UNIT REVIEW FOR CY 2014

Unit Name: Entomology

Unit Head: Bruce Tabashnik

Date of review: February 20, 2015
A. Unit finance and business (10 min presentation + 10 min discussion)

Business personnel assessments

Bus. Mgr. Sr. 1.0 FTE retiring; recruiting Bus. Mgr. 0.75 FTE
increased from 0.49 to 0.75 FTE, Office Specialist Sr. hired March 2014
0.49 FTE, Admin. Asst. hired Jan 2015
Grants, funded by CALS, moved to Ento Feb. 10, 2015, also supports SPLS

Finance and budget

Strengths: lean, efficient, no debt
Weaknesses

High fixed costs: faculty salaries + UITS phone/computer = ca. 90% of budget
Limited revenue generation, little available for startup
Little or no funds to address emergencies, budget cuts, cost increases

New resource generation

Teaching: winter/summer or online
Development, IDC from grants, royalties from patents

How unit business functions are helping CALS be “the most effective, efficient, responsive, flexible, and financially sustainable college on campus”

Re-organized office to achieve this goal
Using part-time staff members, work-study students
B. Cooperative Extension (10 min presentation + 10 min discussion)
Total Extension FTE annually for last 3 years: 2.9, 4.6, 4.0 (3.3 faculty in 2014, 2.5 faculty in 2015)

Extension economic impact for stakeholders in dollars and jobs by individual program:
Ellsworth: Cotton IPM saved AZ growers $451 million from 1996-2014, preserved 9000 jobs and $700 million in annual contribution to AZ economy
Palumbo: Vegetable & Melon IPM saved AZ growers $240 million from 1995-2014 (ca. $18 million in 2014), preserved 10,000 jobs and $1.2 billion in annual contribution to AZ economy
Gouge: School IPM: savings of $1.8 million per year ($10,500 per school X 170 schools)

Extension social outcomes and impact by individual program:
Walker (0.2 FTE Ext as of 2014): Insect Festival engaged ca. 4000 participants in 2014, Insect Discovery reaches ca. 3500 K-12 students per year, mostly from poor families
School IPM reduces pesticide exposure for children in 55% of AZ school districts and >2.7 million children in 23 partner states.
Cotton & Vegetable IPM reduced insecticides >90% (>1.2 million pounds active ingredient per year), reducing pesticide exposure for farm workers and all AZ citizens.

Integration with county Extension programs, center programs, and stakeholders:
The Arizona Pest Management Center facilitates excellent integration in IPM
Walker is integrating Insect Discovery with 4-H

Integration between research and Extension components of faculty programs:
Excellent integration promotes success with grants (USDA, NIH) & publications
Collaborations between center & campus faculty on IPM & resistance
Collaborations between Walker & other campus faculty on mosquito ecology & control
Extension summary: All citizens of AZ benefit from IPM programs that reduce pest problems and reduce pesticide use in crops, homes, and schools; thereby preserving jobs, increasing profits, and increasing food safety and environmental health. Insect Discovery and the Insect Festival inspire and engage thousands of AZ citizens each year, connecting them with science, UA, CALS and the Department of Entomology.

Company, corporation and industry interactions
Entomology Advisory Board: established 2013, has met 3 times

Support provided by:
Companies: AMVAC, BASF, Bayer, Crop Protection Services (Yuma), D’Arrigo Bros. of California, Dow, DuPont, FMC, Gowan, ISK, JV Farms/SkyView Cooling, Marrone BioSciences, Monsanto, Lure Labs, MANA, Nichino Americas, Syngenta, Valent


Interactions with other organizations & individuals:
AZ Crop Protection Association, AZ Depts. of Agriculture, Health, Environmental Quality; AZ Farm Bureau, AZ Office of Pest Management, CA Association of Pest Control Advisors, California Seed Association, Western Growers. Association, Yuma Fresh Vegetable Association, Indian Health Services, Inter-Tribal Counsel of Arizona, >170 Schools, >10 Tribal Communities, >40 Pest Management Companies, >10 Homeless Shelters, J. Mamat, R. Ketner, F. Wiley; Rare Disease Therapeutics, D’Arrigo Bros, Del Monte, Sandstone Marketing/Packing, JV Farms, Crop Protection Services, Dune Co. of Yuma, Helena Chemical Co., and 7Ag Consulting; Mexico: Islas Agrarias Ejido Monterrey, Productores Algodoneros de Mexicali, S.A. (PAMSA), Systema S.L.C., SEFOA, Junta Local de Sanidad Vegetal, CESV-SON, Sanidad Vegetal- SAGARPA, Algodonera de Baja California, S.A. (ABC), CESV-BC, Sistema Producto Algodón, en B.C. and Algodonera BajaMex
C. Research (15 min presentation + 15 min discussion)

1. Total State-Funded Research FTE for the last 4 years: 11.7, 10.8, 11.6, 10.5 (7.95 Research Faculty FTE in 2014)

2. Unit Research Expenditures CY14 (incl. Ento faculty on campus, at MAC & at YAC):
   Grants & Contracts (Sponsored Projects): $2.3 million = $286K per Research Faculty FTE
   Other Restricted Funds (incl. Gifts) : $773K = $97K per Research Faculty FTE

3. Ento total Research FTE divided by CALS total Research FTE for the last 4 years: 5.0%, 4.5%, 4.8%, 4.4%, mean = 4.7%
   9.7% of CALS Sponsored Projects Research Expenditures (2X); 20.5% of Other Restricted Research Expenditures (4X)

