



2022 Agricultural Education Engagement Executive Summary Report

Report Highlights:

- In 2022, AET use represents 78% of agricultural education programs.
- A convenience sample was drawn from active users to serve as a representative sample of programs, which is 55.5% of all programs (4,820).
- In 2022, programs have 52.3% of their students engaged in SAE activities, up from 49% in 2021.
- Immersion SAE engagement is 54% placement, 36% entrepreneurship, and 10% research.
- Foundational SAEs are used by 66% of programs with 24 students per program (18% of students)
- 47% of SAEs are in Animal Systems, consistently the highest SAE skills area.
- Students are tracking over 9.95 million AFNR skills.
- Students tracked over 50.6 million experiential learning hours (FFA, SAE, and Community Service), with SAEs representing 80%.
- In 2022, the average program has students earning \$64,212 in financial income, which nationally is over \$557 million in SAE earnings.
- In 2022, SAE student investments averaged \$98,672 per program, which locally contributes \$187,476 in economic impact values.
- In 2022, National SAE investments were \$857,457,328 in direct spending, a national economic impact value of \$1.629 billion from SAE investments.

Complete Report

This study aims to define experiential learning values in agricultural education by describing a typical program and projecting national values. This sample is from a widely utilized program management system (www.theaet.com), which focuses on primary student engagement data validated by teacher use. In 2022, 6,752 secondary agricultural education/FFA programs comprising 45 states used the AET to track students' experiences in agricultural education and or assist students in managing FFA award applications. This program/FFA listing represents 78% of national programs (6,752 / 8,690).

The primary goal of AET is to track actual educational experiences and not solely to focus on FFA or related award applications. In looking at actual program use, 4,820 programs used AET to track student experiences and



not just work on FFA awards, which represents 55.5% (4,820/8,690) of programs having student use in tracking experiences in FFA and SAE and teacher logins, which validate data. This approach focuses on programs correctly using AET and student tracking their experiences. This sample not only represents 4,820 programs but represents 588,436 students from 45 states. This large sample size helps to reduce the impact of outliers and offers the potential to gain insight into national values. In terms of states that represent the most significant portion of this sample, this covers both small and large state memberships. The top 20 program sample states with program percentage reporting are in Table 1.

Table 1 Sample Program Ranking by State (Top 30)

Rank #1- 10	% Programs	Rank #11- 20	% Programs	Rank #21-30	% Programs
1. Oklahoma	94%	11. Connecticut	81%	21. Kentucky	68%
2. Colorado	92%	12. Oregon	80%	22. Iowa	66%
3. Idaho	90%	13. Utah	79%	23. California	62%
4. Nevada	89%	14. Arizona	78%	24. Texas	62%
5. Nebraska	87%	15. Michigan	78%	25. Illinois	62%
6. North Dakota	87%	16. North Carolina	75%	26. Kansas	58%
7. Wyoming	86%	17. Arkansas	73%	27. S. Dakota	54%
8. Nebraska	84%	18. Pennsylvania	72%	28. Maryland	53%
9. Ohio	82%	19. West Virginia	71%	29. N. Mexico	52%
10. Montana	94%	20. Alabama	71%	30. Minnesota	51%

States not included in this table are due to their lower use of students and teachers in AET. Other states using AET but not listed in Table 1 include New Jersey (50%), Delaware (45%), New York (42%), Washington (40%), Alaska (33%), Missouri (33%), Mississippi (33%), South Carolina (31%), Indiana (30%), Rhode Island (25%), Louisiana (25%), Virginia (24%), Georgia (23%), Tennessee (20%), Wisconsin (19%), Hawaii (14%), Florida (11%), and Massachusetts (6%). Descriptive values help define the scope of a typical agricultural program. Table 2 provides a demographic summary of students and programs in this sample.

