

## Chapter 14

# Extension Computer Systems

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### Early Development—1969

The use of computer technology among most Extension workers in Kansas is a relatively new development.

However, the first significant computer application was launching the K-MAR 105 farm record system for farm management association members in 1969 under the leadership of Larry Langemeier in Extension Agricultural Economics. (*See the section on Extension Agricultural Economics activities for more details.*)

Another computer "pioneer" in Extension was Roy Bogle, Extension Farm Management specialist. His interest in using computers to solve problems for farmers grew out of his doctoral dissertation project.

In 1973, working at Garden City as the Southwest Area Agricultural Economist, he was using TELEPLAN, a system based in a mainframe computer at Michigan State University.

"It was an unusual approach in that we called up the computer with a rotary dial telephone handset and then switched to a push-button handset to enter the data," Bogle recalled.

"Once all the information was entered, you waited a little while and the results came back in a simulated voice and you had to write them down as the computer 'spoke' to you. Some farmers thought this

was particularly unusual because the voice sounded like a woman's."

The computer analyses he used most often formulated least-cost rations and performed a financial analysis, particularly on irrigations systems.

In 1975, Bogle became a State Farm Management Specialist and used a Texas Instruments Silent 700 terminal, which resembled a compact portable typewriter, to access K-CAT and AGNET programs on the mainframe computers at K-State and AGNET at the University of Nebraska in Lincoln.

These programs provided analyses for estate planning, making decisions whether to participate in federal farm programs, and whole farm financial planning. Bogle referred to them as transitional planning.

He also hired student programmers to help develop computerized crop and livestock budget sheets.

When Art Barnaby became a Farm Management Specialist at K-State in 1979, he assisted Bogle in using the estate planning and transitional planning programs until Bogle left Kansas in 1980.

## Computer Awareness

Barnaby was probably the first Extension specialist in Kansas to help many cooperators decide whether they should buy microcomputers. From 1980 to 1984, he held public computer awareness meetings in which he explained elementary computer hardware and software concepts to producers.

At that time, Extension Ag Economics was conducting a program called Decision 80's, aimed at helping farmers and ranchers develop strategies for economic survival. This effort underscored the need for whole-farm financial planning software. In response Barnaby began working on development of K-FARM.

Meanwhile, Farm Management Specialist Don Pretzer, Feed Formulation Specialist Bob Wilcox, and a few others in Extension were using programmable calculators to balance feed rations, estimate break-even prices and do other kinds of analyses that were generally too complicated to do conveniently on an ordinary calculator.

In 1984, Pretzer introduced FINPAK, a financial analysis system from Minnesota as a part of his participation in the Decision 80's campaign. Since then it has been used on more than 3,000 farms in Kansas.

In 1982, Barnaby and Stephen Welch co-chaired a College of Agriculture Computer Committee which had been asked to assess the microcomputer needs of County Extension Offices, including training for staff personnel, software development, and user support.

Also, the committee was charged with the responsibility of recommending computer equipment. The group committee identified these office procedures as possibilities for automation by computer: word processing, mail list maintenance, in-house problem solving, accounting, electronic mail and off-line data entry and communication with AGNET, the KSU mainframe computer and K-MAR 105.

Members of the committee compared fourteen different microcomputer systems, examining characteristics and costs of both hardware and available software.

The recommended choice was Vector Graphic 4, a 16-bit micro that operated under CP/M-86 and listed for \$9,745, including word processing, charting package, 1,200/300-baud communications, a database manager and a spreadsheet program.

The computer alone listed for \$4,995 with a 5.0 megabyte hard disk drive and a letter quality printer cost \$3,000.

Barnaby said the committee was also asked to discuss the establishment of a computer coordinator position, including a list of duties and responsibilities. However, their final report did not include anything about this position.

At the time, other computer committees and task forces also examined the needs of both extension and other faculty members in the College of Agriculture.

## Launching NCCI—1977

Fred Sobering, who came to Kansas as Associate Director in 1977, served on a study team that in 1981 visited each of the Land Grant Universities in the North Central Region to assess the need for a central organization to support the use of computers, foster sharing of software and information, and provide consulting services.

