UNIT REVIEW FOR CY 2014

Unit Name: School of Animal and Comparative Biomedical Sciences

Unit Head: André-Denis Wright

Date of review: March 6, 2015
A. Unit finance and business (10 min presentation + 10 min discussion)

1. Business personnel assessments – The business unit was dysfunctional with two Business Manager (BM) Senior. So, the business model was restructured and one BM Senior position was terminated early 2015. All business personnel (n=4) have been moved into front office, room 201.

2. Finance and budget – focus on overview of strengths and weaknesses of the unit financially
   • Grant activity remains strong (need $$$) and has included new collaborative ventures
   • budget deficits, especially regarding ARC remains problematic.
   • Monies from case settlement has helped reduce Dairy debt.

1. New resource generation – specific opportunities you are exploring.
   • Antibiotic resistance, Animal health, Ag Animals/Human health, Bio/medical research collaborations. Climate change research (heat stress research).
   • NSF, NASA, Bread funding; KECK funding
   • Summer Courses, online courses, experiential courses in partnership; certificate prg.
   • Equine Program, EAT/L, HAIRI
   • FPSL

1. How are business functions in your unit helping achieve the goal of being “the most effective, efficient, responsive, flexible, and financially sustainable college on campus”? Restructured the business unit, moved the former ASCI Accountants into Main office to form a team atmosphere. Expectations and importance of working together as a team was discussed with each member individually. Ms. Liz Gradillas has been charged with Chairing the SOP for Business Units in CALS
B. Cooperative Extension (10 min presentation + 10 min discussion)
Total Extension FTE annually for the last 3 years: 2013 = 4.05, 2014 = 4.01, 2015 = 4.09

Unit’s Extension outcomes and impact for stakeholders by individual program, in terms of economic impact (e.g. dollars and jobs), by individual program:

**Beef Quality Assurance (BQA) program:** Resulted in over $7 Million for the AZ beef industry. Process verified/preconditioning program $10-$25/cwt. Additional 10,000 head through the program resulted in $150,000 for the industry this year. Reduced aflatoxin in silage estimated $150,000 in direct milk sales saved and $150,000 in improved animal performance annually (total $300,000), and 1-2% improved reproductive performance resulted in $1,250,000 to the industry.

**Dairy:** No extension specialist in 2014.

**Equine:** Extension Specialist retired in 2014.

**Veterinary:** ALIRT Program – Resulted in an additional $960,000 to industry (2000 calves x 400 lbs x $1.20/lb).

**Meat Science:** Over 300 students trained and employed by at least 25 companies. The top 5 companies: Shamrock Foods, JBS Packing Plant, Hickman Egg Plant, Hormel Foods Corporation (MN), Blessing Seafood.

Describe the level of program integration of Extension programs in your unit: The BQA was jointly developed by Cooperative Extension, AZ Dept of Ag, AZ Cattle Growers Assoc, AZ Beef Council, SACBS and Allied Industry members to the benefit of all.

Describe the level of integration between the research and Extension components of faculty programs in your unit: To provide factual information with stakeholders.

Unit’s Extension social outcomes and impact by individual program: see outcomes above

Unit’s Extension summary in one or two sentences: Our Program is broad based and aimed at providing outreach and assistance to many producers in the Beef and Dairy Industries within Arizona. Critical positions need to be filled to shore up the Equine and Dairy areas.
List company, corporation or industry interactions with Cooperative Extension in your unit this past year including advisory boards, individual faculty/industry research projects, and classroom or curricular participation.

- AZ Cattle Growers (Patrick Bray, Bas Aja, Dan Bell, Anna Aja, Andy Groseta) co-sponsored and participated in meeting planning. We provided articles for their magazine.

- United Dairymen of AZ co-sponsored Aflatoxin meeting and distributed factsheet to all AZ dairymen.

- Jim Loughead of Boehringer Ingelheim co-sponsored BQA meetings and helped with instruction.

- Stephanie McLean of Purina, Aubry Barksdale of Bayer, and Jim Loughead of Boehringer Ingelheim cosponsored the Range Cow Nutrition Workshops.

- AZ Cattle Feeders co-sponsored the feedlot BQA and helped develop the new program.

