The Last Opportunity for Reductions







Introduction





- Bob Clark III
- Clark Farm Drainage, Inc.
- Transforming Drainage



Agenda





- Tile Drainage
- Controlled Tile Drainage
- Controlled Tile Drainage w/ Irrigation
- Woodchip Bioreactors
- Saturated Buffers
- Transforming Drainage
 Update



What does a tile system do?







Tile removes excess water from the soil.





NO SUBSURFACE DRAINAGE





Why is that a problem?





NO SUBSURFACE DRAINAGE





So what is the problem with drainage?





NO SUBSURFACE DRAINAGE





Controlled drainage reduces the extent and timing of water removal.



CONTROLLED DRAINAGE





Contractor contribution...







What is the challenge for a contractor?



CONTROLLED DRAINAGE





Different zones for different elevations.







Contractor Contribution: Drainage contractors manage the water table.





Impermeable Layer



Clark

arm

Drainage

Now what can we do?









We can irrigate.





Plant sooner. Grow faster. Harvest more.

The mindset from drainage to water table management creates opportunity.



CONTROLLED DRAINAGE



Ideal growing conditions in root zone...

Contractor Contribution: Added a water source and tightened up the zones.

What if controlled drainage is not feasible?

Remove nutrients at the edge of field.

One way of accomplishing this is through a woodchip bioreactor.

Contractor contribution: woodchip bioreactors require a lot of woodchips.

What is another way of reducing nutrient flows at the edge of field?

Saturated buffers.

- Easy to install
- Edge of field
- Add a control structure and a couple tile lines to saturate

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Transforming drainage

CONTROLLED DRAINAGE

Controlled drainage, also known as drainage water management, is the practice of using a water control structure to raise the depth of the ...

SATURATED BUFFERS

Saturated buffers store water within the soil of field buffers, by diverting tile water into shallow laterals that raise the water table ...

DRAINAGE WATER RECYCLING

Drainage water recycling diverts surface and subsurface drainage water into onfarm ponds or reservoirs, where it is stored until it can be ...

Key takeaways

- Drainage is good.
- Water management is better.
- Nutrients leaving the field are pollutants
- There are many practices available to reduce nutrient transport from the field to the outlet.
- All of them are retrofittable, while there may be a better chance to treat more water if the design is taken into account up-front.

