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AGRICULTURE SECTION

Ag Dean Predicts Economic Growth For Agriculture

"American agriculture will continue to be a growing and dynamic sector of our economy."

That was the optimistic statement of Elmer R. Kiehl, dean, College of Agriculture, in an address presented September in Jefferson City.

Kiehl, principal speaker at a meeting of the Missouri Co-operative Committee, outlined changing agriculture in the 1970s. Attending the meeting were representatives of consumer and producer cooperatives.

Although he was optimistic about the prospects for agriculture in Missouri and the Midwest, Kiehl foresees the current decade as one of continued change and further departure from the farming practiced by fathers and grandfathers of those presently in the business.

The price-cost squeeze is likely to continue "throughout the 70s," said Kiehl. To remain in business, "farmers must increase output or step up efficiency."

Both choices, he pointed out, require investing more capital, more machines for crop output, and improved facilities to handle more livestock.

With the emphasis on more and more inputs to increase production the top farmer, by the end of the 70s, will be oriented to using more capital rather than owning it. This will be reflected in more leasing of land and facilities.

The farmer will buy more of his "labor" in terms of products and services as a way to cut costs. For instance, since 1940, cost of fertilizer has declined 75 per cent compared to price of labor, Kiehl noted. Top farmers in this decade will increasingly turn to use of com-

puters to plan the business management of their total enterprise, said Kiehl.

As the need increases to manage more capital, interest in incorporation by the farm family will increase. The farmer will adjust operations to minimize pollution.

Some people believe the marketing and price problem is the single most important issue facing farmers, Kiehl stated. He noted that "a highly capitalized farm business is extremely vulnerable to price changes. These risks can no longer be absorbed as in the old days by the cushion provided by unpaid family labor and farm-produced production inputs."

Integration and production contracting offer some protection for price uncertainty, according to Kiehl. But, he added, not everyone agrees these methods are the answer to the pricing problem.

He noted "renewed interest in futures trading and other alternatives in which some independent options can be retained" by the farmer in his marketing programs.

Kiehl expects the organization of bargaining groups and efforts to strengthen marketing orders will continue into the 70s. And farm cooperatives will likely become more active in obtaining a position in the market to enhance their bargaining influence.

Efforts will be made to make it mandatory for processors in some commodities to negotiate with producer bargaining groups.

"The cherished desire of some for less government in the affairs of agriculture will likely not be achieved," Kiehl stated.

Technology will force shifts in area production specialization. He gave as an example the former dominant position of the

far west in turkey production, now expanded into the midwest. The shift possibly came about when drugs became available to control blackhead disease in turkeys.

Kiehl does not expect substitutes — artificial meats, poultry, etc.—to make serious inroads on the market of their natural counterparts during the next decade.

He said he does expect more government regulation affecting use of chemicals in agriculture, largely because of the concern over pesticide and chemical residues in food.

Concluding his talk, Kiehl said "farmers and agriculture will find that daily and long time decisions will be more demanding and require more data, more precision, involve more capital and technology than ever before.

"Farmers will increasingly become more aware that many actions or decisions affecting their farm business will require group actions within their own organization." Other decisions may require government assistance and be made within the framework of the broader public interest.

Independent Study Has High Enrollment

Nearly 12,000 students are enrolled in the University yet many of these students never set foot inside a classroom.

They are enrolled in the Independent Study Program. The University, the sixth largest center of independent study in the United States, offers 195 college courses and 45 high school courses by correspondence.

Most of the students are from Missouri, although many come from such places as Brazil, Fiji Islands, Spain, Venezuela, New Zealand and Korea.

Independent Study offers two main advantages. The cost is \$17 per semester unit of college courses, regardless of whether the student is a Missouri resident, and \$20 for each one-half unit of high school course.

Another advantage is the ability to enroll at anytime and to work at an individual pace. Students are given one year to complete their course. They may have two six-month extensions if they need more time.

Some one hundred instructors are involved in the Independent Study Program. They personally grade the assignments and make suggestions to students. There are usually 20 to 24 lessons that the student sends back to the University for grading, plus a mid-term and a final.

Thirty hours of correspondence courses may be applied toward a bachelor's degree. A maximum of eight may be taken toward a master's degree.

