Precision Agriculture at Clark State Community College

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AGRICULTURE

Agriculture in Ohio

- ***Agriculture* is the number 1 industry in Ohio**
  - Contributes 11.7% of Ohio total economic output
  - 1 out of every 7 jobs are related to Agriculture
  - There are 75,700 farms with an average size of 188 acres
  - Has 14.3 million acres in farming

How curriculum was developed

1. **Identification of precision agriculture curriculum goals**
2. **Research and outreach to established precision agriculture academic programs**
3. **Select an academic program to benchmark against**
4. **Visit Kirkwood Community College in Iowa & Lake Region State College in North Dakota**
5. **Research and outreach to industry**
6. **Conduct an Industry Focus Group**

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What did we learn?

- **Success tied to infrastructure, facilities, faculty, community support**
  - Equipment pipeline – technology modernization
  - Active recruitment of motivated, technology savvy students

- **Access to "real" agricultural data crucial to laboratory experience, internship success**
  - Active learning tied to employment success

- **Proactive relationship with employers (Cooperatives, Agribusinesses, Agricultural producers)**

UAS Economic Impact

- **Economic impact of UAS integration on NAS will total more than $13.0 B in first three years**
  - $82.1 B between 2015 to 2025
- **Creates more than 34,000 manufacturing jobs during integration phase**
  - 70,000 new jobs in three years following integration
  - 103,776 new jobs by year 2025
- **Manufacturing jobs will be high paying ($40,000)**
- **Initial markets:**
  - Precision agriculture
  - Public safety

Source: AUVSI International March 2013 report

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What is Precision Agriculture?

- **Also called Site-Specific Crop Management (SSCM)**

- **Breaks the field into small areas and manages each separately**

- **A blend of traditional agricultural practices as well as innovative geospatial applications**

- **This is the program that integrates UAS**

Broader impact

- **Makes farming more economical by saving time and resources, empowering the farmer to optimize crop output**

- **Increases sustainability—minimizing the agricultural footprint in water, land, and air**

