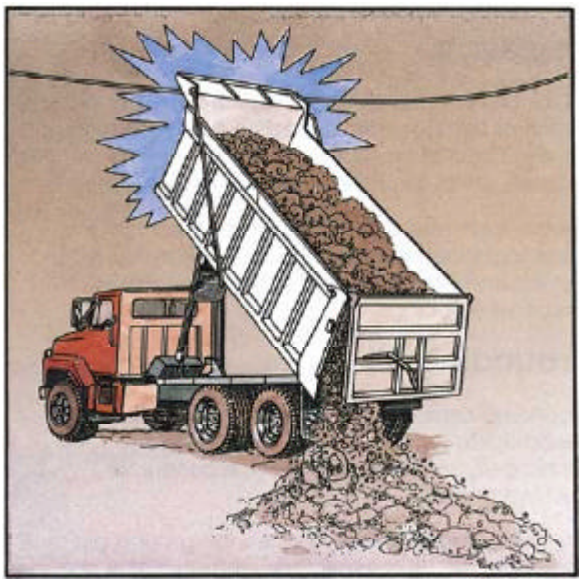
Oregon: A Dumping Ground for Toxic Fertilizer?

How the Oregon Department of Agriculture's Proposed Pollutant Limits for Fertilizers Fail to Protect Our Health and the Environment



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Oregon: A Dumping Ground for Toxic Fertilizer?

How the Oregon Department of Agriculture's Proposed Pollutant Limits for Fertilizers Fail to Protect Our Health and the Environment

by
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I: OVERVIEW

A wide array of fertilizer products are used throughout Oregon by commercial farmers and homeowners alike. In 2001, about 1.4 billion pounds of fertilizers were sold in Oregon.

Fertilizers contain nutrients to facilitate plants' growth. Unbeknownst to most growers and consumers, however, fertilizers also often contain a host of heavy metals and other contaminants like dioxin that do nothing to help plants and may in fact be causing serious environmental and health problems. Chemicals in fertilizers such as lead, arsenic, mercury and cadmium are harmful to humans and wildlife even at low levels, persist in the environment, and build up in the food chain.

Contaminants are found in fertilizer products for a number of reasons. Some fertilizers are made from industrial wastes, which often contain high levels of heavy metals and other contaminants (ODA, 2001(b)). Fertilizer products that are from mined material such as phosphate rock contain contaminants that occur naturally in the earth's crust. Until 2001, no Oregon law existed governing how much of these heavy metals could be in fertilizer products.

In 2001, the Oregon Legislature passed a law that requires the Oregon Department of Agriculture (ODA) to set standards for "acceptable" levels of contaminants in fertilizers, and to collect and make available to the public information on the origin of "waste-derived" fertilizers and the contaminant levels present in the products.

ODA has proposed a set of "risk-based" standards (or "limits") for five heavy metals. These limits will allow very high levels of arsenic, cadmium, lead, mercury and nickel in the fertilizers sold in Oregon. ODA's proposed limits are flawed because they:

- Are less stringent than similar standards set by California and, in certain cases, those set by Washington, making Oregon a potential dumping ground for fertilizer products that are illegal in neighboring states.

- Are not designed to protect water and soil quality in Oregon; nor are they designed to protect fish and wildlife, despite that fact that the law requires ODA to set standards that protect human health as well as water quality and wildlife.

- Are several times higher than the Oregon Department of Environmental Quality's (DEQ) cleanup standards for residential soil in almost all cases, leaving open the question of whether use of these fertilizers will create new cleanup sites in the future.

  For example, ODA would allow as much as 11,900 ppm of lead to be present in zinc fertilizers, when DEQ has set a residential cleanup standard of 200 ppm of lead.

- Are based solely on results of a human health risk assessment conducted for and funded by the fertilizer industry.

- Are so lax that an analysis done by ODA shows that well over 95% of the roughly 2,000 fertilizer products currently registered for sale easily pass these new standards, making the new standards virtually irrelevant.

- Ignore other dangerous contaminants that can occur in fertilizer products, such as the highly toxic chemical dioxin.

