K-State 2025 Strategic Action and Alignment Plan
College or Major Unit: Agriculture & K-State Research and Extension
Department: Grain Science & Industry

1. **What are your Department's mission and vision and how does your organization contribute to achieving the University's and your College's/Major Unit's vision for K-State 2025?**

   Vision Statement:
   The global education, research and technology transfer leader for the grain & plant-based food, feed, fiber, biofuel and bio-products supply chains.

   Mission Statement:
   To educate students and professionals, conduct innovative research, transfer new technologies and knowledge, offer high-quality outreach programs and services that impact the global grain & plant-based food, feed, fiber, biofuel and bio-products supply chains.

2. **What are your Department's _key_ strategic activities and outcomes?**

3. **Identify [in brackets] which of your Department's strategic outcomes are directly linked to your College's/Major Unit's outcomes. *(If your Department or similar unit is not in a College or Major Unit, skip this question.)***

Key Activities	Short Term (2013 - 2015) *Key Outcomes*	Intermediate (2016 - 2020) *Key Outcomes*	Long Term (2021 - 2025) *Key Outcomes*
What we plan to do…	*What we expect to happen…*	*What we expect to happen…*	*What we expect to happen…*
I. Educate undergraduate and graduate students and industry professionals[1]. Undergraduate Students			
1. Maintain enrollment through effective recruitment and retention, and assure academic preparedness, performance (quality), diversity and placement of undergraduate students	A. Increase and maintain student enrollment between 210-230 (80-90 MSM, 80-90 BSM, 50-60 FSM) [A1] B. Maintain current freshman-to-sophomore retention of 60-65% and better understand and track overall student retention in our degree programs [B1] C. Increase percentage of out-of-state students from ~20% to 25% D. Maintain multi-cultural undergraduate student population above 10% [C1-2] E. Maintain student placement at 100% and maintain 5-year average of	A. Maintain student enrollment between 210-230 (80-90 MSM, 80-90 BSM, 50-60 FSM) [A1] B. Increase freshman-to-sophomore retention to at least 65% and improve overall student retention in our degree programs by 10% [B1] C. Increase percentage of out-of-state students to above 30% D. Increase multi-cultural undergraduate student population to above 15% [C1-2] E. Maintain student placement at 100% and increase 5-year average of graduating Seniors above 40	A. Maintain student enrollment between 210-230 (80-90 MSM, 80-90 BSM, 50-60 FSM) [A1] B. B1 Increase freshman-to-sophomore retention to at least 70% and improve overall student retention in our degree programs by 20% [B1] C. Increase percentage of out-of-state students to above 35% D. Increase multi-cultural undergraduate student population to above 20% [C1-2] E. Maintain student placement at 100% and increase 5-year average

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[1] See under Key Activity III. Outreach for education of industry professionals

		graduating Seniors above 34 (12-15 MSM, 12-15 BSM, 8-10 FSM) [B2, D1-2] F. Maintain total annual scholarship support for 60-65% of students at an overall average above $1,500 with average BSM, MSM and FSM scholarships within less than $500 [E1] G. Organize at least 4 major out-of-state recruiting events annually [C1-2]	(15-17 MSM, 15-17 BSM, 10-12 FSM) [B2, D1-2] F. Increase total annual scholarship support for 60-65% of students to an overall average above $1,750 with average BSM, MSM and FSM scholarships within less than $250 [E1] G. Organize at least 8 major out-of-state recruiting events annually [C1-2]	of graduating Seniors above 50 (17-20 MSM, 17-20 BSM, 12-15 FSM) [B2, D1-2] F. Increase total annual scholarship support for 60-65% of students to an overall average above $2,000 with average BSM, MSM and FSM scholarships within less than $125 [E1] G. Organize at least 12 major out-of-state recruiting events annually [C1-2]
2.	Provide opportunities for undergraduate research	A. Increase number of undergraduate students supported in research to 5% of total enrollment [D3, E2]	A. Increase number of undergraduate students supported in research to 10% of total enrollment [D3, E2]	A. Increase number of undergraduate students supported in research to 15% of total enrollment [D3, E2]
3.	Provide and encourage international experience opportunities	A. Increase number of undergraduate student participation to 10% [D4]	A. Increase number of undergraduate student participation to 20% [D4]	A. Increase number of undergraduate student participation to 50% [D4]
4.	Support and encourage professional development opportunities	A. Increase number of undergraduate students involved in department student organizations and other professional development opportunities to 50%	A. Increase number of undergraduate students involved in department student organizations and other professional development opportunities to 75%	A. Increase number of undergraduate students involved in department student organizations and other professional development opportunities to 100%
5.	Improve consistency of quality and rigor across undergraduate courses and degree programs	A. Maintain SLO success above 60% satisfactory	A. Increase SLO success above 70% satisfactory	A. Increase SLO success above 80% satisfactory
6.	Undertake departmental efforts to improve the teaching skills and abilities of the faculty overall	A. 100% of faculty teaching undergraduate courses complete Peer Review in Teaching Program [G4, M]	A. 100% of faculty teaching undergraduate courses attend a teaching conference/workshop once a year [G4, M]	A. 100% of faculty teaching undergraduate courses attend a teaching conference/workshop once a year [G4, M]
Graduate Students				
1.	Increase enrollment through effective recruitment and retention, and assure academic preparedness (minimum GRE), performance (quality), diversity and placement of graduate students	A. Maintain graduate student enrollment at 55 to 60 [A2] B. Maintain domestic graduate students above 40% [C1-2] C. Increase multi-cultural domestic graduate students to above 10% [C1-2] D. Increase Ph.D. students to above 40% and graduate 2 domestic Ph.D.	A. Increase and maintain graduate student enrollment at 60 to 65 [A2] B. Increase domestic graduate students above 45% [C1-2] C. Increase multi-cultural domestic graduate students to above 15% [C1-2] D. Increase Ph.D. students to above 45% and graduate 4 domestic	A. Increase and maintain graduate student enrollment at 65 to 70 [A2] B. Increase domestic graduate students above 50% [C1-2] C. Increase multi-cultural domestic graduate students to above 20% [C1-2] D. Increase Ph.D. students to above 50% and graduate 6 domestic

