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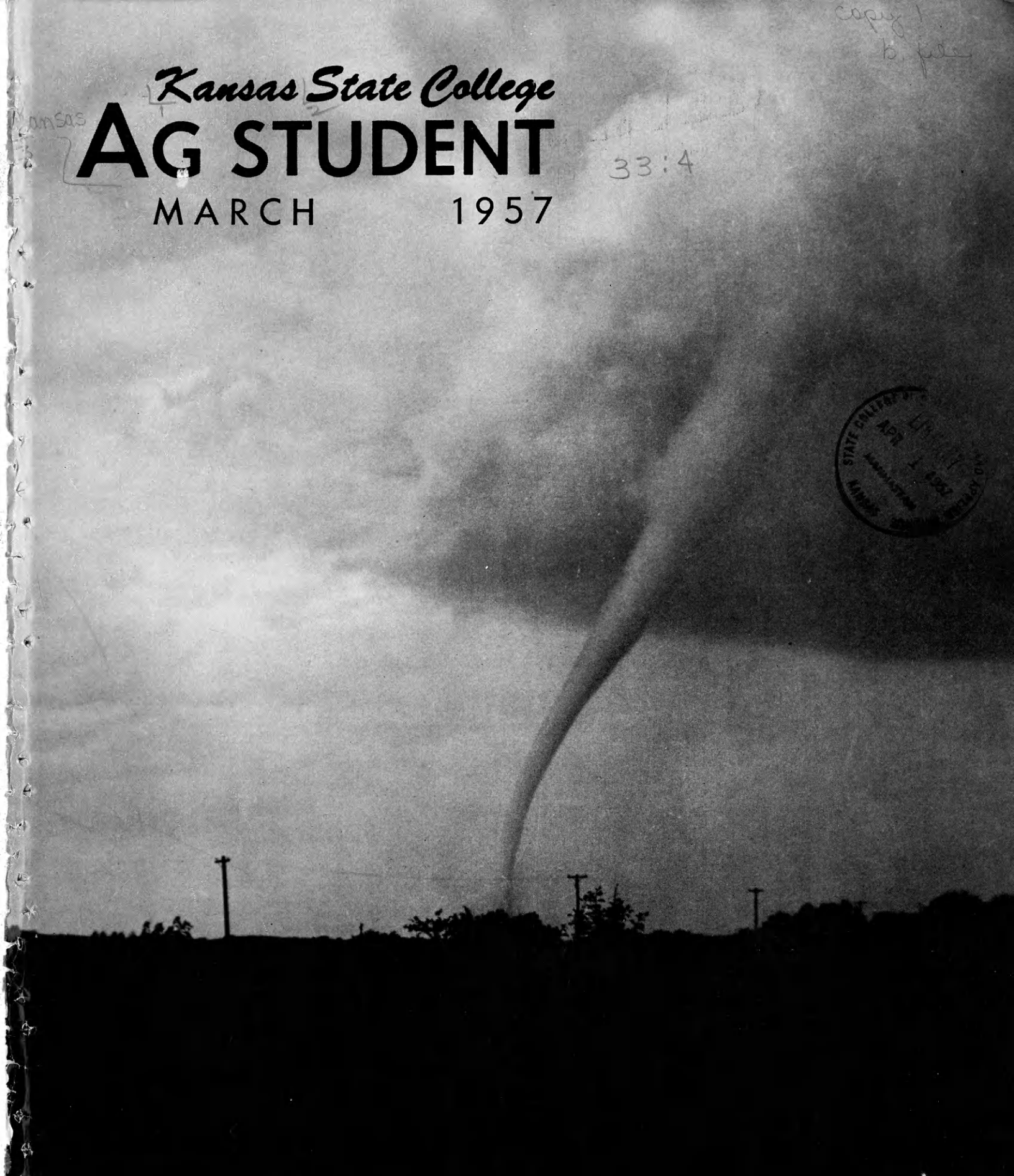
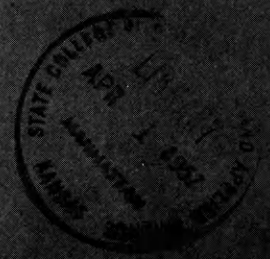
*Kansas State College*

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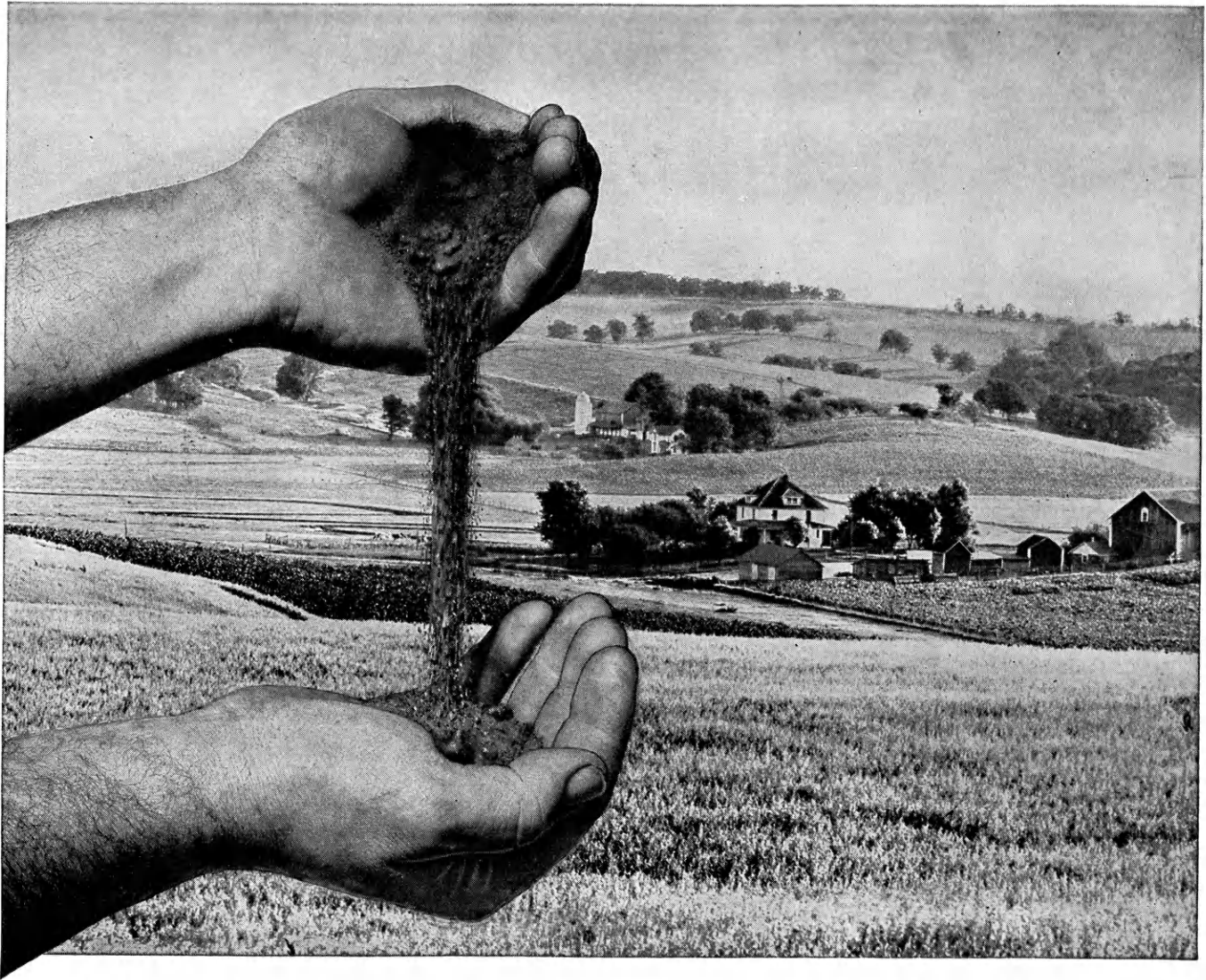
# AG STUDENT

33:4

MARCH 1957



Kansas Twisters . . . . page 12



## Our Future Rests on Soil Fertility

America has grown strong largely because her people have eaten well. Eating well means living well, working well. Those are facts that some of us may overlook. A thriving agricultural-industrial system has put meat and potatoes on our tables, white shirts on our backs, soft rugs on our living room floors.

