

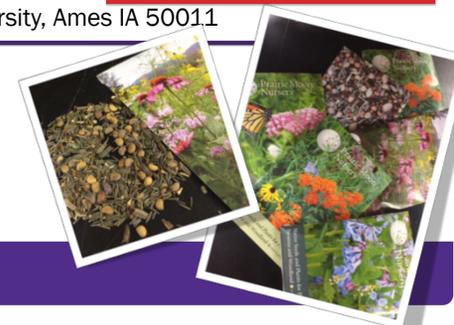
INTEGRATING NATIVE PERENNIAL PLANT CONCEPTS INTO PLANT PROPAGATION CURRICULA



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Introduction

- There has been increasing interest in using native plants in restoration and built landscapes.
- Compared to many, more common commercial horticulture crops, there is a limited body of research and literature related to native plant propagation and subsequent production.
- Limited information results in a limited number of native species available for production and/or use in plantings.

Objectives and Approach

OBJECTIVES

The objectives of this project was to quantify student interest and knowledge of native plants and native plant propagation in an undergraduate plant propagation course.

APPROACH

Self-assessment

- Students completed a pre- and post-unit five-question self-assessment on their understanding and native plant propagation and research. (Table 1)

Quiz

- Students also completed a pre- and post-unit nine-question quiz, using lower- and higher-order questions about native plants and native plant propagation. Topics included seed morphology and development and seed germination. (Table 2)
- For student responses to be included in the evaluations, two criteria had to be met: 1) the student must have completed both the pre- and post-surveys; and 2) the student must have answered every question on the quiz. Data from students that did not meet these two criteria within the given section were removed from the analyses.

Propagation Experiment

- In groups, students conducted a seed stratification and/or scarification experiment in the laboratory section of the course using native plant species. Each group selected two species (from a given list) and developed an experiment. The groups implemented their experiment and collected data, and wrote a short, formal research report.
- In addition to writing a formal report on their experiment, each student was to create a seed packet of one of their selected native plant species, with a goal to encourage creativity.

Results

Table 1. Pre-Unit and Post-Unit scores for a five-question self-assessment survey on native plant propagation and research.

Significant differences were determined using a paired t-test ($P \leq 0.05$)

1 = Strongly Disagree; 4 = Strongly Agree; $n=39$

| QUESTION | Pre- | Post- | Signif. |
|--|------|-------|---------|
| I am confident that I can successfully propagate native plants from seed. | 2.6 | 3.2 | <0.0001 |
| Native plants are easier to propagate than non-native plants. | 2.7 | 2.3 | 0.0259 |
| I believe that understanding native plants and being able to propagate them will be beneficial to me if my future career includes plant propagation. | 3.5 | 3.3 | 0.2049 |
| I understand the goals of native plant research. | 2.6 | 3.1 | 0.0094 |
| Native plant research is important to the horticulture industry. | 3.5 | 3.7 | 0.0106 |

Table 2. Pre- and Post-Unit Scores for a nine-question native plant propagation quiz.

Significant differences were determined using a paired t-test ($P \leq 0.05$) ($n=39$)

| Percentage Correct | | |
|--------------------|-----------|--------------|
| Pre-Test | Post-Test | Significance |
| 75% | 79% | 0.1020 |



Conclusions

- Students' confidence and understanding of native plants and their propagation increased after the unit on native plants and native plant propagation, with the exception of one question. They did not believe knowing more about native plant propagation will be beneficial for them in the future. This is logical as the majority of the students were not greenhouse (production) majors. Moreover, students may unknowingly find the information beneficial and applicable in their future career.
- Quiz scores increased from the pre-unit quiz and post-unit quiz, however not significantly. Most students generally answered one more question correctly. It is unclear the amount of previous 'native plant' exposure and learning opportunities through other course curriculum.
- Through grading and observations of the lab propagation experiment, it is clear that many students, even at junior and senior standing, do not have a solid grasp on scientific the scientific method and scientific writing. It will be important to focus on this process more thoroughly in following semesters.

Acknowledgements



The authors thank the Association of Public Land Grant Universities Innovative Teaching Award for supporting this project.