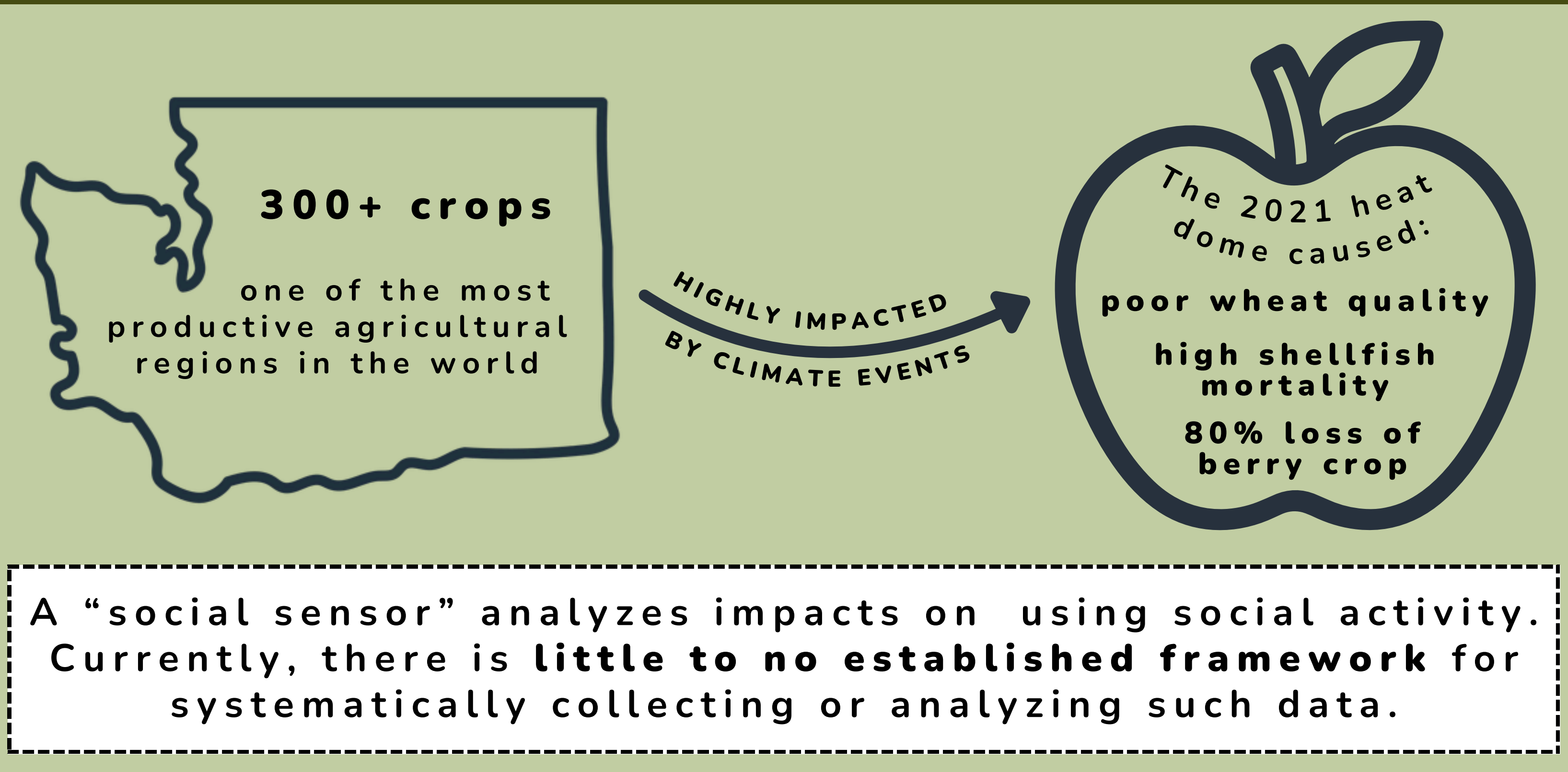


# PROOF-OF-CONCEPT SOCIAL SENSOR TO DETECT CLIMATE CHANGE IMPACTS ON THE WASHINGTON STATE FOOD SYSTEM

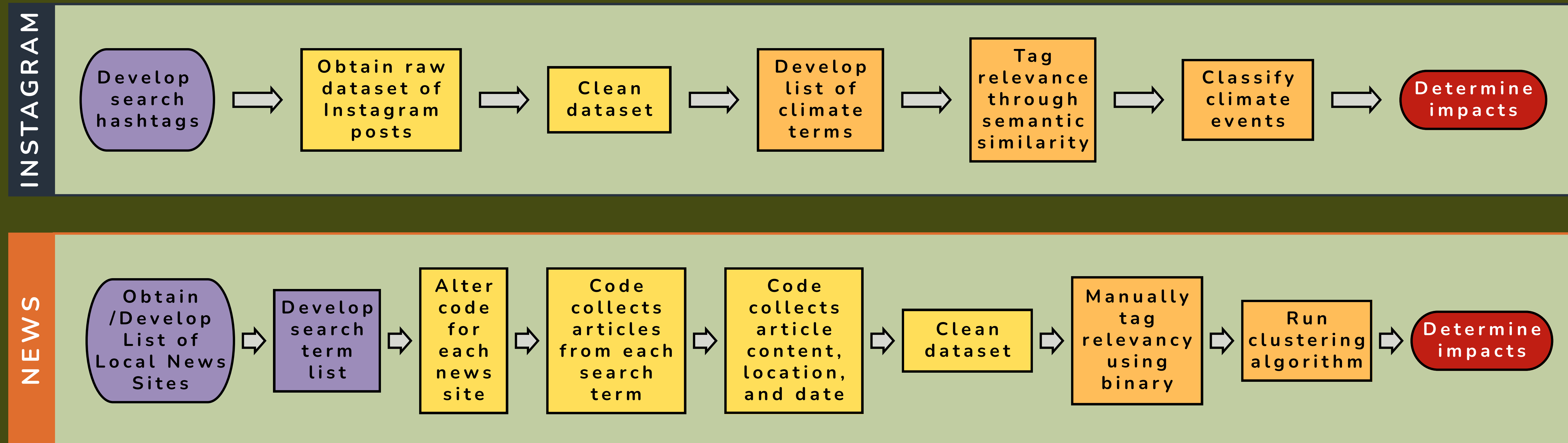
## GUIDING QUESTION

Can social sensors be used to detect the effects of climate change on a food system?

