

Information Technology in the University of Kentucky College of Agriculture: Status, Themes and Opportunities

**Prepared by the Dean's Ad Hoc Committee for Information
Technology and Computing Services Review**

University of Kentucky

College of Agriculture

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EXECUTIVE SUMMARY

In April 2002, Dean Scott Smith formed a committee to review information technology (IT) and computing services for the University of Kentucky College of Agriculture. The “College” was defined as including on-campus and off-campus (primarily extension and the Research and Extension Centers) personnel and programs. The definition of IT adopted was, “the systems and personnel that enable moving, storing, manipulation, presentation and sharing of information.” The IT Review Committee’s goals and charge were similarly broad, comprehensive and unconstrained. The Review Committee interpreted its charge as basically defining the College’s needs, assessing the College’s status relative to those needs, and providing recommendations on how to best achieve the College’s IT needs.

The IT Review Committee (henceforth, the “Committee”) recognized that they would have to go beyond an antiseptic approach of gathering and reporting on facts and figures. The human dimension is a critical component of IT processes and products, and the Committee worked hard to capture this dimension. The Committee collected and analyzed facts and figures, but the Committee also gave the people involved in the College’s IT activities a chance to provide their perspectives. The people very definitely had something to say about IT. The subjective information provided through surveys, focus groups and interviews largely arranged itself along themes that constantly recurred during the Committee’s review. These themes were instrumental in defining the College’s IT needs of highest priority as assessed by the Committee.

The College currently employs in the neighborhood of 1700 personnel and has a total of over 1500 students. The College’s infrastructural investment in IT equipment is in the vicinity of \$5.2 million, most of it in the form of desktop computers. The College furthermore spends an estimated \$2 million per year in IT material costs and perhaps as much as \$1.5 million per year in IT staff and administrator salaries. This level of investment is in the apparent absence of any coordinated College IT plan and occurs 14 years since the last review of the College’s IT status.

The individuals and groups that the Committee contacted expressed literally scores of IT needs and desires. The objective data available to the Review Committee suggested additional IT needs within the College and/or reinforced earlier expressed needs. Although some of the IT issues are unique to specific units and/or individuals, many others cut across unit divisions and suggested themselves to the Review Committee as especially needful of attention. The Review Committee distilled those issues into a set of 36 issue/recommendation pairs that appear at the end of the report. The most important of those recommendations are concisely stated as:

- The College needs to develop, implement, and monitor a coordinated IT plan.
- The College is in serious need of procedures that improve IT-related communications and that foster an environment of partnership and inclusiveness.
- The College should invest in accessible, high-quality training for its staff.
- Access to the College’s wealth of online resources should be more user-friendly.
- More Regional Extension Technology Coordinators are required, and the remainder of the Computing and IT section should be staffed at least at authorized levels.
- The College should invest in additional IT infrastructure, particularly high-speed Internet access in the county offices and wireless networking.

INTRODUCTION

Nearly 14 years ago, Dean Oran Little commissioned a review of the Agricultural Data Center's mission. The committee that performed the review, chaired by Dr. I.J. Ross, was directed to "study the College's computing needs with the objective of determining what needs can best be met by a centralized unit within the College." Fortunately for the present review committee, the resulting report was broader in scope than the stated mission suggested. The "Ross Report" investigated computing needs from the perspectives of administration, extension, teaching and research, providing 23 recommendations for College action.

The Ross Report was a prescient document in many respects. The committee's call for all faculty/staff to have ready access to computers, for e-mail to be available to College employees, and the structure and function of Agricultural Communications Services (ACS) have come to pass virtually as recommended. Some of the programmatic recommendations included in the Ross Report, such as planned training, have not been implemented satisfactorily. Still others, such as unit-level programming support, have largely been overtaken by rapid advances in commercially available software and the proliferation of programming skills among faculty.

The College of Agriculture has faced at least two challenges in fully benefiting from the work done in 1989. The first is that there was apparently no effort to translate the committee's report into a widely disseminated plan containing timelines and clearly delineated responsibilities. The second challenge is that the report occurred just prior to technological explosions that tremendously increased the computing power of desktop computers and ushered in a new information age via the World Wide Web. This is not to say that the College's status with regard to IT has not improved over the last 14 years. The College has historically done an admirable job in terms of fielding and supporting the latest technology as well as integrating that technology into its educational programs. This process, though, has seemingly been due in large measure to a series of individual initiatives and short-term, limited-scope planning. It is likely that, apart from College-level support activities, the current College state of IT would have arisen more-or-less inevitably as a result of the pressures that IT improvements have generated. Indeed, there is much evidence that this is the case, and that the College's IT status is a reflection of multiple, independent, evolutionary pathways. Some of the resulting systems have been accompanied by very positive results but not without some gaps, duplication of efforts, confusion, friction and loss of productivity.

If the College is discovering that it has reached a point of urgently needing IT assessment and planning, there may be some solace in the knowledge that it is in good company. Universities such as Indiana University, University of California-Irvine, and University of California-Davis have recently wrestled with the issue of how to improve their IT posture, and virtually all of the challenges that the present committee identified are the same as those that have been identified in analogous reports at other universities. Many of the recommendations in this report have parallels in reports published by those universities.

In view of our finding of similar challenges and similar solutions to IT challenges among U.S. universities, one might be inclined to view the present committee's efforts as little more than another wheel reinventing exercise. However, there are far fewer reports of IT evaluations

performed on a college scale than on a university scale, and fewer still involving colleges of agriculture. The implication is that, as a result of critically assessing itself in the context of IT, the College has the opportunity to improve its competitive position among peer colleges and to assume a position of leadership within the University of Kentucky.

APPROACH

Committee and Charge

On April 15, 2002, Dean Scott Smith appointed a 12-member committee and charged the committee to review information technology (IT) and computing services for the University of Kentucky College of Agriculture (appointment letter given in Appendix 1). The Committee was composed of the following individuals:

Dwayne Edwards, Biosystems and Agricultural Engineering, Chair
Steve Isaacs, Agricultural Economics
Pat Dillon, Entomology
Toni Greider, Agricultural Information Center
Tom Mueller, Agronomy
Doug Shepherd, Hardin County Extension Agent
Susan Sponcil, Agricultural Administration
Craig Wood, Agricultural Communications Services
Jim Lawson, Agricultural Administration (*ex officio*)
Nancy Cox, Agricultural Administration (*ex officio*)
Carla Craycraft, Agricultural Administration (*ex officio*)
Larry Turner, Agricultural Administration (*ex officio*)

The Committee met twice in the following weeks to better define the charge and begin discussions on the process, the first time with Dean Smith present. Based on these meetings and Dean Smith's guidance, the Committee identified the following as objectives that the Committee should specifically consider:

1. Define the College's IT goals/needs and collect the information necessary to assess the College's status relative to those goals and needs.
2. Provide recommendations on how to best integrate the College's IT resources.
3. Plan the implementation of future IT systems and acquisitions.
4. Identify underserved units and develop a plan to rectify any inequities.
5. Set minimum system standards.
6. Recommend a model for IT administration (i.e., centralized, decentralized or a combination of both).
7. Identify and recommend processes for better dissemination of information on University resources.
8. Develop recommendations on how to maximize efficiency and minimize duplication of the College's IT resources.

Definitions and Goals

The Committee subsequently defined IT, for the purposes of its work, as

The Systems and personnel that enable moving, storing, manipulation, presentation and sharing of information.

The Committee furthermore recommends that the College's goal with regard to the use of IT should be to

Provide seamless systems and support that serve College clientele with timely, easy access to information of interest and that enhance the quality and productivity of College faculty, staff and student efforts.

The Committee adopted the product/process/customer model for insight into how to conduct the assessment and the information that would be necessary. Considering the IT systems and support personnel to be part of the IT process, the model can be considered as consisting of the following components:

1. Clientele (the end users of IT), to include:
 - a. College of Agriculture students (undergraduate and graduate).
 - b. College of Agriculture faculty, agents, specialists and staff.
2. Products (what IT provides the clientele). Examples include:
 - a. Reports (administrative, financial research and other reports).
 - b. Internal and external communications.
 - c. Instruction/instructional resources (including training on IT itself).
 - d. Security.
 - e. Publishing.
 - f. Access to published information.
 - g. Analysis and presentation of information.
3. Systems (the "things" that enable product delivery), including:
 - a. Network infrastructure (e.g., fiber, cable, routers, telephone lines).
 - b. Computing hardware (servers, PCs, routers, printers, PDAs, etc.)
 - c. Computing software (operating systems and applications).
 - d. "Smart classroom" equipment.
 - e. Digital, video, audio and other storage media.
 - f. Digital technology systems and tools (e.g., GPS, GIS).
 - g. Telephones (land line and cellular).
 - h. Satellite uplink/downlink equipment.
4. Personnel (the people who design, install and/or support the systems):
 - a. Technical support professionals.
 - b. Instructors for IT/applications courses.

The Review Committee did not seek feedback on College IT products from non-UK clientele. Instead, we assume that any College IT product improvements generated from UK clientele feedback will be similarly beneficial to non-UK clientele.

By the conclusion of the second meeting, the IT Review Committee had drafted a plan to guide their activities during the process. This plan is given as Appendix 2. It will be apparent that the original target dates for the milestones were, in retrospect, optimistic.

The IT Review Committee used a variety of instruments to collect information from College customers regarding their IT needs and issues. Nearly all the instruments were multi-purpose, providing insight into how IT is used in the College (i.e., products) as well as the types and level of use of different IT equipment and software (i.e., systems). Multiple information gathering instruments were also used to evaluate the College's IT support system and to solicit feedback from the support staff. Throughout this process, the Committee continuously documented all feedback and categorized open responses to identify recurrent themes. Finally, the Committee identified what it considered to be the highest-priority issues and developed at least one recommendation for each of these issues.

Clientele

Based on the Committee's analysis of the charge and definition of the College IT model, we identified the following clientele groups as resources for clientele information:

1. Chairs/directors (henceforth referred to as "Chairs"), Dean of College of Human Environmental Sciences.
2. Faculty, specialists and agents (both on-campus and off-campus).
3. Staff (clerical, technical and professional).
4. Students (graduate and undergraduate).

At the time of report preparation, the Committee's best information was that there was a total of 1727 College employees, subdivided into 745 staff, 704 professional staff and 278 faculty. Enrollment figures indicated approximately 1150 undergraduate students and 370 graduate students in the College, for a total student population of about 1520.

The Committee supplemented the information from these groups with one-on-one interviews with selected College administrators and staff (e.g., Associate and Assistant Deans, administrative assistants and IT support staff supervisors). Information from these interviews is only rarely cited directly, but was instead used primarily for context and perspective. The information collection plan is given as Appendix 3. The survey mailed to the Chairs is given as Appendix 4; the surveys and discussion points used for soliciting extension agent information are given as Appendices 5, 6 and 7.

The Committee's final step with regard to soliciting clientele feedback was to send a College-wide e-mail letter to provide personnel with the background on the Committee's task and to solicit their responses. The text of the e-mail letter is given as Appendix 8.

The types of information the Review Committee solicited from these groups were largely related to their sense of satisfaction with existing IT systems and support. However, the Committee also asked each of the above groups to identify specific IT issues of concern to them and to provide suggested solutions when applicable.

Products

The Committee's identification of the products that College IT is currently being used to generate was derived directly from the clientele feedback instruments and processes discussed earlier.

Systems

The Committee developed an approximate inventory of significant on-campus IT equipment based on feedback from Chairs surveys (Appendix 4) which were, in some cases, prepared by unit-level IT support staff. The Chairs survey was also used to identify equipment- and software-related issues such as replacement, maintenance, needs and expenses. Analogous information for extension offices was obtained from the county extension office survey (Appendix 5). The Committee used information supplied by the College administration to perform a rough crosscheck of the expense data.

Personnel

The personnel who operate and maintain the IT systems were a point of particular focus for the Committee. Our information on IT support staff assignments, titles, salaries, experience and duties were derived from the Chairs survey (Appendix 5). We solicited comments directly from IT support staff by conducting surveys, focus group sessions (Appendix 9) and limited individual interviews with College IT support staff.

FINDINGS

Clientele

Summarized findings on the clientele groups are given in the following subsections. The actual dates for the focus groups were September 16, 2003 for support staff, September 18, 2003 for faculty, September 23, 2003 for unit-level IT support staff, and February 5, 2003 for Princeton and Quicksand (2 sessions, one for faculty and one for staff).

Two of the most common threads are the desire for additional training (with some differences in training needs among the clientele groups) and processes to improve communications within the College. It is also fairly obvious that those with ready access to IT support have the highest levels of satisfaction with the College's IT status.

Faculty

Many faculty, particularly those without unit-level IT support, find it difficult to identify the proper sources of IT support. The resulting sense of frustration applies to hardware support, software support, web design, availability of site-licensed software, "smart classroom" support, and virtually every other topic that is remotely related to IT. Some faculty also noted that even when information was available online, it was often difficult to find it in a timely and intuitive fashion. Faculty want quick, intuitive access to online College resources, regardless of how it is accomplished.

The solutions to some of faculty discontent with online resources are outside the direct influence of the College (for example, the layout and design of the University's pages), but others are within the College's realm of influence. For example, the faculty recognize and appreciate the effort required to make excellent resources such as the Agripedia and the extension publications available online. There is concern, though, that these resources might be underused because of the perceived difficulty in quickly finding the desired resources, and there is a desire for a notification system when new College publications become available online. Quality control of content was mentioned as an additional concern related to extension publications, with some faculty expressing the need for online publications to undergo the same rigorous review process as paper publications.

As a group, faculty tended to be relatively satisfied with their equipment, even though they would prefer to be able to purchase it on hard funds and on a regular replacement cycle. Issues involving desktop and other support were relatively uncommon, especially among faculty using a Windows operating system; this might reflect the majority of units having IT support staff available, a relatively high priority given to faculty with support needs, and the ability of many faculty to solve many of their own IT issues. Faculty feel strongly that current IT can be used to automate some tasks, such as grade reporting and proposal routing. Products and capabilities such as PDAs/PPCs, "smart boards," digitizer pads, back-up software and wireless networking capability are in current demand and would be used immediately if available.

Faculty perceived a very strong and immediate need to evaluate the way the College hires, trains and manages its clerical and technical support staff (i.e., non-IT support staff) in the context of IT. The dominant view among faculty is that IT has revolutionized the role of support staff, but that the staff's training, job descriptions, and salaries are still consistent with their traditional roles. More specifically, the faculty's needs of long-time employees have changed over the years. Information technology has enabled faculty to efficiently do many of the tasks traditionally associated with staff. At the same time, IT has pressured the staff to learn new skills and to perform higher-level tasks, such as managing databases. However, the job descriptions of the staff have remained largely the same, and the staffs often have not received adequate training (initial, refresher and/or transitional) to become proficient in their unwritten IT-related duties. The lack of training is exacerbated by the fact that faculty often "share" a common staff member, which prohibits any one individual from taking responsibility for the training of that staff member. The net result in such cases is an underused staff and loss of potential productivity to the College. The IT Review Committee view this as a serious issue that requires immediate emphasis and robust procedures to rectify the situation and to prevent its recurrence.

Many faculty are very enthusiastic about incorporating advances in IT into the classroom, but perceive a lack of support and procedures to accomplish it. Funding for IT-related innovations often seems insufficient, and there is little meaningful institutional encouragement for the extra effort required to implement such innovations. Those faculty who forge ahead sometimes find themselves faced with challenges such as maintenance and support for "smart classrooms," training in technology such as Blackboard and web-based instructional resources (e.g., streaming video), coordination for computer-equipped classrooms, and knowing the College's goals, priorities and emphasis with respect to distance learning. The use of IT to enhance classroom instruction and to expand distance learning efforts probably represents a significant opportunity for the College. However, the administrative facilitation (e.g., funding, annual review credit, seminars/workshops/forums) – particularly at the department level - will likely be required to realize the full benefits of IT in an instructional setting.

While the above paragraphs apply to both on-campus and off-campus faculty, off-campus faculty understandably expressed a greater need for remote communications capability and support. Some of the more common issues expressed include enhanced capabilities in video teleconferencing and compressed video (equipment, support and installation) and the need for more mobile IT equipment (PDAs/PPCs).

Appendix 10 provides consolidated and condensed faculty comments.

Staff

Even though the clerical and technical staff (non-IT support staff) are an obviously vital clientele group of the College's IT systems and services, there is a significant perception that they have a very limited ability to influence IT matters. Many staff feel as though they have no mechanism for raising issues and that changes in IT products/services are implemented without their counsel or the opportunity to test them in advance. There is also a widespread sentiment

that inclusive mechanisms are needed to facilitate communications, peer problem solving, and a greater sense of unity within the College.

The staff are acutely aware of their need for more IT training, both in commonly used software (Word and Excel) as well as College applications (e.g., CATPAWS). They are often expected to perform tasks for which they have received little or no formal training, often with outdated, hand-me-down equipment (which causes compatibility issues with faculty/specialists having relatively new equipment). They also perceive that there is no organized system in place to either provide that training or to provide them with routine IT support. Staff are often forced to go from person-to-person to get the answers and support they need, particularly in those units without on-staff IT support. Staff who try to avail themselves of online training often find it difficult to complete, because their routine tasks don't stop while they're involved in the training. Formal, face-to-face training is the preferred mode of instruction; however, it is difficult for off-campus staff to benefit from this type of training when it is held at Lexington. While the Help Desk is a potential resource in terms of staff support, the staff reaction to the level of support they've received in the past is mixed.

