

Design and Layout of Grazing Systems

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Components of the Grazing System

- Landscape
- Forage
- Livestock
- Water
- Fence



FLEXIBILITY

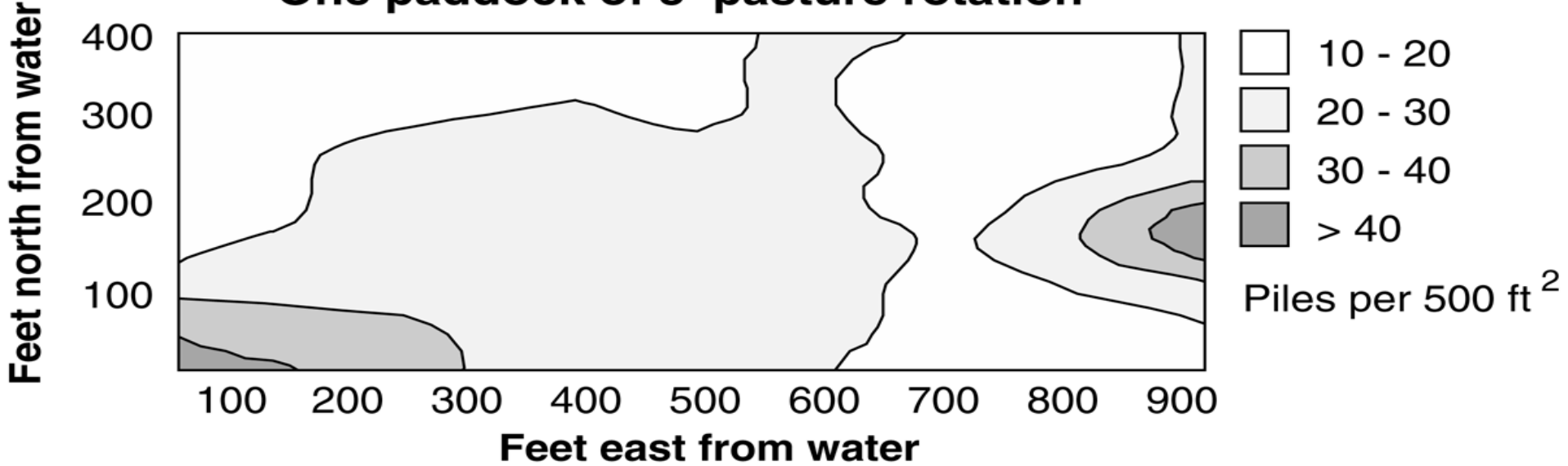
Guidelines for Grazing System Design



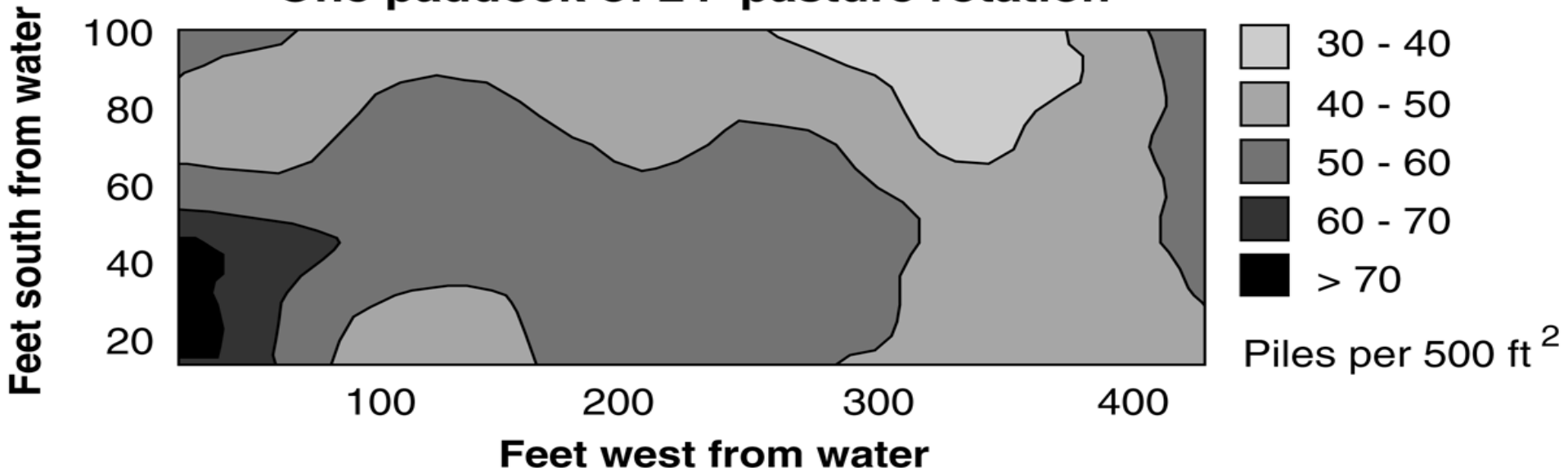
- **Keep livestock within 800 feet of water**
 - Improved grazing distribution
 - More uniform manure distribution
 - Increased water consumption .

Manure Distribution

One paddock of 3-pasture rotation



One paddock of 24-pasture rotation

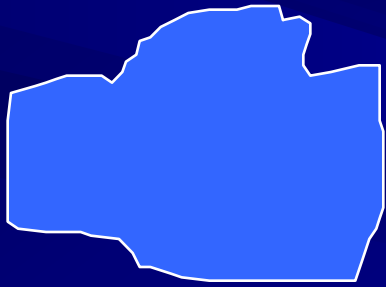


Guidelines for Grazing System Design

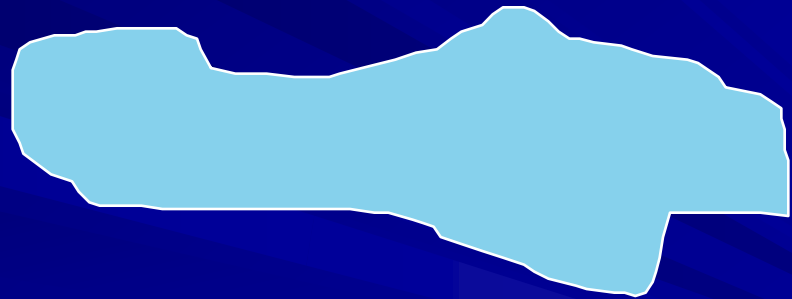
- Keep livestock within 800 ft of water
- Make paddocks as near to square as possible

Guidelines for Grazing System Design

- What does “more nearly square” really mean?



