



**STATE BOARD FOR COMMUNITY
AND TECHNICAL COLLEGES
OCTOBER 2021
PROGRAM PROPOSAL
BACHELOR OF APPLIED SCIENCE
AGRICULTURE SCIENCES
YAKIMA VALLEY COLLEGE**

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Cover Page — Program Proposal

Program Information

Institution Name: Yakima Valley College

Degree Name: Bachelor of Applied Science in Agriculture Sciences

CIP Code: 01.0301

Name(s) of existing technical associate degree(s) that will serve as the foundation for this program:

Degree: AAS-Agribusiness

CIP Code: 01.0101

Year Began: 2000

Degree: AAS-Food Technology

CIP Code: 01.0404

Year Began: 2000-04

Degree: AAS-Vineyard Technology

CIP Code: 01.0309

Year Began: 2007

Degree: AAS-T Agribusiness

CIP Code: 01.0101

Year Began: 2010

Degree: AAS-T Vineyard Technology

CIP Code: 01.0309

Year Began: 2013

Degree: AAS-Production/Pest Management

CIP Code: 01.0301

Year Began: 2020

Proposed Start Implementation Date (i.e. Fall 2014): Fall 2022

Projected Enrollment (FTE) in Year One: 15

Projected Enrollment (FTE) by Year: 2022 (15), 2023 (29), 2024 (34), 2025 (39), 2026 (39)

Funding Source: State FTE

Mode of Delivery

Single Campus Delivery: Yakima and Grandview Locations

Off-site: N/A

Distance Learning: Hybrid

Program Proposal

Please see criteria and standard sheet. **Page Limit: 30 pages**

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Chief Academic Officer signature

The Program Proposal must be signed. To sign, double click on the signature line below.

 Recoverable Signature

X Jennifer Ernst

Chief Academic Officer
Signed by: Jennifer Ernst

9/23/2021

Introduction

Yakima Valley College (YVC) resides within a large district that spans over 800 miles and includes Kittitas, Yakima and Klickitat Counties. According to the Washington State Farm Bureau, “Washington State is the third largest food and agricultural exporter in the United States”[1]. Central Washington is known for the variety of agricultural commodities it produces, such as hops, tree fruit, row crops, vegetables and animal products. According to the 2017 Census, Yakima County is #1 in fruits, tree nuts, and berries in the state of Washington, as well as livestock, poultry and animal products from a market value perspective of agriculture products sold [2]. The Agriculture industry is the top employment sector in Yakima County, lending 27.3 percent of all employment in 2019, according to the Washington State Employment Security Department [3]. Seventeen of the top twenty five employers in the Yakima Valley are in the agriculture industry [4]. Additionally, from 2009 to 2019, agricultural wages have increased 4.7 percent, “account[ing] for 21.8 percent of total covered payroll countywide;” [thus] “This most recent ten-year timeframe [in] the agricultural industry, in terms of employment, and especially in terms of payroll, has become more ‘influential’ in the Yakima County economy”[5]. Finally, Yakima County is home to over 2,952 farms, the largest number of farms in all counties in Washington State [6]. Employment opportunities are available and steadily growing for a variety of individuals across the skills spectrum due to the diversity of agriculture services in the region. With the increase in technological advancements in agriculture, the labor force will need to be increasingly skilled and adaptable for agriculture producers to continue to see success in domestic and global markets.

Educational advancements for individuals interested in agriculture are limited in the area. While Yakima Valley College offers several two-year degrees and certificate programs in the agriculture field including, Agribusiness, Vineyard Technology and Winery Technology, there is a lack of higher education programs available for place-bound students at the baccalaureate level. In agriculture, at present, the closest bachelor degree options are Viticulture and Enology and Sustainable Agricultural Systems, which are offered at a university and community college that are 77-135 miles from Yakima. These include Washington State University and Walla Walla Community College. Columbia Basin College, that is 84 miles from Yakima, offers a Bachelor of Applied Science in Applied Management (BAS AMAG) with a concentration in Agriculture. Many who live in the Yakima Valley would like to stay while having the opportunity to build skill sets for increasing levels of responsibility and leadership in industry, but the region served by Yakima Valley College is an “educational desert” because of low levels of educational attainment and limited or no access to bachelor level degree education within 60 miles [7]. The potential employee with a bachelor of applied science degree has an increased ability to earn living wages in the agriculture industry in Yakima Valley College’s service district.

The proposed Bachelor of Applied Science in Agriculture Sciences(BAS AG) at Yakima Valley College responds to the need for baccalaureate prepared individuals for current and prospective position openings in the agriculture industry in Yakima County and the greater Central and Eastern Washington regions. Yakima Valley College has been actively working with the local agriculture industry since 2016 to determine educational and training needs. There has been a demand for well-trained managers for close to a decade, and the region is about to be hit with an impactful retirement wave. The regional agriculture industry needs future agriculture leaders, since over 33 percent of producers in Yakima County are 65 or older, placing them at or near retirement. [8] If

approved, the proposed Bachelor of Applied Science in Agriculture Sciences degree would become the fifth applied baccalaureate degree offered by Yakima Valley College, increasing opportunities for place-bound working adults in this region of the Washington State.

Applied baccalaureate degree programs support the college mission to provide academic, professional, and technical education that is responsive to the needs of the college's service district. This need is particularly pressing when the attainment of higher education in Yakima County is considered. Collected census data for 2019 reveals that only 16.7 percent of adults in Yakima County hold a bachelor degree or higher, which is significantly lower than the average for Washington State [9]. According to the same 2019 community census data, 36 percent of people in the state of Washington hold a bachelor degree or higher [10]. Creating this additional applied baccalaureate program would, in turn, provide another viable opportunity for the region's non-traditional and place-bound students to earn an advanced degree in agriculture.

Criteria 1

Curriculum demonstrates baccalaureate level rigor.

In response to a 2019 recommendation from the Northwest Commissions on Colleges and Universities (NWCCU), Yakima Valley College is currently in the process of assessing the congruity between course, program, and institutional level student learning outcomes (SLOs) across all divisions.

The proposed Bachelor of Applied Science in Agriculture Sciences program will be designed with this recommended clarity across all levels. Each course outcome will support its program-level outcomes, which in turn will directly support Yakima Valley College's institutional level outcomes. Assessment within each course will be critically designed to directly inform these outcomes. Faculty will use tools to create courses that meet baccalaureate rigor (i.e., research on baccalaureate rigor, Blooms Taxonomy etc.) During the development of curriculum phase, also known as a Data Collection for Curriculum (DACUM) process, the rigor/relevance distribution of core skills and core knowledge was assessed for the agriculture industry. Furthermore, curriculum reviewers' feedback indicated confidence in the baccalaureate-level of rigor for the proposed program.

Yakima Valley College evaluates learning outcomes at multiple levels. At the course level, Yakima Valley College Agriculture faculty are primarily responsible for assessment of student learning; although, in many cases, the students are active participants of their assessment via peer reviews, role playing activities, personal evaluations, and survey participation. Individual course outcomes and objectives are developed with input from an advisory committee made up of agricultural professionals selected to represent a broad section of the agricultural industry in Yakima Valley College's service area. Course curriculum and the associated course SLOs and objectives are evaluated by a Curriculum Committee comprised of a diverse set of elected faculty serving within the Workforce Education Division (WED) and chaired by the Dean of the Workforce Education Division. Consideration is made in the design of course content and student assessment methods using desegregated data from the Office of Institutional Effectiveness (OIE) in order to ensure an equitable experience for all students. Curriculum is evaluated both at its creation and then regularly thereafter by faculty, Workforce Education Division Curriculum Committee, and industry advisors to ensure that it remains relevant and meets the program and institutional standards.

The Yakima Valley College Agriculture department has recently developed program-level learning outcomes (PLOs) for each associate of applied science (AAS) degree offered. Because Workforce Education Division programs are focused on developing knowledge and skill sets towards a specific career, each of the Yakima Valley College Agriculture Programs contains a unique set of PLOs intended to train students for that career.

Standard 1. Program Learning Outcomes (PLO)

Upon completion of this program, successful students will be able to:

- **Organizational Planning:** Design and revise a business plan and industry Standard Operating Procedures (SOPs).
- **Professional Communications:** Develop communication and ethical leadership skills for the diverse Agribusiness workplace, communicate appropriately with internal and external groups, and manage conflict.
- **Operations & Management:** Manage business operations, including record keeping for compliance, labor, and safety, and manage resources of the agricultural system (supplies, water, time, people, crops) sustainably.
- **Evaluation of Personnel, Processes and Products:** Recruit, hire, and evaluate employees; evaluate design and process efficiency of equipment for employee and food safety, customer satisfaction of the final product, and new technologies.
- **Data Collection and Analysis:** Collect and critically evaluate data related to production and quality, financial statements, market trends, and research for the Agribusiness sector.
- **Employee and Food Safety:** Implement safety measures for personnel and food products, including state, federal, and international food safety and compliance programs.

Standard 2: Program Evaluation Criteria and Process

Yakima Valley College is a data-driven institution. As such, critical evaluation of programs, including student success indicators, workforce demand, student experience, and community impact will be assessed. These data will guide the creation of the proposed Bachelor of Applied Science in Agriculture Science.