## PROBLEM & GOAL



## GENERAL PROCESS FLOW



## WHERE CAN DATA BE FOUND?

Chose three climate events, collected general search:

- Snoqualmie Valley Flood
- Pearl Hill Fire
- 2021 Heat Dome

100 data points collected

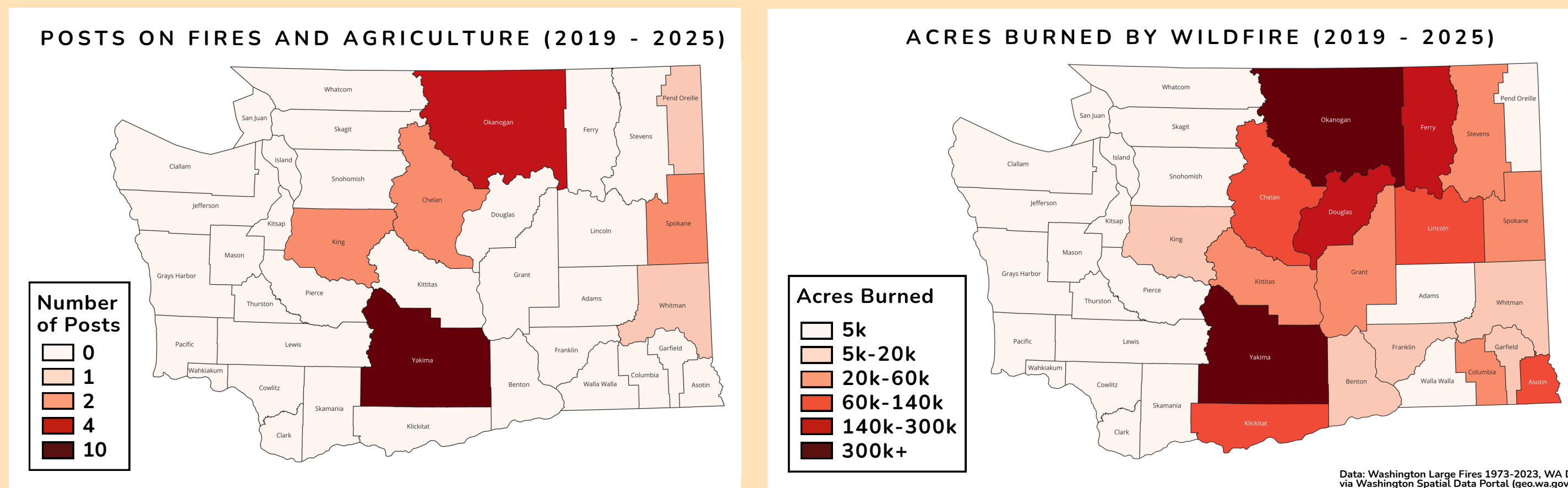
Categorized information sources for ranking

