



PIERCE CONSERVATION DISTRICT

Over 70 Years of Conservation

SURVIVING WINTER

Band Aids to Apply Now,
Things to Plan for this Summer



WHAT ARE CONSERVATION DISTRICTS?

- The Conservation District is a non-regulatory sub-division of state government.
- We are here to provide free assistance with natural resource management through:
 - Farm visits
 - Farm plans
 - Farm management workshops & presentations
 - Cost share assistance when available
 - Free soil testing
 - Equipment rental and loan



WINTER ISSUES:

Mud!
Water
Manure
Pasture damage



WHAT CAUSES MUD?



40" of rain falls from November to April

Bare soil due to over-grazing

Manure

Livestock feet!



WHY IS MUD A BAD THING?



It causes water pollution



It's bad for animal health



It makes us and animals miserable!



WHAT CAN YOU DO ABOUT MUD NOW?

- Install temporary footing such as hogfuel at 1-1.5' deep over the existing ground surface
- Replace it this summer
- Do NOT place in wetland buffers!



REDUCE STALL WASTE AND MUD BUILD-UP

- Don't waste hay- use feeders or hay nets
- Use pelleted bedding or straw
- Don't strip stalls



WHAT TO DO THIS SUMMER

- Construct a sacrifice area or mud-free zone
- Install permanent footing material
- Plant turf grass in high traffic areas



SACRIFICE AREA CONSTRUCTION

- Scrape to firm soil
- Grade to 1-3% slope
- Avoid steep slopes and critical areas & buffers
- Locate paddocks at least 100' from water wells and surface water



MORE TIPS:

- Remove manure daily- crucial with gravel and sand
- Obtain permits for >50 cu yd material/ year
- Consider livestock type & your management style when choosing footing materials
- Install 'kick boards' to prevent bedding dragging
- Long, narrow runs or track paddocks encourage exercise



SIZE



Small Enclosures –

- 10 ft. by 20 ft.
- 12 ft. by 20 ft.
- 16 ft. by 16 ft.

Exercise Enclosures –

- 20 ft. by 20 ft.
- 20 ft. by 100 ft.
- 40 ft. by 20 ft.

SIZE



Water

Slow
Feeder

Track Paddocks

- 8-12 ft. wide
- Long narrow runs
- Work well on 2+ acres

Slow
Feeder

SIZE



LIVESTOCK	MINIMUM SQ. FT. PER ANIMAL
COW	100
HORSE	400 – 500
SHEEP, GOATS	30 – 50
LLAMA, ALPACA	30 – 50

Ultimately, the size is up to you!

Biggest objectives –
Keep it manageable,
Keep it clean

ALTERNATIVES TO FOOTING MATERIAL



- Annual Scraping of area
- Planting a green 'band aid'
 - Bentgrass
 - Bluegrass
 - Annual ryegrass



TYPES OF FOOTING MATERIALS

Sand



Gravel



Hogfuel



HOGFUEL

Pros

- Inexpensive and readily available
- Ties up nitrogen
- Option of less daily labor



Cons

- Organic- breaks down and makes mud
- Requires replacement every 2-3 years
- Varies widely in quality
- Ground must be sloped
- Harbors bacteria



HOGFUEL INSTALLATION



- ✓ Use ground stumps, not construction debris!
- ✓ Use big pieces!
- ✓ Scrape down to firm ground and 1-3% slope
- ✓ Install over straw, hay or quarry spalls
- ✓ Install 1-1.5' deep. Will pack down to a 6" mat



GRAVEL

Pros

- Long lasting
- Drains well
- Provides good, solid footing



Cons

- Considerable initial expense
- May be difficult to pick manure
- May be too firm for livestock comfort



GRAVEL INSTALLATION



- ✓ Scrape to firm ground and 1-3% slope
- ✓ 3/8 and 5/8 clean or with fines, pea gravel, reject rock
- ✓ Install at 4-6" over geotextile fabric, quarry spalls or geogrids.



