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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

May 30, 1986

MEMORANDUM

SUBJECT: Use Data for Exposure Analysis of Fenoxaprop-ethyl (Acclaim 1 EC) on Turf

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Because Acclaim is not yet registered, it is not possible to get actual use experience information. The parameters given herein are estimates based upon use practices with similar products or on anticipated use patterns. Per your request, only daily exposure, not cummulative, will be given. There is presently no way to estimate the number of persons exposed, as that will depend on future market penetration, and will vary for each use type.

The following scenarios appear to be reasonable, most likely cases, according to Dr. Tom Turner, Department of Agronomy, University of Maryland. They reflect the Maryland situation, which can be taken as representative.

Sod Farms:	Range	Most Common
Farm size A:	40-800A	200
Percent of farm treated:		30
Tank size (gal.):	100-300	200
Vehicle type:	Tractor, mostly open cab	
Boom length, ft.:	12-30	20
Spray volume, gal/A:	30-60	30
Acres/tank:	3.5-7	7
Label rate ($\frac{\text{lb. ai/A}}{\text{lb. ai/1000 ft}^2}$)	$\frac{0.12\text{-}0.35}{0.003\text{-}0.008}$	$\frac{0.24}{0.004}$
Pounds ai/tank:	.42-2.45	1.68
Spray time per tank (min.):	15-30	30
Load time/tank (min.):	10	10
Acres/hr.:		5
Acres/day:	20-40	20
Tankloads per day:	3-6	3
Hours/day:	4-8	4

A maximum exposure would be to an applicator applying all day (8 hr.) at maximum label rate (0.35 lb./A) from a open cab tractor. Such a person would need 6 days to treat 240 acres in a large sod farm. Because not all acres will need treatment, it is estimated that only about 30 percent will be treated in any season. Many applicators will work for half-days, rather than full days, because they are needed for other duties. Therefore, since on average, only 60 acres out of 200 need treatment, it would take only 3 half-days to treat 30 percent of 200 acres (60 acres).

Commercial Turf:

Because fenoxaprop-ethyl may not, by label, be applied with other herbicides or fertilizers, it will generally not be sprayed from large tanks. Nearly always it will be used from 1 to 2 gal. backpack sprayers for small area treatments. Commercial turf operators typically treat 4 to 4.5 acres per day, and usually use 60 to 120 gallons of spray per acre for the kinds of pesticides and fertilizers they normally apply. Below are given parameters for an unusual "worst case" situation wherein a large tankload may be used to broadcast spray 4 acres or more, and a more usual situation wherein backpack sprayers are used.

Large tank	Range	Most Common
Area sprayed (A):	5 to 10	5
Percent treated:	30-100	100
Tank size (gal):	150-300	250
Equipment: Hose and nozzle, hand-applied		
Spray volume/A:	30-60	40
Acres/tank:	3-10	5
Label rate, lb.ai/A:	0.12-0.35	0.24
Pounds ai/tank:	.36-3.5	1.20
Spray time/tank (hr.):		4
Load time/tank (min.):	15	15
Acres/hr.:		1.25
Acres/day:		5
Tankloads per day:		1
Hours/day:		4

In this case, probably not more than one loading operation would occur per day. The time to empty the tank would depend on both rate of spray and ease of accessibility to the sprayed area, as well as the number of gallons of spray, which is related to the area to be covered. The estimated rate of 1.25 acres per hour is a best guess, not an average of a number of measured data points.

Backpack:	Range	Most common
Area sprayed (A):	0.1-2	0.5
Percent treated:	30-100	50
Tank size (gal.):	1-2	1
Spray volume (gal/A):	30	30
Acres/tank:	0.03 (1450 ft^2)	.03
Label rate (lb. ai/1000 ft^2)	.003-.008	.004
Pounds ai/tank:	.004-0.012	0.008
Spray time/tank (min):	10-20	15
Load time/tank (min):	2-5	3
Acres/hr.:	0.8-0.16	0.11
Acres/day:	.03-0.3	.18
Tankloads/day:	1-10	6
Hours/day:	8	8

Because in treating several small sites in a day is the usual method of operation, considerable time is spent in travel between sites. Therefore, the average treated/day is less than when large acreages are involved.

Homeowner:

The parameters for the homeowner will be the same as for the commercial applicator using backpack sprayer except for the number of tanks per day. Most homeowners need to treat not over 3,000 ft^2, which can be done with two tanks, usually as spot treatment.

Backpack:	Range	Most common
Acres/day	0.03-0.09	0.03
Tanks/day	1-3	1
Hrs/day	0.3-0.9	0.3

Highway Rights-of-Way

Acclaim has potential usefulness on highway rights-of-way to maintain low growing perennial grasses such as bermuda and bluegrasses, while killing tall annuals and johnsongrass, on shoulders and medians. This would reduce the frequency of mowing to retain visibility. This information was provided by Dr. Wayne Brigham of VPI/SU.

Area sprayed (A):	80 (20 ft. strip, 33 miles)
Percent treated:	100
Tank size (gal)	1000
Vehicle type:	Truck, enclosed cab, swing-lock boom (7-8 ft.)
Acres/mile:	2.43
Spray volume (gal/A):	50
Gallons/mile:	121
Vehicle speed (mph):	6
Acres/tank:	20
Label rate (lb. ai/A):	0.12-0.35
Pounds ai/tank:	7 (20 X 0.35)
Spray time/tank (min):	82 min.
Load time/tank (min):	10-30
Tanks/hr.:	0.54-0.65
Tanks/day:	4 (assumes nurse tank with water to eliminate ferry time. If no nurse tank, then no. per day would be about 2 to 3 depending on availability of water).