

**BENCHMARKS**  
**Department of Crop and Soil Sciences**  
**March 22, 2007**

**Summary**

1. Number of (a) certified undergraduate majors enrolled in CSS and AFS, and (b) high-achieving undergraduates in Crop and Soil Sciences and in Agriculture and Food Systems (CSS/AFS).
2. Number of student credit hours from service courses for non-majors.
3. Number of undergraduate majors enrolled in CSS/AFS that obtain professional experience during their degree program.
4. Number of graduate students enrolled in CSS/MS Agriculture degree programs and/or supported on extramural grants.
5. Ratio of doctoral:masters graduate students enrolled in CSS degree programs.
6. Federal and other extramural funds for sponsored research and other scholarship in CSS.
7. Constituency and public support for CSS research and extension.
8. Foster inquiry, learning, and the application of research through outreach and technology transfer in CSS.
9. Interdisciplinary and multidisciplinary research and scholarship.
10. International projects and collaborations in CSS.
11. Scholarly publications in CSS.
12. Diversity of faculty, staff, and students in CSS.
13. Gift and endowment funding in CSS.
14. Percentage of CSS advised graduates obtaining jobs in their fields of interest.
15. Percentage of CSS advised PhD graduates that obtain research/professor positions with federal agencies or research universities.
16. Acreage in organic, biofuel/bioprocess crop production or planted with WSU cereal varieties.

**1.**

**Benchmark:** Number of (a) certified undergraduate majors enrolled in Crop and Soil Sciences and in Agriculture and Food Systems and (b) high-achieving undergraduates in CSS and AFS.

- Targets:**
- (a) Increase the number of certified undergraduate majors in Crop and Soil Sciences and in Agriculture and Food Systems by 20 percent over the next five years.
  - (b) Number of certified undergraduate majors in these degree programs achieving the Dean's list status will increase by 20% over the next five years.
  - (c) Number of undergraduates that pursue graduate school will increase by 20% over the next five years

**Impact:** Reversal of trend of declining undergraduates in the agricultural and natural resource sciences; higher quality graduates entering the agricultural, human and natural resource sciences.

**Tools:** Offer new interdisciplinary degree program, i.e. B.S. in Agricultural and Food Systems); restructure Crop and Soil Science degrees into a single, consolidated degree program; increase program visibility through increased student recruitment, working with CAHNRS recruitment and our own R&E center and affiliate county faculty; increase number of scholarships for high-achieving students.

**Data:** Student Data Warehouse (10<sup>th</sup> day, Fall Semester)

**Tracking responsibilities:** CSS academic programs office.

## 2.

**Benchmark:** Number of student credit hours from service courses for non-majors.

**Target:** Increase in the number of non-majors in General Education Requirement courses (GERs) offered within CSS by 10 percent in each year for the next five years.

**Impact:** More students exposed to and provided with greater academic breadth in the agricultural, human, and natural resource sciences and the application of these sciences; takes advantage of the faculty strength and capacity in CSS for service courses in addressing University over-enrollment.

**Tools:** Increase number and enrollment of General Education Requirement courses (GERs) offered by CSS faculty, e.g. HD 205, Soils 201, Crops/Soils 360. As an example, we increased enrollment of HD 205 from 200 to 300 per semester during 2006.

**Data:** WSU 10<sup>th</sup> day enrollment data (Registrar's Office)

**Tracking responsibilities:** CSS academic programs office.

## 3.

**Benchmark:** Number of undergraduate majors enrolled in Crop and Soil Sciences and in Agriculture and Food Systems that obtain professional experience during their degree program.

**Targets:** (a) Every undergraduate student in these programs will have at least one professional experience of undergraduate research, extension, or professional internship.

(b) Increase the number of students that attend regional or national professional meetings by 25% over five years.

(c) All faculty will offer at least one undergraduate research/extension/teaching experience within the next five years.

**Impact:** Improve quality of education and career prospects by networking students with professionals in their field. Increased opportunity for recruitment of high-achieving high-school students as majors in CSS/AFS, and of undergraduates into graduate school; greater appreciation for science/scholarship/professionalism among CSS baccalaureates; potential to identify with and choose a life-time career; greater student experience working in teams; greater leadership and community experience/opportunities for students.

**Tools:** Organize professional meeting attendance through undergraduate student clubs, course requirements, and employment of students for meeting organization, e.g. extension events. Monitor the number of presentations made by undergraduate students. Maintain/enhance departmental and center expectations to provide high-school and undergraduate students with research and extension experience; budget time-slips funds for undergraduates in research proposals; work more closely with Honors College;

**Data:** Advising/academic coordinator record keeping on professional meeting attendance. Enrollment data (research experience, special problems, and internship courses), payroll data, input from academic units, and WORQS. Chair exit survey data.

