

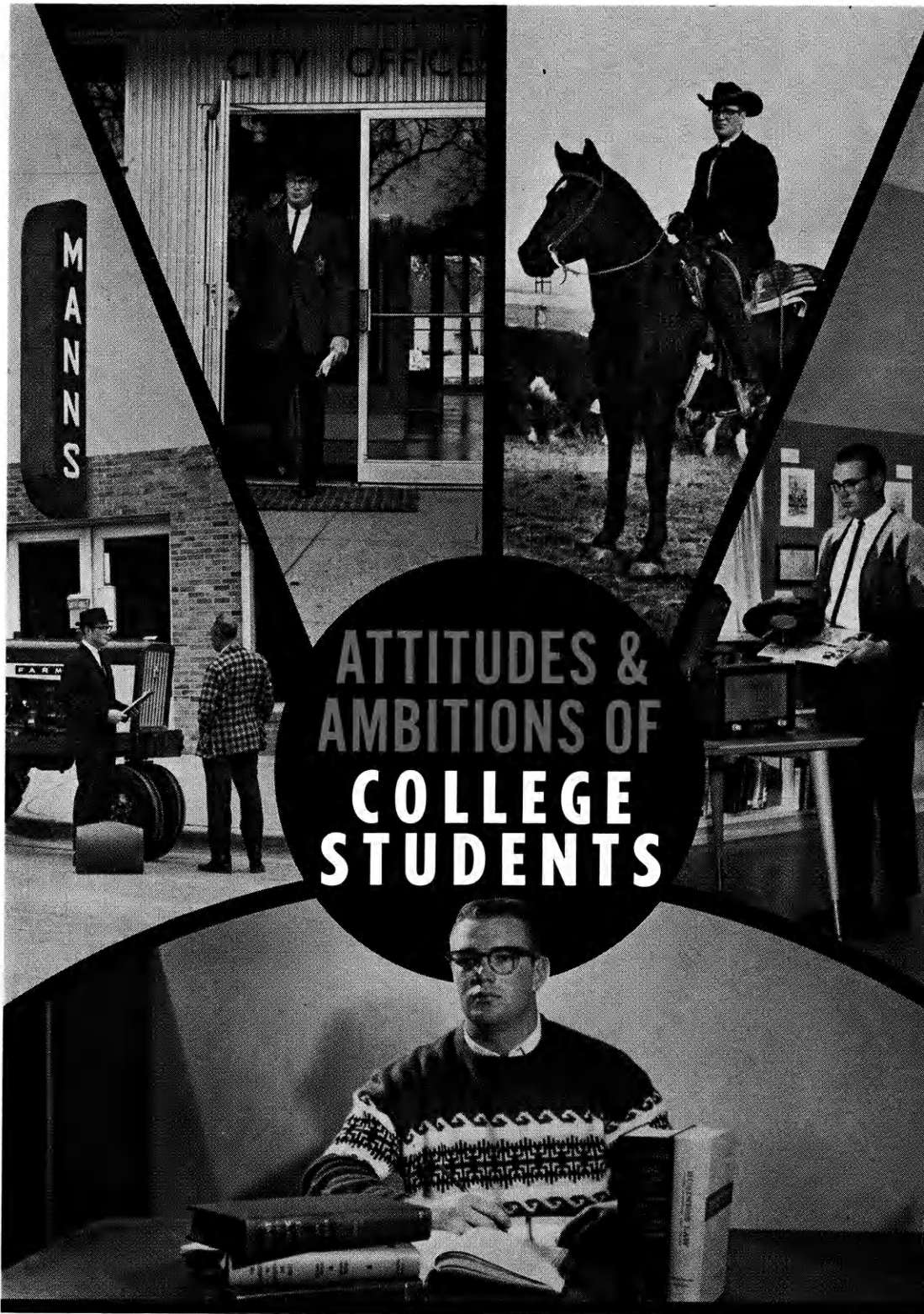
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# AG

KANSAS STATE UNIVERSITY

# AG

# STUDENT



NOVEMBER  
1967

No Dissent Among Aggie Students

... page 4

## High School Students:

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*Have your folks or teachers told you that college is as necessary now as high school was in 1930?*

*Then 51 percent of U.S. high-school-age youth were in high school. Today 53 percent of U.S. high school graduates go to college.*

# A KANSAS STATE UNIVERSITY AG STUDENT

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Our cover shows a few of the many opportunities available to today's ag school graduate. Most entering K-State students see agriculture as either crops or livestock farming. They see a college education as a way to learn how to make a living, not as a way to learn how to live. Today, agriculture is more than just farming—less than 10 percent of the K-State grads will farm. Most go into agri-business, international agriculture, graduate school or a host of other opportunities that they didn't know existed before coming to K-State. Our story on page four discusses the typical attitudes and ambitions of entering ag students and how they must change if they are to adapt to modern agriculture.

## Horses Go "Loco" in Kansas

By Linda Walden

Information gained from Dr. Wayne E. Baillie, D.V.M. in the Department of Pathology, Parasitology and Public Health, KSU.

**I**N MAY of 1966 seven young horses and 25 adult cattle were placed in four sections (square miles) of range land 12 miles southeast of Jetmore in Hodgeman County, Kansas. Forty-five days later the horses appeared abnormally thin and nervous. When approached by the owner, one animal jumped a creek, became stuck in the mud and was dead before it could be rescued.

A second horse was found dead after it had broken through several fences. Another animal died a few hours after a convulsive seizure, while a fourth was found dead in a silage pit. The three remaining horses were removed for observation and died within three months. Cattle on the same range showed no abnormal symptoms. A diagnosis of "locoism,"

locoweed poisoning, was made by the local veterinarian and later verified by the College of Veterinary Medicine at Kansas State University.

### Common in the West

Locoism is a disease of cattle, horses and sheep caused by excessive and continued consumption of certain toxic locoweed plants. The plant is green throughout the year and seems to tempt animals when other forage, or salt, is scarce. Horses seem to be the most prone to locoweed, while cattle have been known to starve rather than consume it. The plants, common throughout the West, at one time caused heavy losses in Colorado and Montana.

The seven horses that recently died from locoweed poisoning in Kansas were grazing on a range that had a satisfactory growth of desirable grasses. It is not certain why they chose to eat the locoweed plants, un-

less they were the greenest in May when the horses arrived on the range.

The disease is characterized by a slow staggering gait, a rough hair coat, vacant-appearing eyes, emaciation, muscular incoordination and extreme nervousness. Locoism is generally fatal unless the animal is removed before large quantities of the weeds are consumed.

Since the disease causes a degeneration of the nerve cells in the brain, locoed animals seldom fully recover from the damage done to their nervous systems. Although the disease is not a common one, a rancher should be careful not to put his livestock on a range where locoweed is present until the other forages show desirable growth and color. Salt should be supplied in the feed or in block form. These precautions should prevent a shortage of feed, and reduce the danger of locoweed consumption on a large scale.





Members of a tired freshman class waiting to be told what they should learn.

## Research at K-State

# Shows Aggies Too Malleable

By Bill Blauvelt

**I**DEALLY, college students are intellectually oriented students; assertive, responsible and inquisitive; self-directed; or, perhaps, students with that "lean and hungry-for-knowledge" look, but are they?

Some are. Colleges like Harvard, Carleton or Reed select only such students. Most students in Midwestern colleges aren't.

The land-grant concept of education holds that a college education should be available for all who can benefit from it. The K-State College of Agriculture recognizes that it is the duty of the college to develop a program and contacts with students which, in turn, help students develop desired characteristics. To do this the college must know the characteristics of entering students, and the effect of various kinds of college experiences on the students.

The College of Agriculture and the Counseling Center at K-State are attempting to find out what the typical ag student is like and what type of courses and curricula will have the greatest impact on him.

Counseling Center studies show the "typical" entering KSU student has these characteristics: (1) He places great emphasis on the practical—that which he sees as related to a future job or his everyday experiences. Hence, he is more interested in "what to do" and "when" than in the "why." (2) He lacks confidence in his own ideas, thoughts, values and evaluations. As a result, he is reluctant to participate in class beyond volunteering facts he is sure of, ideas he is certain the instructor wants, or ideas the instructor agrees with. (3) He has a high regard for authority and sees acquiring information as a way of becoming an authority.

Hence, Dr. David Danskin, head of the Counseling Center, says, "He'll want to be told what the answers are, what is 'right' and what is 'wrong,' and what to learn because he'll become an authority once he acquires the information."

