75	1,034.25
50-54	987.00	2,961.00	630.00	1,890.00	497.00	1,491.00	413.00	1,239.00
55-59	1,172.50	3,517.50	745.50	2,236.50	595.00	1,785.00	495.25	1,485.75
60-64	1,394.75	4,184.25	885.50	2,656.50	708.75	2,216.25	595.00	1,785.00

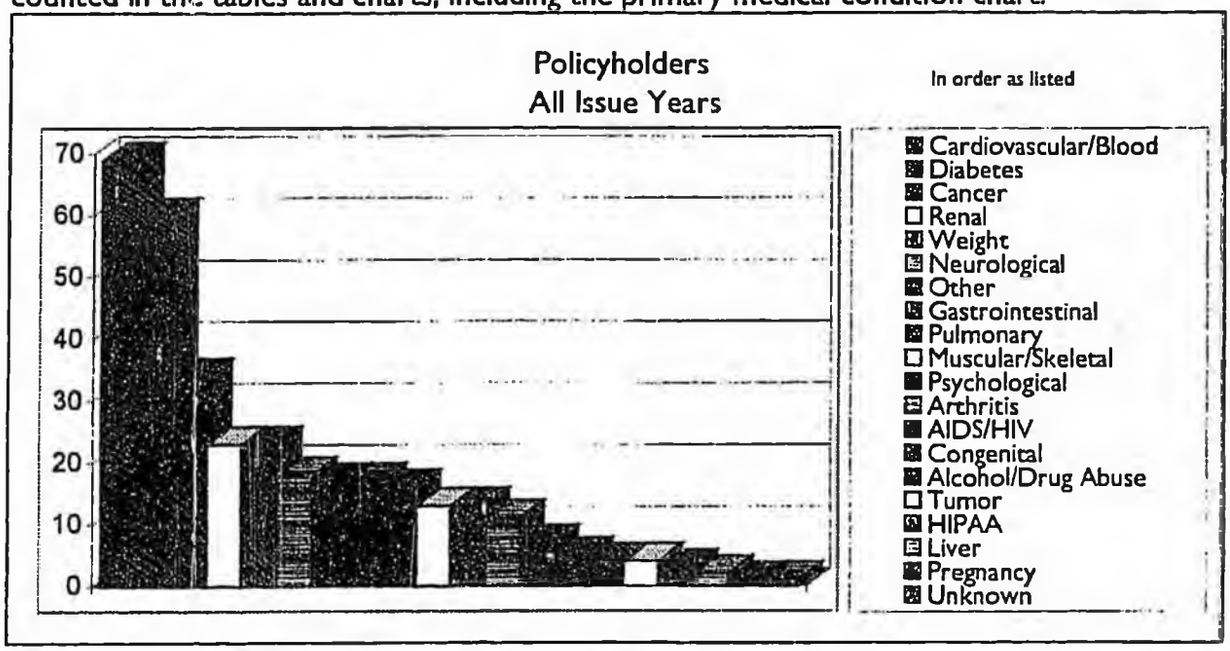
Deductible:	$2,500		$5.000		$10.000	
Out of Pocket Maximum :	$3.500		$7.500		$10.000	
Age	Mon	Qrtly	Mon	Qrtly	Mon	Qrtly
-18	99.75	299.25	66.50	199.50	57.75	173.25
19-24	148.75	446.25	99.75	299.25	89.25	267.75
25-29	171.50	514.50	115.50	346.50	103.25	309.75
30-34	190.75	572.25	129.50	388.50	113.75	341.25
35-39	215.25	645.75	143.50	430.50	129.50	388.50
40-44	248.50	745.50	168.00	504.00	148.75	446.25
45-49	292.25	876.75	196.00	588.00	175.00	525.00
50-54	350.00	1,050.00	234.50	703.50	208.25	624.75
55-59	420.00	1,260.00	283.50	850.50	250.25	750.75
60-64	502.25	1,506.75	341.25	1,023.75	299.25	897.75

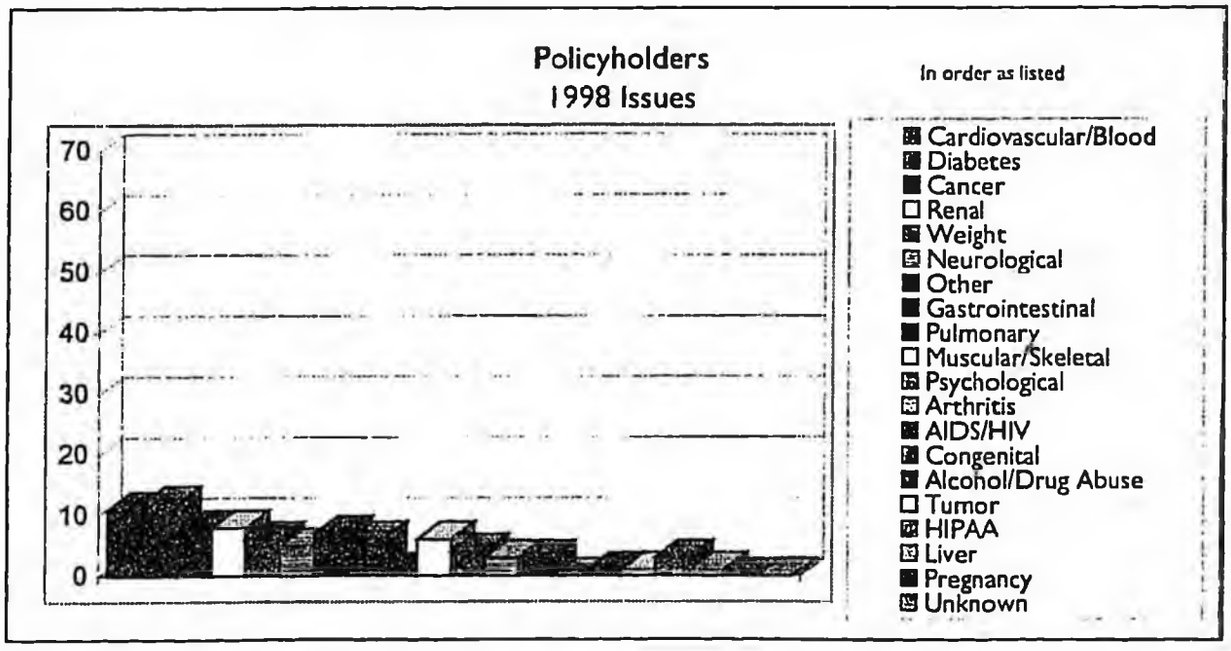
Current Medicare Supplement Rates, first effective July 1, 1996

	Plan A		Plan I	
Age	Monthly	Quarterly	Monthly	Quarterly
-69	110.25	330.75	288.75	866.25
70-74	124.25	372.75	316.75	950.25
75-79	136.50	409.50	343.00	1,029.00
80+ .	147.00	441.00	388.50	1,165.50

Primary Medical Condition

Applicants for ACHIA coverage are asked to identify their primary medical condition. The most frequently listed category includes conditions related to a history of cardiovascular conditions. The next most frequently listed conditions include diabetes, cancer, and weight problems, followed by pulmonary, renal, neurological, gastrointestinal, psychological, and arthritis conditions. These conditions, as well as experience from member companies, make up the list of specified conditions for which eligibility in ACHIA will be considered without the normal requirement that individuals have at least two rejections for coverage in the last six months. Insureds who qualified for ACHIA coverage through HIPAA eligibility provisions are counted in the tables and charts, including the primary medical condition chart.





Financial

This section details the policy year financial experience for ACHIA. Exhibit 1 is the ACHIA balance sheet for years ended 1997 and 1998. Exhibit 2 shows the revenues, expenses and changes in the fund balance. ACHIA began 1998 with a deficit of $73,115, and ended with a deficit of $80,618. Revenues for the year were $2,262,980 and expenses were $2,270,483. Exhibit 3 shows the cash flow for 1997 and 1998.

Board of Directors

The Board of Directors for 1998 was:

Cecil Bykerk, Chairperson Mutual of Omaha Insurance Company Mutual of Omaha Plaza Omaha, NE 68175 Ph: (402) 351-2534 Fax: (402) 351-5944 Email: cecil.bykerk@mutualofomaha.com	Eileen Gallagher New York Life Insurance Company 51 Madison Avenue New York, NY 10010 Ph: (212) 576-7807 Fax: (212) 576-4473
Robert Niebrugge, Vice Chairperson 3521 Sky Ranch Loop Box 4187 Palmer, AK 99645 Ph: (907) 746-3256 Fax: (907) 745-3110 Email: niebrugg@mtaonline.net	Karl Ideman Travelers Insurance Company 450 Columbus Blvd., 9-NB Hartford, CT 06115-0450 Ph: (800) 628-7734 or (860) 422-0287 Fax: (860) 702-7247 Email: kidema@uhc.com
Ross Blaker Aetna Life & Casualty 711 H Street, Suite 150 Anchorage, AK 99501 Ph: (907) 787-2207 Fax: (907) 276-6952 Email: Ross.Blaker@aetna.com	Chet Lozowski Conseco 222 Merchandise Mart Plaza Chicago, IL 60654-2001 Ph: (312) 396-7651 Fax: (312) 396-5903 Email: c.lozowski@banklife.com
Sandra Cole 2700 Teeland Box 874165 Wasilla, AK 99687 Ph: & Fax: (907) 376-2939 Email: sanco@gci.net	Jim Tysver Blue Cross of Washington & Alaska 7001 220th Street S.W. – Bldg. 3 Mountlake Terrace, WA 98073-2124 Ph: (206) 670-4553 Fax: (206) 670-4900
Jeff Davis Blue Cross/Blue Shield of Alaska 2550 Denali Street Anchorage, AK 99503 Ph: (907) 677-2404 Fax: (907) 258-1619 Email: jeff.davis@premera.com	Katie Campbell Ex-Officio Member State of Alaska Division of Insurance 333 Willoughby Juneau, AK 99801 Ph: (907) 465-4607 Fax: (907) 465-3422 Email: katie campbell@dced.state.ak.us

CURRENT COMMITTEES

ACTUARIAL COMMITTEE

Chet Lozowski, Chair
Cecil Bykerk
Katie Campbell

ADVERTISING COMMITTEE

Sandra Cole, Chair
Gloria Chauvin
Ellen Vickrey

AUDIT COMMITTEE

Chet Lozowski, Chair
Karl Ideman
Bob Niebrugge

GRIEVANCE COMMITTEE

Bob Niebrugge, Chair
Cecil Bykerk
Sandra Cole

POLICY COMMITTEE

Jeff Davis, Chair
Ross Blaker
Katie Campbell
Karl Ideman
Cecil Bykerk (ex-officio)

NOMINATING COMMITTEE

Karl Ideman, Chair
Ross Blaker

Exhibit I
BALANCE SHEETS

December 31, 1998 and 1997

Assets

	1998	1997
Cash	$ 358,952	$ 469,438
Funds held by (due to) administrator (note 4)	198,054	(137,523)
Total Assets	$ 557,006	$ 331,915

Liabilities and Fund Balance (Deficit)

Reserve for claims and claims adjustment expense	$ 455,448	$ 360,974
Unearned premiums	27,977	14,056
Assessments collected in advance (note 3)	154,199	-----
Total liabilities	$ 637,624	$ 405,030
Fund balance (deficit)	(80,618)	(73,115)
	$ 557,006	$ 331,915

See accompanying notes to financial statements.

Exhibit 2
STATEMENTS OF REVENUES, EXPENSES
AND CHANGES IN FUND BALANCE (DEFICIT)

Years ended December 31, 1998 and 1997

	1998	1997
Revenues:		
Member assessments (note 3)	$1.484.432	$1,202,808
Premiums earned	759,686	683,265
Interest income (note 4)	18.862	43.647
	2.262.980	1.929.720
Expenses:		
Claims paid	$1,840,192	$1,575,160
Administrative services (note 4)	298,813	268,759
Change in claims and claim adjustment expense reserves	94,473	35,140
Accounting services	14,950	14,185
Board meetings	11,916	12,638
Telephone	3,441	2,748
Bank fees	781	515
Postage	78	58
Other	5.839	5.331
	$2.270.483	$1.914.534
Excess (deficit) of revenues over expenses	(7,503)	15,186
Fund balance (deficit) at beginning of year	(73.115)	(88,301)
Fund balance (deficit) at end of year	$ (80,618)	$ (73,115)

See accompanying notes to financial statements.

Exhibit 3
STATEMENTS OF CASH FLOWS

Years ended December 31, 1997 and 1996

	1998	1997
Cash flows from operating activities:		
Assessments collected from members	$ 1,638,631	$ 18,104
Premiums collected from insureds	743,607	671,812
Interest received	18,862	43,647
Claims expenses paid	(1,840,192)	(1,575,160)
Cash paid to administrator and suppliers	(335,817)	(304,234)
Cash advanced from (transferred to) administrator In excess of claims and other expenses paid by Administrator	(335,577)	264,429
Net cash used by operating Activities and net decrease in cash	(110,486)	(881,402)
Cash at beginning of year	469,438	1,350,840
Cash at end of year	$ 358,952	$ 469,438
Reconciliation of excess of revenues over expenses To net cash provided (used) by operating activities:		
Excess (deficit) of revenues over expenses	(7,503)	15,186
Adjustments:		
Decrease in assessments receivable	---	18,104
Decrease (increase) in funds held by Administrator	(335,577)	264,438
Increase (decrease) in reserve for claims And claims adjustment expenses	94,474	35,140
Decrease in unearned premiums	(16,079)	(11,453)
Increase (decrease) in assessments collected in advance	154,199	(1,202,808)
Total Adjustments	(102,983)	(896,588)
Net cash used by operating activities	(110,486)	(881,402)

See accompanying notes to financial statements.

Notes to Financial Statements

December 31, 1998 and 1997

(1) History

The Comprehensive Health Insurance Association (Association) was established by the Alaska State Health Insurance Act of 1992 (Act) to provide an individual state plan of health insurance to Alaska residents who are considered high risks and are otherwise unable to obtain health insurance.

The Association is a nonprofit organization whose membership consists by statute of all licensed hospital or medical service corporations in the state that offer subscriber contracts for major medical coverage, and all insurers licensed to transact health insurance in the state that offer policies for major medical coverage on an expense-incurred basis.

The Association is empowered by Alaska statutes to assess its members amounts to cover underwriting losses of the state plans and amounts to cover the operating and administrative expenses incurred by the Association to conduct its affairs.

In preparing the financial statements, management is required to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and revenue and expenses for the period. Actual results could differ from those estimates. The more significant accounting and reporting policies and estimates applied in the preparation of the accompanying financial statements are discussed below.

(2) Summary of Significant Accounting Policies

Income Taxes

The Association is nontaxable for state income tax purposes under the provisions of the Act. Effective January 1, 1997, the Association was granted federal tax exempt status under code section 501(c)(26) of the Internal Revenue Code. During 1997, the Association was also determined to be a federal taxable entity for the years prior to 1997. However, the Association had no net taxable income for 1996 and all prior years and does not anticipate that it will owe taxes for those years.

Member Assessments

Assessments levied on all members are reported in the period for which such assessments are levied. Member assessments are charged to each member based on the ratio of the member's total fees for subscriber contracts or total health insurance premiums, received from or on behalf of state residents, as divided by the total subscriber fees and health insurance premiums received by all members from or on behalf of state residents.

Reserve for Claims and Claim Adjustment Expenses
The reserve for claims and claim adjustment expenses represents management's estimate of the ultimate settlement of reported and unreported claims. Management believes that such reserves are adequate to cover the ultimate net cost of claims expense incurred; however, reserves are necessarily based on estimates and the amount ultimately paid may be more or less than such estimates. Adjustments to reserves are charged or credited to expense in the period in which they are made.

Premiums
Premium income is recognized on a pro rata basis over the respective terms of the policies. Unearned premiums represent the portion of premiums written which relate to future periods.

(3) Member Assessments
In May 1996, the Association assessed its members $1,500,000 to cover claims and expenses through 1996. In October 1996, the Association assessed members $1,200,000 to cover anticipated claims and expenses in 1997. The October 1996 assessment is included in assessments collected in advance on the accompanying 1996 balance sheet. Subsequent to December 31, 1997, the Association assessed its members $1,000,000 to cover anticipated claims and expenses in 1998. During December 1998, the Association assessed its members $1,500,000 to cover anticipated claims and expenses in the amount of $500,000 in 1998 and $1,000,000 in 1999. At December 31, 1998, $154,199 of the 1999 assessment was received.

(4) Related Party Transactions
Board meeting expense consists partly of reimbursements to certain members of the Board of Directors of the Association for travel costs incurred on behalf of the Association.

Aetna Life Insurance Company (Aetna) administers the state plan by collecting the premium payments and adjusting and settling claims. Aetna is paid a fee by the Association for administering the plan. Total fees paid to Aetna were $297,845 in 1998 and $268,399 in 1997.

Funds held by Aetna at December 31, 1998 were $198,054 while funds owed to Aetna at December 31, 1997 were $137,523. Aetna charges or pays interest to the Association on balances held by or owing to Aetna during the year. Interest paid by Aetna was $5,007 in 1998 and $7,310 in 1997.

(5) Line of Credit
At December 31, 1998 and 1997, the Association had a line of credit with bank which allows the Association to borrow up to $1,000,000 as needed on a short-term basis.

(6) Year 2000
The Association has discussed the impact of Year 2000 issues on computer systems and applications with the Plan Administrator and does not believe that the Year 2000 will have a significant impact on operations.

Alaska State Legislature

Please enter into the record my testimony to the Labor + Commerce. committee name

committee on HB 345 bill/subject . dated 3/17/00 .

See attached

Signed: Martin D. Maricle Testifier

Representing (Optional)

P O Box 412 Glennallen AK 99588 Address

907 822 3414 Phone No.

HB 345

Dear Representative Rokeberg and Committee members:

Top of the day to you and a Happy Saint Patrick's Day!

I read with interest your proposed bill to have the State "self insure" health coverage for State employees. I have been a State employee for over 20 years and I have seen our health benefit costs rise dramatically over the years, while the benefits have decreased. I feel that the State can provide excellent and cost effective health care coverage to all employees and I support the concept of the proposed legislation.

A bill establishing self-insurance for employees will make the health coverage uniform. I deal with three different bargaining units in my workplace and the benefit packages vary from union to union. This bill would make everyone's health coverage equal.

I believe that the State could realize significant cost savings by providing self-insured health care coverage, and we as employees could get better health care benefits, while paying less. It is unclear in the proposed legislation what sort of coverage would be provided and what type of things would be excluded, but I would guess that an entire package would be put together by the Comprehensive health Insurance Association.

I do not know how a seasonal employee would be covered by insurance during their period of Seasonal Leave Without Pay but this should be an option for the employee in lay-off status. I supervise a seasonal workforce and these employees deserve to have the option of health care coverage during their winter lay-off period.

I am concerned with the section that would remove the health care coverage from the collective bargaining process. I am very concerned that a reduction in the budget could suddenly result in major changes in the type of coverage that employees receive, or that health coverage be completely eliminated. If the type of health care coverage was comprehensive and inexpensive than I am sure that bargaining units would all support the program. I feel that health care coverage and wages are both integral parts of the bargaining union process.

In closing, I applaud your efforts and hope that the proposed legislation can be crafted in a manner that will help tame the skyrocketing costs of insurance, while giving all of the State employees excellent health benefits.

? Who

HB 356

1-LS1360\I
Lauterbach
4/5/00

CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 356( )

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-FIRST LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): REPRESENTATIVE CISSNA

A BILL

FOR AN ACT ENTITLED

"An Act relating to pesticide use; relating to program receipts collected by the Department of Environmental Conservation for registrations and licenses relating to pesticides; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

*** Section 1.** AS 37.05.146(b)(4) is amended by adding a new subparagraph to read:

(X) receipts of the Department of Environmental Conservation under AS 44.46.025(e) and AS 46.03.320(b);

*** Sec. 2.** AS 44.46.025 is amended by adding a new subsection to read:

(e) The department may charge a registration fee of $150 for a pesticide label for a pesticide product registered for use in the state.

*** Sec. 3.** AS 46.03.320(b) is amended to read:

(b) The department may provide by regulation for the licensing of private applicators of restricted-use pesticides and for persons engaged in the custom, commercial, or contract spraying or application of pesticides and broadcast chemicals.

