Cover Crop Transect Survey Ag Workgroup Presentation Pennsylvania and Delaware

November 21, 2016





Survey Procedures - Data collection procedures are based in part on the Conservation Technology Information Center (CTIC) procedures for Cropland Roadside Transect Survey.

Data collection guided by the *Chesapeake Bay Program Partnership Agriculture Workgroup's Agricultural BMP Verification Guidance*

Timeframe



Fall

First part of the cover crop survey

- Approximately four weeks after the first average frost date
- Teams collect information on cover crop type, density and height in order to estimate establishment date and document stand quality.

Spring

Residue survey and second part of the cover crop survey

- After spring planting and emergence of crop
- Before canopy closure (for easy visibility)
- Within a seven week period beginning in late May

DE Timeframe



Fall

- Usually first week of Dec
- Collect cover crop variety, planting method, and crop establishment (density and height) in order to estimate planting date
 - If unsure, default to "late" planting

Spring

- Survey timeframe based on growing conditions observed by our local conservation district and Dept of Agriculture support staff
- Collect residue level, main crop, planting method
- Verify cover crop observations made in fall and amend where necessary

Summer

- Collect double-cropping observations
- QA to verify destruction or harvest of previous crop to determine commodity or traditional

Data Collected in Fall

- Harvested Crop
- Cover Crop
- Planting Method
- Cover Crop Density <50%, 50%-75%, >75%
- Days from Planting Judged by crop heights and plant density* will enable estimate of early, normal or late planting
- Manure Application (Yes/No)



Estab	lishment	Date
-------	----------	------

CC height	estimated planting date
not visible	1-8 days
visible - 2 "	8-16 days
2" - 4"	16-24 days
4" - 6"	24-36 days
> 6"	36-60 days

^{*}Establishment date estimation is guided by crop height shown on the right, as well as cover crop density

DE Data Collected in Fall

- Cover Crop
- Planting Method
- Days from planting (estimated through growth height, density, and establishment)
- Visible application of manure noted



		Harvested		Planting	СС		Manure	Residue Removed	Land Use &		
Obs #	L/R	Crop	Cover Crop	Method	Density	CC Height	Y/N	Y/N	BMP	Notes	
1	L										
	R										
3	L										
	R										
5	L										
	R										
7	L										
	R										
9	L										
	R										
11	L										
	R										
13	L										
	R										
15	L										
	R										

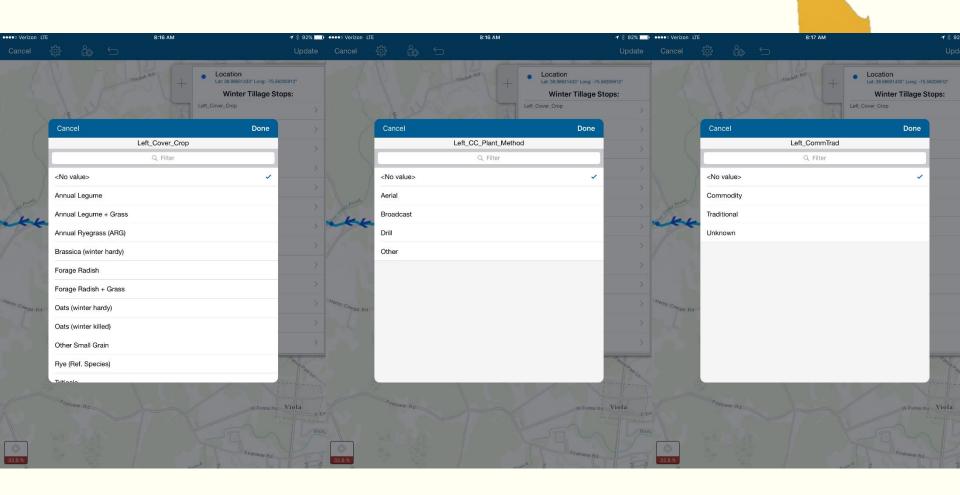
PA Data Entry Sheet for Fall Cover Crop Survey

