



Status of Nutrient Mass Balance

What is the Delmarva Land and Litter Challenge?

Diverse group of stakeholders committed to the following goals by 2025:

- ***Delmarva agriculture is regionally neutral in importing and exporting nutrients, and wherever possible, nutrients are recycled locally to support sustainable agricultural operations; and***
- ***nutrients are utilized in farming operations without negative environmental impacts.***

Governance Structure

Steering Committee (up to 27 members)

Executive Committee (Chair, vice chairs, at large members)

Manure Transport Subcommittee

Recently released “*Model Poultry Litter Transportation Program Attributes*”

Innovative Solutions Action Team

Mass Balance Subcommittee

www.delmarvalandandlitter.net



CHARGE

- *“Calculate, based on current information, the mass balance of nutrients on the Delmarva Peninsula.”*
 - *Entire Delmarva – not just the Chesapeake Bay Watershed portion of the Delmarva.*
 - *All Nutrient Sources – not just poultry litter.*

OUR END GAME

- County level nutrient balance for Delmarva.
- DLLC consensus on best available data.
- Starting point for finding solutions to county-level surpluses.
 - Manure transport – getting the surplus nutrients to ag lands that need it.
 - Alternative uses - beyond ag land application

Mass Balance Subcommittee

- Alisha Mulkey (MDA)
- Amy Shober (UDEL)
- Beth McGee (CBF) *
- Chris Brosch (DDA)
- Clint Gill (DDA)
- Darrell Marshall (VADOF)
- Ed Kee (former Sec DDA) *
- Hans Schmidt (MDA)
- James Adkins (UDEL)
- James Glancey (UDEL)
- Jarrod Miller (UMD)
- Jeff Horstman (MRC)
- Kelly Shenk (EPA) *
- Kenny Bounds (DDA)
- Lindsay Thompson (MD Grain Producers)
- Louise Lawrence (MDA)
- Mark Reiter (VA Tech)
- Matt Johnston (UMD)
- Mike Phillips (Perdue)
- Richard Snyder (VIMS)

* co-chairs

Two Approaches

- *Crop need*
- *Crop removal*

CROP NEED METHODOLOGY

sources

Nutrients
produced or
sold on Delmarva

Inorganic fertilizers
Manure
Bio-solids
N fixation
Soil P

—

removal =

Manure exported
out of Delmarva or
to Perdue agricycle

Nutrient application
based on crop yield

No application of P on
soils > ? FIV

*Surplus or
Deficit*

CROP REMOVAL METHODOLOGY

sources

Nutrients
produced or
sold on Delmarva

Inorganic fertilizers

Manure

Bio-solids

N fixation

Soil P

—

removal =

*Surplus or
Deficit*

Manure exported
out of Delmarva or
to Perdue agricycle

Nutrients removed
by crop harvest

~~No application of P on
soils → ? FIV~~

Why Two Approaches?

- *Crop need*

Advantage: More relevant to “existing conditions” relative to excess nutrients b/c it is based on nutrient management recommendations of nutrients; includes soil phosphorus.

