



SECTION 2

Lawn and Garden Management

Keeping Hauser Lake Clean

Why are Lawns and Gardens a Potential Problem?

Homeowners commonly over-apply fertilizer, adding much more nitrogen and phosphorus to a lawn than it will use. Although Hauser Lake has few lawns that go right down to the lakeshore with no buffer strips, excess nutrients or pesticides can still be washed, or carried by shallow ground water, into the lake by rain or heavy irrigating.

Lawns, gardens and pastures near Hauser Lake or any of its tributaries must be carefully planned and maintained to prevent possible contamination of surface waters. Native vegetation should be considered as a quality alternative to cultured lawns and landscapes. Eventually, most landscapes will revert to a native state if no maintenance is performed and planting native vegetation certainly will hasten the process.

Water Quality Concerns

- ◆ **Fertilizers** – Supply excess nutrients, especially nitrates and phosphorus, increasing aquatic plant and algae growth which can lead to reduced dissolved oxygen in bottom of lakes.
- ◆ **Pesticides** – Kill beneficial aquatic insects resulting in lowered fish productivity and contaminated spawning beds. Cause chronic health problems in humans.
- ◆ **Irrigation** – Too much water forces fertilizers and pesticides into ground water, or may combine with sediment and runoff into surface water.

Best Management Practices

Best Managements Practices (BMPs) are actions you can take to reduce your impact on the environment. This fact sheet describes BMPs you can adopt on your property to prevent water contamination, improve water quality, and enhance your lot's aesthetics and value.

Best Management Practices discourage the use of pesticides and fertilizers within 25 feet of surface waters. This ensures that over-spray or the spread of granules will not fall directly into the lake or streams.

Improving Lawn and Garden Management

Before beginning any task, stop and think about potential risks to water quality. Homeowners must be aware of potential problems caused by soil erosion, as well as pollution due to chemical amendments and organic yard waste.

Special attention should be paid if the following conditions exist:

- There are areas of exposed soil—flowerbeds, vegetable gardens, or poorly established vegetation.
- Soils have a coarse texture, such as sands or sandy loams.
- The property slopes toward surface water.
- There are impervious surfaces, such as sidewalks and driveways.
- Lawn or landscape maintenance is being done close to the surface water.
- Fertilizers, pesticides, or soil amendments are being applied. If you utilize a professional lawn care service, familiarize yourself with the type of pesticides and fertilizers they may be using and where.
- Try to avoid or minimize the use of chemical fertilizers and pesticides.

Why should homeowners be concerned about pesticide use on their lawns and gardens?

Pesticide over use or misapplication will:

- Harm or kill beneficial insects and earthworms associated with your lawn or garden.
- Harm wildlife and pets that come into contact with your lawn or garden.
- Result in chemical runoff, during rainfall or irrigation, into streams, rivers, lakes and storm water drains which may contaminate the ground water.
- Leach through the soil directly into ground water which is used for drinking water.
- Accumulate in the soil and become toxic to the plants you are growing.
- Create pest resistance to the applied chemicals so that they will be very difficult to control in the future.

Why should homeowners be concerned about fertilizer use on lawns and gardens?

Fertilizer over use or misapplication will:

- Contaminate surface water with nitrates through surface runoff or storm water drains.
- Contaminate drinking water from ground water wells with nitrates, which is hazardous especially to pregnant woman, infants, and small children.
- Cause diseases, such as necrotic ring spot in lawns.
- Make some weeds more competitive with the plants you are trying to grow.

BMPs for Protecting Surface Waters

The most efficient BMP for protecting surface water from lawn and garden activities is to add or enhance a **vegetative filter strip** (see figure 1, page 2-3) between the lake and your activities. This alone will help preserve water quality by filtering rain and irrigation runoff, and by absorbing nutrients from shallow ground water. Other BMPs include:

- Rake dead leaves and brush away from the water; compost vegetation in a sturdy structure away from the shoreline. (*Note: The Hauser Lake Watershed Coalition, HLWC, sponsors an annual Rake-A-Lake event to assist local East-side lake residents with leaf clean-up; contact the HLWC for more details.*)

- Never dump leaves and vegetative debris into the lake or a stream because this releases nutrients and organic acids into the water and uses up valuable oxygen needed by fish and other aquatic life.
- Avoid burning on the beach or near shore because the remaining ash is highly alkaline and may change the pH of the lake and promote growth of undesirable plants.
- When treating diseases or insect pests, use chemicals responsibly and use only the required amount. Use of certain pesticides, insecticides or fertilizers within 25 feet of Hauser Lake and its contributory streams is discouraged.

