Perception of Weather Variables and Crop Production Yields

Breanna Bethea
REACCH Internship at OSU
August 10, 2017
Data is always in season.
Welcome to AgBiz Logic!
AgBiz Logic is a suite of economic, financial, and environmental decision tools for businesses that grow, harvest, package, add value, and sell agricultural products.

Learn more

AgBizProfit™
Measure your profitability.
AgBizProfit enables you to make more effective short-, medium-, and long-term capital investment decisions by effectively recouping your investment’s profitability.

AgBizFinance™
Manage your financial risk.
AgBizFinance empowers you to make sound investment decisions based on 19 financial ratios and performance measures.

AgBizLease™
Enhance your negotiations.
AgBizLease allows you to establish equitable crop and livestock leases.

AgBizEnvironment™
Gauge your environmental impact.
AgBizEnvironment gives you the ability to account for environmental impacts when analyzing business decisions.

AgBizClimate™
Observe before and after effects of climate change.
AgBizClimate is both a farm-level decision support tool and an assessment tool for researchers and government agencies to realistically determine how climate change and climate change policies may influence and impact regional agricultural sectors.
Past Research

- Growers tend to use a holistic approach when making farm management decisions (Singh et al., 2016)
- Increased climate variability, cooler and wetter springs, hotter and drier summers, frequency of storms, and warm winters were found to be important weather variables (Roncoli et al., 2006)
- Farmers expressed the need to be able to assess climate impacts and also develop new adaptation strategies for climate variability (Capalbo & Seavert, 2016)
- It was found that farmers wanted to see ways of minimizing and managing climate and weather risks (Mase & Prokopy, 2013)
Research Procedure

- Growers were asked to complete a 15 minute survey.
Hypothesis(es)

• It was predicted that the weather variables presented would all have at least a 10% impact on crop production yields.

• Weather variables included:
  - Consecutive dry days
  - Consecutive wet days
  - Nights below freezing
  - Length of growing season
  - Number of warm nights
  - Extremely cold days
  - Diurnal temperature range
  - Total seasonal precipitation
  - Seasonal minimum temperature
  - Seasonal maximum temperature
  - Total chilling hours
  - Total growing degree days
  - Number of heat wave events
  - Very heavy precipitation days
Results

• It was predicted that the weather variables presented would all have at least a 10% impact on crop

• Little to no trends were found due to lack of responses
Conclusions and Discussion

- Things I would’ve done differently:
  - Would have liked to have more time
  - More participants
  - Taken in account crop type
Extension Products
AgBiz Logic Intro Video

- https://youtu.be/1yZij1Mck1U
Thank You

• Special thanks to Clark Seavert, Gabrille Roesch McNally and Jessica Taylor for mentoring this research.
• This work was supported by the National Institute of Food and Agriculture (NIFA), USDA Award Number: 2016-67032-25012

Questions?
References


References cont.


• Oregon State University & Climate Hub. (2017). County weather variable graphs

