YEARLY PLANNING DISCUSSION TEMPLATE
General Questions

Program Name __Agriculture_____**Academic Year** _2024-2025_____

1. **Has your program mission or primary function changed in the last year?**

Although the fundamental mission of the Agriculture program remains true to its original goal of effectively preparing students for both transfer and workforce entry in the diverse sectors of the agriculture industry, the scope of the program must regularly pivot to adapt to the frequent changes in the industry and to address the ever emerging scientific and technological advancements that will keep the program relevant from year to year. The current program offerings in Agriculture, Agricultural Science, Agricultural Plant Science, Agricultural Business, Crop Protection, and Pest Control Adviser Preparation will remain cornerstones of this program. However, an expansion of the program offerings to include precision/mechanized/automated agriculture and food safety will be imperative to keep the program viable and relevant.

Another expansion of the program mission is to increase access to the courses therein. The second cohort of students at the Lompoc Federal Penitentiary have now completed the Agriculture certificate program and the courses continue to enjoy consistent interest among the inmate population. Additionally, there is a likelihood that the Agriculture program will begin offering classes in Guadalupe beginning with AG 150 Introduction to Agribusiness in Fall 2025. These two pathways for students outside of the main Santa Maria Campus reflect the mission of the college and the Agriculture program to remove barriers for our community of learners.

2. **Were there any noteworthy changes to the program over the past year? (eg, new courses, degrees, certificates, articulation agreements)**

There were certain courses that had been created specifically for students wishing to qualify to take the Pest Control Adviser (PCA) licensing exam per recommendations from industry partners and the California Association of PCAs (CAPCA) local governing board. These classes, while important for the cohorts of students not seeking transfer but wanting to qualify to take the PCA exam, had a narrow scope of enrollees, particularly because they are upper division courses at the university level and therefore do not articulate for transfer students. Following several years of low enrollment in these classes (AG 162 Agricultural Plant Pathology, AG 163 Economic Entomology, and AG 164 Weed Science), a recommendation was made by the Agriculture Advisory Committee to develop a new course that combined the essential lecture and lab components of these classes, considering specifically the knowledge content required to pass the PCA exam. This class has now been developed: AG 166 Crop Protection, which is a 4-unit lecture/lab class and will appear in the 2026-2027 catalog. AG 162, AG 163, and AG 164 will begin the process of deactivation in the coming academic year. The shift from these three lecture/lab courses to the single new lecture/lab course also created a need to modify the two certificate programs to which they contributed: Agricultural Pest Control Adviser Preparation (1 of 2): Crop Protection and Agricultural Pest Control Adviser Preparation (2 of 2): Production Systems. These modifications have been made and are in the early stages of AP&P approval. The new program requirements will be:

Agricultural Pest Control Adviser Preparation (1 of 2): Crop Protection - Certificate of Achievement
A minimum of 21 units in the major is required for the certificate.

Required core courses 21 units:		
AG 125	Introduction to Soil Science	4.0
AG 130	Integrated Pest Management	4.0
AG 149	Work Experience Education	1.0
AG 161	Crop Protection	4.0
AG 166	Introduction to Plant Science	4.0
BIOL 100	Introductory Biology	4.0

Agricultural Pest Control Adviser Preparation (2 of 2): Production Systems - Certificate of Achievement
A minimum of 21 units in the major is required for the certificate.

Required core courses 15 units:		
AG 126	Fertilizers & Plant Nutrition	4.0
AG 149	Work Experience Education	2.0
AG 153	Introduction to Sustainable Agriculture	3.0
AG 165	Qualified Applicator Training	2.0
CHEM 120	Introductory Chemistry	4.0

Plus a minimum of 6 units selected from the following:		
AG 154	Introduction to Fruit Science	3.0
AG 156	Intro to Environmental Horticulture	3.0
AG 160	Plant Propagation and Production	3.0
AG 190	Agriculture Production Enterprise, Fall-Winter	2.0
AG 191	Agriculture Production Enterprise, Spring	2.0
AG 192	Agriculture Production Enterprise, Summer	2.0
VEN 102	Introduction to Viticulture	3.0

In addition to these course and program changes, there are new articulation agreements approved and others currently under consideration. AG 158 Agricultural Economics was approved at Lompoc High School and AG 157 Agriculture Sales, Communication, and Leadership was approved at Santa Maria High School. Proposals from Cuyama High School and Maple High School for new concurrent courses are under review.

3. **Is your two-year program map in place and were there any challenges maintaining the planned schedule?**

The program maps for all Agriculture program degrees and certificates have all been established and are published on the Agriculture program web page:
https://www.hancockcollege.edu/pathways/sciences-technologies/agriculture.php
The challenges to maintaining the planned schedule are found in the cancellation of classes due to low enrollment. While most of the courses in the program enjoy adequate, even sometimes robust enrollment, there are some that struggle to meet minimum enrollment requirements. These issues are mitigated by offering some of those elective classes on an every-other-year basis, which appears to be helpful in maintaining sufficient enrollment.

4. **Were there any staffing changes?**

There have not been any staffing changes, although additional part-time faculty are currently under review to fill the new AG 150 class in Guadalupe and a second section of AG 161 Introduction to Plant Science for Fall 2025.

5. **What were your program successes in your area of focus last year?**

The area of focus for the 2023-2024 academic year was Innovative Scheduling. The results of a comprehensive survey sent to all agriculture students showed that 93% of respondents were either very satisfied or somewhat satisfied with the current schedule for their major courses. Respondents included nearly equal representation from Agricultural Science (30%), Agricultural Business (27%), and Plant Science (25%) majors along with 10% in the Pest Control Adviser Preparation certificate program and 8% in other majors such as animal science and viticulture. The positive outcome of the area of focus was determining that the current scheduling system in the Agriculture program is largely successful in supporting student needs.

However, one of the unifying complaints that made program completion difficult, as reflected in the survey results, was insufficient course offerings during a specific semester. It was noted in the 2023-2024 program review that consideration of offering the courses with consistently high enrollment and oftentimes two sections (AG 125 Introduction to Soil Science, AG 152 Introduction to Animal Science, and AG 161 Introduction to Plant Science) as one section every semester rather than two sections only in one semester, could be a solution to student scheduling issues. When a class that is required for graduation and/or transfer is only offered one semester, this can impact students who are not able to take the class at the time offered during the semester it is offered – for instance student athletes who need a class that is only offered during the season of their sport or working students who need a class that is only offered during work hours in the season that is busiest at their place of employment. The limitation to this solution is the fact that many of the agriculture courses are taught by the only full-time agriculture faculty, who also is scheduled every semester to teach twice a week at the Lompoc Federal Prison while coordinating the Agriculture program. The reliance on several part-time faculty to teach the other sections and/or courses is limiting due to general lack of part-time faculty availability during the hours of their other job obligations. Therefore, faculty availability is problematic, as is classroom space and availability, to implementing changes in scheduling that might benefit students.

Learning Outcomes Assessment

a. Please summarize key results from this year's assessment.

With the decommissioning of learning assessment tool eLumen in 2019 and the active conversion to SPOL in 2022, the program learning outcomes (PLOs) for the Agriculture program were never converted to reflect the creation of the new Agriculture program and its split from the Viticulture and Enology program. The PLOs that were listed in SPOL for the Agriculture program were actually the PLOs for the Viticulture and Enology program and without a replacement for the AHC Research and Planning Analyst, the SPOL PLO entry remained irrelevant for the Agriculture program through the 2023-2024 review year. Unfortunately, this led to learning outcome data not being collected in recent years.

In mid-September the new analyst was finally able to remedy the PLOs in SPOL to accurately reflect those specific to the Agriculture program. Work has been done to complete learning outcome mapping within the SPOL platform and it is now ready for data entry. During the summer months of 2025, the program coordinator will refine the measures and criteria within the SPOL platform, with the guidance of the new analyst, so that spring 2025 semester data can be entered and the platform will be ready for fall 2025 and appropriate discussions and planning with part-time faculty.

b. Please summarize your reflections, analysis, and interpretation of the learning outcome assessment and data.

Given that this is the first semester data can be entered in SPOL for the Agriculture program, there is little to analyze or interpret. Additionally, with only one full-time faculty teaching agriculture classes and three part-time faculty during the spring semester, there is limited data on program learning outcomes because many of the PLOs are directly correlated with the courses taught by part-time faculty who are not adequately trained or prepared to collect learning outcomes and assess the level at which each class met or failed to meet the PLOs associated with their class(es). The program coordinator met with all part-time faculty at the beginning of the semester to give a brief introduction to learning assessment practices, but establishing best practices for assessing and collecting learning outcome data will require additional time and more comprehensive faculty training.

c. Please summarize recommendations and/or accolades that were made within the program/department. n/a – see previous comments
d. Please review and attach any *changes* to planning documentation, including PLO rubrics, associations, and cycles planning. n/a – see previous comments

Distance Education (DE) Modality Course Design Peer Review Update (Please attach documentation extracted from the *Rubric for Assessing Regular and Substantive Interaction in Distance Education Course*s)

Distance Education courses are not currently offered in the Agriculture program.

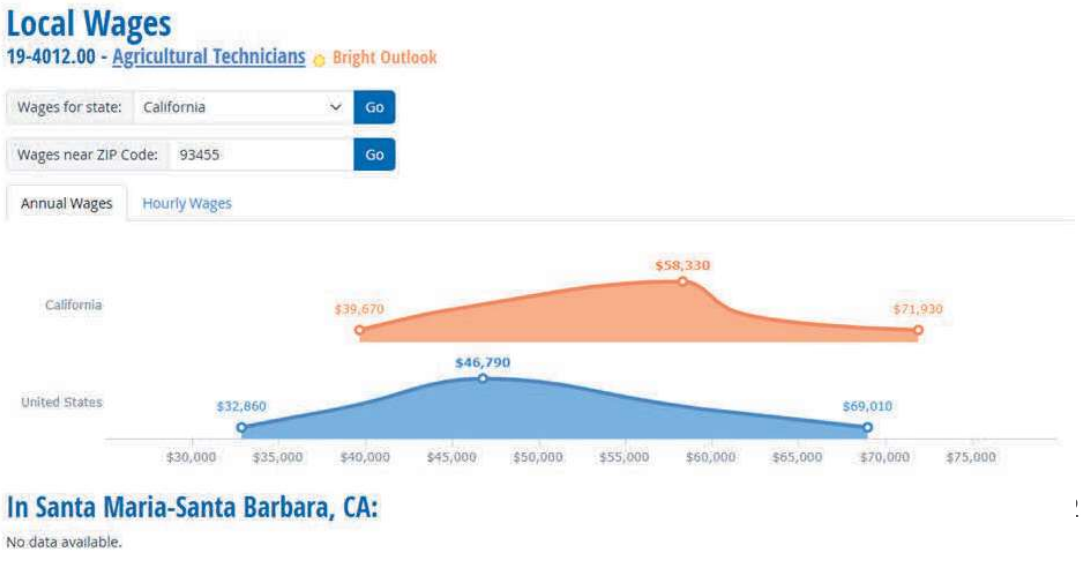
CTE two-year review of labor market data and pre-requisite review

a. Does the program meet documented labor market demand?

According to the State of California Employment Development Department (EDD), the number of annual job openings in Santa Barbara County for those with knowledge and skills in agricultural and food science, agricultural management, and farming supervision is estimated to be 5,230. The median annual wage earned by Farmers, Ranchers and Other Agricultural Managers is $132,925 and likewise, the median annual wage earned by soil and plant scientists is over $120,000. With respect to the employment opportunities in the state of California for Farmers, Ranchers, and Other Agricultural Managers; First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers, and Soil and Plant Scientists, there is expected to be 109,760 job openings annually with an mean annual wage earned of $91,790. There is an expected annual increase of 6.3% in job openings. The continued expansion of the AHC Agriculture program, guided by regional industry partner needs and recommendations, seeks to meet the documented and projected workforce needs. According to the Fall 2023 Occupational Overview Reports (see attached Lightcast Analysis documents), regional employment in all agricultural sectors is higher than the national average with "aggressive" job posting demand for most agricultural occupations.

There is a notable lack of preparation for students to enter into the rapidly emerging agriculture technology sector, which includes precision agriculture, automated technologies, robotics, GIS/GPS guided equipment, and mechanized agriculture. A lack of funding to support the development of this critical and rapidly expanding sector of the local industry is further impaired by the lack of adequate instructional space for program expansion. A recent agriculture advisory committee recommendation was to consider developing a partnership with a local business that works in the agriculture technology space for a potential hands-on lab application in the industry in light of the lack of on-campus space and equipment.

Wage and job outlook data for Santa Barbara County and California can be found in the following datasets from the State of California Employment Development Department, which clearly reflect the "bright outlook" for careers in multiple agriculture sectors and the higher-than-average wages for agriculture employees in both California and Santa Barbara County specifically:



Local Wages

19-1013.00 - Soil and Plant Scientists Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 93455 Go

Annual Wages | Hourly Wages

In Santa Maria-Santa Barbara, CA:

- Workers on average earn **$70,290**.
- 10% of workers earn **$42,690 or less**.
- 10% of workers earn **$153,080 or more**.

Local Wages

11-9013.00 - Farmers, Ranchers, and Other Agricultural Managers

Wages for state: California Go

Wages near ZIP Code: 93455 Go

Annual Wages | Hourly Wages

In Santa Maria-Santa Barbara, CA:

- Workers on average earn **$123,380**.
- 10% of workers earn **$80,670 or less**.
- 10% of workers earn **$177,540 or more**.

b. How does the program address needs that are not met by similar programs?

The AHC Agriculture program is the only program in the region to offer a pathway to qualifying to take the California Department of Pesticide Regulation Pest Control Advisor licensing exam without the need to earn a bachelor's degree. This unique opportunity provides students with an option for a career that is in extremely high demand and also is one of the highest paid agriculture positions available. This is particularly important for our returning and working adult students who are not in a position to transfer to a university. Additionally, the Plant Science, Agriculture, Agricultural Science, and Agricultural Business programs offer students curricular options that meet their specific area of interest and serve both to meet transfer requirements and workforce needs.

c. Does the employment, completion, and success data of students indicate program effectiveness and vitality? Please, explain.

See attached Perkins College Core Indicator Information for specific data. In reviewing the Core Indicator Report, it is noted that in Core 1 Postsecondary Retention & Placement, Allan Hancock College is exceeding the 92% performance goal. The AHC Agriculture program has dropped below the 89% performance goal for Core 2 Earned Postsecondary Credential to 81.4%. The AHC agriculture program sees a large number of students who transferred without earning an associate's degree from AHC, which likely skews this statistic. The AHC Agriculture program exceeds the Core 4 Employment performance goal of 73% by 13% at 86.21%. The most recent data available from AHC Institutional Effectiveness is for the 2023-2024 academic year shows that overall program retention is 95% and overall program success is 86%. These statistics indicate that the program is effective in its ability to ensure student success and completion.

d. Has the program met the Title 5 requirements to review course prerequisites, and advisories within the prescribed cycle of every 2 year for CTE programs and every 5 years for all others?

A recent review of advisories and prerequisites for courses within the Agriculture program is summarized in the table below (carries onto next page – a more complete table is found in the core topic section of this report):

Course	No Advisories or Prerequisites	Advisory(ies)	Prerequisite(s)
AG 100	X		
AG 116		GEOG 155	
AG 125		CHEM 120	
AG 126		AG 125	
AG 130			AG 161 or VEN 102

AG 150	X		
AG 152		BIOL 100	
AG 153	X		
AG 154	X		
AG 155	X		
AG 156	X		
AG 157	X		
AG 158	X		
AG 160			AG 161 or BIOL 154
AG 161		BIOL 100	
AG 165	X		
AG 166			AG 161 or AG 130 or BIOL 100
AG 190	X		
AG 191	X		
AG 192	X		

The one issue that was brought to the attention of the Agriculture program coordinator this year by an AHC academic counselor is that although the catalog reflects the fact that AG 160 Plant Propagation and Production has a prerequisite of either AG 161 Introduction to Plant Science *or* BIOL 154 General Botany, the class registration system was allowing students to register for AG 160 who had not met the prerequisite. Since registrations had already been allowed, it was decided to keep it open for spring 2025 and assess with the instructor at the end of the semester what impact the removal of the prerequisite might have. In evaluating the current course outcomes, it is recommended to retain the prerequisites as they are written in CurriQunet. The program coordinator will work with IT to ensure the system will honor the prerequisites for Spring 2026 registration.

All other advisories and prerequisites, or lack thereof, have been reviewed and deemed appropriate.

e. Have recommendations from the previous report been addressed?

The recommendations from the previous annual report have not been implemented, although the highest priority need is currently being addressed with the completion of a new classroom space in W-24 and a plan for a skills lab space in W-22, for use by the agriculture, viticulture & enology, and veterinary technology programs. This instructional space, however, only accommodates 28 students, so it is not adequate for double lectures or larger lecture classes such as AG 100 and AG 152.

The goals that are yet to be achieved are those that require additional funding and support, such as:

- Improve and maintain the “living laboratory” student garden and fruit orchard to create an effective environment where agriculture students can participate in valuable experiential learning activities.
- Hire a classified farm technician
- Partially being addressed: Establish a dedicated laboratory and classroom space for agriculture courses
- Establish a dedicated space for an “ag center” where students can collaborate, study, and gather with peers, tutors, and faculty.
- Expand on Produce Safety program to develop food safety curriculum
- Expand on other curricula as recommended by the AHC Agriculture Advisory Committee
- Improve agriculture part-time faculty program involvement and increase industry and university experiences to improve instruction and SLO assessment
- Use a “farm to table” model to increase collaboration between AHC agriculture, viticulture, enology, nutrition and culinary programs
- Establish a “Week of Discovery” to adequately welcome and prepare incoming agriculture students and their families

Use the tables below to fill in **NEW** resources and planning initiatives that **do not apply directly to core topics.** ***This section is only used if there are new planning initiatives and resources requested.***

Although these are not NEW resource requests, for continuity and ease of locating the program needs, they are being included again in this annual update.

Continuing **Program Planning Initiative**	
Title:	Enhancement of Student Instructional Space
Planning years:	2023-2024 to 2027-2028

Description:

The lack of dedicated instructional, storage, and meeting space for the agriculture program limits the ability of faculty to make the best use of time, knowledge, and student engagement. The following resources address the need to enhance the foundations of the agriculture program: improvement of the "living laboratory" student farm (vegetable garden, fruit orchard, greenhouse, and vineyard), establishment of a dedicated classroom and laboratory, and creation of a student hub/center for gathering to study, work on projects, and engage with agriculture program students and faculty.

Resources:

Priority Level: Low Medium **High**
Resource Type: Equipment **Staff** Faculty Supplies and Materials
Description: A full-time student farm technician would be responsible for maintaining all aspects of the student farm living laboratory. This would include planting, weeding, irrigation, germination, harvest, repairs, and supplies and equipment maintenance and inventory in the greenhouse, fruit orchard, vegetable garden, and occasionally in the vineyard. A dedicated staffing position will adequately manage the operational needs of the student farm. A farm technician is essential for the maintenance of this valuable living laboratory learning space. Students consistently experience improved learning outcomes when they have access to a well-maintained farm lab space. At the very minimum, a professional irrigation contractor should be hired to modernize and repair the irrigation in all areas of the student farm: the fruit orchard, the community garden space, and the greenhouse.

