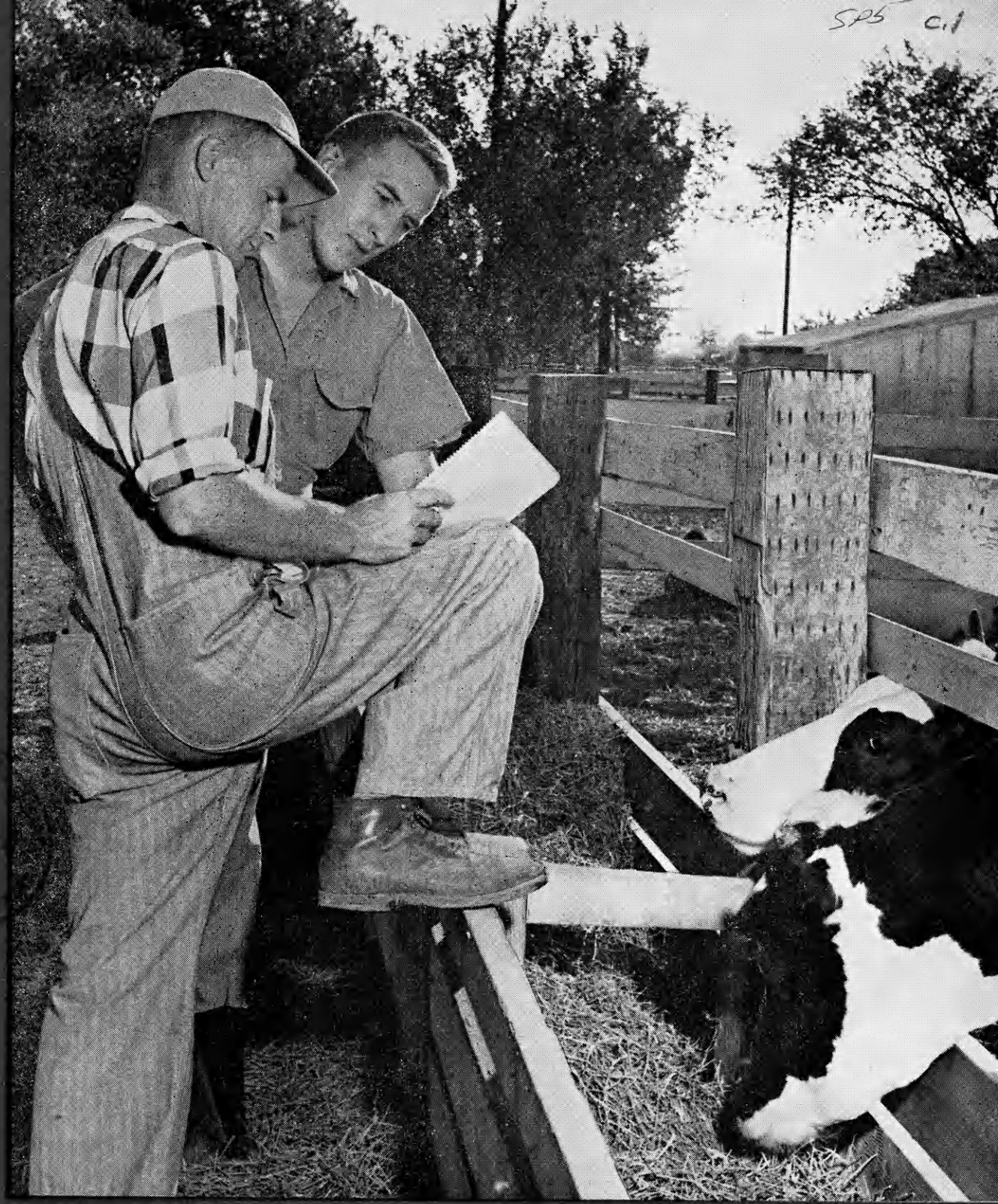
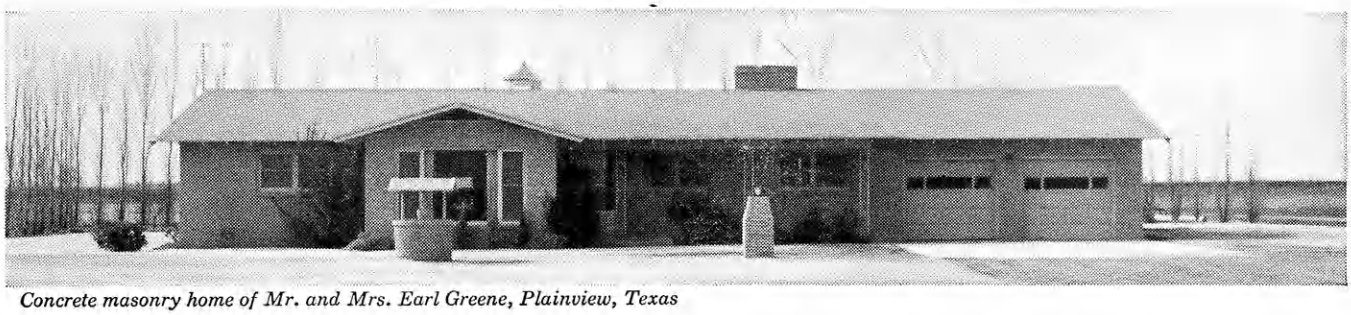


OCTOBER 1963

KANSAS STATE UNIVERSITY

AG STUDENT

Contract Veterinarian Services . . . page 10



Concrete masonry home of Mr. and Mrs. Earl Greene, Plainview, Texas

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Farmers everywhere are showing lively interest in homes built with modern concrete masonry. It's mighty comfortable to live with. And, busy people that they are, farmers especially value concrete for its virtual freedom from maintenance. You aren't forever repairing and painting . . . you have more time for the business of farming!

Fine appearance is another big reason for the swing to modern farm homes of concrete masonry. You can choose from dozens of new shapes and colors, textures and patterns that give special warmth and interest. Interiors, too, come alive with today's concrete! For example, in walls that rarely need care . . . in a fireplace you'll enjoy after a raw day in the fields . . . floors that never squeak.