	students each year [F2] E. Increase academic quality of individuals being accepted into the program by establishing a minimum GRE score F. Design and carry-out off-site recruiting efforts at 2 U.S. peer institutions annually [C1-2] G. Create new and more effective digital and print recruiting material [C1-2]	Ph.D. students each year [F2] E. Enforce increased academic quality of individuals being accepted into the program F. Continue to carry-out off-site recruiting efforts at 3-5 U.S. peer institutions annually [C1-2]	Ph.D. students each year [F2] E. Enforce increased academic quality of individuals being accepted into the program F. Continue to carry-out off-site recruiting efforts at 5-10 U.S. peer institutions annually [C1-2]
2. Secure extramural funding for graduate research assistantships, USDA/NSF/other competitive fellowships, and doctoral fellowships including tuition coverage (or waivers)	A. Maintain at least 50% of GRA support from extramural funding and 100% of graduate students having their tuition paid (or waived) [E4] B. Increase the number of named doctoral fellowships from 2 to 4 [E3] C. Maintain the number of USDA, NSF and other competitive fellowships at 4 [E5]	A. Increase GRA support from extramural funding to at least 65% and 100% of graduate students having their tuition paid (or waived) [E4] B. Increase the number of named doctoral fellowships to 6 [E3] C. Increase the number of USDA, NSF and other competitive fellowships to at least 4-6 [E5]	A. Increase GRA support from extramural funding to at least 80% and 100% of graduate students having their tuition paid (or waived) [E4] B. Increase the number of named doctoral fellowships to 8 [E3] C. Increase the number of USDA, NSF and other competitive fellowships to at least 6-8 [E5]
3. Provide increased professional development opportunities for graduate students	A. Increase participation of graduate students in national and international scientific meetings to 50% B. Engage actively with industry partners and engage top-flight industry scientists as graduate student mentors [J2] C. Increase number of graduate students participating in research-based industry internships to 5% [J2]	A. Increase participation of graduate students in national and international scientific meetings to 75% B. At least 25% of graduate students mentored by industry scientists [J2] C. Increase number of graduate students participating in research-based industry internships to 10% [J2]	A. Increase participation of graduate students in national and international scientific meetings to 100% B. At least 50% of graduate students mentored by industry scientists [J2] C. Increase number of graduate students participating in research-based industry internships to 15% [J2]
II. Conduct innovative basic and applied research, and transfer new technology and knowledge to end users			
1. Increase extramural funding support and faculty expenditures	A. Maintain 5-year average extramural funding support above $3 million and maintain a COA Top 3 ranking [H1]	A. Increase 5-year average extramural funding support to above $3.5 million and maintain a COA Top 3 ranking [H1]	A. Increase 5-year average extramural funding support to above $4 million and maintain a COA Top 3 ranking [H1]

	B. Achieve 3-year average annual expenditures by full professors of at least $300,000, associate professors of at least $200,000 and assistant professors of at least $100,000 [H1]	B. Achieve 3-year average annual expenditures by full professors of at least $350,000, associate professors of at least $250,000 and assistant professors of at least $150,000 [H1]	B. Achieve 3-year average annual expenditures by full professors of at least $400,000, associate professors of at least $300,000 and assistant professors of at least $200,000 [H1]
2. Strengthen and promote high-impact research programs in four areas of core expertise – feed technology and grain operations, milling and grain processing, cereal and bakery sciences, biobased products and bioenergy – in support of the COA/KSRE Global Food Systems Initiative	A. Increase 5-year average peer journal manuscript publications to above 45 and continue to lead COA in invention disclosures and patent filings [G1-3] B. Increase tenure-track faculty to 15 by filling 2 vacant positions C. Maintain non-tenure research faculty at current 2 D. At least 50% of research intense faculty support at least 1 post-doctoral research fellow [A3]	A. Increase 5-year average peer journal manuscript publications to above 50 and continue to lead COA in invention disclosures and patent filings [G1-3] B. Increase tenure-track faculty to 17 C. Increase non-tenure research faculty to at least 4 (potentially from high quality post-doctoral research fellows already on staff) D. At least 75% of research intense faculty support at least 1 post-doctoral research fellow [A3]	A. Increase 5-year average peer journal manuscript publications to above 55 and continue to lead COA in invention disclosures and patent filings [G1-3] B. Increase tenure-track faculty to 19 C. Increase non-tenure research faculty to at least 6 (potentially from high quality post-doctoral research fellows already on staff) D. 100% of research intense faculty support at least 1 post-doctoral research fellow [A3]
III. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations			
1. Enhance and expand the number of IGP Institute on-site, off-site and distance courses and participants a. Increase number of IGPI-led education and technical programs in the U.S. and abroad b. Increase number of IGPI-developed distance courses in each curriculum c. Offer credentialing options in each IGP Institute curriculum	A. Achieve 3-year average IGPI on/off-site course offerings above 35 and total annual participation above 550 with 10% completing credentialing options [I1, J1-2, 4, 7-9, Q1] B. Achieve 3-year average distance course offerings above 20 and total annual participation above 550 with 10% completing credentialing options [I1,J1-2, 4, 7-9, Q1]	A. Achieve 3-year average IGPI on/off-site course offerings above 40 and total yearly participation above 750 with 25% completing credentialing options [I1, J1-2, 4, 7-9, Q1] B. Achieve 3-year average distance course offerings above 25 and total annual participation above 750 with 25% completing credentialing options[I1, J1-2, 4, 7-9, Q1]	A. Achieve 3-year average IGPI on/off-site course offerings above 50 and total yearly participation above 1,000 with 50% completing credentialing options [I1, J1-2, 4, 7-9, Q1] B. Achieve 3-year average distance course offerings above 30 and total annual participation above 1,000 with 50% completing credentialing options [I1,J1-2, 4, 7-9,Q1]
2. Increase the number of peer-reviewed and numbered KSRE outreach publications	A. Increase publications to at least 5 per year[G4]	A. Increase publications to at least 10 per year[G4]	A. Increase publications to at least 15 per year [G4]

