



Minimizing Pollution Risk from Pasture Management

Livestock on your property, including livestock raised on pastures, can increase the risk of water pollution. This worksheet is designed to complement HAPPI-Farm 7, *Livestock management*, by providing information on how you can reduce the risk of nonpoint source pollution from your pastures. Although large concentrations of animals, such as in holding pens, present the greatest risk, large areas of degraded pasture or rangeland can cause serious problems. Also, small pasture areas can present problems if poorly managed or overstocked. For more detailed information on pasture management, consult your CTAHR Cooperative Extension Service (CES) livestock agent.

Conservation planning

One of the most important things you can do to help maintain water quality is to develop a conservation plan. Your conservation plan can be developed with the assistance of your local Soil and Water Conservation District and the Natural Resources Conservation Service (NRCS). The plan will address various issues, including soil erosion, to maintain pasture productivity and profitability while protecting the environment.

Soil erosion from pastures is sometimes difficult to see. It often occurs in areas where livestock are concentrated, such as water sources, livestock travel lanes, and loafing areas. In these areas it may be necessary to reseed the vegetation to increase ground cover. However, erosion also can occur at low stocking densities on degraded lands due to poor soil fertility or drought.

Pasture nutrient management

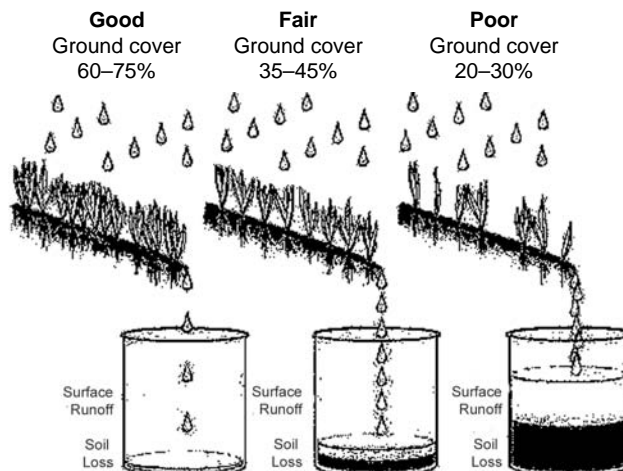
Like crop fields, pastures need to have adequate plant nutrients available from the soil. You should strive to balance nutrient inputs and pasture plant needs. Be sure to credit any nutrient inputs to the pasture, including manure and compost. Knowing the approximate amount

of nutrients leaving your field through grazing can help you plan your fertilizer applications. Nutrients leaving the field can be estimated through analysis of the forage tissue and animal weight gain. Both soil and plant tissue testing are available from the CTAHR Agricultural Diagnostic Service Center for a modest fee. Contact the nearest CES county office for advice on collecting appropriate samples and submitting them for analysis.

Plant species selection

Pasture plant selection and management should be based on the characteristics of the local environment. You need to consider individual soil types, climate, and plant growth characteristics when selecting species to plant. For information or advice on the plant species that would be most appropriate for your situation, contact your area's CES livestock agent.

Ground cover can reduce runoff and soil erosion



From: *Assessing your pastureland to protect water quality*, VI Home & Farm Water Quality Assessment Program, Fact Sheet #1, UVI-CES.

Weed and pest control

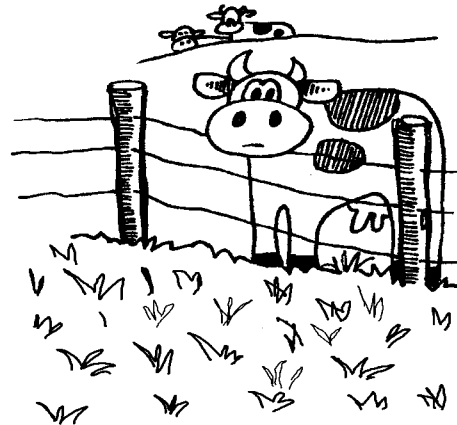
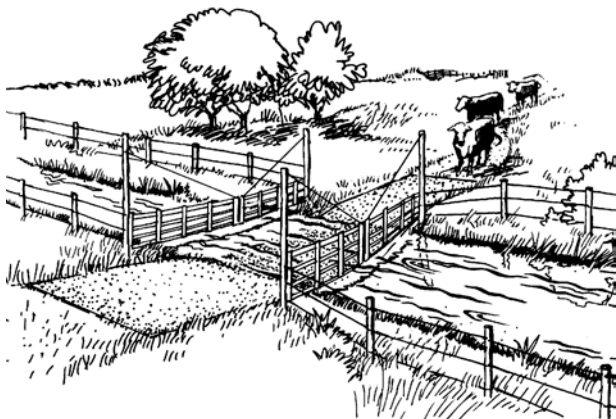
A properly managed rotational grazing system can reduce the need for weed and pest control measures. Continually inspect your pastures for potential weed and pest problems. Also consider an integrated pest management (IPM) approach that may use a combination of biological, mechanical or chemical control methods. For additional information on integrated pest management, refer to HAPPI-Farm-5, *Pest management*.