The staff identified several issues that will require coordination with University IT staff. The Student Information System (SIS) and Financial Resources System (FRS) are particularly frustrating in terms of the limited ability to quickly provide needed information. The technology for importing student information into College databases and for performing automated degree checks, for example, has been available for years, yet the University systems do not lend themselves to the degree of automation that is feasible and needed. One would be challenged to discover a single positive comment about these systems among the College's 745 staff members, and it will be no surprise to see their impending demise celebrated with unabashed glee. Staff would also like to see increased use of online forms similar to that used for vehicle registration, provided there is uniformity. They would also like to see stronger e-mail spam detection in place (this seems to be a very widespread complaint). The staff seemed satisfied with the Scovell Hall print shop and the annual leave system, although they would like to see the biweekly annual leave system online as well.

Individual staff comments (edited) are given in Appendix 11.

Chairs/Directors

The Chairs identified several issues that will require substantial resources to address, and the Chairs expressed a desire for additional, recurring funding to address those issues on the unit level. Many of these issues have been addressed in other contexts, such as expanded wireless networking, replacement of obsolete equipment (especially staff computers and the aging Ag North network equipment), expanded "smart classrooms," enhanced video teleconferencing, and high-speed internet connections at all remote locations (especially extension offices). The Chairs also perceived a need for increased personnel in Agricultural Communications Services (ACS) who, in addition to ongoing responsibilities, could assist in developing minor products and applications. At least some Chairs expressed the need for additional unit-level IT support staff.

Other issues identified by the Chairs involve less in the way of resources and more in the way of support processes. Some of these issues involve nothing more complicated than increased communication. Chairs specifically alluded to the earlier mentioned difficulties in finding out where to go for various support needs and the need for improved use of available Main Campus resources. The Chairs also indicated a need for improved communications regarding policy changes, network modifications and security issues as well as a need for guidelines on new computer configurations. Chairs see value in sharing electronic calendars and products across departments, such as administrative spreadsheets, and other measures that would eliminate duplication of effort. They also expressed a desire to see some attitude changes, both within and outside the College, such as a less restrictive and more partner-oriented relationship with ACS and elimination of the perceived “us vs. them” relationship with Main Campus IT support.

The Chairs largely verified the staff’s views regarding training. Chairs are aware that training opportunities are available (e.g., Net-G and ExecuTrain) and encourage their staff, in varying degrees, to attend training. However, most staff training appears to be informal and obtained from peers or unit-level IT support staff.

The Chairs generally perceive IT support from the College to consist of network/printer support, “smart classroom” support, conferencing equipment, backstopping when unit-level IT staff are unavailable, and some amount of support on security issues. A small number termed College support as “minimal.” There is a sense of receiving conflicting information on IT issues, of uncertainty in the structure and orientation of ACS (it seems to be heavily oriented toward extension, and there is some confusion as to whom provides what kind of support), and of limited value of calls to the Help Desk. The perceived support from Main Campus consists generally of providing some basic software classes online, notification in the event of hacked servers (for units that operate their own servers) and connectivity hardware support (e.g., new data lines, cable, and hubs). Main Campus support also maintains a Virus-L list server, the content of which is presumably available to unit IT support staff. At least one unit (without unit-level IT support staff) pays for Main Campus to provide all IT support. There is a widespread sense of not knowing where to go for Main Campus support due to shifts in personnel, responsibilities, and ineffective publicity. The most effective interactions with Main Campus IT support appear to be based on individual relationships.

Individual Chair comments are given in edited form in Appendix 12.

Extension Agents and Staff

Virtually all agents (283 of 284 reporting) have access to a computer at their workstation. The vast majority (82%) also have a computer at home. Slightly over 11% reported owning a PDA or PPC. There was a widespread sense of needing additional support across the IT spectrum, including more RETCs, quicker response to requests for support, College support for internet access, enhanced videoconferencing ability, additional presentation equipment, facilitated transfer of large files, enhanced digital imaging and sharing, and access to teaching resources (e.g., Blackboard).

Approximately 91% of all agents own cell phones and judge them to be exceptionally helpful. Nearly two-thirds (65%) of those phones have voice mail capability. Slightly less than half (49%) of those phones are provided through work channels. Regardless of the source, though, the agents collectively reported that roughly 65% of their usage was work-related. Most of the cell phones appear not to reflect the latest technological advances, however. Only about 5% of the phones have either two-way radio capability or Internet capability.

The survey of Extension agents revealed an extremely high demand for additional training on IT equipment and software. Table 1 suggests that, while a plurality of agents are proficient at surfing the web and managing documents on a word processor, there are substantial training needs in areas such as Windows proficiency, e-mail software, spreadsheet software and presentation software, especially since such high proportions (generally greater than 80%) reported using these types of software. Many of the agents themselves specifically requested more training in such subjects (and others, including GPS and PDAs/PPCc), especially if the training is hands-on, uninterrupted, local and accompanied by high-quality written reference materials. The agents also noted that their training needs to be oriented toward the software and functions that apply to them, such as Martech (although there is widespread dissatisfaction with this tool, with one agent basically suggesting that Martech be hanged and decapitated with a stake driven through its heart).

Table 1. Self-Reported Extension Agent Software Proficiency¹

Software Category	Degree of Proficiency			
	Well-Versed %	Moderate %	Beginner %	Don't Use %
Internet browser	47	37	16	1
Word processor	43	41	14	2
E-mail	28	40	22	10
Windows OS	25	41	29	5
Desktop publishing	23	29	33	15
Presentations	17	25	46	12
Spreadsheet	10	32	38	20
Database	5	32	45	18
HTML editor	4	10	42	44

¹ Number of respondents varied, but was generally around 285.

Extension agents brought up many areas in which changes to existing systems could greatly improve their efficiency. Multiple login IDs and passwords, user-unfriendly web sites, difficulty in forwarding e-mail attachments (with Pegasus), multiple reporting channels and formats, and lack of high-speed Internet access were mentioned as representing obstacles to their productivity. The availability of high-speed internet access would probably negate the need for other suggestions that were offered to overcome low-speed access (e.g., periodic distribution of the College's web pages via CD).

As one of the largest clientele groups of College online information, the agents identified several areas in which they thought improvements in information dissemination were needed. Agents would like to be kept updated on technology developments and be players in the College-level IT decision-making process, suggesting that initiatives be field tested in the low-tech counties before College-wide implementation. There was a overwhelming desire for improvements in the online publication system as well as for notification when new/updated publications become available. Given the proliferation of online publications made available on unit (as opposed to College) servers, it would also be very helpful to have the capability of locating these resources when using a College search engine. Many agents also expressed a desire for an improved College search engine and maintenance of updated FAQs and expertise directories.

Individual agent comments are given (edited) in Appendix 13.

Students

Of all the groups that the Review Committee identified and contacted, the students probably seemed the most contented in terms of the College's IT status. The students that the Committee surveyed seemed generally pleased with the availability of IT equipment (quantity, configuration and operating hours) and access to support. The acquisition of the computing equipment in the Agricultural Information Center appears to be paying dividends in this regard, as well as computing facilities that individual academic units have made available to students in their home departments. Students whose home departments administer their own networks were generally pleased with the flexibility of those facilities and the timeliness of support. Students appear to be highly satisfied with the process of obtaining @uky.edu e-mail address and their ability to check e-mail from remote locations.

Students' reaction to the incorporation of IT into the classroom was mixed but generally positive. The students noted and appreciated the efforts of faculty to incorporate IT into coursework through the use of Power Point lectures, Elmo equipment and the Blackboard system. Those who had taken online courses (generally not College of Agriculture courses) were very pleased with the flexibility afforded by that format, in spite of the issues associated with low bandwidth connections (e.g., slow downloads and lost connections during timed exams). However, students also identified a systemic need for the College to invest in teaching the teachers how to effectively use IT in the classroom. For example, the effectiveness of the Power Point lecture format can be questionable unless the presentation notes are distributed in advance of the lecture. Instructors who do little more than read the notes inspire very low interaction and high passivity, both of which are detrimental to learning.

The students were very perceptive in identifying issues that deserve immediate attention and that probably have quick fixes. Students were negatively impressed with instances of non-functional teaching equipment (e.g., overhead projectors and dry erase markers) and the inability to obtain timely support to “smart classroom” equipment. They are similarly frustrated with inferior furnishings in College of Agriculture classrooms, such as desks with surfaces that are hardly large enough to support a textbook (e.g., N-10). No students were satisfied with the magnetic card system of making copies. Finally, students had a strongly negative reaction to instances when they sought IT support and perceived that they had been treated disrespectfully.

Students identified additional challenges that, while perhaps requiring longer-term effort, are nonetheless worthy of focus. For instance, as was the situation among other College personnel, there is virtually universal frustration with regard to knowing where to go for IT-related information (e.g., locations of computing facilities, availability of software, hours of operation and software support). Students are often unaware of the University’s online registration capabilities and sometimes unsatisfied with it because of a lack of timely updates to class availability. In a related issue, students think it is reasonable to have better online access to historical instructor ratings and to see IT used to make undergraduate advising more effective. The students find it absolutely incredible that instructors are still relying on hand-written rosters to collect students’ e-mail addresses. Other common comments and suggestions included increased support for students with their own notebook computers (e.g., network ports in classrooms), expanded wireless networking, hardware upgrades (in particular, inclusion of CD R/W drives, sound cards and USB ports) and availability of telephones in student break rooms (particularly critical during registration). While students were ambivalent about a requirement to purchase notebook computers, there was a sense that the University should negotiate reduced computer prices for students. Many students indicated a desire for software to be standardized among computer labs to facilitate their mobility. One of the more innovative student suggestions was to develop a database on College of Agriculture alumni, so that students interested in a particular career field or employer could contact them directly for more information.

One of the common threads among the student surveys was that, even though the use of IT is expected in many College of Agriculture classes, they are often more-or-less on their own in terms of learning the technology. There were numerous expressed desires for more and better instruction on how to use software products such as the MS Office suite (especially Word and Excel), SAS and GIS packages. While many of our students enter the College with appreciable computing skills, those without basic skills are effectively left to their own initiative to acquire them.

Edited individual student comments are given in Appendix 14.

Products

Many of the products that IT is used to develop in the College could probably be referred to more correctly as IT-assisted rather than IT-generated. In other words, these basic products have long been viewed as outcomes of the College's tripartite mission. The IT revolution has simply shifted their production toward the developer level, made their production quicker and easier, increased product effectiveness, thereby promoting efficiency and productivity. Perhaps the greatest concentration of actual "new products" occurs in the research area, where IT developments have enabled the measurement of quantities that were previously beyond our ability to measure. Regrettably, the capabilities that IT offers can be, and have been, abused. To some degree, IT has acted as a self-reinforcing feedback mechanism. The ease with which some information can be collected and reported has simply fueled some administrators' desire to see even more reports, with the same data arranged in different ways.

Reports

As a result of its facilitative influence, IT has almost undoubtedly caused a proliferation of reports. Although it would be difficult to argue against the need for reports from the standpoints of assessing progress, allocating resources and other functions, there is a sense that there are too many reports that ask for the same information in different ways and that ask for information that is used to no clear purpose.

Internal and External Communications

College personnel obviously use IT extensively in communications. Developments in IT have caused an explosion in the volume, speed and reliability of communication. In fact, it is widely becoming (for better or worse) the communication medium of first choice among many College personnel. Improvements in e-mail applications have greatly facilitated the transfer of documents, data, and other information. As with so many other IT-related products, e-mail has the proven capability for misuse and has promoted a sometimes-overwhelming volume of traffic (much of it unwanted). Regardless of one's views on the topic, e-mail has also acted to flatten the organization structure. Other communications media such as instant messaging and desktop videoconferencing are currently in use in the College and have considerable positive potential, particularly among extension agents who want to maintain a sense of personal contact with their clientele to the greatest degree possible.

Instruction and Instructional Resources

Information technology has made a tremendous impact on the amount and nature of instructional products that College personnel develop and use. Course notes, presentations, digital photographs and other products are routinely developed by College personnel and often made available to students and other clientele on the Web. A resource such as Agripedia, for example, would have been unthinkable prior to the advent of IT. Rapid, detailed analyses of topographical parameters and soil characteristics would have been similarly impractical prior to the availability of GIS and desktop statistical analysis packages. It is questionable, though,

whether instructional techniques and incorporation of cognitive theory have kept pace with advances in IT.

Security

Perhaps inevitably, IT systems have been accompanied by malicious activities aimed at disrupting those systems. Some computer security measures are in place in the College, at least in those units with full-time IT support. The most common approach seems to be installation of McAfee antivirus software, with automatic software and virus definition updating. Similarly configured Norton antivirus software is used less frequently. It is difficult to know what measures are in place in units with no full-time IT support; the Committee's guess is that implementation of security measures under those circumstances is primarily a function of individual initiative. The degree to which Windows critical updates, which usually solve identified security issues, are being downloaded and installed is unknown. The unit-level IT support staff that the Committee contacted indicated that they encourage faculty and staff to update their computers regularly. The Committee suspect that a sampling of College computers would indicate that they are substantially outdated in terms of Windows updates.

Publishing

Advances in IT have dramatically altered the processes by which information is made available to College clientele. Peer-reviewed journal articles, proceedings papers, fact sheets and extension publications can run their entire production cycle without generating a single sheet of paper and ultimately be published only in online format. College personnel are heavily involved in such processes, from the standpoints of developer, reviewer, and audience. Information technology has also enabled significant compression of the time scale spanning the period of concept to published product. This is not regarded as an altogether good thing. The current ease of product generation, compressed review processes, and proliferation of online product outlets raise concerns regarding quality control and require careful source assessment.

Access to Published Information

Information technology has literally brought the library to the desktop. Each person on the Committee remembers every research project began with a pilgrimage to the library to pore over seemingly endless tables of journal contents. Today, the University of Kentucky library system has access to over 12,000 electronic journals. Many professional societies make their journals and conference proceedings available online on a fee basis (sometimes a part of membership dues). Research and extension publications are being published online throughout the country. In the recent past, it was cost prohibitive even for departments to publish and distribute printed reports. Today, though, it is a relatively trivial matter for even individuals to publish materials online (assuming the availability of the skills, software and hardware infrastructure). E-mail lists and discussion groups exist for a wide range of scientific topics. The traditional library remains useful in the sense of providing a repository for books and resources available only in printed format, but IT has facilitated the process of locating those resources, and an increasing number of books are being published in electronic format. The level of online

access to published information is regarded as a completely positive development that has fundamentally altered the way people search for information.

Analysis and Presentation of Information

IT has greatly facilitated the generation of research-related products such as proposals, reports, presentations and publications and data analysis, and these products are very much in evidence among College research faculty. As mentioned earlier, IT has also enabled research into phenomena that were previously outside the reach of science, and this type of research is also in evidence among the College's research faculty. One of the basic impacts of IT has been to shift functions such as the actual keying in of documents, preparation of graphics, and others away from the clerical staff and toward the researchers themselves.

Systems

Equipment On-Hand

College academic departments' self-reported on-hand IT equipment is given in Table 2. On-hand equipment for responding non-academic units is shown in Table 3. One should note that Tables 2 and 3 do not include a significant amount of other equipment related to IT. For example, the academic units reported totals of approximately 460 printers and 55 scanners; Cooperative extension reported 585 printers and 124 scanners. It would be difficult to capture totals of all IT-related equipment owing to challenges in defining IT equipment and identifying IT equipment from inventories. It should also be kept in mind that some units inventories are not captured in Tables 2 and 3 (e.g., Landscape Architecture, Family and Consumer Development, and 4H Extension) or in subsequent tables. Thus, the reported figures should be considered as minimum values. Even so, the totals on desktop and laptop computers indicate a very substantial inventory of computers on-hand. If a planning value of \$1500 per new desktop and laptop computer is used, then the College's inventory represents an investment of over \$3.7 million. Other equipment, such as "smart classroom" equipment and equipment controlled by non-reporting and other uncaptured units (e.g., the Agricultural Weather Center, College administration), could easily push the total to over \$5 million. Mac desktop computers make up a very low proportion (less than 10%) of the total College desktop computer inventory.

Recognizing the potential for figures such as those reported in Table 2 to be misleading, the Committee prepared Table 4 to try to normalize for factors such as numbers of faculty, staff and students. Table 4 by no means reflects all the factors that would indicate the existence of authentic inequities. For example, some units have no undergraduate program, and some units operate computing laboratories specifically for their students. However, it appears that regardless of the metric, some units clearly appear to be better off than other units.

Roughly half of the academic units provide at least a minimal number of desktop computers for student (graduate and undergraduate) use. The Committee were able to verify that the departments of Agricultural Economics, Agronomy, Biosystems and Agricultural Engineering, Entomology, Forestry, Horticulture and Plant Pathology provide student-use computers. The remaining academic units appear to rely on equipment provided and supported by Main Campus.

Though not under the control of the College, computers provided by Main Campus and housed in the Agricultural Information Center (AIC) appear to be heavily used by College students. The AIC provides 52 computers and lab assistance for student use. These computers are new and have received good reviews from the students, even though the students would like to see the computers configured with CD R/W drives to facilitate data transfer. The AIC also operates a portable classroom unit loan program. Each of these 20 units consists of a laptop computer, a projector, and a sound system (some have Elmo equipment) and is available for faculty checkout. These units receive frequent use, especially by Agronomy faculty, and the loan program has received very high reviews from faculty.

Table 2. Self-Reported Academic Unit On-Hand IT Equipment

Unit ¹	Desktop Computers		Average Age	Notebook Computers	PDAs/PPCs
	Windows	Mac			
AEC	138	2	3.5	40	10
AGR	236	4	3.0	35	10
ASC	176	11	3.5	40	7
BAE	100	0	3.5	12	12
CLD	40	0	2.0	10	5
ENT	143	7	4.0	20	5
FOR	80	4	4.0	20	10
HORT	42	0	3.0	4	2
PPA	31	44	3.5	7	0
VS	37	1	2.5	11	3
Totals	1023	73		199	64

¹ AEC = Agricultural Economics, AGR = Agronomy, ASC = Animal Science, BAE = Biosystems and Agricultural Engineering, CLD = Community and Leadership Development, ENT = Entomology, FOR = Forestry, HORT = Horticulture, LA = Landscape Architecture, PPA = Plant Pathology, VS = Veterinary Science.

