FACULTY RETREAT OUTCOMES 2022

RESEARCH CAPACITY

Themes identified by working group

High-Level Challenges and Questions to Consider at the Retreat

- How can we avoid disruptions and major losses in research capacity and competitiveness given recent net losses in FTE and a lack of investment in facilities and equipment? (This question aligns with infrastructure theme).

- How can we hire and retain excellent research technologists and administrative staff to support research and extension proposals and for general departmental support?

- Can we develop clear guidelines for establishing research/extension collaborations with industry?

- How can we further strengthen the existing departmental mentoring program for young faculty as they navigate their first several years and balance engagement in interdisciplinary research efforts with the deepening of their individual areas of expertise and extension and/or teaching efforts?

- What should be done to develop/strengthen our capacity in areas that are increasingly important in agricultural research (e.g., digital agriculture, data analytics, and artificial intelligence) but in which the department currently lacks human capacity (i.e., faculty, staff, IT support) and infrastructure (e.g., data hubs)?

- Can we simplify and streamline international travel procedures for faculty?

- How can we work toward better national and international exposure of our department in addressing critical research questions and taking advantage of research and funding opportunities?

- What competitive advantages does our department have when compared with our land grant peers? How can we demonstrate impact in these areas? In which other areas are we lagging, where we may consider collaboration/partnership with other institutions?

Themes identified at faculty retreat

Through a series of structured small-group discussions, Fall 2022 Faculty Retreat participants identified continuing challenges and opportunities in the area of Building Research Capacity and discussed resource needs and strategies for addressing shortfalls and building on successes in the future.

Challenges and opportunities

Synthesis of small-group retreat discussions indicates that key focal areas for maintaining and building on past and present research successes include:

- Meet essential infrastructure needs (e.g., lab space, greenhouse facilities, and equipment) through direct investment and/or strategic partnerships (e.g., other university departments or industry).

- Establish and maintain long-term and productive faculty–staff relationships by aligning position descriptions with job responsibilities and expertise, and by offering competitive salaries and clear paths for career advancement.

- Prioritize the filling of critical positions across departmental disciplinary areas in a way that offers opportunities for collaboration without diluting expertise.

APR evaluation topics

The department may benefit from the feedback of external APR reviewers in the following areas:

- Development and maintenance of digital agriculture tools.

- Capitalizing on external (e.g., global) funding opportunities.

- Monitoring of progress toward programmatic outcomes.
- Strengthening and adaptation of the faculty mentoring program.

Action items

Potential avenues for building on past and present research successes include:

- Short-term – Solicit feedback from research faculty on issues relevant to building research capacity, such as: 1) identification of emerging (cutting-edge) issues, 2) marketing around strategic departmental advantages in research expertise, and 3) development of approaches for monitoring progress toward programmatic outcomes.
  - Address staff issues (hiring, competitive salaries, promotions); continue to emphasize the importance of staff issues to administrators.
- Medium-Long-term – Fill critical research FTE gaps across disciplinary groups.

Audacious goals

Establish a system for the coordination and support of large grants that enables faculty to redirect efforts from grant management to advancement and innovation in research.

Solve infrastructure and space shortfalls through strategic investment and partnerships.

GRADUATE PROGRAM

Themes identified by working group:

- **Program Visibility**
  How well do we promote our graduate program as a whole and more specifically at the specialization level, to prospective internal and external students and other appropriate audiences?

- **Program Relevance**
  Are the specializations current in terms of their overall goal and courses offered such that they attract the best students to Nebraska?

- **Funding**
  How can we be more innovative and productive when searching for funds to support prospective and current graduate students?

- **Career Diversity and Public Focus**
  Does our graduate program prepare students to address a variety of public audiences and apply their learning throughout social sectors, as is appropriate per the students" career goals?

- **Student Mentoring**
  Does our graduate program provide a sufficient means of ensuring strong and healthy relationships between student and advisor, as is crucial and determinant to student's success"? How do value effective mentoring or moreover, how do we define and measure it?

- **Graduate FTE**
  How do we do better at increasing our graduate FTE for specific needs (e.g., Physiology) and how do we optimize the use of our existing FTE?

Other Suggested Areas for Discussion

- **Time to Degree**
  Does our graduate program prepare students to complete a degree in a timely manner?

- **Pedagogy**
  Does our graduate program promote appropriate teaching opportunities to help students develop pedagogical abilities and do these opportunities extend beyond traditional Teaching Assistant opportunities?