Preventing Soil Erosion

Surface waters can be contaminated by soil particles that are washed or blown into the water. In addition to the problem of sediment, soil particles can carry phosphorus, which is a harmful pollutant, into the water.

To avoid this problem;

- Maintain a vigorously growing filter zone of grass, trees, and shrubs next to surface waters.
- Minimize areas of exposed soil by maintaining native vegetation or dense turf.
- Reseed disturbed areas as soon as possible to prevent soil erosion. This has the added benefit of choking out invasive weed species.

Best Management Practices for Lawns

Your lawn can be a source of pride. It is an attractive part of your landscape. In fact, a well maintained lawn adds value to your property and helps to tie together your home and other landscape plants.

A healthy good-looking lawn actually improves your living environment. On a hot day, your lawn reduces the glare of the sun, keeps surrounding areas cooler, and will attract birds and other wildlife. Landscapes will revert to a native state if no maintenance is preformed; planting native vegetation will hasten the process.

Pest Management for Lawns

If possible, avoid the use of chemical pesticides. Consult a professional from the University of Idaho Extension Office (see Page 2 - 6) to determine if the use of a pesticide is justified. The following practices will minimize the potential of contamination from pesticides:



Figure 1. A well designed landscape plan includes 1) and 2) natural vegetation along the water's edge; 3) a natural vegetation filter strip; 4) well-established grass or ground cover; 5) a level flower or vegetable garden set back from the water

- Determine if there is an economic or aesthetic justification for initiating control of the pest.
- Consider control options other than the use of a chemical pesticide; biological controls and pest-resistant plant varieties are becoming more available.
- Properly identify whether the pest is an insect, disease, or other problem.
- Use the least toxic and most readily degradable pesticide that will be effective.
- Read the pesticide label carefully and pay special attention to safety precautions and warnings about use near water.
- Do not apply pesticides when it is windy to avoid the possibility of drift.
- When purchasing pesticides, buy only what is needed to control the problem during the current season. For empty pesticide containers, triple rinse the containers and reapply the rinse water to the areas already treated.
- Properly dispose of unused pesticides and containers. Never pour excess pesticides on the ground, into surface waters, or into sanitary treatment systems. Contact Kootenai County Extension office for the next Idaho State Department of Agriculture pesticide container recycling event.

Fertilizer Management

Native vegetation does not require the application of additional fertilizer. Use caution if applying fertilizers to lawns and adhere to the following guidelines:

- Have your soil tested to determine how much fertilizer is needed and minimize the use of chemical fertilizers; soil test sample bags are available through the Kootenai County University of Idaho Extension Service.
- Use alternative forms of fertilizer. Grass clippings provide (a years worth) 2 pounds annual nitrogen; Compost provides 1 pound annual nitrogen; and Corn Glutin (20 pounds per 1000 square feet) provides 2 pounds annual nitrogen. These are preferable to chemical fertilizer. However, natural amendments still have the potential to damage water quality if used in excessive amounts.
- If chemical fertilizers are used, select slow-release (water insoluble) forms.
- Water your lawn after fertilizing, but do not allow excess water to run off into surface waters.
- Sweep up any fertilizer spilled on hard surfaces and reapply to the grass. Never wash it off.
- Never apply fertilizers to frozen ground or snow.
- Leave a natural filter strip of grass, trees, and/or shrubs next to the shoreline.

- Use extra caution when applying fertilizer near surface waters; do not spread fertilizer within **25 feet of surface waters** or **wetlands**. Use a “drop” spreader and not a “cyclone” spreader to minimize the possibility of getting fertilizer directly into the water.

Irrigation Management

Use water wisely on lawns. Over-watering may cause pesticides, fertilizers, and sediment to either runoff to surface waters, or leach and contaminate the ground water you or your neighbors’ use for drinking water.