Such necessities, and niceties, come largely from the soil. A lot of us need to think of that. We need to remember that a biscuit in the hand is just so much protein and starch and fat taken out of the soil; that much of our clothing grows on cotton stalks; that sheep are only walking factories, eating weeds and grasses and grains to grow wool on their bodies; that such a flimsy thing as a paper napkin rep-

resents a mite of soil resource taken away from our national stockpile of natural resources.

If we will look upon our day-to-day living in this light, we will understand why a nation growing toward a hundred and seventy million persons makes a terrific drain upon soil resources. We will realize why it is necessary for us to maintain the soil, even while using it.

Modern farm equipment makes the application of soil conservation practices both possible and profitable. It helps to put "a future in soil fertility."



**JOHN DEERE**  
MOLINE, ILLINOIS

*Quality Farm Equipment Since 1837*



## *Accurate records—key to better profits!*

Without a doubt the most valuable "tools" on the 515-acre Moorman Research Farm are the least expensive—*5c pencils*. For it is with these "tools" that accurate records are kept—records that will help feeders make better use of their home-grown grains and forage.

Last year more than 1000 pigs passed through these test pens. Every one was weighed at birth—and the weight recorded. Then, every week until market, rate of gain, amount of feed consumed and its cost was faithfully recorded. The purpose? To get facts that will aid in developing feeds that yield faster and more profitable gains.

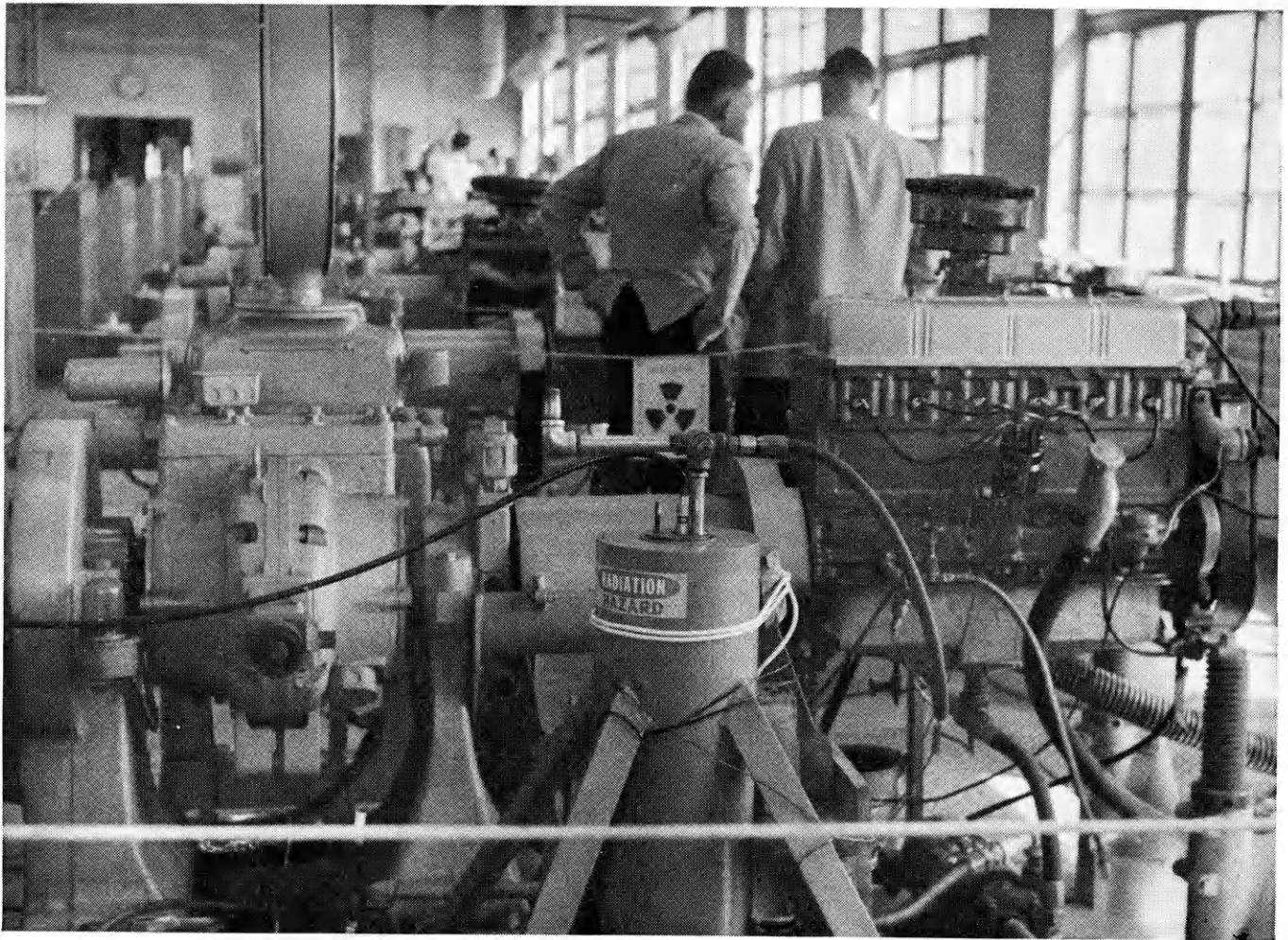
Just as the 5c pencil is a "must" at MoorMan's it can be equally valuable on every farm. For only by keeping accurate records of rates of gain and complete feeding costs can farmers determine *which* feeds are helping them get the most pounds of pork for their feed dollars.

### ***MoorMan's***\*

since 1885—71 years of Friendly Service

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—a business dedicated to helping farmers make better and more profitable use of the feeds they raise themselves.



*Modern and advanced engines log up hundreds of test hours daily in Standard's automotive laboratory at Whiting. Radioactive carbon traces deposits in the guarded engine (foreground).*



## Would you like to work on the same team as this man?

LAMONT ELTINGE is a group leader in the Automotive Research Division of Standard Oil's great Research and Engineering Laboratories at Whiting, Indiana. He and his group dig freely and fruitfully into just about every area you can think of in diesel, automotive, gas turbine, and jet fuels. Current studies range from air pollution problems arising from diesel smoke to laboratory use of radioactive carbon tracers for the basic study of deposits in gasoline engines.

Mr. Eltinge earned his B.S. in mechanical engineering at Purdue in 1947. He is a member of SAE, Tau Beta Pi, Sigma Tau, and Pi Tau Sigma. Along with the important contributions

he makes to Standard as a regular member of our team, he finds time to attend Illinois Institute of Technology where he recently received his M.S., and takes an active interest in church work.

