

2005 K-State Risk and Profit Conference

**The Mix of Agricultural Enterprises**

**In the KSU College of Agriculture**

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Just as a Kansas farmer or agribusiness chooses to invest the limited resources it has in a mix or portfolio of enterprises that are intended to maximize returns, so does an educational institution such as the Kansas State University College of Agriculture. People, dollars, and positions are invested across various departments and administrative units within the K-State College of Agriculture in a manner that is intended to maximize the value of those resources to the institution as it serves the public.

This paper provides a categorical inventory of the various teaching, research and extension positions in the College of Agriculture by the types of Kansas agricultural activities and enterprises they are associated with. It also examines how the proportional investment of staff resources in various subject matter areas compares with the magnitude and importance of those types of enterprises in Kansas agriculture. As part of this descriptive analysis the types of returns that the Kansas public receives from faculty and/or staff positions invested in student teaching-related activities as opposed to applied research or extension outreach will be discussed.

All departments and academic units with formal faculty ties to the K-State College of Agriculture are examined in this paper. The analysis is based on the status of faculty positions as of August 2004. Off campus Research and Extension Centers and the Kansas Farm Management Association are included. The inclusion of Farm Management Association Agricultural Economist positions is a departure from other analyses of this nature, but pertinent to the goals and purpose of this paper and the 2005 Risk and Profit Conference. This analysis does not include K-State's investment in a) Extension Agents at local county and district Extension offices, or b) some important support staff that do not have formal faculty positions at both on campus and off campus locations. Valid arguments can be made that these K-State Research and Extension staff should also be included in future improved versions of this analysis.

Data for this analysis will focus on the teaching, research, and extension interests of individual faculty associated with the College of Agriculture. The identified areas of subject matter expertise of each faculty / staff member included here were determined from current information available on departmental web-sites and personal web pages as well as from personal contact with staff within the respective departments and units.

While this analysis focuses on the number of people and the proportion of their time allocated to teaching, research, extension and fee-based activities in various areas of subject matter expertise, other approaches could also have been taken to examine how College of Agriculture resources are invested. Analyses of either the amount of financial resources invested in alternative subject matter areas (i.e., salaries, employee benefits, grants, fees, etc.) or of faculty performance criteria (publications, performance evaluations, clientele evaluation of programs, etc.) could also have been instructive, but were not pursued here.

## The Mix of Enterprises in Kansas Agriculture

The 2003-2004 version of Kansas Farm Facts indicates that the farm value of crops harvested in Kansas during 2003 was \$3,623,255,000, and that the value of cattle and milk produced in the state that same year was \$3,286,773,000 (Source: Kansas Agricultural Statistics). Year 2003 data is latest aggregated annual summary data available.

A broad range of enterprises are important to Kansas agriculture, involving livestock and livestock products as well as various crops and their products. According to 2003 data, the highest value of farm receipts came from

- 1) cattle and calves (including fed cattle, cow-calf, and stocker-feeders)
- 2) wheat
- 3) corn
- 4) soybeans
- 5) grain sorghum
- 6) dairy
- 7) hogs, and
- 8) hay

Horticultural crops from greenhouses and nurseries, cotton, sunflower, and egg production (chickens) are also of importance, with other commodities producing lesser amounts of income also included.

On January 1, 2004, 37% of the total number of cattle in Kansas were classified as “Cattle on Feed”, with the remaining 63% being predominantly involved in other beef enterprises (cow-calf, stocker-feeder). A lesser amount of dairy cattle also included (Table 1).

Table 1. Kansas Cattle Inventory, January 1, 2004

Item	Numbers
All Cattle	6,650,000
Cows that have Calved	1,660,000
Beef	1,550,000
Milk	110,000
Other Cattle	4,990,000
Cattle on Feed	2,480,000
Calves Born in 2003	1,550,000
Cattle Inventory Value (\$)	\$5,320,000,000
Milk Production Value in 2003 (\$)	\$253,800,000

Source: Kansas Agricultural Statistics Service

Wheat enterprise acreage was predominant in Kansas in 2003, followed in order of amount by corn, grain sorghum, and soybeans among summer row crops (Table 2). The importance of irrigated crop enterprises in Kansas is shown by the relatively large proportion of corn harvested acreage that was in irrigated corn production (49%). Significant acreages of wheat, soybeans, and grain sorghum were also produced under irrigation in 2003.

The important role of hay production in Kansas is illustrated in Table 2, with 3,250,000 million acres of hay (1,000,000 acres of alfalfa, the remainder in the “other hay” category). Pasture production at 18,262,000 acres is comparable to the total amount of harvested cropland acres in Kansas in 2003 (i.e., 21,827,700 acres).

Table 2. Kansas Cropland & Pasture Information for 2003

Crop	Acres Planted	Crop Enterprise Practices	Acres Harvested
Wheat	10,400,000 ac.	Dryland Irrigated	9,440,000 ac. 560,000 ac.
Corn	2,900,000 ac.	Dryland – for grain Irrigated – for grain Silage	1,140,000 ac. 1,360,000 ac. 280,000 ac.
Grain Sorghum	3,550,000 ac.	Dryland – for grain Irrigated – for grain Silage	2,632,000 ac. 268,000 ac. 70,000 ac.
Soybeans	2,600,000 ac.	Dryland Irrigated	2,119,000 ac. 361,000 ac.
All Hay	3,250,000 ac.	Alfalfa Hay All Other Hay	1,000,000 ac. 2,250,000 ac.
Sunflowers	193,000 ac.	All practices	176,000 ac.
Pasture Acreage (2002 Ag Census)	18,262,000 ac.		

