

# PA COVER CROP SURVEYS ENHANCEMENT PROJECT

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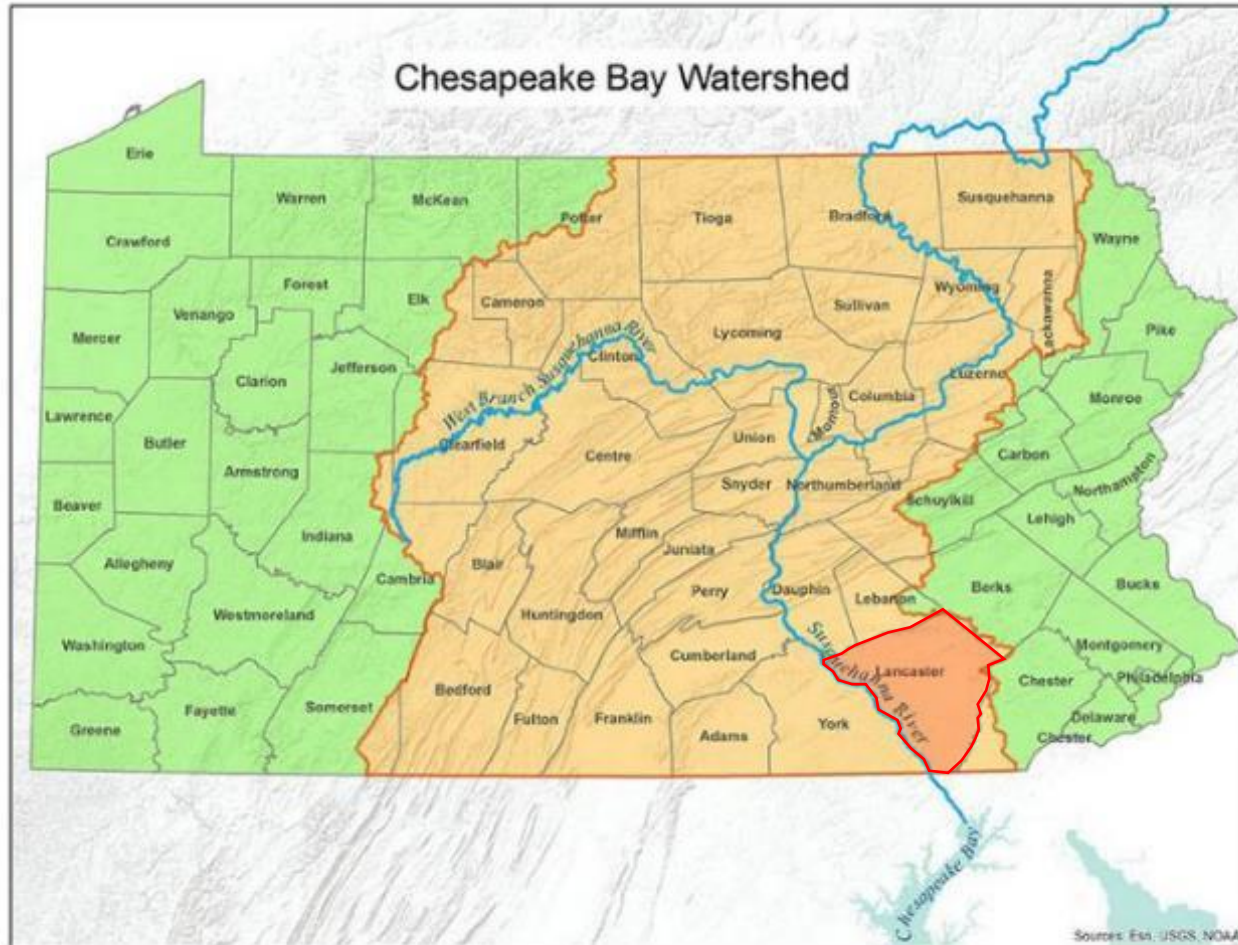
September 15, 2022

