CHAIRS OF SENATE COMMITTEES
CHAIRS OF SENATE DIVISIONS

Dear Senate Committee and Division Chairs:

Attached please find reports from the external reviews of the Division of Agriculture and Natural Resources and the Cooperative Extension Program along with a letter from Interim Provost Pitts to Council Chair Croughan inviting the Academic Senate to comment.

The review of DANR was requested by the Academic Senate several years ago and was completed in February by a committee that included UC Senate and Administration members as well as outside reviewers. The review of the Cooperative Extension Program was carried out by a State of California entity. Both reviews are strongly positive, but both also make recommendations for changes, including changes that would lead to more interaction with the campuses that are not traditionally linked to DANR and that could affect membership in the Academic Senate. Senate committees and divisions are invited to comment on both the quality of the reviews and on the recommendations contained within them.

The Academic Council will review committee and division comments and develop a Council response to the reviews at its July 29 meeting. Please submit your responses by July 17 to senatereview@ucop.edu. Although all committees and divisions are invited to opine, it is assumed that some will consider the subject of these reviews to be outside their jurisdiction. Please let me know if your committee or division will not submit comments. As always, thank you for your participation in the Senate review process.

Sincerely,
Martha

Martha Kendall Winnacker, J.D.
Executive Director, Academic Senate

UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

OFFICE OF THE PROVOST AND EXECUTIVE VICE PRESIDENT –
ACADEMIC AFFAIRS

OFFICE OF THE PRESIDENT
1111 Franklin Street, 12th Floor
Oakland, California 94607-5200

May 13, 2009

ACADEMIC SENATE CHAIR CROUGHAN

Dear Mary:

I am forwarding two reports to you for Senate Review. The first is the Division of Agriculture and Natural Resources Academic Program Review Final Report; and the second is the External Review of the Cooperative Extension Program, conducted by the Cooperative State Research, Education, and Extension Service (CSREES).

Your personal participation in the Program Review is greatly appreciated, and I look forward to receiving the Senate comments by the end of August.

Sincerely,

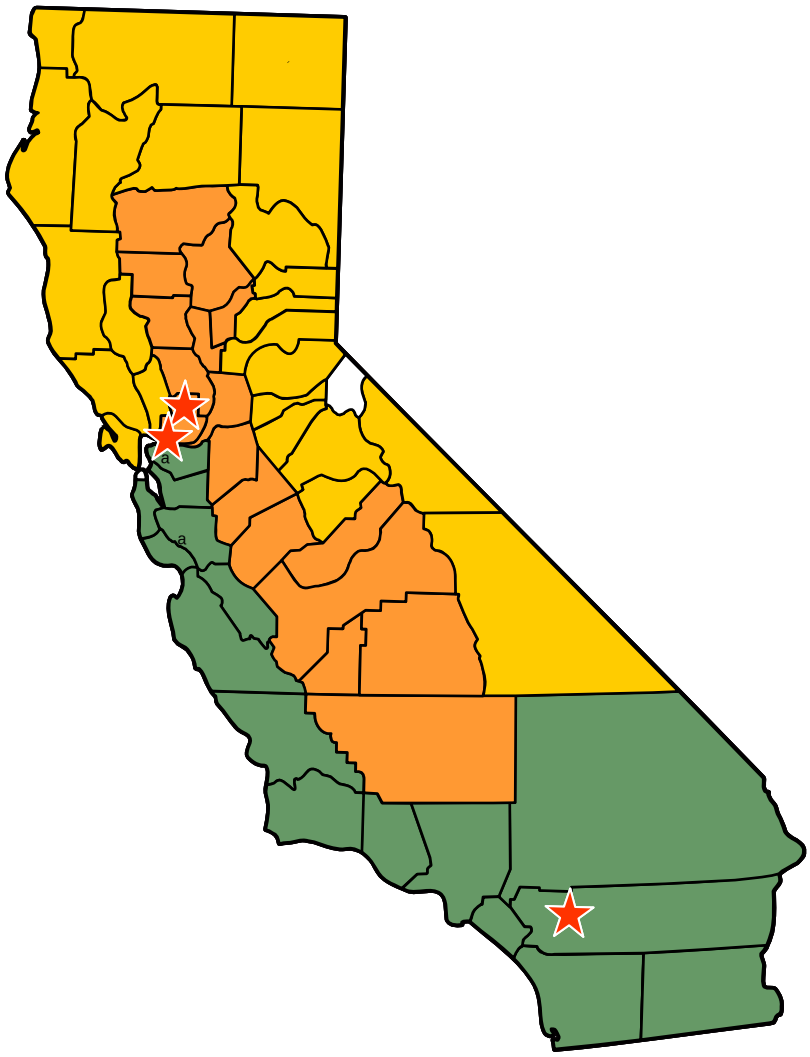
Larry

Lawrence H. Pitts
Interim Provost and Executive Vice President
Academic Affairs

Enclosures

cc: Vice President Dooley
Executive Director Winnacker
Special Assistant Corlett

University of California
Division of Agriculture and Natural Resources



Academic Program Review
February 8 – 11, 2009
Final Report

University of California
Division of Agriculture and Natural Resources

Academic Program Review
February 8-11, 2009

Final Report of the Academic Review Panel

Executive Summary/Introduction

The Review Panel was charged with conducting a first-ever review of the University of California's Division of Agriculture and Natural Resources (ANR). The Panel reviewed self-study and other background materials, interviewed college leadership and key stakeholders, visited selected facilities on three campuses, and was presented with seven case studies describing the spectrum of academic work undertaken by ANR's Agricultural Experiment Station (AES) faculty and Cooperative Extension (CE) Specialists.

The Panel was uniformly impressed with the scope of work, the depth and quality of research, the robust infrastructure created for identifying high priority problems facing Californians, and catalyzing research and outreach related to those problems and their solutions, within the land-grant mission.

The Panel endorses and supports the unique role played by ANR within the University of California, but recommends that it could build on its strengths and expand its impact by refining and modifying the focus of its work, telling a better story to the public, broadening its audience and making some internal corrections. The Panel recognizes that despite continued population growth in California, increases in agricultural production, and the development of new problems such as a changing climate, introduction of invasive species, and an epidemic of obesity and related health problems, ANR's own resources have declined substantially. While the current economic climate may make it difficult to make changes, it is a time when consideration of changes can be taken most seriously.

I. Process

The Review Panel was selected and charged by then Provost Rory Hume to answer four broad questions:

- What is the unique role of ANR in the teaching, research and public service missions of the University of California today?
- How can ANR best serve the interests of the State of California in the years ahead?
- How well does ANR leverage the combined power of the University system to serve the people of California?
- How well has ANR partnered with colleagues outside the University?

The Panel met by teleconference in January 2009 to discuss the background materials with then Interim Provost Robert Grey. The Panel then met from February 8-11, participating in case-study presentations, discussions, and tours at the Berkeley, Davis and Riverside campuses. In the course of the visit the Panel met with AES and other UC faculty, CE Specialists, county CE advisors, administrators, and individuals representing several stakeholder groups.

II. Answers to the Provost's Questions

What is the unique role of ANR in the teaching, research and public service missions of the University of California today?

Unique role: The unique role of ANR is its dedication to the focused land-grant mission, which expects that research be translated and communicated to the public. Its mission is "to serve California through the creation, development and application of knowledge in agricultural, natural and human resources."

Fulfilling the land-grant mission has given rise to an organizational structure that is unique within UC, and which the Panel notes as its particularly beneficial strength. ANR has an infrastructure that identifies and prioritizes problems and major issues of high public interest; is capable of rapidly mobilizing response teams to high-priority topics (e.g., Sudden Oak death, wildfire); provides crucial seed funding for translational research that applies findings from fundamental inquiry to solve practical problems challenging the state; and relies on highly developed convening skills, using well-established networks and communications outlets to address problems and disseminate solutions. This dedication to mission and ability to reach a large number of Californians provides UC with a respected "public face" and effectively transmits useful knowledge, accomplishments which would be difficult to achieve otherwise, and on which tremendous goodwill for the University is built.

The continuum from research to education and outreach was very evident in all the case studies. This continuum is the unique role that ANR provides and which serves California so well.

Contributions to UC: ANR meets its mission by conducting, integrating and disseminating scientific research related to California agriculture and natural resources. The success of this model depends on strong system-wide and campus administrative leadership, excellent faculty specialists and highly skilled and effective county advisors. As part of the University's academic structure, ANR faculty conduct basic research and, through joint Instruction and Research (I&R) appointments, teach both graduate and undergraduate students. The faculty and staff associated with the Agricultural Experiment Station and Cooperative Extension enrich the breadth and depth of undergraduate and graduate education by increasing the number of faculty by 60% in departments having ANR appointments, and thus provide broader disciplinary focus within the ANR colleges. AES faculty and CE specialists are involved as thesis and dissertation advisors in 57 different graduate majors.

The 711 faculty in AES, located on the Berkeley, Davis and Riverside campuses, undertake cutting edge research in diverse areas, in the fundamental to adaptive and integrative to disseminative continuum. The outcomes of these efforts address global challenges related to health, forestry and the natural resources and environmental stewardship, water and land use,

energy, climate change, safe and secure food supply, agricultural competitiveness, sustainable communities, and poverty. These efforts are undertaken with significant extramural support, particularly from national agencies such as the National Institutes of Health, National Science Foundation, US Agency for International Development, US Department of Energy, and US Department of Agriculture, along with various private foundations, including the Bill and Melinda Gates Foundation.

Scientists in the agricultural, natural and human resources disciplines within ANR are among the most productive in the world, publishing in the top scientific and disciplinary journals, including *Science, Nature, Proceedings of the National Academy of Sciences, Cell, Plant,* etc.

AES faculty have been recognized as members of the National Academy of Science, the Institute of Medicine, the National Academy of Engineering, fellows of the American Association for the Advancement of Science and other professional and honorary societies, and have been honored with numerous national and international awards, including the MacArthur Genius Award, the World Food Prize, and the Wolf Prize in Agriculture. Recently, some faculty scientists have been named to share the Nobel Peace Prize for their work on climate change.

The Panel notes that there is probably more convergence with other UC researchers in the sciences than at any time in ANR's history when research was more commodity or product-oriented. Even many county CE advisors now have doctorates, and end-users, such as those working in agricultural production are themselves more highly educated. As a consequence, AES faculty and even CE Specialists are increasingly focused on more fundamental research and the solutions to problems are more likely to reflect more broadly applicable science, such as genomics or water research.

Somewhat complementary expertise and skills are demanded of the AES faculty, CE Specialists and county CE advisors. AES faculty tend to be more narrowly specialized in their research than CES faculty, whose greater emphasis on outreach and science translation places a higher premium on research synthesis and interdisciplinary collaboration. County CE advisors must be especially skilled at staying current across a broad range of scientific information, connecting UC researchers with end users of information and collaborating with researchers, resource managers and a diverse public. The difference in skill sets means that AES faculty, CE Specialists and advisors are not perfectly interchangeable. Similarly, the special mission of AES and CES faculty means that, while there is overlap and synergy between ANR and I&R faculty, these faculty are also are not perfectly substitutable. ANR's leadership in addressing Sudden Oak Death provides an excellent example of how the different talents and expertise of ANR can be mobilized across campuses, pooling AES faculty, Cooperative Extension Specialists, other UC faculty, CSU faculty, county CE advisors, and partner organizations to deliver research of both local and international significance, timely management guidance, and broad public education. ANR is uniquely organized and staffed to provide such a program and to address such multidisciplinary issues.

Concerns: The research is most effective when there is a tight, seamless link between campus and AES faculty, as well as CE Specialists and county CE advisors. A major theme that ran through the case studies and stakeholder discussions, however, was that this vertical integration

is being severely tested if not broken by the rapid decline in the number of specialists and advisors. The lack of CE Specialists in the human resources area is particularly damaging to that area, as there are currently only four specialists in human and community development for the state. The increasingly greater human concerns facing California in dealing with nutrition and obesity, community and public health, immigration, diverse populations, labor, family and children's issues, translation of complex issues facing communities, particularly sustainability of communities, and the response to the same, require urgent and increased investments in enhancing the human resources area.

The most significant challenge for AES faculty is related to knowing or maintaining the relevance of their work to the land-grant mission of the institution. There is a concern connecting AES appointments to overall institutional (DANR) programmatic needs, and how priorities are set by departments and colleges. Such a lack of connection makes it difficult for the institution to deliver on its mission. In addition, not all AES faculty are well networked with Cooperative Extension staff.

The Panel also notes, without investigating the issue deeply, that there is merit in addressing the academic title, salary, privileges, and promotion expectations associated with the faculty series that includes CE Specialists, in order to make more explicit and recognize more fully the not-inconsiderable scholarly and outreach contributions made by these individuals.

The Panel was provided information showing the aging of the current CE and AES workforce, and notes the opportunity to expand on existing programs that develop young researchers and advisors from diverse groups who can interface with their communities and extend UC ANR's excellent problem-solving skills to address problems faced by those communities as well. To that end, the Panel heard examples of including undergraduates in research, as is done at UCR, as well as programs with high schools and community colleges. Other possibilities might include developing internship programs for students to pair with county advisors and/or developing extension certificate programs, perhaps in conjunction with faculty knowledgeable about adult education, which would ensure a highly qualified workforce to become skilled county advisors.