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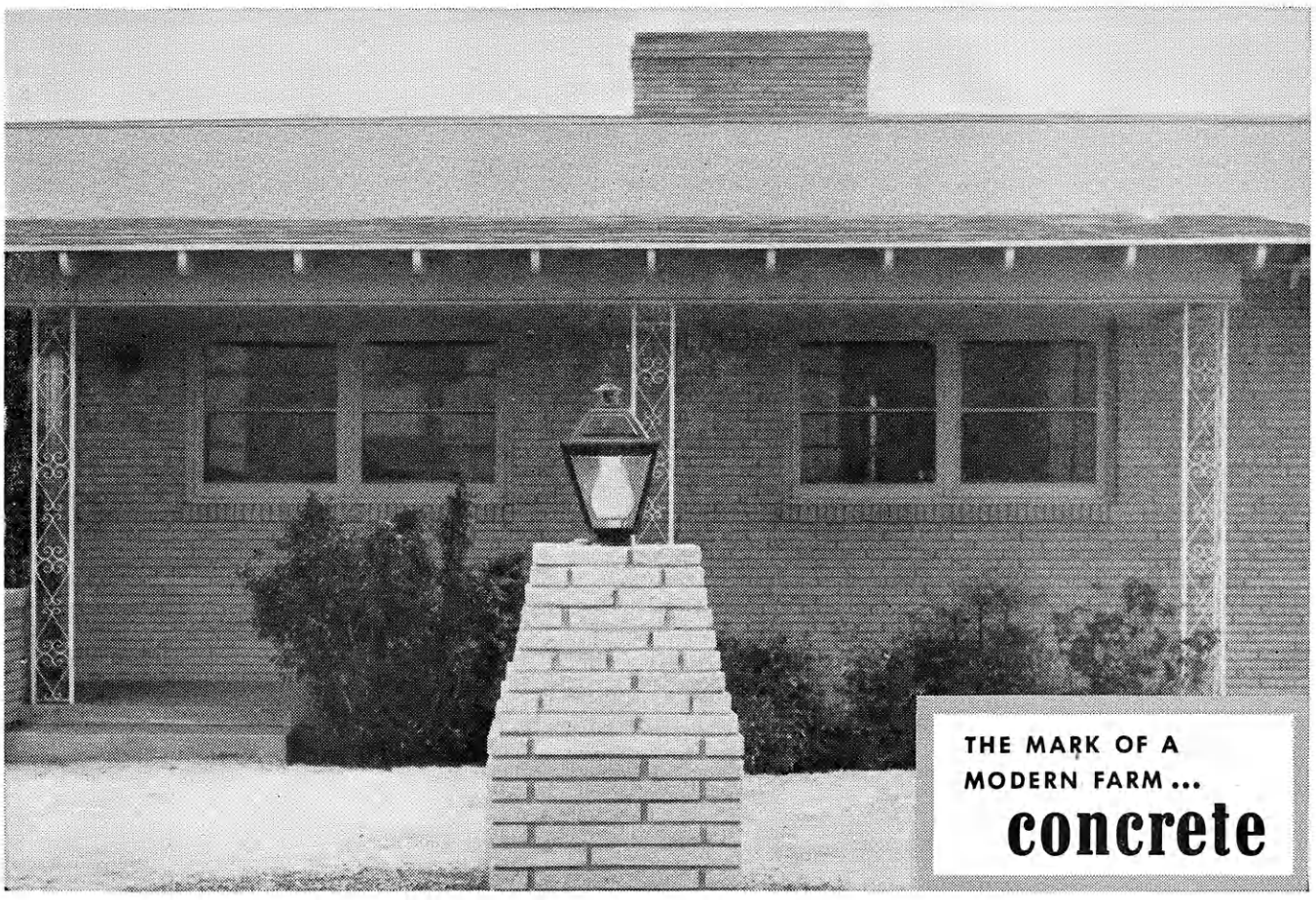

KANSAS STATE UNIVERSITY

AG STUDENT

Vol. XLI October 1963 No. 1

100 YEARS OF SERVICE TO KANSAS, THE NATION AND THE WORLD

In This Issue

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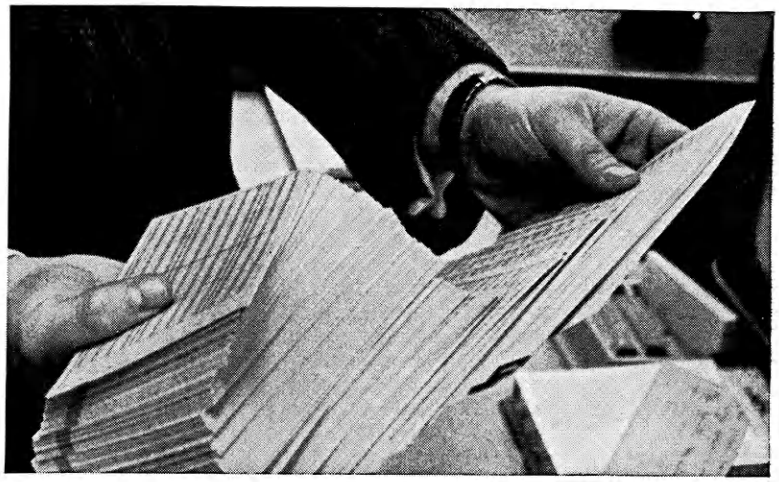
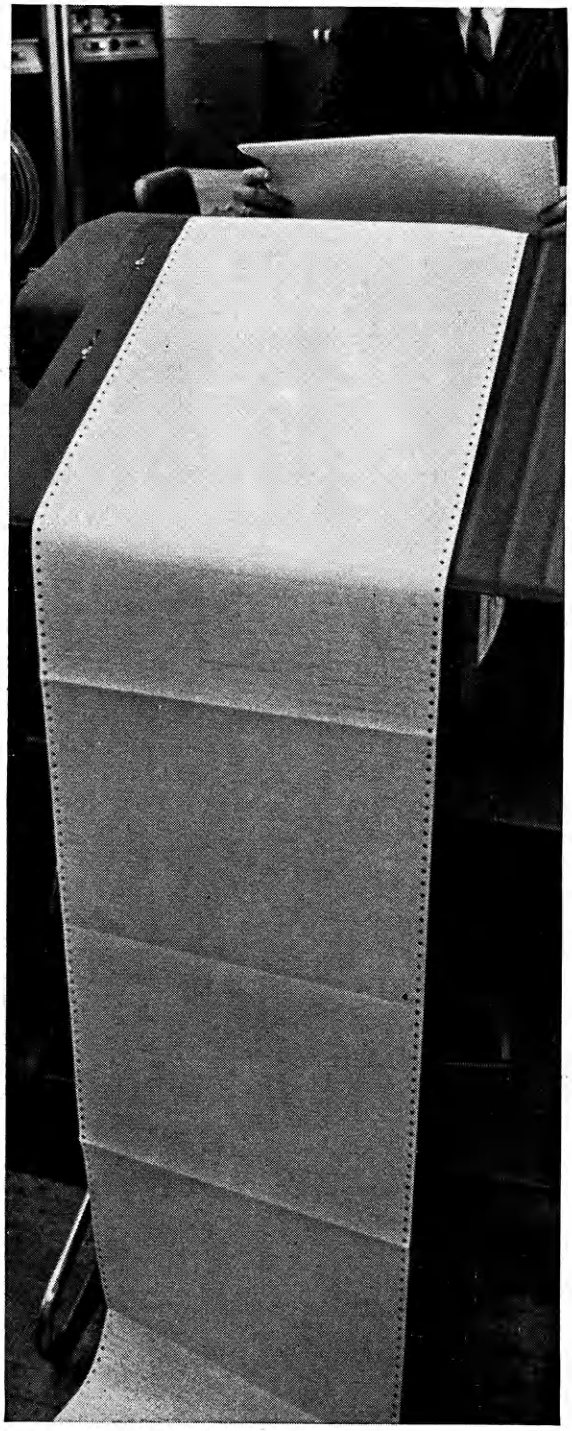
COVER: A new method of practicing veterinary medicine, by contract, is rapidly becoming popular in the United States. Canadians are currently using it with a high degree of satisfaction. The contract method is now usually practiced on large farming operations, but may soon be practical on smaller scales. Here, a dairy farmer and a veterinarian informally sign a contract under the watchful eyes of two future patients.





WHO DOES THE THINKING FOR THINKING MACHINES?

Even though we didn't invent it, we at American Oil use the computer so extensively in Linear Programming that we often think of it as "our baby." And as such it must be spoon-fed known data by experts in order to come up with the answers to a myriad of refinery operation problems.

One of the experts at American Oil who helps the thinking machine think is Leonard Tenner, 24, a graduate Chemical Engineer from M.I.T. His current assignment: prepare a mathematical model covering the manufacture of gasoline, home fuel and jet fuel from crude oil.