4. Extramural proposals submitted per year divided by total Research FTE for the last 4 years:
   5.7 FY11, 5.2 FY12, 5.2 FY13, 5.8 FY14, mean = 5.5

5. Peer-reviewed publications per year listed in Web of Science per faculty Research FTE annually for the last 5 years: 6, 5, 7, 5, 5

6. CY14 successful proposals, sponsors, direct funding amount, total amount and match amount on Excel spreadsheets
   Research Awards CY14: $3.4 million = $420K per Research Faculty FTE (see spreadsheets for details)
   Gifts CY14 (not incl. above): $400K = $50K per Research Faculty FTE

Median impact factor for 90 Entomology journals (2013) = 0.90
Median impact factor for Entomology faculty pubs (2010-14) = 3.2 (3.6X median impact for Ento journals)
Median impact factor for Entomology faculty is higher than impact for 88 of 90 Entomology journals
24 High-profile pubs 2010-14 (Impact Factor):
   6 Science (31),
   4 PNAS (9.8),
   3 Nature Biotechnology (39),
   Nature Genetics (30),
   Nature Communications (11),
   Ecology Letters (13), 2 Current Biology (9.9),
   PLOS Medicine (14), PLOS Genetics (8.2),
   4 PLOS Pathogens (8.1)
Intellectual property data for FY14
Disclosures:
Provisional Patents:
Patents:
Licenses:
Companies spun out:
None of the above in FY14.
D. Academic Programs (15 min presentation + 15 min discussion)

3.0 Total FTE Instruction in 2014 = 2.7% of CALS Instruction FTE (2.25 Faculty Instruction FTE)

1. Describe all anticipated changes, deletions or additions in your majors, minors and/or certificates.

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

3. List new courses planned and/or course changes or closures for courses offered in winter or summer sessions.

None of the above.
4. Anticipated changes in instruction faculty that will either streamline or disrupt your course instruction.

retiring in April 2015. Taught Insect Pest Management. We are reviewing options for Spring 2016.

We hope to hire a new faculty member to teach and mentor graduate students in Insect Genomics.

5. Most compelling academic program needs

More reliable funding for graduate students in the Entomology & Insect Science Graduate Interdisciplinary Program (EIS GIDP)

The 2014 Academic Program Review team concluded that the EIS GIDP “is excellent overall. Major strengths include the quality of students, the quality and interdisciplinary breadth of the participating faculty, and program management. The most significant concerns are the unpredictability and limited financial support available for students, and erosion of faculty expertise in critical research areas.”

The 2014 Academic Program Review team identified hiring in Insect Genomics as a top priority, strongly concurring with the priorities of the Department and the EIS GIDP.
6. See course grid Excel file for changes to courses in Fall & Spring

7. Marketing/recruitment plans to increase the following ABOR metrics:
   
   Number of Bachelor's Degrees Awarded  
   Undergraduate Enrollment (Official 21st Day)  
   Number of Graduate Degrees  

   The Entomology & Insect Science Graduate Interdisciplinary Program already attracts more outstanding applicants than we can support. The problem is not marketing/recruitment, but insufficient funding for the excellent students who are attracted to our program.
8. Number of undergraduate students in the unit involved in

Research experiences: 81

Extension experiences: 22

Internships: 5

Experiential learning: 12
9. Top employers of graduates:
Universities (primarily hiring our graduates as postdocs)
NGOs: AAAS, Native Seed Search, AZ Sonora Desert Museum
Industry: Monsanto, MGK, Guardian Pest Solutions, Arbico
Federal: NSF Neon

10. Company, corporation or industry interactions related to Academic Programs
including advisory boards, individual faculty/industry research projects, and
classroom or curricular participation.

Advisory Board:
Trina Callie, Raytheon; Lin Evans, PCA; Bruce Gwynn, Helena Chemical

Faculty/industry research projects involving students:
Funding, materials, or both from Dow AgroSciences, DuPont Pioneer,
Monsanto & Syngenta

Classroom: Guest lectures in Palumbo’s Yuma IPM Course (ENTO 300)
Jesse Richardson, senior biologist, Dow AgroSciences
Clark Webb, pest control advisor, Dune Co. of Yuma

Curricular:
Entomology section taught for Future Farmers of America (by Gene Hall)
E. Faculty awards/recognition (1 min presentation + 1 min discussion):


Davidowitz: Spirit of Philanthropy Award, Association of Fundraising Professionals

Ellsworth: National Excellence in IPM Award, Entomological Society of America

Hunter: Distinction in Mentoring Award, Entomological Society of America, Pacific Branch

Li: Invited Symposium Speaker, Intl. Society of Chemical Ecology

Moore: Southwest Book of the Year, Pima County Library

Invited Keynote Speaker, Lund Week, University of Georgia

Palumbo: National Distinguished Achievement in Extension Award, Entomological Society of America

Riehle: Award for Medical, Urban, and Veterinary Entomology, Entomological Society of America, Pacific Branch

Stock: David E. Cox Teaching Award, CALS

Honors Professor, University of Arizona

Tabashnik: Ag 100 Faculty Member of the Year

Article Metrics (Science 2014): top 1% of 20,980 tracked articles in Science

10K citations: >10,000 citations of publications listed in Web of Science

Wheeler: AAAS Fellow

AAAS Fellows in Entomology: 27% of AAAS Fellows in CALS

3 active core Ento faculty/11 CALS active core faculty* = 27% of Fellows vs. 4.4% of CALS Res FTE (6X)

*based on survey of CALS HODS