Retirements have led to major "holes" in expertise; these positions need to be re-examined with consideration given to replacing this lost expertise.

With the exception of a few new facilities, such as the Robert Mondavi Institute for Wine and Food at UC Davis, the new Plant Genomics Building at UC Riverside, and Koshland Hall at UC Berkeley, many of the buildings housing AES laboratories are old, with outdated infrastructure. Unfortunately, too often laboratory upgrades and improvements only occur as part of a start-up package for a new academic member in the department or as part of a retention offer. Additionally, owing to the current budget crisis in California, several renovation and building projects have been placed on indefinite hold, some right in the middle of the project, creating additional challenges.

How can ANR best serve the interests of the State of California in the years ahead?

The mission of ANR, "to serve California through the creation, development and application of knowledge in agriculture, natural and human resources," has never been more relevant to the state of California. In the past decade, annual agricultural production value has risen from $25 billion to over $35 billion. This growth has occurred in the context of continued rapid population growth (more than 5 million new residents since 1998), urban consumption of prime and locally significant farmland (approximately 50,000 acres per year), extensive residential development in rangelands (over 250,000 new households since 1998), growing water scarcity, and escalating conflicts over endangered species and environmental protection. Ironically, over the same time period ANR staffing has declined 18% from 740 to 645 FTE, and county, state and federal funding for UC Cooperative Extension and the Agricultural Experiment Station have remained flat. In the current economy, UC ANR funding faces additional short term budget cuts and longer term uncertainty. In other words, the scope and complexity of resource issues facing California continues to grow rapidly while UC capacity to help address those issues has been steadily curtailed.

The Panel underscores the vast service already provided to California through the existing structure and activities of ANR. The Panel was impressed by the ability of AES faculty and CE Specialists to produce world-class research and deliver it to the relevant stakeholders in the community to solve very real problems. In certain circumstances, they have played critical roles in brokering public-private partnerships to address key issues in a timely fashion. The ability to connect community, university, and legislative/regulatory groups in the service of solving key problems like Sudden Oak Death or wildfires was impressive. The value of ANR to the community stakeholders was seen most often in terms of being "honest brokers" to provide objective information and to negotiate conflicts which are inherent in a state in which there is an increasing population with limited water and energy resources.

The Panel notes three areas ANR might address in order to meet the ever-developing interests of the State: shifting focus to broader issues; addressing broader, more diverse audiences; and, improving visibility for ANR and its work.

Focusing on broader issues. The ethos of ANR has been focused predominantly on agriculture and natural resources, and they have served the State of California very impressively in the agricultural-to-community chain, as well as the development of new products, services, and policies. However, attention has often been commodity- or stakeholder-focused (although there are many recent examples of more broadly comprehensive activities) and less attention appears to have been focused on human and community development. The Panel believes that broadening the focus to one of promoting sustainable communities in which agricultural, natural resources, and human concerns are integrated would not only benefit the State but also provide more visible benefits to the people of California.

In California, agricultural and natural resource sustainability are deeply interwoven with larger issues of population growth, land use change, water supply, energy supply, climate change, transportation, and urban and rural community health and well being. This broader view of sustainability is clearly recognized in UC ANR's January 2009 Strategic Vision document. It

was recognized 10 years ago in an ANR concept paper defining sustainable agriculture (http://www.sarep.ucdavis.edu/Concept.htm). However, in 1997 sustainable agriculture was treated as a program area or "subset" of ANR activities. The new strategic plan treats sustainability as a "superset" or overarching set of principles that will guide all ANR activities. We strongly endorse this view, but believe that it will require a different mix and balance of skills and interests than are represented by current ANR faculty, specialists and advisors if it is to become manifest. Current expertise in the agricultural and natural resource area is strongly skewed towards plant production and protection. In comparison, efforts in program areas like water management, energy efficiency, integrated land planning, ecosystem services, rural development, and human health and nutrition, are relatively small. In a time of flat or declining budgets it is unreasonable to expect ANR to simply expand in non-traditional areas.

Nevertheless, ANR can move in this direction by taking seriously its vision in the strategic plan to "organize and fund research and outreach activities around integrated, multidisciplinary teams focused on the challenges facing California in agriculture and the environment [utilizing] teams of faculty from across California's counties and campuses." We would strongly encourage ANR to broaden the scope of these integrated teams to encompass human dimensions as well as agricultural and environmental dimensions. In addition, ANR can partner with other UC campuses, CSU and community college faculty to address applied research and outreach needs in new directions.

Addressing broader, more diverse audiences. One consequence of broadening the focus of ANR to promote sustainable communities is that the audience for ANR's research and services also broadens to include more stakeholders and a wider spectrum of the public. Broadening the concept of who the stakeholders are will bring in groups that are more diverse, including migrant agricultural workers as well as different ethnic groups and different age groups. The massive demographic shifts already underway in California also behoove ANR to re-examine its mission and stakeholder base in order to identify their unique and separate needs and respond to them. The Panel commends Vice President Dan Dooley for his efforts during the past year to broaden outreach to non-traditional stakeholders, especially among resource/conservation groups.

Partnering with organizations in the public and private sectors. Through the case study briefings and discussions with stakeholders, the Panel learned how science and education across the UC system have focused on helping California compete successfully in a global economy, conserve natural and human resources, and have helped keep people healthy through access to a safe, nutritious food supply. To address the broader, more diverse audiences and their questions, a need identified by the panel, will require forming new partnerships with organizations in the public and private sectors. Several examples of successful partnerships were provided in the case studies. The network of collaborators on genomics and plant breeding includes biotech and seed companies, the International Rice Research Institute, other faculty in universities in the US and India, and the government of Chile. The case study on animal health and environmental issues provided three examples of public-private partnerships that involved federal, state and county agencies along with pharmaceutical companies, and the California Dairy Research Foundation and Milk Advisory Boards. Research programs on invasive species include as partners the National Science Foundation, the Forest Service, the National Park Service, along with the California Department of Food and Agriculture and various foundations. The well-

funded biofuels initiative headed by UC Berkeley is another example of industry, government and university partnership.

The role for ANR in each of the case studies is to leverage fundamental research funded by NIH, NSF or other sources to solve problems facing the state – problems as diverse and thorny as food safety in fresh produce, invasive species, competition for water resources, and air quality around dairies. In the new parlance in scientific circles, this role is called "translational research." The impression of many stakeholders is that AES research is moving toward the more fundamental end of the spectrum; therefore the need for translational research becomes more acute. Some organizations, like the Citrus Research Board, recognize the change and are partnering to develop the translational role through an emphasis on CE specialists and advisors.

Improving visibility for ANR's work in particular, and the University generally. Broadening the stakeholder base will help maintain or increase the budget, especially if ANR is perceived as benefiting the whole state rather than a narrower stakeholder base. More generally, the Panel observed that while the value of ANR to the State of California is massive, and traditional stakeholders are extremely appreciative of the invaluable services ANR provides to the state of California, the work of ANR is unfortunately not often known outside of a fairly narrow range of stakeholders. However, ANR's mission is to reach all of the individuals in the state of California. Despite the increase in California's population and the decrease in ANR resources, ANR has been surprisingly successful at reaching as many people as it does. However, the Review Panel felt that there is little evidence that the general public is aware of the core services that ANR provides, even if they have directly benefited. For example, it is unlikely that many of the over 120,000 4-H participants recognize the roles that ANR, or UC, play in providing the organizational structure for 4-H.

One mechanism for broadening the range of stakeholders is through advisory panels. Inspection of the advisory panels for ANR and the four colleges shows a predominance of individuals from the traditional agricultural and food production industries, and some representation from well-known resource conservation groups. ANR might consider instances where membership on these advisory boards might be broadened to include groups dealing with issues central to child, family, and community development, such as rural poverty, farm worker, or tribal issues.

An important aspect of broadening visibility is having a compelling story to tell. The Panel notes that despite very impressive outcomes from the case studies presented, such as impacts on State regulatory requirements, and elimination or containment of certain pests, there were few explicit metrics presented, including economic and social cost-benefit analyses, that assess program outcomes or evaluate how well programs are achieving their objectives. Metrics that show how ANR's work translates on the ground can be used not only to manage projects but also to market the impact that ANR is having. The statewide programs and priorities that emerge from the strategic planning process could also benefit from the development of high level metrics.

How well does ANR leverage the combined power of the University system to serve the people of California?

The three primary campuses (Davis, Berkeley, and Riverside) have worked extremely well independently, and their collaborative work has been exceptional. The Panel was provided with examples of collaborative research and education programs, most notably the example of Sudden Oak Death being addressed across campuses and across national, state, and local organizations.

However, the collaborative efforts between the three campuses have been relatively limited, particularly given the breadth and depth of questions that could be addressed with expertise from other campus faculty. In addition, the remaining seven UC campuses have had relatively little (if any) collaborative activities with the three primary campuses. The Panel recommends that the three primary ANR campuses work more collaboratively with each other and with the other seven UC campuses. We also recommend that these collaborations be multi-disciplinary, such that the synergy of research and other activities within the University of California is enhanced. The Panel is cognizant that with diminishing resources, ANR may indeed need to prioritize areas of emphasis for research and educational efforts that might result from such collaborations across campuses; however, it is critical, particularly in this era of diminishing resources, to seek the best skills available within the UC system to address the issues facing the state.

Avenues for enhancing these collaborations include expansion of the statewide workgroups across campuses, with inclusion of a broad range of faculty in addition to AES faculty, CE Specialists, and County CE Advisors. These collaborations across campuses should at least include the schools of public health, medicine, nursing, dentistry, pharmacy, and engineering. Individual departments within the variety of UC schools also should be considered, such as bioinformatics and statistics. Outreach and community education could be enhanced through collaborative work with departments of communications and behavioral sciences. The proposed School of Global Health will also provide opportunities for synergy and collaboration through the Centers of Excellence within many areas already addressed by ANR investigators. Finally, further collaboration with the UC Natural Reserve system should be encouraged and enhanced.

Incentives for collaboration could be enhanced through the direct authority of the four Deans and the ANR Vice President as a result of priority setting and resource allocation. Larger grant awards or other incentives could be provided for multi-disciplinary or cross-campus projects. Through the Contracts and Grants management function of ANR, groups doing similar or related research can be put in touch with each other. ANR also can enhance collaborations by acting as a convener to bring different groups together across campuses and within campuses. Meetings can also be held to convene researchers, Cooperative Extension, stakeholders, and others doing similar research in order to enhance collaborative opportunities and to inform researchers and community outreach efforts. In addition, ANR can work as an honest and unbiased broker to inform faculty of the work being done by others, to forge partnerships, and to provide opportunities for strengthening the quality of multidisciplinary research. In so doing, ANR can help to ensure that redundancies are avoided while addressing questions from a variety of perspectives.

If investigators are unfamiliar with others doing related research, they can turn to the "experts list" on the ANR website. ANR also can identify the need for experts on various committees and advisory groups so that expertise and input are provided early and proactively. ANR should be proactive in this arena, actively pursuing opportunities for input from ANR faculty, staff, and stakeholders. An excellent example of ANR providing expertise was the collaboration of ANR experts on fire safety building codes and fire safety legislation.

The substantial needs of the Central Valley and the presence of opportunities provided by UC Merced in that area provide another significant opportunity for collaboration. ANR faculty should be encouraged to collaborate with UC Merced faculty, with an eye towards possible future consideration of inclusion of UC Merced as a fourth ANR campus.

The review team was thoroughly impressed with the specific programs that it was privileged to see during the campus visits. However, in meeting with this superb faculty we noticed that there seemed to be a lack of serious inclusion of such disciplines as physical sciences, engineering, health sciences, medicine and others. We believe that ANR should be proactive in encouraging a broader participation of relevant disciplines in both campus-based projects, as well as cross-campus programs.

How well has ANR partnered with colleagues outside the University?

Globalization has increasingly become a common element of both US and California agriculture. While it is clear that there are numerous excellent programs driven by individual faculty interests in international studies and research, we suggest that there may be missed opportunities for ANR without a greater coordination at the cross-campus level through ANR. Increasingly we believe significant opportunities will be better addressed by a place at the "table" within the ANR to identify targets of opportunity to engage and coordinate efforts of faculty within the UC system.

Extension faculty and advisors have partnered extensively with colleagues outside of the university. The materials provided to the Review Panel included two volumes, one containing appendices detailing collaborations at the UC campuses, CSU campuses, national/international, agency/organization, and industry levels, and the other detailing regional ANR collaborations. Clearly, UC Cooperative Extension faculty and advisors are extremely active in collaborating with a host of relevant universities and agencies, both nationally and internationally, in the areas of agricultural production and natural resources. UC ANR programs are widely known around the world in agricultural and natural resources communities, and are credited with being key players in the "green revolution" and other initiatives. These external partnerships have contributed to the development of solutions to serious problems facing the state of California.

Less well-evidenced are the collaborations fostered by the Nutrition, Human Resources, and Community Development faculty and advisors. Clearly childhood obesity is a major focus of these faculty, as is youth development, and AES faculty have developed projects and collaborations around these issues. However, little information was presented on 4-H or the Master Gardener program, which have extensive ties (and presumably collaborations with) California communities and school associations. Further, human and community development

AES faculty have had several projects with UC MEXUS, working on topics such as immigration and nutritional issues, as well as the provision of educational programs to children of migrant farmworkers. These projects could form the basis of the development of ties to non-traditional stake holders and potentially new collaborators, such as Native American tribes, organizations working on rural poverty issues, and migrant farm workers. Further, 4-H has begun to develop programs for urban youth, including gardening programs and after school programs, which may be an important new stakeholder group.

