

Facilities and Waste Management

by

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Overview of

- Buildings, Arenas, Fencing, Water & Waste Management



Site Selection

- Size of Operation
- Restrictions
- Windbreaks
- Existing building
- Topography
- Services
- Water Supply
- Nuisance
- Economy and Aesthetics



SHELTER





BUILDINGS for STORAGE



SIMPLE or ELABORATE

Should provide

- Horses welfare
- Safety, health and comfort of human handlers
- Labor efficient



Specialized Structures

- **Cost**
 - \$35 to \$50/ft² or more
- **Pros**
 - Convenience
 - Visual appealing
 - Designed specifically to meet needs
 - Can be built to mesh with existing structures and landscape
 - Increase in property value
- **Cons**
 - Expensive
 - Constant upkeep
 - Cannot be moved



SIMPLE STRUCTURES

➤ PROS

- Relatively cheap
- Easy to install

➤ CONS

- Basic shelter
- Minimal protection
- Noise

POLE BARN



METAL BARN



Stall should measure at least 100 square feet with dry floor and 10' ceiling

Fenced-in paddock of 600 sq feet enables a horse to get outside daily; but an acre or two of pasture per horse is better



Good Fences Make Good Neighbors & Good Pastures





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So Many Choices



Fencing Considerations

- Balance looks, functionality and economics
- Safety of animals and people
- Installed or do-it-yourself
- Life expectancy
- Annual maintenance costs

Horse Fences



Horses like to lean over the top of fences so it is a good idea to put electric wire, barbed wire or board across the top of woven wire fences

Perimeter should be minimum of 5 ft, 6 ft with taller breeds (15 hand horse is 60 inches tall)

Secure materials to the horse side of posts

Wood rail or post

- Cost
 - \$6/ft materials
 - \$3/ft labor
- Pros
 - Visually appealing
 - Handles heavy snowfall
 - Can be adjusted or small animals by adding mesh
- Cons
 - High maintenance
 - Lifetime?
 - Need additional fencing materials for small animals
 - May need hot wire for livestock



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Electric Fence

- Cost
 - \$1.50/ft materials
 - \$2.50/ft labor
- Pros
 - Portable
 - Inexpensive
 - Versatile
 - Can make an existing fence more effective
- Cons
 - Difficult to see
 - Dangerous to people (Children) and wildlife
 - Maintenance?



Prefabricated Panels

- Metal 2 inch round tubing panels
 - 12 feet \$253 (2017)
 - Gates approximately \$140-210 (2017)
- Cattle and hog panels
 - 16 feet \$29.99 (2017)
- Pros
 - Durable and strong
 - Good for large livestock
 - Panels allow for different configurations
 - Low Maintenance
- Cons
 - Expensive
 - Less visually appealing
 - Not good for small animals