SAND

Pros

- ✓ Easy to pick manure
- ✓ Provides soft footing



Cons

- ✓ Most expensive option
- ✓ Does not drain as well as gravel
- ✓ Horses may colic if sand is ingested with feed
- ✓ Requires daily picking



SAND INSTALLATION



- ✓ Scrape to firm ground and 1-3% slope
- ✓ Install over geogrids or quarry spalls
- ✓ 4-6" deep
- ✓ Use coarse sand: washed or builder's sand



COMBINATION FOOTING AND TROUBLE SPOTS

Gate areas



Combinations

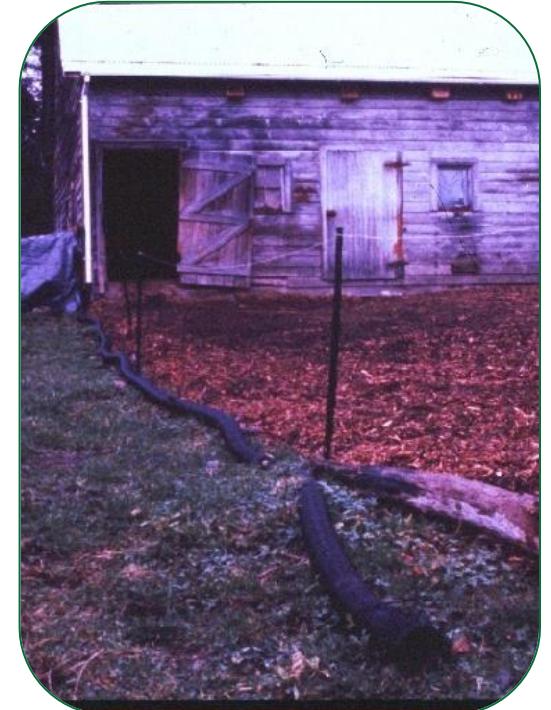


Feeding areas



WATER: WHAT CAN YOU DO ABOUT IT NOW?

- ✓ Install gutters
- ✓ Temporary outlet lines
- ✓ Downspout diverters
- ✓ Keep livestock away from surface water with temp. fencing



WATER: WHAT TO DO THIS SUMMER?



- ✓ Fence livestock away
- ✓ Install drainage systems with PCD engineering assistance
- ✓ Don't send to wetlands, ditches, creeks, or off property



DRAINAGE SYSTEMS: UNDERGROUND OUTLETS



- ✓ Install with a ditch witch
- ✓ 2' underground min.
- ✓ Daylight pipe in grassy area, but not off property
- ✓ Consider elevation
- ✓ Permits may be necessary



DRAINAGE SYSTEMS: FRENCH DRAINS

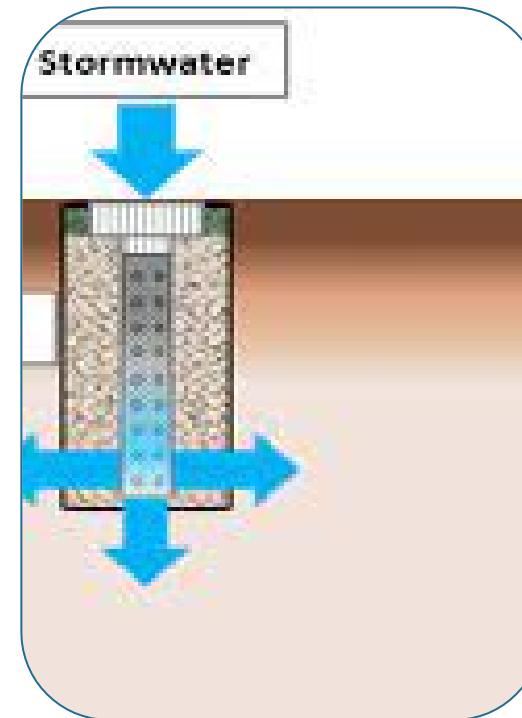


- ✓ Catch & re-direct surface flow to grassy area
- ✓ 2' deep trench
- ✓ Perforated pipe, 1" drain rock, filter fabric
- ✓ Install outside of heavy use areas
- ✓ Permits may be necessary