Review of the self-study materials and interaction with UC personnel made clear that ANR partners extensively with non-UC entities to deliver its programs. However, there are clearly opportunities to partner more effectively with California State University (CSU) and California Community College (CCC) campuses to extend the reach of ANR. The intensity and breadth of existing collaboration varies considerably, with some large-scale, state-wide programs (e.g., California Sudden Oak Death Task Force, and the UC Exotic/Invasive Pests and Diseases Research Program) connecting well with multiple CSU campuses, while other programs appear to have limited involvement with a single outside educational partner, if any. Programs such as the CSU Agricultural Research Initiative (CSU-ARI) are models for collaborative research between higher education institutions. With political support from UC-ANR, the CSU-ARI program might grow from its current funding level of $4 million annually to enhance applied research capacity between UC and CSU campuses.

Significant potential exists for increased research collaboration between ANR and the CSU campuses. As CSU faculty research expectations grow, more extramural funding is sought and opportunities for collaboration on translational research and graduate student mentoring increase. Beyond helping ANR scientists and CE faculty solve California and regional research problems, collaborative research will strengthen the pipeline from CSU undergraduate and master's programs to UC graduate degree programs.

ANR may wish to consider strengthening professional linkages to CSU campuses by encouraging adjunct faculty appointments for regional AES and CE faculty, and perhaps providing part-time CE advisor/specialist appointments for CSU faculty. Strengthening ties may enhance the pipeline to develop the next generation of advisors and specialists. Internships for CSU undergraduates within the ANR's Cooperative Extension structure would facilitate future recruitment of qualified farm advisor/specialist personnel.

Opportunities exist across these educational institutions to develop and deliver distributed courses in equine or dairy science and other disciplines with specialized lab or other facilities needs. Distributed courses could include continuing education courses. With large pre-veterinary medicine programs at Cal Poly and Cal Poly Pomona, there are opportunities for collaboration with the UC Davis School of Veterinary Medicine for companion and food animal clinical experience.

III. Recommendations

The Panel has made 13 recommendations which fall into four primary categories, although there is overlap, and all can be considered to work synergistically.

Focusing the work

Recommendation 1: Take the opportunity to lead and frame discussions of major issues facing California's agriculture, natural resources, and people, through the ANR's convening strength and through use of dedicated funds to initiate high priority research to address state needs as identified through the ongoing strategic planning process.

Recommendation 2: Reconsider the concept of agriculture and natural resources to issues of broader relevance to the people of California, for example, to include sustainable communities.

Recommendation 3: Clarify ANR's role in addressing issues beyond the state of California.

These three recommendations are intended to build on existing strengths of ANR's research and outreach infrastructure to create a focus than is more broadly inclusive in terms of topics it studies and manages. The Panel believes that the traditional agriculture-centric focus is less viable and less valuable if work is organized too narrowly around specific products or populations. While there are many examples that ANR is embracing a broader perspective, including work on climate change, water and air quality, and human health, the Panel recommends it continue to look for ways to organize more of its work around broad themes that play out in a global context. ANR can take a lead role within the larger University community of scholars to bring research topics into focus under these broadly conceived themes.

Telling the story

Recommendation 4: Enhance ANR's visibility within the state by developing "brand identity," which might be accomplished through a marketing survey to learn what the public knows and thinks about ANR and its roles, responsibilities and programs. All outreach activities should incorporate this new visible identity. Importantly, this increased visibility for ANR should also provide significant visibility for the University of California as a whole.

Recommendation 5: Develop high-level metrics to evaluate the impact of ANR research and extension programs and use them to report on accomplishments to the University, State government and the public. The strategic planning exercise underway provides a first opportunity to develop these metrics. Illustrative examples include the impacts of ANR research on regulatory decisions, such as changes in dairy air quality requirements, and economic impacts such as cost savings to crop producers resulting from exclusion or control of exotic pests and disease organisms.

Recommendation 6: Provide visibility and advocacy for ANR programs, priorities, and stakeholders with the UC Office of the President, Regents and State Legislature.

These three recommendations address the finding that while ANR's research, problem-solving and outreach are widely known by some stakeholder groups, the broad reach of ANR's programs, and more importantly, the outcomes associated with those programs, are not widely recognized as being associated with either ANR or the University of California. This relative invisibility beyond the primary stakeholders can be detrimental during times of budget stress, and may reduce opportunities during times of prosperity. Communicating the positive and measurable impacts of ANR research and outreach, plus consciously assuming the role of advocating publicly for ANR (particularly at the highest levels of leadership) will benefit ANR over time.

Working with others

Recommendation 7: Assure that the strategic visioning and planning process is inclusive.

Recommendation 8: Attend to the diversity of the ANR workforce and the development of the talent pipeline.

Recommendation 9: Engage with a more diverse stakeholder base.

Recommendation 10: Leverage public-private partnerships to make changes at county, campus and ANR levels.

The first three of these recommendations address the importance of continuing to reach out to diverse populations, and to make sure current and future programs – and those who lead and participate in them – are reflective of the broad scope of people being served in California. The Panel particularly urges that less-enfranchised populations be sought out. In recommending more public-private partnerships, the Panel recognizes the potential conflict between funding collaborations and the desire to maintain the "honest broker" role. Nevertheless, the Panel encourages thoughtful pursuit of funding collaborations, such as the support received from the Citrus Research Board to fund 0.5 FTE for citrus extension work.

Internal changes

Recommendation 11: Determine ways to connect differently and to create greater synergy with other disciplinary areas in the system, such as engineering, public health, and medicine.

Recommendation 12: Require that priority programs develop and report on a set of metrics to demonstrate the impact of the program

Recommendation 13: Continue to consider ways of defining and recognizing the scholarship and outreach contributions made by CE specialists.

The Panel recognizes that much collaboration already takes place with academic units outside of ANR, as well as across campuses. However, taken with Recommendations 2 and 3, which urge a broader conceptualization of both the topics and audiences for ANR research, Recommendation 11 adds the issue of expanding the academic power of UC by working more collaboratively with the UC academic community on topics of shared interest. The Panel also recognizes the potential loss of connection to the overarching land-grant mission of ANR, and cautions against losing the equally important connections with the public ANR serves.

As part of a rigorous internal accountability effort, and to support Recommendation 5, the Panel recommends that program leaders dedicate effort to identifying the outcomes of their research and outreach work Metrics should focus more on behavioral changes, economic impacts, and other outcomes, and less on numbers of people served or other input measures. An approach ANR might use to facilitate such metrics and outcomes-based approaches is the LOGIC model (e.g., http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html).

Finally, the Panel was impressed by examples of high-quality research by CE Specialists, and recommends that the University continue to find ways of recognizing their work in decisions related to academic series, privileges, promotion criteria, and compensation.

LIST OF APPENDICES

Appendix A: Review Panel Observations on Specific Topics (Food Safety/Nutrition, Forest and Natural Resources, Environmental Issues, Sustainable Communities)

Appendix B: Academic Review Panel Members

Appendix C: Site Visit Agenda

Appendix D: Discussion and Case Study Participants

Appendix E: Background Materials (Table of Contents only)

Appendix F: Provost Invitation and Charge Letter

Review Panel Observations on Specific Topics

In addition to providing responses to the Provost's questions, and recommendations following the review, the Panel also had observations on some broad topical areas and strategic directions ANR might consider.

Strategic Directions: Food Safety/ Nutrition

Case studies and background materials demonstrated outstanding, internationally and nationally recognized faculty scholarly productivity in areas of human nutrition, food science, and toxicology. One of the 16 statewide ANR programs, the Expanded Food and Nutrition Education Program, focuses on nutrition. It teaches low-income families (particularly those with young children) how to use their food resources to meet the nutritional needs of family members. Human nutritional status and obesity are two medium-priority core issues for ANR, and as such would be expected to elevate their priority in hiring decisions for new CE specialist and advisor positions.

Nevertheless, food safety is not included among the 16 statewide programs, but it is ranked "high" in the priority core issues. ANR also has a potential role in educating the public on best practices of composting food waste, a topic that UC students have raised with the Regents.

Strategic Directions: Forest and Natural Resources

Our review of ANR indicates that a large array of forest and natural resource research and outreach activities is being successfully undertaken. A range of active projects are being pursued by the AES faculty and CE Specialists as well as other faculty from UC Berkeley, UC Davis and UC Riverside. Ongoing projects impact both traditional and new groups living in rural and urban areas. High quality professional papers, magazine articles, videos, web sites, etc. are made available to a wide array of users. ANR faculty and scientists are highly productive as measured in terms of research funding, stakeholders served, informational meetings conducted, etc**.**

Our review revealed the critical importance of sustaining the forest and natural resources of California, essential for a healthy, sustainable and high quality of life. The importance of this area needs to be better recognized within ANR, particularly as a result of increasing population and decreasing land and water resources. Raising the visibility of the linkages between the health, productivity and sustainability of the State's wild and natural lands and the environmental services they provide to the health and sustainability of the people of the State should be a high priority activity.

Modern society tends to view forest and natural resources as places for recreation and as a refuge from the fast pace of every day life. This stands in contrast to forests as a historic provider of timber products. This change has been occurring since the mid-1970s and has had several consequences. First, the basic tenet of forest management has shifted from a utilitarian-based agricultural model to a bio-centric ecosystem-based model, especially on public forest lands. Second, we increasingly fulfill our needs for wood products from off-shore sources instead of from our own forest lands. Third, the decline in active management of our forests (especially on public lands in western America) has led to increasing tree density, loss of tree vigor and poor forest health, all leading to the increased incidence of destructive forest fires and the associated

environmental degradation due to water runoff and soil erosion. California's public (and some of its private) forests exhibit the above characteristics.

ANR has an opportunity to help instill a new paradigm of forest and natural resource management in California that builds on the ecosystem-based approach through active stewardship. Climate change, water production and bioenergy are widely discussed topics where forests can play a significant role. California's forests have a tremendous role to play in addressing these issues. By promoting the retention of working forests in developing areas, protecting forests and other natural resource areas and providing the proper type and intensity of active stewardship, a range of critically important environmental services valued by society can be produced sustainably.

Environmental services that flow from well managed and sustainable forests include high quality water, habitat for fish and wildlife, clean air, erosion control, carbon sinks, etc. All of these services have value but are rarely captured by existing markets. Thus, most landowners are unable to capture any economic benefits from their production. ANR could develop programs to address these questions and better communicate to all citizens of California the growing importance of actively managed forests, especially in contrast to under-managed forests that we now see.

Working forests have the opportunity to provide sustainable flows of biomass for conversion into bio-energy and bio-fuels. Tapping forests for excess biomass will improve forest health while helping lead California towards energy independence. In addition, the forests will be restored to a healthier condition, be less prone to destructive fire, produce locally-grown forest products and provide the above-listed environmental services.

The challenge to ANR is to find a way to marshal or redirect its limited resources to accomplish this change in strategy. Clearly, a broadening of ANR's audience will be required and a range of new communication tools will be needed. A broad array of citizenry will need to be educated to better understand the role that forests can play in producing bio-products that can be produced from trees as well as the environmental services that flow from well-managed forests. Some of the existing forest and natural resource programs that are currently promoted by ANR will continue. And, some of the forest of California will continue to be managed primarily for timber production (especially on some private lands). However, transformation to the ecosystem-based approach is probably irreversible.

Strategic Directions: Environmental Issues

ANR has played a very strong role addressing environmental issues and promoting sound natural resource management. In fact, the amount of total ANR FTE allocated to improving environmental quality in California is probably understated since a significant portion of the FTEs categorized under "Sustain Agriculture" are dedicated to mitigating the environmental impacts of agriculture. Excellent examples include work on identifying and quantifying the air quality impacts of dairy operations so that the correct policies and practices can be promoted to reduce those impacts. Direct work promoting sound natural resource management includes collaboration with many within and outside of ANR on Sudden Death Oak Syndrome and other forest issues.

However, much of ANR's work to date has been reactive to the environmental impacts (i.e. water and air quality problems) caused by production agriculture. While this is very important work and must continue, there is considerable opportunity for ANR to encourage research and extension activities that engage agriculture in not just mitigating environmental damage so that producers can meet regulatory requirements but also positively improving environmental conditions.

ANR can take a leadership role in directing the resources of UC to the most critical environmental issues California faces and about which Californians care deeply. Examples include the positive actions agriculture can take to reduce greenhouse gas emissions (some work is already happening at UC Davis) and provide ecosystem services, such as habitat, flood plain management, water purification, etc.

Much of ANR's environmental work is positioned as mitigating environmental impacts from agriculture. As ANR positions itself to be highly relevant to all Californians, positioning and guiding its research agenda to be more inclusive of all environmental issues including those of biodiversity and urban sustainability will be very important.