Over time, the use of contaminated fertilizers can cause the buildup of unwanted and potentially dangerous pollutants in agriculture soils (WDOA, 2001). This buildup may

cause crop damage, contamination of groundwater or surface water, present health threats for farmers and other farmworkers who handle them, and lead to the contamination of food. ODA's proposed limits may lead to increased soil and water pollution because the limits are not designed to prevent this pollution.

ODA's proposed limits would allow as much as 252,000 pounds of arsenic; 210,000 pounds of cadmium, over 1.2 million pounds of lead; 19,000 pounds of mercury; and 4.9 million pounds of nickel to be applied to land in Oregon.

ODA must re-think their approach. The agency should set pollutant standards that are in line with average background levels present in Oregon soil so as not to increase current levels. This would ensure that cropland and home gardens are not degraded over time. Furthermore, ODA must develop a plan to entirely phase out the presence of all heavy metals and other contaminants such as dioxin in fertilizers.

ODA must also strengthen the right-to-know provisions of their proposed rule by requiring that information about heavy metals in fertilizer products is easily accessible to the public and that the required information is printed on labels beginning January 1, 2003, instead of waiting until January 1, 2005, as ODA has proposed.

II: BACKGROUND

There are roughly 2,100 fertilizer products currently registered for use in Oregon. About 700,000 tons of fertilizer, or 1.4 billion pounds, were sold in Oregon in 2001 (ODA, 2001(a)).

OREGON'S NEW FERTILIZER LAW

In 2001, the Oregon Legislature passed a law (HB 3815) that made a number of significant changes to Oregon's rules and regulations governing how fertilizers are registered for use in Oregon. The law applies to products that are classified as fertilizers, agricultural minerals, lime, and agricultural amendments (all of which are termed "fertilizers" or "fertilizer products" in this report).

The law imposed new requirements for labeling fertilizer products and changed the way fertilizer sellers pay an annual "inspection fee." The new law also added requirements related to the regulation of fertilizers made from industrial waste and of toxics in fertilizers generally. The law requires that:

- Fertilizer "registrants" (who are generally fertilizer manufacturers) must provide to ODA the results of lab tests on the levels of arsenic, cadmium, lead, mercury, and nickel in their products. The law also gives ODA the authority to require testing for other contaminants of concern.
- ODA must establish levels of metals or other substances allowed in fertilizers that are protective of "humans, animals, water, aquatic life, soil or beneficial plant life."
- Fertilizer registrants mustidentify the industry, industrial process and location that generated any "waste-derived" ingredients in all products submitted for registration.
- Fertilizer products must list an Internet address on the product label that leads to product-specific information, including levels of heavy metals in the product, and whether the product is "waste-derived," as well as the type of industry that generated the waste-derived product.

ODA'S PROPOSED METAL LIMITS

Under this new law, ODA has proposed new "risk-based" standards for levels of five heavy metals that must be met for a fertilizer product to be sold in Oregon.

These rules apply to fertilizers as well as other fertilizer materials such as agricultural amendments, agricultural minerals and lime products. Fertilizers are categorized according to the type of nutrients they provide, such as phosphate or so-called "micronutrients" such as zinc or iron.

The maximum levels proposed by ODA vary depending on the type of fertilizer product and the amount of nutrient in the product. For example, the maximum allowable level of arsenic for a phosphate fertilizer is 9 parts per million (ppm) for each percent phosphate present in the product, whereas the maximum allowable level of arsenic in a zinc fertilizer is 76 ppm arsenic for each percent of zinc in the product.

Because the limits are tied to the amount of nutrient in a product, the maximum allowable metal levels can vary widely – the more nutrient, the more heavy metal that's allowed, and vice versa.

WHY FERTILIZERS CONTAIN HEAVY METALS AND OTHER CONTAMINANTS

Industrial Waste Fertilizers

Some fertilizers are made from industrial waste, which can contain high levels of heavy metals and other contaminants. As ODA states in their Fertilizer Program guide:

"Certain waste products produced by industry contain components, such as zinc, iron, copper or calcium carbonate, which can be recovered and used for agronomic purposes. The Department recognizes the value of material recovery and recycling when conducted in a safe manner. However, some wastes, along with their crop nutrient content, contain hazardous constituents that provide no agronomic value. The use of these wastes in fertilizer, agricultural mineral, agricultural amendment or lime products can introduce hazardous constituents into the ecosystem. These constituents can be hazardous to handle by applicators, contribute to the contamination of water resources, or may be taken up in toxic amounts by crops used for food or feed" (ODA, 2001(b)).

