

From: [Soil & Water Conservation Program](#)
To: [DNR.Soil and Water Conservation Districts staff](#)
Cc: [DNR.MGS SWC Staff](#)
Subject: FW: Fence and Livestock Watering System Staff Training Opportunity
Date: Wednesday, February 25, 2026 1:09:07 PM
Attachments: [image001.png](#)
[image002.png](#)
[NRCS-MDC Employee Training - Water -- 2026 AGENDA \(Mark Green\).docx](#)
[NRCS-MDC Employee Training - Fence -- 2026 AGENDA \(Mark Green\).docx](#)
[image003.png](#)

Good afternoon,

Please see the below email for training opportunities. Limited space is available.

Thank you,

MoDNR Soil and Water Conservation Program
573-751-1741 | dnr.mo.gov



Please take a few minutes to complete our [Customer Satisfaction Survey](#). Thank you.

From: Mascaro, Selma - FPAC-NRCS, MO <selma.mascaro@usda.gov>
Sent: Wednesday, February 25, 2026 10:52 AM
To: ug-MO-nrcs <mo-nrcs@usda.gov>
Cc: Bill White <bwhite@confedmo.org>; Poynor, Josh <josh.poynor@dnr.mo.gov>; Plassmeyer, Jim <jim.plassmeyer@dnr.mo.gov>; Potter, Lisa <lisa.potter@mdc.mo.gov>; Ryan Diener <rdiener@ducks.org>; Andrew White <awhite@pheasantsforever.org>
Subject: Fence and Livestock Watering System Staff Training Opportunity

Missouri Conservation Team,

See below a two-day, multi-partner training opportunity for fence and livestock watering systems. Note that space is limited and registration is required. NRCS staff will **not** be approved for overnight travel and must have supervisor approval before registering.

NRCS, MDC and MoNGC are collaborating to host Livestock Watering and Fencing Training for staff in agencies and organizations that manage grazing leases on public land or that provide technical assistance to landowners. Please see the attached agendas. Please dress for the field, weather each day and bring work gloves for the fencing day. In case of rain, most sessions will be held inside.

The first day of training in each location will cover fencing and the 2nd day will cover watering.

The first training is March 30-31 in Southwest Missouri at the Mark Green Farm, 3926 E Farm Road 18, Fair Grove, Missouri.

The second training is April 1-2 in Southeast Missouri at Charlie Beshar Farm at 14404 State Hwy 72, Patton, MO

Similar trainings will be held in north Missouri at the MU Farm at Linnaeus, April 6-9, details pending.

Because opportunities for lunch are limited, **please bring your own lunch**. Bottled water will be available.

Space is limited so registration is required by March 26:



OR at <https://form.jotform.com/253225146577056> . **In the form please indicate which date(s) you are attending.**

Selma Mascaro

Missouri State Resource Conservationist



U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

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NRCS/MDC Employee – Livestock Watering Systems

2026 AGENDA

Welcome/Introductions	Jamie Kurtz/Bill White	8:30 am
NRCS Specs	Jamie Kurtz	8:45 am
Livestock Water Systems	Mark Green	9:15 am

IN CLASSROOM – Powerpoint and props

Animal Behavior -- herd behavior, boss cow, line of sight, distance to water, effect of air temp, endophyte

System Design & Layout

- Strategically locating water points
- Adding to existing systems
- Improving grazing distribution
- Avoiding Other Attractants (shade, mineral, salt, rubs)

Well

- Location (elevation, distance to power)
- Pump sizing
- Pressure tank sizing
- Electricity to pump
- Pump House (size, access)

Solar

- Battery vs straight solar
- Water storage tank with gravity flow to tanks

Pipeline Material & Design Considerations

- Gravity pipelines
- Pressure system -- Hi/Low pressure, Pressure reduction (tank floats)
- Pipeline sizing considerations
- Pipe material & strength (pressure rating)
- Pipe burial methods – trenching, knifing
- Shutoff valves (how many)

Tanks & Waterers

- Drinking space, accessibility to water in tank (too deep)
- Open tank safety with small ruminants and calves
- Types of permanent tanks – pros and cons
 - Metal Tank, Concrete Tank, Tire tank, Cobette, Ball/Lid flap, Open/Heated (plastic, metal).