The fact that many gifted and earnest young men like Len Tenner are finding challenging careers at American Oil could have special meaning for you. American Oil offers a wide range of new research opportunities for: Chemists—analytical, electrochemical, physical, and organic; Engineers—chemical, mechanical, and metallurgical; Masters in Business Administration with an engineering (preferably chemical) or science background; Mathematicians; Physicists.

For complete information about interesting careers in the Research and Development Department, write: J. H. Strange, American Oil Company, P. O. Box 431, Whiting, Indiana.

IN ADDITION TO FAR-REACHING PROGRAMS INVOLVING FUELS, LUBRICANTS AND PETROCHEMICALS, AMERICAN OIL AND ITS AFFILIATE, AMOCO CHEMICALS, ARE ENGAGED IN SUCH DIVERSIFIED RESEARCH AND DEVELOPMENT PROJECTS AS: Organic ions under electron impact / Radiation-induced reactions / Physiochemical nature of catalysts / Fuel cells / Novel separations by gas chromatography / Application of computers to complex technical problems / Synthesis and potential applications for aromatic acids / Combustion phenomena / Design and economics: new uses for present products, new products, new processes / Corrosion mechanisms / Development of new types of surface coatings.

STANDARD

STANDARD OIL DIVISION
AMERICAN OIL COMPANY

Vo-Ag—Yes or No?

by Thayne Cozart, Editor

TWO hundred three freshmen entered the College of Agriculture at Kansas State University this fall. Getting a university education in agriculture will be easy for some, a rugged grind for many, and a disillusioning experience for those who fail to make their grades or adapt to the higher scholastic standards at K-State. How many of these 203 students were adequately prepared in high school to enter our College of Agriculture? Records indicate "too few."

The overwhelming majority of our freshmen come from Kansas farms or have farm backgrounds. This is good. Also, more than one-half have taken vocational agriculture in high school. This is also good, but it is NOT enough. These newcomers to the university scene should be counseled in high school that vocational agriculture training is only part of the preparation needed for entering our College of Agriculture, and educated with that view uppermost.

Today an education in an agricultural field is not an accumulation of practical day-to-day knowledge and practices. It is instead an accumulation of technical, scientific, and theoretical information, plus an ability to put this information to practical use and extend it to others through various media.

To achieve these goals a student should have a solid foundation formed in high school. A farm background and vocational agriculture training are insufficient. Both are only parts of a whole. Getting a complete education in agriculture is comparable to building a fence. Posts must be set before wire can be stretched. Vo-ag training and farm background are only the cornerposts of an agricultural education. No fence is built with just cornerposts. It must also have line posts. The lineposts that should be set in high school in preparation for the wire stretching in college are chemistry, physics, English, speech, and mathematics.

Vocational agriculture training is valuable. In fact, the education gained from it is extremely useful; however, more from a practical standpoint than a college preparatory one. Vo-ag experience helps college students in both a monetary sense and an educational one. Still, the beef, swine, sheep, or dairy herd back home will better finance their college education than prepare them to get it.

☆ ☆ ☆

by Dr. Raymond Agan, Head, Department of Agricultural Education

HOW many of the two hundred three freshmen who entered the College of Agriculture at Kansas State University this fall would be elsewhere had they not had high school vocational agriculture? A Purdue University study of 1,540 entering freshmen for the 1961-62 school year at Colleges of Agriculture for seven Midwest states (including Kansas) indicated that many choose careers in agriculture as a result of vocational agriculture in high school. In fact, vo-ag teachers were listed by these freshmen as the second most influential persons in helping them to decide upon choosing agriculture, being outranked only by the dads in the amount of influence upon their career choice. All other high school teachers ranked tenth on this same list of influential people.

How many of the two hundred three freshmen will go home because of low grades before graduating? Will more of those who studied vocational agriculture in high school fail to make their grades than those who studied more chemistry, physics, English, speech and mathematics in place of vocational agriculture?

Research Favors Vo-Ag

Again, research favors vocational agriculture as a university preparatory course for Colleges of Agriculture. Twenty-four per cent of the graduates of high school vocational agriculture use their high school work to prepare them for college. A study of such young men in thirteen Land-Grant Universities in our nation (including Kansas) indicated that graduates of vocational agriculture made higher average grades in Colleges of Agriculture than graduates who did not take vocational agriculture in high school.

One important thing critics of university preparatory curricula often forget: When an increase is recommended in any particular area of study, some other area must be decreased. If we increase physics, chemistry and mathematics at the high school level, what is to be decreased? Are we to decrease football, music, extracurricular activities, and forget that all work and no play makes "Jack a dull boy"? Vocational agriculture already includes the principles of physics, chemistry and mathematics in the applied science of agriculture. Where better could a future university student in agriculture learn the technical, scientific and theoretical information needed, *plus* the ability to put this information to practical use and extend it to others through various media, than in a good four-year course in vocational agriculture?

Land-Grant Universities depend upon high school departments of vocational agriculture to supply their future students for this vital field in our nation.

Dr. Duane Acker
Director of Resident Instruction

Acker Explains College's Strengths and Facilities

by Duane Acker

ON BEHALF of the faculty of the College of Agriculture, I welcome the agriculture students who are new to the campus and also those who are returning to the campus this fall. Because of the demand for capable men and women in professional agriculture, we are proud and pleased that the enrollment this fall increased over the previous year. At the close of registration, 714 had enrolled in the College of Agriculture, compared with 697 a year earlier.

The strongest feature of the College of Agriculture at Kansas State University is the *quality* of the faculty. This quality is due to their broad experiences and their intense training. Of all academic units at Kansas State, the College of Agriculture has the highest percentage of faculty members with the PhD degree.

College Offers Diverse Instruction

Another feature of strength is that 112 *different* faculty members in the College of Agriculture teach. This permits instruction by specialists in very diverse fields. It means that students can learn from men doing research "on the frontier of knowledge" in fields as diverse as biological control of insects and agricultural policy.

A third strength is that research, resident instruction, and extension are combined in the activities of each department; each of these activities supplements the others. All faculty members in the College of Agriculture are doing research. They work closely with extension specialists. This strengthens each student's university program.

New Facilities To Benefit Students

Completion of the Dairy and Poultry Science Building, to be named Call Hall, this fall or early winter will add greatly to our teaching and research facilities to further strengthen the College of Agriculture. The west wing of Waters Hall will be remodeled for the Department of Entomology. Plans are being made for the remodeling of Willard Hall, which will benefit the Department of Biochemistry. Both of these remodeling projects will be partially financed by the National Science Foundation and the National Institutes of Health, indicating respect by federal agencies for those College of Agriculture programs.

Because the economic development of Kansas and adjacent states is so closely tied to food production and the agricultural industries and sciences, we feel that the College of Agriculture has a heavy responsibility. You, as students, have a heavy responsibility. We hope you will fully use the faculty and the physical facilities of the College to equip yourselves for the responsibilities and the opportunities that will be yours.

Elemental Fertilizer Analysis May Replace Oxide Method

by Darrell Garner

SPRING is still months away but it isn't too early to think about fertilizer for next year's crop. When considering what to apply, you will be interested to know that a change in the method of expressing the phosphorus and potassium content may be coming.

Each state has laws requiring manufacturers to print a guaranteed analysis of chemical composition on the fertilizer bag. Currently the analysis is printed as a percentage, by weight, of N-P_2O_5-K_2O. As an example, 6-12-12 is a fertilizer analyzed as containing 6 per cent N (nitrogen), 12 per cent P_2O_5 (phosphorus pentoxide), and 12 per cent K_2O (potassium oxide).