Between 1990 and 1995, more than 270 million pounds of industrial waste was spread over agricultural lands in the U.S. Nearly 26 million pounds, or one-tenth, of that waste was produced by Oregon companies (Environmental Working Group, 1998). While these fertilizers offer a relatively inexpensive source of zinc and other nutrients, they can also contain dangerously high levels of toxic chemicals.

In addition to the heavy metals that often occur in waste-derived fertilizers, other highly toxic chemicals such as dioxin are often also found in these waste products. The Washington State Department of Ecology found that many fertilizers containing dioxins were manufactured from metal

How Hazardous Waste Becomes Fertilizer: The Case of Ironite

Ironite is a fertilizer produced from the mine tailings of a proposed Superfund site in Humboldt, Arizona, and sold to consumers as a lawn and garden fertilizer. Testing by government agencies has found levels of arsenic high enough to classify the fertilizer as a hazardous waste.

Although federal law requires that hazardous waste be disposed of in regulated landfills, a legal loophole called the Bevill Exemption excludes the mining industry.

Ironite has the potential to raise the amount of arsenic in lawns and gardens. A soil scientist in Minnesota found that levels in his garden rose to 100 parts per million after he applied Ironite – an amount 100 times the background levels in that state.

Last month, 23 public-health and environmental groups called on Home Depot, Lowe's and Target retail stores to stop selling Ironite because of lead and arsenic. Maine pulled Ironite from store shelves, and California sued the company under its new law. Canada banned the use of Ironite in 1997 because of its high heavy metal content.

The EPA said it "continues to believe that concerns regarding exposure to arsenic in Ironite products are worthy of serious consideration, particularly since it is a widely marketed consumer product intended for use by home gardeners and others. As such, the potential for misuse and/or accidental exposure (especially to children) cannot be discounted."

industry emission control dusts (used to make certain zinc fertilizers), and from wood ash (applied to land as a liming agent) (WDOE, 1999).

The U.S. Environmental Protection Agency's (EPA) recently issued rules on zinc fertilizers made from industrial waste include a limit for dioxins. The EPA dioxin standard of 8 parts per trillion is based on EPA's estimate of average national background levels of dioxins in soil.

Other Fertilizer Products

Heavy metals are found in a variety of ores, including phosphate rock, which is mined to make phosphate fertilizer. The metal of most concern in phosphate rock is cadmium. Cadmium concentrations in phosphate rock average about 121 ppm (Potash and Phosphate Institute, 1998). In fact, of the 1,275 phosphate fertilizer products registered with ODA, between one-third and one-half contain between 100 and 200 ppm cadmium (ODA, 2002).

According to the Potash and Phosphate Institute, technologies are being studied to remove cadmium from phosphate rock before it is converted to fertilizer, but none were available on a commercial scale in 1998 when that report was published (Potash and Phosphate Institute, 1998). The industry report estimated that costs to remove cadmium would be from two to five cents per pound of product.

THE HEALTH AND ENVIRONMENTAL THREATS ASSOCIATED WITH HEAVY METALS IN FERTILIZERS

When fertilizers that contain heavy metals are spread on the land or applied on our lawns or in our gardens, the metals can cause environmental and/or health problems in one or more ways. Chemicals like lead, mercury, cadmium and arsenic persist in the environment; therefore, when they are applied to land, they do not go away. Depending on a number of factors, these chemicals may end up in one or more places in our environment.

For example, chemicals may:

- build up in soil over time,
- enter the atmosphere,
- erode into surface water,
- leach into groundwater, or
- enter the food chain directly by being taken up by plants.

Studies have shown that certain vegetables can take up significant amounts of cadmium. A recent study by Washington State (WDOA, 2001) concluded that:

"...cadmium is of greater concern than arsenic and lead in terms of soil accumulation and crop uptake..."

and that:

"... the amount of cadmium taken up by crops is greatly influenced by the source of the cadmium."