- The BQA program was developed as a joint effort of Arizona Cooperative Extension, Arizona Department of Agriculture, ACGA, Arizona Beef Council, SACBS, and Allied Industry members.
C. Research. Units fill in bold only, CALS central Admin will provide you with the other data. (slides 5-8; 15 min presentation + 15 min discussion)

1. Total State-Funded Research FTE annually for the last 5 years (5 numbers):
   - Research # FTEs: (11) 36.41, (12) 21.93, (13) 21.07, (14) 23.64, (15) 21.72
   - T/C Faculty only: (11) 14.98, (12) 10.34, (13) 8.46, (14) 8.96, (15) 10.71

2. Unit Research Expenditures CY14: $3,375,401

3. Unit's share of CALS research input (research FTE, start-up and any other investment) for the last 5 years (5 percentages):

4. Number of extramural proposals submitted by the unit divided by faculty FTE annually for the last 5 years (5 numbers):
   - Incorrect data provided before 2013; 2013 = 4.01, 14 = 4.67

5. Number of peer-reviewed publications divided by faculty FTE annually for the last 5 years (5 numbers):

6. List of successful proposals, sponsors, direct funding amount, total amount and match amount on separate Excel spread sheet for CY14.
   - See attached spread sheet
Intellectual property data for FY14

Disclosures:
1. Spring 2014, Role of Serotonin in Regulating Sweating Rate in Domestic Animals, Robert J. Collier
2. Summer 2014, Effect of OmniGen-AF on Stress Reduction in Lactating Cows, Robert J. Collier
3. Spring 2014, Re-Usability of Plant Antimicrobial Washes Against Salmonella Newport on Organic Romaine Lettuce and Baby Spinach, Sadhana Ravishankar and Libin Zhu

Provisional Patents: N/A

Patents:
1. Fall 2014, Control of Milk Production and Mammary Involution, Robert J. Collier
5. Spring 2014, New Zealand Patent Issued for: Targeted Cryptosporidium Biocides, Michael W. Riggs
6. Fall 2014, European Patent Pending: Targeted Cryptosporidium Biocides, Michael W. Riggs
7. Fall 2014, India Patent Published and Pending: Targeted Cryptosporidium Biocides, Michael W. Riggs

Licenses:
1. Spring 2014, DNA gene (gyrB) for detection of NHP, Donald V. Lightner
2. Fall 2014, PCR Detection of Acute Hepatopancreatic Necrosis Disease, Donald V. Lightner

Companies spun out: N/A
D. Academic Programs (slides 9-13; 15 min presentation + 15 min discussion) PLEASE PROVIDE COMPLETED SLIDES 9-13 AND THE ACADEMIC GRID TO JOY WINZERLING ONE WEEK IN ADVANCE

1. Describe all anticipated changes, deletions or additions in your majors, minors and/or certificates.
   1. ANS major: (none)
   2. MIC major: addition of MIC 350 to satisfy core requirement (would replace molecular requirement option choices for courses housed in other departments), addition of COMM 119 and deletion of FSHD 401 from communications requirement in the pre-major, removed MIC 454 from elective options
   3. VSC major: addition of COMM 119 and deletion of FSHD 401 from communications requirement in the pre-major, deletion of ACBS 495A, removed ACBS 431, MCB 473, ECOL 487R/L and BIOC 416A to major elective options and added ACBS 412, ACBS 202, ACBS 220 and ACBS 370 as major elective options
   4. ANS minor: (none)
   5. MIC minor: (none)
   6. VSC minor: (none)

2. List current distance certificate programs, study abroad, executive and continuing education.
   N/A.....

3. List new courses planned and/or course changes or closures for courses offered in winter or summer sessions.
   1. An additional lecture section for MIC 205A will be offered during summer session (SSII)
4. **Describe** any anticipated changes in instruction faculty that will either streamline your operation or disrupt your course instruction.

- The hiring of the equine faculty (50% instruction) will help fill some of the holes made in the equine program.
- Possible retirement will impact several courses including ACBS 102R, L, 380, 580, 420, 520, HNRS 195 and many independent studies; as well as acting as a mentor for many students, both undergrad and grad.
- The hiring of S. Garcia has helped with some of the Marchello classes and is also coordinating the efforts of the FPSL
- The retirement of a faculty member in December 2015, will impact several classes, ACBS 403R/503R, 438/538, and MIC 195D; Dr. Wright has expressed interest in taking 403R/503R over; Dr. Sterling also does a considerable amount of mentoring of students, which will be a huge loss
- The hiring plan for 4 tenure-track faculty is tentatively set, but must also be able to contribute to Bio 5 outcomes.
- With the VMSP program set for Fall 2016, it will be imperative that we hire other faculty to help build courses and prepare for the self-study

5. **Describe** your most compelling academic program need.