Resources:

Priority Level: Low **Medium** High
Resource Type: **Equipment** **Staff** Faculty **Supplies and Materials**
Description: Establishment of formal, seasonal agricultural production enterprise projects on the AHC student farm to be managed by a student worker dedicated to assisting the Student Farm Technician. Supplies to include, but not limited to: potting mix, soil amendments, seeds, plants, irrigation supplies, tools, gloves, compost and BEAM building supplies, flags, plant tags, organic pest management materials, applicator equipment, and pest identification tools.

Resources:

Priority Level: Low Medium **High**
Resource Type: **Equipment** Staff Faculty **Supplies and Materials**
Description: Establish a dedicated laboratory, classroom, storage, and meeting space for agriculture courses and students. An area that can be designated as an "ag center" on campus would serve to alleviate scheduling conflicts and issues finding lecture/lab space. The current system finds the agriculture courses interfering with the classroom and lab space needs of the other programs in the department and prevents agriculture students from having an identified place to work, study, attend lectures and labs, and gather with peers, tutors, and faculty. An agriculture program "center" should include at least one dedicated wet laboratory complete with a full set of microscopes, storage capacity, and the many tools and supplies needed for plant science, plant pathology, entomology, weed science, animal science, soil science, plant propagation, horticulture, integrated pest management, and fruit science. This includes, but is not limited to: a fume hood, incubator, refrigerator/freezer, petri dishes, agar, gas chromatograph mass spectrometer. Additionally, the center should include at least one lecture classroom with all standard classroom technology. A study and meeting space is also essential for student collaboration, studying, tutoring, peer engagement, club meetings, and faculty interaction with students.

Continuing **Program Planning Initiative**	
Title:	Industry-relevant and Transfer-preparation Curriculum Development
Planning years:	2023-2024 to 2026-2027

Description:

The agriculture industry is constantly on the forefront of emerging technologies and adoption of new practices, techniques, and approaches to adapt to changing consumer demands, increasing laws and regulations, advanced technologies, natural resource conservation, and the health and safety of the consumer. Due to these qualities of the industry, higher education technical training and academic preparation must be regularly updated to adequately prepare students for success. The following resources will serve to address curriculum development needs to maintain the agriculture program at the leading edge of agricultural advancements.

Resources:

Priority Level: Low Medium **High**
Resource Type: **Equipment** Staff **Faculty** **Supplies and Materials**
Description: Complete the development of the precision ag program and consider integration or alignment with the AHC industrial technology program to establish ag machining, engineering, geospatial technology, and automation curriculum. With rapidly emerging advanced technologies to support agriculture production, such as engineering, manufacturing, operating, diagnosing, and repairing autonomous and precision equipment, there is a significant workforce gap for skilled technical employees. The completion of these programs will require faculty research, industry collaboration, curriculum development, and the purchase of supplies and equipment required for adequate instruction. Student drones, GIS/GPS software and devices, water/weather/soil moisture/evapotranspiration monitors, and related software will all be required for the effective implementation of the precision agriculture program. Equipment and supplies needed for revitalizing the current AHC Mechanized Agriculture course include: woodworking, metal, concrete, electrical, and plumbing tools and equipment for broad workforce training, including table saw, drill press, miter saw, and concrete mixer.

Resources:

Priority Level: Low **Medium** High
Resource Type: **Equipment** Staff **Faculty** **Supplies and Materials**
Description: Expand on the produce safety program that was initiated through a collaboration with Cal Poly State University, funded by a USDA FSOP grant to develop a comprehensive food safety curriculum. Under federal food safety regulations, all farms that produce commodities covered under the FSMA Produce Safety Rule are required to have at least one employee trained via a curriculum that is FDA approved for produce safety. In order to meet this significant industry need and provide students with preparation for this career pathway, a formal produce safety course and food safety certificate program are recommended. The addition of this program would further serve to prepare the AHC student farm for expansion of produce sales on a larger scale. Equipment and supplies will be required for microbial detection on plant tissues and in soil and water samples along with pH analysis, cleaning and sanitizing of all produce contact tools and surfaces. Faculty time for research and curriculum development will also be necessary.

Resources:

Priority Level: Low **Medium** High
Resource Type: **Equipment** Staff **Faculty** **Supplies and Materials**
Description: Per the recommendations of the AHC Agriculture Program Advisory Committee, exploration of new curricular concepts should include: agriculture laws & regulations, natural resource management, certified crop adviser preparation, greenhouse technician and grower training, regenerative/sustainable/organic production preparation, and agriculture biotechnology. Faculty time for research and curriculum development will serve to identify industry needs and university articulation potential. Equipment and supplies required will be determined based on the content of the recommended courses.

***Continuing* Program Planning Initiative**	
Title:	Field to Table Interdisciplinary Collaborations
Planning years:	2024-2025 to 2026-2027

Description:

Given the significant shift in the agriculture industry toward increasing small, diversified farming operations and USDA support of the "farm to table" model that uses an interdisciplinary, cross-industry approach to close the gap in the food system between producer and consumer, it is valuable to expose students to the many ways in which such collaborations can lead to successful career opportunities. As such, the continued support of the AHC Field to Table Week of Welcome event and an expansion of collaborative food systems projects between the Agriculture, Viticulture & Enology, Food Science & Nutrition, and Culinary Arts & Management programs is an essential component of a successful agriculture program at AHC. Additional partnerships with the AHC Fashion Studies program for the production and study of natural fibers and plant-based dyes will provide a cross-disciplinary and relevant opportunity for students in the Agriculture program.

Resources:

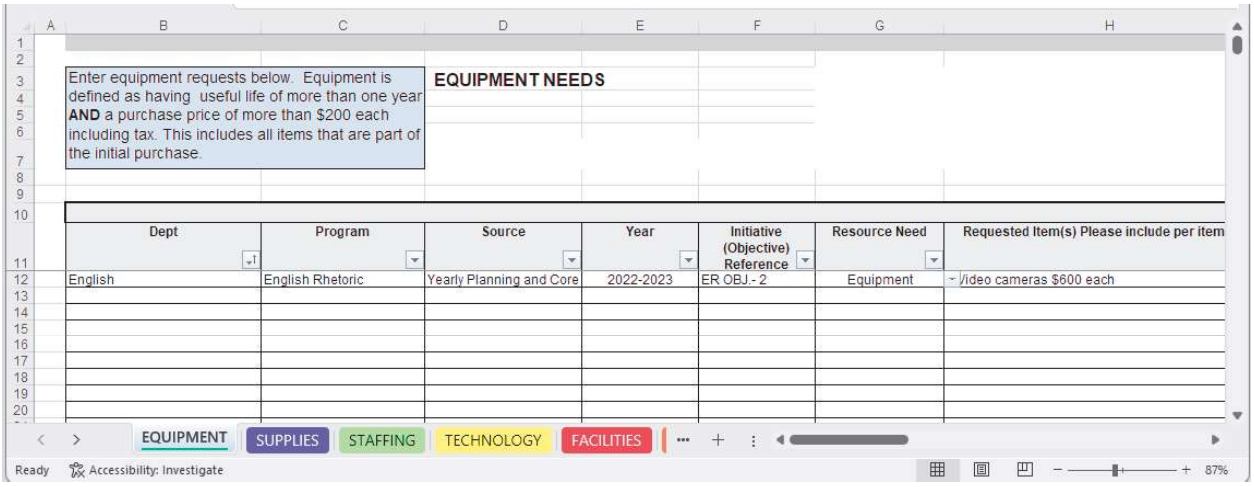
Priority Level: Low **Medium** High
Resource Type: **Equipment** **Staff** **Faculty** **Supplies and Materials**
Quantity: n/a
Per Item Price: unknown **Price with taxes/shipping, etc:**
Description: Farm to Table interdisciplinary collaborations bring together students and faculty from the Agriculture, Viticulture & Enology, Culinary Arts & Management, and Food Science & Nutrition programs to plant, maintain, harvest, prepare, cook, and distribute student-grown produce from the AHC student farm. This program is in its infancy and has the potential to serve the broader AHC community with farm-fresh, student-grown, organic produce while providing involved students with industry-relevant collaborative experiences. To impart effective and impactful grassroots campus food systems change, this program will require funding to support classified staff and faculty, student farm equipment and supplies that include but are not limited to a modernized greenhouse for soilless and various media fruit, vegetable, and flower production, automated greenhouse controls, computerized irrigation, temperature management along with related and required computer programs, and all potting, irrigation, fertilizer, and pest management supplies.

Resources:

Priority Level: **Low** Medium High
Resource Type: Equipment **Staff** **Faculty** **Supplies and Materials**
Quantity: n/a
Per Item Price: $10,000 **Price with taxes/shipping, etc:**

Description: The Field to Table Week of Welcome event has been a successful event since its inception in 2019. Incoming students in any of the "Field to Table" disciplines (agriculture, viticulture & enology, culinary arts & management, or food science & nutrition), are encouraged to join a collaboration among these programs through an intimate "Week of Welcome" experience. This 2 to 3-day event offers an introduction to the campus, program resources such as the student farm, vineyard, winery, culinary kitchen, and food science lab; the program coordinators, full-time faculty, and part-time faculty; and student services counselors. This initial welcome introduces students to the resources they will need to ensure success at AHC and beyond, including a student panel of program alumni. The support offered by the Field to Table Week of Welcome is holistic in its approach to acknowledge and encourage the whole person – academic, social, emotional, and cultural values. A relevant Field to Table industry tour day is a highlight of the event, connecting students in these disciplines with local businesses participating in sustainable food systems. This valuable event provides incoming students in any of the connected Field to Table disciplines with the formative opportunity to prepare for entrance into AHC and connect with fellow incoming students. This event should continue to be hosted on an annual basis.

Resource Requests: Please use the Resource Request Excel template located on the Program Review web page to enter resource requests for equipment, supplies, staffing, facilities, and misc. resources needed. Send completed excel document along with completed program view core topic for signature.



Enter equipment requests below. Equipment is defined as having useful life of more than one year **AND** a purchase price of more than $200 each including tax. This includes all items that are part of the initial purchase.

EQUIPMENT NEEDS

Dept	Program	Source	Year	Initiative (Objective) Reference	Resource Need	Requested Item(s) Please include per item
English	English Rhetoric	Yearly Planning and Core	2022-2023	ER OBJ.- 2	Equipment	Video cameras $600 each

Resources requests have been added to the Resource Request Excel template and will be submitted with the Program Review documents.

Area of Focus Discussion Template
CURRICULUM AND TEACHING DESIGN

Curriculum and Teaching Design analyzes currency of modalities, articulation, and industry needs. It includes content review, currency and relevance, accessibility, and equitable practices. Sample activities include the following:

Possible topics:

- Review courses and programs through an equity lens to assess access and success.
- Review prerequisites, corequisites, and advisories, and limitations on enrollment, modality, articulation and transfer, and units and time to completion. Is there disproportionate impact within certain demographic groups?
- Assess teaching practices, equipment, supplies, and materials, and technology (like homework, syllabus, text, videos, classroom technology, etc.)
- Assess and integrate program learning outcomes (PLO).

Summary

In considering this topic for program review, it became apparent that there are some datasets that could prove helpful if they were made available, but as of the time of this writing, they do not appear to be accessible:

a. It is difficult at best, and impossible for certain datasets, to disaggregate the data in the current dashboard from the concurrent enrollment courses taught at the high school (of which the Agriculture program has 26 separate sections, amounting to hundreds of students) from the courses taught within the context of the AHC on-campus Agriculture program. This skews the presented data in several ways:
    i. Enrollment numbers and major selection are not accurately representing those AHC students who have chosen an agriculture major and intend to complete a degree or certificate at AHC.
    ii. Retention and persistence data that include high school concurrent students may be influenced by the fact that those students might not take a concurrent class in the spring even if they successfully completed one in the fall – this could be because there is not a subsequent approved concurrent class in the high school spring semester or because the student never intended to continue in a high school Agriculture program.
    iii. Program completion data might be compromised because there may be students who do not end up in the Agriculture program at AHC but had declared an agriculture major during registration for their concurrent class.

b. There is ample evidence in published literature and consistent anecdotal evidence in multiple conversations the Agriculture program coordinator has with students in the program, that suggests the struggle in or failure of certain prerequisite courses or courses outside of the Agriculture program that are required for

transfer can contribute to a lack of persistence in the major. It would be helpful to analyze success rates of agriculture students in non-agriculture required courses so that trouble areas could be identified and additional student support could be offered. For example, both plant science and animal science students are required to take a series of chemistry courses - a subject which many students find challenging. Failure in one of these required chemistry courses can contribute to failure in completing the Agriculture program or specific pathway the student selected. Collecting data for agriculture majors' success rates in transfer-required courses could provide valuable information that might improve retention, success, and completion.

1. What data were analyzed and what were the main conclusions?
    a. Course and Program Success, Retention, and Persistence
        i. In analyzing the success and retention rates for the overall Agriculture program and for individual agriculture courses, the following conclusions can be drawn given the 2023-2024 institutional data:
            - Overall program retention is 95% with an overall program success rate of 86% - both are higher than the average retention and success rates for the college as an institution, suggesting that practices leading to student success are generally employed in the program.
            - Overall program retention and success rates are nearly equal when disaggregated by gender and race, suggesting that there are no student populations disproportionately impacted in the program as a whole.
        ii. In analyzing the success and retention rates for the individual courses within the Agriculture program, the following conclusions can be drawn given the 2023-2024 institutional data:
            - AG 125 Introduction to Soil Science is the only class that appears to have a disproportionate impact on female students, with a retention rate of 79% and a success rate of 50%.
            - AG 100 Introduction to Agriculture Studies and Careers is the only class with a notable disproportionate impact on students who identify as Hispanic, with a retention rate of 81% and a success rate of 63%.
        iii. In analyzing the persistence of first-year students from fall to spring semester in the Agriculture program, the following conclusions can be drawn given the 2023-2024 institutional data:
            - The rate is nearly consistent with the overall institutional rate of 67% for both gender- and race-specific data.
            - There is a slightly higher persistence rate for both White and male students in the Agriculture program.
        iv. In analyzing time to degree completion for the multiple degrees within the Agriculture program, the following conclusions can be drawn given the 2023-2024 institutional data:
            - The time taken to earn any Agriculture degree is slightly longer for male students.

- The time taken to earn any Agriculture degree is slightly longer for White students.
- When the data is disaggregated by specific degree, the time taken to earn the degree does not show any disproportionate impact on minoritized student populations.

b. Textbook Materials/Conversion to OER
The Agriculture program received state funding this year to convert the entire program, with all of its courses, to Zero Textbook Cost (ZTC)/Online Educational Resources (OER). Part-time faculty, who are experts in their specific areas of the discipline, will work over the summer and fall with the program coordinator to effectively and adequately convert each course to ZTC/OER. AG 150 Introduction to Agribusiness, had a complete conversion to OER for Fall 2024. By Spring 2026 it is anticipated that all courses within the Agriculture program will be officially designated as ZTC/OER. This will remove financial barriers for students in classes that typically employ textbook requirements.

c. Program Learning Outcomes Assessment
As was previously noted in the program update, Program Learning Outcomes Assessment within the SPOL tool have been corrected for the first time since the inception of the Agriculture program and the assessment map was completed at the end of the Spring 2025 semester. Evaluation and assessment of PLOs for the courses within the Agriculture program will commence in Fall 2025 with entry of assessment data from Spring 2025 agriculture courses.

2. Based on the data analysis and looking through a lens of equity, what do you perceive as *challenges* with student success or access in your area of focus?

Although the Agriculture program generally provides equitable access to students, as is evidenced by the reviewed institutional data, it is the recommendation of the Sciences & Technologies Success Team, following suggestions from the Guided Pathways Initiative, to establish a cohort-based model for incoming program students to improve a sense of belongingness and establish rapport with faculty, current students, student clubs, and alumni. Providing a physical space for agriculture students to congregate will be an essential component of this "first-year experience". Both an improved student farm infrastructure and enhanced/additional classroom and

It will also be valuable to identify potential barriers to retention and success in the courses that were identified as having a disproportionate impact on either women or students of color. The instructors for both AG 100 Introduction to Agriculture Studies and Careers and AG 125 Introduction to Soil Science will use this data to explore ways of improving retention and success rates for the affected student populations. It is unclear from the current data if the one year of concern (2023-2024) is an anomaly or a pattern that must be addressed.

Furthermore, there exists a substantial concern with regard to the concurrent enrollment program (now called College and Career Access Pathways 'CCAP') in partnership with district high schools. These concerns have been brought to the attention of multiple administrative and faculty stakeholders and must be addressed to provide high school students with academic experiences that appropriately align with agriculture college courses. These concerns can be summarized as follows:

- Historically, a master's degree in Agricultural Education is considered to have met minimum qualifications for teaching courses in the Agriculture program. However, this lack of truly discipline-specific academic training coupled with a general lack of industry experience means that students who complete concurrent courses at the high school level are at risk of missing out on the same academic experience as the students who are taught by on-campus AHC faculty with master's degrees in specific disciplines with years of industry experience.
- There is a severe lack of oversight of concurrent enrollment courses at the high school. New concurrent enrollment instructors have one 50-minute classroom observation for the first two semesters of the agreement and then one 50-minute classroom observation every three years thereafter. This very brief visit to the classroom cannot provide adequate review of the content that is covered over the course of the semester. It is has been noted that some concurrent enrollment faculty are not teaching the content required by the course outline of record, but rather are teaching content as they always had prior to the concurrent enrollment agreement. This has proven problematic for incoming students who have not been provided with proper academic preparation.

3. What are your plans for change or *innovation*?

With support from the Sciences & Technologies Success Team, the Agriculture program intends to establish a "first-year experience" for incoming students to create an improved sense of connection and community for students in an agriculture major. Research suggests that students who feel a sense of belonging and have a support system in their peers and faculty will more likely to succeed in their classes and ultimately in program completion.

Additionally, the collection, entry, and analysis of learning assessment data for all agriculture courses will finally come to fruition and will provide greater insights for program faculty that can be utilized for improvement in course engagement, retention, and success.

Lastly, in order to address the aforementioned CCAP issues, the program coordinator will continue to advocate for improved third-party oversight of the course content, learning outcomes, rigor, and overall learning experiences within the concurrent enrolled agriculture courses. Consideration will be given to modify the minimum qualifications to exclude master's in education degrees and require discipline-specific master's degrees.

