

Watering System For Grazing Livestock

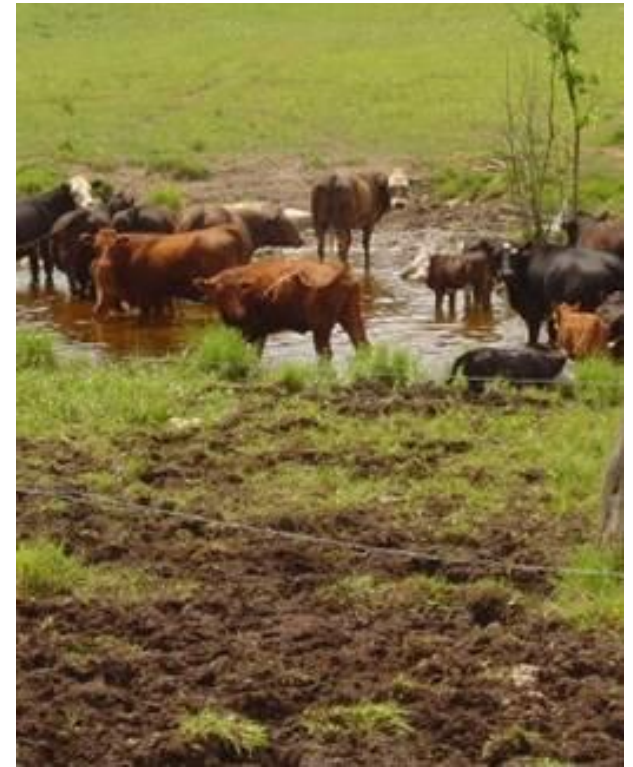
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2017 Beginning Farmer Webinar Series

Livestock Water

- Focus will be on pasture water systems
- Often the most overlooked of the nutrients
- A clean, fresh supply is vital
- Surface water will work (consider GAAMPS)
- Rules of thumb:
 - 1 gallon/100 pounds body weight in cold weather
 - 2 gallons/100 pounds body weight in the hottest weather
 - Lactating cows will consume about twice as much water as dry cows

Michigan Surface Water Regulations

- Rule #1
 - Cannot pollute the waters of the state
 - Essentially this means contaminated water cannot leave your property.
- Rule #2
 - Refer to rule #1



Consideration for Watering Systems

- Temporary, season or full year water needs
- Type and location of available water sources
- Site locations and conditions (remote location, topography, riparian features)
- Type of grazing system (intensive or continuous)
- Number and type of livestock
- Tank and water line sizing
- Access to power source (mainline power, solar, wind, animals, etc.)
- Pumping system (amount of lift, automated versus manual)
- Flexibility and portability
- Reliability and maintenance
- Cost/benefit and cost/animal
- Personal preference

Full Season Water Supply

Closed top systems



Open top, heated systems



Paddock Water Delivery Advantages

- More uniform pasture utilization
- Livestock performance increases
- Health benefits (lower disease risk)
- Manure distribution improves in pastures
- Tank size can be smaller
- Better water quality
- Environmental benefit by limiting access to surface water

