

Comprehensive Program Review Report



Program Review - Ag Technology

Program Summary

2021-2022

Prepared by: Charlie Abee

What are the strengths of your area?: The Ag Technology program has benefited from a Strong Workforce Development Grant and has established an Agriculture Irrigation sector to its program. This program is highly supported by industry. Reviewing the Program Review Data the following observations were made:

1. Success rate for the program increased.
2. 2020-21 had 3 awards granted to 1 recipient.
3. Number of majors is staying consistent.
4. Strong Industry support by partnerships formed with Irrigation Matter, Exeter Irrigation, Willits Pump, Wild Eye, JG Boswell, Irrometer, Kaweah Pump, Gar Bennett, Southern California Edison, Cal Poly ITRC, Fresno State CIT, HotSpot Ag, and Fruit Growers Supply.
5. The program has memberships in the Engine and Equipment Training Council, the Irrigation Association and the California Agriculture Irrigation Association. These memberships allow for student scholarships, discount rates on curriculum, instructor certification, and program promotion on the state and national levels.
6. The program has strong relationships with feeder high schools. The instructor serves on advisory committees for Granite Hills High School, Lindsay High School, VTEC High School and Woodlake High School.
7. The program is a Associate Member of the Irrigation Association and the California Agriculture Irrigation Association which provides scholarship, placement, certification, training and collaboration opportunities for students and faculty.
8. The program is a collegiate member of the Engine and Equipment Training Council which provides opportunities for placement, scholarship and certification for students.
9. Through many efforts last year the program established the Ag Irrigation Academy that combines work site learning along with classroom learning. 19 students are enrolled with a majority placed at worksites.
10. The district is supporting the inclusion of Ag Technology in the expansion of the CTE Facilities at the Tulare College Center. A new facility is expected in Fall of 2024

What improvements are needed?: The Ag Technology program struggled during the 2020 pandemic and it is evident in the data.

1. FTES to FTEF ratio decreased in the program overall
2. FTES numbers decreased in most courses except AGTC 103
3. FTEF numbers also dropped to 0.76
4. The program has established the Ag Irrigation Academy model and we look forward to seeing the effect this has on data next year. It seems to have had a positive impact on the Ag Irrigation Courses (AGTC 219, AGTC 220 AGTC 222 and PLSI 108).

5. The program needs to evaluate the Mechanized Agriculture Sector of the Ag Technology program and evaluate the local need for skills. LMI Data shows that there is an annual excess demand of 204 people in this industry.
6. The programs needs to engage local industry to review courses and determine their necessity.
7. The program needs to engage local industry about creating internship opportunities for students to gain industry experience.

Describe any external opportunities or challenges.: Opportunities:

1. The Sustainable Groundwater Management Act (SGMA) is currently being implemented so growers are starting to see the implications of this legislation.
2. State Water and Energy Efficiency Program (SWEET) allocated \$40 million for the upcoming year through CDFR for water and energy improvement projects. This means more irrigation system improvements will be made throughout the state. Trained people are needed to operate and maintain these systems.
3. We have strong relationships with local feeder high schools.
4. The Ag Irrigation academy has been a successful model in recruiting students and engaging industry partners.

Challenges

1. Local Agriculture Programs focus a lot of attention on welding, fabrication, livestock, ornamental horticulture and floral design. This creates a challenge when trying to recruit students into the agriculture technology program because it is different than what they are used to at the high school level. The exposure to the industry is limited.
2. SGMA will present a challenge as well as an opportunity because it could potentially limit the number of acres farmed in California.
3. The State Agriculture Education Curriculum standards place little emphasis on irrigation systems. Many high school instructors lack training in irrigation and ag technology.
4. The governor recently signed Assembly Bill 1346 into law which will ban the sale of all new small gas engines in 2024 or when an alternative power source is developed which ever is later. This will create opportunity and challenge as the industry struggles to find new tools to replace small gas engines 25 horsepower and less.