- *Crop removal*

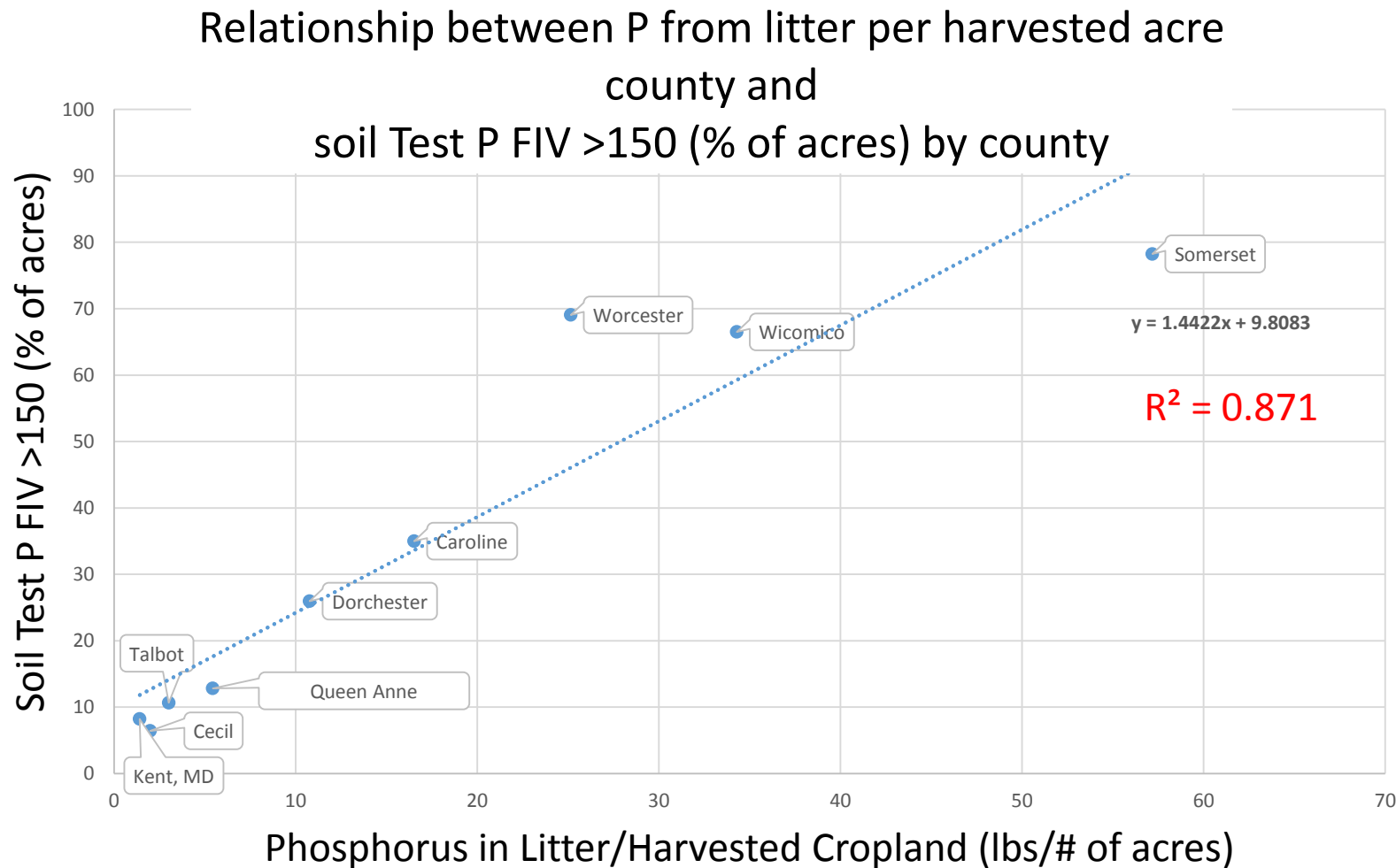
Advantage: Gives insights to long-term nutrient balance at county scale e.g., are crops “mining” phosphorus?

Data gap: soil phosphorus levels

- We need data that are:
 - Relatively current
 - At a county scale
 - Publicly available
 - With associated FIV values
- MD – Has soil P FIV data that meet our needs
- DE and VA – Insufficient publicly available data at county scale. **How to fill the gap?**

DEVELOPED REGRESSION EQUATION

To Estimate % Cropland Acres over a certain P FIV Value by County



Mass Balance Subcommittee proposing to use this relationship to extrapolate the MD P FIV Data to DE and VA.

To estimate the % of cropland acres above a **certain FIV level (TBD)**.

NEXT STEPS

- Summer: Technical review of assumptions and inputs
- Late Summer/early Fall: MBS reconvenes to review and discuss review and reach consensus on final assumptions for analysis
- Goal: Final Report that reflects consensus of all DLLC organizations