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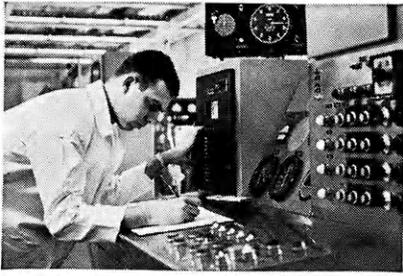
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AGRICULTURE



vol. 43:2



Shhh! **Enginuity at work!**

That's Bill Emrich immersed in his work behind that Lincoln engine. He's testing new oil additive formulations, designed to make new engines produce to their potential. Yet, whatever he develops has to meet the needs of older engine models, too. You might say it's a matter of *enginuity*.

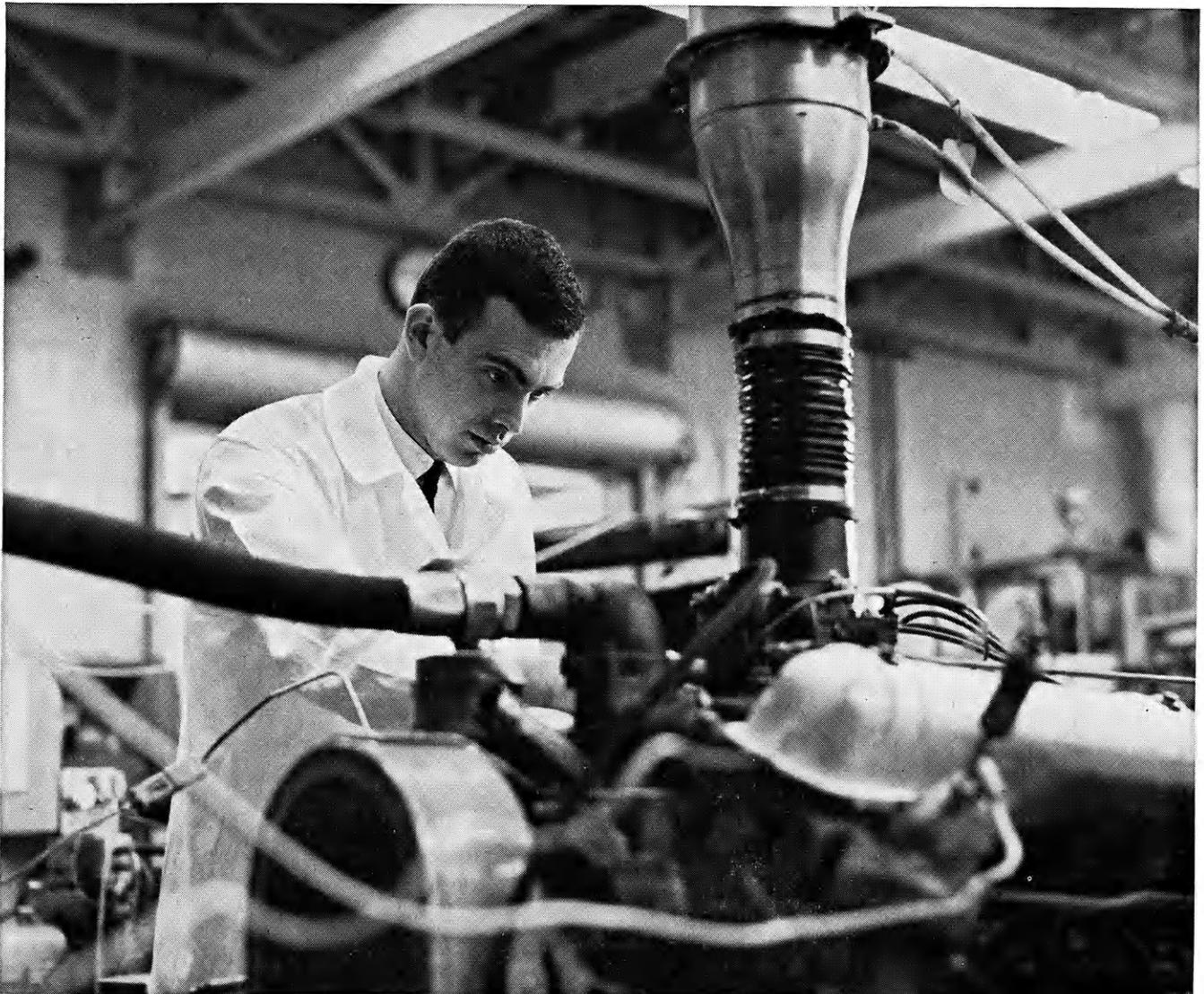
Bill uses several test engines: among these are a Labeco one-cylinder, a Caterpillar one-cylinder and special Lincoln and Oldsmobile engines. He tests oil additives and formulations for sludge, rust, wear and reaction to high-temperatures under severe operating conditions. His findings will help car owners to get greater mileage between oil changes, longer engine life. A most important project. Yet, Bill is only 24 years old. Just last year, he came to American Oil and is now working for Amoco