# Voluntary Farmer Survey to Self-Report BMPs

- This survey was first done in 2016 (nearly 7,000 farmers participated)
- 2016 survey established CBP AgWG-approved method to collect “voluntary” (non-cost shared) practices
- Repeated in 2020 in four Phase 3 WIP “pilot counties” of Lancaster, York, Adams and Franklin (nearly 1,800 farmers participated)
- 2022 survey underway in 14 remaining Tier 2 & 3 counties (1,018 surveys returned to date)

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# LANCASTER COUNTY 2020 DATA



- Transect survey and BMP survey *both* completed in 2020
- Allowed us to look at cover crops datasets from each survey for Lancaster County

# LANCASTER COUNTY 2020 DATA

- 970 field observations in the transect survey (485 unique latitude/longitude pairs with observations on the left- and right-hand sides of the road)
- 989 Lancaster County farms in the Penn State BMP survey
- **Our question:** how many fields observed in the transect survey belong to farm operations represented in the Penn State BMP survey?

# METHODOLOGY

- Obtained latitudes/longitudes for all farm addresses in the Penn State BMP survey
- Calculated straight-line distance between the coordinates of each farm address and the coordinates of each transect observation point

# METHODOLOGY

**Number of BMP survey farms with the nearest transect point...**

<b>&gt; 1.00 miles away</b>	<b>527</b>
<b>Between 0.50 and 1.00 miles away</b>	<b>221</b>
<b>Between 0.25 and 0.50 miles away</b>	<b>133</b>
<b>Between 0.10 and 0.25 miles away</b>	<b>85</b>
<b>&lt; 0.10 miles away</b>	<b>23</b>

# METHODOLOGY

Number of BMP survey farms with the nearest transect point...

