Factory Farming

Toxic Waste and Fertilizer in Oregon, 1990-1995

Environmental Working Group™

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Toxic Fertilizer in Oregon

Every year in the United States, polluting industries send millions of pounds of waste materials to fertilizer companies, presumably for use as raw materials in fertilizer production. Even though these wastes are often laden with toxic metal and chemical impurities, fertilizer manufacturers use steel mill smokestack ash and air pollution scrubber brine, and other industrial by-products as the raw materials for a substantial portion of the nation's fertilizers.

In theory, fertilizers applied to farm fields are subject to the same federal toxic chemical contamination standards as those applied to waste headed for toxic chemical dump sites. In practice, however, there is almost no monitoring of fertilizer or soil contamination levels, and contamination levels may be much higher than allowed by these loosely enforced standards. Highly contaminated fertilizer can render cropland sterile, harm the health of farmers and their families, and even threaten the food supply.

The Environmental Working Group used data from the Toxics Release Inventory to track the flow of hazardous wastes from industries to fertilizer companies and businesses that appeared to be farms. (Some of the fertilizer companies also produce other organic and inorganic chemicals, and the term farm includes ranches, grasslands, and other agricultural businesses. Due to resource limitations we were not able to contact every business that was identified as a farm or a fertilizer company in the TRI.)

State Findings

According to the TRI, Oregon companies sent nearly 26 million pounds of industrial chemicals to fertilizer companies and farms to be recycled and applied to land between 1990 and 1995. During the same time period, more than 2.3 million pounds of waste were received by Oregon fertilizer companies and facilities that appeared to be farms. This makes Oregon a net exporter of toxic wastes to fertilizer companies.

Companies sending wastes for use in fertilizers

In Oregon, 18 companies sent waste to fertilizer companies and facilities that were listed as farms

in the TRI. Of those, Cascade Steel Rolling Mills sent sent the most, nearly 13 million pounds of waste. Oregon Steel Mills Inc. and Merix Corp. followed with nearly 8.3 million and nearly 1.5 million pounds, respectively (Table 1).

Most of the wastes, nearly 21 million pounds, were sent from the Steel Works, Blast Furnaces, And Rolling And Finishing Mills industry, which accounted for 81% of the wastes sent to fertilizer companies and facilities that were listed as farms in the TRI (Table 2).

Companies receiving wastes

Companies in standard industrial classification codes for fertilizer production, facilities that appeared to be farms, and companies known to make fertilizers as at least part of their activities were included in this analysis. In total, the TRI reports 20 different Oregon businesses from these categories as receiving wastes for land disposal or "recycling." Of these, 19 appear to be actual farms.

The Oregon company that received the greatest amount of waste between 1990 and 1995 was Western Farm Service, which received more than 1 million pounds of waste for "recycling" (Table 3).

A large portion of these hazardous wastes bypass the large fertilizer companies and go directly to facilities that appear to be farms. The TRI lists 19 farms in Oregon that received more than 1.3 million pounds of chemical wastes between 1990 and 1995. The farms receiving the most chemicals are listed in Table 4. Unfortunately, the TRI does not include any additional information on these farms, so it is impossible to say what they did with this waste or whether food or livestock were grown on these lands.

Chemicals "Recycled"

The chemicals most commonly transferred from companies in Oregon to fertilizers and farms (by weight) were zinc and zinc compounds. Nearly 17 million pounds of zinc and zinc compounds were sent from TRI reporters to fertilizer companies and farms between 1990 and 1995. Manganese and manganese compounds and ammonia followed with nearly 2.5 million and nearly 1.8 million pounds, respectively.

The chemical most commonly received by fertilizer companies in Oregon (by weight) was ammonia. More than 1 million pounds of ammonia were received by Oregon fertilizer companies between 1990 and 1995. Phosphoric acid and zinc and zinc compounds followed with more than 970,000 and more than 270,000 pounds, respectively (Table 5).

National Summary Data

EWG identified more than 600 companies in 44 different states that sent more than 270 million pounds of toxic waste to farms and fertilizer companies between 1990 and 1995. More of this waste came from Nebraska than any other state, followed by California and Oregon.

Over 450 fertilizer companies and facilities that appeared to be farms in 38 different states received wastes between 1990 and 1995. Companies in California received the most toxic waste, 37.6 million pounds, followed by Nebraska and New Jersey.

