

Extension Readiness to Combat Harmful Algal Blooms; Evidence from SC

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Background

Harmful Algal Blooms (HAB) have potential to negatively impact producers by killing or otherwise affecting herds

No standard solutions exist for combating the effects of HAB, which makes knowledge of **best practices** for prevention and management essential

Extension and Resource agents must have the requisite level of knowledge (LOK) to assist producers in the identification, prevention, and **management** of HAB



Research Objectives



Determine the current level of **readiness** of agents across SC

Determine which factors affect readiness in order to predict and address shortfalls

- Agency-to-Agency

- Regional

- Experience

- Continuing Education

Identify effectiveness of **standardized** classroom training

- Which agents respond best to this method of training?

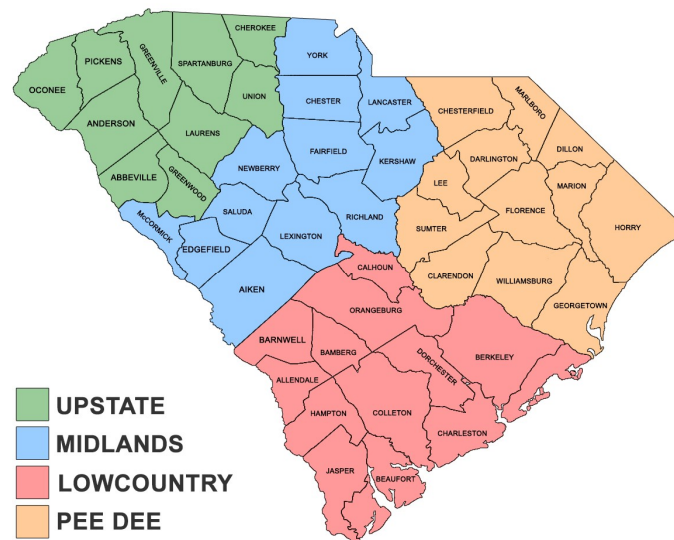
- Are there agents that do not improve with this method of training?

Research Hypotheses

1. Agents with less experience (**younger agents**, agents who recently completed training) will respond better to standardized training methods

Technological familiarity & a familiarity with the learning process

2. Agents from region-to-region will display a) similar pre-training scores and b) post-training gains



Data Collection – Training Seminars



74 attendees across 3 training seminars

Seminar 1 – SC Water Resource Center, Pendleton SC

Seminar 2 – Sandhills Research Education Center, Columbia SC

Seminar 3 – Coastal Research Education Center, Charleston SC

Training included topics on HAB identification, HAB prevention, and HAB management **best practices**

Initial LOK levels were determined by a survey administered before training, with no prior notification

Data Collection – Survey



Attendees were questioned on basic demographics information, education and training information, and professional experience.

A post-test survey was prompted following a 48-hour waiting period after each seminar
39% response rate for post-tests

8 LOK questions on HAB identification, HAB prevention and management.

Select All that Apply. What immediate strategies may help protect livestock from a HAB in the pond serving as their water source?

- Move livestock to upwind section with no visible HAB
- Pump water to offstream location
- Provide livestock with offstream water from alternative source
- None of these

Sending a pond sample to Clemson University's Plant and Pest Diagnostic Clinic would be _____

- Helpful in confirming if it is algal
- Helpful in confirming if it is toxic
- Helpful in confirming if it is algal and toxic
- Not helpful

Summary Statistics

Average Years of Service	8.5
Water Agents	31.77%
Livestock Agents	23.10%
Upstate	50.00%
Midlands	19.23%
Lowcountry	19.23%
Pee Dee	11.54%
Originally from SC	53.85%
Bi-Annual Continuing Educ.	61.54%
Masters or Better	58.62%

Training Effects Overview



Average increase of almost 15%

Highest increase among attendees with lowest initial LOK

Training Effects					
Seminar	Pre Test Averages	Post Test Averages	Gains	T-scores	Significance Level
1	58.82%	64.77%	5.95%	1.033	0.1
2	40.91%	64.23%	23.32%	3.431	0.001
3	59.38%	72.50%	13.12%	1.276	0.05
All	53.04%	67.17%	14.13%	3.284	0.001

Readiness Model



Using OLS to assess impact of various factors on pre-scores;

Water Resource Agents score **24%** higher than their peers

Agents assigned to the **Midlands** score **27% worse**

No significant difference in agency-to-agency scores

No significant impact of Experience

Gains Model



Using OLS to assess impact of various factors on pre-score to post-score gains;

Water Resource Agents increase **24%** more than peers

Agents from the **Midlands** and **Lowcountry** increase **17%** and **21%** more

Agency does not provide significant impact on LOK gains

Experience does not provide significant impact on LOK gains

Results



Water Resource Agents have better current readiness and better response to training

Significant regional differences exist in readiness and response to training

-Response to training influenced by readiness deficiency

Each agency represented performed about the same

Experience does not appear to impact readiness or response to training

Noteworthy

- Semi-annual continuing education significantly impacts readiness and training effectiveness
- SC-born agents performed worse than their peers in readiness and training effectiveness

Implications



With the regional differences shown, Extension programs should assess their **quality-spread** to avoid imbalances in extension readiness.

Likely applies to non-HAB readiness as well

Continuing education should be **mandated** for extension agents, since it is shown to improve ability to digest information on new issues

Directly impacts readiness and flexibility

While experience doesn't seem to be a major factor in readiness or training effectiveness, more study is required on non-classroom trainings

Field demonstrations, etc.

Thank You for Your Time



Questions?