This is “**more** nearly square” !



This is “**less** nearly square” !

Guidelines for Grazing System Design

- Make paddocks as near to square as possible
 - Less fence required

Guidelines for Grazing System Design

- It takes less fence to enclose a square paddock of the same area.

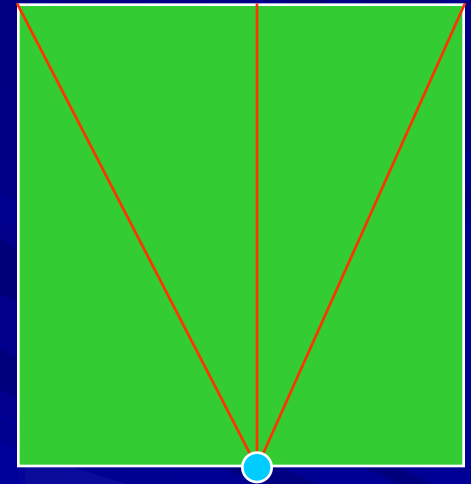
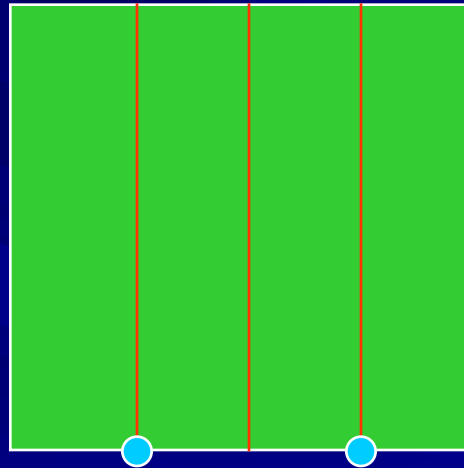
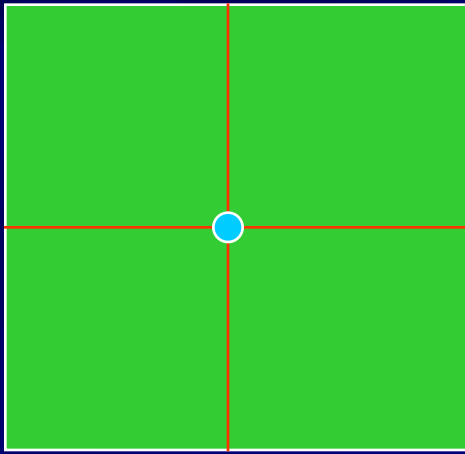


If each paddock is 10 acres

Guidelines for Grazing System Design

- Make paddocks as near to square as possible
 - Less fence required
 - Livestock are usually closer to water