New Faculty Learn Teaching Methods

New freshmen are not the only ones who face unexpected problems in college classrooms every fall. Many new young teachers also find themselves in uncomfortable situations because they simply have little or no experience with college teaching techniques.

A summer program at the Columbia campus was designed to forestall some of the problems for young faculty and graduate student instructors.

This Symposia on Undergraduate Learning and Teaching was the initial step in a campus-wide effort to prepare new instructors for teaching responsibilities.

The program consisted of three different sessions for three groups. The first deals with the natural and physical sciences and mathematics; the

second with social science; and the third with humanities.

The groups (limited to 50 persons) met on Thursday and Friday afternoons with panels of experienced faculty in the specific group area.

Sessions usually had four panels covering the following questions: elements of effective college teaching, the psychology of learning, the professional role and responsibilities of the college teacher and professional preparation for college teaching.

The aim of the program was to create an on-going series of seminars devoted to preparing teaching assistants and young faculty members for future teaching, to encourage professional responsibility, to show campus-wide concern about the quality of undergraduate teaching and to consider ways to evaluate and reward outstanding teachers.

The program also attempted to introduce the new teachers to technological resources on the campus. They visited the Office of Instructional Television and Educational Research and Development Laboratory in the School of Medicine.

"Universities tend to demand excellence in scholarship and research but frequently tolerate less than mediocrity in teaching," says Dr. Edgar R. Thomas, who headed the program. "One of our greatest problems is to change this concept and reward great teachers as well as great researchers."

If the desire is expressed, the provost's office hopes to provide opportunities for a series of conferences, seminars or informal sessions with experienced, distinguished colleagues and others to help provide the needed professional experience.

The outcome may be the development of outstanding, sensitive teachers much earlier in their careers than is usually the case.

Field Days Held In Four Centers

High school students received a better understanding of both the College of Agriculture and career opportunities during the Vocational Agriculture Field Days held recently around the state.

Nearly 4000 students attended the Field Days in various

centers in Missouri. The delta center recorded the highest attendance with 1450 persons, followed by the southwest center, 1250, the north Missouri center, 850 and the Columbia center, 350.

As part of the Field Days program, students had an opportunity to meet and discuss careers with persons engaged in agricultural research.

Columbia campus students who assisted with the Field Days were: Terry Lape and Paul Koch, Sikeston; Eugene Miracle, Portageville; Glynette Norman, Republic; Charles Huff, Fair Grove; Chester Pontius, Cainsville; Ken Kollar, Queen City; Larry Bishop, Wellsville; Frank Kammerlohr, Cassville; Edward Heaton, Carthage; Roger Sifferman, Mt. Vernon; Bob Dimmett Jr., Wheeling and Don Langford, Spickard.

School Aids In Fighting Corn Blight

Proud of your alma mater? You should be — and here's one more good reason. Efforts to head off losses from the new strain of southern corn leaf blight began at Columbia a year ago.

Yes, the blight became big news this past summer, but by that time College of Agriculture scientists were already well started on the search for corn breeding stock (cytoplasms) that would be tolerant to the new blight.

UMC-USDA crop breeder M. S. Zuber tested 31 new cytoplasms in Rollins Bottom this year to determine if they have resistance to the new fungus. The Rollins Bottom research area is especially suited to this work because of its location, soil type, and relative isolation, Zuber emphasizes.

Dean Elmer R. Kiehl has named a special committee to give leadership to extension and research efforts in the corn leaf blight battle. The committee is headed by plant pathologist Einar Palm and includes Zuber.

This action group also includes specialists in agricultural engineering, agronomy, animal husbandry, agricultural econo-



Three leaders in Missouri's fight against southern corn leaf blight losses are, left to right, Associate Professor of plant pathology Einar Palm, Professor of Agronomy M. S. Zuber and Extension Agronomist Bill Murphy. The three men are checking corn varieties in the University's Rollins Bottom Research area.

mics, weather, and communications. Members of this committee are the scientists or are colleagues of the scientists who will be working in the fields and the laboratories to protect the Missouri economy, both rural and urban, from the devastation of the blight which has hurt this state's most important cash crop.

