

Factors Underlying Agriculture Teachers' Perceptions toward Biomass Production Education

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Biomass production has become an indispensable segment of the agricultural industry. A large workforce will be needed in the Midwest to serve the burgeoning biomass energy industry. Education has been recognized as the key to provide human capital for the further development of this industry. The purpose of this study was to identify important factors underlying agriculture teachers' perceptions toward biomass production education. A set of survey questionnaires with twenty items on a Likert-scale was developed to measure the teachers' perceptions. Test validity and reliability of this instrument were established by a pilot study. One hundred complete responses were collected ($n=100$) after administering this survey to all agriculture teachers in Iowa. Explanatory factor analysis (EFA) was conducted and patterned after McCaslin and Torres (1992). Four factors were identified with a good fit ($\chi^2(df = 32) = 38.245, p = 0.207$). The four factors were labeled as: 1) Social economic benefits; 2) Environmental considerations; 3) Students' learning confidence; 4) Students' growth benefits. Each factor contributed 12% to 17% of variance in the teachers' perceptions, and the four factors accounted for approximately 59% of the variance in agriculture teachers' perceptions toward biomass production education. In planning, designing, and implementing in-service education programs of biomass production education for agriculture teachers, teacher educators should be cognizant of the four factors.