Livestock will usually be closer to water in a square paddock

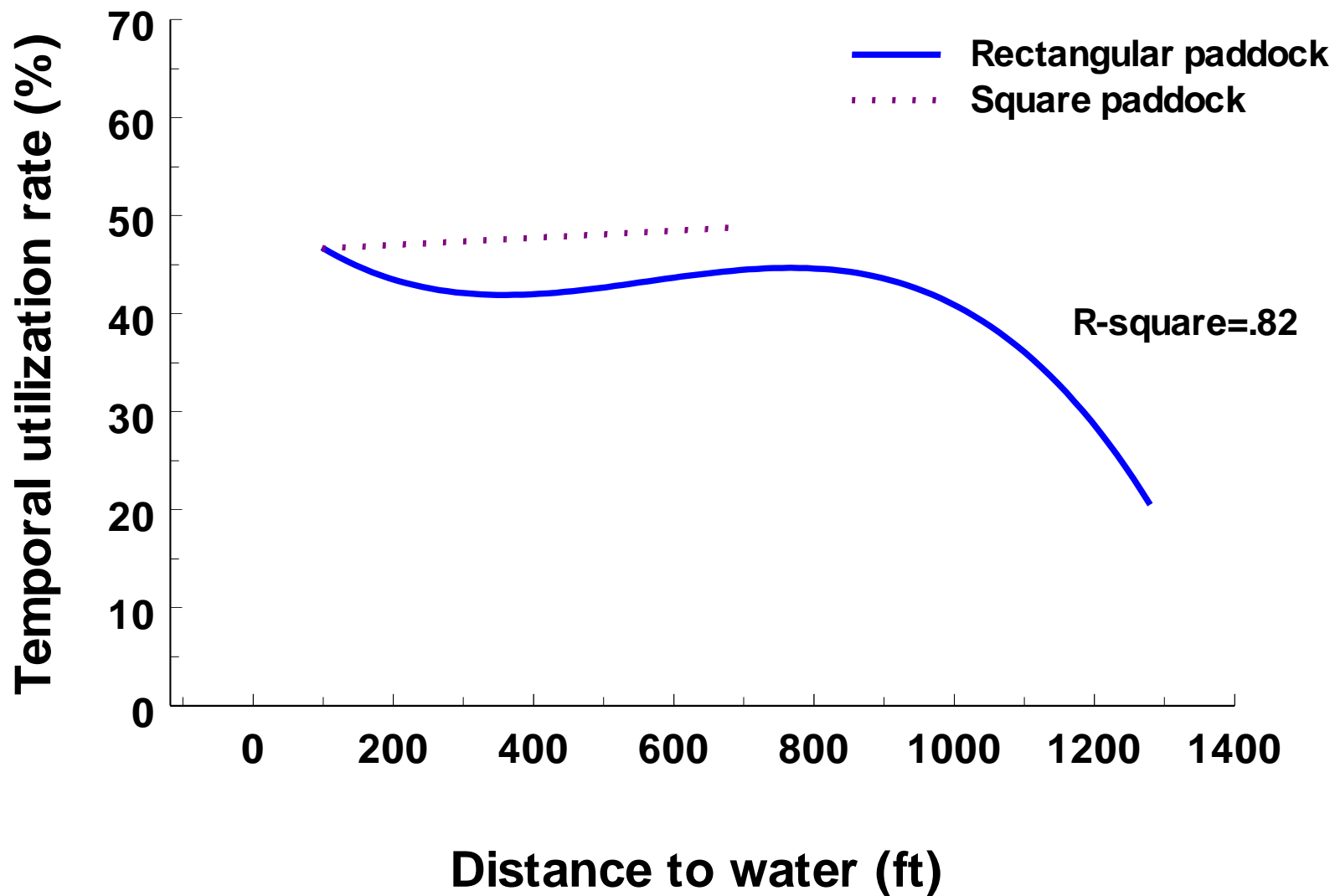


Three options for dividing a 40 acre pasture

Guidelines for Grazing System Design

- Make paddocks as near to square as possible
 - Less fence required
 - Livestock are usually closer to water
 - More uniform grazing distribution

Figure 2. Impact of distance from water on temporal utilization rate in square and rectangular 10 acre paddocks.



Guidelines for Grazing System Design

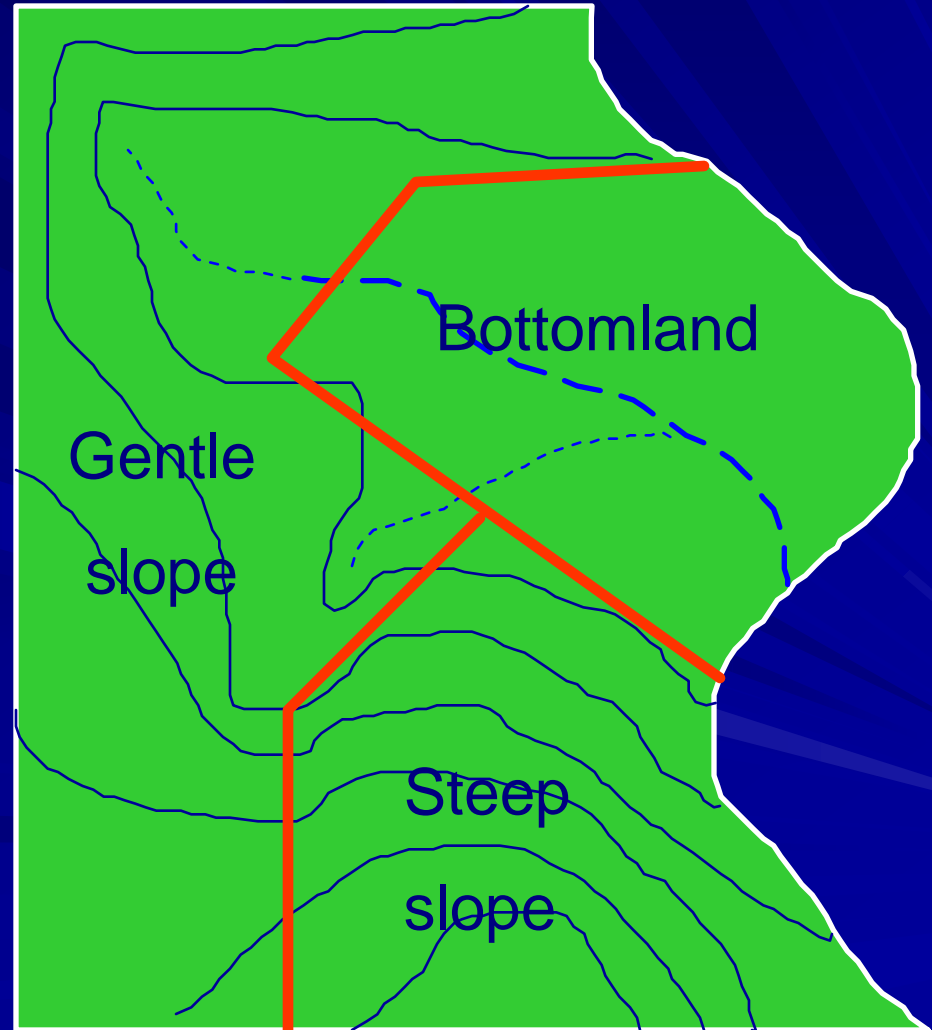
- Keep livestock within 800 ft of water
- Make paddocks as near to square as possible
- Follow contour lines of the landscape for paddock boundaries

Guidelines for Grazing System Design

- Follow contour lines of the landscape for paddock boundaries
 - Soil drainage
 - Plant community
 - Slope and aspect
 - Erosion

Grazing System Design

Make primary subdivisions along contour lines or major soil changes



Guidelines for Grazing System Design

- Keep livestock within 800 ft of water
- Make paddocks as near to square as possible
- Follow contour lines of the landscape for paddock boundaries
- Size paddocks by similar grazing capacity, not similar acres

Guidelines for Grazing System Design

- Size paddocks of similar grazing capacity
 - Keep diet (availability) more consistent
 - Ease of rotation management
 - Can maintain desired rest period regardless of order pastures are grazed

Guidelines for Grazing System Design

- Keep livestock within 800 ft of water
- Make paddocks as near to square as possible
- Follow contour lines of the landscape for paddock boundaries
- Make paddocks of similar grazing capacity, not similar size
- Use lanes for livestock movement

Animal Movement

Goals

- Move livestock from any paddock to any other paddock without going through a third paddock
- Move animals from any paddock to working facilities without going through another paddock .