> 1.00 miles away 527

Between 0.50 and 1.00 miles away 221

Between 0.25 and 0.50 miles away 133

Between 0.10 and 0.25 miles away 85

< 0.10 miles away 23

we proceeded with a  
careful search for  
matches among this  
subset of farms

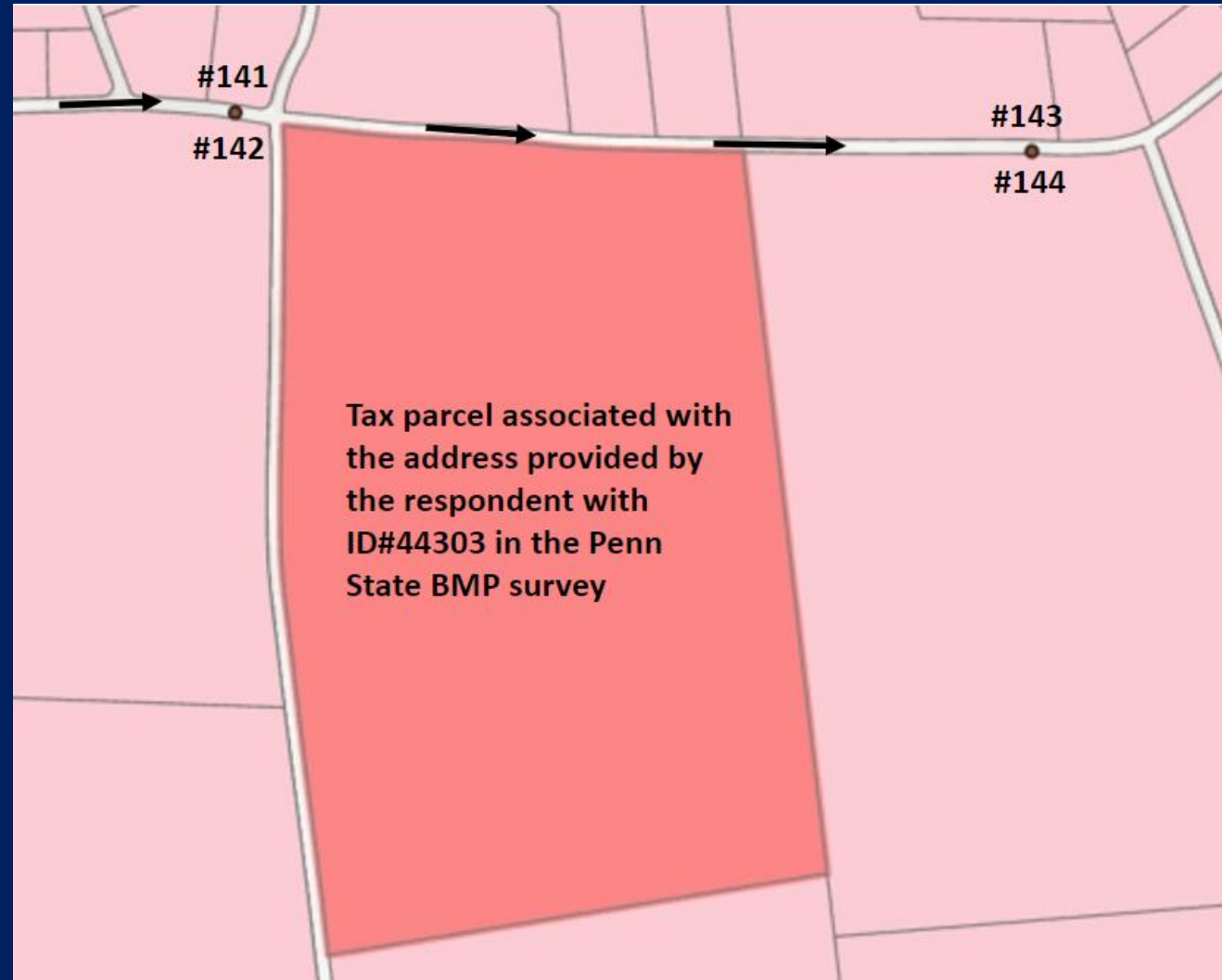


# METHODOLOGY

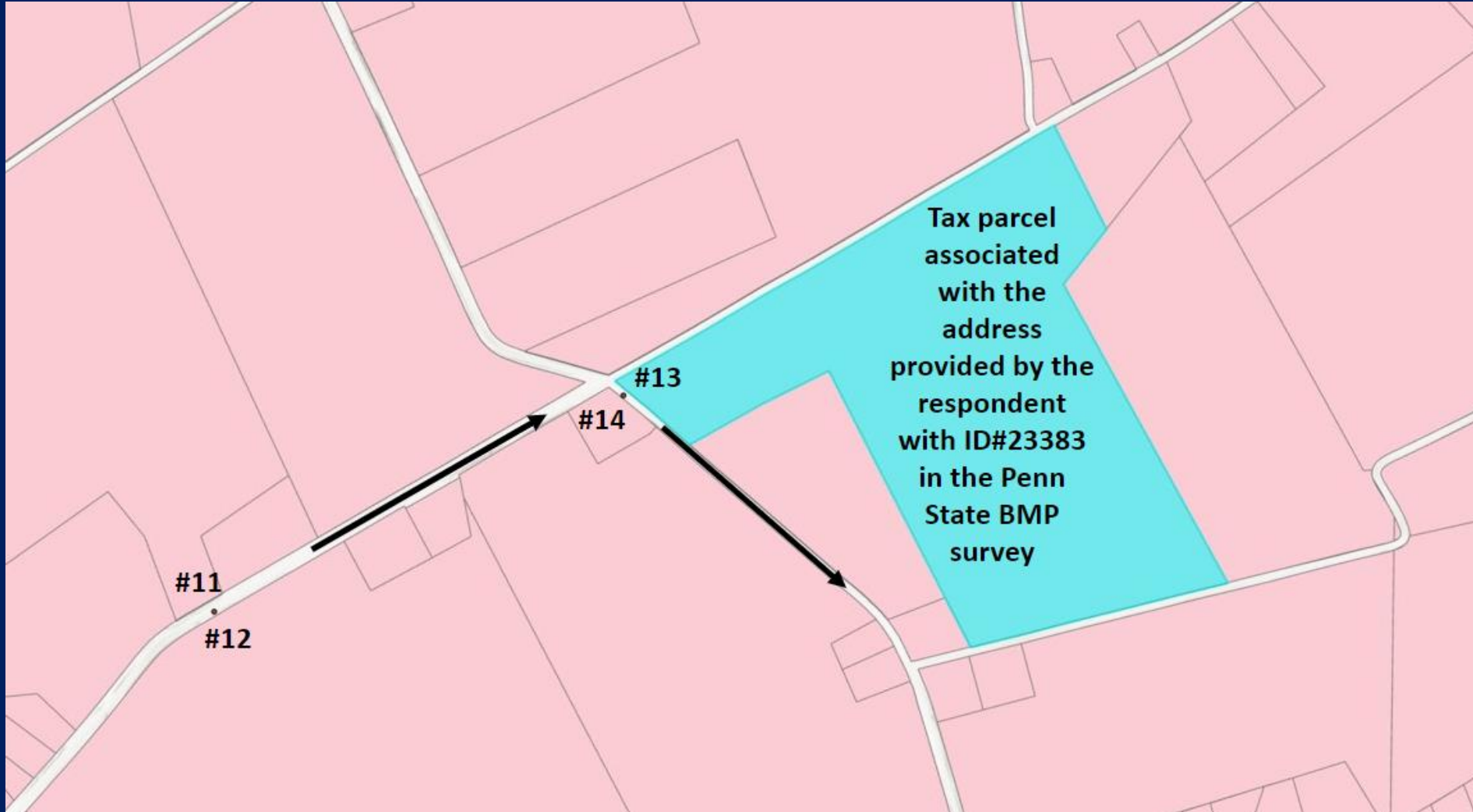
- This list helped narrow down where to look for potential "matches" between the farm parcels associated with farms in the Penn State BMP survey and fields that were likely being observed by the transect surveyor
- Whenever a transect survey observation point was location directly on the border of a land parcel associated with the farm address of one of the respondents in the Penn State BMP survey, we considered that transect point/farm address pair to be a "match."
- A "match" implies that we believe the transect surveyor is likely observing the cover crop characteristics of *at least part of the acreage* associated with a farm that filled out the Penn State BMP survey