Table 1 Evaluation Criteria

Evaluation Type	Criteria
Student Evaluations of Teaching	Anonymous, computer-based evaluations of teaching are conducted in accordance with the YVC collective bargaining agreement This information is reviewed by the Dean of WED and individual instructor
Student Exit Survey	YVC currently utilizes the statewide BAS graduate survey six months post-graduation to evaluate the program's effectiveness at providing its graduates with knowledge and skills for workforce preparedness The OIE will support the BAS AG program in conducting student evaluations of teaching and courses, and annual student exit surveys
Faculty Evaluation	YVC faculty are evaluated the first two years of employment and then are placed on a five-year evaluation cycle All professional technical faculty are also required to complete a professional development plan at an interval of three years for initial certification and subsequently a five-year cycle. Performance self-evaluation includes a report of Professional Development Activities (conference or workshop attendance and/or presentations, honors, scholarship, research or artistic creation, growth and enrichment from sabbatical leaves), college activities (department work with peers or activities with students, committee work or initiatives supporting the faculty member's unit, committees or activities important to the YVC community), and professional activities (performed in the wider community)
Program Advisory Board Review	Course curriculum and evaluation data are discussed Industry needs, workforce demand, and job placement are assessed and necessary improvement to curriculum proposed Any proposed changes to course modalities, content, etc., made by instructional faculty are set forth for approval before submission to the WED curriculum committee Establishing community and industry partnerships for student experiential learning (i.e., field trips, internships)
YVC Agriculture Annual Review of Syllabi and Course Content	Utilization of student focus groups after years 1 & 2 to review all courses within the program Update course outcomes and content to align with student and industry feedback and the institutional mission After the initial 2 years of the program, the curriculum review process will move into WED's required 10% minimum annual review
YVC Agriculture Semi-Annual Department Meeting and Review	Quarterly faculty meetings with discussion of program content and student success Identify issues with content delivery, information gaps, activity effectiveness, and student receptivity Make decisions about any changes deemed necessary to ensure effectiveness of the BAS AG program
WED Program Assessment Cycle	Occurs every 3 years. The first assessment of the BAS AG program would be slated for 2024 Research personnel will access longitudinal database systems including the Student Management System (SMS), Data Warehouse (DW), and the National Student Clearinghouse to provide a range of institutional data Quantitative reports will be disaggregated by applicable categories and disseminated to BAS AG project personnel via reports and dashboards created by the OIE at YVC

Standard 3. Course Preparation Needed by Students Transferring with Technical Associate Degree

Any student who meets the minimum requirements for admission into the Bachelor of Applied Science in Agriculture Sciences program is encouraged to apply. Students with an associate in arts

or associate of applied science degree or 90 college-level credits may apply. Specifically, students having earned the following associate of applied science degrees or completed 90 credits within these specific agriculture programs are eligible to apply to the Bachelor of Applied Science in Agriculture Sciences program:

- Associate of Applied Science or AAS-T in Agribusiness
- Associate of Applied Science in Vineyard Technology
- Associate of Applied Science or AAS-T in Winery Technology
- Associate of Applied Science in Food Technology
- Associate of Applied Science in Production/Pest Management

These specific agriculture programs prepare students for the Bachelor of Applied Science in Agriculture Sciences program, but any associate in arts or associate of applied science degree will be acceptable as long as prerequisite coursework has been completed at the time of application. Students must complete the General Education courses (Table 2) prior to acceptance to the Bachelor of Applied Science in Agriculture Sciences program. Students must also be eligible to take MATH&146.

Table 2 General Education Prerequisite Requirements

Prerequisite Requirements	General Education	
ENGL& 101	English Composition I	5
CMST& 220 OR CMST 280 OR CMST& 210 OR CMST& 230	Public Speaking OR Intercultural Communication OR Interpersonal Communication OR Small Group Communication	5
Social Science Distribution	100/200 level	5
Humanities Distribution	100/200 level	5
AGSCI 101/BIOL 107	Plant Science	5
CHEM 100	General Chemistry	5
	Total	30

Table 3 Lower Division Prerequisite Requirements

Prerequisite Requirements	Lower Division Major Courses	
AGECN 201 OR ECON& 201	Economics of Agriculture OR Micro Economics	5

AGECN 210 OR ACCT& 201	Farm Management OR Principles of Accounting I	5
AGSCI 201	Soils	5
Program Approved Electives	100/200 level AG, AGECN, AGSCI, BA, BIOL, CHEM, MATH, or SPAN	45
	Total	60

Standard 4. General Education Component

The proposed Bachelor of Applied Science in Agriculture Sciences degree requires 60 credits of General Education courses to graduate from the program. A minimum of 30 credits will be completed within the earned Associate of Applied Science degree required for program entrance as seen in Standard 3. The remaining 30 General Education credits will be earned within the Bachelor of Applied Science in Agriculture Sciences coursework. The full 60 credits of General Education coursework that a student will complete prior to graduation from the Bachelor of Applied Science in Agricultural Science program is listed in Table 4.

Table 4 General Education Requirements, By Discipline

Communication		
ENGL& 101	English Composition I	5
CMST& 220 OR CMST 280 OR CMST& 210 OR CMST& 230	Public Speaking OR Intercultural Communication OR Interpersonal Communication OR Small Group Communication	5
Quantitative Skills		
MATH& 146	Statistics	5
Humanities		
CMST& 330	Organizational Communication	5
Humanities Distribution	100/200 level	5
Social Sciences		
SOSCI 320	Organizational Behavior	5
Social Sciences Distribution	100/200 level	5
Natural Sciences		
AGSCI 101/BIOL 107	Plant Science	5

CHEM 100	General Chemistry	5
CHEM& 121	Intro to Chemistry w/Lab	5
Humanities, Social Science or Natural Science		
Additional Distribution	100/200 level HUM/SS/NS	10
Total		60

Standard 5. BAS Coursework at Junior and Senior Levels

Eleven new courses will be developed to address the needs of South-Central Washington's regional agriculture industry, based on feedback from a Data Collection for Curriculum (DACUM) workshop, advisory committee meetings, and additional data collected from industry professionals (Table 5). [11] In addition, students will enroll in two Bachelor of Applied Science in Business Management courses that align with industry needs. Course descriptions and outcomes may be found in Appendix C.

Table 5 Upper Division Major Courses

Upper Division Majors	Courses	
AGECN 310	Agriculture Business Management	5
AGECN 410	Financial Agribusiness Management	5
AGSCI 301	Sustaining Soil Health	5
AGSCI 413	Applied IPM I	4
AGSCI 414	Applied IPM II	2
AGSCI 322	Harvest Technologies	5
AGSCI 370	Food Safety and Quality	5
AGSCI 430	Precision Agriculture	5
AGSCI 460	Physiology of Fruit Development	5
AGSCI 490	Applied Work Experience	4
AGSCI 499	Agriculture Capstone	5
BASM 375	Applied Principles of Leadership	5
BASM 435	Operations Management	5
	Total	60

Students will have a minimum of 60 credits from General Education courses, 60 credits of lower division courses from Data Collection for Curriculum (DACUM) coursework, and 60 credits of upper division courses to meet Bachelor of Applied Science in Agriculture Sciences program graduation

requirements (Table 6 BAS AG Degree Requirements).

Table 6 BAS-AG Degree Requirements

BAS-AG Requirements	Credits
General Education Courses	60
Lower Division Major Courses	60
Upper Division Major Courses	60
Total Degree Credits	180

Criteria 2

Qualified faculty.

Yakima Valley College is committed to diversifying faculty membership to better reflect the population of students served. The college has made budgetary allocations to ensure the proposed Bachelor of Applied Science in Agriculture Sciences program is staffed with high quality faculty. Yakima Valley College will hire a new full-time faculty who will be teaching in the proposed Bachelor of Applied Science in Agriculture Sciences program. The current three full-time Agriculture faculty will teach some of the proposed Bachelor of Applied Science in Agriculture Sciences program courses and new adjuncts will be recruited to support the program as needed. The recommended general education courses will be taught by Arts and Science Division instructors. Depending on workload, course availability, and course scheduling instructors, teaching assignments will vary by year. Additionally, Arts & Science faculty will teach some of the proposed Bachelor of Applied Science in Agriculture Sciences distribution courses, such as Social Science 320: Organizational Behavior. The bachelor of applied science degree programs at Yakima Valley College are interdisciplinary.

In addition, and as part of the cooperative work between Yakima Valley College and agricultural industries in the area, Yakima Valley College has reached out to industry partners to secure part-time/adjunct instructors who are highly respected among industry leaders and also highly qualified to teach in the proposed Bachelor of Applied Science in Agriculture Sciences program. These instructors meet the qualifications to teach at a bachelor level (Table 7, Appendix A). All professional/technical instructors, whether full-time or adjunct, meet the professional/technical instructor requirements of the Washington Administration Code (WAC) 131-16-092. This WAC requires professional development plans, specific educator credentials, and training.

The total faculty FTE allocated to the program include the following as discussed further in Criteria 5:

- One full-time faculty will be hired during the 2022-23 academic year
- 5 to 6 part-time faculty will be hired before the start of Fall 2022

Criteria 3

Selective admissions process, if used for the program, consistent with an open-door institution.

Yakima Valley College (YVC) is committed to an open-door policy and encourages the use of its post-secondary educational opportunities and services by the whole community. All community members, whether possessing a high school diploma or not, may enroll at the college without regard of past educational records. Students come from different pathways, such as Running Start and College and Career Readiness. The Admissions office assists students with the application and admission process to best meet all student needs.

Graduates with an Associates of Applied Science (AAS) in Agriculture credential from regionally accredited higher education institution will be welcome to apply for the proposed Bachelor of Applied Science in Agriculture Sciences program. Minimum prerequisite coursework may be required before a student is eligible to apply. Specific examples of Washington Agriculture programs include the following:

- Big Bend Community College, Agriculture Production (AAS)
- Columbia Basin College, Agriculture Business and Management (AAS) and Agriculture Production (AAS)
- Skagit Valley College, Agroecology and Sustainable Agriculture (AAS)
- Spokane Community College, Agriculture Business and Management (AAS)
- Wenatchee Valley College, Agriculture Business and Management (AAS) and Agriculture Production (AAS)

Yakima Valley College is part of the Eastern Region Agriculture Consortium that includes Columbia Basin College, Big Bend Community College, Wenatchee Valley College, and Walla Walla Community College. This Consortium has meant an increase in collaboration and potential partnerships and articulation agreements between regional colleges.

Yakima Valley College plans to admit new students into the Bachelor of Applied Science in Agriculture Sciences program on a yearly basis. Once approval is granted by the SBCTC and the NWCCU, the first cohort is scheduled to start Fall 2022. Yakima Valley College will ensure the admission process for the proposed Bachelor of Applied Science in Agriculture Sciences program meets and follows all college, state, and federal rules and regulations. Applicants will be screened through a process with clearly-defined minimum qualifications and prerequisites. This process will support student applicants from a diversity of backgrounds who will be prepared for the expectations of the proposed Bachelor of Applied Science in Agriculture Sciences program and will promote the overall success of admitted students.

Admission criteria for the Bachelor of Applied Science in Agriculture Sciences degree program include the following:

- Completion of a Yakima Valley College associate of applied science degree in any of the AAS and AAS-T Agriculture degrees will be welcomed into the Bachelor of Applied Science in

Agriculture Sciences program including Agribusiness, Food Technology, Winery Technology, Vineyard Technology, and Production/Pest Management. Students are required to have a grade of 2.0 or higher in all degree program courses and a 2.0 or higher in all general education courses.

OR

Completion of an associate degree or 90 college level credits with a minimum 2.0 GPA in all AG course prerequisites and a minimum 2.0 cumulative GPA in all other course prerequisites.

Students will complete the application materials which includes the following:

- Yakima Valley College Admission Application
- Bachelor of Applied Science in Agriculture Sciences program Application
- Official College Transcripts

Students must attend the proposed Bachelor of Applied Science in Agriculture Sciences program orientation, which will provide a review of the new degree Student Handbook that outlines procedures, expectations, and requirements. Mandatory advising will occur upon program admission and prior to year two in the program. Students may seek additional advising as needed.