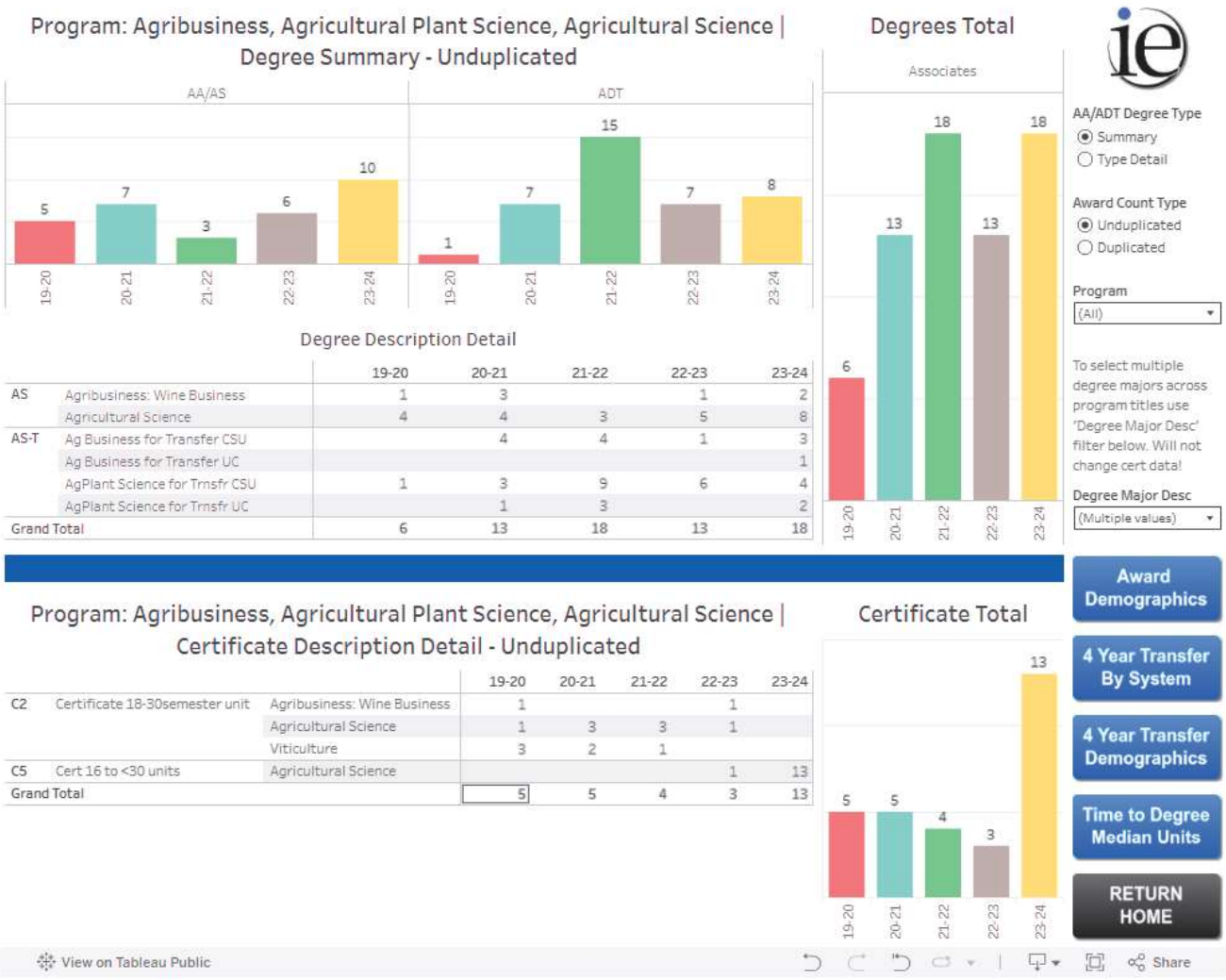
4. How will you *measure* the results of your plans to determine if they are successful?

Measurement of corrective action implementation success will include evaluation of institutional data to identify if disproportionate impacts have been resolved and to further assess program retention, success, and completion. Measurement of success for the other plans will be based on implementation of a first-year experience for agriculture students and the establishment of third-party oversight of the concurrent enrollment (CCAP) program with respect to agriculture courses.

5. What practices are used in your program's DE courses that support or demonstrate regular and substantive interaction? Not applicable: the Agriculture program does not include any Distance Education courses.

Validation for Program Planning Process: If you have chosen to do the Validation this year, please explain your process and the findings. Not applicable for 2024-2025

Program Data



Success & Retention

Success % | Retention %

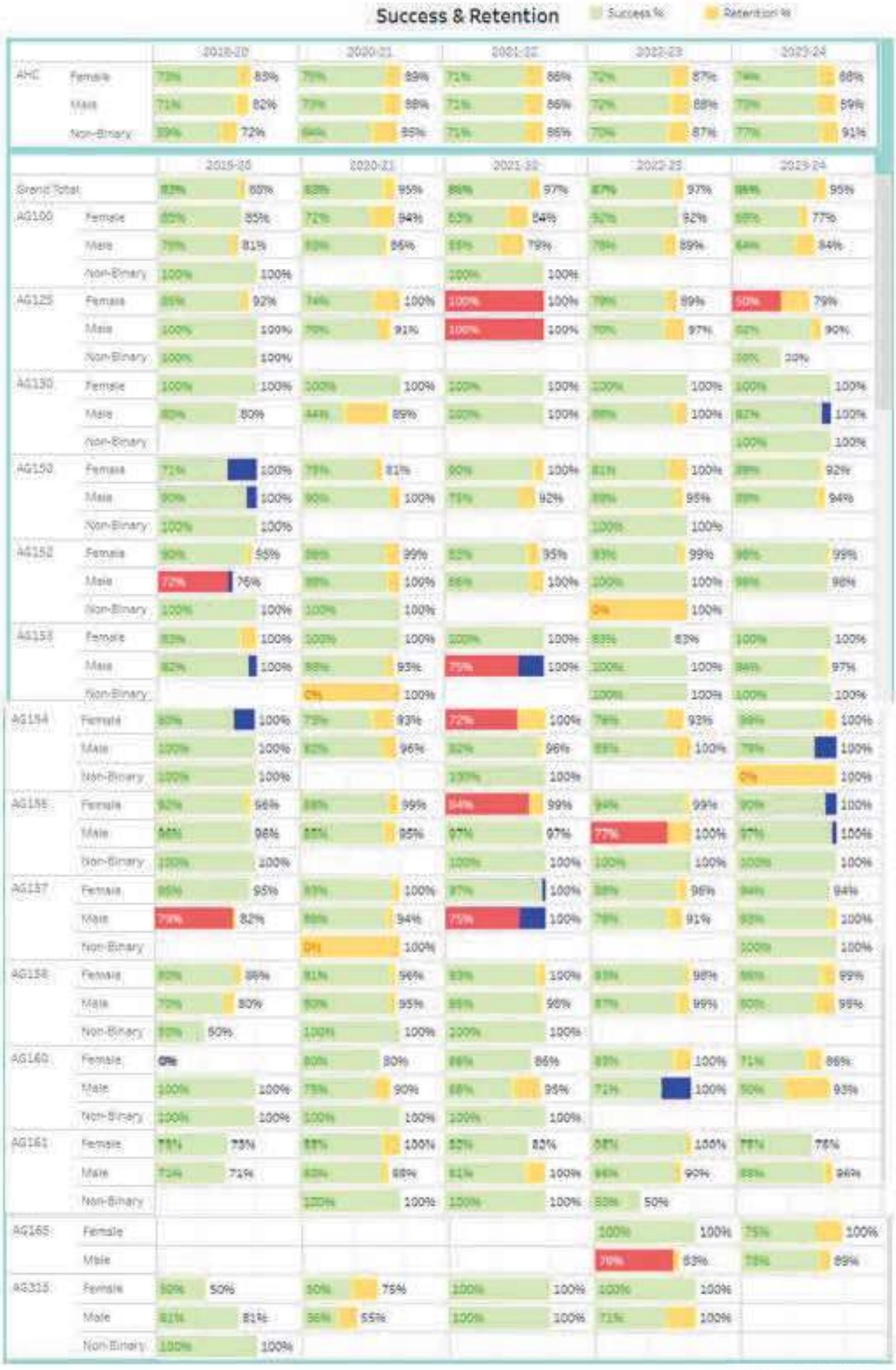
		2019-20		2020-21		2021-22		2022-23		2023-24	
AHC	ALL	72%	82%	74%	88%	71%	86%	72%	87%	74%	89%

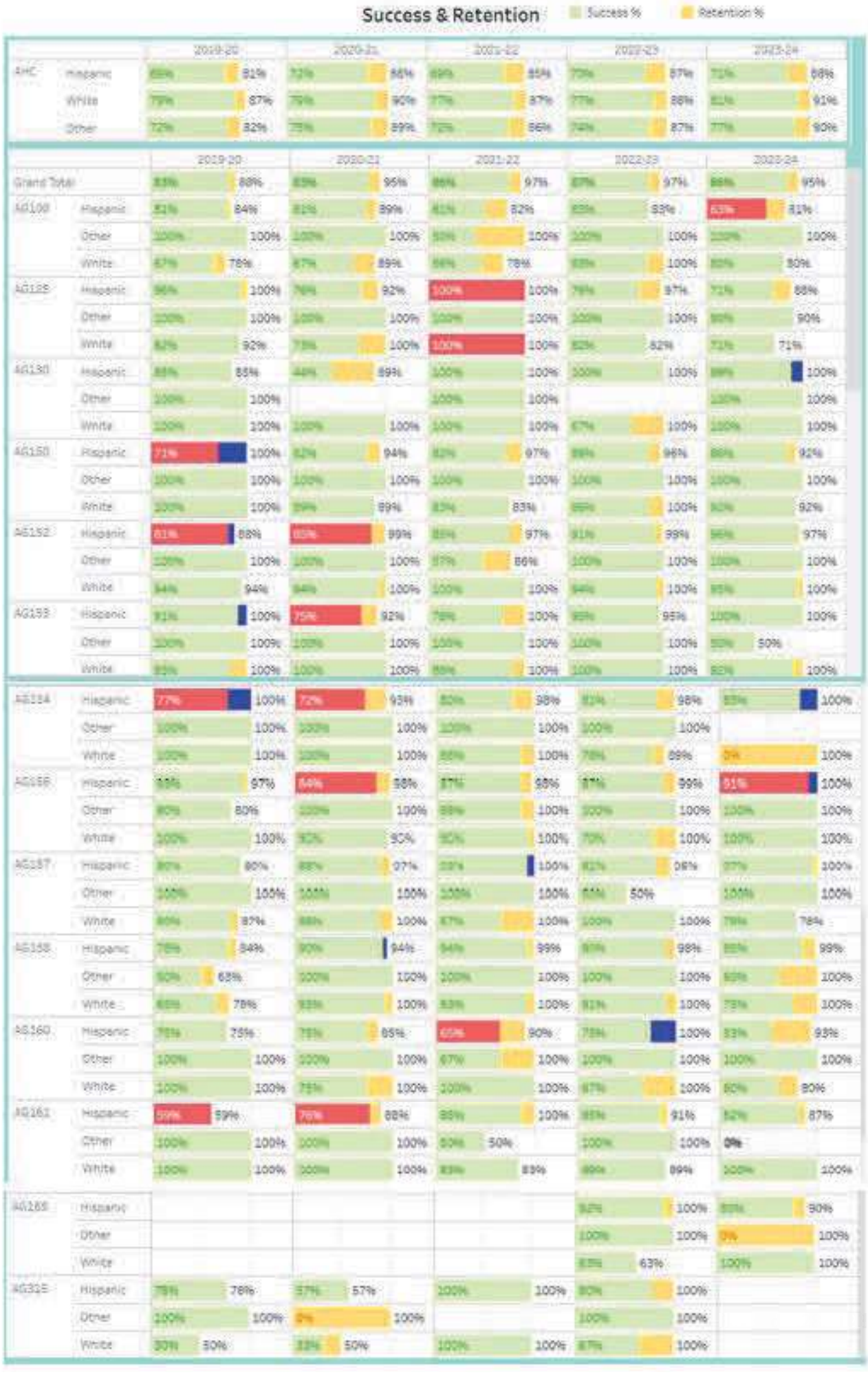
		2019-20		2020-21		2021-22		2022-23		2023-24	
Grand Total		83%	88%	83%	95%	86%	97%	87%	97%	86%	95%
AG100	ALL	79%	83%	79%	89%	59%	82%	86%	90%	66%	82%
AG125	ALL	95%	97%	76%	94%	100%	100%	78%	94%	74%	86%
AG130	ALL	87%	87%	55%	91%	100%	100%	89%	100%	93%	100%
AG150	ALL	83%	100%	84%	93%	82%	96%	87%	97%	88%	93%
AG152	ALL	85%	90%	87%	99%	85%	97%	93%	99%	96%	98%
AG153	ALL	89%	100%	84%	95%	83%	100%	97%	97%	96%	98%
AG154	ALL	87%	100%	78%	95%	82%	98%	81%	97%	79%	100%
AG156	ALL	94%	96%	87%	97%	88%	98%	87%	99%	93%	100%
AG157	ALL	88%	90%	89%	98%	90%	100%	83%	94%	93%	96%
AG158	ALL	75%	82%	91%	95%	94%	99%	91%	98%	84%	99%
AG160	ALL	89%	89%	77%	88%	75%	93%	74%	100%	57%	90%
AG161	ALL	72%	72%	83%	92%	82%	91%	88%	92%	83%	87%
AG315	ALL	76%	76%	40%	60%	100%	100%	78%	100%		

		2019-20		2020-21		2021-22		2022-23		2023-24	
TOTAL	ALL	83%	88%	83%	95%	86%	97%	87%	97%	86%	95%

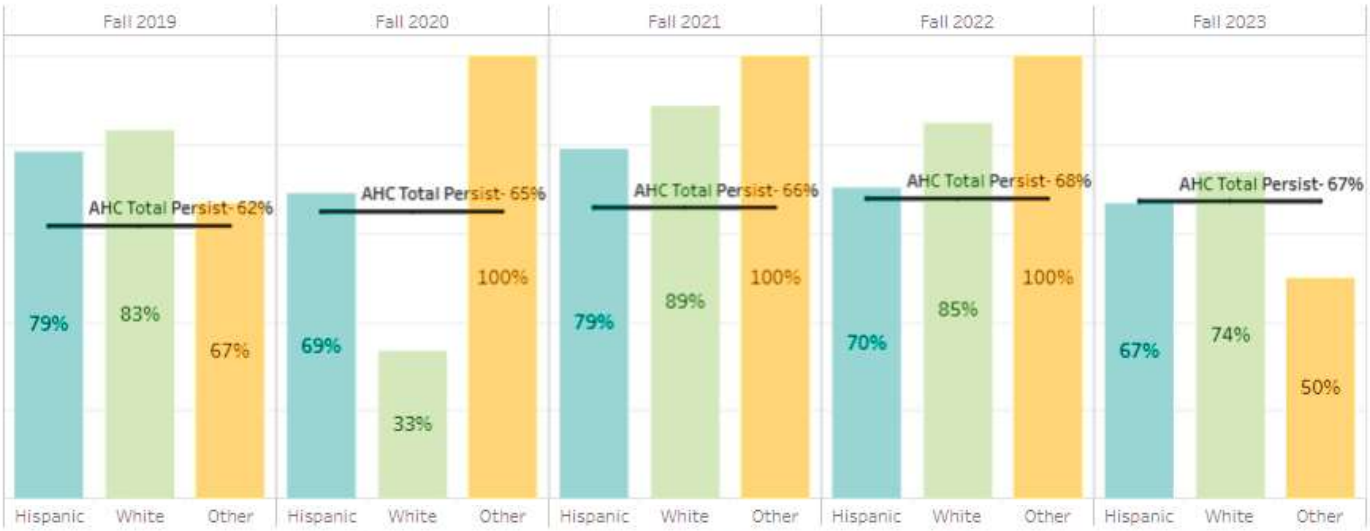
		2019-20		2020-21		2021-22		2022-23		2023-24	
TOTAL	Female	85%	91%	85%	96%	87%	97%	90%	97%	87%	95%
	Male	81%	86%	82%	93%	85%	96%	85%	97%	85%	95%
	Non-Binary	80%	80%	75%	100%	100%	100%	67%	89%	80%	90%

		2019-20		2020-21		2021-22		2022-23		2023-24	
TOTAL	Hispanic	82%	87%	82%	94%	86%	97%	86%	97%	86%	95%
	White	86%	91%	87%	95%	89%	96%	85%	94%	87%	93%
	Other	89%	91%	94%	100%	80%	93%	98%	98%	86%	94%


Success & Retention
Success %
Retention %
2018-20
2020-21
2021-22
2022-23
2023-24
AHC
Female
Male
Non-Binary
Grand Total
AG100
AG125
AG130
AG150
AG152
AG153
AG154
AG156
AG157
AG158
AG160
AG161
AG165
AG315

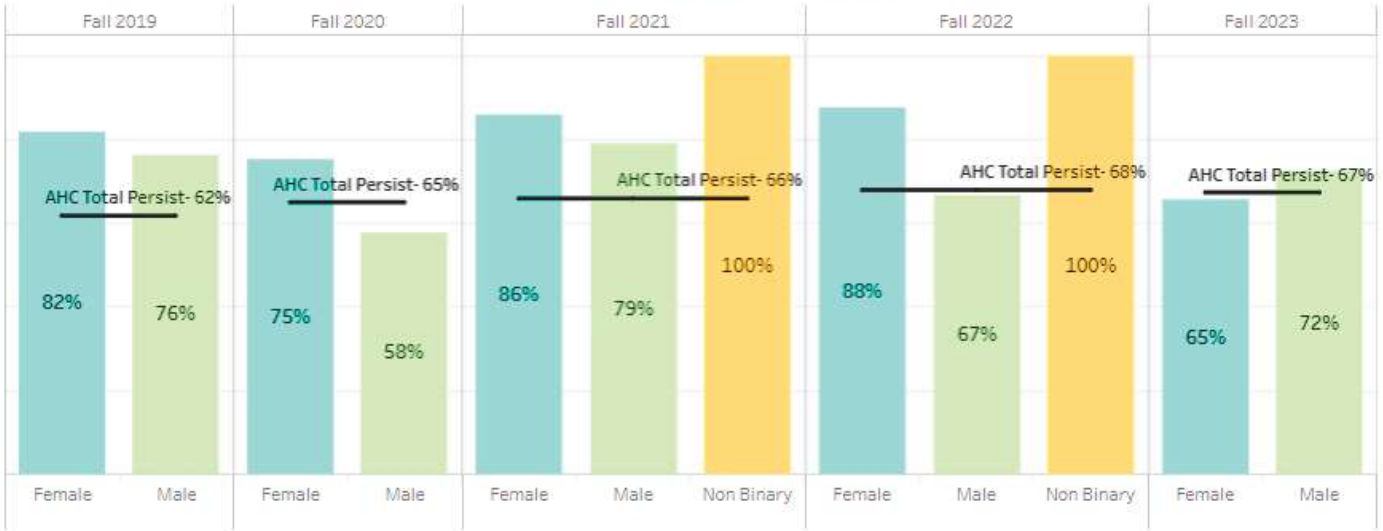

Success & Retention
Success %
Retention %
2019-20
2020-21
2021-22
2022-23
2023-24
AHC
Hispanic
White
Other
Grand Total
AG100
AG125
AG130
AG150
AG152
AG153
AG154
AG156
AG157
AG158
AG160
AG161
AG165
AG315

First time AHC students
Persistence % fall to spring



	Fall 2018				Fall 2019				Fall 2020				Fall 2021				Fall 2022			
	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact
Hispanic	7	4	57%		28	22	79%		42	29	69%		43	34	79%		37	26	70%	
White	6	2	33%		12	10	83%		12	4	33%	4	18	16	89%		20	17	85%	
Other					3	2	67%		7	7	100%		1	1	100%		1	1	100%	
Grand Total	13	6	46%		43	34	79%		61	40	66%		62	51	82%		58	44	76%	

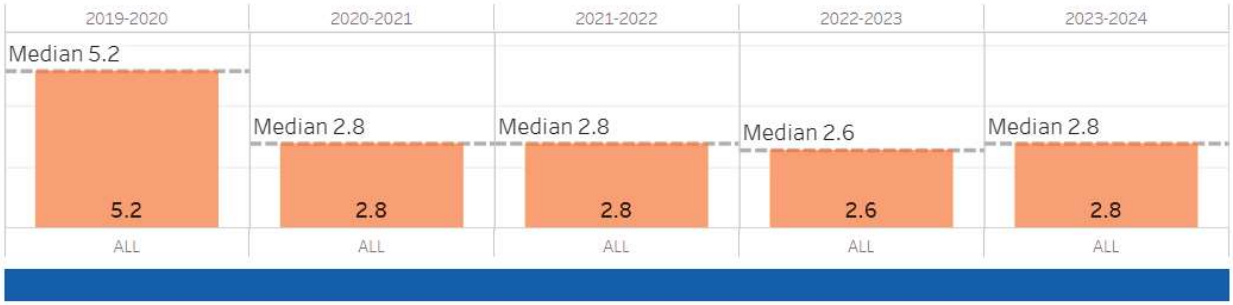
First time AHC students
Persistence % fall to spring



