

Master's Degree in Agriculture – Plant Health Management Option

Option Title:	Master of Science (MS) in Agriculture: Plant Health Management
Department(s) or Program(s):	Supported by the Departments of Crop and Soil Sciences, Entomology, Horticulture and Plant Pathology
College(s):	College of Agricultural, Human, and Natural Resource Sciences (CAHNRS)
Contact Name:	Dr. Kim Kidwell, Director MS in Agriculture Program, Executive Associate Dean, CAHNRS email: kidwell@wsu.edu ; phone: 509-335-4562

1. DELIVERY MODEL, RATIONALE AND DESCRIPTION

(a) Delivery Model:

Courses for the Master of Science (MS) in Agriculture - Plant Health Management option will be delivered online, asynchronously, through WSU's Learning Management System to post-bachelor's level students throughout the world.

(b) Rationale for offering the option:

To meet an expanding demand for plant health management specialists to promote food security and food safety on a global scale, CAHNRS proposes to broaden the current MS in Agriculture online degree program by offering a new specialization in Plant Health Management. The land grant mission of the University emphasizes extending access to education to traditional and non-traditional students. Delivering this degree option online, asynchronously, will provide access to qualified place-bound individuals located anywhere in the world.

The design of the new track was informed by research conducted in August 2010 by Eduventures (see Appendix A on pg. 14), an industry leader in research and consulting for higher education institutions. Findings suggested that offering an online specialization in plant health management through the MS in Agriculture degree program is a viable opportunity for WSU to strengthen its distance education program by providing people with graduate level training to meet the expanding job market in the plant protection industry.

The market demand for plant and soil scientists is predicted to increase faster (15.5% by 2018) than the average rate for of all occupations. This occupational group held nearly 14,000 jobs in 2008 and the Bureau of Labor Statistics (BLS)

(<http://www.bls.gov/opub/mlr/2009/11/art5full.pdf>) projected this figure to increase to 16,100 jobs by 2018. More than 7,000 of the jobs in these disciplines are predicted to arise due to industry expansion and replacement needs. Promotion opportunities are typically correlated with education levels in this industry making the MS in Ag Plant Health Management option highly attractive for career advancement.

Even though six of the 10 largest schools conferring Master of Science in Agriculture degrees offer online courses, the online market is far from saturated. Only three schools in Eduventures' list of online "active" universities who are primary leaders in distance education have agriculture programs. There are presently no online degree programs in plant health management.

Eduventures' recommendation to WSU was to consider developing new online MS in Ag options that could capitalize on the strong labor market demand in agriculture and related careers. Their assessment was that the appeal of acquiring a MS degree in a distinctive program area in agriculture, distinguishable from more general degree programs, could be a substantial factor in attracting students into the program (see attached Eduventures report, page 6).

(c) Description:

The proposed Plant Health Management option provides the flexibility needed to create a valuable graduate level learning opportunity for students with varied levels of experience in disciplines related to plant health management and/or with diverse career goals. The program is designed to provide students with a foundational understanding of the essential components of plant protection through courses in the plant health management core, as well as a basic understanding of market aspects of the business through courses in the management core. Students will complete courses in specific disciplines associated with plant protection (i.e. Plant Pathology, Entomology, Crop Science and Soil Science) and organizational management (i.e. Economics and Business), and may participate in an immersion-based research experience or internship.

The Plant Health Management option is well-suited for people currently employed in agricultural industries or related disciplines who seek additional training to prepare or qualify for career advancement, as well as for people who are redirecting their career towards the plant protection industry. The degree can be completed in four terms (two semesters and two summer sessions or three semesters and one summer session) if pursued on a full-time basis and students have established competencies in agriculture, plant science or a related discipline and/or have a bachelor of science degree in agriculture or a biology-based field prior to entering the program.

Courses required for admission into the MS in Ag Plant Health Management option are listed in the table below. Some of the courses are available online at WSU, while others

could be taken at a community college. Equivalent college level courses may be substituted for course prerequisites (Example: an undergraduate botany course may be a suitable substitute for Hort/Crop Sci 102).

Prerequisite Courses for Admission	Credits	Available at WSU Online
Biol 106 - Introductory Biology: Organismal Biology	4	√
Chem 101 - Introduction to Chemistry	3	
Chem 102 - Chemistry Related to Life Sciences	4	
Hort 102, Crop Sci 102 - Introduction to Cultivated Plants	3	√
Hort 202, Crop Sci 202 - Crop Growth and Development	4	
Soil Sci 201 - Soil: A Living System	3	√
Stat 212 - Introduction to Statistical Methods	4	

Graduates receiving the MS in Agriculture degree with the Plant Health Management option will be qualified to manage commercial-scale agricultural or horticultural operations (farms, greenhouses, landscapes, parks, etc.), and will be able to diagnose and address problems associated with plant pathogens, insects and weeds, as well as environmental factors (including soil) that impact plant health. Graduates will be equipped to serve in decision-making roles, with essential skills for maximizing plant health using modern, scientifically sound methods.

Unlike traditional integrated pest management or plant protection degree programs that emphasize interventions once plant problems or disorders develop, this program will employ a holistic approach to develop and maintain plant health, preventing or minimizing problems caused by pathogens, weeds, insects, or unfavorable soil conditions. Consequently, graduates will be well-qualified to use both conventional and organic approaches to growing plants while minimizing reliance on pesticides or other reactive interventions that often are limited in effectiveness but can entail substantial economic and environmental costs.

Depending on the student's objectives, two approaches are available for pursuing the Plant Health Management option:

1. Non-Thesis Option:

A: Industry, Immersion Based: The non-thesis option may include an immersion-based training involving a student-arranged practicum/internship with an industry employer, a university affiliated researcher, or non-profit organization. The internship/practicum must be approved by the student's advisory committee, and must be conducted in accordance with the MS in Agriculture Internship/Practicum Guidelines (see Appendix D on pg. 61) which includes preparing and defending a 15-page final report.

B. Project Based: Alternatively, a non-thesis option may be based on an independent project (i.e. literature review, evaluation of a process, etc.) which is mentored and monitored by the advisory committee and also includes preparing and defending a final report that aligns with established degree program requirements in the student handbook (see <http://msag.wsu.edu/currentstudents/>).

AGRI 702 is the course through which students receive credit for effort devoted to the internship/practicum or project-based experience and for final examination preparation. Students pursuing the non-thesis option will enroll in a minimum of 4 credits of AGRI 702 (non-thesis).

2. Thesis Option: This requires a thesis to be prepared based on original research conducted with guidance from the student's advisory committee. AGRI 700 is the course through which students receive credit for effort devoted to research, thesis, and final examination preparation. Students must actively engage in one or more of these activities during the semester in which they register for AGRI 700. A minimum of 4 credits of AGRI 700 are required for the thesis option (see <http://msag.wsu.edu/requirements/> for more details).

The Plant Health Management option curriculum consists of three primary sections: 1) MS-Agriculture Core (10 credits minimum); 2) the Plant Health Core (9 credits minimum); and 3) the Management Core (6 credits minimum), with options to meet the 30 required minimum credits overall. All courses listed are available online. The non-thesis and thesis configurations both meet the minimum requirements for receiving a Master of Science degree from the Graduate School. Specific requirement outlines for the non-thesis and thesis options are detailed below. Care has been taken to provide students with clear and concise information regarding the curriculum, as well as pertinent general enrollment information.

MS in AG - Plant Health Management Option
Revised Program Requirements (Online)
Non-Thesis Option Requirements

Semester Key:

F: Fall S: Spring SS: Summer
 FO: Fall in Odd years only (2011, 2013, etc.)
 SE: Spring in Even years only (2012, 2014, etc.)

MS-AG Requirements (10 credits minimum):

Prefix	Title	Credit	Pre-Requisites (see notes)	Prefix	Title
STAT 412	Statistical Methods in Research I	3	STAT 212, MATH 140, 171 or 202	F	H. Johnson
AGRI 587	Research and Extension in Agriculture	3		F	J. Blackburn
AGRI 702	Master's Non-Thesis Special Problems (Internship), Directed Study, and/or Examination	4 min		F,S	ARRGT

20 additional graded credits are required (up to 9 credits of 300-400 level coursework are allowed on a Program of Study, including Stat 412 above):

Plant Health Core* Requirements (9 credits minimum):

PL_P 501	Biology and Control of Plant Diseases	3		S	D. Glawe
SOIL_SCI 547	Soil Fertility Management	3		FE	J. Davenport
IPM 552	Pesticides and the Environment	3	Recommended: 12cr. of biology or ecology	F	A. Felsot
ENTOM 555	Agricultural Chemical Technology for Crop Protection & Production	3		S	A. Felsot

Management Core Requirements (6 credits minimum):

ECONS 505	Economics of Agricultural Decision Making	3		F	J D Miller
And at least one of the following courses:					
E_M 501*	Management of Organizations	3		SS '14, F '15	H. Rumsey
E_M 522*	Supervision and Leadership	3		S	G. Sudikatus
E_M 564*	Project Management	3		FO	G. Sudikatus
PHIL 530	Bioethics	3		F	W P Kabasenche

Supporting Online Coursework (0 to 6 credits):

CROP_SCI 305	Ecology and Management of Weeds	3	HORT 202 or AFS 201	F	I. Burke
ENTOM 350	Pest Management in Organic Agriculture Production Systems	3	BIOL 106 or 372	S (in 2015)	A. Felsot
SOIL_SCI 441	Soil Fertility	3	SOIL_SCI 201	S	B. Pan

The Program of Study requires 30 credits overall (26 graded credits minimum—of which up to 9 may be at the 300-400 level; 4 credits minimum of AGRI 702)

Non-Thesis Option:

- Non-thesis (**industry immersion-based**): This option requires a student-arranged full time (40 hr/wk), 8 week internship according to the provided guidelines including a 15-page final report interpreting and integrating coursework with the internship experience. Students will enroll in AGRI 702 Master's Special Problems (Internship) credits.
- Non-thesis (**project-based**): This option will require an independent project mentored by your committee (i.e. literature review, evaluation of a process) and requires a 15 page final report. Students will enroll in AGRI 702 for Special Problems (Independent Project) credits.
- 30 credits required, including 4 minimum of AGRI 702, and 26 graded credits—of which up to 9 may be at the 300-400 level.
- An oral presentation and final oral defense exam are also required.

Last Updated: 10/24/2013

MS in AG - Plant Health Management Option
Revised Program Requirements (Online)
Thesis Option Requirements

Semester Key:

F: Fall S: Spring SS: Summer
 FO: Fall in Odd years only (2011, 2013, etc.)
 SE: Spring in Even years only (2012, 2014, etc.)