- **Exams**
  Should our graduate program have minimal standards for qualifying exams and/or other prescribed minimal soft skills and if so, how should they be determined and assessed?

- **Extension Involvement**
  Does our graduate program promote extension opportunities, or otherwise prepare students to communicate effectively and professionally with diverse audiences?

- **Industry Internships, etc.**
  How can we enhance opportunities for industry internships, ARS, and international exchanges?

- Low Enrollment Courses
  What are strategies for increasing enrolment and increasing enrolment?

Themes identified at faculty retreat

One: Career preparedness for graduate students

1. Need for internships and sabbatical experiences which are rare for graduate students. Increasing domestic and international opportunities will lead to greater exposure of our students to the current needs and opportunities of industry in the US and globally. Internships also enable hiring companies to appraise potential future employees. Equally important, internships provide students with exposure to a wide range of national and international academic and career opportunities.

   - Programs create connections between our graduate program and a wide array of companies who seek qualified employees.

   - Most companies prefer longer internships or sabbaticals requiring incentives for faculty to to release students for extended periods of time. Also needed will be systems of managing/sharing costs of assistantships, tuition, and housing between the university and sponsoring companies.

   - Explore opportunities for reciprocal programs, for exchanging internships/sabbaticals with industry and other national and international research organizations.

   - Needed is a career diversity advisory committee, which should include industry representation. The Alumni Advisory Council is a potential option as a source of input on advising of students on career opportunities.

2. Need for formal training for academic careers, which currently is essentially non-existent.

   - Included is the need for central coordination of teaching resources and activities at the graduate level. While distance education and undergraduate each have a coordinator for courses and curriculum, a counterpart does not exist that the graduate level.

   - In conjunction with the above point, there is a need of programs which teach students how to teach at the graduate level. Post docs are even less likely to get teaching experience

   - There is a need to provide guidance on developing and funding independent research programs and projects. These skills frequently are required immediately after graduation or after post-doctoral work.

3. Each student needs an Individual Development Plan, IDP, which would assist students' course selection with respect to their anticipated career direction as well as stimulate earlier career related discussions with advisor, committee and mentors

4. There is a need for developing the ability of graduate students to communicate with a wide diversity of audiences and situations, ranging from classroom, to government, to industry, to farmers.

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Two: Program relevance, identity and rigor

1. Although the new curriculum website helps in framing the identity of the department's graduate program and provides a means of tracking recommendations of of the department's areas of specializations, further work is needed beyond the website itself for the department to establish an identity and promote its graduate program as a whole. Continuing questions include: Is there one or more common threads uniting the specializations? How do courses fit into the overall curriculum of the department and what common courses are lacking (e.g., graduate physiology)?

2. There is a lack of graduate only level courses in some specializations and the level of proficiency /rigor required within and across specializations is ambiguous.

3. Specializations differ in the extent to which courses are required, strongly recommended or suggested. Should there be more standardization?

Three: Mentoring

1. The absence of any formal or informal system of providing mentorship to graduate students was a recurring theme.

2. A student's advisor is not necessarily the best mentor; every student should have a mentor, separate from the advisor, identified as early as possible as part of IDP preparation i.e.,. before committee formation. The mentor may or may not be on the student's committee but should not be the advisor.

3. Faculty should have access to formal professional development on mentoring as part of their advising or separate mentor roles. Provision should be made in annual reporting to get credit for mentoring.

4. Opportunities should be provided to late-stage graduate students to serve as peer mentors to incoming students, thereby providing valuable mentoring experience.

Four: Inclusion

1. There is a need for improved inclusion of isolated and international students. Such students are frequently slower to know of and/or complete required steps in their graduate program and may communicate with their peers less. Such a program needs to be proactive in reaching out to these students before they fall behind.

2. Students who are located at research centers off-campus especially have the need of more inclusion, with better and other creative opportunities for on-line and distance ed graduate classes and training.

ONLINE PROGRAM

Themes identified by working group:

Undergraduate Specific

- How do we create online pathways for required courses from other departments that are not in our control for a completely online PLAS degree? Or do we opt to create an online completion program like CASNR's Bachelor of Science in Applied Science Degree?

- How do we gain access to the resources and expertise needed to develop online hands-on learning opportunities? Many of our courses require creativity, innovation, and industry collaboration to make them available at a distance.