Upon completion of their work, the four-person team recommended the establishment of the North Central Computer Institute. A \$100,000 grant from The W. K. Kellogg Foundation funded the planning study.

Kellogg then provided another \$1.5 million over the next five years for the NCCI, which was head-

quartered in Madison, WI.

When he retired as Director in 1987, Sobering listed the establishment of NCCI as one of his major career accomplishments.

Soon after his arrival at K-State, Sobering requested \$100,000 a year for computer activities in Extension, but received only \$8,000, enough to buy a couple of terminals used in Ag Economics and Integrated Pest Management.

"There weren't enough resources being put into computer technology in the 70's to make it meaningful," Sobering said.

"In other words, there weren't dollars being put into it; without dollars, things don't happen."

## Kellogg Project—1982

In 1982, two members of the Department of Entomology faculty, Stephen Welch and Fred Poston, approached Fred Sobering about writing a proposal to develop an ambitious software system that would computerize the major decisions involved in producing field corn.

Late that year, the proposal was completed and submitted. Briefly, it called for:

- 1) Developing an on-farm package of corn management software.
- 2) Creating all necessary documentation, training materials and publicity for the project.
- 3) Evaluating all software support material in the context of commercial corn production and County Extension operations.
- 4) Integrating these activities with appropriate on-going regional programs.

The proposal called for a grant of \$284,815, which was to be matched by Extension in Kansas.

Project personnel named in the proposal were Fred Sobering, leader, Fred Poston, Stephen Welch, and Roger Terry, who were to devote from 0.1 to 0.5

of their time to the project.

An un-named, full-time "computer application specialist" was also included in the budget, a position later filled by George Brandsberg, Extension Communication Specialist in Agricultural Economics, who joined the project on loan from Extension Ag Economics.

"The Kellogg Project was the catalyst for a lot of activities," observed Fred Poston in late 1984.

"It put a body of programmers in place, it established some systems expertise in the person of Steve Welch and some module designers who worked with specialists to translate their needs into a form that programmers could work with and it put in place a sensible approach to documentation."

The idea for a Computer Systems Office had already been discussed, but during 1983 and 1984 it was limited to training and troubleshooting.

Little else was done because of lack of resources, Poston said. Roger Terry, who then divided his tenths time between teaching in Computer Science and Extension, performed many of these early support duties.

## CORNpro System Software

Early work on CORNpro, later called Corn Management System, was delayed by problems in obtaining a suitable programming language. However, by late 1983, four undergraduate student programmers and a full-time module designer, Jim Johnson, were hired and an Integrator group was actively working on details of the project.

The Integrator group consisted of Poston, Welch, Terry, Brandsberg, Johnson and Don Pretzer, Extension Agricultural Economist, whose role was to make sure the economic aspects of the system were adequately covered.

A couple of "CORNpro meetings" were held in which specialists from many agricultural disciplines discussed the major problems of designing an integrated software system.

These specialists were generally accustomed to making recommendations within their own disciplines without worrying about the impact of those recommendations on other practices.

For example, entomologists speculated that Southwestern corn borers, a severe problem in Southwestern Kansas, could be controlled by deep fall plowing which exposed the pupae to deadly freezes. However, ag engineers and agronomists said such plowing of the sandy soils involved was foolhardy—it would result in disastrous erosion.

The solution to this particular dilemma was the successful timing of insecticide applications to control borer populations.

Until the committees were formed to design different modules in the Corn Management System, farmers were forced to integrate, as best they could, all the information they used for growing corn.

In the process, they dealt with many conflicting practices. Besides striving for completeness, these multidisciplinary committees worked together to resolve incompatible recommendations.

In its final report to the Kellogg foundation in 1987, the PROtag Series Integrator Group showed that

19 modules had been completed or were nearing completion.

The software was distributed to Extension Offices in Kansas in May, 1988.

### WHEATpro Grant

Soon after the Corn Management System was developed enough to demonstrate, it attracted a great deal of attention regionally and nationally.