MS-AG Requirements (10 credits minimum):

Prefix	Title	Credit	Pre-Requisites (see notes)	Prefix	Title
STAT 512	Analysis of Variance of Designed Experiments	3	300-level Stats course	S	H. Johnson
AGRI 587	Research and Extension in Agriculture	3		F	J. Blackburn
AGRI 700	Master's Thesis, Directed Study, and/or Examination	4 min		F,S	ARRGT

15 additional credits are required (up to 6 credits of 300-400 level coursework are allowed on a Program of Study):

Plant Health Core* Requirements (9 credits minimum):

PL_P 501	Biology and Control of Plant Diseases	3		S	D. Glawe
SOIL_SCI 547	Soil Fertility Management	3		FE	J. Davenport
IPM 552	Pesticides and the Environment	3	Recommended: 12cr. of biology or ecology	F	A. Felsot
ENTOM 555	Agricultural Chemical Technology for Crop Protection & Production	3		S	A. Felsot

Management Core Requirements (6 credits minimum):

ECONS 505	Economics of Agricultural Decision Making	3		F	J D Miller
And at least one of the following courses:					
E_M 501*	Management of Organizations	3		SS '14, F '15	H. Rumsey
E_M 522*	Supervision and Leadership	3		S	G. Sudikatus
E_M 564*	Project Management	3		FO	G. Sudikatus
PHIL 530	Bioethics	3		F	W P Kabasenche

Supporting Online Coursework (0 to 6 credits):

CROP_SCI 305	Ecology and Management of Weeds	3	HORT 202 or AFS 201	F	I. Burke
ENTOM 350	Pest Management in Organic Agriculture Production Systems	3	BIOL 106 or 372	S (in 2015)	A. Felsot
SOIL_SCI 441	Soil Fertility	3	SOIL_SCI 201	S	B. Pan
STAT 412	Statistical Methods in Research I	3	STAT 212, MATH 140, 171 or 202	F	H. Johnson

The Program of Study requires 30 credits overall (21 graded credits minimum—of which up to 6 may be at the 300-400 level; 4 credits minimum of AGRI 700)

Thesis Option:

- This option requires a thesis based on a project conducted with guidance from the advisory committee and must be **original research to the field or intellectual input on processes** i.e. R&D. Students will enroll in AGRI 700 (thesis) credits.
- 30 credits required, including 4 minimum of AGRI 700, and 21 graded credits—of which up to 6 may be at the 300-400 level. STAT 512 (vs STAT 412) is required.
- A public seminar and final oral defense exam are also required.

MS in AG - Plant Health Management Option **Revised Program Requirements (Online)**

Recommended Competencies for Admission:

It is recommended that students enter the program with established competencies in agriculture, plant science or a related discipline and/or have a bachelor of science degree in agriculture or a biology-based field prior to entering the program.

*Courses required for admission into the MS in Ag Plant Health Management option are introductory/organismal biology (BIOL 106**), introductory chemistry (CHEM 101), chemistry related to life sciences (CHEM 102), introduction to cultivated plants (CROP_SCI/HORT 102**), crop growth and development (CROP_SCI/HORT 202), introductory soil science (SOIL_SCI 201**), and introductory statistics (STAT 212). Some of the courses are available online at WSU, while others could be taken at a community college.*

Equivalent college level courses may be substituted (Example: an undergraduate botany course may be a suitable substitute for HORT/CROP_SCI 102).

***available online at WSU; will not count toward Program of Study requirements.*

Enrollment Reminders:

- **AGRI 700 and 702 are variable credit.** A minimum of four credits are required; you must be enrolled in 2 credits in the term of your defense. When/if enrolled full-time (10+ credits), you must be enrolled in a minimum of 1 credit of 700/702 each term.
- ***E_M Courses:** These self-sustaining courses are provided by the College of Business. As a result, the tuition is set independently and at a considerably higher rate.
- **Pre-Requisites:** A student may contact the instructor to request a prerequisite override exemption as necessary.
- **Program of Study (POS):** Must be filed by the end of your first semester. The form is on the Graduate School website: <http://gradschool.wsu.edu/forms/index.html>
- **Continuous Enrollment Policy:** Degree-seeking students must maintain continuous enrollment in the Graduate School by enrolling for a **minimum of 2 credits per semester** (excluding summer sessions). A student who is not on approved graduate leave or internship leave status, and who is absent for one semester or two consecutive semesters (excluding the summer) must complete the reenrollment form (\$25) before the student can register for classes. A student not enrolled for three consecutive semesters will be dropped from the Graduate School.
- **U of I Co-op Course Enrollment Instructions:** <http://academic.cahnrs.wsu.edu/files/2013/09/UI-Cooperative-Course-Registration-Instructions-by-JHGC.pdf>

2. NEEDS ASSESSMENT

Projected Number of Students and Degrees

We expect an enrollment of 15 students during the first year of establishment of the Plant Health Management option. Given the market analysis results, we expect enrollment in the option to expand quickly. WSU already is a leader in graduate education in the disciplines related to this option, and we are well known as a top tier university in plant sciences. The university has an established and respected presence in educating crop and soil scientists, entomologists, and weed scientists, and the graduate program in plant pathology currently is the largest (in terms of numbers of graduate students) in the USA. The new online option in Plant Health Management is by nature interdisciplinary and will draw upon existing strengths in all of these areas during marketing efforts.

We anticipate that the demand for the Plant Health Management option could exceed that for existing face-to-face MS programs because it will be ideal for place-bound students. In addition, as an internet-based program it will be available to a national and international audience of students. We predict that enrollment in the MS in Ag program, which is currently 23 students, will increase about 2-fold once the Plant Health Management track is accessible. We anticipate a 12% increase annually in enrollment in this track once the program becomes better known to the industry. Based on the Eduventures report this may be a conservative estimate of growth potential.

The time frame for completion of the online degree will vary based on the student's ambitions and flexibility. The FASTEST a student could transition through the program (given the timing of course offerings) would be 1.5 years. The slowest a student would move through the program (at one course per semester) would be 5.5 years. Based on past experience we estimate an average of 3.5 years to complete the online Plant Health Management option.

	Site	Year 1	Year 2	Year 3	Year 4	Year 5*
Enrollments	WSU Online	15	17	19	21	24

* Year of full enrollment

3. RESOURCE ASSESSMENT

Faculty

CAHNRS will be able to delivery all Plant Health Management courses with existing faculty. We have the capacity to add the projected number of students to existing online classes with current faculty workload assignments.

CAHNRS will direct resources generated through online course delivery for this program to varying departments as needed for instructional support and to expand course offerings.

Personnel from Engineering Management confirmed that our projected enrollments will not cause coverage issues for the EM courses which are in the 'Management Core'.

Curriculum

- a. WSU Online provides support to faculty in the development and delivery of online courses as follows:
 1. An eLearning Consultant, with expertise in instructional design of online courses will work one on one with faculty members developing online courses to ensure that best practices and pedagogical recommendations for successful online learning are understood.
 2. The WSU Online media team will work with faculty to create appropriate media and interactive activities to promote learning and enhance engagement.
 3. The same eLearning Consultant will continue to support the faculty member during delivery as issues unique to the online learning environment arise.
 4. WSU Online provides face-to-face orientation, trainings and online tutorials to support online instructors.
 5. Managing proctored exams for the course, if needed.
 6. 24/7 technical support.
 7. Ongoing maintenance or updating of courses, each semester of offering.

- b. WSU Online provides support to students:
 1. Acquiring required resources, such as texts and media.
 2. Arranging for proctored exams.
 3. 24/7 technical support.

4. STUDENT LEARNING OUTCOMES: Please see the current bylaws for the MS in Agriculture program (see Appendix B on pg. 38) for an overview of the mission, objectives and learning outcomes for this program. Specific learning outcomes for the Plant Health Management track are listed in the following table.

Specific Program Learning Outcomes for Plant Health Management	
1.	Able to work as a first-line manager in a broad range of agricultural and crop settings including both conventional and organic plant production systems.
2.	Able to maximize plant health based on a thorough understanding of crop plant biology, soil characteristics and other environmental factors, weeds, insects, nematodes, and microbial pathogens.
3.	Able to make timely diagnoses of plant diseases and disorders in order to support decisions
4.	Able to utilize critical thinking and abstract reasoning skills in analyzing issues regarding managing health of crop, ornamental and landscape plants.
5.	Demonstrate information literacy and oral, written, and group communication skills.

4. PROGRAM ASSESSMENT

Assessment of the Plant Health Management track in the MS in Agriculture program will be monitored as described in the current Graduate Program Learning Outcomes Assessment for the Master of Science in Agriculture that was approved by the Graduate School in 2008 (see Appendix C on pg. 57).

Additionally, the following rubric was developed to be used for the Plant Health Management option with regard to the student learning outcomes (bold print) in relation to the final exam, for both non-thesis and thesis students.

Master of Science in Agriculture: Plant Health Management Option

**Final Exam Defense Assessment Rubric
(non-thesis and thesis)**

Candidate: _____ Date: _____

Project Title/Description:

	Poor	Fair	Competent	Good	Excellent	NA
1. Demonstrates mastery of general knowledge in the field of plant health management.						
2. States clearly the relevancy of the special project or thesis hypothesis/problem/question within the context of a broad range of agricultural and crop settings including both conventional and organic plant production systems.						
3. Demonstrates comprehensive skills and techniques with regard to execution of the special project or thesis problem/question.						
4. Able to utilize critical thinking and abstract reasoning skills in analyzing issues and/or data regarding managing health of crop, ornamental, and landscape plants.						
5. Demonstrates qualities of independent, self-motivated research/diagnosis with the ability to recognize problems in the field of study and formulate management solutions to those problems.						
6. Demonstrates abilities to effectively work as a first-line manager in a broad range agricultural and crop settings including both conventional and organic plant production systems.						
7. Demonstrates the ability to effectively communicate both orally and written, and also in group settings.						
8. Demonstrates sufficient knowledge of appropriate concepts, theories, and emerging methodologies in plant health management.						
9. For thesis students, discusses support for hypothesis or solution to problem in a manner that effectively documents the contribution of research to area of study						

Comments:

5. DIVERSITY

WSU is committed to the promotion of diversity within the student population and online classroom. Online education is often viewed as a means of delivering education to underrepresented populations. The online environment lends itself to mitigating racial, gender, age and cultural stereotypes in community building.

6. FUNDING

The program will be funded using the current WSU Online rate of return for graduate credit. The Graduate WSU Online model allocates funding only for student AAFTE served at a distance, in excess of the college baseline. Students dually enrolled in on-campus and on-line courses are not eligible for funding. CAHNRS administration agrees to invest revenue generated by this option back into the program for additional faculty and TA support, as needed, to support the predicted enrollment expansion demands of this program.

7. MS IN AGRICULTURE: PROGRAM WEBSITE AND HANDBOOK

CAHNRS has created a comprehensive website and handbook that covers all aspects of the existing program, including expectations for students and advisors, description of thesis, non-thesis, how this program is managed and what expectations are for students. Plant Health Management is a new option in the MS in Agriculture.

The website address is <http://msag.wsu.edu>.