A person engaged in the custom, commercial, or contract spraying or application of pesticides and broadcast chemicals may, by regulation, be required to secure a surety bond or liability insurance. **The department shall establish and collect a fee for a license issued under this subsection. The fee shall be $25 times the number of years for which the license is valid when issued. The department shall review the licensing fee every two years and recommend changes in the fee to the legislature when considered appropriate.**

* **Sec. 4.** AS 46.03 is amended by adding new sections to article 5 to read:

Sec. 46.03.335. Pesticide tracking system. (a) The department shall establish and implement a pesticide use tracking system. In developing the system, the department shall ensure that, to the extent practicable, the data submission process uses existing record-keeping requirements, automates the reporting system, and encourages electronic submission of data. The department shall strive for a system that is efficient and cost-effective, that provides for a database that is spatially referenced and compatibly integrated with the statewide geographic information system, and that reveals the location and extent of pesticide use to the extent practicable.

(b) The department may establish regulations for the submission and dissemination of accurate data for the tracking system, including regulations

(1) for data submission timing, which may differ for different categories of pesticide applicators;

(2) regarding which pesticides are subject to the reporting requirements of this section, based in part on the frequency of pesticide application; in adopting regulations under this paragraph, the department shall seek and consider advice from the Pesticide Advisory Board; the department may not include sanitizers or disinfectants within the reporting requirements of this section; and

(3) regarding how location information is to be submitted and reported, which may differ for different categories of pesticide applicators.

(c) The system established under this section must require all licensed custom, commercial, or contract pesticide applicators in the state to report to the department the following information pertaining to the professional use of the pesticides that the department has determined are subject to the reporting requirements of this section:

(1) pesticide product name and United States Environmental Protection Agency registration number;

(2) total amount of product applied;

(3) identification number assigned to the reporting entity by the department;

(4) size in acres or square feet of the area treated;

(5) application rate in volume or weight of product for each area treated;

(6) location of application;

(7) date of application;

(8) application method, including equipment, device, or apparatus used;

(9) crop, commodity, stored product, or site to which the pesticide was applied, including a site code to identify the type of site if necessary; and

(10) target organism.

(d) A licensed custom, commercial, or contract pesticide applicator shall retain the records upon which the information submitted under (c) of this section is based for three years after submitting the report to the department.

(e) In addition to other civil or criminal penalties that may be applicable, the department may impose a civil penalty on a person who fails to comply with a reporting requirement established under this section. The penalty may be up to $1,000 for the first failure to comply and up to $2,000 for a second or subsequent failure to comply.

Sec. 46.03.340. Availability of information to the public. (a) The data in the tracking system developed under AS 46.03.335 shall be made accessible by the department to the general public through the Internet and shall be available from the department on disk and in printed format upon request. The database shall be made accessible in a way that reasonably provides the public with understandable and useful information about the use of pesticides at local, regional, and state levels. The department shall ensure that pesticide use information in the database is accessible to researchers, pesticide users, workers, government agencies, and the public in a timely and user-friendly manner.

(b) On or before June 30 of each year, the department shall publish an annual report, available to the public, that includes

(1) a detailed summary of the information reported to the department under AS 46.03.335; and

(2) an analysis of the data, including known reasons for any increases or decreases in pesticide use over time and within categories such as pesticide type, applicator type, and location.

Sec. 46.03.345. Pesticide Advisory Board. (a) There is established a Pesticide Advisory Board consisting of nine members appointed by the governor to staggered three-year terms as follows:

(1) two members who are pesticide applicators or pesticide dealers who are required to be licensed by the department;

(2) two members who are not employed by or the agents of a licensed pesticide applicator or pesticide dealer and who have a demonstrable record of advocating for water quality protection, fish and wildlife protection, pest management, alternatives to pesticides, occupational health and safety, or the public's right to know about pesticides or other potential hazards in their communities;

(3) one member who is employed by or is an agent of a public water supplier;

(4) one member who is an agent or specialist with the cooperative extension service, University of Alaska;

(5) one member who is not employed by or the agent of a licensed pesticide applicator or pesticide dealer and who has some expertise in all of the following areas:

(A) pest control research;

(B) epidemiology;

(C) fish and wildlife biology;

(D) children's health issues; and

(6) two public members.

(b) The Pesticide Advisory Board shall

(1) advise the department on the development and implementation of

the pesticide use tracking system required under AS 46.03.335;

(2) advise the department on the development and implementation of research and information-gathering mechanisms related to household use of pesticides, especially the location of intended use, purpose, and amounts;

(3) recommend to the department methods for increasing public awareness of less toxic alternatives to pesticides;

(4) solicit public input on ways to improve the reporting and enforcement process and on ways to improve the accessibility and utility of the data generated by the tracking system.

(c) A member appointed under this section is eligible for reappointment, but a member may not serve for more than two consecutive terms. If there is a vacancy, the governor shall make an appointment to become immediately effective for the unexpired term. A member serves at the pleasure of the governor.

(d) The Pesticide Advisory Board shall select one of its members as chair and another as vice-chair for the terms and with the duties and powers considered necessary by the board for the performance of the functions of the Pesticide Advisory Board.

(e) A majority of the members of the Pesticide Advisory Board constitutes a quorum for the transaction of business. The Pesticide Advisory Board shall meet at a place and time determined by the board. The board may also meet at other times and places specified by the call of the chair or of a majority of the members of the board.

(f) Notwithstanding AS 39.20.180, a member of the Pesticide Advisory Board is not entitled to reimbursement of transportation expenses and payment of per diem allowances.

Sec. 46.03.350. Technical assistance. (a) In order to develop and implement the pesticide use tracking system required under AS 46.03.335, the department and the Pesticide Advisory Board may request technical assistance from any public or private agency with expertise in the subject matter.

(b) The department may develop a program to provide technical assistance to pesticide applicators who are required to report under AS 46.03.335. The department

may develop and provide computer software to licensed pesticide applicators to facilitate reporting for the tracking system.

Sec. 46.03.355. Department's use of the tracking system. The department shall use the pesticide use database developed under AS 46.03.335 in carrying out the department's responsibilities for the protection of water quality, other environmental protection, worker health and safety programs, public health protection programs, pesticide-related illness surveillance programs, risk assessments, and pest management research and control programs. The department shall cooperate with and advise other state agencies concerning their programs that may be affected by the use of pesticides.

*** Sec. 5.** The uncodified law of the State of Alaska is amended by adding a new section to read:

REGULATIONS. The Department of Environmental Conservation may proceed to develop and adopt regulations to implement this Act. The regulations take effect under AS 44.62 (Administrative Procedure Act), but not before January 1, 2001.

*** Sec. 6.** The uncodified law of the State of Alaska is amended by adding a new section to read:

REPORT. The Pesticide Advisory Board shall submit a report to the governor by January 1, 2003, concerning the board's recommendations for action related to its areas of jurisdiction under AS 46.03.345(b). The board shall notify the legislature that the report is available.

*** Sec. 7.** Except as provided in sec. 8 of this Act, this Act takes effect January 1, 2001.

*** Sec. 8.** Section 5 of this Act takes effect immediately under AS 01.10.070(c).

FISCAL NOTE

STATE OF ALASKA
2000 LEGISLATIVE SESSION

BILL NO. SSHB 356

Revision Date/Time (Note if correction) _____
Dept. Affected Environmental Conservation
Title Tracking of Pesticide Use
BRU Environmental Health
Component Laboratory Services
Sponsor Representative Cissna
Requester House Labor & Commerce
Component No. 2065

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Personal Services	217.5	217.5	217.5	149.7	149.7	149.7
Travel	8.0	8.0	8.0	8.0	8.0	8.0
Contractual	72.2	62.2	62.2	55.0	55.0	55.0
Supplies	0.8	0.8	0.8	0.8	0.8	0.8
Equipment	76.4	10.0	10.0	10.0	10.0	10.0
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	374.9	298.5	298.5	223.5	223.5	223.5
CAPITAL EXPENDITURES	0.0	0.0	0.0	0.0	0.0	0.0
CHANGE IN REVENUES ( )	514.5	450.0	450.0	514.5	450.0	450.0

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts	374.9	298.5	298.5	223.5	223.5	223.5
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	374.9	298.5	298.5	223.5	223.5	223.5

Estimate of any current year (FY2000) cost: 0.0

POSITIONS

Full-time	4	4	4	3	3	3
Part-time	0	0	0	0	0	0
Temporary	0	0	0	0	0	0

ANALYSIS: *(Attach a separate page if necessary)*
See attached.

Prepared by: Janice Adair
Phone 269-7644
Division Environmental Health
Date/Time 4/4/00 2:27 PM
Approved by Commissioner [signature]
Date 4-4-00
Agency Department of Environmental Conservation

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SSHB 356 requires that DEC establish and manage a pesticide-reporting program that provides information on the individual application of certain pesticides as defined in regulations adopted under the bill.

The tracking system must identify the product, amount used, application rate, method, date applied, size of area treated, the location (street address) of the application, and the target organism. This data must be GIS based and easily accessible to the public through the Internet. The department is to prepare an annual report that summarizes the information that has been reported.

Additionally a Pesticide Board is established to advise DEC on the development and implementation of the tracking system.

Two Environmental Specialists (an ES II and an ES III) will develop regulations, policies, procedures, outreach activities, prepare the annual report as well as work with the Pesticide Advisory Board. Focus will be on helping the pesticide applicators come into compliance with the reporting requirements. A full time Environmental Technician will be required to input the data reported into the database.

An Analyst Programmer IV will oversee the development of the database and web site that will support the tracking system for 3 years.

The contractual line includes funding for training and preparation of outreach materials as well as $20.0 for a contract for the initial development of the GIS based data system in the first year. Subsequent years include $10.0 for a contract to assist with maintenance and needed upgrades to the system as technologies change.

Equipment costs in FY 2001 include the ordinary office equipment (desk, chair computer) for the new staff. The bulk of the costs are for the GIS workstation, ArcView license, NT server and related hardware and ArcView MapObjects Internet Map Server. $10.0 is included in subsequent years for equipment replacement and upgrades.

Revenues are from the label registration fee. There are an estimated 3,000 labels that will generate $450.0 at $150 each. The 860 applicators would pay their fees every three years (certifications are for three years), generating $64.5 in FY 2001 and 2004.

Fees as established in this bill clearly generate more revenue than needed to operate the program described in SSHB 356. However when Oregon instituted this law, there was a 20% reduction in the number of registrations and licenses. If that same reduction were to occur here, revenue would decrease by $102.9 to $411.6.

Personal Services New Position Detail

Department of Environmental Conservation
SSHB 356 Personal Services - FY2001

Scenario: FY2001 Legislative Fiscal Note Info - 3
Component: Laboratory Services (2065)
BRU Name: Environmental Health

PCN	Job Class Title	Time Status	Retire Code	Barg Unit	Location	Salary Sched	Range & Steps	Budgeted Months	Split / Count	Annual Salary	COLA	Premium Pay	Annual Benefits	Total Costs
18-#024	Analyst/Programmer IV	FT	A	GG	Palmer	2A	20 B	12.0		51,624	0	0	16,146	67,770
Justification: Required to oversee development of database and website that will support the tracking system for 3 years, to implement SSHB356.														
Funding Detail: 1005 General Fund/Program Receipts													100.00%	67,770
												Total Funding:	100.00%	67,770
18-#025	Environmental Tech II	FT	A	GG	Palmer	2A	12 A	12.0		28,920	0	0	11,674	40,594
Justification: Required to input data reported into the database, to implement SSHB356.														
Funding Detail: 1005 General Fund/Program Receipts													100.00%	40,594
												Total Funding:	100.00%	40,594
18-#026	Environmental Spec II	FT	A	GG	Palmer	2A	16 A	12.0		37,740	0	0	13,411	51,151
Justification: Required for implementation of SSHB356. Position will develop regulations, policies, procedures, outreach activities, prepare annual report, work with Pesticide Advisory Board, and focus on compliance issues.														
Funding Detail: 1005 General Fund/Program Receipts													100.00%	51,151
												Total Funding:	100.00%	51,151
18-#027	Environmental Spec III	FT	A	GG	Palmer	2A	18 A	12.0		43,476	0	0	14,541	58,017
Justification: Required for implementation of SSHB356. Position will develop regulations, policies, procedures, outreach activities, prepare annual report, work with Pesticide Advisory Board, and focus on compliance issues.														
Funding Detail: 1005 General Fund/Program Receipts													100.00%	58,017
												Total Funding:	100.00%	58,017

Note: If a position is split, an asterisk (*) will appear in the Split/Count column. If the split position is also counted in the component, two asterisks (**) will appear in this column.

Personal Services New Position Detail

Department of Environmental Conservation
SSHB 356 Personal Services - FY2001

Scenario: FY2001 Legislative Fiscal Note Info - 3
Component: Laboratory Services (2065)
BRU Name: Environmental Health

Component Summary:

Total New Positions: 4

Fund Description	Fund Percent	Fund Amount
1005 General Fund/Program Receipts	100.00%	217,532
Total Funding:	100.00%	217,532

Note: If a position is split, an asterisk (*) will appear in the Split/Count column. If the split position is also counted in the component, two asterisks (**) will appear in this column.

Subject: Please Support the Pesticide Right-to-Know Bill, SSHB 356
Date: Wed, 05 Apr 2000 09:31:38 -0800
From: Randy Carter <jrc@mailhost.alaska.net>
To: Representative_Norman_Rokeberg@legis.state.ak.us
CC: Representative_Andrew_Halcro@legis.state.ak.us,
Representative_John_Harris@legis.state.ak.us,
Representative_Lisa_Murkowski@legis.state.ak.us,
Representative_Jerry_Sanders@legis.state.ak.us, Representative_Tom_Brice@legis.state.ak.us,
Representative_Sharon_Cissna@legis.state.ak.us, Janet_Seitz@legis.state.ak.us

Representative Norman Rokeberg, Chair
House Labor & Commerce Committee
April 5, 1999

I am writing to ask that you support SSHB 356, the Pesticide Right-to-Know bill recently introduced by Representative Sharon Cissna.

In the U.S., pesticide manufacturers are permitted to release new products on the market as long as no one has proven they aren't safe. We're beginning to see the magnitude of the mistake we've made in allowing these synthetic chemicals to be produced and dispersed throughout our air, water, soil and foods when their long-term effects on people, fish & wildlife have never been tested. Scientists are just beginning to understand the fates of pesticides and the health risks they pose to all of us, especially children. The list of pesticides that are known or suspected carcinogens and endocrine disrupters continues to grow. The amount and variety of pesticides we are exposed to continues to skyrocket. We and the world we inhabit are, in effect, guinea pigs in a massive ongoing experiment with little recourse if things go wrong.

Rep. Cissna's bill is a positive first step in remedying the situation at the state level. Because of the potential threat to our health that the approximately 3000 toxic pesticides registered for use in Alaska pose, we have a right-to-know about the kinds & amounts that are being used, and when & where we are being exposed to them, in our communities, work places and schools. This is a fundamental right that should be enshrined in law. Everyone has the right-to-know about toxic exposures so they can evaluate their own risk and take whatever protective steps they believe to be necessary.

SSHB 356 will make detailed information available that will also help to: protect public health, safeguard our children's future, protect our water, fish & wildlife, create healthy workplaces, and make better decisions about controlling pests.

I am concerned that certain areas of the bill are not comprehensive enough. The reporting requirement applies to "custom, commercial or contract" applicators. This means that households, government and agricultural users are not required to report pesticide applications that they perform themselves. Surveys suggest that these applications represent a substantial portion of the whole. For example, the EPA reports that agriculture accounted for an estimated 77% of U.S. pesticide use in 1995 and a nationwide survey of home and garden use done by the EPA in 1992 indicates that about 76% of households used insecticides and an estimated 85% had at least one pesticide in storage. It is critical to get a complete picture of exposure to pesticides in the state and not a just partial picture. If the reporting requirement applies only to "custom, commercial or contract" applications, we may be viewing just the "tip of

the iceberg." Also, to verify accuracy of reporting, collection of information on retail sales of pesticides in the state would seem to be essential.

Finally, at some point need to turn our attention to those pesticides and persistent organic pollutants (POPs) which originate outside Alaska and are arriving in unknown quantities by means of the "atmospheric conveyor belt." Polar regions are one of the world's main collection sinks for pesticides and POPs and upon arrival these toxic chemicals are concentrated in living things through bioaccumulation. For example, DDT, chlordane and dieldrin have been found in the bark of trees in the remote northern latitudes; Arctic cod and turbot have 1,000 times higher concentrations of DDT per gram of fat than the zooplankton they consume; and, chlordane and PCBs are found in extremely high concentrations in the breast milk of Inuit women in Northern Canada even though they are thousands of miles from the closest agricultural areas. Moreover, airborne contaminants have so polluted Lake Leberge just north of Whitehorse, Yukon, that fishers are warned to remove the livers from trout and eat no more than two a day. In all probability, we face the same problems here in Alaska but remain in the dark because no one is looking.

Sincerely,

James R. Carter
3505 Woodland Park Drive
Anchorage, Alaska 99517
907-243-6671

MEMORANDUM

To: Representative Norm Rokeberg

From: Representative Sharon Cissna

Date: 3/20/00

Re: Labor & Commerce Committee Hearing for HB 356

Please schedule SSHB 356 for a hearing before the Labor and Commerce Committee.

Attached you will find:

- A copy of the Sponsor Substitute for HB 356, *"an Act relating to pesticide use."*
- Sponsor Statement
- Sectional Analysis
- ADEC letter of Support

Thank you for your consideration of this request.

Alaska State Legislature

House Labor & Commerce Committee
•
House Military & Veterans' Affairs Special Committee
•
House Economic Development & Tourism Special Committee

716 West 4th Ave., Suite 330
Anchorage, AK 99501-2133
(907) 269-0190
(907) 269-0193 Fax
Representative_Sharon_Cissna@legis.state.ak.us
www.legis.state.ak.us/home/house/scissna.html

Representative Sharon Cissna

Sponsor Statement
HB 356

"An Act relating to pesticide use."

Alaskans lack the necessary records to safeguard their own exposure to pesticides. Certified pesticide applicators (CPA) are required to keep documentation on restricted use pesticides, but they are not required to report even this small percentage of total pesticide use. The limited documentation kept is extremely difficult for the public to access. According to a recent survey, 93% of voters favor required disclosure and reporting of pesticide use in Alaska.

HB 356 makes the commercial use of pesticides in public areas -- such as schools, parks, and municipal buildings -- known to the public. This bill creates a mechanism to study the suspected link of pesticides to increasing cancer, respiratory illness, and allergies.

This bill specifically:

- Charges pesticide manufacturers a $150 registration fee per label.
  Alaska is the only state that does not receive such a fee.
- Establishes a $25 registration fee for certified pesticide applicators.
  The Department provides training and licensure, but does not yet have the authority to charge a fee.
- Requires CPAs to report pesticide use to DEC.
  They are currently required to collect the information, but not required to report it.
- Mandates DEC establish a pesticide tracking system readily available to the public and integrated with a Geographic Information System.
- Establishes a nine member Pesticide Advisory Board to research ways to limit public exposure to pesticides.
  This is a volunteer board, which will incur minimal expenses to the State.

The tracking system will be funded by the $150 manufacturer's registration fee and the CPA licensure fees. Information collected by this tracking system will enable researchers and public officials the opportunity to create policy that reduces public exposure to hazardous chemicals, protects water quality, and keeps pesticides out of subsistence foods.

Sectional Analysis for SSHB 356, "an Act relating to pesticide use."

Section 1. Establishes a registration fee of $150 per pesticide product registered in Alaska.

Section 2. Establishes a license fee of $25 per annum for certain pesticide applicators.

Section 3, Sec. 46.03.335 Pesticide Tracking System.
(a) Mandates the department establish a pesticide tracking system, integrated with a statewide GIS, revealing the location and extent of pesticide use in Alaska.
(b) Mandates applicators report to the department pesticide name; rate, date, amount, location and method of application; crop, commodity, or site upon which pesticide was applied; and the target organism.
(c) Applicators must report unused pesticides.
(d) Applicators must retain records for three years.
(e) Civil penalties may be imposed for compliance failure.

Sec. 46.03.340. Availability of information to the public.
(a) Tracking system data must be available to public on the Internet and on disk or printed form by request.
(b) Department shall publish annual report detailing statewide pesticide application.

Sec. 46.03.345. Pesticide Advisory Board.
(a) Establishes a Pesticide Advisory Board of nine members: two pesticide applicators or dealers; two advocates of protection from pesticides; one agent of a public water supplier; one agent of the University's Cooperative Extension Service; one expert in pest control, epidemiology, fish and wildlife biology or children's health issues; and two public members.
(b) Board's responsibilities include advising the department on the tracking system, research methods for understanding household use of pesticides, and methods for increasing public awareness.
(c-e) Establishes routine mechanics of board governance.
(f) Board members are not entitled to transportation or per diem expenses.