	Fall 2018				Fall 2019				Fall 2020				Fall 2021				Fall 2022			
	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact	HC	Persist #	Persist %	Impact
Female	7	3	43%		22	18	82%		28	21	75%		28	24	86%		24	21	88%	
Male	6	3	50%		21	16	76%		33	19	58%		33	26	79%		33	22	67%	
Non Binary													1	1	100%		1	1	100%	
Grand Total	13	6	46%		43	34	79%		61	40	66%		62	51	82%		58	44	76%	

Revised 8.28.2023

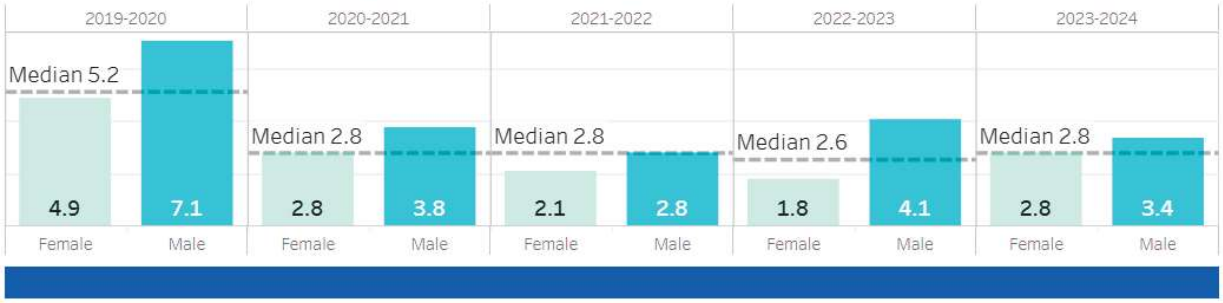
Time to Degree (TTD) in Years for FIRST Degree: Any Degree



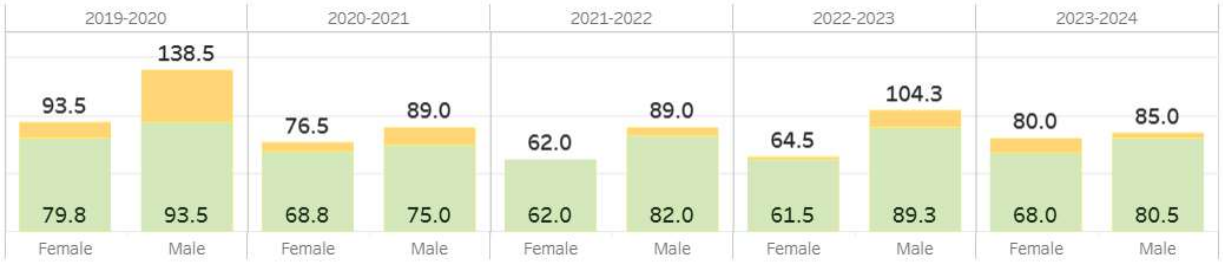
MEDIAN Units Attempted & Earned for FIRST Degree: Any Degree

	2019-2020				2020-2021				2021-2022				2022-2023				2023-2024			
	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn
ALL	10	5.2	106.5	90.0	17	2.8	83.3	71.8	15	2.8	89.0	75.0	16	2.6	75.0	69.0	17	2.8	84.8	74.3

Time to Degree (TTD) in Years for FIRST Degree: Any Degree



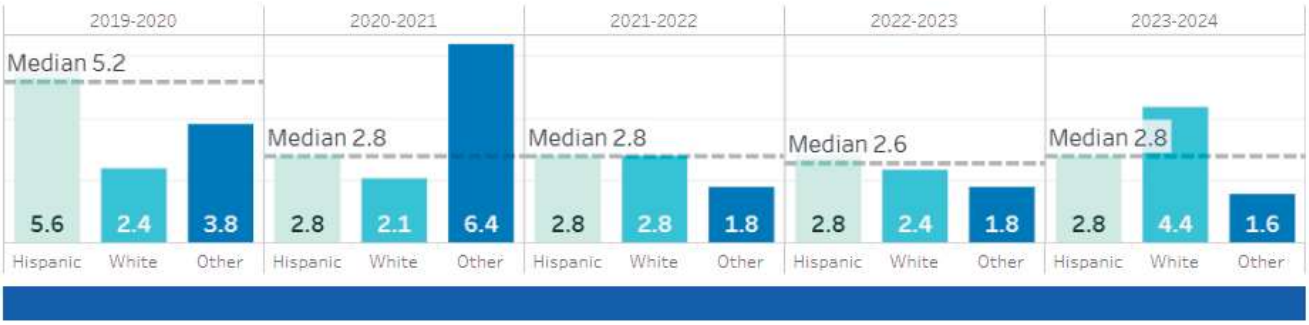
MEDIAN Units Attempted & Earned for FIRST Degree: Any Degree



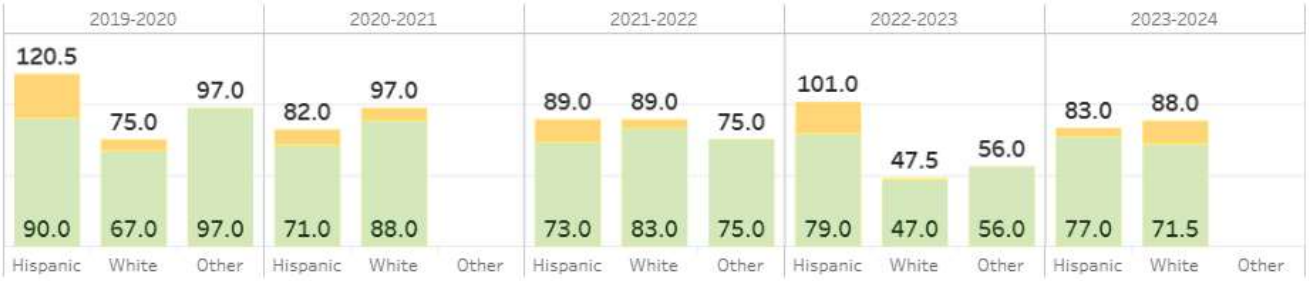
	2019-2020				2020-2021				2021-2022				2022-2023				2023-2024			
	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn
Female	6	4.9	93.5	79.8	7	2.8	76.5	68.8	4	2.1	62.0	62.0	10	1.8	64.5	61.5	5	2.8	80.0	68.0
Male	4	7.1	138.5	93.5	10	3.8	89.0	75.0	11	2.8	89.0	82.0	6	4.1	104.3	89.3	12	3.4	85.0	80.5

Revised 8.28.2023

Time to Degree (TTD) in Years for FIRST Degree: Any Degree



MEDIAN Units Attempted & Earned for FIRST Degree: Any Degree



	2019-2020				2020-2021				2021-2022				2022-2023				2023-2024			
	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn	HC	TTD	Att	Earn
Hispanic	8	5.6	120.5	90.0	14	2.8	82.0	71.0	11	2.8	89.0	73.0	12	2.8	101.0	79.0	13	2.8	83.0	77.0
NativeAm					1	6.4														
Two or More	1	3.8	97.0	97.0					1	1.8	75.0	75.0	1	1.8	56.0	56.0	1	1.6		
White	1	2.4	75.0	67.0	2	2.1	97.0	88.0	3	2.8	89.0	83.0	3	2.4	47.5	47.0	3	4.4	88.0	71.5

Appendix A: Current Course Prerequisite Status

Course Number	Course Title	Instructor	Advisory	Prerequisite
AG 100	Intro. Ag Studies & Careers	Erin Krier		
AG 116	Intro. Precision Ag	n/a	GEOG 155 – Intro. GIS with Lab	
AG/VEN 125	Intro. Soil Science	Rita Abi-Ghanem	CHEM 120 – Intro. Chemistry	
AG/VEN 126	Fertilizers & Plant Nutrition	Rita Abi-Ghanem	AG 125 – Intro. Soil Science	
AG/VEN 130	Integrated Pest Management	Alfredo Koch and Ric Fuller		VEN 102 – Intro. Viticulture *OR* AG 161 – Intro. Plant Science
AG 150	Intro. Agribusiness	Erin Krier		
AG 152	Intro. Animal Science	Erin Krier	BIOL 100 – Intro. Biology	
AG 153	Intro. Sustainable Ag	Erin Krier		
AG 154	Intro. Fruit Science	Miguel Guerra		
AG 156	Intro. Environmental Horticulture	Guillermo Guerra		
AG 157	Ag Sales, Communication & Leadership	Shehbaz Singh		
AG 158	Ag Economics	Shehbaz Singh		
AG 160	Plant Propagation & Production	Terry Vassey		*AG 161 – Intro. Plant Science *OR* BIOL 154 - General Botany
AG 161	Intro. Plant Science	Erin Krier	BIOL 100 – Intro. Biology	
AG 165	Qualified Applicator Training	Dennis Smith		
AG 166	Crop Protection	Casey Butler		AG 161 – Intro. Plant Science *OR* AG 130 - Integrated Pest Management *OR* BIOL 100 – Intro. Biology
AG 190-192	Ag Production Enterprise, fall/spring/summer	Erin Krier		

*Discrepancy noted in registration platform which is allowing students to register for AG 160 without taking the prerequisite course. Prerequisite was added in 2020 per the request of the instructor at that time who indicated that students who have not had AG 161 prior to AG 160 were not adequately prepared for the course content.

Appendix B: Current Course Articulation Status

Course Number	Course Title	Instructor	CSU	UC	GE
AG 100	Intro. Ag Studies & Careers	Erin Krier	X		
AG 116	Intro. Precision Ag	n/a	X		
AG/VEN 125	Intro. Soil Science	Rita Abi-Ghanem	X	X	
AG/VEN 126	Fertilizers & Plant Nutrition	Rita Abi-Ghanem	X		
AG/VEN 130	Integrated Pest Management	Alfredo Koch and Ric Fuller	X		
AG 150	Intro. Agribusiness	Erin Krier	X	X	
AG 152	Intro. Animal Science	Erin Krier	X	X	X
AG 153	Intro. Sustainable Ag	Erin Krier	X		
AG 154	Intro. Fruit Science	Miguel Guerra	X		
AG 156	Intro. Environmental Horticulture	Guillermo Guerra	X	X	
AG 157	Ag Sales, Communication & Leadership	Shehbaz Singh	X		
AG 158	Ag Economics	Shehbaz Singh	X	X	
AG 160	Plant Propagation & Production	Terry Vassey	X	X	
AG 161	Intro. Plant Science	Erin Krier	X	X	X
AG 165	Qualified Applicator Training	Dennis Smith	X		
AG 166	Crop Protection	Casey Butler	X		
AG 190-192	Ag Production Enterprise, fall/spring/summer	Erin Krier	X		

Appendix C: Program Status of Each Course

Course Number	Course Title	A.S. & Certificate Ag.	A.S. Ag. Science	A.S.T. Ag. Plant Science	A.S.T. Ag. Business	Certificate PCA Prep (1) Crop Protection	Certificate PCA (2) Prod. Systems
AG 100	Intro. Ag Studies & Careers						
AG 116	Intro. Precision Ag						
AG/VEN 125	Intro. Soil Science	X	X	X	X	X	
AG/VEN 126	Fertilizers & Plant Nutrition	elective					X
AG/VEN 130	Integrated Pest Management	X				X	
AG 150	Intro. Agribusiness	X			X		
AG 152	Intro. Animal Science	elective	X		elective		
AG 153	Intro. Sustainable Ag	elective					X
AG 154	Intro. Fruit Science	elective					elective
AG 156	Intro. Environmental Horticulture	elective					elective
AG 157	Ag Sales, Communication & Leadership	elective	X		elective		
AG 158	Ag Economics		X	X	X		
AG 160	Plant Propagation & Production	elective		X			elective
AG 161	Intro. Plant Science	X	X	X	elective	X	
AG 165	Qualified Applicator Training	elective					X
AG 166	Crop Protection	elective				X	
AG 190-192	Ag Production Enterprise						

Appendix D: SPOL Agriculture Program Map

Agriculture

Skill Level: I Introduced | D Developed | M Mastery | N Not Associated | A Not Applicable | 3 Introduced, Developed, Mastery | ID Introduced, Developed | IM Introduced, Mastery | DM Developed, Mastery | AN Associated No Attainment Level

Outcomes → / Courses	AGR.Bus1 Explain how economic principles relate to commodity marketing and sales in agriculture.	AGR.Bus2 Recognize and describe agricultural business organizational structures, functions of management and how they relate to the agribusiness organization.	AGR.Bus3 Develop an awareness of the basic laws, regulations, and regulatory agencies that interact with the agriculture community.	AGR.Bus4 Understand theoretical concepts and principles of economics applied to agricultural sciences.	AGR.Bus5 Demonstrate comprehension of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully raise horticultural crops.	AGR.PcaCP1 Identify plant pathogens, insects and weed species and assess the economic impact of pest infestations to determine the proper course of action for treatment and control.	AGR.PcaCP2 Utilize integrated pest management strategies and techniques to sustainably prevent and control pathogen, insect and weed populations.	AGR.PcaCP3 Demonstrate working knowledge of plant physiological processes that affect crop production.	AGR.PcaCP4 Demonstrate knowledge of pesticide modes of action and the biology of host-pest interactions in order to make effective and sustainable pest management decisions.
AG100			I						
AG125					ID				
AG126					DM				
AG130						M	M		DM
AG149									
AG150	ID	DM	D	I					
AG152			I						
AG153			I			I	ID		
AG154						I	I		
AG155									
AG156						I	I		
AG157	DM								
AG158				DM					
AG160					ID			DM	
AG161					I	ID	I	ID	I
AG162						M	M		M
AG163						M	M		M
AG164						M	M		M
AG189									
AG190						D	D		
AG191						M	D		

Outcomes ↦ ↧ Courses	AGR.PcaPS1 Use standard scientific procedures to answer questions related to the chemical and biological properties of agricultural products and materials.	AGR.PcaPS2 Utilize agronomic principles to identify issues in and solutions for agricultural production systems.	AGR.PcaPS3 Apply sustainable agricultural techniques to solve pest and nutrient issues in the agricultural system.	AGR.PcaPS4 Employ safety standards, calibration techniques, and laws and regulations to effectively prepare and apply crop protection materials for pest control.	AGR.PSci1 Apply current agricultural industry standards in the agricultural sciences or related fields.	AGR.PSci2 Assess and differentiate effects of agricultural activities in plant cropping systems.	AGR.PSci3 Employ effective business, sales, marketing, and communication skills when presented with an agribusiness or farm management situation.	AGR.PSci4 Analyze current market trends, costs, and inputs, to provide sustainable solutions in farming systems.	AGR.PSci5 Understand the importance, value, characteristics and physiology of higher plants.
AG100									
AG125	I	ID		ID	DM	D			
AG126	D	M	M	ID	M	DM			
AG130	M	D	D	I	3	DM			
AG149				ID					
AG150					ID		I	I	
AG152					I				
AG153	I	I	DM		ID	ID			I
AG154					I				ID
AG155									
AG156									ID
AG157					ID		DM	I	
AG158								DM	
AG160			DM		ID	DM			DM
AG161		I		I	I	ID			ID
AG162	DM	DM	D			M			
AG163	DM	DM	D			M	I		
AG164	DM	DM	D			M			M
AG189									
AG190				3	I	3			
AG191				3	I	3			

Outcomes ↦ / Courses ↧	AGR.Sci1 Demonstrate basic worker safety practices.	AGR.Sci2 Apply current agricultural industry standards, laws and regulations in the agricultural sciences or related fields.	AGR.Sci3 Employ effective business skills using industry analysis, market trends, business plans and other standard agribusiness techniques, when presented with a farm or ranch management situation.	AGR.Sci4 Demonstrate knowledge of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully produce agricultural crops.	AGR.Sci5 Identify common insect and disease pests and use knowledge of pest life cycles to recommend pest prevention and management plans.	AGR.Sci6 Demonstrate an understanding of crop plant biological functions and their application to successful commodity production.	AGR.Sci7 Assess and differentiate effects of agricultural activities in plant and cropping systems.	AGR1 Identify common insect and disease pests and use knowledge of pest life cycles to recommend pest prevention and management plans.	AGR2 Demonstrate an understanding of crop plant biological functions and their application to successful commodity production.
AG100		I							
AG125	I	ID		M			I		
AG126				M		I	D		
AG130	I			I	M		ID	M	
AG149									
AG150		ID	ID						
AG152		I							
AG153		I		D	ID	I	DM	I	
AG154					I	ID	ID	I	
AG155									
AG156					I	ID	ID	I	
AG157			I						
AG158			DM						
AG160	I			ID	D	D	ID		
AG161	I			ID	ID	ID	3	I	
AG162					M			M	
AG163					M			M	
AG164					M			M	
AG189									
AG190	3	I		ID	ID	I	I	ID	
AG191	3	I		ID	ID	I	I	ID	

Outcome Details By Program

Planning Year: 2024-2025 (Current)

Agriculture

Program Learning Outcomes (PLO)

A.S.T. Agricultural Business

AGR.Bus1 - Explain how economic principles relate to commodity marketing and sales in agriculture.

Includes analyzing agricultural production, food processing and retailing; and their influence on food marketing, considering factors that influence consumer choice.

Courses
AG 150, AG 157, AG 158

AGR.Bus2 - Recognize and describe agricultural business organizational structures, functions of management and how they relate to the agribusiness organization.

Includes identifying the role of the agricultural manager and recognizing various styles of leadership.

Courses
AG 150

AGR.Bus3 - Develop an awareness of the basic laws, regulations, and regulatory agencies that interact with the agriculture community.

Includes explaining the process and rationality for government regulations impacting businesses and the effect of regulations on market decisions.

Courses
AG 150

AGR.Bus4 - Understand theoretical concepts and principles of economics applied to agricultural sciences.

Includes how markets work, characteristics of divergent market structures, and the major determinants of supply and demand interaction. Additionally, demonstrating the ability to apply the appropriate monetary and fiscal policies to different phases of the business cycle.

Courses
AG 158

AGR.Bus5 - Demonstrate comprehension of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully raise horticultural crops.

Demonstrate comprehension of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully raise horticultural crops.

Courses
AG/VEN 125

*Certificate of Achievement Pest Control Adviser Preparation (1): Crop Protection *(OLD VERSION)*

AGR.PcaCP1 - Identify plant pathogens, insects and weed species and assess the economic impact of pest infestations to determine the proper course of action for treatment and control.

Courses
AG/VEN 130, AG 166

AGR.PcaCP2 - Utilize integrated pest management strategies and techniques to sustainably prevent and control pathogen, insect and weed populations.

Courses
AG/VEN 130

AGR.PcaCP3 - Demonstrate working knowledge of plant physiological processes that affect crop production.

Courses
AG 161

AGR.PcaCP4 - Demonstrate knowledge of pesticide modes of action and the biology of host-pest interactions in order to make effective and sustainable pest management decisions.

Demonstrate knowledge of pesticide modes of action and the biology of host-pest interactions in order to make effective and sustainable pest management decisions.