Furthermore, they concluded that:

"... cadmium could build up in soil over time due to continual fertilizer use."

This Washington report also concluded that agricultural practices over the last 50 years have already increased cadmium concentrations to a small degree over background levels in the Columbia Basin.

Each pollutant has different effects on our health and different means of transport into the environment. For example:

- Chronic exposure to the inorganic form of **arsenic** (As) is linked to cancer of the lung, skin, liver, kidney and prostate (ATSDR, 2000). When applied to land, arsenic can be released into the atmosphere or leach into groundwater. Plant uptake of arsenic is usually low (Curtis, 2002).

- **Cadmium** (Cd) has the potential to cause kidney, liver, bone and blood damage from long-term exposure. Of all the

metals, cadmium has the highest tendency to get into crops, especially leafy greens such as lettuce, cabbage, and celery (EPA, 2002(b)).

For example, a Washington State University (WSU) study found that there was a significant increase in cadmium accumulation in lettuce from the application of phosphate rock and a granulated zinc fertilizer. In fact, the researchers found that the cadmium accumulated at a rate four times greater than the rate used in an EPA risk assessment (Kuo et. al., 1998).

- **Lead** (Pb) affects the central nervous system at extremely low doses, and can inhibit the brain, kidneys and reproductive system. It has the greatest impact on young children, and can have a significant effect on their ability to learn. Lead tends to accumulate in soils, making consumption of lead-contaminated soil the highest exposure hazard (Curtis, 2002).

- Exposure to **mercury** (Hg) can have serious long-term effects on the nervous system and brain, particularly for children and fetuses exposed *in utero*. Mercury does not tend to accumulate much in plants, but can be transported in humic matter (Curtis, 2002). Mercury can also be released to the atmosphere, where it can travel long distances before depositing back to earth.

- **Nickel** (Ni) can leach into water and may be taken up by certain plants, depending on soil conditions. Nickel can cause skin irritation, respiratory problems and, at higher levels, lung and nasal cancer. (ATSDR, 1997).

- **Dioxins** are byproducts of certain industrial waste processes, some of which produce wastes made into fertilizer products. Dioxins are highly carcinogenic chemicals that can affect the reproductive and endocrine systems. They are extremely persistent and tend to accumulate in soils and in the fatty tissue of humans and other organisms (WDOE, 1999(b)).

III: ODA's Proposed Limits Are Less Stringent Than Others

OTHER STATES' AND FEDERAL RULES ON TOXICS IN FERTILIZERS

U.S. Environmental Protection Agency (EPA)

The federal government has not developed standards for heavy metals in fertilizers generally. However, the EPA recently finalized new rules to limit the levels of heavy metals and dioxin in zinc fertilizers made from industrial waste.

Zinc fertilizers made from industrial waste that are sold in Oregon will have to meet these new EPA standards, which are several times more stringent than ODA's proposed limits. However, only a small percentage of the roughly 2,000 fertilizer products currently registered with ODA will have to comply with these more stringent EPA limits.

In setting these new standards, EPA chose to base them on what was technologically feasible to achieve, not on risk assessment (EPA, 2002(a)).

Before basing its standards on technological feasibility, EPA had conducted a risk assessment to help guide their decision-making process. The agency chose not to use the risk-based limits, because when compared to the levels that occur in the waste-derived fertilizer products, the risk-based levels were too high; that is, the rules would have been meaningless because the levels in the fertilizers would have always been well below the risk-based limits.

As EPA put it, "developing risk-based limits for zinc fertilizers would be a highly complex and resource-intensive undertaking, and risk-based limits might actually allow contaminant levels to increase substantially" (EPA, 2002(a)).

Furthermore, David Fagan of the U.S. EPA told ODA officials in an email that "the EPA doesn't support the use of risk-based standards for contaminants in fertilizers, and strongly recommends that Oregon and other states set limits based on 'good manufacturing practices'" (Fagan, 2002).

California

California recently implemented new risk-based limits for allowable levels of arsenic, cadmium and lead in fertilizers. California's limits are considered to be more stringent when compared to Washington (*Capital Press*, 2001). California's limits are between two to five times more stringent than ODA's proposed limits.