Sec. 46.03.350. Technical Assistance.
(a) The department or Board may request technical assistance in establishing the tracking system from any public or private agency with expertise.
(b) The department may provide technical assistance to applicators to facilitate reporting.

Sec. 46.03.355. Department's use of the Tracking System.
The department shall use the pesticide use database to better protect the environment and citizens of Alaska from pesticides.

Section 4. ADEC may proceed to develop regulations.

Section 5. Pesticide Advisory Board shall submit a report to the Governor with recommendations for action.

Section 6. Except as provided in Section 7, this Act takes effect January 1, 2001.

Section 7. Section 4 takes immediate effect.

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

OFFICE OF THE COMMISSIONER

410 Willoughby Ave., Ste 10
Juneau, AK 99801-1795
PHONE: (907) 465-506
FAX: (907) 465-5070
http://www.state.ak.us/dec/

March 17, 2000

The Honorable Sharon Cissna
Alaska State House of Representatives
State Capitol, Room 420
Juneau, AK 99801

Dear Representative Cissna:

On behalf of the Department of Environmental Conservation, I'd like to commend you for your introduction of HB 356, the pesticide right to know bill. We strongly believe that citizens need to have this kind of information so they can make informed decisions about their environment and their health. Many people are quite concerned about pesticide use because of the potential for broad exposure, because some pesticide chemicals are known to bioaccumulate, and because the effects of pesticides on human health, development, and reproduction are not fully known.

While we do support the concept, there are some technical amendments we believe would improve the legislation. We will be summarizing those and providing them to you under separate cover.

Sincerely,

Michele Brown
Commissioner

cc: Janice Adair, Director, Environmental Health

Survey: 93% of those polled supported requiring reporting & disclosure of pesticide use

Alaska Conservation Voters

750 W. 2nd Ave. #109, Anchorage AK 99501 / Ph. 907-258-6171 / Fax 907-258-6177
P.O. Box 22151, Juneau AK 99802 / Ph. 907-463-3366 / Fax 907-463-3312 / unite@akvoice.org

HB 356 ~ PESTICIDE RIGHT TO KNOW

The Pesticide Right to Know bill **mandates** and **creates**:

FEES for registering pesticides for commercial sale in the state of Alaska:

The Department of Environmental Conservation requires a pesticide product be registered with DEC before it can be sold commercially in the state of Alaska. The manufacturer of the pesticide, the chemical company, is the registrant for commercial sale. Currently, there are NO fees associated with registering the pesticide. Alaska is the ONLY state that does not collect registration fees. The MANUFACTURER of the pesticide will pay this fee to the Department of Environmental Conservation so their pesticide product can be sold commercially in Alaska. The 2,979 pesticide labels currently registered for commercial sales in AK are the products of 426 companies, NONE of which are Alaska companies.

USE TRACKING SYSTEM:

House Bill 356 directs the department to create a use tracking system- a database where information collected regarding pesticide use would be recorded. Commercial, custom, and contract pesticide applicators will be required to report use. This bill does not require the reporting of retail sales and household use of pesticides. This is important because over 60% of pesticide use in Alaska is done by individuals for home and landscaping purposes.

PESTICIDE ADVISORY BOARD:

A nine member volunteer advisory board is created in the bill. The board would have diverse representation with members from medical community, children's advocates, wildlife researchers, pesticide applicators, drinking water providers, and community members. The board shall advise the department on the development and implementation of the use tracking system, recommend methods for educating public about least toxic alternatives, research and develop mechanisms for collection of household use, and work with the public to improve the reporting and tracking system.

INCORPORATION OF DATA INTO GIS DATABASE:

The department shall compile the information in a GIS database that can be used with other databases, such as the Cancer Registry and Contaminated Sites, to systematically analyze the connection between toxic pollution and human health problems.

DEPARTMENT USE OF USE INFORMATION:

The department is directed to use this information to safeguard the public's health when carrying out responsibilities for the protection of water quality, environmental protection, worker health and safety, public health programs, and pest management programs.

Conserve Alaska. It's Only Natural.

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CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

March 31, 2000

Representative Norman Rokeberg
Chairman House Labor and Commerce Committee
State Capitol, Room 24
Juneau, AK 99801-1182
Via Fax # 1-907-465-2040

Re: Opposition to House Bill 356

Dear Representative Rokeberg:

The Chemical Specialties Manufacturers Association (CSMA) strongly opposes HB 356 that would establish an elaborate and utterly unnecessary pesticide reporting system. CSMA represents manufacturers of *Consumer Protection and Health Benefit Products* that are used routinely by consumers and families in Alaska, and by institutional users including office buildings, hospitals, restaurants and schools. These products include pesticides, and antimicrobial products that aid in protecting public health and the quality of life by controlling the spread of insect pests, disease and vermin.

Alaska consumers routinely purchase from retail stores products to disinfect and sanitize their kitchens and bathrooms (i.e. antimicrobial products) and to protect their health against insect and rodent pests. These pesticide products are used in an around household premises, on pets, and also by institutional users such as restaurants, hospitals and hotels to help reduce the spread of disease. As you know, rodents are carriers of many serious diseases and cockroaches and other insects are also injurious and harmful to human health. The products produced by our industry are an important line of defense against these health threats.

A reporting system for these household products to "reveal the location and extent of pesticide use" is intrusive and unnecessary. The onerous cost to retailers, consumers, both residential and institutional, and the home use pesticide product industry cannot be compellingly justified. We therefore urge the committee to reject the legislation. Thank you for your consideration of these comments.

Sincerely,

Barry R. Ziman
Director of Strategic Advocacy
CSMA State Affairs

cc: Jerry Reinwand

HOME AND YARD

Inside homes or in yards, the disinfection and pest control provided by our products helps keep families healthy and safe.

"Consumer Protection and Health Benefit Products aid in protecting us from dangerous and life threatening diseases carried by pests"

Kitchen and Bath

Products our manufacturers produce are relied on by households to reduce mold and mildew growth, control odors, and disinfect and sanitize surfaces in kitchens, bathrooms and laundry rooms. Use of disinfectant products help protect families from harmful bacteria like *Salmonella, Staphylococcus, Streptococci* and *E. coli* among others.

Yard and Home Pesticides

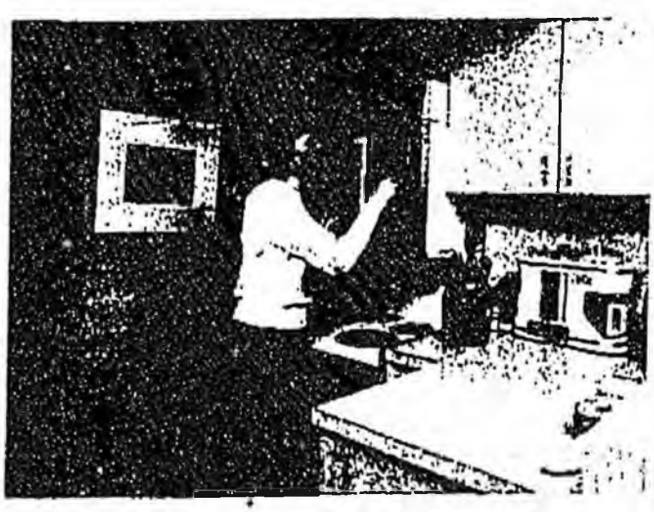
Pest-control products help protect families from disease-carrying pests like fleas, ticks, mosquitoes and rodents. These same products help eliminate insects like flies and cockroaches which can contaminate our food and spread disease. For example, the common cockroach can carry up to 70 different bacteria. Flies are associated with filth, decay, and animal droppings and can be carriers of many serious diseases.

Rodents carry many disease organisms including the recently identified Hantavirus which is currently rare. However, Hantavirus Pulmonary Syndrome (HPS) is potentially deadly and immediate intensive care is essential once symptoms appear.

It is estimated that up to five percent of the population is severely allergic to fire ant, wasp, hornet and bee stings. Our products assist in protecting this susceptible population from life threatening situations by effectively controlling these insect pests.

Consumer Protection and Health Benefit Products aid in protecting us from dangerous and life threatening disease organisms carried by pests, including:

- Lyme Disease
- Rocky Mountain Spotted Fever
- Ehrlichiosis (HGE)
- Mosquito-borne Encephalitis
- Hantavirus (HPS)



PUBLIC HEALTH PROTECTION

Consumer Protection and Health Benefit Products help protect public health and safety in a variety of ways and in a range of settings. These products are also essential in protecting the general public against emerging deadly diseases recently identified by medical science.

"The disinfection our products provide is critically important in nursing homes, hospitals, hospices and other health care facilities where many residents lack sufficient resistance to infection."

Institutional Uses:

A sanitary and pest-free environment is necessary to provide proper medical care. Disinfectant products and pest control products are essential in hospitals for helping to prevent the spread of disease and promoting recovery from illness. Such products limit the spread of diseases such as Hepatitis Virus A and Rotavirus (leading cause of diarrhea in hospital stays).

Consumer Protection and Health Benefit Products also play a vital role in protecting the health of people in hotels, restaurants, grocery stores and food processing facilities.

Restaurants, grocery stores and food processing facilities are required to use both disinfectant products and pest control products to maintain the safety of our food and protect the public health by preventing food poisoning and food contamination by *Salmonella* and *E. coli.*

Hotels routinely rely on these products to keep their premises sanitary for a large volume of people.

The disinfection our products provide is critically important in nursing homes, hospitals, hospices and other health care facilities where many residents lack sufficient resistance to infection.

Public Health

Pests such as rats, ticks, cockroaches, flies and mosquitoes pose serious public health problems by carrying disease organisms which can result in potentially life threatening illnesses. Pest control products are used to control, repel or eliminate these pests.

Many emerging diseases have been recently linked to these pests. For example, rodents have been found to carry Hantavirus, mosquitoes can carry the virus responsible for St. Louis or other forms of encephalitis and ticks transmit microorganisms responsible for Lyme disease which, between 1982 and 1997, was contracted by more than 100,000 people in 44 states. Many of these diseases are not only debilitating, but can also be fatal.

PROTECTING CHILDREN'S HEALTH

Consumer Protection and Health Benefit Products are vital for helping to protect the health of children in diverse environments.

Homes

According to the American Lung Association there are 15 million asthmatics in the United States and nearly one-third are children under 18 years of age. Asthma is the most prevalent chronic illness of children. The greatest prevalence of this condition occurs among inner city children.

In many cases, this condition results in high rates of emergency room visits, hospitalizations, periods of breathing difficulty and sleep deprived nights. A May 1997 study published in *The New England Journal of Medicine* found that children allergic to cockroach allergens and heavily exposed to the insects at home were three times more likely to be hospitalized than other asthmatic youth.

Pest control products are useful in effectively controlling and eliminating cockroaches which are now acknowledged to be the leading trigger for asthma in the inner city.

"A May 1997 study published in *The New England Journal of Medicine* found that children allergic to cockroach allergens and heavily exposed to the insects at home were three times more likely to be hospitalized than other asthmatic youth."

Schools

Disinfectant products help sanitize school cafeterias to control the spread of food poisoning and like diseases caused by *E. coli* and *Salmonella*. These products also are used to disinfect sinks, desktops, bathrooms and locker rooms.

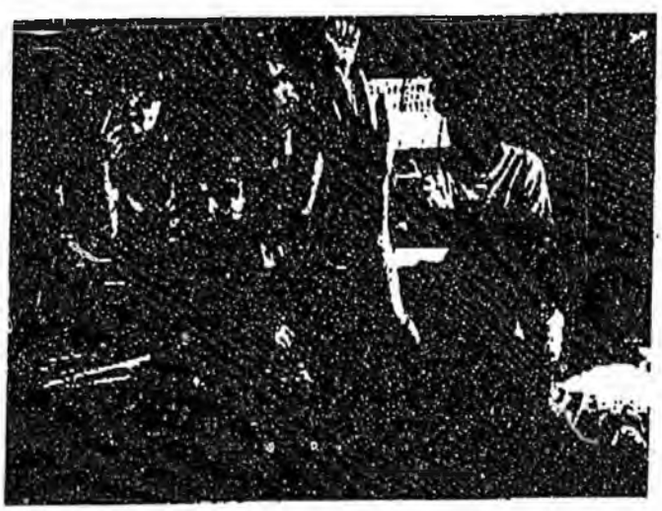
Outside classrooms, groundskeepers and pest control operators prudently use pest control products to eradicate fire ant, bee, wasp and hornet nests which can pose potentially fatal situations to susceptible children.

Day-Care

An estimated 80 percent of US families use child day-care. Toys, doorknobs, diaper changing tables and countertops are breeding grounds for germs. Use of disinfectants helps control the spread of germs and reduces the number of illnesses in children who attend day-care.

A 1996 industry study showed that proper and consistent use of disinfectants in a day-care setting resulted in a 24 percent reduction in overall infections and a 37 percent reduction in respiratory illnesses suffered by children.

Caring for an ill child who can't attend day-care causes nearly 60 percent of employee absenteeism. Thus, preventing illnesses increases productivity.



Alaska Community Action on Toxics

ANCHORAGE DAILY NEWS
THURSDAY, February 24, 2000 ☆

School Board cuts pesticide use

By PETER PORCO
Daily News reporter

The Anchorage School Board on Wednesday night agreed to restrict the use of pesticides in local schools. The new policy allows pesticides to be used only when bugs threaten health or safety.

The unanimous vote — the second on the issue in two weeks — was a victory for a group of students, teachers, parents and activists who convinced school district administrators that routine spraying posed a health risk and was unnecessary.

"I really believe this policy is precedent-setting, not only for the state but for the country," Pam Miller, program director for Alaska Community Action on Toxics.

"Specifically it says that pesticides will be used only as a last resort."

Under the district's previous plan, the exteriors of all schools were sprayed at least once a year with carbaryl, a federally regulated pesticide. Carbaryl can be toxic when ingested in large quantities but is considered safe when used properly, according to the state Department of Environmental Conservation.

The district's carbaryl spraying occurred usually in August, without notice to parents and school staff.

The new plan calls for notification of students, parents and staff whenever a building is to be treated with a pesticide. But the plan calls for nonpesticide control measures — caulking cracks in walls and floors and keeping facilities as clean as possible, for example — to be tried first.

Pesticides may be used "only if pests present a health and safety hazard, not for aesthetic or nuisance purposes," the plan states.

Superintendent Bob Christal commended Alaska Community Action on Toxics, which spearhead the drive to reform the district's pest management plan. After meeting with group members and other activists last summer, Christal ordered a review of the district's pest-management policies and suspended the annual spraying of carbaryl.

The organization reviewed a draft of the plan and made recommendations, said Stanley Syta, the district's director of operations.

"This has been a collaborative effort," Syta said last week at the board's hearing on the policy. "Central to the plan is notification" for those using the buildings.

The plan establishes a new position of pest management technician, whose salary will be about $40,000 a year, officials said. The district will save about $20,000 if it doesn't spray.

The use of pesticides in schools has been brought to the attention of the Legislature. State Rep. Sharon Cissna, D-Anchorage, has introduced a bill that would enable parents and others to monitor the use of pesticides in public places.

On a national level, the General Accounting Office, the investigative arm of Congress, tried unsuccessfully to determine the amount of pesticides used in the nation's schools, the degree to which children are exposed to them, and how their health might be affected, according to the National School Boards Association.

Several U.S. senators are trying to pass bills that would make schools notify the community before they use pesticides and to have schools adopt the least-toxic approach, the association said.

"I really believe this policy is precedent-setting, not only for the state but for the country."

— Pam Miller, Alaska Community Action on Toxic

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Alaska Community Action on Toxics

ANCHORAGE DAILY NEWS

THURSDAY, March 18, 1999 ★

Herbicide creates hubbub

Railroad revives controversy with plan to spray tracks

By ROBERT KOWALSKI
Daily News Juneau Bureau

JUNEAU — In a move that already is generating controversy, the Alaska Railroad is planning to spray toxic chemicals this summer to rid vegetation from 86 miles of its tracks in areas stretching from the Kenai Peninsula to Fairbanks.

The railroad last week asked the state Department of Environmental Conservation to approve a permit so it can spray the herbicide glyphosate along the rail bed and rights of way in six locations.

There is a long history of opposition to such proposals in the state. Herbicide spraying plans by the railroad in 1988 and by the state Department of Transportation in 1994 faced such a huge public outcry that they were withdrawn or blocked. The last time herbicide spraying was used in the state was in 1984, when a federal judge ordered the railroad to stop.

The railroad has decided now that other methods of weed control, including burning, steam spraying and hand cutting, aren't effective. Vegetation weakens the rail bed and creates hazards for rail-yard workers and train engineers.

"We have an acute safety problem. ... We need to do something," Alaska Railroad spokesman Ernie Piper said Wednesday. "Some of this stuff is chest high."

If the railroad's plan is approved, it would change Alaska's status as a herbicide-free state on transportation systems. No state agency uses toxic chemicals for vegetation control in Alaska now, said Rosemary Lombardi, an environmental specialist with the DEC's pesticide program.

Less than a week after the railroad applied for a permit, it already is facing objections.

"It's distressing to see the railroad once again propose to use these toxic chemicals on a large scale in Alaska's environment," said Kay Brown, executive director of the Alaska Conservation Alliance. "I wish the railroad

Please see Page C-3, GLYPHOSATE

Use of herbicide by Alaska Railroad 'will lift lid off boiling pot'

Continued from Page C-1

would reconsider."

"It's lifting the lid off of a boiling pot," said Sen. Kim Elton, a Juneau Democrat who remembers the last time the state proposed chemical spraying. "I think this is a significant public-policy issue."

Piper said the railroad has begun an information campaign to demonstrate the benefits of chemical spraying and what it believes is the benign nature of the herbicide it wants to use.

Last week the railroad hand-delivered letters about the plan from its president, former Gov. Bill Sheffield, to numerous state legislators, including those whose districts lie along the railbelt.

The DEC has scheduled five public hearings around the state beginning next week.

"The thing that's critical in any kind of effort is to be totally transparent," said Piper. "We're confident of its safety. ... We don't view this as a tradeoff between the environment and economy."

Elton thinks the railroad is smart to start informing the public of its plans now.

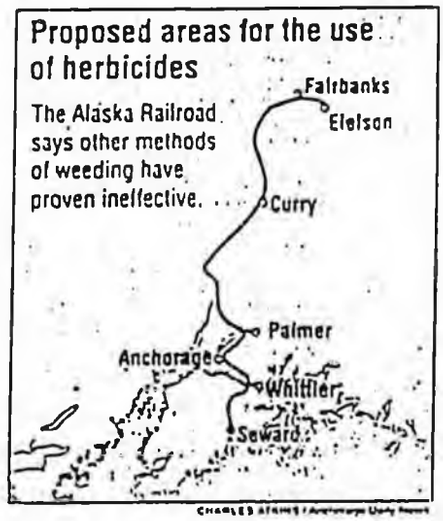
The railroad plans to spray a glyphosate chemical known as Roundup, which is commercially produced and is available in hardware stores and gardening shops nationally.

The chemical would be sprayed to kill weeds in rail yards in Anchorage, Fairbanks, Whittier and Seward, and along stretches of track in Palmer, Eielson, at the Fairbanks airport rail spurs and the siding in the Curry area north of Talkeetna.

The railroad intends to apply a total of 150 gallons of the chemical over a total area of 160 acres, starting in June, Piper said.

The railroad has earmarked $300,000 for glyphosate spraying this year out of a $1.4 million budget for vegetation control along its 525 miles of tracks, Piper said.

The railroad spent $1 million since 1990 studying ways to clear brush from rail beds before deciding chemicals were necessary, Sheffield said in his letter to lawmakers.



CHARLES ATKINS / Anchorage Daily News

One advantage of a herbicide is that it kills root systems, Piper said. The railroad chose its locations for spraying because they aren't heavily used by the public, he said.

"The yards were the most practical places to do it," Piper said. "People aren't picking berries in there."

Glyphosate, Piper said, is a benign substance that clings to soil where it is applied and doesn't readily spread into groundwater.

The last time the railroad proposed using chemicals to control vegetation, in 1988, it was blocked by an order from Gov. Steve Cowper. The railroad had planned to use chemicals other than glyphosate at the time.

But glyphosate has faced opposition in Alaska before.

In 1994, the state Department of Transportation received DEC approval to spray another commercial herbicide that contains glyphosate, Rodeo, to clear brush along 90 miles of roadways in eight Southeast Alaska communities.

The department canceled that plan after hundreds of Southeast residents and environmental groups protested.

