Agricultural Inorganic Fertilizer

4/11/2025

Recap:

Raw data

- Modeling efforts
- Statistical data comparison

Application algorithm

- Scale of fertilizer stock
- Backfilling organic with inorganic nutrients

Recap:

Raw data

- Modeling efforts
- Statistical data comparison

In Progress

Application algorithm

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- Backfilling organic with inorganic nutrients

Needs attention

In progress

USGS efforts

Comparing multiple lines of evidence (CalCAST)

- National fertilizer datasets
- CBP fertilizer sales data

Needs attention

- Backfilling
- Scale

Backfilling example:

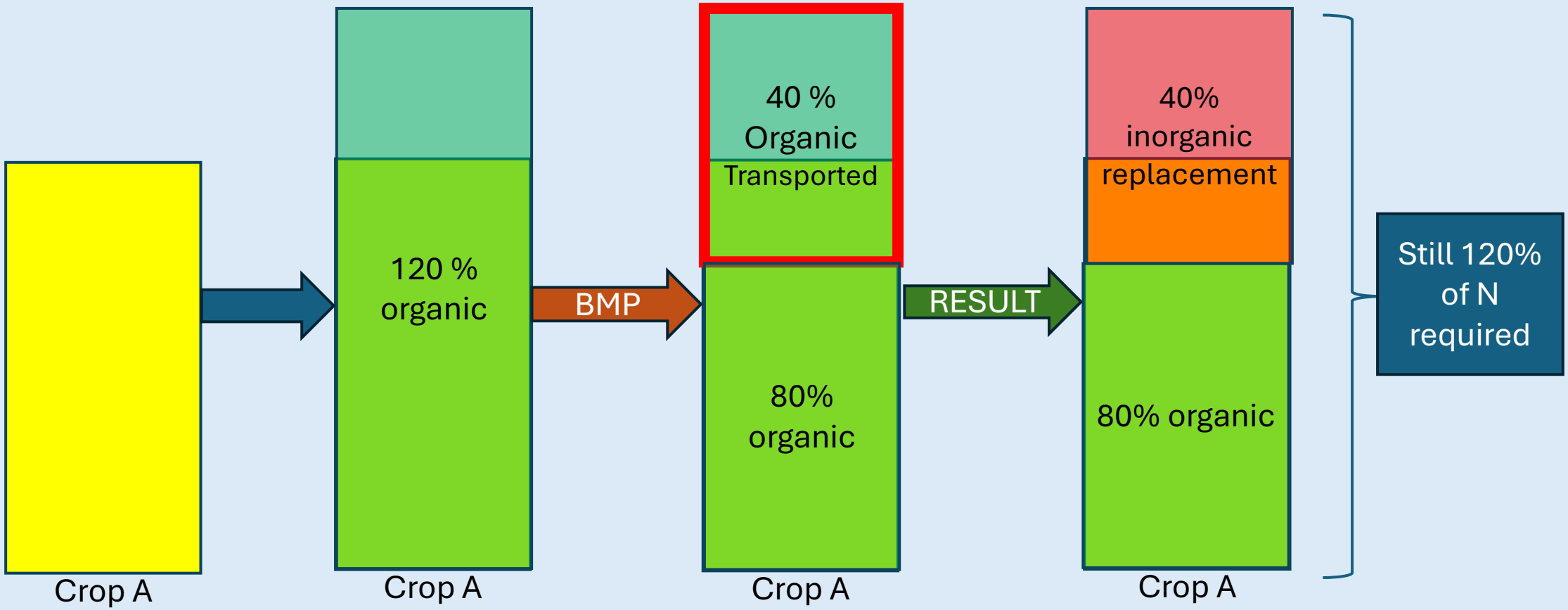
NOTE* This is most relevant where you have high organic availability and high organic removal/treatment

Crop A has a given NASS yield

Organic nutrients are calculated and applied

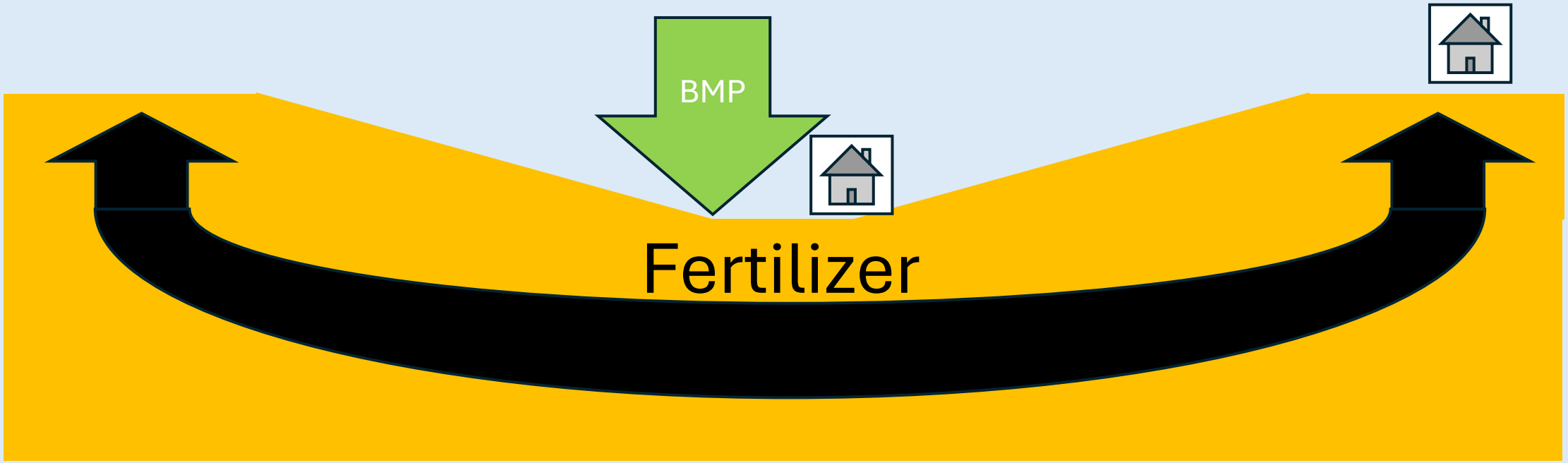
Manure transport removes 40% of organic nutrients

Inorganic nutrients are used to replace transported organics



Scale, fertilizer is a watershed product

- If one area uses less fertilizer other areas will use more.



A note on Nitrogen Loading

- If you have two IDENTICAL fields, and apply the same amount ***Inorganic fertilizer*** will **load MORE** than ***manure***

Land

Fertilizer Application

100 Lbs

Runoff from Fertilizer

15 Lbs

Land

Manure Application

100 Lbs

Runoff from Manure

9 lbs

Questions?

Application algorithm discussion:

Is replacing organic N with inorganic N realistic?

Should the replacement of inorganic N be capped?

- Up to 120% of crop application goal?

Currently at the watershed scale

- State scale?