Forage Utilization / Distance to Water Source

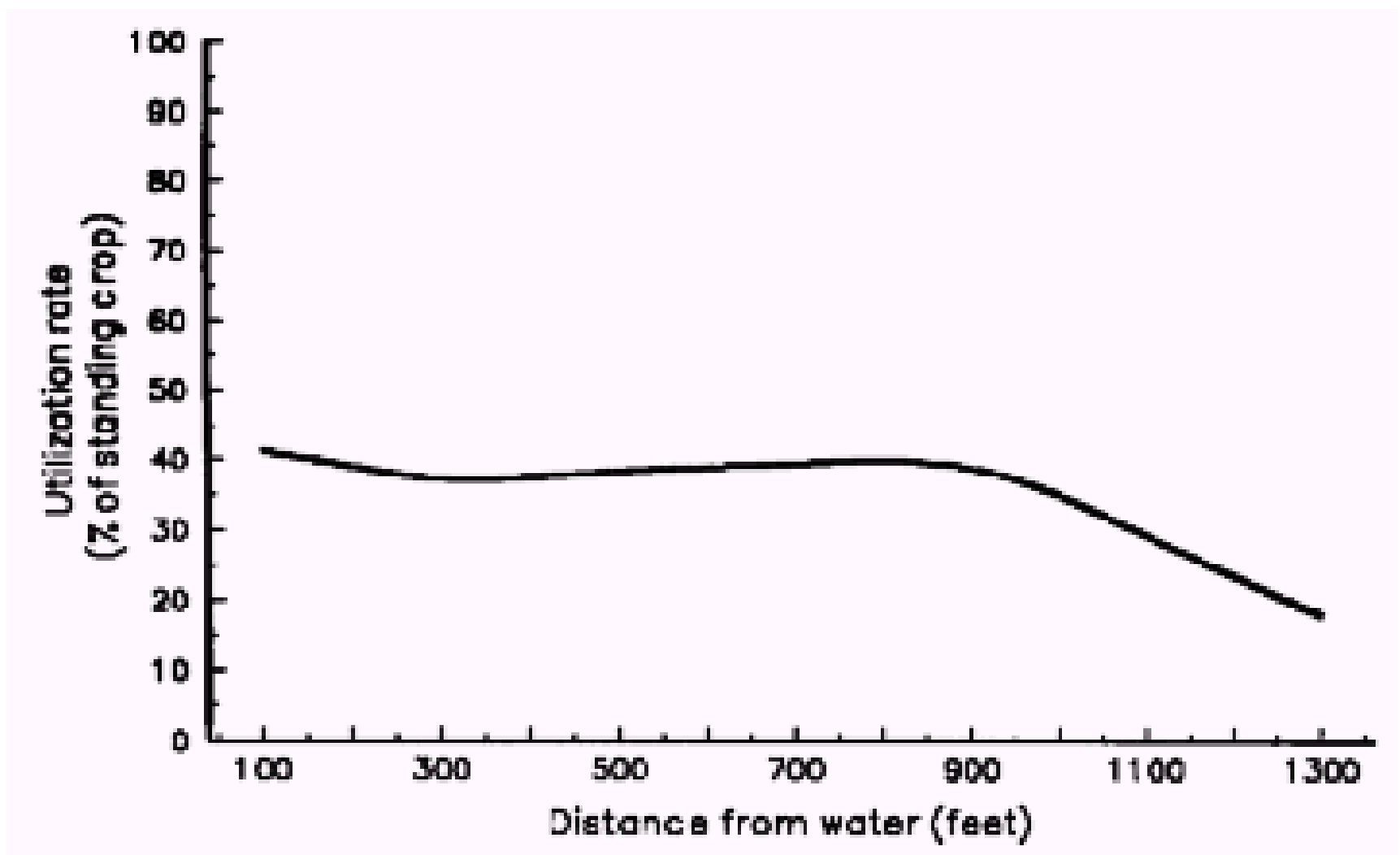


Figure 1. Impact of Distance from Water on Temporal Utilization Rate in Ten Acre Pastures with 4:1 Length to Width Ratio.