And some environmental groups believe glyphosate poses environmental hazards that are serious enough to call the railroad's plan into question.

"They're trying to claim that the herbicide glyphosate ... is benign," said Pam Miller, of the group Alaska Community Action on Toxics. "I think that's an outright lie."

The Northwest Coalition for Alternatives to Pesticides, an Oregon group, studied glyphosate and concluded in a 1998 report that the chemical and substances it is mixed with can have toxic effects on plants, animals and people.

There also is evidence that it causes genetic damage, said Caroline Cox, editor of the Journal of Pesticide Reform, which the group publishes.

"That presents a scary thought for using it along a large number of miles of Alaska Railroad," she said.

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GLYPHOSATE

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ARE PESTICIDES HAZARDOUS TO OUR HEALTH?

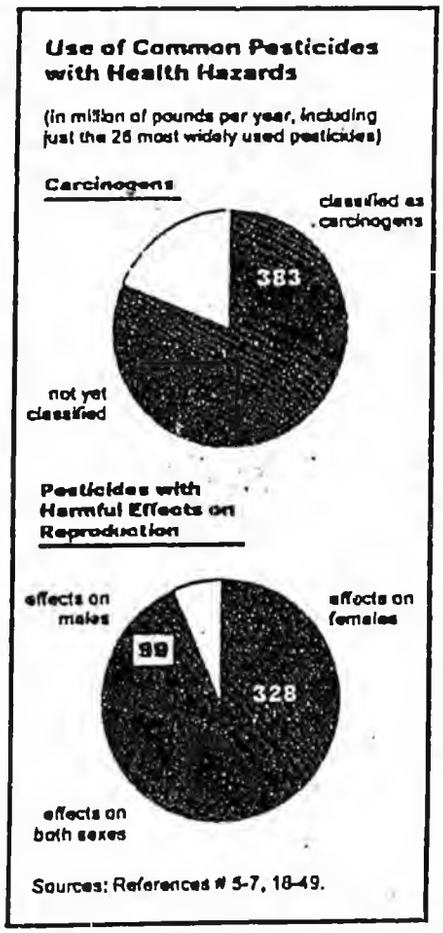
Pesticides with significant health hazards are applied in startling quantities. For example, just looking at the 26 most widely used pesticides, Americans annually apply about 380 million pounds of pesticides classified by the U.S. Environmental Protection Agency (EPA) as carcinogens. About 660 million pounds of pesticides that cause reproductive problems are used annually, with hundreds of millions of applications in our homes, on our lawns, and in our gardens.

As chemicals that are biologically active by design, it may not be surprising that pesticides can damage human health. Small amounts of some pesticides cause death;[1] others burn or irritate eyes and skin,[1] damage the nervous system,[2] disrupt our hormones[3] and immune systems,[4] reduce our ability to successfully reproduce,[3] and cause cancer.[5] What is surprising, however, are the enormous quantities of these hazardous chemicals that are used in the U.S. every year.

Pesticides and Cancer

As an example of the use of pesticides which damage our health, consider pesticides that are carcinogenic (cancer-causing). EPA is in the process of classifying pesticides based on whether or not they cause cancer in studies of laboratory animals, and so far has evaluated about 250 pesticides.[5] NCAP looked at the 26 pesticides that are most widely used in the U.S.[6,7] (This includes all pesticides with an annual use of at least six million pounds.[6]) Of these pesticides, 12 are classified as carcinogens by EPA,[5,8] with an annual use that totals 380 million pounds.[6] In other words, our dependence on chemical pest control results in 380 million pounds of carcinogenic pesticides being purposefully applied to the environment every year.

Another way of evaluating pesticides for their ability to cause cancer is to study the incidence of the disease in humans who have been exposed to particular pesticides. Such studies are called epidemiological studies. Although these studies are less common than laboratory studies, they have demonstrated associations between increased exposure to four frequently used pesticides and an increased risk of cancer.[9-18] Together, almost 190 million pounds of these four pesticides are used annually,[6] including 120 million household applications every year.[19]



Pesticides and Our Ability to Reproduce

Pesticides have a variety of effects on reproduction. In exposed people, some pesticides cause birth defects, some cause miscarriages, some cause babies to be small, and others decrease fertility.[20-23] Reproductive effects can occur in males, females, or both. As with cancer, perhaps the most striking statistics are the sheer volume of pesticides used every year that have harmful effects on reproduction.

Looking again at the 26 most commonly used pesticides, 9 have harmful effects on male reproduction (causing sperm abnormalities, reducing sperm production, disrupting male hormones, and damaging male reproductive organs, mostly in laboratory tests).[24-33] Use of these pesticides totals over 300 million pounds per year,[6] including about 360 million household applications.[19]

Most (17) of the 26 commonly-used pesticides have caused decreased pregnancy success in laboratory tests. Miscarriages, a reduction in the number of living offspring, and reduced birth weights are common problems.[34-54] Total use of these pesticides is about 600 million pounds per year,[6] including about 330 million household applications.[17]

These examples lead to two straightforward conclusions: many pesticides pose significant hazards; and millions of pounds of these pesticides are used annually.

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BASIC INFORMATION ABOUT PESTICIDES

WHAT IS A PESTICIDE?

By law, a pesticide is "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." This definition includes insecticides, herbicides, fungicides, rodenticides, and antimicrobials as well as plant growth regulators, defoliants and dessicants.

It is important to note what this definition does *not* include. Pesticides kill or damage pests, but they don't solve pest problems. Solving a pest problem requires identifying the factors that allow the pest to thrive, and then changing those conditions so that the pest is no longer successful. At best, pesticides provide short-term respites from pests, and require repeated treatments to keep pest populations low.

Pesticides are unique chemicals. Designed to kill or damage living things, they are, as the National Research Council has written, "perhaps the only toxic substances that are purposefully applied to the environment."[1]

John Burgess

A Legal Definition

The term pesticide is defined by the national pesticide law, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). According to FIFRA, a pesticide is "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest."[2] FIFRA also adds plant growth regulators, defoliators, and desiccants to the legal definition of pesticides.[2]

"Pesticide" is commonly used as a synonym for insecticide, a substance which targets insect pests. However, under the legal definition all "cides" are pesticides: fungicides to kill molds and fungi, herbicides to kill plants, rodenticides to kill rodents, and antimicrobials for killing bacteria and viruses.[3]

What a Pesticide Is Not

A comprehensive definition of the term pesticide also needs to include what pesticides *don't* do. Pesticides kill or damage pests, sometimes very effectively. What they don't do is solve pest problems. Killing pests, in and of itself, is never the answer to a pest problem. Pest problems get solved when we figure out the causes of the problem, the factors that have allowed a pest to thrive. When these factors are addressed, a pest problem is truly solved.

Simply killing pests, instead of solving pest problems, leads to routine and repeated use of pesticides as pests need to be killed over and over again. The enormous amounts of pesticides that are currently used, after decades of widespread use, are a simple demonstration of this fact. There are over 800 different pesticides and over 20,000 products currently registered for use in the U.S.; total pesticide use is over 4.5 billion pounds annually.[4] An estimated 4.4 billion applications are made annually in homes, yards, and gardens.[5]

If pesticides really solved pest problems, these enormous numbers would shrink.

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• BASIC INFORMATION ABOUT PESTICIDES •

DOES GOVERNMENT REGISTRATION MEAN PESTICIDES ARE SAFE?

Legally, pesticides are supposed to be regulated so that they do not cause "unreasonable adverse effects" and so that there is "a reasonable certainty that no harm will result" from their use. But does this mean that pesticides, by a common-sense definition, are safe? No.

For example, consider NCAP's survey of 19 recently registered pesticides. Seven cause cancer, six cause genetic damage, one causes miscarriages, one causes birth defects, one causes cataracts, and one causes liver and kidney damage. Eight are toxic to fish, one to shrimp, and one to oysters. Five are potential groundwater contaminants. These hazards do not meet a common-sense definition of safety.

By law, pesticides are regulated by the U.S. Environmental Protection Agency (EPA) so that they "will not generally cause unreasonable adverse effects on the environment."[1] A newer federal law sets a higher standard for pesticides used on food; their residues must be "safe,"[2] defined as "a reasonable certainty that no harm will result from aggregate exposure to the pesticide."[2] But does this mean that pesticides, by a common-sense definition, are safe? No.

Pesticide regulation is full of loopholes. Many pesticides in use today were registered using old test protocols and have not yet been reevaluated under current standards.[3] Pesticide testing is performed or paid for by pesticide manufacturers,[4] setting up a built-in conflict of interest. Many tests are only "conditionally required"[5] and are often waived. Tests ignore the multiple pesticides to which people are regularly exposed because they only look at one pesticide at a time.[5]

Probably the simplest way to evaluate for ourselves whether registration means pesticides are "safe" is to look at recently registered pesticides and see if they meet a common-sense definition of safety. As newly registered pesticides, they should meet all current standards.

NCAP surveyed 19 conventional pesticides registered since 1997. EPA's evaluation of these pesticides shows most of them pose important hazards.[6] Seven cause cancer and six cause genetic damage. One causes miscarriages, one causes birth defects, one causes cataracts, one causes bone marrow abnormalities, two are neurotoxic, and one causes liver and kidney damage. Eight are toxic to fish; five to juvenile fish and three to adult fish. Five have the characteristics of groundwater contaminants. Two are highly toxic to oysters, and one to shrimp.

Clearly these pesticides are far from "safe" by any common-sense definition.

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3. FIFRA § 4.
4. FIFRA § 3(c)(1)(D).
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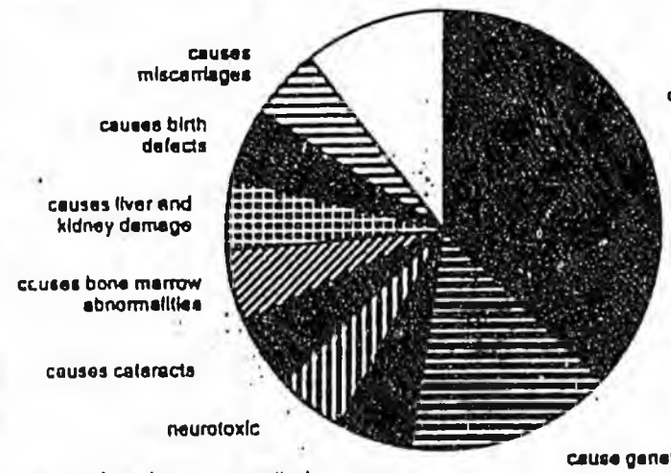
Health Hazards of Recently Registered Pesticides



Source: www.epa.gov/opprd001/factsheets/.

BASIC INFORMATION ABOUT PESTICIDES

DO PESTICIDES POSE SPECIAL HAZARDS TO CHILDREN?

Recent research shows that pesticides are particularly hazardous for children.

Neurotoxic pesticides are a special concern. Because children's eating patterns are different from those of adults, children, for their size, eat more pesticides on their food than adults. The National Research Council estimated that every day, over a hundred thousand two-year olds consume more than our government's "acceptable levels" of a common group of neurotoxic pesticides.

In addition, children whose parents use pesticides, both in the home and on the farm, are at higher risk for certain health problems. These problems include childhood brain cancer, birth defects, miscarriages, and premature birth.

Children's special susceptibility to pesticides was first widely publicized by the National Research Council (NRC) in their 1993 report *Pesticides in the Diets of Infants and Children*. The NRC concluded that children are not adequately protected from pesticides on their food because, for their size, children consume more calories, drink more water, and eat fewer types of food than adults. The NRC recommended changes in the regulation of pesticides.[1] Many of these changes were included in a 1996 law (the Food Quality Protection Act; FQPA), but have yet to be fully implemented.

Jay Shepard

Neurotoxic Pesticides

As an example of children's vulnerability to pesticides, the NRC focused on the large and widely used family of organophosphate insecticides and noted that these pesticides share the same neurotoxic effect. They looked at two-year olds, the foods they commonly eat, and total pesticide exposure for common members of the organophosphate family. Based on this data, the NRC estimated that large numbers of children are exposed to unacceptable amounts of these pesticides: *Every day*, 45,500 American two-year olds consume organophosphates in amounts above the U.S. Environmental Protection Agency's acceptable level, and some children would consume ten times this much. When juice was included in the NRC's calculations, the number rose to 143,500 children.[1] These calculations remain valid, because the FQPA's changes have not yet been implemented for organophosphates.

Other Hazards to Children

Recent research has linked a wide variety of health problems in children to their parent's exposure to pesticides.

Examples include:

• A study of children with brain cancer in Los Angeles County (California) found that these children were twice as likely as children without the disease to have been exposed prenatally to flea and tick insecticides when their mothers treated their pets.[2]

• In California counties with high agricultural pesticide use, the incidence of limb reduction birth defects is also high.[3]

• In Minnesota, farmers licensed to apply pesticides on their farms are more likely to have children with birth defects. This association was particularly strong in counties with high use of fungicides and herbicides related to 2,4-D.[4]

• A study of Canadian farmers found that use of the insecticide carbaryl was associated with an increased incidence of miscarriage and the use of the herbicides atrazine and 2,4-DB was associated with an increased risk of premature birth.[5]

Taken together, these studies are a clear demonstration that pesticides' effects on children's health are a cause for concern.

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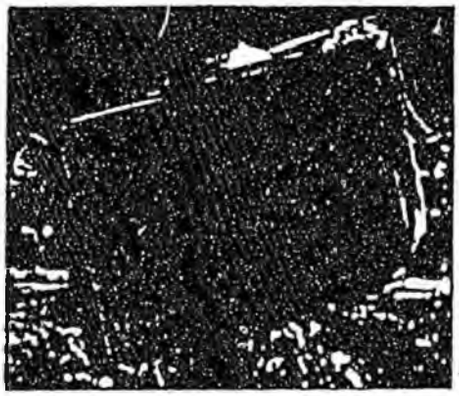
●NEWS FROM AROUND

PESTICIDES AND CHILDREN: SPECIAL PROBLEMS

"There are many reasons to believe that children may have unique sensitivities to their environment,"[1] concluded a recent review by scientists from the University of Washington. The review synthesizes significant new research about the risks pesticides pose for children.

One special focus has been a gene, called *Pon 1*, that is responsible for an enzyme that inactivates oxons, the active forms of organophosphate insecticides. People can inherit types of *Pon 1* whose enzymes differ in their ability to break down insecticides. One type, for example, inactivates the active forms of parathion and chlorpyrifos very slowly, but works quickly on the active form of diazinon. In juvenile laboratory animals, *Pon 1* activity levels are low and do not reach



adult levels until the end of childhood.[1] Consequently, some children could have a double sensitivity to chlorpyrifos: low activity levels of *Pon 1* because of their age and an inherited low-activity type of *Pon 1*.

Another research focus has been children's exposure to organophosphates in agricultural areas. Higher levels of organophosphates have been found in house dust of agricultural families. In addition, parents who are pesticide applicators bring home pesticide contamination, leading to higher concentrations of organophosphate breakdown products in their children's urine.[1] In a new study, over half of applicators' children had been exposed to levels of insecticides above the U.S. Environmental Protection Agency's (EPA's) reference dose,[1] the amount EPA believes (over a lifetime of exposure) will "have no serious deleterious effects."[2]

According to the University of Washington scientists, the cause of about 70 percent of birth defects is unknown and "this lack of information impedes our ability to develop effective public health prevention strategies."[1] Research continues at the University of Washington to fill some of these gaps, but quick answers to all of the questions raised by their review is imperative. —*Caroline Cox*

Caroline Cox is a JPR's editor.

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●NEWS FROM AROUND

"INERT" IN ASTHMA-CONTROL PESTICIDE CAUSES ASTHMA

Pesticide and household product manufacturer S.C. Johnson and Son, Inc. recalled its AllerCare dust mite control pesticides in January, 2000.[1] AllerCare products had caused asthma and respiratory problems in over 400 consumers during the fall of 1999.[2]

AllerCare products are sold to kill dust mites, a common cause of allergies and asthma.[2] However, they contain a so-called inert ingredient, a fragrance, that caused asthma and other allergy symptoms in some individuals.[3] Vacuuming or steam cleaning increased the problem.[4]

Oregon's Health Division described an example of problems following an AllerCare application. "She [the person making the application] complained of nasal and throat irritation during and shortly after the application. The following morning, the woman's husband developed an acute asthma exacerbation, followed by another attack two days later. Their three year old daughter developed an erythematous, diffuse body rash within 15 minutes of entering the home on the day of application. The rash persisted for several days."[4] Such illnesses seem particularly unnecessary given that effective nonchemical mite control measures are available.[2]

The AllerCare incidents show the importance of accurate information about *all* of a pesticide's ingredients. While the AllerCare fragrance is classified as an "inert," and so is not identified on product labels, its presence poses an unexpected threat to public health. —*Caroline Cox*

Caroline Cox is a JPR's editor.

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BASIC INFORMATION ABOUT PESTICIDES

DO PESTICIDES CONTAMINATE OUR RIVERS, STREAMS, AND WELLS?

Pesticides are widely found in rivers, streams, and wells. In a recent national study, the U.S. Geological Survey found that over 95 percent of river and stream samples, as well as over 50 percent of well samples contained at least one pesticide. Many samples contained multiple pesticides. Both urban and agricultural areas have pesticide-contaminated streams and rivers.

New studies show that the relatively low concentrations of pesticides found in water can affect human and animal health.

Pesticides are everywhere in our water resources and are frequently found when comprehensive surveys are made.

The best data about pesticide contamination of water come from the U.S. Geological Survey (USGS), a federal agency that is in the process of sampling river basins nationwide for pesticides. The data from the first phase of the project, encompassing 20 basins, are now available.[1]

The USGS looked for 76 pesticides and 7 pesticide degradation products. More than 95 percent of the water samples collected from streams and rivers contained at least one pesticide, as did about half of the well water samples. Mixtures of pesticides were common; over half of the stream samples contained over 5 pesticides, and about a quarter of the well samples had 2 or more pesticides.

Four common herbicides were frequently detected in agricultural areas: atrazine, metolachlor, cyanazine, and alachlor. Different herbicides were found in urban areas: simazine, prometon, 2,4-D, diuron, and tebuthiuron. Insecticides were more frequently detected in urban streams, and were rarely detected in well water. The four most commonly detected insecticides were diazinon, carbaryl, malathion, and chlorpyrifos.

Although many of the pesticide concentrations measured by the USGS are relatively low, recent studies show that these pesticides are already causing health problems for people and animals. For example, the numbers of low birth-weight babies in southern Iowa and the numbers of breast cancer cases in Kentucky were high in areas with pesticide-contaminated water.[2,3] Also, the USGS found that fish sex hormone ratios decrease with increasing pesticide contamination of rivers.[4] "Within all regions studied," the USGS concluded, fish already "may be experiencing some degree of endocrine disruption."[4] Clean water is essential for human and environmental health.

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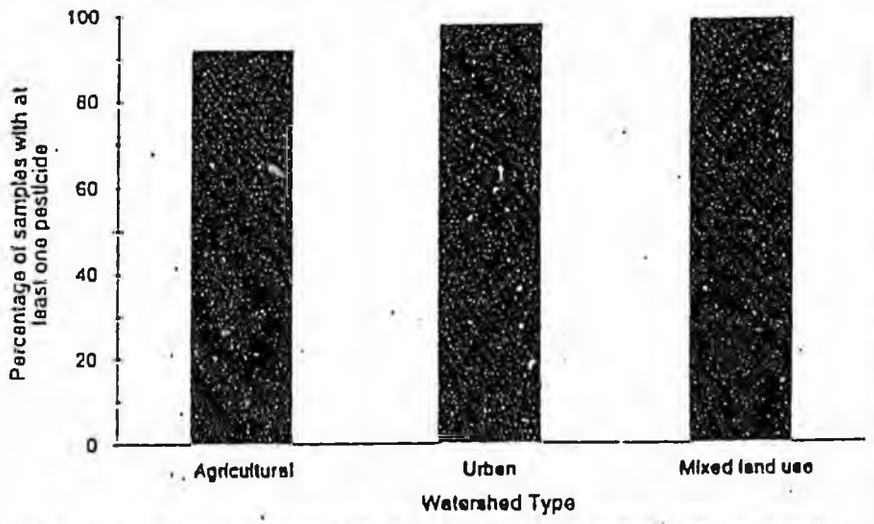
Detection of pesticides during nationwide monitoring of rivers and streams



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BASIC INFORMATION ABOUT PESTICIDES

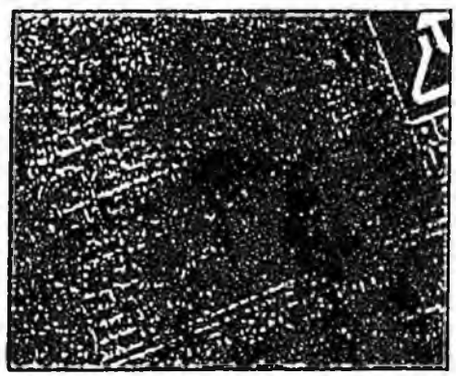
ARE "INERT" INGREDIENTS IN PESTICIDES REALLY BENIGN?