Like Oregon, California's limits are tied to the percentage of nutrient in the product. For example, if a phosphate fertilizer contains 5% phosphate, then the maximum allowable level of arsenic that may be contained in that product is 10 parts per million (ppm) (as of 2004). However, if the product contains 20% phosphate, then the product may contain as much as 40 ppm of arsenic (CDFA). California's limits go down over time slightly for phosphate fertilizers from 2002 to a final limit that is effective in 2004.

California first proposed a set of heavy metal limits based on a risk assessment similar to the fertilizer industry's assessment. However, the California Department of Food and Agriculture re-assessed these original risk-based limits using a more up-to-date, appropriate and conservative estimate for soil sorption (or ability for soil

to hold onto metals), which caused the final limits to go down significantly (Wong, 2002).

Even these risk-based values were not used as standards. Instead, the agency used a "risk management" approach, allowing them to raise the limits slightly because the industry would have had difficulty meeting the risk-based standard.

Washington

Washington was the first state to regulate and monitor levels of metals in fertilizers. In 1998, the Washington Legislature passed the Fertilizer Regulation Act, which mandated limits on levels of heavy metals allowed in fertilizer products. The Washington State Department of Agriculture modeled their standards after Canadian standards, which allow a doubling of the background levels of metals over a 45 year period.

Washington standards are expressed as the maximum pounds of metals added to soil per acre per year. Because Washington State's standards are not expressed as a concentration of a metal in a fertilizer product, it is difficult to compare them to ODA's proposed standards. And since the Washington limits are connected to a maximum amount allowed in soil, fertilizer manufacturers can lower the application rate suggested on the product label without changing the amount of contaminant in the product.

Washington State standards have been criticized as too weak. For example, the Washington Toxics Coalition has stated that fertilizers used in Washington can "still have high levels of heavy metals and meet the standards as long as the application rate is low enough" (WTC, 2001). This occurs because of the way the limits are set. Also, despite warnings of health concerns, Washington State has never limited, prevented, or required testing of dioxins in fertilizers (WTC, 2001).

Other States

Other states such as Idaho, Texas and Florida have set or are developing standards for metals in fertilizers. A few of these states are relying on the results of the fertilizer industry sponsored risk assessment to set their standards.

OTHER KEY OREGON STANDARDS AND LEVELS

The Oregon Department of Environmental Quality (DEQ) has developed and adopted risk-based cleanup standards for contaminated sites in Oregon. A site is considered "cleaned up" when the contaminant concentration in soil at either a residential or industrial setting does not exceed the applicable DEQ standards (DEQ, 1997). Comparing the maximum allowable soil concentrations for cleanup standards for residential soil to ODA's proposed standards, it is clear that ODA's standards allow far higher levels of contaminants in the soil in almost all cases (see Tables 1 and 2 and related graphs).

Since the heavy metals of concern are all "naturally occurring" elements and are also widely distributed in our environment due in part to human activity, some levels of these chemicals occur as "background" in soils. Several researchers have measured these background levels in Oregon soils (Curtis, 2002). These levels are also several orders of magnitude lower than ODA's proposed limits (see Tables 1 and 2 and related graphs).

SUMMARY

Compared to background levels, DEQ's cleanup standards, EPA's new zinc fertilizer standards, and California limits, ODA's proposed limits are several times higher or less stringent, in almost all cases. For example, ODA would allow as much as 11,900 ppm of lead to be present in zinc fertilizers, when DEQ has set a residential cleanup standard of 200 ppm of lead.

Tables 1 and 2 and the related graphs show these comparisons in more detail.

