Rotational Grazing: A Path to Sustainable Rangeland Management

Sawsan Hassan and Mounir Louhiachi

ICARDA
Science for resilient livelihoods in dry areas

CGIAR
INITIATIVE ON
Livestock and Climate

Challenges of Continuous Grazing

Weed Infestation

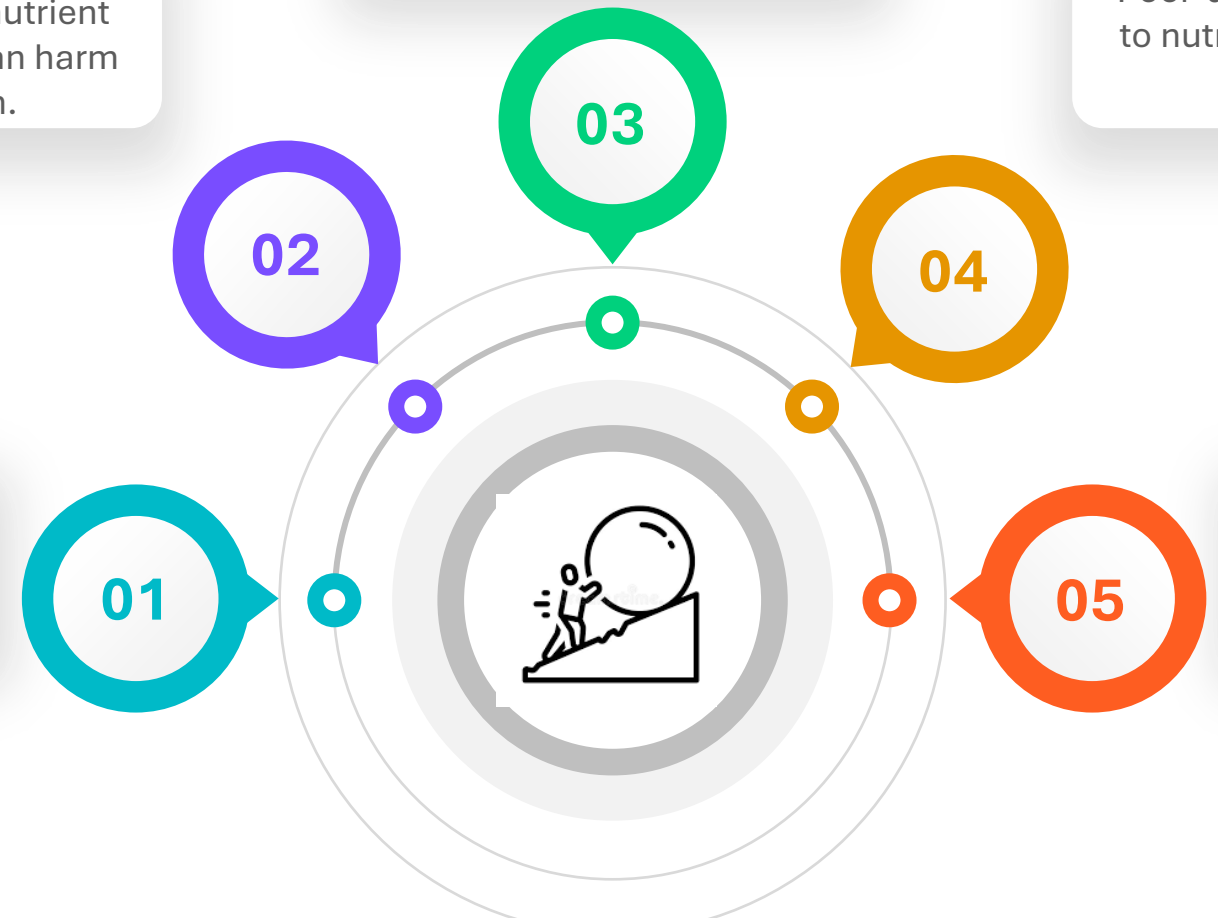
Continuous grazing does not allow forage to recover, resulting in lower overall productivity.

Soil Degradation

Overgrazing leads to erosion, compaction, and nutrient depletion, which can harm future growth.