### Education Offers Security

The parents of K-State ag students were in elementary school during the depression and "Dust Bowl" era. Danskin reports that a common reaction to such phe-

nomena is wanting to acquire security. Education is seen as a means to security—as acquiring tangible facts, skill and information that are not destroyed by economic conditions nor "blown away" by quirks of nature.

When a person has not experienced something, his ideas about it frequently are inaccurate. Since 65 percent of the ag students' mothers and 70 percent of their fathers have a high school education or less, their lack of college experience leaves them with some understandable misexpectations which they pass on to their children. They will think of college courses and college grades as similar to high school. College courses will teach how to do things (when to plant, or how to be an accountant). C's were bad in high school, so a "C" is bad in college. To get a better grade, you just work harder.

Farming and skilled and semiskilled jobs are concerned with getting something tangible accomplished, like tilling the soil or machining a part. Since 76 percent of the students' fathers and 85 percent of their mothers are in such work, the students feel that is what life and work are, Danskin points out.

The ag frosh is generally the oldest child. Research indicates the oldest child is usually the most conventional and dependent. He wants to know what is expected and wants encouragement.

### Feel Responsible to the Community

Most ag students come from small towns. They feel responsible not only to family but also to community expectations. Since the whole community expects him to be a success, the college student has less freedom to evaluate and experiment with alternatives. To do so might jeopardize his grades and the success others expect for him.

The way of life in a small town is quite predictable. The student knows who does what, what each thinks and what each will do. This may make it more difficult for him when he gets into a less predictable situation. He'll be less likely to take such risks as trying new ideas. Also, at home the number and variety of jobs were limited, which gave him narrower occupational

choices. Students from larger cities often are aware of more occupations.

Many students are motivated by expectations that college will give them something secure—some know-how, skills and facts to solve practical problems in some secure job. Further, they will want to be like the professor, as they see him—will want to have the facts, skills and information he possesses, which he'll never lose, and which make him a needed commodity. They will wait for the professor to tell them what skills and facts to acquire, how to acquire them and how to use them. Also, they will need the professor's encouragement and his interest in them as individuals.

### **K-State Has THE Reputation**

They come to K-State expecting college to be a continuation of their lives and what they've known, rather than an interruption to explore a different world or way of life. Students enrolled in agriculture at K-State tend to apply only to K-State rather than venturing to some out-of-state school or one that's different from their rural upbringing. K-State is the school with THE reputation in agriculture. They are influenced by their vocational agriculture teachers and parents. "And, besides, it's a friendly place, like the home town and high school, though it's bigger."

They see K-State and their parents similarly—as benign and powerful figures. By coming to college they feel they will acquire the facts, figures and knowledge possessed by those at K-State. As a result they will acquire greater self-esteem and personal power. Failure to graduate is seen as a very deflating experience, which damages one's personal worth and effectiveness.

Since such entering students want the whats, hows and whens rather than the how-comes or whys, they will react against or be neutral toward general education courses, unless the courses are related to jobs and job mobility. The importance of history and such courses is quite abstract. They will probably see such courses as something imposed for irrelevant reasons.

### **Have Academic Potential**

Compared with men in other K-State colleges, the ag frosh tends to be average or below on all four parts of the American College Test—a measure of knowledge and use of grammar and of high school algebra and geometry as well as ability to read and understand social science and natural science materials. On the average their intellectual abilities are equal to or slightly higher than those of students at fairly large state universities having a similar type of enrollment.

### **English and Reading Difficult**

At least 95 percent of the entering frosh have the academic potential to earn a C or higher. Academic difficulties stem from their typical below-average English knowledge and reading skill. The ag student's lack of superiority, on the average, in those areas results from the lack of his being important in his home, community, school, and the way of life of those he associated with during his first 17 or 18 years. On the other hand, Danskin says he tends to have more practical ambitions than students at select liberal arts colleges.

The ag student is energetic and motivated. He will work hardest in situations dealing with problems he sees as related to the job he came to prepare for. Once he feels he is getting practical and tangible knowledge, he then might be able to deal more comfortably with more abstract and basic knowledge.

Compared with men in other K-State colleges, the ag student is more reluctant to venture an opinion, express his ideas or feelings or draw attention to himself; is less sure of his ability to compete; and wants encouragement, understanding and to know that others are interested in him, though he is reluctant to solicit any of those things from anyone. He is less aggressive and venturesome in words and actions, less scientifically oriented, more of a problem-solver and doer than one to reflect on events and ideas. He prefers routine and sameness over change.

Students have various reactions to their professors.

### **Distrust Faculty**

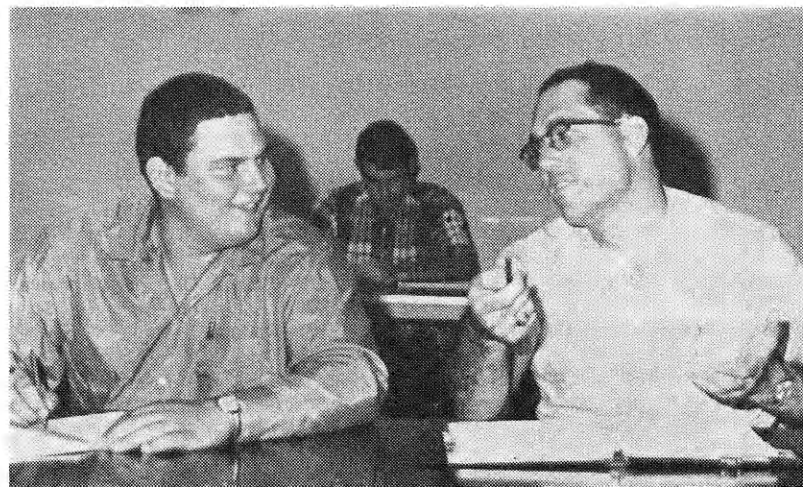
Danskin says students repeatedly express the desire for the faculty to be more human and let the students know them more candidly; but when the professor's human frailties, such as failure to recognize students in the corridor or call them by name in class, lack of omniscience in subject matter, and display of temper are encountered, the students express strong criticism. Some students say they share the responsibility with the instructor for attempting to make the class meaningful. However, they fear retribution if they confront an instructor with the report that his class is not meaningful.

Counseling Center research has found that many KSU students distrust the faculty. The distrust is associated with advice about the kind of examination that would be given, about what to study for the examination, and about curriculum planning. They feel some professors are trying to push them into undesirable courses and that other faculty are not well enough informed on graduation requirements. Students are usually afraid to express an opinion in opposition to the one held by their instructors, Danskin adds. Only a few students express a positive attitude toward the trustworthiness of the KSU faculty.

In general, KSU students feel they have entered a world dominated by a powerful system; that they are continually struggling to understand. They feel there is a source of information; and that if they could find

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By the time they are sophomores and juniors, they begin to question their profs.







Indian farmers inspecting a hybrid sorghum field near Hyderabad. The arrow indicates the author.

# India, U.S. Farming Compared

By V. Dhananjaya Rao

Editor's note: Mr. V. Dhananjaya Rao has a job in India like a county agent in Kansas. He is at Kansas State University this year studying for a master's degree.

I HOPE YOU understand it is a compliment that I think the farmers in India are like farmers in Kansas. From what I have read about farmers in the United States (U.S.) and observed working with farmers in India, most of their attitudes are quite the same rather than different.

India's village farmers of today are quick witted and quick to adopt improved practices—it seems to me—for the same reasons that farmers in Kansas adopt improved farming practices.

I am amazed that so much of what U.S. researchers have found about U.S. farmers is true also of farmers in Indian villages where I have worked.

May I review what U.S. researchers

have found about U.S. farmers in regard to what causes them to accept or to reject improved practices and then tell you how much of the same is true with the farmers in India.

## Crisis Speeds Acceptance

A crisis helps get improved practices accepted. Your U.S. drought of the 1930's hastened adoption of hybrid corn. It withstood drought better. We have no food surpluses, so a drought in India causes greater crises. Naturally farmers, both Kansas and India, are more willing to accept a new variety when an old one has failed.

The more education or knowledge U.S. farmers have, the more likely they are to accept improved practices. The same is true in the Indian villages where I work—76% of the farmers who adopted grape cultivation had formal schooling compared with 24% of those adopters who had only informal education. However, on accepting an improved variety of

potatoes, a traditional and status crop, educational levels seemingly had no influence. Apparently, tradition and status in India may complicate your generalization that education or knowledge speeds up acceptance of improved practices. With grapes that was true. With potatoes the opposite was true.