Equipment List

- Water Line (High Density UV Resistant)
 - Bury under gateways or high traffic areas
- Quick-couple valves
- Tank hose with connector
- Full Flow Tank Valves
- Tank(s)



Water Delivery in Pastures



Tank Area Maintenance



Mined Soils Around Water Source



Pre-winter Maintenance

- Disconnect water from the summer source
- Place male-end in the coupler at the ends of the water system
- Disconnect water line at a joint in a low area
- This will allow gravity to drain the pressure off the line and prevent freezer damage to the system
- Blowing out the line is extra insurance

Water Delivery Systems

Pump Systems

- Nose
- Ram
- Sling
- Solar
- Generator
- Windmill
- Electric

Surface Water

- Riparian Rights
 - surface water
- Hauling Water



Nose Pumps



Dimensions And Performance

Length 28 ¼"

Width 10"

Height 15 ¼"

Weight 22 lbs

Pipe Size 1"

Water per stroke = 1 pint

Maximum Vertical Lift 26 ft

Maximum Horizontal Distance 126 ft

- <http://www.riferam.com/pasture/index.htm>

Nose Pumps

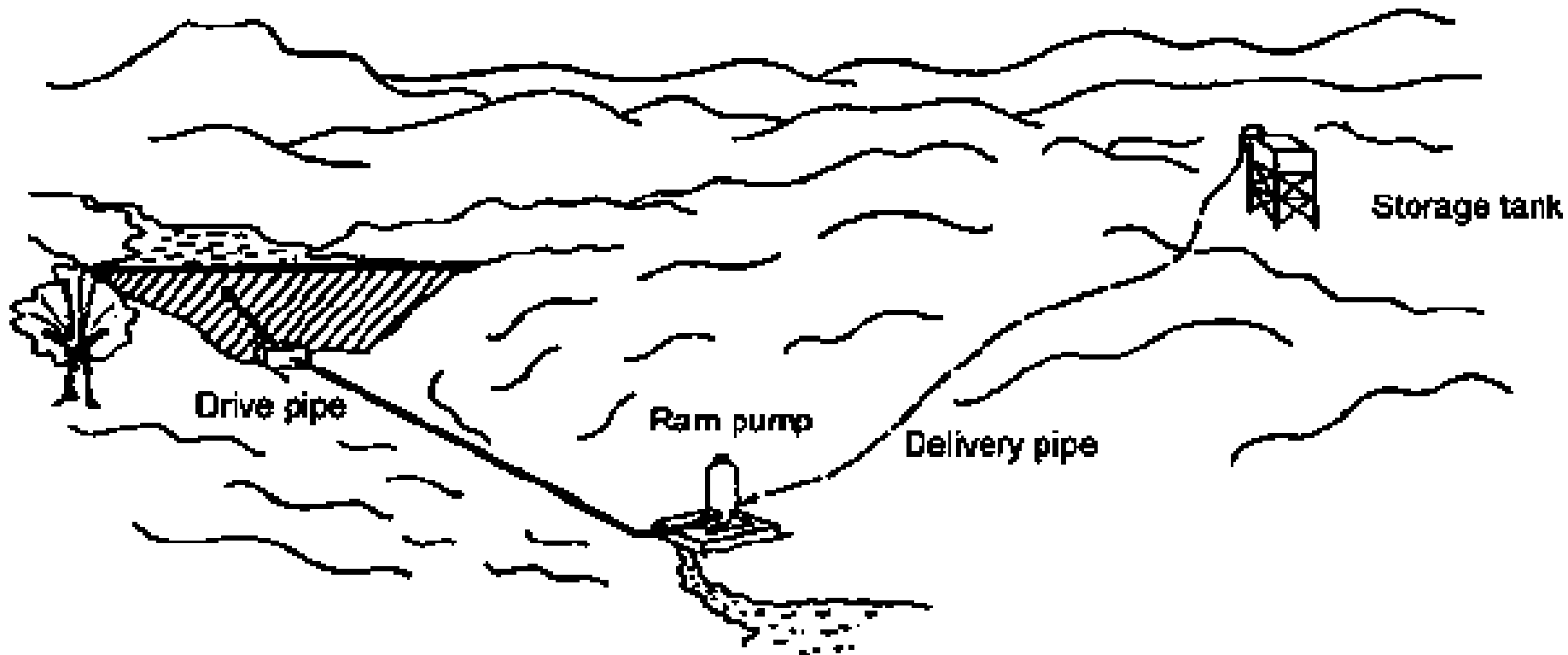
Pros

- No electric power required
- Portable
- Utilizes surface water without livestock contact