- How do we prevent work overload on current teachers/staff during the expansion of online course offerings and programming? Who will support the increased capacity that results from online expansion?

  - One suggestion is to explore whether graduate students would like to teach some of these courses. However, graduate students are reporting their advisors sometimes will not permit teaching positions during their degree program.

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- How do we encourage participation from faculty in making online courses/sections?
- Online course listings in MyRed are not well prepared for hybrid and online synchronous course offerings and poorly communicate the location/time of class. How do we get these items (and similar items) changed?

Graduate Specific

- How can the university provide marketing/advertising resources to the Distance Education program?
- How do we create a culture in the department that values and supports advising non-thesis students MS (e.g., promotion and tenure considerations)?

Collaborations

- How do we leverage industry collaboration and training in online offerings?
- How do we better partner with extension?

Themes identified at faculty retreat

Challenges and Opportunities

- Challenge -- Questions about the quality of online programming in a science field; a perception that face-to-face is always a better learning experience.
    - Recommendation – evaluate the metrics of online vs. in-person.
    - Recommendation – offer badges online, not an academic program.
    - Recommendation – Place limitations on what classes can be taught online based on hands-on aspects.
    - Recommendation – connect the online program with NU resources across Nebraska.
- Opportunity – Working with industry (current practices), extension (applied research), and research (high knowledge resource) connections to bring the best programming to an online course or learning experience.
- Challenge – Deciding on how to formulate an online PLAS degree opportunity.
    - Recommendation – create a unique assembly of courses that differs from in-person.
    - Recommendation - offer badges (non-academic) if the demographic taking the courses plans to stay on the farm.
- Opportunity – Online graduate courses provide students at REECs more variety/flexibility in their course selection; more learning opportunities for fully online MS students

Areas to Elevate for APR

- Would an undergraduate online degree be viable in terms of anticipated demand and competitive pricing to other similar programs/opportunities?
- What demographics can be reached beyond our in-person audience through an online degree vs. online badging. Which option(s) meets the demographic's needs?
- Will online programming (courses, degrees, certificates, badges) support increased recruitment and retention at undergraduate and graduate levels?

Suggested Action Items (short, medium, long-term)

- Short/medium -- Compare the undergraduate demographic and achievement outcomes for online vs. in-person in our department for course that are taught both online and in-person (e.g. plant science, genetics, turf courses, PLAS 100, etc.).

- – Objective: demonstrate that sections are comparable in academic rigor and learning experience and gain insight on potential demographic differences between online and in-person students.
- Medium – Identify, explore, and pilot technologies to offer hands-on learning at a distance. E.g Augmented Reality, Virtual Reality, online simulations, remote laboratories, and formulating potential pathways to agronomic and horticultural technology around the state or other basic tools at a distance.
  - – Objective: Gain insight into the limits/boundaries of online learning in Agronomy and Horticulture.
- Medium/long – Utilize online resources from extension, PASSeL, researchers, industry, etc. in courses, industry training.
  - – Objective: Develop a culture of collaboration to offer the highest quality online and hybrid programming.

Suggested Audacious Goals (1-2)

- Online PhD

Other Questions

Who is our demographic audience...do they want online options for degrees, badges? How does the audience interact with DEI?

What is the role and opportunities for micro-credentials (both academic and non-academic)? E.g. badges, certificates

How comparable is online teaching load to in-person teaching load (important for capacity planning)?

DIVERSITY, EQUITY, AND INCLUSION

Themes identified by working group

- What are DEI issues hurting retention of staff in the unit (e.g., inequitable distribution of work, pay, equity, etc.)? (Greg Puckett has survey data to provide staff perspectives).
  - – Why don't we have paths to professional development and promotion for staff in IANR?
- What is our department particularly bad or good at when it comes to DEI? (self-reflection exercise).
- Should we regularly assess the culture of the unit to identify instances of inequities, bias, or exclusion?
  - – Anonymous space to report DEI issues
  - – Identify areas for improvement and investment
  - – Track progress over the years
  - – Invest in consultant/professional to do this correctly
- Should we have a code of conduct for the department that sets expectations around DEI (and other conduct)?
  - – Could be informed by culture survey
- Why don't we have more female and BIPOC students in the undergraduate program? Is it # of applicants, and retention? How do we take steps to address this gap?
- Should we review all committees in the unit to ensure equity, inclusivity, and mitigation of bias (e.g., seminar rules of engagement, P&T, Graduate Committee)?