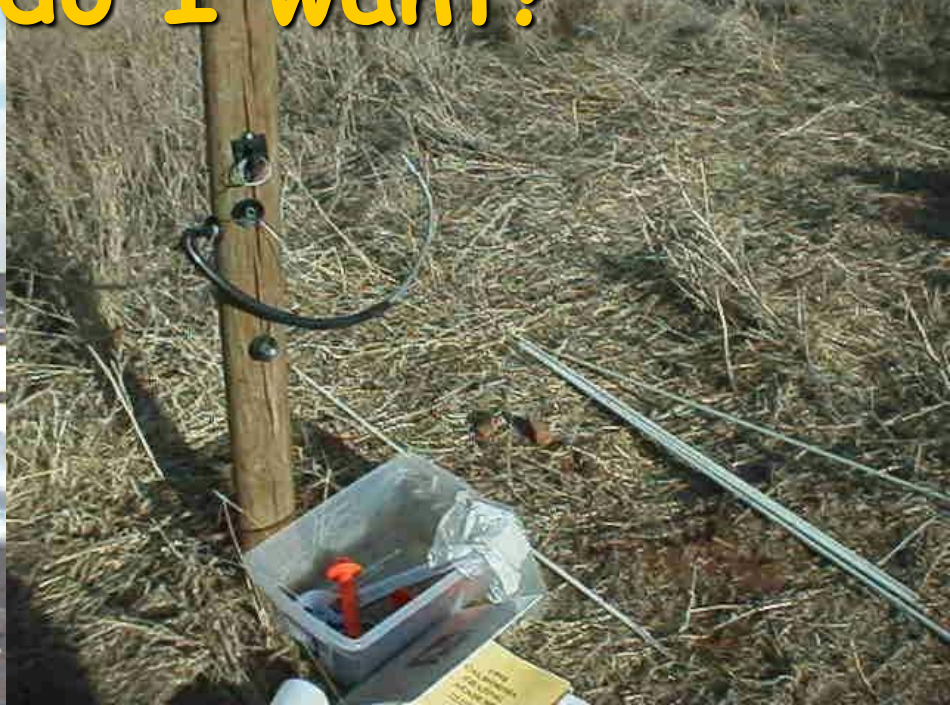
There are many other options

- Field fence roll 47 inches
- 4- strand #10 wire
- No-climb fencing
- Costs
 - \$1.50/ft materials
 - @2.50/ft labor





What kind do I want?



Useful Life of Various fencing materials

Material	Useful Life (yrs)	Maintenance
Wood	15-20	High
Post & Rail	15-20	Low-Medium
Mesh Wire	20-30	Low
Barbless Wire	15	Medium
High Tensile Wire	20-30	Low
Plastic fence	12	Low
PVC	20-30	Low