Table 3. Self-Reported Non-Academic Unit On-Hand IT Equipment

Unit ¹	Computers		Average Age	Notebook Computers	PDAs/PPCs
	Windows	Mac			
ACS	70	7	3.0	6	6
CES	718 ²	3	3	198	33
LDDC	60	0	4.5	4	0
REG	90	0	2.0	15	1
TRDC	20	30	3.0	3	0
Totals	958	37		226	40

¹ ACS = Agricultural Communications Services, CES = Cooperative Extension Service, LDDC = Livestock Disease Diagnostic Center, REG = Regulatory Services, and TRDC = Tobacco Research and Development Center.

² Total of Windows and Mac systems.

³ Unknown

Table 4. Normalized Distribution of Academic Unit Desktop Computers.

Unit ¹	D/F ²	D/FS	D/Stu	D/FSStu
AEC	6.1	4.1	0.6	0.5
AGR	6.5	5.6	1.7	1.3
ASC	4.8	3.9	0.6	0.5
BAE	4.4	3.4	0.8	0.7
CLD	2.2	1.6	0.2	0.2
ENT	8.8	7.1	3.9	2.5
FOR	6.5	4.7	0.7	0.5
HORT	2.2	1.8	0.7	0.5
PPA	5.8	4.4	4.2	2.1
VS	2.1	0.8	1.6	0.6
Average:	5.2	4.0	1.6	1.0

¹ AEC = Agricultural Economics, AGR = Agronomy, ASC = Animal Science, BAE = Biosystems and Agricultural Engineering, CLD = Community and Leadership Development, ENT = Entomology, FOR = Forestry, HORT = Horticulture, LA = Landscape Architecture, PPA = Plant Pathology, VS = Veterinary Science.

² D/F is total desktops divided by total faculty, D/FS is total desktops divided by total faculty and total staff, D/Stu is total desktops divided by total students (undergraduate plus graduate), and D/FSStu is total desktops divided by total faculty, staff and students.

In addition to the equipment above, there are over 40 servers operated in the College, spread among the units and administration. Table 5 represents the Committee's best effort in identifying the servers, operator, operating system, purpose and clientele. These servers represent an additional inventory investment of perhaps over \$200,000, apart from the recurring service and support costs. The degree, if any, to which these servers represent duplication of equipment and effort is unknown.

Software

With regard to software, the MS Office applications seem to be the most commonly used tools in the College, specifically Word, Excel and Power Point. Statistical analysis and data presentation tools such as SAS and Sigma Plot are also highly used. Other software, such as Adobe Acrobat and Adobe Photoshop, is less widespread and appears to be linked to the activities of the specific units. In spite of its superior capabilities and compatibility with PDAs/PPCs, Microsoft Outlook appears to be used less frequently than either Eudora or Pegasus. Some College personnel continue to use Word Perfect for word processing, although these users appear to be migrating toward Microsoft Word.

Table 5. College of Agriculture Servers

Unit	Server	OS	Purpose	Primary User
CIT	ag_data	Novell	File & Print	COA units
CIT	ag_data2	Novell	File & Print	Hort, LA, VS, AIC
CIT	ag_data3	Novell	File & Print	Extra storage for units
CIT	ag_comm.	Novell	File & Print	ACS, 4-H, FCS, Ext.
CIT	ag_ent	Novell	File & Print	ENT
CIT	coawww	Win 2000	Web	COA
CIT	agftpsrv	Win 2000	FTP	COA
CIT	coawww2	Win 2000	Web backup	COA
CIT	wwwwrhse	Win 2000	Web applications	COA
CIT	agwrhse	Win 2000	Development	ADC Applic. Prog. Group
CIT	agfpgsrv	Win 2000	Front Page Server	CES County Offices
CIT	cainfobase	Win 2000	Real Audio Stream	COA
CIT	warehouse2	Win 2000	College databases	COA
CIT	mail.ca.uky.edu	Sun Solaris		COA (offline 1/31/03)
CIT	Rasfinder	Linux	Remote Access	COA
CIT	rec-princeton	Win 2000	File & Print	REC – Princeton
CIT	rec-quicksand	Win 2000	File & Print	REC – Quicksand
ASG	ag.admin	Novell	File & Print	COA Administration
ASG	luther.ca.uky.edu	Win NT	Fleet Management	Management & Operations
ASG	dobson.ca.uky.edu	Win 2000	Web server	COA Administration
ASG	webapps.ca	Win 2000	SQL 2000	COA Administration
ASG	agadmras	Win NT	RAS	COA Administration
ASG	agras	Win 2000	RAS	COA Administration
AWC	wwwagwx.ca.uky.edu	Linux	Apache HTTP	Ag Weather Center
AWC	dalton.ca.uky.edu	Linux	FTP, Apache HTTP	Ag Weather Center
AWC	clare.ca.uky.edu	Sun Solaris	Graphics	Ag Weather Center
AWC	weather3.ca.uky.edu	Linux	Backup	Ag Weather Center
AWC	kelvin.ca.uky.edu	Sun Solaris	Data Management	Ag Weather Center
AWC	weather1.ca.uky.edu	Linux	Graphics	Ag Weather Center
AEC	ftp2.ca.uky.edu	Win 2000	FTP	AEC
LA	saumur.ca.uky.edu	Sun Solaris	GIS	LA
LA	holbein.ca.uky.edu	Sun Solaris	GIS	LA
LA	romeo.ca.uky.edu	Sun Solaris	GIS	LA
REG	ag_reg	Novell	File & Print	Reg. Serv.
REG	mail.rs.uky.edu	Sun (?)	Mail	Reg. Serv.
REG	www.rs.uky.edu	Unix (?)	Apache HTTP	Reg. Serv.
REG	ftp.rs.uky.edu	Win 2000	FTP	Reg. Serv.
AGR	agrlabrv	Win NT	File & Print	Agronomy
BAE	bluto.bae.uky.edu	Sun Solaris	Email/virus checker	BAE
BAE	slugo.bae.uky.edu	Sun Solaris	Backup	BAE
BAE	roskoe.bae.uky.edu	Win 2000	DHCP/experimental	BAE
BAE	rocco.bae.uky.edu	Win 2000	Email/Web	BAE
BAE	jokko.bae.uky.edu	Win 2000	File/Print	BAE
FOR	forestry2.ca.uky.edu	Win NT	HTTP, file & print	Forestry
FOR	forestry3	Win NT	File	Forestry
FOR	quicksand	Win NT	File	Forestry, KCTCS students
FOR	kml-web	Win 2000	HTTP	Forestry

¹CIT = ACS Computing and IT section, ASG = College administrative computing group, AWC = Agricultural Weather Center., AEC = Agricultural Economics, LA = Landscape Architecture, REG = Regulatory Services. AGR = Agronomy. BAE = Biosystems and Agricultural Engineering, FOR = Forestry.

Equipment Replacement

The average age of desktop computers across all College academic units ranges from about 2 to 4.5 years old. Thus, IT equipment appears to be getting replaced, even if there is a scarcity of College or unit plans for doing so. Faculty and specialist equipment are largely replaced on an “as-needed” basis (i.e., when incapable of meeting demands), with the replacements being funded from grants (when available) or unit funds. Staff equipment is replaced on much the same basis, although there are many cases (as described earlier) of staff receiving hand-me-down equipment, which can lead to incompatibility with faculty/specialist equipment. Other departments have periodically replaced all staff equipment at once when funding was available. Replacement of graduate and undergraduate student seems to operate along similar lines (i.e., a mix of hand-me-downs and periodic total replacement).

Table 6 is an estimate of the current annual unit expenses for IT equipment (primarily desktop computers) and software. The total figure of roughly \$800,000 per year in annual IT costs is undoubtedly low due to reporting omissions. Including non-reporting units would bring the total closer to roughly \$1 million per year in hardware and software expenses.

Even the adjusted figure of \$1 million per year is probably low by around 50%. Figures available to the Committee indicate that the College’s total expenditures in IT-related categories were in excess of \$1.5 million for FY 2001-2002. Even the figure of \$1.5 million per year in FY 2001-2002 is probably too low, since it doesn’t reflect minor equipment purchases (defined as no more than \$500). The true present figure might be closer to \$2 million per year in recurring IT-related costs, especially considering the network access fee (paid to Main Campus) levied beginning in FY 2002-2003.

Hardware purchases were dominant among equipment purchases over \$500, constituting 63% of the FY 2001-2002 total. The next two highest categories were computing supplies (17%) and software (11%). Inclusion of minor purchases (no more than \$500) would undoubtedly increase the proportions of supplies and software, but hardware purchases would remain the largest category.

As a side note, it was not a simple proposition to generate the figures in the previous two paragraphs, and the information that was obtained was not at all in a helpful format. The Committee’s best determination is that FRS is nearly worse than useless in terms of being a proactive resource management tool.

Table 6. Self-Reported Annual IT Expenditures

Unit ¹	Hardware	Software
ACS	\$ 20,000	\$ 5,000
AEC	\$ 55,000	\$10,000
AGR	\$ 85,000	\$19,000
ASC	\$ 52,000	\$ 5,000
BAE	\$ 20,000	\$ 5,000
CES	\$406,000 ²	
CLD	\$ 10,000	\$ 2,000
ENT	\$ 18,000	\$ 1,000
FOR	\$ 10,000	\$ 1,000
HORT	\$ 8,000	\$ 1,000
LDDC	\$ 10,000	\$ 2,500
PPA	\$ 35,000	\$ 5,000
REG	\$ 30,000	\$10,000
TRDC	\$ 25,000	\$12,500
VS	\$ 15,000	\$ 2,000
Totals:	\$799,000	\$81,000

¹ ACS = Agricultural Communications Services, AEC = Agricultural Economics, AGR = Agronomy, ASC = Animal Science, BAE = Biosystems and Agricultural Engineering, CES = Cooperative Extension Service, CLD = Community and Leadership Development, ENT = Entomology, FOR = Forestry, HORT = Horticulture, LA = Landscape Architecture, LDDC = Livestock Disease Diagnostic Center, PPA = Plant Pathology, REG = Regulatory Services, TRDC = Kentucky Tobacco Research and Development Center, and VS = Veterinary Science.

² Total of hardware and software expenses.

Personnel

Computing and IT Section, Agricultural Communications Services

By any measure, the College Computing and IT section (CIT, formerly the Agricultural Data Center) is a major player in terms of College IT support. The CIT section (then ADC) was created in 1976, and its services have continuously evolved to maximize the use of technology and extend its use and application to the greatest degree possible. The former manager of the CIT section has written an excellent summary of its history and accomplishments, which is given as Appendix 16. The CIT section is authorized 13 positions of which four are currently vacant. The current estimated annual payroll for the CIT section is roughly \$500,000. The CIT section has an interim manager who reports to the Assistant Dean for Agricultural Communications and Information Technology.

The CIT section currently provides a wide array of services, including:

1. Network server and support services to all College units and county offices. The CIT maintains 14 servers with over 1 terabyte of storage and over 1,000 user accounts.
2. Support/maintenance of the College's computer classroom and "smart classrooms." The College's computer classroom consists of 15 computers and a projection system in 246 Barnhart. There are 12 "smart classrooms" located in Ag Sciences North, Garrigus and Erickson.
3. Support of county extension offices through the Help Desk, RETCs (discussed separately in following sections of this report) and the College's Web Consulting and Order Entry Systems.
4. Web applications development and maintenance, ranging from extension reporting to meeting registration.
5. Video conferencing scheduling and support.

The CIT individuals that the Committee contacted had a fairly definite idea of what their relationship to their clientele should be. Specifically, CIT personnel think that this unit should be in a strictly supportive role and eliminate any perception that they are forcing their ideas and policies on their clientele. In other words, the CIT should exist to empower and facilitate individuals and programs through the use of technology. CIT personnel very much want to see their support roles driven by needs in teaching, research and extension than vice versa, and for there to be an overall plan to provide a road map for their future support activities. The perceived lack of this type of regular, inclusive planning was specifically cited as a service detractor.

The CIT currently operates under a significant personnel shortage relative to authorized staffing levels. Apart from the current three vacancies on their authorized staff, the CIT are experiencing "mission creep." For example, in addition to their normal duties, the CIT has recently taken on the job of providing desktop support to the College of Human Environmental Sciences and the Kentucky Tobacco Research and Development Center (totaling around 200 additional computers). The CIT is already providing either full or partial desktop support to the Plant Pathology and Veterinary Sciences departments. The CIT further recognize that large amounts of critical knowledge are unique to single individuals. There are no backup personnel who could continue the processes/functions if those individuals leave or are incapacitated, and

the current low level of staffing magnifies this situation. The CIT section's vacancies thus exert significantly more pressure on the section's operation than might be indicated by the mere number of vacancies.

Several comments regarding CIT organization and administration were offered to the College IT Review Committee. CIT personnel see a need for a permanent leader who is a technology professional with the ability to define the "big picture" and then plan accordingly to avoid a reactionary mode of operation. They also see a need for processes to analyze the costs of additional support responsibilities, to recognize limits and to establish priorities.

The CIT personnel offered several positive suggestions for improving College IT support. One suggestion was the creation of a permanent College committee to directly advise the Dean on computing issues. Other suggestions were to initiate mechanisms for continuous planning to integrate technology into research, teaching and extension programs and to designate an individual to serve as liaison between IT support groups/individuals both within and outside the College.

RETC Program

Agricultural Communications Services initiated a centralized program of on-site support to the county extension offices in 1998 by creating Regional Extension Technology Coordinator (RETC) positions that were organized under the CIT section. There are currently five RETCs authorized with one vacant position. The RETC positions are a part of and managed within the CIT section, but whereas the CIT section's mission is College-wide, the RETC mission is focused exclusively on the county extension offices.

The Committee judge the RETC program as an outstanding innovation that is functioning very well given their staffing and resource levels. Unfortunately, resource constraints and within-College challenges present formidable, and often unnecessary, obstacles to the RETCs.

The RETCs are seriously challenged due to workload and geographic dispersion of their clientele. Each RETC is currently responsible for supporting all computers, peripherals, network systems, software, and users in 24 counties (on average, around 150 agents and support staff equipped with roughly 180 computers; even higher with the current vacancy). The average time spent traveling to these sites is around 1.5 hours one-way, often to accomplish only 15-30 minutes of work. It is not unusual for RETCs to drive more than 1000 miles of travel in a week, and one logged more than 5,000 miles in 1.5 months. The current system is thus characterized by an excessive workload, and their clientele's geographic dispersion can lead to significant inefficiency.

The RETCs workload would be greatly reduced by standardization and by the counties regularly updating their software. They judge the need for remote support (requiring remote management software and high-speed county access) as absolutely critical. The RETCs have suggested a procedure that would improve standardization and efficiency of support to the counties, consisting of (a) counties purchase IT equipment through the UK computer store, (b) the UK computer store ships the computer to the Help Desk for basic software configuration, (c)

Help Desk ships the computer to the county, (d) the RETC makes a site visit to network the computer, transfer data, and perform other customization (most of which can be done through remote access) and (e) RETCs can remotely perform regular back-ups to central servers.

Communication is once more cited as an obstacle to effective support from the RETCs' perspective. The RETCs perceive a serious lack of communication between themselves, College (on-campus) IT support and the county offices with no clear lines of communication and no single source of reliable information. Communications can be complicated when the Area Directors don't accurately transmit IT information they've received to the county offices. The net result is an undermining of the RETCs' credibility and creation of an atmosphere of confusion and disrespect.

To some degree, the RETCs are victims of their own success. Those located at area centers, for example, have provided support to faculty and staff at those centers. However, this situation has evolved into one in which center faculty/staff support is an expectation. RETCs have also reported instances of being asked, once onsite, to provide support for which they were not prepared. The RETCs understand that unanticipated support requests will arise, and they are happy to oblige. However, some types of support require prior preparation, and "Oh, by the way" requests make it more difficult for the RETCs to budget their time accurately.

The RETCs concur with the earlier finding that county-level IT training is deficient. They see an opportunity to contribute in this regard by reviewing training materials (with the Help Desk) and by supporting training workshops that target county offices outside of convenient driving distance from Lexington (which could be accomplished via videoconference). The RETCs themselves could function as trainers, with sufficient preparation and staffing.

Finally, the RETCs would like some thought to be given to their professional development and career progression. Similar to other IT support staff, they want regular training – supported, facilitated and encouraged by their administrators – on the latest technologies to improve their level of service. They also recommend an assessment of whether their current job classification is consistent with the required technical proficiency and knowledge required by the position. The RETCs very much appreciate the varied nature of their tasks and commented that it's one of the things that ensures an interesting job.

Administrative Computing Group

The College administrative computing group is a small group (two individuals) whose efforts are focused on approximately 85 individuals and associated 120 computers considered as belonging to the on-campus College administration (excluding ACS). They are not administratively affiliated with ACS, but instead report to a College administrator. In addition to providing user-oriented, full-spectrum support desktop support (network, software, specification, procurement etc.), this group supports administrative and financial reporting and manages six servers (Table 5).

In addition to their administrative clientele, the administrative support group also provide support to other units in the College as requested and when possible, which can sometimes cause

a climate of time competition. This activity is an excellent example of a service-oriented attitude, but also an example of unclear delineation of support responsibilities (in relation to the Help Desk) and of the use of informal channels to obtain needed support. The administrative computing group's support to other units might prevent them from being as proactive in clientele support as they would like. The group's communication with ACS appears to be relatively informal and based on long-standing professional relationships.