Chemicals, a sister company. Bill graduated from the University of Illinois with a B.S. degree in mechanical engineering.

The need for young professional people in positions of responsibility and creativity is great. Bill happens to be an automotive engineer, but he still might be working for us had he chosen a different field—mathematics, physics, chemistry. A variety of opportunities exist here at American Oil Company.

For information, write to J. H. Strange, American Oil Company, P.O. Box 431, Whiting, Indiana.

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KANSAS STATE UNIVERSITY AG STUDENT



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weather is disagreeable. Garrett says that so far as performance in a horse is concerned, the only difference between a good and a bad one is a lot of wet saddle blankets.

Horses get workouts according to their capabilities. He believes a man is better off to put a horse away that is working well, rather than work it until it balks or sours. Horses trained by Garrett are worked up gradually so they maintain their "temperance and disposition." This helps make them what Garrett calls "good honest using horses."

He Breaks Horses for Fun and Income

by Gary Terragt

ALTHOUGH tractors long ago replaced work horses and compact foreign motorcycles are making inroads on riding "work" horses, a few persons still are in demand to break horses. And not all such persons are located in the Kentucky bluegrass country. One is Elmer Garrett of Levant, in northwestern Kansas.

Interested in horses since childhood, Garrett has broken and trained many breeds and nearly all types of horses; but his primary interest is Quarter Horses, which he trains "to earn their way." He is more than a little disdainful of some present-day horsemen who pay fabulous prices for horses, report the costs for tax deductions, and put the horses in a pasture "to burn hay." Garrett believes in making horses "earn their salt."

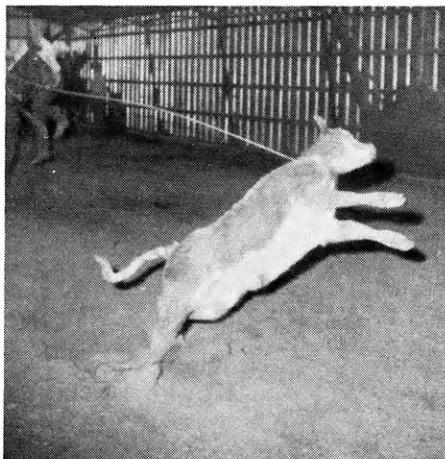
He believes that a horse should do a number of things well, not just one specific thing. His fourteen-year-old, registered gelding, Flash Fell, is an example. In addition to being a top roping horse, he was the top registered roping horse in Kansas in 1963 and is register of merit in reining. Last year he was the top reining, barrel-racing, and pole-bending horse in the Kansas Youth Activities Association.

Garrett believes that one can't start training a horse too young. He catches and handles foals when they

are only a few days old. He does that regularly until the foals are completely at ease when caught. They are also halter broken at an early age. When the horse is old enough to ride, a lot of the breaking and gentling already has been done. This is particularly advantageous so far as work is concerned. A young foal is much easier to handle than a two-year-old.