Themes identified at faculty retreat

- It is clear from the retreat that we lack consensus about the value of diversity in our student, staff, and faculty populations. Some expressed urgency to increase diversity and inclusivity, while others felt our

admissions and hiring decisions should be entirely "merit-based". Without this shared value, it is difficult to set goals and take action toward increasing the diversity of our department.

- – An undergraduate student in Plant Biology shared her own experience, along with those of her peers, of sexism and derogatory comments in classes taught by some Agronomy and Horticulture faculty.
- – It has been noted by several faculty and staff that our department and university does not have a code of conduct. There are things in the University bylaws related to conduct and how certain types of inappropriate conduct may result in disciplinary action or termination (https://uofnelincoln-my. sharepoint.com/:w:/g/personal/s-swortma6_unl_edu/Ecn_zprUZeVKvVeQf4kF-DUB4akgeB-BAi0T8wUxO-vZuCQ?e=0e2frV), but because these bylaws are not visible or ever formally communicated to staff/faculty (during onboarding for example), it is not explicitly part of our culture. The department of Plant Pathology at UNL recently developed a publicly available code of conduct: https://plantpathology.unl.edu/department-plant-pathology-code-conduct-approved-october-2020
- – **Recommendations from the APR review team about how to assess and address potential culture or conduct issues in the department would be valuable. What do our peer institutions do and does it work? (e.g., culture surveys, codes of conduct, etc.)**
- Concerns were raised about pay equity among our staff within and outside of the University system. The concern is that we are losing staff at higher rates than other units because of this pay equity issue.
  - – Related to pay equity for staff, there was spirited discussion about the lack of development and promotion opportunities for staff in the unit. In some cases, the only way to promote a staff member into a new job category is to post for a new position and require that individual to apply and compete for it, which everyone agreed is wrong.
  - – **Recommendations from the APR review team about how to instigate change at the institute or university level would be value. Are there similar challenges at our peer institutions and how have they overcome them?**
- It was noted that it is difficult to find staff/faculty time to lead DEI initiatives in the unit because staff/faculty are stretched thin in their existing responsibilities, and there is no clear structure for recognizing and rewarding these important contributions (e.g., annual evaluation and promotion and tenure). Significant progress of the newly formed DEI committee in A&H has been limited in this way because many of the proposed initiatives will require significant investment of time.
  - – Recommendations from the APR review team are needed about how to create the time capacity (FTE) and evaluation system for DEI initiatives? Specifically, at our peer institutions, are there staff or faculty FTE at the unit or college level dedicated to DEI work? What other models might we consider?
- There is concern among staff, but also faculty, about how service and tasks are delegated and requested in the department.
  - – Among faculty, there is concern about inequitable distribution of committee service and transparency about this distribution.
  - – Among staff, there is concern about the faculty-staff dynamic and the nature of work requests that do not flow through the direct supervisor (i.e., staff do not feel empowered to say no to anyone, including those faculty they do not report to).
- Action items:
  - – Short-term:
    - – Finish compilation of demographic data for students, staff, and faculty in the department (across two or more time points) for inclusion in the APR document.

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- – Compile salary and development pathway data for staff. What does the promotion pathway look like for each staff position?
- – Medium- to long-term:
    - – Continue dialogue among peers about the value of diversity, equity, and inclusion in this department.
    - – Explore possibility of a climate survey for our unit to assess current student, staff, and faculty perceptions about diversity, equity, and inclusiveness in our work and learning spaces.