On-Campus Unit IT Support

There is extreme variability in nearly every aspect of department-level IT support of their faculty, staff and students. The majority of academic units have at least one IT support person on staff; most have one, but some have three and some have none. IT support staff titles are by no means uniform; a sampling of the titles includes Data Analyst, Data Coordinator, Data Senior Coordinator, Data Systems Manager, Information Systems Technical Support Specialist 3, Information Technical Manager 1, Programmer Analyst, Staff Support Associate, Systems Analyst, Systems Analyst Programmer and Technical Support Specialist. Salaries vary in similar fashion. Whereas some IT staff salaries exceed \$55,000, some are less than \$30,000. The total annual salaries of all unit-level IT support staff are estimated as in excess of \$370,000. Even though some IT needs are unique to various units, there is a high degree of commonality among the routine duties of departmental IT support staff. These duties include desktop support (hardware, software, e-mail, etc.), web support, security, specification/purchase of equipment, and computer graphics. Additional duties in departments with their own networks and/or student computer labs include network support (including printer support), server administration and student computer lab maintenance. IT support staff are less frequently involved in tasks such as facilitating conference calls, publishing an IT newsletter, database management, programming support and "smart classroom" support.

The IT Review Committee collected information that would enable a rudimentary assessment and comparison of IT support staff workloads. These data do not fully describe workloads, because there are no adjustments based on network maintenance, computer lab maintenance, and other factors. Even so, the data strongly suggest the existence of different investment priorities in terms of unit-level IT support. By way of providing context to these figures, a ratio of one IT support staff member to every 40 users is a widely-quoted rule-of-thumb, even though this 1:40 ratio often varies by as much as 20% based on specific computing and network requirements. The ratio is also based on industry standards, where one computer per user is assumed, and Table 4 clearly points out that this is not the case. It is apparent that several departments – obviously including PPA and VS - do not meet 1:40 ratio, even if no students are counted as supported users. Depending on the degree to which students exert sufficient demand to be considered users, it is possible that no academic unit has an IT support staffing level consistent with the 1:40 ratio.

The professional development of unit-level IT support staff appears uneven in terms of its emphasis and implementation. Some chairs/directors formally require development requirements such as training and formally document those requirements as part of the PDP process. Others leave the matter to the IT support staff member's personal initiative or rely on a recommendation from an oversight committee. Some units allocate financial resources

Table 7. Unit IT Staff Workload

Unit ¹	IT ²	FT/IT	FTS/IT	D/IT
ACS	1	63	63	77
AEC	3	11	91	47
AGR	1	43	185	240
ASC	1	48	374	187
BAE	1	22	115	100
CES	5	150	150	184
CLD	1.5	17	130	27
ENT	1	27	59	150
FOR	1	18	146	84
HORT	0.5	46	172	84
LDDC	2	28	29	30
PPA	0			
RS	3	20	20	30
TRDC	0			
VS	0			
Average:	1	28	159	115

¹ AEC = Agricultural Economics, AGR = Agronomy, ASC = Animal Science, BAE = Biosystems and Agricultural Engineering, CES = Cooperative Extension Service (county offices), CLD = Community and Leadership Development, ENT = Entomology, FOR = Forestry, HORT = Horticulture, LDDC = Livestock Disease Diagnostic Center, PPA = Plant Pathology, TRDC = Kentucky Tobacco Research and Development Center, VS = Veterinary Science.

² IT is number of IT support staff members, FT/IT is full-time users (faculty and staff) per IT support staff member, FTS/IT is full-time users and students per IT support staff member, and D/IT is desktops per IT support staff member.

specifically for IT staff professional development, whereas others fund such develop as permitted by grant fund availability.

As mentioned earlier, the Chairs survey on IT was supplemented by a focus group consisting of the College of Agriculture Technical Committee, a group comprised of unit-level IT support staff. This group identified a number of concerns that fall within the purview of College-level administration, including a perceived lack of planning for major changes (possibly promoted by the lack of a specific IT budget), lack of a minimum configuration standard (which leads to support challenges, as discussed earlier), and the perception of there being no real plan for infrastructure improvements. The Technical Committee also discussed the lack of archived research data as a critical deficiency across the College.

As pointed out in Table 7, many College IT support staff have a relatively high workload in comparison to industry standards. Support staff with high workloads feel a sense of being stretched too thinly and having too many concurrent activities. College IT support staff feel the trend is negative, noting that the definition of “support” is expanding to include equipment repair and maintenance (e.g., overhead projectors) as well as technical support for new equipment (e.g., PDAs/PPCs). There is also a concern among the IT support staff that their clientele don’t have a good understanding of the time required to provide support, and the support staff are highly uncomfortable with requests to provide support for non-UK equipment and work.

The Technical Committee pointed out pervasive challenges in IT-related communications. The Committee itself communicates well and is suited to being an excellent conduit for information from College-level and Campus-level IT staff. In fact, the Technical Community think there should be an equivalent, Campus-level committee. The Technical Committee perceive that information conveyed through chairs doesn’t always make it to the IT staff, that higher-level IT changes are implemented without sufficient prior communication and consultation, and that mechanisms that would be ideal for communicating (e.g., College and Main Campus IT web pages) are not oriented toward IT support staff. Overall, there is a sense of being reactors as opposed to partners, and that the best communication networks are informal ones.

The Technical Committee identified numerous obstacles to providing the level of support they are expected to provide. There is a sense of being conflicted in terms of meeting the expanding need for network connections and making use of Main Campus resources, but at the same time, feeling that Main Campus’ charges are excessive. The Technical Committee cited lack of standardization, inadequate work/storage space and lack of remote management software as support obstacles. The Technical Committee agree that wireless networking should be expanded to the point that it is available in every College classroom. In fact, the Technical Committee thinks that the College and Main Campus goal should be network access via portable computing device in any building on campus. The Technical Committee recognize an opportunity to enhance support to remote locations and think that this support should not be geared to the lowest common denominator, since this penalizes early adopters of the latest technology. The Technical Committee echoed the universally voiced need for expanded training and workshops among clientele and support staff, among faculty, staff, students and the IT support staff itself.

The Technical Committee think that the decentralized model of on-campus IT support seems to be working well, at least on some levels. However, there may be a price that is paid in terms of promotions and career progression. There is no sense of a system in place that facilitates career progression; rather, the current system seems to represent an uncontrolled evolution in response to different unit and College needs. There is a desire for a mechanism that enables in-place promotion.

THEMES

Based on the totality of feedback that the Committee received from the various groups, the following recurring themes are identified (not listed in order of any priority).

1. All county offices want high-speed Internet access, and they want it now.
2. College personnel want support on the latest in computing hardware and software, including PDAs/PPCs. They very definitely do not want to be constrained by a lowest common denominator approach that effectively penalizes innovation.
3. College personnel demand that IT support be immediate.
4. While nobody in the College wants to be told what to buy and whom they must buy it from, nearly all would like to see College leadership in terms of recommended products and configurations.
5. The term “standardization” is widely perceived as anathema, but most recognize a need for some level of standardization, particularly to the degree to which it facilitates support. The smoothest-running support systems seem to be those with standardized hardware and software.
6. The RETC program is an excellent concept, but it needs more resources (especially personnel and infrastructure) and better operating procedures to govern workloads, priorities, and access to RETCs.
7. The CIT section’s Help Desk is an outstanding idea whose benefit to the College would be improved by current, well-defined and well-publicized support as well as the establishment of pockets of “in-house” expertise.
8. The evolution of support staff duties, both official and actual, and training have not kept pace with the implementation and use of IT.
9. There is a tremendous need for high quality, structured, accessible IT training for College personnel, particularly professional staff.
10. College personnel are almost literally awash in information, but find it frustratingly difficult to find the information they need in a timely fashion.
11. There is an urgent need to establish inclusive and open communication channels on virtually all issues that IT touches. There is an almost universal perception of the lack of such channels.
12. The structure of all online College information needs to be client-oriented.
13. There are significant differences in unit-level IT support, both in terms of quantity and source.
14. IT is an inherently decentralizing force, and the support systems that engender the highest degree of clientele satisfaction will probably be decentralized systems. Unfortunately, decentralized systems are currently problematic in terms of effective vertical communication and back-up support.
15. The list of tasks that are considered “IT support” has expanded significantly over the last decade, and the trend is a continued increase. These tasks require multiple skill sets, and it is unreasonable to expect individual IT support staff members to master all conceivably required skill sets.
16. Security (anti-virus software and Windows critical updates) is a large and increasing concern among College clientele and IT support staff.

17. There is a desire for the College to articulate its philosophy and vision regarding how to incorporate IT into instruction, and incentives should be established to accelerate the achievement of this vision.
18. Few College students receive formal on software management skills as part of their degree requirements. Instead, if they do not have those skills upon entering UK, they are largely expected to learn them on their own. Fortunately, this will probably be a relatively short-lived situation as IT is taught at progressively lower educational levels.
19. Students appreciate College instructors' efforts to incorporate IT into the classroom. Modifications in instructional techniques would sometimes improve overall effectiveness.
20. Many elements of IT in the College (e.g., unit-level IT support, unit web pages, computer replacement strategy) have evolved in the absence of any coordinated plan.

ISSUES AND RECOMMENDATIONS

Following are the issues that the Committee identified as particularly meriting a recommendation. These issues were usually identified on the basis of their association with themes that arose during the study, but some were included on the basis of their assessed importance and the relative ease with which they can be resolved. The issues and recommendations are listed in approximate order of priority within the various categories.

The Committee also think it necessary to point out that the following 36 issues by no means exhausted all those that were raised. There are literally scores of additional issues that were raised, as indicated in the appendices, but that ultimately were not included among those for which recommendations are presented. These issues, too, have merit, and they sometimes have relatively simple solutions. Anyone who might use this report as the basis for a planning document would be very well advised to review and carefully consider those additional issues.

Clientele

1a. Issue: There is no College-wide IT plan generally known to College faculty and staff.

1b. Recommendation: The Committee recommend in the strongest terms that the College develop an IT plan. This plan should have a strategic element in terms of articulating a vision (inclusive of administration, extension, teaching, research and support) and broad goals to be accomplished over the following five years or so. In other words, the plan should begin by describing the end state – what the College will be doing at the end of the planning horizon. Only after the end state is described should the focus shift to the “how-to” of using IT to enable that vision. This part of the plan should also be written in enough detail to describe the steps that need to be taken, who is responsible for the various steps, timelines, resource requirements (financial and personnel), equipment requirements and maintenance requirements. It might be necessary or even desirable for portions of the plan to be written by representatives of the College’s teaching, research, extension and administrative missions. However, it is crucial that the final plan – especially the support portion – be thoroughly coordinated. Most importantly, overall responsibilities for implementing the plan should be clearly delineated and communicated. Progress toward the tasks should be monitored with regular reports to the Dean. Elements of this report can serve as a basis for a comprehensive College IT plan, but considerably more work will be required to achieve appropriate concurrence with this report’s recommendations and to transform the recommendations into proper elements of a plan. The Committee further recommend that the College coordinate for an external review by a group of IT professionals who have significant experience in IT administration (especially support) at institutions of higher education. This document can be provided to the review for background and to expedite their job. The results of the external review should be used as an additional basis for developing the College’s IT plan.

2a. Issue: There is near universal demand for IT-related training for staff, particularly off-campus staff. There is also high demand for extension agent IT training.

2b. Recommendation: Even though Main Campus-sponsored training materials are available, hands-on, face-to-face instruction in a totally training-oriented environment is still the preferred method of receiving training. The College should invest in a “mobile training team” that would conduct on-campus training on common College software but also travel to areas of concentrated demand to provide training to off-campus staff, extension agents, and other interested persons. The individuals comprising this team should be highly skilled individuals with experience in adult education and with excellent computer literacy, assigned to the CIT section. There will be an initial backlog of training demand, and the training team should move aggressively to satisfy the existing demand. Afterward, the training team should offer regularly scheduled (consistent with College turnover) training sessions. Training (or a pre-test) should be mandatory for all new staff. Training for existing staff with training needs should be encouraged to the maximum degree short of making it a College-driven requirement. This team would also be expected to coordinate for participation in Main Campus training programs as available and appropriate.

3a. Issue: Many College personnel feel they have no voice in the process by which IT-related decisions that ultimately affect them are made. This situation can create an unproductive “us vs. them” attitude among various College groups and can foster the perception that important IT decisions are made in a vacuum.

3b. Recommendation: The College should create a standing committee (but with revolving membership), representative of all College clientele, to advise the Dean on all matters relating to IT. This committee should contribute to all IT decisions under consideration and would be charged with representing the viewpoints of College personnel during the decision-making process. The committee should be constituted with the understanding that timeframes may be attached to issues submitted to them for a decision or recommendation.

4a. Issue: The duties of clerical staff have evolved to include a large component of IT-related tasks. However, changes in their job descriptions have not kept pace with the changes in their duties.

4b. Recommendation: The Committee recommend that the College coordinate a review of all clerical position descriptions with the goal of accurately conveying the IT skills and tasks that are required. This would ensure an open and fair evaluation process and would clearly communicate the tasks that are (and are not) expected of the positions.

5a. Issue: Some College instructors would benefit from training on how (if appropriate) to best incorporate IT into their classes and on how to modify their instructional techniques.

5b. Recommendation: Appropriate College administrators should take the lead in coordinating and providing regularly-scheduled, hands-on, high-quality, comprehensive training on both the technology as well as the cognitive theory-based teaching techniques that characterize effective teaching.

Products

6a. Issue: Many clientele report high difficulty finding information on the College's web pages.

6b. Recommendation: In parallel with a transition to a knowledge management system (7b.), the College should initiate a review to assess and modify the architecture of publicly accessible web pages with the goal of optimizing functionality from the user's perspective. This implies that the College should know who the users are, and how they use the online resources. The College should recognize that user-focused optimization requires a different skill set than HTML coding and treat this as a critical factor in determine whom to charge with modifications to the College pages.

7a. Issue: There is no mechanism to "funnel" College personnel into a single source where they can readily find the most relevant and important College information.

7b. Recommendation: The College should implement a knowledge management system for College personnel, wherein they have rapid, intuitive access to not only the content that the College deems appropriate (e.g., announcements) but also the information that the user finds most beneficial. By implication, this system should be easily customizable, so that the user can add links to content of interest (e.g., CNN and Google). Links of an IT support-related nature should be made prominent. Needless to say, this type of endeavor will require an investment in staff time and equipment/software; it will also be impossible for the College to ensure that all personnel set the College page as their home page. However, if the content and customizable features are sufficiently useful and if the system is adequately publicized, College personnel will voluntarily access it on a regular basis.

8a. Issue: Security measures (anti-virus software and Windows critical updates) on user-level computers are unevenly implemented within the College, particularly among those units without full-time IT support staff.

8b. Recommendation: The Review Committee recommend that ACS develop and regularly update, in partnership with unit-level IT support staff, a web page specifically devoted to security issues. This resource should provide information (including pro's and con's) on anti-virus software, how to acquire the software (particularly if any is site-licensed), and regularly updated current events (e.g., availability of a new Windows critical update). Agricultural Communications Services should furthermore provide a recommended software package and configuration for antivirus software. These activities should be pro-active in nature with emphasis on software and virus definition updates that are automated to the greatest extent possible.

9a. Issue: Many users of College publications are unaware of new and updated publications.

9b. Recommendation: The College should adopt a system of notifying, at a minimum, all extension agents and specialists as publications are added and/or updated. The College should also make provisions for other users to add themselves (online) to a list of persons to be notified in the event of updates/additions.

10a. Issue: There is no general awareness of the College's position on incorporating IT into instructional activities.

10b. Recommendation: The College should prepare a document that clearly articulates its vision of how IT should be in instruction, to specifically include the role of distance learning. Goals, measures and timetables should be made as explicit as possible and appropriate.

11a. Issue: Many College instructors perceive that there is insufficient positive incentive to engage in IT-enabled teaching.

11b. Recommendation: The academic unit chairs are in the best position to provide positive incentives to faculty who want to be instructional innovators. However, the College can and should encourage the chairs to provide appropriate positive incentives to the degree that such teaching innovations are supportive of the College's overall plan for IT-enabled instruction. This encouragement, with the promise that such efforts will be viewed favorably, should be clearly articulated to all appropriate parties (including teaching faculty). This encouragement could take the form of something as simple as increasing the DOE percentage for IT-enabled teaching.

12a. Issue: College personnel would like to see enhanced spam detection in place.

12b. Recommendation: The College should raise the issue with Main Campus IT staff, work with them as required to strengthen spam detection, and inform Clientele on the issues and progress of the effort.

13a. Issue: There is a lack of information on the College-level mailing lists that exist (e.g., COA-GENERAL-L@lsv.uky.edu), how to get on the lists and (in some cases, just as importantly) how to get off the lists.

13b. Recommendation: This appears to be an issue of awareness, since appropriate processes exist. The Committee recommend that the College prominently publish the names and descriptions of all mailing lists with instructions for joining and leaving them. If publication on a web site is deemed inadvisable (due to the possibility of those lists being harvested and used by junk mailers), then the lists and instructions should be regularly forwarded to College personnel through e-mail. The list instructions should contain very clear information on the nature of material that is appropriate for dissemination through the various College lists.

14a. Issue: There is no standard format for web pages for College units.

14b. Recommendation: The Committee do not recommend mandated standardization. Instead, the Committee recommend that the College, in partnership with the Technical Committee, identify a subject matter expert – not necessarily on the technical aspects, but rather on user-aspects – and arrange for a web page design workshop (perhaps in connection with the College's review of its own web pages) and invite unit-level web masters and other interested individuals to attend.

Systems

15a. Issue: Fifty-seven of the 120 county extension offices do not have high-speed internet access.

15b. Recommendation: The College's integration of IT into its educational products and communication processes effectively demands that each county office have high-speed Internet access. The lack of high-speed Internet access renders many excellent College resources frustrating at best, and useless at worst. The Committee recommend that the College, in cooperation with the counties, plan the provision of universal high-speed internet access (DSL/cable preferred) and move forward with implementation as soon as possible. Should the College adopt this as a goal, the counties should be regularly updated on its progress.