U.S. researchers have found that pleasant past experience hastens acceptance of improved practices. They think the opposite also is true, that unpleasant past experiences retard acceptance. Your hybrid corn hastened acceptance of hybrid sorghum (milo). In India, fertilizers on rice hastened acceptance by rice farmers of fertilizers for other crops. In India, farmers easiest to persuade to use fertilizers on new crops are those who had used fertilizers on rice. Acceptance of artificial or inorganic fertilizers in India appears to have been slowed down—not so much by the attitude of the farmers but by such fertilizers not being available.

Farmers want more than they can get.

In the U.S., and particularly in Kansas, the idea that hybrid sorghums were like hybrid corn caused farmers in the corn area to want more hybrid sorghum seed than was available, but your more developed agricultural business remedies such supply situations much more quickly than our less developed agricultural business firms (fertilizer manufacturers and the like) can.

In India, I am sure the acceptance of one improved practice leads to the acceptance of the other, as in the U.S. For example, improved seed leads to the use of fertilizer, which in turn leads to the adoption of pesticides.

### Few Accept Risks

In the U.S., farmers who are prepared to accept risk help improved practices spread. In India, there are a few who are willing to accept risks. The demand for hybrid seed came rapidly in a short-time period, and we were running into problems of supply. A few farmers came forward to produce hybrid seed and we undertook the project.

A few farmers of the Palmakole, Gaganpahad, Tondpally and Shiv-rampally areas were really innovators in the seed production business.

I think human beings of any particular age group all over the world are alike. It is much easier to get improved practices adopted with young farmers than the aged men. Many of them that came forward to produce hybrid sorghum seed were young men between the ages of 20 and 30. Your researches have also shown that young farmers accept change more readily than older farmers. However, one should not condemn the aged as laggards. Often experience and logic are on their side. Now some of your farmers are buying airplanes or helicopters to work crops. Such an investment is more logical for a man of 30 to 40 than for one past 55.

In a favorable season in India, practices are adopted faster. More people plant sorghum in the years of even distribution of rainfall than in years of uneven distribution.

### Demonstrations Important

Farmers in India with whom I have worked told me that they started

using fertilizers by attending a demonstration. The season following the demonstration they came to me for a fertilizer permit. When I inquired how they know of this, they told me that they too had attended the demonstration meeting.

Your county agents, I am told, for years have used demonstration plots for new varieties, new crops, fertilizers, pesticides, and chemical weed control.

Many Indian farmers have accepted the idea of green manuring after attending a green manuring field day.

There is a good demand for leaflets, booklets and such in the local languages of India. The literate farmers of my area read about the recommendations, for example the package of improved practices on hybrid sorghum, at first only on a small scale. When satisfied with the results, they adopt the practices on a larger area and ask for more literature. All of your studies that I have heard prove that U.S. farmers also first try a new practice on a small scale.

### Farmer Improves Plough

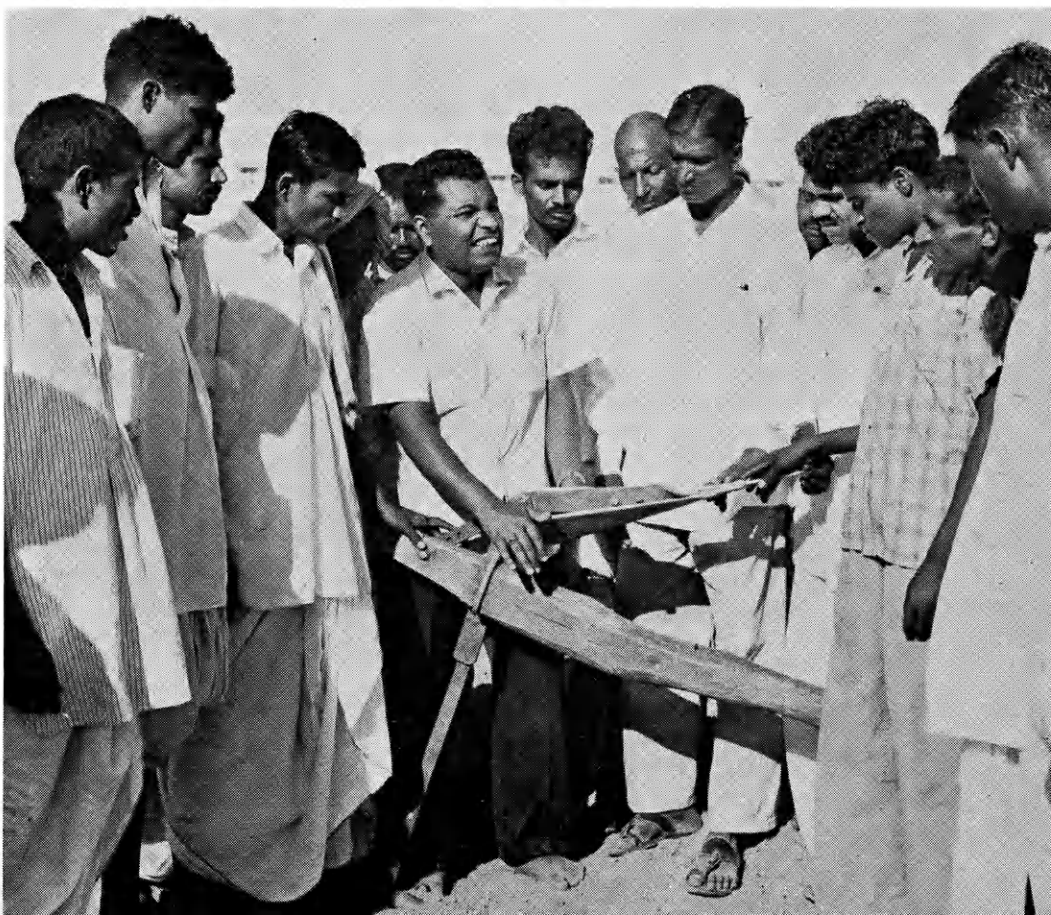
Need, utility and dissatisfaction with old practices, as in the United States, have also led a few farmers to think of trying new ideas in India.

Mr. Alluri Suryanarayana Raju is an intelligent farmer of Shamshabad village. He is moderately literate, probably with 5th or 6th grade education. He has started designing a plough, as he was dissatisfied with the wooden plough he was using. Wooden ploughs do not plough deep and they do not last for more than three or four seasons. He purchased a few iron ploughs which were readily available in the market. He soon found they were too heavy for his bullocks to pull. He then tried his own design and has been able to perfect two ploughs—one for wetlands and one for drylands. His plough now is accepted by most of the farmers in the surrounding villages, as the plough is not only light and can be pulled by the animals but is also cheap in comparison to the ploughs available in the market.

