Phosphorus-Free Lawn Fertilizer

Q and A

COLORADO – Use phosphorus when you need it

The Colorado Phosphorus Free Lawn Fertilizer Initiative is a voluntary effort to help protect our lakes, reservoirs, and streams. This effort is to focus on outreach and public education around the topic of preventing unnecessary phosphorus that we use in our daily lives from getting to downstream waters. This effort is focused on inorganic, all-purpose lawn fertilizers sold by-the-bag in retail stores. Below is a list of common questions about lawns, fertilizers, and water quality.

Green Lawns, Blue Waters - Protecting Colorado's Water One Yard at a Time.

Q: What kind of fertilizers is this initiative focused on?

A: Only bagged, all-purpose, lawn fertilizers (inorganic) sold at retail stores for lawns.

Q: Does Colorado have a lawn fertilizer law?

A: No, Colorado does not have a lawn fertilizer law. Even in the 1970's when several states created laws taking phosphorus out of detergents, Colorado did not have a law controlling phosphorus. This effort is all public outreach and education.

Q: Are there states that have phosphorus lawn fertilizer laws?

A: Yes, Minnesota (2002), Maine (2007), Wisconsin (2009), Florida, Michigan, New York, and Illinois (2010), Maryland and Vermont (2011), New Jersey (2012), Washington (2013), and Virginia (2014).

Q: Is this initiative a ban on fertilizers?

A: No! This is not a ban. Colorado is focused on educating lawns owners about the best way to take care of their lawns and to help protect downstream waters. Why waste valuable resources and money on phosphorus if your lawn does not need it?

Q: Are there exceptions to this idea of not using phosphorus on our lawns?

A: Yes, if you need phosphorus based on a soils test, then you can use phosphorus. The initiative does not focus on: bulk material, commercial fertilizers, organic products, manure, compost, biosolids, "Potting Mix", "Topsoil", "Garden Soil" and "Planting Mix". Does not impact other products like soil conditioners, amendments, or any liquid products.

Q: Where and how do I get my soils tested?

A: CSU Extension lab (https://agsci.colostate.edu/soiltestinglab/). The cost is $30-$40.

Q: Why is compost and other organic products not part of the fertilizer initiative?

A: In most cases, finished compost is classified as a soil conditioner rather than a fertilizer due to the relatively low levels of nitrogen, potassium, and phosphorus. Finished compost adds these elements and soil microbes which improve plant nutrient absorption but release them over a longer period of time. Similar to nitrogen, much of the phosphorus in finished compost is not readily available for plant uptake since it is incorporated in organic matter. Organic soil amendments are not the same as organic, chemical fertilizers.

Q: What about biosolids and other phosphorus recovery products from wastewater treatment facilities (WWTFs)?

A: Phosphorus is an important resource that is starting to be recovered and reused by WWTF. Phosphorus can be collected in concentrated forms or as part of the biosolids that are made from algae, microbes, and other organic organisms that help clean up wastewater. Instead of being put in a landfill or back into the waterways, this phosphorus can be repurposed to help amend soils low in nutrients.

Q: Will this fertilizer initiative help wastewater and drinking water treatment efforts?

A: Yes. It takes a lot of energy and resources to clean water, whether it is for drinking water or wastewater. Preventing phosphorus from getting into our water throughout Colorado will help save us all time, money, and energy.

Q: Where do you want phosphorus free lawn fertilizers to be used?

A: This is a state-wide effort so basically anywhere there is a lawn that does not need phosphorus. The main purpose is to focus on homeowners and their lawns. Cities that also maintain turf in parks and open spaces can also benefit from not using phosphorus. Most public parks include some kind of water feature or stormwater treatment structure that can be negatively impacted by phosphorus runoff from nearby lawns.

Q: Do golf courses use phosphorus on their greens and fairways?

A: Yes. Golf courses are well managed and do need phosphorus to help with overstressed turf. Turf managers are well trained and focused on using the right amount of fertilizers.

Q: What about sports fields?

A: Sports fields require special attention and do require phosphorus at times. Coors field, where the Rockies play, uses a non-phosphorus all-purpose fertilizer for most of the season. Just like homeowners, it is important to take soil tests to determine what the turf needs.