EXTENSION PROGRAM

Themes identified by working group

- Lower attendee numbers due to COVID-19 during in-person extension events in recent years have led to an opportunity to develop webinars, hybrid programs (in-person & virtual), and other online delivery programs.
- Over the past years, many extension educators have retired or departed Nebraska Extension. Currently, the Water and Integrated Cropping Systems (WICS) hub is at 75%, with Six extension educators needing to be recruited to reach a full team of 24 across the state.
    - – Would the six vacant extension educator positions be filled by next year?
    - – Is there any strategic plan for replacing retirements in the pool of extension educators?
    - – How do we discriminate information if these positions are not filled?
- Production of fresh, local food is imperative for Nebraska. How does the department lead Nebraska Extension in the production and process of facilitating resources for producers of local produce?
- The connection between plants and people is imperative. This connection has become more evident due to COVID-19. How does the department connect with other disciplines to reinforce this connection?
- The signature extension programs of the department such as Crop Production Clinics, Nebraska Grazing Conference, Backyard Farmer, etc. have changed since the last Academic Program Review. Do they need to change?
- There should be a stronger connection between the three legs of the land-grant university. The department and Nebraska Extension need to strengthen and bring together research, teaching, and extension in a more collaborative way – research and extension need to have a stronger connection with teaching by providing flexibility and support for extension to participate in teaching. Extension brings practical aspects into the classroom and extension educators could take the teaching as professional training.
- Does Nebraska Extension have a vision for digital extension? For example, a transition of Nebraska Guides to digital formats or an APP library would provide direction and facilitate innovation for extension professionals.
- How are the structural changes within Nebraska Extension impacting the departmental extension programs (WICS, Beef, Extension zones, etc.)?
- How do we better engage basic researchers and students to extension and how can we make the specific focuses of extension faculty and educators more visible to the wider department?
- How often does the department extension faculty meet? What are the goals of these meetings? How can we use such meetings to facilitate integration?

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Themes identified at faculty retreat

Challenges and Opportunities

- Integration of relevant research/teaching faculty into extension for new linkages and share research results that would help Nebraska growers to solve real-world problems.

- Extension Educator Affiliate Program is a good step to strengthen faculty-specialist-educator ties. How best can we support this tie?

- Peer-reviewed extension publications should be easily accessible and available, so stakeholders can easily access and use; Need to develop extension digital tools such as App.

- Develop long-term on-farm projects in collaboration with county-based extension educators, growers, and commodity boards.

- Graduate students should be given opportunity in extension programing and speaking at extension events. This would expand their interest in Nebraska Extension and serve Nebraska agriculture. Communicate benefits/flexibility of NE Extension Career (moving back home + farming).

- Several extension programs are more focused in eastern Nebraska, so there is a need to expand extension programs in western Nebraska.

Areas to Elevate for APR

- How best to leverage National Ag Data Network for Nebraska Extension?

- Digital extension will be critical in future with reduced number of attendees in in-person extension meetings. What is the future platform of Extension delivery and how should we prepare for that? (Webinars, online presentations, videos, use of real-time survey tool such as Slido, etc.).

Suggested Action Items (short, medium, long-term)

- Short Term: High cost of input such as fertilizers, seeds, pesticides and limited resource availability such as scarcity of herbicides are major challenges for Nebraska growers. How can we support them by providing cost effective crop production?

- Short Term: Support Extension Educator Affiliates by inviting them for a guest lecture, seminar, collaborate with them for extension proposals, and publications.

- Medium Term: Teaching faculty should collaborate with department affiliated extension educators for hands-on activities for students to learn growers' problems and provide recommendations.

- Long Term: Department should request IANR to recruit a tenure-track campus-based state level corn/soybean extension agronomist with 50% Research and 50% Extension appointment. This is a gap after retirement of Roger Elmore.

Suggested Audacious Goals for the Department

- A step towards Digital Extension: Peer-reviewed extension publications should be made available online on department extension website for easy access.

- A step towards NE Extension Global: Exposure of international students and growers from other countries to visit Nebraska Agriculture. Develop a program with Nebraska Extension and UNL Global for this set up and delivery.

- Develop a two credit course for graduate students and Doctor of Plant Health students about Nebraska Extension. It could be a team effort by extension specialists and extension educators.

Questions/Comments:

- There are lot of problems discussed during retreat which are out of control of Department of Agronomy & Horticulture; however, it was good to know that there is an internal support by our department leadership for those changes/problems/solutions.

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- Funding opportunity for graduate students to participate in field days + on-farm research.
- Too frequent structural changes in IANR and NE Extension negatively impacts department and extension specialists and campus-based extension educators.

UNDERGRADUATE PROGRAM

Themes identified by working group

- Should the undergraduate program facilities demonstrate professional activities?
- What kind of graduates does our department need to produce for the future of Nebraska?
- Should we develop a fully online major?
- What are our curriculum gaps?
- What can we do to help students with retention, graduation and general success?
- Should we have more of a role in the gen eds?