Lanes

- Plan lanes for livestock movement only
 - 15 - 20 % of manure is deposited in lanes
 - Cattle with water available in the paddock drink about 15% more water per day
 - Most erosion begins in vehicle tracks .



Lanes

- Width:
 - Machinery Movement through lanes
 - Make gates same width as lanes
 - If trail begins to erode, run hotwire down middle of trail .



Lanes

- Width
- Keep lanes on the contour when possible

Lanes

- Width
- Keep lanes on the contour when possible
- Avoid wet areas when possible



Lanes

- Width
- Keep lanes on the contour when possible
- Avoid wet areas when possible
- Use lanes for access to winter water



Guidelines for Grazing System Design

- Keep livestock within 800 feet of water
- Make paddocks as near to square as possible
- Follow landscape lines for paddock boundaries
- Make paddocks of similar grazing capacity
- Plan lanes for livestock movement only
- Provide secure training facilities

Guidelines for Grazing System Design

- Provide secure training facilities
 - When exposing new animals to electric fencing they must be trained to respect psychological barriers
 - Area must be a physical barrier
 - Crowd animals within physical barrier with electric fencing
 - Use any material that will be used in the grazing system
 - Goal is to get as many animals educated (shocked) in as short of time as possible .

Guidelines for Grazing System Design

- Keep livestock within 800 feet of water
- Make paddocks as near to square as possible
- Follow landscape lines for paddock boundaries
- Make paddocks of similar grazing capacity
- Plan lanes for livestock movement only
- Provide secure training facilities
- Plan for adverse weather conditions

Guidelines for Grazing System Design

■ Plan for adverse weather conditions

- Sacrifice paddock for extremely wet conditions.
 - During drought?
- Shelter from extreme cold/wet conditions
- Shade – during extreme heat .

Do cattle need shade?

■ It depends!

- Are cattle grazing endophyte infected fescue?
- Is the heat index over 100?
- Have the cattle been selected for short hair coats and heat tolerance?
- Is plenty of good quality water present?
- What is the overall condition of the animals?
- What are the animals accustomed to?

Shade

- Cattle tend to congregate under shade even when they don't need it
 - Time spent under shade reduces time spent grazing
 - Less grazing time results in less intake and reduced performance



Shade

- Shade is probably needed to help reduce heat stress any time the heat index is 100 or above
 - Especially if livestock are grazing endophyte infected fescue

Effects of endophyte and shade Cow/calf

	E+S-	E+S+	E-S-	E-S+
Cows				
ADG	-0.45	0.27	0.61	0.48
Δ BCS	-0.5	-0.1	0.1	0.1
Δ HHS	0.3	-0.1	-0.5	-0.3
%Preg.	37.5	87.5	62.5	87.5
Calves				
ADG	1.70	1.87	1.99	2.13
Δ HHS	1.1	0.8	-0.4	0.1

Shade

■ Shade can be

- Portable,

- Portable shade must be moved often to prevent nutrient displacement and maintain good ground cover

- Natural shade within the paddocks, or

- Shaded areas to move livestock to.

- Some producers successfully graze shady paddocks during the day and move to paddocks with no shade at night

Shade

- Have some paddocks with shade available
- On hot, high humidity days, turn livestock into paddocks with shade
- On cooler or low humidity days, rotate livestock to paddocks without shade
- Cull animals with overheating problems.

ROTATION

- Move animals by watching the forage
 - NOT by order of paddock
 - NOT by the calendar.