Inert ingredients are present in virtually all pesticide products. They are substances added to pesticides to make them more potent or easier to use, but their identities are often claimed as confidential and they have only minimal testing requirements.

Despite this lack of testing, many inerts pose known hazards. About a quarter of inerts have already been classified as hazardous by state, federal, and international agencies.

Our national pesticide law classifies pesticide ingredients into two categories, "active"[1] and "inert."[2] Active ingredients are those that are designed to kill or damage a pest.[1] Inerts are all other ingredients used in pesticide products[2] and are added to active ingredients to make the pesticide more potent or easier to use. Inert ingredients are not inert in the usual sense of the word; often they are neither chemically, biologically, nor toxicologically inert.[3]

Pesticide manufacturers claim that the identity of many inert ingredients is confidential business information and will not publicly disclose them. Under the Freedom of Information Act, the public can get information from the U.S. Environmental Protection Agency (EPA) about the inerts in a pesticide product unless the manufacturer proves that the information is confidential.[4]



Inert Hazards

Because there are only "minimal" testing requirements for inerts, EPA has little information about their hazards. Of the over 2300 substances EPA believes are used as "inerts" in pesticide products,[5] EPA classifies most (over 1700) as "of unknown toxicity"[5] because EPA's Office of Pesticide Programs does not have adequate information about their potential hazards.

However, there is clear evidence that many inerts pose significant toxicological and environmental hazards. State, federal, and international agencies have classified 26 percent of them (about 600 chemicals) as hazardous.[6] Specific inert ingredients have well-known hazards. Examples include the following:

- Crystalline silica is a carcinogen.[7]
- Nonyl phenol ethoxylates cause destruction and marked deterioration of fish gills.[8]
- Ethylbenzene has caused fetal loss, birth defects, and testicular cancer.[9]
- Xylenes cause vomiting, impaired short-term memory, and reduced fertility.[10]
- Trimethylbenzenes cause bronchitis, fatigue, and dizziness.[11]
- Chlorofluorocarbons cause destruction of stratospheric ozone.[12]

Why Is Public Disclosure Important?

It is impossible for pesticide users, whether they are government agencies, businesses, or homeowners, to accurately understand the hazards of a pesticide product they are proposing to use if they don't know its ingredients.

"Inert" ingredients also pose a crucial ethical issue. We are all exposed to pesticides on a daily basis, whether or not we like that exposure. Given this situation, the very least we can do is to insure that we have complete, easily and publicly accessible information about all of the ingredients in pesticide products.

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Researching Pesticides' Health Effects on the Web by

Kay Rumsey, NCAP librarian

Researching pesticides can be a daunting task. The following six steps, however, should make the task less intimidating.

1. Identify as many ingredients as possible in the pesticide product you're researching. If you have product labels or material safety data sheets, they list some ingredients. By phone, you can get information from NCAP or the National Pesticide Telecommunications Network (NPTN: 1-800-858-7378). For ingredient information on the web, use the U.S. Environmental Protection Agency's (EPA's) pesticide products database at http://www.cdpr.ca.gov/docs/epa/epamenu.htm. Choose the pesticide product database from the menu at this address and do a search by product name (trade name). Then check off the names of any products you're researching and click the report button. Each report lists ingredients of a product. Click on the highlighted number for each ingredient to view EPA's chemical name record. Note the common name if it's given. Print out each record so you have the list of synonyms and the Chemical Abstract Services (CAS) number (also known as the CAS #, CAS Reg. No. or CASRN). The CAS number is a standard way of identifying a particular chemical. Chemfinder is another useful source of synonyms (www.chemfinder.com).

2. Many pesticide ingredients have multiple names. Scientists, agencies, and even EPA do not always use the same name for the same chemical. The common name is used as a keyword in most, but not all, sources of information on pesticides and is the one you should use first as your search term.

3. Check NCAP's website (http://www.pesticide.org/factsheets.html) for information on your pesticide's ingredients. NCAP's information covers only a few commonly-used pesticide ingredients, but is detailed and emphasizes hazards.

4. If no information on your ingredients is available on NCAP's website, use common names to search the websites listed in the "Resources" section below. Be aware that these resources vary in the sources of information they use and their biases. Some rely primarily on information submitted by the pesticide manufacturer to EPA. Others also cite information from articles published in scientific journals. In most cases, hazards will not be emphasized. Use as many of these resources as you can, and look carefully for information that identifies hazards. Most of the sites listed in "Resources" have search engines which enable you to locate information by typing the name of a chemical into a search field. If not, use the "find" command on your browser

5. If you aren't finding as much information as you need, use the synonyms and CAS numbers identified in step 1. Repeat the searches you made in step 4 with these new search terms. Also, try the NPTN web site; it has links to additional information resources (http://ace.orst.edu/info/nptn/tech.htm).

6. Don't get frustrated! NCAP can help if you have problems.

Web Resources

Agency for Toxic Substances and Disease Registry ToxFAQs: Hazardous Substance Fact Sheets

EPA Fact Sheets on New Pesticide Active Ingredients

EPA Pesticide Reregistration Eligibility Decisions (REDs)

EPA's IRIS (Integrated Risk Information System) database

EPA Pesticides classified as known, probable, or possible human carcinogens

EXTOXNET (Extension Toxicology Network)

International Agency for Research on Carcinogens (IARC): Agents and summary evaluations

California EPA. Chemicals Known to the State to Cause Cancer or Reproductive Toxicity

New Jersey Right to Know Program - Hazardous Substance Fact Sheets

Scorecard (Environmental Defense Fund)

Hazardous Substances Database in TOXNET (National Library of Medicine) (Display results as "full record.")

PubMed (National Library of Medicine) Indexes biomedical journals. The journals are mostly not available on-line, but the abstracts are informative

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ENVIRONMENT NEWS SERVICE

Common Insecticide Found Highly Risky in New Review

By Cat Lazaroff

WASHINGTON, DC, October 28, 1999 (ENS) - A common, popular insecticide used on crops, lawns and Christmas trees poses higher risks to human health and the environment than previously believed, the U.S. Environmental Protection Agency revealed Wednesday.

An EPA official who asked not to be identified told ENS today that, in light of the new risk assessment, the EPA will likely seek to curb the use of the insecticide chlorpyrifos.

Dow AgroSciences markets chlorpyrifos as Dursban Pro and Dursban 50W for general pest control, and Dursban TC for termite control (Photo courtesy Dow AgroSciences)

Chlorpyrifos, the active ingredient in Dursban® and Lorsban® insecticides, trademarked names of Dow AgroSciences LLC, is a broad-spectrum, organophosphate insecticide first registered in the United States in 1965. Registered uses include a wide variety of food crops, turf and ornamental plants, structural pest control and residential uses.

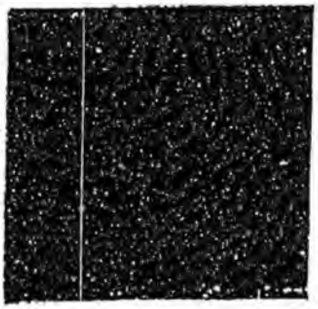
The reassessment of the widely used pesticide chlorpyrifos casts the agency's planned reevaluation of thousands of chemicals in a new light, indicating that new data and improved techniques may reveal toxins in our own backyards.

Chlorpyrifos and other pesticides are being reviewed under the process developed by the Tolerance Reassessment Advisory Committee to determine whether their existing Environmental Protection Agency (EPA) registrations meet stringent, new safety standards required by the Food Quality Protection Act of 1996.

As part of the retesting, the EPA is using controversial animal tests, as well as a review of existing data, to determine safe exposure limits for adults, children, land animals and aquatic animals.

The EPA's reassessment of chlorpyrifos finds significant risks to humans and wildlife from outdoor uses of the pesticide. The chemical is so widely used that "the majority of the U.S. population is exposed to chlorpyrifos," the EPA's preliminary risk report states.

The report notes that previous studies have shown that 82 percent of American adults and 92 percent of children studied have traces of the chemical in their urine.



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RAVEN DEATHS IN SITKA AND ORGANOPHOSPHATE PESTICIDES APPLIED FOR CRANE FLY LARVAE CONTROL

Rudis, Deborah (U.S. Fish and Wildlife Service, 3000 Vintage Blvd. #201, Juneau, AK 99801), Robert Gorman (UAF Alaska Cooperative Extension, 2221 E. Northern Lights Blvd #118, Anchorage, AK 99508), Karen Laing and Philip Johnson (U.S. Fish and Wildlife Service, 1011 E. Tudor Road, Anchorage, AK 99503)

In early June 1999, the U.S. Fish and Wildlife Service received reports of a large number (>20) of dead and dying ravens in the Sitka area. Several carcasses were sent to the National Fish and Wildlife Forensics Lab in Ashland, Oregon where results confirmed that the ravens died from poisoning by the insecticide Diazinon. The ravens apparently foraged on lawns that had been treated with a granular form of Diazinon, applied to control European crane flies (Tipulidae), which are an introduced turf pest. The birds appear to have pulled up sections of grass and either ate granular Diazinon or consumed poisoned European crane fly larvae.

The pesticides Diazinon and Dursban (Chlorpyrifos) are organophosphate pesticides. They are labeled by EPA to control larval stage insects that feed on grass roots and subsequently kill lawn grasses. In Sitka, as in many coastal communities in the western U.S. and Canada, the spring emerging European crane fly larvae sometimes are controlled with granular or liquid form Diazinon or Dursban. The mode of action of these pesticides is acetylcholinesterase inhibition. Without inhibition of the enzyme acetylcholinesterase, excessive nerve stimulation is followed by activity depression. This disruption of normal motor control results in death in acute poisoning incidents. Depending on dose, organophosphate poisoning can be very rapid following ingestion. Ravens and most birds are very sensitive to organophosphate poisoning.

European crane flies can be controlled by maintaining healthy lawns. Alternative pest management strategies and groundcover options, which may reduce the need for pesticides, will be discussed.

RAVEN DEATHS IN SITKA AND ORGANOPHOSPHATE PESTICIDES APPLIED FOR CRANE FLY LARVAE CONTROL

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In early June 1999, the U.S. Fish and Wildlife Service received reports of a large number (>20) of dead and dying ravens in the Sitka area. Ravens were found at the Sitka National Cemetery among other locations. The birds were initially brought to the Sitka Raptor Center and were later collected by a USFWS law enforcement agent. Because the symptoms, foaming at the mouth, disorientation, and inability to stand indicated a poisoning incident, several carcasses were sent to the National Fish and Wildlife Forensics Lab in Ashland, Oregon for analyses.

Laboratory results confirmed that the ravens died from poisoning by the insecticide diazinon. The ravens apparently foraged on lawns that had been treated with a granular form of diazinon, which was applied to control European crane flies (Tipulidae), an introduced turf pest. The birds appear to have pulled up sections of grass and either ate granular diazinon or consumed poisoned European crane fly larvae.

Those who are concerned with avian health need to know how lawn and garden pest control chemicals can harm birds, and the legal implications of pesticide-related bird deaths.

ORGANOPHOSPHATE PESTICIDES

Toxicological Effects

The pesticides, diazinon and chlorpyrifos are organophosphate pesticides. The mode of action of these pesticides is acetylcholinesterase inhibition. Biochemically they affect nerve function. Respiratory failure occurs due to paralysis of the respiratory center. This disruption of normal motor control results in death in acute poisoning incidents. Products containing cholinesterase inhibitors as active ingredients are available under various trade names. They are among the 44 pesticides most commonly used in lawns and gardens. Depending on dose, organophosphate poisoning is rapid following ingestion. Toxicity varies widely within and among species, and is modified by organism age, sex, and body size as well as climatic conditions, pesticide formulation, and chemistry of the environment (such as soil pH). Signs of acute poisoning for either compound are excess salivation, lacrimation, vomiting, diarrhea, irregular involuntary muscle spasms, wing drop, and wing-beat convulsions. Death is a result of respiratory failure.

Frequent mild exposures to these compounds can result in greater susceptibility due to exhaustion of the body=s store of cholinesterase. Chronic effects result in non-fatal neurotoxicity (changes

in behavior and development). Non-fatal cases usually recover within 48 hours. Poisoned birds which do not die can have reduced body temperature, changes in the ability to capture prey or avoid predation, changes in reproductive or parenting behavior, and changes in the ability to navigate during migration. Alterations in birds' ability to respond to their environment can lead to decreased survival of individuals. In birds that survived chlorpyrifos poisoning gross pathological changes were found.

Ecological Effects

Each EPA registered product bears on its label the statement: "It is a violation of federal law to use this product in a manner inconsistent with its labeling." In other words, it is illegal to use the product in any way except as instructed on the label. *If the label states that the product is toxic to birds*, a pesticide user would be breaking the MBTA if even one migratory bird death is caused by his or her pesticide application. *(As it always an offense by this US F&W regulation to kill migratory birds.)* And the MBTA law can still be enforced even if the pesticide user is unaware of it.

Specific diazinon label instructions include the following statements:

Warning: "Birds, especially waterfowl, feeding or drinking on treated areas may be killed."
Prohibition: "Do not apply this product or allow to drift to blooming crops or weeds if bees are visiting the treatment area."
Prohibition: "Do not apply where fish, shrimp, crab or other aquatic life are important resources."

Birds

Most birds are very sensitive to organophosphate poisoning and are significantly more susceptible to diazinon or chlorpyrifos than mammals. This is due to differences in blood chemistry. The manufacturer=s information sheet for Ortha Diazinon Soil & Turf Insect Control notes that this material is toxic to birds, other wildlife and aquatic organisms. Because of it=s avian toxicity, even at proper application rates, EPA cancelled the registration of diazinon for use on golf courses and sod farms in 1988. The agency concluded that the use of diazinon in open areas posed a Awidespread and continuous hazard≅ to birds. Throughout the country numerous bird die-offs had been documented after diazinon application to these types of areas. Grazing geese and ducks were particularly susceptible because of their feeding mode. Granular formulations are particularly hazardous to seed-eating birds, fewer than 5 granules of one formulation were found to be lethal.

Bird kills associated with proper diazinon use have been reported from every area of the US and at all times of year. Bird kills associated with proper use of chlorpyrifos are also widespread for both lawn treatments and golf courses. In some cases residue analyses of carcasses show the presence of both pesticides. *Extremely small quantities can be lethal to birds .... about 1/10,000*

of an ounce. This pesticide is considered very highly toxic to birds, the EPA toxicity category for the most extreme toxicity.

Chlorpyrifos is rated as very highly toxic to slightly toxic to avian species, depending on formulation. The granular form of either compound may be intentionally consumed or ingested accidentally as the granules adhere to soft-bodied organisms such as earthworms, slugs, or larval stage of insects. An adult robin with body weight of 70 - 80 grams could consume eight earthworms with an average of 6 to 10 granules attached to or inside each earthworm for a lethal exposure.

"Unnecessary bird mortality can be avoided by not using pesticides on turfgrass where birds are fed, or by taking great care not to apply pesticides close to feeders or birdbaths." (Ward Stone)

Here are some example of bird deaths after correct application of chlorpyrifos products for lawn care. These incidents were all included in the 1999 EPA risk assessment for chlorpyrifos.

On January 23, 1981, approximately 75 robins were found sick or dead in and around a yard in Daytona Beach, Florida, where Dursban Plus (a chlorpyrifos product) had been applied to a lawn. About the same time, 17 robins were recovered at a second residence in a nearby town. The robins began falling out of trees about 15 to 20 minutes after the second lawn was sprayed with 1.5 ounces of Dursban in 30 gallons of water (i.e., 0.5 percent solution). Four robins were nursed back to health, but the other 13 robins died.

On May 24, 1985, four dead robins were found in a yard in Albany, NY. The lawn had been sprayed that morning with Dursban. The dead robin and a sample of sod and grass from the treated yard were analyzed for chlorpyrifos. Two dogs in the adjacent yard became ill and began heaving.

Two more robin kills have been reported. One incident occurred in Tennessee in March 1991 with 32 robins killed. The other occurred in Georgia on March 5, 1991 when 14 robins were killed. Both incidents were related to termiticide use of chlorpyrifos.

On March 3, 1992, a dead bluebird was reported in Maryland. The death was related to home lawn use of chlorpyrifos.

Here is an example of a diazinon-related bird kill and the outcome.
In the early 90s, following a routine application of the insecticide diazinon to the turf of a condominium, 47 mallard ducks were fatally poisoned. The Oak Park, Illinois lawn-care company responsible, although apparently observing the written product label directions, was nevertheless fined $47,000. The professional applicator was found guilty of a misdemeanor under the Migratory Bird Treaty Act.

Mammals

Organophoshate pesticides are less toxic in mammals than birds. Both pesticides are toxic however, and poisoning signs are similar to those found in birds with acetylcholinesterase inhibition. They include loss of reflexes, spasms, diarrhea, sweating, vomiting, salivation, convulsions and coma reported from a variety of species. In laboratory tests, rats were the most sensitive mammalian species to either pesticide. Small mammals have been found dead after chlorpyrifos was applied to golf courses and crops. EPA classifies both pesticides for mammalian acute toxicity as toxicity class I - highly toxic, II - moderately toxic, or toxicity class III - slightly toxic, depending on the formulation.

Terrestrial Invertebrates

If diazinon or chlorpyrifos is accidentally sprayed on non-target organisms such as beehives, mortality is usually 100%. Interestingly, slugs in a agricultural area sprayed with diazinon showed an increase in residue levels to 6 weeks post-application. The investigator concluded that this may be in part due to physical adsorption of diazinon to slug mucous. He also stated that diazinon contaminated slugs would be a serious danger to birds and mammals that fed on them. Other terrestrial invertebrates have shown little to no diazinon residues after being in a spray area.. Chlorpyrifos is toxic to lady bugs if they are exposed to direct application and results from two studies showed reductions in earthworm numbers and body weight.

Fish and Aquatic Invertebrates

Diazinon: Marine crustaceans and freshwater cladocerans (water fleas) were the most sensitive aquatic groups tested. In fish, some marine species were more sensitive than fresh water species, but large variations in toxicity were found, even among closely related species so it is not possible to generalize from these data sets. Signs of poisoning include lethargy, forward extension of pectoral fins, aberrant swimming patterns, and severe muscular contractions. As in other organisms, acetylcholinesterase inhibition is the cause of these neural dysfunctions. Diazinon is considered very highly toxic to fish and aquatic invertebrates.

Chlorpyrifos: This pesticide is more toxic to aquatic species, and is classified as moderately to very highly toxic to fish species tested. In general, younger life stages are more sensitive than older stages. Several estuarine fish species are more sensitive to this pesticide than the most sensitive freshwater species. Mysid shrimp are also very sensitive to this pesticide. Nationwide pesticide monitoring has indicated widespread chlorpyrifos residues in fish samples. This demonstrates extensive movement of this compound and exposure to aquatic organisms. Sublethal effects of chlorpyrifos exposure have been documented for many species of fish and aquatic invertebrates, including reduced growth, reproductive impairment, and equilibrium loss. There are many examples of chloropyrifos application to wetlands for mosquito control with resulting loss of invertebrate communities and some fish kills. (Now a discontinued use.) Other fish kills have occurred as a result of lawn and house treatments with chlorpyrifos.

Chlorpyrifos residues in aquatic species result in dietary exposure for birds and mammals feeding on aquatic organisms. Piscivorous species may swallow whole fish or feed on the viscera, which have pesticide residue levels.

Terrestrial field studies (with both granular and spray formulations), have resulted in chlorpyrifos-related mortality for some species in every class of vertebrates, including birds, small mammals, snakes, aquatic turtles, toads, and fish.

Application

The most common use of Diazinon is in non-agriculture settings for lawns and home gardens. It is labeled by EPA to control larval stage insects that feed on grass roots and subsequently kill lawn grasses. Other registered uses include application to fruit trees, horticultural crops, maize, tobacco, rice, potatoes, sugarcane, vineyards, and citrus crops for a wide range of sucking and leaf-eating insects. Additional applications include use in flea collars, pest strips, and fly control in manure. Diazinon and chlorpyrifos formulations may be a powder or dust, granules, pellets, seed dressings, oil solution, aerosol spray, and emulsifiable solution ranging from colorless to dark brown. Chlorpyrifos formulated as Dursban may be a gray powder or a yellow liquid.