16a. Issue: There is widespread demand for wireless network installation.

16b. Recommendation: The Committee recommend that the College move forward on installation of wireless networks with the initial goal of access from all "smart classrooms." The costs of implementing this technology are low, and wireless network installation would ultimately nullify the expressed desire for additional, relatively expensive network ports in College classrooms. Best available technology should be implemented to minimize the security risks that are currently associated with wireless network systems.

17a. Issue: There is no recommended or enforced standard for hardware and software purchases in the College of Agriculture. This can lead to purchases of inferior products and complicate issues of user and desktop support, particularly in centralized support systems (e.g., extension).

17b. Recommendation: The CIT section should develop and publish a recommended minimum desktop configuration (specified in terms of capabilities) and software recommendations for common tasks among College personnel. The CIT section might publish, for example, the recommended software for word processing, for spreadsheet applications, for graphics preparation, and for statistical analysis. Recommendations for back-up hardware and software should be included, and potential vendors and contact information should be provided. The recommendations should be updated regularly (at least annually), and the process of developing the recommendations should be an inclusive one (e.g., in partnership with the IT Advisory Committee recommended earlier), so that the various College groups have authentic input to the process. CIT and the IT Advisory Committee may wish to expand this process to include other hardware (e.g., PDAs and scanners) as indicated by demand. The Committee recommend against purchasing restrictions; if College units want to be responsible for their own support, then they should be free to purchase software and platforms that are not recommended or supported by the Help Desk.

18a. Issue: Off-campus College personnel indicate a widespread desire for increased videoconferencing capability.

18b. Recommendation: The technology for videoconferencing from one's desk is currently available, practical (especially for high-speed internet connections) and relatively inexpensive.

The Committee recommend that equipment and software recommendations be established, that the CIT support these products, and that the College move toward making its broadcasted events available at the desktop.

19a. Issue: Students judge some instructional equipment, such as desks with small writing surfaces, to be inadequate for an optimal learning environment.

19b. Recommendation: The College should assess the suitability of all College classrooms and support responsible units in purchasing appropriate equipment.

20a. Issue: Basic, low-tech instructional equipment and supplies (e.g., projector bulbs and dry-erase markers) are sometimes not maintained in satisfactory quantity or in working order.

20b. Recommendation: The College should support the academic units by reviewing custodial staff responsibilities in this regard, preparing a generic procedures document for the units' consideration and reference, making regular spot checks of College classrooms, and reporting deficiencies to responsible parties.

21a. Issue: There are instances of inadequately maintained "smart classrooms" and confusion regarding whom to contact in the event of a problem.

21b. Recommendation: The "smart classrooms" are a College-level resource and should be supported by College IT support staff. This support should include weekly, documented systems checks, a prominently posted notice of whom to contact in event of malfunction, and a condensed "how-to" list for simple tasks (e.g., how to turn on the projector, what to do if the light doesn't come on). An IT support staff member should be immediately available whenever classes are held in "smart classrooms" or a College-controlled computer instructional lab.

22a. Issue: There is a demand among teaching faculty for additional "smart classrooms."

22b. Recommendation: The Committee recommend against investment in additional "smart classrooms" until appropriate College administrators perform a usage analysis of existing classrooms and compare the availability of those against their best estimate of demand for the facilities (possibly through a survey of teaching faculty). The decision to invest in additional "smart classrooms" should be made only with the concurrence of the manager of the CIT section (or whichever entity would be charged with support and maintenance).

23a. Issue: There is a very large inventory of College IT equipment, and there are possible imbalances among the academic units' IT equipment inventories.

23b. Recommendation: The College should coordinate a program wherein unused unit equipment subject to being declared surplus is first announced to other units in the College (e.g., via e-mail to members of the Technical Committee). Units with an interest in that equipment should then be given the option of taking over that equipment. However, College units should in no circumstance be compelled to provide IT equipment for cross-leveling among other College units, since this would amount to punishing the more aggressive and resourceful units.

24a. Issue: Over 40 servers (file and print, web, remote access, etc.) are currently in operation throughout the College. The unique needs of the groups supported by these servers might validate the need for this number of servers. It is also possible that there are material and functional redundancies, and that some degree of functional combination may best serve the College.

24b. Recommendation: As it pertains to College units, the current system of servers and IT support staff represent those units' assessment of priorities and their decisions regarding how to invest their resources. Thus, the final decision to migrate services and/or data to other servers (i.e., College servers) should rest with the units. However, the College should provide incentive for the units to critically assess their systems by communicating to them the capabilities and advantages (e.g., consistent security) of the College servers and by demonstrating the ability of CIT personnel to render adequate service and support to those units. The latter condition might be a rather difficult point to sell in view of the current CIT vacancies and that unit's continuously expanding mission.

Personnel

25a. Issue: The RETCs are perceived as having an excessive workload.

25b. Recommendation: The vacant RETC position should be filled immediately. The College should furthermore prepare to invest in, at a minimum, another two RETCs so that the basis of allocation will ultimately be one RETC per extension district (consistent with the process of re-envisioning extension).

26a. Issue: There are gross imbalances in on-campus unit IT support across the College. Some appear to have adequate or better IT support on staff; others have none.

26b. Recommendation: Units with significant IT support needs should ultimately be responsible for hiring and funding required IT support staff. Reallocating College resources to currently unsupported units would effectively penalize units that saw the need for unit IT support early and that made the necessary investment in such support. The College should provide only interim (one year at most) support to currently unsupported units. This support might include sharing currently employed College IT staff and temporarily sharing the salary of IT support staff added by unsupported units. Units with a relatively recent affiliation to the College might constitute reasonable exceptions to the above.

27a. Issue: There is a question as to whether the organizational structure with regard to the RETCs is appropriate.

27b. Recommendation: Given the history of the RETC program and its placement in the CIT section, the Committee view the current organizational structure as appropriate at present. However, the Committee anticipate that as this program matures, natural pressures will make it increasingly advantageous for the RETC program to move to a relatively decentralized model. The Committee recommend that the College initiate planning to accomplish this transition,

including a structure wherein the RETC positions are housed in the districts but report to the CIT section manager. The timetable for the move should be synchronized with the process of re-envisioning extension.

28a. Issue: Persons supported by the RETCs want direct access to the RETCs rather than going through the Help Desk.

28b. Recommendation: The Committee recommend that, in the interests of maintaining and improving relationships between RETCs and their clientele, off-campus personnel be provided the opportunity to contact their RETC directly. If the RETC is otherwise engaged, then he/she may refer that person to the Help Desk or call the person back when available.

29a. Issue: The RETCs have expressed a need for remote management software to remotely resolve computing problems that might otherwise require a site visit.

29b. Recommendation: The College should procure remote management software immediately to alleviate the requirement for travel to the counties already having a high-speed Internet connection. The RETCs' ability to resolve similar problems in the remaining counties will be contingent on those other counties acquiring high-speed Internet access. In all situations, effective use of the software will require a climate of cooperation and trust between the RETCs and their clientele.

30a. Issue: The CIT section of ACS has currently unfilled positions while accepting more duties such as providing desktop/user support to otherwise unsupported College personnel. There are also concerns that the vacancies will diminish the level of service that units who use CIT servers currently enjoy. Units who made the decision to consolidate their resources on CIT equipment were of an understanding that CIT was making an open-ended commitment to provide the same level of service that the units were relinquishing, and those units are counting on that service.

30b. Recommendation: The current vacancies should be immediately filled, especially considering that the vacancies will interfere with implementation of other recommendations in this report.

31a. Issue: There is a question as to whether the CIT section of ACS is adequately arrayed to meet the College's IT support needs.

31b. Recommendation: The Committee judge that the answer to the question is "No," considering that previous recommendations included filling current vacancies, increasing RETC staffing by two, and adding a team of trainers. Other recommendations point to a need for skills that are less directly technical in nature and oriented more toward information management. Implementing these recommendations would better enable the CIT section to fulfill its current responsibilities and to move toward developing an information management dimension of its mission. The Committee have no additional recommendations for immediate CIT section staffing. However, the Committee recommend a reevaluation and restatement of the CIT section's mission, that this mission be broad enough to encompass the current duties and those recommended in this report, and that all duties be appropriate for a College-level support

organization. This mission reevaluation should be followed by a more detailed analysis of the associated tasks, duties, and staffing requirements. Only after the staffing requirements have been overlaid against the existing staff allocation should staffing requests beyond those recommend in this report be approved. The Committee perceive no inherent problem with the CIT section's placement in the College organizational structure provided that no effective span of control issues surface.

32a. Issue: Many College personnel would like to see an improvement in the quality of support rendered by the CIT Help Desk.

32b. Recommendation: Clientele feedback indicates that a number of procedural modifications might be helpful. These include:

- (a) The Help Desk should define and broadly communicate its mission. In other words, the Help Desk should communicate whether they exist to provide front-line user support to all College personnel, whether they provide front-line support to off-campus personnel, whether they serve as backups to unit-level IT support staff, etc. The greatest need appears to be for front-line support to off-campus users (primarily extension) and, on an interim basis, to otherwise unsupported on-campus users.
- (b) The Help Desk should clearly define and prominently publish the types of support that it will contract to serve. There should be a well-defined process of defining Help Desk support, and this process should be ongoing, inclusive and consultative.
- (c) College personnel should be able to contact the Help Desk at any time during the workday and have the phone answered by support specialist, not a machine.
- (d) Help Desk personnel must have high technical skills and high people skills to be effective. Their recruiting, job classification and compensation should be commensurate with this blend of skills.
- (e) While it might not be practical to expect any one person to have mastered all the supported applications, a client should still be able to contact the Help Desk and obtain near-immediate problem resolution. This will require redundancy measures and perhaps establishment of subject-matter experts. It has been suggested that the Help Desk might want to look outside itself for such experts (e.g., on-campus faculty/staff).
- (f) The Help Desk should document and analyze all support requests to identify trends and to more readily refocus its support offerings.
- (g) The Help Desk should develop and publish an comprehensive, intuitive, user-oriented FAQ.

33a. Issue: Some College personnel are displeased that the Help Desk does not support certain software or platforms.

33b. Recommendation: It is unreasonable to expect the Help Desk to be experts in all types of software used throughout the College. Similarly, maintaining expertise in competing versions of software that perform the same function and in low-density platforms is inefficient. As a College resource, the Help Desk must continually be thinking of how to best serve the College as a whole with their resources. If the earlier recommendations regarding publicity, processes and inclusiveness are adopted, then the only remaining recommendation that the Committee would offer is a public statement of support philosophy and software/platform selection criteria.

34a. Issue: There is variability in the titles and salaries of College IT support staff, even though many of the staff responsibilities are the same.

34b. Recommendation: The College should perform a detailed analysis of IT support staff job descriptions, workloads, duties and salaries across the College. This committee's goal would be to determine whether salary inequities exist and, if so, to make recommendations on how they should be addressed provided these recommendations are guided by the principles that no positions will be downgraded or eliminated, and that the units should retain maximum flexibility. The IT Review Committee's preliminary investigation into this issue indicates a strong possibility of fairness issues.

35a. Issue: There is confusion regarding the role of the Administrative Support Group *vis a vis* the CIT section.

35b. Recommendation: The Administrative Support Group can be considered analogous to any other College unit's IT support staff. Considering the size of the College administration and their unique requirements, it is reasonable to suppose that the College administration have a valid need for their own first-line IT support staff. Just as first-line unit IT staff report to the chairs/directors, it is also reasonable for Administrative Support Group to report to the Dean or his designee, and this group's relationship to the CIT section should be identical to that for other unit IT staff. The major source of role confusion might be the split of Administrative Support Group personnel from the CIT section, the maintenance of previous professional relationships, and the Administrative Support Group's willingness to service other College clientele.

36a. Issue: There is a question as to which model of IT support is more appropriate for the College: centralized, decentralized, or a combination.

36b. Recommendation: To the degree IT empowers, it decentralizes. Effective IT support should be decentralized to the lowest level justifiable on the basis of staff workload to keep support staff in touch with their clients and to ensure that client feedback relevant to their promotions and evaluations. The College currently has a nominally decentralized IT support model operative for most units, and a nominally centralized model operative for off-campus personnel and units without their own IT support staff. The Committee recommend against pursuit of any fundamental changes to the current support model and encourage an awareness that increasingly decentralized IT support is most likely inevitable, whether or not that support is provided through officially sanctioned channels. The trend toward decentralized support will magnify the importance of all Committee recommendations aimed at strengthening communications within the College.

Appendix 1.

Dean Smith's Committee Appointment Letter

MEMORANDUM

April 15, 2002

To: Dwayne Edwards Tom Mueller
Steve Isaacs Toni Greider
Doug Shepherd Craig Wood
Susan Sponcil Pat Dillon
Jim Lawson Carla Craycraft
Nancy Cox Larry Turner

From: Scott Smith (original signature on file)

Subject: Information Technology and Computing Services Review

The college faces increasing difficulty in meeting current and future needs in information technology and computing services. These issues deeply affect extension, research and teaching programs both on and off-campus. Exciting but potentially very expensive electronic information delivery systems have been visualized for Cooperative Extension. Options for distance learning, smart classrooms and web-based teaching continue to expand. New research initiatives in informatics and resource analysis will require expanded IT capacity. Greater-than-ever demands for administrative accountability and management impose further demands on our IT capacity.

Investment of resources in IT, even now an almost unmanageable portion of our budget, continues to escalate. Already, multiple program areas report that IT infrastructure or services significantly limit their opportunities. As university and state level IT systems rapidly evolve, we will be further challenged to keep pace with innovation, minimize redundancy and insure optimal effectiveness.

I intend to initiate an information technology and computing services review for the College of Agriculture. I now anticipate that this will include a small group of external reviewers from other institutions or organizations, plus an internal self-study group. I ask that you serve with the latter. Dwayne Edwards has agreed to chair the self-study. Jim Lawson, Nancy Cox, Carla Craycraft and Larry Turner will serve as *ex officio* members and be available to assemble needed information or provide any other advisory support you request. Although the process and timeline can be further discussed at our first meeting, I do not expect that this will be a protracted, long-term project. I will ask that your group meet once or twice to better define the charge and the process. I would then like to host short visits by 2 or 3 "consultants." With them we will identify the information and data to be collected. Your group will then be responsible for compiling and helping to interpret appropriate information. The process will likely conclude with the review visit by the "consultants."

Please confirm your availability with my office as soon as possible.

Appendix 2

College of Agriculture IT Review Plan

<u>Activity</u>	<u>Start</u>	<u>Finish</u>
*Define the problem Terminology, definitions, scope	4/15/02	8/5/02
*Develop data collection plan Whom to target, how to collect, info to collect, who is responsible, conduct preliminary focus group sessions to identify questions to ask.	8/5/02	9/6/02
*Review data collection plan Verify targeted groups, agree on methods, review questions, address format issues	9/6/02	9/13/02
Collect data Implement surveys, send letters to unit directors, conduct interviews.	9/13/02	10/18/02
*Analyze/interpret data Calculate statistics, prepare graphs, identify trends, draw conclusions on trends, identify corrective measures	10/18/02	11/1/02
Draft report	11/1/02	11/15/02
*Review draft report	11/18/02	11/22/02
Revise report	11/25/02	11/29/02
Final review	12/2/02	12/6/2
Submit report to Dean	12/13/02	
* Meeting required		

Appendix 3

Information Collection Plan

Audience: Chairs (12), Unit Directors (7) and Dean of College of HES

Information: Number of IT positions (hard/soft), base salaries for IT positions, position nomenclature(s), IT systems in place, IT services being used (internal and external), hardware/software inventory, methods of upgrade and/or replacement, standards in place, computer labs, age of equipment, purchase by year, on-staff webmaster, what IT products/services they would like to have. Numbers of personnel (faculty, staff, students, etc.) to normalize the data.

Method: Survey/open response.

Who: Edwards* and Greider

Audience: CIT Section

Information: Mission, services, clientele, what they would like to provide, major roles and responsibilities, challenges, interactions with Main Campus computing. Also numbers of personnel and salary information.

Method: Interviews.

Who: Dillon* and Mueller

Audience: RETCs

Information: Mission, services, clientele, what they would like to provide, major roles and responsibilities, challenges.

Method: Interviews.

Who: Dillon* and Mueller

Audience: Administrative Support Group

Information: Mission, services, clientele, what they would like to provide, major roles and responsibilities, challenges.

Method: Interviews.

Who: Dillon* and Mueller

Audience: Faculty and Office/Technical/Professional Staff

Information: Functionality (can you ..., do you ..., would you like to ...), source(s) of support, level of satisfaction, knowledge of available resources (e.g., site-licensed software), type of computer. Consider the questionnaire used during the last survey for ideas on questions to ask.

How: Focus group(s) followed by broad survey.

Who: Greider*, Mueller and Isaacs

Audience: Undergraduate and Graduate Students

Information: Access to computers (where and how much), adequacy of computers, accessibility of training, use in classes, who provides services/support, do they own their own computer, any training in how to evaluate material found on the internet, what they need/want.

How: Focus group(s).

Who: Edwards* and Isaacs

Audience: Extension Agents

Information: Same as Faculty/Staff

How: Questionnaire and focus groups.

Who: Shepherd*, Sponcil, Wood.

Audience: College Administration

Information: Open commentary with some standardized questions.

How: Personal interviews.

Who: Isaacs* and Edwards

Audience: Unit IT Support Staff

Information: Responsibilities, interactions with College/Main Campus IT support staff, challenges, recommendations.

How: Questionnaire, focus group.

Who: Dillon*, Greider and Wood

Appendix 4.