Sources: Kansas Agricultural Statistics Service and 2002 Census of Agriculture

Kansas is one of the top ranked states in the U.S. with regard to U.S. Agricultural Exports to foreign countries for wheat, feed grains and their products, live animals and meat (excluding poultry), hides and skins, and feeds and fodders (Table 3). Most of the meat products from cattle slaughtered and processed in Kansas are used domestically, although livestock and livestock products still make up a sizable proportion of Kansas' contribution to U.S. agricultural exports.

Table 3. Top 5 Agricultural Exports – Estimates for FY 2004

Export Item	Rank Among U.S. States	Value	% of Kansas Ag Exports
1. Wheat and products	1	\$1,149,400,000	39.3%
2. Feed grains and products	6	\$401,500,000	13.7%
3. Live animals and meat (excluding poultry)	3	\$343,200,000	11.7%
4. Hides and Skins	2	\$322,300,000	11.0%
5. Feeds and fodders	2	\$271,800,000	9.3%
Overall State Rank for Agricultural Exports	6	\$2,928,000,000	100.0%

Source: Economic Research Service, United States Department of Agriculture.

In summary, Kansas agriculture is heavily dependent on a number of livestock and crop enterprises and the processed products from these same production enterprises. Regarding livestock, beef cow-calf and stocker-feeder enterprises are of primary importance to Kansas agriculture, along with the cattle feeding and slaughter industries. The importance of beef cow-calf and stocker-feeder enterprises follows from the large proportion of pastureland in Kansas (pastureland equaling 46% of the combined total of pasture and cropland in 2003 – Source: Kansas Agricultural Statistics Service). Swine and dairy production are also important to the state, but to a lesser degree than cattle production. Wheat is the major crop enterprise in Kansas in terms of both acres and value of production. Wheat is followed in descending order of value of production by corn, soybeans, and grain sorghum, alfalfa hay and some lesser crops according to 2003 data (Kansas Agricultural Statistics Service). Irrigation is a critical factor for a number of these crops, particularly in the western part of the state.

## The Representation of Agricultural Enterprises in the KSU College of Agriculture

The central issue to be addressed in this paper is whether the distribution and number of faculty resources in the K-State College of Agriculture reasonably matches the variety and magnitude of agricultural enterprises in Kansas. Up to this point, the focus of this paper has been on describing Kansas' agriculture. Now the focus will shift to describing the focus of faculty resources of the K-State College of Agriculture. Definitions of some of the terms and variables to be used in the following discussion are provided below (Table 4).

Table 4. Definition of Terms and Variables

Variable	Description
College	Colleges of Agriculture, Arts & Sciences, Biological & Ag Engineering, Engineering, Human Ecology, & Veterinary Medicine
Department	K-State Academic Departments, out-state Experimental & Demonstration units, and out-state Research-Extension Units
On Campus	Positions located at Kansas State University, Manhattan
Off Campus	Research positions located at off campus Research-Extension Centers, Experimental Fields, etc.
Area	Extension positions located at off campus Research-Extension Centers & Farm Mgmt Offices
Teaching %	Proportion of individual faculty appointments devoted to formal classroom teaching at KSU
Research %	Proportion of individual faculty appointments devoted to basic &/or applied research
Extension %	Proportion of individual faculty appointments devoted to extension outreach
Fee %	Proportion of individual faculty appointments funded by program and/or service fees
NonTenUncl	Positions that are non tenured, unclassified or are permanent obligations of KSU
AdminLdrshp	Administrative leadership responsibilities
CropsDirect	Crop production-related outreach programs, having direct contact with farmers & agribusiness
CropsRsrch	Crop production-related applied research programs
LvstkDirect	Livestock production-related outreach programs, having direct contact with farmers/agribus.
LvstkRsrch	Livestock production-related applied research programs
AgEconDirect	Ag Economics-related outreach programs, having direct contact with farmers
AgEconBus	Ag Economics-related outreach programs, having direct contact with agribusiness
AgEconRsrch	Ag Economics-related applied research
HortDirect	Horticulture-related outreach programs, having direct contact with the public & businesses
HortRsrch	Horticulture-related applied research
ComDevDirect	Community Development-related outreach programs, having direct contact with the public
ComDevRsrch	Community Development-related applied research
FCSDirect	Family & Consumer Sciences-related outreach programs, having direct contact with the public
FCSRsrch	Family & Consumer Sciences-related applied research
4HYDDirect	4-H Youth Development-related outreach work, having direct contact with the public
PrgmSupport	Program support from the Communications and Statistics Departments

## Faculty Appointments Both Within and Outside of the College of Agriculture

As of August 2004, there were 451 people listed in this analysis as having either full or partial faculty appointments in the KSU College of Agriculture (Table 5). For this analysis, Kansas Farm Management Agricultural Economists are included although in other faculty distribution analyses they are not.

This analysis includes some Kansas State University faculty with Agriculture College ties or involvement who are not all formally designated as being College of Agriculture faculty appointments. To illustrate, of the 451 faculty identified with Ag College ties, 9.1% are based or “housed” in the College of Arts and Sciences, 5.3% in the College of Veterinary Medicine, 4.0% in the College of Biological and Agricultural Engineering, 15% in the College of Human Ecology, and 0.9% are in the College of Engineering, while the remaining 77.4% are officially listed as being part of the College of Agriculture (Table 5). These cross-college ties reflect the integrated nature of the technical sciences and areas of subject matter expertise dealt with by the College of Agriculture and other K-State Colleges.

Table 5. Breakdown of College of Agriculture Faculty Appointments by College

Ag & Cooperative Colleges	Number Of Faculty	Percent of Total # Faculty
Agriculture	349	77.4%
Arts & Sciences	41	9.1%
Veterinary Medicine	24	5.3%
Biological & Agricultural Engineering	18	4.0%
Human Ecology	15	3.3%
Engineering	4	0.9%
Total	451 Faculty	100.0%

Note: Table 5 reflects the number of people with full or part time faculty appointments, but does not represent the number of FTEs (i.e., 100% Full Time Equivalents) based or “housed” in each separate K-State college.