3. Increase involvement and leadership of IGP Institute in international development and technical assistance projects in support of COA/KSRE Global Food Systems Initiative	A. Successfully integrate, support, administer and grow the Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss (>$1,500,000 annual expenditures) [H1, I1, J4]	A. Increase grant activity of the PHL Innovation Center through Associate Awards and other opportunities (>$3,000,000 annual expenditures) [H1, I1, J4] B. Support proposal development and provide administrative support for at least 2 additional larger-scale international grant projects (>$1,000,000 annual expenditures) [H1, I1,J4]	A. Successfully extend the initial 5-year award period for the PHL Innovation Lab through additional funding opportunities (>$3,000,000 annual expenditures) [H1, I1, J4] B. Support proposal development and provide administrative support for at least 4 larger-scale international grant projects (>$2,000,000 annual expenditures) [H1, I1, J4]
4. Develop a sustainable business model for the IGP Institute	A. Maintain ratio of leveraging appropriated funds to income from grants and fees at 1:2 [H1]	A. Increase ratio of leveraging appropriated funds to income from grants and fees to 1:3 [H1]	A. Increase ratio of leveraging appropriated funds to income from grants and fees to 1:5 [H1]
IV. Recruit, retain, reward and develop high-quality faculty and professional and classified staff			
1. Fill 2 open tenure-track faculty positions	A. Cereal Biochemist to lead research in protein cereal chemistry [L4-5] B. Feed Safety Microbiologist to lead research utilizing the Cargill Feed Safety Research Center [J5, L4-5]	N/A	N/A
2. Secure substantial number of tenure-track faculty positions in our four core areas of expertise to embark upon proactive searches in support of COA/KSRE Global Food Systems Initiative	N/A	A. Increase tenure-track faculty to 17 with growth emphasis in basic cereal chemistry and nutritional sciences tied to wheat and sorghum genomics and metabolomics [I1, L4-5] B. Increase non-tenure research faculty to at least 4 [I1, L4-5]	A. Increase tenure-track faculty to 19 with growth emphasis yet to be determined [I1, L4-5] B. Increase non-tenure research faculty to at least 6 [I1, L4-5]
3. Solicit funding to establish and expand named professorships	N/A	A. Acquire funding for a full-time Pet Food Science Endowed Professorship/Chair [I1, 3, L1] B. Establish a Grain Operations Professorship sponsored by members of the Grain Industry [I1, L1]	C. Establish a Feed Technology Professorship sponsored by members of the Feed Industry [I1, 3, L1] D. Increase funding for the Wilbur Endowed Professorship to at least $1 million in cooperation with the Department of Entomology[I1, L1]

4. Support and nominate faculty and staff for university, national and international awards		A. Have a second University Distinguished Professor appointment [L2] B. Have a second Distinguished Graduate Faculty appointment [L6] C. Have 2 new faculty members named fellows of scientific societies [L3] D. Have 2 classified staff receive college- or university-wide awards E. Have 2 unclassified staff receive college- or university-wide awards, or awards from professional or scientific societies F. Have a first National Academy Fellow appointment [L2]	A. Have a third University Distinguished Professor appointment [L2] B. Have a third Distinguished Graduate Faculty appointment [L6] C. Have 3 new faculty members named fellows of scientific societies [L3] D. Have 4 classified staff receive college- or university-wide awards E. Have 4 unclassified staff receive college- or university-wide award, or awards from professional or scientific societies F. Have a second National Academy Fellow appointment [L2]
	B. Have a first Distinguished Graduate Faculty appointment [L6] C. Have 1 new faculty member named a fellow of a scientific society [L3] D. Have 1 classified staff receive a college- or university-wide award E. Have 1 unclassified staff receive a college- or university-wide award, or an award from a professional or scientific society		
5. Support, encourage and reward professional development and advancement opportunities for unclassified and classified staff, as well as individual faculty	A. Increase number of instructors and unclassified staff with advanced degrees by 2 resulting in appropriate promotion and salary increase B. At least 50% of classified staff annually participate in a professional development opportunity on or off campus, or by distance resulting in positive annual evaluation consideration	A. Number of instructors and unclassified staff with advanced degrees reaches 50% resulting in appropriate promotion and salary increase B. At least 75% of classified staff annually participate in a professional development opportunity on or off campus, or by distance resulting in positive annual evaluation consideration	A. Number of instructors and unclassified staff with advanced degrees reaches 75% resulting in appropriate promotion and salary increase B. 100% of classified staff annually participate in a professional development opportunity on or off campus, or by distance resulting in positive annual evaluation consideration
V. Develop, maintain and utilize state-of-the-art facilities and equipment			
1. Complete the O.H. Kruse Feed Technology Innovation Center	A. Complete construction, dedicate facility, and be fully operational by fall 2013 [P1]	N/A	N/A
2. Ensure classroom and office space for the Hal Ross Flour Mill and the O.H. Kruse Feed Technology Innovation Center, and initiate planning for additional construction on the Grain Science Innovation Campus	A. Provide temporary space to accommodate students and guests with a meeting space prior to entering or using these two buildings [P1]	B. Complete the construction of the Hal Ross Flour Mill Science and Education Wing to provide much needed office, lab, meeting and teaching space for the MSM program [P1] C. Complete the construction of the O.H. Kruse Feed Technology	D. Complete the construction of the Cereal Science and Bakery Technology building on the North Campus, which will provide space for the BSM program, cereal science research program, the stored product protection program, and the department's

