

IMPERIAL COMMUNITY COLLEGE DISTRICT
REVIEW OF CAREER TECHNICAL EDUCATION TRAINING PROGRAMS
2016

AGRICULTURAL CROP SCIENCE

I. Program Description

Agricultural Crop Science encompasses the study of the plant, soil, and water resources that are foundational to all agro-ecosystems. The crop sciences field can prepare you for a challenging career in many areas including: soil and crop management, plant breeding and genetics, seed science, environmental soil science, soil restoration and conservation, international agriculture, and ecosystem management.

A. Degree

None

B. Certificate

Certificated of Achievement, Agricultural Crop Science

II. Career Opportunities

First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers

Plant nutrition consultant

Certified pest management consultant (w/ CA Exam & License)

Production technician

Propagation technician

Pest control applicator (w/ CA Exam & License)

III. Industry Certification/Accreditation

None available.

IV. Industry Recognized Credentials (IRC)

Pest Control Advisor (PCA) – 45 units of required courses in Ag and Pest Mgmt Sciences,

Certified Crop Adviser (CCA) – requires a minimum of 3 years crop advising experiences with an AA degree in AG

Certified Professional Agronomist (CPAg) – requires a minimum of 5 years experiences with a BS in Agronomy

Certified Professional Soil Scientist (CPSS) - requires a minimum of 5 years experiences with BS in Soils or related area

Associate Professional Soil Scientist (APSS) – requires a minimum of BS in Soils or related areas

Although Industry Recognized Credentials (IRC) for the Agriculture industry do exist, most require additional education than offered at IVC. However, there may be an opportunity to develop pathways from high school to community college to university within the current purview of the Agriculture degree/certificate offerings at Imperial Valley College.

Persons that complete the Agriculture Crop Science certificate are eligible to sit the California state pesticide applicator exam and the exam for licensure as a Certified Pest Control Advisor.

V. Labor Market Demand

The Agricultural Crop Science program at Imperial Valley College meets a documented labor market demand. Employment trends for this field are derived from a variety of sources; however, the one listed below does not address the diversity of roles within the agricultural industries. See also the detail in Section B below.

A. Employment Trends

The TOP code used as an example below may or may not align with a college certificate program as it is addressing management more than a technician or specialist

Occupation	TOP Code	SOC Code	2012	Average Job Openings per Year
First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	0103.00	451011	340	13*

*State Employment Development
Occupational Employment Projections 20012-2022
Imperial County
<http://www.labormarketinfo.edd.ca.gov/CommColleges/>

B. Employment Trends Assessment

The EDD’s Imperial County Projection Highlights report includes the following statements.

“The Farm industry, which makes up 18 percent of the total employment, will climb to 11,700 by 2018, an increase of 300 new jobs.

“The top three occupations are Farm Workers and Laborers, Crop, Nursery, and Greenhouse; Retail Salespersons; and Personal and Home Care Aides with median hourly wages ranging from \$8.95 to \$9.24.”

“Occupations requiring higher education, an associate degree or higher, make up 16 percent of this list. These include Farm, Ranch, and Other Agricultural Managers; General and Operations Managers; Accountants and Auditors... with a median wage ranging from \$24.08 to \$36.73 per hour.”

(Source EDD 2008-2018 Imperial County *Projection Highlights*)

The 2008-2018 EDD Projection Highlights also reports that the agriculture industry of Imperial County employs 25% more people than the second highest industry in the county when the “government industry” is not considered. The second highest employing industry is Retail Trade. When the rather large gap between retail and wholesale is evaluated (8,000 and 2,000 employees respectively) it gives cause for consideration that the Retail Trade is largely augmented by the largest producing industry in the county, that being agriculture.

In analyzing data comparing all Imperial County industry employment change for year- to-date August 2012 to August 2013, the EDD shows a 10.8% increase in agriculture employment versus the total non-farm employment increase of 1.8%. The same reporting period shows that Retail Trade retarded 1.4% in employment. The category that considers “green energy utilities” reported a .9% increase in employment; however, this will be a short lived phenomena as there were far fewer employees in that category to begin with and the spike is heavily influenced by short term construction employment that will not transition into long term operational employment.

Use of payroll and number of reported businesses as a measure of need to provide a viable workforce to this industry are also reasonable benchmarks. The numbers of agriculture businesses for the years of 2008 – 2012 were 301, 296, 297, 288 & 291 respectively. This does show a slight (4.3%) negative shift from the highest year (2008) to the lowest year (2011); however, it would not be accurate to say that there is a trend in this direction as the data clearly show both positive and negative shifts to meet the industry needs.

