

# Waste Management & Water Quality in a Grazing Setting

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## Why the concern?

Grazing systems often appear to be one of the most environmentally friendly options. Nutrients in the forages are consumed by the livestock, and then nutrients are excreted back on to the pasture. So why are we concerned?

### **Two Primary Concerns:**

- Uneven distribution of nutrients going back to the pasture
- Water quality concerns

## Uneven Distribution of Nutrients

In any given year, only about 10% of the pasture is receiving a urine or fecal spot – up to 90% of the pasture receives no nutrients from manure. In addition, urine and fecal deposition spots tend to be congregated in areas that are favored by the livestock such as by the water trough, shade area, or riparian zones.

Additionally, urine contains a lot of nitrogen, with the area receiving a urine deposition containing the equivalent of up to 1,000 lbs N/acre. That is way more than our plants can utilize with much of the N being lost due to volatilization or leaching.



## Water Quality Issues

When livestock defecate in a stream, they are adding nutrients, organic matter, and pathogens to the water. Increased nutrient levels and organic matter result in algae growth (eutrophication) and decreased oxygen levels which can result in fish kills.

Pastures where livestock have direct access to the water accelerate erosion of the stream banks and sedimentation into the surface water. Trampling of the banks increases stream turbidity and temperature, which results in a reduction of aquatic habitat and a widening of the stream channel. Ultimately, this can result in wide, shallow streams and a lower water table that decreases the width of the riparian area supported.



## Regulations

Livestock in a grazing setting are exempt from AFO/CAFO rules and can have direct access to Waters of the State (e.g., streams, rivers) as long as there is adequate and desirable vegetation. Please note that this can be a subjective measure and may vary.

## General Rule for Grazing Exemption

Livestock may have direct access to Waters of the State in a grazing setting as long as there is adequate (minimum of 4") and desirable vegetation.

### Key Points:

- Adequate vegetation is typically defined as having a minimum of 4" of desirable plant growth across the entire pasture.
- Desirable vegetation – a pasture of weeds will not qualify.

## Recommendations

Several options exist that can help protect the stream banks and riparian areas:

- Alternative water sources – livestock will decrease the time spent in the riparian area by up to 90% if an alternative water source is provided. Water troughs with solar or wind powered pumps are good options.



- Place supplements and shade on upland locations – this encourages the livestock to spend more time upland, and encourages better utilization of the forage in those areas.
- Use rotational grazing and graze the riparian area as a separate zone.
  - Graze riparian areas for only short bursts of time (less than a week).
  - Allow adequate rest/regrowth time
  - Do not graze when the streambank is muddy.
  - Avoid grazing riparian areas during peak fish and aquatic organism spawning periods.

- Limit water access points to small areas for watering or crossing.
  - Utilize structures such as pig slats, geoweb, or designated fords with coarse gravel placed in the stream bottom.
    - Provides animals with firm footing
    - Discourages livestock from congregating or wallowing in the stream
- Exclude livestock from areas where streambanks are steep and eroding.



Pig slats



Geoweb



Graveled crossing