Cons

- Expensive
- Multiple required for larger herds
- Must be anchored
- Slow water delivery
- Difficult for young stock

Ram Pumps



Ram Pumps

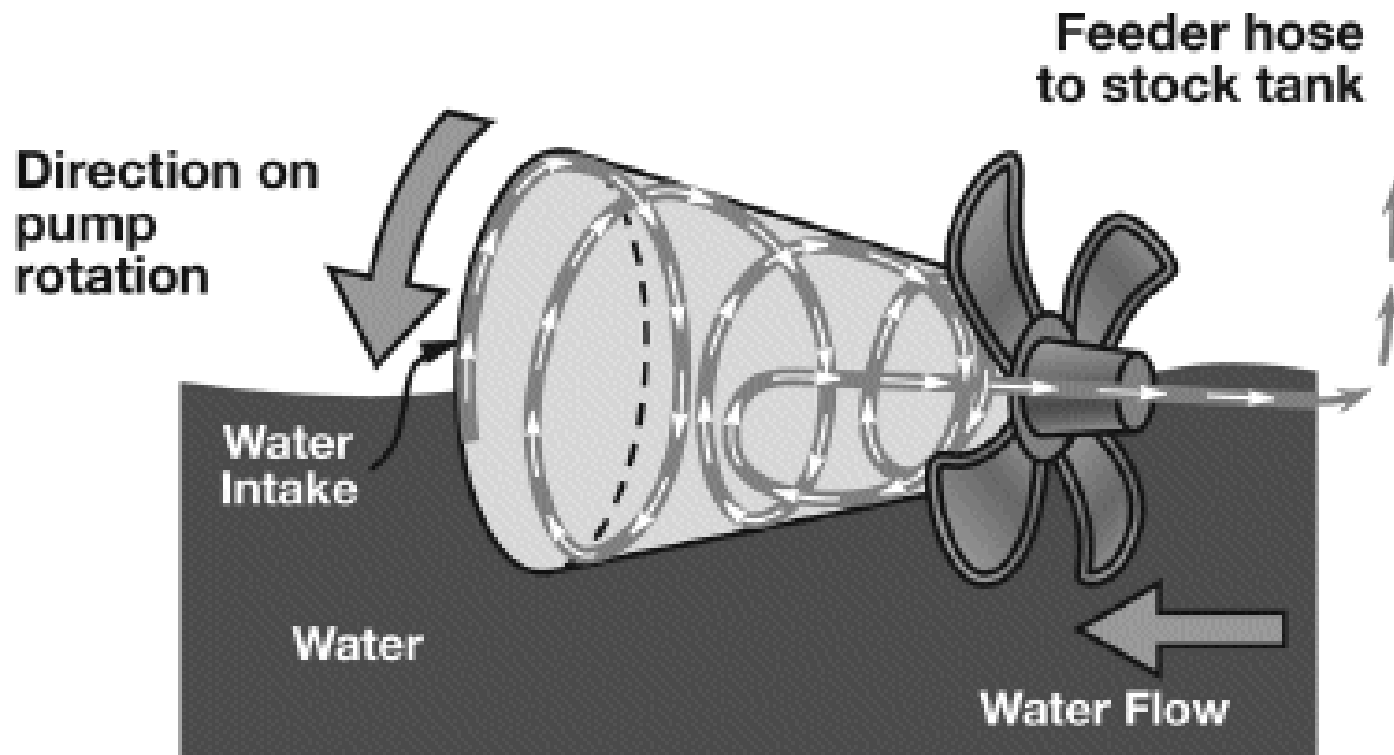
Pros

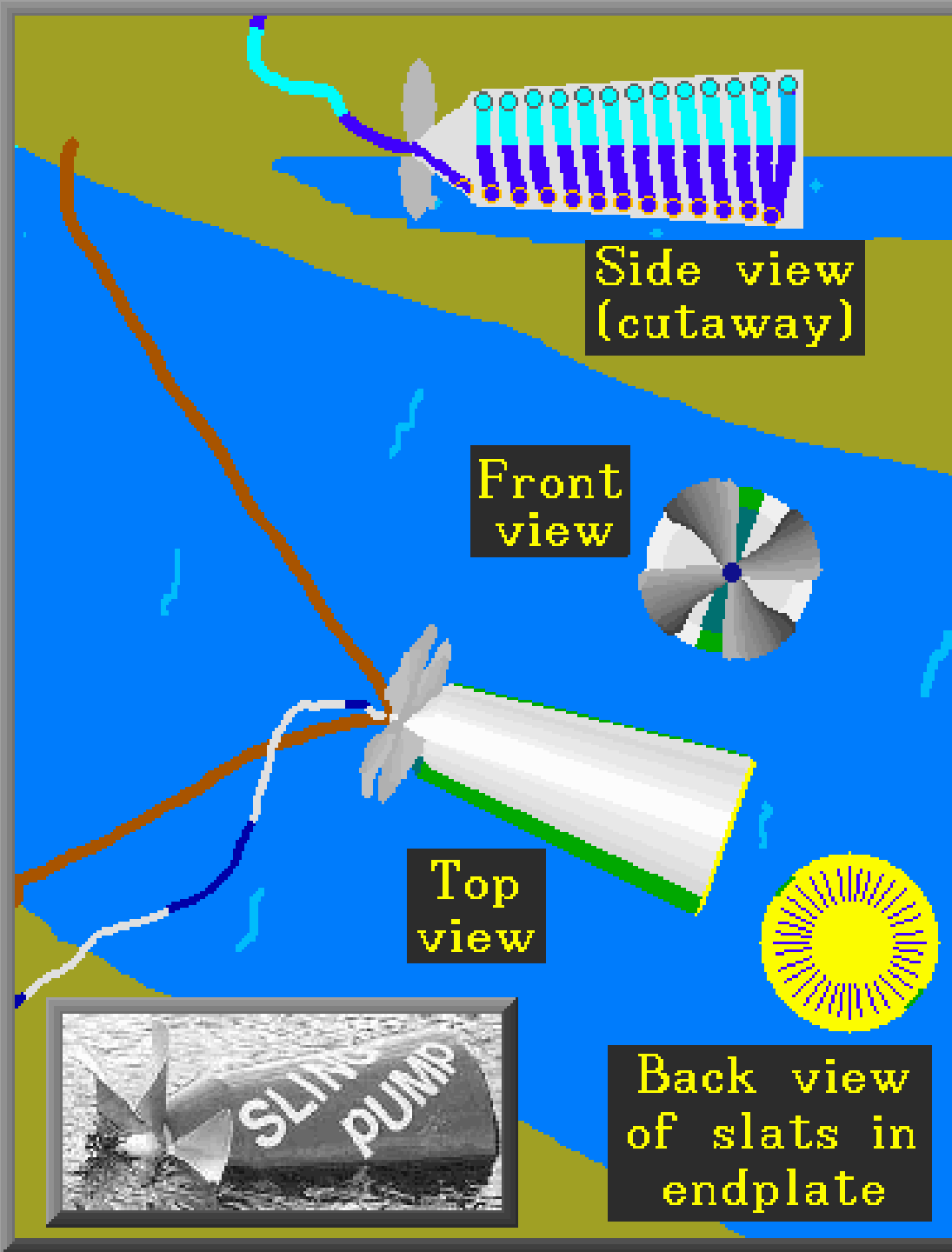
- No power required
- Minimal investment
- Accesses surface water without livestock contact

Cons

- Maintenance can be higher
- Slow delivery
- Distance restrictions
- Not applicable in winter
- 10% efficiency
- Seasonal due to water flow