Chairs' and Unit Directors' IT Questionnaire

Basic Unit Information

Please estimate the following:

Number of current faculty: _____
Number of office staff: _____
Number of technical/professional staff: _____
Number of graduate students: _____
Number of undergraduate students: _____

Personnel Support for IT

How many persons does your unit employ for IT support? _____
Number who are supported on hard funds: _____
Number who are supported on soft funds: _____
Estimated average salary (per year): _____
Estimated average years experience in your unit: _____

What are the official titles of your IT support personnel?

Please provide examples of specific tasks or areas for which your IT support personnel are responsible.

How do you encourage your IT support personnel to seek out and attend professional development training?

What IT support (nature and frequency) does your unit receive from the College of Agriculture?

What IT support (nature and frequency) does your unit receive from Main Campus?

IT Hardware, Software and Training

Estimate your inventory of all of the following publicly funded (state or grants) equipment that is used by individuals, whether faculty, staff or graduate students.

Number of desktop systems in your unit: _____
Number using Windows operating system: _____
Number using Mac operating system: _____
Average age of desktop units (in years): _____
Number of notebook/laptop systems in your unit: _____
Number of PDAs/PPCs in your unit: _____
Number of printers in your unit: _____
Number of scanners in your unit: _____
Other significant IT equipment (list): _____

What are your estimated annual expenses for IT hardware?
(E.g., computers, printers, monitors and scanners) _____

What are your estimated annual expenses for IT software?
(E.g., MS Office, Norton Antivirus, and SigmaStat) _____

What minimum standard configuration does your unit require for new computers (specify in terms of CPU, hard drive storage, operating system, software, etc.)?

Please describe, for each group (if applicable), your process for replacing computers. Include how you decide when replacement is necessary and the funding source(s).

Faculty:

Office staff:

Technical/Professional Staff:

Graduate Students:

Undergraduate Students:

Describe the software and procedures (if any) you use to protect computers in your unit against viruses and to ensure that critical updates are installed.

Describe how the following groups acquire their IT training (for example, how to use MS Word, how to access e-mail, how to transition from WordPerfect to Word, how to develop web pages, time management using Outlook):

Faculty:

Office Staff:

Technical/Professional Staff:

Graduate Students:

How do you encourage faculty, staff and graduate students to acquire needed IT training?

What are the most commonly used applications within your unit (e.g., Pegasus, Outlook, Word, Excel, SAS, and Adobe Acrobat)?

What are the most common applications used in your unit for e-mail and word processing?

If your unit operates its own network, describe the services it provides.

Undergraduate Instruction

What computers (how many, how old, how configured and where located) does your unit make available to your undergraduate students?

Who controls, maintains, funds and administers the computers your unit provides for your undergraduate students?

What training on basic computer skills (e.g., MS Word, MS Excel, use of UK online journal searches) does your unit provide to undergraduate students?

How do you encourage instructional faculty training on use of IT in teaching?

Graduate Students

What computers (how many, how old, how configured and where located) does your unit make available to your graduate students?

Who controls, maintains, funds and administers the computers your unit provides for your graduate students?

What training on basic computer skills (e.g., MS Word, MS Excel, use of UK online journal searches) does your unit provide to graduate students?

What proportion of your graduate students has network ports available in their offices?

IT Needs and Recommendations

Please describe your unfulfilled current and projected IT needs (systems, procedures and/or services).

What specific IT issues/problems would you like to see the College of Agriculture address?

What recommendations would you provide to the College of Agriculture in terms of future IT focus and direction?

Additional IT-related issues not addressed in this questionnaire that you would like to bring to the Review Committee's attention (list and describe):

Appendix 5.

County Extension Office IT Survey

COUNTY: _____

EXTENSION AREA: _____

INSTRUCTIONS:

1. Only **ONE** survey per County Extension Office needs to be completed. Area Program Directors will select the individual best suited to complete the survey in each County Extension Office, which may or may not be an Extension Agent. (e.g. County Computer Contact, System Administrator, etc.)
2. Surveys are to be completed and returned to the Area Program Director **NO LATER THAN Tuesday, October 15, 2002.**
3. Area Program Directors will forward all completed surveys to Dr. Craig Wood, Ag Communications Services, Room 131C, Scovell Hall by **Friday, October 18, 2002.**
4. Please complete survey in its entirety and write legibly.

INDIVIDUAL COMPLETING SURVEY: _____

County Computer System Overview:

1. NUMBER AND TYPE OF COMPUTER HARDWARE IN YOUR OFFICE.

- (A) Total number of desktop computers = _____
- (B) Total number of laptop/notebook computers = _____
- (C) Does everyone that works in your office have a computer at their workstation? YES { NO {
- Number of network server computers = _____
 - Network operating system: WINDOWS { NOVELL { OTHER { List: _____
 - PC Operating System: WIN 98 { WIN2000 { XP { OTHER { List: _____
- (D) Is any other type of equipment besides computers and printers (e.g. copiers, scanners, etc.) connected to your network?
YES { NO { If yes describe: _____
- (E) The number of printers in your office? Dot-Matrix = _____ Ink Jet = _____ Laser = _____
Color Laser = _____
- (F) Number of scanners in your office? = _____
- (G) What is the oldest processor (CPU) in your office (e.g. 386, 486, Pentium I, etc.)? _____
- (H) What is the newest processor (CPU) in your office (e.g. Pentium II, Pentium IV)? _____
- (I) Do you have a CD-ROM on all office computers? YES NO
- (J) Do you have a CD-ROM "burner"/writer in your office? YES NO
- (K) Do you have a CD-RW/DVD in your office? YES NO
- (L) Where does your office typically purchase computers: (check all that apply)
UK Store Local Vendor Manufacturer Other, describe: _____

2. SYSTEM QUESTIONS:

- (A) Do you have a designated computer contact or system administrator in your office? YES NO
If yes, is that person an/a: Agent Secretary Other / That person's name: _____
- (B) Do all computers have an operating virus scanning/protection program? YES NO
- (C) How often are computer virus scanning programs updated? Daily Weekly Monthly Quarterly
Never
- (D) What type of computer file backup system is used in your office?
None 3.5 Floppy Drive Computer Hard Drive Tape CD-ROM Zip-Drive
- (E) How often are files backed up on all computers in your office?
Daily Weekly Monthly Quarterly Annually Never
- (F) Do you use outside vendors to service your office computer system? If so, why? _____

- (G) Over the last three years how much money has your office spent on the office computer system:
\$ _____ total for 3 years \$ _____ budgeted annually
- (H) Does anyone in your office use an e-mail service other than the College's Pegasus Mail? (e.g. MSN, Hotmail, AOL, Outlook Express) If so, which one(s): _____

3. SOFTWARE QUESTIONS:

- (A) Which of the following applications are regularly used by personnel in your office?
- | | |
|---------------------------------------|------------------------|
| Word Processing | Spreadsheet |
| Database | Internet Browser |
| Presentation Software | Desktop Publishing |
| E-Mail Software | HTML Editor |
| Financial (e.g. Quicken, Quick Books) | Streaming Audio |
| Instant Messaging | Photo Manipulation |
| Streaming Video | Other, Describe: _____ |

4. INTERNET QUESTIONS:

- (A) What is your current method of connecting to the Internet? Check all that apply:
- | | |
|-----------------------------|----------|
| Individual Computer Modem | Web Ramp |
| Network – designated server | DSL |
| Frame-relay | ISDN |
| T-1 Line | I-Share |
| Cable Modem | |
- (B) What is your current Internet connection speed? _____
- (C) Does your office have a dedicated Internet Line? YES NO
- (D) How are you charged for your Internet connection? Monthly Limited Monthly Unlimited Hourly
Other, describe: _____
- (E) How are those in your office using the Internet and what are they using it for? Check all that apply.
- | | |
|-------------------------------------|---|
| Information gathering for clientele | Information dispensing |
| Business application/reporting | Communication (outside College e-mail system) |
| Recreation | Other, describe: _____ |

OTHER INFORMATION TECHNOLOGY EQUIPMENT:

Digital Camera	Portable LCD or Digital Projector	Cable Stress TV Access
Steerable Satellite Dish	Stationary Satellite Dish	Meeting Room with Internet Access
Television	VCR	DVD
TV/VCR Combo	Compressed Video	DTN/Farm Data Network/or similar service
Computer with Web-cam	Voice recognition software	Weather Station
Cellular Phone	PDA (Personal Data Assistant)	Walkie-Talkies
Portable PA System	Satellite Television	Rollover Telephone Lines

Voice Mail available on phone system

Fax Machine, if checked is the FAX on a dedicated phone line? { YES { NO

Teleconferencing Hardware (e.g. remote microphone/speaker separate from phone)

"Smart Classroom" (meeting room with Internet access, LCD/Digital projector, satellite access, etc.)

Multiple incoming telephone lines and number of lines = _____

Appendix 6.

Extension Agent Individual Information Technology Survey

EXTENSION AREA: _____

1. Check your level of competence in using the following information technology applications and circle the two applications you use the most:

	Beginner	Moderate	Well Versed	Don't Use
Word Processor:	()	()	()	()
Spreadsheet:	()	()	()	()
Database:	()	()	()	()
Internet Browser:	()	()	()	()
Presentation Software:	()	()	()	()
Desktop Publishing:	()	()	()	()
E-Mail Software:	()	()	()	()
Windows Operation System:	()	()	()	()
HTML Editor:	()	()	()	()

2. Do you have access to a computer at your office workstation? YES NO
3. Do you have access to a computer at home? YES NO
4. Do you own a personal laptop computer? YES NO If yes, do you use it for work? YES NO
5. Do you own or use a PDA (Personal Data Assistant)? YES NO If yes, answer the following:
- o What brand is it? _____
 - o What features do you regularly use? _____
 - o Do you use/keep a paper calendar for scheduling in addition to your PDA? YES NO
 - o Do you regularly back up/update with your office/business computer? YES NO
6. Do you have access to or have your own Cellular Phone? YES NO If yes, please answer the following:
- o Is the cell phone provided by the local Extension Service? YES NO
 - o Is your cell phone portable or permanently mounted in or part of your vehicle? Portable Mounted
 - o Percentage of monthly service used for work? _____%
 - o Do you have voice mail on your cell phone? YES NO
 - o Does your cell phone have two-way radio availability? YES NO
 - o Do you send/receive e-mail via your cell phone? YES NO
 - o Do you have OnStar Services available on the vehicle you use regularly for work? YES NO
7. What is your main use of the Internet? Describe: _____
8. How often do you send/receive/read email?
- | | | | |
|--------|----------------------|-------------|------------|
| Hourly | Several times a day | Twice a day | Once a day |
| Weekly | Several times a week | Monthly | Never |
9. What IT training have you had? List: _____
10. Do you use a digital camera for work related photos? YES NO
11. How do you get your IT knowledge? _____
12. Who makes decision on computer and IT equipment purchases in your County Office? _____
13. What is the source of IT funding in your county? _____
14. In your current position, how do you want to use IT in the future? _____
15. How can IT make your job more efficient in the future? _____

Appendix 7.

Extension Area Staff Meeting Discussion and Input Session

PROCEDURE:

1. Area Program Director will randomly divide agents into small discussion groups, with an equal mix of agents representing all program areas. Distribute College IT Committee Overview to each agent.
2. Each group will select a discussion facilitator and recorder. Facilitator should seek input from all group members on each of the topics/questions listed below. Recorder should take detailed notes and submit a legible copy to the Area Program Director today.
3. Realize ~~Nothing~~ is sacred and all discussion on IT issues are ~~A~~fair game.
4. Please complete the four mail discussion points and record, before moving onto the other possible discussion items.

DISCUSSION POINTS:

- Point 1:** What are your most used IT functions/systems? How/what do you use IT for now?
- Point 2:** What are your ten most pressing IT needs and prioritize these? (Or what IT issue or problem inhibits you from doing your work?)
- Point 3:** Name ten things that would be really “cool” if the College IT capabilities could do in the future? (Or ten ways IT could make your job easier, or ten things you’d like to see happen with IT capabilities in the College?)
- Point 4:** What is the best method of IT training for you – in reality and in an “ideal” world?
-

OTHER POSSIBLE DISCUSSION ITEMS:

- Are you in favor or more Regional Extension Technology Contacts (RETC) or less RETCs?
- Are you in need of “Smart” Conference/Meeting Room resources?
- What has been your experience with IT support? What would make it better?
- Does the College need to expand the possibilities of use of Personal Data Assistants (e.g. Palm Pilots) for agents? Please give examples here.
- How important is it to be able to transport Digital Photos to specialists for plant, animal, etc. diagnosis?
- Digital conferencing, conferencing on the Internet, that could include Area Staff meetings?
- Use of DVD instead of video tapes?
- Better Internet connectivity?
- Video library: use direct or download for use later?
- IT if done correctly, should create more time for personal contact with clientele. Is this the case or are you being forced to give up personal contact by as a result of time requirements on the computer.
- UK publications that are out-of-date? Do we update or notify you of other Land-Grant institutions updated pubs?

Appendix 8.

College-Wide E-mail Letter

Last year, Dean Smith appointed a committee to review Information Technology (IT) in the College of Agriculture and to develop recommendations on how the College can use IT to improve the efficiency, effectiveness and quality of services provided to its diverse clientele. The IT Review Committee's working definition of IT is, "The systems and personnel that enable movement, storage, manipulation, presentation and sharing of information." Information Technology is often thought of as simply computers, but the term includes other data handling hardware (e.g., Proxima projectors, cell phones and PDAs) as well as the associated software, network systems and technical support delivery systems. The Review Committee's scope of interest encompasses the College's traditional service components (teaching, extension and research) but also includes administrative functions. The College's ongoing investment in IT and the present climate of budget uncertainty make it imperative to have an accurate assessment of current IT capabilities, a focused vision of what IT should provide, and a targeted plan to achieve that vision.

Over the past months, the IT Review Committee have facilitated focus groups, distributed questionnaires and conducted individual interviews to gain a sense of the challenges and concerns faced by College of Agriculture personnel and to solicit their suggestions on ways to improve on the current situation. If you have already participated in one or more of these activities, then I personally thank you for your service to the College and to the Committee. However, the Committee recognize that our activities to date have not directly involved each individual working in the College of Agriculture. Therefore, we are asking through this e-mail for your observations and counsel on IT issues of interest to you, so that we minimize the risk of failing to capture the important perspectives that you can provide.

If you have not yet participated in one of the IT focus groups, questionnaires or interviews, or if you would like to provide additional information to the Committee, then please respond to me via e-mail (preferable) or hard copy no later than FEBRUARY 21 with any IT issues of interest to you. If you identify an IT issue as a current challenge to your productivity and have ideas on how that issue might be rectified, we would be delighted to learn of your suggested solution. If, on the other hand, you perceive a particular situation as beneficial to your productivity, then please share that as well. The Committee are interested not only in situations that need to be changed, but also those that need to be left as they are. While we do not wish to structure your response to us, you might find the following questions helpful:

1. What IT products/services would enhance your productivity?
2. What IT products/services do you currently find helpful?
3. What specific IT issues would you like to see the College address?
4. What steps should the College be taking to better position itself for the future?

I assure you that I will take every step to protect the confidentiality of your response. I will not forward your responses to anyone else, and I will ensure that all header information is stripped from e-mail responses prior to their collation and viewing by other committee members.

Thank you in advance for your service in this very important matter.

Appendix 9

Unit IT Support Staff Questionnaire and Discussion Points

1. What type of computer support is available in your department? (Check all that apply.)

-
- _____ Trouble-shooting computer problems
 - _____ Web design
 - _____ Advising on software and/or hardware purchases
 - _____ Web site implementation and maintenance
 - _____ User training
 - _____ Hardware repair
 - _____ Technical liaison
 - _____ Custom programming
 - _____ Special projects
 - _____ Data analysis/reporting
 - _____ Systems analysis/design
 - _____ Maintaining archive copies of electronic media
 - _____ Maintaining a helpdesk
 - _____ Graphics design/implementation as a service for others
 - _____ Database management
 - _____ Administering departmental network(s)
 - _____ Maintaining a departmental computing facility
 - _____ Other :

2. Who provides this support? Please do not provide individuals' names, only their positions, whether they provide the support part-time or full-time, how general or specific their responsibilities are (e.g. responsible for computers in whole department vs. a single lab, only does web pages, etc.)? Include yourself of course!

3. To what individuals or groups are you responsible for providing computer support? Check all that apply.

-
- _____ Single research group
 - _____ Other departments or groups
 - _____ County offices
 - _____ Department members in remote locations
 - _____ Research faculty and staff
 - _____ Department members located in more than one building on campus
 - _____ Department members located in one building on campus
 - _____ Extension faculty and staff
 - _____ Administration and office staff
 - _____ Teaching faculty and staff

4. What opportunities do you have for training or upgrading your skills? Do you feel you are able to take advantage of current opportunities offered through UK Training Services, free or reduced tuition for college courses as an employee benefit, or other training offers? What opportunities would you like to have available?

5. What is your experience with IT support from outside your department? What types of IT support would be most useful to you?

Discussion topics:

What are the strengths/deficiencies in current IT systems and computing services?

Are we appropriately organized for IT staff support? (Mixed centralized/decentralized model)

Are we appropriately interacting with and using university IT and communications? How do you interface with college, main campus, counties, dept and college administration, dept members at remote locations (Princeton, Quicksand, etc.)?

What is your evaluation of communication among IT support personnel in the college?

Are opportunities for training adequate for the people you support? For you? (Networking systems, Software training, Microsoft certification, server certification, etc.)

How has your job changed over time? How will it change in the future? What technologies do you anticipate working with in the future?

