**INTRODUCTION**

**Company Intro:**
- 4 main business units:
  - Agronomy, Energy, Grain, and Swine and Animal Nutrition
- One of the ten largest agriculture retailers in the US.

**Objectives:**
- Establish relationship between customers based on matching criteria (address, name and Latitude & Longitude).
- Create maps showing location of customers and Co-Alliance facilities.
- Build model to recommend customers for targeted divisional ad campaign.

**Approach:**

**PROJECT GOALS:**
- **Identify relationships between customer accounts**
- **Final Table**
- **RESEARCH**
- **Data Validation**

**Final Table**

<table>
<thead>
<tr>
<th>GROWID1</th>
<th>GROWID2</th>
<th>MatchedOn</th>
<th>AddrOsa</th>
<th>NamesOsa</th>
<th>NumSplits</th>
<th>Dist</th>
<th>Agved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Addresses, lon-lat</td>
<td>3</td>
<td>108</td>
<td>0.05</td>
<td>TRUE</td>
<td></td>
</tr>
</tbody>
</table>

**RESEARCH**

- **Merged Results of Algorithms to create list of GrowID pairs**
  - Latitude-Longitude distance, name, address, and invoices all create pairs of grower-ids that show a “match”
  - Percent missing 50.4%
  - Percent There 49.6%
- **Duplicates were removed**
  - Pairs that matched on more than one algorithm were merged
- **Incorporated Agvend Data to the final table**
  - Agvend Data contains the pairs known to be matches
  - Added a boolean column if the pair shows up in the Agvend Data
  - Allows for the team to know which pairs are not yet in Agvend Data

**Problems Found**

- **Addresses**
  - missing lat-lon matches for people with the same addresses and some of the coordinates for the data
  - using openstreetmap, we can now make maps to visualize which areas can better served
- **Invoices**
  - missing some of the invoice split based on known splits
  - reworked the code and found the missing invoices
- **Names**
  - algorithm did not find all the fuzzy matched names
  - changed the algorithm to match all the names at the same time

**Data Validation**

**Importance:**
- created a comprehensive list of account pairs that are matched
- used different algorithms to find pairs efficiently and effectively
  - can be used later to make data-driven decisions
  - validates the agvend data and can provide updates
- versatile - ability to be used after the data has been updated continuously

**Future Goals:**

**Marketing/Customer Analysis**
- Use customer matches from final table to provide more accurate account data
- Use final table for company insights into largest customers, customer groupings, and buying habits
- Run individually targeted marketing campaigns or give discounts to certain customers using customer buying habits

**New Locations**
- Grouped accounts for each customer would provide a better picture of where customers and farms are located.
- Use this information find new locations for the company and region to expand.

**CONCLUSION**

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[https://rforjournalists.com/2020/12/15/how-to-access-open-street-map-in-r/](https://rforjournalists.com/2020/12/15/how-to-access-open-street-map-in-r/)