Overall SLO Achievement: Overall SLO achievement is improving. As we are working with more facets of industry we are strengthening the SLO's. Some courses have been challenging to asses due to the COVID 19 pandemic.

Changes Based on SLO Achievement: No changes were made based on SLO achievement

Overall PLO Achievement: PLO achievement continues to improve with the courses that are being offered. It is challenging when some Program objectives are part of a course that is cancelled due to low enrollment.

Changes Based on PLO Achievement: No changes have been made at this time.

Outcome cycle evaluation: The assessment cycle is being reworked based on the scheduling change due to the Ag Irrigation Academy which cohorts most of the irrigation classes into one semester.

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Describe any external opportunities or challenges.:

Overall SLO Achievement:

Changes Based on SLO Achievement:

Overall PLO Achievement:

Changes Based on PLO Achievement:

Outcome cycle evaluation:

Action: 2021-2022 Objective 1 Ag Mechanics Pathway Development

Establish connections with industry to revitalize the current Ag Mechanics pathway to meet labor market demand. Curriculum, timeline and program activities need to be revitalized

Leave Blank:

Implementation Timeline: 2021 - 2022

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4 By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): In reviewing the Program Review Data the courses in the Ag Technology pathway have low

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enrollment and are often canceled. This leads to a struggle to get students to complete these programs. LMI data shows there is a need for trained technicians in annual excess of 200 than are being provided currently. AGTC 103, AGTC 106, AGTC 201, AGTC 210 and AGTC 225 will be reviewed along with the Ag Equipment Technician skill certificate to determine the local need and the changes that need to be made to the program and courses.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 1.1 - The District will increase FTES by 1.75% over the three years
District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2021-2022 Objective 2 Establish Ag Mechanics Industry Partnerships

Jobsite learning is an important concept in CTE. We established industry partners to place Ag Irrigation students at for internships and now would like to do the same thing with the Ag Mechanics side of Ag Technology. These internships may be done concurrently while students are enrolled or interspersed between class sessions.

Leave Blank:

Implementation Timeline: 2021 - 2022

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4 By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): Connection to real world or industry is important for student learning. It allows them to experience what is being taught in the classroom in a real life situation. Current industry is experiencing a labor shortage.

Training students while they are placed at an internship site allows the industry partner to evaluate the student to see if they would be a good fit for the company.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

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Action: 2021-2022 Objective 3 Ag Technology Course Review for Equity

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During the 2021-2022 school year I would like to review 50% of my courses for their focus on equity and inclusion. It is important to ensure all students feel welcome our courses are inviting to them.

Leave Blank:

Implementation Timeline: 2021 - 2022

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Goal 3 College of the Sequoias will strategically tailor and implement academic programs and student services that match the unique needs of its student population and the demands of ongoing changes in workforce development.

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): As our lens of focus has changed to include equity in the decision making process it is important to include that at all levels. Therefore I would like to review 50% of my courses utilizing some of the rubrics that have been developed to ensure that my courses are meeting the needs of all of my students.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

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Action: 2021-2022 Objective 4 Expand Equipment Teaching Opportunities

I would like to be able to expand the equipment I am using while teaching AGTC 103 Farm Power and Machinery course. This would allow me to teach safe operation of PTO driven equipment which is a very important skill in the San Joaquin Valley.

Leave Blank:

Implementation Timeline: 2021 - 2022

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4 By 2021, increase the percentage of CTE students who achieve their employment objective by 5 percentage points.

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): Farm machinery causes many accidents throughout the year. PTO driven equipment is used widely on dairies and farms throughout the area. These pieces of machinery pose special consideration when operating them.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Resources Description

Equipment - Instructional - 140 cubic foot powdered coated standard manure spreader with PTO drive. (Active)
Why is this resource required for this action?: This piece of equipment serves multiple purposes. It will allow me to teach safety around PTO driven equipment which are commonly used in the area on farms and dairies. It will also help serve other departments within the ag division like plant science and ornamental horticulture by providing them the ability to spread compost in their open areas used for planting to help improve soil health and fertility. It will also provide assistance to the animal science department as it provides an outlet for animal waste to be composted along with bedding. This unit