**Table I. PROtag Series Modules Developed and Cooperating Extension Specialists**

<u>Module</u>	<u>Specialist/Discipline</u>	<u>Module</u>	<u>Specialist/Discipline</u>
<b>CORN MANAGEMENT SYSTEM</b>		<b>WHEAT MANAGEMENT SYSTEM</b>	
User Training	George Brandsberg Communications	Harvest	Joe Harner Agricultural Engineering David Pacey Agricultural Engineering
Cost/Return	Don Pretzer Agricultural Economics	Marketing	Bill Tierney Agricultural Economics George Brandsberg Communications
Fertility	David Whitney Agronomy	<b>WHEAT MANAGEMENT SYSTEM</b>	
Irrigation I, II & III	Danny Rogers Agricultural Engineering	Cost/Return	Don Pretzer Agricultural Economics
Soil Insects I, II & III	Randy Higgins Entomology Phil Sloderbeck Entomology Larry Bonczkowski Crop Protection	Fertility	David Whitney Agronomy
Weed Control I & II	Erick Nilson Agronomy Roger Terry Computer Systems Office	Variety Selection	Jim Shroyer Agronomy Steve Young Agricultural Engineering Stan Cox Agronomy
Planting	Jim Shroyer Agronomy Morgan Powell Agricultural Engineering Roger Terry Computer Systems Office	Marketing Strategies	Bill Tierney Agricultural Economics George Brandsberg Communications
Seedbed Preparation	Don Pretzer Agricultural Economics Morgan Powell Agricultural Engineering John Hickman Agronomy Mark Schrock Agricultural Engineering	Price Analysis	Bill Tierney Agricultural Economics George Brandsberg Communications
Hybrid Selection	Ted Walters Agronomy Doug Jardine Plant Pathology Roger Terry Computer Systems Office	<b>BEEFpro</b>	
Mite Control I & II	Randy Higgins Entomology Phil Sloderbeck Entomology Laurent Buschman Entomology	Cost/Return (Cow-Calf)	Don Pretzer Agricultural Economics Danny Simms Animal Sciences
Corn Borer Control	Randy Higgins Entomology Phil Sloderbeck Entomology Steve Welch Entomology	Cost/Return (Wintering)	Don Pretzer Agricultural Economics
		Cost/Return (Stocker)	Don Pretzer Agricultural Economics
		Cost/Return (Finishing)	Don Pretzer Agricultural Economics
		General Management (Trouble Shooting)	Danny Simms Animal Sciences Don Pretzer Agricultural Economics

As a result, KSU was invited to submit a proposal to develop a similar decision aid for wheat producers. In 1984, USDA Extension Service approved a \$49,978 grant to develop four modules.

### **BEEFpro System**

Concern over more efficient production of beef cattle prompted leaders in that industry to pursue the concept of integrated resource management.

Upon receiving a proposal to create a system called BEEFpro, using the same approach as CMS and WMS, the National Cattlemen's Association in 1985 granted Extension \$15,000 to prepare two modules for beef producers—cost/return analysis and troubleshooting.

The first is useful for budgeting while the second identifies management areas in which a producer can improve, makes recommendations and even estimate the economic impact of implementing those recommendations. Version 1.0 of BEEFpro was shipped in January, 1988.

Version 2.0, which featured cost/return analysis for four different production phases, along with grazing management and feed ration analysis for cows, was to be distributed in March, 1989.

### **SOYpro/SORGHUMpro Software**

With funding granted by the Kansas Soybean Commission and the Kansas Grain Sorghum Commission, SOYpro (\$29,962) and SORGHUMpro (\$10,000) were finalized in early 1989. They both include cost/return analysis, fertility, and marketing strategies modules.

One of the conditions of the grant from Kellogg that helped fund the Corn Management System was sharing the results with other states.

To that end, the Kansas Cooperative Extension Service had signed agreements with Extension services in 22 other states by early 1989.

K-State agreed to provide the signatory states with all of the PROtag series software and train personnel from those states to design and create modules or systems needed in their states.

In exchange, signatory states agreed to share their PROtag products with other states.

The states participating in this arrangement in early 1989 were: Colorado, Idaho, Illinois, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Washington and Wyoming.

## **Computerizing County Offices**

Riley County was the first County Extension Office to write bid specifications for computer equipment and one of the first to start using microcomputers, starting with one Vector Graphic in 1983.