Actually the fertilizer contains no phosphorus pentoxide or potassium oxide, but the phosphorus (P) and potassium (K) are expressed in this form because of a historical basis and requirements of current laws. To end this confusion a proposal has been put forth to gradually change the expression of fertilizer chemical content to an elemental basis. This means that the printed ratios on the bags would be in terms of N-P-K rather than N-P_2O_5-K_2O. Under the new notation 6-12-12 would be expressed as 6% N, 5% P, and 10% K (6-5-10).

New Plan Has Advantages

The advantages of the change would be to provide accuracy, simplicity, and uniformity in stating nutrient levels as well as avoiding confusion from out-of-date terms.

However, few ideas seem to be without disadvantages and this one is no exception. The change-over would require a change in state laws in those states having no provision for the new notation. Confusion could result from the apparent reduction of fertilizer elements. Actually there would be no change in nutrient levels, since a fertiliizer with 20% P_2O_5 contains 9% P with the extra 11% being oxygen, which would not be counted under the new system.

The tables with this article show a way to convert fertilizers on the present basis to the proposed elemental basis. Another very important additional difficulty is that printed material would have to be changed to the new system.

To overcome the difficulties two points are proposed as a basis for work. They are: (1) educational, and (2) legislative. From the educational standpoint many scientific journals are using the elemental expression. Several states are sending out fertilizer requirements on the elemental basis as well as the standard expression. Some fertilizer companies have indicated that they may use a system of dual labeling which would list the elemental grades along with the present oxide basis. State university staffs and extension workers are introducing the new idea to farmers.

The legislative difficulties will require a change in state laws so that phosphorus and potassium can be expressed on an elemental basis. Despite the difficulties the new system's simplicity and accuracy lend hope that it will soon be adopted.

CONVERSION FROM THE OXIDE TO ELEMENTAL VALUES[1]

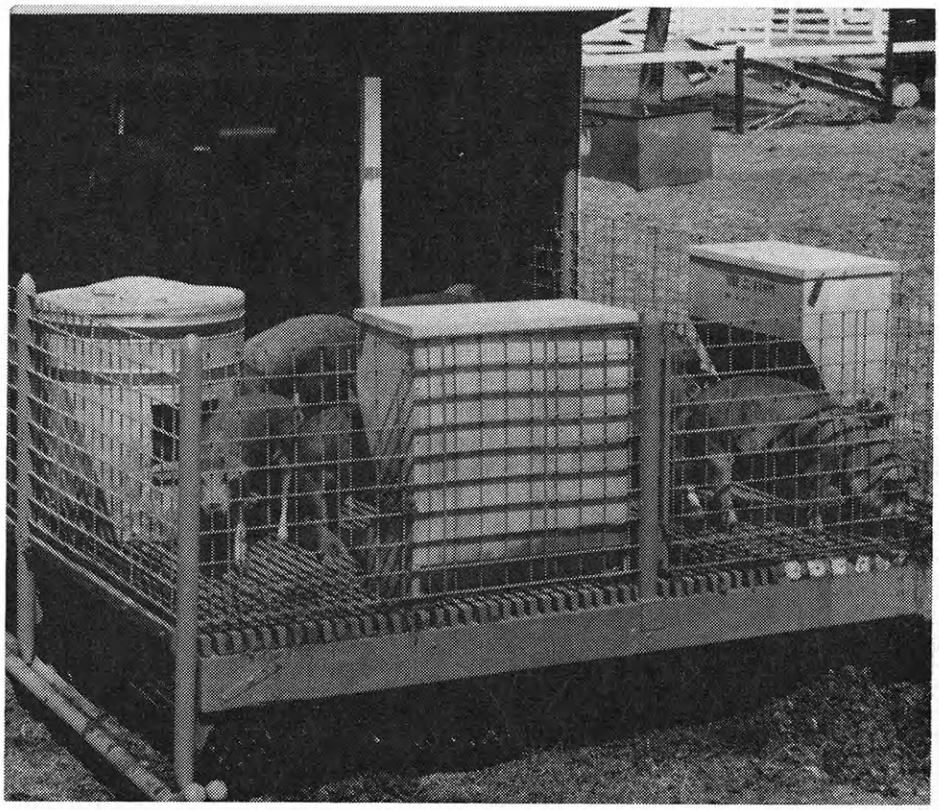
Fertilizer materials or mixtures	Present system for fertilizer grade			Nearest equivalent on elemental basis		
	% N	% P_2O_5	% K_2O	% N	% P	% K
Fertilizer materials						
Ammonium nitrate	33	0	0	33	0	0
Triple superphosphate	0	46	0	0	20	0
Muriate of potash	0	0	60	0	0	50
Fertilizer mixtures						
6-12-12	6	12	12	6	5	10
12-12-12	12	12	12	12	5	10
5-20-20	5	20	20	5	9	17
4-12-12	4	12	12	4	5	10

OXIDE-ELEMENTAL CONVERSION METHODS[1]

Per cent or pounds		Multiply by factor		Converted to per cent or pounds
P_2O_5	×	0.44	=	P
K_2O	×	0.83	=	K
Conversion to oxide				
P	×	2.29	=	P_2O_5
K	×	1.20	=	K_2O

1. Courtesy of CROPS AND SOILS, Vol. 14, No. 6, March 1962.

Experiments Show



Portable slotted floored swine feeding units provide all the necessities for proper swine management. Self-feeders, automatic waterers, shelter and shade are all present. Feed augers and sled runners speed feeding and sanitation procedures.

Slotted Floors for Swine May Fit Your Program

by Henry Tiarks

SLOTTED floors for swine is a relatively new idea. Some swine producers are using this method of production with good results, while other producers know little about its advantages and disadvantages. Only by becoming aware of these facts can swine producers make an intelligent decision on whether to adopt this new method of production.

Seldom is a new and relatively untried practice such as slotted floors for hogs so readily accepted. Farmers have latched onto the idea even though research data is scanty and scarce. The idea apparently originated in Iceland two hundred years ago for housing sheep. Norwegian farmers have been using the system for sheep and goat housing about thirty years. Slotted floors have been used with livestock in Europe for a long time. Slotted floors for poultry and dairy calves have been used for a number of years in the United States. Only recently, however, has there been much experience with hogs on self-cleaning floors. Only limited research results are available so far, though several experiment stations, equipment manufacturers and a few hog producers in different states are experimenting with slotted floors of different materials and designs. These research results and farmer experiences have already established this fact—slotted floors are an aid to, but not a substitute for good management.

A "slotted floor" is one with regularly spaced openings of sufficient size and number to permit hog wastes and other spillage to be trampled or to drain promptly through the floor. Often, a pit under the floor collects and holds the waste mixture until it is emptied—either loaded into some type of liquid manure wagon and spread on a field or discharged into an outdoor farm sewage lagoon.

Various Materials Used

Materials used have included flattened expanded metal, concrete and steel grates, concrete, wood, and other fabricated materials. Total performance of hogs has been similar on the

various materials except that the quarry screen caused more foot and leg injury.

A portable swine-finishing unit has been used on a demonstrational basis by Dr. Berl A. Koch of the animal husbandry staff at Kansas State University. Koch said the purposes for which the 12 by 20 foot facility was constructed were to investigate the possibilities of using slotted floors in a portable unit and to improve the design of a low-cost unit for use by farmers with small herds.

Only Nine Square Feet

This portable unit has 96 square feet of solid three-fourths inch plywood floor beneath a small shed and 144 square feet of slotted commercially available wood floor. Twenty-six swine with an average initial weight of 62 pounds were placed on the floor February 23, 1963. Each animal had approximately nine square feet of floor space minus the space required for a waterer and a feeder.