Table 2 Sample Program Demographics (n=4,820)

Program Demographic	2022 Average (Per Program)
Number of Teachers	1.92
Active Students (all grades)	132
% of students with SAEs (Active)	52.3%
% of students with Journals (Active)	66.4%



As illustrated in Table 2, the number of teachers per program averages 1.92, similar to the 1.9 in the 2021 report. Enrollment per program averages 132 students, an increase from the 2021 report of 121 students, illustrating a growth in students enrolled in programs with very similar teacher capacity from 2021. A primary and core value for agricultural education is a Supervised Agricultural Experience (SAE). Student SAE involvement (those with any SAE records) in 2022 is 53.3% of students tracking an SAE, an increase from the 48.8% reported in the 2021 report. A higher value of students (66%) tracked their time using journals, which relates to FFA activities, community service, or classroom, and this value exceeds the 2021 report value of 62% and shows a growth of engagement.

2022 Agricultural Education Program Engagement

In agricultural education, the main objective of AET is tracking SAE experiences and their connection to Work-based Learning Experiences (WBL), which relates to an essential aspect of learning. The SAE is a planned learning experience with links to academic content standards and records (time and money) to illustrate action items. Then, finally, aspects of record-keeping allow students to reflect on project outcomes and measurable results. SAE is a core component of agricultural education and Perkins Funding requirements and important metrics teachers can use to illustrate their program’s value. Other forms of experiential learning include FFA and community service activities, which offer additional metrics for learning outcomes.

Table 3 provides a summary of engagement by SAE type per program and total SAE involvement, which is estimated at 91 SAE projects per program and is an increase from the 83 reported in 2020. Considering a decline in the percentage of students with an SAE from the 2020 report (49% 2021 / 58% 2020) but an increase in total program SAEs, the likely result is students having more SAE projects per student. A complete 2021 summary of SAEs is listed in Table 3, which includes School-Based and Service Learning as an aspect of placement, entrepreneurship, or potential research projects.

Table 3. Student SAE Involvement Per-Program by Primary SAE Type (n=4,820)

SAE Descriptive Area	SAE #	%	National Estimate (N=8,690 Programs)
Entrepreneurship (Owner/Business)	26	35.9%	222,895
Placement SAE (Work Exp.)	39	54.1%	336,094
Research SAE (Investigation, etc....)	7	10.0%	62,512
Total Immersion SAEs	72		621,501
Foundational SAE	28		243,744
Total SAEs Per Program	100		865,245



As illustrated in Table 3, the highest immersion category is placement (54%), with foundational SAEs representing about 28 projects per program. Compared to the 2021 report, 2022 illustrates growth in SAE engagement from 91 SAE programs in 2021 to 100 in 2022. In reviewing all programs, 66% of programs have students tracking Foundational SAEs, similar to the 2021. Nationally, this estimates 865,245 SAE (621,501 immersion and 243,744 foundational) experiences. Student SAE interests (AFNR area) are in Table 3.

Table 4. Student SAE Involvement by Interest Area – AFNR Pathway (n=4,820)

SAE Interest Area (AFNR)	Average (Per Program)	% Value per Program
Animal Systems	35.0	46.8%
Agribusiness Systems	4.5	6.1%
Leadership Education & Comm.	1.8	2.5%
Environmental Systems	1.8	2.4%
Food Products and Processing	4.9	6.6%
Power, Structural, and Technical	8.0	10.7%
Natural Resources	1.8	2.4%
Plant Science	16.6	22.2%
Biotechnology	0.2	0.3%

As illustrated in Table 4, Animal Systems (47%) continually is the most common SAE area, with other regions listing lower percent values. An additional record of SAEs is the connecting of academic skills (AFNR) as students’ journal learning experiences and values are similar to percentages from 2021. Table 5 illustrates the number of document skills from SAE projects by content area and a national estimate of exhibited skills from involvement in SAE experiences.