Counting People versus Full Time Equivalents: The appointments of these faculty may be based either fully (100%) or partially (less than 100%) in the College of Agriculture (Table 5). For example, a professor in Veterinary Medicine may have a 60% research appointment in the College of Agriculture, and a 40% teaching appointment in the College of Veterinary Medicine (totaling 100% of their allocated time). A professor in Biology may have a 45% research appointment in the College of Agriculture, and a 55% teaching appointment in the College of Arts and Sciences (again totaling 100% of their allocated time). The university system views a fully employed faculty member as having 100% of their time allocated toward some combination of either teaching, research, extension, or fee-based activities. A faculty member with 100% of their time allocated in this manner represents 1 Full Time Equivalent (i.e., 1.0 FTE).

## Number of Faculty and FTEs by Department

The Departments of Animal Science (ranked 1<sup>st</sup> with 50 faculty / 50.0 FTE) and Agronomy (ranked 2<sup>nd</sup> with 46 faculty / 45.2 FTE) are the largest Departments in the K-State College of Agriculture (Table 6). These Departments are followed in ranked order according to number of faculty by 3) Communications, 4) Agricultural Economics, 5) Horticulture, Forestry, and Recreational Resources, 6-tie) Ag Econ – Area Farm Management Fieldmen, 6-tie) Biology, 8) Grain Science and Industry, 9) Entomology, 10) Off Campus Research Centers, 11) Plant Pathology, 12-tie) Biological and Agricultural Engineering, 12-tie) Vet-Med’s Diagnostics, Medicine, and Pathobiology, 14) Administration of the Ag College, 15-tie) 4-H Youth Development, and 15-tie) Biochemistry.

Of the top 15 departments with College of Agriculture appointments, the departments of Biology (Arts and Sciences) , Biochemistry (Arts and Sciences), Biological and Agricultural Engineering (College name the same) and Diagnostics, Medicine and Pathobiology (Vet-Med) have markedly less FTE of Agricultural College appointments than they do people (Table 6). This indicates that a number of partial (i.e., less than 100%) Ag College faculty appointments exist in these departments, all four of which are in Colleges other than the College of Agriculture. These partial appointments are almost exclusively research-oriented, with the balance of each faculty member’s time typically allocated toward teaching. These teaching portions of their time are typically committed to their respective non-Ag Colleges.

Table 6. Ranking of KSU Departments-Units By Number of College of Agriculture Staff Appointments

Rank	Academic Department or K-State Research and Extension Unit	College	# Ag College Faculty	% of Ag College Faculty	# Ag College FTEs
1	Animal Sciences	Ag	50	11.1%	50.0
2	Agronomy	Ag	46	10.2%	45.2
3	Communications	Ag	39	8.6%	39.0
4	Agricultural Economics	Ag	37	8.2%	36.2
5	Horticulture, Forestry, & Recreational Resources	Ag	29	6.4%	29.0
6 (tie)	Agricultural Economics-Area Farm Management Fieldmen	Ag	24	5.3%	24.0
6 (tie)	Biology	Arts & Sci	24	5.3%	9.2
8	Grain Science and Industry	Ag	22	4.9%	22.0
9	Entomology	Ag	21	4.7%	21.0
10	Off Campus Research Centers	Ag	20	4.4%	19.0
11	Plant Pathology	Ag	19	4.2%	19.0
12 (tie)	Biological & Agricultural Engineering	Bio-Ag Eng	18	4.0%	11.2
12 (tie)	Diagnostics, Medicine, and Pathobiology	Vet Med	18	4.0%	8.1
14	Administration of Ag College	Ag	15	3.3%	14.0
15 (tie)	4-H Youth Development	Ag	11	2.4%	10.4
15 (tie)	Biochemistry	Arts & Sci	11	2.4%	7.0
17 (tie)	Community Health Institute	Ag	6	1.3%	4.6
17 (tie)	Family Studies, Human Services	Human Ec.	6	1.3%	5.0
17 (tie)	Human Nutrition	Human Ec.	6	1.3%	3.0
17 (tie)	Statistics	Arts & Sci	6	1.3%	2.4
21	Anatomy and Physiology	Vet Med	5	1.1%	1.9
22	Family & Consumer Science Area Specialists	Ag	4	0.9%	2.0
23 (tie)	Community Development	Ag	2	0.4%	2.0
23 (tie)	Chemical Engineering	Engineering	2	0.4%	0.2
23 (tie)	Civil Engineering	Engineering	2	0.4%	0.3
23 (tie)	Food Science Institute	Ag	2	0.4%	2.0
23 (tie)	Hotel, Restaurant, Inst. Management & Dietetics	Human Ec.	2		0.6
23 (tie)	KCARE (Natural Resources) / KCSAAC (Sustainable Agriculture) Centers	Ag	2	0.4%	2.0
29 (tie)	Apparel, Textiles, & Interior Design	Human Ec.	1	0.2%	0.6
29 (tie)	Clinical Sciences	Vet Med	1	0.2%	0.3
	Total		451 Faculty	100.0%	389.5

## Geographic Location Of Faculty

In this analysis, K-State College of Agriculture faculty are classified as being located either a) On Campus (in Manhattan, Kansas), b) Off Campus (at out state Research Centers or Experimental units), or c) in Areas (in regional Extension or Farm Management Association offices). Nearly 82% of Ag College faculty are located on campus, with 8% located off campus, and another 10% in area positions (Table 7).

