Quantitative Assessment & Verification for Continuous Improvement

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Water Stewardship

Improving Water Quality
Sustaining Agriculture

March 8th, 2012

CBPO Agriculture Workgroup

A science-based nonprofit working to strengthen private and public sector efforts to reduce nutrient pollution of rivers, lakes and coastal waters

WSI Background

- 100+ farms have participated in the WSI assessment, verification and continuous improvement program
- 50 additional VA farms will be part of a scaling-up project with VT on a 2011 NFWF grant
- 6 new farms in VA and PA

will be part of a 2011

CBF grant

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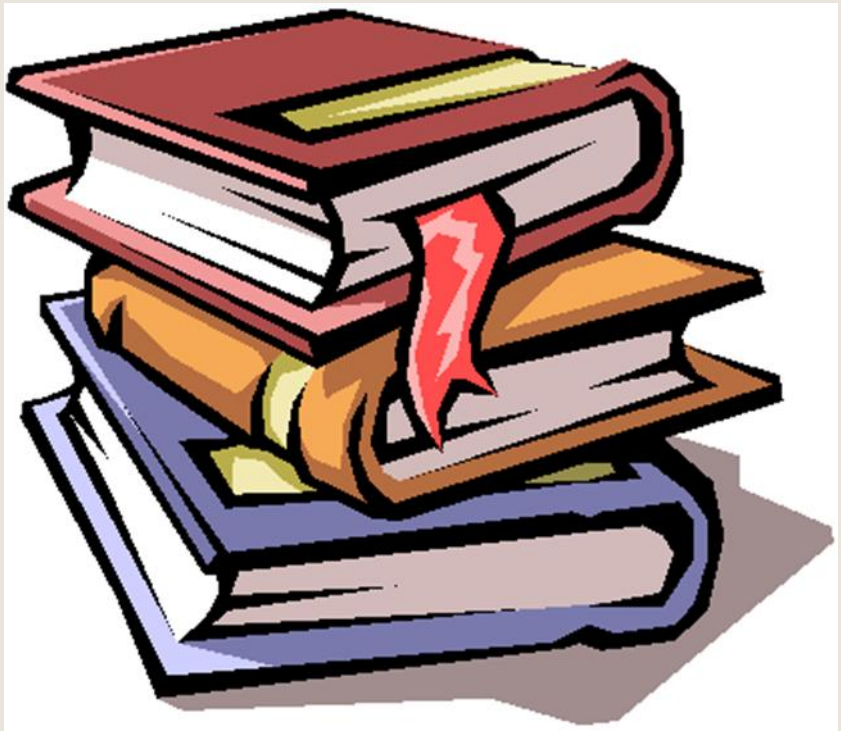
Terminology

Assessment – a whole farm walk over and discussions with farmer

Verification – assure practice implementation, and maintenance & operation

Quantification – use WSI's Nutrient Load Estimator (NLE)



Verification of BMP Implementation

Verification is difficult - farmers are not the best record keepers but they are opportunistic nutrient users

There is more to controlling nutrients than just BMPs

The WSI whole-farm approach tries to “plug the holes” in BMP implementation AND make the NMP more meaningful

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The WSI Process

1. Confidentiality agreement & Information gathering
   – NMP info; CP info
2. On-site assessment & farmer discussion
   Verify current BMPs – whole farm
3. Stream assessment – fenced or not, width
4. Condition of row crop fields
   Evidence of residue & tillage practices

The WSI Process

5. Photo documentation of issues to be addressed and existing BMPs

6. Clarification of BMP Operation & Maintenance
   Cover crops – Commodity or full
   Buffer Maintenance – cover, species