Lamont Eltinge and hundreds of young men like him are going places and doing things at Standard Oil. Each concentrates on his own special field of interest and experience, but none is limited to it. Chemists, metallurgists, engineers, physicists and others maintain a continuous relationship for the broad exchange of ideas. Perhaps you, too, would enjoy membership on Standard's team of engineers and scientists.

# Standard Oil Company

910 South Michigan Avenue, Chicago, 80 Illinois



KANSAS AGRICULTURAL STUDENT

# Kansas State College AG STUDENT

Vol. XXXIII

March, 1957

No. 4



## On the Cover

The tornado pictured on the cover was taken May 31, 1949, northwest of Manhattan by H. E. Dale, a graduate student in physics. The picture is one of a series that was taken by Dale. The camera used was only a small box camera, but the series of pictures is recognized as being one of the best of its kind in existence.

Contrary to rumors, tornadoes are not tending to increase in Kansas. The state does happen to be in an area, generally referred to as the tornado belt, where conditions seem to favor tornadoes.

There is no way to prevent a tornado but precautions can be taken against one. Buildings can be protected by good construction. A good foundation, plenty of nails, and strong supports will protect a building from anything but a direct attack of a tornado. If a tornado hits directly, even brick buildings may be destroyed.

A person can protect himself from a tornado by building a storm cellar or cave. The cave need not be elaborate, but it should have a sturdy door, strong timbers and enough depth to allow a layer of dirt over the top.—Gary Yeakley

PHOTO CREDITS: H. E. Dale, cover, 13; L. R. Quinlan, 8; agricultural experiment station, 10; Floyd Hanna, 11; animal husbandry department, 11; Don Miller, 12; Lynn Perkins, 14; soil conservation service 16, 17; Dr. Fina, 18.

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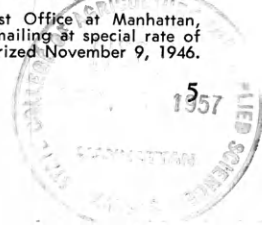
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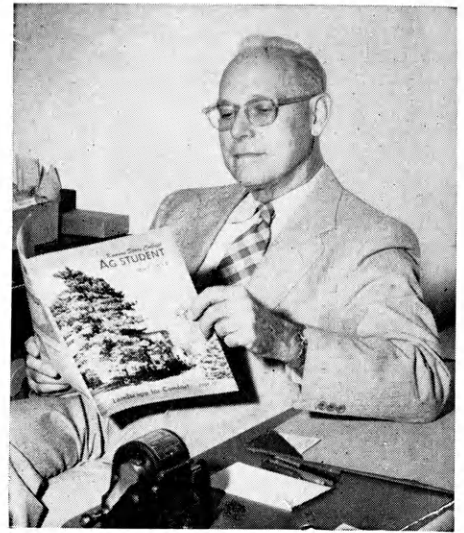
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# Chit Chat

By Clyde W. Mullen, Assistant Dean



Dean Mullen

**I**T IS TIME for the top one-third of our junior and senior classes to begin thinking seriously about the possibility of doing graduate work. The top one-third would skim off students having a point average of approximately 1.6, plus or minus.

It just isn't true that there is any longer a pressing demand for college trained men in the field of agriculture who have obtained only a bachelor's degree. There are management jobs, soil conservation positions, extension openings, sales and sales management opportunities and a few other categories into which the bachelor may go and expect to hold his own in the matter of getting the job done and holding his own when it comes to promotions.

But the positions that require technical proficiency and a higher level of training in mathematics, statistics, chemistry, physics and the biological sciences are open primarily to men with at least the master's degree.

The pressure is on, even among extension workers and teachers of vocational agriculture, to climb the educational ladder to the level of at least an additional 32 credits above the bachelor.

And the young man who wishes to push the ceiling of possible attainment high above 75 percent of his fellow competitors will press on to the doctor's degree.

All of this extends the educational program for some of our students by one to four years beyond original

plans. For many, the extra financing will not be easy. But five years after graduation with these higher degrees will probably reward each man far beyond the extra financial problems that go with a higher education.

Those who attend a well-organized, smoothly running college event seldom realize that a group of students probably began planning the shindig weeks, or even months ahead of time.

Next fall, when Ag Week is ticking off events in well-organized precision, only a handful of students will realize that the first committee meeting of a dozen key men met in the Union on the evening of February 12 to make some of the first decisions about Ag Week. Two or three faculty folks were there to add their two-bits' worth.

And it was at that meeting that the observation was made that our own faculty members may be letting the boys down just a little in the matter of boosting and attending the Ag Barnwarmer. Current groups of students who have been on the campus three years or less do not know how it used to be on Barnwarmer night. Time was when every department in the School of Agriculture would be represented by from three to ten of its staff members. Not less than twenty or thirty faculty folk and their wives would be mixing it up with the students and their dates. The event contributed to good feeling and wonderful relations between profs and students.

Recent years have seen less than a

dozen staff members at the Barnwarmer. Next fall the boys are going to "sell" the Barnwarmer to their profs.

Make room, lads. The upper crust will be there. All you have to do is sell 'em a ticket.

To a scant 4.5 percent of our juniors, it was good news that, as A students in Written Communications I and II, they would not be required to take the usual English Proficiency test.

Another and much larger group of students completed Written Communications with an average grade of B or better. By putting forth just a little more effort, many of these B grades could have been A grades.

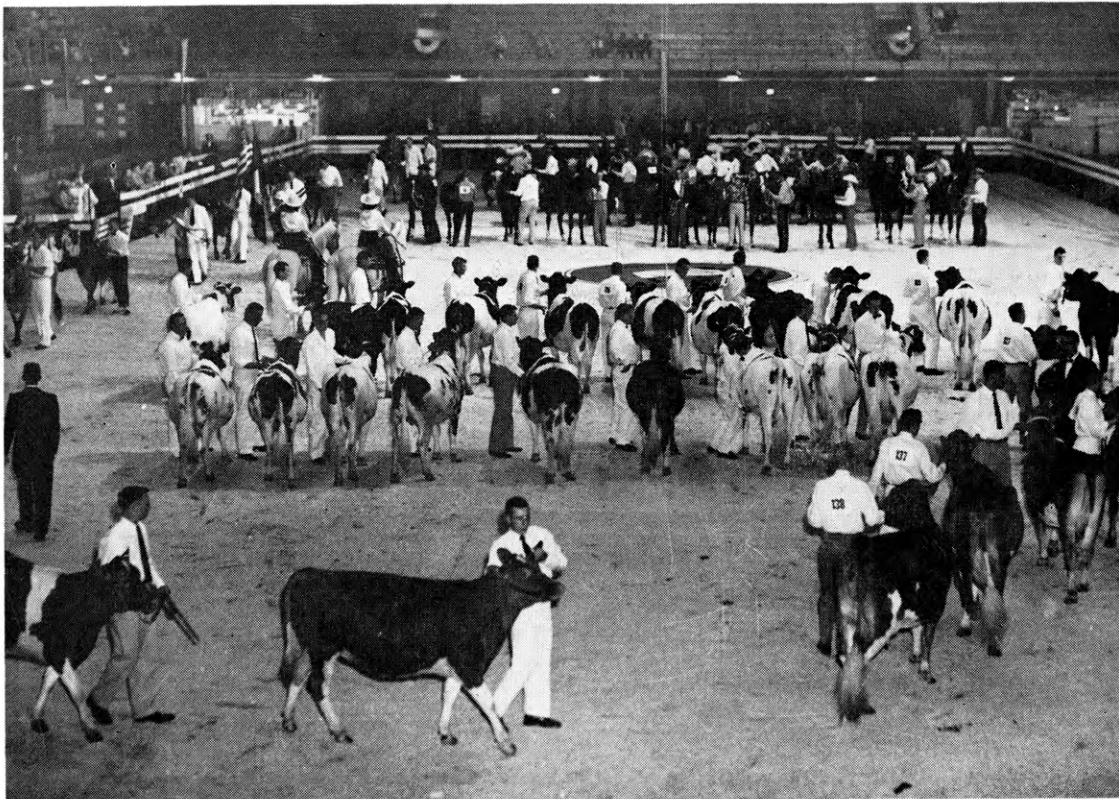
Of course, a student who has already made a grade of B in Written Communications I cannot now make an average grade of A in both courses.