Table 7. Geographic Location of Faculty Associated with the KSU College of Agriculture

Factor	K-State Ag College Faculty At			
	On Campus Locations (#)	Off Campus Research Locations (#)	Area Extension, Farm Mgmt Assoc. (#)	Ag College Totals
Factor:	“On Campus”	“Off Campus”	“Area”	
Total	368	37	46	451
% of Total	81.6%	8.2%	10.2%	100.0%

## Allocation of Teaching, Research, Extension, and Fee-Based Appointments

In this analysis there are 389.5 Full Time Equivalent faculty positions in the K-State College of Agriculture (Table 8). This compares with 451 faculty in terms of the number of people holding these positions. So obviously, not every faculty member with a College of Agriculture appointment has a full time (100% FTE) appointment with the College.

In the K-State College of Agriculture, 42.2% (i.e., 164.5 FTEs) of the time of the faculty are committed to applied research-oriented work. Extension outreach efforts account for 32.8% (127.6 FTEs) of faculty time, while teaching accounts for 15.3% (59.5 FTEs) of faculty time. Another 9.7% (37.9 FTEs) are allocated toward fee-based program efforts. A total of 68 FTE of faculty time are allocated toward “non-tenure, unclassified, permanent obligations”. In this analysis, Farm Management Association Economists have been classified in the “fee-based”. A number of staff in the Communications department and in other positions that are not associated with tenured faculty-type responsibilities have been included in the “non-tenure, unclassified, permanent obligations” category.

Table 8. Summary of Teaching, Research, Extension, and Fee-Based Appointments for Staff Associated with the KSU College of Agriculture

Factor	Faculty Appointment FTE %'s (FTE = Full Time Equivalent)					Non-tenure, Unclassified, Permanent Obligations
	Teaching Appointments	Research Appointments	Extension Appointments	Fee-Based Appointments	Ag College Totals	
Factor:	“Teaching %”	“Research %”	“Extension %”	“Fee %”		“NonTenUncl”
Total	59.5 FTE	164.5 FTE	127.6 FTE	37.9 FTE	389.5 FTE	68 FTE
% of Total	15.3%	42.2%	32.8%	9.7%	100.0%	

This paper supports the perspective that teaching positions may be viewed as investments in “long term workforce training” by the K-State College of Agriculture. Applied research positions may be viewed as fulfilling the mission and mandate of the College of Agriculture to provide leadership in “discovering and extending knowledge and understanding” in the subject matter areas the College is involved in. Extension positions may be presented as fulfilling the purpose of “transferring technological and other types of knowledge” from K-State directly to the public. In a classical “Land Grant College” sense,

knowledge discovered by applied researchers is transferred to the public or clientele through Extension educational and service programs. Ideally, knowledge and information about current or developing problems and challenges faced by the public would also be communicated back to applied researchers through Extension faculty as well.

## **Faculty Resources by Subject Matter Area and Function**

Tables 9a and 9b represent the allocation of K-State College of Agriculture faculty resources in terms of number of people and FTEs among alternative subject matter areas and outreach versus applied research functions. A more in-depth analysis of two of these categories will follow this section.

### **CropsDirect:**

Faculty resources in this category are involved in crop production-related outreach programs, having direct contact with farmers & agribusiness (Table 9a). A total of 68 people or 15.1% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to crop production. Of these faculty, 34 are located on campus, 27 at off campus research centers and experimental fields, and 7 in area extension positions. Of the 64.0 FTEs involved in this area, 34.2 are Extension FTEs, 27.6 are Research FTEs, 1.1 are Teaching FTEs, and 1.1 are Fee-based FTEs. An expanded analysis of this subject matter and function category will be given in a later section.

### **CropsRsrch:**

Faculty resources in this category are involved in crop production-related applied research programs (Table 9a). A total of 166 people or 36.7% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to crop production. Of these faculty, 130 are located on campus, 28 at off campus research centers and experimental fields, and 8 in area extension positions. Of the 151.4 FTEs involved in this area, 37.6 are Extension FTEs, 88.3 are Research FTEs, 19.6 are Teaching FTEs, and 4.1 are Fee-based FTEs. An expanded analysis of this subject matter and function category will be given in a later section.

### **LvstkDirect:**

Faculty resources in this category are involved in livestock production-related outreach programs, having direct contact with farmers & agribusiness (Table 9a). A total of 58 people or 12.9% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to livestock production. Of these faculty, 44 are located on campus, 5 at off campus research centers and experimental fields, and 8 in area extension positions. Of the 50.1 FTEs involved in this area, 31.5 are Extension FTEs, 13.1 are Research FTEs, 4.4 are Teaching FTEs, and 1.2 are Fee-based FTEs. An expanded analysis of this subject matter and function category will be given in a later section.

### **LvstkRsrch:**

Faculty resources in this category are involved in livestock production-related applied research programs (Table 9a). A total of 133 people or 29.5% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to livestock production. Of these faculty, 118 are located on campus, 7 at off campus research centers and experimental fields, and 8 in area extension positions. Of the 112.5 FTEs involved in this area, 30.2 are Extension FTEs, 54.4 are Research FTEs, 26.7 are Teaching FTEs, and 1.2 are Fee-based FTEs. An expanded analysis of this subject matter and function category will be given in a later section.

### **AgEconDirect:**

Faculty resources in this category are involved in agricultural economics-related outreach programs, having direct contact with farmers (Table 9a). A total of 37 people or 8.2% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to agricultural economics at the farm-level. Of these faculty, 9 are located on campus, 0 at off campus research centers and experimental fields, and 28 in area extension/farm management association fieldmen positions. Of the 36.2 FTEs involved in this area, 9.7 are Extension FTEs, 1.3 are Research FTEs, 0.9 are Teaching FTEs, and 24.3 are Fee-based FTEs (reflecting the inclusion of farm management association fieldmen).

