Who Knows Hemp?: A Knowledge Comparison of Hemp Production in Louisiana Among Undergraduates in Agriculture and Non-Agriculture Degree Programs

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Introduction

Due to broadened legalization by the 2018 Farm Bill, the future of hemp production in the United States shows great promise and, despite challenges, holds the potential for economic viability as a major commodity (Mark et al., 2020). Despite the expanded interest in hemp as a crop, Rampold et al. (2021) found an overall lack of knowledge surrounding hemp among Florida residents. Further, level of education was identified as an influential factor in concern about hemp production among residents of the southeastern U.S., with earners of graduate degrees identified as having higher concern about hemp cultivation when compared to individuals with an associate or bachelor's degree (Campbell et al., 2020). While these findings are cause for concern, a study of Nebraska college students found a significant increase in knowledge and positive attitudes toward hemp production following an educational campaign (Colclasure et al., 2021). Based on the economic potential and observed misconceptions surrounding hemp, determining the need for educational programming about the crop is instrumental in hemp's full integration as a major crop (Colclasure et al., 2021). Consequently, baseline data is needed to assess the knowledge of hemp held by students intending to enter agricultural careers to determine the need for education about hemp production.

Conceptual Framework

This study utilized Human Capital Theory (HCT) (Goode, 1959) as a guiding framework. A primary tenet of HCT is the crucial role a knowledgeable and skilled workforce has in maintaining a productive society (Becker, 1993). Education is a primary requirement to increase human capital, and education systems must effectively produce highly trained personnel to support economic development (Goode, 1959). In this study, HCT grounded the notion that knowledge of industrial hemp production must be sufficient among future agricultural professionals as the commonality of hemp products and cultivation increases.

Purpose

The purpose of this study was to determine if College of Agriculture undergraduates enrolled in general studies horticulture classes at Louisiana State University during the spring 2021 semester have a difference in knowledge about industrial hemp production from that of their peers not enrolled in non-agriculture degree programs. The three objectives that guided this study were: (a) describe the average knowledge of industrial hemp production held by agriculture majors, (b) describe the average knowledge of industrial hemp production held by non-agriculture majors, and (c) determine if a difference exists between the agriculture and non-agriculture majors in their knowledge of industrial hemp production. The purpose of this study aligns with Research Priotirty Three of the AAAE National Research Agenda: Sufficient Scientific and Professional Workforce That Addresses the Challenges of the 21st Century (Stripling & Rickets, 2016).

Methodology

Data for this study were collected from students enrolled in four horticulture courses at Louisiana State University during the Spring 2021 semester ($N = 296$). The courses were selected due to high enrollment and diversity of undergraduate majors, as the courses satisfied general education

requirements set by Louisiana State University. An instrument developed by Colclasure et al. (2020) was adapted for Louisiana and used for data collection, with permission from the instrument creators. The instrument included ten true/false items related to industrial hemp production in Louisiana and a series of items that provided demographic and background information of the respondents. Similar to the procedures of Colclasure et al. (2020), the true/false items were presented with the option to skip questions to which participants did not know the answer, and a "number-right" system of grading was used to create a score for each participant (Burton, 2002). The instrument was delivered electronically using Qualtrics at the beginning of the semester, prior to any academic exposure related to hemp production through the course. Of the 296 students given the opportunity to participate, 162 provided data that was valid for analysis for an overall response rate of 54.7%. Data were analyzed using IBM SPSS version 25 to generate descriptive statistics and an independent samples t-test.

Findings

The first objective of the study was to describe the average knowledge of industrial hemp production held by agriculture majors. With the highest possible score being 10, the mean score for hemp knowledge questions answered correctly by agriculture majors *(n=46*) was 5.85 (*SD* = 1.99). The second objective was to describe the average knowledge of industrial hemp production held by non-agriculture majors. The mean hemp production knowledge score for non-agriculture majors (*n=116*) was 5.22 (*SD* = 2.34) (see Table 1.).

Table 1. Research Objectives One and Two

Participants Major	*N*	*M*	*SD*
Agriculture Major	46	5.85	1.99
Non-agriculture Major	116	5.22	2.34

The third objective of this study was to determine if a difference exists between the agriculture and non-agriculture majors in their knowledge of industrial hemp production. The results of an independent samples t-test indicated that, while the average knowledge of industrial hemp production of agriculture majors (*M=5.85*) was slightly higher than the average knowledge of non-agriculture majors (*M=5.22*), the difference was not statistically significant (*p=.109*).

Conclusions and Recommendations

Based on the analysis of data from this investigation, undergraduate students at Louisiana State University presented an overall low level of knowledge towards industrial hemp, which aligned with prior findings by Colclasure et al. (2021). Further, agriculture majors did not present a significantly higher degree of industrial hemp knowledge when compared to non-agriculture majors. Moving forward, research should understand the prior educational experiences of LSU students to identify sources of hemp knowledge. Further, it is recommended to implement an educational campaign for undergraduates pursuing agricultural degrees at Louisiana State University to progress students' knowledge of the growing industrial hemp industry.

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