Phosphorus-Free Lawn Fertilizer Initiative

COLORADO – Q & A

The following fertilizer Q & A will hopefully educate lawn owners about how to best manager their turf. . These guidelines summarize the key components to a lawn maintenance program to minimize environmental impacts, specifically to **downstream waters**.

Q: Which states have phosphorus lawn fertilizer laws?

A: 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: Which states have tried and failed to pass a fertilizer law?

A: Since 2018, Pennsylvania has been trying to pass a lawn fertilizer bill to help implement a TMDL for the Chesapeake Bay watershed. They are focusing on both nitrogen and phosphorus and a training/certification program for fertilizer applicators.

Q: Is this a ban on fertilizers?

A: No! This is not a ban. This is a restriction on when, where, how, and why phosphorus lawn fertilizers can be used. Manufacturers and retail will continue to sell lawn fertilizers containing phosphorus.

Q: What products will it restrict?

A: Only bagged, lawn fertilizers (inorganic) sold at retail for maintenance or all-purpose applications.

Q: What products will it not cover?

A: Does not include: 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: Why is compost and other organic products not part of the fertilizer restriction?

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: Will the bill or law include biosolids and other phosphorus recovery products from wastewater treatment facilities (WWTFs)?

A: No. One major purpose of this bill is to find ways to reduce the amount of finite, mineral phosphorus from being used on lawns (better used for growing food). Biosolids and phosphorus recovery products are a great way to recycle and repurpose phosphorus locally. WWTFs can do a great job of getting phosphorus out of waterwaste and recycle it back to the land as a beneficial source of nutrients and soil amendments.

Q: Will this phosphorus lawn fertilizer bill help wastewater treatment efforts?

A: Yes. Phosphorus lawn fertilizers can contribute to phosphorus loads in storm water runoff and shallow groundwater. When it rains or snows, the urban runoff can get into the wastewater collection system through infiltration (seepage through pipes) and inflow (direct flow through manholes and illicit downspout connections). This restriction can help reduce the load (overall pounds) of phosphorus going to a WWTF.

Q: Where will this restriction be applied?

A: This is a state-wide effort. This will restrict the use of phosphorus lawn fertilizers on "urban turf". This includes residential lawns, curb-side lawns (hellstrips), and public turf areas like: parkways, parks, open spaces, and general turf areas.

Q: Will it include golf courses?

A: No. Golf courses will be exempted because they typically have management plans and are well trained in turf management.

Q: What about sports fields?

A: This will not apply to "sport turf". Similar to golf courses, sports fields are heavily used and require different fertilizer practice than typical lawns and are closely managed.

Q: Will it include sod farms?

A: No. All agricultural products including sod are exempted.

Q: Will this cost anything or raise taxes?

A: No. There will be no taxes or public funds needed for this bill. In fact, prevention is typically cheaper. By preventing phosphorus from getting into downstream waters, this will reduce the cost and efforts to clean water. "An ounce of prevention is worth a pound of cure" (Benjamin Franklin). Money will be saved by preventing water quality problems and help with water recreation/tourism industry.

Q: Will it cost manufacturers money?

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.

Q: Does the state regulate fertilizers already?

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.

Q: What statutes exist already?

A: Colorado Revised Statutes (CRS) and Code of Colorado Regulations (CCR) Compost 8 CCR 1202-04
CRS: Title 35, Article 12: Commercial Fertilizers and Soil Conditioners Law, Sections 35-12-101 to 35-12-120. 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 fertilizer program.

CCR: 8 CCR 1202-4 Fertilizers and Soil Conditioners: requires warnings and cautions for application. Compost labeling when it has "beneficial substances or compounds"

Q: What agency will oversee implementation?

A: Colorado Department of Agriculture, Inspection and Consumer Services Division. The 12 other states use their department of agriculture and some even develop a clean water commission for this overall topic of water quality.

Q: How will it be enforced?

A: There is no enforcement with this top-down approach. At the consumer end, education and outreach will encourage lawn owners to follow the law. At the manufacturer end, Colorado Department of Agriculture, fertilizer registration program oversees the current fertilizer laws, and the commissioner is authorized to adopt and enforce rules to implement the article (e.g., misbranding, adulteration, exemptions, definitions, labeling concerns, special blends, custom mixes, soil conditioners, and plant amendments). This top-down approach will rely on public acceptance. Other states have rarely documented any need for penalties, fines, or warnings.

Q: Will there be labeling or signage requirements?

A: Yes. As part of other state phosphorus lawn fertilizer laws, manufacturers are required to include application requirements like, "all spills must be cleaned up", "do not apply to impervious surfaces", "do not apply with in a buffer strip near water", and clearly state that the product is "phosphorus-free". Retail stores can comply by clearly displaying phosphorus lawn fertilizers away from the phosphorus-free lawn fertilizers. Retail can also assist with educational signs and flyers on the do's and don'ts with fertilizing in general.

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 these state-wide phosphorus lawn fertilizers laws reduce phosphorus loads. For Chesapeake Bay watershed, it is estimated that Pennsylvania state 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 loading reductions would we see if the bill passes?