- **Utilizes only the inputs necessary to maximize resources and production**

Precision Agriculture

Or more simply – No Plant Left Behind

UAS in Agriculture

- **Save time**
  - Especially for crop scouting

- **Increase yields**
  - Find yield limiting problems quickly

- **Manage crop health imaging**
  - Seeing the true health of their fields

- **Continuously monitor**
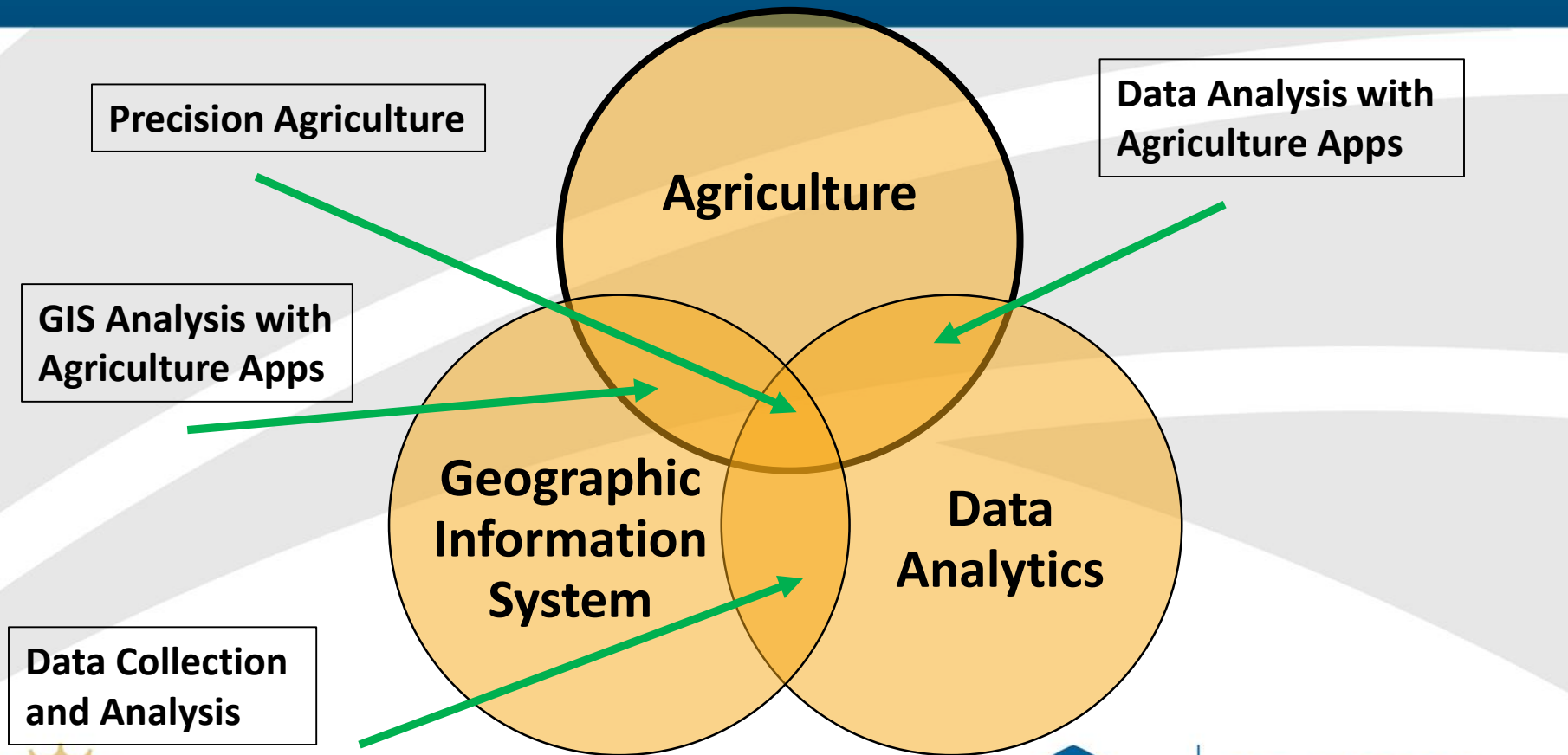 - Not limited to a 1 time snapshot

Clark State programs that use UAS

- **Precision Agriculture** **(AAS)**
- **Precision Agriculture Departmental Certificate**
- **Precision Ag Technician Option** **(AAS)**
- **Geospatial Technology** **(AAS)**

Precision Ag at Clark State

Precision Agriculture

Data Analysis with Agriculture Apps

GIS Analysis with Agriculture Apps

Agriculture

Geographic Information System

Data Analytics

Data Collection and Analysis

Trends

National & State Trends

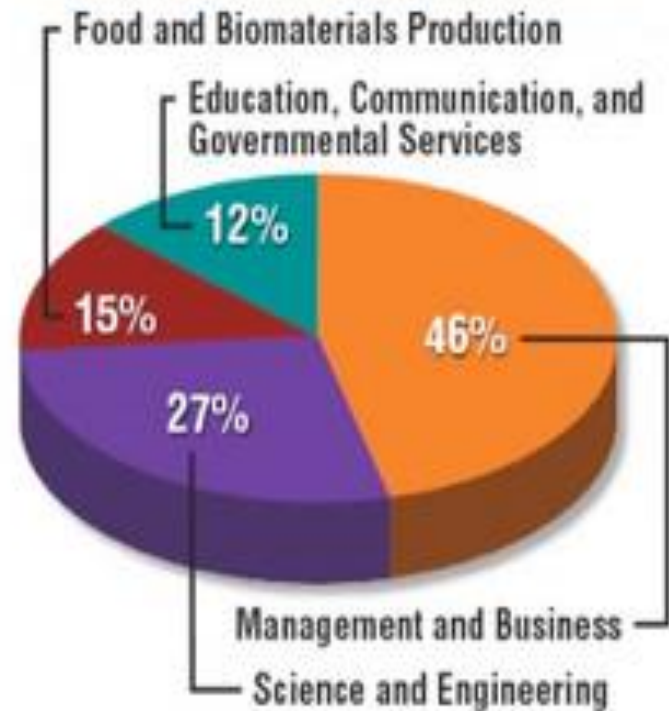   **Annual need:**

    58,000 Ag graduates

    Annual Shortage:

    22,500 Ag graduates

Employment Opportunities

- Food and Biomaterials Production
- Education, Communication, and Governmental Services — 12%
- 15%
- 46%
- 27%
- Management and Business
- Science and Engineering

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Trends

National & State Trends

Annual need:

9,900 Ag technicians

Annual Increase:

+10%
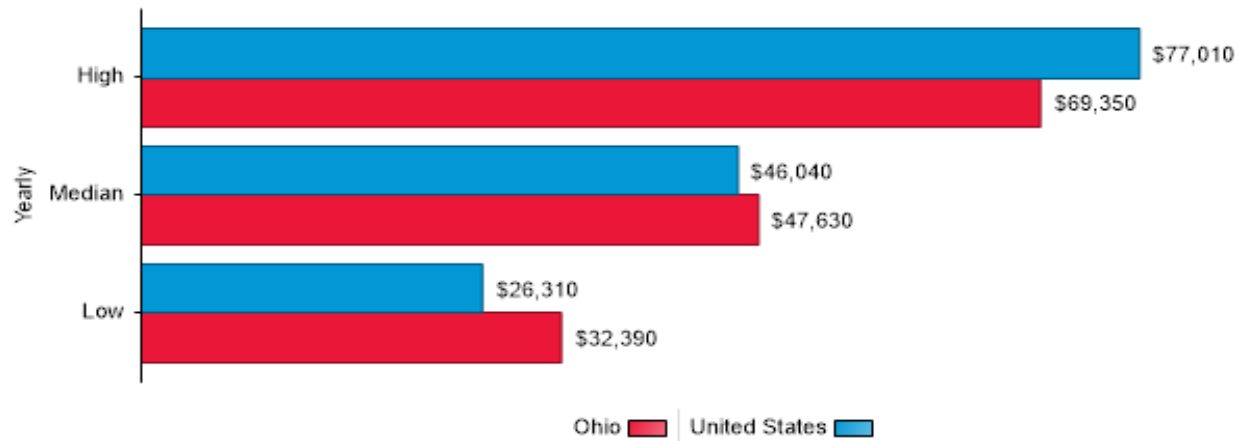
Job Titles

- **Precision Farming Coordinator**
- **Precision Agronomist**
- **Crop Specialist**
- **Nutrient Management Specialist**
- **Precision Agriculture Department Manager**

Wages and Employment Trends

- **Median wage in Ohio: $22.60 hourly or $47,000* annual (with A.A.S.)**

- **Project growth of 8-14% with a projected amount of job openings of 31,600 within the next 6 years**

*Source: O*NET

NSF Precision Ag Grant

National Science Foundation Grant

Precision Technologies: Integrating Agriculture and Geo-Sciences

Grant Period: 7/1/2016 – 12/1/2019

Reporting Official: Larry Everett, Principal Investigator

     Susan Everett, Co-PI

     Dan Heighton, Co-PI

Grant Amount: $402,378

Clark State Precision Agriculture Program named in Top Ten

PRECISIONAg

In-Field Technologies ∨ | Digital Farming ∨ | Farm to Fork | Market Watch

GLOBAL TECH INSIGHT TO DRIVE AGRIBUSINESS

MAXIMIZE EVERY ACRE

Market Intelligence   September 10, 2018

Top 20 Two-Year Colleges for Precision Agriculture

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By **Matt Hopkins**
Senior Online Editor | Meister Media Worldwide

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