For the demonstration, a pelleted ration was used. It consisted of sorghum grain, soybean oil meal, ½% salt, 1% dicalcium phosphate, 1% limestone, 25 parts per million of trace mineral, and 1500 units vitamin A and 150 units vitamin D per pound of ration.

The results obtained from this demonstration were: average final weight, 194 pounds; average daily gain, 1.86 pounds; feed efficiency, 3.07 pounds; and the average age required to reach 194 pounds, 155 days. Ten thousand pounds of feed were fed and less than 20 pounds were lost through the slats and thus wasted. These figures don't vary significantly with those from other swine management programs.

According to Dr. Koch, these slotted floors have real value. But, like most new developments, they have certain limitations. What then can you expect from slotted floors?

Six Advantages Cited

What are the advantages of slotted floors? (1) They make it possible to get the manure away from the animal sooner. This is the big advantage. (2) Cleaning time and labor are reduced; pigs stay cleaner and drier. (3) Sanitation is improved because the animals are immediately separated from their wastes. This creates an environment that reduces the build-up of infectious bacteria and parasites. (4) Very little or no bedding is used, saving cost and labor. (5) Space needed per hog is lessened, thus spreading the cost of the entire unit over more hogs. Some experiments have provided as little as six square feet per market hog compared to ten or fifteen square feet provided for hogs on solid floors. (6) They can be readily adapted to either liquid manure or lagoons.

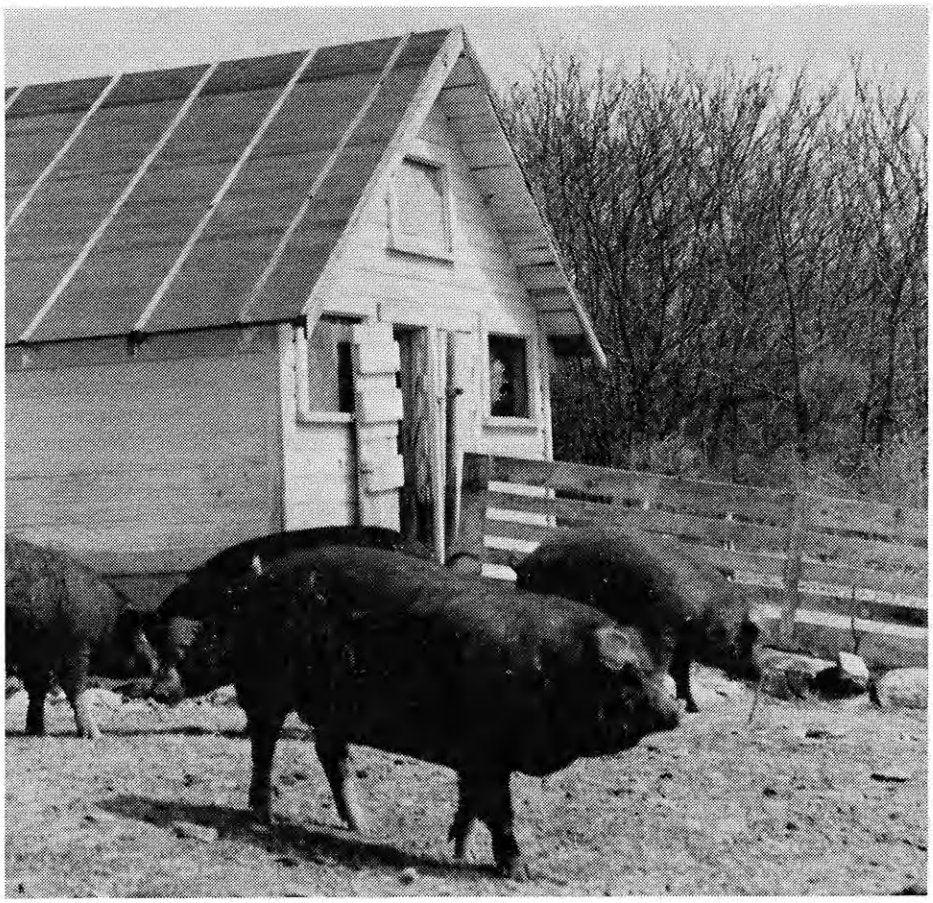
Not Without Disadvantages

The disadvantages of slotted floors are: (1) The initial cost is high. Roughly, on a square-footage basis, costs run: wood, 50 to 75 cents; concrete bars, 65 to 80 cents; steel T-bars, $1.25 to $1.50. (2) Confinement buildings must be insulated and mechanically ventilated. Control of drafts is essential. The build-up of manure and urine under the floor results in incompletely defined gaseous products, some of which are harmful to hogs. (3) Slotted floors have a limited lifetime—wood, probably five years; steel, perhaps ten years; concrete, indefinitely. (4) Wasted feed through the slats can be great; therefore, strict adjustment of feeders is essential. (5) Tail biting, skin abrasions, and leg injuries are more common under the crowded conditions.

More Research Needed

"As the disadvantages show," said Koch, "one can see slotted floors do not eliminate disease, alter the need for sound nutrition, replace management, or produce meatier hogs."

In summary, he stated that slotted floors probably have a definite place in today's swine production. Undoubtedly, their use will increase. But time alone holds the answer to the economic advantages of slotted-floor programs. More experience and research are needed before we solve all the problems—and answer all the questions.



Antiquated methods of swine production can be replaced by slotted floor units, if they suit your particular production need.

Dr. Upson Says

Contract Veterinarian May Reach Kansas

by John Noland

"I'M SOLD on the idea of contract veterinary service myself," Dan Upson, doctor of veterinary medicine at Kansas State University, said while discussing this new trend in veterinary medical service. "There are so many advantages to both farmer and veterinarian that it almost has to work."

"Contract veterinary service exists in several forms," Dr. Upson explained, "but the unifying factor is that the veterinarian is no longer on an individual call basis only. The veterinarian and the stockman enter into a mutual agreement wherein the veterinarian takes care of the farmer's herd or flock on a particular time basis. He makes periodic checks on the herd and performs any services necessary.

Like Preventive Medicine

"It is a preventive method where the veterinarian acts more as a consultant than a fireman," Upson, who is working toward his PhD in physiology and instructs in this field at Kansas State, said of the new program.

He explained that the current trend toward large-scale business operations is becoming apparent in farming as well as industry. Awareness of this trend brought about a need for a new type of veterinary service. "The advantages of this new service—the contract veterinary service—should soon be apparent," he stated.

Popular in Canada

Though new in Kansas and most of the other 49 states, the practice looks sound and is going strong in Canada. Upson pointed out that the greatest use of this service in the United States has been in areas having large livestock enterprises.

"The west coast is a good example," he said. "For instance, a stockman in California who owns 2,000 head of cattle may enter into an agreement with his veterinarian to have his cattle checked once a day."

Although this new service is not as popular here as in the far west, Upson cited two Kansas veterinarians—Dr. Robert Weaver of Great Bend and Dr. Raymond Couk of Chanute—who are practicing contract veterinary service. Although Dr. Upson had no recent report from either veterinarian, he remarked, "If everyone isn't really satisfied, it would be the first instance I know of. Everyone I have talked to has liked the new service very much."

Aids Both Farmer and Vet

Upson emphasized his belief that this new service is so twofold that both the farmer and veterinarian are benefited. "The farmer has a source of consultation always available and, since the fee is already paid, he feels more free to call on the veterinarian and thus uses him more. He also knows how much veterinarian fees will cost him from month to month.