Layout

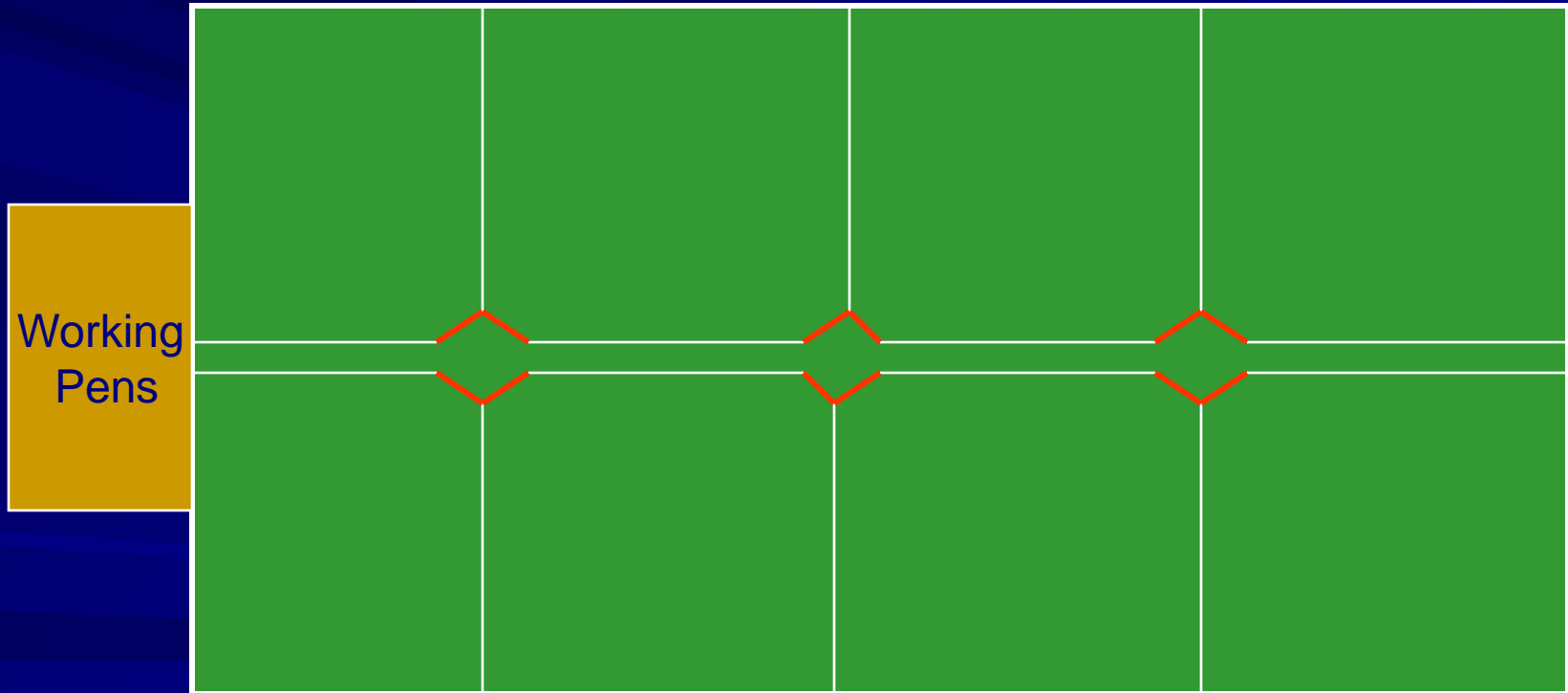


One wire



Layout

■ Gate Locations



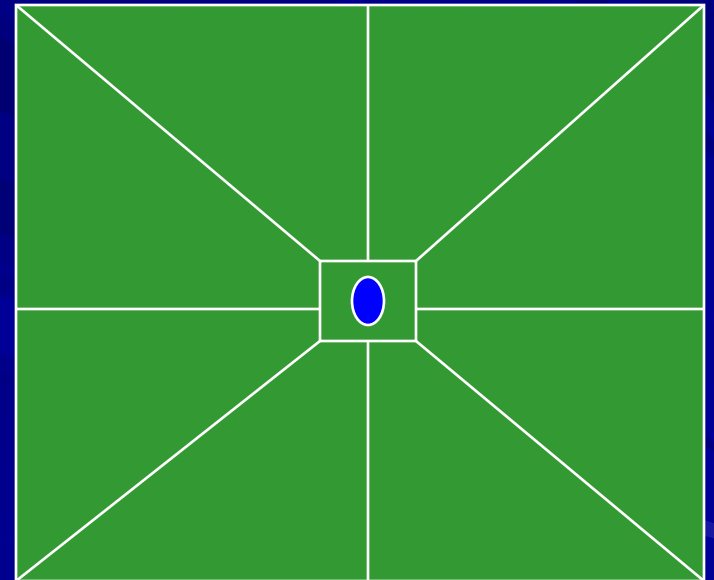
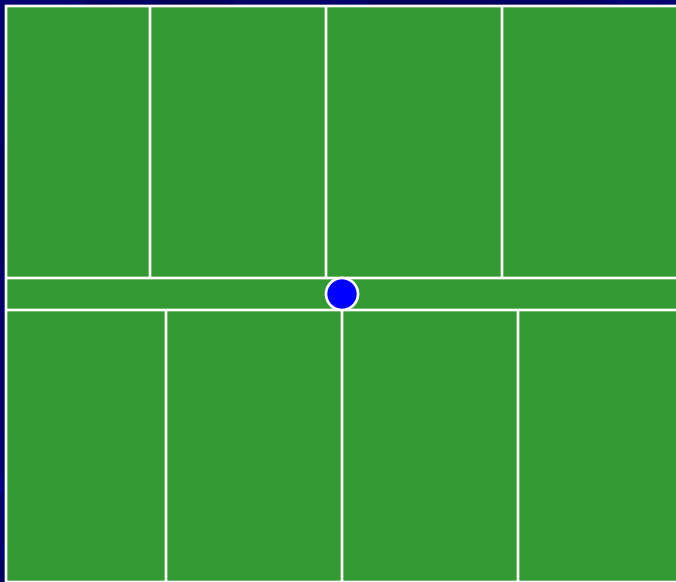
Layout