Selection for Admission

Yakima Valley College will admit students based on a prioritization system that considers educational and agriculture-oriented work experience and grades as outlined in the Admissions section above. If the number of applicants exceeds spaces in the program, the admissions rubric (Table 8, Appendix A) will be used to rank applications for selection and a wait list will be formed for the remaining qualified applicants. If a current student drops out of the program during the first year, a new student from the wait list will be contacted and may be given the opportunity to enter the program. The wait list will expire at the end of the first year, and any remaining applicants must reapply for the next admission cycle.

This process will be evaluated every year by the agriculture faculty in collaboration with the BAS director and BAS program coordinator to ensure student diversity, student retention, academic achievement, and the production of highly qualified industry leaders. In addition, the program will review admission data after year two specifically to ensure equity in the selective admission framework. Adjustments will be made accordingly if an equity disparity is noted. The current Agriculture program student population (56 percent) identified as Hispanic/Latino, while 48 percent of Yakima Valley College undergraduate students overall were Hispanic/Latino (Table 10, Appendix A).

Efforts to Ensure a Diverse Population

Yakima Valley College has a diverse population of students. During the 2019-20 school year, 70 percent of Yakima Valley College students, including College & Career Readiness students, were students of color (includes Native American, Asian/Pacific Islander, African American, and other of color). Approximately 64 percent of the student population was female [12]. Marketing for proposed Bachelor of Applied Science in Agriculture Sciences prospective students targets this diverse student population, and the college will continue to develop community outreach activities to promote the program.

Criteria 4

Appropriate student services plan.

Since first receiving Hispanic-Serving Institute (HSI) funding in 2001, Yakima Valley College has focused attention on developing programs to better serve its growing Hispanic, largely non-traditional student population. The Mission Statement of the college exemplifies this focus on serving students [13]:

“As a federally designated Hispanic-serving Institution residing on the traditional homelands of the 14 Confederated Tribes and Bands of the Yakama Nation, Yakima Valley College cultivates equity and a culture of innovative and inclusive teaching and learning. Yakima Valley College serves all students holistically, supports all students’ learning goals, and fosters achievement within career and educational pathways. We strengthen our communities by providing opportunities for personal enrichment, economic mobility, and sociocultural engagement.”

Yakima Valley College began offering bachelor of applied science degrees in 2014. As of Fall 2020, Yakima Valley College offers four bachelor of applied science degree programs and has evaluated and upgraded student support services to meet the needs of all current and future baccalaureate degrees.

Yakima Valley College provides a strong infrastructure for helping students in the Student Services Division, which includes counseling/advising, financial aid, outreach, and registration services. Yakima Valley College is committed to the success of the proposed Bachelor of Applied Science in Agriculture Sciences program and will dedicate considerable resources to this project, including all facilities, equipment, technology, and learning resources needed by teaching faculty; outreach and recruitment; advising through Yakima Valley College’s Guided Pathways program; the fiscal and data management of the program; and access to professional development support through Yakima Valley College’s Teaching and Learning Center. The proposed Bachelor of Applied Science in Agriculture Sciences degree program will enhance Yakima Valley College’s capacity to attract underrepresented students, serve the needs of the agricultural community, and contribute to the regional economy.

The proposed program’s infrastructure will be fully developed to support the creation, initiation, and implementation of the degree pathway. It will be housed on both the Yakima and Grandview campuses and instructional facilities to ensure access for all Bachelor of Applied Science in Agricultural Science students at Yakima Valley College. The Grandview campus will utilize the new laboratory that is a biology/agriculture teaching space. The Grandview teaching vineyard will be available as an instructional resource for students. In the future, a vegetable row crop space will be created on the Grandview campus. On the Yakima campus, two different laboratory spaces, along with classrooms equipped with distance technology, will be used to deliver curriculum to the students.

The proposed Bachelor of Applied Science in Agriculture Sciences program itself will continue to evolve, with support for ongoing faculty professional development and technological upgrades provided with existing Yakima Valley College resources. Yakima Valley College will continue to identify

opportunities for expansion of Agriculture programs as regional agricultural industries adapt to changing practices and conditions.

Yakima Valley College will appoint a BAS program coordinator who will provide support and assistance to potential and currently enrolled students. In collaboration with the Bachelor of Applied Science in Agriculture Sciences faculty lead, the coordinator assists with advising, program admissions, registration, retention, graduation, and record keeping.

In addition to a program coordinator, Yakima Valley College will hire a full-time faculty member to teach agriculture courses in the proposed Bachelor of Applied Science in Agriculture Sciences program aligned with their expertise, provide student advising and support, assist with ongoing curriculum development, participate in program advisory boards to inform program changes and other responsibilities included with program development. In fulfillment of their responsibilities, the program coordinator and faculty member will receive support from the Agriculture Department, Office of Institutional Effectiveness, the Dean of Workforce Education, and the Vice President for Instruction and Student Services.

Academic Advising

The purpose of advising at Yakima Valley College is to assist students in making appropriate choices that will help them reach their academic and career goals. At the associates level, Yakima Valley College has implemented Guided Pathways and mandatory advising. In consideration of the unique program expectations and requirements, advising will be mandatory for Bachelor of Applied Science in Agriculture Sciences students. Students applying and admitted into the proposed Bachelor of Applied Science in Agriculture Sciences program will receive individualized and personalized academic advising services from the Bachelor of Applied Science in Agriculture Sciences faculty and the BAS coordinator. The BAS coordinator provides program navigation support to eligible students including support with the application process, registration, course scheduling, and graduation processes. Additionally, Yakima Valley College plans to hire a full-time Bachelor of Applied Science in Agriculture Sciences faculty member that will work collaboratively with the BAS coordinator regarding student advising. Through faculty and coordinator assistance, students will be followed and advised throughout the in Agricultural Science program. The Bachelor of Applied Science in Agriculture Sciences faculty will work closely and collaboratively with the Counseling and Advising Center to advise students who are in their first year and considering applying for admission to the proposed Bachelor of Applied Science in Agriculture Sciences program once they complete their associate degree.

Counseling & Advising Centers

The Counseling & Advising Centers on both the Yakima and Grandview campuses offer various resources designed to assist students to achieve academic success, acquire skills for employment, improve personal well-being, and develop effective skills for interacting in a diverse environment. Counseling services are available at no cost to registered Yakima Valley College students. Services available through the Counseling & Advising Center include:

- Academic counseling
- Short-term personal counseling
- Transfer information
- Decision-making regarding career and life goals
- Strategies for dealing with the fear of testing and new situations

- College survival and study skills
- Student advocacy
- Degree audit

Disability Support Services (DSS)

Yakima Valley College is committed to providing access for all students wishing to attend its campuses and complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA). Yakima Valley College allocates budgetary support for these services annually.

As part of this commitment, the college's Disability Support Services (DSS) program works individually with qualifying students by providing classroom accommodations, access to adaptive equipment, and barrier-free facilities. Available accommodations include, but are not limited to: Alternative exam format/time, recorded texts/lectures, ASL interpreters, note takers, accessible parking, and registration assistance. Yakima Valley College's overall efforts ensure accessible materials (websites, documents, etc. whenever possible), including videoconferencing and other technologies that increase student access. DSS facilitators work with instructors, departments, and the students to ensure accommodation needs are met.

College Assistance Migrant Program (CAMP)

The Yakima Valley College CAMP program provides eligible migrant and/or seasonal farm-working students in the south-central Washington region access to higher education and supports their academic, personal and career needs to ensure they successfully complete their first academic year at Yakima Valley College.

Yakima Valley College Cares

Emergency Funding: Yakima Valley College supports students who are housing or food insecure. The on-campus food pantry is scheduled to open with the reopening of the physical Yakima Valley College Campuses.

The following student programs are currently available for emergency services:

Yakima Valley College Passport Program for those who have been in a foster care program or homeless provides free textbooks, school supplies, backpacks, access to a small food pantry, and coordination with Catholic Charities where former foster students are assisted with housing.

The Yakima Valley College Foundation offers up to \$500 per student per academic year for unforeseen financial hardships, including assistance with housing. Students may apply at any time through the Counseling & Advising Center. The goal is to respond to applications within 24 hours.

Supporting Students Experiencing Homelessness provides a faculty case manager for support with emergency housing, food access, laundry facilities, technology access and school supplies.

Financial Aid

The Financial Aid Offices on both the Yakima and Grandview campuses prepare and disburse federal, state, and institutional aid for all Yakima Valley College students. Students can monitor the progress of their applications online. All students admitted to the Bachelor of Applied Science in Agriculture Sciences program may apply for financial aid in the same manner as all other students.

Veterans Programs

This program provides outstanding veteran support services and encouragement to student Veterans to ensure program completion. The Veterans Affairs Office assists all eligible veterans, reservists, dependents, and VA chapter 31 students. It is anticipated that the Bachelor of Applied Science in Agriculture Sciences degree will be eligible for VA-approved funds.

Tutoring

All Yakima Valley College students qualify for free tutoring services on both the Yakima and Grandview Campuses for Accounting, American Sign Language, Anthropology, Biology, Chemistry, Economics, Mathematics, Physics, Spanish and other courses as indicated by need on a quarter-by-quarter basis. In addition, Yakima Valley College has partnered with the State Board of Community and Technical Colleges (SBCTC) and the Connecticut Distance Learning Consortium to provide online tutoring assistance to students through eTutoring.org.

Academic Support Centers

Yakima Valley College has a variety of academic support centers including writing, math and speech and language labs on both Yakima and Grandview Campuses. Currently Yakima Valley College has two “drop-in” Mathematics Centers that provide instructional support for classes from arithmetic through calculus. Yakima Valley College continues to augment student services as needed. Recently the “Math Café” has been added to the Yakima Valley College online services to provide enhanced online access to tutoring.

eLearning Support

Students are introduced to the eLearning management system, CANVAS, through New Student Orientation for bachelor program students. Yakima Valley College faculty are equipped to answer basic questions regarding CANVAS. Additional support can be accessed through the eLearning Coordinator who is available by phone, email, or in person to support student and faculty needs.

Computer Labs

The Yakima Valley College Raymond Library houses 32 workstations where students can go to use the internet, type assignments, print out documents, or fulfill any other school-related computer needs. The library has 81 computers for students to use, headphones, color/black and white printers, and photocopiers. Students may also fax or scan documents.

Deccio Higher Education Center offers a computer lab which offers proctored exams. Four other computer rooms connected to the “computer monitoring HUB” can be used as overflow for proctored exams on busy weeks such as mid-terms and finals.

Yakima Valley College provides additional computer workstations in two other locations on the Yakima Campus. Additionally, the Grandview Campus offers a computer lab for student use and for proctored testing. Both campuses provide several mobile carts of classroom laptops, making the computer “labs” available for classes and labs.

