Conservation Practices for Maryland's Soil Health program - **continued**

Soil Health Advisory Committee

September 21, 2020



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 program incentives research, education, technical assistance, and/or financial assistance as available

Conservation Practices evaluation

- March meeting began the conversation to narrow and prioritize practices associated with soil health
- Scored/evaluated through four "lenses" to soil health – not mutually exclusive
 - 1. NRCS resource concerns for soil quality and soil erosion
 - 2. Carbon sequestration potential based on COMET (Via)
 - 3. Existing water quality priority for MDA
 - 4. National "Quadrant" project (Tully, et al.)
- Post March 2, survey tool + series of small group discussions to elicit more input
- NOT the last effort to prioritize

				NRCS Resource Concern		Carbon	Water Quality			
ЭС					Soil					
and no				Soil Quality	Quality	Soil				Soil
ti it				- Organic	-	Erosion -	MtCO2e/			Health
Se il				Matter	Compa	Sheet &	ac/yr	WIP		Quad-
ц	Conservation Practice Name	Code	Practice Definition	Depletion	ction	Rill	estimate	goal	MACS	rant
			Trees or shrubs planted in a set or series of single or							
			multiple rows with agronomic, horticultural crops or							
			forages produced in the alleys between the rows of woody							
С	Alley Cropping	311	plants.	5	2	5	1.74			4
			Using gypsum- (calcium sulfate dihydrate) derived							
	Amending Soil Properties with		products to change the physical and/or chemical							
C	Gypsum Products	333	properties of soil.	1	0	1				1
C	Conservation Crop Rotation	328	Growing crops in a planned sequence on the same field	4	1	4	0.22			4
–		020	Narrow strips of permanent, berbaceous vegetative cover	•		· ·	0.22			
			established around the hill slope, and alternated down the							
			slope with wider cropped strips that are farmed on the							
C	Contour Buffer Strips	332	contour	2	0	3	1 26	x		1
		0.02	Using ridges and furrows formed by tillage, planting and	2			1.20			
			other farming operations to change the direction of runoff							
6	Contour Forming	220	from directly downslope to around the bill long	1	0	2		v	v	2
		330	Planting grabarda vinavarda or attal paragrial grapa as	1	0	2		^	^	2
	Contour Orchard and Other		that all sultural operations are denoted on the							
	Contour Orchard and Other	224	inat all cultural operations are done on or hear the	2	0	4		v	v	2
	Perennial Crops	331	Contour.	2	0	4	-	•	^	2
		240	Crops including grasses, loginges, and forbs for seasonal	2		4	0.07	v	v	4
		340	cover and other conservation purposes.	2	2	4	0.37	•	^	4
										not
			I ne process of managing water discharges from surface	0				v		applica
C	Drainage Water Management	554	and/or subsurface agricultural drainage systems	2	-1	0		X		ble
			A site-specific combination of pest prevention, pest							
			avoidance, pest monitoring, and pest suppression	_		_				
С	Integrated Pest Management	595	strategies.	2	2	2				4
			Irrigation water management is the process of determining							not
			and controlling the volume, frequency, and application							applica
С	Irrigation Water Management	449	rate of irrigation water in a planned, efficient manner.	1	0	0		*		ble
			Existing or planted stands of trees or shrubs that are							
			managed as an overstory with an understory of woody							
			and/or non-woody plants that are grown for a variety of							
С	Multi-Story Cropping	379	products.	5	2	1	1.74			4
1			Managing the amount (rate), source, placement (method							
1			of application), and timing of plant nutrients and soil				0.11-			
С	Nutrient Management	590	amendments.	2	-1	0	1.75	Х		1

 \rightarrow 37 practices, most with C and WQ benefits, narrowed down

What we heard....

- Committee prioritized working lands practices:
 - conservation crop rotation,
 - nutrient management,
 - cover crops,
 - conservation tillage,
 - forage and biomass planting,
 - prescribed grazing, and
 - conservation cover/critical area planting;
- Land retirement practices are valued, but many have existing funding opportunities
- Working lands practices are important to all operational sizes