It goes to show how an organization such as our College of Agriculture can move quickly to mobilize its manpower and research resources to tackle a new problem. In all the nation, probably only the land grant universities had the facilities to meet this problem, and many of our friends are keenly aware of this. Here's one example:

When some 400 area corn growers gathered at Monroe City to hear the latest corn blight information and advice from Palm, Zuber, and other committee members, Dean Kiehl took that opportunity to award several of the Centennial medallions. Warren G. See responded in a letter to Dean Kiehl—

"I appreciated the honor bestowed upon me by the College of Agriculture for recognition of service in the field of agriculture.

"Flint McRoberts expressed my feelings when he attempted to express to you and all members of the teaching administration and extension staff who

have dedicated their lives to serving the farmers and agricultural interests in Missouri. You and all who have so dedicated their lives to your profession should rightfully receive this honor and award.

"We are pleased to know that Missouri ranks 10th in agriculture in the United States. You should be proud of this achievement and this proof of the dedicated efforts of many people to improve agriculture in Missouri."

Two factors made the blight a sudden and almost instant sensation. The hot, humid weather which began early in August made conditions almost perfect for the blight to grow and spread. And, the new strain of blight can multiply more than five times as rapidly as the old strain. This allows for an instant build up and contributes to the almost surprise effect of its infestation.

This new blight gives the same first symptoms as the old one, says Zuber, "But it is much more virulent and damaging in the advanced stages."

Zuber explains that the fungus is *helminthosporium maydis*. This name means that it is the t-strain of a long-time Missouri problem known popularly as southern corn leaf blight. Referred to by scientists simply as maydis, until now the southern corn leaf blight has not been a severe problem for

Missouri corn growers.

Now that a new strain has developed, it is called the t-strain. This is because corn hybrids which come from Texas cytoplasmic male sterile (tms) parents show special susceptibility to this blight. Unfortunately, the tms breeding stocks have been used in a large portion of today's hybrids because they make it possible to lower the seed production costs. With tms, seed companies eliminate the need for detasseling, a very costly chore requiring hand labor.

As with old maydis, the t-strain cuts corn production by causing lesions on the leaves. These brown spots increase in size until the leaf dies. When enough leaves die, the ear production is reduced or stopped or the plant dies, depending on the degree of infection. If infestation occurs after the crop is well along, to the dent stage or farther, grain production is not hurt as much as with early infestation.

With the t-strain, however, in severe cases the spores penetrate the shuck and the grain rots in the ear, or a form of stalk rot causes the unfilled ear to drop off. The t-strain also makes the plants more susceptible to the usual stalk rots, making early harvest and artificial drying necessary.

The blight spreads by airborne spores. An old type maydis fungus has a life cycle of about two weeks. With t-strain, according to one report, a spore can start a lesion on a corn leaf and complete a life cycle, releasing spores to infect more plants in as little as 60 hours.

"It thus appears that there can be five generations of the t-strain in the time it took to produce one of the old strain," Zuber points out.

Even with our early start we have to accept that it is a minimum of seven generations from variety selection to seed sales, says Zuber. Seedsmen can get more than one generation per year, but it will still be a substantial period of time before a corn hybrid or variety that resists maydis t can be marketed.

For that reason, growers will find that most hybrids this year will carry a new seed designation — N, T, or B. This is very important, because it is a guide to susceptibility.

N is for hybrids from normal plant stock or detasseling. The

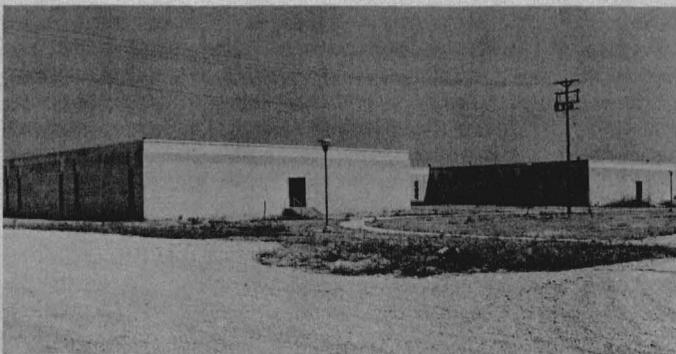
N hybrids can be expected to be quite tolerant of the new strain of southern leaf blight.