		_

Obs #\		Cover Crop	CC Kill	Crop	Conv <15%	Conv 30-60				Notes
	L									
2	R.									
3	L									
4	R									
5	L									
6	R									
7	'L									
8	R									
9	L									
10	R									
11	. L									
12	R.									
13	L									
14	R									

Data Entry Sheet for Spring Residue/Cover Crop

DE Data Entry



Follow-up Cover Crop Data Collected in Spring

- Confirmation of cover crop species planted
- Cover crop termination information to help determine if the crop was a traditional cover crop or commodity cover crop

Cover Crop Observation Follow-up

- Confirm cover crop species, planting method, establishment
- Observe cover crop termination to determine cover crop type (traditional vs commodity)
- Check for visible evidence of nutrient application to determine commodity category
- Consult Conservation District staff for necessary follow-up checks with producers to verify correct observations were made





Data is collected on a county-by-county basis. Each county survey is conducted with a similar three-person team consisting of:

- **1. County Representative** (Typically conservation district staff) will provide local knowledge and driving
- 2. Consulting Technician Experienced in general cropping practices, trained and tested in consistent and accurate crop and residue level determination
- 3. GPS/data Entry Technician Trained technician will guide the team to each established observation point using ArcMap, record observation information and make notes.

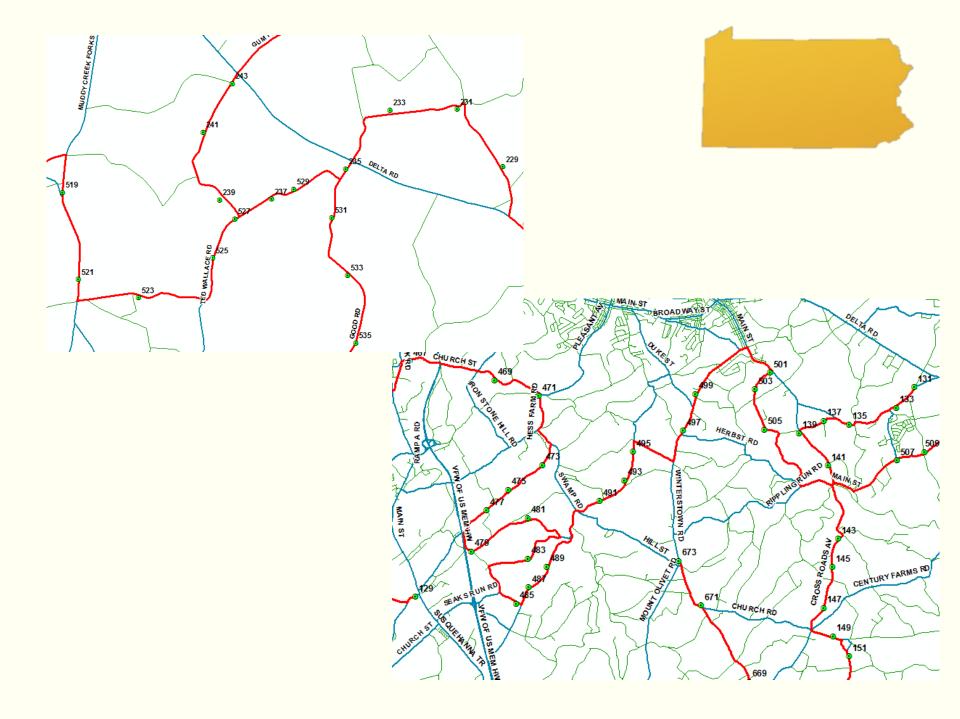
DE Survey Teams

- Driver fully aware of Transect Survey Procedure
- County Conservation District Staff Member from respective county
- 2 Trained Observation Experts
 - Delaware Dept of Agriculture expert that served on the High Residue Minimum Soil Disturbance Expert Panel
 - University of Delaware Cooperative Extension, Nutrient Management Expert
- GIS/Data Entry Technician



