

ISSUE: Manure Transport / Manure Treatment Technologies (NY/PA)

PA – revisit the requirement to apply Nutrient Management to offset an assumed “backfill” of inorganic application does not adequately reflect current practice

Per Sept 8 ad hoc discussion:

- *The model is unable to capture the inter-county units that have gained efficiency in nutrient use.*
- *What would it look like for manure move between river segments?*

BACKGROUND:

Manure Treatment Technologies (Approved by WQGIT 2016)

[Recommendations from the Manure Treatment Technologies Expert Panel to the Chesapeake Bay Program’s Water Quality Goal Implementation Team to define Manure Treatment Technologies as a Best Management Practice](#)

*Manure Transport : definition and benefits have remained in use **since review and approval by the CBP partnership’s source sector workgroups for tributary strategy development.***

<https://cast.chesapeakebay.net/Documentation/BMPs> --> Manure BMP Fast Facts

[BMP Quick Guide](#) → Manure Transport

Definition:

*Manure Treatment Technologies: **Only technologies that remove nutrients from manure can receive a reduction efficiency** in the Phase 6.0 Watershed Model. The panel evaluated six broad categories of technology and further investigated individual technologies within each category, however, only a subset of those practices [below] are shown to remove nutrients from the primary manure stream through the volatilization of nitrogen, as described in the panel’s report.*

1. Thermochemical Conversion (various)
2. Composting (various)
3. Directly Monitored (various)

Appendix A...some manure treatment technologies do not remove nutrients from the manure, but alter the moisture content of the manure, making it easier to transport. “Removal” in this case means that the nitrogen is no longer present in the treated manure that is available for field application or transport according to model procedures that occur post-treatment. In the Phase 6.0 Watershed Model, jurisdictions will have the ability to directly report the moisture content of manure being transported (using the Manure Transport BMP). Manure with a lower moisture content has higher concentrations of nutrients, thus the benefits of these manure treatment technologies would be captured by the manure transport BMP.

Manure Transport: Transport of excess manure in or out of a county. Manure may be of any type poultry, dairy, or any of the animal categories. Transport should only be reported for county to county transport. Movement within the same county should not be included.

Manure transport BMPs directly influence the amount of nutrients available from animal manure for field application and subsequent BMPs. **The total application of manure could be reduced in a county if a jurisdiction indicated that manure was treated and/or transported out of that county. However, the crop nutrient need is not changed; other sources of nutrients will make up the difference in the crop**

need where they are available. Manure is applied to meet the nitrogen crop need, which can result in an over application of phosphorus. **In cases where manure becomes less available and is replaced with inorganic fertilizer, there is a decrease in phosphorus. There may be an increase in nitrogen loads, since nitrogen from inorganic fertilizer is more likely to run off to streams than nitrogen from manure.** In some cases, there is no change in nutrient loads. In cases where there is a great deal of manure in a county and not much cropland, there is a decrease in both nitrogen and phosphorus. A portion of the reduced nitrogen amount is applied to the feeding space load source in the source county at the edge-of-tide. Analysis of edge-of-stream loads will not show this BMP's full effect since some of the nitrogen is applied to back to the source county's edge-of-tide load.

Effectiveness Estimates

Manure Treatment Technologies

TN: 10-95% (depends on treatment technology)

TP: N/A

TSS: N/A

Manure Transport

TN: Depends on animal type, destination, and tons transported

TP: Depends on animal type, destination, and tons transported

TP: N/A

Land Use: Permitted Feed Operations, Non-permitted feed operations

Animal groups: All

SUGGESTED ACTION:

Continuing discussion on improving handling of manure transport & treatment technologies BMPs is important, but complicated. Schedule a review of how these BMPs are applied with CBPO staff.

CHALLENGE:

- The “backfill” of inorganic N to replace manure nutrients that leave the county accounts for crop N need, as it is expected that farmers will apply N, regardless of source to address N needs of the relevant crop. Phosphorus is not backfilled.
- Agricultural input data for the Phase 6 CBWM is collected, analyzed, and interpreted on a county-level basis. Addressing transport of manure nutrients within-county or across river segments does not work in conjunction with the Phase 6 CBWM currently functions.

LEAD:

TIMELINE:

CAST-21 (Sept 2021)

Discussion: Yes

Change: Unlikely, due to CBP partnership-approved mechanics of the Phase 6 CBWM & need for thorough examination of impacts of such changes.

CAST-23 (Sept 2023)

Discussion: Yes

Change: Unlikely, due to CBP partnership-approved mechanics of the Phase 6 CBWM & need for thorough examination of impacts of such changes.

Future Watershed Model?

Discussion: Yes, as part of full review of ag inputs & modeling approaches.

Change: Possible

TASK CLUSTER:

BMP Effectiveness

WIP III SNAPSHOT:

Manure Transport *Out of Area*

State	2019 Progress Annual Dry Tons	WIP 2025 Annual Dry Tons
DE	32341.56	140405.52
MD	29391.68	65537.26
NY	0	0
PA	61127.29	321997.78
VA	9966.27	89221.00
WV	4406.25	7302.68

Manure Transport *into Area*

State	2019 Progress Annual Dry Tons	WIP 2025 Annual Dry Tons
DE	5483.26	0.00
MD	33953.88	0.00
NY	26.45	0.00
PA	51867.11	29282.09
VA	9057.60	0.00
WV	437.57	0.00

Manure Treatment Technologies *Out of Area*

State	2019 Progress Annual Dry Tons	WIP 2025 Annual Dry Tons
DE	0	0
MD	0	0
NY	0	0
PA	0	20000
VA	0	16700.15
WV	0	0

Manure Treatment Technologies *into Area*

State	2019 Progress Annual Dry Tons	WIP 2025 Annual Dry Tons
DE	0	0
MD	0	0
NY	0	0
PA	0	0
VA	0	16700.15
WV	0	0

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