Q: Will it include sod farms?

A: No. All agricultural products including sod and turf farms are not a part of this.

Q: Will this fertilizer initiative cost me more money?

A: No. "An ounce of prevention is worth a pound of cure" (Benjamin Franklin). Prevention is always cheaper when it comes to most things in life. We are trying to prevent water quality problems that the public all pay for either through their water bill, sewer bill, or through other ways. Lakes and streams that are polluted are hard to clean up. The actual bag of fertilizer that is phosphorus free should not cost anymore. It is the same product minus one of the three ingredients.

Q: Will it cost manufacturers more money to make P-free lawn fertilizers?

A: No, unlike the detergent laws from the 1970's, manufacturers do not need to find a substitute for the phosphorus. They just need to eliminate an ingredient. Labeling requirements will follow current annual requirements and fees. Mined phosphorus continues to be harder to come by and the prices continue to increase around the world.

Q: Does the state regulate any fertilizers?

A: Yes, Colorado Department of Agriculture oversees fertilizer industry regulations. It covers both bagged and commercial bulk focused mostly on annual labeling requirements, registration fees, and product testing. Most states have some form of regulations through their department of agriculture.

Q: What statutes exist already?

A: Colorado Revised Statutes (CRS) and Code of Colorado Regulations (CCR) Compost 8 CCR 1202-04 regulate fertilizers. CRS: Title 35, Article 12: Commercial Fertilizers and Soil Conditioners Law, Sections 35-12-101 to 35-12-120 specifically talk about fertilizers. Labels are annually registered. Labels require purpose-of-product, directions of use, and allow the commission to require additional information on labels. Distribution fees help fund the program. CCR: 8 CCR 1202-4 Fertilizers and Soil Conditioners requires warnings and cautions for application.

Q: Are there instructions on how to apply lawn fertilizers?

A: Yes. As part of current Colorado state laws, manufacturers are required to include detailed application instructions along with storage instructions. It is very important to follow the application rates and instructions on the bag. Other instructions that might not be on the label include cleaning up all spills, avoiding impervious surfaces, and not applying within 15 feet of water or on frozen ground.

Q: What do studies show about fertilizer laws in the other states?

A: Over the past few years, there have been several studies conducted to see if state-wide phosphorus lawn fertilizers laws reduce phosphorus loads. For Chesapeake Bay watershed, it is estimated that Pennsylvania's fertilizer law could reduce 70% of P applied to the landscape or 220,000 lbs of P which is equal to replanting 240,000 acres of forest in the watershed. Urbanized watersheds in Minnesota now have pet waste as the largest source of phosphorus now that there is a lawn fertilizer law in place.

Q: How much phosphorus would we reduce if everyone used P-free lawn fertilizers?

A: A study of two communities in Minnesota measured a 23% reduction in phosphorus from a community that implemented restrictions on phosphorus lawn fertilizers. In 1996, two towns neighboring each other were studied. One community had a ban, and the other did not. They saw a 23% reduction after the ban was implemented. Another study in 2008 in Ann Arbor, Michigan showed a 31% reduction in phosphorus loading after just one year of a phosphorus fertilizer law was implemented.

Q: How much phosphorus could be reduced in Denver?

A: On average, 78% of phosphorus in urban landscapes is exported from the watershed. Up to 50% of added phosphorus is exported as yard waste (i.e., grass clippings). The annual phosphorus application rate from phosphorus fertilizers ranges from 2 to 10 kg of phosphorus per hectare. For Denver, the estimated area of lawns is roughly 10,100 hectares (City area is 40,145 hectares and assume lawns are 25% of the area). At 6 kg/hectare/year, that adds up to 60,600 kg or 133,600 lbs. of phosphorus from lawn fertilizers added per year. Besides the 50% of phosphorus being exported by lawn clippings, up to another 18% of the phosphorus from lawn fertilizers is exported with runoff. 18% of 133,600 lbs. each year in Denver equals just over 24,000 lbs. that leaves the watershed and enters the S. Platte River each year.

Q: Does this change things outside of Colorado?

