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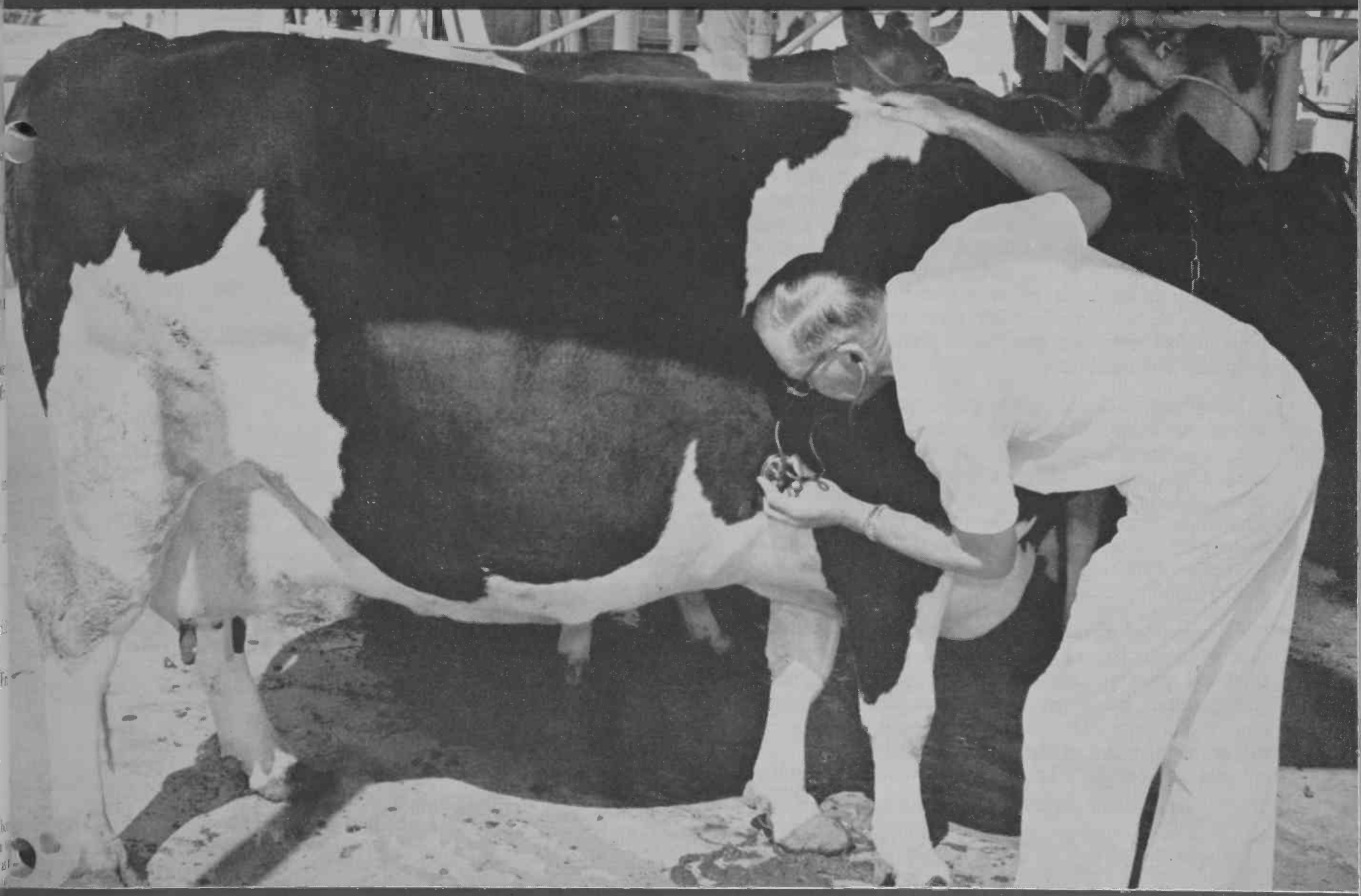


THE ANIMAL DOCTORS

See Pages 10 and 11

NO LILIES OF THE FIELD

The animal scientist drove in the early morning from Tucson to Yuma, worked test cattle in the corrals, collecting blood, feces and liver samples and checking ear tag numbers, then drove back to Tucson in the evening.

At 7 the next morning, anxious to get his samples to the Campbell Avenue laboratory for processing, he stopped at a gas station to fill his thirsty pickup. The man at the pump, making conversation, said, "Well, now it's summer I suppose you folks are having a nice long vacation. Going up north fishing or taking off to Seattle for that fair?"

It is a tribute to the good nature of the animal scientist that he only smiled, merely offered that "In the College of Agriculture we're on a full year job. The only difference in the summer is that most of the students are gone so we can work full time on research."

Actually, most College of Agriculture scientists work fully as many hours—and often at more arduous work — in the summer as any other time of the year. They are employed on a 12 month basis, for the simple reason that soil and crops and animals involved in research also operate on a 12 month basis.

In northern counties of Arizona, in fact, summer is the prime time for doing research on field crops — and you'll see University of Arizona research scientists up there right now checking their test plots of forage grasses, corn, small grains, potatoes, and other crops.

Elsewhere in the state, summer brings special conditions of research interest — concerning weeds, insects, plant diseases, heat stress to crops and livestock, water utilization, fertilizer use. Even on Sundays, in laboratories at Tucson and at the various branch stations, men are working on projects and tests which require constant attention.

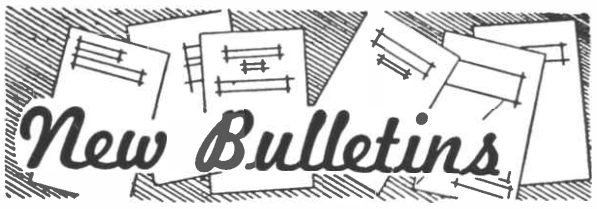
In municipal government it is a truism that everyone has recognized hours and the usual quota of vacations — except that firemen and policemen must constantly man their posts. The same, to a great extent, may be said of the dedicated agricultural scientists in a Land-Grant university.

