

Guidelines for Gardening Materials and Practices in the Lake Whatcom Watershed

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Overview. Bellingham Municipal Code 15.42.050 prohibits use of fertilizers, mulches, and soil amendments tested and labeled as containing more than trace amounts of phosphorus in the Lake Whatcom Watershed. All labeled products should list a "0" for the content of phosphorus by weight. For mulches, bulk soil amendments, and fertilizers, a range of locally-available materials have been identified that, when used properly, are consistent with reducing watershed pollution and with enhancing plant growth and health. This set of guidelines identifies recommended soil amendments and mulches and also those that are not recommended, on environmental and plant health grounds. The document lists acceptable practices for organic materials originating on parcels in the watershed (e.g. yard waste). It also identifies some general gardening and horticultural recommendations to reduce pollution and soil erosion and improve soil health.

Note: A soil test by a certified lab is recommended to determine the need for additional organic materials or nutrients. See information at http://whatcom.wsu.edu/ag/homehort/Soil_Sampling.pdf or call WSU Extension at 360-676-6736).

Recommended Materials:

I. Commercial fertilizers and soil amendments labeled as containing 0 percent phosphorus.

II. Wood-Based Mulches. There are a number of wood-based mulches available. Wood-based mulches help retain moisture in the soil, impede weed growth, protect roots from freezing, and sustain the growth of healthy soil organisms. While the names of these products may be somewhat confusing, nursery or garden staff can usually direct you to the right product. The following list describes a number of variants that have proven to perform well in horticultural applications.

- **Hardwood chips** -- Wood chips from hardwood trees.
- **Cedar chips** -- Wood chips from Cedar trees.
- **"Hog Fuel"** -- Trees and other tree parts, often including roots, derived from grinding instead of chipping.
- **"Black Mulch"** -- Weathered, screened wood chips with minimal fine organic material.
- **Arborist chips** -- Chipped tree parts, hardwood or softwood, resulting from tree pruning or removal, and often available directly from a tree service company. *Since the phosphorus content of arborist chips can vary substantially by source, we recommend obtaining chips from a tree service company knowledgeable of watershed gardening, or from certified arborist.*

III. Soil Amendments

- **Compost.** Compost materials can provide beneficial soil bacteria important to root health and water absorption. They can also contain excessive phosphorus, fecal coliform or pesticides that could be detrimental to Lake Whatcom. Request a completely composted product suitable for use in gardening in the Lake Whatcom watershed from your local garden supply outlet. If used, compost should be turned into the soil, or immediately covered with a mulch from the recommended products list.
- **Composted Manure.** Choose completely composted dairy manures only. Proper composting is essential to assuring the destruction of fecal coliform bacteria. *Because of recent problems*

with pesticide contamination of dairy compost, consumers should choose this product with caution.

- **Topsoil.** Choose topsoils with a relatively low level of organic material content (ideally, with organic content of a maximum of 10% by volume). Topsoils can be highly variable in phosphorus content and fecal bacteria depending on their source and composition.
- **Home-generated materials.** Materials such as yard waste or home-created compost may be acceptable when applied according to the following practices:

Grass clippings.

- ✓ Collect clippings and dispose offsite using a curbside pick up service like FoodPlus! or bring them to a local disposal service. If this is not possible, mow with mower set high (2" or higher for most types of turf) to improve capture of the grass particles in the turf structure. If possible, use a mulching mower.
- ✓ Composting of grass is not recommended due to excessive phosphorus content and the inability of home composting systems to sufficiently compost materials for use.
- ✓ Grass clippings should not be used as a landscaping mulch.
- ✓ Any grass that may end up on impervious surfaces (walkways, patios, etc.) or near drainage systems should be promptly swept or blown into the lawn area.

Home composting.

- ✓ Home composting areas or equipment should be contained, covered from rainfall, and located away from slopes, hard surfaces or drainage systems to control runoff.
- ✓ Compost, if used, should be turned into the soil, or immediately covered with a recommended mulch (see recommended product types above).
- ✓ Do not apply excessive amounts of compost to the soil. Optimal amounts are around 10% of soil volume. *Perennial landscape soils do not need continuous incorporation of compost materials.* Excess organic materials can cause soil subsidence, excessive nutrient concentration, and nutrient and pollutant runoff.

Materials NOT Recommended:

- Fresh or incompletely composted manure of any sort. This is likely to contain fecal matter and is likely higher in soluble phosphorus.
- Bark groundcover of all grades and sizes (e.g. "beauty bark."). Bark may contain excessive phosphorus and some types can impede movement of water into the soil, increasing runoff.
- Sawdust, when used as a mulch. Sawdust can impede movement of water into the soil, increasing runoff.

