

PLANTING IDEAS

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Boone County Soil & Water Conservation District*



Terrace Inlets: Why Orifices are Important

Natural Resources Conservation Service

Why Use Orifices?

Flood duration (how long it takes for runoff water to drain from the system's terrace storage areas) are controlled by orifices in UGO risers. An orifice is a hole in a plate or fitting that is installed inside the inlet of each UGO riser in a terrace system. The performance of the UGO system depends on the size of these orifices.

UGO Tile System Capacity



Photo courtesy of USDA

The orifices in risers should allow pipes to fill with slightly less water than the full-flow capacity of the pipes. This prevents excessive pressure inside the pipes, which have joints that are not designed or manufactured to handle pressure flow. Orifice plates shall be utilized as the flow controlling device for all gravity flow UGO systems. Closed top Type I inlets shall be used on all risers containing an orifice plate. *Type II risers CAN NOT be used with Corrugated Plastic Tile as this would cause a pressurized system and NRCS Standards and Specs will not allow this. Type II risers can only be used if the tile lines are pressure rated pipe such as SDR 32.5, SDR 41, SDR 21, etc. Corrugated Plastic Tile is not pressure rated. (Area 2 Civil Engineering Tech.)*

To reduce plugging, risers with closed tops are used to keep debris out of UGO systems. The closed tops force water to enter risers through numerous one-inch holes in the sidewalls of the risers. Some debris could enter through the one-inch holes in risers, but NRCS designs UGO systems with orifices that are large enough to allow that debris to pass through into the main tile lines.

Benefits of Orifice Systems

- ◆ Using orifices allows all terraces on a common UGO system to drain in about the same amount of time. A significantly different drainage time between two terraces utilizing the same UGO line could indicate that a riser or UGO requires maintenance.
- ◆ Orifices prevent the formation of pressure within UGO tile lines that can damage joints.

Don't Remove Orifices

If an orifice plugs, a landowner could be tempted to remove the plugged orifice plate from its riser, but a riser without an orifice can cause serious problems. In systems that utilize one UGO to drain multiple terraces, the excess flow from an upper terrace with its riser orifice removed could prevent water in lower terraces from entering the main pipe. The excess flow could even force water out of the inlet pipe in a lower terrace. Either of these scenarios will likely cause a terrace to overtop, which could compromise every terrace below it due to a cascading effect from the uncontrolled water.

Notification for Mandatory use of the Engineering Field Tools (EFT) Software Program

EFT is a national suite of design tools that has been mandated for adoption by all states. Beginning 4/2/14 all grass waterway, terrace, UGO, Water and Sediment Control Basin (WASCOB), and diversion designs approved by personnel shall be completed using the EFT software program. Exceptions to this requirement are as follows:

1. Designs transmitted to the customer for construction prior to 4/2/14, but construction is not completed as of 4/2/14.
2. Designs fully completed and approved prior to 4/2/14, but not transmitted to the customer for construction before 4/2/14. Construction must be completed on these designs by 9/30/14.
3. WASCOB designed using the WinPond program.
4. **Gradient** terraces and diversions using the design charts.

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Soil and Water
Conservation District**

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Statement of frequency: Three/year
Mailed in Columbia, Missouri

Authorized organization's name &
address:

**Boone County Soil & Water
Conservation District**
Parkade Center, Suite 213E
601 Business Loop 70 West
Columbia, MO 65203
573-875-5540 ext. 3
855-830-4752 fax
www.swcd.mo.gov/boone

Hours:

Monday-Friday 8:00 a.m. - 4:30 p.m.
Closed 12:00 p.m. - 12:30 p.m.

**Funding for information/education
activities are provided in part by the
Parks, Soils and Water Sales Tax
through the Missouri Department of
Natural Resources.**

UPCOMING EVENTS

SMALL GRAZING WORKSHOP

Thursday, March 20th

6:30 p.m.

Hallsville Community Center

TOPIC: ALTERNATIVE FORAGES

Speaker: Todd Lorenz,
Horticulture/Agronomy Specialist,
University of MO Extension

*Dinner will be served at 6:30 p.m. with the speaker to follow.
Please call our office at 573-875-5540 ext. 3 by March 18th to RSVP*

CALLAWAY/BOONE GRAZING SCHOOL

Tuesday, May 20th and Wednesday, May 21st

9:00 a.m. to 4:00 p.m.

Callaway Extension Center

This two day seminar is an approved school for the DSP-3
Cost-Share Practice. All material and meals will be provided
for a small fee. For more information, call Josh Stewart at the
Callaway Field Office at (573) 592-1400 ext. 3 or Kevin
Monckton at the Boone Field Office at (573) 875-5540 ext. 3.



SUMMER PASTURE WALK

Tuesday, June 10th

6:00 p.m.