Sling Pump





Side view
(cutaway)

Front
view

Top
view

Back view
of slats in
endplate



Sling Pumps

Pros

- Utilize surface water without contact
- Can move water up hill a limited distance
- Cheaper than building seasonal water access ramps

Cons

- Requires moving water
- Seasonal challenges with river levels
- Requires regular inspection
- Limited pumping distance
- Expensive

Solar Pump Systems

- Pump



- Solar Panel



Solar Pumps

Pros

- Remote locations
- No line power required
- No damage from dry-running pumps
- Require large tanks

Cons

- Cost (\$2000+)
- Sunshine required
- Large tank required
- Not very mobile
- Slower delivery
- May require battery back-up
- Well may be required

Temporary Water Sources

- Hauling Water
- Truck or wagon
- Must have large water tank
- Portable Pumps
- Need larger water tank

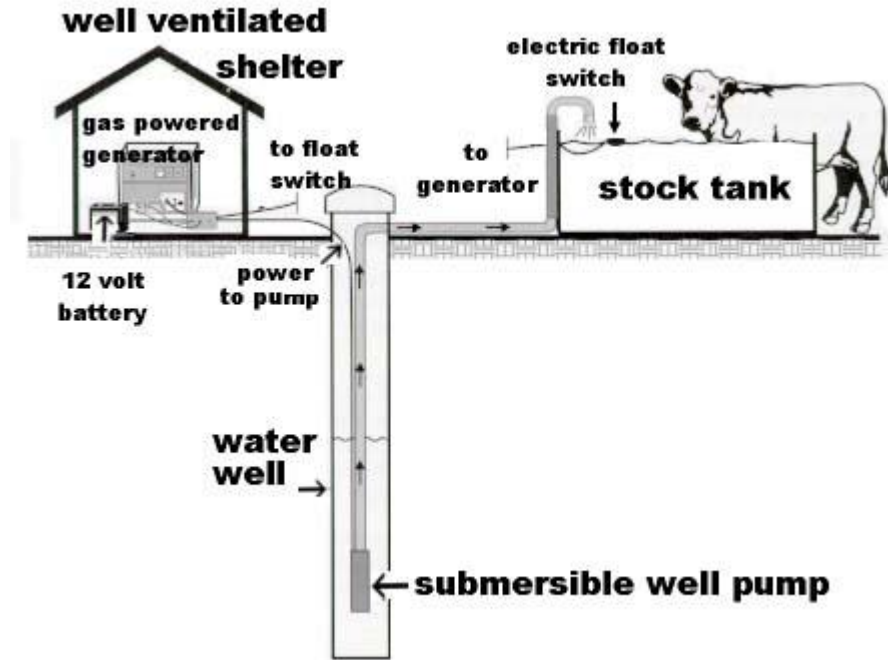


Other Power Systems

Wind Generator



Gas or Diesel Generator



Surface Water Sources

Pros

- Low cost
- Often readily available

Cons

- Environmental Risk
- Limited Access Required
- Seasonal –drought/winter
- Health concerns

Back-up Water Sources



Electric Pumps

Pros

- Most reliable
- System often already in place at home/farm location
- High volume source
- Lower cost
- Clean & fresh water source
- Easily converted to full season water source