## HOW IS THE DATA COLLECTED?

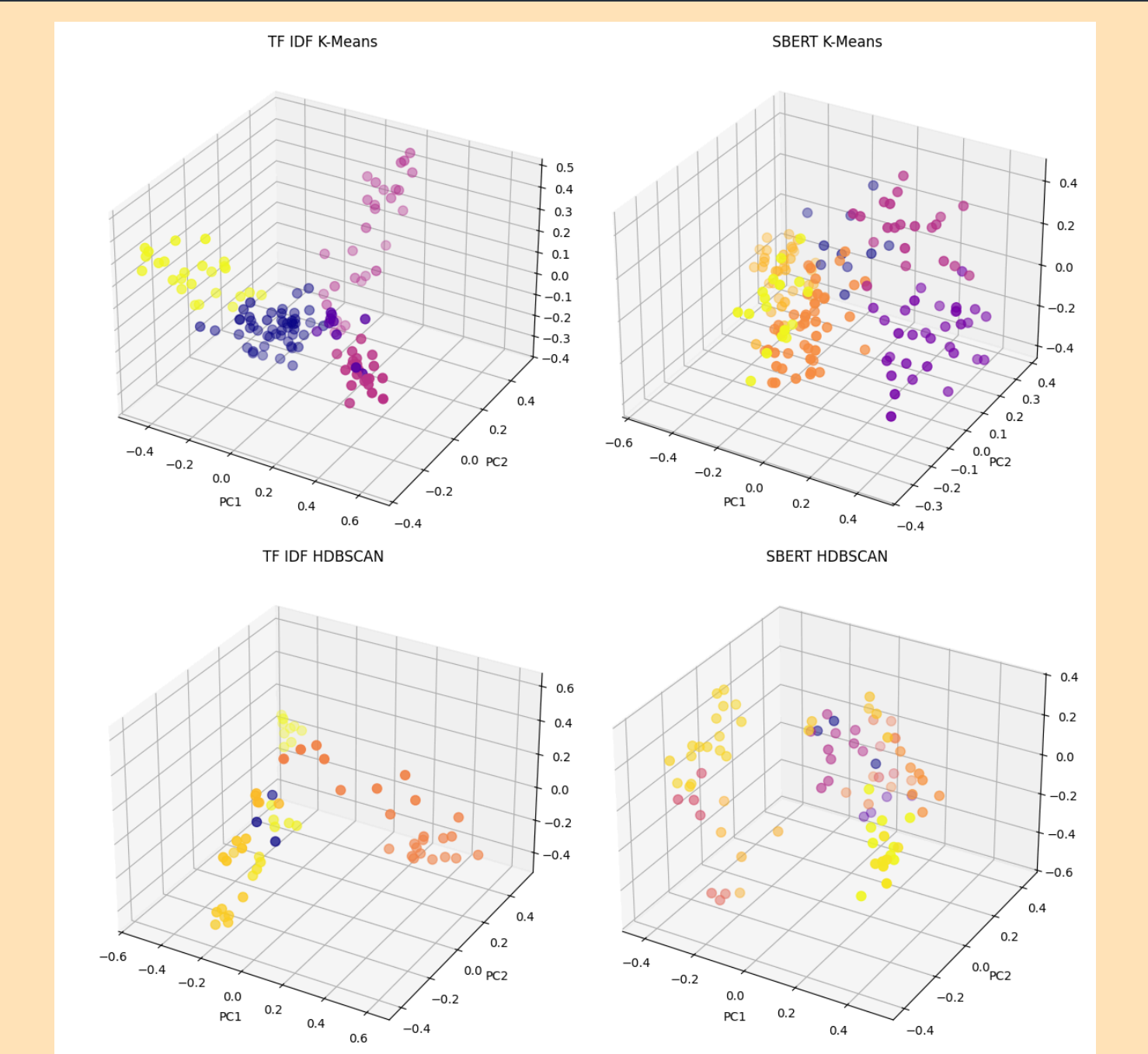
COLLECTION METHOD WEIGHT-AND-RANK MATRIX							
	Cost	Ease of Use	Amount of Data Collected	Data Sources Accessed	Speed of Retrieval	Robustness of Output	Sum
Weight	20	20	25	5	10	20	100
Apify	4	5	5	5	5	4	460
ProQuest TDM	5	3	5	2	2	4	395
Python Scraper	5	2	3	3	3	5	360