Harold E. Myers

Dean
College of Agriculture
and
School of Home Economics

Our Cover Picture

This issue of Progressive Agriculture in Arizona has a two-page spread of pictures showing work of the Department of Animal Pathology (Pages 10 and 11). The cover picture for this issue, directing attention to that department, shows Dr. R. E. Watts, an animal pathologist, examining a Holstein dairy cow at the UA Dairy Research Center. Besides its own teaching and research work, the Animal Pathology Department has responsibility for health of the herds and flocks belonging to the university.



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PROGRESSIVE AGRICULTURE IN ARIZONA

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July-August 1962

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The European Common Market and Its Implications for Agriculture

Elmer L. Menzie

Certain events taking place in Europe are of importance to the United States and of considerable interest to agriculture. These events, involving formation of a new economic community in Europe, will help determine the terms of future United States trade with that part of the world.

In 1960, Western Europe purchased nearly one-third of all United States exports, including two billion dollars worth of agricultural products. Nearly 25 percent of all United States agricultural exports went to the six countries of the new Common Market or European Economic Community.

It Affects Arizona

Among the commodities these countries received were substantial amounts of cotton, feed grains, animal products, fruits and vegetables, all of which are of importance to Arizona agriculture. In 1960 Arizona shipped out of the state about 3.5 million boxes of citrus fruits, 50,000 cars of vegetables, over 620,000 head of beef cattle, 190,000 sheep, and 835,000 bales of cotton.

The European Common Market was ratified in 1957 by France, West Germany, Italy, The Netherlands, Belgium and Luxembourg. It marks a turning point in both economic and political policy for an area with a population almost as large as the United States. Furthermore, the area probably will expand to encompass most of the remainder of Western Europe. Greece is already an associate member, and Spain has applied for similar status.

The United Kingdom is currently negotiating with the group to become a member. If the United Kingdom joins there is reason to believe that Norway, Sweden, Denmark, and Austria may also join. These countries combined have much greater population than the United States. While their gross national product is currently less than 60 percent of the United States, it is growing at a faster rate.

The Common Market countries have both political and economic unity as a goal. Ultimately, the intent is to have a United States of Europe with common policies for development and trade, including agriculture. Considerable progress has been made toward removal of internal barriers and the establishment of a common external barrier to trade in industrial goods. Early this year a further major breakthrough was made in the final ratification of an agreement to proceed with a common agricultural policy.

Dr. Menzie is an assistant professor of Agricultural Economics.

Similar to U.S. Farm Policy

This agricultural policy contains many provisions seemingly patterned after the United States system. Ultimately the member countries will be treated as one domestic market. Market prices in any given year will be stabilized and supported at some pre-announced level to safeguard the interests of producers, traders, processors and consumers.

In order to stabilize wheat and feed grain prices the intent is to establish a European Grain Office with powers to buy and sell. All duties and quotas will be eliminated in favor of a variable levy. If import prices fall below the prices set in domestic markets, a levy will be applied to bring the import price to the level of the domestic price. If import prices are above domestic prices, however, they will be reduced by subsidies to users. The levies will be used to help finance the program and to subsidize exports where this is deemed advisable. In the case of both imports and exports, a licensing system will be used as a further means of control.

It Deeply Affects Us

Such plans are of major concern to United States agriculture. To the extent that internal trade restrictions are eliminated, trade will be facilitated between Common Market countries, but to the extent that external tariffs are raised for individual countries, as a result of the common levy, trade with the United States will be impeded.

U. S. Department of Agriculture projections indicate that by 1965 current policies will make the Common Market area 99 percent self-sufficient for wheat and 82 percent for feed grains versus 89 and 75 percent respectively in 1959-60. U.S.D.A. estimates that imports of wheat will be limited to quality products for blending purposes. Imports of other types, now averaging 3.7 million tons, will be practically eliminated.

Since feed grains are used in European livestock programs, there is more concern with keeping prices of these grains down. As a result it is expected that imports of feed grains will be cut by only 10 to 15 percent from present levels.

U.S. Exports to Europe, 1959-60

Commodity	*Thousands of Dollars*
Cotton and Linters	$ 402,857
Wheat and Wheat Flour	182,579
Barley	101,110
Corn	215,001
Grain Sorghums	96,260
Citrus Fruit	17,133
Livestock and Products	194,013
Other Principal Agricultural Products	917,229
Total Principal Agricultural Products	2,126,182

Compiled from U.S.D.A., *Foreign Agricultural Trade of the United States*, Economic Research Service, June, 1961.