Courses
AG/VEN 130

Certificate of Achievement Pest Control Adviser Preparation (2): Production Systems

**(OLD VERSION)*

AGR.PcaPS1 - Use standard scientific procedures to answer questions related to the chemical and biological properties of agricultural products and materials.

Courses

AG 165

AGR.PcaPS2 - Utilize agronomic principles to identify issues in and solutions for agricultural production systems.

Courses
AG/VEN 126, AG 153

AGR.PcaPS3 - Apply sustainable agricultural techniques to solve pest and nutrient issues in the agricultural system.

Courses
AG/VEN 126, AG 153

AGR.PcaPS4 - Employ safety standards, calibration techniques, and laws and regulations to effectively prepare and apply crop protection materials for pest control.

Employ safety standards, calibration techniques, and laws and regulations to effectively prepare and apply crop protection materials for pest control.

Courses
AG 165

***OLD VERSIONS:** upon approval of the newly launched AG 166 course, the two PCA Preparation certificate coursework will change to reflect the consolidation of AG 162, AG 163, and AG 164 into the singular course AG 166. This will affect the specific courses that comprise each certificate and therefore the certificate learning objectives will be adjusted. However, the overall learning objectives for the two stackable certificate PCA Preparation program will remain unchanged.

A.S.T. Agricultural Plant Science

AGR.PSci1 - Apply current agricultural industry standards in the agricultural sciences or related fields.

Courses
AG/VEN 125, AG 158, AG 160, AG 161

AGR.PSci2 - Assess and differentiate effects of agricultural activities in plant cropping systems.

Includes describing alternative practices in order to make sound agricultural decisions that ensure the quality and success of a crop.

Courses
AG/VEN 125, AG 160, AG 161

AGR.PSci3 - Employ effective business, sales, marketing, and communication skills when presented with an agribusiness or farm management situation.

Courses
AG 158

AGR.PSci4 - Analyze current market trends, costs, and inputs, to provide sustainable solutions in farming systems.

Analyze current market trends, costs, and inputs, to provide sustainable solutions in farming systems.

Courses
AG 158

AGR.PSci5 - Understand the importance, value, characteristics and physiology of higher plants.

Understand the importance, value, characteristics and physiology of higher plants.

Courses
AG 160, AG 161

A.S. Agricultural Science

AGR.Sci1 - Demonstrate basic worker safety practices.

Courses
AG/VEN 125, AG 161

AGR.Sci2 - Apply current agricultural industry standards, laws and regulations in the agricultural sciences or related fields.

Courses
AG 158, AG 161

AGR.Sci3 - Employ effective business skills using industry analysis, market trends, business plans and other standard agribusiness techniques, when presented with a farm or ranch management situation.

Courses
AG 158

AGR.Sci4 - Demonstrate knowledge of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully produce agricultural crops.

Demonstrate knowledge of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully produce agricultural crops.

Courses

AG/VEN 125

AGR.Sci5 - Identify common insect and disease pests and use knowledge of pest life cycles to recommend pest prevention and management plans.

Identify common insect and disease pests and use knowledge of pest life cycles to recommend pest prevention and management plans.

Courses
AG 161

AGR.Sci6 - Demonstrate an understanding of crop plant biological functions and their application to successful commodity production.

Courses
AG/VEN 125, AG 161

AGR.Sci7 - Assess and differentiate effects of agricultural activities in plant and cropping systems.

Includes describing alternative practices to make sound agricultural decisions that ensure the quality and success of a crop.

Courses
AG/VEN 125, AG 161

A.S./Certificate of Achievement Agriculture

AGR1 - Identify common insect and disease pests and use knowledge of pest life cycles to recommend pest prevention and management plans.

Courses

AG/VEN 130, AG 153, AG 166

AGR2 - Demonstrate an understanding of crop plant biological functions and their application to successful commodity production.

Courses

AG 154, AG 156, AG 160, AG 161

AGR3 - Apply current agricultural industry standards, laws and regulations in the agricultural sciences or related fields.

Courses

AG 150, AG 165

AGR4 - Assess and differentiate effects of agricultural activities in plant and cropping systems.

Includes describing alternative practices in order to make sound agricultural decisions that ensure the quality and success of a crop.

Courses

AG/VEN 125, AG/VEN 126, AG 153, AG 154, AG 161

AGR5 - Employ effective business skills using industry analysis, market trends, business plans and other standard agribusiness techniques, when presented with a farm or ranch management situation.

Courses

AG 150, AG 157

AGR6 - Demonstrate knowledge of soils, fertilizers, plant nutrition, and current industry growing techniques and apply this understanding to successfully produce agricultural crops.

Courses
AG/VEN 125, AG/VEN 126

AGR7 - Demonstrate basic worker safety practices.

Courses
AG 165

PERKINS V Core Indicators of Performance by 2-digit Vocational TOP Code

Summary Detail Report for 2024-2025 Fiscal Year Planning

ALLAN HANCOCK COLLEGE

01 Agriculture and Natural Resources - Cohort Yr: 2021- 2022

	Core 1 Postsecondary Retention & Placement			Core 2 Earned Postsecondary Credential		
	Percent	Count	Total	Percent	Count	Total
Program Area Total	95.89	70	73	81.40	35	43
Female	100.00	37	37	75.00	18	24
Male	91.43	32	35	88.89	16	18
Black or African-American		0	0		0	0
American Indian/Alaskan Native		0	0		0	0
Asian		0	0		0	0
Filipino		0	0		0	0
Hispanic	97.62	41	42	75.00	21	28
Other Non-White		0	0		0	0
Multi-Ethnicity	100.00	1	1	100.00	1	1
Pacific Islander	100.00	1	1	100.00	1	1
White Non-Hispanic	92.86	26	28	91.67	11	12
Unknown	100.00	1	1	100.00	1	1
Individuals Preparing for Non-Traditional Fields	100.00	16	16	100.00	13	13
Out of Workforce Individuals	100.00	1	1		0	0
Individuals with Economically Disadvantaged Families	97.44	38	39	81.48	22	27
Single Parents	100.00	3	3	50.00	1	2
English Learners		0	0		0	0
Individuals with Disabilities	100.00	8	8	100.00	4	4
Technical Preparation		0	0		0	0
Homeless Individuals	100.00	1	1		0	0
Youth in Foster Care		0	0		0	0
Youth with Parent in Active Military		0	0		0	0
District	95.89	70	73	81.40	35	43
State	95.84	49,162	51,296	85.45	16,498	19,307

Source: CCCCO MIS Database, EDD Base Wage File, CSU Chancellor's Offce,
UC Office of the President, 2000 Census, Student Loan Clearing House

Report Create Date: 02/01/2010

PERKINS V Core Indicators of Performance by 2-digit Vocational TOP Code

Summary Detail Report for 2024-2025 Fiscal Year Planning

	Core 4 Employment			Core 3 Non-traditional Program Enrollment		
	Percent	Count	Total	Percent	Count	Total
Program Area Total	86.21	25	29	26.88	25	93
Female	94.74	18	19	46.15	24	52
Male	66.67	6	9	2.50	1	40
Black or African-American		0	0		0	0
American Indian/Alaskan Native		0	0		0	0
Asian		0	0		0	0
Filipino		0	0		0	0
Hispanic	88.89	16	18	25.45	14	55
Other Non-White		0	0		0	0
Multi-Ethnicity		0	0	33.33	1	3
Pacific Islander		0	0	0.00	0	1
White Non-Hispanic	81.82	9	11	28.13	9	32
Unknown		0	0	50.00	1	2
Individuals Preparing for Non-Traditional Fields	83.33	5	6	26.88	25	93
Out of Workforce Individuals		0	0	0.00	0	2
Individuals with Economically Disadvantaged Families	85.71	12	14	27.78	15	54
Single Parents	100.00	2	2	33.33	1	3
English Learners		0	0		0	0
Individuals with Disabilities		0	0	22.22	2	9
Technical Preparation		0	0		0	0
Homeless Individuals		0	0	0.00	0	2
Youth in Foster Care		0	0		0	0
Youth with Parent in Active Military		0	0		0	0
District	86.21	25	29	26.88	25	93
State	80.20	11,862	14,791	48.11	30,735	63,881

The DR notation indicates privacy requirements - EDD requires that counts less than six not be displayed.

Performance Rate Less Than Goal is Shaded

Core 1 - Postsecondary Retention & Placement: 92.00% Performance Goal - (2021- 2022)

Core 2 - Earned Postsecondary Credential: 89.60% Performance Goal - (2021- 2022)

Core 3 - Non-traditional Program Enrollment: Greater than 27.00% Participation - (2021- 2022)

Core 4 - Employment: 73.25% Performance Goal - (2021- 2022)

Source: CCCCO MIS Database, EDD Base Wage File, CSU Chancellor's Offce,
UC Office of the President, 2000 Census, Student Loan Clearing House

Report Create Date: 02/01/2010

Soil and Plant Scientists
in 2 California Counties

Contents

What is Lightcast Data?

Lightcast data is a hybrid dataset derived from official government sources such as the US Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics. Leveraging the unique strengths of each source, our data modeling team creates an authoritative dataset that captures more than 99% of all workers in the United States. This core offering is then enriched with data from online social profiles, resumés, and job postings to give you a complete view of the workforce.

Lightcast data is frequently cited in major publications such as *The Atlantic*, *Forbes*, *Harvard Business Review*, *The New York Times*, *The Wall Street Journal*, and *USA Today*.

Report Parameters

1 Occupation

19-1013	Soil and Plant Scientists

2 Counties

6079	San Luis Obispo County, CA	6083	Santa Barbara County, CA

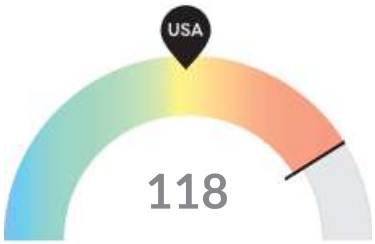
Class of Worker

QCEW Employees, Non-QCEW Employees, and Self-Employed

The information in this report pertains to the chosen occupation and geographical areas.

Executive Summary

Aggressive Job Posting Demand Over a Deep Supply of Regional Jobs



Jobs (2023)

Your area is a hotspot for this kind of job. The national average for an area this size is 47* employees, while there are 118 here.

Compensation

Earnings are high in your area. The national median salary for Soil and Plant Scientists is $66,134, compared to $77,408 here.

Job Posting Demand

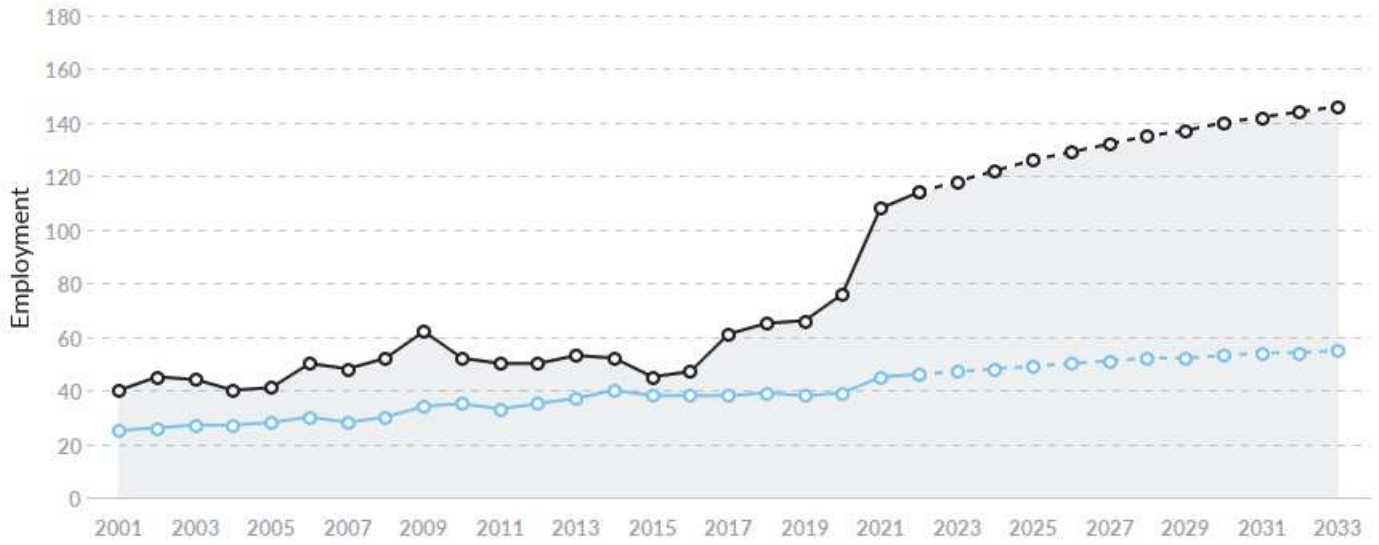
Job posting activity is high in your area. The national average for an area this size is 0* job postings/mo, while there are 2 here.

*National average values are derived by taking the national value for Soil and Plant Scientists and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Jobs

Regional Employment Is Higher Than the National Average

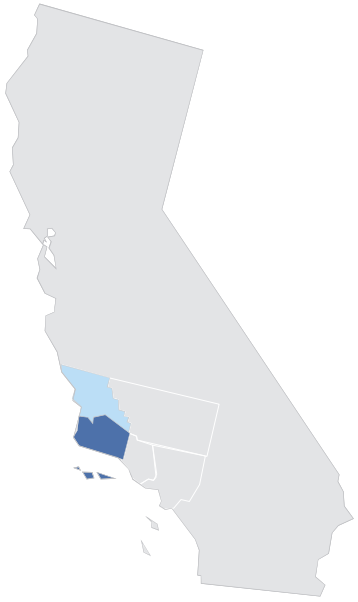
An average area of this size typically has 47* jobs, while there are 118 here. This higher than average supply of jobs may make it easier for workers in this field to find employment in your area.



	Region	2023 Jobs	2033 Jobs	Change	% Change
●	2 California Counties	118	146	28	23.8%
●	National Average	47	55	7	15.9%

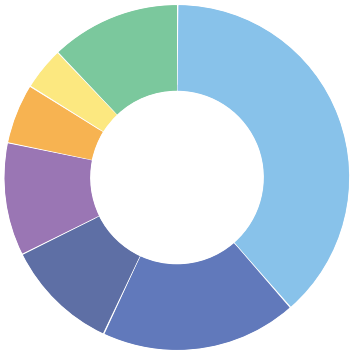
*National average values are derived by taking the national value for Soil and Plant Scientists and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Regional Breakdown



County	2023 Jobs
Santa Barbara County, CA	100
San Luis Obispo County, CA	18

Most Jobs are Found in the Crop Production Industry Sector

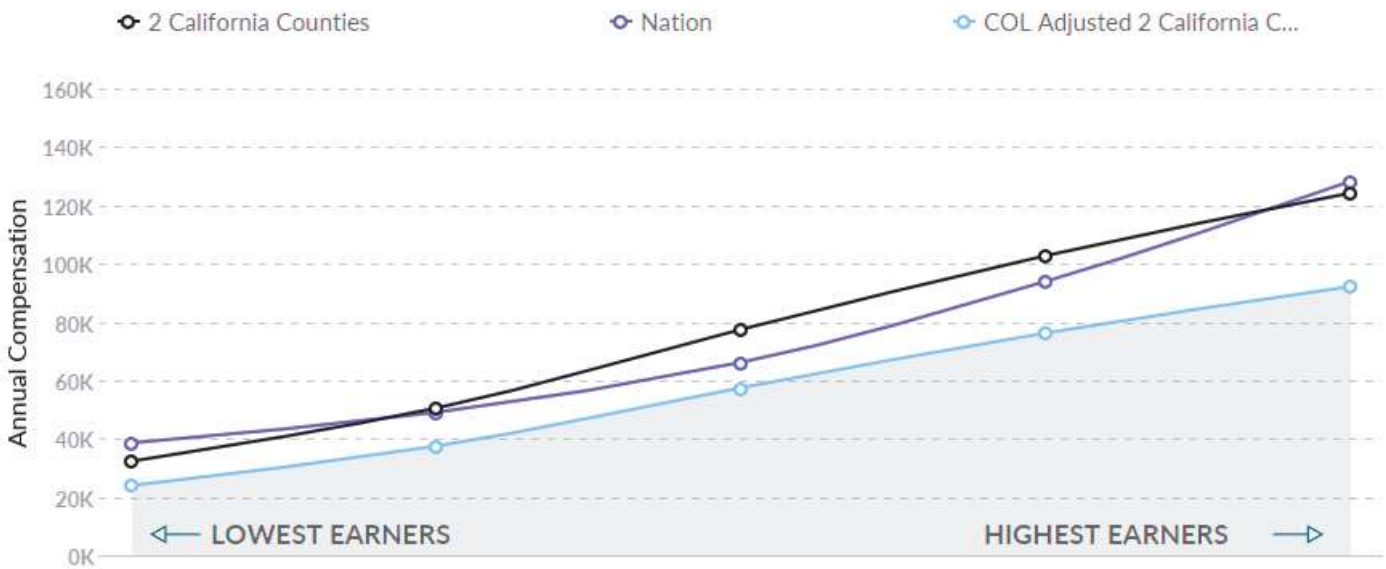


Industry	% of Occupation in Industry (2023)
Crop Production	38.5%
Support Activities for Crop Production	18.4%
Scientific Research and Development Services	10.7%
Education and Hospitals (State Government)	10.6%
Museums, Historical Sites, and Similar Institutions	5.6%
Management, Scientific, and Technical Consulting Services	4.0%
Other	12.2%

Compensation

Regional Compensation Is 17% Higher Than National Compensation

For Soil and Plant Scientists, the 2021 median wage in your area is $77,408, while the national median wage is $66,134.



Job Posting Activity

9 Unique Job Postings

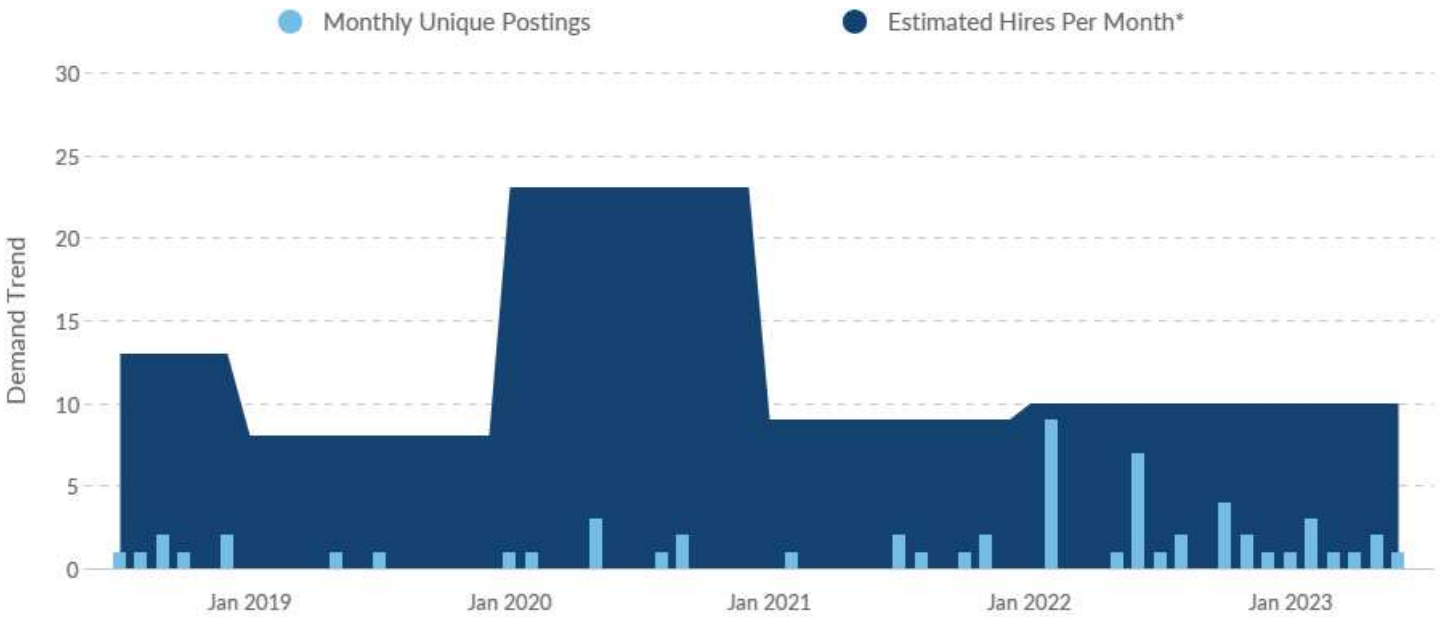
The number of unique postings for this job from Jan 2023 to Jun 2023.