■ Gate Locations



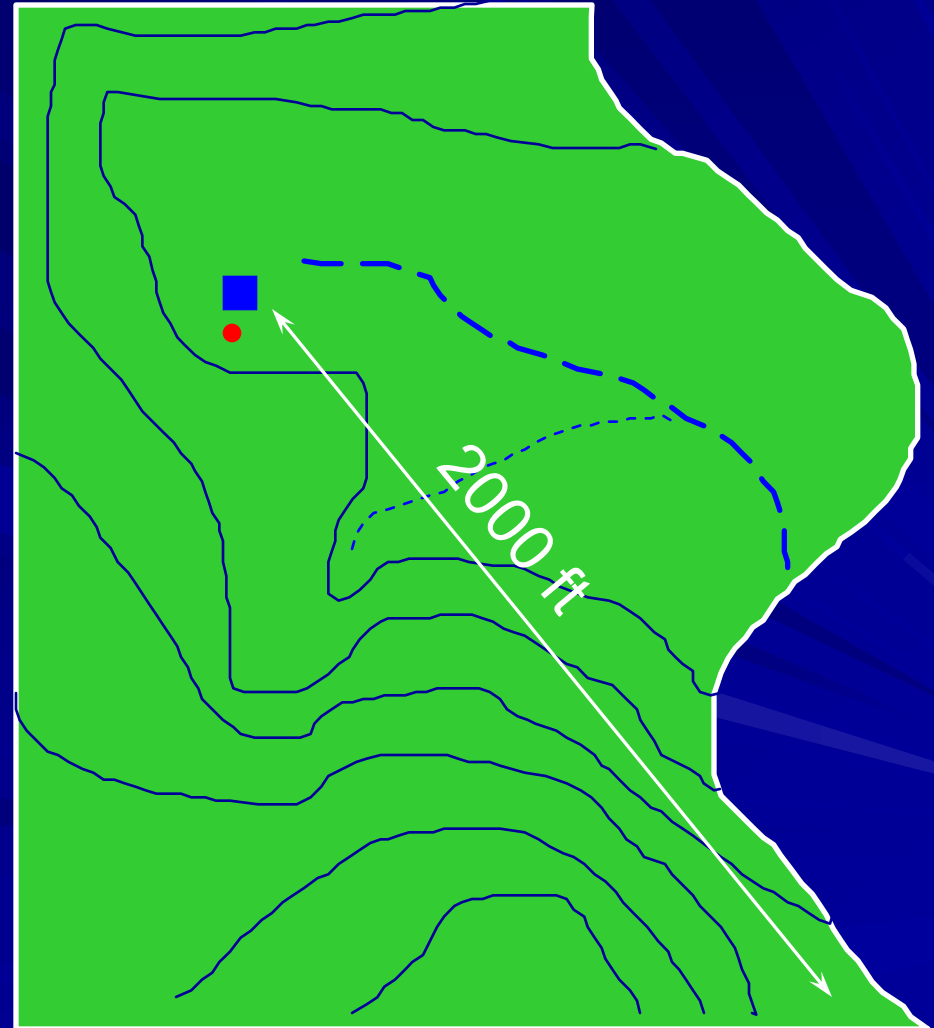
Layout

■ Lanes vs. Pie Shape



Grazing System Design

- 140 acre pasture
- Intermittent streams
- One water source
- Variable landscape
- 2,000 ft maximum travel distance to water



Grazing System Design (cont.)

- Fixed system
 - Uses permanent fence and watering points
- Flexible system
 - Uses portable fence and water facilities in a framework of permanent fence

Grazing System Design (cont.)

- Fixed system
 - Uses permanent fence and watering points



Fixed System Design (cont.)



The starting point for planned grazing management

Can manage each field according to needs:
fertility
plant species
growth/rest

Fixed System Design (cont.)



The beginning
of management
intensive
grazing

Can you
identify
potential
problems?

Fixed System Design (cont.)



- 8 paddock system
- Water available in every paddock
- Alleyway for ease of livestock movement

Fixed System Design (cont.)

- Fixed system
 - Uses permanent fence and watering points

Advantages:

- Relatively low cost on large installations
- Minimal daily labor
- Low maintenance

Disadvantages:

- Relatively high cost on small operations
- Limited management flexibility
- Water mainly in lanes

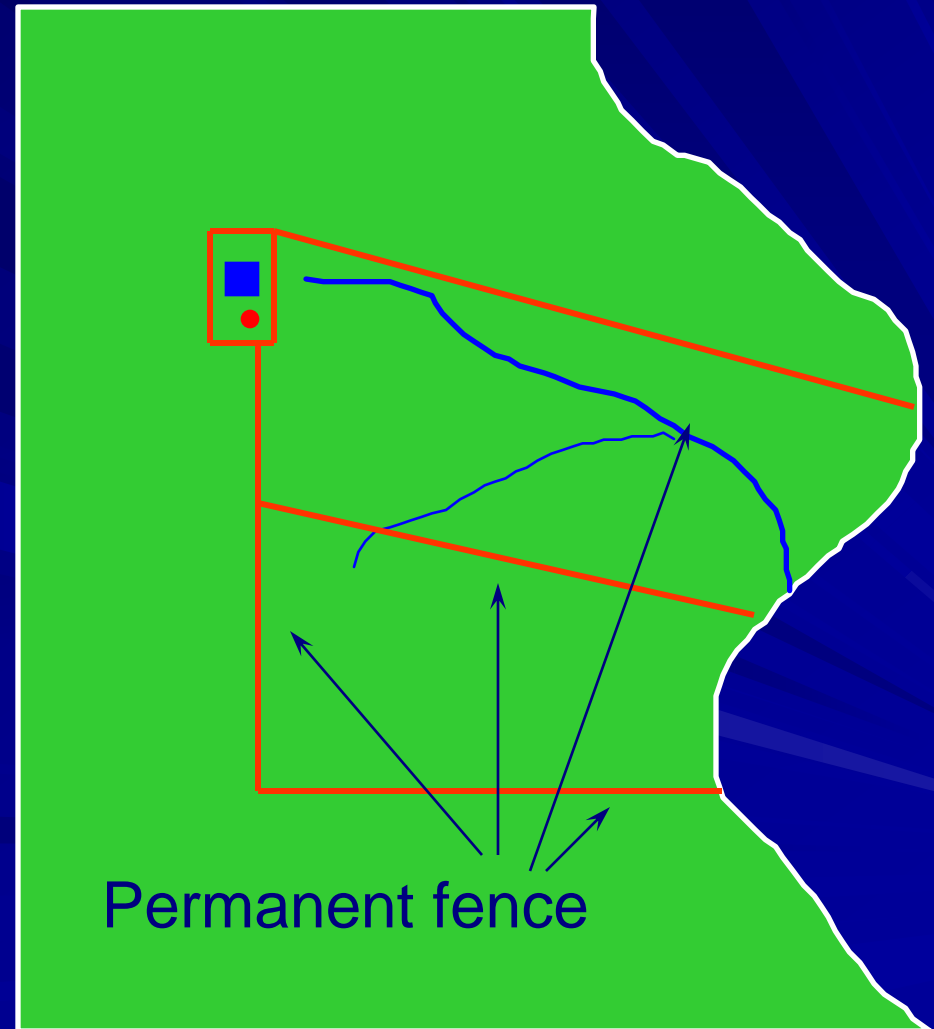
Grazing System Design (cont.)