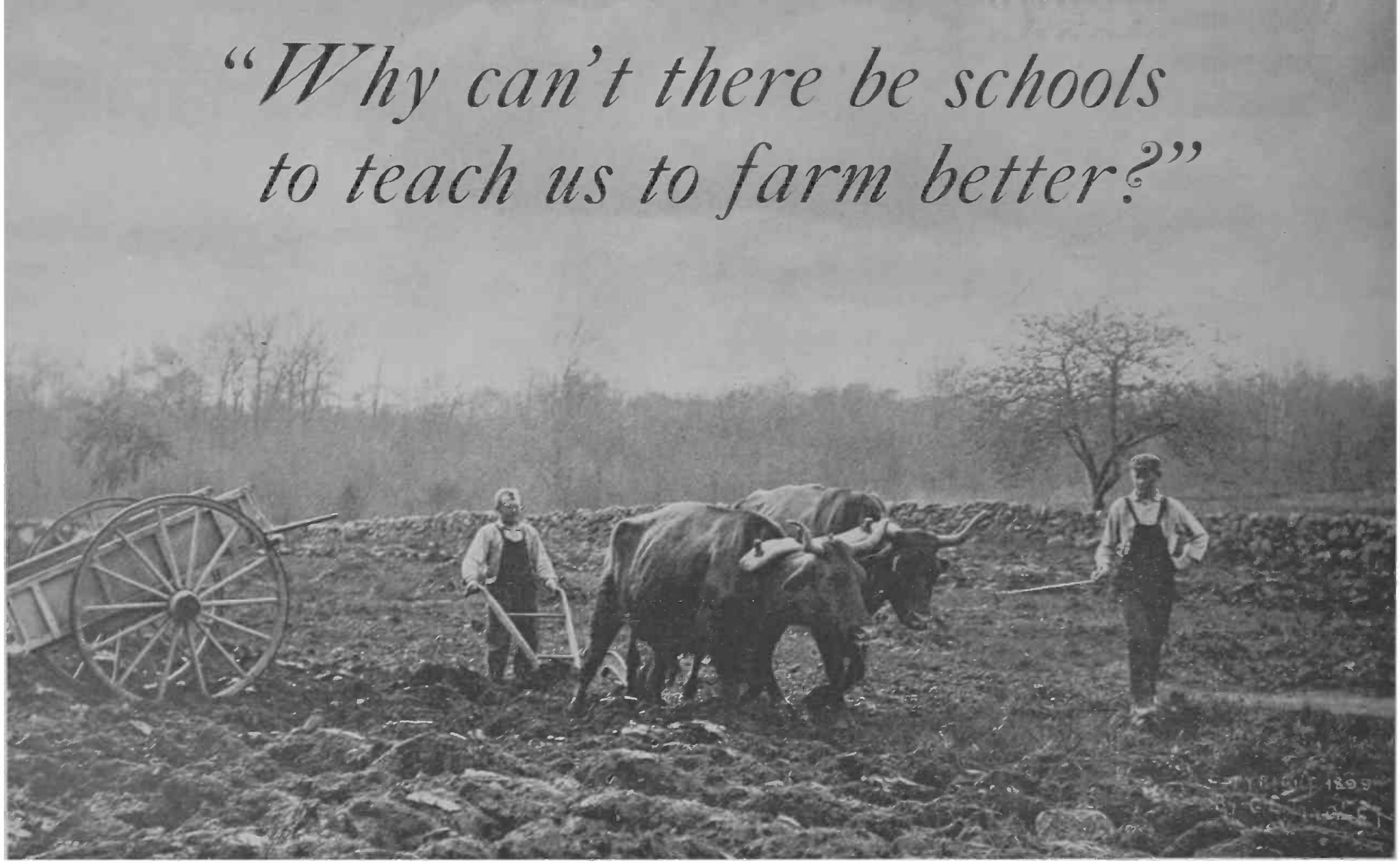
Have Money to Buy From Us

Since the United States has been a major supplier of agricultural commodities imported into the Common Market countries, any change in policy which may affect these sales is of interest to United States producers. Furthermore, the purchasing power of these countries is growing at a relatively rapid rate and the demand for goods will be increasing.

Producers should be interested in any attempts to maintain current sales and to share in any increased demand. The degree of United States participation in this growing market will depend largely on our policies and attitudes toward purchases of goods, for trade requires purchases as well as sales, both agricultural and industrial.

Impact of Farm Program

The federal government's agricultural programs in 1961 directly affected products grown on about two-thirds of Arizona's cropland. Sheep and dairy cattle are the only livestock directly affected by government programs. Major Arizona crops included in government programs are: cotton, barley, sorghum grain, corn, and wheat.



"Father."

"Yes, my son."

The slim lad straightened up, ran a hand down his leather apron, gazed across the blacksmith shop redolent of burned hoof, the anvil fire and the hickory shavings from a newly-shaped wagon spoke.

He hesitated a moment, then placed a hand on the withers of the parson's gray gelding, as though seeking support for what he was to say.

"Father, why couldn't there be a school where boys could learn to be better farmers?"

The father straightened from the anvil, his hammer in midswing at such a startling statement from the son. The lad, however, as though embarrassment was goading the long withheld words, continued on: "I don't mean just farming, but how to do things, how to learn the skills to make a living. Like carpentry, and making tools and implements for farming. And like taking care of sick animals and even knowing more about food — for folks and animals, too. Lots of things that we might learn to do better. . . ." His words trailed away.

"Justin, lad, I don't know where you get all of the foolishness stored in that round head of yours. I swear you come up with some of the most outlandish things. Now get back to your work. Remember, the parson's horse favors that nigh forefoot, so build up those heel caulks a bit.

"Here, let me show you. Lead him over to a level place on the floor. Whoa, now! Now while I hold the halter, lad, you stand back a piece and watch how he stands. See how that nigh foot slacks down a bit on the pastern? Well, we can correct that a bit in the shoeing, get him over a habit he probably learned long

(Continued on Next Page)

(Continued from Preceding Page)

ago when he hurt himself and started favoring that leg.

"I'll make a sound smith of you yet, lad, if you'll but observe. A pity the rest of the young bucks learning to be blacksmiths can't have the training I'm giving you," concluded the father.

"That's what I mean. That's just what I mean," said the boy. "Here you are, a perfect teacher and you have but one pupil — your own son. Here, in this year 1824, all we learn is what is learned from father to son, from mother to daughter. If a mother is a good cook and seamstress her daughters will learn it, but no others will ever share her skills. I think if there were schools, not just to teach Latin and Greek like now, not only for sons of the wealthy, but if the skills of home and farm and factory could be taught by those most able, to boys and girls most eager. . . ." Again the words trailed away.

The parson came, paid for the shoeing and hitched his gelding to the top buggy. He also adjured Blacksmith Morrill and young Justin to remember to be at services on the Sabbath.

A Lazy Sunday Afternoon

Sunday afternoon, after church, found young Justin Morrill roaming the green Vermont hills with his friends. As they sat to rest he told of his ideas, but his comrades were derisive. "One thing," said Justin, "might be machines for doing much of the work around the farm and around the house. Do you realize how hard our mothers work, how quickly they are crippled with age?"