Strategic Directions: A Vision for Creating Sustainable Communities

A unique opportunity exists, as well as an exciting challenge for agriculture and natural resources, requiring much more holistic and creative thinking than has been traditionally present in today's research, teaching and Extension (outreach) system. Agriculture is associated in the minds of the public with farming and food production. Particularly in the US, where abundant food is perceived as a given in the minds of the public, the importance of agricultural research is marginalized at best and more often is perceived as not needing significant public research funding. How else can one explain flat funding (actually declining purchasing power) for agricultural research over the past several decades and miniscule budgets for agricultural research compared to the "big" science agencies of NIH and NSF?

Two drivers, a bioeconomy and advancing urbanization, present great challenges and opportunities to create sustainable communities, both new and renovated to meet human development. Agriculture is more than food (as important as this function is). It is the source of raw materials to provide energy and bioproducts to develop a bioeconomy and sustainable communities. The issue is "how will we live?" and this leads to implementation of sustainable communities to address sustainable development, a concept embodied in "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (*Our Common Future, 1987*).

The fundamental idea is that of an agro-eco-industrial community as an integrated system incorporating a complete environment for live, work and play. The community would be distinguished by an appropriate combination of distributed renewable energy systems from a selection of sources from an array of megawatt wind turbines, integrated photovoltaic cells for electricity generation, solar thermal comfort, geothermal energy and the utilization of biomass. The human and solid wastes would be treated by anaerobic digestion to produce biogas, which after conversion to methane, would be utilized by fuel cells for combined heat and power to meet heating and electrical loads. When methane (beyond that needed for operating this community) is produced it can be directly reformed to hydrogen as a high value-added commodity. Photoactive

bacteria may also be available to directly convert waste products to hydrogen for operating the building's fuel cells or producing high purity hydrogen as a commodity product.

The "farms" (agriculture) would be integrated into the community for growing food, both within an outdoor environment and controlled environment agriculture for high valued crops. The community complex must include offices, businesses, consumer stores, medical facilities, schools, banks and many other entities (thus the use of the term agro-eco-industrial) to encompass the synergy between units to exchange wastes from one operation as input to another business/company. Yes, the university exists within the community, also, because how else can it serve society unless it is an active and fully engaged participant in the live, work and play environment?

A major transportation savings would accrue in both time and vehicle expenses because one can work, live and play in the community and need only one car for travel outside the community. This vision of a sustainable community may seem very far-fetched today, but it is technically feasible. Examples of communities on the basis of this concept exist to varying degrees in China and Germany. A sustainable community of this nature will require and embrace the participation of the social sciences and humanities including psychology, sociology, economics, education, intergenerational aspects and many more areas. Thus, there is a clear need that a concept of this magnitude and uniqueness will demand the interdisciplinary thinking discussed above. It will require the very deepest intellectual thinking that has for so long been associated with the disciplinary fields.

Possible Implementation of a demonstration sustainable community. A concept as broad and comprehensive as an integrated sustainable community in the context of an agro-eco-industrial based community could be an impossibly large project to create. One possibility is to develop a Request for Proposals (RFP) at the UC ANR level with the input of diverse disciplinary backgrounds and mix of university-level positions. The development of the RFP would be utilized to attract responses from interested communities in California. This approach removes the problem of upfront community selection at a central level, but rather places the development of community vision and plan at the "grassroots" or bottom-up. Through this process only communities who are able to develop a commitment, creativity and capacity would respond to the RFP. This approach would drive complex and exciting engagements within a community that has not likely taken place before. ANR could provide significant information in response to questions from the communities during proposal development. After selection by ANR of the demonstration community, ANR would work very closely with the community to carry out the development of the sustainable community, subsequent data acquisition and assessment.

Division of Agriculture and Natural Resources
Academic Program Review Panel Members

Dr. Catherine Woteki (Chair)
Global Director of Science Affairs,
Mars, Incorporated

Professor Carolyn Aldwin
Chair, Dept of Human Development & Family Sciences
College of Health and Human Sciences
Oregon State University

Professor B. Bruce Bare
Dean, College of Forest Resources
University of Washington

Ms. Ashley Boren
Executive Director, Sustainable Conservation

Professor Mary Croughan
Chair, Academic Senate
University of California

Professor Frank Davis
Donald Bren School of Environmental Science and Management
University of California, Santa Barbara

Professor Sonny Ramaswamy
Director of Agricultural Research Programs and
Associate Dean of Agriculture
Purdue University

Professor Norm Scott
Bio and Environmental Engineering
Cornell University

Professor Mark Shelton
Associate Dean, College of Agriculture, Food and Environmental Sciences
California State Polytechnic University, San Luis Obispo

APPENDIX C

UNIVERSITY OF CALIFORNIA
AGRICULTURE AND NATURAL RESOURCES
ACADEMIC PROGRAM REVIEW SITE VISIT AGENDA
February 8–11, 2009

UC Office of the President Contact Information:
Carol Copperud: 510-326-6624 cell
Rick Standiford: 916-996-4764 cell
Geralyn Unterberg: 510-851-4404 cell

Sunday, February 8, 2009 – UC Berkeley Campus

Review Panel Members Arrive in San Francisco or Oakland—taxi to hotel:
Claremont Hotel, 41 Tunnel Road, Berkeley, CA

3:00 PM ***Review Panel to Meet in Claremont Hotel lobby for Introductions***

3:30 PM ***Depart from Claremont Hotel lobby to Berkeley Campus via van***

4:00 – 4:30 PM **WORKING SESSION WITH DEAN GILLESS**
2040 Valley Life Sciences Bldg, UC Berkeley Campus

4:30 – 5:30 PM **ANR PRESENTATION - Case Study on Energy Biosciences Institute**
Moderator: Dean J. Keith Gilless
Panelists: Chris Somerville (CNR/AES), David Zilberman (CNR/AES/CE)
2040 Valley Life Sciences Bldg, UC Berkeley Campus

5:30 – 6:30 PM ***OPENING RECEPTION AND ARRIVAL OF DINNER GUESTS*** –
Introductions and Social Time
Valley Life Sciences Bldg - 2nd Floor Atrium, UC Berkeley Campus

6:30 – 8:30 PM ***DINNER*** – informal discussions, Q&A with review team
Valley Life Sciences Bldg - 1st Floor T-Rex Lobby, UC Berkeley

8:30 PM ***Review Panel Transported Back to Claremont Hotel***

RECEPTION AND DINNER GUESTS

PANEL MEMBERS
Dr. Catherine Woteki (Chair), Mars Corporation
Professor Carolyn Aldwin, Oregon State University
Professor B. Bruce Bare, University of Washington
Ms. Ashley Boren, Sustainable Conservation
Professor Mary Croughan, Academic Senate Chair, University of California (UC)
Professor Frank Davis, UC Santa Barbara
Professor Sonny Ramaswamy, Purdue University
Professor Norm Scott, Cornell University
Professor Mark Shelton, Cal Poly San Luis Obispo
Provost Staff Contact: Carol Copperud

OTHER DISTINGUSHED GUESTS
Michael Fitzner, Co-Chair of ANR Cooperative Extension Review
David Hosley, Chair, College of Ag & Enviro Sciences Dean's Advisory Council, UC Davis
Chris Somerville, Professor, College of Natural Resources, UC Berkeley
Stuart Woolf, Chair, UC President's Advisory Commission on Agriculture and Natural Resources
David Zilberman, Professor, College of Natural Resources, UC Berkeley

UC SENIOR ADMINISTRATORS
Lawrence Pitts, Interim Provost Designate
Robert Birgeneau, Chancellor, UC Berkeley
Larry Vanderhoef, Chancellor, UC Davis
Timothy White, Chancellor, UC Riverside

UC - ANR SENIOR LEADERSHIP
Daniel M. Dooley, Vice President
Richard B. Standiford, Associate Vice President
Barbara Allen-Diaz, Assistant Vice President -Programs
Kay Harrison Taber, Assistant Vice President - Administrative Services

UC – ANR DEANS
Thomas Baldwin, Dean, College of Natural & Agricultural Sciences, UC Riverside
J. Keith Gilless, Dean, College of Natural Resources, UC Berkeley
Bennie Osburn, Dean, School of Veterinary Medicine, UC Davis
Neal Van Alfen, Dean, College of Agricultural & Environmental Sciences, UC Davis

Monday, February 9, 2009 – Claremont Hotel, 41 Tunnel Road, Berkeley

6:30 – 7:30 AM ***WORKING BREAKFAST FOR REVIEW PANEL***
Check Out of Hotel (bring luggage to meeting room)
Lanai I Room, Claremont Hotel, 41 Tunnel Road, Berkeley

7:30 – 8:30 AM **OVERVIEW OF ANR -** *Dan Dooley, ANR Vice President*
Lanai I Room, Claremont Hotel, Berkeley

8:30 – 9:15 AM **ACADEMIC REVIEW OF UC ANR COOPERATIVE EXTENSION**
Mike Fitzner, Co-Chair of CSREES Cooperative Extension Review
Lanai I Room, Claremont Hotel, Berkeley

9:15 – 9:30 AM ***Load van for transportation to UC Davis & Travel to UC Davis***

9:30 – 10:45 AM **GENERAL DISCUSSION ON STRATEGIC PLANNING**
ANR Associate Vice President Standiford and Assistant Vice President-Programs Allen-Diaz (while enroute to Davis)

Monday, February 9, 2009 - Founder's Room, Buehler Alumni Center, UC Davis

11:00AM – 12:15PM **ANR PRESENTATION – Case Study on Genomics and Plant Breeding**
Moderator: Dan Putnam, UCD CE and ANR Ag Prod. Program Leader
Panelists: Jorge Dubcovsky (UCD AES); Eduardo Blumwald (UCD AES); Mike Campbell (UCD Seed Biotech. Center); Deborah Golino(UCD CE)

12:15 – 1:00 PM **WORKING LUNCH WITH DEAN VAN ALFEN**

1:00 – 1:30 PM **WORKING SESSION WITH DEAN OSBURN**

1:30 – 3:00 PM **ANR PRESENTATION – Case Study on Nutrition and Obesity**
Moderator: Lucia Kaiser, UCD CE and ANR Human Res. Program Leader
Panelists: Pat Crawford (UCD CE); Kay Dewey (UCD AES), Sheri Zidenberg-Cherr (UCD CE); Lenna Ontai-Grzebik (UCD CE)

3:00 – 3:15 PM ***Break***

3:15 – 4:45 PM **ANR PRESENTATION – Case Study on Animal Health; Environ. Issues**
Moderator: Don Klingborg, UCD School of Veterinary Medicine
Panelists: Frank Mitloehner (UCD CE); Pat Conrad (UCD SVM); Bob Poppenga (UCD SVM)

4:45 – 5:00 PM ***Break***

5:00 – 6:30 PM **MEETING WITH STAKEHOLDERS AND BUFFET DINNER**
Stuart Woolf (Woolf Farming, Fresno County), Stan Andre (California Milk Advisory Board), Grant Davis (Sonoma Co. Water Agency)

6:30 – 7:30 PM ***Travel to Sacramento Airport and check-in***
8:20 – 9:35 PM ***Air flight from Sacramento to Ontario***
9:35 – 10:30 PM ***Luggage, transportation from Ontario to Riverside Mission Inn***
10:30 PM ***Check-into hotel*** **- Mission Inn, 3649 Mission Inn Ave, Riverside, CA**

Tuesday, February 10, 2009 – UC Riverside

7:30 – 8:30 AM ***BREAKFAST*** (on own)
Mission Inn, Riverside

8:30 AM ***Meet in lobby for van transportation to UC Riverside Campus***
Johnson Board Room, Alumni & Visitor's Center, UC Riverside

9:00 – 10:30 AM **ANR PRESENTATION – Case Study on Invasive Species**
Moderator: Tim Paine, UCR AES and ANR Pest Mgt. Program Leader
Panelists: Jocelyn Millar (UCR AES); Dave Rizzo (UCR AES); Edie Allen (UCR CE)
Johnson Board Room, Alumni & Visitor's Center, UC Riverside

10:30 AM – Noon **TOUR OF PLANT GENOMICS BUILDING**
Don Cooksey (UCR Div. Dean), Tom Baldwin (UCR CNAS Dean), Peter Atkinson (UCR AES)
Plant Genomics Building, UC Riverside

12:00 – 12:45 PM **WORKING LUNCH WITH DEAN BALDWIN**
Johnson Board Room, Alumni & Visitor's Center, UC Riverside

12:45 – 1:00 PM ***Break***

1:00 – 2:30 PM **ANR PRESENTATION – Case Study on Water Quality**
Moderator: Marylynn Yates, UCR AES and ANR Nat. Res. Prog. Ldr.
Panelists: Loren Oki (UCD CE); Darren Haver (UCCE Orange Co.)
Johnson Board Room, Alumni & Visitor's Center, UC Riverside

2:30 – 2:45 PM ***Break***

2:45 – 3:30 PM **MEETING WITH STAKEHOLDERS**
Ted Batkin (Citrus Research Board) and Mike Mellano (Mellano Farms)
Johnson Board Room, Alumni & Visitor's Center, UC Riverside

3:30 – 5:15 PM **TOUR UCR CITRUS FACILITY – Case Study on Citrus**
Tour Led by UCR CNAS Divisional Dean Don Cooksey
Participants: Mikeal Roose (UCR AES); Georgios Vidalakis (UCR CE); Joseph Morse (UCR AES)
UCR Citrus Facility, UC Riverside