As for payroll, the same time period reported a range of \$53,392,000 (2009 low) to \$64,976,000 (2008 high). The other years in the five-year period fluctuated with all exceeding \$57,464,000, which is measurably greater than the five-year low.

In comparison the number of businesses in retail trade showed an 11% negative shift in the same five-year period with 471 (2008) and 418 (2011). There was a slight rebound reported in 2012 with 433 businesses; however, the four years proceeding experienced a consistent annualized reduction in the number of retail facilities.

Further testimony to the fact that agriculture is the largest and most consistent industry in the county is garnered from the Imperial County Agriculture Commissioners Office. This county office has direct regulatory oversight of 291 businesses as identified from the issuance of Pesticide Operator ID numbers. When

one considers this along with the data compiled by the EDD, it is clear that there is a possibility that both overlap and missed accounting may be the case.

A third and final economic report must also be considered when trying to quantify the extent and impact of the agriculture industry on the citizens of Imperial County is the annual Agriculture Crop & Livestock Report. The most current report (2011) posts the county producing \$1,964,087,00.00 of “wholesale” commodity value. This was up over \$360,000,000.00 from 2010.

California is the seventh largest agricultural economy in the world and the largest agriculture economy in the United States posting \$43.5 billion for last year. That was 25% greater production than the number 2 state, Iowa, and just about exactly doubles the production of the number three state of Texas. Imperial County consistently ranks in the top 12 counties of the state, there is no denying that the industry is entrenched and will not be going away.

As for the perceived lack of employment opportunity based on as determined by a limited job postings, I can only hypothesize that in an economic time of downturn it is not necessary to post openings as they may frequently be filled by word of mouth, referrals, and people simply walking in off the street asking if an opportunity is to be had.

VI. Other Regional Programs

There are no other similar training programs in Imperial Valley.

VII. Employment and Completion

(Based on State Core Measures Report, 2012-2013, 2013-2014 & 2014-2015)

Core 2: Completions. Measures completions for Career Technical Education student concentrators. Receipt of a certificate or degree or enrollment in a California four-year public university with or without a degree is considered a completion.

Fiscal Year Planning	Program	Total Completions	IVC Completion Rate	State Avg. Completion Rate
2013-2014	Agri Crop Science	2/5	40%	77.70%
2012-2013	Agri Crop Science	0/1	0	75.99%
2011-2012	Agri Crop Science	0	0	82.24%

PERKINS IV Program Performance Trend Report
 Core Indicator Two – Total Completions – Certifications, Degrees and Transfer
https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_coreIIndi_TOPCode.aspx

Core 3: Persistence and Transfer. The percent of Career Technical Education student concentrators (students who have successfully completed a minimum of 12 units of related Career Technical Education coursework) who persist in education at the community college level or transfer to a two or four-year institution.

Fiscal Year Planning	Program	Persistence	IVC Persistence Rate	State Avg. Persistence Rate
2013-2014	Agri Crop Science	16/20	80%	86.27%
2012-2013	Agri Crop Science	2/3	66.67%	86.37%
2011-2012	Agri Crop Science	0/1	0	90.76%

PERKINS IV Program Performance Trend Report
Core Indicator Three – Persistence and Transfer

https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_coreIIndi_TOPCode.aspx

Core 4: Student Placement. The percent of Career Technical Education students who have earnings the following year (as found in the unemployment insurance base wage file) or are in an apprenticeship program, or the military.

Fiscal Year Planning	Program	Placements	IVC Placement Rate	State Avg. Placement Rate
2013-2014	Agri Crop Science	5/5	100%	59.08%
2012-2013	Agri Crop Science	1/1	100%	60.71%
2011-2012	Agri Crop Science	1/1	100%	60.51%

PERKINS IV Program Performance Trend Report
Core Indicator Four – Employment

https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_coreIIndi_TOPCode.aspx

Pursuant to the FCMAT report, CTE programs are also being evaluated for student demand, certificate and program completion, local labor demand, and a facility utilization for CTE programs in the new CTE building.

VIII. Enrollment Trends

Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG080	2012-2013				
AG080	2011-2012				
AG080	2010-2011	1	25	35	71.43%
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG120	2012-2013				
AG120	2011-2012	1	23	25	92%
AG120	2010-2011				
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG140	2012-2013	1	21	25	84%
AG140	2011-2012				
AG140	2010-2011	1	34	24	141.67%

Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG170	2012-2013				
AG170	2011-2012	1	25	25	100%
AG170	2010-2011	1	15	24	62.50%
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG30	2012-2013	1	22	30	73.33%
AG230	2011-2012				
AG230	2010-2011	1	23	35	65.71%
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG240	2012-2013	1	10	25	40%
AG240	2011-2012				
AG240	2010-2011				
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG250	2012-2013				
AG250	2011-2012				
AG250	2010-2011	1	37	35	105.71%
Course	Year	Sections	Avg. Class	CAP	Fill Rate
AG270	2012-2013				
AG270	2011-2012	1	28	35	80%
AG270	2010-2011				