Davie Allen rolled in the grass and sat up laughing: "How perfectly delightful our friend does dream. I suppose there will be machinery to carry water from the stream, and you'll just push a magic button and the oven will be just right for baking, without first building a good white oak fire."

Willie Williams, the slight, dark Welsh lad, continued the attack: "And Justie, I suppose you'll have gadgets to mix the batter for cookies, right in the kitchen. And maybe a machine to grind the coffee, and one to sweep the floor."

"There'll be a magic griddle for pancakes, too, and for waffles," chimed in Davie, "and a special machine for making toast."

Machines for Everything

"And you'll shave yourself with a machine," said Willie, for this thing was too outlandish to cease, "and you'll have a machine to plow and harrow and milk the cow, and the day will come when we have farms without horses — just machines, and we'll mow the hay and put it in the barn without lifting a fork. Oh,

(Continued on Next Page)

1862-1962

My father, who was a farmer, school teacher and newspaper editor, was of Vermont Yankee stock — the kind that breakfasted on applie pie and cheese. Our Midwest homestead was financed through its first difficult years by imports of Vermont maple syrup, shipped out in hogsheads and retailed to our Wisconsin neighbors. Father once said Vermont made two great contributions to this country, both named Justin. He meant, of course, Justin Morgan, the horse which fathered a great breed, and Justin Morrill, father of the Land-Grant Act. — J. B.

"... schools to teach us to farm better"

(Continued from Preceding Page)

Justie, lad, we love you like a brother, but you're as crazy as a red-head water bug."

Justin was obdurate. "All in the world I'm trying to say is this: There should be colleges for all; colleges to learn not just languages and history, but the skills for living and for making a living.

"There must be better ways, easier ways, to do these things. It is too slow, this father-to-son learning. We should have men studying just how to do things better, and men to teach those things to the young boys and girls, so those new ways of learning can reach all who have need of them. Maybe the government should start a new kind of college just for this purpose."

"Professor of Clover"

Davie and Willie looked at their friend seriously. Where did he get such ideas? Then they got to their feet and continued through the trees and into a meadow, where Davie plucked a clover stem and mockingly turned to his friend, "I am now the professor in charge of clover, teaching where it grows best, when to mow it, and how to make it thrive."

"Yes," said Justin, "things just like that. We'd farm better if we knew those things, and our cows would eat better and give more milk." The lads continued on, across the meadow to the stream. They crossed the creek on the log bridge, and trudged down the lane, then separated to go to their homes.

Justin Morrill, the blacksmith's son, born in 1810, quit his own schooling when he was 15. He read widely, all the books available in that little town of Stafford, Vermont, and he became prominent in his community and his state.

THIS PORTRAIT of Senator Morrill hangs in Morrill Hall, at the University of Vermont.

Finally, he and his dream went to the United States Congress, in 1855. In Washington Justin Morrill at last found a friendly ear for his dream. A man whose background had been similar was president now, a lad from the frontier country of Illinois. Abe Lincoln, too, had felt the lack of schooling; had made up for it by zealous reading; had gone into politics and eventually occupied the White House. Morrill served as a representative for 12 years, then was elected to the senate, where he served until 1898, a 44-year record of Congressional service.

Justin Morrill framed his dream in a bill, a bill to make available grants of public land to each state in a quantity of 30,000 acres for each senator and representative serving in Congress at that time. Income from that land was to be used to support at least one public college in each state, and that college was required to teach "agriculture and mechanical arts" as part of its curriculum.

Lincoln Signed It

After several rebuffs — the original bill framed by Morrill was vetoed by President James Buchanan in 1859 — the Morrill dream, termed the Land-Grant act, was signed into law by President Lincoln on July 2, 1862 — just 100 years ago. It has served, as we generally recognize today, to fulfill its founder's dream of putting a college education in the reach of all who qualify, regardless of wealth. (It has also confounded its opponents, who pictured a system of low grade trade schools. Today's Land-Grant universities are among the best in the land, both in research and education.)

There are 68 Land-Grant colleges and universities in our states and territories today. One out of every five college students in the United States now attends a Land-Grant institution. In Arizona, the Land-Grant institution is The University of Arizona, a university which in many fields has attained national stature.

A Dream Made History

The most important educational and research development in civilized history has been the realization of young Justin Morrill's dream. And if his childhood companions could return they would be amazed to know that every one of those "outlandish ideas" with which they jeered and guyed at their companion has come true — machines to replace the draft horse, machines to mix batter, make the waffles, milk the cow, shave the man of the house, and get hay from field to barn without a pitchfork.

Sour News — But Good!

Shipments of all citrus crops out of Arizona in 1961 exceeded those of a year earlier. Value of production was also up from 1960. The value of 1961 production, amounting to $15.8 million, exceeds that of a year ago by almost four million dollars. Much of this can be attributed to the comeback of lemons, the value of which increased from $2,084,000 to $5,404,000.

Ariz. Home Agents Set Up UA Student Loan Fund

Students studying at The University of Arizona School of Home Economics now have a revolving loan fund available to draw upon in emergencies, thanks to Arizona's county home agents.

The Arizona Home Agents' Association recently established the fund for students needing financial assistance for special books, glasses, or other worthy emergencies.

"Recipients assume a moral obligation to reimburse the loan fund when they are financially able to do so," explained Miss Lorraine K. Kalgard of Casa Grande, acting president of the Arizona Home Agents' Association.

The fund is administered by the School of Home Economics with the approval of The U of A committee on scholarships and awards.

Cochise County

KAWT, Douglas—Check local listings
KWCT, Willcox — Mon. thru Fri., 7:45 a.m.