5:15 PM ***Return to Hotel***

6:30 – 8:30 PM ***PRIVATE DINNER FOR REVIEW PANEL***
San Gabriel Room

Wednesday, February 11, 2009 – Mission Inn, 3649 Mission Inn Ave, Riverside, CA

7:00 – 8:15 AM ***BREAKFAST FOR REVIEW PANEL***
Spanish Art Gallery, Mission Inn

8:15 – 9:45 AM **ANR PRESENTATION – Case Study on Wildland Fire**
Moderator: Max Moritz, UCB CE
Panelists: Steve Quarles (UCCE Center for Forestry); Scott Stephens (UCB AES); Susie Kocher (UCCE Tahoe Basin)
Spanish Art Gallery, Mission Inn

9:45 – 10:30 AM ***Wrap-up Discussion for Review Panel and Break***

10:30 – 11:15 AM **EXIT INTERVIEW WITH ANR PROGRAM COUNCIL**
Spanish Art Gallery, Mission Inn

11:15 AM – 12:00 **EXIT INTERVIEW WITH ANR EXECUTIVE COUNCIL**
Spanish Art Gallery, Mission Inn

12:00 – 12:30 PM **FINAL DISCUSSIONS WITH VP DOOLEY**
Spanish Art Gallery, Mission Inn

12:30 – 1:15 PM ***LUNCH FOR REVIEW PANEL***
Spanish Art Gallery, Mission Inn

1:15 – 3:00 PM ***Work Session for Review Panel***
Spanish Art Gallery, Mission Inn

3:00 PM ***Review Panel Departs***
Transportation provided to the Ontario Airport

Academic Program Review of the University of California
Division of Agriculture and Natural Resources (ANR)
February 8-11, 2009
UC Berkeley, UC Davis and UC Riverside
Participants

ANR Senior Leaders:
1. Dan Dooley – Vice President
2. Rick Standiford – Associate Vie President
3. Barbara Allen-Diaz – Assistant Vice President, Programs
4. Kay Harrison Taber – Assistant Vice President, Administration

ANR Executive Council (VP and AVP and Deans):
1. Dan Dooley – Vice President
2. Rick Standiford – Associate Vie President
3. Tom Baldwin, Dean, College of Natural and Agricultural Sciences (CNAS), UC Riverside
4. Keith Gilless, Dean, College of Natural Resources (CNR), UC Berkeley
5. Bennie Osburn, Dean, School of Veterinary Medicine (SVM), UC Davis
6. Neal Van Alfen, Dean, College of Agricultural and Environmental Sciences (CAES), UC Davis

ANR Program Council
(Asst VPs, Regional Directors, Program Leaders, Executive Associate Deans):
1. Barbara Allen-Diaz – Assistant Vice President, Programs
2. Kay Harrison Taber – Assistant Vice President, Administration
3. Linda Manton, Regional Director, Central Valley Region (CVR), Cooperative Extension
4. Peggy Mauk, Regional Director, Central Coast and South Region (CCSR), CE
5. Kim Rodrigues, Regional Director, North Coast and Mountain Region (NCMR), CE
6. Lucia Kaiser, ANR Program Leader, Human Resources
7. Tim Paine, ANR Program Leader, Agricultural Policy and Pest Management
8. Dan Putnam, ANR Program Leader, Agricultural Productivity
9. Marylynn Yates, ANR Program Leader, Natural Resources and Animal Agriculture
10. Bob Buchanan, Executive Associate Dean, College of Natural Resources, UC Berkeley
11. Don Cooksey, Divisional Dean, College of Natural and Agricultural Sciences, UC Riverside
12. Don Klingborg, Executive Associate Dean, School of Veterinary Medicine Extension
13. Jim MacDonald, Executive Associate Dean, College of Agricultural and Environmental Sciences, UC Davis
14. Pat Day, Director, ANR Program Planning & Evaluation (Staff)
15. Katherine Webb-Martinez, Principal Analyst, ANR Program Planning & Evaluation (Staff)

Staff: Geralyn Unterberg – Senior Analyst to Rick Standiford

February 8, 2009

WORKING SESSION WITH DEAN

Dean J. Keith Gilless, College of Natural Resources (CNR), University of California, Berkeley

CASE STUDY - Energy Biosciences Institute

Dean J. Keith Gilless, College of Natural Resources, University of California, Berkeley
Professor Chris Somerville, Director, Energy Biosciences Institute, & Professor, Plant & Microbial Biology, CNR, University of California, Berkeley
Professor David Zilberman, Executive Committee Member, Energy Biosciences Institute & Professor & CE Specialist, Agricultural and Resource Economics & Policy, CNR, University of California, Berkeley

RECEPTION & DINNER

Dr. Catherine Woteki, Mars Corporation; Chair, ANR Review Panel
Professor Carolyn Aldwin, Oregon State University; Member, ANR Review Panel
Professor B. Bruce Bare, University of Washington; Member, ANR Review Panel
Ms. Ashley Boren, Sustainable Conservation; Member, ANR Review Panel
Professor Mary Croughan, Chair, Academic Senate, University of California; Member, ANR Review Panel
Professor Frank Davis, University of California, Santa Barbara; Member, ANR Review Panel
Professor Sonny Ramaswamy, Purdue University; Member, ANR Review Panel
Professor Norm Scott, Cornell University; Member, ANR Review Panel
Professor Mark Shelton, California State University, Cal Poly San Luis Obispo; Member, ANR Review Panel
Director Carol Copperud, Academic Planning, University of California; *Liaison to ANR Review Panel*
Interim Provost Designate and Executive Vice President Lawrence Pitts, University of California
Chancellor Robert Birgeneau, University of California, Berkeley
Chancellor Larry N. Vanderhoef, University of California, Davis
Chancellor Timothy White, University of California, Riverside
Dean Thomas Baldwin, College of Natural and Agricultural Sciences, University of California, Riverside
Dean J. Keith Gilless, College of Natural Resources, University of California, Berkeley
Dean Bennie I. Osburn, School of Veterinary Medicine, University of California, Davis
Dean Neal Van Alfen, College of Agricultural and Environmental Sciences, University of California, Davis
Vice President Daniel M. Dooley, Agriculture and Natural Resources, University of California
Associate Vice President Richard B. Standiford, Agriculture and Natural Resources, University of California
Assistant Vice President Barbara Allen-Diaz, Agriculture and Natural Resources, University of California
Assistant Vice President Kay Harrison Taber, Agriculture and Natural Resources, University of California
Dr. Michael Fitzner, Cooperative State Research and Extension Services, United States Department of Agriculture; Co-Chair, ANR Cooperative Extension Review
Dr. David Hosley, Chair, College of Agricultural and Environmental Sciences Dean's Advisory Council, University of California, Davis
Professor Chris Somerville, Director, Energy Biosciences Institute, University of California, Berkeley
Mr. Stuart Woolf, Chair, University of California President's Advisory Commission on Agriculture and Natural Resources
Professor David Zilberman, Executive Committee Member, Energy Biosciences Institute, University of California, Berkeley
Staff: Adrienne Hink (Executive Assistant to Dean Gilless), Jessica Brittsan (CNR Events Coordinator) & Geralyn Unterberg (ANR Executive Assistant to Associate Vice President)

February 9, 2009

OVERVIEW OF ANR
Daniel M. Dooley, Vice President, Agriculture and Natural Resources, University of California

ACADEMIC REVIEW OF UC ANR COOPERATIVE EXTENSION
Dr. Michael Fitzner, Co-Chair, ANR Cooperative Extension Review; & Director, Plant & Animal Systems, Cooperative State Research and Extension Services, United States Department of Agriculture

CASE STUDY – Genomics and Plant Breeding
Dan Putnam – ANR Program Leader, Agricultural Productivity & Cooperative Extension Specialist, Plant Sciences, College of Agricultural and Environmental Sciences (CAES), UC Davis
Jorge Dubcovsky – AES Professor, Department of Plant Sciences, CAES, UC Davis
Eduardo Blumwald – AES Professor, Department of Plant Sciences, CAES, UC Davis
Mike Campbell – Executive Director, Seed Biotechnology Center, CAES, UC Davis
Debora Golino – Director, Foundation Plant Services & CE Specialist, CAES, UC Davis

WORKING SESSIONS WITH DEANS:
Dean Neal Van Alfen, College of Agricultural & Environmental Sciences (CAES), UC Davis
Dean Bennie I. Osburn, School of Veterinary Medicine (SVM), UC Davis

CASE STUDY – Nutrition and Obesity
Lucia Kaiser, ANR Program Leader, Human Resources & CE Specialist, Nutrition, CAES, UC Davis
Pat Crawford, Co-Director, Dr. Robert C. and Veronica Atkins Center for Weight & Health and CE Specialist, Nutritional Sciences & Toxicology, UC Berkeley
Kay Dewey, AES Professor, Nutrition, CAES, UC Davis
Sheri Zidenberg-Cherr, CE Specialist, Nutrition, CAES, UC Davis
Lenna Ontai-Grzebik, CE Specialist, Human and Community Development, CAES, UC Davis

CASE STUDY – Animal Health and Environmental Issues
Don Klingborg, Associate Dean for Public Programs; Director, Veterinary Medicine Extension; Director, Center for Continuing Professional Education
Frank Mitloehner, CE Specialist, Animal Science, CAES, UC Davis
Pat Conrad, Professor, Pathology, Microbiology & Immunology, SVM, UC Davis
Bob Poppenga, Professor, California Animal Health & Food Safety Laboratory, SVM, UC Davis

SESSION WITH ANR STAKEHOLDERS
Mr. Stuart Woolf, Chair, University of California President's Advisory Commission on Agriculture and Natural Resources & President and CEO of Woolf Enterprises
Mr. Stan Andre, CEO, California Milk Advisory Board
Mr. Grant Davis, Assistant General Manager, Sonoma County Water Agency

February 10, 2009

CASE STUDY – Invasive Species
Tim Paine, ANR Program Leader, Agricultural Policy and Pest Management & AES Professor, Entomology, CNAS, UC Riverside
Jocelyn Millar, AES Professor, Entomology, CNAS, UC Riverside
Dave Rizzo, AES Professor, Plant Pathology, CAES, UC Davis
Edie Allen, AES Professor & CE Specialist, Botany & Plant Sciences, CNAS, UC Riverside

TOUR OF PLANT GENOMICS BUILDING
Don Cooksey, Divisional Dean, College of Natural and Agricultural Sciences, UC Riverside
Tom Baldwin, Dean, College of Natural and Agricultural Sciences (CNAS), UC Riverside
Peter Atkinson, AES Professor, Entomology, CNAS, UC Riverside

WORKING LUNCH WITH DEAN & DIVISIONAL DEAN
Tom Baldwin, Dean, College of Natural and Agricultural Sciences (CNAS), UC Riverside
Don Cooksey, Divisional Dean, College of Natural and Agricultural Sciences, UC Riverside

CASE STUDY – Water Quality
Marylynn Yates, ANR Program Leader, Natural Resources and Animal Agriculture & AES Professor, Environmental Sciences, CNAS, UC Riverside
Loren Oki, CE Specialist, Plant Sciences, CAES, UC Davis
Darren Haver, CE Advisor, Orange County

SESSION WITH STAKEHOLDERS
Ted Batkin, President, Citrus Research Board & Member of Review Panel for Jan 2009 ANR Cooperative Extension Review
Mike Mellano, Vice President of Production, Mellano and Company & UC Representative to the Council for Agricultural Research Extension and Teaching (CARET)

TOUR OF CITRUS FACILITY – Case Study of Citrus
Don Cooksey, Divisional Dean, College of Natural and Agricultural Sciences, UC Riverside
Mikeal Roose, AES Professor, Genetics, CNAS, UC Riverside
Georgios Vidalakis, CE Specialist & AES Professor, and Director Citrus Clonal Protection Program, Plant Pathology, CNAS, UC Riverside
Joseph Morse, AES Professor, Entomology, CNAS, UC Riverside

February 11, 2009

CASE STUDY – Wildland Fire

Max Moritz, CE Specialist, and Co-Director, Center for Fire Research & Outreach, Environmental Science, Policy and Management, CNR, UC Berkeley
Steve Quarles, CE Advisor, Contra Costa County and Director of Building in Fire-Prone Areas Program at the Center for Fire Research & Outreach and the Center for Forestry, CNR, UC Berkeley
Scott Stephens, AES Professor and Co-Director, Center for Fire Research & Outreach, Environmental Science, Policy and Management, CNR, UC Berkeley
Susie Kocher, CE Advisor for Lake Tahoe Basin, El Dorado County

EXIT INTERVIEW WITH ANR PROGRAM COUNCIL
(Asst VPs, Regional Directors, Program Leaders, Executive Associate Deans):