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Online Higher Education Learning Collaborative

Online Master of Science in Agriculture Programs

Washington State University

August 2010

Agenda

Executive Summary	
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Offering an Online Master's Degree in Agriculture Is a Viable Opportunity for Washington State University Because of Future Labor Market Needs and Because Enrollment and Programming Trends Suggest Online Agriculture Master's Programs Can Succeed as Market Entrants

- Agricultural Manager jobs are expected to grow 6 % from 2008-2018, slower than the average for all occupations, while employment of self-employed farmers is expected to decline by 8%
 - Small-scale, local farming, particularly horticulture and organic farming, offer the best opportunities for entering the occupation
- Job growth among Agricultural and Food Scientists is predicted to increase faster than the average for all occupations: 16% from 2008-2018
 - Agricultural and food scientists with a master's or degree in agricultural and food science will experience good opportunities in coming years
 - Agricultural scientists who have advanced degrees usually begin in research or teaching
 - Employment of agricultural and food scientists is relatively stable during periods of economic recession
 - Layoffs are less likely among agricultural and food scientists than in other occupations, because demand for food fluctuates very little with economic activity

While Agriculture Programs Are More Popular at the Undergraduate Level, Recent Trends in Agriculture Conferrals Suggest New Programs Can Succeed if They Enter the Master's Degree Market

- Agriculture programs are most popular at the undergraduate level with bachelor's degrees being the most commonly awarded credential
 - Estimated enrollment for Agriculture bachelor's degree increased steadily from 2003 to 2009 (16% total over that period) while Agriculture master's degree decreased 7% between 2003 and 2009
 - An increase in graduates with bachelor's degrees could, however, translate to more candidates for master's-level programs
- The market share of degree conferrals among the 10 largest Agriculture master's programs decreased 38.7% to 33.4% from 2003 to 2009, suggesting there is increased competition and that smaller and newer programs can gain market share
- Among specialized Agriculture programs, 90% of Agriculture master's degrees awarded in 2009 were in five of the 14 major disciplines
- In 2009, the five largest Agriculture master's disciplines, in terms of conferrals, were:
 - Agricultural Business and Management
 - Plant Sciences
 - Animal Sciences
 - Food Science and Technology
 - Agriculture General

Executive Summary: Online Agriculture Education

While Six of the 10 Largest Schools Conferring Agriculture Master's Degrees Offer Online Programs, the Online Market is Far from Saturated

- Six of the 10 largest Agriculture master's institutions, in terms of degree conferrals, offer online master's degree programs
 - Agricultural Business and Management is the most commonly awarded master's degree (offered at seven out of 10 of these schools)
 - While business-oriented Agriculture master's degrees are the most popular in terms of conferrals, there is only one online program at the 10 largest schools that can clearly be identified as an Agriculture business program
- Graduate-level Agriculture programs are rare among the most “online active” schools, suggesting there is room for new entries into a market that is far from saturated
 - Only three schools in Eduventures' list of online active schools have Agriculture programs
- Research universities vary with regard to whether or not they allow courses used to earn a certificate to be applied toward a master's degree
 - The fact that so few schools report awards for undergraduate certificates in Agricultural disciplines may indicate many of these certificate programs are non-credit and, therefore, would not generally be applicable to master's degree programs
 - If WSU could design online graduate certificate programs to feed into online master's programs, they may be able to attract potential student attention away from schools that have certificates but do not allow credits to transfer

Executive Summary: Recommendations for Next Steps

Based on This Research, OHE-LC Staff Recommend the Following Next Steps for Washington State University:

- Develop master's programs that prepare graduates to become Agricultural and Food Scientists and Organic Farmers as these are areas where job prospects will be best
 - Because WSU Online Organic Agriculture certificate program, developing an online master's program in Organic Agriculture with the certificate program curriculum could allow WSU to develop an attractive program at a lower cost than developing a new specialization
 - Of the existing Agriculture master's programs at WSU, Food Science and Agriculture would be the best choices for an online program because the labor market for related jobs will be strong and these are two of the more popular master's specializations
 - Consider re-branding the M.S. in Agriculture as "M.S. in Agricultural Science" to create a better identification with the occupational field
- When developing online master's programs, consider developing more specialized, rather than general, programs since specialized programs are more popular
 - Agricultural Business and Management would be a good choice if deciding to develop a new program since this is the most popular specialization among Agriculture master's degrees and it does not have a strong online presence
- When developing online master's degree programs, consider the relative merits of branding a program as an M.Ag, which is considered a terminal degree, and an M.S. from which graduates often go on to continue their graduate education
- Market Agriculture programs as preparing graduates to work in a field that is safe during economic recessions

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Washington State University (WSU) Seeks to Gain a Deeper Understanding of the Market for Online Agriculture Programs

- The goal of this project is to identify the agriculture program or programs for which WSU is best positioned to offer an online Master of Science degree. To respond to this need, the OHE-LC team will conduct secondary research to answer the following questions:
 - Are online master’s degrees in agriculture more generic or specific in nature?
 - Which agriculture disciplines are most popular in terms of degree conferment? Are some agriculture disciplines more popular in, or amenable to, an online format than others?
 - Based on labor/education trends, what are the likely growth areas for agriculture education?
 - Based on information regarding faculty areas of expertise and university resources, in which agriculture disciplines would WSU be best positioned to offer an online master’s degree?
 - Which peer institutions, *i.e.*, land-grant and doctoral/research universities-extensive (formerly referred to as Research I Universities), have the most successful master’s level online agriculture programs and in what discipline areas are they successful?
 - What agriculture certificates, particularly online, are offered by these peer universities? Do any of these build into masters programs?
 - Is a “Master of Science in Agriculture” the best way to brand such an offering? What alternatives names might be more successful and why?
 - Are online agriculture programs more common at the bachelor’s or master’s level?
 - Would offering an online master’s in organic agriculture, which is currently offered as a certificate, be a viable program offering?

OHE-LC Staff Used a Number of Sources to Answer These Research Questions

- OHE-LC staff mined the Bureau of Labor Statistics (BLS) and relevant industry associations such as the American Association for Agricultural Education and Agricultural and Applied Economics Association to retrieve industry and occupational trends and projections in the agriculture sector
- OHE-LC staff reviewed data from the National Center for Education Statistics to determine degree conferral trends
 - Eduventures' Conferrals to Enrollments Conversion Calculation formula was used to estimate enrollments in Agriculture programs
- OHE-LC staff conducted a competitive assessment of providers to identify existing precedents of online agriculture programs
 - Institutional web sites were used to provide programmatic characteristics of identified providers

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Employment Prospects: Farmers, Ranchers, and Agricultural Managers

Agricultural Manager Jobs Are Expected to Grow 6 % from 2008-2018, Slower than the Average for All Occupations, While Employment for Self-employed Farmers Will Decline by 8% Due to the Ability of the Agriculture Sector to Produce More with Fewer Workers

- Farmers, ranchers, and agricultural managers, who held more than 1.2 million jobs in 2008, focus on the business aspects of running a farm
 - Nearly 80 percent were self-employed farmers and ranchers, and the remainder were wage and salary agricultural managers
- According to the BLS, experience gained from growing up on or working on a family farm is the most common way farmers learn their trade, however, modern farming requires making increasingly complex scientific, business, and financial decisions, so postsecondary education in agriculture is important, even for people who were raised on farms

Employment Projections from the BLS			
Occupation	Number of jobs 2008 (2018*)	Change, 2008-18	
		Number	%
Farm, ranch, and other agricultural managers	248,100 (262,700)	14,600	6
Farmers and ranchers	985,900 (906,700)	-79,200	-8

*Projected

Small-scale, local farming, particularly horticulture and organic farming, offer the best opportunities for entering the occupation. This may mean an opportunity for Washington State to expand its Organic Farming certificate program into a degree program.

Job Growth Among Agricultural & Food Scientists Is Predicted to Increase Faster than the Average for All Occupations: 16% from 2008-18

- Agricultural and food scientists held about 31,000 jobs in 2008 and the BLS projected to increase by 4,800 jobs to 35,900 by 2018
 - Soil and plant scientists accounted for 13,900, food scientists and technologist for 13,400, while the remaining 3,700 were animal scientists
 - In addition to jobs in industry, many people with graduate education in these sciences held faculty positions in colleges and universities
- Agricultural and food scientists with a master's or degree in agricultural and food science will experience good opportunities in coming years, although positions in basic research and teaching at colleges and universities are limited
- Agricultural scientists who have advanced degrees usually begin in research or teaching
 - With experience, they may advance to jobs as supervisors of research programs or managers of other agriculture-related activities

Employment of agricultural and food scientists is relatively stable during periods of economic recession. Layoffs are less likely among agricultural and food scientists than in other occupations because demand for food fluctuates very little with economic activity.

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Education Trends: Agricultural Programs

Agriculture Programs Are Most Popular at the Undergraduate Level with Bachelor's Degrees Being the Most Commonly Awarded Credential

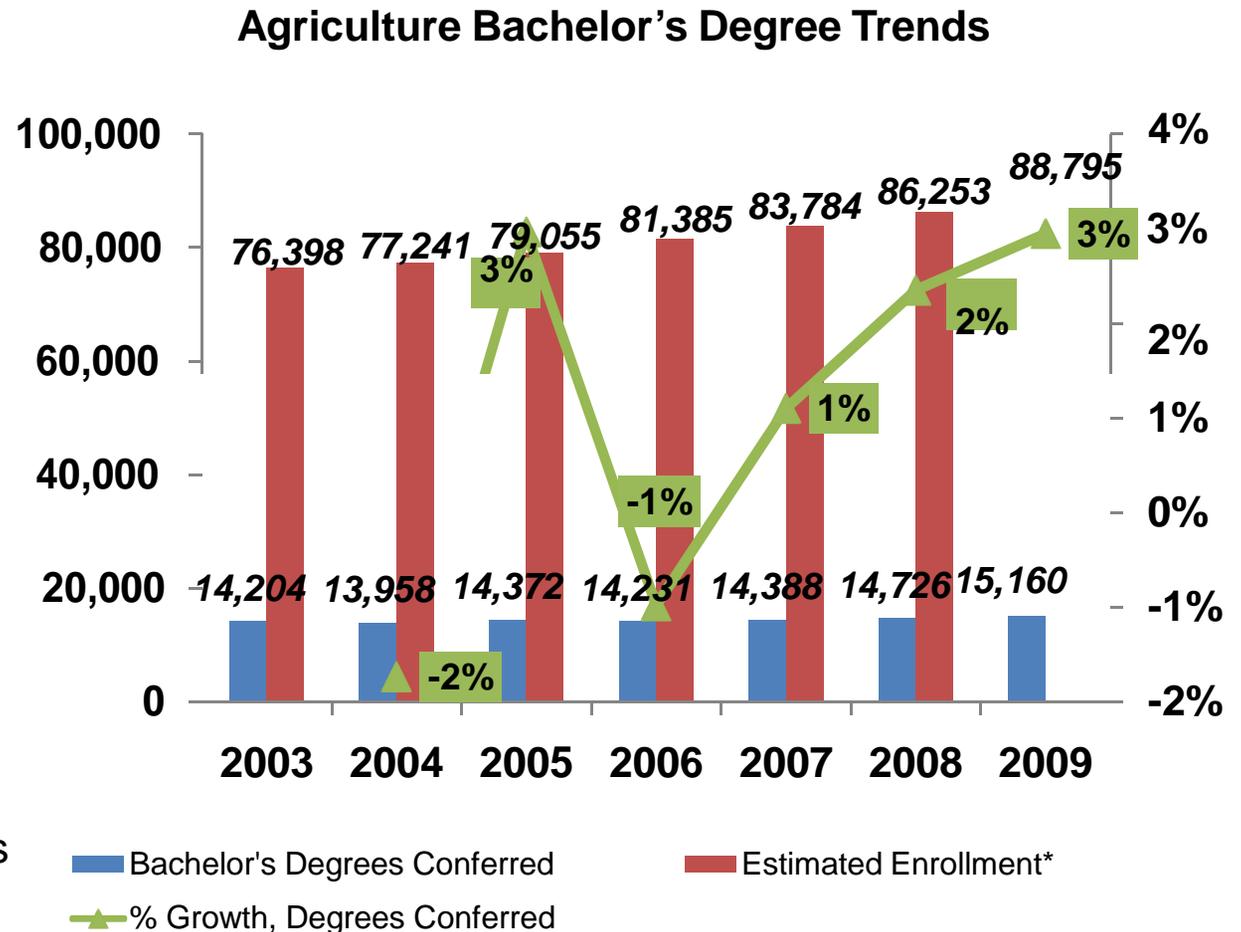
- Information on Agriculture program conferrals is made available via the Integrated Postsecondary Education Data Systems (IPEDS) Database
- All Agriculture degrees and certificates are subsumed under Classification of Instructional Program (CIP) code 01 which is defined as:
 - Instructional programs that focus on agriculture and related sciences and that prepare individuals to apply specific knowledge, methods, and techniques to the management and performance of agricultural operations.