		Innovation Center Science and Education Wing (Phase II) to provide much needed office, lab, meeting and teaching space for the FSM program [P1]	administrative and faculty offices [P1] E. Complete the migration of the department to the new Grain Science Innovation Campus [P1]
3. Complete Shellenberger classroom renovations and modernize select departmental laboratory space	A. All classrooms have upgraded IT equipment and new furnishings [P2] B. Install two new fume hoods in BIVAP201 and free up space in BIVAP106 C. Gain laboratory space in WA150 and upgrade fume hoods D. Upgrade HVAC in research baking lab (SH106) and move associated equipment from WA003 E. Initiate plan for creation of a Starch Pilot Processing Center [P1] F. Initiate plan for conversion of first floor in old Feed Technology building for use as a temporary Pet Food Research Center [P1]	A. Initiate plan to gain additional laboratory space in BIVAP Innovation Center by adding second floor to BIVAP114 [P1] B. Explore plans for repurposing and utilizing old flour mill space in Shellenberger Hall [P1] C. Explore plans for repurposing and utilizing old feed mill space in Feed Technology building [P1] E. Secure funding and implement plans for temporary Starch Pilot Processing Center [P1] F. Secure funding and implement plans for temporary Pet Food Research Center [P1]	
4. Provide additional safe, non-lab office space for graduate students, visiting scholars and post-doctoral researchers; create additional meeting room space; and improve space for administrative support staff	A. Complete move of business office from SH203 into SH201 B. Establish new Academic Student Services Office in SH203 with two support staff C. Complete conversion of SH220 to new office space for 14 graduate students D. Convert BIVAP101H conference room into office space for 7 graduate students E. Divide former BIVAP Director office (101) into two offices with 4 desks F. Carve out space from BIVAP lobby area for a new conference room G. Divide oversized office (WA002B) into two faculty offices, and upgrade associated office area of administrative support staff	A. Explore plans for repurposing and utilizing old flour mill space in Shellenberger Hall [P1]	

		H.	Reconfigure reception area in IGP Conference Center to gain additional office space for 4 support staff, and free up IGP101F for a faculty office			
VI. Broaden funding base and improve financial stewardship						
1.	Complete and promote stand-alone minors (SAM) and make them available to students via distance	A. B.	Bakery Science SAM complete and available by distance for college credit via DCE Grain Handling Operations SAM complete and available by distance for college credit via DCE	C. D.	Feed Science SAM complete and available by distance for college credit via AGIDEA Pet Food Production SAM complete and available by distance via DCE	
2.	Grow for-college credit distance education program offered by the department	A.	Support 25% of 1 full-time instructor position in the department using income from for-college credit distance course offerings	A.	Support 50% of 1 full-time instructor position in the department using income from for-college credit distance course offerings	A.	Support 50% of 2 full-time instructor positions in the department using income from for-college credit distance course offerings
3.	Grow non-college credit distance education program offered by the IGP Institute	A.	Fully support 2 outreach specialist positions in the IGP Institute using income from non-college credit distance course offerings	A.	Fully support 4 outreach specialist positions in the IGP Institute using income from non-college credit distance course offerings	A.	Fully support 6 outreach specialist positions in the IGP Institute using income from non-college credit distance course offerings
4.	Solicit additional funding for scholarships, fellowships and professorships		N/A	A. B.	Grow endowed scholarship and fellowship pool by 25% [R1] Grow endowed professorships and chair pool by 50% [R2]	A. B.	Grow endowed scholarship and fellowship pool by 50% [R1] Grow endowed professorships and chair pool by 100% [R2]
5.	Replace current KSURF royalty income	A.	Continue to utilize $25,000 from royalty income for Paul Seib Graduate Student Fellowship	A.	Secure alternate KSURF revenue stream of at least $25,000 as major patent expires in 2017	A.	Increase KSURF revenue stream to at least $50,000 annually
6.	Develop plan and secure funding to complete the building projects of the new Grain Science Innovation Campus	A. B. C.	Initiate funding plan for Hal Ross Flour Mill addition [R3] Initiate funding plan for O.H. Kruse Feed Technology Innovation Center addition [R3] Initiate funding plan for Cereal Science and Bakery Science Technology building [R3]	A. B. C.	Initiate and complete fund raising for Hal Ross Flour Mill addition [R3] Initiate and complete fund raising for O.H. Kruse Feed Technology Innovation Center addition [R3] Initiate and complete fund raising for Cereal Science and Bakery Science Technology building [R3]		N/A