Barbara Allen-Diaz – Assistant Vice President, Programs
Kay Harrison Taber – Assistant Vice President, Administration
Linda Manton, Regional Director, Central Valley Region (CVR), Cooperative Extension
Peggy Mauk, Regional Director, Central Coast and South Region (CCSR), CE
Kim Rodrigues, Regional Director, North Coast and Mountain Region (NCMR), CE
Lucia Kaiser, ANR Program Leader, Human Resources
Tim Paine, ANR Program Leader, Agricultural Policy and Pest Management
Dan Putnam, ANR Program Leader, Agricultural Productivity
Marylynn Yates, ANR Program Leader, Natural Resources and Animal Agriculture
Bob Buchanan, Executive Associate Dean, College of Natural Resources, UC Berkeley
Don Cooksey, Divisional Dean, College of Natural and Agricultural Sciences, UC Riverside
Don Klingborg, Executive Associate Dean, School of Veterinary Medicine Extension
Jim MacDonald, Executive Associate Dean, College of Agricultural and Environmental Sciences, UC Davis
Pat Day, Director, ANR Program Planning & Evaluation (Staff)
Katherine Webb-Martinez, Principal Analyst, ANR Program Planning & Evaluation (Staff)

EXIT INTERVIEW WITH ANR EXECUTIVE COUNCIL

Dan Dooley – Vice President
Rick Standiford – Associate Vie President
Tom Baldwin, Dean, College of Natural and Agricultural Sciences (CNAS), UC Riverside
Keith Gilless, Dean, College of Natural Resources (CNR), UC Berkeley
Bennie Osburn, Dean, School of Veterinary Medicine (SVM), UC Davis
Neal Van Alfen, Dean, College of Agricultural and Environmental Sciences (CAES), UC Davis

FINAL DISCUSSION WITH ANR VICE PRESIDENT DOOLEY

Background Materials
(Table of Contents only)

TRENDS AND CURRENT PROGRAMS

Chapter 1. Overview of ANR
- Land-Grant System and Philosophy
- ANR Today
- General Structure
  - Agricultural Experiment Station
  - Cooperative Extension
  - Statewide Programs and Campus ANR Centers
- ANR Statewide Leadership (UC Office of the President)
- Statewide Program Leadership
- County Program Leadership
- County-Based Academics
- County Administrative Support
- Campus Program Leadership
- Campus-Based Academics
- AES Scientists
  - Cooperative Extension (CE) Specialists
- Program Coordination
  - Executive Council
  - Program Council

Chapter 2. Academics Appointments and Trends in ANR
- Academic Title Codes and Trends
- Demographics and Description of ANR Academics

Chapter 3. Budget Considerations, Extramural Grants and Development
- Federal and State Funding
- County Funding
- Extramural Grants
- Funding Trends and Distribution
- ANR Development Activity

Chapter 4. Facilities and Infrastructure
- On-Campus Facilities
- Research and Extension Centers
- County Facilities
- Administrative Support Units
- ANR Communication Services and Information Technology
- ANR Analytical Laboratory
- News and Information Outreach (http://news.ucanr.org/)

Appendix A: Advisory Boards

- UC President's Advisory Commission on Agriculture and Natural Resources
  - What is PAC?
  - PAC Major Topics – 2000-2008
- Biographies of ANR Advisory Board Members for:
  - UC President's Advisory Commission on Agriculture and Natural Resources
  - Chancellor's Agricultural Advisory Council, UC Riverside
  - College of Agricultural and Environmental Sciences Dean's Advisory Council
  - College of Natural Resources Advisory Board, UC Berkeley
  - School of Veterinary Medicine Advisory Council, UC Davis

Appendix B: Campus Collaboration

- Campus Collaboration Table
- Campus Expanded Descriptions of Collaborations

Appendix C: Programs and Workgroups – Descriptions and Collaborations

- Statewide Program Descriptions
- Statewide Program Reviews
- List of Workgroups by Program Affiliation
- Statewide Programs and Workgroups Collaboration Table/Expanded Description of Selected
- Statewide Programs and Workgroup Collaborations
  - Agricultural Policy and Pest Management
  - Agricultural Productivity
  - Human Resources
  - Natural Resources and Animal Agriculture

Appendix D: ANR CE Regional Collaboration

- ANR CE Regional Collaboration Table/Expanded Descriptions of Collaborations
  - Central Coast and South Region
  - Central Valley Region
  - North Coast and Mountain Region

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

UNIVERSITY OF CALIFORNIA

OFFICE OF THE PROVOST AND SENIOR VICE PRESIDENT --
ACADEMIC AND HEALTH AFFAIRS

OFFICE OF THE PRESIDENT
1111 Franklin Street
Oakland, California 94607-5200

August 13, 2008

Members of the ANR Review Panel,

Dear [Name]:

I appreciate your willingness to serve on the academic review panel for the University of California's Division of Agriculture and Natural Resources (ANR). This review is taking place at an important juncture in the history of ANR. Under the leadership of Vice President Dan Dooley and Regent Fred Ruiz, ANR is engaged in a critical strategic planning process that will be completed in the spring of 2009. Our goal is to ensure that the University of California continues to provide the highest quality science in service to the food production systems, natural resources, and health of the people of California. The academic review that you will be conducting is an important input to the ANR strategic planning process as well as the long-term planning process for the University as a whole.

This review is also historic in that it will be a comprehensive review of ANR, encompassing all the programs across the state and the research and teaching programs on three University of California campuses – Berkeley, Davis and Riverside. To aid in this review, we have contracted with the Cooperative State Research, Education, and Extension Service (CSREES) of the US Department of Agriculture (USDA) to conduct a review of the Cooperative Extension program in California. This review will be completed in the fall, and the results made available to the Panel.

I enclose for your information a list of those who have also agreed to serve. I am very pleased to announce that Catherine Woteki, Global Director of Science for the Mars Corporation, has agreed to chair this Panel.

The Panel will be responsible for reviewing both quantitative and qualitative data on ANR, making an assessment of the current state, and formulating recommendations for the future. The charge for the Review Panel is to provide an objective and balanced evaluation of ANR and respond to several key questions:

- What is the unique role of ANR in the teaching, research and public service missions of the University of California today?
- How can ANR best serve the interests of the State of California in the years ahead?
- How well does ANR leverage the combined power of the University system to serve the people of California?
- How well has ANR partnered with colleagues outside the University?

A more detailed description of the review process will be forthcoming in late summer, along with a draft agenda for the site visit, which will take place February 8 – 11, 2009. Background materials and a comprehensive report from ANR Vice President Dooley will be forwarded to you in early December.

Thank you again for your participation in this review.

Sincerely,

Wyatt R. Hume
Provost and Executive Vice President
Academic Affairs and Health Affairs

Enclosure

cc: Vice President Dooley

United States
Department of
Agriculture

Cooperative State
Research, Education,
and Extension
Service

Washington, D.C.
20250-2299

April 8, 2009

Dr. Daniel Dooley, Vice President
Agriculture and Natural Resources Division
Franklin 6101
1111 Franklin Street
Oakland, California 94607-5200

Dear Dr. Dooley:

Enclosed are five bound copies of the report written by the Cooperative State Research, Education, and Extension Service (CSREES) external review team following the review of University of California Cooperative Extension on January 11-14, 2009. I will also be sending you an electronic version of this report in case you need it for wider distribution.

Dr. Fitzner informs me that the self-study report prepared for the review was very helpful to the team. It was clear to the review team that a great deal of planning and work went into this effort, and that made the job much easier. The team also mentioned that they were treated cordially and professionally.

As you review and react to the team's recommendations, CSREES would like to receive a follow-up report from your office one year from the time of the review. The report should describe the extent to which recommendations have been considered by the university and whether or not the recommendations were considered for implementation. While I recognize that all team recommendations may not be implemented, your comments will be helpful as we evaluate the impact of our on-site reviews.

We hope that you find the report and its recommendations helpful as you plan for the future.

Sincerely,

Meryl Broussard

Meryl Broussard
Deputy Administrator, Plant and Animal Systems

Enclosures

cc: Review Team w/copy
Michael Fitzner

CSREES-USDA
External Review of the
Cooperative Extension Program
Division of Agriculture and Natural Resources
University of California, Davis, California
January 11 – 14, 2009

External Review of the Cooperative Extension Program
Division of Agriculture and Natural Resources
University of California
January 11 – 14, 2009

CONTENTS

EXECUTIVE SUMMARY.....3

INTRODUCTION.....6

STRATEGIC PLANNING AND PRIORITIES.....8

PROGRAM QUALITY.....10

LINKAGE OF CAMPUS TO STATE AND LOCAL PROGRAMS.....13

COLLABORATIONS WITH EXTERNAL GROUPS.....15

ACADEMIC PERSONNEL POLICIES.....18

ADMINISTRATIVE ISSUES.....21

EXECUTIVE SUMMARY

An external review of the University of California's Cooperative Extension program was conducted January 11 through 14, 2009, in Davis, California. This report presents the findings of the review team. The report is organized into the following six sections: Introduction, Strategic Planning and Priorities, Program Quality, Linkage of Campus to State and Local Programs, Collaboration with External Groups, and Academic Personnel Policies.

The review team finds the University of California's Cooperative Extension (CE) program to be well managed and effective in achieving its stated mission, which is to "serve California through the . . . application of knowledge addressing critical issues in agricultural, natural and related human resources, through a system of community-driven research and outreach programs with CE advisors supported by CE specialists and [Agricultural Experiment Station (AES)] scientists." In general, UC Cooperative Extension faculty, county advisors and staff are doing good quality applied research and extension education that is greatly appreciated by stakeholders. The program is regionally and nationally recognized for its effective and innovative programs.

In each section of the report, the review team has provided its assessment of the strengths and opportunities for improvement of the Cooperative Extension program, along with recommendations for strengthening the program. Our recommendations in the five focus areas of the review include:

Strategic Planning

1. **Ensure engagement and inclusiveness throughout the strategic planning process.** Many diverse groups are eager to participate in the process and it is critical that the Division of Agriculture and Natural Resources (ANR) reach out to those groups and be as inclusive as possible to ensure adoption of the new strategic plan. Additional efforts need to be expended to engage non-traditional stakeholders, especially those who have not participated in past planning processes and those who have disagreed with past practices. Expansion of the stakeholder engagement should include placement of stakeholders in appropriate workgroups, as these have been effective in bringing together appropriate expertise to address issues and commodity needs.

2. **Adopt a systems approach for the strategic planning process to develop a strategic plan with a clear focus that can address complex issues and needs.** To avoid further developing a compartmentalized menu of issues, a systems approach is essential to better address the complexity of the issues and needs of Californians.

3. **Develop an institutional plan and organizational commitment to diversity within the current strategic planning process.** Consistent with the current strategic planning process, the institutional plan for diversity should be proactive and use multiple points of contact to more effectively engage new constituents. The plan should also recognize that the organizational commitment and capacity to attract and retain faculty and county advisors who reflect the cultural diversity of the communities where they live and work, will increase the likelihood of success in these efforts.

Program Quality

4. **Emphasize the use of logic models for the evaluation of programs.** Such models, commonly used by Cooperative Extension throughout the country, expand the measures of success from activities (such as workshops) and outputs (such as journal articles), to measures of outcomes and impacts.

5. **Develop a culture of leadership and risk taking.** Implement a leadership development program to provide faculty and county advisors with the skills and sense of support to take risks and be the leader of innovative programs. The leadership program should include the development of facilitation, mentoring and mediation skills. At the same time, the high rate of expected retirements means such a leadership development program will help prepare the next cohort of ANR and College leaders.

6. **Review the charge of workgroups and the mission-driven relationship between centers and workgroups.** There may be legitimate roles for each to play, but apparent tension in organization, management and rewards associated with participation need to be recognized and addressed. Review workgroups and centers on a regular schedule to make sure they are effective and in alignment with the strategic plan, and support those that are on target.

Linkage of Campus to State and Local Programs

7. **ANR leadership, deans and campus faculty (AES and CE) should be actively involved in the roll-out of the strategic plan to county-based staff.** The personal involvement of campus-based faculty and leadership will be critical to the successful implementation of the plan.

8. **Explore the potential for greater use of technology in distance education in enhancing the engagement of campus and county staff in the delivery of extension programs.** Implement video-conferencing and Breeze technologies to enhance collaboration within work groups, among specialists and county advisors, and to reduce travel expenses.

Collaborations with External Groups

9. **Invite stakeholder representatives to provide input into critical decision-making processes, such as key budget decisions, and search and program review committees.** Include at least one stakeholder representative on search committees for specialists and county advisors.

10. **Evaluate the ethnic, gender and organizational diversity of stakeholder advisory committees and add members as necessary to ensure you are hearing all points-of-view.** Rotate membership to ensure a continual flow of fresh voices.

Academic Personnel Policies

11. **The review team strongly supports the proposal to provide equivalent status to Cooperative Extension specialists.** The issue of inequities and equivalent faculty status for Cooperative Extension specialists is a key personnel concern. This would have no detectable impact on UC's salary budget and would be a strong signal of institutional support to current employees and future hires.

12. **Develop a high quality orientation and mentoring system for new Cooperative Extension specialists and provide rewards and incentives to encourage them to work with county advisors.** This will enhance the effectiveness of workgroups, statewide programs, centers or institutes and will strengthen the campus-county continuum of research and extension.

INTRODUCTION

An external review of the University of California's Cooperative Extension program was conducted January 11 through 14, 2009, at the request of Dan Dooley and Richard Standiford, Vice President and Associate Vice President, respectively, of the Division of Agriculture and Natural Resources (ANR). The Cooperative State Research, Education, and Extension Service organized the external review.

