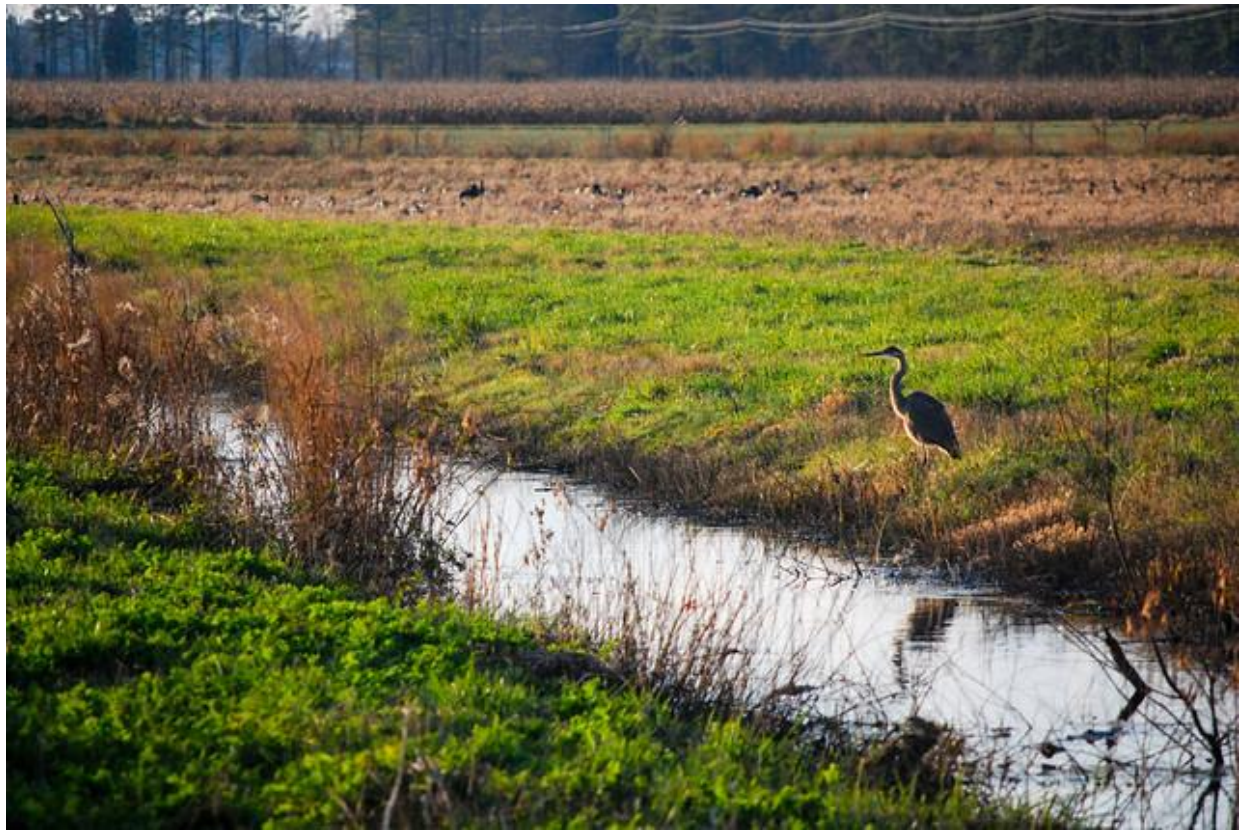

Recommendations of the BMP Expert Panel for Agricultural Ditch Management Practices

Monday, March 23, 2020

Ray Bryant, USDA-ARS, Panel Chair
Jeremy Hanson, Virginia Tech

Chesapeake Bay Program
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Photos: Chesapeake Bay Program, https://flic.kr/ps/rYeEj

Panel Charge

- Formed to evaluate nitrogen, phosphorus and sediment reduction benefits of several management practices associated with agricultural ditches/drainage:
  - ✓ Blind Inlets
  - ✓ Denitrifying Bioreactors
  - ✓ Drainage water management
  - ✓ Phosphorus removal systems
  - ✓ Saturated buffers
  - ❑ Gypsum curtains
  - ❑ Two-stage ditches
  - ❑ Denitrifying curtains
  - ❑ Ditch dipouts (dredging)
  - ❑ Bioreactors that treat springs/seeps

