

7-30-2001

## Managing pasture to reduce soil erosion

Mahdi Al-Kaisi

*Iowa State University*, [malkaisi@iastate.edu](mailto:malkaisi@iastate.edu)

H. Mark Hanna

*Iowa State University*, [hmhanna@iastate.edu](mailto:hmhanna@iastate.edu)

Michael J. 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](#), and the [Bioresource and Agricultural Engineering Commons](#)

---

### Recommended Citation

Al-Kaisi, Mahdi; Hanna, H. Mark; and Tidman, Michael J., "Managing pasture to reduce soil erosion" (2001). *Integrated Crop Management News*. 1899.

<http://lib.dr.iastate.edu/cropnews/1899>

**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 Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user.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 pasture to reduce soil erosion

## **Abstract**

Historically, producers allowed livestock on pasture to have full access to creeks, rivers, or ponds for drinking water. But giving livestock direct access to surface water sources can contribute to problems associated with water quality and soil stability. The key issues are related to

1. the presence of manure on pastures, which can be subsequently carried to surface waters in runoff);
2. soil erosion that is associated with animal activity on pasture and in water bodies; and
3. lack of timely pasture management, which contributes to degradation of the vegetative cover.

## **Keywords**

Agronomy, Agricultural and Biosystems Engineering

## **Disciplines**

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



## Managing pasture to reduce soil erosion

Historically, producers allowed livestock on pasture to have full access to creeks, rivers, or ponds for drinking water. But giving livestock direct access to surface water sources can contribute to problems associated with water quality and soil stability. The key issues are related to

1. the presence of manure on pastures, which can be subsequently carried to surface waters in runoff);
2. soil erosion that is associated with animal activity on pasture and in water bodies; and
3. lack of timely pasture management, which contributes to degradation of the vegetative cover.

These concerns are especially acute in areas where water bodies are not protected by vegetative filters or buffer strips.

### Presence of manure on pastures

Manure is a valuable nutrient source, but it becomes an environmental concern when nutrients, organic matter, and microorganisms are allowed to contaminate surface waters. Proximity and slope are often the culprits in the movement of manure into surface water. Consider moving wintering areas, shelter, and feeding areas away from surface waters. By focusing animal activities away from water, you can limit the amount of livestock excretion at the water's edge as well as reduce the impact of hoof traffic--a considerable factor in pasture soil erosion.

### Soil erosion

Pastures are vulnerable to excessive soil erosion because they are usually located in areas of sloping land that is less suited for crop production. The degree of grazing and intensity of use can create a soil compaction problem and contribute to serious surface runoff. However, some management practices, such as avoiding overgrazing and finding alternative water supplies, can reduce soil erosion and animal degradation of pasture.

### Avoid overgrazing

#### Concerns associated with allowing livestock access to surface water

##### Environment

- Stream bank degradation
- Siltation
- Degradation of riparian areas
- Nutrient pollution and eutrophication
- Degradation of surface water

Too many animals in one place for too long can lead to poor or nonexistent stands of vegetation. Poor stands of vegetation leave soils (especially rolling landscapes and those near creek banks) exposed to the erosive power of surface water runoff. Reestablishing and renovating pasture forage is much more expensive than managing existing vegetation properly.

## Find alternative water supplies

Fencing livestock from waterways and providing clean water by using pressurized piping systems keeps animals out of surface waters and off stream banks. Consider other alternatives to "in stream" watering such as nose pumps; solar, wind, or battery pumps; or gravity delivery systems. Animal health and production also may improve by getting them out of the water and limiting their exposure to waterborne microorganisms.

## Pasture management

Consider a rotational grazing system. Rotating animals through a series of paddocks allows for better managed pasture while controlling livestock access to streams. Using paddocks reduces the concentration of manure (and the nutrients in it), reduces sediment runoff (by reducing the amount of traffic in fragile areas), and allows vegetation to reestablish in paddocks that are not being used.

You also should consider establishing and maintaining vegetation in riparian areas (areas beside water bodies) by fencing livestock away from creeks, streams, and rivers. Well-vegetated riparian areas slow runoff, allowing runoff to settle out sediment and nutrients, and thereby reduce bank erosion. Allowing vegetation to get a foothold on a creek bank through limited-access grazing can slow water flow, reduce its erosive power, allow sediment to drop out, and hold stream banks in place.

A well-rounded pasture management plan can complement a livestock operation by improving water quality, reducing soil erosion, and leading producers to better manure management practices.

This article originally appeared on page 157 of the IC-486(20) -- July 30, 2001 issue.

### Source URL:

<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2001/7-30-2001/managepast.html>

**IOWA STATE UNIVERSITY**  
University Extension

quality

### Animal health

- Exposure to bacteria
- Blue-green algal toxins
- Foot rot
- Leg injuries and stress
- Calving in mud or streams

### Efficiency

- Nutrient cycle breaks down and manure collects at water source
- Overgrazing nears the water source
- Reduced rates of gain