Livestock Health

Poor-quality forage can lead to nutritional deficiencies in livestock



Low Yield

Continuous grazing does not allow forage to recover, resulting in lower overall productivity.

Negative Economic Impacts

Lower land value due to overgrazing and soil degradation

Why Rotational Grazing?

Soil Health

Enhances soil structure and nutrients

Forage Production

Increases abundant and nutritious forage

Biodiversity

Supports diverse plant and wildlife communities.

Economic Efficiency

Lowers feed costs and improves profitability.

Animal Health

Promotes better livestock health and productivity.

Sustainability

Promotes better livestock health and productivity.

What is Rotational Grazing?

Rotational grazing involves dividing pastures into smaller paddocks, allowing for systematic grazing and resting of forage plants.

Variety of Systems

The number of paddocks can vary widely, allowing for tailored management based on farm size, livestock type, and specific goals.

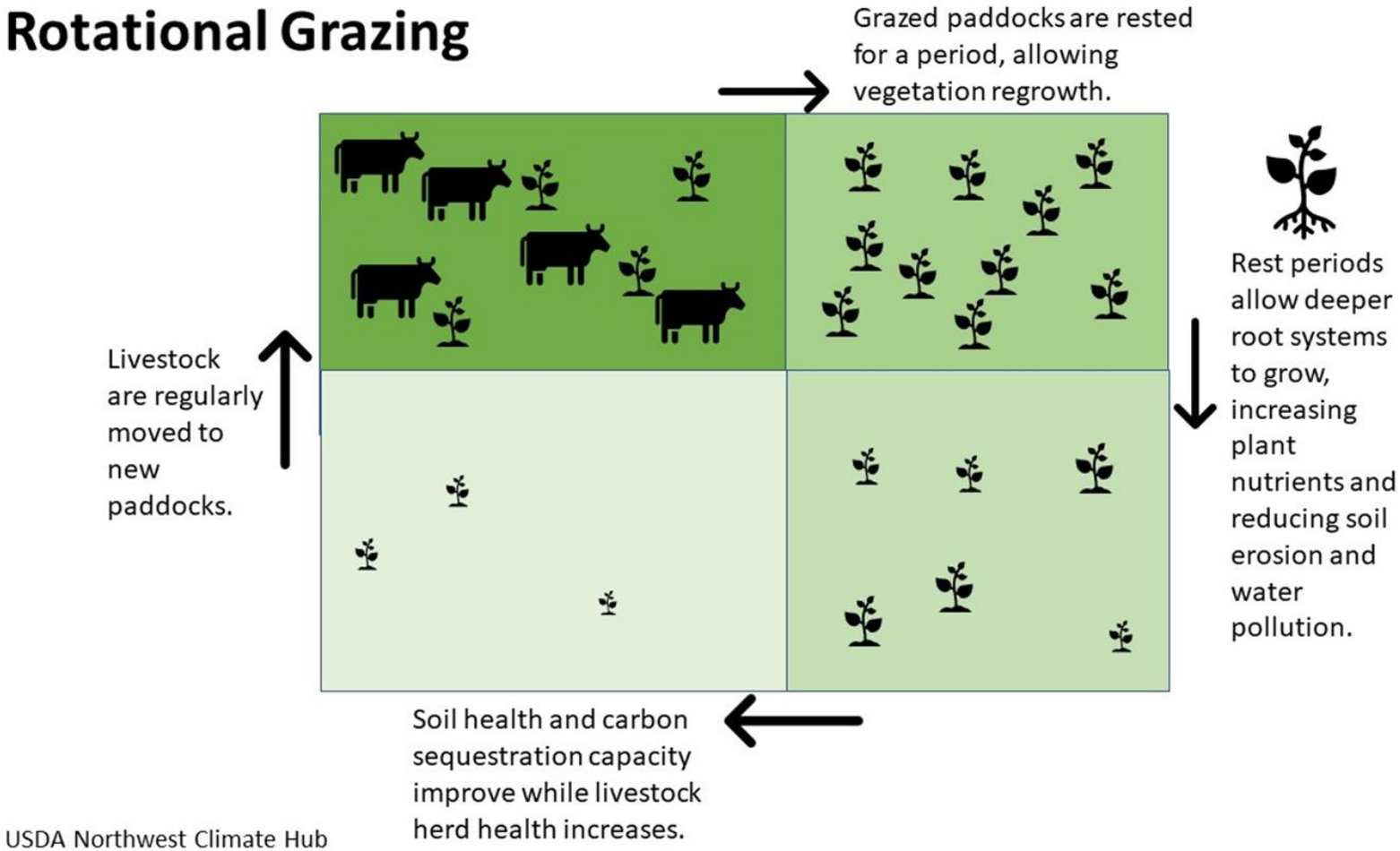
Grazing Rotation of Systems

Livestock are rotated among paddocks based on growth rates, ensuring that each section has adequate recovery time.

Flexibility in Management of Systems

Effective rotational grazing requires adaptability to environmental conditions, plant growth rates, &livestock needs.

What is Rotational Grazing?



Key Points on Rotational Grazing

Grazing Behavior and Plant Management

- **Grazing Behavior:** Competition reduces selectivity in grazing, leading animals to consume less desirable plant species, thus controlling invasive plants.
- **Phases of Forage Growth:**
  - **Initial Phase:** Slow growth; grazing can be harmful.
  - **Transition Phase:** Rapid growth; ideal for grazing.
  - **Reproductive Stage:** High stem and seed head content; less palatable to animals.
- **Grazing Management:**
  - The goal is to keep plants in the transition phase through controlled grazing.
  - Herd rotation should coincide with vigorous **plant growth, optimizing forage use.**

Key Points on Rotational Grazing

- **Stocking Density (**the number of animals per unit land at a specific time).

  High Stocking Density: Achieved by concentrating herds in smaller paddocks. Increased stocking density results in greater competition for feed, encouraging animals to select less, eat more and wander less.

- **Forage Height and Efficiency**

  Forage Height for Efficiency: Animals graze most effectively when forage is 15 to 23 cm. high, maximizing their intake and weight gain per area**.**