Chlorpyrifos is used as a bug killer in homes, schools, commercial buildings for control of termites, cockroaches, and fleas. Agricultural uses include food and feed crops, particularly corn, cotton, apples, alfalfa, citrus, peanuts, pecans, and wheat. Non-crop uses are in greenhouses, on lawns, turf and golf courses, ornamentals, foggers for adult mosquito control, cattle ear tags, and pet tick and flea products. *(Potential for fish plants to use for fly control?)*

Pesticide residency

Toxicity can remain at a treated area for weeks to months after application of the pesticide diazinon. Because diazinon seldom migrates lower than the top 1.3 cm (2 inch) in soil, it remains available in the feeding area of many bird species as they probe for insects or consume new plant growth. The average time for 50 % degradation in soil is 2 to 4 weeks. Application of bacterial enzymes can speed up the breakdown process and have been used in spill incidents. However diazinon can remain in the soil for up to 6 months if conditions include cold temperatures and low moisture. Vegetation such as grasses will uptake diazinon through the root system and it can remain in plants from 2 to 14 days with residue levels decreasing rapidly. One study found approximately 10 % diazinon residue remained (on the average) at day 7. Other data for grass showed 50 % persistence at day 7. In water diazinon=s degradation rate is highly dependent on pH. At almost neutral pH (7.4) 50 % remained after 6 months, under acidic or basic conditions persistence time was reduced to a few days or weeks. One study in Lake Superior found a range of 14 days to 6 months for 50 % breakdown. A 1999 Seattle area investigation found concentrations of diazinon that exceeded US EPA standards for aquatic life in all but one of ten streams. Other field studies for both granular and sprayed formulations of chlorpyrifos for turf and agricultural use have found concentrations in water samples that exceed levels toxic to

aquatic organisms. The breakdown products of diazinon are more toxic than the parent chemical. One of these compounds was been taken off the market due to toxicity. Recent reports from USGS have shown that breakdown products levels can be 50 to 100 times greater than those of the parent compounds in pesticide-contaminated streams.

Chlorpyrifos degrades slowly in soil under both aerobic and anaerobic conditions. Half-life post-application ranged from 11 days to 6 months in a variety of soils. Environmental conditions and previous use treatment at a site will affect half-life. It has low water solubility and high soil binding capacity. There is potential for this pesticide to runoff into surface water via erosion of soil. It has *been* detected in ground water and from there into surface water at seeps and springs. This chemical is not regulated under the Safe Drinking Water Act and water supply systems are not required to sample and analyze for it. There is also concern that effects of these pesticides are additive, as demonstrated in bioassays with aquatic species.

Trade names -
diazinon: Basudin, Dazzel, Dianon, Dipofene, Diazitol, Dyzol, Gardentox, Kayazol, Knox Out, Nucidol, Nipsan, Alfa-tox, AG500, Sarolex, Spectracide
chlorpyrifos: Dursban, Dowco 179, Lorsban, Brodan, Eradex, Piridane, Detmol UA, Trichlorpyrphos

The source of diazinon in Seattle streams in a 1999 investigation was believed to be from homeowners treating their lawns for crane flies in the spring. The levels found in these streams could cause harm to fish and other aquatic life.

New York has restrictions on use more stringent than federal standards. The state of Maryland is considering changes. There is a common misperception among consumers that pesticides registered for home use will not harm wildlife. EPA=s registration of a pesticide is not an endorsement of the product=s safety. The use of any chemical pesticide involves risk. This is reflected in the EPA Policy that does not allow pesticide manufacturers to label their products as being safe.

The product label does state that birds can be killed at the recommended level of use. But, these pesticide=s product labels *do* not inform the user that killing migratory birds through the use of chemical pesticides violates the Migratory Bird Treaty Act. Many of us do not read or understand pesticide product labels (1994 study by Lockwood, et al). If we are concerned about effects of pesticides on wildlife, we need to be aware of the warnings and precautions on pesticide labeling.

Crane fly life history

There are over 1450 species of crane flies that occur in North America. As other flies, such as mosquitos and house flies, crane fly larvae are important organic matter decomposers. The European crane fly *Tipula paludosa* is an introduced species. Crane fly adults look like giant

mosquitos with long fragile legs. Their slender brown or gray bodies are about an inch long. Including their legs they may be up to about 4 inches. Adults do not feed, bite, sting, or cause any damage. Their life cycle is like that of many insects - adult, egg, larva, and pupa.

Adults emerge from grassy areas from late summer to early fall. About 24 hours after emergence, crane flies mate and females will lay approximately 200 - 500 eggs in the upper 3 cm (~ 1.25 inch) of soil. The adults die soon after laying eggs. The eggs are black, oval, and about 1 mm long; within about 2 weeks they begin to hatch.

The larvae are called leatherjackets because of their tough skin. They are initially white and later develop a tough light gray or greenish brown skin with various sizes of black specks. Older larvae can exceed an inch in length. If winter temperatures are severe and there is no snow cover many larvae will not survive. Larvae feed on fine roots, rhizomes, and foliage such as grass crowns within 1 2 inches from the surface. They may feed near the surface at night or during cool overcast days. They decrease their feeding during the winter months and resume feeding as spring temperatures increase. Late spring (in Sitka around Memorial Day weekend) and early summer is the period when lawn damage is noticeable.

Larvae stop feeding in early summer and form a pupa. Pupae wriggle to the surface in late summer and the adult crane fly emerges. Emergence may be earlier in Southeast Alaska. The empty pupal case may be found protruding from the ground.

In Sitka, as in many coastal communities in the western U.S. and Canada, the European crane fly larvae sometimes are controlled in the spring with granular or liquid form of either pesticide, diazinon or chlorpyrifos.

Crane Fly Control Options

European crane flies can be controlled by maintaining healthy lawns. There are alternative pest management strategies and groundcover options may reduce the need for pesticides.

Outbreaks of crane flies are not consistent from year to year. To determine if larvae are present survey the lawn in early spring when temperatures are consistently warmer. Randomly select 3 or 4 spots in the lawn, each a 6" x 6" square. Mow these sections and pour warm soapy water (not detergent) on the patches and count the larvae that emerge. OR Cut three sides of a square and fold back the turf layer using the uncut side as a hinge. Scrape the soil from the roots to count the larvae which are found at the base of the grass layer or close to the top of the soil. When finished you can press the grass back into place and water it. Low numbers of larvae do not need control. Multiply the number of crane fly larvae in each sample by 4. If this number exceeds 25 per square foot, and the turf is *in poor condition*, consider implementing some management options. (Some lawns can have 40 larvae per square foot and not show any damage.) Maintaining lawn health improves the grasses ability to outgrow potential damage by crane fly larvae.

lawns can have 40 larvae per square foot and not show any damage.) Maintaining lawn health improves the grasses ability to outgrow potential damage by crane fly larvae.

Physical Controls: Fertilize in spring and fall with a natural-organic or other slow-release fertilizer. Leave grass clippings on lawn to add natural fertilizer. Topdressing with a thin layer of soil, sand, or compost can also improve lawn health and keep it biologically active. Don=t over water the lawn as crane flies do well in damp soil. Spring aeration or slicing can help reduce populations mechanically and reduce thatch. For small areas you can use a garden fork or aerator shoes strapped onto your feet, and aerating machines may be used for large lawns. Thatching - removal of part of the partially decomposed leaves, stems, and roots at the soil surface - can be done in the spring or fall to promote water and fertilizer penetration. Power thatch rakes used on cloudy days can kill grubs that are feeding near the surface. Another technique is to rake up the larvae at night and kill them by putting them in a bucket of soapy water. If your lawn has low-lying wet areas, improving drainage may curb outbreaks and will improve grass growing conditions.

Biological Controls: Beneficial nematodes are available through some nurseries. These nematodes are parasites on crane flies and can substantially reduce numbers. Juvenile nematodes (*Steinernema* and *Heterorhabditis*) penetrate the larvae and kill the host within two days due to presence of a toxin-producing bacteria. For most effective control for cool soils such as we have in SEAK, look for a product containing either *Heterorhabditis* or cold-hardy strains of *Steinernema*. (One product is named Root Rescue. Another, Biosafe requires 55 degree temperatures.) Apply to lawn in warm spring weather in early morning or evening because they are sensitive to sunlight. They also require moist soil conditions and thatch that is less than 2" inches thick. Biocontrols will not eliminate the crane fly larvae population, but can bring the population below the damage level. Birds, ground beetles, and dry weather can all help to reduce high fall populations. There are numerous bird species that feed on these larvae. *One can use landscaping tips to attract more birds, such as adding trees or berry bushes that offer cover and food*

Alternative landscaping (e.g., reducing the amount of lawn) is another option that some may wish to consider. Many residential and commercial property owners assume a mowed lawn is an essential part of the landscape. There are in fact many options other than a turf lawn in landscapes, especially in southeast Alaska where natural grassy areas are the exception, not the norm. Alternative landscapes can include non biotic elements from sand gardens to use of large rock, driftwood and wood or rock mulch. Many groundcovers can be substituted for turf. Two useful references for identifying and growing non turf groundcovers include, *Landscape Plants for Alaska* , Alaska Cooperative Extension Publication No. HGA-00035 and, *Perennial Groundcovers*.1997. D. Mackenzie. Timber Press: Portland. There are a number of plants to southeast Alaska including ferns, non turf low growing ornamental grasses, low growing woody and herbaceous perennials that would make an attractive groundcover. Arthur Kruckeberg's _ *Gardening with Native Plant* .1996. University of Washington Press: Seattle provides many suggestions on using native plants in the garden and landscape.

III. THE FEDERAL CONTEXT FOR USE REPORTING

Existing Federal Data Sources

Pesticide use data are gathered and compiled by different offices in the United States Environmental Protection Agency (EPA) and the USDA for a number of regulatory and programmatic purposes.

Environmental Protection Agency

Within the EPA, chief responsibility for compiling pesticide use data rests with the Biological and Economic Analysis Division (BEAD) of the Office of Pesticide Programs (OPP). BEAD conducts economic and benefit assessments for product registration decisions, and also provides use data to other OPP offices for tolerance setting and risk assessments. In addition to these internal functions, BEAD publishes annual market estimates for pesticide sales and use (Aspelin;1994). The latest edition (for the years 1994, 1995, and potentially some portion of 1996) is now in the final stages of compilation, and its release is imminent.

Among its many features, the market estimate report: analyzes national pesticide sales and use by various chemical and use categories (agricultural; home and garden; industrial, commercial, government); maps national use and sales trends over time; and compiles economic data such as imports, exports, and cost burdens on user sectors. Data for the report are obtained chiefly from several independent marketing firms[1] as well as industry and grower groups. According to BEAD staff, information from the market research firms is focused on agriculture (much of it collected from on-farm interviews), and agricultural pesticide use is thus considerably better characterized and current than non-agricultural use. Non-agricultural data are pieced together from a variety of disparate sources, including extrapolations from a 1970s-era survey of home and garden use, and isolated use surveys done by trade groups.

The published information is national, although some state-based summary information can be obtained by calling BEAD directly. But both the national and available state data are aggregated across pesticide and user categories, making it applicable only for the most general characterizations of use and trends. Given the sketchy grounding of non-agricultural pesticide use estimates, the accuracy of even generalizations based on them is questionable.

BEAD does, however, have one initiative that may partially address questions about non-agricultural use. The Food, Agriculture, Conservation, and Trade Act of 1990 (FACT 1990), which established recordkeeping requirements for all restricted use pesticide applications (see discussion below), also included a mandate for the USDA to publish annual summaries of restricted pesticide use in agricultural production, and for EPA to do the same for other pesticide uses. The EPA has not complied with this mandate, but it did complete a survey on non-agricultural applicators (covering all pesticides, not just restricted use) in 1993 that is still wending its way through EPA's approval process, with no release date set.

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[1] EPA must purchase this information and one EPA staff member's informal estimate of the budget for this was "a couple of million dollars," but this figure could not be confirmed.

Once available, the report will analyze non-agricultural use by application category (ornamental and turf, aquatic, right-of-way, industrial/institutional. public health) and by pesticide active ingredient. Like the market estimates, the report will aggregate information nationally. Supplementary state-based information, however, will not be available. The data-base on which the report is founded contains no identifying information on survey respondents beyond their certification category and regional location (northeast, southeast, northwest, and southwest). As with the market estimates therefore, the information in this report will only highlight general patterns of non-agricultural use (now four years out of date), but will not allow for any finer distinctions.

United States Department of Agriculture

USDA has three key programs that either directly or tangentially collect pesticide use data. Chief among these is the National Agricultural Statistics Service (NASS), which has been publishing reports on chemical use in agriculture since 1991, pursuant to a water quality initiative that sought to address the dearth of data for water quality protection purposes. General concern about lack of data was cropping up in other federal forums at the time as well (General Accounting Office;1991a). Since then, summaries of pesticide use on field crops (wheat, corn, soybeans, cotton, and potatoes) have been published annually (NASS;1996a), and summaries of pesticide use on fruits (NASS;1996b) have been published in alternating years with pesticide use on vegetables (NASS;1995). Annual summaries of restricted use pesticides are also published, as USDA was directed to do by FACT 1990, based on data collected for the above reports (NASS;1996c).

Data collection is carried out by state personnel (usually extension service staff), who conduct voluntary interviews with growers through cooperative agreements with NASS. Only those states considered major producers of a given crop are surveyed (for example, 10 states were surveyed regarding corn), and only major chemicals are included. Survey data are presented in a number of different ways. Total poundage of a given pesticide category (herbicide, insecticide, fungicide and other chemicals) is broken out by crop and state. There are also major state summaries and state-by-state breakdowns by crop and specific chemicals within each broader pesticide category (including, for each chemical, such information as acres planted and treated, rate of application, number of applications, and total poundage applied).

NASS summaries are thus helpful for broadly characterizing agricultural pesticide use on specific crops, and detecting usage differences among the major producing states. This kind of information can point the way to cropping systems most in need of alternative pest control research, or most at risk for water contamination (though it cannot actually locate high risk areas – that requires a comprehensive site-specific data-base). Access to the raw data is also possible upon request, although the data-base is extremely large and manipulating it requires considerable knowledge and specialized software. Release of raw data is also contingent upon agreements regarding confidentiality; all personal identifying information is stripped from the data. Location is given to the county level, except where the configuration of growers and surveys in a given county would allow identities to be inferred. NASS staff stated, however, that data for any single county are often too sparse to accurately represent that county's pesticide use; this is one reason NASS aggregates data by state.

The limited number of surveyed states and chemicals in the NASS summaries has also led to some criticism that the data contain significant gaps and that extrapolations from the samples are inaccurate (Pease et al.;1996). Nor do NASS data encompass applications to livestock, poultry, fish, or, until this year when a two-crop survey was begun, post-harvest applications.[2] With these limitations, and focused as they are on specific crops and chemicals, NASS data cannot be used to generate a complete picture of agricultural pesticide use or exposure potential in any given geographic area, although it can yield worthwhile information for more general agricultural and IPM research, particularly for researchers capable of working with the raw data.

In addition to NASS, USDA houses the National Agricultural Pesticide Impact Assessment Program (NAPIAP). Among its many functions, NAPIAP provides funding for pesticide use studies through a system of state liaison representatives (generally affiliated with land grant institutions) and a competitive grant program. These studies go beyond NASS surveys on an ad hoc basis by looking at crops or data points not covered by the normal NASS survey, or by increasing the sample size of the survey. Survey activities are coordinated with NASS to avoid duplication and maximize resources, but they don't appear in the annual NASS summaries. States publish this information themselves and it can be more geographically specific than NASS surveys (looking at counties or regions within a state) making it more useful for exposure assessment.

Recently, NAPIAP has told its state liaison representatives that in order to receive their annual allocation from the program they must begin to maintain a data-base of pesticide use (for future compilation by NAPIAP) on their major crops.[3] The required data, like NASS surveys, will be aggregated at the state level and must include, at a minimum: crop name, acres planted and treated, target pests, non-chemical pest control methods used, pesticides used (including rate applied, method of application, and number of applications), crop production cost, crop yield/quality, and crop price per unit. States will need to obtain this information any way they can. Some may choose to augment existing surveys or to compile their sales data. NAPIAP staff specifically noted, however, that a state like California, which has a use reporting system, already has the data it needs to fulfill this requirement (as would any other state instituting such a program). Although certain states have already begun submitting their required data, others have just begun the process of assessing how to do so. NAPIAP, which hopes to have an in-house system to compile this data up and running before the close of 1997, plans to work with states in an effort to gain compliance and has not yet set a firm deadline for funding cutoff.

Finally, USDA has an in-house residue testing program, the Pesticide Data Program (PDP). Ten states participate in the program,[4] which was instituted to serve as a more statistically representative

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[2] NASS is conducting a pilot study for the crop year 1996 on post-harvest pesticide use on apples (in California, Michigan, New York, Pennsylvania, and Washington) and potatoes (in Colorado, Idaho, Maine, Michigan, Minnesota, North Dakota, Oregon, Washington, and Wisconsin). Like the other NASS surveys, the post-harvest data will focus on the major chemicals used. Currently the agency is expecting to continue this pilot study in future years, although the crops and states included may change based on subsequent evaluation. At present the focus is expected to remain on crops for direct consumption, as opposed to field crops.

[3] NAPIAP is, however, encouraging states to expand the crops surveyed beyond the basic ones covered by NASS, for a target of 12-14 additional crops over a period of several years.

alternative to the Food and Drug Administration's surveillance testing.[5] Residue data can act as an indirect indicator of use patterns, but PDP states that they have also used this information directly to generate a data-base on post-harvest fungicide use. This data-base, however, does not appear to be publicized or available outside PDP; when questioned, NASS staff were unaware of it.

Table 1. Major Federal Programs for Pesticide Use Data Collection

AGENCY	PROGRAM	DATA DESCRIPTION
Environmental Protection Agency	Biological and Economic Analysis Division (BEAD)	▪ Annual market estimates for both agricultural and non-agricultural pesticide use. ▪ Non-agricultural applicator survey; release pending.
United States Department of Agriculture	National Agricultural Statistics Survey (NASS)	▪ Summaries of pesticide use on major crops in major producing states. ▪ Annual summary of agricultural restricted pesticide use.
	National Agricultural Impact Assessment Program (NAPIAP)	▪ Surveys of pesticide use on major crops, augmenting existing NASS surveys or expanding them to crops and states not normally covered. ▪ Future compilation of a state-specific data-base of pesticide use on major crops.

Restricted Use Recordkeeping Requirements

The federal government requires that all certified applicators (both private and commercial) keep records of their restricted use pesticide applications. Promulgated pursuant to FACT 1990, the recordkeeping regulations require that detailed, application specific information (which can vary somewhat from state to state) be kept on-site for two years, and made available on request to authorized USDA or EPA personnel, and health professionals treating poisoning cases. Although USDA monitors compliance with these requirements through grants to state regulatory agencies, it does not formally gather and compile the information in the records themselves. The only point in the federal data gathering structure where this information is tapped is when NASS surveyors note whether the growers being interviewed have used these records for answering survey questions. Over time, the use of this information has steadily increased, but it is not a requirement for completing NASS surveys, and, being limited to restricted use pesticides, it does not account for a large percentage of pesticide use. The existence of these requirements does not preclude the enactment of more stringent state requirements.

[4] California, Colorado, Florida, Michigan, New York, North Carolina, Ohio, Texas, Washington, and Wisconsin.
[5] PDP, however, has met with some criticism for underestimating residues based on sampling and commodity preparation procedure.

The Food Quality Protection Act of 1996

By necessity, the patchwork of federal use data sources just described underlies federal decision-making regarding pesticide registrations, restrictions, and bans, tolerance setting for food uses, reference dose calculations, and water quality programs. Although the level of existing data has always been too crude for a full characterization of use patterns and exposure, last summer's passage of the Food Quality Protection Act of 1996 (FQPA), with its overhaul of food tolerance setting procedures, makes that inadequacy even more pressing. The specific impetus for this latest reform was the National Academy of Science's (NAS) report *Pesticide in the Diets of Infants and Children* (National Research Council;1993), which enumerated the existing regulatory structure's failure to adequately assess and prevent pesticide risks to children. Effective implementation of the statute demands a level of exposure assessment that is not possible with existing information.