- Coverage of existing courses with the retirement of faculty on top of those we have already lost while simultaneously building a new program (VMSP)
- It is critical that we do not negatively affect our traditional undergraduate majors (ANS, VSC, MIC), while adding in the new professional program
6. **Complete** the attached course grid

7. **Describe** your marketing/recruitment plans to increase the following ABOR metrics:
   
   **Number of Bachelor's Degrees Awarded**
   - The new VMSP should draw more students to our programs; it will be our job to keep them if they do not get accepted into VMSP 2-4 and graduate them with a degree.

   **Undergraduate Enrollment (Official 21st Day)**
   - Traditionally, many students in Animal Sciences are drawn by horses. With the new hire, greater involvement in 4-H and other extension activities, and by strengthening the equine program curriculum with the acquisition of the Arabians and the Al Marah Ranch/Facilities, we hope to significantly increase enrollment in this area.
   - The potential of offering undergraduate certificates in the future in a few areas such as Food Safety, Equine Assisted Learning/Therapy, and One Health.

   **Number of Graduate Degrees**
   - Capture some of the students from VMD1 in a professional master’s degree.
   - Increased extramural funds (GRAs)
   - Other professional Master’s
8. Number of undergraduate students in Animal Sciences involved in
   i. research experiences: 8-10 students/yr
   ii. extension experiences: 7-8 students/yr
   iii. Internships: Arns- 2, Marchello- 4, Davis- 9, Collier-1, Kiesling- 4
   iv. Experiential learning: all of above

Number of undergraduate students in Veterinary Science involved in
   i. research experiences: 5-10 students/yr
   ii. extension experiences: 8/yr – Volunteers for Intercultural & Definitive Answers (VIDA)
   iii. Internships: ~20/yr with various veterinary clinics, the RP Zoo and a few with industry
   iv. Experiential learning: all of above

Number of undergraduate students in Microbiology involved in
  I. Research experiences: ~20 students/yr
  II. Extension experiences: 10/yr VIDA
  III. Internships: ~5/yr with industry such as Ventana
  IV. Experiential learning: all of above

Number of undergraduate students in Race Track Industry Program involved in
   i. Research experiences: ~3-5 students/yr – business related planning
   ii. Extension experiences: ~2/yr – handicapping horseracing
   iii. Internships: 8 with race tracks, horse breeders and trainers
   iv. Experiential learning: all of above

Animal and Comparative Biomedical Sciences – TOTALS
   I. Research experiences: ~36-45/yr
   II. Extension experiences: ~28/yr
   III. Internships: ~53/yr
   IV. Experiential learning: all of above
9. List the top 5 employers of your graduates: Animal Sciences
   1. Industry (Cargill, Elanco, Purina, Monsanto, NuvOx Pharma, Kypha, Semex, Ventana); 2. Graduate Schools (Arizona, Delaware, Colorado State, Ohio State, Texas, Tufts, Virginia Tech), 3. Veterinarian or Vet technician (Canada, USA) (Guelph, Colorado State), 4. Lecturers & Faculty (Wisconsin, Sam Houston State, Portland, Northeast Oklahoma A&M, Texas A & M); 5. Sales Reps and Consultants (Pacific Northwest National Laboratory, Chandler Analytical Laboratories)

List the top 5 employers of your graduates: Veterinary Science

List the top 5 employers of your graduates: Microbiology

List the top 5 employers of your graduates: Race Track Industry Program

10. Describe company, corporation or industry interactions with your unit this past year including advisory boards, individual faculty/industry res. projects, and classroom or curricular participation:

<table>
<thead>
<tr>
<th>Faculty member</th>
<th>Industry/Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Collier</td>
<td>Calpis Company, Ltd. (Japan)</td>
</tr>
<tr>
<td>Donald Lightner</td>
<td>Charoen Pokphand Food (Thailand); Novus International Inc., Monsanto Company; E.I . Du Pont De Nemours &amp; Company, CP Foods, (Thailand)</td>
</tr>
<tr>
<td>Sean Limesand</td>
<td>Bioinventions, LLC</td>
</tr>
<tr>
<td>Sadhana Ravishankar</td>
<td>E3 organics</td>
</tr>
<tr>
<td>Lisa Shubits</td>
<td>Viamet Pharmaceuticals Inc.</td>
</tr>
<tr>
<td>Gayatri Vedantam</td>
<td>Stellar Biotechnologies Ind.</td>
</tr>
</tbody>
</table>
## E. List faculty awards/recognitions (1 min presentation + 1 min discussion):