Key Points on Rotational Grazing

Livestock Management

- **Management Strategy:** Short grazing periods prevent regrazing and allow for root reserve replenishment.
- **Prevention of Overgrazing:** Overgrazing is a timing issue, not just cattle numbers. It happens when plants are grazed before they can recover.
- **Enhanced Livestock Management:** Rotational grazing allows for closer contact with livestock, enabling better health checks and management of individual animals.
- **Importance of Rest:** Forage must have adequate recovery time before being grazed again to maintain soil health and pasture viability.

Key Points on Rotational Grazing

Sustained Production and Economic Impact

- **Sustained Production:** Properly managed pastures are valuable resources that can ensure long-term productivity and environmental benefits.
- **Higher Live Weight Gain:** Rotational grazing leads to greater live weight gain per acre compared to conventional grazing systems.
- **Economic Efficiency:** Efficient pasture use and livestock management enhance the net economic return to producers “Properly managed tame pastures can yield returns equal to or better than other crops”.

Limitation of Rotational Grazing:

Cost

- Rotational livestock grazing has higher upfront costs than conventional grazing due to the need for additional fencing and water systems.
- Costs are lower compared to confinement systems.

Water

- Surface water supplies should be fenced in a rotational grazing system.
- Fencing water sources prevents animals from contaminating water and reduces disease risks.
- Keeping animals out of water and mud protects water quality.

Conclusion

Enhanced Productivity: Rotational grazing significantly improves pasture productivity by allowing forage to rest and recover.

Improved Forage Quality: The practice leads to higher quality forage, positively impacting livestock health and performance.

Economic Benefits: Farmers can achieve better economic returns through reduced feed costs and increased profitability.

Environmental Benefits : Rotational grazing helps address issues such as soil degradation and weed infestation while promoting healthier ecosystems.

Soil Health Improvement: The practice enhances soil structure and reduces nutrient runoff, contributing to better water quality.

Community Engagement: Sharing knowledge and experiences among farmers fosters innovation and continuous improvement in pasture management.

ICARDA

Science for resilient livelihoods in dry areas

CGIAR

INITIATIVE ON

Livestock and Climate