However, a student who may have made a grade of A in Written Communications I now has a good chance to make a grade of A in Written Communications II. The goal is worth trying hard to attain.

An electric generator driven by the energy of an atomic reactor, which uses uranium as fuel, can operate for a year with a net loss of only six pounds of fissionable material, according to a recent news release. This compares with an estimated 5,000 tons of coal which would be required to operate an electric generator of similar capacity.

*29th Annual*  
**Little American Royal**

*Featuring—A Square Dance  
on horses by  
The Sand Spring Saddle Club  
Abilene, Kansas*



Sponsored by the Block and Bridle Club and Dairy Club

**SATURDAY, APRIL 6**

Fieldhouse, 7:00 p.m.

General Admission 75c

Reserved Seats \$1.00

Club Groups 50c





A cedar hedge with large trees in the background protects this flower garden from hot winds. Watering can keep it green all summer.

*Selection*

*Spells*

*Success—*

## *Flower Gardens for Kansas Climate*

*by Carol Ward*

**H**AVE YOU ever looked at a wilting flower garden and remarked, "There's no use trying to grow flowers in Kansas; it's just too hot and dry"?

The weather is probably not completely to blame for flower garden

failures. It is just as likely that the wrong plants were planted in the wrong places.

Protection against the hot sun and wind is almost a necessity for growing flowers in Kansas, according to L. R. Quinlan, professor of horticulture at Kansas State college.

Hedges and windbreaks are one way to help cut down the intensity of

the heat striking flowers. Even roses have done well during hot summers in the K-State formal gardens, which are protected by an enclosure of native red cedar.

Louvered fences, which soften a wind to a gentle breeze, offer more temperate growing conditions as well as a pleasant yard for family living. A tight board fence, which does not



allow the air to circulate, would promote plant diseases if there should happen to be a wet spell, Quinlan said. This is another reason for using a louvered fence.

### Stress Location

The location in the yard for planting flowers is also important. The east and north sides of the house generally offer enough protection to grow a wide variety of plants.

Shrubs and small trees make an attractive background for flowering plants, act as windbreaks, and keep the yard from looking too bare during the hottest part of the summer. However, flowers should not be planted under such heavily rooted trees as the American elm, hackberry, and soft maple, Quinlan says. These "heavy feeders" take moisture and soil nutrients away from the flowers.

Small trees such as the little native redbud, the crabapple, the hawthorn, and the Russian olive are suggested, since almost anything will grow under them. If some large trees are wanted, remember the oaks and hard maples, which have beautiful fall colors.

Plants should not be placed near walls or paving in such a way that reflected heat will cause wilting or burning of foliage, warns House and Garden magazine.

If plants are carefully placed, a much larger variety can be grown than would be possible in the open sun. Kansas climate varies from the eastern to western portions; often a little more protection must be given to plants in the western part of the state.

### Select Good Varieties

Selecting the right plants is another way to have a garden that will withstand Kansas summers. Often natives, which have proved themselves hardy through centuries of heat and drought, prove to be a durable solution.

Gaillardia, a native with red and yellow flowers, blooms all summer long. It ranks with such dependable favorites as the peony and the iris on Professor Quinlan's list of flowers that should be in every border.

Other Kansas natives are listed here with their months of blooming and

the color of the bloom: wild indigo, May-June, blue; purple coneflower, June-July, rose; Kansas gayfeather, July-September, purple; and rose verbenas, May-June, pink. Another native, which thrives if planted in partial shade, is the blue wild sweet william, which blooms in April and May.

### Annuals

Perennials are generally more important in Kansas than annuals, because most annuals bloom during the hottest part of the summer. Four annuals that Professor Quinlan recommends for Kansas are zinnias, petunias, verbenas, and marigolds, which will thrive with moderate care.

### Perennials

Perennials can be chosen which bloom in the spring and fall, instead of during the hottest months. Some perennials for Kansas, their months of blooming, and their common color are: lemon daylily, May-June, yellow; German iris, April-May, varied; dwarf iris, March-April, blue yellow; common daffodil, April, yellow; oriental poppy, May-June, red;

Periwinkle, April-May, blue; sweet violet, April-May, violet; hollyhock, June-September, varied; hardy aster, August-September, varied; hardy chrysanthemum, August-November, varied; and Shasta daisy, June-July, white.

### Background Shrubs

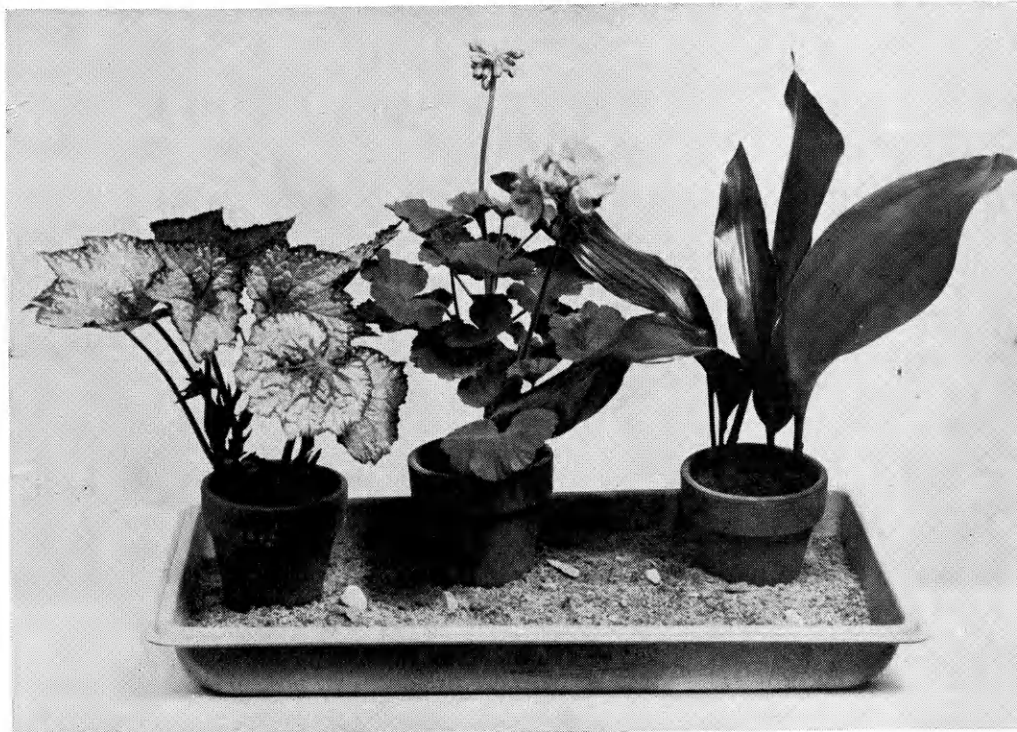
Care should also be used to select background shrubs that are hardy in Kansas. Among the suitable ornamental shrubs good throughout the state are the gray dogwood, weeping forsythia, and the common lilac.