Themes identified at faculty retreat

Common Threads:

The strongest repeated item from the discussion was the need for greater engagement with industry and alumni. The group would like data and ongoing partnerships from these stakeholders to better:

- Assess future workforce needs – this could include upcoming fields, number of individuals needed, skills & knowledge needed, and more.
- Assess the quality of education for current graduates – this could include what skills and knowledge they have found lacking as well as a comparison of graduates (e.g., do they need ag graduates or agronomy graduates, do they need 2-yr or 4-yr horticulturists, etc.).
- Develop opportunities for experiential learning outside the classroom – this could also, in part, be partnered with development of an online Bachelor's degree in Agronomy.
- Understand if the value of our programs is being properly marketed and recognized.

Partnerships with industry and other departments could also strengthen our offerings for bridging the gap from production to consumers or better understanding value-added production.

Another partnership that would strengthen teaching is greater opportunities for engagement with research and extension. What ways could the department incentivize this?

Opportunities:

Self-assessment of our program also highlighted several items for follow-up discussion. Some of the topics for further discussion included:

- Leveraging our unified department to promote the value of UNL over other options, and for "future-proofing" our graduates (e.g., agronomists with specialty crop experience, horticulturists with soil fertility experience, and so on.)
- Other ways to set ourselves apart from competitors. This would first require data on why folks choose elsewhere – though our speculation is that the cost of degree often does not match potential earning, especially in the horticulture option.
- Students having meaningful interaction with a greater number of faculty. We don't want to be in a position where personality clashes arise with a student and the one person who they can see for advising, introductory courses, etc.

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Goals for the program:

Ultimately, all of us want to develop passionate lifelong learners. We understand our role to help students find their passion and purpose and then to build skills which will be adaptable for any plant production scenario of the future.

Much of the conversation on goals led back to needing a greater understanding of the state's needs (more green industry, more practical agronomists, more science based individuals, more communicative individuals) before determining how best to address them.

- Short term goals are centered the need for external partner knowledge as outlined above
    - Gather data from alumni and industry
- Moderate timeframe goals are based on our internal perception of program shortcomings
    - Expand teaching (and research & extension) capacity in applied crop production with a practical physiologist
    - Expand facilities with modernization of greenhouse, lab, and other teaching facilities
- The big goal is to be the best, and best in Nebraska is not good enough
    - Our objective should be to compete with peers and demonstrate ourselves as the best applied plant science program in the Big 10.

INTEGRATION

Themes identified by working group

Promote a Culture of Integration Between Research/Extension/Teaching

- Support the integrative nature of the departmental student seminar series by developing a systematic evaluation of the seminar of the students by a group of selected faculties. We should we assign faculty (one from each branch of the department; Research, Extension, Teaching) to provide feedback to improve attendance. Allows students opportunities to engage with faculty from all three branches.
- We should promote the development of Experiential Learning Courses to bridge research and teaching.
- Create a list of expertise and interest for each faculty in the department. Agronomy and Horticulture faculties should be encouraged to present or invite others to present in classrooms and extension events their latest research according to their area of expertise or special interest. Give more granularity to the interest of the faculty than currently exists on the department website. Recreate/update the list.

Promote Interaction with Nebraska Producers

- Foster opportunities for researchers to interact with producers. To date, most of the time, these connections exist when dictated by an extension appointment.
- Bring the concerns of farmers to the researchers so we can provide sound scientific answers to their questions. This could be accomplished through an article in department's newsletter highlighting current producer concerns or interactions with faculty or something like a Twitter account.

Agronomy and Horticulture Governance, Departmental Organization

- Develop departmental Research Symposium/Retreat that could coincide with Teaching/Extension retreats; that will allow faculty to present research; that will give an opportunity to our students to present their work.
- Foster an environment from leadership that is focused on departmental topics other than teaching and students. Use faculty meetings for something more productive by highlighting faculty programs and projects. Faculty meetings could be used to achieve goals and as a time for integration of faculty rather than a time to transfer information.

- Promote a departmental culture of integrated Research/Extension/Teaching notably when developing position descriptions. Should we modify the mission statement of the department?
- Are there opportunities to develop integrated projects and provide seed grants for team formation and collaborations?
    - How do we position faculty to be leads in integrated IANR projects or initiatives?
- What kinds of structures do we need within the department to facilitate building teams that could be competitive for some of these national large grants?
- The Beef hub has been effective because it is focused on producing one product. Our department is large and not all our faculty can fit within a single hub due to differences in expertise that may have no connection to others. If we use the hub model, how can our department be organized so it can be an effective approach where everyone can contribute?