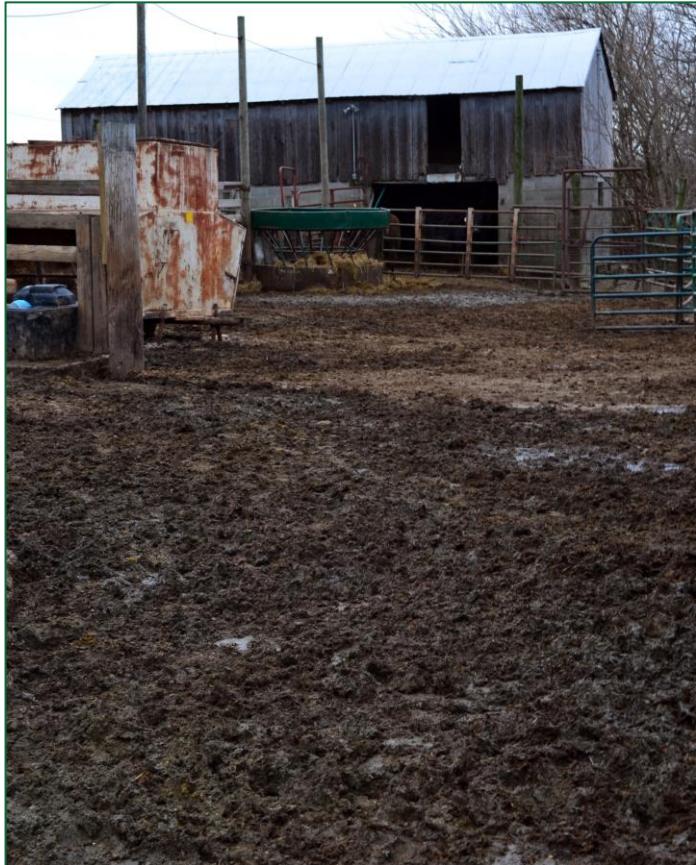


DRAINAGE SYSTEMS: SWALES, BERMS, CATCH BASINS, DRY WELLS

- ✓ Drain all but dry wells to grassy area
- ✓ Install dry wells outside paddock and in specific soil types
- ✓ Permits may be necessary



BENEFITS OF GOOD MANURE MANAGEMENT



- ✓ Reduces mud
- ✓ Reduces pile size
- ✓ Reduces flies & odors
- ✓ Saves money
- ✓ Prevents water pollution



MANURE: WHAT CAN YOU DO ABOUT IT NOW?

Pile and tarp



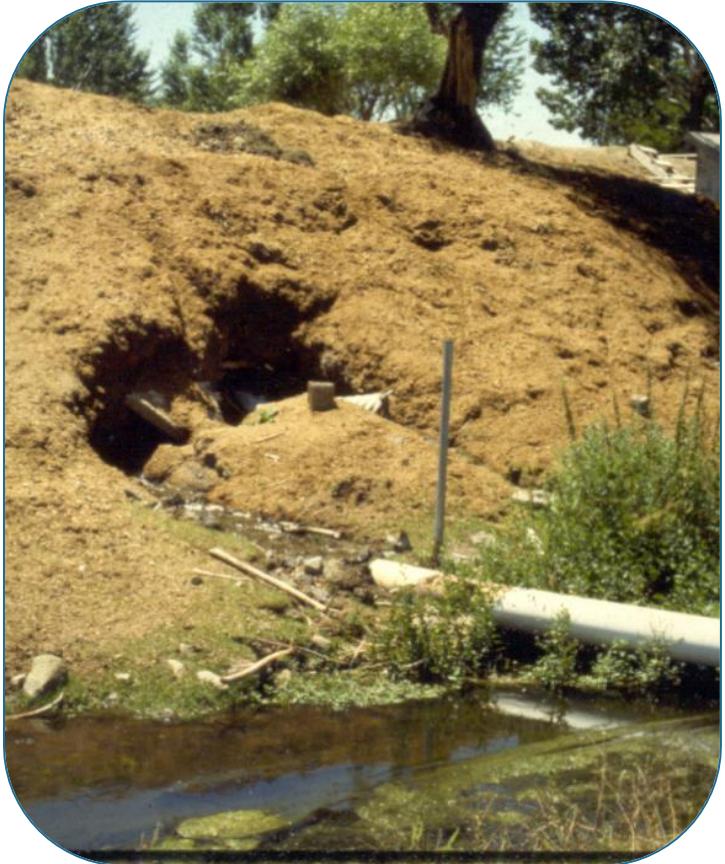
Remove from property



Build an easy bin



MANURE: PROPER STORAGE LOCATION



To avoid runoff, store manure:

- ✓ High & dry
- ✓ Covered
- ✓ 50' away from water bodies and out of wetland buffers



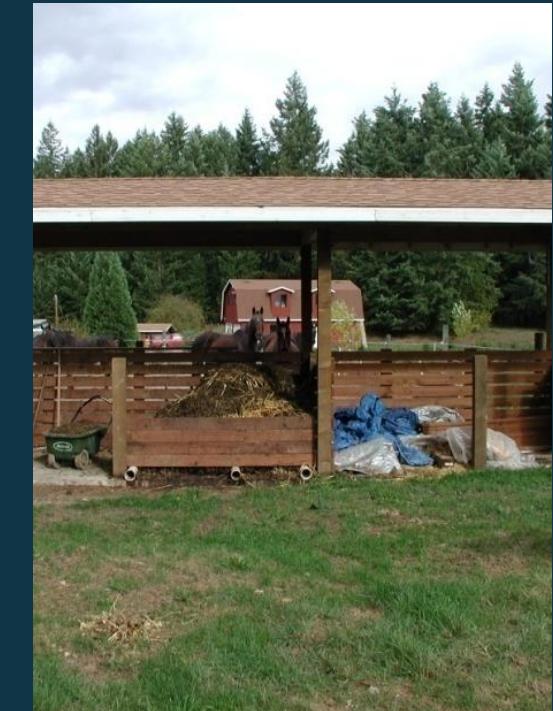
MANURE: WHAT CAN YOU DO THIS SUMMER?

Build permanent bins

- Poured bins
- Treated wood
- Concrete blocks

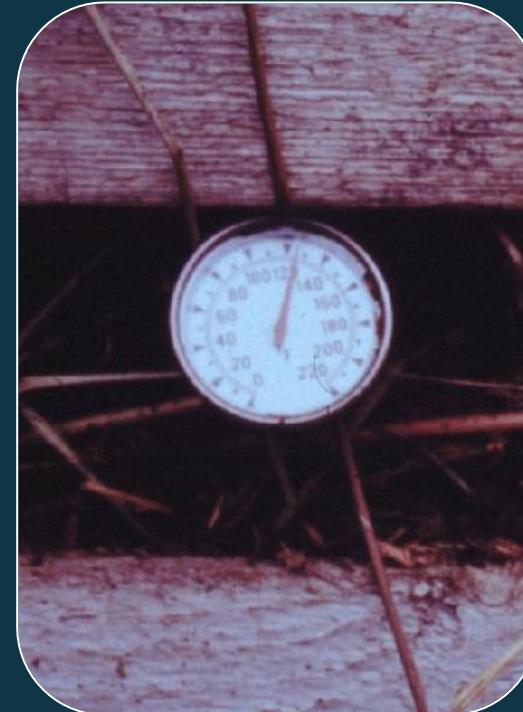
Apply manure on pastures

Permits necessary



COMPOSTING REQUIREMENTS

Oxygen
Moisture
Correct carbon to nitrogen ratio (30:1)
Temperature (120-160 F)
Material depth >3'



COMPOSTING BENEFITS



Reduces pile size

Creates a slow-release fertilizer

Saves \$ on disposal fees & fertilizer

Reduces parasites & flies

Reduces odors



TIPS FOR COMPOST APPLICATION



- ✓ 35' from water source and out of wetland buffers
- ✓ Apply to growing plants (April-early October)
- ✓ Apply proper amounts for nutrient needs
- ✓ Apply 1" or less



PASTURES: COMMON PROBLEMS

- Soil Compaction!!
- Poor fertility or nutrient over-loading
- Overgrazing, under-grazing, and selective grazing
- Weeds