Professor Quinlan's list of ornamental shrubs satisfactory in central and eastern Kansas includes the Mentor barberry, common flowering quince, and the Winter and Morrow honeysuckles.

Once your garden is planted, there is still the matter of watering. When watering is done, it's better to water deep and occasionally when the plants need it, rather than applying light frequent waterings that cause the plant roots to come near the surface.

Care in selecting and placing plants coupled with deep watering practices should result in a garden which will do a pretty good job of withstanding summer's heat.

Some types of garden plants can be dug up in the fall, placed in pots, and with careful handling they will continue to flourish. Some plants that would ordinarily be killed by frost can be set out the following spring. Most plants can be started inside in pots.





## TO MR. TAXPAYER:

<b>KANSAS BUDGET</b>	Paid Out	
Coyote Bounties	50,000	
<b>Tax Waste</b>	<b>50,000</b>	

# Control Coyotes but not with bounties

by P. A. Young

**A**BOUT \$50,000 is paid out each year in Kansas as bounty payments for coyotes. Extension specialists in predator and rodent control at the Kansas Experiment station say the bounty system has not been effective in controlling coyote damage.

This money is wasted because most people think killing coyotes and controlling coyote damage are the same thing. Also, the existing state fish and game laws say that each county shall pay a bounty. With these forces it is hard to convince most people that this money is being wasted.

During a study in Kansas for the past 70 years, it has been found that the regular eating habits of the coyote

make him more beneficial than harmful. In Missouri it was found that a coyote will eat rodents and pests that would do \$700 worth of damage.

### Coyote Damage

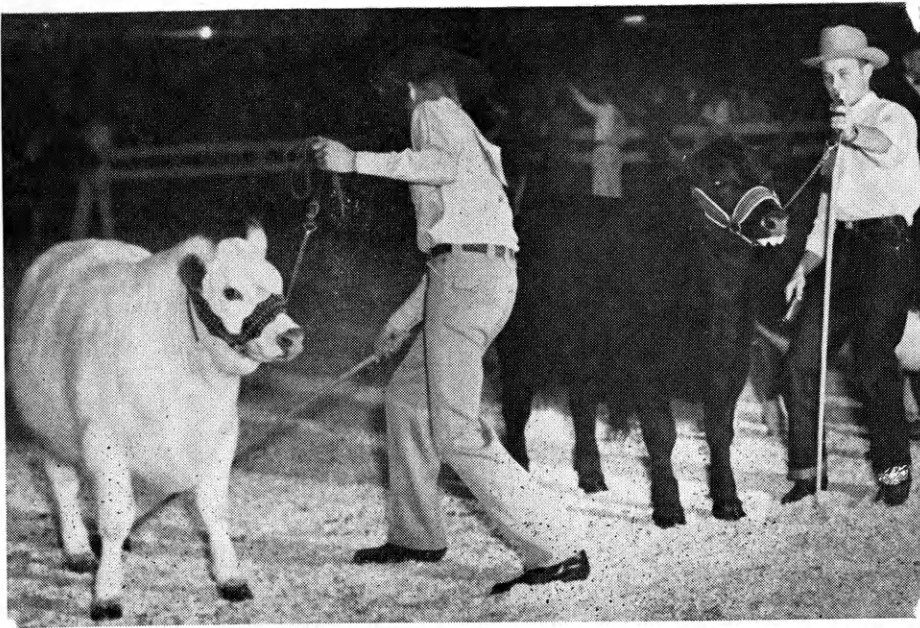
Some farms, however, are victims of coyote damage. This damage is often caused by "killer coyotes" that eat poultry, sheep, and young pigs. The killer coyote is usually an old or crippled coyote that cannot catch his food in the wild. These killers should be destroyed.

The best means of controlling coyote damage is to set traps. Common types of traps are steel traps and patented cyanide guns. Steel traps

are baited with a chemical scent where coyotes frequently travel. Since coyotes like open upland country, the best place to put the traps is near the top of ridges in pastures and fields.

A patented cyanide gun has a cartridge that contains cyanide gas. As the coyote pulls on the bait, the cartridge discharges its poisonous powder into the animal's mouth. This poison usually kills the animal by the time it travels 75 yards.

By placing traps close to the place where coyote damage occurs, killer coyotes that prey on farm animals can be caught, and those that prey on wild animals are left to keep the balance of nature.



**T**ODAY'S trend of selection is resulting in the development of beef cattle that mature in a short time and have larger "choice" cuts of meat with fat blended in the cuts.

# History of Cattle

by Loren Henry

**H**AS YOUR little sister or brother ever asked where cows came from? A person would have a long detailed explanation of the actual origin of cattle. Naturalists say that our domesticated cattle of today are direct descendants of the wild cattle of Asia and Europe of prehistoric times, but the origin of these wild cattle is unknown. When and where cattle were first domesticated no one knows, but naturalists have found carvings on walls of the caves of prehistoric man that resemble present-day cattle.

## Multi-Purpose Cattle

Down through the ages cattle have been used for three purposes: first, as beasts of burden; second, for the milk they produce; and third, for their meat. Today we have a distinct type of cattle for each of these purposes, but in Biblical times and even today in many of the backward countries the same cow is used for all three. A farmer would milk the cow, then

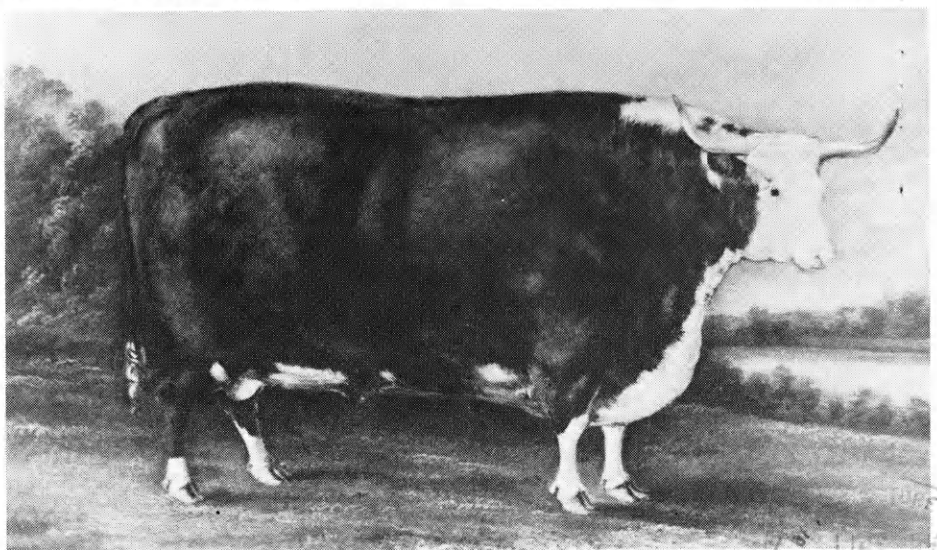
work her on a plow all day. She would be milked for about ten years and then butchered for meat.

The three important breeds of beef cattle, Shorthorn, Aberdeen Angus, and Hereford, were developed in the British Isles from domesticated cattle

by inbreeding, crossing, or mating close relatives to get the definite strain or type wanted by the breeder. All three of these breeds are adapted to this country due to the fact that strains were developed that could live

(Continued on page 21)

**Cattle in early England were fattened for five or six years to reach weights of 2,500 or more pounds. Modern demand for less fat and smaller cuts of beef has brought about the development of a smaller animal butchered younger and fed for a much shorter time.**



# TORNADO

Tornadoes frequent Kansas, since it is in the tornado belt. Reasonable tornado protection is possible even though they possess a terrific force.