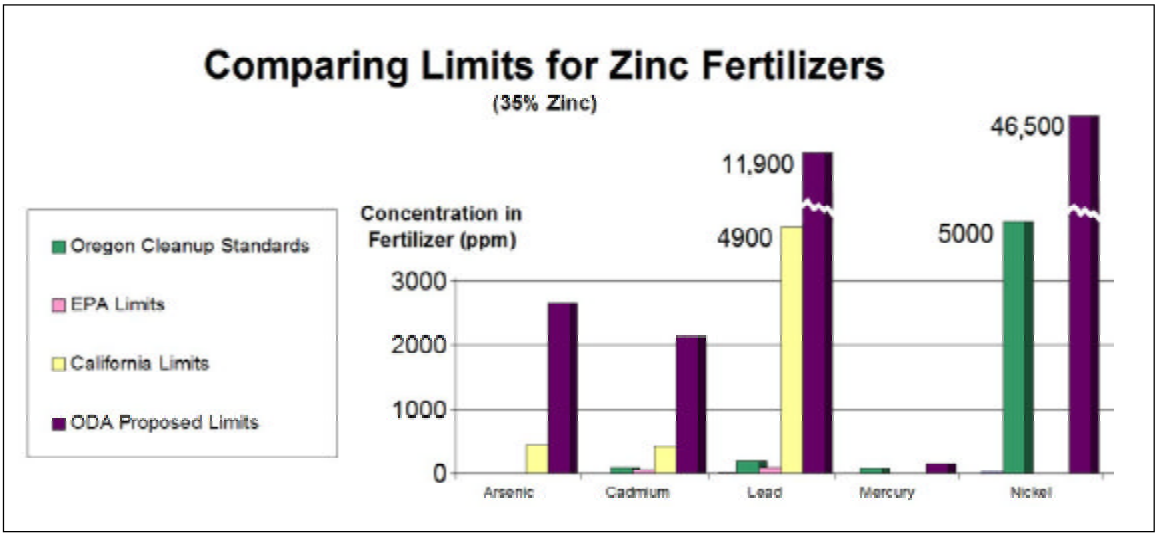
Using ODA's proposed limits for phosphate fertilizers at 20% phosphate along with the total amount of fertilizer product sold in Oregon in 2001, one can calculate how much of the five heavy metals proposed for regulation would be allowed to be spread on land across Oregon. Based on this calculation, ODA's proposed limits would allow as much as 252,000 pounds of arsenic; 210,000 pounds of cadmium; over 1.2 million pounds of lead; 19,000 pounds of mercury; and 4.9 million pounds of nickel to be applied to land in Oregon.

Since only about half of the fertilizer product registered for use is phosphate fertilizer and the ODA limits are less stringent for other types of fertilizer product, the amount of metals allowed to be spread on land may in fact be even higher.

Table 1: Comparing Limits for Zinc Fertilizers (35% Zinc)

(all values in parts per million [ppm])

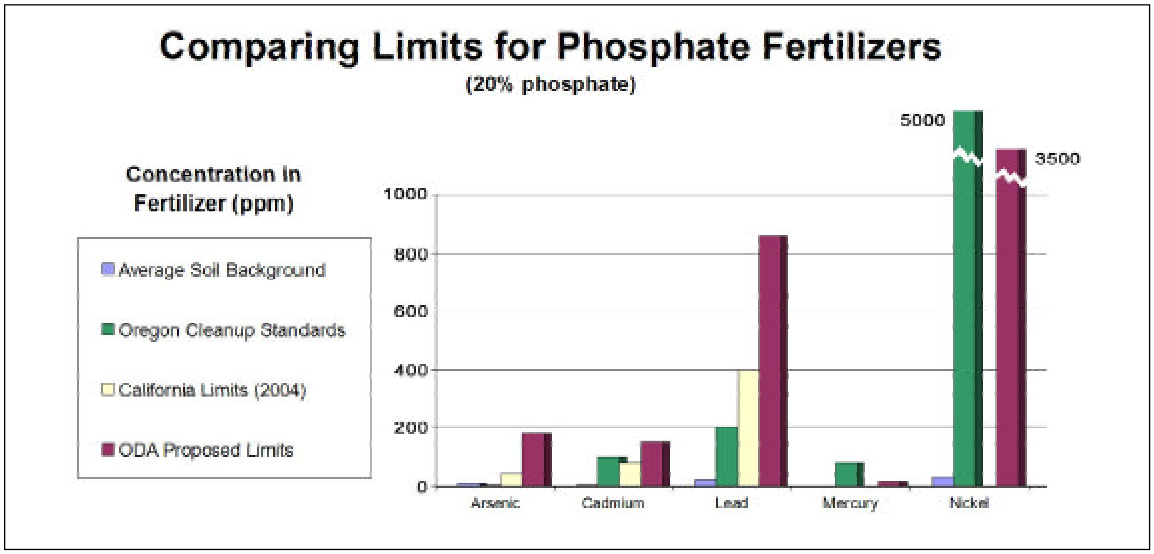
	Average Background in Oregon Soil	Oregon Cleanup Standards for Residential Soil	EPA Limits	California Limits	*ODA's Proposed Limits*
Arsenic	6.4	0.4	10	455	*2,660*
Cadmium	0.3	100	50	420	*2,135*
Lead	16	200	98	4,900	*11,900*
Mercury	0.1	80	10	NA	*157.5*
Nickel	27	5,000	NA	NA	*46,550*