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Name of Award, Honor or Fellowship</th>
<th>Conferring Organization</th>
<th>Date Awarded</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightner, Donald V.</td>
<td>XI Simposio International de Actualization Cientifica en Acuicultura</td>
<td>Invited keynote speaker</td>
<td>2014-02-14</td>
<td>Spring 2014</td>
</tr>
<tr>
<td></td>
<td>Nomination for Regents Professor</td>
<td>ACBS</td>
<td>2014-10-31</td>
<td>Fall</td>
</tr>
<tr>
<td>Riggs, Michael W.</td>
<td>Outstanding Faculty in Research</td>
<td>ACBS</td>
<td>2014-05-05</td>
<td>Spring 2014</td>
</tr>
<tr>
<td>Marchello, Elaine V.</td>
<td>Outstanding Faculty Partner Impact Award U of A Student Affairs</td>
<td></td>
<td>2014-10-15</td>
<td>Fall 2014</td>
</tr>
<tr>
<td>Faulkner, Dan B.</td>
<td>Extension Award</td>
<td>ACBS</td>
<td>2014-04-09</td>
<td>Spring 2014</td>
</tr>
<tr>
<td>Jackson, Noble</td>
<td>CALS Alumni Achievement Award</td>
<td>UA</td>
<td>2014-05-02</td>
<td>Spring 2014</td>
</tr>
<tr>
<td>Limesand, Sean</td>
<td>Promotion to Full Professor</td>
<td>UA</td>
<td>2014-05</td>
<td>Spring 2014</td>
</tr>
<tr>
<td>Ravishankar, Sadhana</td>
<td>Promotion to Assoc. Professor &amp; Tenure</td>
<td>UA</td>
<td>2014-05</td>
<td>Spring 2014</td>
</tr>
</tbody>
</table>
My Vision

ACBS to be engaged in research, instruction, and outreach in animal and human health and well-being, and agricultural sustainability.
Grand Challenges

• increasing the efficiency of water use

• growing food in a changing climate
  ▪ managing new pests, pathogens, and invasive plants

• sustainability
  ▪ energy/carbon footprint
Three Long-term/Future Areas for funding

1. Animal Health
2. Food Security/Safety
3. Stewardship (Environment, & Animal Welfare & Wellbeing)
Research Vision

• to conduct world-class research to address and find solutions to the grand challenges facing US Agriculture and beyond (sustainable food animal production)

• to conduct world-class research to improve animal health and well-being

• to conduct world-class research to sustain and enhance human health by promoting food safety, food security, and value-added products
Teaching & Outreach Vision

- to deliver high quality undergraduate and graduate education focusing on animals important to Arizona and the region through innovative and interactive approaches in teaching and learning

- to enhance curriculum and with experiential learning, hands-on instruction

- to enhance and strengthen our linkages with others both within and outside the University of Arizona

- to extend knowledge and education to the people of Arizona and the world

- be a treasured resource for the people of Arizona
2015 Looking Bright for ACBS

A message from the Director

Dear Colleagues and Friends,

Welcome to a new year and new opportunities. It is hard to believe that 2014 is over and we are well into the year 2015. I hope that you find yourselves well rested and ready to tackle the challenges of the year ahead.

My family and I have been in Tucson now for almost 3 months and we are loving it, especially the people and the climate. We look forward to getting out and around this beautiful state.

Students returned to classes Jan. 12, so the campus is alive and full of energy. This will be my first full semester as Director of the School of Animal and Comparative Biomedical Sciences (ACBS) and I am excited about the new opportunities and growth for our School, especially the new Veterinary Medicine and Surgery Program, which is set to take its first cadre of students in Fall 2016. I am also looking forward to hiring a new Dairy Extension Specialist and a new Equine Extension Specialist, as well as setting up my new laboratory to work on the gastrointestinal microbiology of both livestock and humans.

The future looks bright. To our valued stakeholders, faculty, staff, graduate students, and friends, thank you for your support. I wish you and your families all the best for a happy and safe new year, and I look forward to meeting and working with you in 2015, and the years ahead.

Kindest regards,
André Wright, PhD

Support ACBS

There are many ways you can support the School of Animal and Comparative Biomedical Sciences. Gifts of any size help to propel ACBS closer to its goals and have an immediate and lasting impact on our programs. Your generosity provides outstanding educational opportunities for our students and helps to attract and retain the brightest faculty. With your support, ACBS research gives back to the state of Arizona community through our extension programs as well as the nation and the world through the discoveries we make and the products we develop.

Gifts may be made online at the University of Arizona Foundation website www.uafoundation.org/give/cals/sacbs
Or contact our school business office to discuss specific ways your contribution can be made or dispersed. Whether you choose to give to a specific project or program or simply donate to the school overall, we thank you.