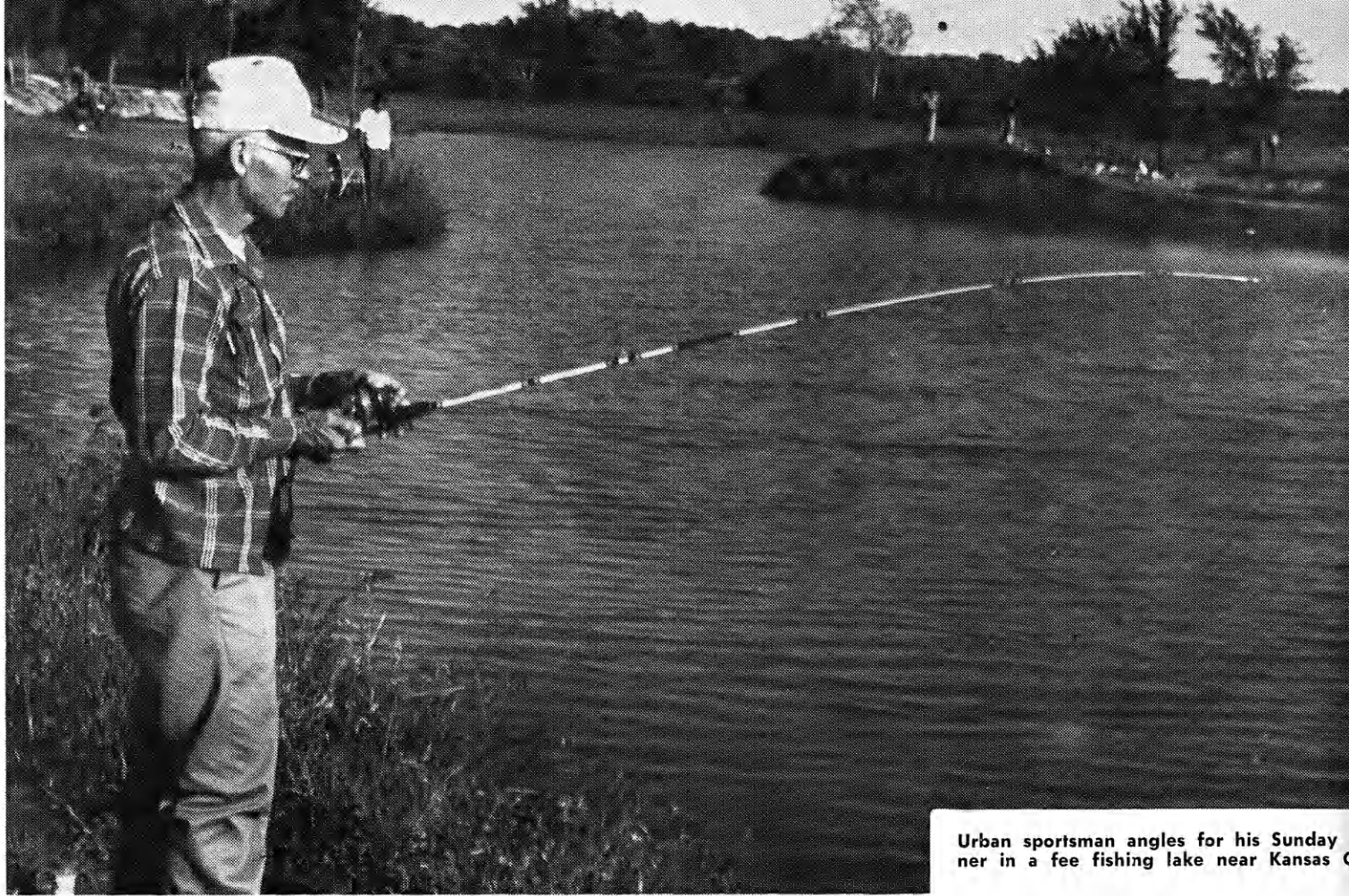
Encouraged by this, Mr. Raju has gone out for another implement. He now has made a weeder to be used with a single bullock. This is not only economical to manufacture but also saves engaging a lot of human labor and is more efficient, especially in grape gardens and vegetable plots. Raju also found a way of using the worn-out phaodas (spades) as digging forks. This adjustment is a good one because the intercultural

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A farmer designed plough light enough to be pulled by bullocks used in India.







Urban sportsman angles for his Sunday dinner in a fee fishing lake near Kansas City.

# Fishing, Fun and Farm Profits

By Donald Zimmerman

**S**TRAINING at the line, I waited patiently for the carp to make his run. Slowly the line inched forward, then with a reeling, jerking motion, I set the hook and the battle began. For five minutes, I played the fish before landing him—a 12-pound carp.

That afternoon, my brother, Dad and I caught nine carp in the 5- to 12-pound class from a fee fishing lake about a 20-minute drive west of Kansas City.

Near metropolitan areas, farmers can develop successful fee fishing lakes that offer urban sportsmen inexpensive angling. Some fishermen spend their entire vacations fishing fee lakes for carp, bullheads, bass, bluegill and channel catfish.

Fee lakes offer fishermen who have

neither the time nor money to make long trips an opportunity to catch fish from heavily stocked lakes.

Fishermen who travel to large lakes and recreational areas will spend \$50 to \$100 a weekend, while fishing a fee lake for a weekend may cost less than \$10.

## Use Marginal Lands

Most fee lakes have been constructed in deep valleys, draws or marginal lands. The drainage areas supplying the water are either heavily timbered or grasslands.

The lakes may be developed without interfering with other farming operations. Unproductive areas may return more dollars through a developed recreational area.

Twelve years ago Earl and Alice Haas built Holliday Lake, near Holliday, Kansas, 20 miles west of Kansas City, Kansas. Their spring-fed lake is heavily stocked with carp; bullheads; and burbot, a freshwater member of the cod family. Usually

fee lakes are stocked with one or two species.

Fish stocked in fee fishing lakes are better than average size. In a carp lake, fish weigh from 3 to more than 25 pounds. Bullheads usually weigh more than 12 ounces. Fishermen are disappointed if the lake contains small fish.

## Typical Construction

Holliday Lake, a typical fee fishing lake, has a high dam to prevent heavy overflows; a screened overflow tube five feet in diameter prevents fish losses and a valve at the bottom of the lake controls the water level when the lake is drained or repairs are made. As a safety precaution, the banks are sloped gently.

To fish the lake, sportsmen must purchase a permit that stipulates the number of poles and establishes the bag limit. Haas charges \$1.50 for each ticket, which entitles fishermen to use two poles and a bag limit of five pounds of bullheads or five



pounds of burbot or three pounds of channel catfish or four carp. If the fisherman exceeds the limit, the additional fish are purchased by the pound.

Periodic stocking is needed to maintain high fish populations throughout the year. When bullheads are biting heavily, in the spring and fall, the lake is stocked weekly.

The fish are shipped by truck from a Minnesota fish supplier to Holliday Lake. They are unloaded onto a stocking chute where they are weighed before being released. They are purchased by the ton. Haas would like to have a dependable supply closer to Kansas City, so producing fish for others to "retail" may provide supplemental income for some in the not too distant future.

Natural food production and competition among fish necessitate feeding during the winter.

### Opens in April

Opening the first weekend in April and closing the second weekend of November, Haas has built a steady business. On a summer weekend, over 200 people may fish Holliday Lake. Many of the fishermen are repeaters who return regularly.

A concession stand, adequate all-weather parking space, picnic tables and rest rooms are among the services provided at a fee lake.

To control access, the lake is entirely fenced, with the gate between the concession stand and the parking lot.

Items sold in the concession stand should include: bait, rods, landing nets, reels, hooks, sinkers, candy bars, cigarettes, pop, sandwiches and other ready-to-eat items.

### Offer Prizes

During the peak carp fishing season, June, July and August, many lakes offer a weekly prize for the largest fish taken.

In the summer months some fishermen arrive before sunrise, while others remain until after dark. To aid in closing the lake, a public address system allows the operator to make needed announcements.

Some lakes offer additional recreational facilities such as fee swimming pools. As leisure time increases, urban area farmers with proper planning can provide year-round recreation by utilizing their marginal lands.

## India, U.S. Farming Compared

(Continued from page 7)

operations can be done more efficiently without breaking the root system of the plants. These implements are also being accepted and Raju has a good sale.

I understand that your one-way plough, rod weeders and other implements also were designed by farmers who were dissatisfied with implements available in the market.

We have succeeded in getting the package of potato practices accepted and spread to more villages and more farmers. I remember when we started in 1962-63, there were just 40 cultivators in six villages, and in 1965-66, potato cultivation had spread to three more villages and the number of farmers increased to 95. Our surveys indicated that potato growing with most of these farmers was a heritage; also they were near the agricultural college and could get help regarding disease identification and control. This appears to be true in case of the farmers of the U.S. too. People nearer an educational institution appear to accept new practices in a shorter time.

### React Favorably to Praise

Ego of human beings, when tickled, appears to do a good job. A farmer smiled with satisfaction when the vice-chancellor of the Andhra Pradesh Agricultural University who, along with a number of farmers during a field trip, appreciated his efforts. Praise, elevated social status and respect from amongst his community help such individuals keep up the improved practices.

I would guess that praise also helps in your country.

Training programs do a fine job in getting improved practices adopted. We conduct one such for the sons of farmers from the surrounding villages. These future farmers get back to their villages and settle down on their farms, and oftener than not they accept new ideas in farming. They have changed elders of the family by demonstrating to the parents what an improved practice means and why it should be adopted. Is that not also true with some 4-H and FFA practices in this country?

Our experience with the introduction of hybrid jowar (sorghum) and bajra (pearl millet) is similar. A

training programme for the adult farmers for about three days prior to the season helped in convincing many to order and plant hybrid sorghum and hybrid bajra.

### Extension Has Positive Influence

Services, supplies and subsidies too have helped new ideas be accepted. I think this is true even amongst the U.S. farmers. Extension services have a positive effect in getting the improved ideas accepted. The situation in India is also similar. Extension personnel are followed well. Their services are sought. The other day I visited a village, Abilene in Dickinson County of the state of Kansas. I met a few farmers and asked them how they feel about the Extension services. This particular man was building a dairy shed and was installing equipment. It would have easily cost him \$6,000. He said, "I am able to do this because of Extension." In India in the villages where I work, the farmers complain that Extension has educated them about the why and how of fertilizers and introduced them to the package of improved practices but they need supplies. We could sell more fertilizers in 1965-66 than in any other year between 1962 and 1966, as more subsidized supplies could be had under the potato and vegetable expansion schemes by the government.

