19. Precision Agriculture Profitability

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Dr. Terry Griffin is the cropping systems economist specializing in precision agriculture since joining Kansas State University in February 2015. He earned his bachelor's degree in agronomy and master's degree in agricultural economics from the University of Arkansas and his Ph.D. in Agricultural Economics with emphases in spatial technologies and farm management from Purdue University. He developed methods to analyze site-specific yield monitor data from field-scale experiments using spatial statistical techniques. Terry is a charter member of the International Society of Precision Agriculture. He received the 2014 Pierre C. Robert International Precision Agriculture Young Scientist Award for his work in data utilization. He has also received the 2012 Conservation Systems Precision Ag Researcher of the Year and the 2010 PrecisionAg Awards of Excellence for Research.

Abstract/Summary

Questions regarding the profitability of precision agricultural technologies usually result in an 'it depends' scenario. Using Kansas Farm Management Association (KFMA) farm data, the adoption and impact of precision agricultural technologies are presented based on 535 farms.

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Precision Agriculture Profitability

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#PrecisionAg #FarmData

Risk & Profit

August 17-19, 2017

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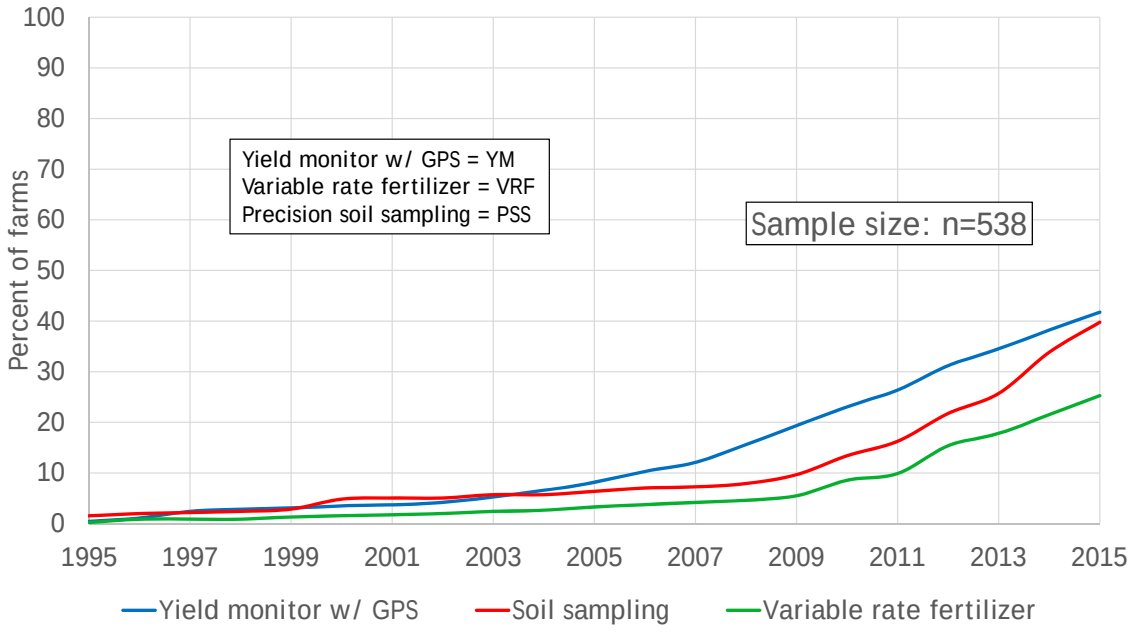
Farm-level adoption of technology



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KFMA

- Analysis of 3 technologies, 2000 - 2016:
  - Precision Soil Sampling (PSS)
  - Yield Monitor with GNSS (YM)
  - Variable Rate Fertilizer (VR)

- 8 possible bundles:
  - Yield Monitor (YM)
  - Precision Soil Sampling (PSS)
  - Variable Rate (VR)
  - YM & PSS
  - YM & VR
  - VR & PSS
  - YM, PSS & VR
  - None

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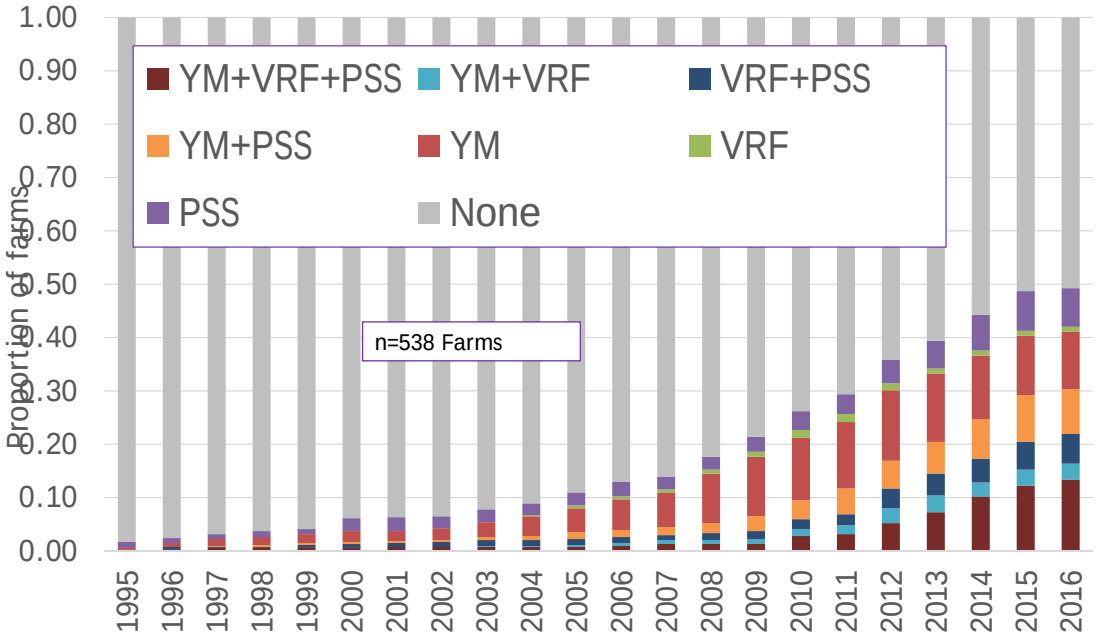