Garrett's 44- by 96-foot barn enables him to ride horses the year 'round. Stalls, feed mill, and tack room are located along one side. The rest of the barn is made into an arena. He works horses inside when the

The consistent hard stop, demonstrated here by "Ole Flash," has taken Garrett to pay windows of many rodeos. Action shown is in Garrett's barn (arena) where he works horses during winter months.



He now trains horses primarily for riding and arena events—for a minimum of \$75 a month, depending on type of training. The horses are ridden and handled daily.

Being a top roper and rodeo hand in his own right, Garrett excels in training roping horses. He insists that before a horse can be trained for roping, it must be thoroughly broken. He starts the horse by getting it accustomed to a rope. That is done by hours of hard work. A rope is swung on the horse and is thrown everywhere around and on the horse, to overcome rope fright, and to avoid some serious wrecks.

After the horse is accustomed to having a rope thrown from him, Garrett starts him to following cattle. Many dry runs are made in the pasture. Probably the hardest and most important thing that every top rope horse must be taught is the stop, Garrett says. He teaches horses to stop by cueing them; that's by touching them on the neck with his forearm as he dismounts. He also uses a small neck rope. The neck rope helps keep the horse facing the animal to be roped. Garrett doesn't use "gimmicks" on horses. But should a horse he is training fail to stop or get back on the rope, the horse usually doesn't forget a second time. Horses know who is boss from their earliest train-

(continued on page 8)

What Does "Agriculture" Mean—Too

An Animal Husbandry Major Gives His Side of an Argument With an Unidentified Professor

by Dean L. Davis

DON'T throw the dictionary out, but don't make any big bets that words have the same meaning in the dictionary and in the mind of the person you are talking with or writing to.

For example, if I tell someone I'm going to start practicing sesquipedalianism, he is likely to respond, "**Don't do it in my yard.**" His response, using so many short words, is a good one; but I still would not be positive that he doesn't want anyone using big words simply for the sake of using big words. He might just be against all "isms"; he might be thinking any one of several different things, or he might just be covering up that he's never heard of sesquipedalianism. If he knew me, he'd know that I can't use short words right, much less those a foot and a half long.

Let's take another example closer to home.

What does "agriculture" mean to you? Do you think it means the same to other people? One of my profs at KSU says the College of Agriculture's biggest handicap is its name: "agriculture." When he said that, I put him down as somewhat of a city slicker. Otherwise, I think he'd know that the biggest asset to the College of Agriculture is its name: "agriculture."

He says that agriculture as it's used in "College of Agriculture" means biochemistry, mathematics, entomology,

milling technology, baking technology, horticulture, agronomy, feed manufacturing, dairy manufacturing and some more.

I says (to myself instead of to him) that however or wherever you use "agriculture," it also means Herefords, Angus, Holsteins, wheat, corn, hay, clover, open spaces, Quarter Horses, rain, snow, wind and a lot more.

"Agriculture" is quite a common word to mean so much. Yet both of us missed its deeper or emotional meanings of awe, inspiration, freedom, nature, beauty, and a lot more.

Since I work at Weber Hall, I get to meet a lot of people from a lot of different places. I decided to ask them to tell me the first thing they thought of when they heard the word "agriculture."

I talked to a lot of people but I kept records on only 56. They were from 18 different towns and cities in four states—Kansas, Illinois, Wisconsin, and Missouri.

Twenty-three of the 56 said they thought of "farming" when they heard the word "agriculture." Thirteen thought of animals—in this order—horses, cows, livestock, dairy cows. The one who thought of dairy cows was Don Lawson of Racine, Wisconsin.

I suppose a fellow from Idaho would

Much? Too Little? Who Knows?

think of "sheep." And maybe one from California would say "orange groves." But back to the 56 who visited with me. Four of them thought of wheat; three of plowing; three of corn; two of food. One of those four "wheats" said it really made him think of the wheat bill which he called "compulsory cheating." (He was a fellow from Winfield, Kansas.) One said "work and plowing"; maybe I should have put him under "plowing" and had four instead of three there.