7. Pay off loan for the Hal Ross Flour Mill	A. Continue annual interest-only payment of $30,000 on $1 million loan note via KSUF COA funds and hold back on COA appropriated faculty line funds [R3]	A. Refinance $1 million loan note which expires in 2016 at favorable interest rate and continue interest-only payment [R3]	A. Retire $1 million loan note [R3]

In reviewing the four goals of the College of Agriculture's Strategic Plan, our GSI Strategic Plan themes align as follows:

COA 2025 Strategic Plan Goals	GSI Strategic Plan Themes
Goal 1. Provide and empower students and citizens with the knowledge and education needed to lead and advance agriculture and related fields.	
Undergraduate Students and Programs	Educate undergraduate and graduate students, and industry professionals.
Graduate Students, Postdoctoral Trainees and Programs	Educate undergraduate and graduate students, and industry professionals. Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
Learning and Teaching Environments	Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations. Develop, maintain and utilize state-of-the-art facilities and equipment.
Goal 2. Contribute integrated solutions for meeting and adapting to the "grand challenges" in dryland plant, animal, and food systems	Conduct innovative basic and applied research, and transfer new technology and knowledge to end users. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations.

Goal 3. Enhance the quality of life and livelihoods of people, their communities and the environment	Offer high-quality <u>outreach programs and services</u> to meet domestic and international customer needs and stakeholder expectations. Conduct innovative basic and applied <u>research</u>, and <u>transfer</u> new <u>technology</u> and <u>knowledge</u> to end users.
Goal 4. Build our infrastructure and human capacity to meet our vision and goals	
Faculty & Staff	Recruit, retain, reward and develop high quality <u>faculty</u>, and professional and classified <u>staff</u>.
Facilities & Infrastructure	Develop, maintain and utilize state-of-the-art <u>facilities</u> and <u>equipment</u>.
Organizational and Program Development	Broaden funding base and <u>improve</u> financial <u>stewardship</u>.
Communication and Marketing	See under Common Elements of K-State 2025 Visionary Plan (Item 4)
Funding	Broaden <u>funding</u> base and improve financial stewardship.

4a. What resources and/or opportunities <u>exist</u> for your Department to achieve its vision and outcomes?

The major resource that the Department has is its highly qualified and dedicated faculty and staff, and the financial support and backing of its alumni, friends and stakeholders (i.e., strong public-private partnership). Also, the Department has unique pilot facilities and labs that have successful records in generating fee-for-service income, as well as the IGP Institute which offers income-generating continuing education and technical assistance. Additionally, the following entities in the College of Agriculture and K-State Research and Extension will help to achieve our vision and outcomes:

- Academic Programs and Support Services
- Agricultural Experiment Station
- Cooperative Extension Service
- International Programs in Agriculture

The Department also has access to the following resources/opportunities:

- Department Advisory Council & strong industry connections
- Industry support (including funding of three named instructor positions – BNEF, NAMA, Buhler)
- Internship programs (graduation requirement for all undergraduate students)
- International presence (IGP Institute; Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss)
- Unique research/degree programs (only ones offered in the U.S.)
- Highly recognized faculty (largest number of named/endowed professorships/chairs in COA – Ross, Singleton, Brown, Lortscher, Wilbur)
- Successful commercialization of patented technology (largest patent royalty stream for KSURF)
- Strong scholarship support (largest scholarship budget in COA)
- New facilities (new Grain Science Innovation Campus)
- Undergraduate and graduate student clubs/organizations with willingness and ability to aid in recruiting and retention

4b. What resources and/or opportunities are <u>needed</u> for your Department to achieve its vision and outcomes?

- Additional tenure-track and non-tenure track faculty positions
- Incentives to recruit and retain high-performing faculty including compensation packages, start-up packages, and additional endowed chairs/professorships
- Modern lab facilities and equipment especially in the area of cereal and bakery sciences
- Additional funding for travel (scientific meetings, recruitment events), facilities, faculty, faculty development (teaching, conferences, short courses, workshops), staff professional development
- Structured undergraduate research program
- Relocation and consolidation of the entire department on the new Grain Science Innovation Campus

5. How do you propose to acquire the resources needed for your Department to accomplish its vision and outcomes?

We plan to acquire resources as follows:
- Request central administration and the College of Agriculture/K-State Research & Extension for additional faculty lines
- Request central administration and the College of Agriculture/K-State Research & Extension for improvements in main campus facilities and research infrastructure (especially Shellenberger Hall) and funding support to move the remainder of the Department into a new (and final) building on the Grain Science Innovation Campus
- Cooperate closely with the KSU Foundation staff to pursue expanded fund raising activity for scholarships and endowed/named faculty positions
- Continue to aggressively pursue grant and other extramural funding opportunities in support of our teaching, research and outreach mission

6. How does your plan link to the K-State 2025 University Benchmark Metrics, Common Elements, and Thematic Goals, Outcomes, and Metrics? *(See below)*

1. In reviewing the themes of the K-State 2025 Visionary Plan, our GSI Strategic Plan themes align as follows:.

K-State 2025 Visionary Plan Themes	GSI Strategic Plan Themes
Scholarship, Research, Creative Activities	Conduct innovative basic and applied research, and transfer new technology and knowledge to end users. Broaden funding base and improve financial stewardship.
Undergraduate Educational Experience	Educate undergraduate and graduate students, and industry professionals.
Graduate Scholarly Experience	Educate undergraduate and graduate students, and industry professionals.
Faculty & Staff	Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
Facilities & Infrastructure	Develop, maintain and utilize state-of-the-art facilities and equipment.
Engagement & Extension	Educate undergraduate and graduate students, and industry professionals. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations.
Athletics	N/A