**T**HE best protection from a tornado is a storm cellar located near enough to a home for easy access. If there is not time to reach a cellar or if one is not available, it is recommended that a person lie flat against the wall of a basement and in the southwest corner or take refuge on the lowest floor of a strong nearby structure.

# O E S

by Fred Clemence



**T**HE TORNADO is the most destructive of all storms. It consists of a funnel-shaped cloud with upward spiraling winds of terrific velocity. Although one of the least extensive, it is the most violent of all storms.

There is no place more favorable for tornado formation than the relatively flat region lying east of the Rocky mountains in the United States. Kansas and Iowa are the two leading tornado states in the United States. The reason for this is the warm moist air which moves north up the Mississippi valley from the Gulf and the cold dry air from the Rockies. When they meet over these plains states, a tornado results.

The dry air is usually above the warm moist air. An energy transformation through evaporation and condensation of moisture is the origin and maintenance of the whirl.

## Tornado Appearance

A tornado looks like the common whirlwind often seen in the summertime. It may appear any time or place. They are more numerous from March until September and usually

occur between 3 and 7 p.m. They usually move from the southwest to the northeast. The speed of a tornado averages from 25 to 40 miles an hour. Extremes of rate of travel have been recorded from 5 miles to 139 miles an hour. The wind velocity at the center of the storm may reach 500 miles an hour. The diameter of a tornado may range from a few feet to several miles. A peculiar characteristic of the tornado is its roaring noise.

## Destruction

Destructive effects of the tornado are terrifying. Strong buildings are torn apart and scattered about like kindling wood; large trees are uprooted and the bark stripped off; people and farm animals are whirled through the air and dashed to the earth; and bridges are wrenched from their foundations. The terrific force of the whirling winds is demonstrated by the shearing off of large tree limbs. Sometimes heavy objects are carried for miles.

Reduced air pressure within the funnel-shaped cloud of the tornado causes buildings literally to explode

when the storm passes overhead. The pressure on the inside pushes the sides out.

## Protection

How can you protect yourself in a tornado? The ideal protection is a storm cellar. If none is available, the basement of a frame house is safest. Crouch against the southwest wall. In a brick house, stay on the first floor and lie under the strongest table. When there isn't any shelter, run or ride at right angles to the storm. If you cannot flee, lie down on the ground or in a ditch away from wires and trees.

## Report Tornadoes

The United States weather bureau has set up a warning system for tornadoes. You should send in a report on any storm you see. These five items should be reported. 1. Give the type of the storm observed; 2. location of the storm; 3. time the storm is observed; 4. estimated speed and direction of the storm; 5. name and address of the observer. Report this information to your nearest weather bureau office.

# Facts

on

a

# FOWL

# SOCIETY

*Chickens establish  
a definite social order  
within the flock*

*by Joe Horton*

**E**VERYONE knows that humans have a social order, but the social order chickens have is news to many people. The social order of the chicken is important to the poultry raiser because it affects production factors. Chickens at the bottom of the order get less to eat and are less productive, both for meat or eggs.

The fighting ability of the bird establishes the chicken's rank in the social order of the flock, so it is termed the peck order.

### Individual Ranking

In an experiment at K-State, Dr. A. M. Guhl, professor of zoology, found that once the peck order is established in a flock, one fowl dominates all others. She can peck any other hen in the flock without being pecked in return.

The second hen in the social standing can peck all but the top hen, and other hens in all flocks rank in descending order. At the bottom of each order is a hapless hen that is pecked by all and will not peck back.

In establishing a peck order, cocks generally do not peck hens and hens do not peck cocks. It has been noted that peck orders are not formed until

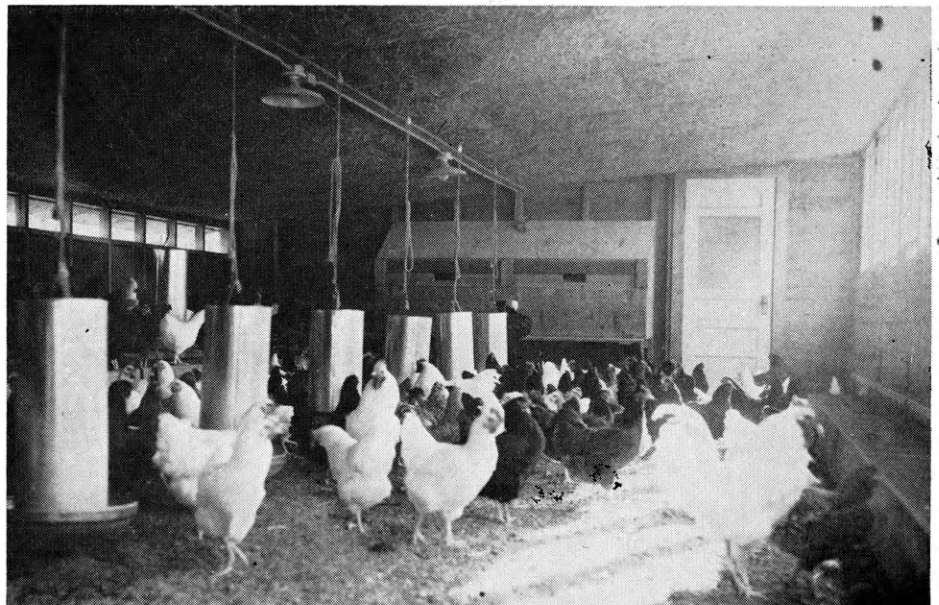
pullets are ten weeks of age. Cockerels form orders earlier than do pullets.

Chickens have short memories and if a pen of birds are separated for two weeks or more and then placed together again, they fight for social dominance. If a strange bird is placed

in a pen she must fight each bird to establish her place in the peck order. This results in the strange bird being lower in the social order as she becomes tired of fighting.

After the peck order has been established the fighting usually ceases

**Every flock of chickens has two distinct social orders, one among the roosters and one among the hens. The higher ranking chickens in the order may peck the lower ranking chickens without being pecked in return. They also get first choice of feed and water.**



with an occasional raising of the head or wings to keep the order established.

### Privileged Class

Birds at the top of the peck order get their choice of dusting areas, nest boxes, and the best roosting spot. The birds high in the peck order usually look and produce well. The privileged birds even bunch together and keep warm on the roost in cold weather.

The bottom birds in the peck order must eat the last of the feed, either in the morning or late at night. They roost by themselves, and some spend their time in secluded corners to keep out of other hens' way.

Experiments show that in pens of females or males the lower birds are treaded by higher ranking birds. This is not an indication of masculinity, as hens respond normally to the advances of a male in the flock.

### Mating Effected

Males at the top of the peck order have more success in mating. This is easily shown by letting males mate naturally, then using semen from the same males for artificial mating. When a natural mating takes place the top cockerel produces the most offspring, and in some cases the low cock in the order produces none. Use of artificial insemination produces about the same number of offspring per cockerel in the flock.

### Effects of Hormones

Experiments show that male hormones increase aggressiveness, so that hens given injections of the hormone fight their way up the social ladder. The female hormone tends to have the opposite effect, by making injected individuals more submissive. It is common knowledge that the capon is more docile than a cockerel. However, capons will and do form peck orders and may engage in some harmless fighting.

When grown birds that are unfamiliar to each other are put together, they engage in a series of single combats, each pairing off against one opponent at a time, thus establishing the peck order of the flock and each individual's ranking in it.