Rotational grazing

Studies have shown that carrying capacity, the number of livestock that can be sustained on a pasture without damaging the resource, can be doubled through an intensive rotational grazing system. Two pastures are better than one, and four is better than two. In subdividing pastures, consider factors such as soil type, slope, water access, vegetation cover type, and number of livestock. Work with your area CES livestock agent to design and implement a rotational grazing system that is appropriate for your operation.

Livestock access to streams or ponds

Grazing livestock can have both positive and negative effects on water bodies and on riparian areas (the areas next to streams) depending on the vegetation species, the number and type of animals, and management practices. Improperly managed livestock that have unrestricted access to streams or ponds can cause nutrient pollution from their waste and soil erosion as they enter and exit the water.



However, proper livestock management may improve the health of some riparian areas, particularly areas with low rainfall. It can also provide a valuable source of additional income from these areas. Because of the potential water pollution risks, it is important to consult CES and NRCS personnel to develop an appropriate grazing management plan if you graze or intend to graze livestock in riparian areas or to use streams or ponds as your only water source.

Grazing as a vegetation management tool

In dry areas, summer fires can sweep through pasture and range land, endangering people and livestock, causing serious damage to farm structures, and can lead to massive soil erosion. This problem often occurs when large amounts of grass and brush are allowed to build up during the wet season due to limited grazing. When this vegetation dries out it becomes fuel for the next fire. This situation can often be avoided through proper rotational grazing. However, if there are not enough animals available to reduce this fuel load, consult with CES, NRCS, or Fire Department personnel to establish fire brakes. Fire brakes are strips of pasture or rangeland, often along fences, in which the vegetation is mowed or the soil is tilled.

Assessing your risks

Complete the risk assessment table on page 3 to determine your water pollution risks. For each category, choose the set of practices that best fits your situation. Then, go to page 4 and develop an action plan to minimize water pollution on your land.

Risk Assessment Table for Pasture Areas

	Low risk	Moderate risk	High risk	Your risk
Conservation plan for pasture areas	Have an up-to-date conservation plan for all pastures	Have a conservation plan only for some pastures or plan is >3 years old	No conservation plan for pastures	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Pasture erosion	No evidence of erosion; very little if any bare soil visible; very little clear runoff water visible during and after rains	No strong evidence of erosion; few bare spots surrounded by good vegetative growth; some slightly dirty runoff water visible during and after rain	Evidence of erosion (rills, small gullies); many bare spots; dirty runoff water visible during and after rain	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Pasture nutrition	Pastures fertilized based on soil nutrient status and plant requirements; soil tested for nutrient status within the last year	Pastures fertilized based on historically tested rates; soil tested for nutrients >2 years ago	Pastures fertilized without a management plan; soil never tested or tested >5 years ago	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Pasture plant selection	Forage species selected based on site-specific soil and climate characteristics	Forage species local to area but not selected for desirable characteristics	Forage species selected that are not well adapted to local conditions	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Pasture pest control	Integrated pest management (IPM) plan established for pastures	Pesticides used when pest infestations are severe, but no IPM plan used	Pesticides applied on regular schedule whether or not pests are present	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Pasture rotation, livestock management	Pasture rotation and stocking rates based on established guidelines and consultation with professionals	Pasture rotation and stocking rates based on pasture appearance	Pasture rotation and stocking rates based only on the number of animals and area available, or pastures are not rotated	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high
Livestock access to streams/ponds	Livestock do not have access to streams or ponds, or livestock have access to streams and pond as part of up-to-date grazing management plan	Livestock have access to streams or ponds only at well maintained watering points, or as part of old conservation management plan	Livestock have unrestricted access to streams or ponds	<input type="checkbox"/> low <input type="checkbox"/> moderate <input type="checkbox"/> high

Your action plan

Now that you have assessed your management practices, you can take action to change practices that may be causing water pollution. For areas that you identified as high or moderate risk, decide what action you need to take and fill out the Action Plan below.

Write down all your moderate-risk and high-risk activities below	What can you do to reduce the potential risk for water pollution?	Set a target date for action
<p>Samples of action items:</p> <p><i>Apply manure to pastures as it is available without considering soil reserves or plant needs.</i></p>	<p><i>Work with Cooperative Extension Service agent to develop pasture fertilization plan.</i></p>	<p><i>Call CES office before end of week to set up appointment.</i></p>



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