Price trends and guarantees, I think, will encourage and help farmers to adopt new practices and continue them. The package of practices on paddy (rice), potato and poultry or, for that matter, any other agricultural or dairying enterprises is helped by government policies. Paddy was more successful also because of procurement and higher price policy of the government. Attractive price shows up in improved practices being accepted. This is true in your country, as you get a premium for not growing a crop in order to keep up market prices.

### Credit Shortage Hinders Change

As in the U.S. we, too, have a few farmers who are enterprising. They like to utilize credit to improve their farming by accepting improved practices. The unfortunate part of this is that a few only are credit worthy.

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# Fungicides Make Cents

*With 20 to 1 odds, farmers can't afford to skip seed treatment on wheat*

**By John Gerstner**

**F**UNGICIDES on wheat makes cents—lots of them. Counted out, Claude King, extension plant pathologist at K-State, says you can get \$20 back for every \$1 spent on fungicide seed treatments.

That's better than betting on the Green Bay Packers. Yet in Kansas alone, only two thirds of the 12 million bushels planted in 1966 were treated.

The consequent loss in yields and profits is sizeable—and unnecessary. It's easy and inexpensive to treat the seed with fungicides. Most elevators are equipped to treat seed while it's being cleaned.

King figures it costs about 10 cents an acre to treat. The result: Better stands, improved quality of wheat at harvest, higher yields and more money in your pocket.

Fungicides aren't new; they've been around about as long as wheat. Treated seed looks like it has been smeared with paint (usually red), the color depending on the fungicide used.

Fungicides contain mercury which, upon application to the seed, volatilizes, sending fumes radiating from the seed. After planting, the mercurial fumes continue to radiate, killing fungi near the seed.

Primary targets for fungicides are helminthosporium, pythium and fusarium fungi which cause seed rot, seedling blights, and smuts.

## **Increases Yield**

Even with high-germination seed, increases of up to 20 percent in wheat stands have been recorded in K-State

**Dr. Earl Hansing, one of the nation's leading fungicide scientists, checks a new seed treatment for wheat.**





field research when seed was treated with the proper fungicide. Yields also go up.

In trials since 1962, K-State recorded yield increases up to 5 bushels per acre on wheat; you can expect at least a bushel increase, they say.

There's a wide range of commercial mercury fungicides to choose from. Most common are Panogen, Ceresan, Chipcote, Ortho LM Concentrate, and Memmi.

Due to recent Food and Drug Administration investigations of mercury fungicides, K-State is starting an intensive study of non-mercurial fungicides to replace the mercury chemicals. An example is Arasan.

The newest addition to the fungicide weaponry is Vitavax 75, discovered by K-State plant pathologist, Dr. Earl D. Hansing, one of the nation's leaders in fungicide research. Vitavax 75, experimentally released this year for seed production, controls loose smut of wheat and barley.

Loose smut is not controlled by the usual stinking smut fungicides and until Vitavax 75, the disease had to be controlled by treating the seed either by the hot water or anaerobic method. Both were impractical for farm use.

If seed can't be treated by an elevator, King recommends you treat the seed yourself in an auger-loader or a cement mixer. Treat no more seed than is needed, King advises, as leftover seed can't be fed to livestock or marketed.

If you run out of treated seed, it can be treated in the drill box with Ceresan M-DB or Panogen PX. Carefully follow the recommended application rates, King warns. A dose twice the recommended rate can injure the seed germination; an underdose may not give control.

### Work on Sorghum

Fungicides do the same job on grain sorghum but, fortunately, we can take them for granted because all hybrid seed comes treated. K-State research shows seed treatment on grain sorghum can increase stands as much as 443 percent and raise yields up to 55 bushels an acre.

Cleaning wheat seed is an important pre-plant step, too, King says. It rids the seed of shriveled and cracked kernels, weed seeds, and straw. In experiments conducted by the Kansas Agricultural Experiment

Station, 60-pound test-weight seed yielded five bushels more per acre than 53-pound seed.

Sounds simple, doesn't it? Just clean and treat with the proper fungicide. So why don't all farmers take the profitable advice?

"Treating wheat with a fungicide is many times just overlooked by the farmer," answers King. "The time to treat is just before planting and that's a very busy time for farmers. Many just don't bother," he says.

"You can't tell the difference between treated and untreated wheat just by looking in the field, either," King continues. "As a result, many farmers do not recognize that they are losing money by not treating seed.

Best proof of the effectiveness of widespread fungicide use is the almost complete eradication of bunt or

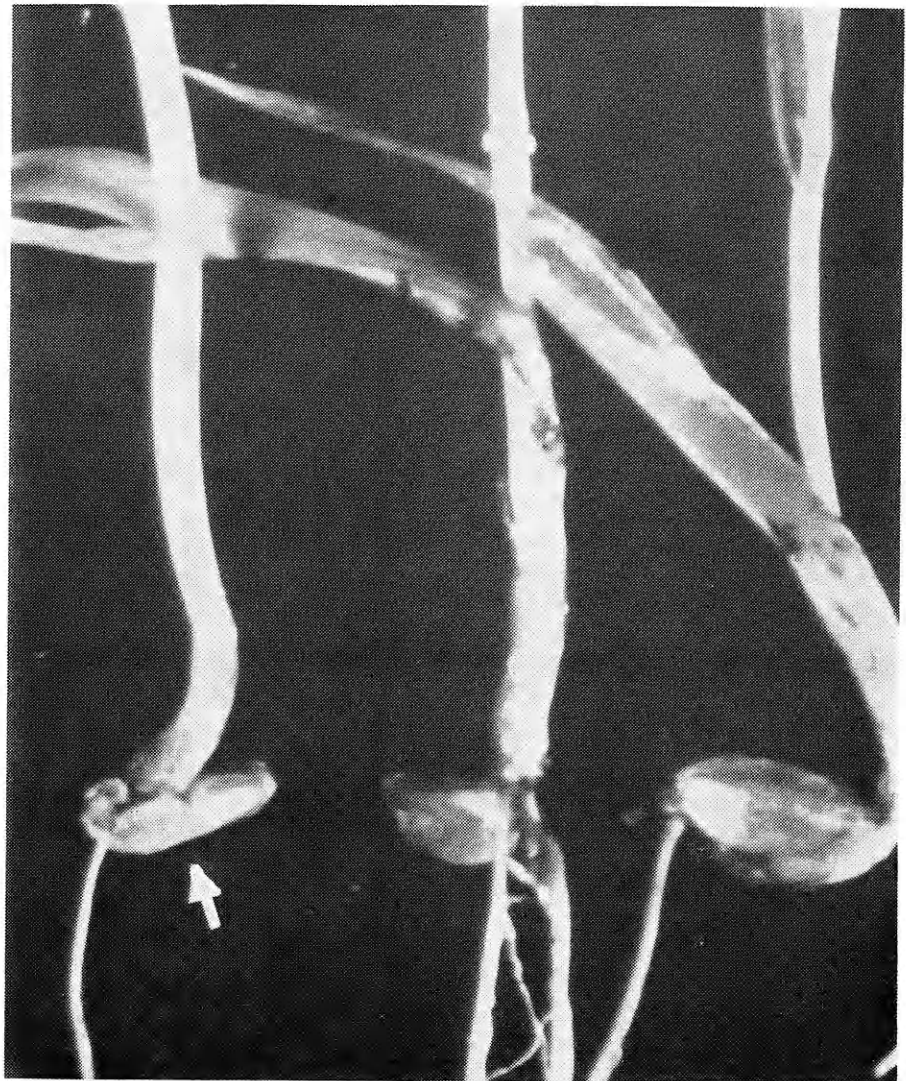
stinking smut. In 1926, 10 percent of Kansas wheat was damaged by bunt. Today the disease is limited to only a fraction of 1 percent.

Much credit for this success goes to Hansing. Since 1935, the graying scientist has meticulously checked new fungicide chemicals on wheat and sorghum.