### **AgEconBus:**

Faculty resources in this category are involved in agricultural economics-related outreach programs, having direct contact with agribusiness (Table 9a). A total of 18 people or 4.0% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to agricultural economics at the agribusiness level. Of these faculty, 14 are located on campus, 0 at off campus research centers and experimental fields, and 4 in area extension positions. Of the 17.2 FTEs involved in this area, 11.2 are Extension FTEs, 2.5 are Research FTEs, 2.9 are Teaching FTEs, and 0.7 are Fee-based FTEs.

### **AgEconRsrch:**

Faculty resources in this category are involved in agricultural economics-related applied research programs (Table 9a). A total of 36 people or 8.0% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to agricultural economics. Of these faculty, 32 are located on campus, 0 at off campus research centers and experimental fields, and 4 in area extension positions. Of the 35.2 FTEs involved in this area, 14.1 are Extension FTEs, 10.3 are Research FTEs, 9.9 are Teaching FTEs, and 1.0 are Fee-based FTEs.

### **HortDirect:**

Faculty resources in this category are involved in horticultural production-related outreach programs, having direct contact with the public and businesses (Table 9a). A total of 19 people or 4.2% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to horticultural production. Of these faculty, 15 are located on campus, 4 at off campus research centers and experimental fields, and 0 in area extension positions. Of the 18.7 FTEs involved in this area, 12.2 are Extension FTEs, 4.3 are Research FTEs, 1.8 are Teaching FTEs, and 0.5 are Fee-based FTEs.

### **HortRsrch:**

Faculty resources in this category are involved in horticultural production-related applied research programs (Table 9a). A total of 35 people or 7.7% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to horticultural production. Of these faculty, 31 are located on campus, 4 at off campus research centers and experimental fields, and 0 in area extension positions. Of the 33.7 FTEs involved in this area, 9.0 are Extension FTEs, 12.5 are Research FTEs, 12.0 are Teaching FTEs, and 0.2 are Fee-based FTEs.

Table 9a. Faculty Resources By Subject Matter Area and Function in the KSU College of Agriculture

	Crops-Direct	Crops-Rsrch	Lvstk-Direct	Lvstk-Rsrch	AgEcon-Direct	AgEcon-Bus	AgEc-Rsrch	Hort-Direct	Hort-Rsrch
Total # Staff	68	166	58	133	37	18	36	19	35
% College of Agric. Total	15.1%	36.7%	12.9%	29.5%	8.2%	4.0%	8.0%	4.2%	7.7%
<b>Location</b>									
“On Campus”	34	130	44	118	9	14	32	15	31
“Off Campus”	27	28	5	7	0	0	0	4	4
“Area”	7	8	8	8	28	4	4	0	0
<b>FTEs</b>									
Teaching FTE	1.1	19.6	4.4	26.7	0.9	2.9	9.9	1.8	12.0
Research FTE	27.6	88.3	13.1	54.4	1.3	2.5	10.3	4.3	12.5
Extension FTE	34.2	37.6	31.5	30.2	9.7	11.2	14.1	12.2	9.0
Fee FTE	1.1	4.1	1.2	1.2	24.3	0.7	1.0	0.5	0.2
Total FTE	64.0	151.4	50.1	112.5	36.2	17.2	35.2	18.7	33.7

Table 9b. Faculty Resources By Subject Matter Area and Function in the KSU College of Agriculture

	Admin-Ldrshp	ComDev-Direct	ComDev-Rsrch	FCS-Direct	FCS-Rsrch	4HYd-Direct	Prgm-Support
Total	43	15	9	18	25	12	45
% College of Agric. Total	9.5%	3.3%	2.0%	4.0%	5.5%	2.7%	10.0%
<b>Location</b>							
“On Campus”	37	15	9	14	21	7	43
“Off Campus”	2	0	0	0	0	0	2
“Area”	4	0	0	4	4	5	0
<b>FTEs</b>							
Teaching FTE	6.3	0.5	0.3	0.0	1.0	0.1	1.7
Research FTE	12.6	0.8	0.5	0.3	2.7	0.0	8.5
Extension FTE	16.1	11.3	6.5	12.1	11.9	11.3	29.4
Fee FTE	0.3	0.3	0.3	0.4	0.4	0.0	1.8
Total FTE	35.2	12.8	7.6	12.8	16.0	11.4	41.4

### **AdminLdrshp:**

Faculty resources in this category are involved in administrative leadership responsibilities for the College of Agriculture, either as part of central administration, as a department head, or as an area extension director (Table 9b). A total of 43 people or 9.5% of the faculty in the K-State College of Agriculture have administrative leadership responsibilities. Of these faculty, 37 are located on campus, 2 at off campus research centers and experimental fields, and 4 in area extension positions. Of the 35.2 FTEs involved in this area, 16.1 are Extension FTEs, 12.6 are Research FTEs, 6.3 are Teaching FTEs, and 0.3 are Fee-based FTEs.

### **ComDevDirect:**

Faculty resources in this category are involved in community development-related outreach programs, having direct contact with the public (Table 9b). A total of 15 people or 3.3% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to community development. Of these faculty, 15 are located on campus, 0 at off campus research centers and experimental fields, and 0 in area extension positions. Of the 12.8 FTEs involved in this area, 11.3 are Extension FTEs, 0.8 are Research FTEs, 0.5 are Teaching FTEs, and 0.3 are Fee-based FTEs.

### **ComDevRsrch:**

Faculty resources in this category are involved in community development-related applied research programs (Table 9b). A total of 9 people or 2.0% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to community development. Of these faculty, 9 are located on campus, 0 at off campus research centers and experimental fields, and 0 in area extension positions. Of the 7.6 FTEs involved in this area, 6.5 are Extension FTEs, 0.5 are Research FTEs, 0.3 are Teaching FTEs, and 0.3 are Fee-based FTEs.

