

2023-24 Agricultural Education Engagement Executive Summary Report

Report Highlights:

- A convenience sample of active users was drawn to serve as a representative sample of programs. This sample represents 61.6% of all programs (5,401), an increase from the previous year's sample of 4,820.
- In 2023, programs have 63.8% of their students engaged in SAE activities, up from 52% in 2022.
- Immersion SAE engagement is represented by 54% placement, 35% entrepreneurship, and 11% research.
- Foundational SAEs are used by 70% of programs and engaged by 35 students per program.
- 45% of SAEs are in Animal Systems, which is consistently the highest SAE skills area.
- Students are tracking over 8.2 million AFNR/Academic skills.
- Students tracked over 59 million experiential learning hours (FFA, SAE, and Community Service), with SAEs representing 79%.
- Programs report students' financial income of \$114,606, which is over \$1 billion in SAE earnings nationally.
- SAE student investments averaged \$99,138 per program, which locally contributes \$188,363 in economic impact values.
- National SAE investments are \$868 million in direct spending, with a national economic impact value of \$1.65 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 drawn from a widely utilized program management system (www.theaet.com), which focuses on primary student engagement data validated by teacher use. In 2023, 9,302 secondary agricultural education/FFA programs comprising 49 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, 5,401 programs used AET to track student experiences and not just work on FFA awards, which represents 61.6% (5,401/8,765) 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 5,401 programs but represents 656,622 students from 49 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 largest portion of this sample, this covers both small and large state memberships. The top 20 program sample states with program percentage reporting are listed 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. California	99%	11. West Virginia	86%	21. North Carolina	75%
2. Colorado	97%	12. Michigan	85%	22. Illinois	73%
3. Wyoming	97%	13. North Dakota	85%	23. Arkansas	73%
4. Connecticut	95%	14. Pennsylvania	81%	24. Minnesota	72%
5. Oklahoma	94%	15. Iowa	78%	25. New Mexico	71%
6. Oregon	92%	16. Arizona	77%	26. Kentucky	68%
7. Nebraska	92%	17. Nevada	77%	27. New Jersey	68%
8. Ohio	91%	18. Mississippi	76%	28. Maryland	66%
9. Idaho	90%	19. Alabama	76%	29. South Dakota	64%
10. Montana	88%	20. Utah	76%	30. Kansas	63%

Other states using AET but not listed in Table 1 include Alaska (58%), Texas (56%), New York (54%), Delaware (43%), Washington (41%), South Carolina (31%), Virginia (39%), Missouri (38%), Rhode Island (33%), Indiana (33%), Georgia (27%), Tennessee (22%), Louisiana (21%), Florida (16%), Wisconsin (16%), and Hawaii (10%), New Hampshire (10%), Vermont (8%), 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=5,401)

Program Demographic	Average (Per Program)
Number of Teachers	1.95
Active Students (all grades)	123
% of students with SAEs (Active)	63.9%
% of students with Journals (Active)	80.3%

As illustrated in Table 2, the number of teachers per program averages 1.95, similar to the 1.91 in the previous annual report. Enrollment per program averages 123 students, a slight decrease from the prior report of 132 students. A primary and core value for agricultural education is a Supervised Agricultural Experience (SAE). Student SAE involvement (those with any SAE records) is 63.9%, an outstanding improvement from the 53.3% of students tracking an SAE in the previous year and is a likely result of SAE For All initiatives. A higher value of students (80%) tracked their time using journals, which relates to FFA activities, community service, or classroom, and this value exceeds the previous report value of 66% and shows a growth of engagement.

Agricultural Education Program Engagement

In agricultural education, the main objective of AET is tracking SAE experiences in their connection to Work-based Learning Experiences (WBL), which relates to an essential aspect of learning. The SAE is a planned learning experience that includes connections to academic content standards and records (time and money) to illustrate action items. Finally, aspects of record-keeping allow students to reflect on project outcomes and measurable results. SAE is a core component of agricultural education and is aligned with 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 summarizes engagement by SAE type per program and total SAE involvement, estimated at 113 SAE projects per program, which is an increase from 91 in the previous year. A complete 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=5,401)