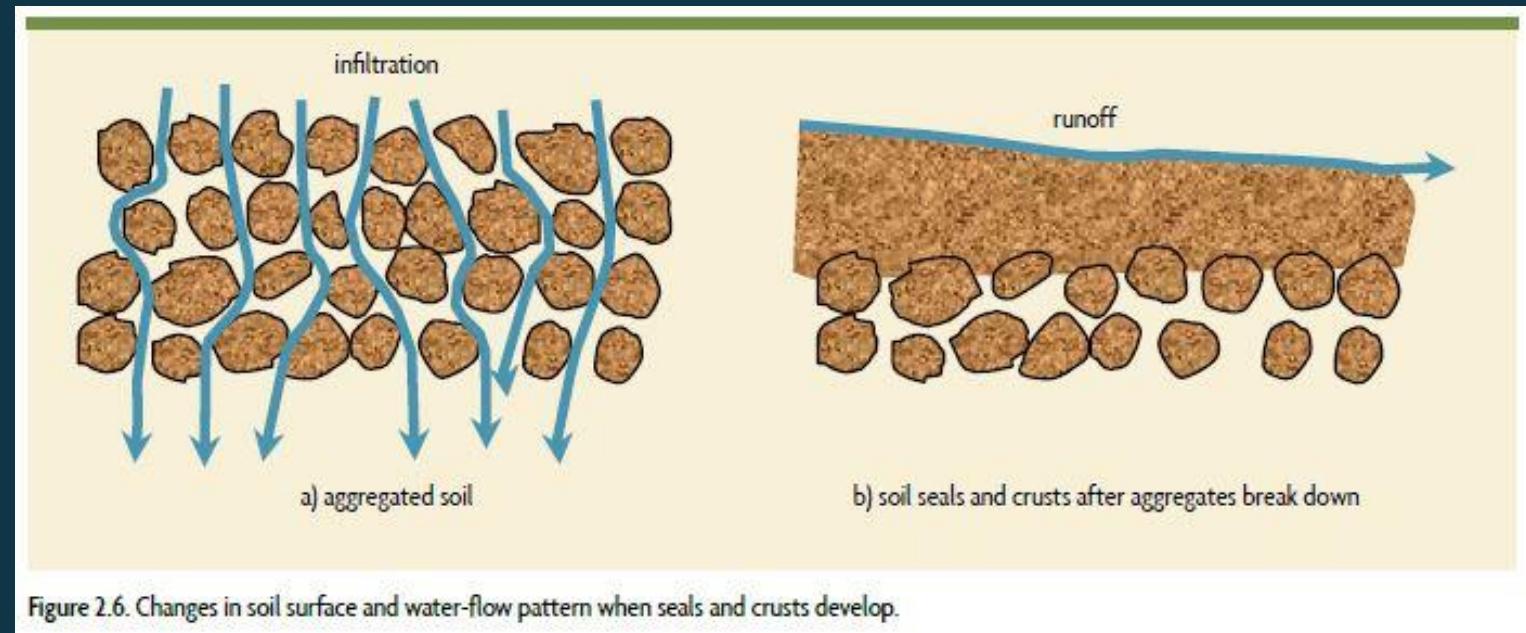


Figure 2.6. Changes in soil surface and water-flow pattern when seals and crusts develop.



PASTURE: WHAT CAN YOU DO NOW?



Have soil tested
Confine livestock
to one area

- ‘Sacrifice’ area
- Driest pasture



BEFORE NEXT SUMMER: DETERMINE YOUR PASTURE MANAGEMENT GOALS



- ✓ Reduce feed bills
- ✓ Prevent environmental contamination
- ✓ Provide nibbling area
- ✓ Exercise area only
- ✓ Increase livestock numbers
- ✓ Reduce weeds



PASTURES: THIS SPRING & SUMMER



Control grazing:

- In at 6", out at 3"
- Cross fence & rotate
- Use sacrifice areas

Clip and drag

Fertilize if needed based on test results

Control weeds



PASTURES: THIS FALL

- ✓ Renovate and re-seed or spot seed
- ✓ Spread compost, lime, and fertilizer
- ✓ Remove livestock when pastures get too wet



HERE'S TO A BETTER WINTER NEXT YEAR!