Brian and Jane Lease's Farm
2707 W. Rt. F in Northern Boone County

The Boone County Soil and Water Conservation District and the Boone County Cattlemen's Association invite you to a barbeque dinner followed by a tour of the Lease Farm. Brian has been involved in managed intensive grazing for many years and has made many improvements to his pastures. This walk will be a great opportunity to view a very nice grazing system and get ideas for starting your own grazing system or improving the one you already have.

If you want more information or want to attend, please call 573-875-5540 ext. 3 to RSVP.



HARVESTING THE POTENTIAL OF SOIL HEALTH

J.R. Flores, NRCS State Conservationist

We owe our very existence to the soil. But rather than treating it like our future depends on it, too often we've treated it like dirt.

Increasingly, farmers, researchers, business leaders and conservationists recognize that if we are to increase production, make our farms more resilient to weather extremes, and minimize the off-farm impacts of agricultural production, we must focus on improving the health and function of living and life-giving soil.

Recently, USDA's Natural Resources Conservation Service and University of Missouri Extension hosted several forums on cover crops and soil health throughout the state. These local forums took place concurrently with the National Conference on Cover Crops and Soil Health in Omaha, which was sponsored by the Howard G. Buffett Foundation. The national and local forums brought together farmers, researchers, business leaders and conservationists to look for ways to work together to harvest the potential of improving our nation's soil health.

Why focus on soil health? The answer is simple: By restoring the health and function of our cropland soil, we can transform production agriculture, making our farms more productive, profitable, resilient, and better prepared to meet the challenges of the 21st century.

Moreover, the importance of this effort—some might even call it a revolution—will only grow in the years ahead as we look to feed the world's growing population on fewer acres, with finite resources, in a sustainable manner.

From a national perspective, soil health is important to every U.S. consumer because cover crops and soil health management systems impact drinking water quality and the usability of recreational surface waters. Soil health management systems reduce sediment loss from farms, sequester carbon, create biodiversity in our rural landscape and increase the resiliency of our farms and our food production system.

By using no-till and cover crop mixtures, a growing number of farmers have not only stopped losing soil from their fields, but they have actually regenerated the soil. In some instances, and over time, they've increased their soil organic matter by 3 or even 4 percent. While that might not sound like much, consider that every 1 percent increase in organic matter allows the soil to soak up and hold an additional 15,000 to 20,000 gallons of water, PER ACRE. On a large scale, improved soil health would greatly reduce flooding and would provide weather resiliency for food production.

Improving the nation's soil health represents an unprecedented opportunity for American agriculture. Of course there are also challenges. For example, climate, cropping and local resource conditions will require new production methods, new technologies and new plant genetics. Most importantly, improving soil health requires a willingness by many farmers and ranchers to change the way they have been doing things for many years. The good news is that our nation's farmers, researchers and ag business leaders are courageous and tenacious problem solvers who realize that each journey begins with that first step.

We must remember that the road to soil health is a journey, a constant building process of using conservation cropping systems over time to improve the health and function of the soil. It is a journey of discovery and of learning and, yes, sometimes of failures.

But if our generation is to meet the mounting production, climate and sustainability challenges of the 21st Century, there is no better time than now to make a long-term commitment to improve the health of our nation's soil.

I am confident that if we commit to this effort, we will leave a legacy of conservation that will transform the landscape and ensure the health and productivity of our nation's soil for generations to come.

Helping People Help The Land

The USDA is an equal opportunity provider, employer and lender.

WHO YOU GONNA CALL????

The USDA Service Center fax line (573-875-5547) will no longer be in service after March 3rd. We are changing to a fax-to-mail service which will be available by dialing **1-855-830-4752** for the Natural Resource Conservation Service, Boone County Soil and Water Conservation District, and Missouri Department of Conservation. Please note that the Farm Service Agency will have a different number; you will need to dial **1-855-830-0677** to send a fax to their office. If you have any questions or have trouble with the new system, please call us at 573-875-5540.



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Columbia, MO 65203
573-875-5540 ext. 3



CALENDAR OF EVENTS

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| March 20 | Grazing Workshop, 6:30 p.m.
Hallsville Community Center |
| April 1 | SWCD Board Meeting, 9:00 a.m. |
| April 9 | Central Region Envirothon
Runge Conservation Center, Jefferson City |
| May 6 | SWCD Board Meeting, 9:00 a.m. |
| May 20 and 21 | Callaway/Boone Grazing School, 9:00 a.m. - 4:00 p.m.
Callaway County Extension Center |
| May 26 | Holiday, Office Closed. |
| June 3 | SWCD Board Meeting, 9:00 a.m. |
| June 10 | Pasture Walk, 6:00 p.m.
Brian Lease's Farm |



HAPPY ST. PATRICK'S DAY