Internet Access

Yakima Valley College Technology Services provide several services to support students in their coursework. The ethernet/fiber optic computer network provides robust connectivity between

buildings and campuses and allows for internet access in all classrooms. All students have free access to the campus Wi-Fi network on both campuses which covers indoor spaces such as hallways and lobbies and most outdoor spaces such as parking lots and sitting areas.

Library and Media Services

Both the Yakima and Grandview campuses offer library services and access to technology and printing services. Grandview's library is unique as it is partnership between Yakima Valley College and the City of Grandview to serve community needs. Yakima Valley College's library integrates resources in a variety of formats, to provide students broad access to information in support of the college curriculum. The library provides multiple services for students, faculty, and staff, such as information literacy instruction, reference service, circulation services, course reserves, interlibrary loan, in-library student technology support, and copyright guidance. Reference service is available 24/7 through a state and national cooperative.

The library subscribes to several major full-text periodical databases with access to thousands of titles in information technology. To support current and future BAS programs, the library has added six databases to its inventory.

Media Services has a wide range of services designed to support student learning, including the ability to stream any video or DVD owned by the college to any network computer on either the Yakima or Grandview campus. Laptop computers may be borrowed by currently enrolled students.

Criteria 5

Commitment to build and sustain a high-quality program.

Yakima Valley College has the full support of agriculture industry employers, advisory committee members, and students in the region it serves to provide a high-quality Bachelor of Applied Science in Agriculture Sciences program. This support will ensure that the proposed Bachelor of Applied Science in Agriculture Sciences program will effectively respond to the very urgent need for well-qualified employees in its service area.

For the current workforce living within Yakima Valley College's educational service district, the proposed Bachelor of Applied Science in Agriculture Sciences degree will open an opportunity to further their education and obtain a baccalaureate degree without jeopardizing current employment and dislocating or disrupting families. A Bachelor of Applied Science in Agriculture Sciences is versatile enough that a person with this degree could potentially advance to a management position and further their education by pursuing a graduate degree in a specific field of study.

Yakima Valley College offers several degrees and certificates in Agriculture that would feed into the Bachelor of Applied Science in Agriculture Science. Yakima Valley College offers Associates of Applied Science degrees in Agribusiness, Food Technology, Winery Technology and Vineyard Technology. Two additional AAS-T degrees are available in Agribusiness and Vineyard Technology for transfer students. Recently there has been a focus on increasing program interest within the agriculture discipline. In 2018-19, a faculty position was hired to attract a new generation to these important programs and ensure current associate in applied science programming meets local

industry needs. After renewed discussion with industry to bring back a previously existing Associates of Applied Science in Production Pest Management, this associates of applied science degree are now being offered. With an emphasis on building the agriculture associate of applied science and certificate pipeline, Yakima Valley College's proposed Bachelor of Applied Science in Agriculture Sciences would potentially benefit with increased interest and enrollment.

With an average of 10 students graduating each year in Yakima Valley College's established and successful Associates of Applied Science in Agriculture programs between the academic years of 2017 and 2020, the first cohorts of the Bachelor of Applied Science in Agriculture Sciences program would initially be recruited from this student population and incumbent workers [14]. In addition to the current student pipeline, the Bachelor of Applied Science in Agricultural Science will attract current individuals employed in the agriculture industry to increase their credentials for promotion, which will support enrollment. Yakima Valley College has been updating agriculture programming to meet industry needs and is actively recruiting new students and creating connections with the agriculture community to increase associates of applied science program enrollment. The summary of the agriculture Associate of Arts (AAS) and Associate of Arts-Transfer (AAS-T) in Agriculture degrees awarded during the academic years of 2016-17 to 2019-2020 further supports the sustainability of the program during its infancy.

Table 9 and Table 10 (Appendix A) illustrate Yakima Valley College's graduation rates and current program enrollment. This data shows an increase in enrollment with an increase in graduation rates to follow in the Associates of Applied Science in Agriculture programs. The current increased enrollment emphasizes further the sustainability of moving forward with a Bachelor of Applied Science in Agriculture Science. According to Yakima Valley College data (Table 10, Appendix A), 54 students are currently majoring in the seven different AAS Agriculture degree or certificate options offered at Yakima Valley College. [15] Of these students, 56 percent identified as Hispanic/Latino, while 48 percent of Yakima Valley College undergraduate students overall were Hispanic/Latino. While it is not surprising to see this percentage for a Hispanic-Serving Institution (HSI), the number of students of color declaring Agriculture degrees at Yakima Valley College has been steadily increasing. This increase can partially be attributed to the recent work of the Agriculture department to further meet the student needs in the community by restoring specifically-requested associates of applied science programs offered, such as Production Pest Management. Furthermore, the institution is intentionally inclusive: increasing opportunities for all students historically underserved in the Yakima Valley is the primary goal. The ethnic diversity of agriculture student enrollment mirrors the student population at Yakima Valley College.

Yakima Valley College is committed to building and sustaining a high-quality Bachelor of Applied Science in Agriculture Sciences program. Yakima Valley College has allocated funds from its current operating budget to cover all Start-Up Costs for the design, hiring, recruiting and initial launch of the proposed Bachelor of Applied Science in Agriculture Sciences degree (Table 1 , Table 2).

To develop the budget, Yakima Valley College analyzed existing resources to determine which could be leveraged for the proposed Bachelor of Applied Science in Agriculture Sciences program and the additional resources needed to support accomplishment of Bachelor of Applied Science in Agriculture Sciences objectives. The primary financial need is to hire a full-time agriculture instructor in the first year to develop the new Bachelor of Applied Science in Agriculture Sciences courses with four program innovations – hybrid/bi-campus delivery, HSI services [16], problem-solving and

teamwork for leadership development, and transfer partnerships – are addressed. Once the program begins offering courses in the second year, the tuition and fees will cover the costs of the full-time a full-time instructor in the proposed program.

Upon approval, Yakima Valley College will launch the proposed Bachelor of Applied Science in Agriculture Sciences program Fall 2022. Figure 1 illustrates five-year projections of enrollment, revenue and expenditures that will support faculty and staff salaries, equipment, outreach, goods and services, library, and faculty in-district travel.

Figure 1 Budget

	Year 1	Year 2	Year 3	Year 4	Year 5
	2022-23	2023-24	2024-25	2025-26	2026-27
Year 3 Student Enrollment	15	15	20	20	20
Year 4 Student Enrollment	-	14	14	19	19
Revenue					
Tuition	\$5,001	\$5,102	\$5,205	\$5,310	\$5,417
Summer	\$0	\$1,499	\$1,529	\$1,560	\$1,592
Tuition Year 3 Students	\$75,015	\$76,530	\$104,100	\$106,200	\$108,340
Tuition Year 4 Students	\$0	\$92,414	\$94,276	\$130,530	\$133,171
<i>Total Tuition/Revenue</i>	\$75,015	\$168,944	\$198,376	\$236,730	\$241,511
Expenditures					
Operating Costs					
Instruction (1 FTE)	\$69,986.00	\$71,386.00	\$72,813.00	\$74,269.00	\$75,754.00
Instructional Tech (0.5 FTE) 9 months	\$27,603.00	\$27,615.00	\$28,167.00	\$28,730.00	\$29,304.00
Curriculum Development	\$9,144.00	\$0.00	\$0.00	\$0.00	\$0.00
Benefits	\$39,677.00	\$40,173.00	\$40,977.00	\$41,796.00	\$42,631.00
Goods & Services	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00	\$3,000.00
Library /Databases*	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00
Travel	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00
Equipment	\$3,345.00	\$3,345.00	\$3,345.00	\$3,345.00	\$3,345.00
<i>Total Expenditures</i>	\$157,255.00	\$150,019.00	\$152,802.00	\$155,640.00	\$158,534.00
Total Net Income (Loss)	-\$82,240.00	\$18,925.00	\$45,574.00	\$81,090.00	\$82,977.00

Tuition Revenue assume 2% annual increase

Salary and Benefit projections assume 2% annual inflation

*On an as needed basis

For the 2022-23 academic year, Yakima Valley College is projecting to enroll 15 students in the proposed Bachelor of Applied Science in Agriculture Sciences degree pathway. The enrollment projection for the 2023-24 academic year is 29 students and in subsequent years the college

projects to see these numbers slowly increase as more students move through the proposed Bachelor of Applied Science in Agriculture Sciences program. Yakima Valley College's current bachelor of applied science programs have a high retention rate that is typically in the mid to high 90th percentile. For years two and three Yakima Valley College estimates a 93 percent retention rate, and years four and five at a 95 percent retention rate. As the cohorts are small and students receive mandatory advising and wrap around support, attrition is expected to be much lower than a typical associate-level program.

Yakima Valley College has budgeted to hire for the following positions:

- Program coordinator- appointed during the 2022-23 academic year. This is not a new position.
- One full-time faculty - hired during the 2022-23 academic year
- 5 to 6 part-time faculty - hired before the start of fall 2022

*Note: The proposed Bachelor of Applied Science in Agriculture Sciences program coordinator position will be appointed from the pool of coordinators already budgeted for at Yakima Valley College.

The program will be supported by tuition revenue and the college's District Enrollment Allocation Base (DEAB) FTE allocation. Yakima Valley College used the current 2021-22 Washington State Community College tuition rate with a 2 percent annual increase to determine Operating Revenue projections. The DEAB FTE allocation is not shown in the budget projections as Yakima Valley College projects program sustainability utilizing tuition revenue only. Only upper division courses were tallied in the program revenue. Additionally, the first year of the program, 2022-2023, shows a revenue loss of \$66,960, but the following years show the additional cohort and growth of the proposed Bachelor of Applied Science in Agriculture Sciences program to mean the loss is short-term with the program sustaining itself over the long-term. The difference between year one and year two revenue is due to the addition of summer quarter enrollment for the 2nd year students. In addition, revenue increases from year three to year four due to projected increase in enrollment.

Yakima Valley College did not include cost projections for student services or budget office expenses as it considers those areas as institutional costs. Yakima Valley College does not allocate those costs to specific programs and the institution has the appropriate capacity in those areas to increase college instructional programming.

The college is projecting to purchase primarily computer and office equipment for new staff and faculty. Yakima Valley College's Community Relations department has estimated marketing dollars to be sufficient to promote the proposed Bachelor of Applied Science in Agriculture Sciences program in the community using a combination of traditional media and social media. Yakima Valley College expects staff to participate in conferences, seminars and trainings related to the Agriculture Program and the amount allocated should be sufficient to provide continued training for staff and faculty professional development required to meet job requirements.