7 Employers Competing

All employers in the region who posted for this job from Jan 2023 to Jun 2023.

21 Day Median Duration

Posting duration is 12 days shorter than what's typical in the region.



Occupation	Avg Monthly Postings (Jan 2023 - Jun 2023)	Avg Monthly Hires (Jan 2023 - Jun 2023)
Soil and Plant Scientists	2	10

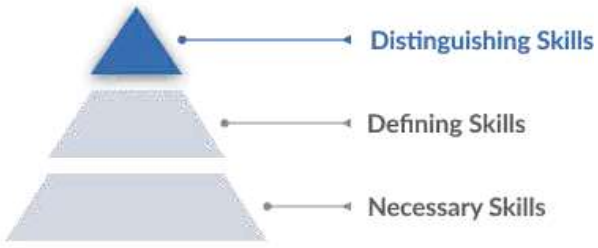
*A hire is reported by the Quarterly Workforce Indicators when an individual's Social Security Number appears on a company's payroll and was not there the quarter before. Lightcast hires are calculated using a combination of Lightcast jobs data, information on separation rates from the Bureau of Labor Statistics (BLS), and industry-based hires data from the Census Bureau.

Top Companies	Unique Postings
Ball Horticultural Company	2
University of California	2
Geosolutions	1
ManTech	1
Reiter Affiliated Companies	1
Stantec	1

Top Job Titles	Unique Postings
Plant Breeders	3
Botanists	2
Environmental Managers	2
Soils Technicians	1

Top Distinguishing Skills by Demand

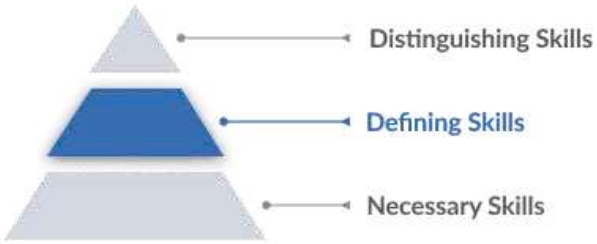
An occupation's Distinguishing Skills are the advanced skills that are called for occasionally. An employee with these skills is likely more specialized and able to differentiate themselves from others in the same role.



Skill	Salary Boosting	Job Postings Requesting
Crop Management	✓	0
Certified Crop Advisor	✗	0

Top Defining Skills by Demand

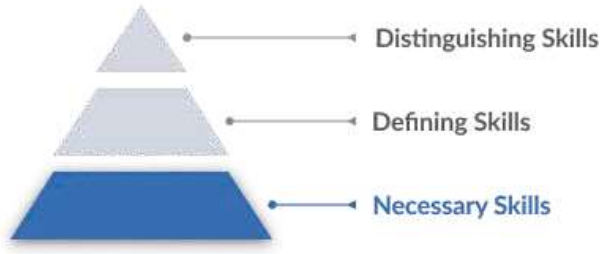
An occupation's Defining Skills represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in this occupation.



Skill	Salary Boosting	Job Postings Requesting
Soil Science	✖	3
Agronomy	✖	1
Valid Driver's License	✖	1
Agriculture	✖	1

Top Necessary Skills by Demand

An occupation's Necessary Skills are the specialized skills required for that job and relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills.



Skill	Salary Boosting	Job Postings Requesting
Biology	✖	2
Botany	✖	2
Marketing	✖	2
Fertilizers	✖	1
Data Collection	✖	1
Environmental Science	✖	1
Irrigation (Landscaping And Agriculture)	✖	1
Plant Science	✖	0
Data Analysis	✖	0
Crop Production	✖	0

Demographics

Retirement Risk Is About Average, While Overall Diversity Is High

Retiring Soon

Retirement risk is about average in your area. The national average for an area this size is 28* employees 55 or older, while there are 29 here.

Racial Diversity

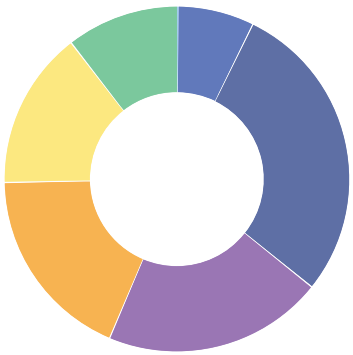
Racial diversity is high in your area. The national average for an area this size is 20* racially diverse employees, while there are 33 here.

Gender Diversity

Gender diversity is about average in your area. The national average for an area this size is 36* female employees, while there are 39 here.

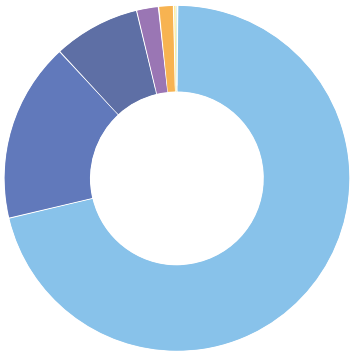
*National average values are derived by taking the national value for Soil and Plant Scientists and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Occupation Age Breakdown



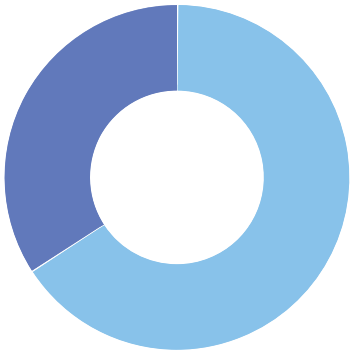
	% of Jobs	Jobs
14-18	0.0%	0
19-24	7.2%	8
25-34	28.5%	32
35-44	20.7%	24
45-54	18.3%	21
55-64	14.8%	17
65+	10.6%	12

Occupation Race/Ethnicity Breakdown



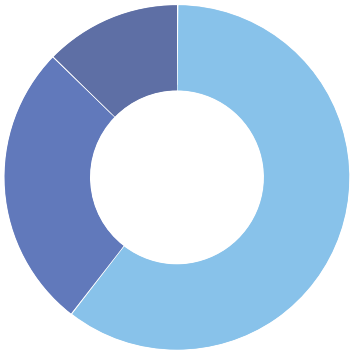
	% of Jobs	Jobs
White	71.2%	81
Asian	16.8%	19
Hispanic or Latino	8.1%	9
Two or More Races	2.0%	2
Black or African American	1.4%	2
American Indian or Alaska Native	0.2%	0
Native Hawaiian or Other Pacific Islander	0.1%	0

Occupation Gender Breakdown



	% of Jobs	Jobs
Males	65.8%	75
Females	34.2%	39

National Educational Attainment



	% of Jobs
Bachelor's degree	60.4%
Master's degree	26.8%
Doctoral or professional degree	12.8%

Occupational Programs

8 Programs

Of the programs that can train for this job, 8 have produced completions in the last 5 years.

1,254 Completions (2021)

The completions from all regional institutions for all degree types.

16 Openings (2021)

The average number of openings for an occupation in the region is 74.

CIP Code	Top Programs	Completions (2021)
26.0101	Biology/Biological Sciences, General	763
40.0501	Chemistry, General	209
01.1004	Viticulture and Enology	80
40.0601	Geology/Earth Science, General	55
01.1102	Agronomy and Crop Science	54
01.0000	Agriculture, General	52
03.0501	Forestry, General	41

Top Schools	Completions (2021)
University of California-Santa Barbara	541
California Polytechnic State University-San Luis Obispo	468
Santa Barbara City College	116
Allan Hancock College	60
Westmont College	38
Cuesta College	31

Appendix A

Soil and Plant Scientists (SOC 19-1013):
Conduct research in breeding, physiology, production, yield, and management of crops and agricultural plants or trees, shrubs, and nursery stock, their growth in soils, and control of pests; or study the chemical, physical, biological, and mineralogical composition of soils as they relate to plant or crop growth. May classify and map soils and investigate effects of alternative practices on soil and crop productivity.

Sample of Reported Job Titles:
Agronomist
Soil Fertility Extension Specialist
Plant Physiologist
Crop Nutrition Scientist
Research Soil Scientist
Microbiology Soil Scientist
Horticulture Specialist
Scientist
Research Scientist
Plant Research Geneticist

Related O*NET Occupation:
Soil and Plant Scientists (19-1013.00)

Farmers, Ranchers, and Other Agricultural Managers
in 2 California Counties

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Report Parameters

1 Occupation

11-9013	Farmers, Ranchers, and Other Agricultural Managers

2 Counties

6079	San Luis Obispo County, CA	6083	Santa Barbara County, CA

Class of Worker

QCEW Employees, Non-QCEW Employees, and Self-Employed

The information in this report pertains to the chosen occupation and geographical areas.

Executive Summary

Aggressive Job Posting Demand Over a Deep Supply of Regional Jobs

Jobs (2023)

Your area is a hotspot for this kind of job. The national average for an area this size is 1,289* employees, while there are 5,202 here.

Compensation

Earnings are about average in your area. The national median salary for Farmers, Ranchers, and Other Agricultural Managers is $33,491, compared to $36,030 here.

Job Posting Demand

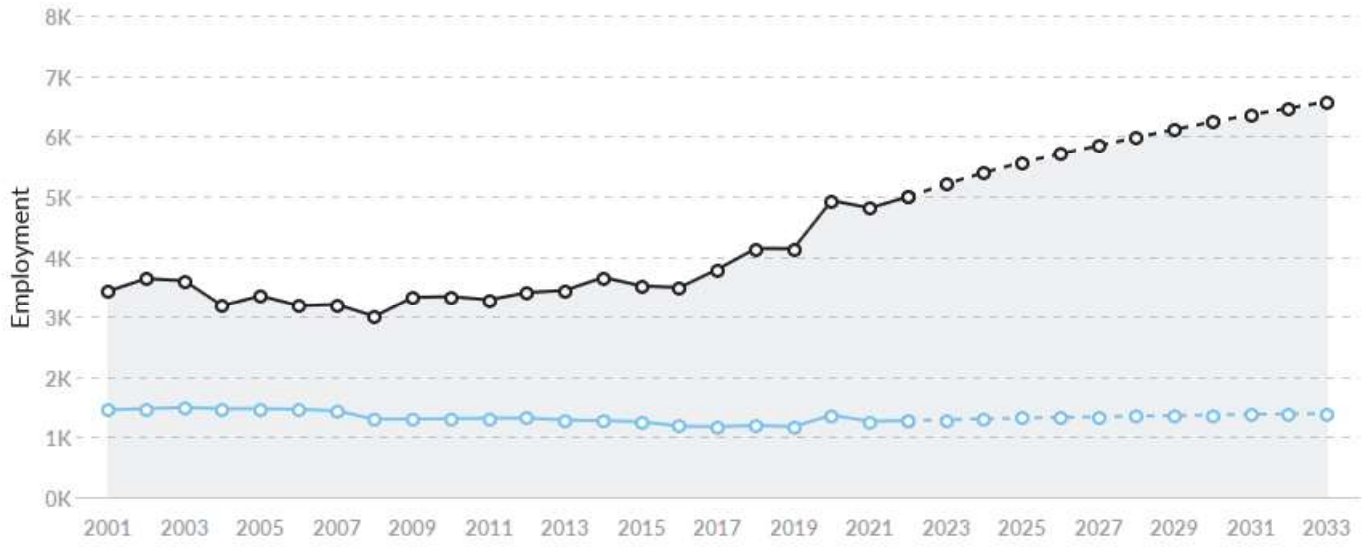
Job posting activity is high in your area. The national average for an area this size is 2* job postings/mo, while there are 4 here.

*National average values are derived by taking the national value for Farmers, Ranchers, and Other Agricultural Managers and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Jobs

Regional Employment Is Higher Than the National Average

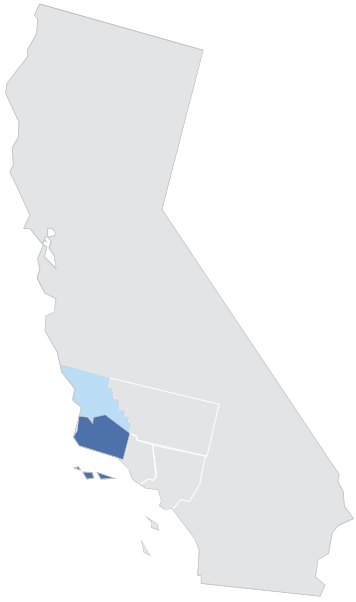
An average area of this size typically has 1,289* jobs, while there are 5,202 here. This higher than average supply of jobs may make it easier for workers in this field to find employment in your area.



	Region	2023 Jobs	2033 Jobs	Change	% Change
●	2 California Counties	5,202	6,570	1,368	26.3%
●	National Average	1,289	1,393	103	8.0%

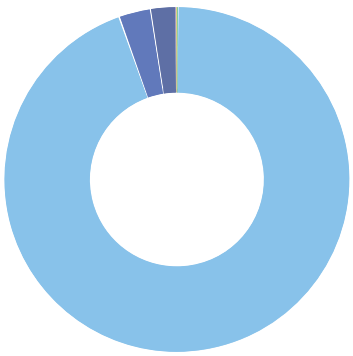
*National average values are derived by taking the national value for Farmers, Ranchers, and Other Agricultural Managers and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Regional Breakdown



County	2023 Jobs
Santa Barbara County, CA	4,560
San Luis Obispo County, CA	641

Most Jobs are Found in the Crop Production Industry Sector

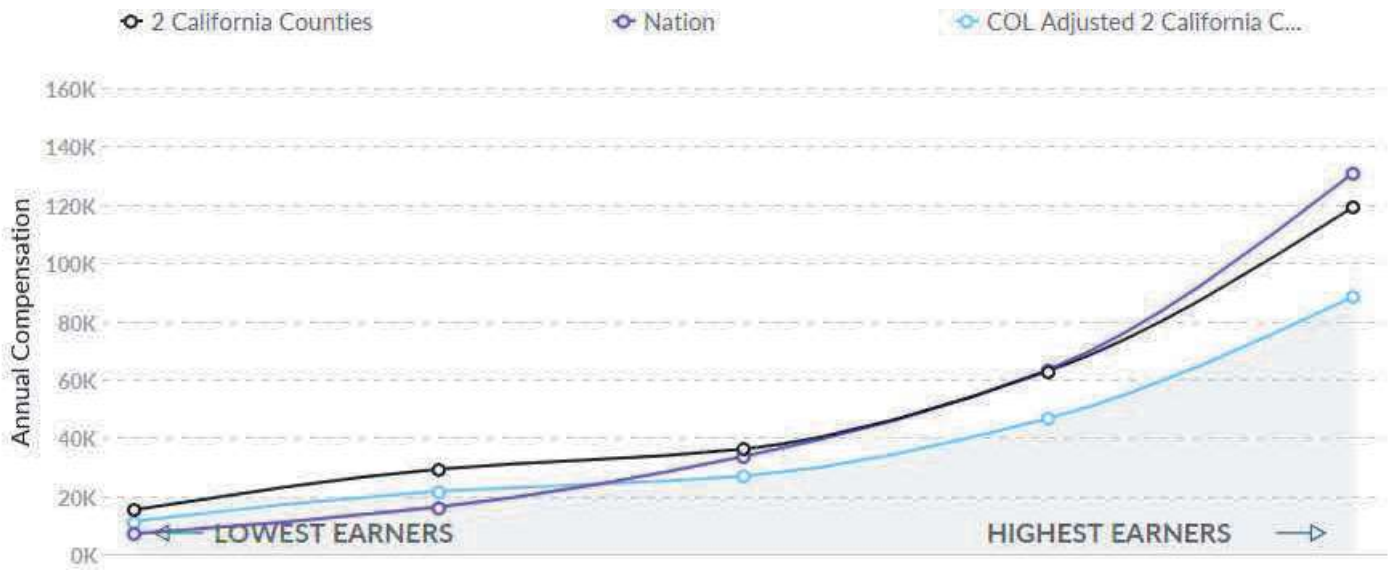


Industry	% of Occupation in Industry (2023)
Crop Production	94.5%
Animal Production	3.0%
Support Activities for Crop Production	2.4%
Support Activities for Animal Production	0.0%
Support Activities for Forestry	0.0%
Fruit and Vegetable Preserving and Specialty Food Manufacturing	0.0%
Other	0.0%

Compensation

Regional Compensation Is 8% Higher Than National Compensation

For Farmers, Ranchers, and Other Agricultural Managers, the 2021 median wage in your area is $36,030, while the national median wage is $33,491.



Job Posting Activity

24 Unique Job Postings

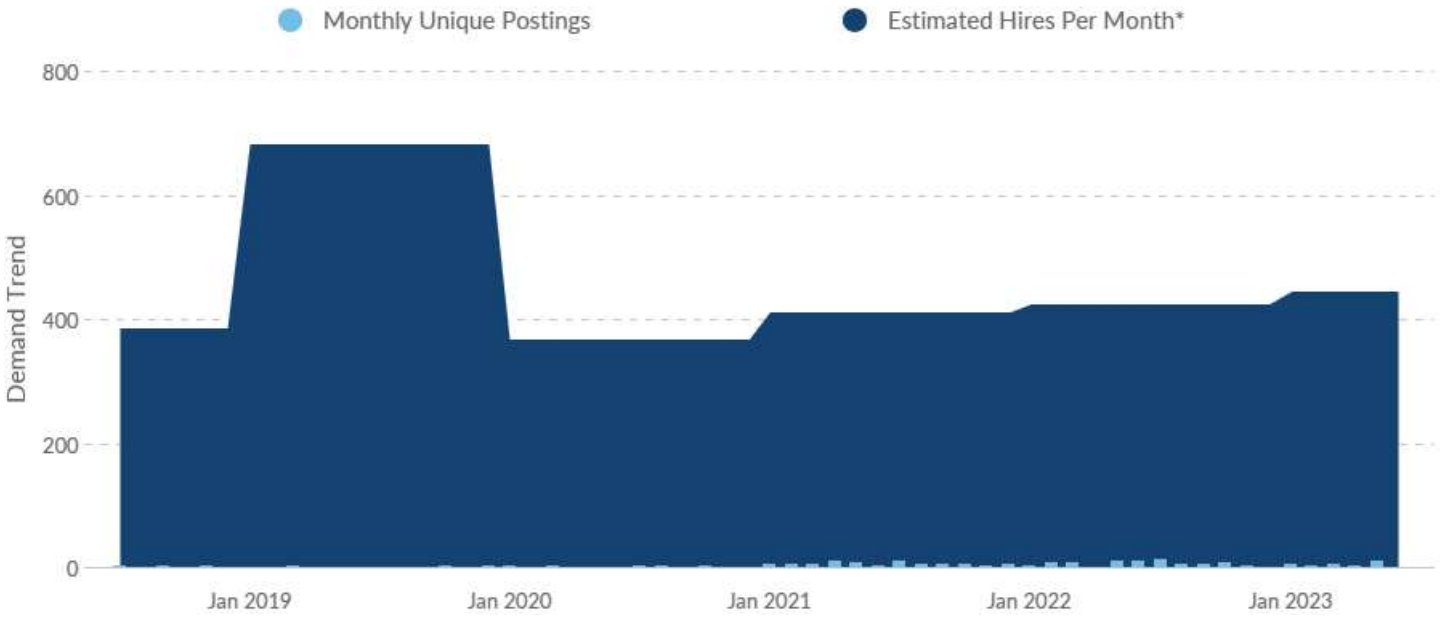
The number of unique postings for this job from Jan 2023 to Jun 2023.