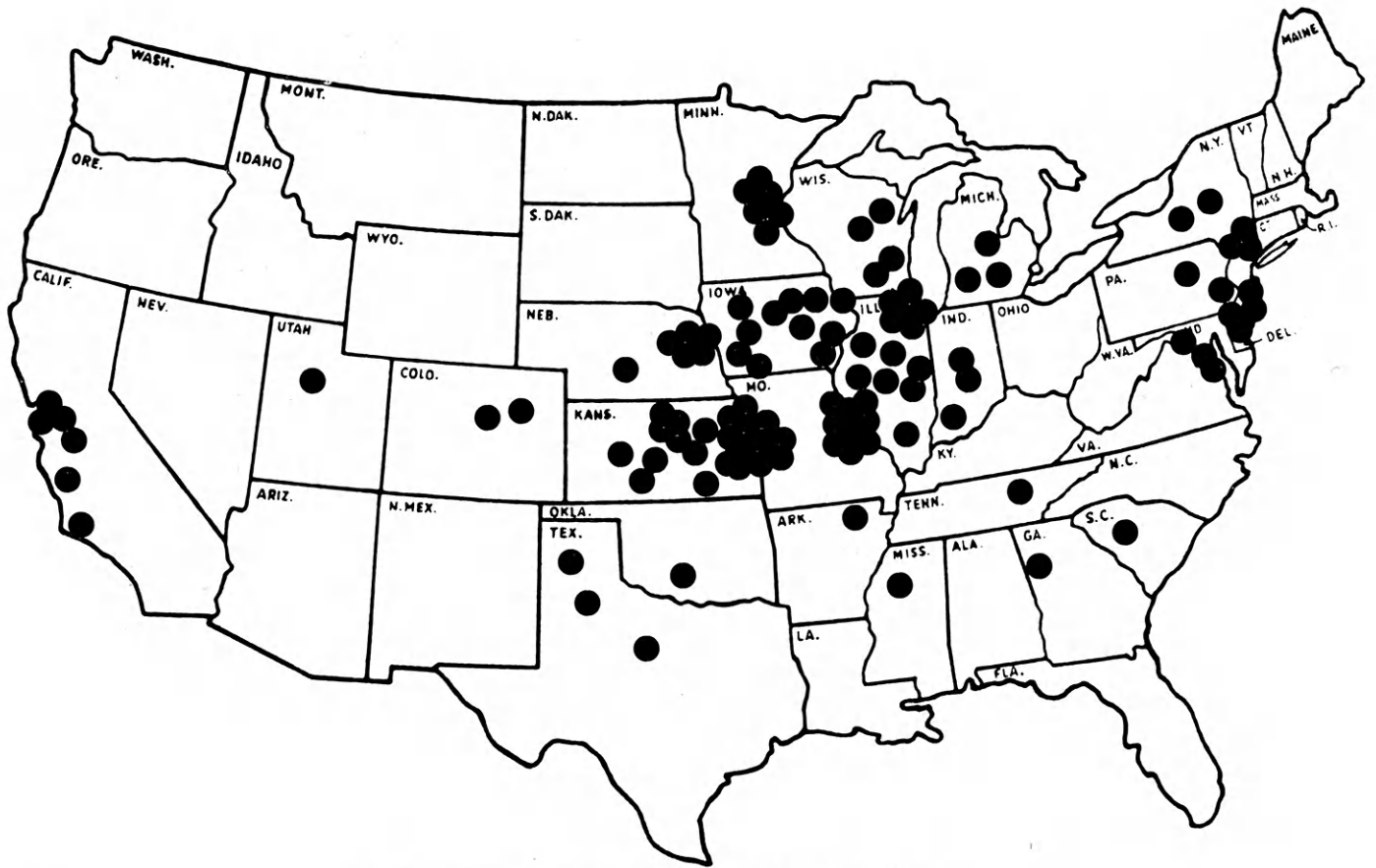
Hansing's job hasn't been automated. He must still treat the seed by weighing the fungicide in grams, mixing it in jars, and planting it by hand.

This year he has 155 different fungicide experiments to check fungicide brands, rates and fungi susceptibility of different wheat varieties. Each experiment is hand-planted in plots of 2,000 seeds.

It's a big job "but interesting and I enjoy it," Hansing says. Kansas wheat farmers are glad he does.



Treated seed (arrow) contrasts to untreated seed on right which is marred by seed rot fungi.



Headquarters of companies seeking K-State Ag College grads.

# Ag Grads' Future Optimistic

By Bob Stallbaumer Jr.

**A** FOOD processor, a chemical company, a large implement manufacturer and a feed manufacturing company all have one thing in common: each hired a 1967 K-State College of Agriculture graduate for a starting yearly salary of \$8,000 or more.

In 1964, K-State ag grads had an average of 1.7 job offers. In 1967, each ag grad averaged 2.05 job offers. In 1963, 675 students were enrolled in the KSU College of Agriculture. In 1967, more than 1,200, nearly double in four years, were enrolled. Average starting salaries for ag grads were \$480 per month in 1965, \$532 per month in 1966 and \$632.50 in 1967.

"Considering the large enrollment increase in the College of Agriculture," David Mugler, assistant to the dean of the College of Agriculture, said, "the number of job opportunities still going up is highly significant."

Mugler says four main reasons are behind the increase in demand for ag grads in recent years:

1. The increasing world population calls for more and more food production. Thus, more people will be required in agriculture to process food for the future.

2. More businesses and industries are becoming closely associated with agriculture, while others are expanding. For example, a large oil company recently needed four ag grads to manage agricultural chemical stores in the Midwest, one in Kansas.

3. A greater opportunity for graduates in international agriculture, as both government and private industry have expanded abroad. American industry is going overseas to improve and upgrade methods of producing, shipping and processing food and to widen the financial base of private industries.

4. Technological advances in agriculture have increased the need for ag graduates in Extension, in agricultural sales, services and manage-

ment areas, and in agricultural education.

"The College of Agriculture has not reached its capacity yet," Mugler said. "We have facilities to handle 1,500 students; in fact, we are challenged to provide enough graduates to fill the needs of companies wanting graduates with agricultural training."

K-State's assistant director of placement, Vernon Geissler, is very optimistic about job offers for graduates in all fields of agriculture. Competing for the '67 KSU ag grads were 185 companies.

"The gap between the supply and the demand for agriculture graduates is widening," Geissler said. "Though enrollment in agriculture is increasing, it is not increasing as fast as the demand."

Geissler says that agricultural firms seek K-State ag grads because the University's College of Agriculture has national and international reputations for a highly qualified faculty including 85 Ph.D.'s. If a student is going after training in agriculture, K-State certainly should be considered, he said.



### Prefer Midwestern Backgrounds

"Most larger agribusiness firms favor hiring students with a Midwestern background," Geissler explained. "In general, they are more work-oriented and more accustomed to responsibility. They have the idea that they owe an honest day's work for an honest day's pay."

The pay-off for investment in an agricultural education is higher now than ever before because off-farm agriculture has both expanded and become more complex. It is the complexity that creates a demand for a better educated and trained worker. New machines and new management procedures require trained personnel, Geissler said.

Employers like young men with agricultural backgrounds. Experience has taught them to value students who are accustomed to accepting responsibility.

Many K-State students were trained to accept responsibility by helping to make vital farm business decisions. They have had opportunities to develop leadership through such organizations as 4-H and FFA, Geissler adds.

Employers recognize that students of agriculture are work-oriented and perhaps more resourceful than young men who have not had an opportunity to work alone and to deal with crises like a machinery breakdown or livestock in trouble.

### Farm Background Best

A large feed company representative on campus to recruit prospective employees said his company looks for the student with agricultural training and a farm background because "we find young men with a farm background have an advantage over their city cousins. They are willing to work and they have developed a sense of responsibility necessary to fit into our organization."

Many companies like his already are hiring students with urban backgrounds because too few with rural backgrounds are being graduated.

Besides ability to work, recruiters of ag grads say they want students who have demonstrated leadership ability, perhaps through college campus activities. Also considered is the student's background, including summer employment, his home, family and community.

"We are after the men who know the difference between a disk and a harrow, or in other words, the fellows with a working practical knowledge of agriculture," said another recruiter representing a major farm implement manufacturer.

"We have a training program to orient our people with the management, sales, and other areas of our organization. Practical working knowledge must be developed before we can hire. From experience we have learned that the men with farm

backgrounds, the fellows born and raised on a farm, usually have such knowledge," he added.

### Predict Excellent Future

"The trend we are now enjoying will continue for years," Mugler said. "Opportunities and new challenges facing properly trained students in agriculture in the future are unlimited."