* Average Background Levels in Oregon Soil are too low to appear on this graph. Please refer to the table above for these values.

Table 2: Comparing Limits for Phosphate Fertilizers (20% Phosphate)
(all values in parts per million [ppm])

	Average Background in Oregon Soil	Oregon Cleanup Standards for Residential Soil	California Limits(2004)	*ODA's Proposed Limits*
Arsenic	6.4	0.4	40	*180*
Cadmium	0.3	100	80	*150*
Lead	16	200	400	*860*
Mercury	0.1	80	NA	*14*
Nickel	27	5,000	NA	*3,500*



Phosphate fertilizers can contain varying amounts of phosphate. Some contain as much as 50% phosphate, and some contain much less. Since ODA's proposed limits are tied to the percentage of nutrients in the products, the limits for these heavy metals can range by an order of magnitude. This is shown in Table 2Abelow.

Table 2A: For ODA's Proposed Limits, More Phosphate Means More Metals

	Products Containing 6% Phosphate or less	Products Containing 20% Phosphate	Products Containing 50% Phosphate
Arsenic	54	180	450
Cadmium	45	150	375
Lead	258	860	2,150
Mercury	4.2	14	35
Nickel	1,050	3,500	8,750

IV: Conclusion: ODA's Limits Are Too Lax to Protect Our Health and the Environment

WHY ODA'S PROPOSED LIMITS DON'T PROTECT OUR HEALTH

ODA is proposing heavy metals standards for fertilizers based solely on the results of a human health risk assessment completed by a consultant to the fertilizer industry (Weinberg Group, 2000). This approach is flawed for numerous reasons.

Risk assessment is as much art as it is science, and tends to be plagued by a significant amount of uncertainty. Risk assessment is a mathematical analysis that relies on a series of assumptions that are intended to model what occurs in the real world. Risk assessment can be used to determine an "acceptable" level of human health risk. Unfortunately, since the values used in risk assessments are subject to fairly high levels of variability and uncertainty, the results are subject to a lot of human opinion and bias, and are even sometimes done in a way to create certain desired results.

The process by which toxic materials in fertilizer products accumulate in farm soils and become a hazard via food contamination or other exposure pathway is enormously complex and varies with changes in weather, soil characteristics, crop species, contaminant type, geography and even human behavior.

Nonetheless, the risk assessment attempted to incorporate all of these uncertainties and variabilities and to look at a number of potential "exposure pathways" to heavy metals in fertilizers such as inhalation of fertilizer dust, dermal exposure and water contamination. Based on this, the authors of the risk assessment concluded that ingestion of soil and the crops containing the metals are expected to be the single greatest source of exposure by humans (and that the humans at highest risk are the members of farm families).

Among the many problems associated with the fertilizer industry's risk assessment are the following:

- Estimates for how much of a metal accumulates in crops are extremely variable. In fact, these values can range by a factor as much as 1,000 (Curtis, 2002). This means that the resulting "risk-based" heavy metals standards are highly uncertain and may seriously underestimate risk in "real-life" agricultural and residential settings.

  For example, researchers at WSU studying the uptake of cadmium in winter wheat and potato in eastern Washington found that while the uptake was relatively low, repeated applications of a phosphate fertilizer resulted in cadmium levels in the crops to levels that exceeded Australia's food safety guidelines. The same authors wrote that "the long-term impact of continued applications of such types of fertilizers on the accumulation of cadmium and lead in this soil and the growth of the wheat and potato is unclear." (Kuo et. al., 1998).