Appendix 10

Condensed and Consolidated Faculty Comments

1. Information transfer on IT is lacking. There is a problem knowing who to talk to.
2. Faculty need more information on how to deal with technology in instruction; e.g., incorporating streaming video.
3. No financial resources are available.
4. The Medical Center offered a program on IT issues – we should talk to them.
5. We need support for distance education issues.
6. There are problems with getting internal support.
7. We need to be aware that efficiency on one end is not necessarily efficiency on the other. We need one place, supported by a committee, to go for information and support.
8. Student grades should be automated.
9. Maintenance of computer systems in “smart classrooms” can be a problem.
10. “Smart classrooms” not all maintained by the same people.
11. Make it easier to reserve computer classrooms; too many places to go to reserve them.
12. There are too many overlapping services and systems.
13. We need better vehicles for sharing ideas on IT.
14. There is no money to support teaching. If we want to do innovative instruction, the funding comes out of our own pocket.
15. Faculty need electronic archives in reserve journals.
16. Agripedia is an excellent resource but not used much.
17. We should consider moving to a portal system.
18. Extension offices need high-speed internet access.
19. Clientele should be notified when extension products are developed and available online.
20. The College does not deliver documents in a coordinated way –spread all over the place.
21. The problems with web-based materials involve more than just extension; we need standards across the board on web pages.
22. Web masters for each department should be identified.
23. We need to apply the same standards to online products as to paper products.
24. Coordinated vision and effort are required force extension personnel to get up to speed in a timely way. People are going to elsewhere to get information
25. If our clientele cannot find needed information quickly, they will go elsewhere to get it.
26. Who is looking at our websites and how do they use them?
27. Do not change the Agriculture Information Center.
28. Use the web for voting. Stop the paper.
29. Why do I have to click on "view source" to read (with U-connect) many, but not all e-mail messages originating from the College?
30. We need regular announcements of campus wide seminars.
31. The web links between the University of Kentucky home page and our College academic programs are very poor. It should be easier to find what we need, either for prospective students or advisors.
32. Coordination and cooperation among webmasters should be strengthened.
33. It is very difficult to use the web effectively as an advising tool. Part of this is the University’s failure to list courses and times in advance.

34. Faculty often use much valuable time working around existing barriers, at the expense of their teaching and research efforts.
35. Faculty need more Mac support, especially in networking. Could not get files transferred because these issues.
36. Blackboard – need more resources for files.
37. Is Distance Learning a priority for the college? The College needs to decide if there is going to be a priority and, if so, to provide resources.
38. Student computing labs need to stay.
39. We need to get on an equipment replacement cycle.
40. There is a problem in getting state of the art equipment for graduate students.
41. Faculty would like to have either SmartBoard Technology or digitizer plads in every “smart classroom” so that they can annotate on slides and figures, etc. that are being projected with the ease of using a pen.
42. We need to be thinking about wireless access. It would be nice if we had it now.
43. We need to explore ways to better integrate the web and work. An example for research would be a database of electronic research publications, that I have collected and want access to from more than one location. The same applies to esearch results.
44. Need to upgrade lab software, especially data acquisition and storage. Also need ways to secure and back up this data.
45. Need some sort of back up software, so that I can easily back up my work computer and work that is done at home.
46. The grant submission process. Walking all over campus to get signatures and submit the proposal to UKRF is totally unnecessary.
47. The College needs a system for identifying resources that are available and could be shared, which will be an increasing need. For example, who in the College has a GC/MS or an HPLC/MS? What about NMR? Has someone surplused functional equipment, that could have found utility in another program?
48. Clerical support staff’s job descriptions do not include IT functions.
49. There was no help for clerical staff in making mandated software changes.
50. The role of clerical support has changed. Because of IT, faculty are now doing things that the staff did a few years ago.
51. Support staff need higher level skills but also better pay to compensate.
52. Some staff are underused because they cannot perform IT tasks.
53. Support staff are not well trained in some software.
54. Clerical staff have multiple supervisors, so training falls through the cracks. Training needs to be identified and managed at department level.
55. Baseline IT capabilities should be established for support staff .
56. It is difficult to assess support staff’s level of proficiency.
57. A College-level coordinator is needed to help prepare good instructions and share.
58. Some faculty don’t know where to go for support for higher level web design.
59. Who maintains the department websites?
60. We need to introduce new technologies in agent training.
61. Available equipment is pretty good.
62. We might need to standardize equipment to facilitate support.
63. We need to expand technology to deliver training.
64. Students don’t take advantage of current IT capabilities.

Appendix 11

Condensed and Consolidated Staff Comments

Off-Campus Staff

1. No problem is pushed to its limit. Some departments have no access to proper resources to solve major problems, and it takes too long to find some one to help.
2. The support staff not supported by departments. Resources comes through the station budget.
3. Net-g classes are of limited value and have caused some computers to freeze.
4. Local telephone numbers have helped.
5. IT training takes place, but staff are not informed that the training is happening and do not feel invited.
6. Some staff would also be willing to attend downlinked training sessions on software programs.
7. IT training needs to be local and hands-on.
8. The IT system is fragmented, stretched thin, and hard-pressed to keep up with changes.
9. Some staff have hand-me-down equipment that isn't compatible with faculty/specialist equipment.
10. Another IT support person would help. The area support person is overworked.
11. Staff need more training for IT support.
12. Current staff IT training is trial and error.
13. There is no formal training on FRS except at Lexington. Need distance learning capability.
14. It is difficult to attend training because the classes are hard to schedule.
15. Main campus is the sole source of help on business procedure.
16. Staff can't get work done and do online training as well.
17. Some staff have participated in internet courses from community colleges.
18. An additional technical support person could probably be used Princeton and kept busy without any problem.
19. There is no mechanism for communication among staff assistants.
20. Technology has not efficiently replaced the face to face meetings.
21. There is no organized IT system for support staff to help them with work.
22. Any IT changes should be tested by the people who use them.
23. Staff want a voice in change.

On-Campus Staff

1. Staff need mechanisms and channels to voice problems.
2. Every department seems to be out for themselves with little teamwork.
3. It is difficult and time-consuming to extract useful information from SIS.
4. Secretaries get hand-me-down computers.
5. FRS and SIS impede getting work done.
6. The purchasing system is not functioning. It is impossible to get things through.
7. Hardware support is good.

8. One IT support person per department may not be enough as size of departments varies.
9. Software training is inadequate
10. There is no time for training, and support for training is variable.
11. The staff workload is particularly heavy with unfilled vacancies.
12. The Help Desk is helpful about 50% of the time.
13. The Help Desk is slow to respond.
14. PDP is waste of time and waste of paper.
15. At least some staff love the print shop in Scovell.
16. Staff want better spam filters.
17. Staff need a resource to ask about software questions after the basic training.
18. Staff often go from person to person until they find someone that can help with software.
19. Some staff do not understand CATPAWS.
20. Staff love Vehicle Registration.
21. Staff would like to see UK forms work the same way as vehicle registration. Forms should be uniform.
22. The annual leave system is okay, but the biweekly annual leave is not online.

Appendix 12

Condensed and Consolidated Chair/Director Comments

1. Need wireless networking, videoconferencing capability, “smart classrooms.”
2. Need software to enable remote support.
3. Standardization should be considered.
4. Need information on backup software and hardware options.
5. Would like hard support to replace obsolete equipment (e.g., scanners).
6. Need more and better space for facilities such as student computer labs.
7. Internet connectivity at Robinson Station should be implemented.
8. There should be comprehensive network support for all platforms (not just PCs).
9. Training among staff should be a priority, and there is a need for better information and methods.
10. Would like access to College administrative data (for example, leave data, pay data, other personnel data).
11. There should be no “us vs. them” mentality with main campus.
12. We should facilitate the process of finding out where to go with problems.
13. ACS needs more manpower, including in the ADC, to provide support.
14. All personnel need more training in desktop application.
15. Improve communications about network changes and security issues.
16. Improve communications regarding policy changes.
17. ACS web pages should not take so long to load.
18. We need uniform guidelines on computer configurations.
19. There should be hard funding for computers for key support persons.
20. Departments/units need advice on security issues.
21. Improve Ag North hardware.
22. Break main campus’ lock on network installations (their services are expensive).
23. The College should not restrict departments. Make it a partnership.
24. Hard funding for replacement PCs.
25. Increase departmental staffing for IT support.
26. We should eliminate duplication (of effort and software).
27. The College needs standard procedures and training in regard to security.
28. Personnel in the College should make better use of campus IT resources.
29. We need a firm, regular schedule to replace computers.
30. Solve personality problems with College-level IT support.
31. Strengthen web applications.
32. Enable electronic schedule sharing.
33. Develop mechanisms to share IT products(spreadsheets, templates, databases) across departments/units.
34. The College should staff a group to help develop minor products and applications.

Appendix 13

Condensed and Consolidated Extension Agent Comments

1. Need more support.
2. Message board is difficult; need to put attachments on e-mail. Several suggest dropping it.
3. Update publications and put them on the web.
4. Improve CA search engine.
5. Need more training, both initial and refresher (e.g., desktop publishing, web pages, basic skills). Training needs to be local when possible; not all can come to Lexington. The best training method is “hands-on,” in small groups, with written materials made available for future reference. The same applies for staff assistants.
6. Time to learn and lack of incentives are training detractors.
7. Training needs to be on the equipment that agents will be using.
8. Need money for internet access.
9. Facilitate transfer of large files.
10. Keep bulletin board postings available for a longer period of time.
11. Agents are giving up face-to-face time to be on the computer, which is not an efficient use of their time.
12. There should be one site for all administration and reporting.
13. Need more RETCs who are more knowledgeable about extension needs (e.g., Martech) and can provide more 1-on-1 time.
14. Some agents feel patronized/belittled by RETCs.
15. Slow response to IT support requests.
16. PDAs are a waste of time.
17. Go to DVD media.
18. Need broad band access.
19. Need better design of forms that agents must complete and elimination of duplicative paperwork.
20. Need consistent methods of web-based reporting.
21. Need more video conferencing capability.
22. Need training on PDAs.
23. Would like to have chat rooms for extension agents and/or instant messaging.
24. Want better junk mail filtering.
25. Would like to see the College provide Nextel-type cell phones (cell phones are currently funded by county).
26. Would like unlimited access to teaching resources and software like Blackboard.
27. Want regular technology updates.
28. UK needs their own publications (e.g., don't use the ones from Ohio State).
29. Facilitate enhanced digital imaging and sharing.
30. Need GPS training.
31. Speech to text software would be nice.
32. Need user-friendly templates with correct instructions for web-based reporting.
33. Eliminate automated telephone answering systems. Want a live voice.
34. Some say the computer has created more work, not eliminated work.

35. Need additional presentation equipment (e.g., projectors, laptops).
36. Would like an “Ask Jeeves” for UK web-based information.
37. Need significant training on web development and management.
38. There are too many login systems and access codes.
39. The 4-H website needs improvement.
40. Pegasus is user unfriendly; can’t forward attachments.
41. ACS needs to field test programs in low-tech counties.
42. Inconsistency of programs – there are constant changes.
43. Would like to participate in E-conferences.
44. Discontent with 4H systems, especially Martech (“Kill Martech forever” was one comment).
45. Would like to see development of FAQs and expertise directories.

Appendix 14

Condensed and Consolidated Student Comments

1. Availability and functionality of computers are good, though expanded access during weekends and peak periods (e.g., finals) is needed.
2. There is high variability in instructors' use of IT in the classroom.
3. Most IT training is "on the job." Need more training on the technology, especially with software such as MS Word, MS Excel, and the ESRI package.
4. Student computers need CD R/W drives, because 3.5" and Zip drives have become inadequate.
5. Students would like more support for personal notebook computers; e.g., ports in classrooms.
6. Students would like to see wireless networking expanded.
7. Classes should be current in terms of IT.
8. Students would like to have access to lectures in web-accessible format.
9. Students like availability of lecture notes in Power Point format.
10. There should be consistency of software among computing facilities.
11. Vision-impaired students need access to the control panel to increase font sizes. Would prefer that their personal settings be portable.
12. Student e-mail address lists should be automatically generated for instructors.
13. Functional teaching equipment is needed (e.g., overhead projectors and dry erase markers).
14. Students have mixed feelings on being required to own their own laptops; uncertain as to how much they would be used in instruction.
15. Students appreciate use of equipment such as "smart boards," Proxima projectors and Elmo.
16. The interlibrary loan program is very good.
17. All IT support staff need to have the right attitude.
18. Each graduate student needs access to a computer, preferably on their own desk.
19. There should be a published list of the software that is available to UK students.
20. Newer computers with the most current operating system are needed.
21. Available computers should have sound cards and USB ports.
22. Newer printers, with color capability, are required.
23. The VIP registration system should be replaced with an online system with current information.
24. Students need access to local-access telephones in their study rooms.
25. The system of making copies (i.e., rechargeable magnetic card) needs to be replaced with a more user-friendly system.
26. Availability of a within-department network is good because of less competition for resources, ease of printing documents, access to services and support, and flexibility in terms of loading software.
27. The systems of obtaining a .uky e-mail addresses and having remote access to e-mail are good.
28. Students appreciate the availability of online class notes, but they are no substitute for paper notes. This is still the way they learn – not from a computer monitor.

29. "Canned" lectures encourage passivity and sometimes slumber.
30. The following apply to Distance Learning experiences:
 - a. The flexibility associated with DL classes is good.
 - b. Timed examinations over the internet are potentially problematic, especially for those with dial-up connections.
 - c. Bandwidth issues can be substantial, especially with large files.
 - d. Voice lectures stored in compressed format are very good. These allow the students to pause, take notes, replay, etc.
31. Students are in serious need of more information regarding what IT resources are available and how to access those resources.
32. Some College classrooms need new furniture in the classroom. For example, the desks in N-10 are barely large enough to hold a notebook.
33. IT equipment needs to be kept in a high state of maintenance.
34. UK should negotiate with computer vendors for student discounts.
35. Training/workshops for the MS Office suite are needed.
36. Instructors who use Power Point shouldn't simply read the slides.
37. Students would like more access to historical teacher ratings and other information.
38. Not many students have taken Web courses, but those who did liked them because of the flexibility.
39. There is some uncertainty regarding methods of registration. Those who have used the Web liked it, but recommend more frequent updates to the data.
40. Instructors need to be fluent in spoken English (comment not directed toward a College of Agriculture instructor).
41. Software is needed to eliminate pop-up ads.
42. At least one student would like more food variety in the Ag North common area.
43. Develop a database on recent graduates. For example, where the graduates work, what is their position, how to contact them, what were their starting salaries?
44. IT should be used to improve the effectiveness of undergraduate advising.
45. Use dry-erase boards in classrooms.

Appendix 15

Condensed and Consolidated General Questionnaire Comments

1. Need more bandwidth: on campus and particularly at county offices.
2. Need better communication between IT support/administrators and faculty/staff.
3. Would like to be presented with IT options, not edicts.
4. IT support needs to facilitate, not dictate.
5. Need support for PDAs and PPCs.
6. Need more “smart classrooms.”
7. Need increased videoconferencing capability.
8. Need faster computers with networked printers (Robinson Station).
9. The AICs equipment loan program is great.
10. Would like to see College support/encouragement for distance learning activities (e.g., Blackboard).
11. Need rearrangement of information on College’s website to make it more easily searchable. Current system of finding needed information is cumbersome and time-consuming.
12. There is a disconnect between online publications catalog and ordering system. The system is maintained by separate sections of ACS.
13. Web linkages between departmental sites need to be improved.
14. Would like to have faculty expertise directories.
15. There are concerns with the compressed timeframes of generating extension publications and the possible loss of quality.
16. Annual updates of extension publications are needed.
17. The availability of new publications should be “pushed” to agents.
18. Departmental web sites need to be updated and consistent within College. Coordination among departmental webmasters will be necessary.
19. Need to make provisions for large file management, including larger mailbox size and secure FTP sites.
20. Need secure web sites for confidential feedback from clientele.
21. The RETCs are very good and creative, especially when not hampered by directives and constraints.
22. Don’t adopt a lowest common denominator mindset. If counties have or can get state-of-the-art software or hardware, the College should support it.
23. Don’t like having to reach RETCs through the help desk.
24. Help desk – mixed reaction. Sometimes helpful, sometimes not. Manned by student workers?
25. Develop subject matter experts among Help Desk personnel, publish a FAQ page.
26. Extend the soil test automation concept to other College programs such as Plant Pathology.
27. Would like to receive audio/video from CA programs. Preferably, would like to do large-screen projection of video from CA programs.
28. Used to have area computer contacts who would periodically come to campus to get updated on IT issues, carry the word back to their area. This was a good approach in terms of creating county-level acceptance.

29. Need options and assessments of virus software. Some counties would like the best, not the cheapest.
30. Spam detectors and virus protection on UK servers is good.
31. Need more canned programs; e.g., Ag Water Quality software.
32. Put College web site on CD so online connection isn't necessary.
33. Faculty/staff need help with hard drive backups.
34. Need help in moving printed materials to web format.
35. The College should standardize on Adobe Acrobat and pdf format.
36. Would like to see expanded online form completion/transmittal.
37. Need to create more educational streaming video.
38. Integrate use of PDAs into CATPAWS.
39. Need more network connections (e.g., for labs).
40. Need more availability of space on CIT section's servers for storage.
41. Cell phones are very helpful.
42. Equipment in "smart classrooms" needs to be state-of-the-art; i.e., compatible with XP (e.g., can't presently handle Power Point Presentations created in XP).
43. Place all newsletters in a common location, and make the materials searchable. Might be able to make an annual CD (searchable) of all newsletters.
44. PDAs are the wave of the future. Should be able to download data into computer monthly, auto-generate reports. Should also be able to download some extension materials onto PDAs (e.g., .pdf format).
45. Make specialists' programs available on Power Point/CD so that they don't have to do the same programs in the same counties year after year.
46. Agents prefer face-to-face training (i.e., not over the internet) for specialist/agent programs.
47. Need standardization of operating systems (three in one county).
48. Use RETCs as instructors, depending on RETC experience/training.
49. Communicate information on available training (e.g., desktop) through staff meetings.
50. Buy equipment in bulk, around first of August, for uniformity and cost savings.
51. Need standards on PDAs/PPCs.
52. Need regularly updated standards for projection units, scanners, printers, etc.
53. Need help on basic functions, such as defragging, downloading, unzipping.
54. 800 number for remote access and e-mail is very good.
55. What are the RETCs' priorities of work? For example, office system upgrades? Some counties want to upgrade to XP, but this seems to be low priority.
56. County staffs need to be consulted about what they want/need.
57. Need information on what UK support programs are available; i.e., who provides what.
58. Online access to research articles is good and deserving of additional investment.