Coconino County

KCLS, Flagstaff — Tues. and Thurs., 8:20 a.m.
KGLS, Flagstaff (Home Agent) — Thurs., 9:45 a.m.
KPGE, Page — 2:30 p.m. Fridays

Graham County

KATO, Safford — Sat., 9:30 a.m.

Maricopa County

KRUX, Phoenix — Mon. thru Sat., 5:55 a.m.
KTAR, Phoenix — Thurs., 12:45 p.m.
KOY, Phoenix — Sun., 8:45 a.m.

Navajo County

KDJI, Holbrook — Tues., 12:45 p.m.

Pinal County

KPIN, Casa Grande — Mon. thru Sat. 6:55 a.m.; Mon. and Fri. 9:30 a.m.; Tues., Thurs. and Sat. 12:20 p.m.; Fri. 5:00 p.m.; Sat. 7:00 a.m.

Santa Cruz County

KNOG, Nogales — Mon. 6:30 a.m.

Yavapai County

KYCO, Prescott — Mon., Wed. and Fri., 5:55 p.m.
KNOT, Prescott — Mon., Wed. and Fri., 5:35 a.m.

Yuma County

KYUM, Yuma — Mon. thru Fri., 6:25 a.m.

The Arizona Daily Star

THE STAR PUBLISHING CO. ★ ESTABLISHED 1877
PUBLISHED EVERY MORNING OF THE YEAR
W. R. MATHEWS AND CLARE R. ELLINWOOD
TUCSON, ARIZONA

PAGE TEN—SECTION D THURSDAY, DECEMBER 28, 1961

THE ACHILLES HEEL of a communist state is food production — in Russia, Cuba, Red China. Nowhere else in the world do so few workers produce such a bountiful abundance of high quality food and fiber as in the United States. The Arizona Daily Star (Tucson) editorial, at left, is in fact a tribute to U. S. agriculture.

Food Production And Communism

The recent visits that Premier Khrushchev has been making to various agricultural districts of the Soviet Union, are worth noting for two main reasons.

The first one is that by his own words he has confirmed that the Soviet Union can produce barely enough food to supply its people with a reasonable diet. Despite the fact that nearly one-half the labor force of the nation is used in this one field of production, the deficiency still prevails.

During his numerous speeches, Mr. K. still refers to the superior American means of production. He does not mention, however, that the huge American surplus is produced with 10 per cent of the nation's labor force.

Evidently he hears plenty of complaints from the cities about shortages. Hence, as a good politician, he goes out into the country as a means of letting the folks in the cities know that he is doing what he can to remedy the situation.

The second unusual factor that has come out of his tour is the way he has proclaimed that at times he can be wrong, and at times the Communist party can be wrong. These admissions violate the stern orthodox Communist teachings that the party is always right and that it can never be wrong. For him as the Communist party leader, as well as the leader of the government, to discredit what most true Communists believe is gospel—the infallibility of the party—marks a definite change in what might be called Russian Communism.

In the past, under Stalin, violations of party decisions were reason enough to call for expulsion from the party, and in flagrant cases for either imprisonment or death. The party was the unwavering instrument so necessary to guide the government, according to orthodox Communist doctrine. Now Mr. K. has the effrontery to discredit it publicly.

The fact that after 45 years of Communist rule, the Soviet Union cannot produce enough meat and vegetables to help vary a monotonous diet of bread and potatoes, coupled with the failure of Red China to produce enough food to prevent starvation, confirms how Communist regimes have yet to learn how to produce enough food to feed their peoples.

Tons of Agricultural Minerals Reported Sold in Arizona in 1961[3]

	First Quarter	*Second Quarter*	*Third Quarter*	*Fourth Quarter*	*Adjustments[1]*	*Adjusted Totals*
Gypsum	2,767	2,530	2,431	3,360	133	11,221
Sulphuric acid	709	349	285	1,369	64	2,776
Lime sulfur solution	623	423	558	412	81	2,097
Soil sulfur	201	178	183	137	37	736
Iron sulfate	50	27	10	37	6	130
Zinc sulfate	9	4	21	2	2	38
Miscellaneous	191	267	232	276	75	1,041
Delinquent reports[2]	244	40	114	—	—	—
Total	4,794	3,818	3,834	5,593		18,039

[1]Correction for the year incidental to delinquent reports.
[2]Reported too late for inclusion in compiled quarterly reports.
[3]Compiled by Mr. Floyd Roberts, State Chemist.

July

30-31—State 4-H Roundup, U of A Campus

August

1- 3—State 4-H Roundup, U of A Campus
16-18—FFA Leadership Conference, U of A Campus

September

5—Northern Arizona Crop Research Field Day, Snowflake
11—Field Crops Research Day, Marana
21—Safford Crops & Soils Field Day, Safford

October

19—Fall Field Day, Mesa Experiment Station, Mesa
23-25—Western Vegetable Growers' Assoc. Annual Convention, Phoenix
24—Annual Cotton Research Field Day, Cotton Research Center, Phoenix
31—Citrus Field Day (for commercial growers), Citrus Experiment Station, Tempe

November

16—Fall Field Day, Yuma Branch Station

Increased Fertilizer Use

The present high yield of Arizona crops is due in part to the use of commercial fertilizer. From 1949 to 1959 the quantity of plant nutrients applied by Arizona farmers in commercial fertilizers increased five-fold.

In 1959 fertilizer was applied on 75 per cent of the acreage in crops. Virtually all the land in fruits, vegetables, potatoes, nurseries, flowers, seed crops, and flax received fertilizer. Commercial fertilizer was applied on about 90 per cent of the cotton acreage. A smaller percentage of the acreage of other field crops was fertilized.

Nitrogen is the major plant nutrient applied.

FROM BEETS TO BEEF

Al Lane

An old world practice has found new application in Arizona. The feeding of sugar beets in a modern feeding regime has proved intriguing. We have learned that beets can produce lots of pounds of beef per acre.

A trial conducted at the Yuma Experiment Station in the summer of 1961 shows a gross per-acre return of almost $300, but let's look at the more complete picture before plunging into action.