Resources for Program Development

The proposed Bachelor of Applied Science in Agriculture Sciences program's infrastructure is fully developed to support the creation, initiation, and implementation of the pathway. The proposed program will be housed on both the Yakima and Grandview campuses and instructional facilities to

ensure access for all future enrolled Bachelor of Applied Science in Agriculture Sciences students at Yakima Valley College. The Grandview campus location will utilize the new laboratory space that is a biology/agriculture teaching space. The teaching vineyard also will be available as an instructional resource for students. In the future, a vegetable row crop space will be created on this campus. At the Yakima campus location, two different lab spaces will be used to deliver this curriculum to students. In addition, this program will use off-site field-based trainings in partnership with regional growers for practical training.

Yakima Valley College offers four baccalaureate programs and has upgraded its technology, library, curricular, and electronic information resources to meet the demands of its current and future baccalaureate programs. It has a variety of resources to support the Bachelor of Applied Science in Agriculture Sciences program: Math, Writing, Speech and Tutoring Centers, Library and Media Center. Technology support includes computer labs and printing capabilities. Yakima Valley College also has a dedicated instructional designer and eLearning coordinator to support faculty and staff, in addition to a Help Desk.

Criteria 6

Program specific accreditation.

Yakima Valley College will not seek any specialized program accreditation for the proposed Bachelor of Applied Science in Agriculture Sciences Program. Yakima Valley College has been granted accredited status at the baccalaureate level by the Northwest Commission on Colleges and Universities (NICO). Accordingly, applied baccalaureate degrees offered by Yakima Valley College are included under the accreditation of the college. Yakima Valley College currently offers four applied baccalaureate degrees that are in good standing through NWCCU.

Criteria 7

Pathway options beyond baccalaureate degree.

Yakima Valley College's development of a Bachelor of Applied Science in Agriculture Sciences will have advantageous implications for the place-bound students served by the institution. Offering the proposed agricultural science degree at the baccalaureate level would have the added benefit of supporting agricultural offerings, in particular, certificate options at Walla Walla Community College and Columbia Basin College, as well as WSU's online agriculture master's degree program to provide new viable pathways for students who complete their applied baccalaureate degree in Agriculture Science at Yakima Valley College. The proposed degree will fulfill industry and student demand, as well as support the valued partnership between partner institutions and Yakima Valley College.

Walla Walla Community College and Yakima Valley College program and administrative leadership have met multiple times to discuss the development of an articulation between the two institutions. The first of such meetings was in December 2020, to discuss opportunities for the colleges to build mutually beneficial Bachelor of Applied Science in Agriculture Sciences programs. Additionally, Walla Walla Community College graciously offered Yakima Valley College guidance regarding the creation of a Bachelor of Applied Science in Agriculture Sciences degree program, since the institution went

through this process to successfully launch its own Bachelor of Applied Science in Agriculture Sciences program. The two schools recently met again in January 2021 to continue the discussion of aligning Associate in Applied Science in Agriculture Sciences and Bachelor of Applied Science in Agriculture Sciences curriculum and the possibility of creating a concentration of upper division credits in Agriculture that would support students taking advantage of attending Walla Walla Community College and/or Yakima Valley College, a pipeline to move between the two different colleges.

Discussions with a public baccalaureate institution regarding post-baccalaureate pathways for graduates have also occurred this year. Specifically, Washington State University (WSU) has been quite supportive of Yakima Valley College's (YVC) programs composed of certificates and two-year college degree offerings in Agriculture. Yakima Valley College reached out to both inform and solicit feedback regarding Yakima Valley College's intent to pursue development of the Bachelor of Applied Science in Agriculture Sciences that will be focused on production agriculture.

The positive impact of offering the proposed applied bachelor degree at Yakima Valley College will fill an educational gap for students interested in agriculture in Yakima Valley College's geographic area. This student group is typically place-bound and unable to take advantage of the agricultural bachelor degree options offered at WSU. Importantly, as an application-oriented program, specifically designed for local industry employers, this potential Bachelor of Applied Science in Agriculture Sciences at Yakima Valley College would differ and thus, not compete with WSU's bachelor degree programs.

Offering this agricultural science degree at the baccalaureate level would have the added benefit of supporting WSU's agricultural offerings, in particular the online agriculture master's degree program (Master of Science in Agriculture). This potential partnership could provide a new viable pathway for students with the proposed Bachelor of Applied Science in Agriculture Sciences from Yakima Valley College. A Yakima Valley College Agriculture program would fulfill industry and student demand in the South-Central region, as well as support the valued partnership between WSU and Yakima Valley College.

Yakima Valley College had the opportunity to meet with WSU to discuss the possible development of a Bachelor of Applied Science in Agriculture Science. Administrative and faculty leadership from Yakima Valley College and Washington State University met on January 11, 2021. The meeting involved the exchange of ideas regarding the possibilities a Bachelor of Applied Science in Agriculture Sciences degree would offer the students and the communities both institutions serve. Washington State University was supportive of Yakima Valley College offering a new bachelor of applied science degree and saw the potential for educational pathways and articulation between the two schools, such as students who complete the Bachelor of Applied Science in Agriculture Sciences at Yakima Valley College being able to take advantage of WSU's online master's program in Agriculture. The group plans to continue discussing other potential partnership opportunities in the near future. However, the take away from the conversation was that Yakima Valley College should move ahead with embarking on this new Bachelor of Applied Science in Agriculture Sciences and that the students we serve do not conflict.

Other partner institutions that offer online Agriculture master's programs include Colorado State University (CSU). CSU offers a Master of Agriculture (M.Agr.) in Agricultural Sciences – Integrated Resource Management Specialization.

Every graduate program has their specific criteria; however, future Bachelor of Applied Science in Agriculture Sciences graduates from Yakima Valley College will be well prepared to further their education if they desire. Yakima Valley College is excited to have the opportunity to fulfill both an educational and employment gap in the South-Central region with the possible implementation of a Bachelor of Applied Science in Agriculture Science.

Criteria 8

External expert evaluation of program.

Expert reviewers were chosen for their expertise in disciplines closely relevant to the proposed Bachelor of Applied Science in Agriculture Sciences degree. Dr. Richard Zack, Professor of Entomology, Associate Dean of the CAHNRS, provided the first review. Dr. Joan Davenport, Emeritus Professor of Soil Science and current consultant, provided the second review. The principal notable comments are given in Table 11 along with Yakima Valley College's responses. The full reviews are located in Appendix D.

The review by Dr. Zack affirms that the proposal as described meets industry needs, has appropriate level rigor, and would be a value to the students. Indeed, he stated that "The proposal presents statistical data addressing the needs for more baccalaureate offerings in central and east-central Washington State in order to provide a trained workforce for mid-level and higher managerial positions that are currently available with numbers predicted to grow." There were no recommended changes.

The review by Dr. Davenport also noted the relevance and appropriateness of the proposed degree and rigor. Dr. Davenport stated, "The overall concept of the degree is relevant and appropriate and should lead to job placement." Suggested items to consider are addressed in Figure 2, Appendix D.

Conclusion

Yakima Valley College is excited to design and to, eventually, offer the proposed Bachelor of Applied Science in Agriculture Sciences degree. The proposed degree will meet student and industry demand in the South-Central region. The agriculture program is connected to local industry needs and has been addressing the associate-level programming to create a strong pipeline for students and incumbent workers interested in this field of study. With the historic demand for well-trained managers in this field and the attrition of current leaders due to retirement, the proposed Bachelor of Applied Science in Agriculture Sciences program will provide an opportunity for regional and state-wide community and industry partners to sustain and grow agriculture-based organizations and innovations.

References

- 1 Washington State Farm Bureau (n.d.) Ag in Washington. <https://wsfb.com/agricultures-contribution-to-washingtons-economy/>
- 2 National Agricultural Statistics Service. 2017 Census of agriculture county profile, Yakima County, WA https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Washington/cp53077.pdf
- 3 Washington State Employment Security Department, Yakima County Labor Area Summary, November 2020, <https://esd.wa.gov/labormarketinfo>
- 4 Yakima County Development Association <https://www.chooseyakimavalley.com/key-industries/#1497550831549-36691116-98ab>
- 5 Washington State Employment Security Department, Yakima County Labor Area Summary, November 2020, <https://esd.wa.gov/labormarketinfo>
- 6 National Agricultural Statistics Service. 2017 Census of agriculture state profile, Washington. Washington State Department of Agriculture. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Washington/cp99053.pdf
- 7 Hillman, N. (2019, May 21). Place matters: A closer look at education deserts. Third Way. <https://www.thirdway.org/report/place-matters-a-closer-look-at-education-deserts>
- 8 National Agricultural Statistics Service, 2017 Census of agriculture county profile, Yakima County, WA https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Washington/cp53077.pdf
- 9 United States Census Bureau. (2019, July) Quick facts, Yakima County, WA <https://www.census.gov/quickfacts/fact/table/yakimacountywashington,WA/PST045219>
- 10 Ibid.
- 11 Yakima Valley College Agriculture Industry Survey 1, April 2019 and Survey 2, June 2019
- 12 Office of Institutional Effectiveness, Yakima Valley College, 2019-2020 Demographic Data
- 13 Mission Statement Yakima Valley College, Approved Board of Trustees, 2021. <https://www.yvcc.edu/mission-andvalues/>
- 14 Yakima Valley College, AAS Agriculture Graduation Rates, 2017-2020.
- 15 Yakima Valley College, Demographic AG Intent Data, Student Enrollment in AAS Degree Programs (Fall 2020-Winter 2021)
- 16 Garcia, G. A., Nuñez, A.-M., Sasone, V. A. (2019). Toward a multidimensional conceptual framework for understanding “servingness” in Hispanic-serving institutions: A synthesis of the research. Review of Educational Research, 1-40.