The review team was asked to address five areas as it conducted its review of the Cooperative Extension program. These five areas are as follows:

1. Assess the effectiveness of California Cooperative Extension strategic planning and issue prioritization;

2. Evaluate overall Cooperative Extension program quality;

3. Determine effectiveness in linking campus programs to state and local problems;

4. Assess the effectiveness of Cooperative Extension collaborations with external groups and agencies; and

5. Assess the effectiveness of academic personnel policies in ensuring recruitment, retention, and rewards for Cooperative Extension academics at the University of California.

The review team consisted of the following six members:

Ted Batkin
President
Citrus Research Board
Visalia, California

Linda Kirk Fox
Associate Vice President and Dean
Washington State University Extension
Pullman, Washington

Helene Dillard
Director and Associate Dean
Cornell Cooperative Extension
Ithaca, New York

Paul Gutierrez
Vice Provost for Outreach and Engagement
New Mexico State University
Las Cruces, New Mexico

Michael Fitzner, Team Co-Chair
Director, Plant Systems
Cooperative State Research, Education, and Extension Service/USDA
Washington, District of Columbia

James Zuiches, Team Co-Chair
Vice Chancellor for Extension, Engagement, and Economic Development
North Carolina State University
Raleigh, North Carolina

The review team was provided background information on UC's Cooperative Extension program in a 136-page document titled "The University of California Cooperative Extension Division of Agriculture and Natural Resources: Trends and Current Programs". The document was prepared by the University of California Division of Agriculture and Natural Resources, with a publication date of December 16, 2008. The review document included an overview of the Division and background information on personnel, financial and physical resources, planning activities, and program activities and impacts. A new strategic plan for ANR was being developed at the time of the review, but was not available for consideration by the review team.

During the on-site portion of the review, the review team heard oral presentations on the programs conducted by Cooperative Extension faculty and staff. The review team visited with faculty, staff, university administrators, and program stakeholders individually and in groups.

On January 14, 2009, the review team discussed its findings and recommendations with Vice President Dooley, Associate Vice President Standiford and other members of the Executive Council, and the Agriculture and Natural Resources Program Council.

STRATEGIC PLANNING AND PRIORITIES

The University of California's Division of Agriculture and Natural Resources (ANR) has gone through many iterations of strategic planning over the years, with the most recent plan developed in 1997. The tendency of these plans has been to focus internally and inward. The budget challenges facing the University, however, have led to a need to change this approach. The Division now has the opportunity to prioritize needs and position itself for the future. The Vice President has designed a demand-driven strategic plan that focuses outward, not inward. The general planning charge of the strategic planning committee is "...to position ANR to respond to the needs of the state in keeping California competitive globally in providing safe, nutritious and healthy food and conserving natural and human resources". While this strategic plan will provide a roadmap for everyone in ANR, the first audience is the University Provost and the UC Regents.

Analysis: The "demand driven" strategic planning approach outlined by the Division's Vice President and Associate Vice President makes sense and is deliverable driven. It is clear the plan will provide a useable roadmap that will drive decisions and may help insulate the Division against future budget cuts. The ANR Strategic Planning Steering Committee has agreed on the planning process and mechanisms to be used, future trends/demands/issues to be developed and assessed, workgroups and existing organizations to develop needed information, and methods to obtain stakeholder input.

The review team believes that the strategic planning process that has been initiated by ANR is thoughtful and comprehensive. However, it may not be as inclusive as it needs to be to fully engage the diverse stakeholders associated with ANR and Cooperative Extension. Some stakeholders feel marginalized in the process and others feel that a mechanism is not in place for meaningful dialogue, discussion and input. The purpose of the current strategic planning process is not clear to many key participants. Clarity of purpose must be communicated so that all participants are able to fully and meaningfully engage in this critically important process. The role and purpose of the workgroups in the strategic planning exercise is also not clear to some who are participating in the process. The review team did not hear any mention of the use of a scanning exercise to hear the needs that Californians would like for ANR and Cooperative Extension to address. There was also no mention of the use of stakeholder advisory committees as a venue for obtaining input for use in guiding the UC system. The review team is concerned that the current strategic planning process facilitates additional compartmentalization of issues, which would deter progress towards developing a plan that will address the future agriculture, natural resource and human resource needs of all Californians.

Recommendations:

1. **Ensure engagement and inclusiveness throughout the strategic planning process. Many diverse groups are eager to participate in the process and it is critical that ANR reach out to those groups and be as inclusive as possible to ensure adoption of the new strategic plan.** Additional efforts need to be expended to engage non-traditional stakeholders, especially those who have not participated in past planning processes and those who have disagreed with past practices. Expansion of the stakeholder engagement should include placement of stakeholders in appropriate workgroups, as these have been effective in bringing together appropriate expertise to address issues and commodity needs.

2. **ANR leadership should clearly articulate the critical importance of the new strategic plan as a roadmap for the future so that all participants are aware of their critical roles.** Additional efforts are needed to communicate the purpose of the strategic plan and the role of faculty and staff in its development.

3. **Adopt a systems approach for the strategic planning process to develop a strategic plan with a clear focus that can address complex issues and needs.** To avoid further developing a compartmentalized menu of issues, a systems approach is essential to better address the complexity of the issues and needs of Californians.

4. **Staff positions should be prioritized based on the needs articulated in the strategic plan, and a transparent approval process should be developed and communicated that includes the appropriate administrators, from regional directors to deans and the vice president.**

5. **Develop an institutional plan and organizational commitment to diversity within the current strategic planning process.** Consistent with the current strategic planning process, the institutional plan for diversity should be proactive and use multiple points of contact to more effectively engage new constituents. The plan should also recognize that the organizational commitment and capacity to attract and retain faculty and county advisors who reflect the cultural diversity of the communities where they live and work will increase the likelihood of success in these efforts.

PROGRAM QUALITY

Numerous examples, considerable data, and internal and external indicators of quality provide a solid basis for assessing the quality of Cooperative Extension programs and the impacts of these programs on the quality of life, the environment and economy of California. Examples include the many documented outcomes of "University of California Delivers" with respect to water and environmental issues, health and well-being, agricultural productivity, and youth, family and community development. Analysis of campus-based academics demonstrates the high respect and rankings of the campuses, colleges, and departments. External indicators, such as membership of Cooperative Extension faculty in the National Academy of Sciences, honorary memberships, fellow status in professional societies, awards, named professorships, competitively won grants and contracts, and internal promotions reflect the excellence of these faculty. Similarly, county advisors have been recognized by dozens of awards from external agencies, stakeholders, and independent organizations. The demonstrated success in external funding for programs and trend lines over the last ten years for all Cooperative Extension professional academics provided a means to grow and implement programs even in the face of significant state budget reductions.

A comparison of internal promotions demonstrates that the Agricultural Experiment Station and Cooperative Extension campus faculty are recognized and rewarded at rates comparable to I&R faculty. The establishment of endowed professorships and programs reflects well also as the quality of programs and individuals are recognized by external donors.

Other indicators of program quality include publication in peer-reviewed journals, in trade journals and in other media outlets that reach program constituents. Similarly, patents and licenses and revenue streams from inventions by faculty show the impacts of technological innovations. Finally, clear examples are provided of public policy impacts where the results of research contributed to legislation or revisions in codes that became the basis for policy implementation.

Analysis: The quality of programs must be assessed against the vision, mission and strategic plan of the organization. A cornerstone of UC Cooperative Extension's programs is that they are "constituent driven." It was apparent to the review team that the success and impacts of CE programs were often a result of a close relationship with stakeholders and their active involvement in the research and extension programs.

A crucial mechanism for responding to such needs is the working group. This organizational mechanism brings together key faculty from the university campuses and counties to address issues. Although the review team heard many positive assessments of the value of the workgroups, we also sensed a disconnect between the statewide or issue-oriented workgroups and the centers and institutes on the campuses. There appears to be some stovepipes and lack of partnering or access to key collaborators or partners on the campuses, either in the ANR college units or in other appropriate units of the campus.

Two examples that we heard were 1) a grant funded project that hired a private sector partner for landscape plants in the mountains instead of a campus-based landscape architect or horticulture partner, and 2) the rewriting of building codes with no input from architectural, design, or engineering college expertise.

In evaluating quality of programs, the review team used the indicators provided (awards, ranking, grantsmanship, merit and promotion), but there may be additional indicators of impacts (e.g., outcomes and relevancy, the return on investment, and sustainability of programs). Finally, measures of change as a result of programs are real outcome measures.

One weakness of the analysis is the attempt to use the same quality metrics for Cooperative Extension faculty as are used for Agricultural Experiment Station faculty. This is inappropriate because they have different deliverables. However, the ability to seek and win the funding needed to conduct or implement priority programs and the leadership of innovative science and extension programs is evident for both Cooperative Extension specialists and county advisors. The success in generating funds and the funds per Full Time Equivalents are impressive. This ability and the skill at executing the programs results in programs and faculty that are recognized for their high quality.

Recommendations:

1. **Emphasize the use of logic models for the evaluation of programs.** Such models, commonly used by Cooperative Extension throughout the country, expand the measures of success from activities (such as workshops) and outputs (such as journal articles), to measures of outcomes and impacts.

2. **Develop a culture of leadership and risk taking. Implement a leadership development program to provide faculty and county advisors with the skills and sense of support to take risks and be the leader of innovative programs.** The leadership program should include the development of facilitation, mentoring and mediation skills. At the same time, the high rate of expected retirements means such a leadership development program will help prepare the next cohort of ANR and College leaders.

3. **Review the charge of workgroups and the mission-driven relationship between centers and workgroups.** There may be legitimate roles for each to play, but apparent tension in organization, management and rewards associated with participation need to be recognized and addressed. Review workgroups and centers on a regular schedule to make sure they are effective and in alignment with strategic plan, and support those that are on target.

4. **Engage partnerships within each campus, across campuses within the University of California system, and with external partners to grow your ability to implement programs and magnify their successes.** The 21st Century engaged land grant university model (Kellogg Presidents Commission) provides a template for being responsive and partnering to achieve common goals and joint funding, while maintaining the academic integrity of the university. The scale and magnitude of the problems in California require a culture of engagement in which university leadership and partnering is essential.

LINKAGE OF CAMPUS TO STATE AND LOCAL PROGRAMS

The relationship and continuum between campus based research and county based programs has always been viewed as a fundamental strength of Cooperative Extension, both in terms of dissemination of knowledge and intelligence gathering of researchable issues most important to constituents. It was suggested by some (administration, specialists and county advisors) that the campus-county continuum is not as strong as it once was. The degradation of the campus-county continuum was attributed, in part, to the move of extension specialists into departments several years back, and to their movement away from their traditional role and involvement with county advisors as they began conducting more mission-linked applied research. At the same time, researchers (Agricultural Experiment Station faculty) were doing more non-mission linked fundamental research, and county advisors with Ph.D.s were hired and began taking on more "specialist" responsibilities, including adaptive research.

The fact that county advisors are conducting more adaptive research is not viewed as a negative, but it is believed to contribute to the disconnect to campus and in some cases creates a gap between county advisor and clientele as the county advisor takes on more of the specialist role, and engages in less one-on-one interaction with clientele. It was also noted that there were fewer specialists, yet more and more complex issues, involving more and more stakeholders. There was considerable discussion about the importance of the research-extension continuum as a principal indicator of the linkage between campus and/or experiment station based specialists and county advisors. We also heard considerable discussion about the positive role and importance of work groups in providing a vehicle, and some fiscal support, to state and county staff to organize around important issues and in support of this continuum.

Analysis: Program leaders, specialists, regional directors and county advisors that reported to us consistently reported strong support for the workgroup model. Deans were cautiously supportive of the workgroup model, suggesting that some workgroups were very productive while others were not. These groups made similar observations about statewide programs. It did appear that the large number of workgroups, in addition to the 16 statewide programs, and a number of college centers, all with designated leadership and management, have created multiple levels of management of statewide programs between counties, ANR and colleges. It was not clear to the review team if this was an issue, and from the case studies presented to us, it appeared that the workgroups and statewide programs were performing at a high level. However, although all these workgroups, statewide programs and centers appeared to be related to core mission issues, it was not clear how they all worked together to advance the greater good of each core issue — there were not clear metrics related to core issues.

There was some evidence (or difference in opinion) as to the overall effectiveness or strength of the campus-county continuum and the effectiveness of some workgroups. Additionally, campus involvement and institutional support for some statewide programs, key to the mission of ANR, was not clear in some cases.

National system priorities are additional opportunities that UC Cooperative Extension may choose to participate and link to. For example, UC Human Resources, and specifically the 4-H Youth Development program, have a plan to double the enrollment in California in the next five years through the national Science, Engineering, and Technology (SET) initiative. Another program thrust at the national level is the eXtension initiative, which utilizes Communities of Practice (COP) to develop multi-state teams of expertise for state-of-the-art internet-based learning environments. UC Cooperative Extension is participating in the Fire Wise COP and is assisting with the translation to Spanish language the Just in Time Parenting newsletter and web materials. However, it was unclear the extent to which either of these priorities, 4-H SET and eXtension, are communicated as important to the future of the state and particularly not articulated in position descriptions or job expectations for specialists, Agricultural Experiment Station faculty, and Cooperative Extension advisors.

Recommendations:

1. **ANR leadership, deans and campus faculty (AES and CE) should be actively involved in the roll-out of the strategic plan to county-based staff.** The personal involvement of campus-based faculty and leadership will be critical to the successful implementation of the plan.