RIDING ARENA CONSIDERATIONS



•SIZE

•DRAINAGE

•DUST CONTROL



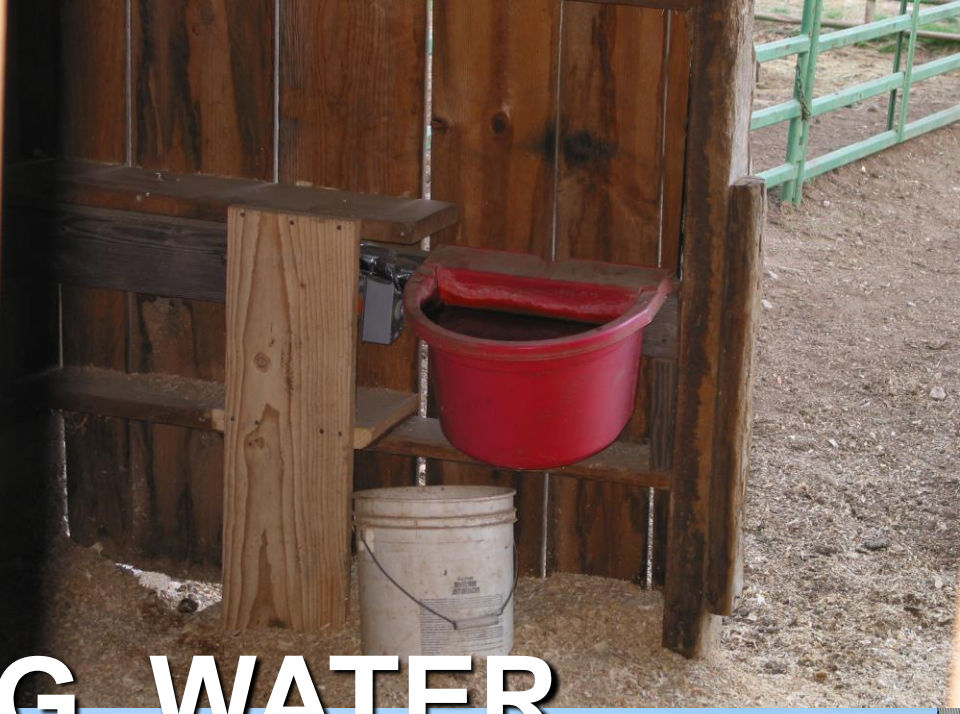
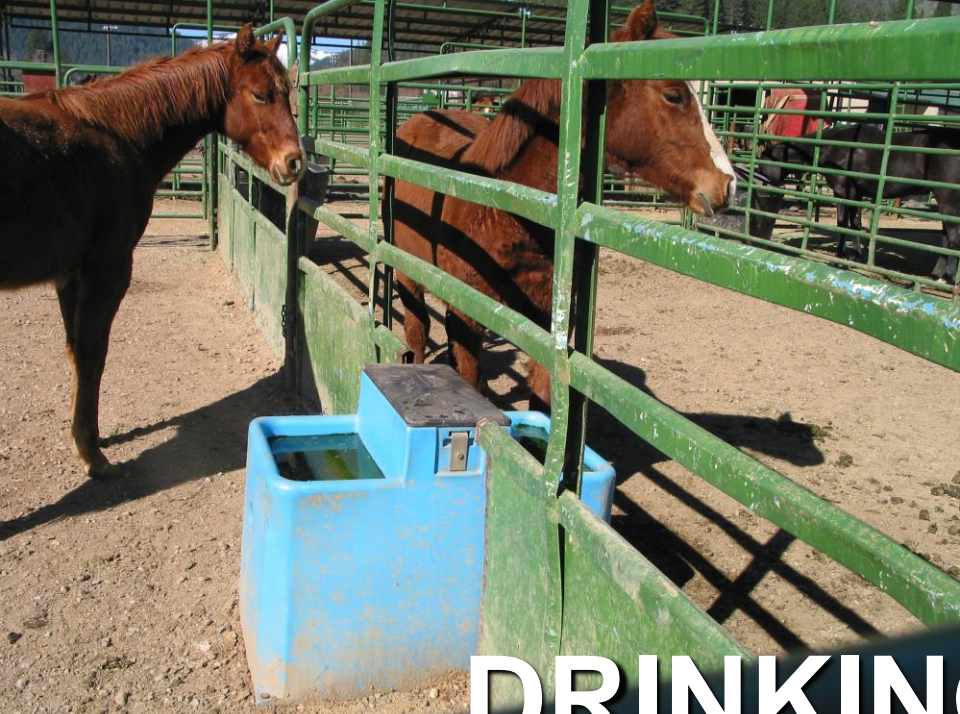
USE & SIZE



