

Conservation Practices for Maryland's Soil Health program

Soil Health Advisory Committee

March 2, 2020



Outline

- Summary of December meeting
- Today's objective
- 2017 Ag Census highlights
- Conservation practices menu
 - Adoption of conservation tillage and cover crops
 - Other practices
 - Methods
 - Scores
- Roundtable

Guiding Framework of Healthy Soils Act

- Purpose (WHY)
 - “Improve the health, yield, and profitability of the soils of the state;
 - Increase biological activity and carbon sequestration in the soils of the state...; and
 - Promote widespread use of healthy soils practices among farmers in the state.”
- Definition (WHAT)
 - Soil Health (NRCS): “continued capacity of the soil to function as a vital living ecosystem that sustains plants, animals, and humans”
 - Soil Health (MD legislation): “continuing capacity of soil to function as a biological system;
 - increase soil organic matter;
 - improve soil structure and water and nutrient holding capacity;
 - and sequester carbon and reduce greenhouse gas emissions”
- Deliverables (HOW)
 - Provide incentives - research, education, technical assistance, and/or financial assistance as available

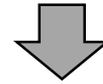
INPUTS	ACTIVITIES	METRICS	OUTCOMES (motivation)
Farms	Incentives	pH	Crop yield
Crops	Capacity Building	CEC	Nutrient Value
Materials	Research	Water holding	Water quality
Equipment	Technical Asst.	SOC	Resilience
	Peer-to-Peer	SOM	Carbon
		Microbiome	Disease



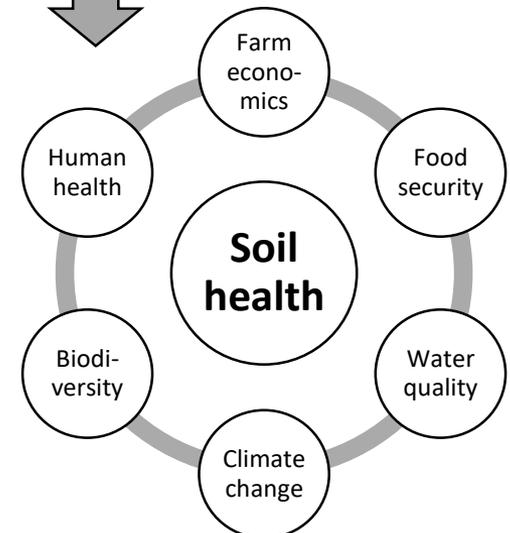
What do we currently know about MD farms relevant to soil health?



What activities are needed to increase adoption?



How do we measure soil health?

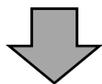


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What do we currently know about MD farms relevant to soil health?

Today's topic



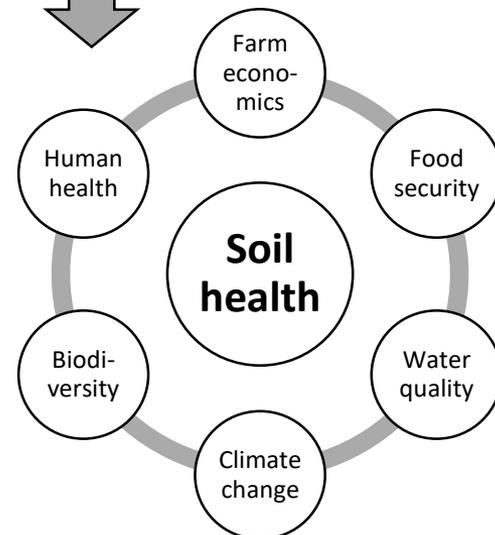
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Ultimate "Ask" of the committee



How do we measure soil health?

Future topic



Today's goal: Review a menu of practices associated with soil health and begin process of prioritizing

Roundtable Questions

1. Based on information presented, is there consensus to narrow and/or prioritize the menu of practices for future discussion?
2. If yes, what additional information would inform future discussions? Example: adoption rates, programs that currently support practices, etc.