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will help create a sustainable cycle of energy movement through the COS Ag Units from Animal Science to Ornamental Horticulture and Plant Science. It will allow Ag Technology students to utilize the equipment to spread the compost in a safe manner.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 11000

Related Documents:

[PTO Drive Manure Spreader.pdf](#)

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2020-2021 Objective 1: Provide Intense training coupled with work based learning

Through the direction of the advisory committee the program is going to create a cohort model of training coupled with a work based component so that students receive 280 hours of in class instruction coupled with 225 hours of job site learning. The in class courses will be clustered on two days a week to allow for students the remaining days to complete their work based learning.

Leave Blank:

Implementation Timeline: 2019 - 2020, 2020 - 2021

Leave Blank:

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Identify related course/program outcomes: District Objective 1.1 The district will increase FTES by 1.75% over three years.

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): The Ag Technology Program has undergone some major changes in the last 3 years with the development of new certificates and reformatting of the Associates Degree. This program is new to many people. Retention rates in this program struggle reducing the number of program completions. Industry needs trained employees in a timely manner and a traditional "2 year" program doesn't allow students to finish in a timely manner or for a work ready crop of trained irrigation techs to be available to industry who needs employees. This approach allows for intense 2 day a week training.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2021-2022

10/11/2021

Status: Action Completed

We are currently in the semester this is being implemented. Some of the challenges has been timing where some internship are only offered during the summer. As we build these relationships it may be advantages to encourage students to sign up for the program early as they could be placed in internships over the summer. Employer follow through is another challenge. As we continue with this program it might be valuable to make the work based learning opportunities more flexible in regards to time. At the end of the semester I will collect feedback from both employers and students on their experience with this part of the program and evaluate for ways to improve next year.

Impact on District Objectives/Unit Outcomes (Not Required):

Update Year: 2020 - 2021

10/12/2020

Status: Continue Action Next Year

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Instructor met with advisory committee to discuss ideas and developed a plan to make Irrigation Technician program a single semester program that incorporates worked based learning along with classroom instruction.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

Action: 2020-2021 Objective 2 Develop Work site learning partnerships with industry for Irrigation Cohort Program

The goal of this action is to develop 15 to 20 student placement sites for students who are in the Irrigation Cohort Program. These site would be asked to provide students with a minimum of 180 hours of work based learning for completion of their Irrigation Certificate.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): The industry support for this program is incredibly strong because of the high demand for irrigation technicians. Industry is willing to work with young people to get them into the positions their companies have open. The industry views the programs job is to give the students the big picture and the "why" and the worksite learning is where students get to practice what is learned in the classroom in the environment that they will be working in.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2021-2022

10/11/2021

Status: Action Completed

This objective has been ongoing. We have had some success with employers and placing students. Some companies have had challenges with COVID 19 and the timing of the program. As we move forward with this program this will be on ongoing action. I will mark it as complete as we have established the base model for this but engaging industry will be an ongoing activity.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2020-2021 Objective 3 Develop support systems for students in the Irrigation Cohort Program

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Develop a support mechanism for students in the Irrigation Cohort Program that includes registration help, financial aid assistance and career development assistance.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): The program may be working with students who are atypical in their background. These potential students may be first generation college students or may be working in the field already and have difficulty navigating the systems within the educational system. Providing this service will not only assist the student in meeting their career goals but will assist the program in meeting its productivity goals.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2021-2022

10/11/2021

Status: Action Completed

The action is in progress this semester. Through all of the efforts enrollment support, and supports thus far through the semester we started the ag irrigation academy and lost 2 students initially at the beginning of the semester but all other student have stayed enrolled in the program. They have successfully received their textbooks and are utilizing campus resources for course success. I will mark this action as complete as it has been successful in get students enrolled.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2020-2021 Objective 4: Enhance Hands on Learning Opportunities for Students on Farm

I would like to enhance the ability for students to engage in meaningful hands on opportunities on the district farm. The development and the maintenance of the SAgE Farm are important to providing these opportunities.