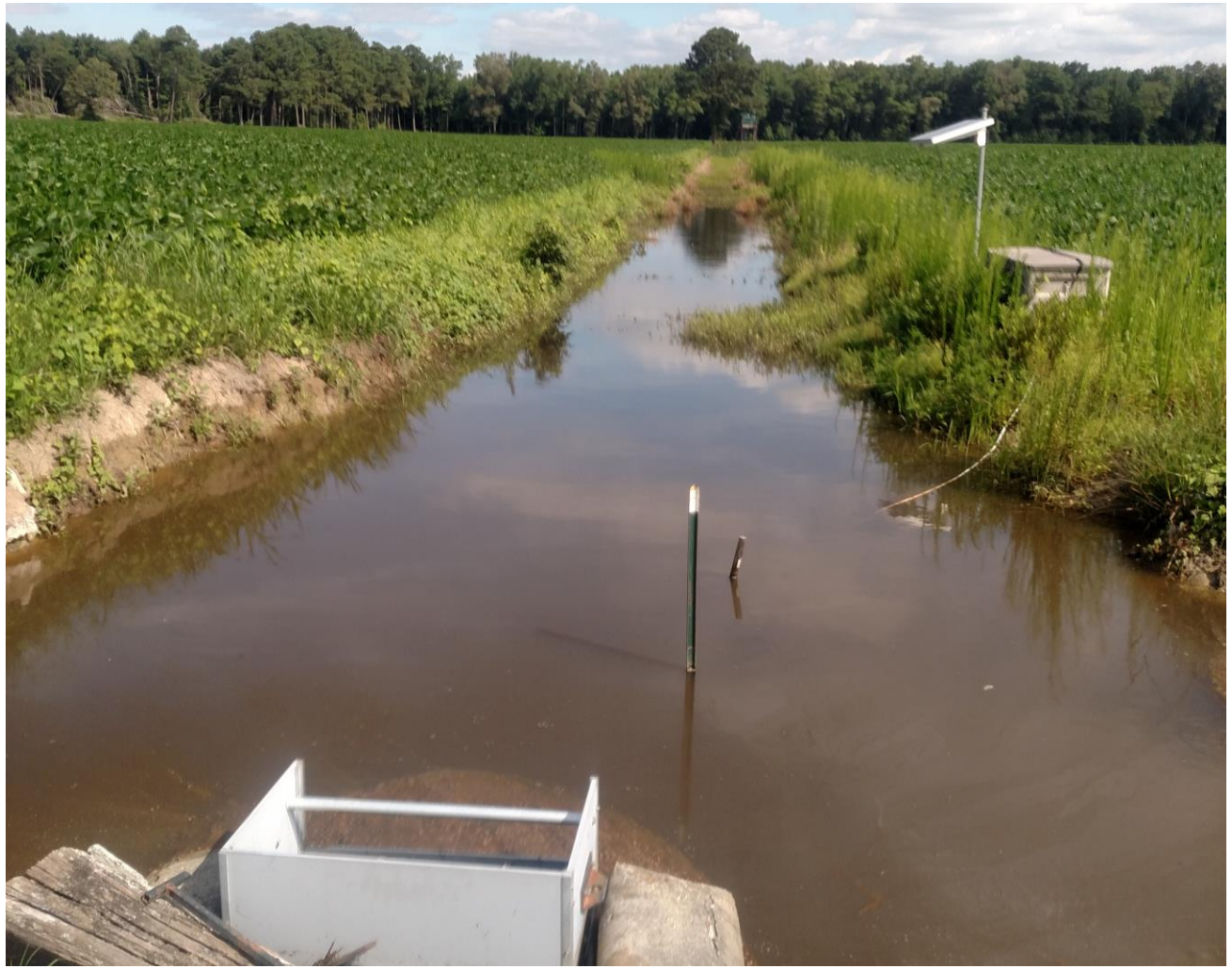

Photo credit: Sabrina Klick, Univ. of Maryland Eastern Shore

Panel membership and support roster

Name	Affiliation
Ray Bryant, PhD, Panel Chair	**USDA Agricultural Research Service**
Ann Baldwin, PE	**USDA Natural Resources Conservation Service**
Brooks Cahall	**Delaware Department of Natural Resources and Environmental Control**
Laura Christianson, PhD PE	**University of Illinois**
Dan Jaynes, PhD	**USDA Agricultural Research Service**
Chad Penn, PhD	**USDA Agricultural Research Service**
Stuart Schwartz, PhD	**University of Maryland – Baltimore County**
Panel Support	
Loretta Collins	*University of Maryland, AgWG Coordinator*
Clint Gill	*Delaware Department of Agriculture*
Jeremy Hanson	*Virginia Tech, CBPO*
Brian Benham	*Virginia Tech*
Mark Dubin	*University of Maryland*
Jeff Sweeney	*EPA CBPO*
Allie Wagner	*CRC, CBPO*
Lindsey Gordon	*CRC, CBPO*