Producers Ag Orgs Reps Academia Profits Ally Cropping				Agency		Non-
Ally Cropping		Producers	Ag Orgs	Reps	Academia	Profits
Ally Cropping Properties with Gypsum Products Conservation Crop Rotation Contour Buffer Strips Contour Farming Contour Orchard and Other Perennial Crops Cover Crop Drainage Water Management Integrated Pest Management Ivrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting						
Properties with Gypsum Products Image: Conservation Crop Rotation Contour Buffer Strips Image: Contour Farming Contour Farming Image: Contour Crop Contour Orchard and Other Perennial Crops Image: Contour Crop Cover Crop Image: Contour Crop Drainage Water Management Image: Contour Crop Integrated Pest Management Image: Contour Crop Integrated Pest Management Image: Contour Crop Nutrient Image: Contour Crop Nutrient Image: Contour Crop Stripcropping Image: Contour Crop Hedgerow Planting Image: Contour Crop	Ally Cropping					
Gypsum Products Conservation Crop Rotation Contour Buffer Strips Contour Farming Contour Orchard and Other Perennial Crops Cover Crop Drainage Water Management Integrated Pest Management Intrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Properties with					
Conservation Crop Rotation Rotation Contour Buffer Strips Strips Contour Farming Contour Orchard and Other Perennial Crops Strips Cover Crop F Drainage Water Management F Integrated Pest Management F Integrated Pest Management F Nutrient Management F Nutrient Management F Residue and Tillage, No Till No Till Residue and Tillage, Reduced Till F Stripcropping F Hedgerow Planting F	Gypsum Products					
Rotation Contour Buffer Strips Strips Contour Farming Contour Orchard and Other Perennial Crops Cover Crop Frainage Water Management Mutrient Integrated Pest Management Irrigation Water Management Nutrient Management Nutrient Management Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Conservation Crop					
Contour Buffer Strips Contour Farming Contour Orchard and Other Perennial Crops Cover Crop Drainage Water Management Integrated Pest Management Irrigation Water Management Nutrient Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Rotation					
Strips Contour Farming Contour Orchard and Other Perennial Crops Cover Crop Drainage Water Management Integrated Pest Management Irrigation Water Management Nutrient Management Nutrient Management Stripcopping Hedgerow Planting	Contour Buffer					
Contour Farming	Strips					
Contour Orchard and Other Perennial Crops	Contour Farming					
and Other Perennial Crops Image Water Drainage Water Management Image Water Integrated Pest Management Image Water Irrigation Water Management Image Water Nutrient Image Water Nutrient Image Water Nutrient Image Water Stripcropping Image Water Hedgerow Planting Image Water	Contour Orchard					
Crops Image Control of the second	and Other Perennial					
Cover Crop Image Water Drainage Water Image Water Management Image Water Integrated Pest Image Water Management Image Water Irrigation Water Image Water Management Image Water Nutrient Image Water Nutrient Image Water Residue and Tillage, Image Water No Till Image Water Stripcropping Image Water Hedgerow Planting Image Water	Crops					
Cover Crop Image Water Management Image Water Integrated Pest Image Water Management Image Water Irrigation Water Image Water Management Image Water Nutrient Image Water Nutrient Image Water Nutrient Image Water Residue and Tillage, Image Water No Till Image Water Stripcropping Image Water Hedgerow Planting Image Water						
Drainage Water Management Integrated Pest Management Irrigation Water Management Nutrient Management Management Management Residue and Tillage, No Till No Till Residue and Tillage, Reduced Till Management Stripcropping Management	Cover Crop				4	
Management Integrated Pest Management Irrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Drainage Water				0	
Integrated Pest Management Irrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Management				VX .	
Management Irrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Integrated Pest				4.	
Irrigation Water Management Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Management			JY.		
Nutrient Image: Constraint of the second s	Irrigation Water					
Nutrient Management Residue and Tillage, No Till Residue and Tillage, Reduced Till Stripcropping Hedgerow Planting	Ivianagement					
Residue and Tillage, No Till Image: Comparison of the second se	Management					
No Till Image, mail Residue and Tillage, meduced Till Image, meduced Till Stripcropping Image, meduced Till Hedgerow Planting Image, meduced Till	Posiduo and Tillago					
Residue and Tillage, Reduced Till Image: Control of the second	No Till					
Reduced Till Stripcropping Hedgerow Planting	Residue and Tillage.					
Stripcropping Image: Constraint of the second sec	Reduced Till					
Stripcropping Image: Constraint of the second sec						
Hedgerow Planting	Stripcropping					
Hedgerow Planting						
	Hedgerow Planting					
Mulching	Mulching					
Waste Recycling	Waste Recycling					
Windbreak/Shelterb	Windbreak/Shelterb					
elt Establishment	elt Establishment					
Conservation Cover	Conservation Cover					
Critical Area	Critical Area					
Planting	Planting					
Field Border	Field Border					

MDA supports practices selected

- Fulfills key state commitments for water quality and GHGs:
 - <u>All</u> prioritized practices align with GGRA Plan
 - Practices also largely align with WIP 3 goals
 - Existing ability to track and report across multiple goals, and improve tracking as program develops
- Funding support will matter future meeting topic
- **ROUNDTABLE:** Open discussion, consensus building exercise to affirm (or not) the prioritized working lands practices

Parallel efforts

- Specific to state GHG goals, MDA has committed to Healthy Soils Program as avenue for carbon sequestration
- MDA seeking to balance our efforts -
 - Cropland practices that effect the productivity of the soil – physical, chemical, and biological – for greatest acreage impact (65% of MD farmland),
 - while agroforestry practices capture more carbon/acre
 - State agroforestry pilot projects in discussion with DNR and UMD
- **ROUNDTABLE:** Open discussion, consensus building exercise to equally prioritize agroforestry practices

Next steps

- Finalize practice list based on input
- Set meeting calendar
 - Dates TBD
 - Frequency?
- Topics (likely)
 - Economics of selected practices Harry Hughes Center
 - Existing practice coverage NRCS, grants, others
 - \rightarrow State incentive program design
 - Funding options