# TRANSECT POINT #142 IS NOT A MATCH FOR FARM SURVEY ID#44303



# TRANSECT POINT #13 IS A MATCH FOR FARM SURVEY ID#23383



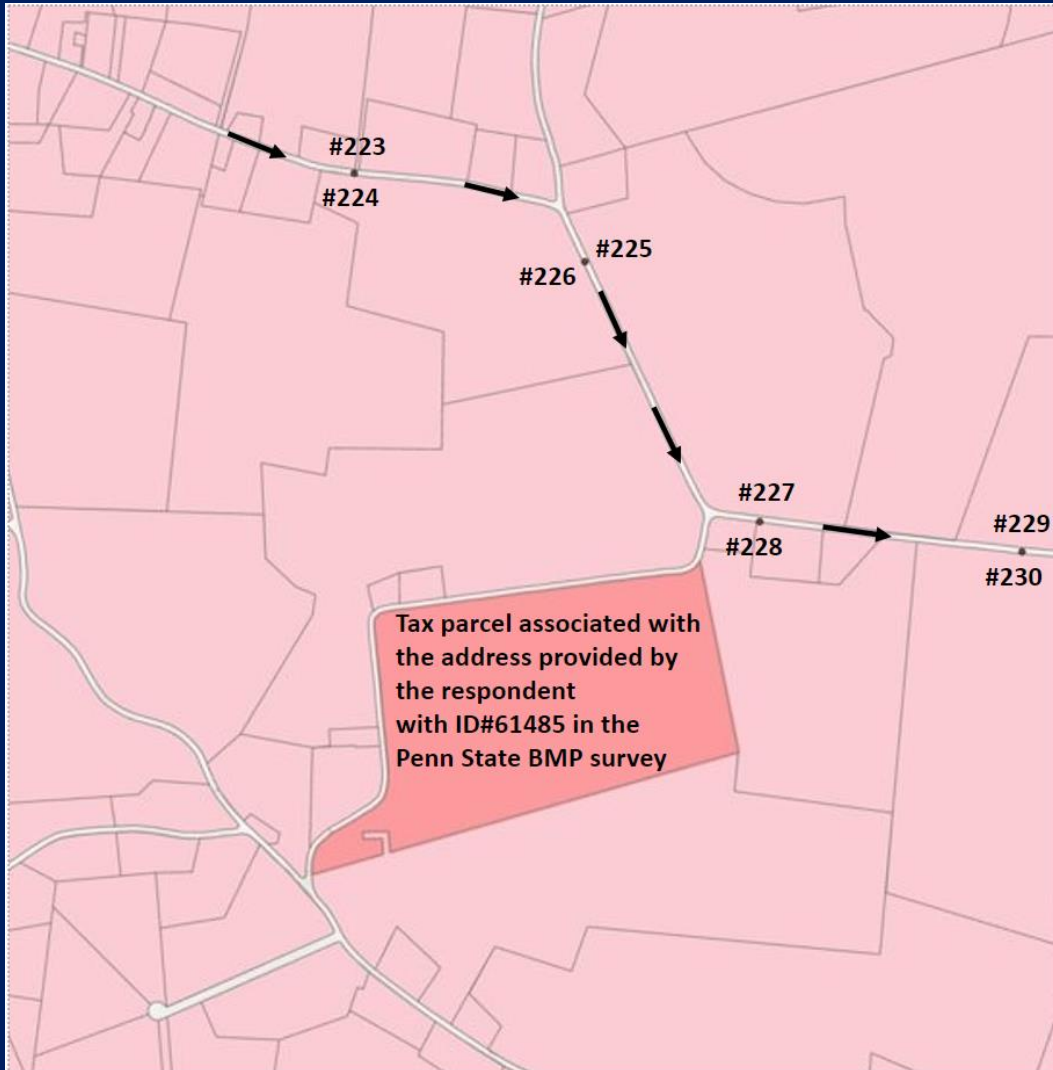
# METHODOLOGY

- Using just the Lancaster County tax parcel map, we identified 70 farms in the Penn State BMP survey that have a transect survey observation point bordering their farm operation
- But to account for the fact that survey respondents might have farm operations on parcels outside of just their tax parcel, we checked all transect points to see if any adjacent parcels appeared in the "PracticeKeeper" data set