**Tracking responsibilities:** CSS academic programs office.

#### 4.

**Benchmark:** Number of graduate students enrolled in CSS degree programs and/or supported on extramural grants.

**Target:** Over the next five years, increase the:

(a) Number of graduate students enrolled in CSS and MS Agriculture degree programs by 50 percent.

(b) Total number of WSU graduate students advised by CSS faculty by 50%.

(c) Total number of WSU graduate students supported by ARC faculty on extramural grant budgets by 50 percent.

**Impact:** Greater scholarship/research output, including infusion of new ideas and greater potential for new discoveries/innovations; greater opportunity for well-qualified students to prepare for careers under mentorship of world-class faculty; increased graduate student enrollment as percentage of total student enrollment at Washington State University. Increased advanced training of CSS students entering the job market, statewide, nationally and internationally.

**Tools:** Increase grant support for graduate students; institute graduate education as a performance criteria in faculty evaluations; develop distance courses for supporting R& E center and MS Ag students. Work with CAHNRS to expand breadth of MS Ag programming, faculty involvement.

**Data:** Student Data Warehouse (10<sup>th</sup> day, Fall Semester); WORQS; ARC database.

**Tracking responsibilities:** CSS academic programs and finance offices.

**5.**

**Benchmark:** Ratio of doctoral:masters graduate students enrolled in CSS degree programs.

**Target:** (a) Achieve a sustained ratio of 1:1 over the next five years in CSS graduate degree programs.

(b) Increase the number of CSS Ph.D. students graduated per year by 50%.

**Impact:** Increase research and scholarship in CSS; supports University goal to significantly increase the proportion of graduate students as doctoral students.

Increases the number of Ph.D. graduates produced with mentorship from CSS. Enhances the impact of the ARC on WSU graduate education more broadly, contributing to the WSU goal of producing more Ph.D. graduates.

**Tools:** Provide more cost sharing and competitively awarded support for graduate students using ARC financial resources as incentives.

**Data:** WORQS and Graduate School enrollment data (Student Data Warehouse).

**Tracking responsibilities:** CSS academic programs office.

**6.**

**Benchmark:** Federal and other extramural funds for sponsored research and other scholarship in CSS.

**Target:** Achieve an annual increase of five percent per year in:

(a) Total competitive grant expenditures.

(b) Federal competitive grant expenditures (NSF, USDA-NRI, US-DOE, etc).

**Impact:** Provides funding for students and postdoctoral fellows; peer review of research proposals provides valuable feedback to the investigator for improvement of their science and other scholarship; leverages state and federal hard-dollar resources; generates additional F&A.

**Tools:** Provide opportunities for interaction with federal, philanthropic, and other program managers; recognize and reward success in the competitive grant arena at the unit level.

**Data:** WSU Data Warehouse.

**Tracking responsibilities:** CSS finance office.

**7.**

**Benchmark:** Constituency and public support for research and extension.

**Target:** Increase constituency and public awareness of and support for the application of science and technology with direct relevance/importance to a community, industry, commodity, government agency, or other stakeholder group.

**Impact:** Greater visibility of and public support for CSS research programs in the context of the land-grant mission of WSU; increased commodity and legislative support for research and outreach.

**Tools:** Increase “marketing” of research programs, especially applied research; develop new models/methods for communication with stakeholder groups; increase partnerships with industry representatives that facilitate interaction with farmers, ranchers, commodity groups, communities, and industries; work with Washington commodity groups to gain more support for research that benefits them. Major venues for CSS faculty include field days, grower tours, extension workshops, agency meetings.

**Data:** Industry and legislative support for CSS programs documented by WSU Foundation and CSS budget data on state initiative funds, federal special grants, commission funding supporting CSS research and extension.

**Tracking responsibilities:** CSS finance office.

## 8.

**Benchmark:** Foster inquiry, learning, and the application of research through outreach and technology transfer.

**Target:** Increase by 10 percent per year over the next five years the number of:

- (a) Extension publications authored by CSS faculty.
- (b) Workshops and presentations conducted by CSS faculty.
- (c) Popular press articles authored by or featuring CSS faculty.

**Impact:** Increased contribution of research to improving the economic well-being and quality of life of citizens of Washington, the nation, and the world.

**Tools:** Enhance communications resources; additional Extension FTE in CSS units; formation of research/extension teams.

**Data:** WORQS reports and Extension Publication Office.

**Tracking responsibilities:** CSS extension office.

## 9.

**Benchmark:** Interdisciplinary and multidisciplinary research and scholarship.

**Target:** Majority of faculty members become active participants in an interdisciplinary or multidisciplinary project and receive grant funding to support their participation.

**Impact:** More research that addresses complex problems facing the citizens of Washington, the nation, and the world; more competitive for the growing share of federal, philanthropic, and other funds targeted to multiple investigator/interdisciplinary research and scholarship.

**Tools:** Seed grants, staff support, or other incentives provided by ARC and WSU Extension in support of team building; faculty advancement that recognizes/rewards success in leadership of and participation in multidisciplinary, integrated, systems-driven, research-extension project teams, and scholarship.

