# GREENHOUSE COLLEGE OF KNOWLEDGE ONLINE COURSES

**661**
participants took the greenhouse college of knowledge online courses

**42**
U.S. states represented by online course participants

## Greenhouse Online Course Series

- **Biological Control for Greenhouse Growers** (Spanish: Control Biológico para Cultivadores en Invernaderos)
- **Greenhouse and Horticultural Lighting** (Spanish: Iluminación para Horticultura e Invernaderos)
- **Root Zone Management** (Spanish: Manejo de la Zona Radicular)

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## LONG TERM IMPACTS

The Floriculture College of Knowledge Online Course Series provides basic training to commercial greenhouse growers in Michigan, the U.S., and internationally in an easy-to-access and cost-effective manner. The online course series was developed based on face-to-face College of Knowledge courses that were offered from 1999 to 2011. Implemented in fall 2015, three non-credit online courses are now offered twice yearly, in summer and winter. All courses are currently available in Spanish.

Each course offered between 2.5 and 4 hours of pre-recorded video, handouts, quizzes, and additional sources of information at a cost of $129. Participants evaluated their progress using self-assessment quizzes after completing each unit and completed pre- and post-course tests.
Of participants surveyed:

**73%** Biological Control for Greenhouse attendees who changed practices, impacting 1.34 billion square feet of greenhouse space.

**54%** Greenhouse and Horticultural Lighting attendees who changed practices, impacting 23.6 million square feet of greenhouse space.

**94%** Root Zone Management attendees who changed practices, impacting 6.2 million square feet of greenhouse space.

** n=73 for Biocontrol, 19 for RZM, 51 for GHL.*

https://www.canr.msu.edu/online-college-of-knowledge

## Biological Control

- 86% of respondents* to the long-term impact survey made a change to their pest management practices because of the course.
- 46% changed/added a natural enemy to their biological control program
- 44% reduced the usage of pesticides
- Approximately one-third of respondents: began a new biological control program, introduced natural enemies earlier in the crop cycle, or added banker plants to their pest management programs
- 53% reported that they decreased the risk of their employees to pesticide exposure while 40% reported increased crop quality.
  **n= 70; Since course began in winter 2016-2017*

## Root Zone Management

- 94% of respondents* to the long-term impact survey made a change to their nutrient management and irrigation practices because of the course.
- 74% improved their nutrient management practices
- 42% now regularly measure the pH and EC of their crops to optimize plant nutrition
- 58% increased crop quality
- 47% reported their changing their irrigation and nutrient management has saved their business money
  **n= 19; Since course began in summer 2017*

## Greenhouse and Horticultural Lighting

- 54% of respondents* to the long-term impact survey made a change to their light management strategy because of the course.
- 79% were more confident that their light strategy was increasing plant quality and reducing production time
- 74% of lighting sales representatives or consultants that took the course were more confident in matching types of lamps to greenhouse growers' needs
- 54% reported that the information in the course helped them purchase new lamps
- 44% of respondents changed their night-interruption lighting strategy to promote early flowering of crops in order to save electricity and increase efficacy
  **n= 51; Since course began in winter 2015*

# PARTICIPATION AND DEMOGRAPHICS

A total of 661 participants took the online greenhouse courses. The participants represented 33 countries, U.S. 42 states, and 29 counties in Michigan. Forty-one percent of the participants were female and 46% reported that they were male.

| | Number of participants | | | | | |
|---|---|---|---|---|---|---|
| | **attending course** | **from other countries** | **from U.S.** | **from Michigan** | **Average Pre-test Score** | **Average Post-test Score** |
| **Biological Control for Greenhouse Growers (En. & Sp.)** | 297 | 61 | 236 | 46 | 67% | 93% |
| **Greenhouse and Horticultural Lighting** | 251 | 67 | 184 | 31 | 74% | 92% |
| **Root Zone Management (En. & Sp.)** | 113 | 22 | 91 | 26 | 64% | 91% |
| **Total** | **661** | **150** | **511** | **75** | | |

| **Ethnicity** | **Percentage** |
|---|---|
| Asian | 3.03% |
| Black | 0.76% |
| Hispanic | 6.66% |
| Multiracial | 2.12% |
| Native American | 0.15% |
| Pacific Islander | 0.30% |
| White | 64.45% |
| No Response | 22.54% |