A-5: Storage and Use of Pesticides and Fertilizers

Stormwater runoff (rainwater and snow melt) is the largest source of pollution to our lakes, streams and Puget Sound. King County requires businesses to implement measures to protect our shared waters. If the requirements below do not prevent pollution, additional measures are necessary.

The following best management practices (BMPs) apply to the storage and use of pesticides and fertilizers. Pesticides include herbicides, rodenticides, insecticides, and fungicides. Washington pesticide law requires most businesses that commercially apply pesticides to the property of another to be licensed as a Commercial Applicator from the Washington State Department of Agriculture.

For irrigation, landscaping, and vegetation maintenance, please refer to activity sheet A-26: Landscaping Activities, Vegetation Maintenance, and Irrigation.

Required BMPs: Storage

- Store pesticides and fertilizers in impervious containment areas that prevent water from coming into contact with the product.
- Containment areas must be secured to prevent unauthorized personnel from coming into contact with the materials.
- Containers and bags must be covered, intact, and off the ground. If a container or bag has been opened (including tears and punctures) or is showing signs of leakage, secondary containment is also required.
- Immediately clean up any spilled fertilizer or pesticides. Sweep paved storage areas as needed. Collect and dispose of spilled materials. Do not hose down the area.
- Keep pesticide and fertilizer contaminated waste materials in designated covered and contained areas.
- Dispose of contaminated pesticide and fertilizer waste materials properly.
- Store and maintain spill cleanup materials near the storage area.
- Do not discharge spills, leaks or stormwater containing pesticides or fertilizers to the stormwater drainage systems or to the sanitary sewer. Unused product, stormwater contaminated with pesticides and/or fertilizers, and spilled material must be collected and disposed of properly, according to the product label.

Required BMPs: Fertilizer Application

- Never apply fertilizers if it is raining or about to rain. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs.
- Determine the proper fertilizer application for the types of soil and vegetation involved.
- Follow manufacturers' recommendations and label directions.
- Train employees on the proper use and application of fertilizers.

- Keep fertilizer granules off of impervious surfaces. Clean up any spills immediately. Do not hose down any spilled pesticide or fertilizer to a storm drain, conveyance ditch, or surface waters.
- If possible, do not fertilize areas within 100 feet of water bodies including wetlands, ponds, and streams.
- Avoid fertilizer applications in stormwater drainage systems, including ditches ponds and swales.
- Unless approved by the local jurisdiction, do not apply fertilizer at commercial and industrial facilities, to grass swales, buffer areas or filter strips if the area drains to sensitive water bodies.
- Apply fertilizers in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters.

Supplemental BMPs: Fertilizer Application

- Apply the minimum amount of slow-release fertilizer necessary to achieve successful plant establishment.
- Do not fertilize when the soil is dry or during a drought.
- Test soils to determine the correct fertilizer application rates.
- Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization.
- Fertilization needs vary by site depending on plant, soil, and climatic conditions.
- Choose organic fertilizers when possible.
- Use slow-release fertilizers such as methylene urea, isobutylidene, or resin coated fertilizers when appropriate, generally in the spring. Use of slow-release fertilizers is especially important in areas with sandy or gravelly soils.
- Time the fertilizer application to periods of maximum plant uptake. Washington State Department of Ecology generally recommends application in the fall and spring, although Washington State University turf specialists recommend four fertilizer applications per year.
- Do not use turf fertilizers containing phosphorous unless a soil sample analysis taken within the past 36 months that indicates the soil of the established lawn is deficient in phosphorus. For more information about restrictions on turf fertilizers containing phosphorus, visit the Washington State Department of Agriculture's website https://agr.wa.gov/departments/pesticides-and-fertilizers/fertilizers/fertilizers-containing-phosphorus

Required BMPs: Pesticide Application

- All procedures shall conform to the requirements of Chapter 17.21 RCW and Chapter 16-228 WAC.
- Train employees on proper application of pesticides and disposal practices.
- Follow manufacturers' application guidelines and label requirements.

- Avoid excessive application of chemicals. Do not apply pesticides in quantities that exceed the limits on the product's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label.
- Conduct spray applications during weather conditions as specified on the label requirements and applicable local and state regulations. Do not apply during rain or immediately before expected rain (unless the label directs such timing).
- Clean up any spilled pesticides immediately. Do not hose down to a storm drain, conveyance ditch, or surface water.
- Flag all sensitive areas including wells, creeks, and wetlands prior to spraying.
- Post notices and delineate the spray area prior to the application, as required by the local jurisdiction, or by the Washington State Department of Ecology.
- Mix pesticides and clean the application equipment under cover in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.
- Follow the FIFRA label requirements for disposal. If the FIFRA label does not have disposal requirements, the rinseate from equipment cleaning and/or triple-rinsing of pesticide containers should be used as product or recycled into product.
- Collect the equipment wash water (rinseate) and store it in a labelled leakproof container with a lid. Reuse the wash water when making another spray mixture of the same pesticide. Do not mix different pesticide wash waters. Do not dump the wash water down a storm drain, to a conveyance ditch, surface water or to the ground. Unused wash water will most likely be a regulated hazardous waste, requiring special disposal.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.