T hybrids carry the Texas male sterile breeding. They are likely to be susceptible to race t of the southern leaf blight fungus. (There is some variation in susceptibility among the hybrids with tms breeding.)

B hybrids are blends. They contain some N seed and some T seed. Seed companies have sold seed blends for a number of reasons, some of them very important to good corn production.

"The grower who plants a blend next spring will likely be better off than with the T seed but not as well off as with the N seed. He will have to take some risk and hope that the new blight strain won't be too severe in his fields," Palm points out. "The N type seed in the blend will help to hedge the bet with blight-tolerant seed.

And the corn blight committee had to be prepared in other ways. Rumors have crisscrossed the state along with the new strain of southern corn leaf blight. Some have told of illness caused by clouds of black spores rising from infested fields. Some have even told of death — usually in the next county — caused by the spores growing inside a man's lungs. And the committee had to react: "No confirmed reports of illness or death from the spores of the new blight have reached this office," Palm says. "We have no reason to believe that spores from this blight's fungus are more dangerous to people in the fields than any other blight's spores would be."



Unit A of the new Animal Science Research Center, located near the old swine farrowing house southeast of the long-shed razed in 1965, will soon be ready for occupancy. This structure will be the inner portion of the Animal Science Research Center when it is completed by the addition of three more units. Tentative plans include holding an Open House during Ag Day, February 5.

5 Playing Fields Expand Intramurals

By easing the problem of overcrowded classrooms on the Columbia campus, another problem was created. The Mathematical Sciences and the Men's Swimming Pool buildings encroached on physical education grounds.

Dean Elmer Kiehl of the College of Agriculture offered new playing fields in an area on temporary loan from the College.

According to Dr. Ralph Stewart, associate professor of physical education, the new area is on the west bank of Hinkson Creek at the eastern extremity of the Agricultural Research Park. Projected expansion of the Agricultural Research Park will permit use of the grounds for intramurals for at least five years.

Emmett Klinkerman, Columbia campus business officer, said, "During the summer months five 100 x 40 yard fields were graded to offer students an area for touch football, softball and similar activities in the intramural program."

Because of heavy rains, Klinkerman said use was not made of the new fields during the fall season. He predicts that the fields' first use will be during the spring sports season.

The intramural sports program extends from September through May. Last year, 1345 teams played 2543 matches involving 10,819 men. The new playing fields will permit competition only during the day as no lighting is planned.



1903 Agriculture Barn.

Ag Barn Destroyed

There's a point in this picture and it's not the roof on the silo. This is the last of the horse barn. A sagging roof, rotten pillars, obsolescence — all these contributed to the decision to demolish it.

This is the barn in which the first ag student barnwarmin' was held. In fact, the word barnwarmin' refers to a tradition in the "earlier days" when it was customary to hold a dance in the loft of a new barn after it was completed before any hay had been put in it.

This horse barn was built in 1903, according to Dean Mumford's history of the College of Agriculture. The College had been without such a barn since May 8, 1889, when the "famous" barn had burned. The so-called "famous" barn was one built with part of an appropriation for \$24,750 made in 1887. Sanborn, who was dean then, had built a barn with a capacity for 100 cattle, 100 sheep, 100 hogs, seven horses and 400 tons of fodder. Although \$14,000 was in the appropriation for a barn, members of the legislature insisted that they had intended to appropriate only \$6000 for such use. As a result of the ensuing controversy which ultimately involved the State Board of Agriculture, the Board of Curators and a legislative investigating committee, Dean Sanborn was removed from any connection with the University June 12, 1889. The "barn episode" had been a major factor in the dissatisfaction which had accumulated toward his administration. It is interesting to note that the barn, which he had built, burned 35 days before his removal from office.



Jack Pettit, center, vice president of MFA Insurance Co., and Dean Kiehl, left, admire centennial cake with motorized insignia presented by MFA Insurance and designed by Scotty Garrett, right.

Give Awards To Missouri Ag Leaders

D. Howard Doane, pioneering agricultural economist and a 1908 graduate of the College of Agriculture, received the first Centennial Award from the College at a national meeting of agricultural economists this summer in Columbia.