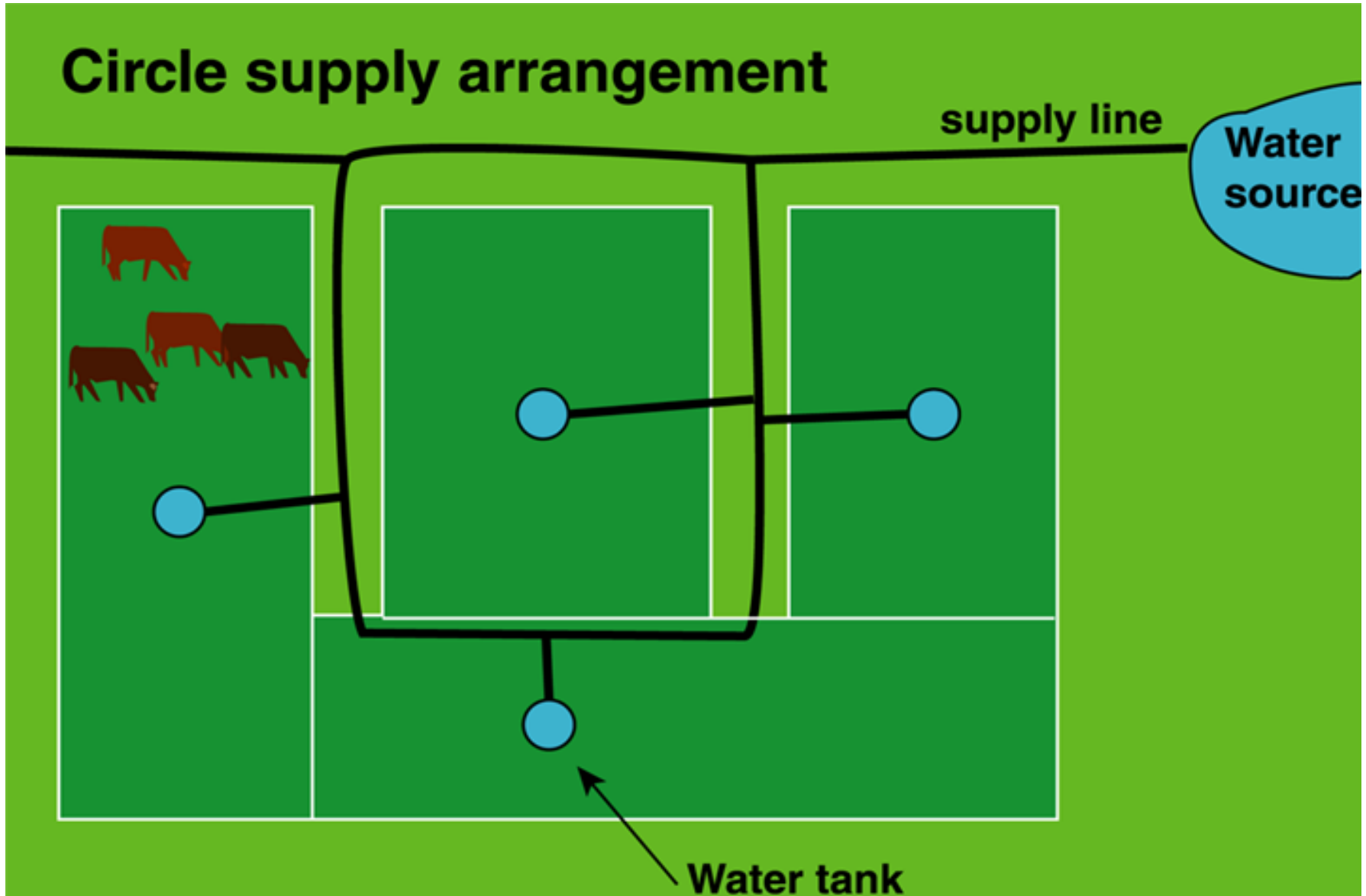
Cons

- Limited distance (1 mile)
- Power Outages
- Electricity is required

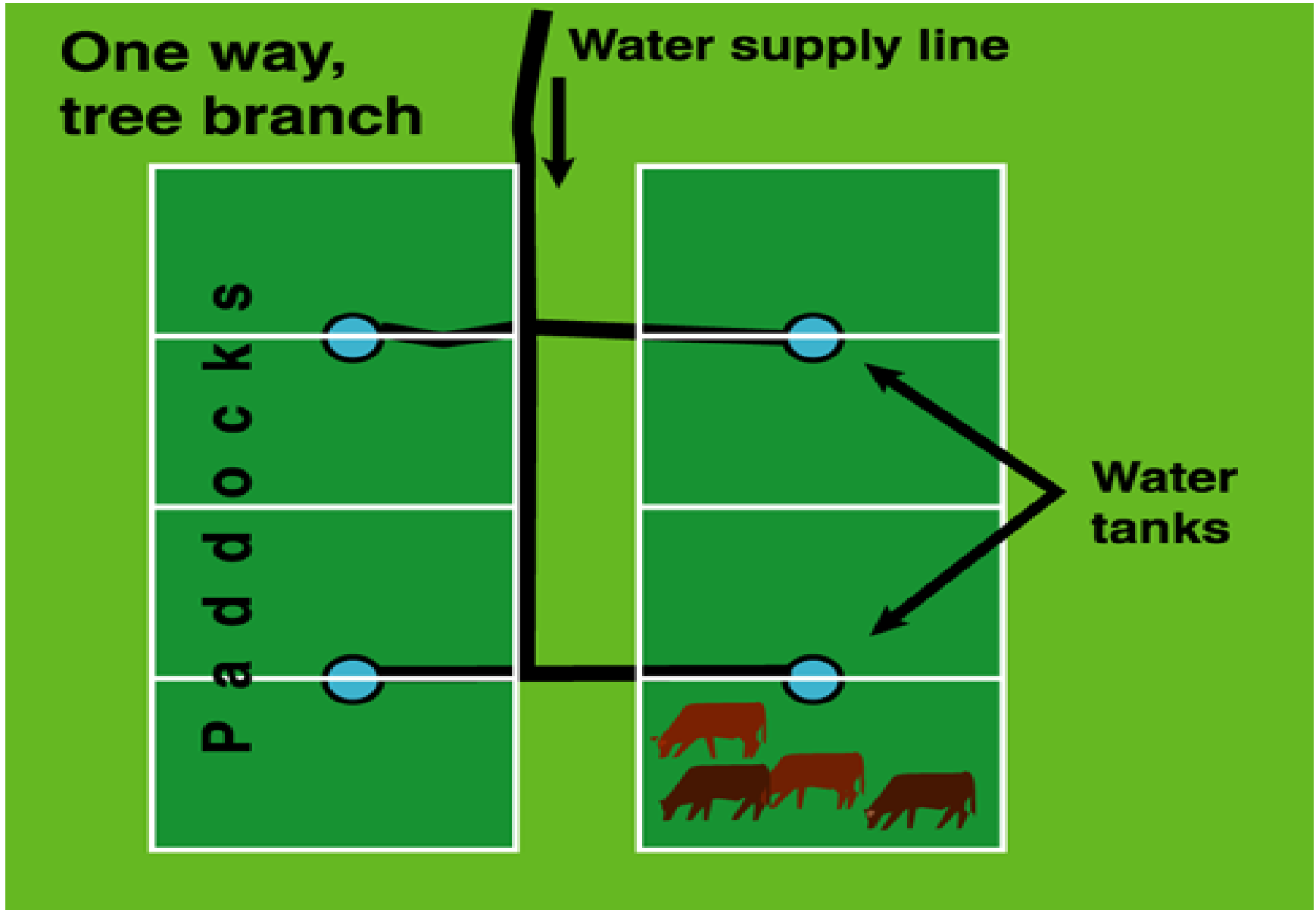


Simple Watering System

Circle supply arrangement



H-style Water / Fencing System



Livestock H₂O Overview

- After forage and fence, watering systems are the next best investment in your operation
- Choose the system or systems most reliable, durable and most cost effective
- ALWAYS have a back-up plan!

Help is available

Questions

<https://www.bae.ncsu.edu/topic/animal-waste-mgmt/program/cattle/developing-off-stream-water-sources.pdf>

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