2. In terms of the metrics to be used to determine whether the College of Agriculture is moving up into the Top 5 Tier, and K-State is moving up into the Top 50 Tier, our strategic plan themes and SMART goals will address and track the K-State metrics as follows.
   - total research and development expenditures
     - i. GSI has the potential to increase extramural funding success. We have identified 4 metrics including a reliable metric tracking the 3-year running average grant, non-grant and total expenditures by faculty as an indicator of faculty productivity.
   - total endowment
     - i. GSI has the potential for growth in this area. We have benefitted substantially from endowment funds in the past with three existing endowed professorships (Ross, Singleton, Wilbur), two existing deferred professorships (Brown, Lortscher), and numerous endowed scholarships.
   - number of national academy members
     - i. GSI's first University Distinguished Professor, Dr. Susan Sun, is a potential candidate for the National Academy of Engineering
   - number of faculty awards
     - i. GSI has several faculty who are fellows in their scientific societies and potential for more.
   - number of doctorates granted annually
     - i. In order to increase the number of doctorates in Grain Science, GSI will need more outstanding faculty actively engaged in generating extramural support to build research programs that attract outstanding Ph.D. students.
     - ii. GSI definitely needs to increase the number of domestic Ph.D. graduates and place them as faculty in peer institutions; the good news is that we currently have 9 domestic Ph.D. students in the pipeline
   - freshman-to-sophomore retention rate
     - i. GSI's retention numbers have been 60-67% in four out of the last five years which is encouraging. We maintain our own database through which we try to track students and document reasons for switching majors out of (and into) our department.
   - six-year graduation rate, and
     - i. Not enough data seems to exist at the departmental level for an in-depth analysis. However, due to the high job placement rate and outstanding starting salaries, our students are typically quite motivated to graduate as quickly as possible. Recent Senior Exit interviews indicate most students graduating after 4-4.5 years.
   - percent of undergraduate students involved in research
     - i. GSI has a number of undergraduate students involved in research but we need to do a better job documenting this. Also, we need to do a much better job encouraging and incentivizing faculty to get undergraduate students involved in formal research including via Honors projects, COA Scholars Program, a concurrent B.S.-M.S. degree option (which we currently don't have), academic semester and summer undergraduate research opportunities (SUROP, REUs), etc.
     - ii. We appointed Drs. Rebecca Miller and Praveen Vadlani as undergraduate student research coordinators and we established an undergraduate research course (GRSC 499; variable credits)

3. In terms of the common elements that support the K-State Visionary Plan themes, our department already integrates most of these elements in our existing teaching, research and outreach programs. However, we have much room for improvement and growth with respect to several of them.
   - Diversity - Build an inclusive campus climate that will foster mutual understanding among diverse groups.
     - i. GSI has increased its undergraduate and graduate student diversity which is reflected in a greater number of multicultural students (though not nearly enough); also, we have about a 55%-45% male-female balance among our undergraduate students and about 50%-50% among our graduate students.
     - ii. GSI needs to further increase the diversity of its faculty which is not reflective of its current student population (currently only have

3 tenure-track female faculty, 1 female research associate professor, and 1 female instructor; i.e., 23% of our faculty compared to nearly 50% female students).

- o International – Strengthen communication and coordination among K-State's international programs and constituents in order to achieve goals for the university's further internationalization.
    - i. GSI has a long history of active international engagement and outreach which is reflected in its faculty (9 out of 22 current faculty is foreign-born), its graduate students and research staff (more than 50% is international), and its successful International Grains Program Institute (over 1,000 participants from over 30 countries in 2013).
    - ii. GSI actively encourages a Study Abroad experience among its undergraduate students which is reflected in more than 40 students in the past four years spending up to a semester at a foreign institution, the establishment of a Faculty-led Study Abroad Course (GRSC 691) where students have gone to China (2009), India (2010), Germany and Switzerland (2012), Southern Africa (2013), and will go to Argentina (2014), and strategic partnerships with international institutions that include 2+2 agreements with Punjab Agricultural University (India) and Henan University of Technology (China).
    - iii. GSI led the successful $8.2 million grant application for USAID's Feed the Future Innovation Lab for the Reduction in Post-Harvest Loss which is an international development project that is expected to attract substantial additional funds
- o Sustainability – Pursue environmental, social, and economic sustainability in every major area of the university.
    - i. GSI has a strong commitment to environmental sustainability which is reflected in its on-campus leadership of research, teaching and outreach related to Bioprocessing and Industrial Value Added Products (BIVAP).
    - ii. GSI contributes to environmental sustainability on-campus through recycling and conserving of energy and other resources which are great starting points that our faculty, staff and students are actively involved in.
- o Communication & Marketing – Unify the brand voice and continue K-State on the path to an improved national, and international, reputation.
    - i. In our field of expertise, K-State has national and global brand recognition because of the stature of the Department of Grain Science & Industry and its unique academic, research and outreach programs.
- o External Constituents – Consider the needs of alumni, donors, and partners of K-State.
    - i. Few K-State departments have closer ties with and enjoy stronger support from its alumni, donors and stakeholders than the Department of Grain Science & Industry. We exist because of the uniqueness of our external constituents.
    - ii. Few K-State departments provide and apply their knowledge and expertise to its non-academic audience as consistently and effectively as the Department of Grain Science & Industry. We exist because of the unique field we serve.
    - iii. We have a departmental Advisory Council consisting of representatives from the major stakeholder industry organizations, and an Advisory Council for the International Grains Program Institute consisting of our major collaborators and partners
- o Culture – Examine the values and beliefs necessary to support Vision 2025 and promote the culture such that K-State's external image is positively aligned.
    - i. GSI faculty, staff and students embrace K-State's Principles of Community and understand that each of us is expected to maintain high standards of personal conduct and to avoid situations that might reflect negatively on the University and our department.
- o Funding – Pursue the funding models necessary to effectively and efficiently realize the university's mission and vision.
    - i. GSI is actively seeking and achieving ways to increase its economic sustainability by broadening its funding base specifically through its revenue-generating International Grains Program Institute, Distance Education and Credentialing Programs, and unique pilot processing facilities (baking, milling, grain processing, feed manufacturing, extrusion).
- o Technology – Create the technology environment necessary to support the K-State community and the university's mission, vision, programs, and priorities.