SAE Descriptive Area	SAE #	%	National Estimate (N=8,765 Programs)
Entrepreneurship (Owner/Business)	28	35.5%	241,287
Placement SAE (Work Exp.)	42	53.9%	366,603
Research SAE (Investigation, ect...)	8	10.6%	71,938
Total Immersion SAEs	78	100%	679,827
Foundational SAE	36		314,105
Total SAEs Per Program	113		993,932

As illustrated in Table 3, the highest immersion category is placement (54%), with foundational SAEs representing about 36 projects per program. Compared to all previous year’s research, this report shows a significant increase

in SAE engagement. In reviewing all programs, 70% of programs have students tracking Foundational SAEs, an increase from 66% in last year's report. Nationally, this estimates 993,932 SAE (679,827 immersion and 314,105 foundational) experiences. Next, the students' areas of SAE interest (AFNR or State Skill Areas) will be explored, as listed in Table 3.

Table 4. Student SAE Involvement by Interest Area – AFNR Pathway (n=5,401)

SAE Interest Area (AFNR)	Average (Per Program)	% Value per Program
Animal Systems	36.6	44.8%
Agribusiness Systems	4.5	5.5%
Leadership Education & Comm.	1.9	2.3%
Environmental Systems	1.9	2.3%
Food Products and Processing	5.1	6.2%
Power, Structural and Technical	9.5	11.6%
Natural Resources	1.8	2.1%
Plant Science	20.2	24.7%
Biotechnology	0.3	0.3%

As illustrated in Table 4, Animal Systems (45%) continually is the most common SAE area. An additional record of SAEs is the connecting of academic skills (AFNR) to students' journal learning experiences. Table 5 illustrates the number of document skills from SAE projects and a national estimate of SAE skills.

Table 5. Student SAE Skills by Academic Area (n=5,401)

SAE Descriptive Area	Mean Program Value	% Value per Program	Natl. Est. (N=8,765)
Aligned Agribusiness	85.34	5.6%	747,964
Aligned Animal Science	633.55	41.6%	5,553,034
Aligned Biotechnology	7.14	0.5%	62,608
Aligned Career Ready Practices	259.03	17.0%	2,270,432
Aligned Cluster Skills	12.06	0.8%	105,665
Aligned Environmental Service Syst.	18.34	1.2%	160,787
Council Aligned Foundational Skills	128.22	8.4%	1,123,858
Aligned Food Products and Processing	67.23	4.4%	589,235
Aligned Natural Resources	18.50	1.2%	162,181
Aligned Plant Science	206.43	13.6%	1,809,334
Aligned Power, Structural, & Tech.	86.35	5.7%	756,898
Total Values	1,522.19	100.0%	13,341,995

As illustrated in Table 5, overall skills connected to SAE involvement have increased from 13.3 million in AFNR skills compared to the previous year’s report of 8.3 million. The largest skill-related area is animal systems (41.6%), followed by Career Ready Practices (17%), and finally Plant Science (13.6%). Nationally, students are estimated to record over 13.3 million academic skills that directly connect to SAE engagement. This 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 listed 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. This is the action part of the SAE, which engages students in learning opportunities as they invest hours (time), which is recorded in AET.

Table 6. Students Time Invested (Journal Hours) in Experiential Learning (n=5,401)

Descriptive Area	Mean Program Value	%	National Value (N=8,765)
Journal Hours in SAE Projects	5,369.5	79.4%	47,063,244
Journal Hours in FFA Activities (Activities, Offices and CDEs)	1,111.3	16.4%	9,740,603
Journal Hours Community Service	285.5	4.2%	2,502,292
Total Hours	6,766.2	100%	59,306,139

As illustrated in Table 6, the total experiential learning time per program averages 6,766 hours, and nationally, at over 59 million hours of learning experiences, exceeding the previous year’s value of 50 million. The highest area of engagement is SAE journaling (79.4% / 5,366 hrs.), with FFA activities averaging just over 1,111 hours per program, nationally estimated at 9.7 million, and is an increase from the 7.8 million reported in the previous year.

