Managing your pasture to reduce soil erosion

Mahdi Al-Kaisi
Iowa State University, malkaisi@iastate.edu

H. Mark Hanna
Iowa State University, hmhanna@iastate.edu

Michael Tidman
Iowa State University

Follow this and additional works at: http://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, Agriculture Commons, Agronomy and Crop Sciences Commons, Bioresource and Agricultural Engineering Commons, and the Soil Science Commons

Recommended Citation
http://lib.dr.iastate.edu/cropnews/1646

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
Managing your pasture to reduce soil erosion

Abstract
When it comes to soil erosion and surface runoff from agriculture land, tillage and row-crop management attract a lot of attention. However, most Iowa land currently in pasture is unsuitable for crop production because of steep slopes. These slopes make pasture even more vulnerable to water erosion. Mismanaged pasture can contribute substantially to water quality degradation due to soil erosion and sediment transport to nearby water bodies.

Keywords
Agronomy, Agricultural and Biosystems Engineering

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering | Soil Science

This article is available at Iowa State University Digital Repository: http://lib.dr.iastate.edu/cropnews/1646
Managing your pasture to reduce soil erosion

When it comes to soil erosion and surface runoff from agriculture land, tillage and row-crop management attract a lot of attention. However, most Iowa land currently in pasture is unsuitable for crop production because of steep slopes. These slopes make pasture even more vulnerable to water erosion. Mismanaged pasture can contribute substantially to water quality degradation due to soil erosion and sediment transport to nearby water bodies.

Management of pastureland is critical because of the high potential of surface water contamination due to sediment and manure nutrient runoff. Producers who manage livestock on pasture should consider the impact of their operation on water quality. Producers can reduce soil erosion and the delivery of nutrients and sediment to surface waters by focusing their management in three areas.

Stream bank and riparian degradation

Providing drinking water access to streams, rivers and ponds is an easy way to water livestock, but soil erosion can be associated with animal activity on pasture and in water bodies. Activity of livestock hooves in and around streams can degrade stream banks, destroy soil structure, and increase the likelihood of soil being suspended in water.

Producers who use streams for watering livestock should consider fencing livestock away from surface water and using alternative water delivery systems. Nose pumps, solar- and wind-powered pumps, or gravity delivery systems are all cost-effective systems.

Allowing livestock in streams also can lead to bank instability and sloughing of soil from the banks into the stream. Producers should consider establishing and maintaining vegetation in riparian areas, and the areas adjacent to water bodies, and protecting these areas with fencing.

Well-vegetated riparian areas offer the advantages of slowing runoff and allowing sediment and nutrients to settle out instead of moving all the way into the stream. Vegetation on a creek bank also can stabilize the stream bank and slow the flow of water, reducing its erosive power, and allowing sediment to drop out.

Overgrazing

Overgrazing can lead to degraded vegetative cover. Overgrazing is often misunderstood as resulting from having too many cattle on pasture. A more important factor is time. Overgrazing or allowing animals to graze vegetation to the ground eventually robs the soil of
its protective cover.

Producers can do a better job of reducing soil erosion in pastures by using rotational grazing. Moving animals through a series of paddocks allows pasture plants time to recover, reduces soil erosion, and improves forage quality.

**Nutrient problems caused by runoff and manure**

The key issues are related to the presence of manure on pastures, which can be carried to surface waters in runoff. Manure is a valuable part of the nutrient cycle of pastures, but it becomes an environmental issue when its nutrients and organic matter are allowed to runoff and contaminate surface waters.

Proximity and slope are often the culprits in the movement of manure into surface water. Producers can reduce this hazard by moving water, feed, and wintering/shelter areas away from surface waters. By focusing these "concentrated" activities away from water, producers can limit the amount of excretion at the water's edge, spread nutrients more evenly throughout the pasture, and reduce the need for nutrient application in pasture areas.

**Conclusions**

Although pastures look innocuous, they can be contributors to water quality problems if they are not managed properly. Filter systems and buffer strips aren't just for cropland; they can add value to pastures as well. A well-rounded pasture management plan can complement any producer's operation by improving water quality, reducing soil erosion, and leading producers to better manure management practices.

This article originally appeared on pages 125-126 of the IC-490(17) -- July 21, 2003 issue.

Source URL:  