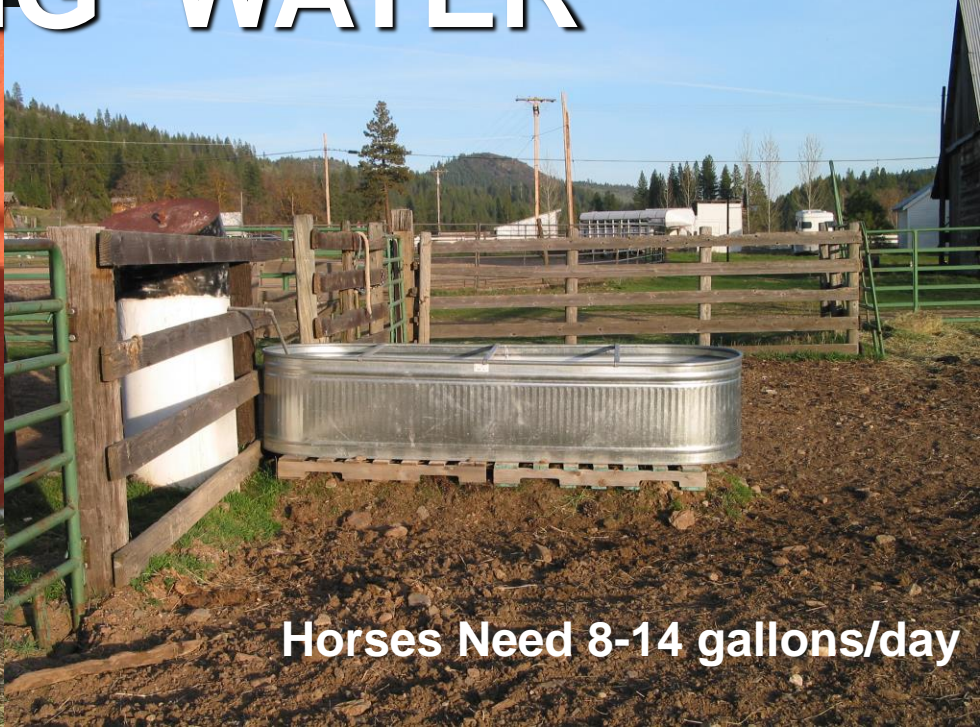
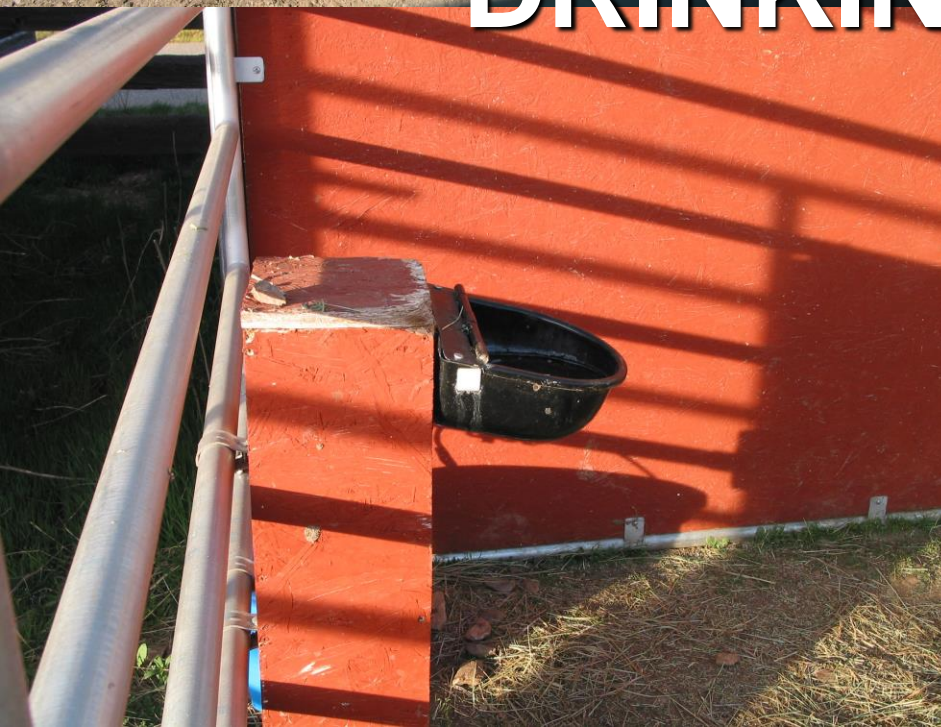