The Lord gave us two ends to use,  
One to think with, one to sit with;  
Success depends on which we use,  
Heads we win; tails we lose.

In the

# Aggies' World

## Miniwanca Scholarship

**O**PPORTUNITY is calling freshmen and juniors in some fields of agriculture and home economics. Each year two juniors and two freshmen from the two schools are selected by a faculty committee for scholarships sponsored by the Danforth Foundation. Selections are based on grades, activities, character, and personality.

Freshmen receive two-week scholarships to Camp Miniwanca, leadership training camp of the American Youth Foundation, near Shelby, Michigan.

Juniors receive four-week scholarships, two weeks at camp and two weeks at St. Louis.

Harold Garner, one of last year's winners, asks, "Wouldn't it broaden your horizons to travel across several states; meet and live with juniors from almost every state, Canada, and Hawaii; study the methods and principles of one of the largest agricultural businesses in America; visit one of the largest experimental farms in the country; see St. Louis and Chicago; then as a climax listen to great leaders, philosophers, and successful businessmen at Camp Miniwanca?"

Students interested in applying for one of these scholarships should apply at Dean Mullen's office. Scholarship winners will be chosen the first part of April.

## Farm Mechanics Contest

**W**INNER of the second annual farm mechanics contest, Saturday, February 23, was John Anderson, from Jamestown. Second-place honors went to Clinton Russell, from Clay Center. Anderson, winning a large wrench set valued at approximately \$20, scored a total of 674 of a possible 800 points. Russell won a 90-pound anvil with 646 points.

The contest, which had 59 contestants, is sponsored by the Agricultural Education club. It is divided into a senior and a junior division. The senior division is for boys who have had advanced courses in farm shop work.

The junior and senior divisions are divided into different phases of farm shop practices. Welding, tool conditioning, farm carpentry, and farm machinery make up the classes of competition.

Besides the wrench set and anvil given the first- and second-place winners, other tools adapted to the field of farm mechanics were given to high-placing contestants. Some of the prizes were a portable vise, tool box, soldering iron, 50-foot steel tapes, and several other prizes.

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Major soil-blowing damage is usually caused by lack of a cover crop; however, a cover crop with rows too far apart won't give

proper wind protection either. Rows planted east and west lessen effects of wind, and strip cropping will give added protection.

by Vernon Bartlett

# Soil Bank

vs.

# Soil Blowing

**A**GRONOMISTS report that there are 10,365,000 acres of land in the Great Plains that is in more danger from soil blowing this spring than ever before. The prolonged drouth, lack of stubble, and failure to get a stand of wheat last fall are all part of the picture.

A new farm program, the Soil

Bank, has been initiated at the same time. This could lead to the conclusion that part of the wind erosion danger exists because of the Soil Bank program. However, it is doubtful if wheat farmers would have seeded much more last fall had there been no Soil Bank. It was just too dry!

There are two kinds of programs,

the *acreage reserve* and the *conservation reserve*. Both are aimed directly at the accumulated surpluses of basic crops. The difference in these programs is that the acreage reserve contracts are for one year only, while the conservation reserve contracts are for 3, 5, or 10 years. Thus, the acreage reserve is largely for good cropland,



and the conservation reserve, a long-range program aimed at reducing the acreage of total cropland.

### Payment

Payments under these two plans may cushion farmers' incomes during these dry years and actually allow them to take better care of the land. Acreage reserve payments are based on normal yields on the land. The conservation reserve program will pay approximately 80 percent of the cost of establishing grass, planting trees, or seeding other soil-building crops, from government appropriations, plus an annual payment of about \$10 an acre.

### Participation

Participation in these programs is completely voluntary. In all cases, the farmer is dealing with his local county ASC office when he signs up to participate.

Approximately 40 percent of the allotment acres in Kansas are in acreage reserve agreements. Of all counties in Kansas, Wyandotte has the least in the acreage reserve, 0.1 percent. Wallace county has the most with 94.7 percent of the land in the acreage reserve. There appears to be a direct relationship between the amount of land of a county in the Soil Bank and the extent of the drouth in that area. For example, Comanche county had about one inch of rain in August and October, and has 62 percent in the Soil Bank, while Norton county had nearly four inches

of rain during this period and has only 10 percent of its wheat allotment in the program.

### Incentives

There are several incentives for action to prevent soil blowing. One of these is the acreage reserve program itself, providing a stable income to finance the operations. Another is a recent Farm Aid bill allowing 50 million dollars to be used in an emergency program for farmers and ranchers in the Great Plains area. Specifically it allows 15 million dollars for emergency tillage payments to stop wind erosion, 15 million dollars for the disaster loan revolving fund to provide emergency feed and seed, and 20 million dollars for farm ownership loans. Congress has also approved the setting aside of 25 to 30 million dollars annually for the payment of Soil Bank contracts.

Farmers are also subject to state laws concerning soil blowing. County officials may perform emergency tillage where farmers are negligent in controlling blowing soil. The farm operators are then charged for the tillage through the tax system. To avoid this, and to keep land in condition for future crops, most farmers will probably control soil blowing to the best of their ability regardless of the Soil Bank.

Freshman: "What is that crawling up the wall?"

Senior: "It's a ladybug."

Freshman: "Gosh! What eyesight."

**Grasses like this sand bluestem will offer good protection from Kansas wind, even to loose, sandy soils. Hay or seed can be harvested from well-established grass.**



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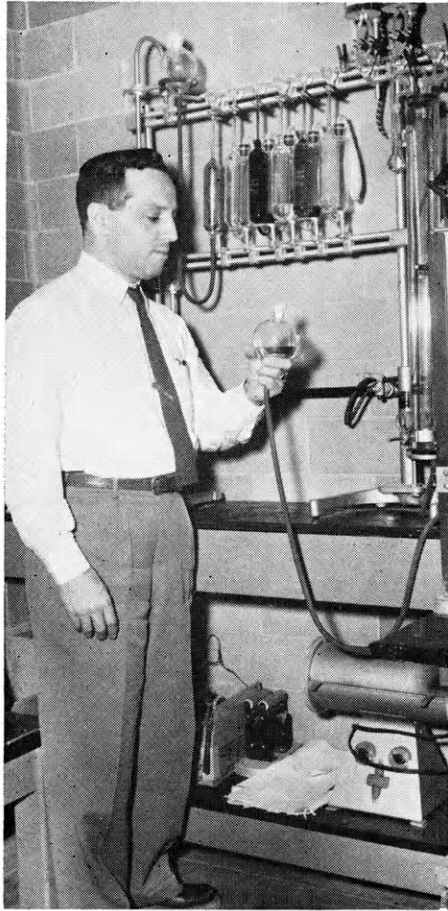
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# Methane Causes

## Cattle Bloat

By Paul Bocquin



Dr. Fina is adjusting equipment used for methane study as a cause of cattle bloat.

**T**HE EFFECTS of methane-producing bacteria in the rumina of cattle are being tested in experiments being run at K-State. These

are the bacteria that cause bloat in cattle by the formation of gases, Dr. Louis Fina, assistant professor of bacteriology, states.

Methane fermentation results in a loss of five to ten percent of the nutritive value of feeds. The gases produced are therefore undesirable, but if they could be saved and used for the maintenance, production, reproduction, and growth of an animal they would be quite useful. A practical use of methane fermentation is to reduce the organic content of domestic and industrial wastes in sewage plants.