Agriculture, Agriculture Operations, and Related Sciences (CIP Code 01) Awards in 2009		
Credential	Number of Credentials Awarded	Number of Institutions Awarding Credentials
Undergraduate certificate	5,059	325
Associate degree	4,525	371
Bachelor's degree	15,160	178
Graduate Certificate	18	6
Master's degree	2,252	88

Education Trends : Bachelor's Degrees in Agriculture

Estimated Enrollment for Agriculture Bachelor's Degree Increased Steadily in Recent Years and Grew a Total of 16% from 2003 to 2009

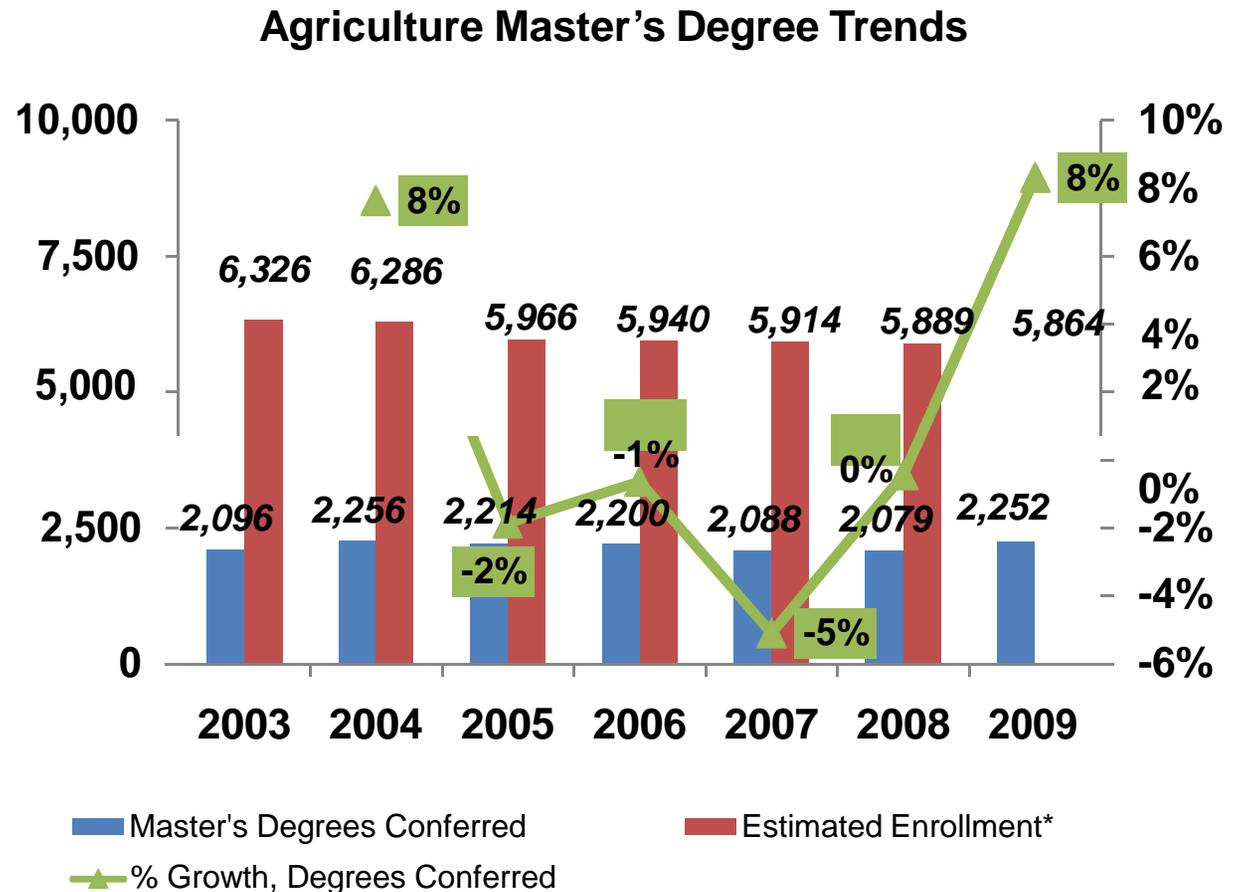
- A total of 198 institutions awarded Agriculture bachelor's degrees between 2003 and 2009 with 178 institutions awarding degrees in 2009
- The 5 largest programs, in terms of degree conferment, from 2003 to 2009 were:
 - Texas A & M University
 - University of California - Davis
 - University of Florida
 - California Polytechnic State University - San Luis Obispo
 - Cornell University



Education Trends : Master's Degrees in Agriculture

Enrollment Estimates for Agriculture Master's Degree Decreased 7% Between 2003 and 2009

- There was a net increase in the number of institutions awarded degrees between 2003 and 2009
 - 88 institutions awarded degrees in 2009 compared with 84 in 2003
- Master's degree conferrals increased 8% between 2008 and 2009



The market share of degree conferrals among the 10 largest Agriculture master's programs decreased 38.7% to 33.4% from 2003 to 2009 suggesting there is increased competition and that smaller and newer programs can compete for students.

Education Trends : Master's Degrees in Agriculture

90% of Agriculture Master's Degrees Awarded in 2009 Were in 5 of the 14 Major Disciplines for Which There is a Specialization

- The most popular Agriculture master's degree in 2009, Agricultural Business and Management, accounts for 23% of all master's degrees awarded
- M.Agr. degrees are considered terminal degrees while M.S. degrees are more appropriate for students who may want to continue on to a PhD program

Agriculture Master's Degree Conferrals by Discipline in 2009		
Discipline	# of Degrees Conferred	% of All Agriculture Master's
All Programs	2,252	100%
Agricultural Business and Management	523	23%
Plant Sciences	447	20%
Animal Sciences	400	18%
Food Science and Technology	323	14%
Agriculture General	308	14%
Soil Sciences	109	5%
Agricultural Production Operations	50	2%
Agricultural Public Services	29	1%
Agriculture Operations and Related Sciences Other	21	1%
Applied Horticulture/Horticultural Business Services	19	1%
International Agriculture	10	0%
Agricultural and Food Products Processing	9	0%
Agricultural Mechanization	4	0%
Agricultural and Domestic Animal Services	0	0%

While the top 4 Agriculture master's disciplines were in more specialized areas, General Agriculture Programs ranked 5th, above many other specialized disciplines.

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Competitive Overview: Large Research Universities

Six of the 10 Largest Agriculture Master's Institutions, in Terms of Degree Conferrals, Offer Online Master's Degree Programs

- Online master's programs at the largest Agriculture schools, in terms of master's degree conferrals in 2009, are more specialized than general
 - 7 of the 10 of largest schools awarded more Agricultures Master's Degrees in Agricultural Business and Management than they did in any other Agriculture discipline
 - At the other 3 of the 10 largest schools a General Agriculture Master's is the most commonly awarded Agriculture master's degree

Online Agriculture Program Availability among the 10 Largest Agriculture Master's Institutions, in Terms of Degree Conferment		
School Name and Rank, in Terms of Agriculture Master's Conferrals, in 2009	Has Online Master's	Online Degree Specializations Offered
University of Florida (1)	Yes	<ul style="list-style-type: none"> • Soil and Water Science • Entomology and Pest Management • Agricultural Education and Communication
Texas A & M University (2)	Yes	<ul style="list-style-type: none"> • Master of Agriculture in Agricultural Development • Master of Agriculture in Poultry Science • Master of Fisheries Science • Master of Natural Resources Development • Master of Wildlife Science
Kansas State University (3)	Yes	<ul style="list-style-type: none"> • Food Science • Master's in Agribusiness
Purdue University (4)	No	N/A
University of California-Davis (5)	No	N/A

Competitive Overview: Large Research Universities Cont.

While Business-Oriented Agriculture Master's Degrees are the Most Popular in Terms of Conferrals, There Is Only One Online Program at the 10 Largest Schools That Can Clearly Be Identified as Agribusiness: The Program at Kansas State University

- Because of the amenability to online delivery and the relative lack of online programs clearly branded as Agricultural Business and Management among the top 10 school, this is a viable program development opportunity to explore
 - Programs are amenable to online delivery because less face-to-face training is required than in other programs such as plant and animal sciences
 - WSU could build components of an agribusiness program from its existing online MBA Program

Online Agriculture Program Availability among the 10 Largest Agriculture Master's Institutions, in Terms of Degree Conferment		
School Name and Rank, in Terms of Agricultures Master's Conferrals, in 2009	Has Online Master's	Online Degree Specializations Offered
University of Georgia (6)	Yes	<ul style="list-style-type: none"> • Master of Agricultural Leadership
Colorado State University (7)	Yes	<ul style="list-style-type: none"> • Agricultural Extension Education M.Agr. in Agricultural Sciences • MS in Rangeland Ecosystem Science
Cornell University (8)	No	N/A
Oklahoma State University (9)	No	N/A
University of Illinois at Urbana-Champaign (10)	Yes	<ul style="list-style-type: none"> • Education • Crop Sciences • Food Science and Human Nutrition

Competitive Overview: Agriculture at Active Online Schools

Graduate-level Agriculture Programs Are Rare Among the 100 Most Online Active Schools, Suggesting There Is Room For New Entrants into a Market That is Far from Saturated

- The source of the information in the table to the right is the Eduventures' Online Higher Education Learning Collaborative program database 2009, which lists the 100 schools in the U.S. with the most active online presence
- Only three schools in the Eduventures database had online Agriculture programs
 - All of these programs, whether degree or certificate, were at the graduate level
- The University of Illinois Urbana-Champaign should be considered a strong competitor as it is also a top 10 school in terms of master's degree conferrals

School	Credential(s)	Disciplines Offered Online
University of Nebraska Lincoln	Master's Degree	• Applied Science - Agriculture
University of Wisconsin Extension	Master's Degree	• Agricultural Education and Sustainable Community Development
University of Illinois Urbana-Champaign	Certificate, Master's Degree	<ul style="list-style-type: none"> • Agricultural Crop Sciences (Cert) • Dairy Science (Cert) • Horticulture (Cert) • Agricultural Education (Master's) • Crop Sciences (Master's) • Food Science and Human Nutrition (Master's)

Online, For-credit Agriculture Certificate Programs at Research Universities Are Rare at the Undergraduate and Graduate Levels

- Only 9 schools with a Carnegie Classification of Research University conferred an undergraduate certificate in Agriculture in 2009 and only 3 conferred graduate certificates
 - The number of undergraduate Agriculture certificates awarded by Research Universities in 2009 greatly outnumbered the number of graduate certificates (158 versus 4) and the number of certificates awarded at Research Universities is clearly low for both levels
- Research Universities vary with regard to whether or not they allow courses used to earn a certificate to be applied toward a master's degree
 - The University of Illinois does allow students to transfer courses taken as part of a graduate certificate program to one of their master's programs but only if it was originally taken for credit
 - The University of Illinois is the only school among the top 10 largest Research Universities that clearly states its for-credit graduate certificates can later be applied to an online master's degree
- The fact that so few schools report awards for undergraduate certificates in Agricultural disciplines may indicate many of these certificate programs are non-credit and, therefore, would not be applicable to master's degree programs

If WSU could design online graduate certificate programs to feed into online master's programs, they may be able to attract potential student attention away from schools that have certificates but do not allow credits to transfer.

