A Common Assessment for Pre-College Experiences
Purdue Agribusiness Science Academy (PASA) High School Summer Institute

- **Students**
  - 27 students (26 participated in pre & post test)
  - High School Sophomores, Juniors, & Seniors
  - Underrepresented minorities

- **Program**
  - 2 weeks
  - Exploratory
  - 3 tracks

Molecular Agriculture Summer Institute (MASI)

- **Students**
  - 13 students
  - High School Juniors & Seniors
  - Suburban

- **Program**
  - 1 week
  - Lab-based
  - 1 track
Pre-College Programs

- Summer programs that bring high school students to campus for career exploration, academic preparation, skill building, & social relationship & networking
- Expose students to careers & degrees in agriculture
- Strengthen the STEM pipeline to support student recruitment
- Increase the number, participation, & success of underrepresented minorities
- Determine if pre-college experiences are having the intended effect
- Assessment strategies
Previous Research

• higher awareness of agriculture one year after the program
  • (Ortega, 2011)

• increased understanding of food, agriculture, & natural resources
  • (Foster & Savala, 2012)

• positive effect on interest in pursuing a career in science
  • (Markowitz 2004)

• non-agriculture students had increase in self-efficacy & career interest in agriculture
  • (Settle et al, 2012)
Purpose

Test a common assessment tool and describe students’:

- **Motivation** to engage in the pre-college programs and activities
- **Agricultural career interests** before and after the pre-college programs
- **Views of agriculture** before and after the pre-college programs
- **Future educational aspirations** six months after the pre-college programs
Research Design

• Exploratory, descriptive study
• No causality
• Quantitatively driven with qualitative support
Participants

- 13 high school students from the 2015 Molecular Agriculture Summer Institute (MASI)
- 26 high school students from the 2015 Purdue Agribusiness Science Academy (PASA)

Selection based on: • Length: 1 week or longer • Audience: high school students
Data Collection Timeline

**Pre-College Program Youth Questionnaire**
- Pre-Test: Beginning of the Pre-College Program
- Post-Test: End of the Pre-College Program

**Follow-Up Phone Interview**
- Six Months After the Pre-College Program
Pre-College Program Youth Questionnaire

Pre-Test

- Agricultural Career Interests
- Views of Agriculture

Post-Test

- Agricultural Career Interests
- Views of Agriculture
- Motivation to Engage in the Pre-College Program
Pre-College Program Youth Questionnaire

Agricultural Career Interests

13 items (agricultural careers broadly defined)

- I am interested in working with animals.
- I am interested in working with natural resources.

Ag Discovery Camp Questionnaire

- Ortega et al., 2011

1 = none/not at all
2 = a little
3 = somewhat
4 = a lot
5 = absolutely
Views of Agriculture

15 items
(perceived qualities of the agriculture industry/field)

• Agriculture is an environmentally-sustainable industry.
• Agriculture is economically profitable.

Agricultural Awareness Survey
• Knobloch et al., 1997

5-point scale
Pre-College Program Youth Questionnaire

Motivation to Engage in the Pre-College Program

4 subscales
• Interest/Enjoyment (7 items)
• Value/Usefulness (7 items)
• Perceived Competence (6 items)
• Effort/Importance (5 items)

I would be willing to do this again because it has some value to me.
I enjoyed this pre-college program very much.

Intrinsic Motivation Inventory
• Informed by self-determination theory (Deci & Ryan, 1985)
  5-point scale

Did it engage & create interest?
Instrument Validity and Reliability

Items pulled from other instruments
- Expert panels
- Pilot tested
- Factor Analysis

Cronbach’s alpha post-hoc reliability coefficients
- Determined whether questionnaire components were reliable within the datasets
Results

Motivation to Engage in the Pre-College Programs & Activities

Cronbach's alpha reliability analysis verified that the scale was reliable (.83).
Results

Agricultural Career Interests Before & After the Pre-College Programs

Cronbach’s alpha reliability coefficients were used to ensure the reliability of the scale (pre-test = .70; post-test = .52)
Results

Views of Agriculture Before & After the Pre-College Programs

Cronbach’s alpha reliability coefficients confirmed the reliability of the scale (Pre-test = .88; Post-test = .95).
Results

Molecular Agriculture Summer Institute (MASI)

- 38% had a higher agricultural career interest after participating in the pre-college program
- 100% had a more positive view of agriculture after the pre-college program
Results

Purdue Agribusiness Science Academy (PASA)

- 77% had a higher agricultural career interest after participating in the pre-college program
- 85% had a more positive view of agriculture after the pre-college program
Follow-Up Phone Interviews

3 Questions
Reflect on Experience

3 Questions
Agricultural Career Interests

2 Questions
Views of Agriculture

7 Questions
Future Educational Aspirations
Follow-Up Phone Interviews

7 student- MASI, 10 students- PASA

As they reflected on the pre-college experiences, students shared they were:

• More aware of career opportunities available in agriculture

• Had a greater understanding of agriculture
Results

Future Educational Aspirations Six Months After the Pre-College Programs

**MASI**
- 100% attend a 4-year university
- 100% definitely will apply to Purdue or already applied to Purdue
- 100% would consider a career in agriculture

**PASA**
- 70% attend a 4-year university
- 70% probably will apply to Purdue, definitely will apply to Purdue, or already applied to Purdue
- 70% would consider a career in agriculture
Conclusions

• Students reported that they were motivated to engage in the pre-college programs and activities.

• Students described more positive views of agriculture after the pre-college programs.

• Students reported higher agricultural career interests after the pre-college programs.

• The future educational aspirations of most of the students involved attending a 4-year university.
Implications and Next Steps

• What was learned through piloting the Pre-College Program Youth Questionnaire?

• What are the implications?

• What are the next steps?

• Would it be beneficial to use the common assessment instrument for other programs in the College? If so, which ones?

• Could the use of a common assessment instrument help with measuring reach and impact college-wide?