Table 5. Student SAE Skills by Academic Area (n=4,820)

SAE Descriptive Area	Mean Program Value (2021)	% Value per Program	Change from 2020	National Value *
AFNR Aligned Agribusiness	35.11	3.1%	17%	305K
AFNR Aligned Animal Science	489.35	42.7%	12%	4.3M
AFNR Aligned Biotechnology	4.97	0.4%	24%	43K
AFNR Aligned Career Ready Practices	219.80	19.2%	26%	1.9M
AFNR Aligned Cluster Skills	8.36	0.7%	13%	73K
AFNR Aligned Environmental Service Syst.	15.97	1.4%	20%	139K
Council Aligned Foundational Skills	94.45	8.2%	21%	821K
AFNR Aligned Food Products and Processing	55.11	4.8%	19%	479K
AFNR Aligned Natural Resources	15.98	1.4%	20%	139K
AFNR Aligned Plant Science	140.42	12.3%	14%	1.2M
AFNR Aligned Power, Structural, & Tech.	65.33	5.7%	19%	568K
Total Values	1,144.85	100.0%	17%	9.95M

*National value based on N=8,690 programs

As illustrated in Table 5, overall skills connected to SAE involvement have increased from 8.3 million in 2021 AFNR skills to 9.95 million in 2022, a 17% increase. The top three skill areas with the highest percent change from 2021 include Career Ready Practices (26%), Biotechnology (24%), and Foundational (21%), with other change values listed in Table 5. The largest skill-related area is animal systems (42.7%), likely connected to Animal Systems as the most frequent SAE area (Table 4). A typical academic skill area that reaches into soft-skill development is Career Ready Practices (CRP), the second most reported area (19.2%). Nationally, students are estimated to record over 9.5 million academic skills directly connected to SAE engagement. Tracking AFNR skills offers a positive connection to building experiences as they plan, record their actions, and reflect on SAE projects aligned to academic skills. A complete listing of AFNR skills aligned to SAE engagement is in Table 5.

Another way to summarize experiential learning is to view the recorded hours of SAE, FFA, and community service engagement, illustrated in Table 6. These hours are the action part of the SAE, which engages students in learning opportunities as they invest hours (time) and track those experiences in AET.



Table 6. Students Time Invested (Journal Hours) in Experiential Learning (n=4,820)

Descriptive Area	Average (Per Program)	%	National Estimate (N=8,690 Programs)
SAE Journal Hrs.	4,662.8	80.0%	40,519,649
FFA Journal Hrs. (Offices, CDE, Committees)	899.7	15.5%	7,818,494
Community Service Journal Hrs.	260.7	4.5%	2,265,193
Total Hours	5,823.2	100%	50,603,336

As illustrated in Table 6, the total experiential learning per program averages 5,823 hours, and nationally at over 50 million learning experiences, a 23% engagement growth from the 2021 values (4,869 and 41.2 hrs.) The highest engagement area is SAE journaling (80% / 4,663 hrs.), with FFA activities averaging just over 899 hours per program, nationally estimated at 7.8 million.

2022 Economic Values from SAE Engagement in Agricultural Education

SAE engagement involves time and learning, financial investments, and potential earnings. Table 7 summarizes student SAE earnings for a typical agricultural education program.

Table 7. Income Values from SAE Engagement in Agricultural Education Programs (n=4,820)

Area of SAE Income (SAE returns)	Average (Per Program)	%	National Estimate (N=8,690 Programs)
Paid Work Income	\$36,325	56.6%	\$315,661,125
SAE Labor Exchange	\$6,406	10.0%	\$55,668,116
Cash/Market Sale	\$1,677	2.6%	\$14,573,668
Stock Show Sale	\$7,435	11.6%	\$64,610,256
Award/Scholarship/Premium	\$8,119	12.6%	\$70,552,060
Research Funding	\$803	1.3%	\$6,980,241
Used at Home	\$2,153	3.4%	\$18,705,814
Rental Income	\$1,294	2.0%	\$11,248,350
Total Value	\$64,212	100%	\$557,999,629

As illustrated in Table 7, an average program has students earning \$64,212 in financial income, an increase from the \$54,724 in financial income from 2021. The highest area of SAE earnings is paid work (\$36,325, 56.6%).