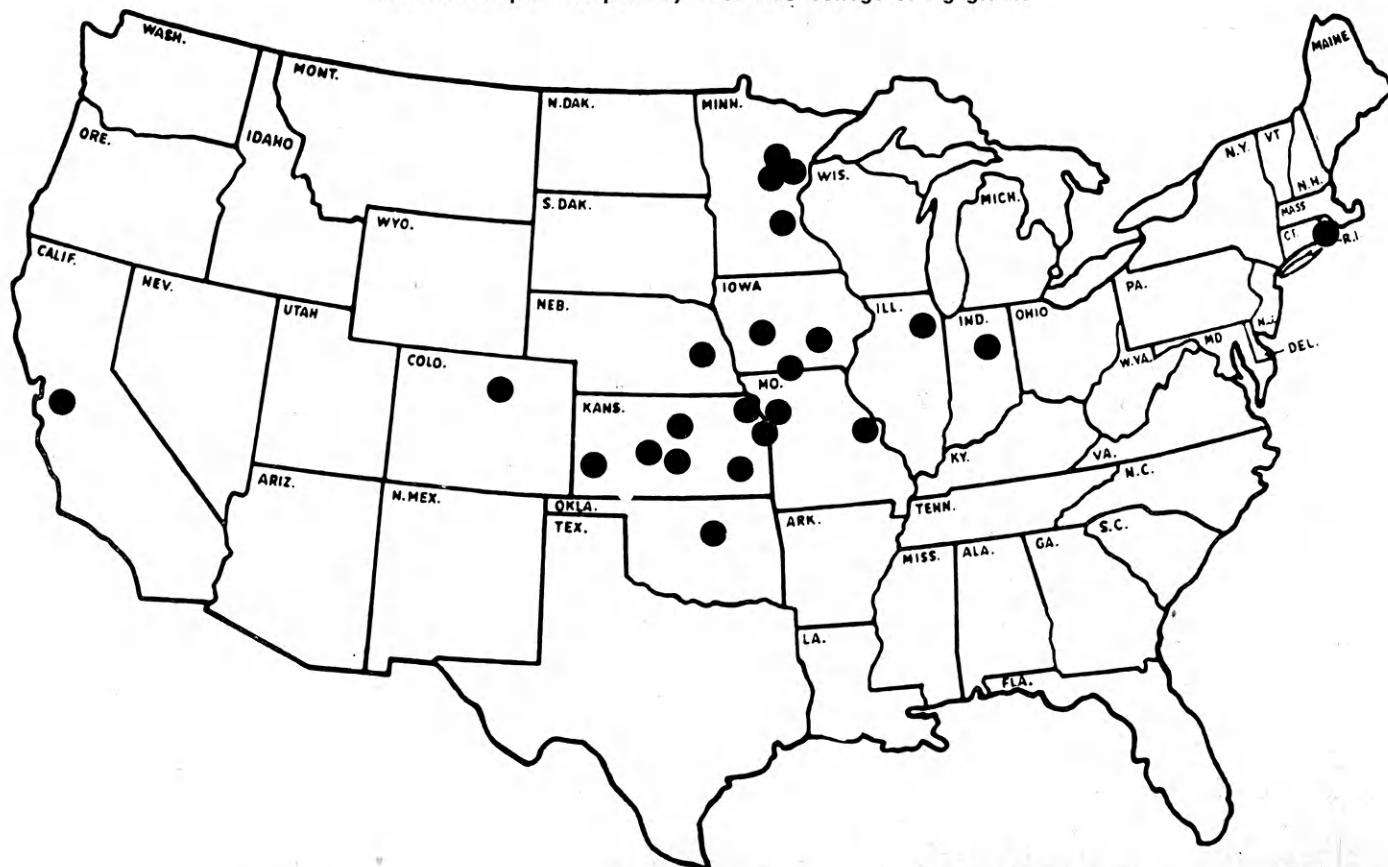
"However, the purpose of land-grant universities like K-State is not professional training alone," he said. "We also are interested in building and developing leadership, character and citizenship."

Twenty-five percent of the companies that use the K-State Placement Center are seeking ag grads, even though ag students comprise only 10 percent of the University enrollment.

What does all this mean to the typical high school student? It means that he should think twice before eliminating agriculture from a career choice. Agriculture is neither looked down on nor underpaid. It is gaining ground fast and moving up steadily. While farmers' numbers are declining steadily, the number of persons needed in the broad field of agriculture is increasing at an amazing rate.

It is those areas of agriculture where the openings today are more than twice the number of students trained for the openings.

Locations of jobs accepted by 1967 KSU College of Ag grads.



## India, U.S. Compared

(Continued from page 9)

Most do not own the lands they cultivate, and a few others might have mortgaged them for some unproductive purpose, as the marriage of a daughter. Some of our farmers of average means spend too much on such social occasions, and that sometimes causes indebtedness. But in your country such cases may be rare.

In India, bookkeeping or accounting practices with farmers, unless they are educated well, are difficult because most of them are illiterate. Such improved practices do not find favor in India. Here bookkeeping and improved practices seem to go together.

Factors of better profit and higher income seem to be positive in both the countries and hasten acceptance. For example, potato cultivation spread from six villages in 1962-63 to nine villages in 1965-66 and the number of farmers from 41 in 1962-63 to 95 in 1965-66, as it gives a higher income in the same period than any other crop. There is enough demand for the produce, as these villages are suburban and are in a radius of 10 to 15 miles of the state capital. This is also true in your country. Truck gardening thrives best in an urban radius.

So I think I am right when I feel that we are alike in many ways.

We have another thing in common that we may tend to forget. Both of us gained independence from Great Britain, you on July 4, 1776, and we on August 15, 1947.

**Village farmers in India reading a monthly newsletter issued by the Extension Education Department of the College of Agriculture in Rajendranagar, India.**



## Would You Believe

# Calves Drunk on Water?

By Jerry Engler

**W**ATER intoxication in cattle may cause anything from mild sickness to death. It is very rare but a farmer could induce it, especially in bucket-fed calves.

Dr. Russell Frey, instructor in physiology at K-State, said cattle will drink to the point of water intoxication only when they have been deprived of water. If a bucket-fed calf has never had water, other than that in his milk, the first time he has free access to it, he may drink until he is physically unable to drink more. The calf will usually drink excessively if water is offered in a nipple bucket as his milk was offered.

Although other animals, including man, can become water intoxicated, a calf is particularly predisposed to it because of the great capacity of its upper digestive tract compared with total body size. Frey said a calf can consume an amount of water equal to approximately 50 percent of its total body water in a short period of time.

### Affects Nervous System

He explained intoxication is caused by diluting the calf's body fluids to the point where the calf can't function normally. Hemoglobin may leave red blood cells, and be trans-

mitted through the urine. The central nervous system is affected as intoxication severity increases. The calf may have colic, diarrhea, muscular tremors, and become mildly hypersensitive. It is unsteady, lethargic, and extends its head and neck abnormally. Its jaws go slack, and there is excess saliva.

Death occurs only in the most severe cases. Frey said in violent convulsive cases, a calf may die from exhaustion.

Dr. Clyde Kirkbride, formerly an assistant professor of surgery and medicine at K-State, diagnosed water intoxication in bucket-fed calves on a dairy farm near Keats, Kansas, and wrote an article on it. Other veterinarians challenged his findings, so he and Frey conducted a series of experiments to produce water intoxication, and observe its effects. They bucket fed two calves.

### Older Cattle Susceptible

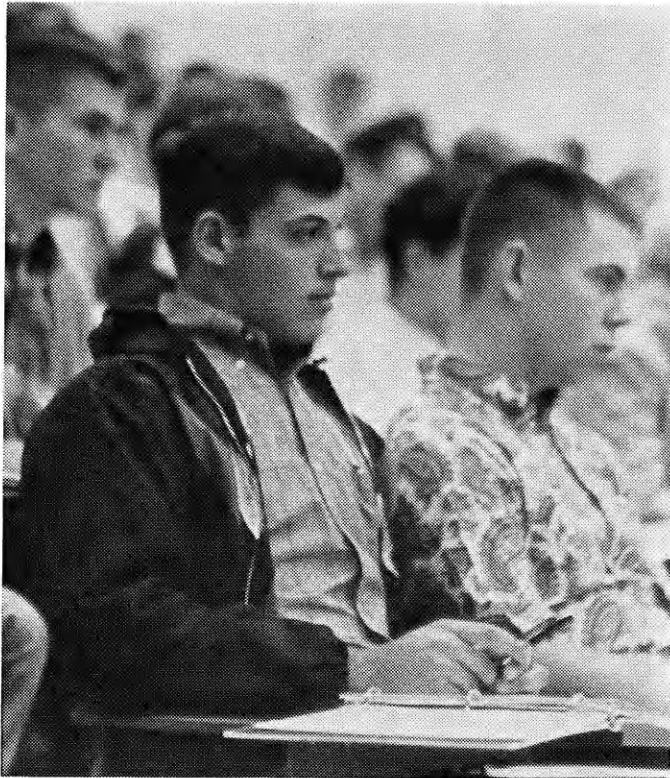
In five trials water was offered from a nipple bottle after milk replacer was fed, and in the last three trials it was offered in a bucket. Every time the calves consumed water voluntarily. Symptoms described were observed in the calves. One calf died after four trials and the second calf died of water intoxication on its eighth trial.