**Data:** Office of Grant and Research Development grant expenditure database, ARC project database, and WORQS.

**Tracking responsibilities:** ARC.

## 10.

**Benchmark:** International projects and collaborations.

**Target:** Increase by 10 percent per year the number of:

- (a) Faculty engaged in research, teaching and extension programs with foreign universities.
- (b) International university professors and scientists hosted by CSS .

**Impact:** Land-grant mission of Washington State University continued/advanced as a global mission; WSU programs enhanced through faculty and student exchanges with partnering countries; new resources in support of CSS/WSU Extension research, teach, and outreach.

**Tools:** Administrative support of international activities; enhanced collaboration with Office of International Programs; hiring of international faculty. Institutionalization of international academic programs such as the Jordan/WSU sandwich PhD program in water sciences.

**Data:** WORQS, CSS visiting scientist, international scientist/postdoc/graduate students

**Tracking responsibilities:** Office of International Programs, CSS travel desk, academic programs, administrative personnel offices.

## 11.

**Benchmark:** Scholarly publications, patents and PVPs.

**Target:** Increase the number of peer-reviewed scholarly products (refereed journal articles, book chapters, books, patents, PVPs) produced by CSS faculty by 10 percent per year for 5 years.

**Impact:** Improve the visibility of research and scholarship at WSU, thereby attracting more extramural support, graduate students, and post doctoral fellows.

**Tools:** Increased emphasis of peer-reviewed scholarship in annual review and tenure and promotion processes;

**Data:** WORQS, WSU Intellectual Property, CSS managed variety release committees

**Tracking responsibilities:** CAHNRS Office of Research/ARC.

**12.**

**Benchmark:** Diversity of faculty, staff, and students.

**Target:** Improve gender diversity of faculty (percentage of female faculty in tenure-track positions) and ethnic diversity of faculty, staff and students (percentage of minority faculty, staff, and students), each by 10 to 20 percent of current levels over the next five years.

**Impact:** Provide more career and promotion opportunities for women faculty members in units where men currently outnumber women disproportionately; provide more educational and career opportunities for Washington's ethnic minorities interested in agricultural, human, and natural resources sciences; provide increased access to education and employment opportunities for Hispanic and Native American citizens in eastern Washington; perform in accordance with the WSU goal of trust and respect.

**Tools:** More active recruitment and mentoring of faculty from under-represented groups; allocation of additional resources to recruitment of minority students.

**Data:** Provost's Decision Support System; CSS database

**Tracking responsibilities:** CSS academic programs and administrative personnel offices.

**13.**

**Benchmark:** Gift and endowment funding.

**Target:** Increase total giving to CSS by 50 percent in the next five years.

**Impact:** Increased undergraduate/graduate enrollment and support while easing the financial burden on students due to increased cost of tuition; greater stability of funding for long-term research projects; endowed chairs to attract more world class faculty.

**Tools:** Invest in additional major gift officers; engage faculty and administrators in gift cultivation activities; execution of CSS Foundation Campaign plan.

**Data:** WSU Foundation Annual Reports.

**Tracking responsibilities:** CSS finance office

**14.**

**Benchmark:** Percentage of CSS graduates obtaining jobs in their fields of interest

**Target:** 90% success rate in CSS advised graduates obtaining jobs in their fields of interest.

**Impact:** Placing well qualified professionals in the CSS related professions, improving the knowledge base of the CSS related agricultural and environmental sectors of society.

**Tools:** Networking with potential employers by establishing relationships; support career days activities.

**Data:** Student exit interviews, surveys; alumni foundation database.

**Tracking responsibilities:** CSS academic programs and Chair

#### 15.

**Benchmark:** Percentage of CSS advised PhD graduates that eventually obtain research/professor positions with federal agencies or research universities.

**Target:** Increase to greater than 50% within the next decade.

**Impact:** Placing well qualified PhD researchers and professors in the CSS related disciplines will impact the quality of research and instruction, and improve the reputation of WSU CSS nationally and internationally. Targeting this goal will also improve the quality of CSS graduate education in terms of developing the entire individual as a future scientist and professor.

**Tools:** Improve the rigor and productivity expectations of PhD programs. Encourage the Graduate School to develop professional development courses for graduate students.

**Data:** CSS and WSU alumni database. Chair exit survey data.

**Tracking responsibilities:** CSS academic programs

#### 16.

**Benchmark:** Acreage in organic, biofuel/bioproduction crop production or planted with WSU cereal varieties.

**Target:** Increase respective acreage by 10% by 2011.

**Impact:** Economic stimulus and diversification to the farming economy. Serving consumer demand for food, fuel and other products.

**Tools:** Focused research, teaching and extension programming in these areas of crop production.

**Data:** WSDA agricultural statistics

**Tracking responsibilities:** CSS extension office; extension specialists