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 will be reduced?

A: On average, 78% of phosphorus in urban landscapes is exported from the watershed. Up to 50% of added phosphorus are exported as yard waste (i.e., grass clippings). The annual phosphorus application rate from phosphorus fertilizes range from 2 to 10 kg of phosphorus per hectare. For City and County of 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 will we see water quality improve?

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 implement the best management practices that are associated with the lawn fertilizer bill.

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: Why not just ask the manufacturers to change their formulas?

A: There are three reason: 1. Regulated industries tend to only change when laws require it. 2. "Teachable moment" – this is a golden opportunity to reach millions of people and highlight the importance of water quality, watersheds, storm water & wastewater efforts, and include best management practices for lawn owners. 3. There is no guarantee on how long manufacturers would voluntarily do this.

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.

Q: Is a phosphorus lawn fertilizer law in direct conflict with phosphorus removal and recover at wastewater treatment facilities?

A: No. The three Rs apply here – Reduce, Reuse, and Recycle. We want to reduce the use of mined, inorganic rock phosphorus; 80 years is not that far away before we run out of it. Reuse and recycle is what wastewater treatment facilities do best. Recovered phosphorus is a product of taking the phosphorus out of the water and putting it in a usable form. Biosolids and phosphorus recovery products are a great way to recycle phosphorus in Colorado.

Q: Will it impact how biosolids get applied in Colorado?

A: No. This will only apply to "urban turf"; private lawns and public green spaces. Organic-based soil conditioners such as biosolids, compost, and manure will be exempted. There are already rules and regulations in place to make sure biosolids are applied correctly. This lawn fertilizer law will fill in a major gap that is currently unregulated.

Q: What about organic fertilizers and soil amendments like compost and manures?

A: All of the organic, nutrient recycling type products, will be exempted. These organic based produces do have phosphorus in them. The phosphorus lawn fertilizer bill covers how to best apply fertilizers to avoid downstream water quality impacts, e.g., clean up all spills, don't apply just before a storm or on frozen ground, or near water. This is why this bill is a teaching moment. It will educate people

how to best take care of your lawns and property with watersheds, storm water, and water quality in mind.

Q: What about sports fields, will this fertilizer law apply to them?

A: No, sports fields are used differently than general lawns and green spaces. Sports fields are under more stress from high usage and require different management to avoid bare spots. Similar to golf courses, entities that take care of sports fields are usually well educated on what it takes to keep a turf healthy and avoid runoff issues.

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 adopted the new laws faster than the general public.

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 did collect 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 a soils test every few 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. Each lawn is different so soil testing is important.

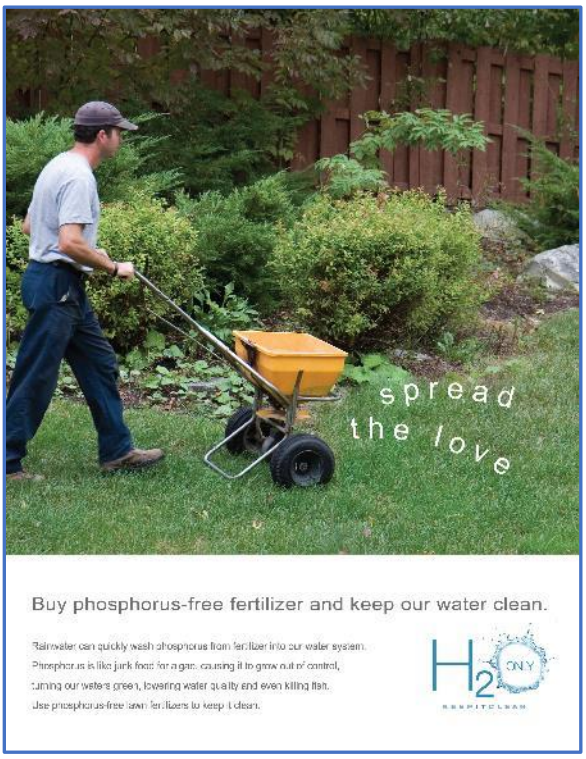
Q: Will there be special requirements for retailers or manufacturers?

A: Yes. Retail stores will need to clearly display the phosphorus free lawn fertilizers away from other lawn fertilizers that contain phosphorus. Retail stores already display their products to make it easier for customers to pick the right product. Signage may help with this. Manufactures will need to update their packaging through the annual process to show no phosphorus in the formula and to include any new application directions (e.g., clean up spills, don't apply before a storm, or keep away from water and storm drains).

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 steadily 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. Early 2021 prices for U.S. diammonium phosphate was $529 per metric ton.



Overall: Turf managers should follow the well-known 4R Principles of Nutrient Stewardship & Management:

Right *Product,* ***Right*** *Rate,* ***Right*** *Time, and* ***Right*** *Place.*

Phosphorus-Free Lawn Fertilizer Coalition Supporters:

BARR MILTON Watershed Association

CSC COLORADO STORMWATER COUNCIL

DENVER THE MILE HIGH CITY

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