This highest value also aligns with the largest SAE area (Placement SAE, 54%, Table 3). Nationally, SAE income for students reaches over \$557 million in student earnings, providing earned financial support as students continue their career path.

As students can earn income, these projects likely require financial investments such as needed job supplies, research expenses, and various agricultural common expense areas. These investment values are part of the student's records in AET and aligned dates for each transaction. These investments are valuable to the student's SAE as a record but also create local, state, and national impact values that drive economic growth and job creation and are in Table 8. In 2022, the average program had students investing \$73,158, which exceeds the 2021 value of \$65,221 per program. Details of SAE spending are in Table 8.

Table 8 SAE Investments in Operating Expenses (n=4,820)

Area of Economic Investing	Average (Per Program)	%	National Estimate (N=8,690 Programs)
Inventory for Resale	\$23,875	32.6%	207,470,908
Feed	\$13,015	17.8%	113,096,652
Other Expenses	\$6,756	9.2%	58,711,261
Fertilizer/Chemicals	\$5,500	7.5%	47,797,091
Rent	\$5,514	7.5%	47,913,612
Contract/Custom Hire	\$4,563	6.2%	39,648,549
Paid Work Expense	\$1,877	2.6%	16,308,011
Supplies	\$3,154	4.3%	27,409,956
Seed	\$2,719	3.7%	23,630,781
Fuel	\$1,530	2.1%	13,297,698
Entry Fees/Commissions	\$1,344	1.8%	11,675,443
Repairs/Maintenance	\$1,948	2.7%	16,929,098
Veterinary Medicine	\$1,364	1.9%	11,854,754
Total Value	\$73,158	100.0%	\$635,743,814

Nationally, SAE spending is estimated to be \$635 million, a 20% increase from the \$528 million in 2021, which supports local, state, and national economies. These investments are ordinary SAE-related expenses, which are in Table 8.

Investment values 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. Considering 2021, SAE non-current item investment was \$25,514 per program, an increase from the 2021 values. Many of these investments



are connected to entrepreneurship SAEs as student acquire non-current items to operate their enterprises. Once SAE investments are measured, additional impacts can be derived using economic multiplier factors (\$1.90 per \$1 in spending IMPLAN Type II Multiplier). Table 9 summarizes direct agricultural education program investment values and related local economic impact values (direct spending and economic value).

Table 9 Direct Investments and Economic Impact Values from SAE Engagement (n=4,820)

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	\$73,158	\$139,000
Non-Current Asset Purchases	\$25,514	\$48,476
Total Value	\$98,672	\$187,476

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

As illustrated in Table 9, an average agricultural education program encourages SAE investment of \$98,672, an increase from the 2021 value of \$90,103. In terms of economic impact, these programs are likely developing \$187,476 in total economic impact that supports all business sectors of the region.

Economic values from agricultural education programs (FFA chapters) with SAE activities also define national values. Table 10 describes the national SAE spending of over \$857 million, which then creates \$1.629 billion in economic impact values, an increase from the 2021 value of \$1.448 billion.

Table 10 National Direct Investments and Economic Impact Values from SAE Engagement (N=8,690)

Area of Economic Activities (SAE Investments)	National SAE Direct Spending	National Economic Value ¹ (IMPLAN 1.90, Type II)
Total Operating SAE Expenses	\$635,743,814	\$1,207,913,246
Non-Current Asset Purchases	\$221,713,515	\$421,255,678
Total Value	\$857,457,328	\$1,629,168,924

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

The national economic value of SAE engagement in agricultural education illustrates financial values derived from educational activities, which support businesses and jobs and help drive the national economy, which financially connects to needed federal investments in agricultural education.



Application of Information

This report summarizes agricultural education at the local and national levels. This year's report utilizes a conservative approach to measure program values to capture metrics that describe a typical U.S. agricultural education program. This report aims to share the values of agricultural education and learning outcomes that illustrate programmatic, academic, and economic importance. Appropriate use of these values can drive support in agricultural education or FFA programs, potentially prioritizing educational initiatives. Values listed here may also serve as comparisons to local program reports 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, 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