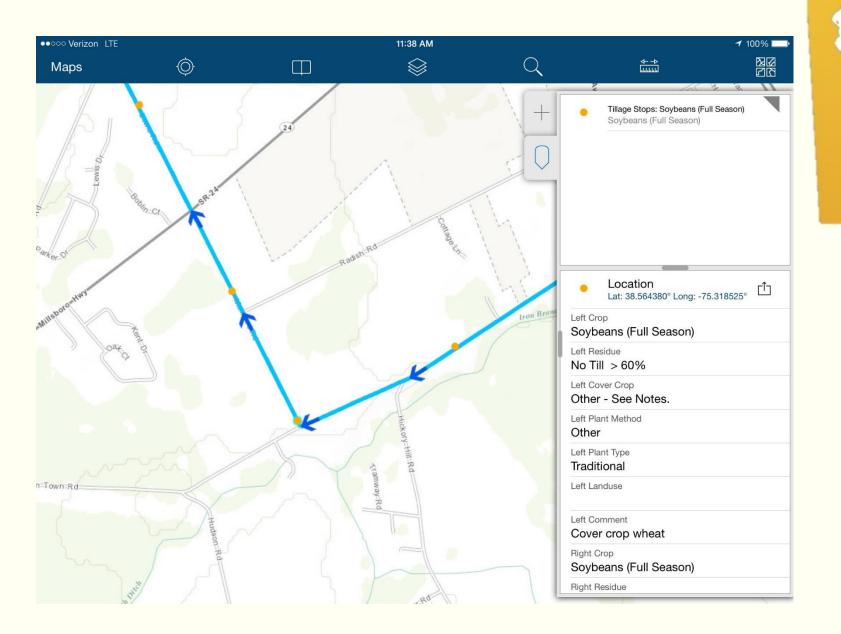
Survey Route and Points

- Route and Points established and re-used for each survey
- Established using CTIC criteria all major crop areas in the county and all major ag soils
- Each stop includes two observations left side and right side of car



DE Survey Route and Points

- Points are GPS established utilizing ArcCollector GIS Software
 - Return to the same points every year
- Meets or exceeds CTIC criteria of targeting predominantly agricultural landuse, mileage, and observations
- 2 observations made at each stop
- A minimum of 10% of the observations are QA/QC'd for accuracy



Quality Assurance/Quality Control

Components include:

- 1. Training for all participants
- 2. Consulting Technician and GIS/Data Entry Tech evaluation
- 3. Consistency supported by limited number of Consulting Technicians and GIS/Data Entry Techs working in multiple counties
- 4. Technology Observation points established and revisited during each survey using ArcMap
- 5. Review of ten-percent of Consulting Technician observations in the spring
- 6. Conservation district staff cross check limited number of observations by verifying with producer



DE Quality Assurance/Quality Control

- Annual Training Session for all participants
- Annual updates to procedure, mobile application, and route/point inspections to meet or exceed survey requirements
- At least a 10% of observations are reviewed with a trained verification professional
- Verify observations with conservation district cover crop records. When necessary, followup with the actual producer

How will we use the data?



- Total Traditional Cover Crop Acres by County (TCC)
 - Calculations can be made for each cover crop type/planting method/date
 - Subtract Conservation District Cover Crop Acres by County (DCC)
 - Any remaining acres will be reported and we will not report NRCS acres
 - Therefore, <u>no double counting!</u>
 - Report county-wide acreages not CB specific
- TCC DCC = reportable survey acres
- 30,000 (TCC) 25,000 (DCC) = 5,000 acres

For additional information

Susan Richards

Capital RC&D

(717) 241-4361

srichards@capitalrcd.org

Marcia Fox

DNREC

(302)739-9922

Marcia.Fox@state.de.us