- A number of potential environmental and health risks were simply not taken into consideration in the risk assessment. For example, it does not analyze the ecological impacts caused by contaminated fertilizers, such as the potential harm to threatened or endangered species.

- The fertilizer industry risk assessment assumed that a cancer risk of 1 in 100,000 is "acceptable." Putting aside the debate about whether any added risk of cancer in the population is "acceptable," use of this risk level is inconsistent with the more stringent 1 in a million cancer risk level normally used by government regulators to set "safe" levels of pollutants. By choosing a 1 in 100,000 risk level, the risk assessors were able to increase the allowable levels by a factor of 10 compared to the levels that would have resulted from a 1 in million risk level.

WHY ODA'S PROPOSED LIMITS WON'T PROTECT THE ENVIRONMENT

Over time, the use of contaminated fertilizers can cause the buildup of unwanted and potentially dangerous pollutants in agriculture soils. This metal buildup may cause crop damage, contamination of groundwater or surface water, and the contamination of food. ODA's proposed limits may lead to increased soil and water pollution because they are not designed to prevent this kind of pollution.

If these metals do build up over time, there is also the potential for agricultural producers to be unknowingly creating a future liability for themselves.

The U.S. EPA specifically chose to avoid risk-based standards when setting new limits for zinc fertilizers made from industrial waste. EPA stated in their rule-making notice that technology-based limits are more appropriate in the context of their rule-making and that "risk-based standards would have very little effect in terms of actually limiting the amounts of toxic metals in fertilizer products." (EPA, 2002(a)).

As previously indicated, EPA staff made it clear to ODA officials that "the EPA doesn't support the use of risk-based standards for contaminants in fertilizers, and strongly recommends that Oregon and other states set limits based on good manufacturing practices." (Fagan, 2002). Unfortunately, ODA has not heeded this advice.

ODA's proposed limits are so high that an analysis done by ODA shows that well over 95% of the roughly 2,000 fertilizer products currently registered for sale easily pass these new standards, making the new standards virtually irrelevent.

Further, ODA's limits are less stringent than similar standards set by California and, in certain cases, those set by Washington, making Oregon a potential dumping ground for fertilizer products that are illegal in our neighboring states. ODA's limits are several times higher than DEQ's cleanup standards for residential soil, leaving open the question of whether use of these fertilizers will create new cleanup sites over time.

For example, a recent article in the *Oregonian* demonstrates the potential for harm in the future. In Hillsboro, developers planning to build new housing on a pair of long-time nurseries with decades of pesticide use are facing large scale clean ups. In one case, the developer had to remove about 500 dump truck loads of soil contaminated with pesticides that were banned in the 1980s (Anderson, 2002). Over time, allowing the addition of metal-laden fertilizer to the land could cause similar problems in the future.

V: RECOMMENDATIONS

ODA must re-think their approach. The agency should be setting metals standards that are in line with average background levels present in soil so as not to increase the current levels already present in soils. This would ensure that cropland and home gardens are not degraded over time, and would better protect human health and the environment.

This is a reasonable approach for which there is precedence. For example, the U.S. EPA's new standard for dioxin in waste-derived zinc fertilizer is based on background levels of dioxin in soil.

Furthermore, ODA must develop a plan to entirely phase out the presence of all heavy metals and other contaminants such as dioxin.

Lastly, ODA must strengthen the right-to-know provisions of the proposed rule by requiring that information about heavy metals in fertilizer products is easily accessible to the public and that the required information is printed on labels beginning January 1, 2003, instead of waiting until January 1, 2005, as ODA has proposed.

In summary, OEC strongly urges ODA to:

- Ensure that Oregon soils are not degraded by setting heavy metal limits based on existing background levels.
- Require testing for dioxins in fertilizers and set standards for this class of highly toxic chemicals.
- Develop a plan to entirely phase out heavy metals and other contaminants such as dioxin in fertilizer.
- Ensure the public has detailed information about levels of metals in fertilizers, and if they are waste-derived, what type of industrial process created the wastes, by publishing all this information on a publicly accessible and searchable web site. ODA should require fertilizer manufacturers to begin labeling their products as of January 1, 2003, so consumers have this information immediately.

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