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=5,401)

Area of SAE Income (SAE returns)	Average (Per Program)	%	National Estimate (N=8,765 Programs)
Paid Work Income	\$36,124	31.5%	\$316,626,399
SAE Related Labor Exchange	\$6,792	5.9%	\$59,532,703
Livestock Sales	\$23,195	20.2%	\$203,308,021
Crop/Forage Sales	\$13,204	11.5%	\$115,737,032
Product/Services Sales	\$6,437	5.6%	\$56,423,806
Other Cash/Premium Sales	\$14,535	12.7%	\$127,396,633
Cooperative Distribution	\$901	0.8%	\$7,896,505
Government Program Payment	\$185	0.2%	\$1,621,525
Crop/Other Insurance	\$400	0.3%	\$3,506,000
Custom Hire	\$1,431	1.2%	\$12,538,333
Other Income or Premium	\$11,402	9.9%	\$99,937,082
Total Value	\$114,606	100%	\$1,004,524,038

As illustrated in Table 7, an average program has students earning \$114,606 in financial income, an increase from the \$64,212 in financial income from the previous year. The highest area of SAE earnings is paid work (\$36,124, 31.5%). This highest value also aligns with the largest SAE area (Placement SAE, 54%, Table 3). Nationally, it is estimated that SAE income for students reaches over \$1 billion 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 required job supplies, research expenses, and various common agricultural expense areas. These investment values are part of the student's records in AET and are entered with 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, which are listed in Table 8. This illustrates a \$83,719 average SAE spending per program, which is also an increase from the \$62,521 in the previous year. Details of SAE spending are listed in Table 8.

Table 8 SAE Investments in Operating Expenses (n=4,401)

Area of Economic Investing	Average (Per Program)	%	National Estimate (N=8,765 Programs)
Advertising	\$51	0.1%	447,015
Bank Charges	\$124	0.1%	1,083,938
Conservation Expenses	\$118	0.1%	1,029,888
Chemicals	\$565	0.7%	4,949,815
Dues and Subscriptions	\$122	0.1%	1,071,534
Employee Benefits	\$53	0.1%	460,163
Freight and Trucking	\$590	0.7%	5,167,954
Insurance	\$97	0.1%	850,205
Pension and Profit Sharing	\$12	0.0%	100,798
Storage and Warehousing	\$103	0.1%	903,715
Telephone and Internet	\$770	0.9%	6,749,050
Travel	\$1,037	1.2%	9,086,255
Utilities	\$1,849	2.2%	16,207,311
Taxes	\$1,432	1.7%	12,553,408
Vehicle Expense	\$3,185	3.8%	27,916,049
Labor Hired	\$349	0.4%	3,058,985
Feed, Hay, and Forage	\$13,627	16.3%	119,436,760
Vet Fees, Med., & Breeding	\$1,560	1.9%	13,670,378
Supplies	\$3,979	4.8%	34,879,839
Repairs and Maintenance	\$2,029	2.4%	17,781,443
Seed and Plants	\$3,061	3.7%	26,825,452
Fertilizer and Lime	\$5,215	6.2%	45,708,057
Other Expenses	\$10,485	12.5%	91,903,713
Livestock Purchased	\$18,187	21.7%	159,410,733
Rent and Lease	\$6,208	7.4%	54,417,102
Paid Work Expense	\$1,899	2.3%	16,640,604
Commissions and Entry Fees	\$1,371	1.6%	12,015,097
Gas, Fuel, and Oil	\$1,391	1.7%	12,191,530
Custom Hire	\$4,254	5.1%	37,282,751
Total Value	\$83,719	100.0%	\$733,799,541

SAE spending is estimated to be \$733 million, an increase from the previous year's report of \$635 million in SAE investments and supports local, state, and national economies. These investments are allocated across everyday SAE-related expenses outlined 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 SAE’s non-current item investment, it was \$15,419 per program. Many of these investments are connected to entrepreneurship SAEs as student acquire non-current items to operate their enterprises. Once 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=5,401)

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	\$83,719	\$159,067
Non-Current Asset Purchases	\$15,419	\$29,296
Total Value	\$99,138	\$188,363

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 \$99,138, a slight increase from the previous year’s report. In terms of economic impact, these programs are likely developing \$188,363 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 \$868 million, creating \$1.65 billion in economic impact values.

Table 10 National Direct Investments and Economic Impact Values from SAE Engagement (N=8,765)

Area of Economic Activities (SAE Investments)	National SAE Direct Spending	National Economic Value ¹ (IMPLAN 1.90, Type II)
Total Operating SAE Expenses	\$733,799,541	\$1,394,219,128
Non-Current Asset Purchases	\$135,146,757	\$256,778,839
Total Value	\$868,946,298	\$1,650,997,966

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

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

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 - roger@theaet.com