i. GSI utilizes and relies on K-State created technology, specifically KSOL and KSOL Pro, to deliver its for-college credit and professional development distance education programs.

6. Departmental Links to K-State 2025 University Benchmark Metrics, Common Elements, and Thematic Goals, Outcomes, and Metrics

Links to Benchmark Metrics
B-1 - Total research and development expenditures
B-2 - Endowment pool
B-3 - Number of national academy members
B-4 - Number of faculty awards
B-5 - Number of doctorates granted annually
B-6 - Freshman-to-sophomore retention rate
B-7 - Six-year graduation rate
B-8 - Percent of undergraduate students involved in research

Links to Common Elements
CE-1 - Communications and Marketing
CE-2 - Culture
CE-3 - Diversity
CE-4 - External Constituents
CE-5 - Funding
CE-6 - International
CE-7 - Sustainability
CE-8 - Technology

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	Links to Short Term Outcomes (2011 – 2015)	Links to Intermediate Outcomes (2016 – 2020)	Links to Long Term Outcomes (2021 – 2025)
T1 - Research, Scholarly and Creative Activities, and Discovery (RSCAD) **Theme 1 Metrics:** T1-1 - # of interdisciplinary research projects, institutes, and centers T1-2 - Total sponsored extramural funding expenditures T1-4 - # of refereed scholarly publications per academic year and allocated faculty member T1-5 - Total international research and development expenditures	T1-A - Increased intellectual and financial capital to support RSCAD T1-B - More clusters/centers of collaborative RSCAD focus T1-C - Increased funding for investigator-based research, research centers, and graduate training grants T1-D - Tuition waivers for all GRAs T1-E - Competitive compensation and support available to GRAs, GTAs, and GAs T1-F - Enhanced and systematic approach for UG research T1-G - Successful recruitment, retention, evaluation, compensation, and rewards strategies in place to	T1-I - Intellectual and financial capital in place for expanded RSCAD efforts T1-J - Greater proportion of nationally and internationally recognized award-winning faculty in RSCAD programs T1-K - Nationally and internationally recognized research centers T1-L - Recognized for prominent and productive placement of our graduates T1-M - Increased participation by undergraduates in expanded opportunities in research	T1-N - Fifty nationally recognized K-State researchers, a high proportion of which are members of their national academies T1-O - Extramural funding competitive with our benchmark institutions T1-P - Research and development expenditures competitive with benchmark institutions T1-Q - Competitive amongst our peers in the percentage of undergraduates involved in research

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	**Links to Short Term Outcomes (2011 – 2015)**	**Links to Intermediate Outcomes (2016 – 2020)**	**Links to Long Term Outcomes (2021 – 2025)**
	support RSCAD needs T1-H - Enhanced visibility and appreciation for research, discovery, and scholarly and creative activities		
T2 - Undergraduate Educational Experience (UEE) **Theme 2 Metrics:** T2-1 - # and % of undergraduate students participating in a meaningful international experience T2-3 - Total funding awarded for undergraduate scholarship support T2-4 - # and % of students participating in an undergraduate student success program T2-6 - % of undergraduate enrollment by demographic group T2-7 - Student satisfaction and utilization rates	T2-A - Excellent, customized academic advising and services available to all students to support their success and degree completion T2-B - Engaged students benefitting from high impact educational practices used by excellent faculty and staff across the university T2-C - Increased participation by undergraduates in expanded opportunities for meaningful research T2-E - Effective evaluation practices that recognize and reward teaching, advising, and life-long learning/professional development T2-F - Effective system in place that supports and promotes teaching excellence T2-G - Successful recruitment and retention strategies that address our entire student population T2-H - Improved six-year graduation rates and retention ratios	T2-J - Excellent reputation for high quality teaching and advising that prepares students for their professional, community, social, and personal lives T2-K - Superior and diverse faculty recognized for teaching excellence T2-L - All UG students engaged in a diversity of experiences that expand their viewpoint T2-M - Increased undergraduate contributions in the creation of scholarship through research T2-N - Ongoing improvement of six-year graduation rates and retention ratios	T2-O - An undergraduate educational experience recognized as one of the best among the nation's Top 50 Public Research Universities T2-P - Faculty teaching and advising awards comparable to our benchmark institutions T2-Q - Freshman to Sophomore retention ratios comparable to benchmark institutions T2-R - Six-Year graduation rates comparable to benchmark institutions