Companies

Toxic waste shippers. The steel industry provided nearly 30% of all the waste sent to farms and fertilizer companies from 1990 through 1995, accounting for nearly 80 million pounds of waste shipped. Nucor Steel of Norfolk, Nebraska sent the most waste of any company with 26.2 million pounds, followed by Atlantic Steel Industries, Inc. of Cartersville, Georgia with more than 17.5 million pounds and Allco Chemical Corporation of Galena, Kansas, with more than 12.7 million pounds.

Fertilizer company recipients. Phibro-Tech of Santa Fe Springs, California received the most waste, more than 35.4 million pounds, followed by Old Bridge Chemical Company of Old Bridge, New Jersey, with nearly 30 million pounds and Frit Industries of Ozark, Alabama, with more than 27.4 million pounds.

Farms. Between 1990 to 1995, industrial polluters sent more than 22.5 million pounds of wastes directly to 381 facilities that appeared to be farms.[1] This includes 21 million pounds of potentially beneficial—yet not necessarily pure—chemicals, as well as more than 1 million pounds of toxic waste, mostly toxic heavy metals, with no potential agricultural application. This toxic waste includes more than 174,000 pounds of chromium and chromium compounds and over 33,000 pounds of lead and lead compounds. Unfortunately, the TRI does not include any additional information on these "farms," so it is impossible to say what these farms did with this waste or whether food or livestock are grown on these lands.

Chemicals. The chemicals most commonly transferred to fertilizer companies and businesses that appear to be farms were zinc (90 million pounds), copper (48.8 million pounds), and sulfuric acid (34.6 million pounds).

In addition to these chemicals, the companies we studied sent more than 6.3 million pounds of lead and lead compounds, 230,000 pounds of cad-

mium, and 16,000 pounds of mercury. The company that sent the greatest amount of these heavy metals to fertilizer companies and farms was Nucor Steel in Nebraska. The fertilizer manufacturer receiving the greatest amount of these compounds was Frit Industries in Norfolk, Nebraska which received nearly 2.2 million pounds of heavy metals between 1990 and 1995.

Major Loopholes Allow Toxic Waste to be Used in Fertilizer

Three major loopholes in existing toxics law allow toxic waste to be used in fertilizer, presenting risks to farmers and the food supply.

The Steel Industry and K061. There are three major pathways that hazardous waste can follow from the industry to the farm, each with a different level of reporting and testing requirements. The most loosely regulated route is through a loophole that allows steel companies to send toxic-laden ash—technically called "K061 Waste"—from their smokestacks, to companies that make zinc fertilizers, without testing it or even recording where it is going. This material can literally flow from the smokestack directly to the fertilizer sack and from there to the crop field.

The second method is for companies to exploit a loophole that was designed for the "recycling" of hazardous wastes. Any company sending any wastes to a fertilizer company for recycling need only ensure that the material would pass the EPA's Land Disposal Rule (LDR); regulations written for the storage of treated toxic wastes in lined and highly regulated hazardous waste landfills. If the waste is safe enough to be stored in these landfills, then it is considered safe enough to be recycled into fertilizer. The generating company is not required to test their wastes beyond the LDR standards, nor are they required to document what eventually happens to it.

The third recycling loophole allows companies to transfer their wastes directly to farms if the farms can treat the waste on their land and render the material harmless. This "land treatment" process is more highly regulated than the previous two loopholes and was originally designed to allow beneficial use of relatively benign waste. This report, however, shows that manufacturers sent more than 200,000 pounds of non-beneficial heavy metals to farms between 1990 and 1995.

Conclusions

Between 1990 and 1995, manufacturers sent hundreds of millions of pounds of hazardous materials to fertilizer companies and businesses that appear to be farms, where they were almost certainly incorporated into nutrients that are spread on the soil that produces America's food supply. The ultimate use of these chemicals, however, is difficult to determine because of

severe limitations in the federal programs — most notably the Toxics Release Inventory — that are theoretically designed to guarantee the public the right to know the fate of industrial waste and toxic chemicals used or generated in their communities.

Recommendations

Anyone who uses fertilizer has the right to know what is in it, and whether is was made from toxic industrial waste. But beyond this basic public right to know, health officials need to know what is in the nation's fertilizer in order to protect the nation's food supply, rural communities, and farmers from toxic chemical contamination. Agricultural authorities, in turn, need an efficient means to monitor possible contamination of the nation's cropland with toxic metals and industrial chemicals.

To achieve these goals we recommend:

- **Expansion of the Toxics Release Inventory** to include full chemical use reporting for all manufacturing, utility, and waste-treatment facilities. The EPA is considering expanding the Toxics Release Inventory to include materials accounting requirements as done in New Jersey and Massachusetts. This would be an important first step toward fulfilling the public's right to know about toxic chemicals in their homes, workplaces, and communities.