DUST CONTROL

- HOSE WITH SPRINKLER
- PERMANENT SYSTEM



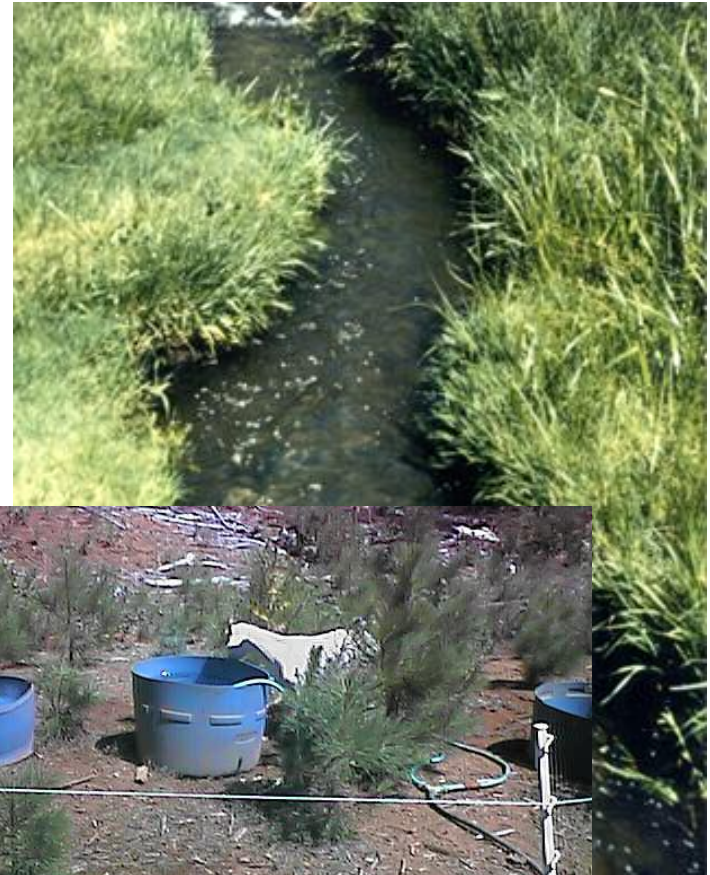
DRINKING WATER



Horses Need 8-14 gallons/day

WATER SOURCES

- Ponds
- Streams
- Wells
- Ditches
- Springs



Make Your Own Water Trough



- You can make your own portable trough by cutting a plastic barrel in half and attaching a float valve . This is being used to water goats grazing for fire suppression and has worked well.

Portable Water

- The design for this portable system came from Kentucky. This system uses a quick coupler hydrant in the main line and has a trough that holds 60 gallons. Heavy duty hose comes out from the tank and has a riser attached at the end. This riser is inserted in the coupler and water flows to the tank.



NON-POINT SOURCE POLLUTION CONCERNS

- Nutrients
- Pathogens
- Sediment (dirt)
- Chemicals
- Debris (junk)
- Temperature





WATER QUALITY MANAGEMENT GUIDELINES

- Reduce Runoff
- **Manage Waste**
- Maintain Vegetative Cover
- **Develop a Conservation Plan**



**Fencing horses out of streams or
ditches is one solution**

Alternatively, create a water gap that allows access for water but protects creek banks and bed from damage





Don't do this! Fence your well out of your pasture or holding area.



**Manage
pastures for
good grass
cover to
decrease
erosion into
streams**

MANURE MANAGEMENT

- COLLECTION
- STORAGE
- TREATMENT
- USE



Horse Manure Production



- 2 horses, 1000 pounds each
 - WEIGHT: $50 \text{ lbs/day} \times 2 = 100 \text{ pounds}$
 - VOLUME: $.81 \text{ cubic feet/day}$
- WEIGHT: $100 \text{ lbs/day} \times 30 \text{ days/month} \times 3 \text{ months} = 9000 \text{ pounds of manure}$
- VOLUME: $0.81 \text{ cu ft/day} \times 30 \text{ days/month} \times 3 \text{ months} = 73 \text{ cubic feet of manure}$

Impacts from manure

- Polluted runoff
- Odor
- Dust
- Insects and parasites



UNCE, Reno, NV

Manure can be a resource

- Horses remove nutrients while grazing
- Returning horse manure to soil promotes soil fertility and plant growth

Horse Manure Nutrients

- Nitrogen (N) 12.1 #/ton
- Potassium (K or K₂O) 4.6 #/ton
- Phosphorus (P₂O₅) 9.0#/ton



EFFECTIVE MANURE MANAGEMENT

CAN:

- REDUCE VOLUME
- REMOVAL COSTS
- FLY BREEDING
- NEIGHBOR COMPLAINTS
- MAINTAIN HEALTHY ENVIRONMENT FOR HORSES & PEOPLE



**DISPOSE OF
DEAD
ANIMALS
PROPERLY**



Stewardship Objectives



Control Erosion

Keep Water Clean

Manage Manure & Other Nuisances

Questions?

What do you want to know more about?