### **FCSDirect:**

Faculty resources in this category are involved in family and consumer sciences-related outreach programs, having direct contact with the public (Table 9b). A total of 18 people or 4.0% of the faculty in the K-State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to family and consumer sciences. Of these faculty, 14 are located on campus, 0 at off campus research centers and experimental fields, and 4 in area extension positions. Of the 12.8 FTEs involved in this area, 12.1 are Extension FTEs, 0.3 are Research FTEs, 0.0 are Teaching FTEs, and 0.4 are Fee-based FTEs.

### **FCSRsrch:**

Faculty resources in this category are involved in family and consumer science-related applied research programs (Table 9b). A total of 25 people or 5.5% of the faculty in the K-State College of Agriculture have subject matter expertise and applied research responsibilities related to family and consumer sciences. Of these faculty, 21 are located on campus, 0 at off campus research centers and experimental fields, and 4 in area extension positions. Of the 16.0 FTEs involved in this area, 11.9 are Extension FTEs, 2.7 are Research FTEs, 1.0 are Teaching FTEs, and 0.4 are Fee-based FTEs.

### **4HYdDirect:**

Faculty resources in this category are involved in 4-H Youth Development-related outreach programs, having direct contact with the public (Table 9b). A total of 12 people or 2.7% of the faculty in the K-

State College of Agriculture have subject matter expertise and direct clientele outreach responsibilities related to 4-H youth development. Of these faculty, 7 are located on campus, 0 at off campus research centers and experimental fields, and 5 in area extension positions. Of the 11.4 FTEs involved in this area, 11.3 are Extension FTEs, 0.0 are Research FTEs, 0.1 are Teaching FTEs, and 0.0 are Fee-based FTEs.

### **PrgmSupport:**

Faculty resources in this category provide program support for other departments and units within the College of Agriculture (Table 9b). The staff of the Communications Department constitute the majority of the staff in this category, with a small number of faculty from the Statistics Department also included. A total of 45 people or 10.0% of the faculty in the K-State College of Agriculture have subject matter expertise and program support responsibilities. Of these faculty, 43 are located on campus, 0 at off campus research centers and experimental fields, and 2 in area extension positions. Of the 41.4 FTEs involved in this area, 29.4 are Extension FTEs, 8.5 are Research FTEs, 1.7 are Teaching FTEs, and 1.8 are Fee-based FTEs.

### **More Analysis of CropsDirect, CropsRsrch, LvstkDirect, and LvstkRsrch**

A more indepth analysis of the CropsDirect, CropsRsrch, LvstkDirect, and LvstkRsrch subject matter and function categories is provided below. This section focuses on more specific areas of subject matter focus within each category and the involvement of various Departments and Units.

### **CropsDirect Breakdown by Specific Subjects and Department/Unit Involvement**

The involvement of College of Agriculture faculty in “CropsDirect”-related efforts is further broken down into the following areas of specific subject matter focus (Table 10a):

- Wheat
- Summer Crops (feedgrains, oilseeds)
- Forages
- Field Crop Systems (analysis of cropping systems)
- Irrigation
- Conservation (various conservation oriented areas of agronomic focus)
- Field Testing (involvement in farm/field level agronomic demonstration & research plots)
- Crop Varieties (involvement in the development and testing of crop varieties)

Results in Table 10a indicate heavy involvement across these specific crop production areas by College of Agriculture faculty involved in crop production-related outreach programs. “Field Crop Systems” and “Field Testing” are the categories with the greatest amount of faculty involvement.

A number of Departments and Units are involved in the CropsDirect subject matter and function area (Table 10b). Of the 68 faculty included in the CropsDirect category, 20 (29.4%) are associated with the Agronomy Department, 17 (25.0%) with Off Campus Research Centers and Experimental Fields, 10 (14.7%) with the Agricultural Economics Department, 8 (11.8%) with Biological and Agricultural Engineering, as well as faculty from Entomology, Plant Pathology and other departments/units.

Table 10a. Further Analysis of CropsDirect

	CROPS-DIRECT	Categories Within CROPSDIRECT							
		Wheat	Summer Crops	Forages	Field Crop Systems	Irrigation	Conservation	Field Testing	Crop Varieties
Total # Staff	<b>68</b>	39	41	28	50	37	44	49	31
% of CROPS-DIRECT	<b>100%</b>	57.4%	60.3%	41.2%	73.5%	54.4%	64.7%	72.1%	45.6%

Table 10b. KSU Staff Involvement by Department/Unit in the CropsDirect Category

Rank	College	Department / Unit	Number Of Staff	% of CROPSDIRECT
1	Ag	Agronomy	20	29.4%
2	Ag	Off Campus Research Centers	17	25.0%
3	Ag	Agricultural Economics	10	14.7%
4	Bio-Ag Eng	Biological & Agricultural Engineering	8	11.8%
5	Ag	Entomology	5	7.4%
6	Ag	Plant Pathology	3	4.4%
7	Ag	KCARE / KCSAAC Centers	2	3.0%
8 (tie)	Ag	Communications	1	1.5%
8 (tie)	Ag	Grain Science & Industry	1	1.5%
8 (tie)	Ag	Horticulture, Forestry, & Recreational Resources	1	1.5%
		Total	68	100.0%