- **Elimination of the RCRA exemption for K061 waste.** This would close a recycling loophole that allows millions of pounds of heavy metals, carcinogens, and dioxin to be incorporated into fertilizer and applied to the nation's farmland.

- **A ban on the use of any hazardous waste in fertilizer production that could possibly be contaminated with dioxin.** At a minimum this ban would prohibit waste from the steel industry, hazardous and municipal waste incinerators (including pulp incinerators) and cement kilns as a raw feed stock for fertilizer production.

- **A moratorium on all waste incorporation into fertilizers** until standards for non-degradation of the soil can be designed and enforced. A policy of non-degradation would limit application of materials to the soil that would result in a net increase of toxics in the soil over a 40 year or longer time period.

- **All raw materials used to produce fertilizers should be tested for toxic constituents.** This requirement would include but would not be limited to cement kiln dust and mining waste.

- **Full labeling of fertilizers.** Fertilizers derived from toxic waste should be tested for heavy metals, persistent organic poisons, and other toxics, and the results of those tests should be printed on labels on the containers. All fertilizers derived from toxic waste should be labeled as such.

- **Monitoring farms treated with toxic waste derived fertilizers** for leaching of materials from the cropland into the surrounding environment. In addition, a record of use of these chemicals on the land should be retained as an addendum to the land deed in order to inform and protect future purchasers of the land. Farms treated with toxic waste-derived fertilizers could contain high levels of heavy metals and other persistent poisons. These chemicals are some of the most commonly found pollutants at Superfund sites and could create a toxic legacy for generations to come.

Note

[1]For purposes of this analysis we included as farms all businesses identified in the TRI as farms, ranches, grasslands, dairy operations and entities engaged in other forms of agricultural production. We also included as farms, any individual who received toxic materials for "other" land disposal, "other" recycling, or land application. In total, 11 percent of the entities listed as farms into this report fell into the "other" category. The vast majority of these recipients were individuals who received waste for land disposal. The TRI provides no information about the use that may have been made of the materials sent to these "farms" nor whether food crops were grown at the locations listed.

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Table 1: Companies shipping toxic chemicals to fertilizer companies and farms*--1990-1995

Factory: CASCADE STEEL ROLLING MILLS --MC MINNVILLE,OR	**Pounds Shipped:**	**12,597,49**
Chemicals: Chromium And Chromium Compounds		42,110
Lead And Lead Compounds		851,120
Manganese And Manganese Compounds		1,539,581
Nickel And Nickel Compounds		12,559
Zinc And Zinc Compounds		10,152,122
Factory: OREGON STEEL MILLS INC. --PORTLAND,OR	**Pounds Shipped:**	**8,244,876**
Chemicals: Aluminum (fume Or Dust)		88,434
Chromium And Chromium Compounds		44,061
Copper And Copper Compounds		85,916
Lead And Lead Compounds		936,276
Manganese And Manganese Compounds		939,381
Nickel And Nickel Compounds		6,486
Zinc And Zinc Compounds		6,144,322
Factory: MERIX CORP. --FOREST GROVE,OR	**Pounds Shipped:**	**1,454,000**
Chemicals: Ammonia		266,000
Copper And Copper Compounds		950,000
Hydrochloric Acid		238,000
Factory: LAMB WESTON --HERMISTON,OR	**Pounds Shipped:**	**1,003,218**
Chemicals: Ammonia		1,003,218
Factory: INTEL CORP. --ALOHA,OR	**Pounds Shipped:**	**804,600**
Chemicals: Nitric Acid		31,300
Phosphoric Acid		773,300
Factory: PRAEGITZER IND. INC. --DALLAS,OR	**Pounds Shipped:**	**425,900**
Chemicals: Ammonia		204,000
Copper And Copper Compounds		192,000
Hydrochloric Acid		27,300
Sulfuric Acid		2,600

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Source: Environmental Working Group. Based on data from the U.S. EPA's Toxics Release Inventory (1990-1995)