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Agriculture Programs at the Master's Level Do Not Have a Strong Online Presence and with Good Strategic Planning, WSU Can Develop Programs That Will Succeed as New Entrants to the Market

- Though enrollments in Agriculture master's programs have been shrinking in recent years, there are a number of reasons why online Agriculture master's programs should be poised to succeed in the coming years
 - The job market for certain agricultural occupations, particularly agriculture and food scientists, is predicted to grow faster than the average for all occupations
 - In recent years, bachelor's in Agriculture programs have grown and an increased number of individuals with undergraduate degrees means more individuals who can feed into master's programs
 - The relatively weak presence of graduate-level Agriculture programs in the online arena means programs offered online could succeed as early entrants to the market
- Master's programs that prepare graduates to be agricultural managers, agriculture and food scientists, and organic farmers are more likely to succeed than others
 - The amenability of content to delivery in an online format, the workforce applicability of the content, and the uniqueness of the discipline will factor into a program's ability to succeed online
 - Agriculture Science, Food Science, and Organic Farming programs already exist at WSU and online programs would give graduates good opportunities to compete in the job market
 - Agricultural Business and Management programs are the most popular Agriculture Master's specialization, yet the discipline has a weak online presence

Masters of Science in Agriculture Program Bylaws
Washington State University
Administrative Home: College of Agricultural, Human, and Natural Resource Sciences
Last Revised: January 30, 2013
Faculty Senate Approval Date: not applicable

I. Objectives

- A. Degree offered: Master of Science in Agriculture
- B. Discipline: Agriculture
- C. Mission of the Program: To enhance the career trajectory of agricultural professionals, practitioners, and educators by improving their ability to apply new and emerging scientific findings and technologies to the advancement and expansion of their disciplines through:
 - 1. Successful completion of high quality courses designed to support expertise expansion in targeted areas or disciplines;
 - 2. Participation in an immersion-based, high quality research experience;
 - 3. Opportunities to disseminate knowledge through participation in and/or development of extension programs or media.

The degree program is primarily designed to support the educational advancement of place bound, time bound students in an online course delivery format; however, students on campus also may apply for the program. The overall goal of the program is to prepare Master's level graduates for professional, practitioner, and educator opportunities in agriculture, so that they may provide leadership and disseminate knowledge to an increasingly complex society.

- D. Objectives:
 - 1. To prepare students to become experts in professional fields related to agriculture.
 - 2. To prepare students to become outstanding educators and practitioners in agricultural disciplines.
 - 3. To prepare students to become outstanding leaders and team players in collaborative and interdisciplinary application of their expertise to address local, regional, national and/or global problems associated with agriculture.
 - 4. To enhance the visibility and impact of master's level graduate programs in agricultural sciences.
 - 5. To provide students with an experiential-based research opportunity designed to translate content provided in course work to reality.
 - 6. To provide student with a pathway for manifesting their career objectives.
 - 7. To transition students to higher level of understanding of agriculture-based disciplines through graduate education.

E. Learning Outcomes:

1. To enable students to become experts in their professional agricultural fields.
 - a. Expand breadth of knowledge and expertise in agriculture disciplines and closely related fields.
 - b. Increase depth of knowledge and expertise in agriculture disciplines.
 - c. Enhance the ability of students to adapt to emerging changes in technology, the economy, and communication that have a dramatic impact on the agricultural industry.

2. To enable students to become outstanding educators and practitioners in agricultural disciplines, the program will foster the development of excellent communication and teaching skills, as well as a comprehensive understanding of research approaches used to address agricultural issues. The successful student will embody the following:
 - a. Mastery of research skills and techniques as demonstrated by the major advisor, advisory committee, and faculty at large through confirmation that the student has successfully completed all phases of an independent research project. The student will:
 - i. Demonstrate an ability to critically assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research.
 - ii. Demonstrate scientific literacy by independently accessing, interpreting and summarizing literature and other sources of knowledge on the research topic.
 - iii. Develop research objectives and hypotheses through the use of logic and critical thinking.
 - iv. Propose and execute experimental protocol to test stated hypotheses.
 - v. Collect, summarize and interpret experimental data.
 - vi. Apply standard rules of ethics to their scientific endeavors.
 - b. Mastery of communication skills for conveying research concepts, findings, and implications to their scientific colleagues, as well as stakeholder groups. Successful students will demonstrate their mastery of effective:
 - i. Oral communication of research concepts, findings and implications to scientific and non-scientific groups through preparing and delivering seminars or public presentations.
 - ii. Written communication of research concepts, findings and implications to scientific and non-scientific groups through thesis preparation, authoring scientific journal articles, authoring extension bulletins, etc.
 - iii. Delivery of education programs to students and stakeholders about research concepts, findings and their implications to agriculture.

3. To prepare students to become outstanding leaders and team players in collaborative and interdisciplinary application of their science to the local, regional, national and global problems and issues at large, the program will foster within students the ability to effectively work within a team construct or community as positive leaders and team players. The program will foster the following within successful students:
 - a. Effective leadership skills.
 - b. Commitment to integrity and ethical behavior.
 - c. Appreciation and respect for diversity.
 - d. Appreciation for global cultures, traditions, and perspectives.

4. By enhancing the visibility and impact of the graduate programs in agricultural disciplines, the program will:
 - a. Increase the number and diversity of high quality applicants and students in the program.
 - b. Strengthen the college's role in distance delivery by expanding access beyond Washington State boundaries.
 - c. Place more WSU graduates in lead teaching and industry positions.

II. Membership

- A. Graduate Faculty within the Master of Science in Agriculture Program may be WSU tenured and tenure track faculty, WSU non-tenure track faculty, or WSU adjunct faculty, subject to the limitations and definitions in this document. All Graduate Faculty must be "Initial Program Faculty" (listed in Section XI of this document) or subsequently approved as Graduate Faculty through the process outlined in section B below.
 1. WSU Campus Participation
 - a. The Master of Science in Agriculture Program is offered through the Pullman campus of Washington State University and principally at a distance through the Washington State University Global Campus as approved and authorized by the Higher Education Coordinating Board (HECB) of Washington State.
 - b. Approved tenured and tenure track Master of Science Graduate Faculty at all regional campuses, agricultural extension sites, and other affiliated university sites may participate equally in the Master of Science in Agriculture Program as supporting faculty with full program rights and responsibilities. As such they are entitled to act as chair, co-chair, or member of graduate student committees; teach graduate courses; supervise research; and act as a Master of Science in Agriculture Program Curriculum Committee member.
 2. Graduate Faculty Participation
 - a. Graduate Faculty participation in Master of Science in Agriculture Program is independent and separate from academic department, school, or college affiliations.
 - b. All active members of the Graduate Faculty of the Masters of Science in Agriculture Program are eligible to vote on program issues.
 3. Disciplinary Expertise

Graduate Faculty within the Master of Science in Agriculture Program are expected to have a MS, PhD or equivalent degree in a field related to agriculture, agricultural education, agricultural technology or related fields. In addition, they must have demonstrated disciplinary expertise in a field related to agriculture, interest and experience in mentoring and teaching of graduate students in this field, and relevant professional accomplishments.

4. Active Research Appropriate to Master of Science in Agriculture Program
Graduate Faculty must be actively involved in research, extension and/or graduate level teaching related to agriculture, agricultural education, agricultural technology or related fields as evidenced by recent external grant or contract support, related peer-reviewed publications within the last 5 years, graduate student mentoring within the last 5 years, teaching of relevant graduate level courses, or other relevant professional accomplishments.
5. Non-Tenure Track Graduate Faculty
 - a. Internal to WSU
Non-tenure track Graduate Faculty internal to WSU includes research, clinical, and affiliate faculty. This category of Graduate Faculty also includes USDA-ARS researchers. These researchers are classified as WSU adjunct faculty but may function in the same roles as WSU tenured and tenure-track faculty. USDA-ARS faculties are entitled to act as chair, co-chair, or a member of graduate student committees; teach graduate courses; supervise research; and act as a student committee member. Other non-tenure track faculty internal to WSU (research, senior instructors, instructors, clinical, affiliate) may be active Master of Science in Agriculture Graduate Faculty and are entitled to act as co-chair or member of graduate student committees; teach graduate courses; and supervise research. When serving as co-chair of a student committee they must work with a tenured, tenure-track or USDA-ARS faculty member who also is an active member of the Master of Science in Agriculture Graduate Faculty.
 - b. External to WSU
Professionals who are not WSU faculty may be granted Graduate Faculty participation within the Master of Science in Agriculture Program if they are first officially approved as adjunct faculty for WSU. Adjunct faculty who are approved as active Graduate Faculty are entitled to act as a member of graduate student committees; teach graduate courses; and supervise research. They may not serve as student committee chair or co-chair or on the Master of Science in Agriculture Program Steering Committee.
6. Individual Committee Member Internal to WSU
Individuals not officially participating as Graduate Faculty within the Master of Science in Agriculture Program (for example, a faculty member from another WSU department or program) may serve on graduate committees as long as they are a member of the Graduate Faculty in their own program or discipline and their committee appointment is approved by the Steering Committee of Master of Science in Agriculture Program.
7. External Individual Committee Members
Individuals not officially participating as Graduate Faculty within any graduate program at WSU (for example, a faculty member from another university or research entity) may be approved to serve as a thesis/dissertation committee member for an individual student on a case-by-case basis. The committee chair for that student should forward the name and a curriculum vitae of the desired committee member to the Master of Science in Agriculture Program Director or the Associate Dean for distribution to the Steering Committee. With approval of the Steering Committee, the nomination (with accompanying CV or other documentation of expertise) is forwarded to the Dean of the Graduate School for final approval.