Appendix A: Tables 7-10

Table 7 Faculty Profiles

Faculty Name	Credentials	Courses Qualified to Teach
Trent Ball	MA Agribusiness BS Food Science	AGSCI 370 - Food Safety and Quality AGECN 310 - Agriculture Business Management AGECN 410 - Financial Agribusiness Management AG 490 - Applied Work Experience AGSCI 499 - Agriculture Capstone
Dr. Holly Ferguson	PhD Entomology MS Entomology BS Economic Biology	AGSCI 301 - Sustaining Soil Health AGSCI 413 - Applied IPM I AGSCI 414 - Applied IPM II
Stacey Gingras	MS General Biology BS Zoology	AGSCI 460 - Physiology of Fruit Development AGSCI 430 - Precision Ag AGSCI 322 - Harvest Technologies
Christi Kitt	MBA with an emphasis in Marketing	BASM 355- Ethics in Leadership
Rajkumar Raj	MBA MS Industrial Engineering	BASM 435 - Operations Management
Dr. Brock Eubanks	MBA and PhD Education	AGECN 310 - Agriculture Business Management AGECN 410 - Financial Agribusiness Management SOSCI 320 - Organizational Behavior
Tony Schmidt	MA Communications	CMST 330 - Organizational Communication
New BAS in AG Faculty (TBA)	MS or PhD in an Agricultural Sciences related discipline	AG/AGECN/AGSCI Junior and Senior level coursework

Table 8 Admissions Rubric

Application Requirements	Maximum Points Allowed	Calculation
AAS degree/90 college credits completed.	10	Preferred AAS degrees (those listed in the admissions criteria section) receive 10 points, 90 college credits containing at least 20 credits in AG, AGEEN, AGSCI receive 8 points, completed AAS, AA, or 90 credits with less than 20 agriculture courses receive 6 points, under 90 earned credits and without earned degree receives 0 points.
Cumulative GPA (2.0 minimum)	40	Cumulative College Level GPA x 10
Minimum Eligibility Course Completion with a C (2.0) or better in each of these courses: AGSCI 110: Irrigation Principles; AGSCI 213: Integrated Pest Mgmt; CHEM 121: Intro to Chemistry w/Lab; MATH 146: Statistics; Preferred* NS/HUM/SS elective	25	Average GPA of these courses x 6.25
Industry work experience	25	Based on Rating Scale: More than 5 years' experience receives 25 points, 3-5 years' experience receives 20 points, 1-3 years' experience receives 15 points, less than 1-year experience receives 10 points, no experience receives 0 points

*A preferred elective will have applicability to an agriculture management focus.

Table 9 YVC AAS Graduation Rates

Agriculture Degrees	Graduation Rates by Year			
	2016-17	2017-18	2018-19	2019-20
AAS-Agribusiness (110)	1	8	7	2
AAS-T in Agribusiness (110P)	1	1	1	1
AAS-Vineyard Technology (121A)		1	2	1
AAS-Winery Technology (121C)	2	3	4	3
AAS-Food Technology (666)	1			
Total	5	13	14	7

Table 10 Fall 2020 - Winter 2021 Agriculture Enrollment

AAS Agriculture Degrees/Certificates	Enrollment
(AAS) Agribusiness	19
(AAS-T) Agribusiness	3
(AAS) Vineyard Technology	8
(AAS) Winery Technology	13
(AAS-T) Vineyard Technology	1
(AA) Agriculture Option DTA	8
(CERT) Tree Fruit Production	2
Total AG Intent Students	54

Appendix B: Student Schedule

Fall Year 1	Course Name	Credit
AGSCI 213	Integrated Pest Management	5
AGSCI 322	Harvest Technologies	5
AGECN 310	Agriculture Business Management	5
Winter Year 1		
AGSCI 370	Food Safety and Quality	5
SOSCI 320	Organizational Behavior and Leadership	5
CHEM 121	Intro to Chemistry w/Lab	5
Spring Year 1		
AGSCI 301	Sustaining Soil Health	5
AGSCI 413	Applied Integrated Pest Management I	4
Math 146	Statistics	5
Summer Year 2		
AGSCI 414	Applied Integrated Pest Management II	2
AGSCI 490	Applied Work Experience	4
Fall Year 2		
AGSCI 430	Precision Agriculture	5
BASM 375	Applied Principles of Leadership	5
CMST 330	Organizational Communication	5
Winter Year 2		
NS/HUM/SS	Elective	5
AGECN 410	Financial Agribusiness Management	5
BASM 435	Operations Management	5
Spring Year 2		
AGSCI 460	Physiology of Fruit Development	5
AGSCI 499	Agriculture Capstone	5
NS/HUM/SS	Elective	5

Appendix C: Course Descriptions and Learning Outcomes

AGECN 310: Agriculture Business Management

Managing time, money and people are essential skills for effective agriculture business management. In this course you will learn the fundamental tools for managerial decision making, the organization of an Agribusiness, basics of marketing and financial management techniques.

Course Outcomes:

- Use management tools to improve decision making in agribusiness
- Practice problem solving and decision making
- Discuss supply chain management
- Discuss labor management in agriculture

AGECN 410: Financial Agribusiness Management

Financial management of Farm and Agribusiness firms is critical to long-term business success. Concepts include financial statement analysis, functioning of security markets, risk management, interest rates, and discounting methods to evaluate investment alternatives. The course will equip you to analyze more complex managerial decisions such as capital management and capital budgeting.

Course Outcomes:

- Assess risk and returns of capital markets
- Conduct a capital budgeting evaluation
- Practice working capital management

AGSCI 301: Sustaining Soil Health

Sustainable agriculture depends fundamentally on maintaining soil health. Effective sustainable management of soils is needed to protect and preserve this natural resource and at the same time produce food, fiber, and other products to support a growing global human population. This course will allow you to develop an advanced understanding of the physical, chemical, and biological properties of soils as they apply to sustainable farming. In lab and field-based settings, you will analyze factors that influence soil quality and learn how to manage soils by integrating and applying knowledge of soil fertility and nutrient management, water movement and irrigation management, causes and mitigations of soil degradation, and land use planning into sustainable soil health maintenance plans. Field trips/site visits will be required. This course is a requirement of the Bachelor of Applied Science in Agricultural Science program. Prerequisite: completion of AGSCI 201 with a C or better.

Course Outcomes:

- Apply the soil physical, chemical, and biological properties and soil processes to sustainably manage agroecosystems, with emphasis on Washington crops.
- Apply knowledge of the water movement cycle to design irrigation systems for typical, arable soils.
- Develop soil management plans based on sustainable practices that are economically sensible, environmentally-sound, and protect the quality of life for farmers, farm workers, and communities.

AGSCI 322: Harvest Technologies

This course takes a close look at how important regional crops are harvested, including tree fruit, grains, hops, grapes, and vegetable/row crops. You will be introduced to various harvesting machines and how they operate, as well as hand-harvesting and the associated labor considerations. You will also investigate crop-predictive tools and crop size-to-quality considerations and the roles they play in planning for a successful harvest, as well as the commodity's target market. This course is a requirement for the BASA program.

Course Outcomes:

- Explain harvest methods and machinery for various regional crops and understand how they operate.
- Describe how crops are handled in-field during the time surrounding harvest to ensure marketable quality.
- Differentiate between harvesting techniques, and make decisions about their economy for a given farm operation, including differences in harvest parameters for organic vs conventional systems and the end market.
- Plan for employment of a harvest crew given labor availability, legal and ethical considerations.

AGSCI 370: Food Safety and Quality

This course will provide an understanding of the safety of food products, including the biological, physical and chemical risks associated with foods. Topics will include current food safety programs related to food safety, processing and quality, sanitation, and current technology.

Course Outcomes:

- Describe principles and concepts of chemical food safety
- Describe concepts and principles of microbiological safety
- Understand principles of Hazard Analysis Critical Control Points (HACCP) and sanitation
- Develop abilities to evaluate the quality attributes of foods
- Describe basic federal and third-party regulations on food safety and quality

AGSCI 413: Applied Integrated Pest Management I (3 cr lecture/1 cr lab = 50 hrs per quarter)

This course is the first part of a two-part course series in which the bulk of the principles of integrated pest management will be covered in lectures while the laboratories will focus on springtime plant pests, diseases, and weeds. Students will gain advanced knowledge on the philosophy, ecological foundation, strategies, and tactics of integrated pest management. Application of the principles and practices of integrating chemical, cultural, and biological controls, and perennial issues related to pesticides and the environment will be emphasized. Content in this course will address management issues related to key pests as well as sporadic pest problems in a diversity of agroecosystems with emphasis on Washington agriculture. Field trips/site visits will be required. This course is a requirement of the Bachelor of Applied Science in Agricultural Science program. Prerequisite: completion of AGSCI 213 with a C or better.

Course Outcomes:

- Scout for springtime pests, diseases, and weeds, in economically important perennial and annual plant agroecosystems.

- Apply knowledge of pesticide mode of action and pest biology to specific management programs directed against springtime pests that are difficult to manage because of pesticide resistance or life histories that protect pests from chemical and non-chemical management strategies.
- Apply the ecological and multidisciplinary strategies of integrated pest management to construct pest management recommendations for springtime pests.

AGSCI 414: Applied Integrated Pest Management II (1 cr lecture/1 cr lab = 30 hrs per quarter)

This course is the second part of a two-part course series in which the laboratories will focus on summertime plant pests, diseases, and weeds. You will gain advanced knowledge of integrated pest management strategies for summertime pests. In addition, you will gain classroom experience training fellow students to scout for and manage pests. Summertime pest problems in a diversity of agroecosystems will be examined with emphasis on Washington agriculture. Field trips/site visits will be required. This course is a requirement of the Bachelor of Applied Science in Agricultural Science program. Prerequisite: completion of AGSCI 413 with a C or better.

Course Outcomes:

- Scout for summertime pests, diseases, and weeds, in economically important perennial and annual plant agroecosystems.
- Describe key concepts of integrated pest management to others in a workplace training context
- Apply knowledge of pesticide mode of action and pest biology to specific management programs directed against summertime pests that are difficult to manage because of pesticide resistance or life histories that protect pests from chemical and non-chemical management strategies.
- Apply the ecological and multidisciplinary strategies of integrated pest management to construct pest management recommendations for summertime pests.

AGSCI 430: Precision Agriculture

In this course, you will be introduced to technologies that are designed to collect and process data in agricultural systems, including Geographic Information Systems (GIS), onboard sensors, drone and satellite imaging, and in-field sensors. Making crop and business management decisions based on data will be the main focus of the course. This course is a requirement for the Bachelor of Applied Science in Agricultural Science Program.

Course Outcomes

- Demonstrate an understanding of how commonly used telemetry technologies work.
- Form conclusions about crop health and yield, equipment performance, and labor efficiency based on data sets from precision agriculture systems.
- Make managerial decisions about crops based on data.

AGSCI 460: Physiology of Fruit Development

In this course, you will be presented with the biology of how flowers transform into high quality crops. You will take an in-depth look at the process of pollination and the various environmental factors that make fruit set successful or not. Initiation of flowering, stages of fruit development and grain filling will be examined to determine what you can do as a grower during this time to ensure high quality

crops. Special case studies in grain/seed production, vegetable fruits, tree fruit, and other flower/fruit producing regional crops will be examined. This course is a requirement for the Bachelor of Applied Science in Agricultural Science Program.

Course Outcomes:

- Outline the stages of flower, fruit, and seed development.
- Describe how physiological processes like water and nutrient movement, photosynthesis, and hormonal growth regulation play a role in fruit/seed development.
- Identify various environmental and cultivation inputs (nutrients, degree days, pollinators, etc.) that affect fruit growth and explain the role these inputs play in plant physiology.
- Apply knowledge of pollination and fruit development physiology to various cropping systems and make crop management decisions accordingly.
- Practice cultural and chemical techniques for manipulating fruit development.