Castro Started It

Circumstances that led to this trial in 1961 were (1), restrictions on importations of Cuban sugar which prompted interest in more domestic sugar production, and (2), a need to utilize the sugar beets produced in the absence of sugar beet processing facilities in Arizona.

Our table gives a summary of the summer feeding trial from May 26 through September 16. In this trial, the beets were fed at the rate of approximately 22 pounds per head per day. A normal dry ration, either 65 to 85 percent concentrate, fed free choice, made up the rest of the feed. The 22 pounds of fresh beets amounted to about 4½ pounds of dry feed. Figures in the table are on the dry basis.

Carcass evaluations showed no difference in quality between beet-fed steers and those fed the more usual feedlot rations.

In this trial, the sugar beets were grown under several different fertilizer treatments. The average yield of all of these treatments was about 26 tons per acre. With four different feeding programs (only two listed here) the average value was over $12 per ton of beets. This gives a gross return in excess of $300 per acre.

Didn't Include Tops

In this trial, the tops were not fed. Sugar beet tops, however, can be used a number of different ways, all of which have some limitations.

They can be pastured, but this is wasteful. They can be partially field cured in small piles in the field. This is labor consuming; or they can be made into silage. Ensiling preserves the most feed value, but is more costly.

Though beet top silage analyzes much higher in protein and TDN than hegari silage, actual feeding has shown it to be worth considerably less than good sorghum or corn silage. It is too laxative, and contains liberal amounts of oxalic acid.

You Haul a Lot of Water

The greatest problem with feeding sugar beets is labor and management. Beets are a high moisture content feedstuff. For every pound of dry feed dug, loaded, hauled and fed, the feeder is transporting four pounds of water. Also, beets need to be stored until they can be used. Storage in the ground for almost four months after the tops were removed was only partially satisfactory. There was severe loss due to field spoilage late in the feeding period.

When beets are stored where grown, it ties up the use of that land until the beets are removed, an expensive practice. A new procedure for storage needs to be developed. Also, to insure a fresh supply, we need more information on staggered planting dates. September planting is best in the Yuma area. These and other problems complicate the management of the rest of the farm.

If management can lick the land, handling, storage and feeding problems, then sugar beets have a real value in the diet of fattening cattle during the summer months. Until these problems are solved, the cattle feeder should be very cautious in using beets for beef.

	No Beets		With Beets	
	65% Conc.	*85% Conc.*	*65% Conc.*	*85% Conc.*
No. of steers	16	16	16	16
Avg. Daily Gain*	2.58 lbs.	2.52 lbs.	2.62 lbs.	2.84 lbs.
Mixed Ration/Day (without beets)	20.8 lbs.	18.9 lbs.	16.8 lbs.	14.8 lbs.
Conc. mix cost/cwt. gain	$20.67	$20.20	$16.48	$14.02
Value of beets/cwt. gain			$ 4.19	$ 6.18
Value of beets/ton			$ 9.30/ton	$15.24/ton

*No Shrink

Al Lane, veteran livestock specialist in the UA Agricultural Extension Service, is well known to cattlemen throughout Arizona.

Coolidge Boy Champ At Livestock Show

Phil Lewis, 21-year-old youth from Coolidge, captured the grand championship showman trophy at the Little Arizona National Livestock Show at Tucson.

Lewis won out over about 50 University of Arizona students competing in the fitting and showing contests. He is a junior majoring in Agricultural Education at The U of A.

Reserve Champion Showman was Jack Crews of Tucson.

Class winners were as follows:

Angus cattle: Betty Kramer, Chicago, first place; Howard Stauffer, Tucson, second.

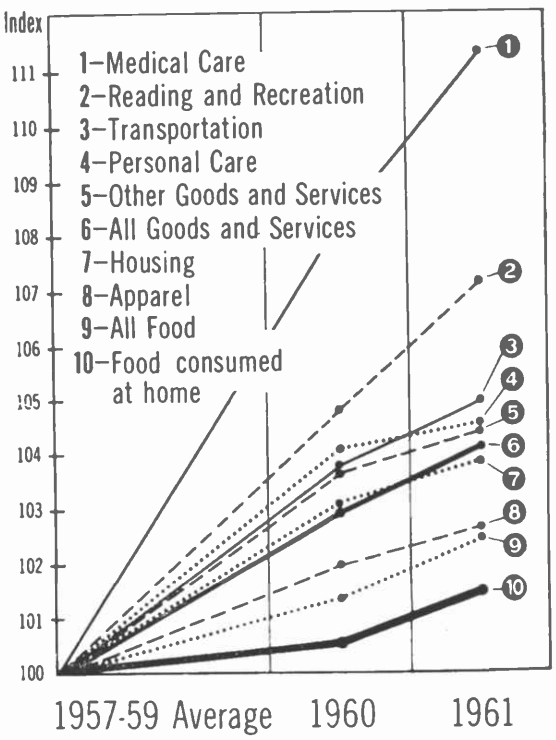
Hereford cattle: Jerry Tool, Elm Creek, Nebr., first; Ellen Richmond, Silver City, N. M., second.

Dairy cattle: Susan Gustafson, Tucson, first; Don Varney, Glendale, second.

Horses, girls: Ruth Ann Moody, Yuma, first; Karen Kinkaid, second.

Horses, boys: Phil Lewis, Coolidge, first; Jack Crews, Tucson, second.

Judge was Leon Wagley, state adviser, Arizona Future Farmers of America, Phoenix.



(Chart prepared by Super Market Institute shows that "Food is a Bargain" compared to other goods and services on Government Consumer Price Index. Base Period 1957-59 = 100.)

Nearby Alfalfa Affects Lygus Bug Infestation of Cotton

George P. Wene and L. W. Sheets

Lygus bugs are among the most important insect pests of cotton in Arizona but they prefer alfalfa over cotton as a breeding place. When the alfalfa seed crop matures, or the hay is harvested, the lygus bugs are unable to survive on the stubble and migrate to nearby crops, including cotton.