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KFMA

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Profitable Adoption Path

- Farms persist with current state of adoption
  - Strongest persistence with “None” and “Complete Bundle”
- Unsuccessful path:
  - none->PSS
  - None->VRF+PSS
- Successful path:
  - None->YM->YM+PSS->YM+PSS+VRF
- Big Data services target farms w/ Complete Bundle
- Forecasted demand for technology substantial
  - VR expected to have highest adoption demand in 2017
  - PSS second highest adoption demand in 2017

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Data in Agriculture

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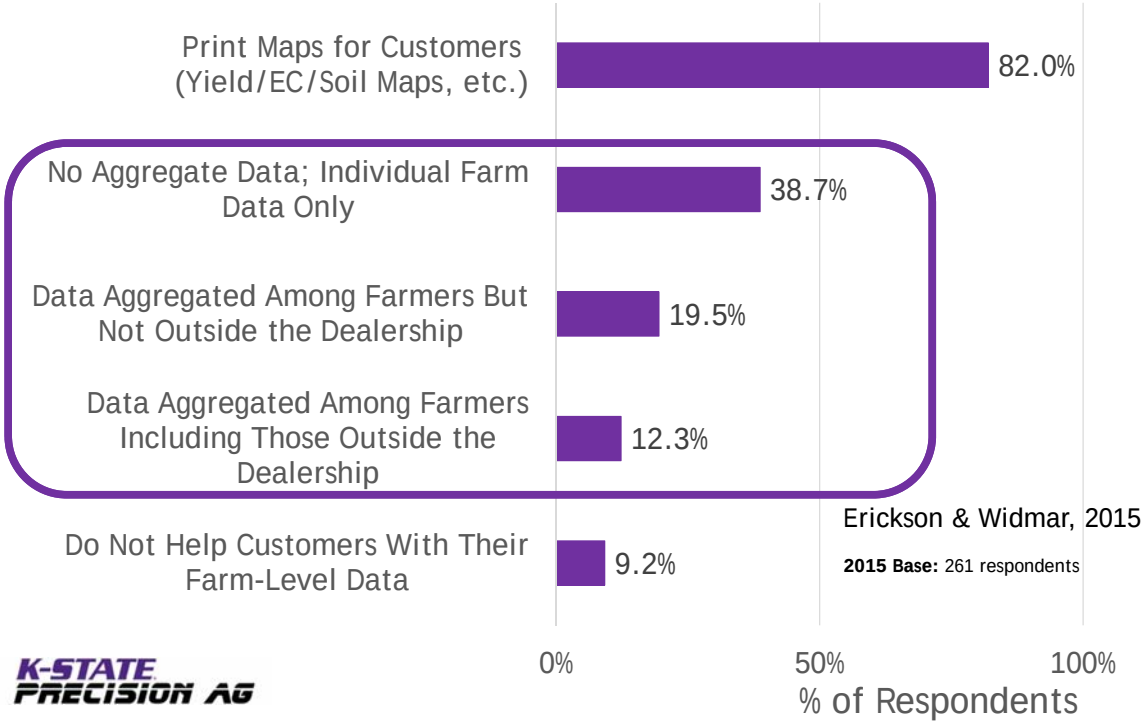
Data Analysis Service Offerings

Managing Farm-Level Data to Assist Customers in Decision Making



Erickson & Widmar, 2015

2015 Base: 261 respondents

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FARM DATA: OWNERSHIP AND PROTECTIONS

AREC FACT SHEET
JANUARY 2017 | FS-1055

EXECUTIVE SUMMARY

The issue of farm data has been a contentious point of debate with respect to ownership rights and impacts when access rights are misappropriated. One of the leading questions farmers ask deals with the protections provided to farm data. Although no specific laws or precedence exists, the possibility of trade secret is examined and ramifications for damages discussed. Farm management examples are provided to emphasize the potential outcomes of each possible recourse for misappropriating farm data.

Discussions of "big data" are common on the local and national news, in newspapers, and at the corner coffee shop or at gas stations in rural communities. "Big data" is the term applied to the massive volumes of information stored digitally on computers, servers, and clouds. These data sets are large or complex, making traditional data processing applications largely inadequate.

However, the concept of big data is much more than an immense amount of numbers. The information, when interpreted and applied, can help scientists, researchers, businesses, marketers, medical professionals, and governments understand and respond to local, national, and global issues.

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