In an interview in January, 1985, Jim Lindquist, Riley County Extension Director, said:

It was necessary to set aside time to learn to manipulate the software packages that came with the computer.

But once the staff got through that initial learning period there were many, many functions that could be computerized that made the office more efficient and saved time for staff members.

For example, we're doing 98 to 99 percent of our word processing on the computer.

It's much faster than using the typewriter, it's much easier to make changes or corrections on letters going out. It's easier to compose newsletters in column form and put things together in ways that are hard to do on a typewriter.

Many of the things we do in Extension are the

same year after year, but revised just slightly. With the computer we can store everything we do on disk.

When we need to repeat that same exercise the next year, we just pull up the disk, make a few necessary changes and the work is done so that in the second year of the program we're saving even more time.

Soon after getting their first computer, the Riley County staff had computerized their mailing lists and records of 4-H activities, giving them rapid statistical recall of information used for program planning and implementing educational programs. Lindquist added:

I developed several models on the spreadsheet to take care of all the office accounting that was necessary, including all our Extension Council financial operations, the Riley County Fair Board financial operations and other accounts we keep in the office.

The spreadsheets and use of the computer to do this have saved probably 75 percent of the time it used to take to go through the financial operation.

It's a real saving.

The public benefits from computerizing a County Extension Office because it frees up agents and office staff to work in other areas.

Examples included improving the county's 4-H program by implementing a middle management system and volunteer management which made possible a higher quality experience for 4-Hers.

That extra time translates into more time to devote to a horticultural program, agricultural program or whatever the need might be.

At the end of the second year, Riley County bought two more computers so that each secretary had one and one was available for use by agents.

At that time, Lindquist said he was looking forward to using IBM-compatible software and to purchasing a portable computer for use in the field and at meetings.

### **Extension Users Group—1983**

Of course, Riley County was not alone in adopting computer technology. At the 1983 Annual Extension Conference, interested persons organized the Extension Computer Users Group.

On December 14 of that year, a subsequent meeting was held to discuss goals and computer needs and to elect officers for the next year. President Jim Lindquist called the meeting to order.

Also present were Mike Christian, Riley County; Bill Cox, Sedgwick; Charles Sauerwein, Gray; Chuck Otte, Geary; Al Spencer, Pottawatomie; Larry Riat, Dickinson; Jimmie Kibby, Wyandotte; Don Chisam, Saline; Linda Nease and Ed LeValley, Sumner; Harold Gottsch, Reno; Bill Hundley, Rice; Roger Terry, Jay Holt and George Brandsberg, CSO; and Wilber

Ringler, Associate Director.

Bill Hundley was named president elect and Chuck Otte, Geary county agricultural agent, was elected secretary.

Goals of the group included:

- 1) Serving as a forum for sharing ideas.
- 2) Coordinating efforts between county and state staff on ideas and direction of computer practices.
- 3) Offering suggestions and guidance for computer training efforts.
- 4) Evaluating hardware and software and providing feedback.
- 5) Communicating information about updates, new products and other matters of interest to fellow members.

Members of the group discussed software needs by priority and agreed these projects needed to be developed:

- 1) A financial management program for County Extension offices that handles withholding, taxes and payroll operations and has the capability to write checks (This was the beginning of the Extension Financial Reports Package).
- 2) A county fair program that would process fair premium information.
- 3) A nutritional analysis program similar to DietCheck. Members pointed out that these programs are very complex and adaptations to microcomputers might not be as accurate as versions that run on mainframes.
- 4) Farm management worksheets or spreadsheet templates such as the cost/return projection worksheet.

## **Setting a Computer Policy**

In October, 1983, Wilber Ringler, Associate Director of Extension, issued "Extension Computer Policy: Procurement, Training and Custom Software Development."

This 20-page document established the first guidelines for the role of software in continuing Extension programs, integration of software development into Extension program planning, an approach for achieving software development.

This included the establishment of a Computer

Systems Office, and staff support for developing, documenting and releasing software.