Appendix 16

Significant Accomplishments of the Ag Data Center Draft document provided by Dr. Robert Fehr

"In my opinion, many of the accomplishments of the Ag Data Center were achieved because the management and staff of the Data Center were willing to forge ahead even when others did not see the need for change and improvement. Planning ahead and designing for the future have enabled us to continue to be leaders among our peers. It should be noted that the Data Center provided services for the entire College, using a staff which was much smaller than many other states' Extension Service alone."

John Byars

Creation and Early History Ag Data Center (BD – Before DOS)

In the early 1960's, as computing services became available in the University, the College of Agriculture was quick to take advantage of them. Some Departments, noting the capabilities of the new computers to quickly and accurately provide data summarization and statistical analysis, acquired staff and developed applications to take advantage of those capabilities. By the mid-1960's, the College of Agriculture was one of the largest users of the UK computing facilities, accounting for about 30% of the total computing utilization for the University, outside University Payroll and Accounting.

By the mid-1970's, the historical method of submitting data for computing, carrying punched cards to McVey Hall, was becoming more and more burdensome, and more people (including many graduate students) in more departments wanted to use the facilities.

In 1976 the College decided to create the Agriculture Data Center as a college-wide service unit, by combining the computing resources from the Agronomy and Agricultural Economics (and later, Rural Sociology) Departments. The new facility provided keypunch service and programming assistance to everyone in the College on the Lexington Campus. As utilization grew, it became apparent that better methods of submitting data for processing were needed. The College was able to install a Remote Job Entry station (the first on campus), through which individuals could submit card decks in the Data Center for processing by the main campus computer, and receive their print-outs, thus eliminating many trips to main campus. The system also included an electronic data entry system, used primarily by Extension for keying data into the Kentucky Extension Management Information System (KEMIS), thus saving several hundred thousand cards (and many trees) per year. The RJE station was a great improvement over the old system of carrying cards across campus, but was quickly outgrown as the demand for services increased.

The College decided to purchase its own mini-computer, an HP 3000, to replace the existing RJE station. The new system still provided facilities for submitting cards to main campus and receiving printouts at the Data Center, but was much faster. In addition, it provided a number of new services. Terminals located in the Data Center provided on-line computing, and a number of applications were developed to take advantage of the new capabilities. Shortly after the first

HP computer was installed, a second one was installed at the Western Kentucky Substation in Princeton, linking that station with the Lexington campus and its computing facilities. A modem pool was established so users across the state could obtain access to the interactive software being developed.

Family and Consumer Sciences Extension was quick to jump on the bandwagon and developed programs for use by the public, focusing on such things as food and nutrition recommendations, stain removal advice, Health Hazard Appraisal, etc. Applications in other areas followed. The Data Center, along with the meteorologists in the Agricultural Engineering Department, soon developed a system to tap into the National Weather Service system and provide current weather information, both on-line and by providing a feed through KET to special television receivers, AGTEXT.

When the UK Computing Center decided to charge “real money” for its services, the College decided to instead purchase its own research computer, an IBM 4361, for its data entry and storage, and statistical processing. This provided direct access by College members to the major statistical software (such as SAS) as well as programs developed in FORTRAN.

As a part of its internally-developed applications on the HP systems, the Data Center was providing some limited messaging services among those County Extension Offices who were able to connect to it through the modem pool.

AD (After DOS)

With the release of the IBM PC the computing environment changed and with it the needs of systems to support the College. To meet the need for training the ADC created and supported one of the first PC teaching labs on campus. The lab is used for both instruction and Extension activities and continues to be supported for the benefit of both groups today (Rm 246 C.E.Barnhart). To meet the need for more computer aided instruction in the classroom the ADC installed 3 new “smart classrooms” and upgraded 3 existing “smart classrooms.”

As the desktop computing environment grew so did the need for support. The ADC established a helpdesk to provide support for anyone in the College. Computer support was further enhanced by the creation of the Web Consulting application that allows individuals to report problems. As the demands for enhanced desktop support services increased in the county office, the ADC created the 5 Regional Extension Technology Contact (RETC) positions. These positions focus exclusively on meeting the needs of the county offices and were among the first of their kind in the nation. Despite the large number of sites they support and the long hours spent in travel, the RETC’s have been able to provide a high level of support.

When personal computers came on the scene, it became apparent that electronic mail could be a very powerful mean of communications. To meet the need for an e-mail system the ADC implemented a standards based e-mail server, UUCP, that allowed the College to become one of the first states to provide e-mail to every county extension office. The system server operated under UNIX on a state-of-the-art 386 computer with 16MB of memory and a 30MB hard disk for many years. At that time there was no e-mail client software based on any standard. The ADC

developed its own e-mail client software, AGMAIL, that combined several standards, POP, UUCP, and NEWS. This allowed users to have access to a full Internet compliant e-mail system prior to any similar system supported by the campus or widely available commercial systems. At the time the University did not support any e-mail standards based e-mail that could meet the needs of Extension.

Because of the selection of a standards-based e-mail system, the College was able to adopt a different e-mail client software, Pegasus. Pegasus offered a wider range of options and allowed the ADC to focus its software development in other areas. Pegasus remains the standard e-mail client for Extension County Offices.

The ADC was able to operate its e-mail system for all 120 county extension offices that never exceeded \$60,000 per year when other states were paying over 10 times more to provide a similar service. This system allowed the ADC to be the first College on campus and one of the first states to provide e-mail addresses for all Extension employees and to any College employee that requested one.

The e-mail system also allowed for the use of e-mail as a transport for administrative software applications. The first application to use electronic transfer of information to the Data Center was Extension reporting, KEMIS. A software application was developed to enter KEMIS data for the County Extension Agents and Staff into the local PC, then electronically transmit the data to the Data Center. This eliminated paper copy, mailing the forms, and keying them in at the Data Center. The ADC was a pioneer in the nation in providing administrative software applications on the desktop. This method is still used for applications within the College such as soil test results.

In order to reduce operating costs, to free staff for other activities, and to provide enhanced e-mail services to our users, the College moved its users to the campus e-mail server. Again, because of the ADC's focus on standards based systems, this change, involving over 1400 users, only required one day, without any interruption of service. This was possible because the campus changed to a standards-based service and with over 9 months of planning, testing, and preparation the move was both possible and successful.

The ADC developed a software application that allowed it to create a Web site for each County Extension Office. The College was one of the first in the nation to provide sites for every county office. The Web sites included automatically generated information and the ability for counties to enhance and add to their Web sites. That effort continues with the addition of a FrontPage server to allow easier Web site maintenance and expanded options for the counties.

Based on its history with providing administrative software applications the ADC was able to be one of the first states to move its administrative county-based software applications to a Web based application, CATPAWS. This application combines a number of county-based applications into one Web applications that is considered one of the best in the country by College administrators that have reviewed other systems. The applications focus on ease of use. For example, after login a user is never asked to input their name again or any information that can be derived from their user registration.

The creation of the CATPAWS application allowed the ADC to create other Web based applications such as the Web Consulting System application to allow groups of experts in the College to form teams to provide support. The ADC was the first team to utilize the system. Additional Web applications include the Web Message Board that allows College employees to e-mail any size file to anyone, including the College lists, by sending a Web link to the file thereby avoiding issues with file size restrictions on anyone's e-mail system, and the Email List Manager to allow College employees to determine which e-mail lists they were on and allow them to elect to be on others.

The ADC has also used the Web to change the way the College conducts internal surveys. The survey created for the last College review resulted in the higher participation rates than previous reviews and set a standard for the College review process on campus. A number of other surveys have been conducted since with equally successful results.

The ADC anticipated the need for network services and as a result the College was one of the first on campus to provide network services to all College employees on campus. The result is that the College was one of the first on campus to provide such services. The University recognized the College's efforts and provided over \$300,000 in funding to assist the College in completing the work. The ADC was the only group on campus that was allowed to manage these funds to meet its networking needs.

As the College network grew so did the demand for network services. The ADC provided Novell file and print services, to any College employee on the campus network that requested them without charge. As a result the use of file and print services is almost universal in the College and are still provided by the ADC free of charge. To meet the growing demand for network services a position in the ADC was devoted to providing full time systems support.

As the number of computers in the county offices increased so did the need for networking. When the RETC's were created there were fewer than 10 counties networked in the state but within 4 years all the counties were networked, and the RETC's provided most of the installation including cabling. As a result the state was one of the first states to have all offices networked. Use of networks allowed shared Internet access as well as file and printer sharing.

As the counties moved to local dialup Internet access, there was no change in services provided because all of our systems were standards based. Kentucky was one of the first states to have Internet access in all counties. The ADC used the funding that previously had been allocated for e-mail only to pay for local Internet access. For counties with no local Internet service provider the College provided 800 dialup services.

As the availability of local high-speed broadband Internet access became available counties were easily able to utilize it, again because of the reliance on standards based systems. By being able to remove a phone line dedicated to dialup Internet access, and the funding provided by the ADC counties were able to upgrade to broadband access for little or no additional cost. Over 75 counties now utilize broadband Internet access.

Perhaps the most important technology that will impact the College that the ADC provided leadership for was the installation and operation a video conferencing system that includes campus, (Rm 249 C.E.Barnhart), Princeton and Quicksand. The ADC had been utilizing video conferencing for its weekly staff meetings for several years before technology became affordable that could meet the College's needs. The current video conferencing system has been used for interview presentations, departmental meetings and workgroup meeting. Beyond the three sites in the College the systems have been used nationally and have been testing for international use. The addition of broadband connectivity in the county offices has allowed a county to purchase its own video conferencing equipment so that one its agents could be involved with a Staff Senate sub-committee from a county office without traveling to campus, a 6 hour round trip. State law requires that a committee member be both seen and heard before they can officially be considered in attendance in that meeting.

Appendix 17

Condensed and Consolidated Technical Committee Comments/Suggestions

1. Planning for major changes is needed.
2. The lack of a budget promotes the lack of a plan.
3. The lack of a minimum configuration standard causes problems.
4. Archives of research data are non-existent (this is a critical lack)
5. There is no real plan for infrastructure improvements.
6. Some personnel geographical and dimension of duties not working (i.e. [RETC] tech support traveling from Lexington when local support available.
7. Lack of staff – IT positions not filled – some units at 50% staff.
8. [Plus these same people have been assigned] Added IT support for other areas (an additional 200 computers) – stretched thin.
9. Stretched way too thin.
10. Too many irons in fire.
11. [In corporate settings, the] Rule of thumb ratio [is] 1 support person per 40 machines [(computers)].
12. Ratio of computers to tech support personnel is too high (currently 100 + / 1 is not unusual) – (also # of computers always increases with new purchases as older machines are also kept in operation).
13. Some departments do not have a computer support person at all (currently supported by College Computing Section).
14. “Computer support” is often expected to include office machine repair, maintenance and repair of lab equipment, overhead projectors, palm pilots, etc.
15. Decentralized IT support is working to some extent.
16. Requests from UK individuals for non UK work – including non computing equipment (i.e. faxes and copiers).
17. Administrators/individual users do not understand how long it takes to do things-- Every change [upgrade] in operating system takes time [to implement], (Maintenance [takes a significant amount of time] as well).
18. Suggest creation of a help desk for off-campus and another help desk for on-campus (in college).
19. Techcom [College of Agriculture Technical Committee] - good vehicle for communication.
20. This is a problem: Tech changes that are done all at once – with poor coordination.
21. Changes in standards not communicated – no formal way of getting information.
22. Information goes to chairs but not always forwarded on.
23. The IT web site information incomplete – not geared for technical people.
24. [The] Informal information network works – need to know the right people.
25. Good communication among front line IT people.
26. IT staff are relegated to being reactors – not partners.
27. Need better communication conduit with central campus.
28. Information on IT and available resources from main campus is scarce.
29. Changes in standards not communicated – no formal way of getting information.
30. [But the] Informal information network works – need to know the right people.

31. The IT web site information incomplete – not geared for technical people.
32. We receive mixed messages: use of the campus network is encouraged, but they charge too much to install the necessary hardware in College buildings.
33. Should be campus wide tech support group.
34. Bring on IT staff to help formulate time tables for major IT changes.
35. IT staff are relegated to being reactors – not partners.
36. “While you’re here...” every job results in 10 more.
37. [Satisfied with and would like more] network support from College of Agriculture.
38. There is not adequate work space/ storage space available.
39. Could do better in networking county offices and remote locations.
40. There is an expanding demand for network connections.
41. Gearing our services to lowest common denominator – counties that have upgraded not able to use new capabilities.
42. Lack of standardization / lack of information how to maximize use of networking capabilities.
43. Lack of minimum configuration causes problems.
44. Wireless – needs to be in classrooms.
45. Need to be able access network in any building on campus – using portable computers.
46. Could set up teaching/resource portable computers for use in multiple buildings.
47. Any request causes a chain reaction (i.e. new computer causes the moving of an old one which is another set of activities).
48. Explore feasibility of desktop support done remotely.
49. Email dissemination of information is mostly working.
50. Lack of user training
51. Do more workshops
52. [Provide] Training for faculty on how to use the “smart classrooms” effectively
53. [While RETCs are helpful with technical problems off-campus, they may not be able to be helpful] in specialized areas
54. Stretched way too thin.
55. Lack of recognition that IT people are human.
56. Needs to be a career ladder for IT personnel.
57. Need a mechanism to be promoted in place (as gain experience and skills, become qualified for a higher job classification).
58. RETCs help with tech problems off campus.
59. Work inefficiently because cannot take time to learn new things.
60. Need affordable training in networking.
61. Do not have uninterrupted time to do available training

Appendix 18

Responses to Unit IT Support Staff Questionnaire

(Summary of 10 responses)

1. What type of computer support is currently available in your department?

Total	Task
10	Trouble-shooting computer problems
10	Web design
10	Advising on software and/or hardware purchases
9	Web site implementation and maintenance
9	User training
9	Hardware repair
9	Technical liaison with computing entities on campus, software and hardware companies, etc.
9	Custom programming
8	Accomplishing special projects (e.g. University-wide Year 2000 survey and upgrades)
7	Data analysis/reporting
7	Systems analysis/design
7	Maintaining departmental backups or official archive copies of electronic media
7	Maintaining a helpdesk
6	Graphics design/implementation as a service for others
6	Database management
5	Administering departmental network(s)
5	Maintaining a departmental computing facility (avg. 22 computers)
5	Other : Support other departments without their own computer support personnel “Smart classrooms,” training room, public PCs, multimedia projectors, digital cameras Network storage, listserv management, computer inventory, support for scientific (lab) Equipment, support for web-based computer courses, refurbish reallocated computer Equipment, information dissemination via monthly gazette

2. *Who provides this support? Please do not provide individual's names, only their positions, whether they provide the support part-time or full-time, how general or specific their responsibilities are (e.g. responsible for computers in whole department vs. a single lab, only does web pages, etc.)? Include yourself of course!*

Of those who responded, there is usually one or two technical support persons who handle all aspects of computer support and web design/maintenance full time almost always for the entire department. Several also support specific custom programs in the county offices, web applications aimed at counties, and hardware/software support for county extension events.

3. *To what individuals or groups are you responsible for providing computer support? Check all that apply.*

Total	Group
2	Single research group
3	Other departments or groups (psychology and biology students at KTROC; HES, Vet Sciences, Plant Pathology, any employee of the college that asks for assistance)
5	County offices
6	Department members in remote locations (e.g. Princeton, Quicksand, etc.)
6	Research faculty and staff
6	Department members located in more than one building on campus
7	Department members located in one building on campus
8	Extension faculty and staff
8	Administration and office staff
9	Teaching faculty and staff

4. *What opportunities do you have for training or upgrading your skills? Do you feel you are able to take advantage of current opportunities offered through UK Training Services, free or reduced tuition for college courses as an employee benefit, or other training offers? What opportunities would you like to have available?*

Most respondents agreed there are plenty of opportunities for training and upgrading one's skills, however, the group was fairly evenly split that it was difficult to find the time and especially, blocks of time, necessary to take advantage of these opportunities. Some people have apparently made time, others did not feel they could do that.

Most on-campus (free) classes are geared toward novice users and are not useful to technical people. Technical classes of the appropriate level cost from \$80 to \$800 or more.

Most would like to see more short classes/workshops developed that are specifically geared toward the technical person (e.g. Visual Basic, C++, network and operating system classes aimed at technical people, a place where one could take online (Netg) courses without constant interruption, etc.)

All but one respondent indicated they were pleased with IT support from the college and from main campus, especially considering the limited resources that support has to work with. The college IT support and helpdesk were mentioned in particular as being very helpful in spite of being severely understaffed. The one respondent indicated that help is more forthcoming from main campus if you know whom to call; if you don't, it can be frustrating to get help. Support for Mac computers is desperately needed.

Suggestions for types of IT support that would be most useful:

- A guide to whom to call on campus for different types of computer problems
- Someone to investigate new software/methods that may be beneficial. There is not enough time to maintain the current set of computers and explore new methods as well.
- Training for all users in the College
- User training focused at departmental staff incorporating helpdesk FAQs (frequently asked questions) and other information as a starting point for training materials
- Better support for administrative software use
- Create departmental computer support in departments that currently do not have someone; each department should have at least one computer support person located in the department
- Free up the College IT support personnel to provide support to departmental computer support personnel, such as network support, help with security issues, etc., for example
- Provide a career ladder for people in computer related positions