Nine of the people I talked to had definitions that no one else in the 56 used. Here is what "agriculture" made them think of: opportunities, dry weather, farm equipment, vegetables,

soil, boy on a farm, neighborliness, produce, and Grandpa's farm.

I think my little informal experiment proves that I came nearer knowing what agriculture means than that prof. No one mentioned biochemistry, mathematics, entomology, milling technology, baking technology, horticulture (Louis Chudei came pretty close to that one, when he said "vegetables"), agronomy, feed manufacturing, or dairy manufacturing.

Can you imagine a prof in the College of Agriculture at KSU, Kansas' only land-grant college, thinking that "agriculture" means all those things? For land's sake!!! I hope he reads this article.

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IN AGGIEVILLE



Beef Cattle Herds Spread Over Kansas

WILL a beef cowherd be profitable on my farm? This is a question asked today by many Kansas farmers. Beef cattle in Kansas have increased 6 percent over 1962, slightly more than the national average. A large percentage of the growth has been in areas outside of the so-called "cattle country."

The increase in the number of cowherds in Kansas can be attributed to the shift in consumer demand for lighter finished beef, which has made grazing long yearlings and two-year-old steers an obsolete practice. The Flint Hills of Kansas are noted for ability to fatten steers. Today, when you drive through the fabulous Flint Hills, it is not uncommon to see more cows and calves than yearling steers. Eliminating the big steers provided more carrying capacity for cows. In the western part of the state, farmers have switched to cowherds because wheat and grain sorghum, as cash crops, leave them needing other income-producing enterprises. The soil bank program, which paid farmers to reseed poor land to grass, also has helped to increase cowherds in western Kansas.

Today, with lower beef prices, the glamour of the cowherd is tarnished, as are other beef cattle systems.

Before starting a cowherd one must realize that running a beef

cowherd is a tough competitive business just like any type of farming or ranching. The experienced operators have found that they need top-notch management, dependable markets and a profitable-size operation to make money. Too many newcomers to the beef business think they can make a comfortable living from 40 to 50 cows.

Experts feel the most economical-size cowherd is 100, although many Midwest farmers make sizable profits on smaller herds. To realize a profit from a small operation the farmer must be a good manager. There are really only a few basic areas in which the individual cowman can effect profits. They are calving percentages, weaning weights, quality feed-cost control and timing of sales.

Before starting a cowherd the farming operation should be analyzed by a county agent. Each farm has land with different producing capacities, different management ability and capital available. All these, plus the operator's desires, have to be considered to judge potential profits from a cowherd versus other farming programs.

You can get started in the "cow business" several ways. Commonest practice is to buy yearling or bred two-year-old heifers and calve them out. Another way is to buy young

cows with calves by their sides, in a herd dispersion. It is better to purchase a complete herd than just a few cows at local sales, as the sales often are cull outlets. Buy the best quality cows or heifers you can afford, as it doesn't cost any more to "run" good cattle than poor ones.

The number purchased will depend on farm acreage, feed supply, capital and the price of cattle. A Kansas study showed that operators with an average of 24 cows used 14.24 hours of labor annually per cow. Herds that averaged 48 head required only 8.11 hours per cow. Labor costs are spread by increasing the number of cows per farm.

Profits from a beef herd depend on two main factors: 1. Producing beef at the lowest possible costs and 2. Selling the optimum beef per cow at the highest price.

The feed cost per cow should be kept as low as possible because it is the largest cost item. Pasture is the cheapest feed when overhead expenses such as land value, taxes and equipment are kept low.

Remember, what you have to sell is the percentage of calf crop times weight of calves sold. The percentage of calf crop and weight at weaning depend largely on management. Management practices needed include healthy cows at breeding time



that will settle with the fewest services, close attention at calving time, heavyweight calves, cows with good mothering ability, ample feed supply, and heavy-muscled sires.

