NORTHWEST BIOSOLIDS

Biosolids: Understanding the risk

Putting it into perspective - how does using biosolids or compost made with biosolids compare to chemical exposures in everyday life?

WHAT ARE BIOSOLIDS?

In the wastewater treatment process, microbes break down our waste and create a beneficial resource called biosolids. Biosolids contain nutrients and organic matter and are used as a soil conditioner and fertilizer replacement for crops and forests. Compost made with biosolids is used for gardens and landscapes.

Child playing with compost

WHY ARE BIOSOLIDS GOOD FOR THE ENVIRONMENT?

Biosolids increase plant growth, improve soil quality, and return the nutrients in our waste back to the soil in an endlessly renewable cycle that dramatically reduces our carbon footprint.

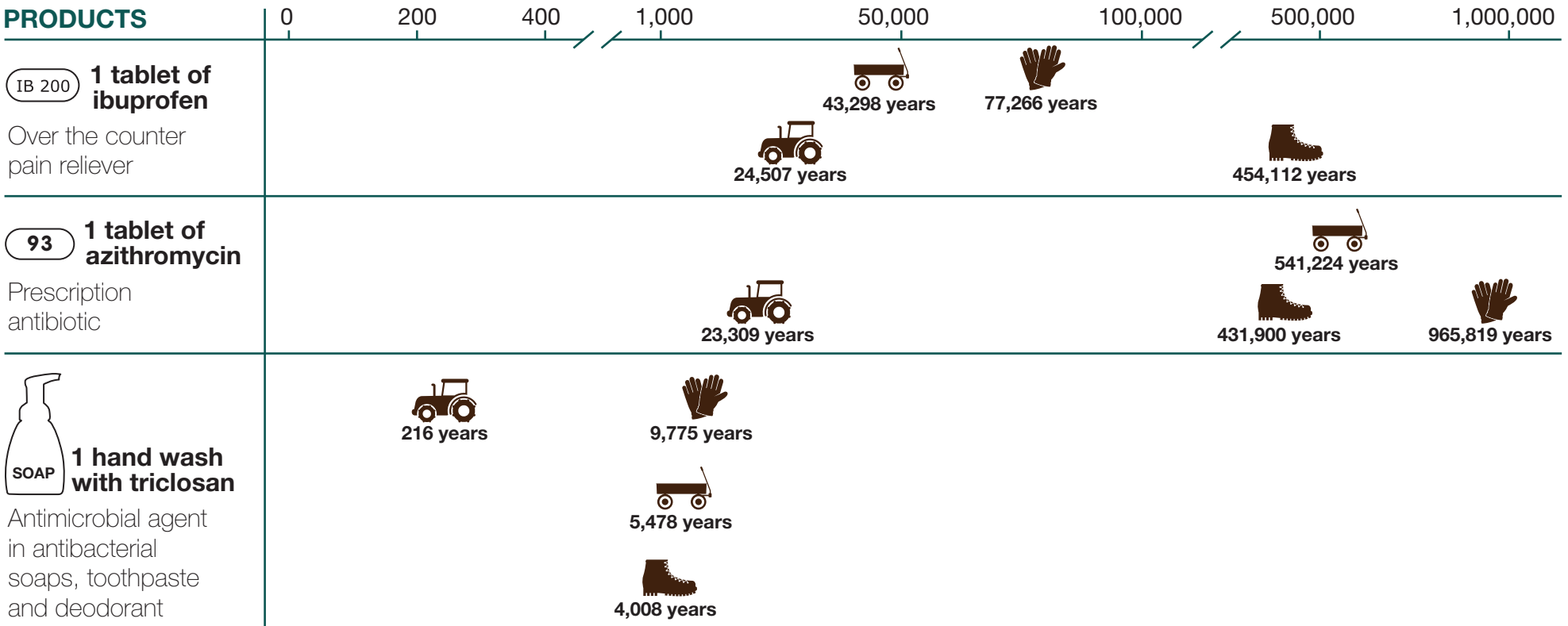
HOW SAFE ARE BIOSOLIDS?

Although research shows that biosolids are safe, there are questions about the trace amounts of chemicals from pharmaceuticals and personal care products that wind up at treatment plants. To help answer these questions and put this in perspective, a risk analysis was used to calculate how biosolids use compares to the amount of these chemicals we deliberately use or encounter in our everyday lives. The results show that risk from biosolids is very, very small.

WHAT'S THE RISK?

It would take many lifetimes of working or playing around biosolids or compost made with biosolids to equal everyday exposure to many common products.

Number of **YEARS** of contact with biosolids or compost made with biosolids required to reach the equivalent of one dose or exposure.



LEGEND

- Gardener
- Child
- Hiker
- Agricultural worker

details on reverse

WHAT IS A RISK ANALYSIS?

A risk analysis estimates the risk to human health by examining how harmful a chemical is (toxicity) and the amount of contact with that chemical (exposure).

RISK = TOXICITY x EXPOSURE

Chemicals with high toxicity and high exposure have higher risk, while chemicals with low toxicity and low exposure have lower risk.

This risk analysis followed the United States Environmental Protection Agency (U.S. EPA) risk assessment methodology.

WHAT ABOUT FOOD?

For this analysis, wheat fertilized with biosolids was tested for over 80 compounds in pharmaceuticals and personal care products and none were found in the wheat grain.

WHAT WERE THE SCENARIOS USED FOR THIS RISK ANALYSIS?

	Compost made with biosolids		Biosolids	
	Gardener (176 pounds)	**Child (33 pounds)**	**Hiker (176 pounds)**	**Agricultural worker (176 pounds)**
Parts of body in direct contact	Head, hands, forearms, lower legs, and feet	Head, hands, forearms, lower legs, and feet	Hands and arms	Hands and arms
Amount swallowed	100 mg (4% teaspoon)	200 mg (8% teaspoon)	100 mg (4% teaspoon) & 1 liter runoff water	100 mg (4% teaspoon)
Contact frequency	52 days/ year for 20 years	52 days/ year for 6 years	12 days/ year for 20 years	220 days/ year for 25 years

The average person working or playing around biosolids or compost made with biosolids would not regularly get it all over their body, accidentally eat some of it, or drink muddy runoff water. However, this risk analysis overestimated exposure to ensure confidence in the results.

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