

# **Integrating Agricultural Entrepreneurship into High School Agriculture Curriculum**

Awoke D. Dollisso, Assistant Professor  
Iowa State University

*The purpose of this study was to identify and describe high school agriculture teachers' perceptions regarding entrepreneurship and determine their entrepreneurial leanings toward and interest in integrating entrepreneurship concepts into their curricula. Respondents perceived that entrepreneurship is a learned skill, creativity and innovation can be nurtured, and almost everyone has potential to research and create a business. A majority of the respondents perceived that entrepreneurs can have global influence, can create wealth and jobs, and are driven by desires to create their own destinies. Regarding their own inclinations to start enterprises, a majority of the respondents indicated that they occasionally or frequently considered starting their own enterprises. About ten percent of the respondents indicated that they always saw business opportunities and desired to establish and become bosses of their own businesses. Forty-three percent of the respondents frequently or always integrated entrepreneurial concepts into their courses and nearly sixty percent of the respondents nurtured students' business ideas. However, just about thirty percent of the teachers frequently or always engaged students in specific product creation, marketing, sales, and evaluation. Nearly all (98.7 percent) of the respondents agreed that agriculture teachers should integrate entrepreneurial concepts into their curriculum.*

Keywords: agricultural entrepreneurship, high school, education, creativity, opportunities, curriculum, business

## **Theoretical Framework**

In recent years, entrepreneurs' contributions toward creating wealth and jobs and their innovations that benefit human societies have been recognized and appreciated at local, state, national, and global levels. To encourage innovation and entrepreneurship, institutions are either integrating entrepreneurial concepts into existing courses/curricula or offering new courses and programs in entrepreneurship across disciplines at both the secondary and post-secondary levels. A Kauffman Foundation (2007a) panel report showed that education focused on entrepreneurship expanded rapidly in the last two decades, which was reflected by growth in the number of post-secondary courses from 250 in 1985 to 5,000 in 2007. A Kauffman Foundation (2007b) online survey of 2,438 youth showed that forty percent of young people wished to start their own business, while thirty-seven percent were unsure. Ninety-two percent of those who wanted to start a business desired to be their own boss, build their own future, use

their skills, realize their dreams, and earn lots of money. Thirty-two percent of the participants believed that small businesses contribute to the betterment of a community.

Prior research on entrepreneurship was more focused on traits and personality characteristics, behavior, and situational factors that influence an individual's decision to start business than on educational influence (Brockhaus 1980 & 1982; Gartner 1985; McClelland 1961; Va de Ven, Hudson & Schroeder 1984). Turker and Selcuk (2009) pointed out that the findings from various entrepreneurial studies indicated a link between entrepreneurship and personality factors, such as self-confidence, risk taking, desire for achievement, and locus of control. However, they asserted that a person does not live in a vacuum and that the environment exerts cultural, social, economic, political, demographic, and technological influences on the individual. Shephard and Douglas (1997) doubted that entrepreneurship is endemic in every person. They suggested that to ignite entrepreneurial action, it may be necessary to awaken a spirit of

entrepreneurship through education. Entrepreneurs are both thinkers and doers, not by birth alone, but with environmental nurturing refined by experiences; and they take calculated and moderate risks when they see opportunities (Kuratko & Hodgetts 2007).

Davidsson (1995) focused on demographic variables such as age, gender, education, and experiences and their influence on conviction and entrepreneurial intentions. A vast majority of research on entrepreneurship has been focused on university-based curriculum (Gorman, Hanlon, & King 1997; Young 1997), leaving a gap in literature pertaining to pre-university entrepreneurship education. However, because students expressed interest in participating in entrepreneurship education, primary and secondary schools have received growing support for it (Donckels 1991; Gasse 1985; Kourilsky 1995). The ideal time to learn the basics of entrepreneurship to establish positive attitudes toward entrepreneurship is during childhood and adolescence years (Filion 1994; Gasse 1985). Peterman and Kennedy's (2003) findings indicated that entrepreneurship education programs for high school students may create entrepreneurs and positively influence youth's perceptions of entrepreneurship, potentially leading to starting a business after participating in the program.

Entrepreneurship education programs for youth such as Mini Society, Youth Empowerment and Self-Sufficiency, and Youth Achievement Australia (Breen 1999; Kourilsky & Carlson 1996), incorporate experience-based interactive learning opportunities. Secondary agriculture education classes, labs, workshops, and supervised agricultural field experiences are beneficial to experiential entrepreneurship education. Many scholars agree (Kolb, Lublin, Spoth, & Baker 1987; Kourilsky 1996; Kourilsky & Carlson 1997; Solomon, Weaver, & Fernald 1994) that entrepreneurship requires initiative, innovation, creativity, autonomy, and determination; therefore, it has to be taught using experiential methods that allow active engagement of the learner. Gibb and Cotton (1998) argued that young people should "feel" and experience entrepreneurship concepts, rather than learn it in a conventional way.

Rasheed (2000) stated that identifying and nurturing entrepreneurship in our youth before college could have long-term economic benefits

for the American economy. Rasheed pointed out that secondary students who receive a background in entrepreneurship education have higher achievement motivation, more self-control, and greater self-esteem. Findings from Ubadigbo and Gamon (1988) supported the call for teachers to emphasize agricultural entrepreneurship in their curricula. The primary purposes of vocational education in agriculture at the secondary school level should be to prepare students for careers in agriculture including entrepreneurship and/or to prepare for further education in agriculture argued Kahler (1988).

Camp, Clarke, and Fallon (2000) stated entrepreneurship, placement, and exploration are major categories in SAE (supervised agricultural experience). Eaton and Bruening (1996) suggested that strategic plans for agricultural education should incorporate futuristic agricultural programs that emphasize entrepreneurship, technology, and innovation. Curtis (1995) named entrepreneurship as one of the core curriculum components, stating that entrepreneurship, decision making, and problem solving are uniquely personal and that they strongly influence an individual's effectiveness. Curtis asserted that entrepreneurship should always have a place in agricultural education's curriculum.

Although it is a common perception that entrepreneurship/enterprise education is always a part of agricultural education, the extent of entrepreneurship curriculum infusion, scope of instruction, curriculum priorities, and teachers' needs to integrate entrepreneurship education to their curricula have been unidentified or unknown. A Lee and Associates (1994) nationwide study of 537 randomly selected teachers shed some light on the status of entrepreneurship education in agriculture in the United States at the secondary and post-secondary levels. Some of the key findings and/or conclusions of the study were (a) nearly two-thirds of the teachers said they integrated entrepreneurship into their instruction; (b) teachers felt that their students should and do have entrepreneurial skills; (c) secondary agriculture teachers appeared to be unclear about the meaning of entrepreneurship; (d) entrepreneurship education does not have a high priority as an area of instruction; and (e) teachers seemed to be uncomfortable with their levels of entrepreneurial knowledge, suggesting the need

for professional development. Although it is believed that previous experiences and education influence people's attitudes toward entrepreneurship, the impact of entrepreneurship education has remained relatively untested (Donckels 1991; Krueger & Brazeal 1994).

### Purpose and Objectives

The purpose of this study was to identify and describe high school agriculture teachers' perceptions regarding entrepreneurship education. Specific objectives were to:

1. Identify secondary agriculture teachers' perceptions regarding entrepreneurship and entrepreneurs.
2. Identify agriculture teachers' entrepreneurial tendencies.
3. Describe participants' inclination toward entrepreneurship curriculum integration.
4. Identify the extent of students' engagement in entrepreneurial activity.

### Methods and Procedures

A descriptive survey design was used to identify and describe high school agriculture teachers' perceptions of entrepreneurship and determine their entrepreneurial leanings toward and interest in integrating entrepreneurship concepts into their curricula. To collect data, the researcher developed a survey questionnaire with a five-point Likert-like scale based on literature and curriculum materials developed for secondary agriculture teachers by an entrepreneurship initiative center. The instruments were presented to a panel of experts consisting of a faculty of agriculture with business background to confirm their content and face validity. The instrument contained 81 items divided into eight main sections. The reliability constructs ranged from alpha .72 to .90. The Cronbach's Alpha reliability coefficient for the first construct with eleven items scored .72 representing extensive reliability; the second construct with ten items scored .85; the third construct with three items scored .87; and the fourth construct with four items scored .90 representing exemplary reliability (.80 to .99) (Robinson, Shaver, & Wrightsman 1991).

The total population for this study was 246 Iowa secondary agriculture teachers who taught

during the 2008/09 school year; however, only 190 teachers had valid/accessible email addresses at the time of this survey. A SurveyMonkey online questionnaire link was emailed to 190 teachers on January 23, 2009; however, 39 teachers opted out of the survey reducing the final population count to 151 secondary agriculture teachers. Weekly email reminders were sent directly to the respondents for three consecutive weeks. One additional email reminder with an online survey link was sent to these teachers on February 6, 2009, through the state agriculture teachers' coordinator office in the Department of Education to encourage participation. The survey was closed on February 16, 2009. Eighty-six respondents (57%) completed an online survey questionnaire.

Nonresponse error was addressed by comparing early respondents to late respondents. Independent samples *t*-test analysis was performed to determine whether there was a significant difference between early and late respondents. The respondents were split into two halves and the later fifty percent of the respondents were compared to the earlier fifty percent of the respondents (Linder, Murphy, & Briers, 2001). The *t*-test analysis shows no significant difference between the earlier 50% of the respondents and later fifty percent of the respondents, indicating that nonrespondents were similar to respondents; therefore, the findings of this study could be generalized to the entire population.

### Findings

A majority, seventy-five percent of the respondents, were male. Fifty-five percent of the respondents held a bachelor's degree, while forty-three percent held a master's degree, and the remaining two percent of the respondents held a doctorate degree. The respondents' ages ranged from 21 to 61 years, with a mean of 41 years. Teaching experience ranged from 0.8 to 36 years, with a mean of 16 years.

Secondary agriculture teachers were asked to respond to eleven statements regarding entrepreneurs and entrepreneurship using a four-point Likert-type scale. The four levels of measurement were as follows: 4 = "Strongly Agree," 3 = "Agree," 2 = "Disagree," and 1 = "Strongly Disagree." In Table 1, the levels

“Agree” and “Strongly Agree” are combined and reported as “% Agree” with each corresponding statement; and the levels “Disagree” and “Strongly Disagree” are combined and reported as “% Disagree”. The overall mean score for the

respondents “perceptions regarding entrepreneurship” construct is 3.08 with a standard deviation of .25 and a Cronbach’s Alpha reliability coefficient of .72.

Table 1  
*Secondary Agriculture Teachers’ Perceptions Regarding Entrepreneurship*

Statement	Percent Agree	Percent Disagree	N	M	SD
Entrepreneurship is a learned skill.	92	8	86	3.15	.54
Entrepreneurs are made not born.	86	14	86	2.98	.52
Entrepreneurs are driven by a desire to be their own boss.	92	8	86	3.17	.55
Entrepreneurs are driven by a desire to control their own destiny.	93	7	86	3.17	.53
Entrepreneurs are driven by a desire to innovate.	92	8	86	3.08	.53
Entrepreneurs see problems as opportunities.	88	12	86	3.09	.60
Entrepreneurs work hard and enjoy what they do.	96	4	86	3.12	.42
Creativity is the key to entrepreneurs’ success.	74	26	85	2.84	.54
Creativity can be nurtured.	96	4	86	2.98	.28
Entrepreneurs can have a global influence.	95	5	85	3.10	.43
Ag teachers should integrate entrepreneurship.	99	1	84	3.15	.39

Participants of this study believed that entrepreneurship is a learned skill; that is, entrepreneurs are made, not born. They also tend to believe that creativity is a key to entrepreneurial success, and that it can be nurtured through education. With the exception of one teacher, 85 out of the 86 respondents agreed or strongly agreed that entrepreneurship concepts should be integrated into the high school agriculture curriculum.

Over ninety-two percent of the respondents believed that entrepreneurs are driven by a desire to be their own boss and an aspiration to set their own destiny. Ninety-two percent of the respondents perceived that entrepreneurs are also motivated by desire for innovation, change, and improvement. A slightly lower number, eighty-eight percent of the respondents, believed that entrepreneurs see problems as opportunities.

Regarding entrepreneurial traits, the respondents did not believe that entrepreneurship is an easy, sure road to success. Instead, they believed that it requires hard work that involves risk of losing investment, and that

entrepreneurs may not have the financial resources to achieve their goals. Ninety-five percent of the participants agreed that entrepreneurship can result in global contributions.

The secondary agriculture teachers were asked to respond to ten statements regarding their entrepreneurial inclinations using a five-point measurement. The scale consisted of five levels of measurement: 5 = “Always,” 4 = “Frequently,” 3 = “Occasionally,” 2 = “Seldom,” 1 = “Never.” In Table 2, the levels “Always” and “Frequently” are combined and reported as “% Frequently” with each corresponding statement ratings of percentage, means, and standard deviation; and the levels “Never” and “Seldom” are combined and reported as “% Seldom” with each corresponding statement of percentage, means, and standard deviation. The overall mean score for the respondents “inclination to pursue their own business” construct is 3.24 with a standard deviation of .56 and a Cronbach’s Alpha reliability coefficient of .85.

Table 2  
*Secondary Agriculture Teachers' Inclination to Pursue Business*

Statement	Percent Seldom	Percent Occasionally	Percent Frequently	<i>n</i>	<i>M</i>	<i>SD</i>
I see business opportunities.	7	63	30	86	3.30	.75
I have an internal desire to start my own business.	6	43	31	86	3.11	.97
I enjoy creating a new product or service.	22	52	36	86	3.09	.88
I have strong desire to become my own boss.	20	41	39	85	3.29	.94
I am afraid of losing my investment.	31	34	35	86	3.10	1.00
I am excited about a possibility of creating wealth.	12	51	38	85	3.31	.84
I am not afraid of taking a risk.	9	54	28	86	7.80	.83
I want to set my own destiny.	4	44	53	85	3.58	.71
I imagine myself creating opportunities for myself and others.	7	52	41	86	3.41	.74
I see myself as an entrepreneur.	24	48	28	86	3.05	.85

About a third of the respondents always or frequently envisioned business opportunities and wished to start a business, while nearly two-thirds of the respondents occasionally desired to start their own business. Thirty-nine percent of the respondents said that they always or frequently wanted to be their own boss; and a majority (53%) always or frequently wanted to set their own destiny. Thirty-five percent of the respondents indicated that they were always or frequently afraid of losing their investment, and thirty-four percent of the respondents were concerned occasionally about losing their investment. On the contrary, thirty-one percent of the respondents indicated that they were seldom or never afraid of losing their investment. Nevertheless, only nine percent of the respondents said that they were never or seldom afraid of taking a risk.

Thirty-nine percent of the respondents indicated that they were frequently or always excited about the possibilities of creating wealth and opportunities for themselves and others; however, only twenty-eight percent said that they frequently or always see themselves as entrepreneurs. On the other hand, forty-one percent of the respondents imagined themselves creating opportunities for themselves and others; and about the same number (38%) of the

respondents perceived themselves to be frequently or always excited about possibilities of creating wealth.

The secondary agriculture teachers were asked to respond to three statements regarding their entrepreneurial interactions with students using a five-point measurement. The scale consisted of five levels of measurement: 5 = "Always," 4 = "Frequently," 3 = "Occasionally," 2 = "Seldom," 1 = "Never." Percentages for each level of measurement and corresponding statements are reported in Table 3. The overall mean score for the respondents "teacher student entrepreneurial interactions" construct is 3.54 with a standard deviation of .70 with a Cronbach's Alpha reliability coefficient of .87.

Forty-three percent of the respondents indicated that they frequently or always integrated entrepreneurship into their curricula, while fifty percent of the respondents did so occasionally. Fifty-seven percent of the respondents said that they frequently or always nurtured and helped develop students' business ideas. On the other hand, a little over a third of the respondents indicated that they developed and nurtured students' business ideas only occasionally.

Table 3  
*Percentage by Frequency of Teacher–Student Entrepreneurial Interactions*

Statement	Percent Seldom	Percent Occasionally	Percent Frequently	<i>n</i>	<i>M</i>	<i>SD</i>
I integrate entrepreneurship concepts into my agriculture classes.	7	50	43	86	3.47	.79
I help my students develop business ideas related to agriculture.	9	34	57	86	3.54	.84
I nurture students' business ideas	6	36	58	84	3.60	.72

Secondary agriculture teachers were asked to respond to four statements regarding frequency of student engagement in entrepreneurial activity using the following five-point scale. The scale consisted of five levels of measurement: 5 = "Always", 4 = "Frequently", 3 = "Occasionally", 2 = "Seldom", 1 = "Never". Percentages for each level of measurement and corresponding statements are reported in Table 4. The overall mean score for the respondents "teacher student entrepreneurial interactions" construct is 3.16 with a standard deviation of .71 and a Cronbach's Alpha reliability coefficient of .90.

Twenty-nine percent of the participants indicated that students frequently or always produce specific products for sale. However, fifty percent of the respondents said that they only occasionally do students engage in entrepreneurial activities. Twenty-one percent of the teachers indicated that students never or seldom engage in specific product development marketing and sales activities. A relatively higher number (39%) of the respondents said that students frequently or always evaluate their business gains or losses.

Table 4  
*Percentage by the Frequency of Student Engagement in Entrepreneurial Activity*

Statement	Percent Seldom	Percent Occasionally	Percent Frequently	<i>n</i>	<i>M</i>	<i>SD</i>
Students produce specific products for sale.	21	50	29	84	3.09	.80
Students market their products or services.	21	51	28	85	3.10	.81
Students sell their products or services.	17	57	27	85	3.12	.79
Students evaluate their gains or losses.	13	48	39	85	3.31	.86

### Conclusions

Conclusions were made based on the findings as related to the research objectives of the study. Secondary agriculture teachers appear to be clear about the concepts/meaning of entrepreneurship. When compared to the 1994 Lee & Associates study findings, which indicated some degree of confusion on perceived meaning of entrepreneurship, these current findings show that the teachers are very clear on the concepts of entrepreneurship and entrepreneurs.

Although we are passed the debate of whether or not entrepreneurship is a teachable skill, perceptions linger. Entrepreneurship is perceived as a teachable skill, and deemed important by these teachers. Since the teachers believe that entrepreneurial skills are important and teachable, they may take initiatives to integrate the concepts into their curricula if they have the time and resources. As the literature indicates, entrepreneurship is best learned through active student involvement in experiential learning, in this case, through supervised agricultural experience opportunities.

These teachers already believe in the idea of integrating entrepreneurship into agricultural education curricula, and they may already be doing so.

Teacher–student entrepreneurial interactions seem stronger if and when students have specific ideas. Teachers are apparently more apt to nurture students' entrepreneurial ideas and attempts rather than initiating their own business ideas and asking the class to follow through with them. This may be favorable for students who have previous business exposure through family or work connections. However, teacher–induced entrepreneurship ideas may be a good starting place for students who do not have the experience or motivation of previous business exposure or experiences.

Almost all teachers believe that entrepreneurship education should be integrated into secondary agriculture curricula, but only a third of these teachers actually do so. We need further research to understand the reasons and challenges that are keeping these teachers from practicing what they believe.

### Recommendations

The findings of this study shed some light on the respondents' perceptions of entrepreneurship education, curriculum integration, teacher–student entrepreneurial

activities, and learning engagements. Based on the study's findings, the following recommendations were made:

1. Teachers and administrators should make deliberate efforts to integrate entrepreneurship education to the secondary agriculture education through curriculum development and professional development opportunities for the teachers.
2. Agriculture teachers should introduce entrepreneurship ideas as a starting place/point for students who do not have the experience or motivation of previous business exposure or experiences.
3. Scholars/researchers should conduct further studies for a deeper and broader understanding of entrepreneurship education and its integration into the secondary agriculture curriculum. Here are potential research questions in the areas of curriculum and professional development: Who is teaching what and to what extent? What curriculum materials have been used? What teaching strategies work best to teach agricultural entrepreneurship? Do agriculture teachers have adequate entrepreneurial education/experiences that qualify them to teach the topic? What are the professional development needs of agriculture teachers in this particular area?

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AWOKE D. DOLLISSO is an Assistant Professor of Agricultural Education in the Department of Agricultural Education & Studies at Iowa State University, 201 Curtiss Hall, Ames Iowa 50011, EMAIL: [dollisso@iastate.edu](mailto:dollisso@iastate.edu)

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