Table 10c. KSU Staff Involvement by Department/Unit in the CROPSRSRCH Category

Rank	College	Department / Unit	Number Of Staff	% of CROPSDIRECT
1	Ag	Agronomy	44	26.5%
2	Ag	Agricultural Economics	22	13.3%
3	Ag	Grain Science & Industry	20	12.0%
4	Ag	Off Campus Research Centers	17	10.2%
5	Ag	Plant Pathology	16	9.6%
6	Bio-Ag Eng	Biological & Agricultural Engineering	15	9.0%
7	Ag	Entomology	14	8.4%
8 (tie)	Arts & Sci	Biochemistry	4	2.4%
8 (tie)	Arts & Sci	Biology	4	2.4%
10 (tie)	Ag	KCARE / KCSAAC Centers	2	1.2%
10 (tie)	Ag	Animal Science	2	1.2%
10 (tie)	Engineering	Chemical Engineering	2	1.2%
10 (tie)	Engineering	Civil Engineering	2	1.2%
14 (tie)	Ag	Communications	1	0.6%
14 (tie)	Ag	Horticulture, Forestry, & Recreational Resources	1	0.6%
		Total	166	100.0%

### **CropsRsrch Breakdown by Department/Unit Involvement**

A number of Departments and Units are involved in the CropsRsrch subject matter and function area (Table 10c). Of the 166 faculty included in the CropsRsrch category, 44 (26.5%) are associated with the Agronomy Department, 22 (13.3%) with the Agricultural Economics Department, 20 (12.0%) with Grain Science and Industry, 17 (10.2%) with Off Campus Research Centers and Experimental Fields, 16 (9.6%) with Plant Pathology, 15 (9.0%) with Biological and Agricultural Engineering, 14 (8.4%) with Entomology, as well as faculty from Biochemistry, Biology, KCARE/KCSAAC, Animal Science, Chemical Engineering, Civil Engineering, and other departments/units.

### **LvstkDirect Breakdown by Specific Subjects and Department/Unit Involvement**

The involvement of College of Agriculture faculty in “LvstkDirect”-related efforts is further broken down into the following areas of specific subject matter focus (Table 11a):

- Beef-Feedlot
- Beef Cow-Calf, Stocker-Feeder
- Dairy
- Swine
- Sheep – Other Species
- Feeds/Forages
- Range/Pasture
- Meats/Foods
- Animal Health

Results in Table 11a indicate more specialization and somewhat less cross-species or cross-subject matter area involvement for faculty included in the LvstkDirect category as opposed to the CropsDirect category. “Beef Cow-Calf, Stocker-Feeder”, “Feeds/Forages”, “Range/Pasture” are the categories with the greatest amount of faculty involvement.

A number of Departments and Units are involved in the CropsDirect subject matter and function area (Table 11b). Of the 57 faculty included in the LvstkDirect category, 19 (33.3%) are associated with the Animal Science Department, 12 (21.1%) with Agricultural Economics, 7 (12.3%) with Agronomy, 6 (10.5%) with Vet-Med’s Diagnostic Medicine and Pathobiology, 4 (7.0%) with Off Campus Research Centers and Experimental Fields, as well as faculty from Biological and Agricultural Engineering, KCARE/KCSAAC, Entomology, Biology, Vet-Med’s Clinical Services, and other departments/units.

### **LvstkRsrch Breakdown by Department/Unit Involvement**

A number of Departments and Units are involved in the LvstkRsrch subject matter and function area (Table 11c). Of the 133 faculty included in the LvstkRsrch category, 46 (34.6%) are associated with the Animal Science Department, 22 (16.5%) with the Agricultural Economics Department, 18 (13.5%) with Vet-Med’s Diagnostic Medicine and Pathobiology, 9 (6.8%) with Agronomy, 6 (4.5%) with Biology, 5 (3.8%) each with Vet-Med’s Anatomy and Physiology, Entomology, and Off Campus Research Centers and Experimental Fields, 4 (3.0%) each with Biological and Agricultural Engineering and Grain Science and Industry, as well as Biochemistry, the Food Science Institute, KCARE/KCSAAC, Civil Engineering, Vet-Med’s Clinical Services, and other departments/units.

Table 11a. Further Analysis of LVSTKDIRECT Categories

	<b>LVSTK-DIRECT</b>	Beef-Feedlot	Beef Cow- Calf, Stocker-Feeder	Dairy	Swine	Sheep – Other Species	Feeds/ Forages	Range/ Pasture	Meats/ Foods	Animal Health
Total # Staff	<b>57</b>	13	32	11	13	11	26	26	7	20
% of CROPS-DIRECT	<b>100%</b>	22.8%	56.1%	19.3%	24.6%	19.3%	45.6%	45.6%	12.3%	35.1%

Table 11b. KSU Staff Involvement by Department/Unit in the LVSTKDIRECT Category

Rank	College	Department / Unit	Number Of Staff	% of CROPSDIRECT
1	Ag	Animal Science	19	33.3%
2	Ag	Agricultural Economics	12	21.1%
3	Ag	Agronomy	7	12.3%
4	Vet-Med	Diagnostic Medicine, Pathobiology	6	10.5%
5	Ag	Off Campus Research Centers	4	7.0%
6 (tie)	Bio-Ag Eng	Biological & Agricultural Engineering	2	3.5%
6 (tie)	Ag	KCARE / KCSAAC Centers	2	3.0%
8 (tie)	Ag	Entomology	1	1.8%
8 (tie)	Ag	Communications	1	1.8%
8 (tie)	Arts & Sci	Biology	1	1.8%
8 (tie)	Vet-Med	Clinical Sciences	1	1.8%
12	Ag	Horticulture, Forestry, & Recreational Resources	1	1.8%
		Total	57	100.0%