Pads/Heavy Use Protection

- Geotextile – show woven vs non-woven
- Gravel size

Pond

- Adding gravity pipe around end or through dam
- Siphon (over dam or hill)
- Pumping from pond
- Limited access ramps:
 - Slope & depth
 - Floating vs fixed fence

Spring Developments

- Site Needs - elevation drop, distance
- Types: Hillside seeps, Concrete Ring, Bedrock
- Spring Water Tanks (Concrete, Tire)

IN FIELD

Review Grazing System

- Existing solar well on my ranch
- Tanks -- Ball Tank, Galvanized Tank, Tire Tanks
- Discuss placement of permanent tanks in existing system
- Growing Season Water (Portable Water)
 - PE Pipe and fittings, placement
 - Construct above ground pipe, fittings and quick coupler
 - Portable tanks -- show existing portable tank and demonstrate use.
 - Float valves (full flow vs restricted)
 - Siphon to drain portable tank

Hydrants

- How many needed
- Hydrant options
 - Above ground hydrant
 - Below ground – water meter pit, quick coupler

Streams

- Electric Watergap Access Points
- Locations, Attractants (shade)

Algae Control

Adjourn 4:30 pm

NRCS/MDC Employee -- Electric Fence Training

2026 -- Agenda

Welcome/Introductions –	Jamie Kurtz/Bill White	8:30 AM
NRCS Fence Specs –	Jamie Kurtz	8:45 AM
Fence – all outside in field –	Mark Green	9:30 AM

Pull Posts (Corner, End, Gate Posts) and Bracing

- Discuss H Brace, Floating Angle Brace, Single Post -- Proper bracing length, placement, construction, material.
- Build floating angle brace in field (**CP)

Hooking to trees

- Line post -- composite board, long nails and pinlock insulator
- Corner post -- eye screws

Physical Barrier Fence – discuss pros and cons, installation. No actual installation on site.

- Barbed Wire Fence
- Woven Wire – High Tensile Fixed Knot vs Soft Wire Field Fence
- Cattle Panel
- Continuous Pipe Fence

Psychological Barrier Fence (Electric)

- Charger, Grounding, Lightning Protection -- Ground rod driver, install ground rod (**CP)
- Shutoff switches – compare types, pros and cons
- Offset Brackets -- Install offset brackets on barbed wire or woven wire fence. (**CP)
 - Show new fiberglass rod version
- Tools – pliers/cutters, testers, crimpers, pilot driver, other

LUNCH (30-45 min max)

Psychological Barrier Fence (Electric) (cont'd)

- Wire – installation. Install one or two strands. Show all components during installation. (**CP)
 - Proper gauge wire and why.
 - Spinning jenny – recommended styles
 - End insulators
 - Tie wire, Crimp wire. Proper tying. Proper crimping. (**CP)
 - Wire strainers – both in-line “Daisy Wheel” and ratchet style
 - Clamps – split bolt, j clamps
 - Proper double insulated wire
- Line Posts – installation. Install fiberglass and vinyl T (**CP)
 - T-post with proper insulators vs Non-conductive – Fiberglass, Vinyl
- Gates (**CP)
 - Construct a one-wire gate and hot loop.
 - Construct a 3 wire gate for goats.
 - Underground – insulated wire through PE pipe.
 - Handles – compare various options
 - Gate material options

Watergaps

- Electric
 - Show existing electric watergap
 - Partial build of electric watergap (**CP)
- Panel
 - Discuss and show existing if possible

Portable Electric Fence

- Portable chargers, Polywire, Reels – geared vs non-geared, Tread-in posts. Pros and cons to various styles

Adjourn

4:30 pm

** CP = Class Participation