- Established lawns only need 1 to 2 inches of water per week.
- Water deeply in the early morning and evening to avoid evaporation.
- Avoid over watering at all times, but especially after applying fertilizers and pesticides.
- Leave grass clippings on the lawn, this will:
 - shade the soil surface, reducing moisture loss
 - provide nitrogen, potassium and phosphorus, thus reducing the need for fertilizer
 - help decompose thatch
 - save time and energy by not bagging clippings

Establishing New Turf

Retaining native vegetation is the recommended best management practice, but if having a lush green lawn is what you want, then the following practices will help you prevent pollutants from entering Hauser Lake and the streams that flow into it.

- For maximum pollution prevention, a 25 foot riparian vegetation buffer strip should be maintained between any management activities associated with lawn care and surface waters.

Natural vegetation cannot be excessively removed from the riparian zone, generally a distance of 50 to 100 feet from the surface water is recommended. Removal of vegetation from slopes should be minimal. Do not remove more than 25% of vegetation.

- **Sod should always be used if there is a slope and the danger of soil erosion exists.**



- Seeding is effective if runoff is not a problem and if the seedbed can be kept moist. Bluegrass seed requires three weeks to establish, and if the seedbed dries out during this time, the seedlings may die.
- When seeding, preparation of a good seedbed is necessary for success. Seed-soil contact is essential. Select seed varieties that are suitable for full sun or partial shade. An excellent mixture for around Hauser Lake is Bluegrass, Creeping Red Fescue, and Perennial Rye.

MAINTAINING ESTABLISHED TURF

Soil Fertility Management

Adequate soil nitrogen is necessary for a healthy lawn. Many property owners in Hauser Lake watershed use nitrogen fertilizer to enhance the nitrogen levels in their soil. In most cases, adding nitrogen fertilizer produces greener, and faster-growing lawns and garden plants. However, nitrogen is a very mobile nutrient and attention must be paid to application rates and timing to eliminate the possibility of water contamination.



- Do not apply more than 3 lbs. of actual nitrogen per 1,000 square feet of lawn per year. If soils are sandy or grass is sparse, you will want to test your soil for best results.
- For best results split your fertilizer by dividing your total need by 4. Then apply once in April (not on frozen ground or snow), once on Memorial Day, once on Labor day, and then again in October.
- The use of slow-release nitrogen is desirable. This may be some form of organic fertilizer or “synthetic” slow-release form.
- Never apply fertilizer to frozen ground or on snow.
- Always sweep up any fertilizer that is on hard surfaces and reapply to the grass. Never wash it off.
- Apply commercial fertilizers just before moderate rain or irrigate immediately after application.

- Use extreme caution when applying fertilizers near water. **Fertilizer application should be avoided within 25 feet of Hauser Lake and its tributaries.** Never allow any fertilizer to enter surface water or wetlands.

With proper management, dense turf provides a good ground cover to prevent soil erosion.

Best Management Practices for Gardens

Your garden is a complex ecosystem of plants, animals, insects, birds, fungi, worms, and microorganisms such as bacteria. All ecosystems have three basic interacting categories of organisms:

- Producers, are green plants that convert sunlight, carbon dioxide, and water into energy for plant growth.
- Consumers, are organisms that feed on live plant or animal material.
- Decomposers, use dead plant and animal material for energy.

A healthy garden ecosystem will have a balance between producers, consumers, and decomposers. If there is an imbalance, symptoms such as plant disease or an increase in damaging pests may result.

An imbalance in the ecosystem can be caused by improper applications of pesticides, fertilizers, and water, or by removing organic matter such as leaves from the garden. By using gardening BMPs, you will reduce the potential for gardening problems and thus the need for chemical controls. By reducing the use of chemicals, the risk of contaminating Hauser Lake and local wells is also reduced.



Pest Management for Gardens

It is best to avoid using pesticides as both beneficial insects (ladybugs, honey bees) and pests (weeds, insects, and disease) may be killed. The following pest management BMPs will help keep your garden ecosystem healthier.