15 Employers Competing

All employers in the region who posted for this job from Jan 2023 to Jun 2023.

29 Day Median Duration

Posting duration is 4 days shorter than what's typical in the region.



Occupation	Avg Monthly Postings (Jan 2023 - Jun 2023)	Avg Monthly Hires (Jan 2023 - Jun 2023)
Farmers, Ranchers, and Other Agricultural Managers	4	443

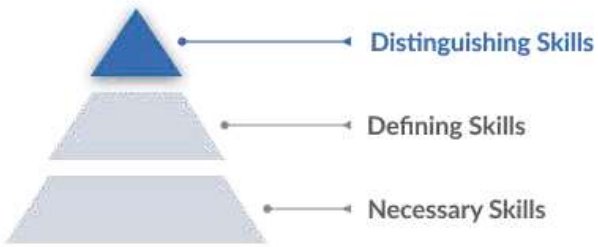
*A hire is reported by the Quarterly Workforce Indicators when an individual's Social Security Number appears on a company's payroll and was not there the quarter before. Lightcast hires are calculated using a combination of Lightcast jobs data, information on separation rates from the Bureau of Labor Statistics (BLS), and industry-based hires data from the Census Bureau.

Top Companies	Unique Postings
Good Samaritan Shelter	3
Speedling Incorporated	3
Cal Poly Corporation	2
City Of San Luis Obispo	2
Ecological Farming Association	2
Alisal Guest Ranch And Resort	1
Ambyth Estate	1
Bee Sweet Citrus	1
Calpoly Investments LLC.	1
Central Coast Aquarium	1

Top Job Titles	Unique Postings
Farm Managers	6
Farm Assistants	3
Fisheries Technicians	3
Greenhouse Managers	3
Farmers Market Managers	2
Activity Leaders	1
Animal Husbandry Interns	1
Horticulture Managers	1
Scan Technicians	1
Sustainable Agriculture Interns	1

Top Distinguishing Skills by Demand

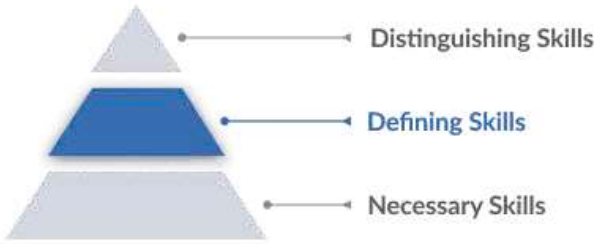
An occupation's Distinguishing Skills are the advanced skills that are called for occasionally. An employee with these skills is likely more specialized and able to differentiate themselves from others in the same role.



Skill	Salary Boosting	Job Postings Requesting
Cannabis Cultivation	✓	1
Fish Culture	✗	0
Aquaculture	✗	0
Spawning	✗	0

Top Defining Skills by Demand

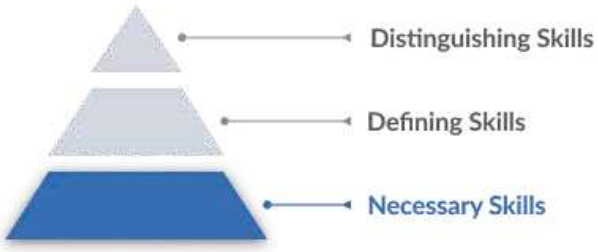
An occupation's Defining Skills represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in this occupation.



Skill	Salary Boosting	Job Postings Requesting
Valid Driver's License	✖	9
Transplanting	✖	1

Top Necessary Skills by Demand

An occupation's Necessary Skills are the specialized skills required for that job and relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills.



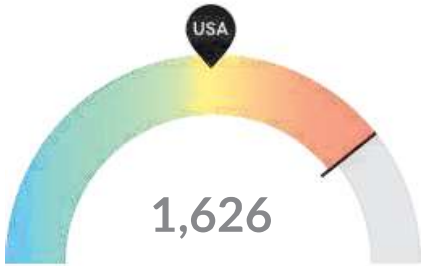
Skill	Salary Boosting	Job Postings Requesting
Irrigation (Landscaping And Agriculture)	✖	7
Biology	✖	5
Agriculture	✖	4
Pruning	✖	1
Cannabis	✖	0
Food Safety And Sanitation	✖	0

Demographics

Retirement Risk Is About Average, While Overall Diversity Is High

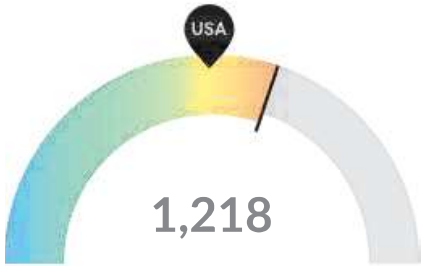
Retiring Soon

Retirement risk is about average in your area. The national average for an area this size is 2,422* employees 55 or older, while there are 2,250 here.



Racial Diversity

Racial diversity is high in your area. The national average for an area this size is 730* racially diverse employees, while there are 1,626 here.

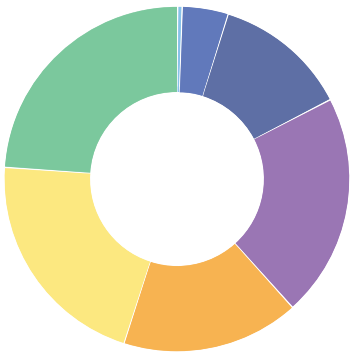


Gender Diversity

Gender diversity is high in your area. The national average for an area this size is 911* female employees, while there are 1,218 here.

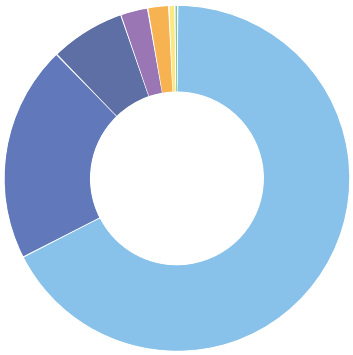
*National average values are derived by taking the national value for Farmers, Ranchers, and Other Agricultural Managers and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Occupation Age Breakdown



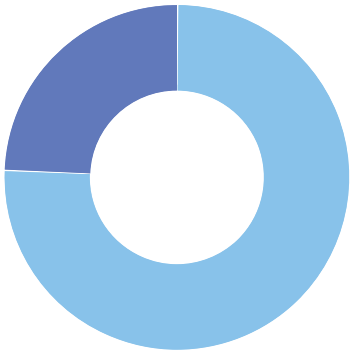
	% of Jobs	Jobs
14-18	0.4%	21
19-24	4.3%	216
25-34	12.6%	628
35-44	20.9%	1,044
45-54	16.6%	830
55-64	21.1%	1,054
65+	24.0%	1,196

Occupation Race/Ethnicity Breakdown



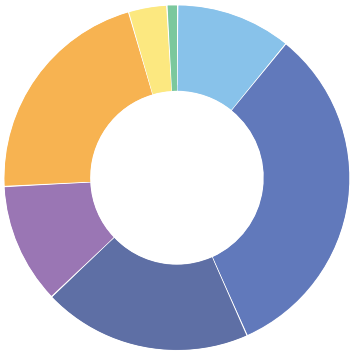
	% of Jobs	Jobs
White	67.4%	3,362
Hispanic or Latino	20.3%	1,011
Asian	7.0%	349
Two or More Races	2.6%	127
Black or African American	2.0%	97
American Indian or Alaska Native	0.6%	29
Native Hawaiian or Other Pacific Islander	0.3%	13

Occupation Gender Breakdown



	% of Jobs	Jobs
Males	75.6%	3,770
Females	24.4%	1,218

National Educational Attainment



	% of Jobs
Less than high school diploma	10.8%
High school diploma or equivalent	32.5%
Some college, no degree	19.6%
Associate's degree	11.3%
Bachelor's degree	21.3%
Master's degree	3.6%
Doctoral or professional degree	1.0%

Occupational Programs

11 Programs

Of the programs that can train for this job, 11 have produced completions in the last 5 years.

604 Completions (2021)

The completions from all regional institutions for all degree types.

703 Openings (2021)

The average number of openings for an occupation in the region is 74.

CIP Code	Top Programs	Completions (2021)
01.0901	Animal Sciences, General	169
01.0102	Agribusiness/Agricultural Business Operations	161
01.1004	Viticulture and Enology	80
01.1102	Agronomy and Crop Science	54
01.0000	Agriculture, General	52
04.0601	Landscape Architecture	50
01.0905	Dairy Science	18
01.0304	Crop Production	14
01.0601	Applied Horticulture/Horticulture Operations, General	4
01.0603	Ornamental Horticulture	1

Top Schools	Completions (2021)
California Polytechnic State University-San Luis Obispo	540
Allan Hancock College	33
Cuesta College	26
Santa Barbara City College	5

Appendix A

Farmers, Ranchers, and Other Agricultural Managers (SOC 11-9013):
Plan, direct, or coordinate the management or operation of farms, ranches, greenhouses, aquacultural operations, nurseries, timber tracts, or other agricultural establishments. May hire, train, and supervise farm workers or contract for services to carry out the day-to-day activities of the managed operation. May engage in or supervise planting, cultivating, harvesting, and financial and marketing activities. Excludes First-Line Supervisors of Farming, Fishing, and Forestry Workers (45-1011).

Sample of Reported Job Titles:
Hatchery Manager
Greenhouse Manager
Fish Hatchery Manager
Farm Manager
Ranch Manager
Nursery Manager
Hatchery Supervisor
Harvesting Manager
Farm Operations Technical Director
Aquaculture Director

Related O*NET Occupation:
Farmers, Ranchers, and Other Agricultural Managers (11-9013.00)

Agricultural Technicians
in 2 California Counties

Contents

What is Lightcast Data?

Lightcast data is a hybrid dataset derived from official government sources such as the US Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics. Leveraging the unique strengths of each source, our data modeling team creates an authoritative dataset that captures more than 99% of all workers in the United States. This core offering is then enriched with data from online social profiles, resumés, and job postings to give you a complete view of the workforce.

Lightcast data is frequently cited in major publications such as *The Atlantic*, *Forbes*, *Harvard Business Review*, *The New York Times*, *The Wall Street Journal*, and *USA Today*.

Report Parameters

1 Occupation

19-4012	Agricultural Technicians

2 Counties

6079	San Luis Obispo County, CA	6083	Santa Barbara County, CA

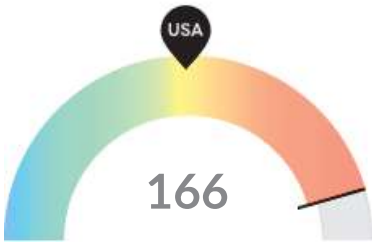
Class of Worker

QCEW Employees, Non-QCEW Employees, and Self-Employed

The information in this report pertains to the chosen occupation and geographical areas.

Executive Summary

Average Job Posting Demand Over a Deep Supply of Regional Jobs



Jobs (2023)

Your area is a hotspot for this kind of job. The national average for an area this size is 47* employees, while there are 166 here.

Compensation

Earnings are high in your area. The national median salary for Agricultural Technicians is $40,429, compared to $45,131 here.

Job Posting Demand

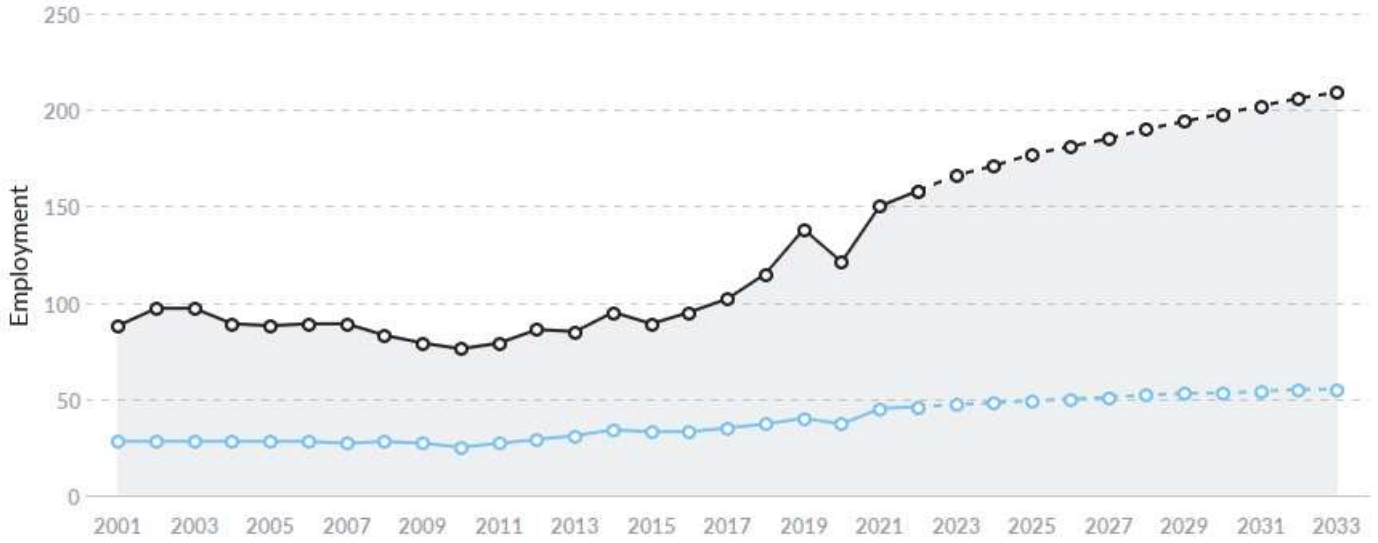
Job posting activity is about average in your area. The national average for an area this size is 1* job posting/mo, while there is 1 here.

*National average values are derived by taking the national value for Agricultural Technicians and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Jobs

Regional Employment Is Higher Than the National Average

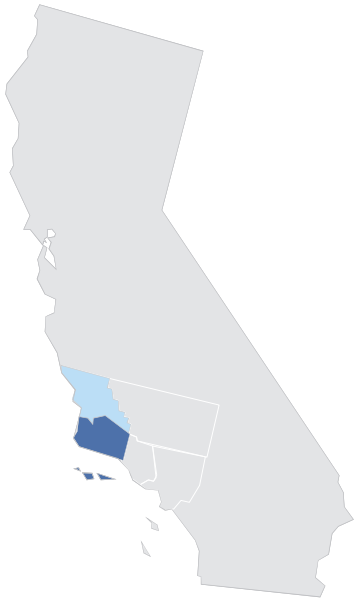
An average area of this size typically has 47* jobs, while there are 166 here. This higher than average supply of jobs may make it easier for workers in this field to find employment in your area.



	Region	2023 Jobs	2033 Jobs	Change	% Change
●	2 California Counties	166	209	43	26.1%
●	National Average	47	55	8	17.1%

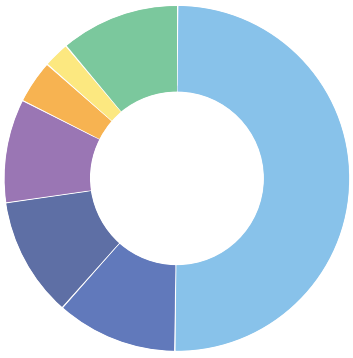
*National average values are derived by taking the national value for Agricultural Technicians and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Regional Breakdown



County	2023 Jobs
Santa Barbara County, CA	141
San Luis Obispo County, CA	25

Most Jobs are Found in the Crop Production Industry Sector



Industry	% of Occupation in Industry (2023)
Crop Production	50.1%
Scientific Research and Development Services	11.3%
Education and Hospitals (State Government)	11.2%
Support Activities for Crop Production	9.7%
Support Activities for Animal Production	4.0%
Architectural, Engineering, and Related Services	2.4%
Other	11.2%

Compensation

Regional Compensation Is 12% Higher Than National Compensation

For Agricultural Technicians, the 2021 median wage in your area is $45,131, while the national median wage is $40,429.

Job Posting Activity

7 Unique Job Postings

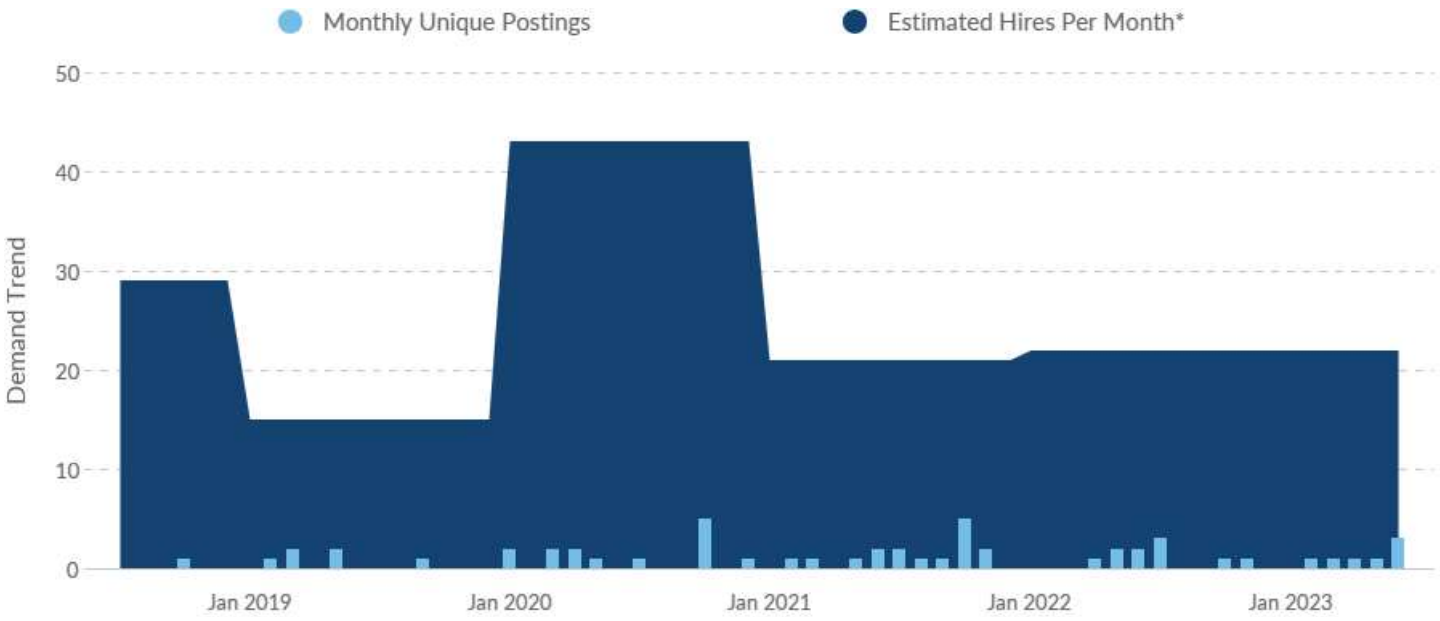
The number of unique postings for this job from Jan 2023 to Jun 2023.