2017 Ag Census Highlights

CATEGORY	2017	2012	2007	2002	1997	% Change since 2012
Farms number	12,429	12,256	12,834	12,198	13,254	1%
Land in farms, acres	1,990,122	2,030,745	2,051,756	2,077,630	2,193,063	-2%
Average size of farm, acres	160	166	160	170	165	-4%
Farms by size:						
1-9 acres	2,244	1,481	1,554	1,418	1,630	52%
10-49 acres	4,559	4,554	4,589	4,412	4,500	0%
50-179 acres	3,332	3,695	4,067	3,583	4,121	-10%
180-499 acres	1,402	1,594	1,719	1,836	2,022	-12%
500-999 acres	490	553	539	562	609	-11%
1000-1999 acres	269	265	255	277	276	2%
2,000 acres or more	133	114	111	110	96	17%
Total cropland, farms						
Total cropland, farms	9,233	9,278	10,235	10,188	11,487	0%
Total cropland, acres	1,426,671	1,396,144	1,405,442	1,487,218	1,617,860	2%
Harvested cropland, acres						
Harvested cropland, acres	1,290,212	1,280,965	1,246,603	1,282,004	1,377,747	1%
AREA OPERATED: (1.0 TO 9.9 ACRES)	2,448	1,454	na	na	na	68%
AREA OPERATED: (10.0 TO 49.9 ACRES)	30,191	28,300	na	na	na	7%
AREA OPERATED: (50.0 TO 69.9 ACRES)	16,271	18,909	na	na	na	-14%
AREA OPERATED: (70.0 TO 99.9 ACRES)	23,719	27,324	na	na	na	-13%
AREA OPERATED: (100 TO 139 ACRES)	41,252	41,144	na	na	na	0%
AREA OPERATED: (140 TO 179 ACRES)	36,387	44,750	na	na	na	-19%
AREA OPERATED: (180 TO 219 ACRES)	37,536	38,267	na	na	na	-2%
AREA OPERATED: (220 TO 259 ACRES)	29,264	35,915	na	na	na	-19%
AREA OPERATED: (260 TO 499 ACRES)	171,973	181,525	na	na	na	-5%
AREA OPERATED: (500 TO 999 ACRES)	262,487	282,616	na	na	na	-7%
AREA OPERATED: (1,000 TO 1,999 AC)	292,871	297,617	na	na	na	-2%
AREA OPERATED: (2,000 OR MORE AC)	345,813	283,144	na	na	na	22%

Takeaways

- Farm growth is happening at the ends of the range (small and large operations) while mid-size farms decrease
- The majority of MD agricultural operations include harvested cropland
- Permanent pasture systems are small percentage of MD acres (<7%) but provide opportunity for focus

PRACTICE	SUBCATEGORY	2017		2012		% CHANGE SINCE 2012	
		FARMS	ACRES	FARMS	ACRES	FARMS	ACRES
CROPLAND, CONSERVATION TILLAGE, NO-TILL		3,358	826,999	3,340	767,813	1%	8%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (1.0 TO 9.9 ACRES)	596	2,306	469	1,893	27%	22%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (10.0 TO 49.9 ACRES)	901	22,621	915	23,675	-2%	-4%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (50.0 TO 99.9 ACRES)	434	30,006	496	34,448	-13%	-13%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (100 TO 199 ACRES)	496	69,862	514	70,322	-4%	-1%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (200 TO 499 ACRES)	463	146,003	512	164,554	-10%	-11%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (500 TO 999 ACRES)	259	179,198	267	188,177	-3%	-5%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (1,000 TO 1,999 ACRES)	146	190,307	120	160,100	22%	19%
CROPLAND, CONSERVATION TILLAGE, NO-TILL	AREA PRACTICED: (2,000 OR MORE ACRES)	63	186,696	47	124,644	34%	50%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)		1,166	192,692	1,249	194,668	-7%	-1%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (1.0 TO 9.9 ACRES)	245	962	210	860	17%	12%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (10.0 TO 49.9 ACRES)	340	8,485	413	10,900	-18%	-22%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (50.0 TO 99.9 ACRES)	175	12,537	217	15,314	-19%	-18%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (100 TO 199 ACRES)	142	19,653	150	20,552	-5%	-4%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (200 TO 499 ACRES)	170	53,516	168	54,163	1%	-1%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (500 TO 999 ACRES)	66	47,801	61	39,648	8%	21%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (1,000 TO 1,999 ACRES)	18	24,026	21	26,931	-14%	-11%
CROPLAND, CONSERVATION TILLAGE, (EXCL NO-TILL)	AREA PRACTICED: (2,000 OR MORE ACRES)	10	25,712	9	26,300	11%	-2%
CROPLAND, CONVENTIONAL TILLAGE		1,296	97,850	2,095	145,531	-38%	-33%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (1.0 TO 9.9 ACRES)	541	(D)	683	(D)	-21%	-
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (10.0 TO 49.9 ACRES)	434	9,893	833	19,911	-48%	-50%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (50.0 TO 99.9 ACRES)	109	7,739	237	16,296	-54%	-53%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (100 TO 199 ACRES)	93	13,324	178	24,946	-48%	-47%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (200 TO 499 ACRES)	73	23,021	111	33,101	-34%	-30%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (500 TO 999 ACRES)	37	26,282	35	22,709	6%	16%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (1,000 TO 1,999 ACRES)	7	10,528	16	21,631	-56%	-51%
CROPLAND, CONVENTIONAL TILLAGE	AREA PRACTICED: (2,000 OR MORE ACRES)	2	(D)	2	(D)	0%	-

Cover crop adoption

– *see handout for county data*

Summary 2017-2018 program (MACS, traditional)

2-way mix		3-way mix		Single specie		All CC
Early planted	Late terminate	Early planted	Late terminate	Early planted	Late terminate	Total
8,216	2,515	2,834	1,938	157,374	147,870	393,977

Conservation Practices

- Scored/evaluated through four “lens” to soil health
 - **not** mutually exclusive
 1. NRCS resource concerns for soil quality and soil erosion
 2. Carbon sequestration potential based on COMET
 3. Existing water quality priority for MDA
 4. National “Quadrant” project
- List of practices organized by landscape setting and alphabetical by practice name
- → Dr. Kate Tully

Roundtable

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