- Create a garden with diversity. Plant a combination of different types of plants to create a balanced ecosystem and in general, rotate plants each year to outsmart potential pests and minimize the threat of soil borne diseases.
- Maximize conditions for healthy plant growth. Choose plants that are suited for your climate and are resistant to diseases in the area. Group plants according to water and light requirements and

space them to allow ample root and top growth at maturity.

- Use the least toxic solution for your problems. Some low toxic methods to solve problems include biological controls, insect traps, or mechanical means to remove pests. Also, learn to live with a low level of plant damage.
- If you do use herbicides or pesticides, use them carefully. Identify the insect and weed pests and select the appropriate chemical. Also, buy only what you need and be sure to follow label directions.
- Store and dispose of herbicides and pesticides properly. Store any extra in a secured area, and if you need to dispose of these chemicals, take them to your locally organized household hazardous waste collection program or go through the Idaho State Department of Agriculture Pesticide Disposal Program.

Fertilizer Management for Gardens

Fertilizer should be added only in the amounts needed, at the appropriate time, and in a form that makes the nutrients available to plants. Nutrient management BMPs to implement in your garden include:

- Test your soil. Test your soil for nitrogen (N), phosphorus (P), potassium (K), sulfur (S), pH, and organic matter. Soil samples should be taken to a depth of 12 inches. Consider a soil survey.
- Build a healthy soil. Add organic matter, such as compost to enhance the structure, aeration, and nutrient and water holding capacity of the soil. Organic matter can also be added by growing cover crops. Also, try to supply needed nutrients using organic fertilizers, such as composted manure, cottonseed meal, bone meal, blood meal, and greensand. Most gardening shops have these types of fertilizers. If not, you can order from gardening retailers that specialize in providing organic fertilizers and pesticides.
- Apply fertilizers properly. Based on your soil test and plant needs, apply the proper rate of nutrients and apply it at the correct growth stage of the plant. Overfeeding plants can be as detrimental as underfeeding, but this risk can be reduced if organic fertilizers are used, because the nutrients are released slowly. Synthetic fertilizers are also useful, as they can provide readily needed nutrients. Be sure not to over apply. Remember, 85% to 95% of terrestrial plant growth is dependent on the atmosphere and sunshine rather than added fertilizer.

Irrigation Water Management for Gardens

- Reduce the need for watering by mulching. Mulches not only slow the evaporation of water from the soil surface but also can improve a soil's water holding capacity, keep the soil cooler on hot summer days, reduce weed growth, and help prevent soil erosion. Examples of organic mulches include grass clippings, leaves, barks, and straw. Inorganic mulches may also be used and examples are permeable sheeting and/or rock. Keep in mind that rocks can form undesirable heat sinks.
- Reduce the need for watering by improving soil structure. Each year be sure to add organic matter such as compost, grass clippings, tilled in cover crops, and other dead plant materials.
- Irrigate only when the plants need water. Check whether the soil is dry several inches below the surface. If it is dry, then water, but water slow enough so that it soaks into the root zone and does not run off the soil surface. The depth of the root zone depends on the plant, but in general this is 6 to 8 inches deep. If possible, use a drip irrigation system to conserve water.

Location of Gardens

Flower and vegetable gardens can add to the quality of life of property owners living around Hauser Lake. However, certain precautions must be taken to prevent the possibility of surface water contamination.

- Gardens should **not** be located on slopes because they can promote accelerated soil erosion and runoff. An alternative on sloping ground is to install a terraced garden. Dense turf or other vegetation should be established on slopes.
- Gardens should **not** be located on septic system drain fields or mounds. Exposed soil increases the possibility of septic systems freezing. Drain fields and mounds should be covered with dense turf.
- To minimize the area of exposed soil, use intensive growing techniques such as intercropping, succession planting, and raised beds.

Recommended Reading:

Northern Idaho Lawns

Northern Idaho Fertilizer Guide. U of I Extension publication No. 911.

Herbicides For Lawn Weed Control

U of I Extension publication No.608

For More Information

Call, write or visit...

Kootenai County Extension Office
1808 N. 3rd St.
Coeur d'Alene, ID 83814-3407
208-446-1680

Kootenai County Noxious Weed Control
10905 N. Ramsey Rd
Hayden, ID 83835
(208) 446-1290

See Resource Directory (Appendix B) for additional agency contacts.

Notes: