Dr. Roger D. Hanagriff,
The AET & Texas A&M University Kingsville
Questions? roger@theaet.com

2019 Agricultural Education Engagement Executive Summary Report

In 2019, 9,822 programs comprising 47 states used the AET to track students' experiences in agricultural education, which is an increase from previous years. To develop a consistent and representative sample, this analysis created a cohort group of programs that utilized AET in the past three years. This resulted in 4,423 programs illustrating consistent use in student logins, and SAE and FFA recordkeeping and serves as a representative sample of agricultural education programs. In terms of states that represent the largest portion of this sample, many of the states are also the largest listing of FFA programs. Some of the top samples and their percent of programs in their state includes Texas (63%), California (90%), Ohio (81%), Oklahoma (93%), Arkansas (69%) and Pennsylvania (81%). States not included in this sample are Rhode Island, Puerto Rico, Virgin Islands, and Vermont due to their lack of AET use.

On average, this sample of 4,423 programs represents 54% of programs in states (high is OK at 93% and low is MA at 6%) and 31% of students (high is 70% Idaho and low is HI 5%) utilizing the AET. Table 1 provides a demographic summary of students and programs in this sample.

Table 1 Sample Program Demographics (n=4,423)

Program Demographic	Average (Per Program)	% Change from 2018
Number of Teachers	1.87	5%
Active Students (all grades)	106.6	8%
% of students with SAEs (Active)	59%	3%
% of students with Journals (Active)	76%	4%

As illustrated in Table 1, numbers have teachers has increased 5%, but student enrollment appears to be 8% higher than in 2018. SAE and journal engagement, which connects to potential skill records show an increase as well at 3% and 4% respectively.

2019 Agricultural Education Program Engagement

A core area of experiential learning, commonly called a Supervised Agricultural Experience (SAE) in agricultural education is a main objective of tracking experiences and is similar to Career and Technology Education's (CTE) Work-based Learning Experience. The SAE is first a planned learning experience that includes connections to academic content standards, then includes records (time and money) to illustrate action items, and then finally aspects of record keeping allow students to reflect on project outcomes and measurable results. Other forms of

experiential learning include FFA and community service activities, which offer additional metrics for learning outcomes.

Table 2 provides a summary of engagement by SAE type per program and a national estimate of total SAE involvement.

Table 3 Student SAE Involvement by Primary SAE Type (n=4,423)

SAE Descriptive Area	2019 SAE # (Per Program)	%	SAE National Estimate (N=8,739 Programs)
Entrepreneurship SAE *(Self-Employment)*	28	36%	243,225
Placement SAE *(Work Experience)*	42	54%	365,222
Research SAE *(Investigation or Other)*	8	11%	72,160
Total Immersion SAEs	78		680,607
Foundational SAE	22		191,631
Total SAEs Per Program	100		872,238

As illustrated in Table 2, the highest immersion SAE category is placement (54% - job experiences) with foundational SAEs representing about 22 projects per program. SAE engagement by AFNR area and relative value is listed in Table 3.

Table 3 Student SAE Involvement by Interest Area (n=4,423)

SAE Descriptive Area	Average (Per Program)	% Value per Program
Animal Systems	41.3	47.4%
Agribusiness Systems	5.4	6.2%
Leadership Education & Comm.	4.5	5.2%
Environmental Systems	3.1	3.6%
Food Products and Processing	4.8	5.6%
Power, Structural and Technical	8.7	9.9%
Natural Resources	2.2	2.6%
Plant Science	16.7	19.2%
Biotechnology	0.2	0.3%
Total SAE Interest	115.90	

As illustrated in Table 3, Animal Systems (47%) continually is the most common SAE area with other areas listing lower enrollment. A recent addition to keeping records on SAEs is the connecting of academic skills as student

journal learning experiences. Table 4 illustrates the numbers of document skills gained from SAE projects by content area as well as a national estimate of exhibited skills from involvement in SAE experiences.

Table 4 Student SAE Skills by Academic Area (n=4,423)

SAE Descriptive Area	Mean Program Value (2019)	% Value per Program	2019 National Value (N=8,739)
AFNR Aligned Agribusiness	21.37	3.2%	186,765
AFNR Aligned Animal Science	328.54	49.9%	2,871,071
AFNR Aligned Biotechnology	2.42	0.4%	21,130
AFNR Aligned Career Ready Practices	107.64	16.4%	940,693
AFNR Aligned Cluster Skills	5.28	0.8%	46,124
AFNR Aligned Environmental Service Syst.	9.84	1.5%	85,949
Council Aligned Foundational Skills	33.53	5.1%	292,995
AFNR Aligned Food Products and Processing	31.68	4.8%	276,874
AFNR Aligned Natural Resources	9.51	1.4%	83,090
AFNR Aligned Plant Science	74.38	11.3%	649,977
AFNR Aligned Power, Structural, & Tech.	34.03	5.2%	297,424
Total Academic Skills Recorded	658.21		5,752,090

As illustrated in Table 4, since the highest project area is Animal systems, nearly 50% of all SAE related academic skills as related to the same area. A very common academic skill area that reaches into soft-skill development is Career Ready Practices (CRP), which is the second most reported area (16.4%). Nationally students are estimated to be recording over 5.7 million academic skills that directly connect to SAE engagement and offer a positive connection to building experiences as they plan, record and reflect on SAE projects.

Another way to summarize experiential learning is to view the record hours SAE, FFA, and community service engagement, which is illustrated in Table 5.

Table 5 Students Time Invested (Journal Hours) in Experiential Learning (n=4,423)

Descriptive Area	Average (Per Program)	%	National Estimate (N=8,739 Programs)
Journal Hours in SAE Projects	4,295.8	79.6%	37,540,766
Journal Hours in FFA Activities (Offices, CDE, Committees)	852.8	15.8%	7,452,779
Journal Hours in Community Service Activities	250.8	4.6%	2,191,421
Total Hours	5,399.4		47,184,966

As illustrated in Table 5, the total experiential learning time is estimated at 47.1 million hours in 2019, which is an increase from 2018 values (43.6 million). The highest area of engagement is SAE journaling, which connects to recording academic skills and hours. However, additional engagement in FFA and community service also offer experiential learning activities.

2019 Economic Values from SAE Engagement in Agricultural Education

Not only does SAE engagement involve time and learning but also financial investments and potential earnings. Table 6 provides a summary of student SAE earnings for a typical agricultural education program.

Table 6 Income Values from SAE Engagement in Agricultural Education Programs (n=4,432)

Area of SAE Income (SAE returns)	Average (Per Program)	%	National Estimate (N=8,739 Programs)
Paid Work Income	$20,142	39.3%	$176,017,759
SAE Labor Exchange	$3,279	6.4%	$28,655,879
Cash/Market Sale	$18,158	35.4%	$158,682,023
Stock Show Sale	$4,761	9.3%	$41,610,701
Award/Scholarship/Premium	$1,486	2.9%	$12,982,390
Research Funding	$124	0.2%	$1,085,515
Used at Home	$213	0.4%	$1,861,072
Rental Income	$3,065	6.0%	$26,786,513
Total Value	$51,228	100%	$447,681,853

As illustrated in Table 6, an average program has students earning $51,228 in financial income. In total, it is estimated students earn over $447 million through their SAE projects, which can assist them in other educational and career goals. SAE projects included in this area are represented by paid work experiences (placement SAE paychecks), self-employment experiences (entrepreneurship SAE) through sales, awards and labor exchange and a smaller amount through research funding (research SAE).

As students are able to earn income, these projects likely require financial investments such as required job supplies, research expenses and various agricultural common expense areas. These investments are not only valuable to the student's SAE, but create financial community, state and national economic impact values that drive economic growth and job creation.

An average program has students investing $21,857 in supporting their SAE projects. Nationally, SAE spending is estimated to be $191 million, which supports local, state and national economies. These investments are allocated across common SAE-related expenses, which are outlined in Table 7.

Table 7 SAE Investments in Operating Expenses (n=4,432)

Area of Economic Investing	Average (Per Program)	%	National Estimate (N=8,739 Programs)
Inventory for Resale	$6,890	31.5%	60,214,731
Feed	$6,038	27.6%	52,762,009
Other Expenses	$3,401	15.6%	29,718,355
Fertilizer/Chemicals	$635	2.9%	5,552,405
Rent	$1,120	5.1%	9,783,764
Contract/Custom Hire	$395	1.8%	3,450,681
Paid Work Expense	$559	2.6%	4,887,575
Supplies	$1,200	5.5%	10,487,779
Seed	$381	1.7%	3,331,491
Fuel	$211	1.0%	1,846,631
Entry Fees/Commissions	$360	1.6%	3,142,592
Repairs/Maintenance	$249	1.1%	2,172,069
Veterinary Medicine	$419	1.9%	3,658,283
Total Value	$21,857	100.0%	$191,008,366

Investment values also include non-current assets (long-term assets), such as breeding animals, machinery, buildings and land, which are additional drivers to local, state and national economies ($4,894 in 2019). Once investments are measured, additional impacts can be derived using economic multiplier factors ($1.90 per $1 in spending IMPLAN Type II Multiplier). Table 8 provides a summary of both direct agricultural education program investment values and related local economic impact values (direct spending and economic value).

Table 8 Direct Investments and Economic Impact Values from SAE Engagement (n=4,432)

Area of Economic Activities (SAE Investments)	Avg. Program Value Direct Spending (Per Program)	Avg. Program Economic Value[1] (IMPLAN 1.90, Type II)
Total Operating SAE Expenses	$21,857	$41,528
Non-Current Asset Purchases	$4,894	$9,299
Total Value	$26,751	$50,827

1 – IMPLAN Model values represent direct, induced and indirect economic values derived from spending

As illustrated in Table 8, an average agricultural education program encourages SAE investment of $26,751. In terms of economic impact, these programs are likely developing $50,827 in total economic impact that supports all business sectors of the region.

Economic values from agricultural education programs (FFA chapters) with SAE activities defines not only local values but are also national values. Table 9 defines the national economic impact value from SAE engagement.

Table 9 National Direct Investments and Economic Impact Values from SAE Engagement (N=8,739)

Area of Economic Activities (SAE Investments)	National SAE Direct Spending	National Economic Value[1] (IMPLAN 1.90, Type II)
Total Operating SAE Expenses	$191,008,366	$362,915,896
Non-Current Asset Purchases	$42,770,086	$81,263,164
Total Value	$233,778,453	$444,179,060

1 – IMPLAN Model values represent direct, induced and indirect economic values derived from spending.

As illustrated in Table 9, the national economic value of SAE engagement in agricultural education reaches over $444 million in national economic values, which support businesses and jobs.

Application of Information

This report provides a summary of agricultural education at the local and national level. This year's report utilizes a conservative approach to measure program values in hope of capturing metrics that describe a typical U.S. agricultural education program. The objective of this report is to share values of agricultural education and learning outcomes that illustrate both programmatic, academic and economic values. Appropriate use of these values can drive support in agricultural education or FFA programs, potentially prioritizing educational initiatives. Values listed here also may serve as comparisons to local program reports listed in AET.

As in the case of all research reports, standard error always exists when summarizing and extrapolating data; however, several key areas (% SAE involvement, SAE spending, and FFA involvement) were compared to a random selection of programs and no significant differences were found, which does offer support that these values do represent typical programs in agricultural education with students tracking their educational experiences.

Any questions or additional information should be directed to the author, Dr. Roger Hanagriff with The AET and Associate Professor at Texas A&M University Kingsville – roger@theaet.com