Specific Provisions of the Act

FQPA (Public Law 104-170), amends both the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). The new law's numerous provisions will alter the federal pesticide regulatory system in a myriad of ways, but the key features that intersect with use data issues are as follows:

- All pesticide tolerances, whether for raw or processed food, must meet the same safety standard: a reasonable certainty of no harm from aggregate exposure to the pesticide.
- When setting tolerances, EPA must specifically assess the impact on infants and children, taking into account their unique consumption patterns and vulnerability to toxicity (including pre-natal risks), and cumulative exposure to "residues and other substances that have a common mechanism of toxicity." EPA must then make a specific finding that aggregate exposure to the pesticide will not result in harm to infants and children.
- Pesticide benefits may not be considered when evaluating existing tolerances for pesticides that have threshold effects (e.g. developmental or reproductive toxicity), or for any pesticides which do not meet the safety standard for exposure to infants and children. Benefits may be considered in evaluating existing tolerances for pesticides with non-threshold health effects (carcinogenesis) only if it can be shown that risk from the pesticide is less than risk from its discontinuation, that the use of the pesticide is necessary to avoid significant disruption of the food supply, and that certain criteria regarding lifetime risk are met.
- When assessing dietary risk, EPA may consider data on the percentage of a crop treated with a given pesticide only if "the exposure estimate does not understate exposure for any significant subpopulation group" and available data on "pesticide use and food consumption in a particular area" demonstrate that the population in that area are not exposed to residues above agency estimates.
- EPA must publish a pamphlet that discusses the risks and benefits of pesticides, any pesticide residues that do not meet the standard of reasonable certainty of no harm but are allowed because

of benefit considerations, and the foods that contain these pesticides. This information must be displayed in grocery stores.

In addition to these provisions, FQPA also: sets up a schedule for reassessing tolerances and periodic reviews of product registrations; requires EPA to expedite registrations of "reduced risk" pesticides; requires that all pesticides (and other regulated chemicals) be screened for endocrine disruption potential; and makes various reforms to the minor use pesticide program and the registration process for antimicrobial pesticides.

The Heightened Need for Pesticide Use Data

An accounting of aggregate risk, which FQPA makes a central criterion for tolerance setting, requires real knowledge of exposure. Some of that exposure can be measured with residue and consumption data, and FQPA requires that the USDA and FDA develop techniques to improve overall residue detection data, specifically with regard to illuminating consumption patterns for infants and children and directing residue testing at their most-consumed foods. But other measures of exposure are harder to come by. For dietary assessments (beyond extrapolations from residue testing) the statute specifically precludes the use of data for estimating the percentage of a crop treated with a given pesticide, unless such data do not "understate exposure for any subpopulation group." Lacking site-specificity and geographic comprehensiveness, it is hard to imagine how existing federal data can satisfy this stipulation.

Non-dietary exposures are even more difficult to document. The EPA has stated:

> The new law says the Agency must now consider aggregate exposures from dietary and non-occupational sources when assessing the risks of a chemical and setting tolerances. In addition to dietary exposure, such sources as drinking water, residential and lawn care use need to be considered.[6] For most pesticides, EPA has insufficient information on specific exposures through these routes. (Office of Pesticide Programs:1997)

To compensate for this lack of data, EPA plans to rely on a default assumption that 5-20% of the risk of each pesticide is due to non-dietary exposures. This default assumption will be used both in calculating tolerances and also in making registration and reregistration decisions. But the accuracy of any default assumption, and whether it will lead to a truly protective tolerance or registration decision for any given pesticide, cannot be determined until better exposure information becomes available. Regarding non-dietary exposure, EPA states: "If data were submitted which permitted a precise estimate of exposure from a particular source, that information would be used to assign the appropriate portion of the risk cup for that source, rather than the more general default assumption," (Office of Pesticide Programs;1997).

Some moves to improve exposure data are underway at the federal level. In addition to the residue testing and consumption pattern improvements mandated by FQPA, NASS has instituted post-harvest

[6]EPA's list is missing other exposures, such as ambient air contamination by agricultural or right-of-way spraying, and institutional structural exposures (schools or office buildings).

application surveying for two crops, and is expanding the crops it surveys to include a number of minor food crops in select states.[7] EPA has begun designing protocols for estimating residential and drinking water exposures. For residential exposure, these protocols are geared to "provide standard methods for performing residential exposure assessments when chemical and site-specific field data are limited," instead of actually gathering that field data. In addition, EPA has issued a data call-in for information on exposure potential from pesticide mixing, application, and reentry in residential lawn care scenarios. With regard to estimating exposure from drinking water, EPA states that, it has information on pesticides in ground water and surface water, but "the available data are not of consistent quality and may not be collected in the pesticides' use area." The agency has submitted funding requests for a water monitoring data-base (updating the 1992 data for groundwater it already has, and adding surface water), but intends to rely on the United States Geological Survey's National Water Quality Assessment program in the interim (EPA;1997). Presumably, those states with more detailed pesticide use and water quality monitoring data could supply it as well.

The paucity of actual non-agricultural pesticide use data does not appear to be addressed in any of these initiatives, and, though the NASS and NAPIAP efforts already described will expand the base of agricultural use information, data gaps will remain and lack of site-specificity will impede its use for many of FQPA's purposes (although the statute does allow tolerance setting to proceed with available information). EPA staff has said that they intend to be transparent in their assessment process – clearly stating what they do and do not know with regard to exposure. While this is laudable, it will not improve the quality of exposure estimates. Only better data can accomplish this. To that end, FQPA requires EPA and USDA to prepare a report to Congress assessing "the current status and potential improvements in Federal pesticide use information gathering activities," including an "analysis of options to increase the effectiveness of national pesticide use information." The report is due in August of this year, and, according to EPA staff, may address the issue of state-level data and use reporting programs.[8] Until the report is released and any new recommendations for improving data collection that it may contain are implemented, existing usage information will form the basis of new tolerances and registration decisions.

Conclusion

The federal government thus relies on a few different programs for gathering pesticide use data. Under the USDA's NASS and NAPIAP programs, representative surveys of major crops and chemicals used in select states are compiled and released in summary form and as raw data for those with the capability of managing it and the willingness to sign confidentiality agreements. Inferences cannot be made below the county level (or even at the county level, in many cases) and many crops, chemicals, and categories of application are missing entirely. NAPIAP will also soon require that states maintain a data-base on their major crop pesticide applications as a condition of receiving their NAPIAP allocations. But because states will be allowed to cobble that data together from whichever sources of

[7] This appears to be the USDA's response to date to specific FQPA language directing the agency to "collect data of statewide or regional significance on the use of pesticides to control pests and diseases of major crops and crops of dietary significance, including fruits and vegetables."

[8] EPA staff also noted that data needs will be an agenda item at this summer's meeting of the State FIFRA Issues and Research Evaluation Group (SFIREG), an EPA advisory group that deals with state/ EPA coordination.

information they currently possess, the quality will vary with the level of existing reporting or surveying (though states with particularly poor data may be spurred to collect more) and the information will still be state-aggregated. EPA's few data vehicles, the annual market estimates and the forthcoming non-agricultural applicator survey, are even less detailed than USDA's surveys, though they do address application categories not included in NASS or NAPIAP surveys. While helpful for general purposes (particularly agricultural ones), federal data sources cannot address many fundamental questions about pesticide use and exposure.[9]

FQPA is only one of the many federal programs whose implementation is hindered by insufficient data. Site-specific information, for example, is necessary for the USDA to measure progress towards meeting its stated goal of 75% of the nation's acreage in IPM by the year 2000. NASS's raw survey data can partially serve this function, but its lack of comprehensiveness (both geographically and chemically) makes it less useful than data from a full use reporting system would be. EPA's reduced risk pesticide program, which seeks to expedite the registration process for such pesticides, and encourage their use in both agricultural and non-agricultural arenas, must track progress on a chemical by chemical basis -- more minutely than federal data allow. Many other EPA functions, notably worker protection, and water quality protection and standard setting (see box), would similarly benefit from data which could both evaluate progress and also examine at-risk subpopulations or geographic areas whose particular vulnerabilities might go unaddressed by existing regulations and undocumented by federal summary data sources.

State Groundwater Management Plans: The Role of Use Reporting

EPA's Pesticide and Groundwater State Management Plan (SMP) regulation, proposed June 26, 1996 and slated for finalization before the close of 1997, is an acknowledgement that even normal agricultural use of certain pesticides can pose serious threats to groundwater quality. Currently focused on five herbicides -- alachlor, atrazine, cyanizine, metolachlor, and simazine -- the SMP program requires that states submit plans for reducing the contamination risks associated with these pesticides. EPA must approve each state SMP within 33 months after final promulgation of the rule, or the targeted pesticides will no longer be allowed to be used or sold in that state.

Plan requirements are numerous. They include a description of state agency roles, enforcement mechanisms, resources, legal authority, and public participation. Key among these, however, are the mandates that states must have a basis for assessing risk, preventing contamination, and monitoring and periodically reporting on progress to both the public and EPA. To satisfy these requirements states must, among other things:

- *"have an ongoing program that provides basic information on the occurrence, movement, and quality of groundwater in relation to patterns of pesticide use;"*
- *describe how they will "address vulnerability assessment on a sub-county level;"*
- *develop "environmental indicators of the effectiveness of the program." (EPA;1996)*

For these charges to be adequately met, new, more geographically comprehensive sources of pesticide use information are necessary. According to EPA staff, states that lack such data will need to propose stringent uniform strategies state-wide in order to ensure that vulnerable areas are protected. States that want maximum flexibility in constructing SMPs will need firm pesticide use data on which to base their strategies.

[9] Although the poorly utilized FIFRA-required records are a potential untapped data source, they would still yield only marginal information (being limited to restricted use pesticides only).

V. EXISTING STATE PESTICIDE USE REPORTING PROGRAMS

Unlike the broad data generated by the federal government, a state pesticide use reporting program is capable of collecting and compiling the application-specific and site-specific information necessary for characterizing aggregate exposure (including that for subpopulations and epidemiological hot spots) and realizing a host of other pesticide regulation and risk-reduction goals. Three states -- California, New York, and New Hampshire -- currently have such programs, and several others have at least some reporting provisions that yield potentially useful data. Although the bureaucratic structure and reporting requirements are different for each, there are numerous similarities, particularly with regard to such implementation issues as data access. The following is a discussion of the three major programs, and a more cursory review of some others.

See attachment entitled "Oregon's New Pesticide Tracking Law" for Oregon law

California

now Oregon's program is most comprehensive.

California's pesticide use reporting program ~~is the most detailed and far-reaching in the nation.~~ Because California's agricultural output also represents a significant portion of the nation's total production, its use reporting program stands as an example to other states that, no matter how daunting a task use reporting may seem, it is indeed possible. The State also maintains a data-base on sales of all registered pesticide products (generated in conjunction with the tax system by which the pesticide program is chiefly financed), which can act as both a supplement to and a check for the use data.

Use Reporting Requirements

The statutory authority for use reporting is brief and general, stating only that "a pesticide report shall be submitted to the commissioner or director on a form and in a manner prescribed by the director." (California Food and Agriculture Code Title 3. Section 12979). There are also general statutory enforcement provisions for non-compliance (not specific to, but encompassing the reporting program). The actual mechanics of reporting are found in regulation. Reporting requirements apply to all persons who:

- apply pesticides for agricultural use, a term California law uses to encompass traditional agricultural applications, as well as those to cemeteries, parks, rangeland, pastures, roadsides, rights-of-way, poultry and fish operations (livestock is also included in the definition of agricultural use, but direct applications to animals are specifically excluded from pesticide reporting, except as provided below)
- apply restricted use pesticides
- apply pesticides listed in regulation as potential groundwater contaminants for outdoor industrial or institutional purposes
- engage in pesticide application for hire (including all structural and commercial landscape applicators)
- make post-harvest applications

Within this universe, recordkeeping and reporting requirements differ based on whether or not the application occurs in the production of an agricultural commodity, or for another purpose.

For those engaged in producing an agricultural commodity (defined as an unprocessed product of a farm, ranch, nursery, or forest, but excluding livestock, poultry and fish), the following data must be kept on-site for two years and reported for each application:

1. Date and hour of application
2. Operator name and ID number
3. Property location, including Site ID number, county, Section, township, range, base, and meridian
4. Crop commodity or site treated
5. Total acreage or units planted and total treated
6. Pesticide product name and EPA registration number
7. Name of applicator and supervisor, if application is made by a business

If the application is made by the property owner (a private applicator), this data must be filed with the county agricultural commissioner on a monthly basis. If the pesticide is applied by a commercial business, that business, not the property owner, files the report, and it must be done within 7 days of application. In any month where an agricultural pest control business licensed to operate in a given county makes no applications in that county, that business must still file a "negative use report" indicating as such (this also applies to structural pest control businesses, but not private applicators or any other applicator category).

For all pesticide applications other than production agriculture, records must be kept for two years and, on a monthly basis, the following information (which differs slightly from the on-site records containing date and location of each application) must be reported to the county agricultural commissioner:

1. Name and address of applicator or business making the application
2. Location of application by county
3. Month and year of application
4. Crop, commodity, or site treated
5. Pesticide name and EPA registration number and amount used
6. Number of applications made with each pesticide and total number of applications made during the month
7. Total acres or units treated

Reporting for production agriculture is thus more site-specific (including detailed geographical parameters, and hour and date of application) than reporting for other applications. The latter are reported only to the county level, and include only the month, not the date of application, although the number of applications made each month is reported.

Reporting Mechanics and Access to Data

The chain of use reporting begins at the appropriate county agricultural commissioner's office (or directly with the California Department of Pesticide Regulation – DPR – if no county commissioner

exists).[10] The county offices are responsible for a wide variety of regulatory functions, including issuing permits and enforcement. County staff assign operator and Site IDs, and assist those who need help filling out reports. Original copies of use reports, whether paper or electronic files, are kept at the county level, and a copy is transmitted to DPR, where the complete data-base is housed. California officials state that they find this division of labor advantageous because of the direct assistance the counties are able to provide reporting applicators, and the often personal knowledge of the applicators that they bring to this task. Reporting first to the county also serves as an initial enforcement screen, allowing the local regulators to determine whether the use record matches the permitted application. DPR then follows this enforcement step with a check of the use record against the state's pesticide label database, to determine whether pesticides were applied only for their registered purposes and at allowable rates.[11]

But this system also has some drawbacks, which DPR acknowledges. In the early years after full use reporting was instituted in 1990, there was considerable variation in the way different counties compiled use data. In particular, commodity categories, operator IDs, and Site IDs were inconsistent from county to county and year to year (a staffperson at the University of California at Davis, which maintains a copy of the complete use reporting data-base, stated that Site IDs from the first four years of the program were not merely inconsistent, but actually unusable). According to DPR, these inconsistencies are slowly being eliminated by converting all county reporting from paper to direct computer entry. By doing so, operator IDs and commodity codes (that match EPA's commodity codes) are being made uniform, and Site IDs match internally issued permit numbers. Past inconsistencies, however, particularly for commodity codes, make the existing data difficult to use for trend analysis.

DPR will supply a complete copy of each year's raw data to anyone upon request (for $500 per year of data) or answer queries through its Information Systems office. While a few public interest researchers have obtained copies of the complete data-base, manipulating the raw data is a Herculean task, requiring fluent programming skills. It has been done – the Environmental Working Group's report on patterns of methyl bromide use is one recent example (Environmental Working Group;1996) – but it is not a viable option for the vast majority of people interested in the data. Even when available, the raw data is unwieldy and difficult to interpret. In addition to the already noted inconsistencies in Site IDs and commodity codes, which make agricultural analyses difficult,[12] health researchers have found that certain categories for applicators and structural applications are particularly scrambled. Most persons wishing to access the data therefore rely on summaries available from DPR or queries made to these offices.

DPR's annual summary is a breakdown by either crop/site category or chemical, aggregated for the year; a table aggregating total pounds of all pesticide used in each county is also available. No other breakdowns, such as pesticide category (e.g. herbicide, insecticide, fungicide) are included in the summary, nor are any trend analyses that compare data from different years. More detailed queries can

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[10] See DPR (1995) for a full description of the program.

[11] Enforcement staff note that such infractions are rare because most of the large growers and commercial firms have their own in-house computer systems for cross-checking chemicals and crops.

[12] See Pease et al.(1996) for a more detailed discussion of these problems.

be made to DPR's Information Systems Branch, but the mechanics of this are limiting. Response times can be several months (a new program must be written for each site-specific query), and in some cases, queries have met with no response at all. In addition, when responding to queries, DPR withholds the names and addresses of both applicators and treated sites. There is no statutory language which exempts this information from public disclosure (and the availability of the raw data underscores this), but the fact that the agency practices such filtering is a barrier to many site-specific inquiries. DPR has stated its intention of posting the raw data-base on the internet; it remains to be seen whether this posting will include identifying information.

The University of California at Davis (UCDavis) also maintains a summary copy of the data-base (up to 1993) that can be directly queried from a web-site.[13] This summary is considerably more specific than DPR's annual report, providing the crop/site category and chemical breakdown on a county-level and individual month basis. Staff can occasionally answer queries for even more specific breakdowns, but are usual y not able to get much more detailed than their summary. Because non-production agriculture applications are only reported to the county and month level, however, UCDavis's data-base is substantially complete (and readily available) for examining those applications.

The Mill Tax and Sales Reporting

The single largest source of funding for California's pesticide program is the "mill tax" on sales of all registered pesticide products (in addition to the flat $200 annual fee for product registration). The tax is paid quarterly by the registrant or dealer, whichever is the first to sell the product in-state, and currently stands at 22 mills per dollar ($0.022) of sales, but this figure will drop to 9 mills when certain mill tax provisions sunset in the summer of 1997 (unless they are reauthorized). In past years, this tax generated approximately $1 million per mill (the number of mills has changed over time), for an estimated $22 million a year, the largest single source of revenue funding the pesticide program. More recently, the tax has been generating closer to $30 million a year (DPR is unclear as to whether this reflects increases in pesticide use, prices, closing of reporting loopholes, or a combination of these factors).[14]

The minute recordkeeping that accompanies the mill tax serves another purpose in addition to tracking revenue. DPR has a thorough accounting of all sales of registered pesticide products in the state, including categories such as chlorine water treatment and home consumer products, not included in the use reporting data-base. DPR releases an annual sales report summarizing total sales of active ingredients and pesticide category (by pounds). Different products containing those active ingredients are not listed, nor are sales of active ingredients for which there are 3 or fewer manufacturers (to protect what manufacturers consider proprietary information about per product sales). Using the sales data-base, DPR is able to make rough estimates of the size of the residential use universe relative to other use categories. It could also be used to see if sales of pesticides align with use records, so that

[13] http://www.ipm.ucdavis.edu

[14] As a result of these increases, the program has been building up a reserve of money and, according to DPR staff, the agency will likely have to spend down that reserve before reauthorization of the expiring portion of the mill tax will be politically viable. Because so much of the pesticide program is financed by the mill tax, however, much attention and advocacy work will be focused upon reauthorization.

discrepancies can be evaluated, although this does not appear to be a frequent use of the data at present.

Conclusion

Overall, the wealth of data generated by California's use and sales reporting, could be better utilized if it were more accessible, particularly with regard to site-specific and community-level analyses. DPR staff appears to have relatively better access to the data than do other offices or organizations. They have used it to prepare California's VOC State Implementation Plan (California Environmental Protection Agency;1994), in water quality initiatives (general groundwater protection and a more targeted effort to reduce pesticide runoff from rice fields), and for endangered species protection. The Pesticide Enforcement Branch also makes regular use of the data for tracking sources of drift or exposure incidents, monitoring working reentry intervals, and monitoring illegal activity.[15]

It is difficult, however, for people outside the confines of DPR to take equal advantage of the data. Even other State offices confront problems. The Office of Environmental Health Hazard Assessment, for example, noted that they would make fuller use of the data for epidemiological and community-based assessments if some intermediate source were available – more detailed than either the DPR or UCDavis summaries, but less so than the full data-base. Public interest groups and interested citizens, not equipped with the computer hardware and expertise needed to manipulate the raw data, would also benefit from such a resource.

New York

Last summer, after three legislative sessions of heated debate, New York State enacted a pesticide use reporting statute: Chapter 279 of the Laws of 1996. In contrast to California's use reporting program, New York's statutory language is extremely prescriptive and its implementing regulations (still being drafted) will likely speak more to logistics than substance. The statute that evolved from a relatively simple original bill, is an elaborately tiered structure for data collection and dissemination – one that will yield a substantial body of information, but which will also entail a few thorny implementation questions.