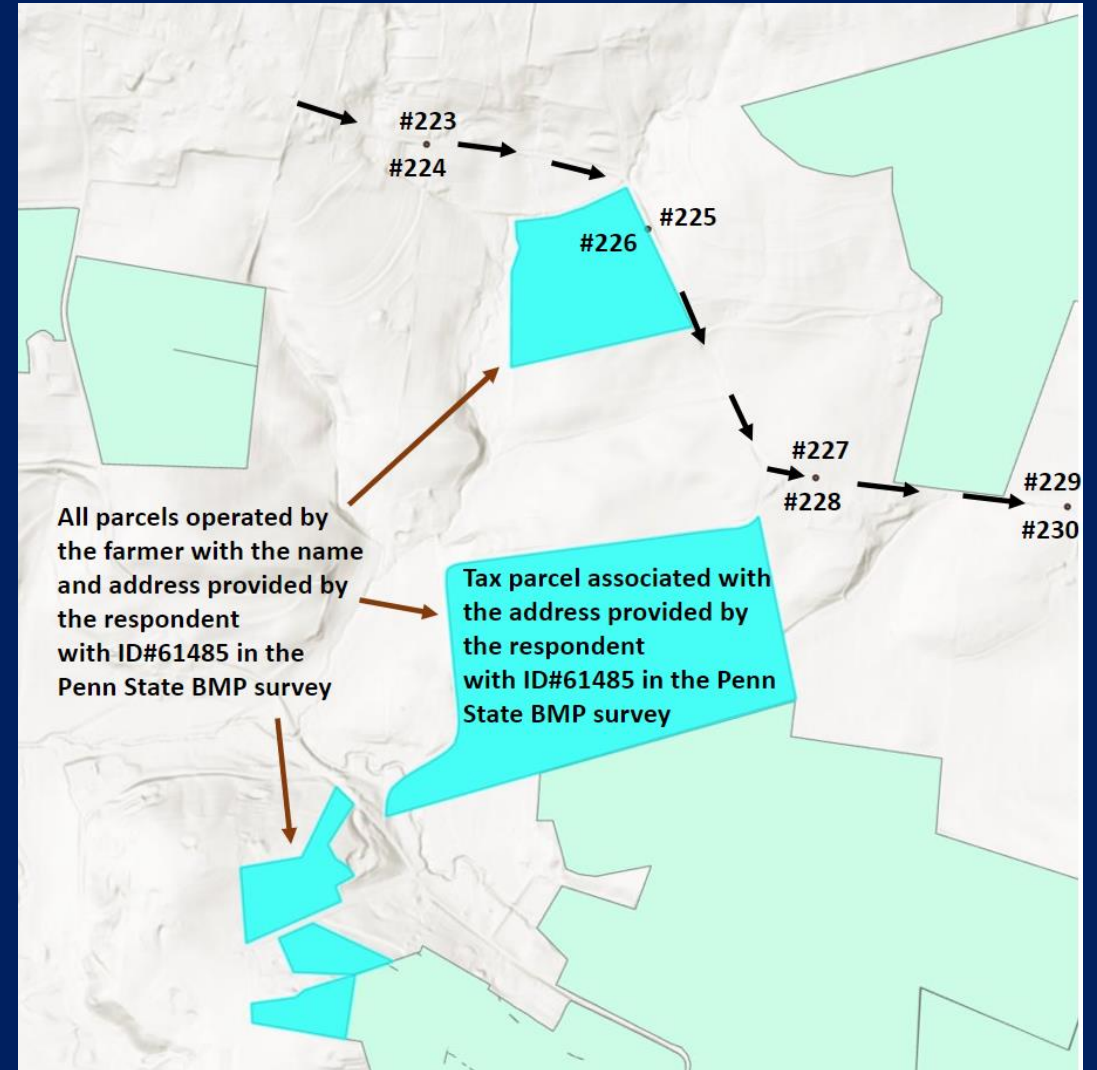
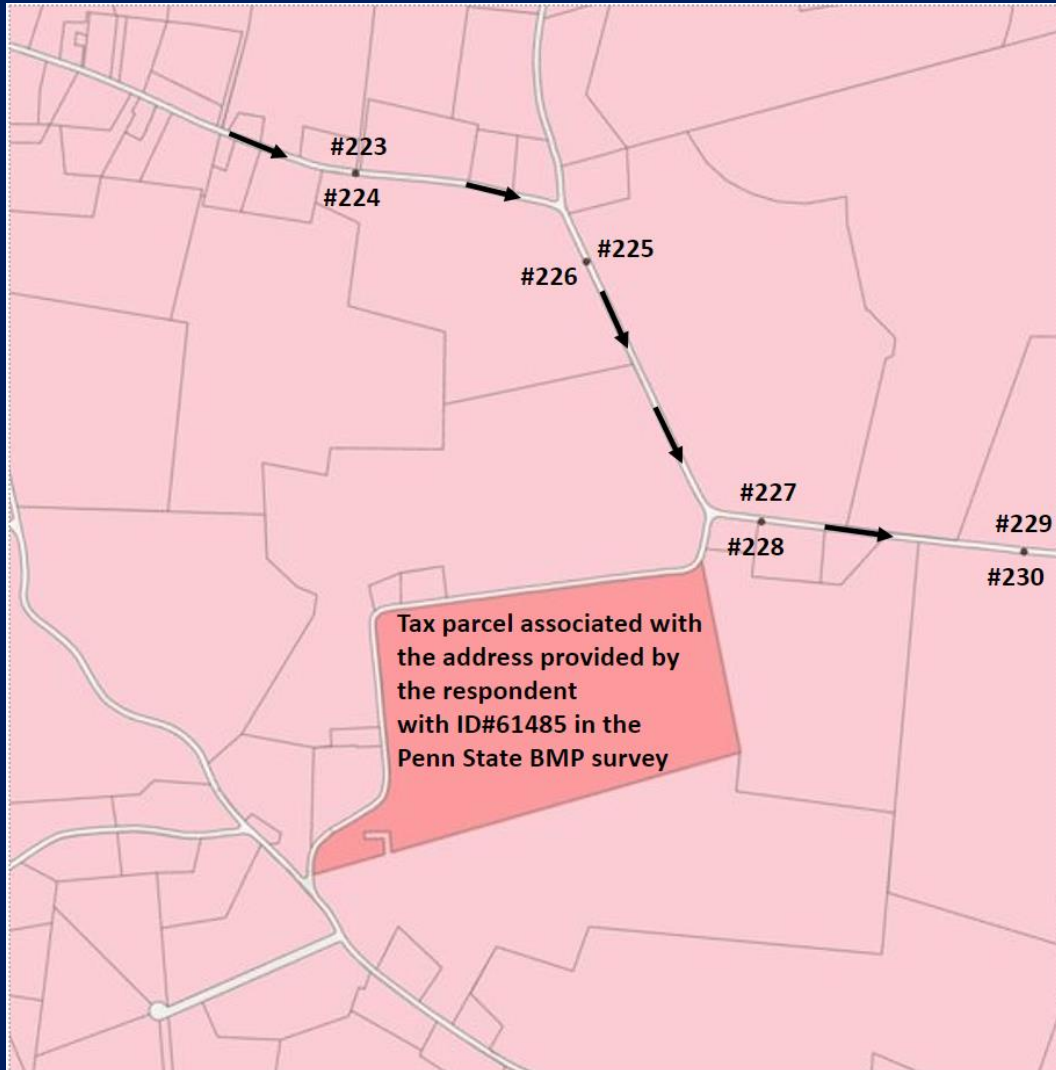
# METHODOLOGY