IX. Completions

	2014-2015		2013-2014		2012-2013	
	Degrees	Certificates	Degrees	Certificates	Degrees	Certificates
Agri Crop Science	N/A	0	N/A	0	N/A	1

Although as of this time there has only been one completion since 2010-2011 it is anticipated that this number will continue to rise along with enrollment for this major course of study. In fall 2013 the Ag Advisory Committee, which representatives from UCANR, Helena Chemical, USDA, Agtegrity, CDFA, emphatically insisted that the Ag programs be maintained as Ag courses are transferable and there is a need for more Ag degrees at the MS and PhD level for critical research and industry needs. The committee also said the Ag programs at IVC must have an opportunity to grow as Ag is the most prominent industry in the valley and the Ag entities want to hire people with agriculture training and preferably the addition of a Ag business studies.

X. FTES/FTEF Analysis

Year	FTES	FTEF	FTES/FTEF
2012-2013	13.84	1.53	9.05
2011-2012	20.43	1.74	11.74
2010-2011	19.81	1.4	14.15

XI. Facility Utilization Plan

All agricultural programs must have designated lab space, which is comprised of land, greenhouses, etc. Over the years, the land originally designated as farmland for the IVC agriculture program has been utilized for the college campus expansion. The farmland remain is limited, but still provides an opportunity for lab/field experiential learning.

XII. SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> • Renewed commitment from Advisory Committee • Existing farmland for experiential learning • Excellent classrooms in 2700 • Short-term courses over the past 2 semesters has increased the total number of enrollments 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Only 1 full-time faculty member despite more than a dozen unique agriculture courses • Need for farming/harvesting equipment
<p>Opportunities</p> <ul style="list-style-type: none"> • To create internship experiences with local agencies and/or farmers • To increase completions (certificates & degrees) through increased involvement of counseling and ongoing encouragement of faculty • Research opportunities with algae production entities and on-site percolating ponds • To align the certificate and degree for Ag Science/Ag Crop Science 	<p>Threats</p> <ul style="list-style-type: none"> • Risk for reduction in farmland if the college campus expands again • Perception of limited roles or job potential in agriculture • Lack of recognition that all facets of agriculture are subject to less drastic economy swings and therefore afford more stable employment

- **Size of Business Data:**
Click on the link below and select a county. The data available is for 2004 to 2012. Click on one of the years. An Excel file will open. Scroll to the Agriculture industry. The data provided includes the Number of Businesses, the Number of Employees, and total Payroll by employment Size Categories.
<http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=138>

- **Employment by Industry data:**
Click on the link below and select a county. You'll see three columns. The first column, Current Month Employment, provides the latest press release data. The second column, Historical Monthly Data, will provide monthly data for all industries. Open the Excel file to see Total Farm employment from 1990 to Aug 2013. The third column will provide the same Excel file, but the information is Annual Average data from 1990 to 2012.
http://www.labormarketinfo.edd.ca.gov/LMID/Employment_by_Industry_Data.html
- **Employment Projections:**
Click on the link below and select a county. The projection data includes a Highlights page, Industry projections, Occupational Projections, Occupations with the Most Job Openings, and Fastest Growing Occupations.
http://www.labormarketinfo.edd.ca.gov/LMID/Projections_of_Employment_by_Industry_and_Occupation.html
- **Detailed Agricultural Employment and Earnings Data:**
The link below will provide 2004-2013 detailed Ag employment and earnings data by Region. The Desert Region includes Imperial County, Riverside County, and San Bernardino County. The South Coast Region includes San Diego, LA, Orange, Santa Barbara, and Ventura.
http://www.labormarketinfo.edd.ca.gov/LMID/Agricultural_Employment_in_California.html
- **Employers by Geographic Area:**
If you want to search specific employers, you can use the following link. Click on the link. In the Employers by Geographic Area, click on Go. Select a county and click on Search. Under Option 2, select Agriculture, Forestry, and Fishing & Hunting and click search. You should see a list of industries with the number of employers in parenthesis. Select an industry from the list and click on View Employer List.
<http://www.labormarketinfo.edd.ca.gov/aspdotnet/databrowsing/empMain.aspx>

XIII. Program Evaluation

The Agriculture Crop Science certificate program is undergoing a restructuring to align with the Associate Degree for Transfer (ADT) in Agriculture Science. The new certificate option will better align with industry standards.

XIV. Recommendations

It is recommended that the Agricultural Crop Science certificate program be restructured to align with the Agriculture Science ADT.