7. Farmer interview
   Practices they are interested in
   TMDL questions

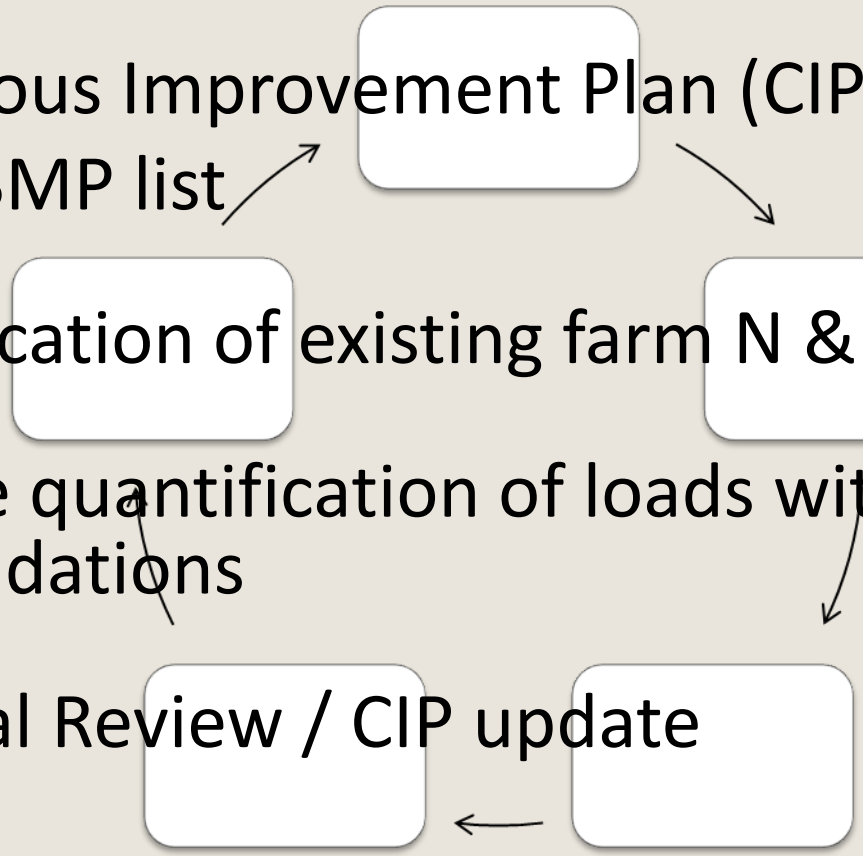
The WSI Process

8. Continuous Improvement Plan (CIP) development
   i.e. BMP list

9. Quantification of existing farm N & P loads

10. Update quantification of loads with agreed CIP recommendations

11. Biennial Review / CIP update



Pilot Program Results: No BMP to Existing

Average Percentage Reduction

Farm Type	# of Farms	Total Nitrogen	Total Phosphorous
Beef	7	22% (9-42%)	38% (11-51%)
Beef-Poultry	13	17% (6-34%)	26% (12-49%)
Dairy	21	17% (5-36%)	26% (8-48%)
Dairy-Beef	2	18% (9-27%)	21% (21-21%)
Dairy-Poultry	2	15% (14-15%)	20% (18-22%)
Poultry	5	14% (8-19%)	19% (12-26%)
ALL	**50**	**17% (5-42%)**	**26% (8-51%)**

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Pilot Program Results: No BMP to CIP

Average Percentage Reduction

Farm Type	# of Farms	Total Nitrogen	Total Phosphorous
Beef	7	31%	51%
Beef-Poultry	13	26%	45%
Dairy	21	34%	46%
Dairy-Beef	2	28%	40%
Dairy-Poultry	2	34%	52%
Poultry	5	31%	46%
ALL	**50**	**31%**	**47%**

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Aggregate CIP Recommendations

New BMPs in CIP (Acres in CIP Scenario minus Acres in Existing Scenario)

Farm Type	Total # of Farms	Commodity Cover Crops	"True" Cover Crops	Continuous No-Till	Grass Buffers	Stream Fencing ≥35 ft (Forest Buffer)	Stream Fencing ≥35 ft (Grass Buffer)	Stream Fencing <35 ft (Grass Corridor)
		Acres	Acres	Acres	Acres	Acres	Acres	Acres
Beef	7	0	93	77	0	1	21	-11
Beef-Poultry	13	200	98	484	7	0	31	0
Dairy	21	1771	479	3243	11	4	22	-4
Dairy-Beef	2	0	0	252	0	0	11	-3
Dairy-Poultry	2	25	0	114	0	0	5	0
Poultry	5	75	154	157	0	1	0	4
TOTAL	**50**	**2071**	**824**	**4327**	**18**	**6**	**91**	**-14**

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BMPs – "Plugging the Holes"

- Definition of continuous no-till
- Cover crops
  - Reduce manure/litter applications
- High soil P
  - Starter P not in NMP (impacts P application limit)
  - New VA rule on 35% P-Sat & its implementation
  - Reduce manure/litter applications
  - Longer rotations
  - Draw down time
- Backgrounding cattle on unconfined, but severely denuded pastures

See Bullet 3 on next slide

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Observations

- Substantial existing practice implementation but not close to level expected by TMDL WIPs

- Needed reductions achievable on most farms, but
  - Need alternative uses of manure
  - Will require widespread BMP implementation
  - May require some changes in cropping systems and limited, strategic land retirement
  - Hardest for animal agriculture but hard for all

- Local, state and Bay Program BMP definitions and expectations vary
- Practices need to match “efficiency definitions”

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Value of Assessment, Verification & Continuous Improvement

1. Provides incremental continuous improvement with defined targets and quantitative assessment of recommended practices

2. Biennial review & update of CIP allows farmer to "transition to success"

3. Third party assessment, verification and continuous improvement can provide "reasonable assurance"

4. Concept of private sector, third party confidential assessment resonates well with farmers

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The following 2 slides were presented by Mr. Anthony Beery at the Soil & Water Conservation Society meeting in DC on July 19, 2011. His talk was titled:

"Third Party Verification – A Farmer's Perspective"

Mr. Beery operates a 300 cow dairy and produces broiler breeders on his farm in Mt. Crawford, VA.

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Advantages of 3PV over Regs

- Positive steps vs. coerced “improvements”
- Real world solutions vs. mandated goals
- Greater flexibility to maximize resources available
- Income producing potential

Why I Chose to Participate

- 3PV will provide better results than regulation
- Encourages conservation, while providing a verifiable system
- Potentially permits consumers to participate via product purchases
- More flexibility for producer

Thanks to the over 100 farmers who have chose to participate in the WSI process

and Thanks for your attention!!

***** http:// WaterStewardshipInc.org *****

Pilot Program Results: Existing to CIP

Average Percentage Reduction

Farm Type	# of Farms	Total Nitrogen	Total Phosphorous
Beef	7	12%	19%
Beef-Poultry	13	12%	26%
Dairy	21	20%	25%
Dairy-Beef	2	13%	25%
Dairy-Poultry	2	23%	39%
Poultry	5	20%	33%
ALL	**50**	**16%**	**26%**

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