B. Application for Membership

1. Initial Graduate Faculty within the Master of Science in Agriculture Program are listed in Section XI of this document and have been approved by the Master of Science in Agriculture Steering Committee and Dean of the Graduate School.
2. Candidates for Graduate Faculty participation within the Master of Science in Agriculture Program should be nominated by an existing Master of Science in Agriculture Graduate Faculty member or may self-nominate. The nomination should include a letter of nomination and curriculum vitae for the nominee. The Director of the Master of Science in Agriculture Program or the Associate Dean will circulate application materials to all active Graduate Faculty prior to voting. Acceptance as Graduate Faculty requires a positive vote from a majority of faculty who respond to the vote, as well as from a majority of the members of the Master of Science in Agriculture Steering Committee.
3. In addition to a commitment to maintain the highest standards of mentoring for graduate students, anticipated contributions or qualifications for all successful Graduate Faculty applicants include one or more of the following:
 - a. History or reasonable expectation of an active research program that can plausibly be relied upon as the source of continuing support (financial, infrastructure, mentoring) of a Master of Science in Agriculture graduate student.
 - b. History of or willingness to participate as appropriate in administrative, teaching, and other functions of the Master of Science in Agriculture Program. This may include serving on graduate program steering or curriculum committees; serving as a thesis committee member or chair; or providing graduate level instruction.
 - c. History of publication of peer-reviewed manuscripts and/or Tier I extension publications in a discipline related to agriculture.

C. Continuation of Active Membership

1. Graduate Faculty appointments to the Master of Science in Agriculture Program will be reviewed for continuation of active membership by the Master of Science in Agriculture Program Steering Committee every 3 years with one-third of the membership reviewed each year. They will be evaluated for contributions to graduate instruction, research, and teaching. Contributions to the program shall be a requirement for continued active membership. Contribution may take the form of:
 - a. Committee chair, co-chair or member for graduate students
 - b. Teaching or co-teaching a graduate course
 - c. Supervising research for graduate students
 - d. Serving on the Master of Science in Agriculture Program Steering or Curriculum Committees
2. Faculty who do not make any of the contributions as stated in C.1 above to the Master of Science in Agriculture Program for three consecutive years will be designated as inactive Graduate Faculty. Inactive Graduate Faculty do not have voting rights. Initiation of any of these activities described in C.1 above will result in restoration of active Graduate Faculty designation.

D. Discontinuation of Membership

Upon request of an active Graduate Faculty member, that individual's membership will be discontinued. If that individual's situation should change, they may reapply for Graduate Faculty participation at any time.

Membership of Graduate Faculty who do not follow the mentoring procedures and guidelines as outlined in the current Master of Science in Agriculture Handbook can be discontinued based on documented evidence of chronic lack of compliance. The Associate Dean, Director of MS Ag and members of the Steering Committee will review the documentation, and membership will be revoked if a majority of the Steering Committee members and the Director vote in favor of discontinuation. In the case of a tie, the Associate Dean will cast the decision making vote.

E. Membership Appeal Process

Faculty appeal of any membership decision in the Master of Science in Agriculture Program must be made in writing to the Director of the Master of Science in Agriculture Program or the Associate Dean within 30 calendar days of the decision. The appeal is determined by a majority vote of all Master of Science in Agriculture Graduate Faculty (see Section IX for definition of quorum). Final written appeal may be made to the Dean of the Graduate School within 30 calendar days of the Master of Science in Agriculture Graduate Faculty vote.

III. Administration

Administration of the program will be overseen by the Academic Program Coordinator of the Master of Science in Agriculture Program, who reports to the Associate Dean of Academic Programs in the College of Agricultural, Human, and Natural Resource Sciences (CAHNRS). A Steering Committee composed of Chairs and Directors of participating departments, schools or centers (i.e. Dept. of Crop and Soil Sciences, Dept. of Horticulture, School of Economic Sciences, Dept. of Plant Pathology, Dept. of Entomology, Dept. of Animal Sciences, Dept. of Food Science and the Research and Extension Centers in Mt. Vernon, Puyallup, Prosser and Wenatchee) will collectively serve as the guiding voice of the program. Based on consensus, the Associate Dean of Academic Programs will implement the recommendations made by the Steering Committee. A subset of faculty from participating departments may be called upon to serve on the Master of Science in Agriculture Program Curriculum Committee to address course content, development, and delivery issues.

IV. Graduate Program Director

- A. A Director of Master of Science in Agriculture Program may be nominated by Graduate Faculty or a member of the Steering Committee. Based on majority vote of members of the Steering Committee, the Associate Dean will appoint this person as Director. If a suitable candidate is not identified, the Steering Committee will serve as the collective voice of the Master of Science in Agriculture program, as described in III above, and the Associate Dean will assume the responsibilities of the Director.
- B. The Director shall serve a term of 4 years and is eligible for re-election if nominated to continue in this position in accordance with the terms of the initial appointment and with

final approval of the Master of Science in Agriculture Program Steering Committee as described in IV.A. above.

- C. The Director may be removed from office by a majority vote of the Master of Science in Agriculture Program Steering Committee and with the approval of the Associate Dean.
- D. Duties of the Director of the Master of Science in Agriculture Program
 1. Serve as the liaison between the Graduate Faculty and the Steering Committee.
 2. Engage with Steering Committee and Graduate Faculty on policy development.
 3. Implement policies as directed by the Steering Committee.
 4. Represent the Master of Science program at campus and off-campus events, and recruitment activities.
 5. Participate in Steering Committee meetings.
 6. Call and preside at meetings of the Graduate Faculty.
 7. Coordinate curriculum development, delivery and assessment activities for the Master of Science in Agriculture Program with the Steering Committee and Graduate Faculty.
 8. Create and implement a recruitment and retention plan for the Master of Science in Agriculture Program.
 9. With support from the Academic Program Coordinator for the Master of Science in Agriculture Program:
 - a. Coordinate all program administrative activities with the Graduate School.
 - b. Submit course or curriculum change or approval forms.
 - c. Submit bylaws change or approval forms.
 - d. Update and review for accuracy all publications related to the Master of Science in Agriculture Program including web pages, catalog copy, and recruitment materials.
 - e. Develop and update a SharePoint site on the CAHNRS website for Graduate Faculty and students enrolled in the program. (<https://sharepoint.cahnrs.wsu.edu/ap/CAHNRS-AP/MSAg/default.aspx>)
 - f. Review and make final recommendations concerning acceptance or rejection to the program based on recommendations of the Master of Science in Agriculture Program Steering Committee for submittal to the Graduate School.
 - g. Review and make final decisions concerning program of study approval based on the recommendation of the Chairs/Directors on the Master of Science in Agriculture Program Steering Committee whose expertise align with the student's research area of interest, and submit these documents to the Graduate School.

V. Committees

- A. Master of Science in Agriculture Program Steering Committee

Based on consensus, provides policy and program decisions that are implemented by the Director of the Master of Science in Agriculture Program if one has been appointed or the Associate Dean of Academic Programs. The Academic Program Coordinator shall record and distribute minutes of each meeting to the Graduate Faculty and maintain an electronic copy in SharePoint site.

1. The Master of Science in Agriculture Program Steering Committee shall be composed of the 11 Chairs and Directors of departments, schools or centers participating in the Master of Science in Agriculture Program (see section III above).
2. Each Master of Science in Agriculture Program Steering Committee member will seek input and consider viewpoints of participating Graduate Faculty from their department, program or centers during the decision making process.
3. Members of the Master of Science in Agriculture Program Steering Committee will serve for the duration of their appointment as chair or director of a participating department, school or center.
4. Areas in which the Master of Science in Agriculture Program Steering Committee shall provide oversight:
 - a. Review, develop and update long-range goals for the Master of Science in Agriculture Program and develop action plans and timelines for attaining these goals. These goals shall be presented and reviewed at least once annually during a meeting with all Graduate Faculty.
 - b. Serve as a sounding board for the Director or Associate Dean concerning new ideas, changes, etc., in academic or administrative issues recommended by the Graduate Faculty.
 - c. Provide guidance and adjustments to more effectively administer the program.
 - d. Identify members for service on other committees related to the Master of Science in Agriculture Program.
 - e. Assist with curriculum development and assessment processes for the Master of Science in Agriculture Program.
 - f. Review all student applications and, in conjunction with the Director, Associated Dean and/or the Academic Coordinator, after consultation with appropriate Graduate Faculty, and in a timely manner, determine the disposition of applications as to acceptance or rejection.
 - g. Participate in reviewing and approving programs of study for students engaged in research activities associated with their disciplines.

B. Master of Science in Agriculture Program Curriculum Committee

Coordinate curriculum review, program of study review, and recruitment and retention activities for the Master of Science in Agriculture Program as requested by the Master of Science in Agriculture Program Steering Committee and/or the Director or Associate Dean.

1. The Master of Science in Agriculture Program Curriculum Committee consists of one member (7-11) from each participating department, school or center. The departmental and center representative may be the same person if that person is located at a Research & Extension Center. Participants are selected by the Chair or Director of each participating department, school or center.

2. Members of the Master of Science in Agriculture Program Curriculum Committee shall serve 3-year terms. At the end of each term, contributions shall be reviewed by their Chair and/or Director. Based on successful performance and level of contribution to the Master of Science in Agriculture Program, members may be reappointed.
 3. Based on the recommendation of the Master of Science in Agriculture Program Steering Committee, the Director or Associate Dean shall call and preside over meetings. The Academic Program Coordinator shall take minutes, which will be posted on the SharePoint site.
 4. Recruitment:
 - a. Work with the Director or Associate Dean and/or Academic Coordinator to develop and maintain recruitment materials as needed.
 - b. Participate in recruitment efforts as requested.
- C. Other Committees
- Other ad hoc committees may be appointed by the Master of Science in Agriculture Program Steering Committee, Associate Dean and/or Director. Addition of new, or changes to the existing, standing committees must be approved by amendment of bylaws.

VI. Graduate Student Committees

- A. The graduate committee of each student shall have a minimum of three members. The majority of members of each committee shall be active Master of Science in Agriculture Graduate Faculty members.
- B. The initial selection, or subsequent changes, of a graduate student's committee shall be determined jointly by the student and the student's advisor. A major advisor shall be identified among committee members based on mutual agreement between the student and the committee if an advisor has not been identified prior to the first committee meeting.
- C. Committee meetings will be held as needed, but at least once per year.
- D. A program of study with a course enrollment timeline and a research objective and brief overview shall be submitted for review by the Master of Science in Agriculture Program Steering Committee within six months of a student's acceptance into the program. An array of science-based, graduate level courses must be included in the program of study to gain approval by the Director or Associate Dean and members of the Master of Science in Agriculture Program Steering Committee. Continual enrollment is recommended to ensure timely graduation.
- E. As specified in the Graduate School's Policies and Procedures, the performance of each graduate student shall be reviewed annually.

VII. Student Representatives

At the discretion of the Master of Science in Agriculture Steering Committee, Director or Associate Dean and/or the Graduate Faculty, student representation may be added or deleted from any committee structure. In accordance with the Policies and Procedures of the Graduate School at WSU, graduate students are not permitted to serve on the committees of other graduate students.