AG 490: Agriculture Work Experience

Work experience in the agriculture industry using equipment, materials and supplies in a field of study. A job-related project or challenge will be explored.

Course Outcomes:

- Demonstrate technical experience in an agriculture field
- Exhibit problem solving skills and reasoning on a job-related project
- Demonstrate effective communication of the project outcomes

- Practice leadership and interpersonal communication

AGSCI 499: Agriculture Capstone

You will analyze market data and metrics to make business decisions. This course will include the development of an agribusiness or farm business plan or project to address a challenge or opportunity. Development of the project will incorporate the business skills, crop production, food safety, analytics and agriculture operations concepts learned in the program.

Course Outcomes:

- Analyze pricing, labor and market research data
- Communicate research findings
- Construct a business or project plan

BASM 375 Applied Principles of Leadership

This course explores the significance leadership in the workplace. It will highlight the importance of an organization's ethical responsibility, how to develop appropriate decision-making strategies and skills, and how to create a leadership philosophy. The course will discuss the risks of ethical lapses. Students will learn about practical leadership skills in the workplace.

Course Outcomes:

- Define leadership and describe the leader's role in the process.
- Express their personal leadership philosophy.
- Apply a personal ethical philosophy in the workplace.
- Develop and defend a course of action to address issues in the context of business decision making.
- Recognize dilemmas and where conflicts of interest exist.

- Understand how ethical standards play a role in leadership.

BASM 435 Operations Management

This course will investigate the unique aspects of managing and growing small to medium-sized businesses including strategic and operational planning and the inevitable tradeoffs that must be considered. Topics include quality and outcomes, productivity, efficiency, forecasting, work flow processes, working capital management, inventory control, design of goods and services and supply chain issues.

Course Outcomes:

- Discuss the role and importance of the operations functions in organizations
- Explain the evolution of total quality management, supply chain management, and manufacturing control systems in global business
- Recognize and apply appropriate analytical techniques related to operations management.

CMST 330 Organizational Communication

This course emphasizes a strategic approach to communication as an organizational tool. Students will focus on the importance of strategic thinking and adopting a methodical approach to the development of solutions for organizational communication issues. Students will incorporate interpersonal and human communication theories to improve their ability to write and speak effectively within a business and/or organizational context. Additionally, students will utilize contemporary communication media, such as email, social media, and websites.

Course Outcomes:

- Organize and deliver presentations for a variety of workplace communications
- Identify effective interpersonal communication within a workplace
- Organize pertinent information to formulate a variety of written documents in a number of workplace Settings

SOC 320 Organizational Behavior

This is a course in the behavior of individuals, groups, and organizations. The student will relate current theory and research to organizational problems by reviewing concepts in motivation and perception, leadership, decision-making, communication and influence, group behavior, diversity, conflict and cooperation, politics, corporate culture, organizational development and structure, and environmental influences.

Course Outcomes:

- Discuss the theoretical and practical development of the role of the individual within the context of the organization.
- Identify and explain the theoretical and practical constructs of the organization design and framework.
- Explain the foundation and importance of organizational culture within the context of the individual-organization interface.

Appendix D: External Expert Evaluations and Evaluator Biographies

Figure 2 Expert Evaluation – Joan Davenport, PhD

College Name:	Yakima Valley College	BAS Degree Title:	Agricultural Science
Reviewer Name/ Team Name:	Joan R. Davenport	Institutional or Professional Affiliation:	Washington State University
Professional License or Qualification, if any:	Ph.D. Soil Science	Relationship to Program, if any:	None
Please evaluate the following Specific Elements			
Concept and overview	<p>Is the overall concept of the degree program relevant and appropriate to current employer demands as well as to accepted academic standards? Will the program lead to job placement?</p> <p>Comment The overall concept of the degree is relevant and appropriate and should lead to job placement. However, animal sciences are missing in this program. The biology is largely plant science targeted and more attention to animal science at least at the introductory biology level is needed.</p> <p>Response: The proposed curriculum was developed in response to industry input. YVC received limited survey response from animal agriculture industry leaders. Through the DACUM process, animal agriculture content was not recognized as a current need of the local industry. There is flexibility to add future courses should such a need arise.</p> <p>Further, animal agriculture topics are covered in at least four lower division agriculture courses—Introduction to Agriculture, Current Ag Issues and Trends, Sustainable Agriculture, and Introduction to Animal Sciences, that can be taken as part of their approved elective courses.</p>		
Degree Learning Outcomes	<p>Do the degree learning outcomes demonstrate appropriate baccalaureate degree rigor?</p> <p>Comment The rigor is appropriate for a baccalaureate degree.</p>		
Curriculum Alignment	<p>Does the curriculum align with the program’s Statement of Needs Document?</p>		

	<p>Comment</p> <p>While in general the curriculum aligns with the statement of need, animal sciences are clearly missing. In addition, the general education requirements do not include a math requirement. Math is integral to all sciences and at a minimum, college level algebra should be required.</p> <p>Response: For students to be admitted into the BAS-AG program, they will be required to complete MATH 095 Intermediate Algebra. This has now been clarified in the proposal, thanks to Dr. Davenport's comments. In addition, students will be required to take MATH& 146 Statistics as part of the program.</p> <p>The animal sciences comment has been addressed above in concept and overview.</p>
<p>Academic Relevance and Rigor</p>	<p>Do the core and elective courses align with employer needs and demands?</p> <p>Are the upper level courses, in particular, relevant to industry? Do the upper level courses demonstrate standard academic rigor for baccalaureate degrees?</p> <p>Comment: A better approach [for the IPM courses] would be to divide the courses for one to focus on disease pest, and weed management and the second insect pests so that life cycles are clearly incorporated and connected with plant phenological stages.</p> <p>Response: The Applied IPM courses may be viewed as one course that is taught over the timespan between April and mid-August but split between spring and summer quarters to align with YVC's teaching calendar. Students will be learning how to scout for and manage pests, diseases, and weeds as they occur in the fields. Students will be able to follow the pest and disease life cycles as they interact with the crop plant life cycles during the first five months of a six to seven-month growing season. No changes were made to the proposed Applied IPM curriculum.</p> <p>Comment: There is scant mention of water management in the "Sustaining Soil Health" class, yet dealing with excessive or insufficient water supplies drives plant (and animal) production worldwide.</p> <p>Response: Water management is covered in detail in the AGSCI 110 Irrigation Principles course. Students will be advised to take this as an elective if it is not already required as part of their AA or AAS degree. In addition, points in the admission rubric will be awarded to those that have completed the AGSCI 110 class.</p>

	<p>Comment: For example, there is no clear course that covers plant physiology.</p> <p>Response: Plant Physiology is covered in the AGSCI 101 Plant Science course, which is a Prerequisite course for the program. Further, the AGSCI 460 Physiology of Fruit Development will incorporate the plant physiology aspects that are not included in the AGSCI 101 course outcomes.</p>
	<p>Comment: Three of the courses... could have some advantages of combining cross over areas and would be good approach for a field of rapid advancements in technologies. That would give room for a course mentioned above of water management.</p> <p>Response: After further discussion and review of the DACUM results and other industry reviews of the curriculum, we feel that keeping the three separate courses is the most appropriate.</p>
General Education Requirements	<p>Comment: The general education requirements do not include a math requirement. Math is integral to all sciences and at a minimum, college level algebra should be required. In addition, there is a focus on plant sciences and general biology that covers the animal kingdom (to high level organisms) is missing and should be included.</p> <p>Response: addressed in academic rigor section.</p>
Preparation for Graduate Program Acceptance	<p>Comment This would prepare a student for an MS Ag program like that offered by WSU or CSU, but for a traditional research degree, supplemental</p>
Faculty	<p>Do program faculty qualifications appear adequate to teach and continuously improve the curriculum?</p> <p>Comment: The search for an additional faculty member would benefit from seeking someone with a technical ag background in a cutting-edge field.</p> <p>Response: Ag program agrees with Dr. Davenport's comment.</p>
Resources	<p>Does the college demonstrate adequate resources to sustain and advance the program, including those necessary to support student and library services as well as facilities?</p> <p>Comment: Yes</p>

Membership and Advisory Committee	<p>Comment</p> <p>It is clear that industry people were connected to the program development. It is not clear if the program advisory board is internal or external or a combination and this should be spelled out in this section.</p> <p>Response: The program advisory is external and will be made clearer in the proposal.</p>
Overall assessment and recommendations	<p>Comment</p> <p>See narrative below.</p>

Narrative:

The proposed Bachelor of Applied Science in Agricultural Sciences degree needs reconsideration and revision in several areas. The first, and likely most notable, is that this is essentially a degree in applied Plant Sciences, not overall Agricultural Sciences. There is no element of Animal Sciences or higher-level animal biology in the degree. That reduces its applicability to a wide sector of the agricultural community. Strong consideration is needed to either add at least two courses, one in general biology that addresses the animal kingdom up to and including the mammalian level, and a general course in animal sciences. Barring that, consideration should be given to retitling the degree to Bachelor of Science - Plant Sciences.

The Program Learning Outcomes are clear and appropriate. The emphasis on managing business and people skills is appropriate, but should not be at the expense of not including certain science courses that are clear underpinnings needed for understanding of production system processes. For example, there is no clear course that covers plant physiology.

The Program Evaluation and Criteria makes sense and seems appropriate to ensure sustained program quality. Under the category Professional Self-Evaluation, the document indicates a 5-year work cycle evaluation for program faculty. Full time faculty should have annual reviews to review teaching and course development/revision progress in addition to the 5-year in-depth reviews.

It is not clear if the Program Advisory Board is internal or external or a combination and this should be spelled out in this section.

The curriculum is clearly developed as a practical and applied curriculum. This very much addresses the need within the field of agriculture in Washington State and nationally, however, there are some areas that need strengthening and others that need clarification.

The General Course Content lacks a class in mathematics. At a minimum, an algebra requirement is needed. Consideration should be given to some type of geometry class as many practical on farm applications require calculating areas.

Coursework for the Junior and Senior levels need reconsideration. There is scant mention of water management in the “Sustaining Soil Health” class, yet dealing with excessive or insufficient water supplies drives plant (and animal) production worldwide.

There are two courses for IPM, and these are in addition to a previous course. The approach of the IPM courses is to focus on spring and summer pests (insect, disease, weeds). A better approach would be to divide the courses for one to focus on disease pest and weed management and the second insect pests so that life cycles are clearly incorporated and connected with plant phenological stages.

Three of the courses, “Harvest Technologies”, “Food Safety and Quality”, and “Precision Agriculture” approach some recent and cutting-edge fields. Having said that, combining “Harvest Technologies” and “Precision Agriculture” into an “Agriculture Mechanization and Remote Detection” course could have some advantages of combining cross over areas and would be a good approach for a field of rapid advancements in technologies. This would give room for a course mentioned above of water management.