Supplemental BMPs: Pesticide Application

- Use manual pest control strategies, such as physically scraping moss from rooftops and using rodent traps.
- Remove weeds/vegetation in stormwater ditches, detention ponds and drainage swales by hand or other mechanical means.
- Use pesticides only as a last resort. Consider alternatives to the use of pesticides such as:
    - Covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.
    - Soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic nematodes.
- Implement a pest-use plan which should include at a minimum:
    - A list of selected pesticides and their specific uses.
    - Brands and formulations of the pesticides.

  - Application methods and quantities to be used.
  - Equipment use and maintenance procedures.
  - Safety, storage, and disposal methods.
  - Monitoring, record keeping, and public notice procedures.
- Develop and implement an Integrated Pest Management (IPM) program if pests are present. The following steps are adapted from *Least Toxic Pest Management for Lawns*, written by Sheila Daar.
  - Step One: Correctly identify problem pests and understand their life cycle.
    - Learn more about the pest.
    - Observe it and pay attention to any damage that may be occurring.
    - Learn about the life cycle.
    - Many pests are only a problem during certain seasons, or can only be treated effectively in certain phases of the life cycle.
  - Step Two: Establish tolerance thresholds for pests.
    - Decide on the level of infestation that must be exceeded before treatment needs to be considered. Pest populations under this threshold should be monitored but don't need treatment.
  - Step Three: Monitor to detect and prevent pest problems.
    - Monitor regularly to anticipate and prevent major pest outbreaks.
    - Conduct a visual evaluation of the lawn or landscape's condition. Take a few minutes before mowing to walk around and look for problems.
    - Keep a notebook, record when and where a problem occurs, then monitor for it at about the same time in future years.
    - Specific monitoring techniques can be used in the appropriate season for some potential problem pests, such as European crane fly.
  - Step Four: Modify the maintenance program to promote healthy plants and dis-courage pests.
    - Review your landscape maintenance practices to see if they can be modified to prevent or reduce the problem.
    - A healthy landscape is resistant to most pest problems. Lawn aeration and over-seeding along with proper mowing height, fertilization, and irrigation will help the grass out-compete weeds.
    - Correcting drainage problems and letting soil dry out between waterings in the summer may reduce the number of crane-fly larvae that survive.
  - Step Five: If pests exceed the tolerance thresholds:
    - Consider the most effective management options concurrent with reducing impacts to the environment. This may mean chemical pesticides are the best option in some circumstances.

        - Consider the use of physical, mechanical, or biological controls.
        - Study to determine what products are available and choose a product that is the least toxic and has the least non-target impact.
    - Step Six: Evaluate and record the effectiveness of the control, and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.
        - Keep records!
        - Note when, where, and what symptoms occurred, or when monitoring revealed a potential pest problem.
        - Note what controls were applied and when, and the effectiveness of the control.
        - Monitor next year for the same problems.
- Conduct any pest control activity at the life stage when the pest is most vulnerable. For example, if it is necessary to use a Bacillus thuringiens application to control tent caterpillars, apply it to the material before the caterpillars cocoon or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.
- Choose pesticides categorized by the EPA as reduced risk, such as the herbicide imazamox, and choose the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. The pesticide should readily degrade in the environment and/or have properties that strongly bind it to the soil.
- When possible, apply pesticides during the dry season so that the pesticide residue is degraded prior to the next rain event.
- If possible, do not spray pesticides within 100 feet of water bodies. Spraying pesticides within 100 feet of water bodies including any drainage ditch or channel that leads to open water may have additional regulatory requirements beyond just following the pesticide product label. Additional requirements may include:
    - Obtaining a discharge permit from the Washington State Department of Ecology.
    - Obtaining a permit from the local jurisdiction.
    - Using an aquatic labeled pesticide and adjuvant.
- Once a pesticide is applied, evaluate its effectiveness for possible improvement. Records should be kept showing the effectiveness of the pesticides applied.
- Develop an adaptive management plan and annual evaluation procedure including: (adapted from Daar's *Least Toxic Pest Management for Lawns*)
    - A review of the effectiveness of pesticide applications.
    - Impact on buffers and sensitive areas, including potable wells. If individual or public potable wells are located in the proximity of commercial pesticide applications, contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.

- Public concerns.
- Recent toxicological information on pesticides used/proposed for use.

Additional Information

- Potential pollutants can include but are not limited to fecal coliform bacteria, metals, nutrients, oil and grease, oxygen demanding substances, PCBs, pH, sediment, and other pollutants.
- *Stormwater Pollution Prevention Manual*, Chapter 3: Commercial and Multifamily BMPs
  - A-2: Outdoor Storage of Liquid Materials in Stationary Tanks
  - A-3: Storage of Liquid Materials in Portable Containers
  - A-26: Landscaping Activities, Vegetation Management, and Irrigation
- *Stormwater Pollution Prevention Manual*, Chapter 5: Information Sheets
  - Containment
  - Covering
  - Disposal
- For soils testing, contact the King Conservation District (425-282-1900 or district@kingcd.org, a soils testing professional, or a Washington State University Extension office, 206-205-3100.
- Comply with WAC 16-228 (General Pesticide Rules) and WAC 16-229 (Secondary and Operational Area Containment for Bulk Pesticides).
- For more information, refer to the Pesticide Information Center Online (PICOL) Databases at https://picol.cahnrs.wsu.edu/

For more information or assistance contact the King County Stormwater Services at 206–477–4811 and visit kingcounty.gov/stormwater.