VIII. Graduate Faculty Meetings

- A. The Master of Science in Agriculture Program Steering Committee and/or the Director or Associate Dean shall call Graduate Faculty meetings as needed and at least once per academic year with a minimum of one week notice. All attempts shall be made to provide a written agenda in advance.
- B. Other meetings may be called at the discretion of the Director, Associate Dean or the Master of Science in Agriculture Program Steering Committee.
- C. A special meeting of Master of Science in Agriculture Graduate Faculty may be called by petition of 5 or more Graduate Faculty members.
- D. Efforts will be made to communicate items of interest, including notification of a faculty meeting, via e-mail. All public documents will be made available to the Master of Science in Agriculture Program Steering Committee Members and Graduate Faculty through the SharePoint site, which will be maintained by the Academic Program Coordinator.
- E. Faculty not present on the Pullman campus at the time of a general Master of Science in Agriculture Graduate Faculty meeting may participate by telephone conference call or other electronic means.

IX. Quorum

- A. For all general graduate faculty meetings and votes unless otherwise indicated, a quorum shall be defined as a minimum of 50 percent of the Program membership.
- B. For programmatic committees to conduct a business meeting, a quorum shall be defined as a minimum of 50 percent of the committee membership.
- C. Unless otherwise indicated, a simple majority of the total number of ballots cast are required to pass a motion.
- D. In the event of a tie vote in which the entire graduate faculty is eligible to vote, the Master of Science in Agriculture Program Director or Associate Dean will decide the outcome of the vote. For tie votes that occur within programmatic committees, the Director or committee chair will decide the outcome of the vote.

X. Amendments to Program Bylaws

- A. The Program Bylaws document shall be reviewed every fifth year by the Master of Science in Agriculture Program Steering Committee and annually by the Director or Associate Dean.
- B. Amendments to the Bylaws may originate from any eligible Master of Science in Agriculture Graduate Faculty member. Proposed amendments must be forwarded to the Master of Science in Agriculture Steering Committee and Director or Associate Dean. After discussion, amendments shall be forwarded to the Graduate Faculty electronically at least 2 weeks prior to the faculty meeting at which the amendments will be discussed. After discussion, a minimum 2 week period will follow the faculty meeting prior to vote. Votes on amendments may occur at a faculty meeting or electronically. Amendments to the Master of Science in Agriculture Program Bylaws require a positive vote from the majority of all active Master of Science in Agriculture Graduate Faculty and consensus based approval by the Master of Science in Agriculture Program Steering Committee.
- C. All amendments and revisions must be submitted to the Graduate Studies Committee and Faculty Senate for review and final approval.

XI. List of Graduate Faculty Participants

A. List of Master of Science in Agriculture Program Graduate Faculty Participants:

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- C. With assistance from the Academic Program Coordinator, the Director of the Master of Science in Agriculture Program or the Associate Dean is responsible for submitting an updated list of active and inactive Graduate Faculty participants to the Dean of the Graduate School for approval on an annual basis.

M.S. in Agriculture Assessment Plan

Program Mission Statement:

To enhance the career trajectory of agricultural professionals, practitioners, and educators by improving their ability to apply new and emerging scientific findings and technologies to the advancement and expansion of their disciplines through:

1. Successful completion of high quality courses designed to support expertise expansion in targeted areas or disciplines;
2. Participation in an immersion-based, high quality research experience;
3. Opportunities to disseminate knowledge through participation in and/or development of extension programs or media.

The degree program is primarily designed to support the educational advancement of place bound, time bound students in an online course delivery format; however, students on campus also may access the program. The overall goal of the program is to prepare Master's level graduates for professional, practitioner, and educator opportunities in agriculture, so that they may provide leadership and disseminate knowledge to an increasingly complex society.

Strategic Fit within the University:

Agriculture is an area of preeminence at Washington State University. As the state's land grant university, we strive to support agriculturalist with maximizing their ability to contribute to the advancement of science and technology in agricultural and food production, as well as to facilitate the translation of agricultural advancements to society. The MS Ag program is the gateway for place bound, time bound students to advance their skill sets through participating in this asynchronous, distance-based graduate training program, and all four of the WSU's strategic goals are embodied in this program.

Program Objectives

1. To prepare students to become experts in professional fields related to agriculture.
2. To prepare students to become outstanding educators and practitioners in agricultural disciplines.
3. To prepare students to become outstanding leaders and team players in collaborative and interdisciplinary application of their expertise to address local, regional, national and/or global problems associated with agriculture.
4. To enhance the visibility and impact of graduate programs in agricultural sciences.
5. To provide students with an experiential-based research opportunity designed to translate content provided in course work to reality.
6. To provide students with a pathway for manifesting their career objectives.
7. To transition students to higher level of understanding of agriculture-based disciplines through graduate education.

Student Learning Outcomes (Program expectations are described in detail the Master of Science in Agriculture Handbook 2012, which can be found on-line at <http://msag.wsu.edu/>.)

1. To enable students to become experts in their professional agricultural fields.
 - a. Expand breadth of knowledge and expertise in agriculture disciplines and closely related fields.
 - b. Increase depth of knowledge and expertise in agriculture disciplines.
 - c. Enhance the ability of students to adapt to emerging changes in technology, the economy, and communication that have a dramatic impact on the agricultural industry.

2. To enable students to become outstanding educators and practitioners in agricultural disciplines, the program will foster the development of excellent communication and teaching skills, as well as a comprehensive understanding of research approaches used to address agricultural issues. The successful student will embody the following:
 - a. Mastery of research skills and techniques as demonstrated by the major advisor, advisory committee, and faculty at large through confirmation that the student has successfully completed all phases of an independent research project. The student will:
 - i. Demonstrate an ability to critically assess and comprehend societal problems, stakeholder concerns and scientific questions that formulate major issues to be addressed through applied and/or basic research.
 - ii. Demonstrate scientific literacy by independently accessing, interpreting and summarizing literature and other sources of knowledge on the research topic.
 - iii. Develop research objectives and hypotheses through the use of logic and critical thinking.
 - iv. Propose and execute experimental protocol to test stated hypotheses.
 - v. Collect, summarize and interpret experimental data.
 - vi. Apply standard rules of ethics to their scientific endeavors.

 - b. Mastery of communication skills for conveying research concepts, findings, and implications to their scientific colleagues, as well as stakeholder groups. Successful students will demonstrate their mastery of effective:
 - i. Oral communication of research concepts, findings and implications to scientific and non-scientific groups through preparing and delivering seminars or public presentations.
 - ii. Written communication of research concepts, findings and implications to scientific and non-scientific groups through thesis preparation, authoring scientific journal articles, authoring extension bulletins, etc.
 - iii. Delivery of education programs to students and stakeholders about research concepts, findings and their implications to agriculture.

3. To prepare students to become outstanding leaders and team players in collaborative and interdisciplinary application of their science to the local, regional, national and global problems and issues at large, the program will foster within students the ability to effectively work within a team construct or community as positive leaders and team players. The program will foster the following within successful students:
 - a. Effective leadership skills.
 - b. Commitment to integrity and ethical behavior.
 - c. Appreciation and respect for diversity.
 - d. Appreciation for global cultures, traditions, and perspectives.

4. By enhancing the visibility and impact of the graduate programs in agricultural disciplines, the program will:
 - a. Increase the number and diversity of high quality applicants and students in the program.
 - b. Strengthen the college's role in distance delivery by expanding access beyond Washington State boundaries.
 - c. Place more WSU graduates in lead teaching and industry positions.

Assessment Rubric for Each Student Learning Outcomes

Outcome	Data	Source	Collected*
1a. Breadth of knowledge of agricultural disciplines and closely related fields	Acceptable performance in agriculture related courses prescribed by the advising committees	Cumulative GPA of 3.0 or above	Each semester
1b. In-depth knowledge and expertise of general and specific concepts in agriculture must be demonstrated	Ability to successfully pass oral and/or written exams and final thesis defense before advisory committee and affiliated faculty	Academic coordinator will collect graduate exam success/failure data	After each oral/written examination and final defense
2a. Comprehensive skills and techniques	Successful completion of independent research projects.	Graduate Advisory Committee Feedback	At end of project or proposal class
2b. Excellent communication skills	Successful performance in writing and presenting scientific information through seminars, field day presentations, and critiqued writing	Faculty Member Feedback, Peer Reviews	Periodically during MS program during committee meetings, oral presentations and oral/written exams

3a. Outstanding leadership skills	Performance reviews of leadership in research activities, presentations and outreach activities	Advisor and/or other committee members; Feedback requests after presentations	Annually by committee; through post-delivery evaluations after presentations
3b. Ethical behavior in academics and research	Annual performance reviews	Advisor and/or other committee members	Annually
3c. Appreciation and respect for diversity	Annual performance reviews	Advisor and/or other committee members	Annually
3d. Appreciation for global cultures, traditions, perspectives	Annual performance reviews; participation in local events; engagement with diverse clientele	Advisor and/or other committee members	Annually
4a. Increase the number and diversity of high quality applicants and students	Applicant data including number of completed applications, GPA, student demographics	Graduate School and Academic Coordinator	Annually
4b. Strengthen distance delivery, expand beyond Washington state boundaries	Student enrollment data.	Academic Coordinator	Annually
4c. Place more students in lead academic, research, and industry positions	Alumni data showing placement of students	Exit interview summaries	Annually

*A written annual evaluation form will be filled out by the advisor each year and submitted to the graduate program coordinator, department chair and program directors for review to monitor each individual student's progress on these criteria. See annual review form in Appendix 3.

Masters in Agriculture Internship/Practicum Guide

What is an internship/practicum?

A carefully monitored work or service experience in which an individual has intentional learning goals and reflects actively on what she or he is learning throughout the experience. Part of an educational program and carefully monitored and evaluated for academic credit, or part of a learning plan that the intern develops.

Students must identify and participate in an 8 week full-time (40 hours per week) internship/practicum, with an identified internship/practicum mentor. The internship/practicum can be paid or unpaid, and will usually be conducted in a non-academic workplace. The objectives of the internship/practicum are to encourage students to integrate elements of the course work into the workplace and to capitalize on the transitional aspects of the MS in Agriculture program. The internship/practicum will include an Internship/Practicum Proposal, and an Internship/Practicum Log. After completion of the internship/practicum, an Internship/Practicum Report will be written to show that the student was challenged; 1), to complete an assigned internship/practicum and 2), to interpret and integrate course work and the internship/practicum experience.

Students must enroll in AGRI 702 Master's Special Problems/Internship/Practicum for 1-4 credits during the semester they perform the internship/practicum. The internship/practicum and mentor must be identified by the student and preapproved by the student's committee by the end of the first semester of study or after completing 10 credits of course work, and at least one month before the beginning of the internship/practicum. A written internship/practicum proposal should be submitted for approval and must follow the Internship/Practicum Proposal guidelines. The internship/practicum must be a new experience for the student, and if a student wishes to do an internship/practicum in a current workplace the nature of the internship/practicum must be completely different from his/her regular responsibilities; for example the internship/practicum could be conducted in a different office or department within the workplace. During the internship/practicum, students will be expected to keep a weekly Internship/practicum Log to document progress. Finally to successfully complete the internship/practicum, students will write an Internship/practicum Report under the guidance of their internship/practicum mentor and graduate committee. This report will form the basis of the final master's examination.