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Factory: YAMAMOTO MFG. USA INC. --BEAVERTON,OR		**Pounds Shipped: 302,000**
Chemicals:	Ammonia	129,062
	Copper And Copper Compounds	124,051
	Hydrochloric Acid	48,704
	Lead And Lead Compounds	183
Factory: SMURFIT NEWSPRINT CORP. --NEWBERG,OR		**Pounds Shipped: 273,415**
Chemicals:	Acetaldehyde	250
	Certain Glycol Ethers	5
	Methanol	1,160
	Zinc And Zinc Compounds	272,000
Factory: WESTAK OF OREGON --FOREST GROVE,OR		**Pounds Shipped: 236,582**
Chemicals:	Ammonia	79,298
	Copper And Copper Compounds	157,284
Factory: INTEL CORP. --HILLSBORO,OR		**Pounds Shipped: 208,000**
Chemicals:	Nitric Acid	8,000
	Phosphoric Acid	200,000
Factory: PRAEGITZER IND. INC. --WHITE CITY,OR		**Pounds Shipped: 207,568**
Chemicals:	Ammonia	107,000
	Copper And Copper Compounds	100,568
Factory: ELECTRONIC CONTROLS DESIGN --MULINO,OR		**Pounds Shipped: 55,658**
Chemicals:	Ammonia	1,775
	Copper And Copper Compounds	53,883
Factory: GHEEN IRRIGATION WORKS INC. --EUGENE,OR		**Pounds Shipped: 19,573**
Chemicals:	Zinc And Zinc Compounds	19,573
Factory: SMURFIT NEWSPRINT CORP. --OREGON CITY,OR		**Pounds Shipped: 15,452**
Chemicals:	Methanol	15,452
Factory: WEYERHAEUSER CO. --SPRINGFIELD,OR		**Pounds Shipped: 8,103**
Chemicals:	Acetaldehyde	10
	Acetone	15
	Ammonia	2,000
	Formaldehyde	5
	Lead And Lead Compounds	3,288
	Methanol	2,750
	Methyl Ethyl Ketone	25

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	Phenol	10

Factory: POPE & TALBOT INC. --HALSEY,OR — **Pounds Shipped: 5,331**

Chemicals:	Acetaldehyde	5
	Acetone	750
	Ammonia	250
	Catechol	271
	Chlorine	10
	Chloroform	535
	Methanol	3,510

Factory: HEWLETT-PACKARD CO. --CORVALLIS,OR — **Pounds Shipped: 800**

Chemicals:	Nickel And Nickel Compounds	800

Factory: JAMES RIVER PAPER CO. INC. --HALSEY,OR — **Pounds Shipped: 5**

Chemicals:	Chlorine	5

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Table 2: Industries in Oregon shipping toxic waste to fertilizer companies and farms*--1990-1995

Industry: Steel Works, Blast Furnaces, and Rolling and Finishing Mills	**Pounds Shipped:**	20,842,368
Chemical: Aluminum (fume Or Dust)		88,434
Chromium And Chromium Compounds		86,171
Copper And Copper Compounds		85,916
Lead And Lead Compounds		1,787,396
Manganese And Manganese Compounds		2,478,962
Nickel And Nickel Compounds		19,045
Zinc And Zinc Compounds		16,296,444
Industry: Electronic Components And Accessories	**Pounds Shipped:**	3,486,308
Chemical: Ammonia		787,135
Copper And Copper Compounds		1,577,786
Hydrochloric Acid		314,004
Lead And Lead Compounds		183
Nitric Acid		31,300
Phosphoric Acid		773,300
Sulfuric Acid		2,600
Industry: Canned, Frozen, And Preserved Fruits and Vegetables	**Pounds Shipped:**	1,003,218
Chemical: Ammonia		1,003,218
Industry: Paper Mills	**Pounds Shipped:**	288,872
Chemical: Acetaldehyde		250
Certain Glycol Ethers		5
Chlorine		5
Methanol		16,612
Zinc And Zinc Compounds		272,000
Industry: Coating, Engraving, And Allied Services	**Pounds Shipped:**	19,573
Chemical: Zinc And Zinc Compounds		19,573
Industry: Paperboard Mills	**Pounds Shipped:**	8,103
Chemical: Acetaldehyde		10
Acetone		15
Ammonia		2,000
Formaldehyde		5

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	Lead And Lead Compounds	3,288
	Methanol	2,750
	Methyl Ethyl Ketone	25
	Phenol	10
Industry: Pulp Mills	**Pounds Shipped:**	5,331
Chemical:	Acetaldehyde	5
	Acetone	750
	Ammonia	250
	Catechol	271
	Chlorine	10
	Chloroform	535
	Methanol	3,510
Industry: Computer And Office Equipment	**Pounds Shipped:**	800
Chemical:	Nickel And Nickel Compounds	800

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Table 3: Fertilizer companies that received toxic waste in Oregon--1990-1995

Name: Western Farm Service--Jefferson,OR	**Pounds Received:**	1,012,600
Chemical: Nitric Acid		39,300
Phosphoric Acid		973,300

Oregon

Table 4: Toxic chemicals received by farms* in Oregon--1990-1995

NOTE: The firms below are listed exactly as they appear in the Toxics Release Inventory (TRI). The TRI provides no information about the use that may have been made of the materials sent to these "farms" nor whether food crops or livestock were grown at the locations listed.