Timeline

- ~~Draft report released on September 4~~
- ~~"Roll-out" webcast hosted on September 18~~
- ~~Feedback requested by COB October 7~~
- ~~Confirm panel stance and agreement for substantive changes in response to feedback.~~
- ~~Share revised report and associated appendices (A, F) in advance of December AgWG; AgWG approval. (12/19/19)~~
- WTWG approval (requesting today)
- WQGIT approval to follow (date TBD)

Recap of feedback

- Directly measured systems (denitrifying bioreactors on springs)
- Eligibility and Applicability
- Reporting units

Directly measured systems

- Relocated discussion of DNBRs on springs to Appendix E
- Application of technologies to springs/seeps was not part of assigned scope/charge
- Panel supports direct measurement approach for denitrifying bioreactors on springs or seeps, but not for drainage ditches where the recommended efficiency values apply (lbs-N removed, report annually)
- Panel also supports direct measurement for P removal systems on animal operations (lbs-P removed, report annually), in response to feedback (not part of assigned scope/charge)
- Further details related to tracking or reporting for directly measured systems are left to the AgWG, since these technology applications are outside the panel's scope

Summary of Recommendations (updated)

BMP	NRCS P Code	Reduction efficiency			Application	Credit duration
		TN%	TP%	Sediment%		
Blind inlets	620, 606	0	40	60	Drained area (ac.)	5 Yr
Blind inlets w/ P-sorbing materials		0	50	60	Drained area (ac.)	5 Yr
Denitrifying Bioreactors	605	20	0	0	Drained area (ac.)	10 Yr
Monitored denitrifying bioreactor for spring or seep		Measured (lbs-N)	0	0	N removed (lbs)	Annual
Water Control Structures	587	0	0	0	--	--
Drainage Water Management	554	30	0	0	Effective Drainage Control Area (ac.)	Annual
P removal systems	782	0	50	60	Drained area (ac.)	4 yr*
Monitored P removal system for animal production area		0	Measured (lbs P)	0	P removed (lbs)	Annual
Saturated buffers	604	20	0	0	Drained area (ac.)	10 Yr

Eligibility and applicability

- Recommended practices apply to AG unless noted otherwise
  - Measured P removal systems apply to feedspace
- Watershed-wide
  - restricted by site drainage/characteristics in real world
  - not geographically limited in model simulation to specific hydrogeomorphic regions or other factor

Reporting units: default unit conversions

	Preferred reporting metric (unit)	Alternate unit, if applicable	Conversion factor from alternate unit when preferred unit is unknown
Blind inlets OR Blind inlets w/ P-sorbing materials	Drained area (acres)	Count (number of eligible blind inlets)	1 acre per blind inlet
Denitrifying Bioreactors	Drained area (acres)	Count (number of eligible denitrifying bioreactors)	5 acres per denitrifying bioreactor
Drainage Water Management	Effective control drainage area (acres)	N/A	N/A
P removal systems	Drained area (acres)	Count (number of eligible P removal systems)	5 acres per system
Saturated buffers	Area of saturated buffer (acres)	Linear feet of buffer	Assumes 30 ft width and converts to acres (length in linear ft x assumed 30 ft width of buffer); 10 upland acres are treated per acre of saturated buffer

Decision requested

- WTWG approval to submit Ag Ditch Management BMP Panel report to the Water Quality GIT.

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Consensus Continuum

Stop	Hold	Stand Aside	Agreement with Reservations	Endorsement
"I do not agree and feel the need to stand in the way of this decision"	"I believe more work is needed before we make a decision"	"I trust the group and will not block this decision but need to register my disagreement"	"I can live with it"	"I like it"

Questions?

Jeremy Hanson

jchanson@vt.edu

410-267-5753