Timeline of Internship/Practicum

- Internship/Practicum Proposal approval is due 10 days before the start of the Internship/practicum

- Internship/Practicum Log is completed every week of the internship/practicum and made available upon request at any time during the internship/practicum and will be available for the final examination.
- Submit the final copies of the Internship/Practicum Proposal, the Internship/Practicum Log, the Internship/Practicum Report and the completed Non-Thesis Final Examination Scheduling form to the committee members at least 10 working days before the scheduled date of the final examination. The link for the Final Examination Form is <http://gradschool.wsu.edu/Documents/PDF/NonThesisSched.pdf>
- It is highly recommended that students submit a draft of the final internship/practicum report to Graduate Committee members at least 15 working days before the scheduled date of the final examination.
- Students must also arrange for the 'Mentor Evaluation of Student Form' to be emailed to the Graduate Academic Coordinator at marshdj@wsu.edu.
- Students must also complete the 'Student Evaluation of Internship/Practicum Experience Form' and email to the Graduate Academic Coordinator at marshdj@wsu.edu.
- These two forms must be available for the Final Examination.

Internship/Practicum Proposal

- One month prior to the start of the internship/practicum, students must submit a complete Internship/Practicum Proposal with the assistance of their internship/practicum mentor and Chair of their graduate committee. The proposal should be approved by all members of the student's graduate committee, at least 10 days prior to the anticipated start date of the internship/practicum. The following items must be included in the complete Internship/Practicum proposal:
 - Internship/Practicum Agreement (form)
 - Proposal
 - Internship/Practicum Location: a brief summary of the workplace, including the nature of the work, complete address(es), phone and e-mail contact details of the internship/practicum mentor, and any compensation/ reimbursement provided.
 - Internship/Practicum: the title and a brief summary of your responsibilities.
 - Internship/Practicum Timeline: list specific beginning and ending dates, number of work hours/week, and total number of hours you will spend on this internship/practicum.
 - Internship/Practicum Description: describe in detail what the aims of the internship/practicum are, what you will be doing, and how you will be doing it. If your internship/practicum is a research project, the background, hypothesis, methodology, and references must be included.
 - Internship/Practicum Outcomes: explain what new skills and/or knowledge you hope to acquire during this internship/practicum.
 - Internship/Practicum Evaluation: how will your mentor evaluate your performance? Identify specific parameters to be assessed.

- A resume written with the goal to secure this specific internship/practicum.
- A copy of the approved complete internship/practicum proposal (items 1, 2 and 3), should be submitted to the Plant Health Management Program Director by email to marshdj@wsu.edu before the beginning of the internship/practicum.

Internship/Practicum Log

The log is a professional record of your internship/practicum experience and will vary in format depending on the internship/practicum and requirements of your mentor. The frequency of updating your log may be daily, biweekly or as required by your mentor; however a summary of all weeks' work is mandatory. The log will be dated and carefully maintained to the specifications of your internship/practicum mentor. If you are participating in a research project, you will keep precise notes of your experimental procedures; if your internship/practicum involves a design project, computer analysis, library research or data collection and analysis, you will record your work and maintain your log as determined by the progression of the project under the supervision of your mentor. The purpose of the log is to show that you can carefully record your work in a written format, such that it can be repeated. Your graduate committee will review your log and it will contribute to your final internship/practicum grade. If a signed confidentiality agreement is required for your internship/practicum, arrange for your mentor to contact your graduate committee to verify that you maintained an adequate log.

Each log entry should be long enough to sufficiently summarize the activities for the day or week (typically 2-3 pages, single-spaced). Be concise, neat and thorough and follow the log format dictated by the specifics of the internship/practicum.

Internship/Practicum Report

This report will be based on the experience obtained through the internship/practicum. The objectives of the report are to show that: 1) students can communicate effectively by writing, 2) students can integrate the internship/practicum experience with both the science and professional course work, and 3) students gained valuable workplace experience.

Guidelines for the Internship/practicum Report:

The maximum length of the internship/practicum report should not be more than 10 double-spaced pages, including figures and tables. The height of the letters must be no smaller than 10 point; must be no more than 15 characters per inch (cpi); Helvetica or Arial 12-point are suggested fonts. References are not included in the page limitations.

The format for the report should be according to the following guidelines:

- Abstract–Briefly (250 words), what is the overall hypothesis, aim or information that is to be tested or gained from the internship/practicum?
- Introduction with background and significance of the proposed internship/practicum, why is the work important?
- Design and Methods of completing the Internship/practicum
- Results
- Conclusions and Future Directions.
- Personal Internship/practicum Experience. The student will also report on his/her personal internship/practicum experience and will include a rating on: a) the internship/practicum environment, b) the internship/practicum experience, c) internship/practicum challenges and opportunities and d) relevancy to his/her MS in Agriculture program of study course work.

It is highly recommended that students submit a draft of the final internship/practicum report to the Graduate Committee members at least 15 working days before the scheduled date of the final examination.

At least 10 working days before the final examination students must submit the final copy of the Internship/practicum Report, copies of the completed Internship/practicum Proposal, and Internship/practicum Log to the committee members.

Students must arrange submission of the completed Non-Thesis Final Examination Scheduling form, the Mentor Evaluation of Student Form and the Student Evaluation of Internship/Practicum form to the Graduate Academic Coordinator at marshdj@wsu.edu at least 10 working days before the scheduled date of the final examination. The Non-Thesis Final Examination Scheduling form is available through the following link: <http://gradschool.wsu.edu/Documents/PDF/NonThesisSched.pdf>

The completed and signed Non-Thesis Final Examination Scheduling Form is due in The Graduate School **at least 10 working days before the scheduled date of the final examination.**

Responsibilities of the Internship/Practicum Mentor

The MS in Agriculture mentor will be expected to provide guidance to ensure that the internship is structured and productive and meets accountability standards by fulfilling the following:

- Outline an 8 week long internship.
- Assist the student in writing an internship proposal.
- Hold weekly meetings with the student to discuss the internship progress.
- Ensure that the student keeps an internship log of weekly activities.
- Provide feedback on the internship report.
- Provide an evaluation of the student's performance which may be shared with the student.

Internship/Practicum location/dept.: _____

Hours per week on internship/practicum: _____

Student's wage: _____

Other compensation: _____

Describe the intern's responsibilities (or attach job description):

SIGNATURES

Student Intern: I accept the responsibilities as stated on this agreement. I agree to complete all internship/practicum assignments promptly and to the best of my ability. I agree to familiarize myself with and adhere to the relevant organizational policies, procedures, functions, and standards of ethical conduct.

Student: _____ Date: _____

Mentor: I have discussed the internship/practicum and this agreement with the student. I agree to provide the intern with an orientation concerning organizational policies, procedures, and functions, and meet regularly with the intern. I agree to conduct an evaluation of the student.

Mentor: _____ Date: _____

**MASTERS IN AGRICULTURE
STUDENT EVALUATION OF INTERNSHIP/PRACTICUM EXPERIENCE**

This evaluation is requested so that we can monitor Masters in Agriculture internship/practicum locations. Evaluation should be submitted to the Graduate Academic Coordinator at marshdj@wsu.edu.

Student's Name _____ Degree: _____ Term/Year: _____

Internship Site and Mentor Name:

A. Did you accomplish the learning goals that you established in the Learning Agreement? Explain.

B. In your opinion, how well did **your mentor** (and other co-workers) interact with you on the following scales?

		POOR	MARGINAL	AVERAGE	GOOD	EXCELLENT	
1. Interpersonal relations:	Not well accepted	1	2	3	4	5	Highly cooperative
2. Adequate directions:	Slow	1	2	3	4	5	Careful and complete
3. Training Opportunities	Very few	1	2	3	4	5	Many and varied
4. Expected tasks vs. actual assignments:	Expectations were unfulfilled	1	2	3	4	5	Tasks corresponded to desired experience
5. Amount of Supervision	Little contact	1	2	3	4	5	Generally available
6. Overall satisfaction with the experience	Unsatisfactory	1	2	3	4	5	Outstanding

C. Please **evaluate yourself** as to how well you were able to learn and integrate the following skills.

		POOR	MARGINAL	AVERAGE	GOOD	EXCELLENT	
1. Interpersonal relations:	Not well accepted	1	2	3	4	5	Highly cooperative
2. Adequate directions:	Slow	1	2	3	4	5	Careful and complete
3. Training Opportunities	Very few	1	2	3	4	5	Many and varied
4. Expected tasks vs. actual assignments:	Expectations were unfulfilled	1	2	3	4	5	Tasks corresponded to desired experience
5. Amount of Supervision	Little contact	1	2	3	4	5	Generally available
6. Overall satisfaction with the experience	Unsatisfactory	1	2	3	4	5	Outstanding
7. Interpersonal Relations	Not well accepted	1	2	3	4	5	Highly cooperative
8. Kept Agreements:	Slow	1	2	3	4	5	Very timely
9. Judgment	Poor	1	2	3	4	5	Mature
10. Dependability	Careless	1	2	3	4	5	Highly reliable
11. Learning ability	Slow	1	2	3	4	5	Rapid
12. Quality of work	Poor	1	2	3	4	5	Excellent
13. Punctuality	Irregular	1	2	3	4	5	Regular
14. Ability to teach others:	Poor	1	2	3	4	5	Excellent
15. Overall Performance	Poor	1	2	3	4	5	Excellent

D. In your opinion, how did your internship rate in the following areas?

		POOR	MARGINAL	AVERAGE	GOOD	EXCELLENT	
16. The internship was appropriate for your career interests	Not related	1	2	3	4	5	Closely related
17. You felt academically prepared for your placement:	Not prepared	1	2	3	4	5	Very prepared

E. What specific educational or extra-curricular experiences helped prepare you for the internship?

F. What specific educational experiences do you wish you would have had prior to your internship?

G. Check all of the following that you received as a direct result of your internship:

- Professional contacts in your career field
- A job or internship offer with the same employer
- Mentoring relationships
- Letter(s) of recommendation or name(s) for your reference list

H. What was the most valuable thing you gained from this internship?

I. What advice would you give future interns?

J. What advice would you give future internship mentors?

**MASTERS IN AGRICULTURE
MENTOR EVALUATION OF STUDENT**

Please return evaluation to the Graduate Academic Coordinator at marshdj@wsu.edu.
Feel free to attach additional pages.

Student's Name: _____

Internship Site: _____

Mentor's Name: _____

Phone: _____ Email: _____

1. Please evaluate the student on the following scales in comparison to other similarly assigned students or personnel, OR with respect to achievement of objectives.

	POOR	MARGINAL	AVERAGE	GOOD	EXCELLENT
A. Interpersonal relations	1	2	3	4	5
B. Kept agreements	1	2	3	4	5
C. Judgment	1	2	3	4	5
D. Dependability	1	2	3	4	5
E. Learning ability	1	2	3	4	5
F. Quality of Work	1	2	3	4	5
G. Punctuality	1	2	3	4	5
H. Ability to teach	1	2	3	4	5
I. Overall	1	2	3	4	5

2. Briefly relate this student's strong and/or weak work habits.

3. Would you recommend that this student pursues a career related to this experience, and if so, what additional recommendations would you make to better prepare the student for such a career?

4. What special problems affected this student's performance of objectives, such as inappropriate timing of the experience, deficiencies in the student's training, interaction with co-workers, etc.?

5. Has this evaluation been discussed with the student? Yes _____ No _____