- Flexible system
 - Uses portable fence and water facilities in a framework of permanent fence

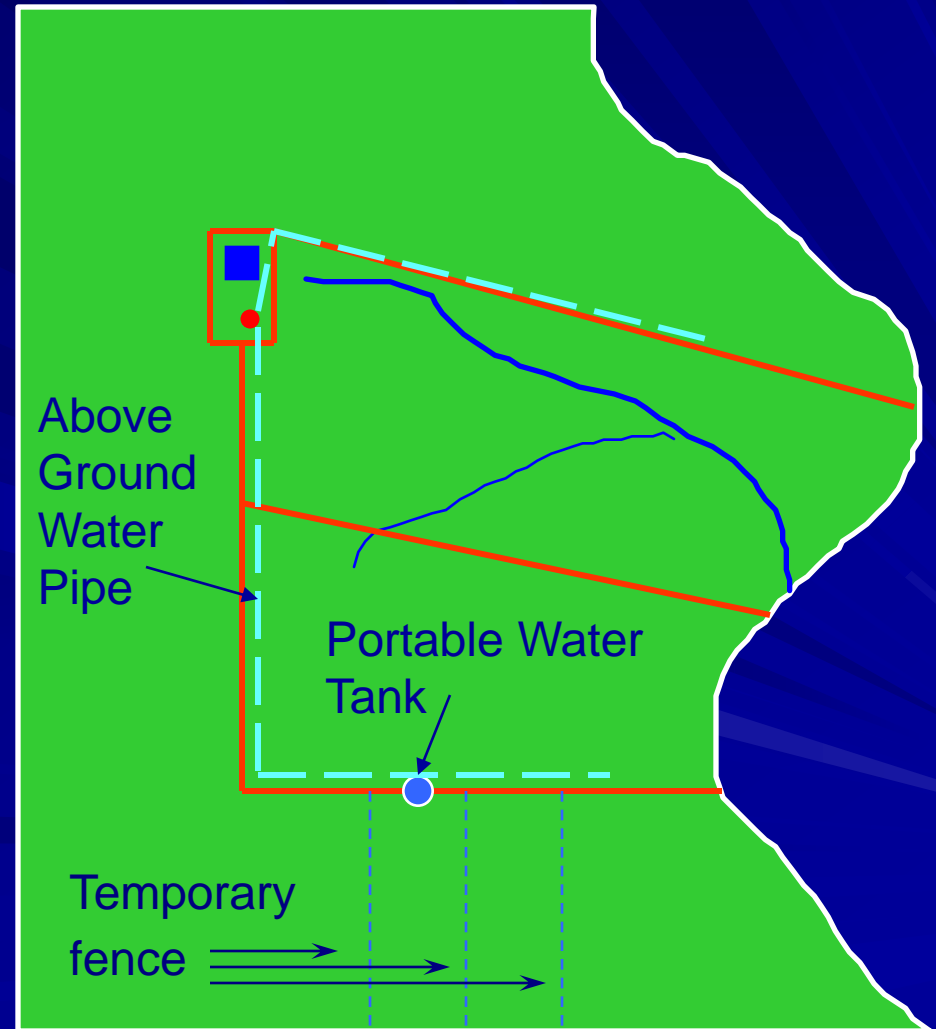


Flexible System Design (cont.)

- Minimizes use of permanent fence
- Make corridors as near to parallel as feasible
- Keep fence spacing less than 660 feet



Flexible System Design (cont.)



Flexible System Design (cont.)

- Flexible system
 - Uses portable fence and water facilities in a framework of permanent fence

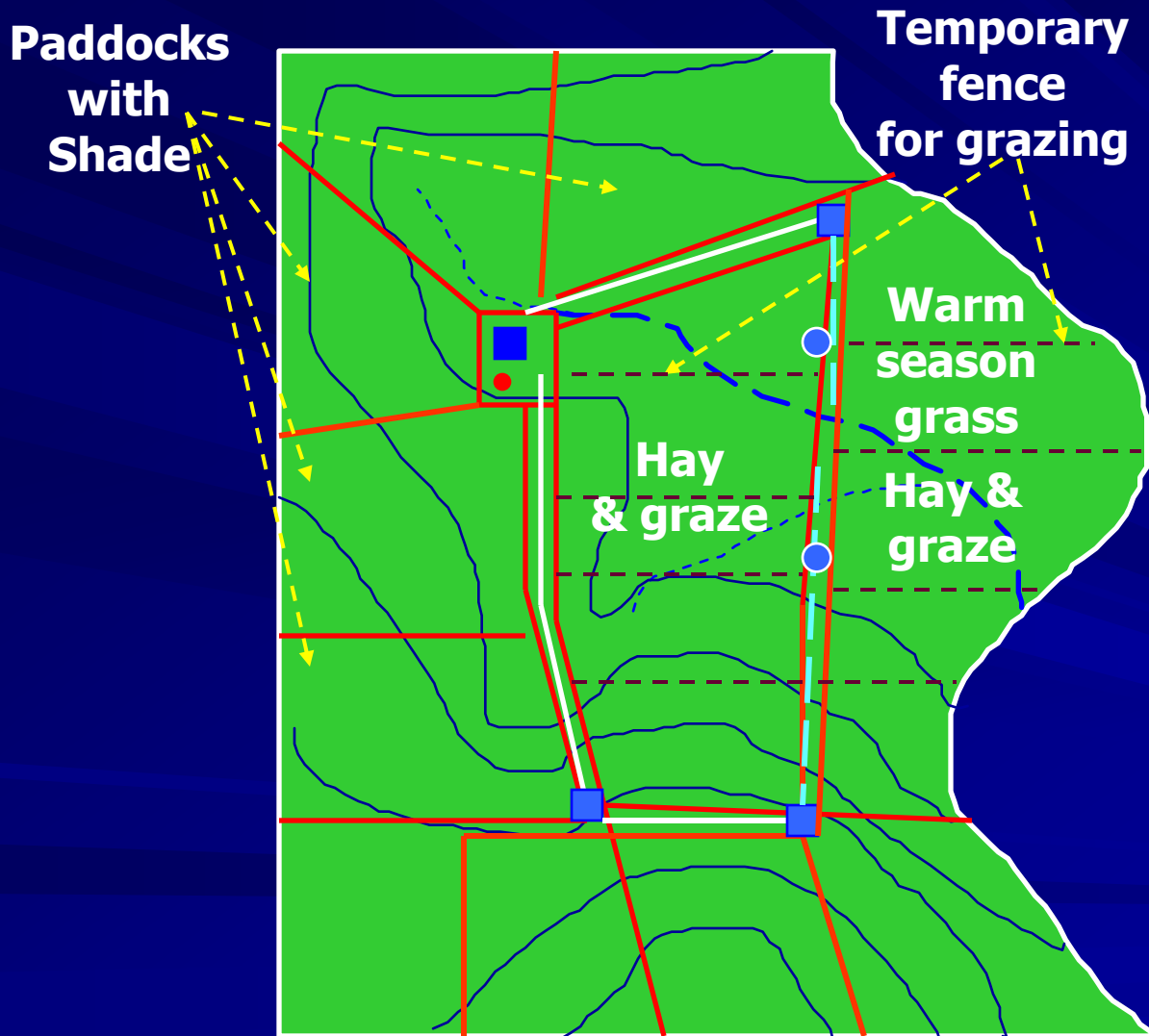
Advantages:

- Maximum management flexibility
- Lower initial capital cost
- Works well on rented land

Disadvantages:

- More daily labor required
- More maintenance
- No Winter Water

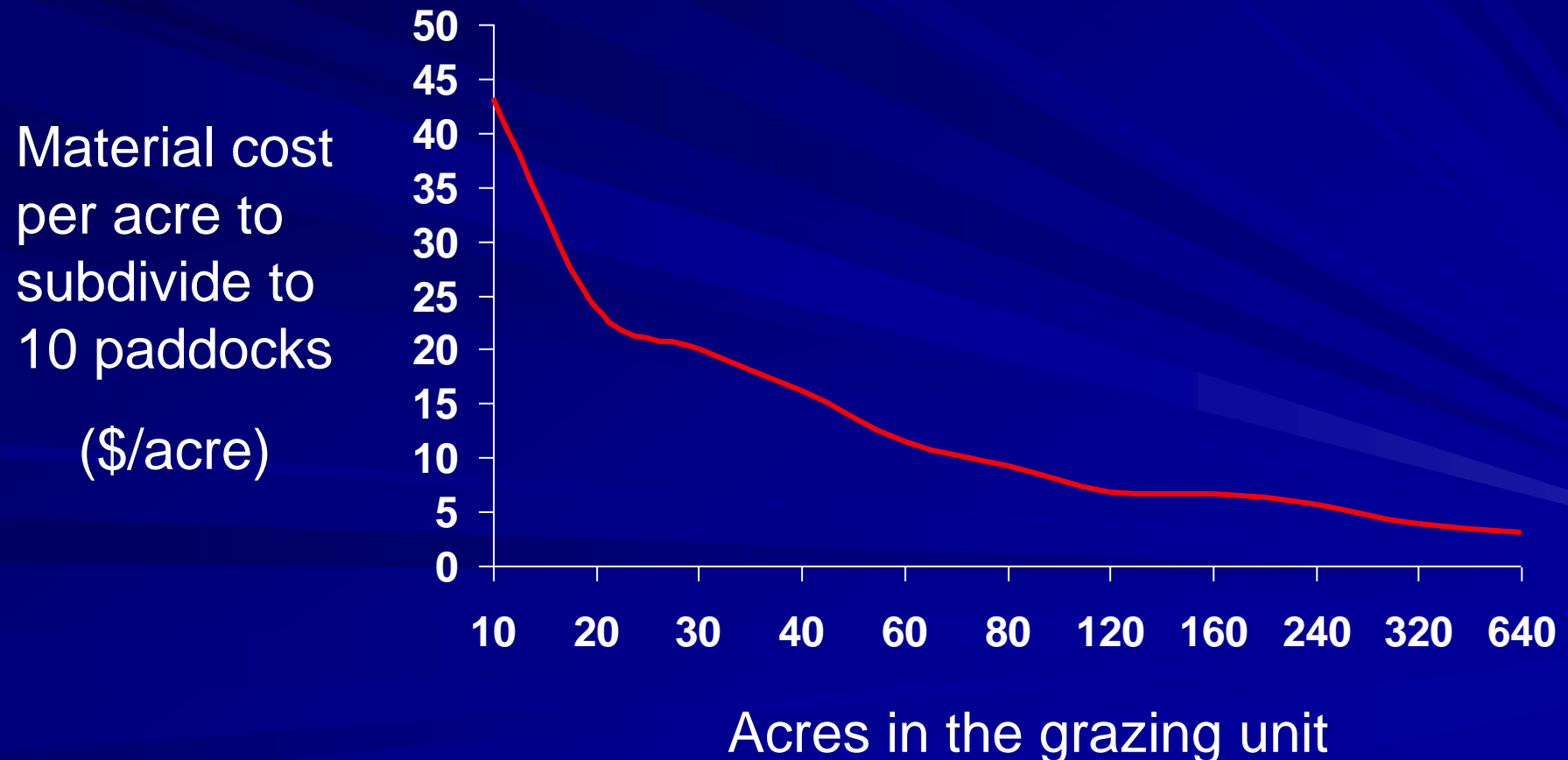
Fixed System Design (cont.)



- 9 paddock fixed system
- Flexible paddock numbers in hayfields and/or warm season grass
- Water available in every paddock
- Alleyway for ease of livestock movement
- Very flexible, workable system

Guidelines for Grazing System Design

The larger the grazing unit,
the lower the cost/acre to subdivide



Summary

- There is no perfect system, only those that use good management principles to best fit available resources.
- The most flexible system will have some combination of permanent and portable fencing and water.