Table 11c. KSU Staff Involvement by Department/Unit in the LVSTKRSRCH Category

Rank	College	Department / Unit	Number Of Staff	% of CROPSDIRECT
1	Ag	Animal Science	46	34.6%
2	Ag	Agricultural Economics	22	16.5%
3	Vet-Med	Diagnostic Medicine, Pathobiology	18	13.5%
4	Ag	Agronomy	9	6.8%
5	Arts & Sci	Biology	6	4.5%
6 (tie)	Vet-Med	Anatomy and Physiology	5	3.8%
6 (tie)	Ag	Entomology	5	3.8%
6 (tie)	Ag	Off Campus Research Centers	5	3.8%
9 (tie)	Bio-Ag Eng	Biological & Agricultural Engineering	4	3.0%
9 (tie)	Ag	Grain Science & Industry	4	3.0%
11 (tie)	Arts & Sci	Biochemistry	2	1.6%
11 (tie)	Ag	Food Science Institute	2	1.6%
11 (tie)	Ag	KCARE / KCSAAC Centers	2	1.6%
14 (tie)	Engineering	Civil Engineering	1	0.8%
14 (tie)	Ag	Communications	1	0.8%
14 (tie)	Vet-Med	Clinical Sciences	1	0.8%
		Total	133	100.0%

## Summary and Conclusions

The purpose of this paper is to provide a categorical inventory of the various teaching, research and extension positions in the College of Agriculture by the types of Kansas agricultural activities and enterprises they are associated with. In doing so, it examines how the proportional investment of staff resources in various areas by the K-State College of Agriculture compares with the magnitude and importance of those types of enterprises in Kansas Agriculture.

Following are some observations that are the sole responsibility of the author.

- In the areas of farm level crop and livestock production, the investment in faculty resources by the K-State College of Agriculture reasonably approximates the economic activity in the Kansas agricultural economy at the farm level. One area where there may be some question as to whether the K-State's College of Agriculture's investment in resources reasonably match up with the value of production in the Kansas economy is in the area of cattle feeding and meat processing. While the amount of resources invested in other areas may not match up the amount of economic activity they produce in Kansas, there may be other reasons and other non-agricultural audiences that are served by the Agricultural College that necessitate these faculty allocations. Also, in fulfilling its mission to provide technological leadership to the state's agricultural economy, the College of Agriculture may choose to disproportionately invest resources in "growth" areas, and maintain or reduce resources invested toward research and extension outreach in "mature" segments of Kansas agriculture.
- The mix of teaching, research, extension and fee based faculty in the College of Agriculture is weighted toward research (42%) and extension (33%), with teaching (15%) and fee-based appointments (10%) following behind. If one of the desires of the citizens of Kansas is that K-State provide "cutting edge" research for the purpose of knowledge discovery and to keep Kansas agriculture economically competitive with other states and countries, then this investment mix of Ag College faculty resources appears to be acceptable. The proportion of extension expenditures (33%) is consistent with the outreach mission of a Land Grant University such as Kansas State.
- Much integration of faculty efforts occurs at Kansas State University both across Departments within the College of Agriculture and with Departments outside of the College of Agriculture. The expanded analyses of crop and livestock direct outreach and applied research efforts indicates a large amount of cooperation, team work and joint interest among K-State faculty as they address subjects pertinent to Kansas agriculture.
- Among the subject matter areas identified in this paper in the K-State College of Agriculture, some areas have stronger bases of applied research within K-State than others. In particular, Community Development and 4-H Youth Development have relatively small amounts of staff time allocated to applied research in comparison to their extension outreach investments. There are undoubtedly a number of reasons for this situation, such as tight resources within the Ag College, a lack of such applied research efforts within these respective disciplines on a national scale, the necessity of providing extension outreach services in the short term, etc. That said, it is the author's opinion that the quality of extension outreach efforts to the citizens of Kansas is greater when faculty, departments, or working teams of faculty have and take advantage of the opportunity to be directly involved in applied research pertaining to their subject matter areas.
- A holistic, cross-College view of Kansas State University's investment in particular subject matter areas needs to be taken to answer the question of whether resources are adequately allocated and invested or not by the institution. This is particularly true when analyzing the College of

Agriculture's investment in Family and Consumer Sciences faculty positions. Issues pertaining to families in Kansas are of great importance, and the combined resources of both the College of Agriculture and the College of Human Ecology need to be examined to determine whether Kansas State University as a whole is adequately allocating its resources to address the needs of Kansas families. This particular analysis is incomplete because it only addresses the investment made by the K-State College of Agriculture in families outreach and applied research.

- The amount of resources invested in program support services (11% of total FTEs) and administrative leadership (9% of total FTEs) are subject to critical examination. Given the dependence of the K-State College of Agriculture faculty on staying abreast of current communication and computing technology, it is difficult not to justify the current level investment in program support. Investment in administrative leadership positions is and should always be open to critical reexamination by the K-State College of Agriculture and the institution as a whole. It is the author's opinion that enough investment in administration is needed to ensure that the institution is properly managed and held to task in accomplishing its mission of service to the Kansas public. However, the institution needs to avoid being "top heavy" with administrative "machinery". The goal of Kansas State University should be to invest as many resources as it can into fulfilling its teaching, research, and extension responsibilities, with an appropriate but not excessive amount of resources invested in both program support and administrative leadership positions.
- A truly comprehensive study of the investments in resources by the K-State College of Agriculture should also take into consideration all support / non-faculty staff as well as the faculty positions considered here. Extension agent positions in the field should also be included if the goal is to analyze whether the K-State College of Agriculture and K-State Research and Extension is investing resources adequately to fulfill the purposes and responsibilities given to it by the Kansas public. A truly comprehensive study would also involve more direct input from faculty and department heads regarding their areas of focus and expertise.

## **Final Thoughts**

The K-State College of Agriculture is involved in an ongoing effort to determine how best to allocate scarce financial resources in a manner that best serves Kansas agriculture and the broader citizenry of the state. The input of impartial people who are not directly affiliated with Kansas State University is of vital importance in guiding the administrative leadership of the College of Agriculture in how best to invest its limited amount of resources and be good stewards of the public trust.