6 Employers Competing

All employers in the region who posted for this job from Jan 2023 to Jun 2023.

0 Day Median Duration

Posting duration is 33 days longer than what's typical in the region.



Occupation	Avg Monthly Postings (Jan 2023 - Jun 2023)	Avg Monthly Hires (Jan 2023 - Jun 2023)
Agricultural Technicians	1	22

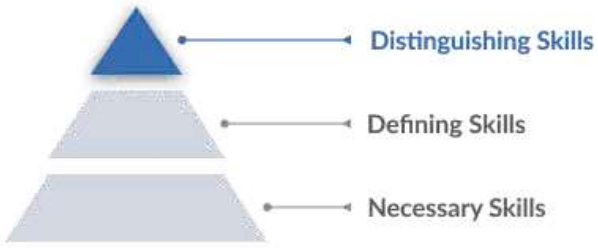
*A hire is reported by the Quarterly Workforce Indicators when an individual's Social Security Number appears on a company's payroll and was not there the quarter before. Lightcast hires are calculated using a combination of Lightcast jobs data, information on separation rates from the Bureau of Labor Statistics (BLS), and industry-based hires data from the Census Bureau.

Top Companies	Unique Postings
Pacific Ag Research	2
California Public Utilities Comm...	1
County Of San Luis Obispo	1
Le Vigne Winery	1
Viridian Staffing	1

Top Job Titles	Unique Postings
Agricultural Technicians	5
Harvest Cellar Interns	1
Harvest Managers	1

Top Distinguishing Skills by Demand

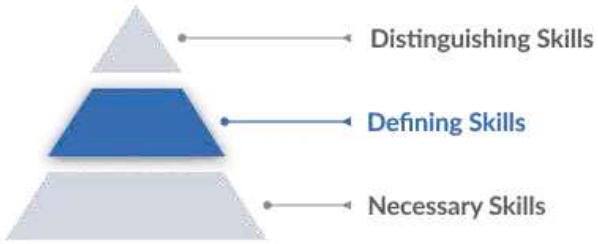
An occupation's Distinguishing Skills are the advanced skills that are called for occasionally. An employee with these skills is likely more specialized and able to differentiate themselves from others in the same role.



Skill	Salary Boosting	Job Postings Requesting
Crop Scouting	✖	0
Commercial Applicator License	✖	0

Top Defining Skills by Demand

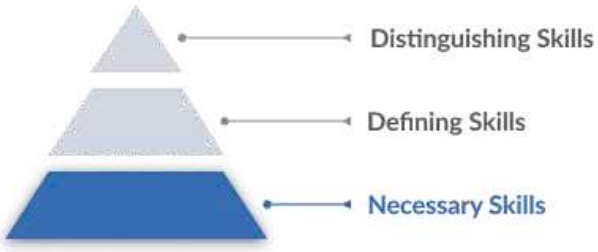
An occupation's Defining Skills represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in this occupation.



Skill	Salary Boosting	Job Postings Requesting
Agriculture	✗	4
Valid Driver's License	✗	1

Top Necessary Skills by Demand

An occupation's Necessary Skills are the specialized skills required for that job and relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills.



Skill	Salary Boosting	Job Postings Requesting
Fertilizers	✗	2
Irrigation (Landscaping And Agriculture)	✗	1
Agronomy	✗	0
Marketing	✗	0
Precision Agriculture	✓	0

Demographics

Retirement Risk Is About Average, While Overall Diversity Is High

Retiring Soon

Retirement risk is about average in your area. The national average for an area this size is 42* employees 55 or older, while there are 44 here.

Racial Diversity

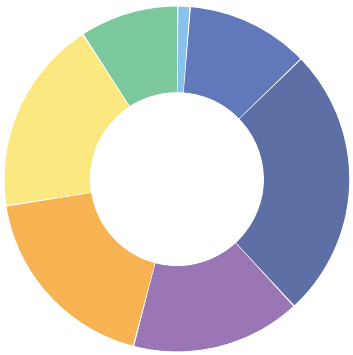
Racial diversity is high in your area. The national average for an area this size is 43* racially diverse employees, while there are 72 here.

Gender Diversity

Gender diversity is high in your area. The national average for an area this size is 70* female employees, while there are 80 here.

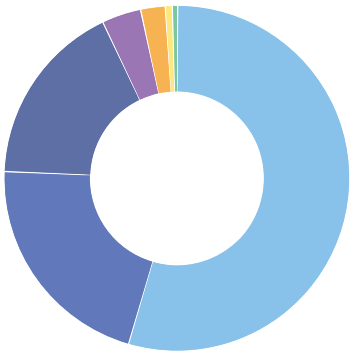
*National average values are derived by taking the national value for Agricultural Technicians and scaling it down to account for the difference in overall workforce size between the nation and your area. In other words, the values represent the national average adjusted for region size.

Occupation Age Breakdown



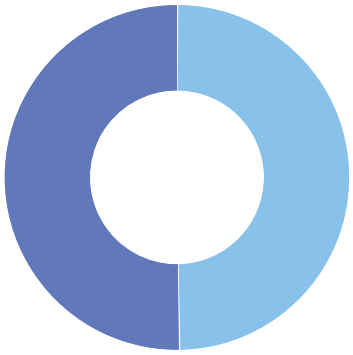
	% of Jobs	Jobs
14-18	1.2%	2
19-24	11.5%	18
25-34	25.4%	40
35-44	15.9%	25
45-54	18.5%	29
55-64	18.3%	29
65+	9.2%	15

Occupation Race/Ethnicity Breakdown



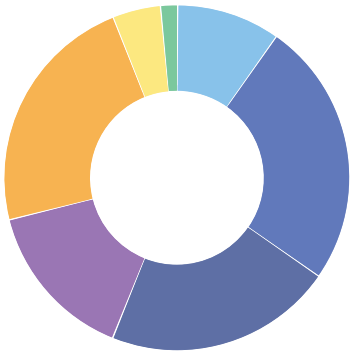
	% of Jobs	Jobs
White	54.5%	86
Hispanic or Latino	21.1%	33
Asian	17.3%	27
Black or African American	3.7%	6
Two or More Races	2.3%	4
Native Hawaiian or Other Pacific Islander	0.7%	1
American Indian or Alaska Native	0.5%	1

Occupation Gender Breakdown



	% of Jobs	Jobs
Males	49.7%	79
Females	50.3%	80

National Educational Attainment



	% of Jobs
Less than high school diploma	9.7%
High school diploma or equivalent	24.9%
Some college, no degree	21.4%
Associate's degree	15.0%
Bachelor's degree	22.9%
Master's degree	4.5%
Doctoral or professional degree	1.6%

Occupational Programs

2 Programs

Of the programs that can train for this job, 2 have produced completions in the last 5 years.

132 Completions (2021)

The completions from all regional institutions for all degree types.

29 Openings (2021)

The average number of openings for an occupation in the region is 74.

CIP Code	Top Programs	Completions (2021)
01.1004	Viticulture and Enology	80
01.0000	Agriculture, General	52

Top Schools	Completions (2021)
California Polytechnic State University-San Luis Obispo	114
Allan Hancock College	18

Appendix A

Agricultural Technicians (SOC 19-4012):
Work with agricultural scientists in plant, fiber, and animal research, or assist with animal breeding and nutrition. Set up or maintain laboratory equipment and collect samples from crops or animals. Prepare specimens or record data to assist scientists in biology or related life science experiments. Conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects.

Sample of Reported Job Titles:
Seed Analyst
Research Technician
Research Specialist
Research Associate
Research Assistant
Precision Agriculture Specialist (Precision Ag Specialist)
Precision Farming Coordinator
Crop Specialist
Soil Fertility Specialist
Nutrient Management Specialist

Related O*NET Occupations:
Agricultural Technicians (19-4012.00)
Precision Agriculture Technicians (19-4012.01)

Program Review Signature Page:

	5/24/2025
Program Review Lead	Date
Sean Abel (May 29, 2025 10:47 PDT)	
Program Dean	Date
Vice President, Academic Affairs	Date

Dept	Program	Source	Year	Initiative (Objective)	Resource Need	Requested Item(s) Please include per item cost	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Equipment	Electricity in W-22/W-24 at tabletops to power microscopes	One-time	1 = High	$ 15,000.00

Dept	Program	Source	Year	Initiative (Objective)	Resource Need	Requested Item(s) please include per item cost	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
English	English Rhetoric	Yearly Planning and Core Topic	2022-2023	ER OBJ - 2	Operational Supplie	Paper cutter for the office	One-time	1 = High	$ 50.00
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Instructional Supplie	food safety program supplies	One-time	2 = Medium	$ [illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Instructional Supplie	greenhouse potting soil and media	Ongoing	2 = Medium	$ [illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Instructional Supplie	seeds	Ongoing	2 = Medium	$ [illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Instructional Supplie	consumables for pathogen identification	Ongoing	1 = High	$ [illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Instructional Supplie	consumables for microbial detection, identification, quantification	Ongoing	2 = Medium	$ 1,200.00
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Operational Supplie	irrigation supplies for student farm orchard, greenhouse, and garden farm	One-time	1 = High	$ 10,000.00

Dept	Program	Source	Year	Initiative (Objective)	Resource Need	Requested Item(s)	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
English	English Rhetoric	Yearly Planning and Core Topic	2022-2023	ER OBJ.- 1	Staffing	Hire FT faculty	Ongoing	1 = High	$ 100,000.00
Life & Physical Sciences	[illegible]	Yearly Planning Only	[illegible]		[illegible]	[illegible]	Ongoing	1 = High	[illegible]
Life & Physical Sciences	[illegible]	Yearly Planning Only	[illegible]		[illegible]	Student farm worker to assist farm technician	Ongoing	1 = High	[illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Staffing	Curriculum development time for food safety program development	One-time	2 = Medium	$ 10,000.00
Life & Physical Sciences	[illegible]	Yearly Planning Only	[illegible]		[illegible]	[illegible]	Ongoing	[illegible]	[illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Staffing	Irrigation specialist to repair and modernize irrigation at student farm orchard, vegetable garden, and	One-time	1 = High	$ 12,000.00

Dept	Program	Source	Year	Initiative (Objective)	Resource Need	Requested Item(s) please include per item cost	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
English	English Rhetoric	Yearly Planning and Core Topic	2022-2023	ER OBJ.- 3	Technology	New software program	One-time	1 = High	$ 400.00
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Building maintenance, furniture requests, repairs

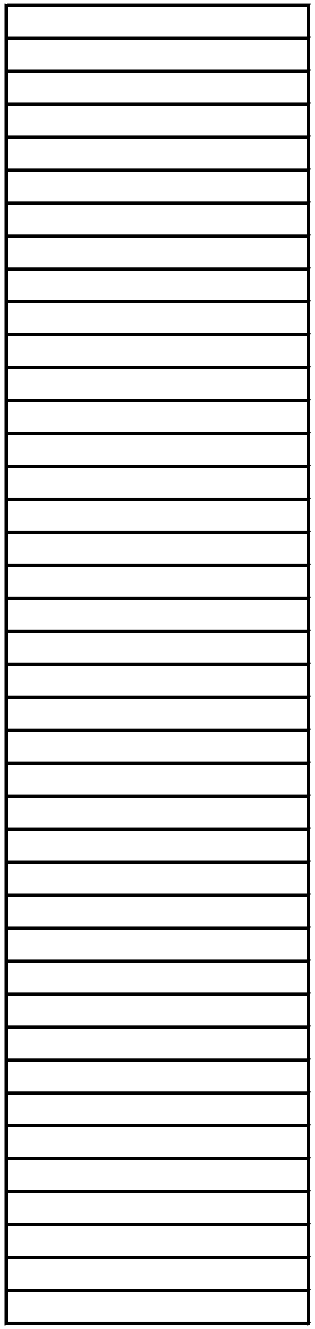
FACILITIES

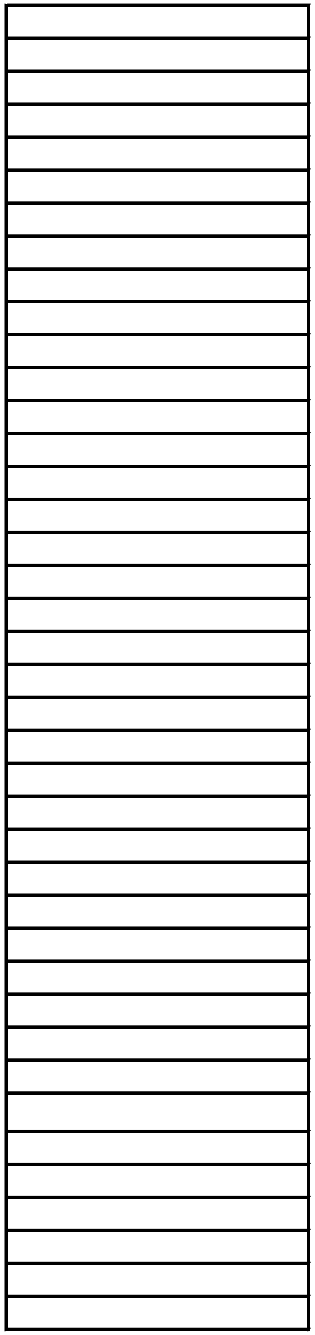
Dept	Program	Source	Year	Initiative (Objective) Reference
English	English Rhetoric	Yearly Planning and Core Topic	2022-2023	ER OBJ.- 3
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	
Life & Physical Sciences	AG	Yearly Planning Only	2023-2024	

Resource Need	Requested Item(s) please include per item cost	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
Facilities	Need air conditioning	One-time	1 = High	$ 400.00
Facilities	Dedicated classroom and lab space	One-time	1 = High	
Facilities	Modern, fully equipped greenhouse	One-time	2 = Medium	$ 100,000.00
Facilities	Ag "center" - gathering/studying/tutoring/meeting space	One-time	2 = Medium	
Facilities	Irrigation repair for student farm fruit orchard, garden, and greenhouse	One-time	1 = High	$ 7,500.00
Facilities	Electricity at student farm greenhouse	One-time	1 = High	
Facilities	Shop room for revitalizing AG 155	One-time	2 = Medium	

		TOTAL	**TOTAL**	**$ 107,900.00**

Estimated Instructional/Restricted Lottery Cost





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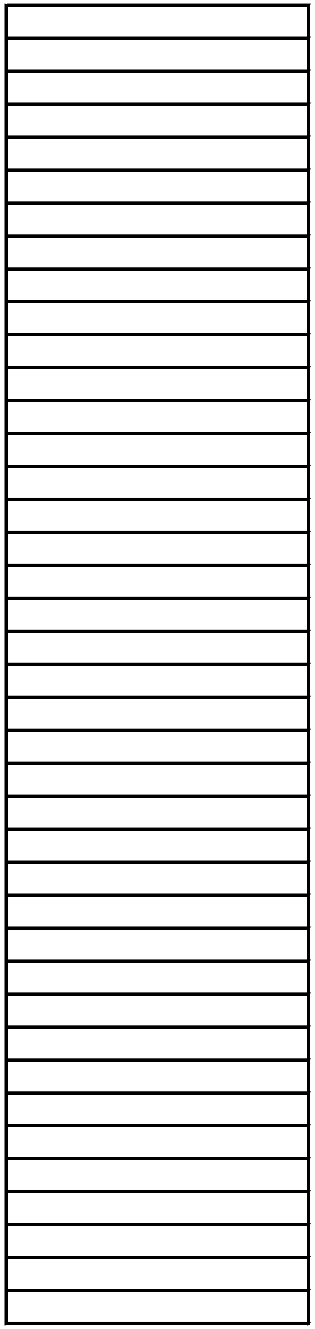

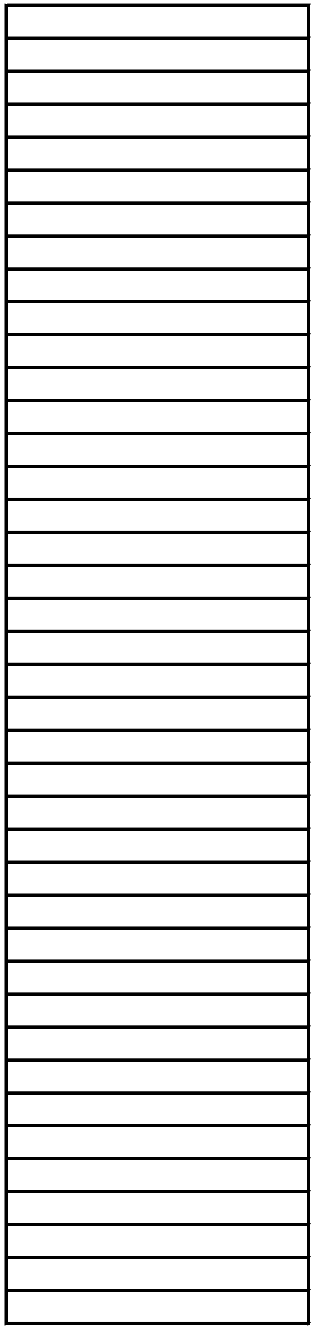

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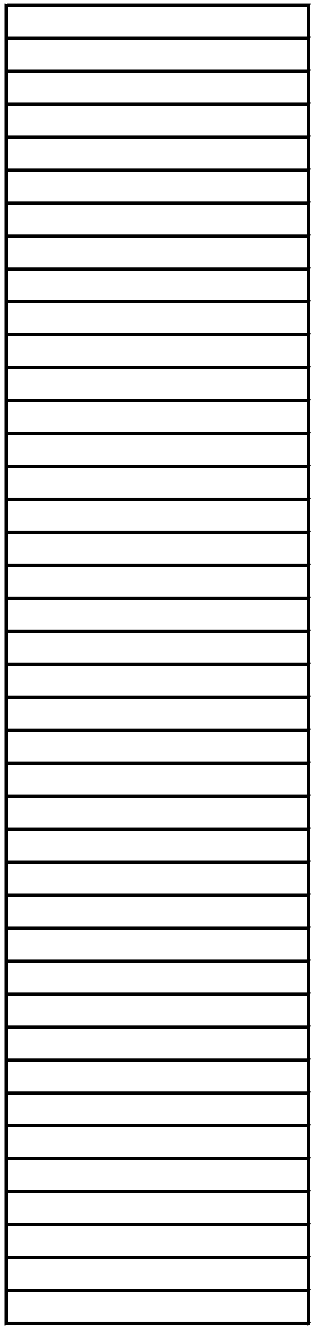

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Dept	Program	Source	Year	Initiative (Objective)	Resource Need	Requested Item(s) please include per item cost	Funding Request	Program Faculty Lead Priority	Estimated Equipment Cost
English	English Rhetoric	Yearly Planning Only	2022-2023	[illegible]	Misc.	Faculty stipends for 5 hour video series	One-time	1 = High	$ 150.00
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Misc.	Field trip expenses and district vehicle use	Ongoing	1 = High	$ [illegible]
Life & Physical Sciences	AG	Yearly Planning Only	2024-2025		Misc.	Stipend for part-time faculty to be trained in PLO assessment and enter the data into SPOL	Ongoing	1 = High	$ 3,000.00

AG PReview 2024-25 and resource

Final Audit Report 2025-07-18

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