CHEMICAL TRESPASS:

Off-Target Drift from Aerial Application of Pesticides Threatens Water Quality and Health in Alaska

The Alaska Department of Environmental Conservation is proposing regulations that would allow the aerial application of pesticides for forestry purposes. Timber corporations prefer aerial applications by helicopter because they can quickly spray pesticides over large areas. However, aerial applications of pesticides are notoriously inaccurate because they allow substantial quantities of the chemicals to contaminate surrounding areas outside the intended target. Pesticide drift can contaminate surrounding lands and waters, including: drinking water sources, salmon streams, organic farms, homes and property, berry-picking areas, traditional areas for gathering of greens and medicinal plants, parks, and schools.

What is Drift?

Drift is defined by the Environmental Protection Agency (EPA) as the physical movement of a pesticide through air to any site other than that intended for application (often referred to as off-target). Pesticide droplets, particles, and gas-phase chemicals are carried away from the intended application area by wind. Drift inevitably occurs whenever pesticides are applied, but especially during and after aerial applications. The Office of Technology Assessment estimates that about 40% of an aerial pesticide application leaves the "target area" and that 1% actually reaches the target pest.[i] The National Research Council characterizes the amount of drift as "considerable" and notes that the amount of drift varies from about 5% (under optimal low-wind conditions) to 60% (under more typical conditions).[ii]

How Far Can Pesticides Drift?

Pesticide drift after aerial application typically ranges from 100 meters (330 feet) to 1600 meters (5250 feet). However, in virtually every study available and reviewed in the Journal of Pesticide Reform (16 articles), pesticides were detected as far away from the area of application as samples were taken.[iii] A 1994 report from the EPA Ecological Effects Branch states that during an aerial application, "a predictable percentage of spray will transport potentially as far as 2 or more miles from the treatment site."[iv] In a study of pesticide drift in central Washington, the herbicide 2,4-D drifted up to 50 miles from the application site in hilly terrain under windy conditions.[v]

Pesticide Drift Causes Harm

Pesticide drift can poison people and cause serious economic damage. In June of 1993, 55 workers at the Cameron Nursery became ill when they were exposed to drift following the aerial application of the pesticides methamidophos, azinphos-methyl, and mancozeb.[vi] After an aerial application of the herbicide 2,4-D in Newport, Oregon, a woman who was walking on her property became ill for the next two years, suffering from chronic fatigue, ovarian cysts, and endometriosis.[vii] In California where pesticide illness reporting is more complete than in other states, over 350 illnesses and injuries were reported as a result of drift in 1991.[viii] Off-target transport of the herbicide sulfometuron methyl (Oust) caused several million dollars worth of crop damage on over 100,000 acres from an aerial application.[ix] In the first well-documented large-scale Oust drift incident, wind transport caused over one million dollars of damage following a roadside application to over 700 miles of roadside in Franklin County, Washington. Over 300,000 young trees were damaged in one nursery.[x] Research has demonstrated that drift from sulfonylurea herbicides may "severely reduce both crop yields and fruit development on

native plants, an important component of the habitat and food web for wildlife." Dramatic reductions in fruit production occurred at levels where there were no visible signs of damage to the vegetative parts of the plants.[xi] Imazapyr, an herbicide proposed for use by Klukwan on Long Island, is an imadazolinone herbicide with a similar mode of action as the sulfonylurea herbicides.

Proposed Buffers Won't Protect Our Waters and Lands

The Alaska Department of Environmental Conservation (ADEC) is proposing to allow aerial application of pesticides. They propose minimal buffer zones of only 200 feet around drinking water sources and a no-application zone of only 35 feet around fish streams and other water bodies. ADEC does not restrict aerial applications in windy or hilly conditions that would exacerbate the problem of pesticide contamination from drift.

Pesticide drift is inevitable, so what is the solution? No pesticide can drift if it is not used. The only way to prevent pesticide contamination is to require sustainable non-toxic, non-chemical management practices, such as mechanical removal of unwanted vegetation.

Comment on the proposed regulations—Comment Period Closes May 1

The State of Alaska should require non-chemical measures and prohibit the aerial application of pesticides. They should prohibit the use of pesticides in areas of traditional fishing, hunting, and gathering of greens, berries, medicinal plants, and basketry materials. If they allow pesticide applications, buffer zones must be much larger—at least 1 mile around drinking water sources and 100 yards around fish streams.

Submit comments to: Kimberly Stryker, ADEC, 555 Cordova Street, Anchorage, Alaska 99501. Fax (907) 269-7510 or by email at Kimberly_Stryker@dec.state.ak.us. You can review the proposed regulations at www.state.ak.us/dec.

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[i] U.S. Congress Office of Technology Assessment 1990. Beneath the Bottom Line: Agricultural Approaches to Reduce Agrichemical Contamination of Groundwater. Report No. OTA-418. Washington D.C.: U.S. Government Printing Office.

[ii] National Research Council Board on Agriculture. Committee on Long-Range Soil and Water Conservation. 1993. Soil and Water Quality: An Agenda for Agriculture. Washington DC: National Academy Press pp 323-324.

[iii] Cox, C. 1995. Pesticide Drift. Journal of Pesticide Reform 15(1):2-7.

[iv] Maciorowski, A. 1994. Memo: Qualitative Assessment of Sulfonyl Urea Herbicides and Other ALS Inhibitors. USEPA 3/24/94.

[v] Robinson, E. and L.F. Fox. 1978. 2,4-D Herbicides in Central Washington. Air Pollution Control Association. 28(10):1015-1020.

[vi] Washington Department of Health. 1993. Pesticide Incident Reporting and Tracking Review Panel Quarterly Summary Report (4/1/93-6/30/93).

[vii] Cox, C. 1995. Pesticide Drift. Journal of Pesticide Reform 15(1):2-7. Personal Communication with the author.

[viii] California Environmental Protection Agency. Department of Pesticide Regulation. Worker Health and Safety Branch. 1994. Pesticide Surveillance Program Summary Report 1991. Sacramento, CA. HS-1692.

[ix] Idaho Department of Agriculture. 2002. Press Release and Publications: Idaho State Department of Agriculture Completes Oust Investigation, January 18 and Ferullo, M. 2002. Farmers Sue DuPont, seek compensation from Interior for alleged herbicide damage. Chem. Reg. Rep. 26:553.

[x] Turner, S.A. 1987. Post-Application Movement of Sulfometuron Methyl from Treated Rights of Way Areas Via Wind Erosion. Proc. Fourth Symposium on Environmental Concerns in Rights of Way Management. October 25-28, 1987. Indianapolis, Indiana.

[xi] Fletcher, J.S. et.al. 1993. Potential Environmental Risks With the New Sulfonurea Herbicides. Environ. Sci. Tech. 27:2250-2252.