2. **Evaluate how well the campus-county continuum is working and determine where gaps exist.**

3. **Explore the potential for greater use of technology in distance education in enhancing the engagement of campus and county staff in the delivery of extension programs.** Implement video-conferencing and Breeze technologies to enhance collaboration within work groups, among specialists and county advisors, and to reduce travel expenses.

4. **Explore the use of content management systems to assist with the management of ANR web pages.** Utilize eXtension as a way to augment existing programs and to fill the gaps where expertise has been lost.

5. **Develop strong linkages between the 4-H SET initiative and ANR college programs and faculty.**

COLLABORATIONS WITH EXTERNAL GROUPS

The review team met with representatives of the Almond Board of California, the California Association of Winegrape Growers, the California Dairy Research Foundation, the Institute of the North Coast, the National Resources Defense Council, and the Nature Conservancy. Stakeholder representatives were supportive of the University of California's Cooperative Extension program, and indicated that these programs are needed more than ever before. They feel that the basic Cooperative Extension framework is still working, and that Cooperative Extension programs are crucial to ensure that the state's agricultural industry remains globally competitive, sustainable and environmentally responsible. There was general support for Cooperative Extension's statewide programs, which they consider to be a foundation for all Cooperative Extension programs.

The stakeholder representatives stated that Cooperative Extension programs are making key contributions in addressing their needs. They also expressed a willingness to play an active role in helping to "pull" the program in the right direction as it moves into the future. They indicated that they have been given avenues for providing input into the priorities and directions of the program, although they expressed a desire to have a greater role in critical budget and personnel decisions. The group cited global environmental change and climate change adaptation, economics and competitiveness, invasive pests, food safety, and meeting consumer and public expectations as key areas that need added attention and focus by Cooperative Extension in the coming years.

The stakeholder representatives expressed both support for the talented specialists and county advisors currently employed by Cooperative Extension, and concern that Cooperative Extension will not be able to remain competitive in the hunt for top specialists and Ph.D.-level county advisors. They indicated that this problem is likely to grow as the competition for talent becomes increasingly international in scope and as the average age of the Cooperative Extension workforce increases (it has been estimated that 52 percent of Cooperative Extension specialists and county advisors will retire within the next ten years). To underscore this point, the stakeholder representatives pointed out that Cooperative Extension has not been able to fill several currently vacant positions due to a small pool of applicants and the high cost of housing.

Several specific examples were provided of individual specialists who made significant contributions to the state's agricultural industries. Among the examples mentioned were the development of the Napa wine industry and the development of effective management strategies for the glassy winged sharpshooter and Pierce's disease. But they also indicated a concern that the ability of Cooperative Extension staff to make contributions will be compromised as their numbers shrink and they are overwhelmed by their responsibilities and workload.

The stakeholder representatives expressed concern about the decline in permanent (base) funding and greater reliance on "soft" funding to support the Cooperative Extension program (there has been a 20 percent decline in inflation-adjusted dollars in the ANR base budget since 1990). Permanent funds now represent only 45 percent of ANR's budget. During the same period, there has been a 24 percent reduction in the number of Agricultural Experiment Station faculty and Cooperative Extension staff.

The stakeholder representatives made a number of suggestions and recommendations regarding opportunities for improvement of the Cooperative Extension program:

- Strengthen coordination between ANR and the campus deans and eliminate real or perceived competition between the two groups.

- Enhance the packaging of information for a particular subject or issue. Consolidation of information will reduce the confusion stakeholders and end-users experience when trying to access university information. The web site maintained by the Center for Body Weight was cited as a good model for information packaging.

- Develop coordinated branding and outreach for ANR, Cooperative Extension and the University. ANR and Cooperative Extension currently have a very diffuse image, and thereby do not take advantage of the positive image of UC within the state. Stakeholders do not differentiate between ANR and campus based programs.

- Make Cooperative Extension programs accessible to a broader community – Extension for the people, not just Extension for agriculture. This is why the state budget refers to county advisors, not agricultural advisors.

- Be more opportunistic in "plugging into" the priorities of the state legislature.

- Look for opportunities to build new and stronger collaborations with USDA Agricultural Research Service programs as a way to leverage the applied research base and outreach capacity of Cooperative Extension programs.

Analysis: The review team was impressed with high level of support for the Cooperative Extension program expressed by the stakeholders we interacted with. However, it is clear that expectations of support from Cooperative Extension continue to grow, especially among non-traditional and underserved clientele (including agricultural labor).

The review team did not get a clear picture of how stakeholder advisory committees are functioning at the county level. We did, however, get a sense that at the state level stakeholders generally feel that ANR welcomes and values their input. For example, we were unsure whether Hispanic and other traditionally underserved constituents are adequately represented on advisory committees. We also received some feedback that some (non-agricultural) stakeholders had a sense that they were on the fringes, rather than full partners in the Cooperative Extension program.

The review team was provided with several excellent examples of collaborative work with external groups, and it was apparent that these examples were not just "window dressing." Some of the examples presented have led to the development of grower directed manuals to address new threats to production from invasive species. However, it was also clear that there remain opportunities for greater engagement of Cooperative Extension with the citizens of the state.

Recommendations:

1. **Invite stakeholder representatives to provide input into critical decision-making processes, such as key budget decisions, and search and program review committees.** Include at least one stakeholder representative on search committees for specialists and county advisors.

2. **Evaluate the ethnic, gender and organizational diversity of stakeholder advisory committees and add members necessary to ensure you are hearing all points-of-view.** Rotate membership to ensure a continual flow of fresh voices.

3. **Look for opportunities to increase the availability of science-based knowledge to regulators and policy makers.** Strengthen communications and scientific collaboration with the California Department of Food and Agriculture and USDA's Agricultural Research Service.

4. **Encourage county advisors to upgrade their community development skills so that they can provide assistance to rural areas of the state as they chart their future and re-build their economies.**

5. **Look for ways to take advantage of Cooperative Extension's unique ability to provide local community leadership and serve as a trusted broker that can bring together diverse organizations to address common challenges and of mutual benefit to industry and the citizens of California.**

6. **Explore new publication formats that engage end-users in the development of practical user-friendly management guides that pull together science-based information and "practical knowledge" developed by industry.**

ACADEMIC PERSONNEL POLICIES

The Division of Agriculture and Natural Resources has 645 Full Time Equivalents in Cooperative Extension and the Agricultural Experiment Station. There are two academic titles in Cooperative Extension: 1) the county-based Cooperative Extension Advisor (also referred to as farm advisors in agriculture programs), and 2) the campus-based Cooperative Extension Specialist, a position that is designed to work closely with Agricultural Experiment Station Agronomists and Cooperative Extension Advisors. The academic appointments in the Agricultural Experiment Station have partial Academic Senate professorial appointments. Many carry the title "Agronomist", which has given equivalent rank status to the Academic Senate titles since 1928. The Academic Personnel Manual (APM) described the rank and benefits of the Agricultural Experiment Station faculty, Agronomists, Cooperative Extension Specialists and Advisors. For the last 25 years a Ph.D. has been a requirement for recruitment of Cooperative Extension Specialists. More recently, the University of California has placed a priority on hiring Cooperative Extension Advisors with Ph.D. degrees at a rate significantly higher than the national average. This trend reflects the importance of applied research and professional competence. This is occurring in all program content areas within ANR.

Across the country, most land-grant universities have extended to Cooperative Extension specialists the same rights and status as all other faculty, specifically in regards to Senate membership, tenure-track rank, graduate faculty and principal investigator designations. Half the states afford tenure-track faculty status for county-based extension advisors or educators and many states include Senate membership privileges as well. At UC, Cooperative Extension Specialists are members of academic departments of their respective campus (Davis, Riverside, or Berkeley) and contribute to elements of the departmental academic planning and governance. Reference to the continuum of research to outreach was made throughout the review. Some of the Deans maintained they have strong expectations in the merit and promotion process for Cooperative Extension specialists to contribute to the continuum and that specialists are reviewed as to their direct contribution to the success of the Cooperative Extension advisors in their respective areas. UC Davis clarifies this expectation with campus personnel processes for Cooperative Extension specialists and for Agricultural Experiment Station faculty in addition to the system-wide guidelines.

Analysis: It was very clear to the review team that there are inequities experienced by Cooperative Extension specialists relative to professorial faculty and the Agronomists. To a lesser extent it was made aware to the review team the importance of the issue of tenure-track rank for Cooperative Extension advisors similar to many states. Most agree the title of "Extension Specialist" conveys a lower status than "Professor" and severely limits eligibility for benefits afforded to professors and creates unnecessary barriers to performance and rewards. Ultimately, the UC system will have issues of recruitment and

retention. And the discrepancy appears to all to be unjust. While historic and long standing, the APM policies that create these inequities also appear to benefit no one. The list of inequities to Cooperative Extension specialists by not having Senate status as identified by the review team include: 1) They are not eligible to be major professors for graduate students but must serve as co-advisors; 2) They are not eligible for Career Reviews or opportunity to advance early through rank; 3) They are not eligible to augment salary from grants by paying one month summer salary; 4) They are not eligible to obtain a low-interest home loan while other levels of faculty may do so; and 5) They are not eligible as other faculty are for routine replacement of computers.

A solution, simple on the surface, would be to recognize the role in and importance to UC's academic mission of Cooperative Extension specialists through the granting of equivalent rank status to those individuals. According to the APM 115-0, "In matters of academic personnel policies and procedures, the University traditionally uses the term 'equivalent' to designate certain academic title series and certain ranks of these series that are to be treated on the same basis in relation to some specific policy as corresponding ranks in the professor series."

The perception by some is that there is inconsistency in expectations for specialists and Agricultural Experiment Station faculty to support the work of county-based Cooperative Extension advisors. While UC Davis has personnel policies and a Specialists Advisory Committee and mentoring handbook under development, discussion with the Deans at Riverside and Berkeley for similar policies would have benefit, particularly when there are faculty with split CE-AES appointments.

Leadership and authority for Cooperative Extension programs lies with members of ANR's Program Council and the Executive Council. The Program Council includes the line-supervisors of county advisors and the three Regional Directors. Program leadership also rests with a combination of Program Leaders with a designated portfolio of statewide programs and core issues to lead, as well as with Associate Deans for the three campus colleges and Research and Extension Centers (which connect Cooperative Extension with Agricultural Experiment Station) and, we assume, with department chairs. While this seems overly complex to the casual observer, this matrix organization and leadership model facilitated by the Council is similar in many land-grant universities for conducting the business of Cooperative Extension. UC is perhaps unique to the extent UC Davis follows a campus academic policy for Cooperative Extension Specialists, while UC Riverside and UC Berkeley follow system-wide policies. Issues of mixed or differing messages and perhaps very real differences in policies of performance expectations for Cooperative Extension Specialists and Agricultural Experiment Station faculty at the Research and Extension Centers, where any one of the campus policies prevail, may be problematic to the individual employees. It is beyond the scope of this review team to investigate the implementation of academic policies for Agricultural Experiment Station faculty at Research And Extension Centers, but this issue was raised during the review.

There is a process in place to periodically evaluate the leadership and effectiveness of the Program Leaders every three years. Program leaders also have an opportunity to provide input in merit review of county directors and county advisors in their respective areas. This quality control mechanism is particularly important for statewide programs and effective work groups. It was not clear to the review team whether program leaders have input into the Cooperative Extension specialists and Agricultural Experiment Station faculty who would be expected to contribute to the workgroups and statewide programs.

Recommendations:

1. **The review team strongly supports the proposal to provide equivalent status to Cooperative Extension specialists.** The issue of inequities and equivalent faculty status for Cooperative Extension specialists is a key personnel concern. This would have no detectable impact on UC's salary budget and would be a strong signal of institutional support to current employees and future hires.

2. **Develop a high quality orientation and mentoring system for new Cooperative Extension specialists and provide rewards and incentives to encourage them to work with county advisors.** This will enhance the effectiveness of workgroups, statewide programs, centers or institutes and will strengthen the campus-county continuum of research and extension.

3. **Strengthen written expectations regarding the role of Agricultural Experiment Station faculty and Cooperative Extension specialists in the campus to county continuum of research to outreach and program outcomes, and communicate these expectations to all staff.**

4. **Develop a culture and codify statements of mutual expectation by which Cooperative Extension specialists and county advisors are judged and rewarded. Provide a mechanism for inclusion of county advisors in performance reviews of specialists and vice versa.**

5. **Evaluate the possibility of providing a tenure track system for county advisors. Review other land-grant university policies made available through a report published by the National Association of State Universities and Land Grant Colleges.** The report is available at www.nasulgc.org/NetCommunity/Document.Doc?id=356

ADMINISTRATIVE ISSUES

Although the charge to the review committee did not include a review of administrative processes, the committee heard from a number of different presenters about the complexity of the personnel, grant submission, and project management processes. We did not pursue these issues in great depth, but we recommend that the ANR administration review its processes and consider streamlining the hiring process, especially for temporary positions, and the grants submission, approval and management processes, especially as these apply to the county extension advisors. Other topics that surfaced, but again we did not have the time to pursue in depth, concern the opportunities to strengthen the working relationship between faculty and professionals at the Research and Extension Centers and faculty on the campuses. Given the importance of the Research and Extension Centers in the delivery of research and extension programs for ANR constituencies, evaluating these linkages ought to be pursued internally.