Recommended Landscaping and Gardening Practices:

Minimizing impacts during construction or soil disturbance:

- ✓ Avoid or limit removal of topsoil.
- ✓ To avoid soil compaction, use wood mulches in areas where equipment and vehicles will have access, and under the drip line or canopy of trees.
- ✓ Limit equipment access to one entry and exit point to reduce track out of soil.
- ✓ To prevent erosion on sloped areas, use hog fuel, jute matting and ground cover plantings for permanent stabilization, or plastic tarps anchored with sandbags for temporary stabilization.

- ✓ Cover all exposed soil with 3-4 inches of recommended mulch as soon as possible, preferably covering worked areas as they are created during the clearing and grading process.
- ✓ Store mulch, soil, and other landscape materials on a soft surface and cover with a plastic tarp secured with sandbags or heavy rocks. Never store or stage materials in roads or sidewalks.

Vegetable gardens:

- ✓ Vegetable gardens may need organic materials and nutrients to compensate for the effect of harvesting. Berming around garden areas to keep exposed soils on site is recommended.
- ✓ Vegetable gardens should be located to avoid creating runoff. Locate garden on the flattest area available and berm soil around the garden to contain runoff and reduce erosion.
- ✓ Cover bare vegetable gardens in the winter with a cover crop or straw.

Horticulture and landscaping:

- ✓ Install native plants, or native/ornamentals, on the site to enhance infiltration capacity and slow surface runoff. Use wood-based mulches for soil health.
- ✓ Use cedar chips for high-travel areas or under decks.
- ✓ Never use beauty bark or uncomposted manure, including products which explicitly list bark or uncomposted manure as a primary component.
- ✓ Consider using a mulching method (6-8" minimum) to replace lawn with native or ornamental landscaping.
- ✓ Avoid "weed and feed" products. The use of wide broadcast granular pesticides is strongly discouraged. Spot application of pesticides according to manufacturer guidelines is preferred.

Note: The City of Bellingham has tested certain garden products to identify those with very low phosphorus content that are suitable for gardening and horticultural use in the watershed. These tests do not guarantee the current phosphorus content of any particular product from any particular source. To obtain a copy of this list, please contact the City of Bellingham Public Works Stormwater Division at 360-778-7700 or call the Stormwater Hotline at 360-778-7979 to leave a message after business hours.

Definitions

Compost. A mixture of organic materials, decomposed by bacteria and other soil organisms, usually containing well-aged leaves, woody material, herbaceous green matter and sometimes manure and kitchen scraps, used to enrich soil.

Mulch. Organic material that covers and protects topsoil from erosion or colonization by weed species, retains soil moisture, and stimulates soil improvements. This layer may add organic material to the topsoil by decomposition, so periodic replacement or addition may be necessary to long term functioning of the mulch layer. An organic mulch layer can provide microorganisms beneficial to plant and soil health. These organisms are crucial to healthy root systems that encourage infiltration and the uptake of nutrients. Improperly selected mulches can also be a source of pollution of surface or ground water.

Definitions, continued.

Pesticide. A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest. A pesticide may be a chemical substance, biological agent (such as a virus or bacterium), antimicrobial, disinfectant or device used against any pest. Pests include some insects, plant pathogens, weeds, animals, and microbes that destroy property, spread disease or are a vector for disease or cause a nuisance.

Soil Amendments. Materials imported to increase the capacity of soil to filter and treat stormwater runoff or to improve nutrient content or soil structure. These amendments can be tilled into existing soils on-site, and amended soils that are produced off-site can be imported. Both subsoil and topsoil can be amended.

Subsoil. Mineral layer below topsoil consisting of generally small sized organic and inorganic particles not normally subject to erosive forces. Healthy and biologically active subsoil is critical for long term infiltration and treatment of stormwater.

Soluble Reactive Phosphorus. Phosphorus in a dissolved state that is immediately available to plant growth. Runoff containing this form of phosphorus will fuel unwanted algae blooms in lakes. Phosphorus bound to organic materials that slowly decay to release phosphorus to plants is preferred.

Topsoil. Top 10" of soil comprised of active nutrients and larger soil particles, providing void space for absorption of surface water. Water and the associated nutrients in topsoil are available for plant growth, transmission into the groundwater table, or both. Topsoil can be impacted by erosive forces.