

# Investigating Agriscience Teachers' Knowledge and Comfort of IBI and STEM Integration

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## Introduction

- STEM-it Up is a 3-day virtual professional development conference with six monthly 90-minute follow-up sessions
- Inquiry Based Instruction (IBI) and STEM are integral to career ready skills taught in school-based agricultural education programs
- IBI includes the use of students' background knowledge to problem solve and create answers (Colburn, 2006).
- Self-efficacy can affect a teacher's perception of content knowledge areas, their ability to employ a teaching method, or their skill at utilizing technologies within the classroom (Barni, 2019)

## Methods

- Population = 18 Agriscience teachers from across the nation
- Pre and post tests were used to determine teachers' knowledge and comfort using a 10-point Likert-type scale

## Purpose

Evaluate the STEM-it Up: Everything You Need to Know to Get Your Floriculture Curriculum in Bloom program as a model to increase teachers' perceptions of their knowledge and comfort utilizing IBI and integrating STEM concepts within agriscience curricula

**Agriscience Teachers' Knowledge and Comfort of STEM Integration (N = 18)**

		<i>M</i>	<i>SD</i>	<b>Min</b>	<b>Max</b>
<b>Knowledge</b>	Pre-test	5.50	1.47	3.00	8.00
	Post-test	7.17	1.47	4.00	10.00
<b>Comfort</b>	Pre-test	5.33	1.57	2.00	8.00
	Post-test	6.72	1.84	4.00	10.00

**Agriscience Teachers' Knowledge and Comfort of Inquiry-based Instruction (N = 18)**

		<i>M</i>	<i>SD</i>	<b>Min</b>	<b>Max</b>
<b>Knowledge</b>	Pre-test	5.94	1.73	3.00	8.00
	Post-test	6.67	1.75	3.00	10.00
<b>Comfort</b>	Pre-test	5.22	2.18	1.00	10.00
	Post-test	6.00	2.06	3.00	10.00

## Results

- Participants scores of knowledge of IBI increased by 0.73 points, while their mean scores of comfort with IBI increased by 0.78 pre to post test
- STEM integration their mean scores of knowledge and comfort increased by 1.67 and 1.39 points, respectively

## Conclusions & Implications

- PD programs should model IBI for teacher efficacy
- SIU increased the knowledge and comfort of participants to utilize IBI and integrate STEM within agriscience curricula
- Teachers' knowledge and comfort of new concepts should be assessed to elicit change within the classroom
- Expand the line of inquiry to determine correlation between, and barriers faced in integrating STEM and utilizing IBI for both in-service and preservice teachers