It also addressed the issues of:

- 1) Hardware and software procurement, distribution, sales, and licensing arrangements between states, universities and private firms for software exchange or use.
- 2) Merit review and promotion for faculty efforts in software development.
- 3) Budget and funding allocations.

- 4) Software development and documentation procedures.

Software development is defined as "an ongoing process that involves assessing needs, setting priorities, preparing and reviewing proposals, allocating resources, preparing solution design, programming and documentation, field testing and editing, releasing, distributing and evaluating."

It also spelled out the duties of the Extension computer coordinator and the documentation specialist and enumerated procedures for developing software and documentation and disseminating the finished products to the public.

Two classes of software were defined:

Class A, which is programmed by CSO and has complete user documentation that conforms to NCCI standards, is released and supported by CSO.

Class B, which is software developed by specialists separately from CSO, documented by them, and also distributed and supported by their departments.

Initial operation of CSO was included in Extension Administration under the supervision of Associate Director Fred Poston, but in 1987, CSO became a separate unit under the leadership of Stephen M. Welch, CSO coordinator.

### Facilities for Computer Project

Early work on the Kellogg Project was done in offices of the Department of Entomology in Waters Hall.

Student programmers and most of the necessary equipment were housed in a small, narrow room that had been an insect sound recording studio in which the walls were covered with sound-absorbent panels.

In 1984 these operations were moved to Umberger Hall. The operation expanded into larger accommodations in 1985 when it occupied space formerly used by the State 4-H Section.

Since then CSO has occupied several offices at the west end of the second floor of Umberger, as well as Rooms 20 and 21.

Room 115 was redecorated for use as a computer training classroom and meeting room whenever available.

## Other Software Development

In addition to the PROtag Series, CSO actively developed two other major types of software: office

automation programs, and software proposed and written by specialists for use in their subject areas.

The first program completed for office use was MAIL LIST, a package designed for preparing mail list data and printing labels rapidly. This product has been revised twice since its introduction.

Other major programs developed for use in offices within the Extension Service were:

- 1) Extension Financial Reports Package.
- 2) 4-H Record System.
- 3) Sunflower Dispatch, Extension's electronic mail system.

Upgrades of these programs were made periodically to incorporate new features and improve old ones.

CSO also wrote a program for the Department of Forestry, Seedling Application Processing System

### Table 2. Steps To Computer Support

- 1) North Central Computer Institute (NCCI) —1983
- 2) Received Kellogg Grant—1983
- 3) Initial purchase of microcomputers—1983
- 4) Computer policy drafted—1983
- 5) Computer Systems Office established—1984
- 6) Master product set formulated—1984
- 7) Continual training sessions begin—1984
- 8) Extension Reports Package available—1985
- 9) Training specialist hired—1985
- 10) Spreadsheet templates released—1986
- 11) BEEFpro, Discovery Days, MAIL LIST—1987
- 12) 4-H Records, Forestry programs started —1987  
Launched Sunflower Dispatch system—1987
- 13) Released BEEFpro v. 1—1987
- 14) Completed 4-H Records and Forestry—1988
- 15) Offered assistance with desktop publish —1988
- 16) Weather Data Library merged with CSO —1988
- 17) Released v. 2 of BEEFpro—1989

(SAPS), used for filling orders for tree and shrub seedlings distributed by Forestry.

Mostly agricultural specialists have been involved in designing software they use in their educational programs.

Among these are:

- 1) European Corn Borer Software Package by Randy Higgins, Extension Entomologist.
- 2) K-FARM Financial Management System by Art Barnaby, Extension Farm Management Specialist.
- 3) WHEAT WIZ, a variety selection aid by Jim Shroyer, Extension Agronomist; Stan Cox, assistant professor of agronomy; and Steve Young, assistant professor of agricultural engineering.
- 4) Animal Science Research Progress Report Database by Danny Simms, Extension Livestock Production Specialist.

For Extension Home Economists, CSO has programmed a package for choosing suitable clothing fashions for Marilyn Stryker Corbin, a bibliographic search program, KWSearch for Chuck Smith, EFNEP for Grace Lang, and a Quiz program for Karen Penner, Extension Food and Nutrition Specialist.

Several specialists have designed spreadsheet templates that are fairly simple, easy-to-use decision aids.