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	**Links to Short Term Outcomes (2011 – 2015)**	**Links to Intermediate Outcomes (2016 – 2020)**	**Links to Long Term Outcomes (2021 – 2025)**
T3 - Graduate Scholarly Experience **Theme 3 Metrics:** T3-1 - # and % of graduate students with assistantships, endowed scholarships, and fellowships T3-2 - Total funds awarded for graduate assistantships, endowed scholarships, and fellowships T3-3 - # and % of graduate programs offering competitive compensation and support packages T3-4 - # of private/public sector partnerships supporting graduate experiential training opportunities T3-6 - # of graduate terminal degrees awarded T3-7 - Total graduate students enrolled by demographic group and degree type T3-8 - Graduate student satisfaction and utilization rates	T3-A - Competitive compensation and support available for GRAs, GTAs, and GAs T3-B - Tuition waivers for all GRAs T3-D - Outstanding mentoring for our graduate students T3-E - Expectation of excellence for the graduate scholarly experience T3-F - Increased capacity to secure funding for graduate research and teaching T3-G - Broader spectrum and greater overall number of courses offered at the graduate, and especially at the PhD level T3-H - Expanded partnerships with industry and government to provide high level learning and experiential training opportunities for graduate students	T3-I - Increased participation by our graduate students in unique high level learning and experiential training T3-J - Expanded reputation for outstanding graduates with the critical skill sets needed to excel in their careers in a global environment T3-K - Increased funding for graduate research and teaching T3-L - Increased number of nationally and internationally recognized award-winning graduate faculty T3-M - Increased number of Doctorates Awarded	T3-N - National and international reputation for outstanding graduates with demonstrable career success T3-O - World-class reputation as a preferred destination for outstanding graduate students T3-P - Stable funding for graduate research and teaching competitive with benchmark institutions T3-Q - Doctorates Awarded comparable with benchmark institutions
T4 - Engagement, Extension, Outreach and Service **Theme 4 Metrics:** T4-2 - Total extramural-funded expenditures for Engagement initiatives at the local, state, national, and international level T4-3 - # of partnerships by sector and	T4-C - Increased recognition of our services as a source of expertise, information, and tools for disciplines worldwide T4-D - Increased numbers and diversity of faculty and staff participating in Engagement T4-E - Increased extramural funding	T4-H - Exposure on a national level as a leader/partner engaged in significant social, political, health, economic and, environmental issues T4-K - Increased appreciation by K-State graduates for lifelong involvement in engagement and service	T4-N - Nationally recognized as a leader in and model for a re-invented and transformed land -grant university integrating research, education, and engagement T4-O - Nationally and internationally recognized as leaders in Engagement on a global scale

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	**Links to Short Term Outcomes (2011 – 2015)**	**Links to Intermediate Outcomes (2016 – 2020)**	**Links to Long Term Outcomes (2021 – 2025)**
geographic boundary supporting collaborative research, education, and engagement	for Engagement initiatives at the local, state, national, and international level T4-F - Recognition as leaders in Engagement within our state and nation T4-G - Enhanced visibility and appreciation for Engagement and its interconnectedness with research and education within our university community	T4-L - Increased capacity to respond to emergencies worldwide T4-M - Preferred destination for faculty, staff, and students who value Engagement as integral to their academic and personal lives	T4-P - Recognized as a leader in Engagement reaching both rural and urban communities
T5 - Faculty and Staff **Theme 5 Metrics:** T5-1 - # of national and international faculty awards T5-2 - # and % of faculty with endowed chairs, professorships, and fellowships T5-3 - Competitive compensation packages for faculty and staff T5-4 - # and % of faculty and staff participating in international experiences T5-5 - % of tenure/tenure-track faculty by demographic group T5-6 - % of fulltime staff by demographic group T5-7 - % of faculty and staff reporting satisfaction in the work environment	T5-A - Total compensation competitive with aspirant university and regional employers for faculty and staff in high priority areas T5-C - Career-long learning recognized by the university and its employees as a shared value and responsibility T5-D - Effective evaluation processes that result in accountable faculty and staff with a clear understanding of their job expectations and how they contribute to the University's mission	T5-E - Total compensation competitive with aspirant university and regional employers for all employees T5-F - Faculty and staff current with developments in their fields and the skills needed to achieve excellence in performing their jobs T5-G - Successful recruitment and retention of a talented and high performing, diverse workforce	T5-H - Talented and high performing, diverse workforce recognized for excellence and award-winning faculty and researchers T5-I - Stable funding available for recruitment and retention of top level faculty and staff

T6 - Facilities and Infrastructure **Theme 6 Metrics:**	T6-C - Robust and reliable information technology ensuring business continuity and consistent with the achievement of the highest quality levels of support for research, instruction, student services, and administration	T6-D - Adequate office space for all K-State employees equipped to support their work and productivity	T6-G - High quality, technology enabled, flexible and adaptable classroom space appropriate to the evolving needs of the learning environment and readily available to K-State faculty and students
T6-1 - # and % of technology enabled classrooms		T6-E - Enhanced campus community experience and collaborative learning and working environments promoted by facilities that support multidisciplinary work and integrated interaction between students, faculty, researchers, staff, and administrators	T6-H - High-quality research laboratories and specialty spaces that enhance research and scholarly activities
T6-2 - Total expenditures for physical facilities and infrastructure projects			T6-I - Well-maintained buildings, utilities, IT infrastructure, and grounds consistent with the expectations and image of a highly ranked land grant research and teaching institution
T6-4 - Total funding available to support facilities and infrastructure needs			T6-J - An excellent campus community experience supported by facilities and landscapes that enhance social interaction, learning and collaboration
T6-5 - % of faculty, staff, and students reporting satisfaction with facilities and infrastructure			T6-K - Signature facilities that promote collaborative learning and working environments, multidisciplinary work, and integrated interaction between students, faculty, researchers, staff, and administrators