Background

Prior to the law's enactment, existing regulations required that registrants report their aggregate sales of restricted use pesticides and commercial applicators report aggregate summaries of all pesticide use by chemical name and total amount used. Commercial applicators were also required to maintain application-specific records of all pesticide use on-site, and private applicators were required to keep terse summary records for restricted use pesticides only (though during the course of the debate, the New York State Department of Environmental Conservation (NYSDEC) was moving to implement the more detailed restricted use pesticide recordkeeping required by FACT 1990). The reports submitted to NYSDEC were not computerized, but were kept as paper files.

[15] Because non-agricultural use data are more aggregated than agricultural use data, enforcement staff uses it chiefly for more general assessments, and less for site-specific enforcement.

As originally introduced in the Democratically-controlled Assembly (where it passed easily all three sessions), the pesticide use reporting bill would have required that registrants report aggregate sales of all pesticides, commercial applicators send in their application-specific records (as opposed to aggregate summaries), and private applicators submit the same data as commercial applicators for all pesticides used. The bill also mandated that the information be entered into a computer data-base and that all information be publicly available. In response to early and vigorous opposition from applicator groups and the Farm Bureau, however, the bill was amended in the first session to keep names of applicators confidential.

From the beginning, the chief proponents of the bill were statewide environmental groups, and a Long Island-based network of breast cancer activists. The nature of this coalition meant that support for the bill drew heavily on th se with right-to-know and public health concerns; they emphasized the need for site-specific information, both for personal knowledge and as the long-overdue basis for epidemiological research. The burgeoning incidence of breast cancer on Long Island was a key motivating force for many of these activists, though they shared a broader concern for other public health issues. This is not to say that agricultural and IPM research never figured as arguments in the debate, only that they were overshadowed; no vocal proponents specific to those issues ever emerged. Furthermore, legislators who by virtue of their rural constituencies might have been sympathetic to arguments that use reporting would help farmers and further agricultural research, instead responded only to Farm Bureau opposition. The Farm Bureau argued that reporting would be a time-consuming and costly burden on farmers, and would leave them vulnerable to lawsuits from neighbors. In contrast, downstate legislators (Long Island, New York City and suburbs) were receptive to the arguments and pressure from the bill's supporters.

This upstate/downstate geographic split worked in the bill's favor during the first session, when the Republican Senate Majority Leader and the chairman of the Senate's Health Committee were both Long Islanders, and the Governor was a Democrat from downstate. Between the first and second sessions of the bill's consideration, however, New York State's political structure underwent a profound shift. Conservative upstate Republicans won the Governorship and Senate Majority Leader's position and the upheaval meant that there was no action on the bill in the State Senate during its second session. By the third session, however, heightened advocacy and public events staged by the bill's proponents (as well as the looming election), finally forced the Senate to move. An alternative Senate bill was introduced, after behind-the-scenes discussions with the Farm Bureau and one of the breast cancer activist groups, an open conference committee was convened, and final negotiations began.

Statutory Requirements and Gaps

The statute that emerged from these negotiations requires the following:

- Pesticide manufacturers, compounders, and importers must annually report their sales of restricted use pesticides, by EPA registration number, container size, and number of containers, to NYSDEC.

- Commercial applicators must annually submit records for each pesticide application made during the year, including EPA registration number, product name, quantity of each pesticide used, date applied, and location of application by address (including five-digit zip code). In addition, they must also keep records of dosage rate, method of application, and target pest on-site and available for inspection.
- Persons licensed to sell restricted use pesticides must annually report sales of all pesticides to private applicators for the purpose of "agricultural crop production." Each record of sale must indicate EPA registration number and name of product purchased, quantity purchased, date of purchase, and location of intended application by address (including five-digit zip-code).
- Private applicators must maintain on-site records of restricted use pesticide applications.

Use and sales data reported under the new statutory requirements are specifically exempted from being used for enforcement purposes.[16]

The statute also establishes a "Health Research Science Board" under the auspices of the New York State Department of Health. Among its many functions, the Board is empowered to grant or refuse requests from researchers engaged in "human health related research projects" for access to reported pesticide use data at the nine-digit zip code level (NYSDEC will convert reported addresses to nine-digit zip codes), and for access to site-specific information from private applicators. All others interested in obtaining use data are entitled to receive it by five-digit zip code or county from NYSDEC, and to receive a copy of the annual summary report that will be produced by NYSDEC.

In general, the new statute will provide a more detailed and comprehensive picture of pesticide use in New York State than has ever been available before, particularly with regard to commercial applications, for which the statutory requirements are most specific. There are, however, some gaps in the statutory reporting requirements and points where future refinement may be needed.

The most significant potential gaps are for private application reporting. Because the mechanism for private applicator use reporting, unlike that for commercial applicators, is indirect, via the sellers, site-specific information such as date of application, crop treated, target pest, and amount used cannot be determined (this is the inverse of California's program, which acquires more site-specific data for production agriculture than for other pesticide uses). In addition, because the sellers who report are only those licensed by New York State to sell restricted use pesticides, any purchases out-of-state, or from dealers of general use pesticides only, are exempt. There are no current estimates on the size of that exempt universe, or whether it will increase after implementation as a way to avoid reporting.

Such broad reporting of sales to private applicators can contribute to general estimates of use, but it is less revealing of real population exposure. Health researchers may be able to compensate for this by their access to the more detailed site-specific data, but, since private applicators are only required to

[16] This provision was included during eleventh-hour negotiations between the Senate and Assembly, and met with strong objections from NYSDEC when it came to light, too late to be removed before passage. New legislation that would have struck this clause was then drafted and agreed upon, but was not brought up for a vote during the busy final days of the legislative session. Until it is, the language remains in effect.

keep on-site records of restricted use pesticides, it is not clear how much data will actually be available. Agricultural researchers, however, are not entitled to the more detailed site-specific data, and the seller-based information collected by the statute does not stand on its own for their purposes, though it could be combined with other sources of agricultural information to allow for better inferences than are currently possible.

In anticipation of these potential problems, a clause was added to the authorizing language for the Board that states:

> After two years of implementation of pesticide reporting...the board shall compare the percentage of agricultural crop production general use pesticides being reported to the total amount of pesticides being used in this state as estimated by Cornell University, Cornell Cooperative Extension, the department of environmental conservation, and the Environmental Protection Agency.

The intent of this section is to require scrutiny of the system and its potential gaps after a short implementation period, specifically addressing the question of whether the full universe of general pesticides for agricultural crop production is being captured It is unclear how the agencies involved will make this judgement when there is no overarching source of use information with which to make a comparison (the final bill, unlike the original, requires sales reporting only on restricted use pesticides). But this small reopener clause is an opportunity for that more fundamental concern to be aired as well. It is also an opportunity for other limitations on private applicator use reporting to be discussed, including the fact that private applicator reporting is limited to "agricultural crop production" – omitting applications to livestock, poultry, and fish, and possibly post-harvest treatments (though this latter point is ambiguous in the statute and will depend on agency interpretation). California's reporting regulations, while including applications to poultry and fish, do establish a precedent for exempting livestock. Whereas California interprets this to mean only direct applications to the animal, and still requires that applications to barns and housing be reported, New York's statutory language is more general and appears to preclude even such indirect application.

In addition to concerns about private applicator data, limitations on the access to site-specific data, may also impede some of the legislation's goals. Public access to the data will reach only to the five-digit zip-code level. It will thus not be possible for individuals to determine their immediate community exposure, although they will be able to generate a picture of their zip code area and compare it to any and all other zip code areas in the state. Zip codes are, however, a more precise measure than counties. New York's available data for commercial applications will thus be more site-specific than California's data for non-production agriculture applications, though considerably less so than California's agricultural application data.

Implementation Status

Implementation of the new statute has begun in earnest, with the creation of a new Pesticide Reporting Section NYSDEC, solely for the purpose of carrying out the use reporting program. The Governor's proposed budget earmarks $2.1 million (half from general funds and half from New York's

Environmental Protection Fund) for the program. NYSDEC has drafted reporting forms and mailed them to potential reporters for comment. Already, some problems are surfacing, including possible duplicate reporting when private applicators purchase pesticides but hire a commercial applicator to apply them. But the agency is attempting to work these issues out in guidance (still being drafted) before actual reporting begins in 1998.

New Hampshire

New Hampshire is a small state, not considered a major agricultural producer. This perhaps accounts for the fact that it has been relatively absent from previous discussions of use reporting when, in fact, it possesses a well-developed program. Enacted in 1966, too long ago for the current crop of regulators to remember the details of its genesis, New Hampshire's program requires that all commercial and private applicators submit records of their pesticide use annually.

Use Reporting Requirements

The trigger and also the enforcement hammer for reporting is the annual issuance of licenses to commercial applicators and to private applicators applying restricted use pesticides, and permits to private applicators applying general use pesticides. Specific language making use record submittal a requirement for license and permit issuance is found in statute, while the precise data points are spelled out in regulation. The regulation requires that applicator records include, among other items, the name of the applicator and firm, location of application, pesticide trade name and EPA registration number, amount of active ingredient in the concentrate and total amount of concentrate used, crop or site treated, and number of acres treated with each pesticide reported. Date of application is not required.

In practice, however, reporting is less specific than mandated by the regulatory language. Applicators are allowed to turn in partially aggregated data, so that the number of separate applications is not noted. In addition, the location of commercial applications is usually impossible to determine (though the general operating region of each commercial firm is inferred from the business address). The exception to this is the sub-category of "commercial not-for-hires"-- in-house and public employees -- for whom application locations are known. Location of private applications is also known.

Access to Data

The Department of Agriculture maintains its own working data set, but a complete data set is also maintained by the University of New Hampshire (UNH). UNH keeps the data in tabular form, and it also maps the commercial not-for-hire and private applicator records by tax parcel, in a Geographic Information System (GIS). The information is publicly available from UNH for a fee but, because the Department of Agriculture and UNH have incompatible data-base systems, a programmer must convert the data in response to a query.

This incompatibility has made the data less than perfectly accessible, and it also apparently makes it impossible for the recipients to manipulate on their own. According to the UNH staffperson responsible for the data, most requests are for the spatial information (at $150 per map). There is no

set price for tabular data-base requests because only one has ever been made – by New Hampshire's EPA-sponsored Comparative Risk Project. Conversations with Cooperative Extension Service staff indicated that they received other requests from individuals, but apparently those requests never made it as far as the GIS staff, who are responsible for responding.

And, echoing California's problems, Cooperative Extension also noted that in addition to incompatible data-base programs, there are coding problems that muddy query results. Applications to golf courses, for example, may also be variously included under golf course, lawn, turf, or grass designations. Similarly, active ingredients are entered in several different ways (e.g. EPA registration number, product name), and aggregating all applications of a given active ingredient requires that the data extractor possess both programming skills and a familiarity with pesticides. The GIS staff responsible for answering queries to the data-base, however, readily volunteered that they are not pesticide experts, limiting their ability to yield accurate answers to queries.

It appears that data transfers that take place directly between the Department of Agriculture and other state agencies proceed more smoothly, without the conversion step necessary at UNH. New Hampshire's Department of Health and Human Services made use of the data when developing a groundwater protection plan for the State (New Hampshire Division of Public Health Services;1986) and in restricting the use of mercury-based fungicides. The Department has also just begun an in-depth examination of right-of-way spraying, partially in response to newly filed state legislation, and plans to use the data-base to look at type, volume, and distribution of right-of-way spraying.

New Hampshire has a surprisingly complete set of data, particularly remarkable for its span of 30 years (making it a potentially significant source of trend information). Like California's use reporting system, however, inconsistent coding, the need for a programmer to convert the raw data to a usable form, and the resulting lack of accessibility, prevent the data from being fully utilized. While state regulatory agencies have access directly from the Department of Agriculture, the intervening step of going through UNH appears to significantly reduce wider accessibility to the public and even within the University and Extension Service community.

Other States of Interest

New Jersey

The New Jersey Department of Environmental Protection conducts a survey of all certified applicators on a triennial cycle; each applicator segment reports one year of data every three years. The survey applies to all pesticides, both restricted and general use, and to all certified applicators, both private and commercial. Private applicators who apply general use pesticides only need not be certified and are therefore missing from the program.[17] Only summary information, by municipality and/or crop/site category, is publicly available (except for medical purposes); site-specific information and names are kept confidential. GIS maps, specific to the municipality level, are also available;

[17] Although the Department could not quantify the number of applicators that would be missed by this gap, staff stated that, in their assessment, the bulk of applicators in New Jersey are commercial.

department staff noted that these maps were particularly dramatic demonstrations of the shifts in New Jersey agriculture over time.

The data are periodically compiled into summary reports for dissemination, but are also used in more direct ways by the department. Water monitoring staff uses the data to trace potential sources of contamination, and also to limit proactive sampling to likely contaminants and high-risk areas. The residue testing program uses them to locate growers of commodities for which they need sampling data. The data are also being used to develop a "sentinel" compound testing protocol for identifying contamination from golf course applications. The site remediation division uses the records to determine likely contaminants for testing as well. More sporadically, the data are used to answer general information requests from the Department of Health and citizens about uses on particular crops or in particular municipalities. Realtors, banks, and prospective buyers also inquire periodically about possible contaminants on a property, but since publicly available information is summarized to the municipality level, it is of limited use for this purpose. Although reported information is not used for enforcement purposes, compliance officers do inspect the records on which they are based.

One Department staffperson stated that having this data is a "big plus" for them because it presents a realistic picture of New Jersey's actual use. National data, he said, consistently misrepresent pesticide patterns in New Jersey because it focuses on major producing states with different climates and production patterns.

Montana

Every five years, Montana's Department of Agriculture requires that commercial and publicly-employed pesticide applicators submit records for all pesticides applied during the preceding year,[18] or submit a statement that no pesticides were applied during that same period. Private applicators only report if there is a specific regulation requiring it (this is currently the case for coyote control and aquatic use). The data submitted are broken down by month and county. If the application is non-agricultural, data can be aggregated by site categories (e.g. structural, right-of-way). In addition to use data, pesticide dealers must report sales of all pesticides, both general and restricted use. No names are included in any data released.

The data have been used in a limited way for groundwater protection; sales data for highly leachable products were mapped to reveal potential high-risk areas, and use data were incorporated into a training program for applicators about leaching hazards. There has also been one unusual recent use of the data: Montana is currently taking legal action against Atlantic Richfield Co.(ARCO) for contamination of a tributary of the Columbia River. In seeking to allay some of their responsibility, ARCO lawyers reviewed the pesticide use data to see if any contamination could be traced to agricultural sources (because the tributary is west of the continental divide, and most of Montana's agriculture is east, no link was found). In general though, because the data are collected only every five years, they are not heavily used. Enforcement issues and complaints (crop damage from aerial

[18] A significant portion of Montana's agricultural application is aerial, and so commercial applicator data represent a larger percentage of total agricultural application than they would in a densely-populated state with less aerial spraying.

spray drift being the most frequent) are investigated using the more specific on-site records, not reported data.

Arizona

The Arizona Department of Agriculture requires that all commercial agricultural applicators report detailed use records, including: pesticide name, EPA registration number and label information; location by county range, township, and section; date of application; crop and acreage applied to; method of application; target pest; harvest and worker reentry strictures; and wind direction and velocity. Information is reported on a weekly basis; if no pesticides are applied within a given week, that must be documented on a monthly basis to the Department. Private applicators keep detailed records for restricted use pesticides, and report use information for pesticides that appear on a state "groundwater protection" list.[19] Non-agricultural applications are not reported. A Department staffperson stated, however, that the agency is currently meeting with industry groups in an effort to push for fuller use reporting.

Arizona's Department of Environmental Quality (ADEQ), Water Quality Division uses this data on an ongoing basis for targeted groundwater monitoring and follow-up to contamination. The Division also answers citizen and realtor requests on an ad hoc basis, but stated that, since they don't have full reporting, the data can't accurately reflect use for the purposes of those inquiries. The Department of Agriculture has also recently assisted ADEQ in preparing an ozone attainment plan by analyzing the pesticide use data, in conjunction with the volatility factors California derived for pesticides (California Environmental Protection Agency;1994). And, finally, because Arizona's commercial data are submitted on a weekly basis, they can be (and are) used for investigating drift complaints and other immediate enforcement issues.

A further point of interest: Arizona law[20] specifically stipulates that "(a)ny records, reports, or information obtained from any person under this article (the pesticide control statute) or prepared for the department, shall be available to the public..." except if a showing is made that release of such information would reveal a trade secret or interfere with a specific investigation by either the department or the attorney general.

Connecticut

Connecticut's program is interesting not for the details of its reporting requirements, which are limited and unremarkable, but for their origin. The requirements are basic. Commercial applicators report aggregate summary data to the state each year; private applicators report detailed use records on restricted use pesticides (including date, address of application, etc.). Reporting this information is a prerequisite for license renewal. If no pesticides were used in the preceding year, that must also be reported (as it must be for some applicators in California). When the Connecticut Department of

[19] One staffperson said that, even though private applicators are only required to report on the groundwater protection list chemicals, in practice many of them don't bother to consult the list and just send in complete records to protect themselves from possible omissions.

[20] Title 3, Chapter 2, Article 6, Section 3-374 of Arizona Revised Statutes.

Environmental Protection first proposed recordkeeping and reporting requirements, in 1985, it was their intention to have private applicators keep all records on-site. The chairman of the General Assembly's Natural Resource Committee at that time, a dairy farmer, amended the proposal to require reporting. Not only was private applicator reporting enacted in Connecticut, therefore, but a representative from a farming community instigated the requirement. The Department's original lack of interest in reporting, however, has translated into a hands-off approach to the data, which are neither compiled nor used for any organized purpose that the Department could cite.

The Newest Legislation: Massachusetts

The latest state to attempt to pass use reporting legislation, is Massachusetts, where an omnibus bill that also includes neighbor notification, IPM, and healthy schools provisions has just been introduced this session. Briefly, the bill requires all certified applicators to file detailed use reports with the Department of Food and Agriculture on a monthly basis. Since Massachusetts' politics is dominated by its heavily suburban east, the major objections to date have come from the commercial lawn and structural applicator communities, although farmers have recently begun weighing in with their concerns as well. Because the legislation contains strict requirements for neighbor notification, the bulk of opposition so far has been to these provisions; use reporting has received little mention (although the Massachusetts Department of Food and Agriculture has stated that use reporting implementation would be burdensome and costly to them). Hearings for bill opponents were held in early April; supporters will have an opportunity later this spring.

Oregon's New Pesticide Tracking Law

Despite the widespread use of pesticides, Oregon currently has no reliable information on which pesticides are used where, when, and in what amounts. With the recent passage of HB 3602, the state will begin to create a system to track pesticide use. Making that information available to researchers, public officials, and the general public will help reduce the impacts of pesticides on human health and the environment. Here's what the new program will look like:

Comprehensive pesticide reporting system. The Oregon Department of Agriculture (ODA) will develop a comprehensive system to collect and organize information on all categories of pesticide use in Oregon. The purpose is "to ensure the public health and safety and to protect Oregon's water and environment."

Businesses -- such as farmers and exterminators -- and government agencies will be required to report, at a minimum, their pesticide use by type and quantity applied, purpose and type of site, month applied, and location by watershed, county, zip code, or other location identifier recommended by the work group. ODA will also develop a mechanism to identify household uses of pesticides, and is granted the authority to collect retail sales information.

Data accuracy. ODA will provide for an independent review of the pesticide data and collection procedures in order to ensure the accuracy, reliability and validity of the data.

Process for program development. The Governor will appoint a multi-stakeholder, work group to advise ODA on the program's development. ODA will conduct an analytical review to research and make recommendations on key issues. The bill requires that ODA run a pilot project on or before January 31, 2001 to fine-tune the system before statewide data collection begins in 2002.

Access to the data. ODA must release an annual summary of the data by July of the following year. The name and address of private pesticide users and sellers will be kept confidential. Government agencies and researchers can access all data, provided that they abide by the confidentiality provisions. Nothing in the bill precludes public access to the non-confidential data, and OPEN will work to ensure that the public can easily access the data in electronic and printed format.

Enforcement. Failure to report pesticide use will be subject to the existing pesticide enforcement provisions, with a maximum $1,000 fine for the first violation. However, those who violate the confidentiality agreements established under the bill could be fined up to $10,000.

Funding. For the 1999-2001 biennium, the bill authorizes $180,000 in new pesticide product registration fees and $100,000 in general fund. In the future, the program relies on $700,000 in registration fees provided that the Legislature matches those funds with an equal amount from the general fund. Without adequate funding, ODA will be hampered in its effort to create a useful database. Therefore, the work group is charged with recommending a stable and sufficient funding mechanism for the long term.

Sunset. The program will be eliminated on December 31, 2009 unless the Legislature votes to continue or revise it.

To contact the Oregon Pesticide Education Network (OPEN), see reverse.