The cowherd belongs in the West. No other cattle operation is better suited to make profitable use of the short-grass ranges. Cowherds usually produce low income for Midwest farmers unless good management practices are followed. Financial success is determined by day-to-day

management decisions. More people are starting cowherds each year in the Midwest and this probably will continue. The increase in cow numbers in the United States today likely contributed to the recent price drop in the fat cattle market.

Before you start a cowherd, contact an expert to analyze your farming operation to determine whether a cowherd would be profitable for your total program.

Breaks Horses for Fun

(continued from page 3)

ing, and it takes only a gentle hint to remind them.

After horses have started following, rating, and stopping, they are roped from regularly—in the open or in the arena. It has been said by some that a horse's value as a roper is 75 percent of his total value. How successful has Garrett been in training horses for roping? Last spring at a jack-pot roping with twenty some ropers competing, Garrett won a second in the average, and ropers riding his horses won first and a third.

Garrett seldom takes more than four or five horses at a time to train. That limited number lets him spend considerable time on each animal which, he says, is a must in horse breaking.

Major McKee, a registered gelding owned by Ike and Roy Donn of Colby, Kansas, was trained by Garrett. Major was the top all-around horse in the Kansas Quarter Horse Association the past season. Beating his nearest competitor by some fifty points, Major earned points in reining, western riding, western pleasure, and registered roping. This illustrates

again that Garrett can and does get the best from horses he trains. His love for horses has made him successful. Because of his success and his knowledge and understanding of horses, he likely will continue to train many outstanding individuals. It's more fun than golf and adds rather than subtracts funds.

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Retires After 43 Years In College Classrooms

There comes a time in life when all of us would like to take life easier by retiring. Retiring must be much more enjoyable following a life of service and countless contributions in a given field. Such is the case with Prof. W. H. Martin of the Department of Dairy Science at Kansas State University.

Professor Martin retired July 1 after teaching at K-State since 1925, except for one year he was on leave to do government work.

He received his B.S. degree in 1918 at Purdue University; his M.S. four years later from Pennsylvania State University.

During his 38 years of teaching at K-State, plus five years at Penn State, Professor Martin was elected to many state and national offices. From 1929 to 1943 he was the secretary of the Kansas Ice Cream Association, and secretary of the Kansas Butter Institute from 1940 to 1960. He was also head of the manufactured dairy products section, food price division, Office of Price Administration, in Washington, D.C., from 1943 to 1944. In 1950 he was president of the Kansas State Dairy Association.

One of his greatest contributions was coaching dairy products judging teams—at Pennsylvania State from 1920 to 1925 and at K-State on and off for 36 years.

Professor Martin was also instrumental in organizing the Kansas Dairy Technology Society in 1958. He helped organize and manage the Kansas four-day cream-buying program from 1950 to 1960, and also helped plan the buildings for the cooperative creameries of Sabetha and Everest, Kansas. He was the man behind the organization and beginning of the dairy products judging contests held annually at K-State for Future Farmers of America.

He has served as consultant for the Kansas Dairy Queen Company from 1944 to the present.

One of his most recent activities is now called Call Hall. He helped develop plans for the new Dairy and Poultry Science Building on the K-State campus.

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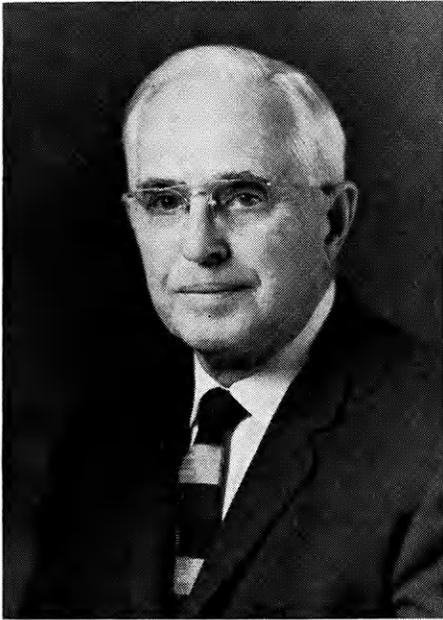
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Prof. W. H. Martin

Minimum Tillage to Cut Production Costs?

by Gary Kilgore

ities and contributions, he has also been the author or co-author of more than 100 scientific and popular publications relating to dairy products.