A: Yes. Globally, it is projected that we will run out of phosphorus in 80-100 years. Nearly 90% of phosphorus is used in the global food supply chain. In the U.S., most of the mineral phosphorus is mined from Florida - 75% of rock phosphate used in the U.S. is surface mined in Florida. Mission 2016 is a global effort to cut back on phosphorus consumption. Two major parts of Mission 2016 are: reduce demand through smarter fertilizer use and stretch current supplies further through recycling. Phosphorus lawn fertilizer laws encourage smarter fertilizer use alongside WWTP efforts to recover and recycle phosphorus.

Q: How soon could we see water quality improvements?

A: It may take a while to measure reductions or changes in non-point source phosphorus loading to a watershed. This is just one of many ways to reduce phosphorus from getting into our streams and lakes. It also depends on how quickly people change their habits and fertilize their lawns without phosphorus and make sure they apply it correctly.

Q: Are manufacturers on board?

A: Yes, for all 12 states that passed a similar law. A 2018 study concluded that states with more fertilizer companies were more likely to pass a phosphorus lawn fertilizer law. Scotts removed phosphorus from their maintenance lawn fertilizer back in 2013.

Q: How many regional or local fertilizer manufactures are there?

A: Starting in 2019, an annual fertilizer product survey has documented at least 8 different Colorado manufacturers. All of them use phosphorus in their maintenance fertilizer products; as high as 20%.

Q: When did this idea come about?

A: The first city ordinance was in 1985 in Shorewood, MN. Then the Minneapolis area in the early 1990's passed county ordinances. Minnesota was the first state to pass a state-wide law in 2002. In Colorado, the Barr Lake and Milton Reservoir Watershed (BMW) Association in 2012 wrote a pH/DO TMDL (Total Maximum Daily Loading) focused on reducing phosphorus loads, and the TMDL Implementation Plan includes source reduction of phosphorus by developing a phosphorus lawn fertilizer law. Phosphorus will be regulated in all waters throughout Colorado starting in 2027.

Q: What if I have a landscaping company that fertilizes my lawn?

A: Make sure you request phosphorus free lawn fertilizers. Ask if they take a soils test. Make sure they follow all directions and completely clean up any spills. Make sure they keep all fertilizers, leaves, and lawn clippings out of the street, so they don't go down the storm drain.

Q: Why have only some states passed a phosphorus lawn fertilizer law and are there any take-a-ways from states that have passed a fertilizer law?

A: Similar to the phosphorus detergent laws of the 1970's, there are certain states that lead the charge on protecting water quality. These states tend to have lots of lakes, water, and an economy that relies on good water quality. Coastal states, New England states, and the Great Lake states have learned how to pass lawn fertilizer laws. A recent study looked at why states were successful and here are some common themes: states with higher percentage of water area, states with more fertilizer companies, and commercial services were more likely to accept changes to how they regulated and fertilized their lawns.

Q: Is there enough background phosphorus in urban lawn soils across Colorado?

A: There is limited information about nutrient levels for lawns in Colorado. A CU-Denver graduate study collected samples in several Denver neighborhoods looking at phosphorus. These results showed plenty of phosphorus. Colorado State University extension program has strongly suggested that lawn owners conduct soil tests every couple of years to confirm nutrient levels. CSU Extension Soil, Water, and Plant Testing Lab has been testing residential soils for years. For an established lawn, 15-20 ppm of phosphorus is sufficient. During lawn establishment, you need 50-70 ppm of P. When in doubt, test your soil.

Q: Where does phosphorus come from and how much is it worth?

A: Rock phosphorus is mined. The top 5 countries in order that mine phosphate rock are: China, Morocco, U.S., Russia, and Jordan. Global phosphate mining production is expected to increase from the 2019 total of 240 million metric tons. In the U.S., Florida, North Carolina, Utah, and Idaho are the main producers. About half of the 23 million metric tons of U.S. phosphate is exported in the form of phosphoric acid, granular diammonium, and monoammonium phosphate fertilizer. Market prices are closely tied to production and agricultural demands. Recent prices for U.S. diammonium phosphate were $529/metric ton.

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