Leave Blank:

Implementation Timeline: 2019 - 2020, 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 2.4 Increase number of students who achieve their employment objectives by 5%

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): The development of the SAgE Farm at the Tulare College Center has been a great tool for training students in the hands on work in irrigation and plant science. The expanded use and development of the SAgE Farm will be instrumental in accomplishing district objective 2.4 by giving our students strong hands on training.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

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Update on Action

Updates

Update Year: 2021-2022

10/11/2021

Status: Action Completed

With the implementation of the Ag Irrigation Academy there have been a lot of improvements in this area. Students have performed a system evaluation on the irrigation system for the grapes, citrus and almonds. Students have developed their ability to estimate soil moisture by feel. Students are learning about irrigation system maintenance. There are many other lab activities planned this semester.

Impact on District Objectives/Unit Outcomes (Not Required):

Update Year: 2020 - 2021

10/12/2020

Status: Continue Action Next Year

Student training on the farm continues. Equipment has been purchased to allow for pressure bombing of trees. Due to COVID-19 in Spring of 2020 the actual process did not happen but as regulations relax we will start to incorporate pressure bombing. Action will be continued but with another method rather than using pressure bombing, dendrometers will be investigated and incorporated into the educational program.

Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

Equipment - Instructional - A nitrogen tank and fill hose are needed for the leaf pressure chamber. (Active)

Why is this resource required for this action?: Nitrogen gas is used to compress the leaf to extract water from the stem. A student can typically get 60 readings on 1 tank of nitrogen and then the cylinder has to be filled. The cylinder can be filled at a welding supply store but it takes time to go to the supply store to get it filled. A large tank would allow the tank in the pressure chamber to be filled multiple times before the big tank needed to be refilled.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 1000

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2018-2019 Instructor Certification

In order for the program to have industry credibility the instructor should hold industry certifications so that the instructor demonstrates competency in the area of instruction at an industrial accepted level. Therefore the instructor will create a plan to earn the following industry certifications: Certified Agriculture Irrigation Specialist (CAIS) and Certified Irrigation Designer-Agriculture (CID Ag)

Leave Blank: Nonessential/Nice to have

Implementation Timeline: 2018 - 2019, 2019 - 2020, 2020 - 2021

Leave Blank: 09/01/2018

Leave Blank: 12/17/2021

Identify related course/program outcomes: District Objective 2.4 y 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Person(s) Responsible (Name and Position): Charlie Abee

Rationale (With supporting data): The rationale for this objective are:

(a) how the action will address academic quality or student success

This action will improve allow the instructor to improve their ability and knowledge base ultimately increasing the academic

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quality and student success. It will educate the instructor on the industry knowledge expectations of someone who holds the industry certification.

(b) how the action will promote resource efficiency or improve internal / external relations.

This action will promote resource efficiency because the instructor will learn and know what tools are being used by professionals and not be sold a bill of goods by an instructional supplies company. It will improve external relations because the instructor will be viewed as an equal in the industry by industry partners.

(c) how the action will address an external opportunity or challenge.

This will address an external opportunity and challenge because the instructor who is training irrigation designers will have their Certified Irrigation Designer credentials and will hold students to those same standards. As noted in the program opportunities the Environmental Quality Incentives Program will be included in the next Farm Bill providing funding for irrigation system improvements.

(d) how the action will improve results on outcomes at any/all levels.

This action will allow the instructor to gain the knowledge and skill necessary to make students successful in obtaining their certifications. It will provide notoriety for the program and lead to more students into the program and more successful students out of the program.

Priority: Medium

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation: The Irrigation Association offers continuing education hours for certification renewal every year by certified instructors. In order to become a certified instructor for the Irrigation Association the individual must hold an Irrigation Association Certification. This will add credibility to the program and provide opportunities for training through the Training Resource Center.

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points
District Objective 4.3 - College of the Sequoias Board of Trustees, administration, faculty, and staff will engage in best practices and staff development to sustain effective operational systems for institutional assessment and continuous improvement.