"As far as the veterinarian is concerned, he can plan his day better and put in a more uniform number of hours. It also helps eliminate after-hours work. If the veterinarian enters into a certain number of contracts, he can predict his own income," he pointed out.

Economic Stigma Dissolved

"Contract veterinary service also gives the veterinarian a chance to practice medicine more. It helps take the economic stigma out of the farmer-veterinarian relationship. For instance," he explained, "a $25 operation on a $15 ewe is unsound economically, but it is good medicine. With a set price the farmer will be less reluctant to consent to the operation. Another advantage is that if a cow suddenly gets sick the veterinarian knows the background and history of the cow and his job is considerably easier."

After pausing for a moment, Upson added, "And certainly, if the veterinarian is a good one, he will feel responsible for the herd he is contracted to and take a sense of pride in its welfare. He will probably feel his efforts are more appreciated than if he is called only when

Service Farmers

the farmer feels he is especially needed."

One weak point in this service that Dr. Upson foresaw was that many stockmen, especially in Kansas, aren't big enough to benefit from this continual prepaid service. "A herd of ten cattle won't pay for this consultation while a herd of 1,000 will. And, although Kansas stockmen are beginning to expand into bigger operations, the trend hasn't caught on as fast here as in other states."

Change Will Take Time

He also believes that the change will be evolutionary rather than revolutionary. "The change will take a long time, since no two stockmen are alike. Some won't want to be tied down and others won't want to go along with the program itself."

Therefore, he felt that the terms of any contract veterinary service should depend on the individuals involved and their specific needs. The veterinarian's pay is often based on increased gain which may be measured in milk, calves produced or animals sold. The agreement may also be on a one farm-call per month or week at so much per call basis.

Emergency Work Exempt

One important aspect which Upson pointed out is that strictly emergency work is usually exempt from the monthly fee and over and above the fee for regular periodic calls. However, a pre-set fee for this emergency work is usually agreed on beforehand by the farmer and veterinarian.

Drug Mark-up Lessened

Under this service, Dr. Upson explained that drugs are sold at cost plus a certain percentage. The veterinarian usually puts only 10 to 20 per cent mark-up on the drugs instead of a higher percentage mark-up veterinarians sometimes must charge in order to make a profit on calls. "This large mark-up understandably irritates the stockmen," Upson said, "but most stockmen don't mind a normal mark-up in price because they realize the veterinarian has certain overhead costs connected with a large drug inventory."

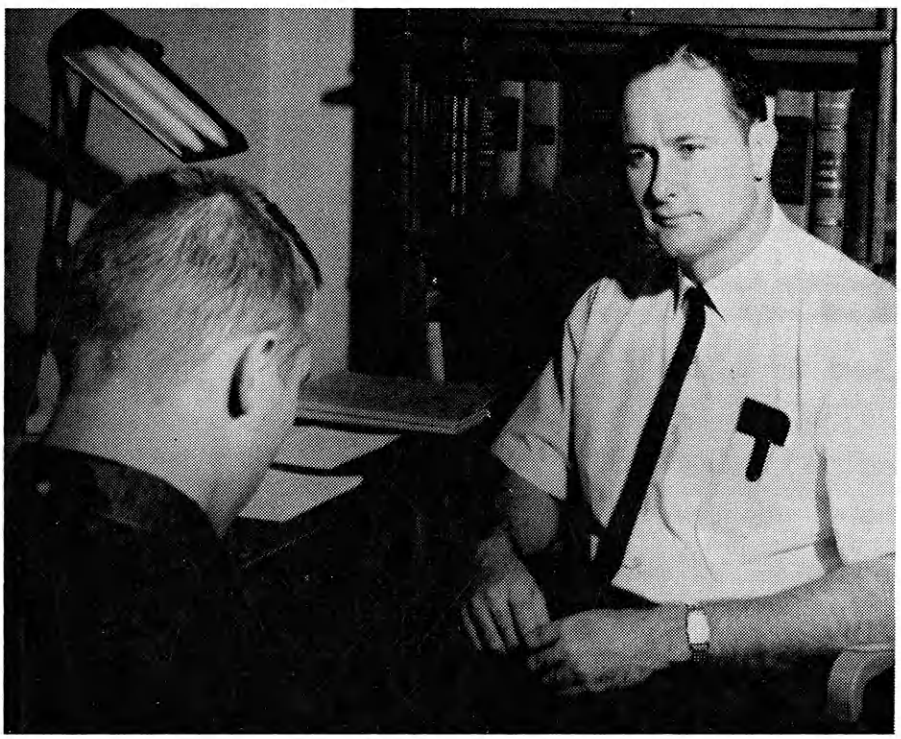
"Instead of charging such a high rate on his drugs, the veterinarian can sell his professional services just as a human physician does," he commented. "Unlike the human doctor, the veterinarian hasn't always been paid for his time and knowledge in the past. But now, fortunately, the trend is toward a higher charge for services and less for drugs. This allows the veterinarian to sell his services and knowledge and not be just a drug peddler."

As far as making out the contract itself, Upson feels the agreement need not be formalized. He said many times the agreement is oral, but felt that a written contract between the two parties might make the agreement clearer. "The important thing is that both parties have a good understanding of the agreement," he added. "And, because no two situations are alike, no two contracts will be the same."

Depends Upon Situation

Upson would not go so far as to recommend that most Kansas livestockmen adopt contract veterinary services because, as he pointed out repeatedly, the need for this type of service depends upon the individuals and situations involved. However, he was quick to add that where the program has been tried and where livestock numbers have warranted it, this service has been successful.

Summarizing his viewpoint, Dr. Upson felt that the basis for a contract program is the increase of productivity of livestock or as he rephrased it, "a more healthful and productive herd." He feels this program will meet the undeniable trend in the livestock industry, that of expanding to bigger operations.



Dr. Dan Upson explains and amplifies his views about contract veterinarian service.

K-State Develops

Delicious New Melon Strikes Public's Fancy

by Lloyd Moden

Crimson Sweet watermelons have superior marketing characteristics. They are thin rind, blocky shaped, attractive, sweet, disease resistant, and average 25 pounds.

"M-m-m-m-! this melon is really delicious! It's sweeter than any I've ever tasted!" "Yes, and there are fewer and smaller seeds, too." "Look at the rind! See how thin it is!" Exclamations like these were familiar around people eating for the first time a new variety of watermelon developed at Kansas State University.

Dr. Charles Hall, associate professor of horticulture at K-State, developed the new watermelon, called Crimson Sweet, which has all these attributes. The melons have light and dark green stripes, crimson-colored meat, and blocky-round shape. They average 25 pounds.

Resistant to Diseases

Hall began his project the fall of 1953, undertaking to develop a melon with desirable marketing qualities and resistance to two watermelon diseases, anthracnose and fusarium wilt. Anthracnose is a foliage disease which kills leaves and stems, causing the fruit to rot. Fusarium wilt is soil borne and affects the roots and stems of the plant. Hall cited that in some years, Kansas growers have lost two-thirds of their melon crop from these diseases in susceptible varieties.

After many crosses and breeding lines were planted and studied, Crimson Sweet was developed. The final product is a cross between Miles and Peacock watermelons. The second generation was then crossed with Charleston Gray, the long gray melon which is common on the market. The best plants were selected and replanted. By 1960 the melon had most of the desired characteristics. In 1961 the melon was entered in the Southern Cooperative Trials. Crimson Sweet was rated high in most of the trials of the ten-state region, extending from Florida to Iowa to Indiana. Besides having a higher sugar content, Crimson Sweet outyielded Charleston Gray in seven out of nine trials in 1962.