These have addressed such subjects as evaluating federal farm programs, analyzing beef, swine and crop enterprises, deciding whether it is feasible to clean wheat, comparing insecticide costs and

analyzing buying and selling strategies for specific commodities.

Authors of these include Don Pretzer, farm management specialist, Leo Figurski and Kevin Dhuyvetter, area economists, and Phil Sloderbeck, area entomologist.

#### User Support

As more and more County Extension offices computerized and the number of microcomputers in offices throughout extension increased, demand for user support became a major concern for CSO.

Early on, a few individuals in CSO—principally the computer coordinator, project managers and training specialist—answered questions and helped solve problems for users' needing assistance.

Typical questions included, "Why doesn't my printer work?" or "How do you set up headers in a WordPerfect document?" or "Something's wrong with the information I'm getting out of the Reports Package. How do I fix it?"

As demand for troubleshooting services grew, it was obvious that more people needed to help, so in July, 1987, CSO assigned troubleshooting duties to its student employees as well as most of its full-time staff.

The new approach included adopting a printed form for recording calls received, problems encountered and how they were solved. These were filed by software package in notebooks for reference and computerized for statistical analysis. By April, 1989, CSO had responded to 3,300 requests for user support under this system.

## Merging With Weather Data Library

Prior to 1988, KSU's Weather Data Library was managed by Dr. L. Dean Bark, and was housed for 32 years in Cardwell Hall as part of the Physics Department. Among Bark's duties was supervising the operation of 13 automatic weather stations covering Kansas.

Each morning, a computer would call these stations by telephone and gather weather data needed for agriculture, including such information on solar radiation and soil temperature. These stations contrasted with most weather stations in the state, which sent in data once a month.

The rationale for moving the Weather Data Library into CSO was:

- 1) To improve the dissemination of both past and current weather data in part through communications on the Sunflower Dispatch, Extension's computerized communications system.
- 2) To enhance the weather library's technical capabilities over the entire network.
- 3) To better deliver current weather data to those Extension software packages that could use the information, programs such as the Irrigation and European Corn Borer modules of the PROtag Corn Management System.
- 4) To improve the computer support available internally to the weather data library.



In the move from Cardwell to Umberger, Bark gave up his teaching duties in the physics department so he could devote half of his time to Extension activities and half to research.

Here is Bark's account of the library's evolution:

The Weather Data Library traces its inception to the mid-1950's when there was a revival of interest in the effects of weather on agricultural production.

Historically, this interest had been strong and when the national weather service was shifted from the military to a civilian branch of government, and the U. S. Weather Bureau was formed in the Department of Agriculture in 1891.

Between World Wars I and II, interest shifted to hybridization and fertilizer application as means of increasing production. At the same time, interest in weather was waning in agriculture, but the burgeoning aviation industry was becoming increasingly interested in weather service.

This culminated in 1940 when the Weather Bureau was moved to the Department of Commerce, where it remains today.

The drought of the 50's made it evident that hybrid varieties and fertilizer applications could not make agriculture "weather proof." There was much concern in Congress and at the Land Grant Universities that the weather service in the Department of Commerce was not serving the needs of agriculture.

In 1955, the North Central Region created a regional technical committee to study the effects of weather/climate. This project was the impetus for most of the Experiment Stations within the region to hire a Climatologist staff.

Thus on January 1, 1956, I came to Kansas State as the Climatologist for the Agricultural Experiment Station.

At the prodding of Congress, USDA and other agricultural organizations, the Weather Bureau assigned a State Climatologist from their staff to provide climatological services to agriculture and other clients in each state.

Recognizing that the Experiment Station Climatologist would be one of the major users of this service, an effort was made to move all State Climatologists out of the forecast offices and on to the campus of the Land Grant University.

The Kansas State Climatologist, A. D. Robb, moved the office from Topeka to Manhattan in early 1964. Since he was of retirement age, he did not make the move personally.

Merle J. Brown became State Climatologist in July of 1964. Soon after that, the combined operation became unofficially known as the Weather Data Library—we had a rubber stamp made with that name on it.