Frey said when calves have free access to water from the start, they normally will not drink excessively. Water intoxication is not found among cow-raised calves.

There are some cases of water intoxication in older cattle. Maybe a pasture gate has blown shut, denying access to water, and is not discovered for two or three days—or a windmill is not producing adequate water. Given a chance, the thirst-crazed cattle may drink to capacity.

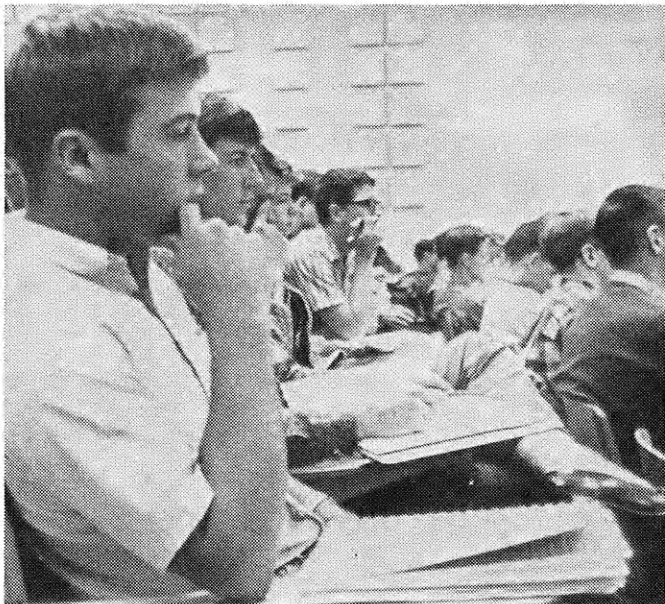
Frey recommended that water be given animals gradually in such cases. He said water intoxication normally will lead to nothing more than being off feed for a couple of days.





Freshmen perceive the faculty aligned with the system against them.

Are they learning principles that won't be obsolete in 10 years?



## Aggies Too Malleable

(Continued from page 5)

it, life would be easier and collegiate success more certain. They perceive the faculty as aligned with the system against them and they feel they are more fortunate than most if they receive individual attention from a faculty person whose competence and interest in them can be trusted.

Most graduates will be satisfied with their work. Their way of life seems to continue after graduation, with the majority of graduates in an agricultural or agriculturally related job. Courses they consider most important are those in their major, technical courses and English and speech courses.

### Need More than Whats and Whens

But Dr. Richard Owens, professor of education at K-State, emphasizes that the students need something more than the whats and whens. Owens predicts that the average student in high school today will need to change occupations four to seven times in his life, even if he doesn't want to change. Of today's engineering graduates, it has been predicted that 50 percent of their knowledge will be obsolete in ten years.

Owens questions the value of what is being taught in the classroom—"will it be outdated before the student gets a chance to use it?" The student needs an education that is adaptable. He must be ready to accept and expect change rather than to be thinking in terms of a narrow specialty. He must have more than the whats and whens he came to college seeking.

Owens says that if the student is to be prepared for his future, an entirely different level of education must be taught.

### Concepts Retained Better than Facts

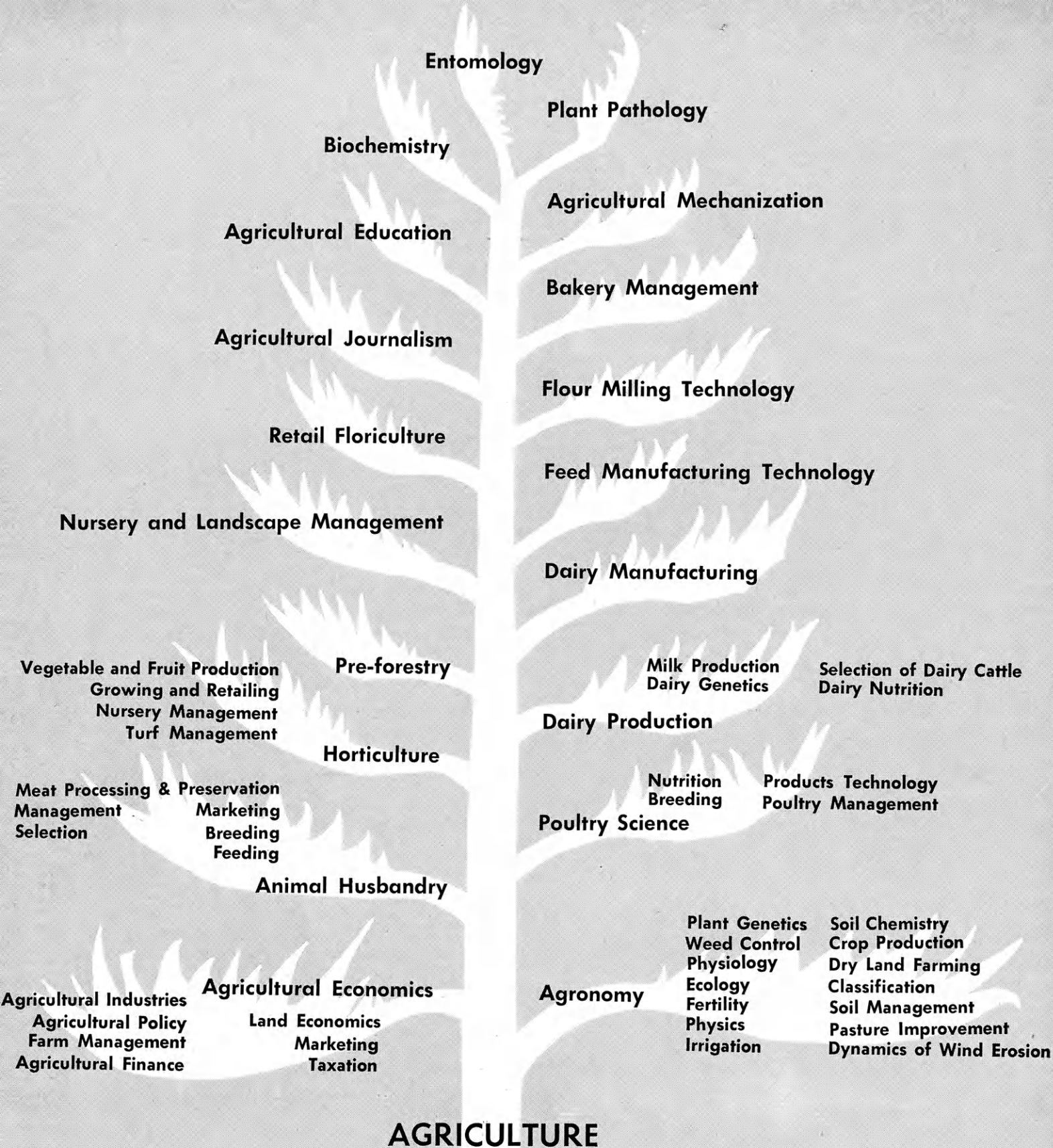
There is a great deal of difference in the retention of the different types of learning. "Concepts are definitely retained better than facts." Another important finding is that methods of problem solving where the concepts, principles, and facts are used are retained better than the concepts, principles, and facts themselves. A test of general material offered shows that 50 percent is lost in the first four months and 80-90 percent in the first 20 months. There is a gain, however, in interpretation of new experiments and a gain in application of principles to new situations.

But will the typical ag student accept this teaching that emphasizes the whys and how-comes? Danskin says he'll probably be more likely to "take to" less technical courses after he has acquired some practical knowledge of the sort he came to college to get in the first place.

Should a college arrange its curricula to give something tangible initially, thus enhancing the chances of a student feeling secure enough to explore and be a little venturesome?

Danskin says, "Stopping with skills and memorized knowledge is like preparing automatons for responsible, decision-making roles in a rapidly changing society."

Such studies of K-State ag students should improve both learning and teaching.



What does "Agriculture" mean? The above "tree of opportunities" shows major areas of study in agriculture at Kansas State University in Manhattan. Of course, it doesn't mean even a small fraction so much at any other college or university in Kansas. That's the reason students interested in agriculture should attend the one land-grant university of their state.