

# An autonomous algorithm for smooth yield maps

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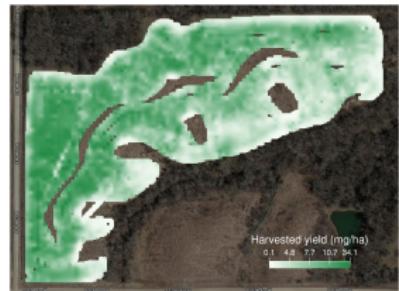
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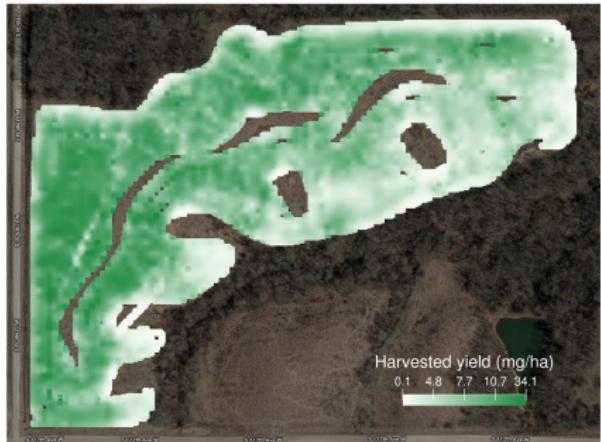
January 10, 2020

Funded by the Iowa State University Presidential Interdisciplinary Research Initiative on C-CHANGE: Science for a Changing Agriculture.

# The Autonomous Mapping Algorithm (AMA) algorithm



# Before/after



Questions?

# Benefits of our algorithm

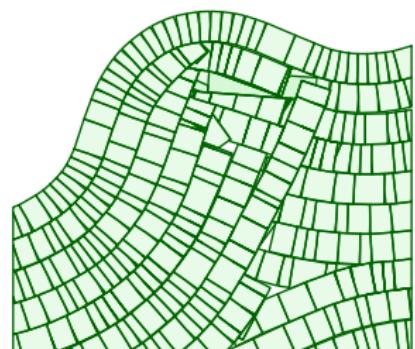
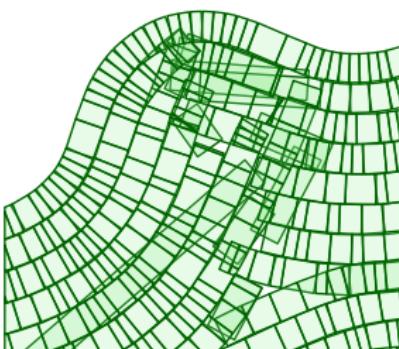
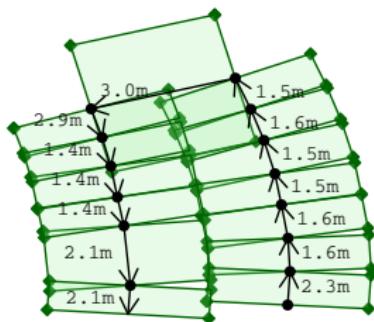
- It models mass instead of yield, which has **smaller variance and more stable spatial correlation**.
- Do **not discard** any data, i.e. no arbitrarily defined "extreme values".
- Automatic algorithm: no tuning parameters (analyst decisions) – **less room for subjectivity, improved comparability**.
- **Constructive approach:** it recreates the sampling process (harvesting).

# Data as collected

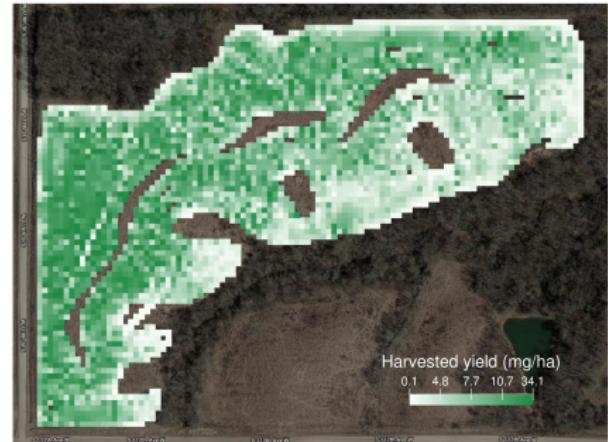


# Steps 1 & 2: Polygon creation and tessellation

- Recorded position
- ◆ Computed vertices
- ◻ Spatial polygon
- Displacement vector



## Step 3: Aggregation



## Step 4: Smoothing



# Appendix

Data:

- Location: U.S. National Fish and Wildlife Service, Jasper County, IA.
- Site: Basswood (WGS84 15 N 0477097E 4598644N, approximately 13 Ha).
- Year: 2012.
- Crop: corn.
- Voids: reconstructed prairie vegetation.
- Yield monitor: Case IH AFS Pro-600, 3-second cycle, swath width 6.1m.