## HOW IS THE DATA ANALYZED?

### WILDFIRE POSTS VS. ACRES BURNED

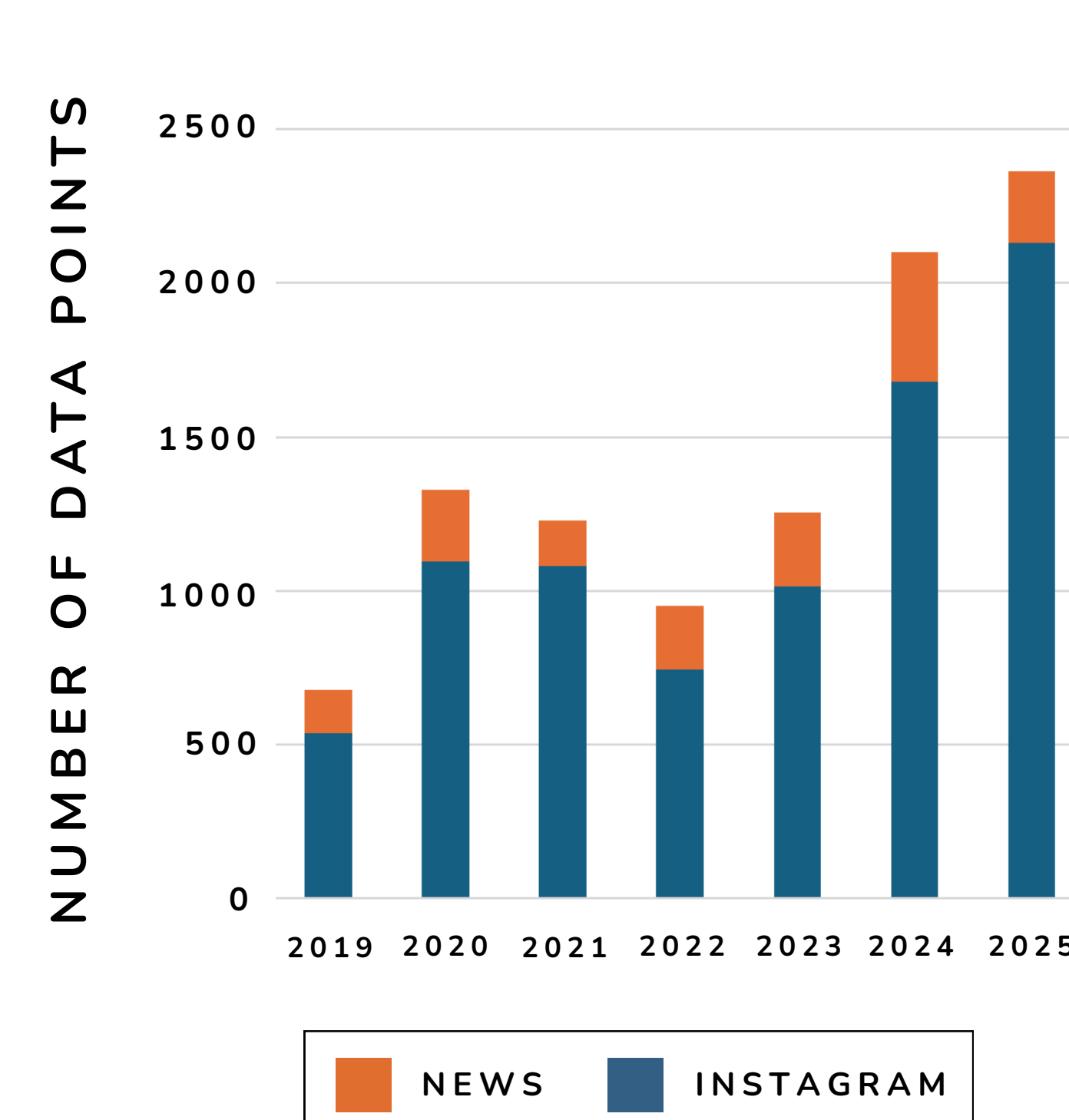


### EXAMPLE CLUSTERS WITH PCA

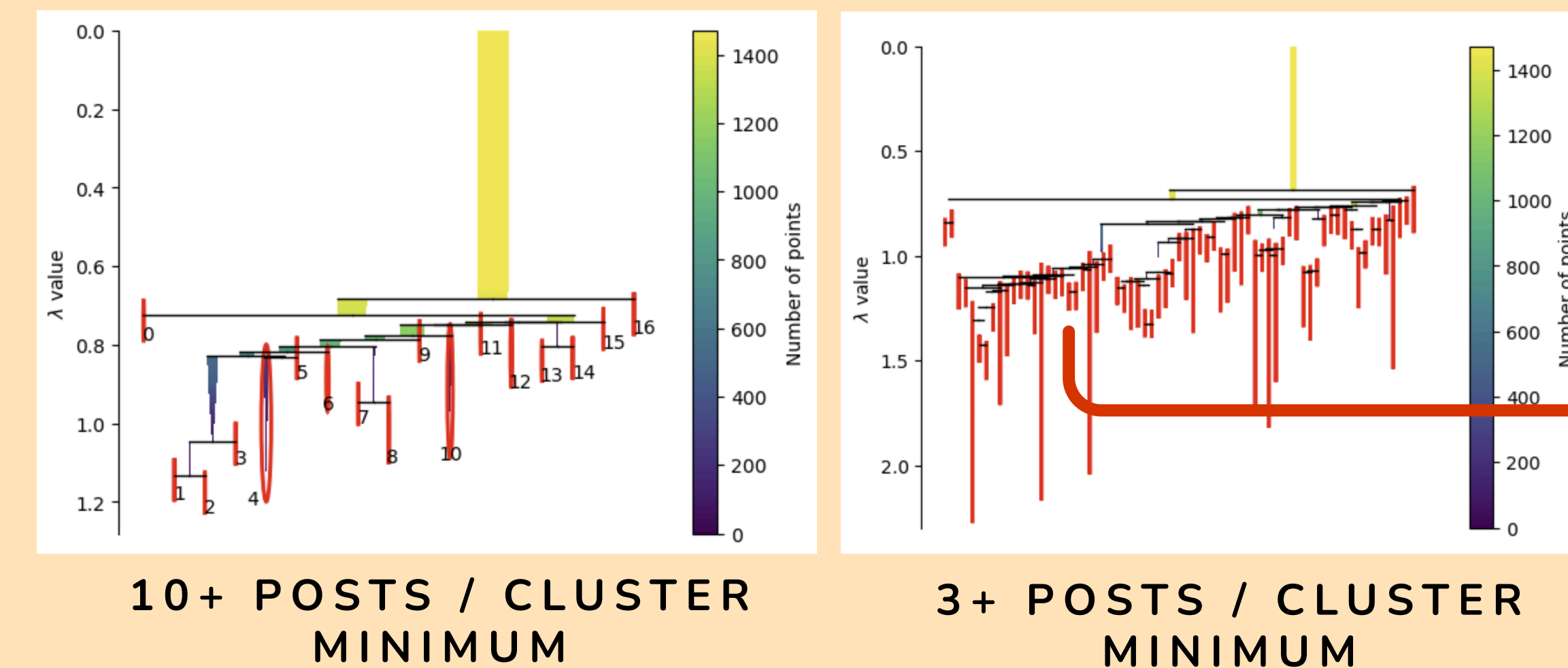


## DATA COLLECTED

### DISTRIBUTION OF DATA OVER TIME



### EXAMPLE HDBSCAN CLUSTERS



**‘Shocking and sobering’: Washington’s heat wave scorched shellfish, but total losses are still unclear**

Labor shortages, heat bring tough tides for WA shellfish farm

Shellfish Growers are Feeling Climate Change’s Effects Now

Small fish, big barriers: A county confronts climate change

Shellfish farmers line up for disaster aid after heat wave decimates oysters and clams

## WHAT IS THE FUTURE OF SOCIAL SENSORS?

- As a proof-of-concept, future research could expand this work
  - Replication on greater scale
  - Inclusion of images
  - Larger number of sources

A future social sensor could detect climate events and understand the ongoing impact on the food systems.