The office worked well, with me serving the needs of the Experiment Station and Merle serving a broader personnel across the state. He performed a great deal of free consulting for diverse interests—lawyers, consultants, municipalities, banks, commodity groups, etc.

In 1973, with about two months' notice, the entire State Climatologist program was canceled as an economy move. All records and data files of the federal office were left in the Weather Data Library.

Although many states created a state-funded state climatologist position, Kansas did not. The Weather Data Library has tried to maintain these data files for the benefit of the citizens of Kansas, but has not been able to continue very much of the service to off-campus groups.

A major effort of the Weather Data Library has been to digitize a good portion of the past climate record, so that summaries and information can be generated by computers.

This effort followed the change in computer technology from punch cards to magnetic tape, to personal computers, and on to optical disks and CD-ROM's. It is now possible to perform analyses that were not even dreamed of at the inception of the programs.

In early 1988, the Weather Data Library was moved into the Computer Systems Office from the Department of Physics where it had been located since 1956. With this move, Cooperative Extension began sharing financial support with the Agricultural Experiment Station.

The Library is now a resource for all Extension personnel as well as for the research personnel in the Experiment Station. The North Central technical committee still exists and Kansas continues to cooperate with the eleven other states of the region in climatic problems that cross state boundaries.

We also participate with a regional effort through the High Plains Climate Center in providing measurements of specific weather elements useful in agricultural and energy studies.

# Computer Systems Office Staff Responsibilities

## CSO Coordinator

Since joining Extension in late 1984, Stephen Welch has held the administrative post of Technical Development Coordinator in the CSO.

This involves:

- 1) Policy development for the areas of electronic technology and information delivery.
- 2) Staff selection, evaluation and other personnel actions.
- 3) Supervision of between seven and 14 programmers and paraprofessionals engaged in a wide variety of software development tasks.
- 4) Development of the CSO annual budget and interaction with other units to form cost estimates and schedule CSO services.

In 1987, he assumed overall administrative duties for CSO, which includes several operational responsibilities within the Extension Computer Systems Office.

A major part of his activities has been participation in the on-going development of the PROtag commodity management software.

This has involved work with agronomists, animal scientists, engineers, economists and others to assemble a useful set of integrated microcomputer software modules for the management of corn, beef,

wheat, soybeans and grain sorghum.

Welch also played a key role in negotiating agreements to share this software and its further development with extension leaders in 22 states.

Currently, he is responsible for the technical implementation of the Sunflower Dispatch, a computerized information delivery system.

This system is unique among Extension Services nationwide for its creative use of networked microcomputers to provide a low-cost dissemination mechanism.

Welch is trained as a systems scientist and, as such, works most effectively as a member of an interdisciplinary team.

## Extension Computer Coordinator

Roger Terry was the first Extension Computer Coordinator starting in June, 1984.

His major duties are:

- 1) Serving as the main liaison between the Extension computer user community and the Computer Systems Office.
- 2) Conducting need analyses in counties and other specifically assigned units resulting in recommendations for computer system configurations.
- 3) Managing computer systems procurement throughout the Kansas Extension system.

In this role, he writes bid specifications, contacts vendors, keeps price lists and maintains records of orders, deliveries and installations.

Activities coordinated by Terry include:

- 1) Setting up, installing software, and testing new computer systems;
- 2) Overseeing training for new users
- 3) Working with the full-time trainer to provide training for purchased products.
- 4) Evaluating new applications software in office automation and subject matter areas.

By June, 1984, demand for computer support services had grown so much that Terry became the full-time coordinator.

He has advised the Extension Director on budgets involving computer equipment and software and is still directly involved in procurement of Extension computer equipment and software.

He has helped procure, receive, set up, test, and install approximately \$1 million worth of computer systems throughout the College of Agriculture includ-

### Graphic 3. Tasks That CSO Performs

- 1) Needs analysis.
- 2) Office automation.
- 3) Faculty/staff improvement.
- 4) Training/curriculum.
- 5) Troubleshooting.
- 6) Software development.
- 7) Documentation.
- 8) Software distribution.
- 9) Extramural support.
- 10) Industrial relations.
- 11) Technology tracking/forecasting.
- 12) Hardware/software development.
- 13) Coordination with University Computing.
- 14) Automated weather stations.
- 15) Weather data collection and distribution.
- 16) Electronic mail and information delivery.

ing state, area, and County Extension offices.