Hopes To Supply Seed

Hall hopes enough seed will be produced to supply the general public by 1965. In an effort to meet some of the demand for seed created by the acceptance of K-State's new melon sensation, employees of the Kansas Experiment Station have done an unusual job at the experimental farm near Manhattan. They cut the meat from 25 pick-up loads of Crimson Sweet melons and put the seeds into a vat to ferment. When the seeds came loose from the meat and settled to the bottom of the vat, they were dried, packaged and shipped to waiting commercial grow-

Dr. Hall and Dr. James Greig examine a Crimson Sweet on K-State's horticulture farm.

ers in many parts of the world. Requests for seed have come from Ecuador, Australia and the Philippines. Breeding seed was released to three seed companies in 1963 for seed increase. Hall also distributed seeds to a few commercial growers and home gardeners.

This summer, after the public had its first taste of Crimson Sweet, Hall was deluged with congratulations and mail from commercial growers. One grower in the Wichita area reported he could sell ten Crimson Sweet melons to every Charleston Gray at one-half cent per pound more. Lawrence growers sold Crimson Sweet at a cent per pound higher than other melons. Another grower near Manhattan said he could easily sell Crimson Sweet ten to one over Charleston Gray.

After ten years of hard work, Dr. Hall and two students bite into the tasty reward.

Teacher

Researcher

Public Servant

Prof. David Mackintosh

After 40 Years

Dynamic "Davy" Wins Award

by Dan Bonine

EVERYONE in the College of Agriculture at Kansas State University knows "Davy" Mackintosh, professor of meats instruction in the Animal Husbandry Department. Everyone speaks to Davy and are spoken to in return. So it is now and so it has been for the past 42 years. Students, deans, and presidents have come and gone, but Davy with his cheerful smile, infectious good humor, and loyal dedication to his profession is still at K-State, being admired and respected by all.

Davy joined the K-State staff in 1921 and soon took over the duties as instructor of a single course in "Farm Meats." Since then Davy has expanded the scope of this area of instruction at K-State into international prominence.

Distinguished Teacher

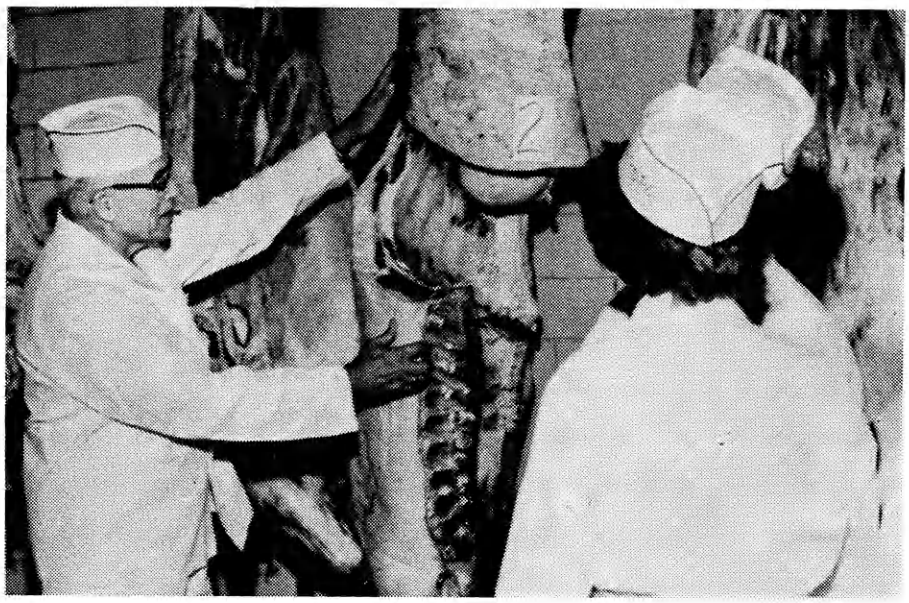
Davy's contributions to the livestock industry and the teaching profession have not gone unnoticed. Last August at the annual meeting of the American Society of Animal Science (ASAS) in Corvallis, Oregon, Davy was presented the "Distinguished Teacher Award." The award consisted of a plaque and a $1,000 check.

What makes Davy an outstanding teacher? Is it his personal active relationship with students? natural leadership? hard work and study? Probably all these traits and others have distinguished Davy as an outstanding and brilliant educator.

Ray I. Throckmorton, dean and director emeritus of the College of Agriculture, says, "Davy's ability as an outstanding teacher is due to a personality factor—understanding his students." Continuing, Throckmorton added, "In my travel throughout the country alumni always ask about Mackintosh. Davy makes a lasting impression on his students."

Years of Continued Study

Furthermore, according to Throckmorton, "Davy has kept abreast professionally through the years, presenting the latest developments and



Davy shows a class of female nutritionists the back fat thickness on a beef carcass.

ideas of the animal industry to classes in his own clear, concise method of presentation."

Davy, always striving to improve his ability to teach by continued study, completed work for his MS degree at K-State in 1925 and did graduate work at the University of Chicago and the University of Minnesota, his alma mater. Davy still continues to keep up with changes in the industry and readily incorporates this new information with his vast storehouse of past information and passes all on to his students.

Passes On Enthusiasm

ASAS said this of Davy last August: "Ability of Professor Mackintosh to impart his tremendous enthusiasm to his students is shown by the many who have gone on into responsible positions in industry, university instruction, and research." Davy has eight former students now in charge of meat research and teaching at various institutions.

Dr. Don Kropf of K-State's animal husbandry staff says, "Davy isn't afraid to work." Evidence of this trait is the expansion of meats study at K-State from one course to ten courses and the existence of an extensive research program here. Courses are now conducted in basic studies of meats, grading meats, cutting meats, and research about meats.

Davy has made tremendous contributions to K-State students as faculty advisor for the Block and Bridle Club during the last 15 years. He assists members of the club in promoting scholarship, bettering the livestock industry, and encouraging better relationship between faculty and students.

Organized Judging Contests

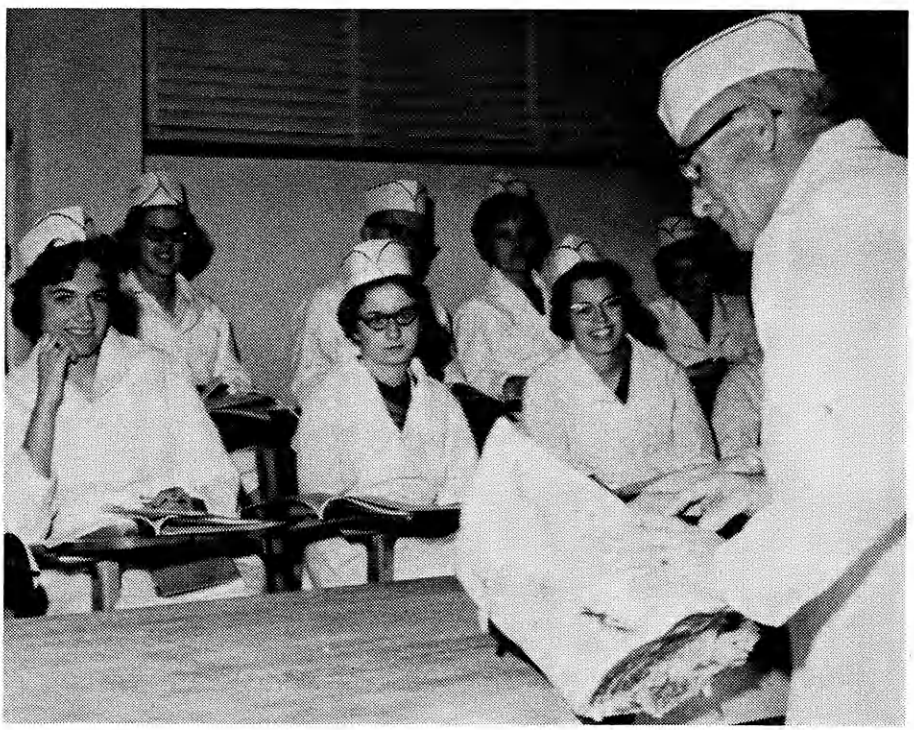
Students across Kansas have been aided by Davy's enthusiastic attitude toward education in a multitude of ways. He has written several papers related to teaching and curricula. The state 4-H Meat Identification and Judging Contest and the Junior Meat Judging and Identification Contest for FFA groups were organized by him.