Infestations on cotton often develop to the point where chemical control applications are needed. The importance of alfalfa as a source of lygus infestations in cotton is often overlooked by the cotton grower.

During June and July 1960 an experiment was conducted at Litchfield Park, Ariz., to study factors involved in the migration of lygus bugs from alfalfa to cotton. The test area included a 35-acre cotton field, bordered on the east by 35 acres of alfalfa and on the west by 70 acres of alfalfa.

Alternate Cuttings

The eastern alfalfa planting was divided into four equal plots. Two of these plots were cut for hay on June 12 and July 6 and were located alternately in relation to the remaining two plots which were cut for hay on June 24 and July 20. The western alfalfa planting was cut in its entirety on June 28 and July 18.

During the test period the cotton planting was dusted for lygus bug control on June 30 and July 24, using a mixture containing 5% DDT, 15% Toxaphene, and 40% sulfur at a rate of approximately 30 pounds per acre. Lygus bug populations were measured by sweep net samples taken systematically at various points in the cotton and alfalfa plantings. This information is summarized in the accompanying table.

It was observed that lygus populations increased to high levels in uncut alfalfa without seriously infesting the intermediate cotton field. When alfalfa was cut the lygus bugs migrated to other host plants such as uncut alfalfa or cotton. Approximately 10 days of new alfalfa plant growth after cutting were required to effectively support a re-infestation of lygus bugs. Harvesting alternate strips of alfalfa on different dates permitted more lygus bugs to remain than was possible in the near-by field, which was cut in its entirety.

Alternate Cuttings Helped

Harvesting alfalfa in alternating strips, as on June 12 and 24, appeared to reduce lygus bug migrations to adjacent cotton to a greater extent than when an entire field was cut, as on June 28. In both cases lygus infestations in the adjoining cotton were high enough to justify control treatments, according to official recommendations, although populations were lower on June 29, just before treatment, next to the alternately harvested alfalfa field.

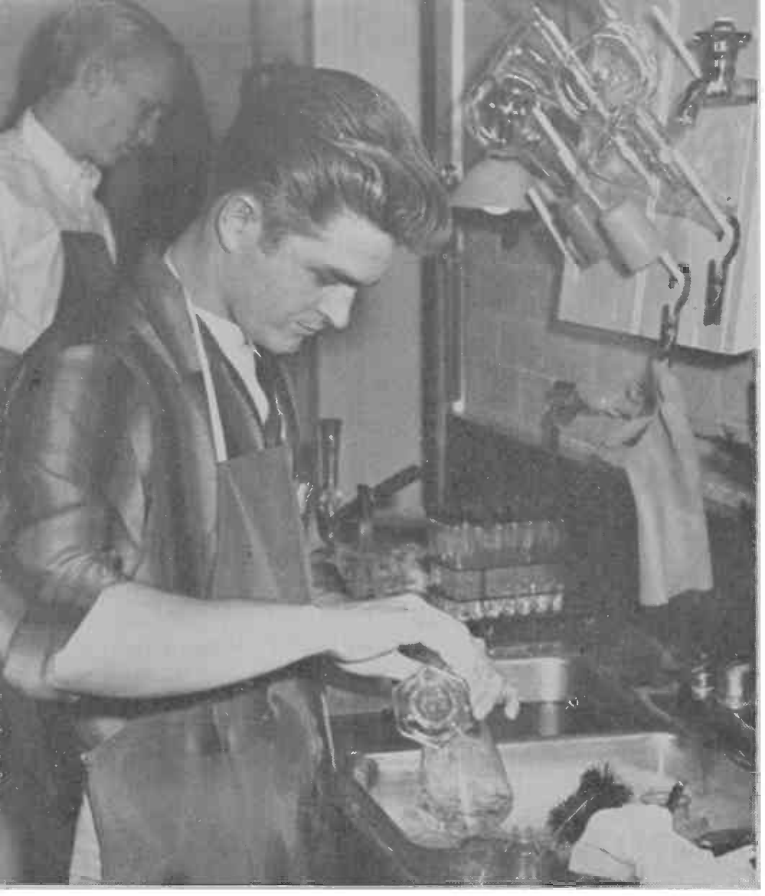
After each insecticide treatment to cotton the lygus populations also decreased in the adjacent alfalfa plantings. This may have been at least partly due to insecticide drift.

(These observations were made in cooperation with Mr. George Busey and Mr. Cliff Moore of Goodyear Farms.)