In reward for his services Martin has been honored many times. On his desk are two awards, one from the Kansas Dairy Institute and another from the Interbreed Council. He was also the guest of honor at the Little American Royal last spring.

Professor Martin annually spends a short month each summer in Colorado. He is also a golf enthusiast and spends many afternoons on the golf course.

"I'll probably play some golf and enjoy myself, I hope," was the way he viewed retiring.

When President James A. McCain presented him with a scroll for his long service, the president observed that Professor Martin should not be retiring.

"He seems too young and he can beat me at golf," the president said. So Martin likely will have fun. All who know him say he deserves to.

The dude and hillbilly were both rank privates and occupied adjoining bunks in the barracks. One day the dude inspected his toilet kit, glanced at his neighbor and demanded sharply: "Did you take my toothpaste?"

"No, I didn't take no toothpaste," came the answer. "I don't need no toothpaste. My teeth ain't loose."

MAN made a great step forward in tillage when animal power replaced the sharpened stick, and again when machines replaced animal power. With those changes, the number of acres that can be farmed by one person has increased tremendously. Still farming is a business that cannot tolerate methods that waste time. As a result, a general trend in methods of cultivation now is toward minimum tillage. To different people, minimum tillage means different things. There are different methods and modifications of minimum tillage.

Basically, minimum tillage in row crops involves plowing. Plow-plant involves planting the crop with the plowing operation. This works best on sandy to medium-textured soil in moderate rainfall areas. There is no tillage of the plowed furrow except

that performed by a press wheel or planter runner. Compaction of soil is eliminated and considerable labor is saved. The seed must be placed in contact with moist soil. Poor plowing or planting too deep may result in a poor stand. Fine-textured soils are often too "sticky" or plastic in the spring to plow-plant; thus, on fine-textured soils, where the ground is plowed before planting, wheel-track planting can be used.

The big advantage of wheel-track planting is not in higher yields but, in the time and production costs saved, with less compaction and less erosion. Tillage following the planting is reduced to a minimum to control weeds.

Various modifications of minimum tillage also eliminate plowing. Listing followed by reduced tillage is one such method. It is of particular value in drier climates and results in

Minimum tillage of sorghums has succeeded at the Fort Hays Branch Experiment Station where sorghums were planted in wheat stubble that had been sprayed to kill weeds ahead of the sorghum planting.



less lodging by wind. However, weed control and reduced seedling vigor are problems often encountered with listing. It can be combined with "trashy" farming to reduce run-off and erosion.

Till planting, another method of planting without plowing, has been experimented with by Kansas and Nebraska Experiment Stations. In one operation the ground was sub-tilled, a seedbed prepared and the crop was planted. A stubble mulch thus is left on the surface to protect the soil from raindrops, wind and evaporation. This also increases infiltration of water. Yields are comparable to conventional tillage but more is lost by lodging.

Primary advantage of minimum tillage is a savings in production costs and labor. Roswell Garst used minimum tillage on 125 acres of corn. Yield went as high as 137 bushels per acre. He used full season weed control action of atrazine at a cost of \$12 per acre.

Other advantages of minimum tillage include reduced erosion from better soil structure, higher organic matter content of soil and greater infiltration of surface water through the top soil. Soil compaction also is reduced because fewer trips are made with heavy machinery. Weeds are less of a problem between rows when soil is not compacted. Pre-emergent sprays or those applied shortly after crops emerge delay or prevent growth

of weeds in the row. However, agronomists say to analyze the limitations of minimum tillage before changing to it. Plowing prior to planting is necessary for consistent high yields. An excellent job of plowing is absolutely necessary. Cultivation may be hampered by the rough furrow slice because clods are rolled into the row and could damage plants.