Two textbooks, *Elements of Meat Processing* and *Meat Selection and Utilization*, were written by Davy and are used in his classes. In 1934 he mounted a beef carcass skeleton, the first to be used in college meat work. In addition, he produced early charts illustrating pork, beef, and lamb carcasses and their respective retail cuts.

A "Real Character"

Davy's students know him as a chalk thrower, politician, sports fan, philosopher, Scotchman, and a "real character." As one student put it, "Davy has a loud bark, but a big heart." Another added, "Davy makes class work interesting and I work harder for him." "If anyone deserved a teaching award, Davy did!" another asserted.

Davy's modest comment about being honored as an outstanding teacher was, "It was a result of someone having enough faith in me to nominate me and then follow up with a great deal of work in my behalf as a candidate."



Teaching by demonstration is part of Davy's instructional procedure. Here, he carves a commercial cut for a class of dieticians.

Water Research Labs

Could Bring Kansans Millions

by Paul Deets

IMAGINE that every drop of rain that falls could be divided up and each part traced to where it is used. Did you know that less than one per cent of every drop that falls is converted into plant material? Did you know that 65 per cent of every drop is lost by evaporation, 5 to 10 per cent runs off, and the remaining 25 to 30 per cent is transpired through plants without being used?

No single factor so affects the economy of this nation as does water. The cost to this country by such natural inefficient water use is phenomenal. Since you can't make rain by seeding clouds when there are no clouds around, as is often the case in the Great Plains, we must live with the moisture we have available and try to make the most efficient use of it.

Could Produce $62 Million

A reduction of evaporation from 65 to 60 per cent would save more than one inch of water where the average precipitation is 20 inches. This five per cent reduction in evaporation would produce $62 million in crops for Kansas or $400 million annually over the ten Great Plains states. Scientists have estimated evaporation from soil on crop and pasture land alone amounts to about twice the quantity now diverted by rivers or pumped from wells.

In Kansas from 1944-1953 evaporation from farm land and transpiration by agricultural crops amounted to over 500 times as much water used as was used for domestic, municipal, and industrial purposes combined.

The economic implications to Kansas from increased soil moisture availability are obvious. Agronomists estimate that one additional inch of available soil moisture in Kansas (equivalent to three inches of rain, since two-thirds evaporates) would, on the average, produce about 10 additional bushels of wheat or 15 additional bushels of grain sorghum per acre. Another estimate states each inch of rain over Kansas is worth about $20 million in increased crop production.

Should Irrigate in Fall

Another basic problem is our ground water supply. We don't have enough rainfall to replenish the water we use, so we must plan for the best use of it. The most effective period for irrigation is during the fall when evaporation is relatively low.

One way to reduce evaporation and conserve water would be to decrease transpiration from plants. Plants are notoriously inefficient water users, because most of it merely passes through and evaporates. Measurements in Akron, Colorado, showed alfalfa plants use about 835 tons of water to produce 1 ton of hay.

Beck Urges Action

Dr. Glenn Beck, dean of the College of Agriculture at Kansas State University, Manhattan, urges support of two legislative steps which he believes will help solve our water problem. First is a proposal for development of a large soil moisture conservation research laboratory for the Great Plains area. Kansas is listed as the first state for possible location of such a facility. This proposal, promoted by the Great Plains Agricultural Council after being suggested by Kansas State University, has been endorsed by the Kansas Legislature and many groups within the state. To date, Congress has taken no action to implement the establishment of the laboratory, which would have a two million dollar per year operating budget. The lab would focus its research mainly around problems of evaporation and transpiration.

Water Bill Considered

Secondly, and perhaps a more promising prospect for evaporation research is contained in the so-called Anderson Water Resources Research Act S. 2. This bill, currently under consideration by Congress, was introduced "to establish water resources research centers at Land-Grant Colleges and State Universities, to stimulate water research at other colleges, universities and centers of competence, and to promote a more adequate national program of water research." The bill, modeled after the Hatch Act, would provide funds for all phases of water research. It is hoped that a goodly portion of such a fund would be devoted to evapotranspiration research.

Ag College Briefs

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Dr. C. Peairs Wilson recently returned from a two-week trip to Brazil as a Ford Foundation sponsored advisor at a rural university.

While there, Dean Wilson served on an international committee to review plans for teaching, research and extension programs for the university, located at Viscosca, a city 200 miles north of Rio de Janeiro in the state of Minas Gerais.

John Teagarden, graduate student in animal husbandry from La Cygne, is the recipient of an assistantship from Consumer Cooperative Association.

Teagarden will be working with Dr. John Wheat and Dr. Don Good, both of the K-State animal husbandry staff, on a project titled, "The Influence of Sire on Type, Performance and Carcass Characteristics in Beef Cattle."

The 21st biennial report of the Kansas Agricultural Experiment Station has revealed some interesting statistics.

Kansas ranks first in the nation in wheat production, second in sorghum grain production, fourth in cattle and calves produced, and sixth in cash farm income. It also ranks first in flour milling, third in alfalfa dehydration, and tenth in meat packing.

It stated, "In 1961 there were 40 flour mills, 223 meat-packing plants, 811 dairy-processing plants and 61 alfalfa-dehydrating plants. There were 1,100 commercial feed handlers selling over a million tons of feed to farmers, 160 commercial fertilizer concerns selling 40,000 tons of fertilizers and 105 commercial hatcheries selling 13 million baby chicks and nearly 2 million turkey poults."

The experiment station now has an annual budget approaching $4 million. In 1961-62 it had a staff with the equivalent of 240 full-time scientists and 162 other full-time employees. There were 432 research projects active during the biennium.

Dr. Clifford Roan, professor of entomology at K-State, expressed his views on "The Use of Pesticides" last August before the Congressional Subcommittee on Reorganization and International Organization. Roan was invited by Senator Abraham Ribicoff to express himself on this current controversial subject.

He pointed out that the purpose of pest control activities is to maintain an adequate production of food and fiber, to control insects which transmit diseases, and to protect the public's health.

An article from the February, 1963, issue of the Kansas Agricultural Student, magazine for agriculture students at K-State, has been republished in full in the "Hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary," United States Senate, 88th Congress, First Session, on S.387, Part I, Page 498.

The article, "Deceptive Devices Fool Unwary Shoppers," was written by Mrs. James Torrence, formerly Andrea Emmot, who was a junior in journalism last year.

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First feed manufacturer to produce a successful protein block for self-feeding to cattle and sheep—now over 17 million fed successfully.

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