Name: Madison Ranch--Echo,OR	**Pounds Received: 806,218**
Chemical: Ammonia	806,218
Name: Lamb-Weston Inc. Farm--Hermiston,OR	**Pounds Received: 197,000**
Chemical: Ammonia	197,000
Name: Agri-tech (Local Farmers)--Albany,OR	**Pounds Received: 172,860**
Chemical: Acetaldehyde	250
Chemical: Methanol	610
Chemical: Zinc And Zinc Compounds	172,000
Name: Agri-tech (Local Farmers)--Albany,OR	**Pounds Received: 100,555**
Chemical: Certain Glycol Ethers	5
Chemical: Methanol	550
Chemical: Zinc And Zinc Compounds	100,000
Name: Puddin River Farms--Aurora,OR	**Pounds Received: 12,023**
Chemical: Methanol	12,023
Name: Keen Farm (Land Application)--Brownsville,OR	**Pounds Received: 3,305**
Chemical: Acetone	750
Chemical: Catechol	20
Chemical: Chlorine	15
Chemical: Chloroform	510
Chemical: Methanol	2,010
Name: Pruitt Farm--Springfield,OR	**Pounds Received: 2,260**
Chemical: Acetone	5
Chemical: Ammonia	750
Chemical: Lead And Lead Compounds	750
Chemical: Methanol	750

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Source: Environmental Working Group. Based on data from the U.S. EPA's Toxics Release Inventory (1990-1995)

For a complete analysis of toxic waste in fertilizer, see "Factory Farming: An Analysis of Toxic Waste Shipments to Fertilizer Companies, 1990-1995." (EWG March, 1998)

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Chemical: Methyl Ethyl Ketone	5
Name: Walt Sprague--Pleasant Hill,OR	**Pounds Received: 2,260**
Chemical: Acetone	5
Chemical: Ammonia	750
Chemical: Lead And Lead Compounds	750
Chemical: Methanol	750
Chemical: Methyl Ethyl Ketone	5
Name: Dick Anderson--Aurora,OR	**Pounds Received: 1,910**
Chemical: Methanol	1,910
Name: Kropf Farm--Halsey,OR	**Pounds Received: 1,781**
Chemical: Acetaldehyde	5
Chemical: Ammonia	250
Chemical: Catechol	1
Chemical: Chloroform	25
Chemical: Methanol	1,500
Name: Lee Downing Farm--Marcola,OR	**Pounds Received: 1,760**
Chemical: Acetone	5
Chemical: Ammonia	250
Chemical: Lead And Lead Compounds	750
Chemical: Methanol	750
Chemical: Methyl Ethyl Ketone	5
Name: Mark Anderson--Aurora,OR	**Pounds Received: 1,124**
Chemical: Methanol	1,124
Name: Joe Cerscovski--Junction City,OR	**Pounds Received: 1,038**
Chemical: Lead And Lead Compounds	1,038
Name: John Hayworth Farms - Field OI--Harrisburg,OR	**Pounds Received: 535**
Chemical: Acetaldehyde	10
Chemical: Formaldehyde	5
Chemical: Methanol	500
Chemical: Methyl Ethyl Ketone	10
Chemical: Phenol	10
Name: Weyerhaeuser Dale-berg Farm--Springfield,OR	**Pounds Received: 250**
Chemical: Ammonia	250
Name: Smith/Keen Land Application--Brownsville,OR	**Pounds Received: 250**
Chemical: Catechol	250
Name: Buchanan Farms--Aurora,OR	**Pounds Received: 195**
Chemical: Methanol	195
Name: Moana Nursery--Canby,OR	**Pounds Received: 195**

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Chemical: Methanol	195
Name: Yoder Farms--Aurora,OR	**Pounds Received: 5**
Chemical: Methanol	5

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Table 5: Total pounds of toxic waste received by fertilizer companies and farms* in Oregon--1990-1995

Ammonia	1,005,468
Phosphoric Acid	973,300
Zinc And Zinc Compounds	272,000
Nitric Acid	39,300
Methanol	22,872
Lead And Lead Compounds	3,288
Acetone	765
Chloroform	535
Catechol	271
Acetaldehyde	265
Methyl Ethyl Ketone	25
Chlorine	15
Phenol	10
Certain Glycol Ethers	5
Formaldehyde	5

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