Timeliness is important. Plowing and planting time is more critical, especially in finer textured soils. Planting can be no faster than plowing with the plow-plant system. That may limit the number of acres planted in a day.

Equipment must be adapted for minimum tillage. It sometimes is somewhat difficult to get an even planting depth and a good plant stand on freshly plowed ground. Sufficient pressure must be applied to the planter press wheels to give a firm seedbed and even planting depths.

Clay soils, which are responsible for most yield failures, are difficult to prepare as a seedbed in a once-over operation. Plant population seems to be the factor that determines success or failure of crops under minimum tillage. Thus, minimum tillage does not minimize the importance of good conditions for seed germination.

If a farmer can overcome those disadvantages, chances are minimum tillage will increase his profits.

Agronomy Students Hold a Monopoly

Three years ago a national extemporaneous speech contest was inaugurated by the American Society of Agronomy. The three national winners since then have been KSU agronomy students coached by Dr. H. S. Jacobs.

The three who have won the three national contests and \$100 each are Lawrence Schrader, Gary Kilgore, and John Schrader, the 1964 winner. John also was elected president of the Student Activities subdivision of the American Society this year.

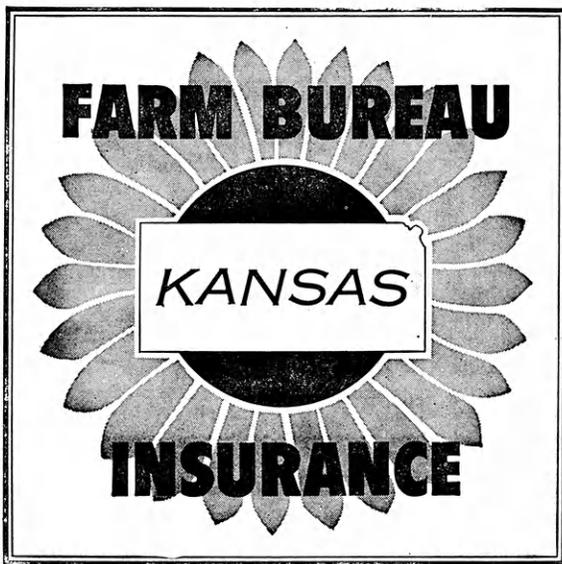
The Schrader brothers are from Lancaster; Kilgore's hometown is Mullinville.

Dr. Jacobs has been at KSU since earning a Ph.D. degree at Michigan State University in 1957. His B.S. and M.S. are from Idaho University.

A fellow who was doing the marketing for the household after paying for an order of calves' brains sarcastically asked the butcher: "Are you sure these are calves' brains?"

The butcher replied: "Of course, what kind of brains did you think they were?"

The customer came back: "At the price you're charging, I thought they were Einstein's."



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Dedicated May 2, Weber Hall (below) is one of the centers of learning at Kansas State University in Manhattan. It is named for a Kansas farm boy, Arthur D. Weber, graduate of the Atchison county high school at Effingham. His training at K-State helped his influence spread throughout the U.S. livestock industry, to India, South America and other countries. He and his classmates became leaders in Kansas agriculture and businesses related to agriculture.

From the agricultural halls at K-State will come tomorrow's leaders in agriculture and businesses related to agriculture.

These young men will be machinery dealers, formula feed dealers, managers of dairy manufacturing plants and bakeries, agricultural representatives of banks, specialists in foreign agricultural positions, teachers, researchers, scientists, extension agents, soil conservation men, feed dealers, seed dealers, fertilizer dealers, farmers, ranchers, livestock commission men, vocational agriculture teachers, and junior executives and administrators.

The U.S. Census Bureau figures show that a college graduate earns considerably more than \$100,000 more in a lifetime than a high school graduate, but the extra income is not the most important reason to go to college.

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