The production of methane by bacteria is being studied in various ways. One is the use of pure chemicals such as fatty acids. Another is the use of radioactive carbon dioxide and other "hot" compounds to trace the order of events that occur in the formation of methane and other end products.

Dr. Fina said that various bacterial organisms are being studied in fermenters and in artificial rumina. These bacterial cultures are isolated and studied to determine their importance in the rumina.

The cultures of micro-organisms are mixtures of many types of bacteria and protozoa, but very little is known about their biochemical and physiological make-up.

In the past, radioactive carbon tracers have been used to follow the order of events that occur in the formation of methane and other products. Instruments used are similar in function to the Geiger counter.

It is hoped that this research will result in some commercial value to livestock producers, Dr. Fina said. This could result in learning how to produce feed mixtures less harmful so the livestock will be able to more efficiently consume forage crops.

## Opportunities in Agriculture

By Gary Yeakley

**C**ONSIDERABLE attention and publicity have been given to the so-called "coming tidal wave" of students to enroll in our colleges and universities. A recent survey by the Commission on Human Resources and Advanced Training shows just where these enrollees are coming from.

24% of skilled and unskilled workers' children  
48% of white collar workers' children

67% of professional workers' children

24% of farmers' children

Even more startling figures show the comparison of the number of agricultural students graduated.

15% of skilled and unskilled workers' children

27% of white collar workers' children

40% of professional workers' children

11% of farmers' children

Do these figures show that there is no demand for graduates from an agricultural school? Definitely not.

The drought and low farm prices are resulting in fewer farmers and the trend toward larger and fewer farms is resulting in fewer farms. A general misconception is that fewer ag graduates are therefore justified because fewer will be needed.

This is not true because ag gradu-

ates are not the same as farmers. Only a small percentage of the graduates of agriculture at K-State will be farmers.

Training programs at K-State include the fields of dairy manufacturing, milling technology, feed technology, ag education, ag journalism, technical agronomy, general agriculture, specialized horticulture, ag economics, landscape design, and technical ag economics.

Graduates from these departments are receiving jobs from large business firms paying good wages. The actual jobs these graduates are qualified for may be public relations work, radio, television, on publications, in research,

as technologists, for various sales positions, and for a variety of other occupations.

If the demand for agriculture graduates is there, why is the percentage of ag students not increasing? Possibly because this need is not known widely enough. Job opportunities are posted in all departments in the ag school by companies needing college ag graduates, and there usually aren't enough students graduated to fill the number of jobs offered as posted at K-State.

High school students do not get a chance to look at bulletin boards at K-State normally, yet few agriculture concerns take the trouble to reach prospects outside of college.

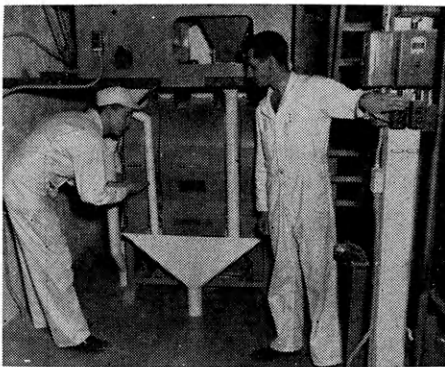
Engineering fields especially make known their need for engineers and technically trained men. These men are contacted in high school by advertisements in national magazines, and by personal contact by representatives.

Enrollment in engineering at K-State has increased 109 percent since 1952, while enrollment in agriculture has decreased 4½ percent, yet ag graduates are not less thoroughly trained in their fields.

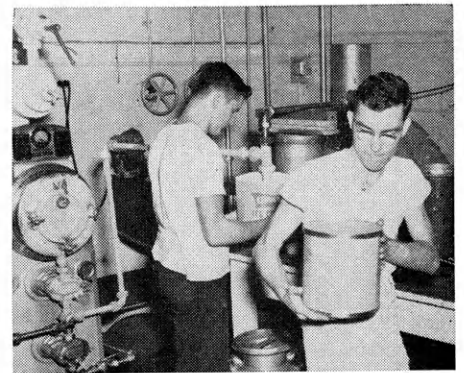
Lack of personal contacts with students before and after they enter college, lack of advertising job opportunities in high schools and in colleges through national and campus publications is letting other fields get ahead of agriculture in offering possibilities for occupation. The field of agriculture may offer equally good opportunities to a college graduate, but a prospective college student would hardly choose a field he does not know about.

The Ag Student will carry a series of articles in following issues bringing out job opportunities in the departments of agriculture.

## Milling Technology



## Dairy Manufacturing



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### Oats

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Kanota  
Mo. 0-205  
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### Sorghum-forage

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Axtell  
Early Sumac  
Ellis  
Kansas Orange

### Sorghum-grain

Coes  
Martin  
Midland  
Plainsman  
Reliance  
Westland

### Sorghum-hybrid

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RS 650

### Soybeans

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Wabash

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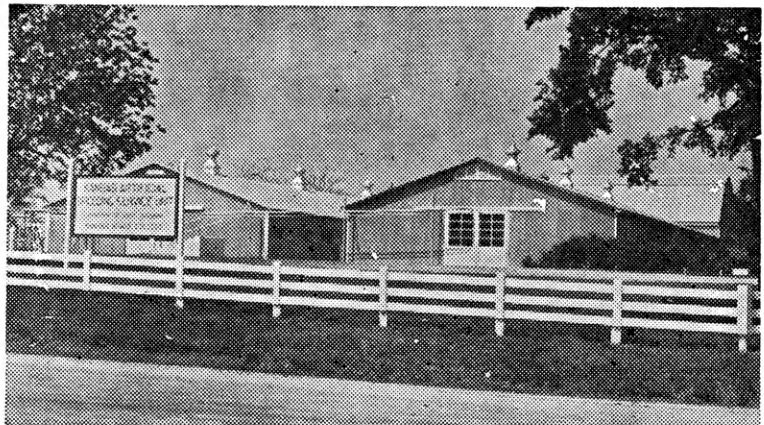
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# History of Cattle

(Continued from page 11)

under the climatic conditions of this country. Of course very strict selection was needed to get the traits and colors needed and wanted.

## American Cattle

An example of this selection was made on the King ranch in Texas, which is given credit for developing the Santa Gertrudis breed of cattle. This breed is a cross between the Shorthorn and Brahman of India. Selective breeding resulted in a strain of cattle that would follow the type of their parents very closely. There

was a definite purpose in developing this breed. There was a need for a breed that would withstand the drouth of Southern Texas and still produce a high-grade carcass, so the King ranch developed this breed.

Prior to the close of the eighteenth century, there was little exercise of care in the breeding of cattle, and feeding was an unknown art. As the people in England became more prosperous there was more demand for a higher quality of beef. Although some emphasis was put on quality, most of the attention was placed on the size and quantity of beef produced. It was a normal occurrence for a steer to reach 2,500 pounds and be six feet tall at the age of five years

when marketed by cattle ranchers.

These cattle fattened very slowly and were kept until they became as large as possible, developing a carcass that was patchy with fat and lacked the quality of meat we now enjoy. People demanded larger cuts of beef because they did more physical labor and had larger families, so they needed larger cuts than we need now.

The development of cattle has run alongside the demands of the consumer and the changes of the desire for a different type of meat. What is known as the old dual-purpose cow is gradually going out of existence because the type desired for meat isn't desirable for production of milk and vice versa.

## PLAN Ahead

for future

## FARMING Operations . . .

Perhaps you KNOW where you will be farming . . .

You may already KNOW what crops you will plant, what pasture you will need, what building improvements are needed or the amount of machinery that will be required for your future farming operations.

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