The Centennial Awards program is designed to give recognition to living Missourians who, through their leadership and contributions to agriculture both in connection with voluntary programs and their career effort, are typical of those who have contributed to the success of agricultural development, research and education.

By the end of 1970, nearly 500 Missourians will have received one of these awards as a symbol of their role in the army of agricultural workers who make Missouri agriculture a leader.

In the first 100 years of the College, history records the names of thousands of persons whose leadership helped agricultural programs serve the state.

Who hasn't heard of Norman Coleman, editor of *Coleman's Rural World*, chairman of the Missouri State Board of Agriculture when the College was established, and later the first secretary of the USDA? Others whose heritage is remembered are John Case, editor of the *Missouri Ruralist* for 40 years

and president of the State Board of Agriculture 17 years and "Sam" Jordan, long associated with the State Board of Agriculture as an Agricultural Institute lecturer and later a county agent after the extension service was formed.

Many, many such agricultural leaders have had an important part in the progress of Missouri agriculture, which was really quite primitive 100 years ago.

Dean Elmer R. Kiehl of the College, in cooperation with the Board of Directors of the Ag Alumni Association, discussed possible ways in which the importance of this leadership for Missouri agriculture might be recognized as part of the Centennial Program of the College. Thus the idea of a Centennial Awards Program was developed.

Nominations for recipients of the Centennial Awards were obtained from both members and officers of the Ag Alumni Association, extension personnel, administrators and department chairmen in the College. The dean of the College appointed a committee to review the nominations. In addition, each of the board members of the Ag Alumni Association reviewed the nominations within his district and the officers of the Ag Alumni Association in cooperation with administrators in the dean's office, reviewed the nominations. It is acknowledged that the awards will not begin to recognize everyone whose leadership contributed to the development and growth of agriculture in Missouri through the various programs and opportunities available to them. The award, however, does call at-

tention to this vast leadership, without which agriculture in Missouri would not have attained its present high level of accomplishment. The College of Agriculture hopes in this way to recognize the importance and the contribution of lay leadership in its educational efforts.

The token of the award is a bronze medallion struck especially for this activity for presentation to the awardees. It is elliptical in shape, bears the insignia of the College of Agriculture Centennial on one side and the theme of the College, "Finding a Better Way," on the other side.

Advisory Committee Selects Dr. Hobbs

Members of government committees are often selected from the teaching fields. Among the most recent appointees on the Columbia campus is Dr. Daryl Hobbs, past chairman of the sociology department.

The associate professor of sociology has been appointed to the advisory committee on research to the U.S. Department of Agriculture, division of biology and agriculture.

As a member of this highly prestigious committee, Hobbs will advise the agriculture department on matters directly concerning its past and future research activities.

Psychology Clinic Trains Post Grads

A new psychology clinic to train clinical psychology graduate students opened this September in McAlester Hall.

Director of the clinic Dr.

Joseph Doster says, "Our primary orientation is to the community itself, but our services will also be available to students."

Some 15 to 20 graduate students, supervised by 10 faculty members, are offering psychological assessment and consulting individual psychotherapy, family and marital counseling, and evaluation and treatment of childhood and adolescent behavioral problems.

The primary goal of the new clinic, according to Doster, is the training of graduate students: "Our belief is that good service can occur as a result of good training."

Nominal fees adjusted to individual incomes are charged for services to help in the maintenance of clinic facilities and acquiring equipment.

Ag Day, Barbecue Set For February

The traditional Ag Day and Ag Day Barbecue in the new livestock center will be Friday, February 5, 1971. Prominent this year will be class reunions for classes of the "one" years. This will be the classes of '11, '21, '31, '41, '51 and '61.

Committees are being appointed in connection with each class. If you are a member of one of these classes, plan now to attend your class reunion at the Ag Day Barbecue February 5, 1971.

There'll be more information about Ag Science Week and the Ag Day Barbecue in the next Ag Alumni Newsletter but it isn't too early to get the date, February 5, 1971, marked off for this event.



The seventh annual Ag Alumni pre-game luncheon, sponsored by student organizations, was held in the Ag Building, October 24.