- For each transect point with an adjacent parcel that appeared in the PracticeKeeper data set, we checked the name and address of the operator associated with that PracticeKeeper parcel
- If the name and address of the operator associated with that PracticeKeeper parcel matched the name and address of a respondent to the Penn State BMP survey, we considered that transect point to be a match for the BMP survey return associated with that operator

# NONE OF THESE TRANSECT POINTS APPEAR TO MATCH FARM SURVEY ID#61485...



# ...BUT PRACTICEKEEPER PARCELS SHOW A MATCH BETWEEN TR#226 AND ID#61485



# METHODOLOGY

- Using the combination of the Lancaster County tax parcel map and the map of PracticeKeeper parcels, we identified 94 farms in the Penn State BMP survey that have a transect survey observation point bordering their farm operation (as compared to 70 farms using just the Lancaster County tax parcels)



# RESULTS

- The degree of correspondence between the cover crop information reported by farmers in the Penn State BMP survey and the cover crop information collected in the transect survey can be compared in terms of:
  1. the presence of any cover crop reported
  2. the type of cover crop reported
  3. whether the cover crop was reported to be harvested



# PRESENCE OF A COVER CROP

		Were cover crops reported at the transect point?	
		Yes	No
Were cover crops reported by the farm in the Penn State BMP survey that borders the transect point?	Yes	51 (54.3%)	30 (31.9%)
	No	2 (2.1%)	11 (11.7%)

The numbers in each cell denote the number of farm-transect point pairs where cover crops were reported in one or the other survey, both surveys, or neither survey

# COVER CROP TYPE

		Cover crop type reported in the transect survey			
		Small grains	Mixture	Hay	Unknown
Cover crop type reported in the Penn State BMP survey	Small grains	43 (84.31%)		1 (1.96%)	2 (3.92%)
	Mixture	1 (1.96%)	2 (3.92%)		
	Legume	1 (1.96%)			
	Other				1 (1.96%)

Each cell denotes the number of farm-transect point pairs for which a particular combination of cover crop types were found across the two survey

Green indicates that the crop type reported in the transect survey matches the type reported in the Penn State BMP survey

# COVER CROP HARVESTING

		Harvesting regime observed in the transect survey	
		Harvest	No Harvest
Harvesting regime reported in the Penn State BMP survey	Harvest	16* (31.4%)	12 (23.5%)
	No Harvest	3 (5.9%)	20** (39.2%)

\*This number includes farms where *at least one* of the matching transect points found a harvested cover crop and *at least one* of the cover crop plots reported by the matching farm in the Penn State BMP survey reported a harvested cover crop

\*\*This number includes farm-transect pairs where *at least one* of the matching transect points found no cover crop harvest and *at least one* of the cover crop plots reported by the matching farm in the BMP survey reported no cover crop harvest

# KEY FINDINGS

- 66% (62 of 94) of the matching farm-transect point pairs reported consistent results in terms of cover crop presence
- 88% (45 of 51) of the cases where a cover crop was present in both the BMP farm survey and the transect survey reported the same category of cover crop type
- The harvesting regime matched in 70% (36 of 51) of the cases