Themes identified at faculty retreat

Broader questions to ask ourselves:

- Are we fixing a problem that does not exist? Are we forcing the issue?
- If this problem exists, should we redefine "integration" as "convergence"?

A few thoughts:

- We need to be more strategic in our decision to integrate RTE (e.g., maintain critical resources to build programs; rethink our strategy to get faculty positions through IANR such as the hiring clusters of faculties with expertise in teaching, research, or extension but under the same umbrella of scientific interest).
- We must avoid redundancy in our "RTE Integration" plan.
- The integration of RTE should be intentional.
- We need to find a common identity, but we need to maintain the specialization of each faculty member.
- To find this common identity, should we consider updating the mission of the Department to promote the integration of research teaching and extension? For instance, we could state that the intention of the Department is to create solutions to real-world problems via the integration of RTE.

How to promote the integration of RTE in the Department of Ag&Hort?

1. **Better communication between faculty members.**
    - We need to know what each other is working on (e.g., update the faculty webpages, develop a resource describing the expertise of each other, create a digital file system of research and seminars that can be accessible to extension specialists and teachers, create social events to meet and share our expertise).
    - Invite faculties to participate in various RTE activities.
    - Share in a timely manner our research accomplishments with Extension.
    - Use our seminars as tools for teaching and extension programs.
    - Use and share more extension material online to make it more accessible notably to enhance our teaching activities.
    - Ask extension educators to give guest lectures; Ask teacher and researchers to talk to growers at extension events.
    - Develop a workshop to create the integration between research, teaching, and extension.
    - Develop an inventory of the success of RTE integration. What is needed for further integration?

2. **Better strategies to support the integration of RTE:**
    – Look for seed grants from UNL that promote collaboration that integrate RTEs.
    – Better market the integration of research/teaching/extension.
    – Co-develop integrated RTE projects with stakeholders (not just doing the research).
    – Develop grant proposals that emphasize RTE integration.
    – Look beyond IANR for RTE connections (e.g., try to add an international component).

3. **Involve our students in the integration of RTE:**
    – Invite more students to present at seminars.
    – Encourage students to communicate with faculties about their interest in RTE.
    – Support the development of student field trips to lab and field sites (need funding).
    – Students lack experience beyond research. We need to provide such opportunities to our students (with farmers and researchers).
    – Add more extension and research components in the Capstone class of our students.
    – Develop facilities at Research and Extension Centers to support the teaching of undergrad and graduate students.

FACILITIES, RESOURCES, AND SUPPORT

Themes identified by working group

Buildings and Research Farms

Challenges

The department is short on storage space, staging areas, and graduate student office space which will become critical with the additional faculty hires. More storage/working spaces for samples and processing of materials are needed. There is the potential to increase the size of the Stewart Seed Lab, put up more warehouse type storage, or bring in waterproof metal storage containers. However, space to effect any of this close to campus is limited.

As input costs rise for research experiments in the field, the department will need to increase the income for the research farms. Instead of simply increasing the cost of land may be the department could subsidize land charges to $300.00 per acre. Another way would be to remove all wages and benefits from the farm account and place them back on hard dollar accounts.

Laboratory Instrument

Challenges

- Lab storage space, supply chain shortages, employee turnover
    – How do we address storage space?
- What equipment should be purchased by the department?

Controlled Growth Environment

Challenges/Needs

- Electrical upgrades suitable for greenhouse activities.
- New benches for all locations.
- Plant Science Teaching Greenhouse cooling system replacement.
- Repair/improve gutter draining system to prevent flooding inside of greenhouse during rain.

FACULTY RETREAT OUTCOMES 2022

- Upgrade door access to teaching greenhouse east and west.
- Install wash sinks with sewer drains.
- Concrete all floor areas within the Plant Science Teaching Greenhouse for safety and cleanliness.

Outdoor Spaces

Facilities described but no needs or challenges reported

Business and HR Support

Challenges

- Staff turn over
- Training
- Wages
- Workload

Department Staff

Staff turnover is a serious problem. The department urgently needs to reverse this trend. Simply increasing wages and benefits to the extent required is not possible. The department seeks innovative ideas to address this challenge.

- How do we determine how to advance in job families?
- How can we offer more professional development?
- How can we involve faculty and staff in the Beadle Center with the department?
- What events or trainings can be held at the Beadle Center with involvement by those on East Campus?

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