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2017 California Agricultural Education Engagement Summary Report

Experiential learning activities require investing resources such as time and money beyond regularly-scheduled class time. The Agricultural Experience Tracker (The AET) allows students to record these investments in experiential learning activities and provides a platform to assess the value of these investments in agricultural education programs. This report is the second annual assessment of agricultural education programs ("agriculture, food, and natural resources"—AFNR programs in California) and their FFA chapters.

In California, 334 agricultural education programs were listed, but this descriptive analysis purposively selected based on complete use 275 programs (82% of programs) representing 76,447 students. Programs selected include active students with SAE transactions. These students, then, serve as a representative sample of the state. Table 1 provides a descriptive summary of key demographic information of state programs and a comparison to nationally reported values.

Table 1 Sample Program Demographics

Program Demographic	Sample Average (Per Program, n=275)	National Average (Per Program, n=4,132)
Number of Teachers	2.91	1.77
Student members of FFA	277	83
Students (9th to 12th grade)	277	93
% of students with SAEs	49%	57%
% of students with Journals	71%	74%

A key component for this study is tracking program involvement by analyzing SAE records. Table 1 illustrates that 49% of students are documenting SAE involvement, which is slightly less than the national average of 56% but do report significantly more students than an average. Also, table 1 illustrates that 71% of California students are documenting their time in experiential learning experiences, which is nearly equal to the national average of 74% of students recording journal records.

The results in Table 1 illustrate that the average California program in this sample is three teachers (2.91), 277 students and 277 FFA members, which is significantly larger than the national average in terms of the size of agriculture education programs.

2017 Agricultural Education Program Engagement

A summary of agricultural education for California is a summary of SAEs, areas of SAE interest and student investments of time in learning activities, which include classroom, FFA, community and SAE. Table 2 provides a descriptive summary of the average SAE engagement by type of SAE.

Table 2 Student SAE Involvement by Primary SAE Type and National Comparison

SAE Descriptive Area	State Average (Per Program, n=275)	%	National Average (Per Program, N=4,132)	
Placement	66	35%	41	44%
Entrepreneurship	86	45%	28	30%
Foundational	19	10%	17	19%
Research	20	10%	7	7%
Total SAEs Per Program	192		93	

California programs report greater engagement in SAE projects that are above the national average results (93 SAEs) with a 192 SAE projects and is a 42% increase from 135 SAEs in 2016. In terms of types of SAE projects, California has a higher engagement in entrepreneurship SAEs with 45% of student involved in this area compared the national average of 30%. Other types of SAE involvement values are reported in Table 2. As students create their SAE projects, they define the SAE project area (AFNR aligned). Also, students track skill involvement by recording journal entries, also aligned to AFNR content standards. A summary of how SAEs align to the national AFNR content standards is illustrated in Table 3.

Table 3 Student SAE Involvement by Interest Area

SAE Descriptive Area	State Average (Per Program, n=275)	%	State Total (Estimate, N=334)
Animal Science	85.3	44.4%	28,482
Agribusiness	7.4	3.8%	2,456
Leadership Education & Communication	6.7	3.5%	2,246
Environmental	5.9	3.1%	1,960
Food Products & Processing	7.1	3.7%	2,367
Power, Structure & Technology	18.9	9.8%	6,307
Natural Resources	3.1	1.6%	1,031
Plant	57.2	29.8%	19,100
Biotechnology	0.5	0.3%	165
Total SAE Interest	192		64,115

A large area of SAE involvement (44%) is in animal related projects, which is also the highest national area of involvement. In terms of state estimates, SAEs in California programs manage 64,115 SAE projects across all areas of AFNR content topics. Other SAE areas of involvement are listed in table 3.

Student experiential learning experiences involve the investment of time (hours), which is a core area of record keeping. Experiential learning in this study includes SAE, FFA and community service activities, which are illustrated in Table 4.

Table 4 Students Time Invested (Journal Hours)

Descriptive Area	State Average (Per Program, n=275)	%	State Total (Estimate, N=334)
Total Journal Hours in SAE Projects	11,839	78.0%	3,954,219
Total Journal Hours in FFA Activities (Activities, Offices, CDEs)	2,529	16.7%	844,690
Total Journal Hours in Community Service Activities	803	5.3%	268,301
Total Hours	15,171		5,067,210

As shown in Table 4, the largest investment of time is in SAE projects (78%), followed by FFA activities (17%) and community service (5%), which are similar to national priorities of student investments of time. In total, California students in agricultural education are estimated to be spending over 5 million hours in experiential learning activities outside of the traditional classroom.

FFA involvement represents a range of different activities, which may include FFA conventions/camps/meetings, FFA offices and CDE involvement. FFA activities for 2017 are summarized in Table 5, which illustrates activities in FFA conventions/camps/meetings (86%) and CDEs (8%) are the greatest listing of FFA related activities, with other areas listed in Table 5. In total, California students are involved in 220,315 FFA related activities.