The faculty listed very much reflect the curriculum and plant and human (e.g., business operations/personnel management) science emphasis. The search for an additional faculty member would benefit from seeking someone with a technical ag background in a cutting-edge field.

College Name: Yakima Valley College (YVC)

BAS Degree Title: Applied Baccalaureate Degree in Agricultural Science

Reviewer name: Richard S. Zack

Relationship to Program: No formal relationship. Yakima Valley College and Washington State University do share articulation agreements. I was consulted by Yakima Valley College about the development of the Bachelor of Applied Science in Agricultural Science degree prior to its submission.

1. Concept and Overview

The proposal presents a well-developed reasoning for a Bachelor of Applied Science in Agricultural Science degree. The proposal presents statistical data addressing the needs for more baccalaureate offerings in central and east-central Washington State in order to provide a trained workforce for mid-level and higher managerial positions that are currently available with numbers predicted to grow. Yakima Valley College states that they have met with industry partners to ascertain needs. Personnel from my university have met with stakeholders from the same area and there is a need for the student profile that this degree will serve. While there are baccalaureate options for students that can relocate, there are currently few options for place-bound students. This lack of opportunity includes online options, which currently do not exist at the undergraduate level. The development of the Bachelor of Applied Science in Agricultural Science is appropriate for students that have completed a two-year degree and “know” that they want more, or for individuals that have completed a two-year degree, worked in the industry for a period of time, and are now looking to advance in their chosen profession. Again, we have been told by almost all of our industry partners that there is a lack of individuals being trained for managerial positions. Both the BS and BAS degrees will serve stakeholder needs, perhaps in different ways. Employees with both a more theoretical focus (traditional BS) and a more technical or job-related skills focus (BAS) are in demand. The degree program will definitely lead to job placement.

As proposed, the Bachelor of Applied Science in Agricultural Science is an academically rigorous program. As a traditional BAS program, there are less general education courses and more emphasis on technical or discipline-related training. I will address the degree in terms of preparation for academic training beyond the baccalaureate but, this degree does provide academic rigor that will be welcomed by industry partners. The third and fourth-year courses are well developed and will provide significant rigor and do meet academic standards for the BAS.

The Bachelor of Applied Science in Agricultural Science will help to fill a gap that currently, and will continue to exist, in terms of industry needs. The design of the degree program will provide students with disciplinary and managerial training that is being sought by stakeholders. A primary reason for this program is to allow place-bound students and current employees to continue their education and qualify for advancement in a number of agricultural industries.

2. Degree Learning Outcomes

The degree learning outcomes are clearly elucidated in the proposal. They are generalized in nature and do not specifically address discipline-specific learning outcomes, which are addressed in the individual course descriptions. As an objective of the degree is to provide the industry with managerial-level individuals, the learning outcomes are appropriate to that objective. They concern professional development and an ability to work with and lead others. I agree with the proposal that these elements would be essential to providing a well-trained workforce to intended stakeholder communities.

The learning outcomes go beyond those that would be appropriate for, a more-technical, two-year degree and thus do demonstrate a rigor that would be expected in a person graduating with a baccalaureate degree.

3. Curriculum Alignment

The proposed curriculum does align with the stated reasons that the degree offering is being proposed. Students with a number of agriculturally-related two-year degrees will qualify for admission to the Bachelor of Applied Science in Agricultural Science degree. They will enter with slightly different backgrounds but will all have the basic knowledge needed to move into the third- and fourth-year courses that define the new degree. The existing courses and courses that will be developed for the Bachelor of Applied Science in Agricultural Science degree are very appropriate to stakeholder needs. These courses provide for a broad appreciation of numerous agriculturally-related disciplines as well as providing “managerial” training, which is an important component of the degree.

4. Academic Relevance and Rigor

The core and upper level courses of the proposed degree align well with industry needs. The rigor of the courses is equivalent to comparative courses being offered at my university. As is typical of a BAS degree, the courses are more general in structure but, this is a benefit of a BAS degree and is often appreciated by industry.

The core requirements of general education courses are a combination of basic science, social science, humanities, English and communications, economics, and in this case basic agriculture. Statistics and basic chemistry are also included. This provides a very good foundation for the upper

division courses and a very good foundation for a student.

At the upper division level, eleven new courses have been developed based on feedback from area agricultural employers, a curriculum development committee, an advisory committee, and more general discussions with industry employers and professionals. At the upper division, the course offerings are a good combination of discipline-based courses (e.g., Applied IPM, Harvest Technologies, Precision Agriculture, and Physiology of Fruit Development), and managerial course (e.g., Agriculture Business Management, Financial Agribusiness Management, Ethics in Leadership, and Operations Management). This will provide graduates with the two areas of knowledge, discipline and managerial, that industry partners are seeking. I have gone through the upper level course descriptions and learning outcomes and believe that they are very appropriate offerings and that they will be rigorous. They will provide graduates with skills that will allow them to enter mid-level managerial positions with a wide variety of industry partners.

5. General Education Requirements

Traditionally, BAS degrees are not as general education intensive as BS/BA degrees. The same can be said for the Bachelor of Applied Science in Agricultural Science proposed degree. However, I do not believe that that is a negative in terms of this offering. As the bachelor of applied science is generally considered a more technically-oriented degree, there is less emphasis on general education courses. For the proposed degree, the general education requirements are appropriate and, if needed, will allow students to eventually enter graduate programs. In fact, they may actually be more appropriate to students entering a STEM graduate program than those that graduate with a BS/BA.

6. Preparation for Graduate Program Acceptance

The Bachelor of Applied Science in Agricultural Science will prepare students wishing to go beyond the baccalaureate degree and enter a traditional or an online graduate program. Because of the more general academic offerings of the Yakima Valley College degree, students wishing to enter a traditional (in person) advanced degree program may find it necessary to complete some basic, more specific courses (e.g., junior/senior level soils, entomology, plant pathology, molecular techniques) as a part of their graduate training but this is normal for almost all students unless they are staying within a well-defined discipline. It is certainly true for the vast majority of students that enter graduate programs at my university. The proposal does make references to two online graduate programs at Washington State University and Colorado State University. I can speak for the program at WSU and, the completion of the Yakima Valley College Bachelor of Applied Science in Agricultural Science would certainly allow students to enter the WSU degree program virtually seamlessly. Since most of the online master's programs are designed for students that are place-bound for a variety of reasons (which may likely be a significant number of Yakima Valley College graduates) the online programs do fill a need and would allow Yakima Valley College graduates to continue their education and present them with advancement opportunities in their chosen professions.

7. Faculty

Yakima Valley College currently has a very well-qualified group of faculty in terms of agriculture and related disciplines (e.g., economics, precision agriculture (engineering)). The proposal states that "the college has made budgetary allocations to ensure the Bachelor of Applied Science in

Agricultural Science program is staffed with high quality faculty.” They are committed to hiring new faculty for the program and have identified adjunct faculty to teach in the program. It is imperative that Yakima Valley College does provide the needed resources to hire new faculty and find and hire well-qualified adjunct faculty. It should not be a problem to find such individuals but, this will not be a time for unforeseen budget cuts. The faculty involved in the program offering does need to be larger and more diversified in their discipline backgrounds. Hiring quality instructors will be critical if the program is to grow and become more relevant.

8. Resources

Yakima Valley College is well-prepared to address student needs in terms personal and academic services. This is especially true concerning first-generation and non-traditional students, which make up a significant percentage of the student body. Through its Student Services Division, Yakima Valley College offers all relevant advising/counseling as well as financial support. The program coordinator, specifically hired for this degree, will work with Student Services to make sure that the needs of each student are addressed. Included in these responsibilities are both personal and programmatic needs. Given the make-up of the overall student body and certainly the students that will enter the Bachelor of Applied Science in Agricultural Science degree program, Yakima Valley College does offer a number of specific programs (e.g., College Assistance Migrant Program and Yakima Valley College Cares), which will benefit all students. The basic needs, such as tutoring, financial aid, math and writing centers, computer labs, and libraries are all addressed in the proposal. The proposal also addresses the specific needs of the new degree such as lab spaces, specific equipment, instructional resources, and new faculty that will be essential to offering a quality degree program. It will be essential that proposed needs (e.g., program coordinator, new faculty) are filled.

9. Membership and Advisory Committee

Although the proposal does not reference a specific advisory committee, it does state that “Yakima Valley College has been actively working with the local agricultural industry since 2016 to determine educational and training needs.” It also states that “the Bachelor of Applied Science in Agricultural Science responds to the need for baccalaureate prepared individuals for current and prospective openings in the agricultural industry in Yakima County and the greater Central and Eastern Washington regions.” This is backed-up with some statistical data. These statements are consistent with those that I have received from stakeholders throughout central Washington. There is a need for individuals that are trained beyond a two-year degree and can serve in managerial positions. And, one of the requirements is that these individuals have fluency or at least a working knowledge of Spanish. This is a student population that the Yakima Valley College program will serve.

There is reference to an advisory committee made up of agricultural professionals in the discussion of learning outcomes and objectives for individual courses offered or being developed for the degree.

10. Overall assessment and recommendations

There is a defined need of opportunities for baccalaureate level programs in agriculture in central and east-central Washington. This is especially true for students that are place-bound, which I believe will be the primary clientele for this program. The degree curriculum is appropriate to the needs of the industry and was developed with their input. Yakima Valley College provides good services for students and their plan for recruitment into this program should bear fruit. The current

faculty are well prepared to teach current and newly proposed courses. However, Yakima Valley College must make sure that they financially support this new degree with new faculty and quality adjunct instructors as outlined in the proposal.

I recommend that the program be approved and be appropriately accredited.

Evaluator Biographies

External Evaluator 1

Dr. Richard Zack - Professor of Entomology and Associate Dean for Academic Programs, College of Agricultural, Human, and Natural Resource Sciences, Washington State University, Pullman, WA

- Ph.D. Washington State University, Entomology,
- M.S. Kent State University, Biology
- B.S. Ohio State University, Entomology

External Evaluator 2

Dr. Joan Davenport - An Emerita Professor of Soil Science at the Washington State University Irrigated Agriculture Research and Extension Center in Prosser, Washington. Her research focus is principally on perennial fruit crops, although she has conducted research in soil management in vegetable and agronomic crops as well. Prior to retiring Joan taught courses in Soils and in the Viticulture and Enology Program at WSU. Joan is a past recipient of the Washington State Grape Society's prestigious Clore Award, is a Fellow of the American Society for Horticultural Science and in 2019 was awarded the Leadership Award by Western Nutrient Management (WERA-103) Committee. Since retiring she continues to collaborate on a limited basis on several research projects as a collaborator and occasionally serves as a guest lecturer.