He has spent more than 1,000 hours training 300 Extension staff, including administrators, specialists, agents, and other personnel, on the use of computer systems and other high technology program delivery equipment such as computer projection units, and communications equipment.

He has visited the Extension staff in 90 counties to perform a computer needs assessments that could be given to the Extension Council members to use to justify purchasing computers. He has, in person, advised 65 Extension Councils on the purchase of computer systems.

Terry has been the campus coordinator for the North Central Computer Institute (NCCI) since late 1983. He contributes regularly to the NCCI Quarterly and distributes information from the NCCI to interested faculty and staff at KSU.

### **CSO Documentation Coordinator**

When the originators of the PROtag software series wrote their first proposal, they knew they wanted a "word" person or professional communicator to write the user's guides and not a "computer" person.

In 1983, George Brandsberg, who had been the Communications Specialist for Extension Ag Economics since 1977, was re-assigned to the Kellogg project on a temporary basis. In 1985, he agreed to become CSO's permanent documentation coordinator.

His major duties are:

- 1) Establish and enforce high quality standards for preparing documentation for CSO-produced software in a timely and efficient manner.
- 2) Serve as departmental editor for CSO.
- 3) Provide occasional computer user training and troubleshoot problems presented by computer users in Extension.
- 4) Participate in professional improvement activities.
- 5) Participate in designing and creating frame files for selected PROtag Series software modules.

To help fulfill these duties, he hires, trains and supervises a staff of undergraduate student assistants. They test new software, write text for the user's guides and format those guides with desktop publishing technology.

The most visible result of Brandsberg's work is printed documentation. Producing this material involves two phases:

- 1) Writing and editing text.
- 2) Page formatting. Since 1984, he has supervised production of more than 4,000 pages of formatted documentation.

As editor for the CSO, he produces Access, a newsletter sent to all offices in the Extension system. The purpose of this publication is to inform computer users of new products, offer tips for using computer applications, announce available training and cover other topics of interest to persons using computers in their work.

He set the guidelines for preparing packages for releasing software. These include the program on diskette(s), complete documentation, copies of a promotional leaflet for products that are sold, a news release that agents may use to announce availability of the software and a software registration card.

### **Computer Training Specialist**

In November, 1985, Kathy Wright became CSO's first full-time training coordinator. Since then, she has designed more than 30 courses that teach Extension employees to use officially-supported commercial software and office automation packages developed by CSO. She has taught at 30 locations across Kansas, with class enrollment exceeding 1,400.

Besides the traditional classroom training, Kathy has established a library of self-paced learning materials available to those who need an alternative mode of learning about their computers. Included are audio tapes, video tapes, disk-based tutorials and printed publications.

To encourage Extension users to share their knowledge and experiences, Kathy promoted area-based computer user groups and coordinates her training visits through these organizations.

### **Software Project Managers**

Several persons served as module designers on the PROtag Series software in roles that preceded formation of project manager positions.

Mary Knapp was transferred from the Department of Extension Entomology to the Kellogg Project in the spring of 1984 when she began work as a module designer on the Corn Management System.

She also served as the key module designer on the Wheat Management System, BEEFpro, SOR-

GHUMpro and SOYpro. In addition, she has helped develop materials for training and presented them to specialists from cooperating states in the use of the PROtag Series development tools.

More recently, she worked on cataloging software packages developed for the Weather Data Library.

In July, 1987, Sherri Thompson joined CSO as a project manager to overseeing the development of office automation programs.

Major products she has been assigned to include the Extension Financial Reports Package, 4-H Report System, Seedling Application Processing System (SAPS), Discovery Days, MAIL LIST, and 4-H Judges Database.

**Contributing Author.** *The primary contributing author on educational programs and activities in Extension Computer Systems, from 1969 through 1988, was George Brandsberg, CSO Documentation Coordinator.*

**A complete list of personnel involved in Extension Computer Systems is included in Volume II, Chapter 6, Extension Personnel, p. 50.**