Table 5 Student FFA Activities by Common Areas of FFA Involvement

Descriptive Area	State Average (Per Program, n=275)	%	State Total (Estimate, N=334)
Other FFA-related Activities (Conventions, Camps, Meetings, etc.)	571	86%	190,556
FFA Office-related Activities	18	3%	6,008
CDE-related Journal Activities	56	8%	18,700
Committee-related Journal Activities	15	2%	5,052
Total FFA Activities	660		220,315

2017 Economic Values from SAE Engagement in Agricultural Education

SAE engagement involves not only time and learning, but sometimes financial investments. These financial values represent SAE related activities, which includes investments such as spending, new asset purchases and related income. These financial activities are impact values at the local and then corresponding state level, which provides values beyond the educational value of agricultural education.

SAE economic values can first be defined as SAE income, which provides students with financial resources they can use to begin their education or start a new business. SAE economic impact values also represent SAE

spending, which creates jobs, tax collections and encourages overall economic growth. Table 6 provides a summary of students' SAE earnings by category for a typical agricultural education program in California.

Table 6 Income Values from SAE Engagement in Agricultural Education Programs in 2017

Area of Economic SAE Income	Program Average (Per Program, n=275)	%	State Total (Estimate, N=334)
Paid Work Income	$27,735	19.6%	$9,263,482
SAE Related Labor Exchange	$2,270	1.6%	$758,125
Cash/Market Sale	$77,743	54.9%	$25,966,125
Stock Show Sale	$14,584	10.3%	$4,871,008
Award/Scholarship/Premium	$8,346	5.9%	$2,787,586
Research Funding	$468	0.3%	$156,243
Used at Home	$1,641	1.2%	$548,171
Rental Income	$8,757	6.2%	$2,925,004
Total Value	$141,544		$47,275,745

A typical program in California has students earning $141,544 in SAE related income, which state-wide is estimated to be over $47 million in total value. A core economic value of SAE projects is financial investments, such as operational expenses, which are the primary drivers of economic impact. Table 7 summarizes SAE investments in common areas of expenses.

Table 7 SAE Investments in Operating Expenses

Area of Economic Investing	Program Average (Per Program, n=275)	%	State Total (Estimate, N=334)
Inventory for Resale	$16,440	27.0%	$5,491,105
Feed	$13,811	22.7%	$4,612,853
Other	$9,843	16.2%	$3,287,419
Fertilizer/chemicals	$634	1.0%	$211,853
Rent	$7,220	11.9%	$2,411,448
Contract / Custom Hire	$5,271	8.7%	$1,760,491
Paid Work Expense	$703	1.2%	$234,660
Supplies	$3,404	5.6%	$1,136,810
Seed	$524	0.9%	$175,157
Fuel	$333	0.5%	$111,213
Entry Fees / Commissions	$902	1.5%	$301,202
Repairs/maintenance	$1,044	1.7%	$348,532
Veterinary medicine	$780	1.3%	$260,530
Total Value	$60,908		$20,343,271

The direct investment value of $60,908 per program and state estimate of over $20 million in direct spending from SAE activities are values that support local economies. California SAE program investment values are above the national average of $54,609. California agricultural education values are significant values that support the state's economy and likely local economies from SAE activities.

Not only are SAE direct investments (operating expenses) valuable, but related non-current investment of SAE machinery, breeding animals, buildings and other items are additional SAE values that support the local and state economies. In 2017, SAE related non-current items averaged $17,813 in spending value per program. This brings total SAE-related direct spending to $78,721 per program in California (SAE operations and SAE non-current items), which is illustrated in Table 8.

Table 8 Direct Investments and Economic Impact Values from SAE Engagement (n=275)

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	$60,908	$115,725
Non-Current Asset Purchases	$17,813	$33,845
Total Value	$78,721	$149,570

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

Direct spending is an important indicator, but additional impacts can be measured using economic multiplier factors ($1.90 per $1 in spending IMPLAN Type II Multiplier). In 2017, SAE spending (operations and non-current) created an economic impact value of $149,570 in local economies, which supports other job creation and values to other industries. Table 8 provides a summary of agricultural education program economic values (direct spending and economic value).

Economic values from agricultural education programs with SAE activities develop economic values to a state's economy through SAE investments and their related impacts, which is detailed in Table 9 and represents the entire state of California.

Table 9 State Direct Investments and Economic Impact Values from SAE Engagement (N=334)

Area of Economic Activities (SAE Investments)	State SAE Direct Spending	State Economic Value[1] (IMPLAN 1.90, Type II)
Total Operating SAE Expenses	$20,343,271	$38,652,216
Non-Current Asset Purchases	$5,949,547	$11,304,140
Total Value	$26,292,819	$49,956,356

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

In 2017, SAE direct investments (spending) are $26.3 million in state SAE spending and nearly $50 million in economic values, which is an important economic value to the state and associated local economies and creates jobs, supports businesses and builds communities.