Dec 19th, 12:00 AM

Pesticide Drift: A Problem in Iowa?

Charles A. Eckermann
Iowa Department of Agriculture and Land Stewardship

PESTICIDE DRIFT: A PROBLEM IN IOWA?

Charles A. Eckermann
Pesticide Bureau Chief
Iowa Department of Agriculture and Land Stewardship

Pesticide drift ranks as the most frequent incident reported to the Iowa Department of Agriculture and Land Stewardship (IDALS). Pesticide drift, as defined by the U.S. Environmental Protection Agency (EPA) 40 CFR 162.3, means "any movement of a pesticide during or immediately after application or use through air to a site other than the intended site of application or use."

Although most drift incidents occur during application in windy conditions, another type of drift may occur following the application. This is known as vapor drift or volatilization and off-target movement of the active ingredient. Vapor drift is a concern where volatile herbicides such as 2,4-D esters and dicamba (Banvel) are applied when temperatures exceed 85 degrees during or shortly after application. A similar problem exists with clomozone (Command) when surface applied to soil with high moisture content. Table 4 lists all herbicides involved in ten or more drift incidents reported to the IDALS the past five years. The majority of drift problems investigated by the IDALS in the past five years have been associated with 2,4-D, dicamba and clomozone.

Statistics regarding pesticide drift incidents maintained by the pesticide bureau reveal that the most frequently reported drift incident occurs in the month of June and involves the herbicide 2,4-D applied to cropland by a commercial applicator using a ground sprayer. The most frequent problem associated with pesticide drift is damage to desirable plants. Other problems relate to unapproved residues on food or feed crops and undesirable exposure to gardens and house yards.

The spring months in Iowa present some challenges for pesticide applicators in minimizing drift. According to information provided by the U.S. Department of Commerce, National Climatic Data Center in Asheville, North Carolina, the average annual wind velocities in Iowa range from 12.1 to 13.2 miles an hour in April, 10.4 to 11.9 miles per hour in May and 9.3 to 10.7 miles an hour in June. The prevailing winds noted for most reporting locations in Iowa are northwest in April, south-southeast in May and south in June.

Typically there are approximately 23 million acres of cropland in Iowa in a given year. According to a survey conducted by Iowa State University (ISU) Extension in 1985, approximately 97 percent of all corn and soybean acres are treated with herbicides. The same survey showed that approximately 75 percent of the acres are treated by farm operators and approximately 25 percent are treated

by custom applicators. A 1979 survey conducted by ISU Extension showed similar results. An informal survey conducted in 1984 by the IDALS revealed that approximately 600,000 acres are treated annually with herbicides in Iowa by aerial application.

Statistics maintained by the pesticide bureau, as shown in Table 1 indicate an increasing trend of herbicide drift incidents reported for each year over the past five years with the exception of 1987. In reviewing the information in Table 2 and Table 3, there is also evidence of an increase in reported drift incidents related to both aerial and ground application although drift incidents related to ground applications are more frequent than aerial application. These statistics do not necessarily mean that there are more drift incidents occurring, since not all incidents are reported. An increased public awareness and concern related to pesticide use could be the result of more cases being reported to the pesticide bureau. When comparing the total number of acres treated to the total number of drift incidents reported, the statistics suggest that a very small percentage of pesticide applications result in a reportable drift incident.

Pesticide drift issues are currently being addressed at both the state and federal levels. The Pesticide and Fertilizer Advisory Committee is currently reviewing pesticide drift problems in Iowa. The U.S. EPA has recently organized a spray drift task force for the purpose of developing a spray drift database for use in evaluating off-target movement of pesticides. Additional restrictions or regulations may result. However, a number of pesticide user groups have emphasized that additional research and education should be considered for pesticide applicators in identifying methods for minimizing drift.

Pesticide drift is a violation of state and federal pesticide laws. Violators may be subject to civil penalties assessed by the U. S. EPA up to $5,000 for each occurrence. Violators may also be subject to a license or certification revocation or suspension at the state level. Pesticide applicators must take every precaution to avoid pesticide drift to off-target areas. Special attention should be given to wind conditions and proximity of areas inhabited by people and livestock and the location of sensitive crops and ornamental plants.

TABLE 1

INCIDENTS REPORTED	FY86	FY87	FY88	FY89	FY90
Total number of misuse cases	105	98	158	144	165
Herbicide drift only	42	35	44	55	67

TABLE 2

GROUND APPLICATIONS	FY86	FY87	FY88	FY89	FY90
Ground Applications (herbicides)	31	29	43	48	49
Agricultural	26	18	29	37	35
Nonagricultural	05	11	14	11	14
Lawn	03	06	06	06	11
Right-of-way	02	04	08	04	02
Other	00	01	00	01	01
Phenoxy (2,4-D 2,4-DP or dicamba)	06	13	25	30	23
Nonphenoxy (including Command)	25	16	18	18	26
Command (alone and combinations)	18	09	07	03	10
Commercial applicator	20	22	18	40	34
Private applicator (individual)	11	07	25	08	15
Certified	21	17	38	47	21
Not certified	10	12	05	01	00

TABLE 3

AERIAL APPLICATION	FY86	FY87	FY88	FY89	FY90
Type of applicator					
Aerial applications (herbicides)	11	06	01	07	18
Type of herbicide					
Phenoxy (including dicamba)	07	05	01	07	13
Nonpehnoxy	04	01	00	00	05
Class of applicator					
Commercial applicator	11	06	01	07	18
Noncommercial applicator	00	00	00	00	00
Applicator certification status					
Certified	09	06	01	07	07
Not certified	02	00	00	00	01

TABLE 4

HERBICIDE		FY86	FY87	FY88	FY89	FY90	TOTAL
2,4-D		15	19	27	34	34	129
Dicamba	(Banvel)	00	06	11	13	18	48
Clomozone	(Command)	18	09	07	04	07	45
Atrazine		07	03	05	08	09	32
2,4-DP		03	02	03	05	06	19
Pendimethalin	(Prowl)	01	02	02	03	07	15
Metolachlor	(Dual)	01	04	01	03	04	13
Trifluralin	(Treflan)	00	04	02	02	05	13
Alachlor	(Lasso)	02	02	02	04	01	11
Cyanazine	(Bladex)	03	01	03	01	02	10
Glyphosate	(Roundup)	02	02	03	01	02	10

PST/pc-223