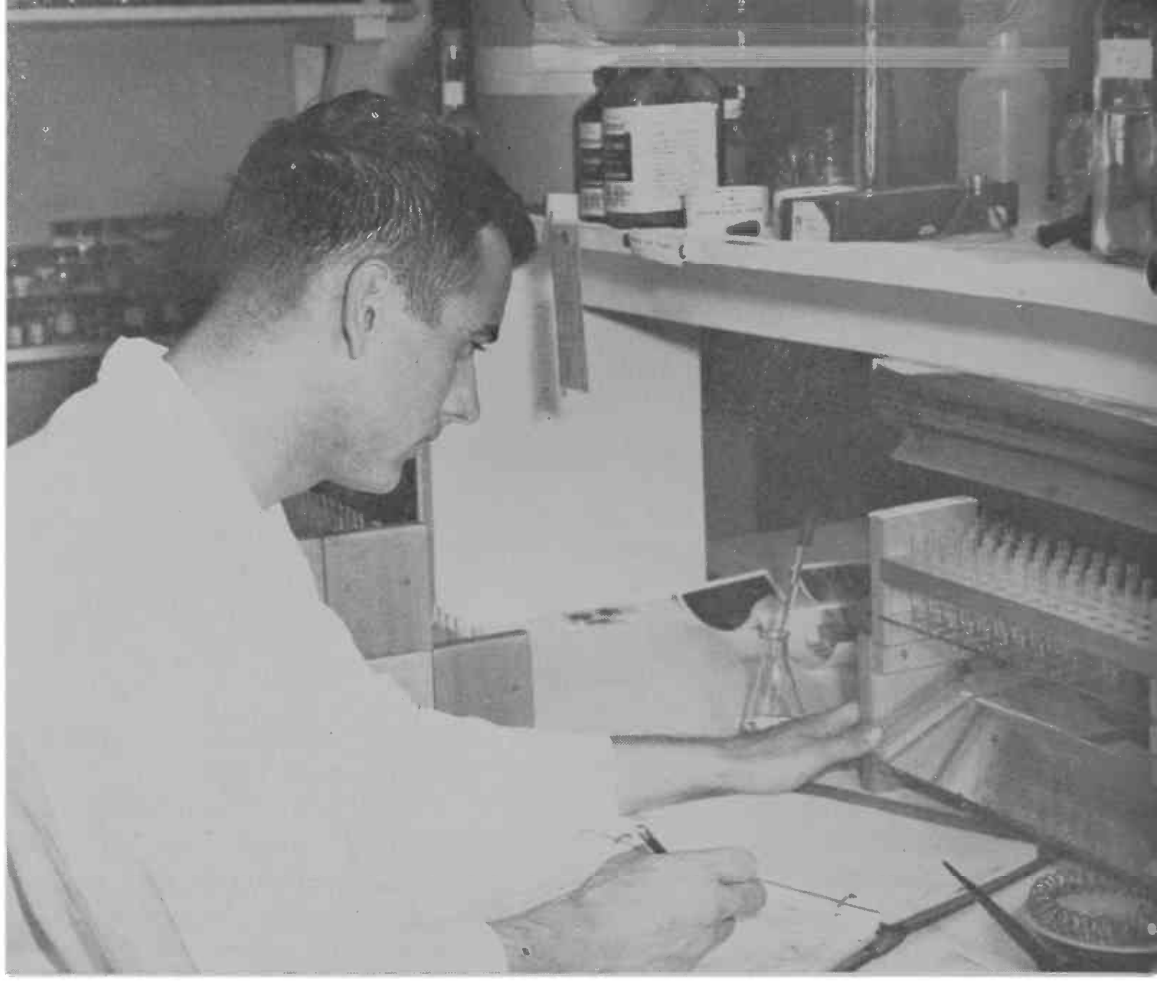
Relation of Alfalfa Harvesting to Lygus Bug Infestations in Alfalfa and Adjacent Cotton. Litchfield Park, Arizona, 1960

DATES 1960	AVERAGE NUMBER OF LYGUS BUGS PER 100 NET SWEEPS					
	East Alfalfa Plot (alternate cuttings)		*Center Cotton Plot*			*West Alfalfa Plot (solid cuttings)*
	Series A	*Series B*	*East*	*Middle*	*West*	
June						
11	261	255	0	0	0	267
12	*Cut*					
13	0	249	3	0	0	273
23	211	311	16	16	9	358
24		*Cut*				
25	361	0	28	21	5	348
27	288	0	29	31	5	313
28						*Cut*
29	179	0	21	29	57	0
30			*Cotton Dusted*			
July						
1	20	0	1	0	0	0
5	44	29	0	0	1	17
6	*Cut*					
7	0	110	0	0	0	33
18						*Cut*
19	71	217	5	0	3	0
20		*Cut*				
23	498	0	5	1	29	0
24			*Cotton Dusted*			
26	107	0	0	0	0	0
28	123	0	0	0	0	47

Dr. Wene is an Associate Entomologist on The University of Arizona staff, while Mr. Sheets is in the Entomology Research Division, ARS, U.S. Department of Agriculture. Both are stationed at the Cotton Research Center.



ABOVE, student assistants John Wichtrich and Tom Tucker busy in the laboratory.



Animal Doctors

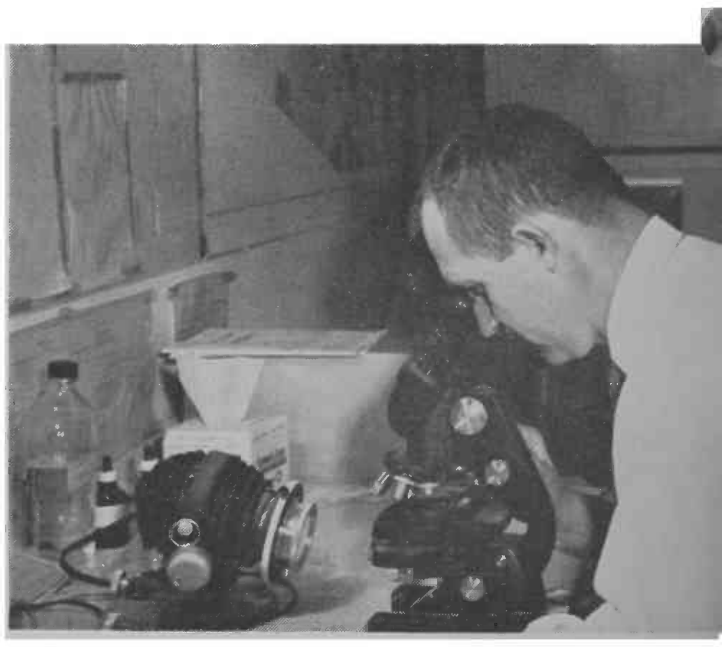
The Animal Pathologists protect our supply of high-energy protein foods — milk, meat, eggs and their processed derivatives — the foods which make today's American diet the best and most delicious in history.

Their care extends to the sheep which provide our wool, and the household pets which nuzzle their way into our hearts.

Less widely known, some of the world's greatest medical findings in the field of human health have originated in the laboratories of the animal pathologists and veterinarians.

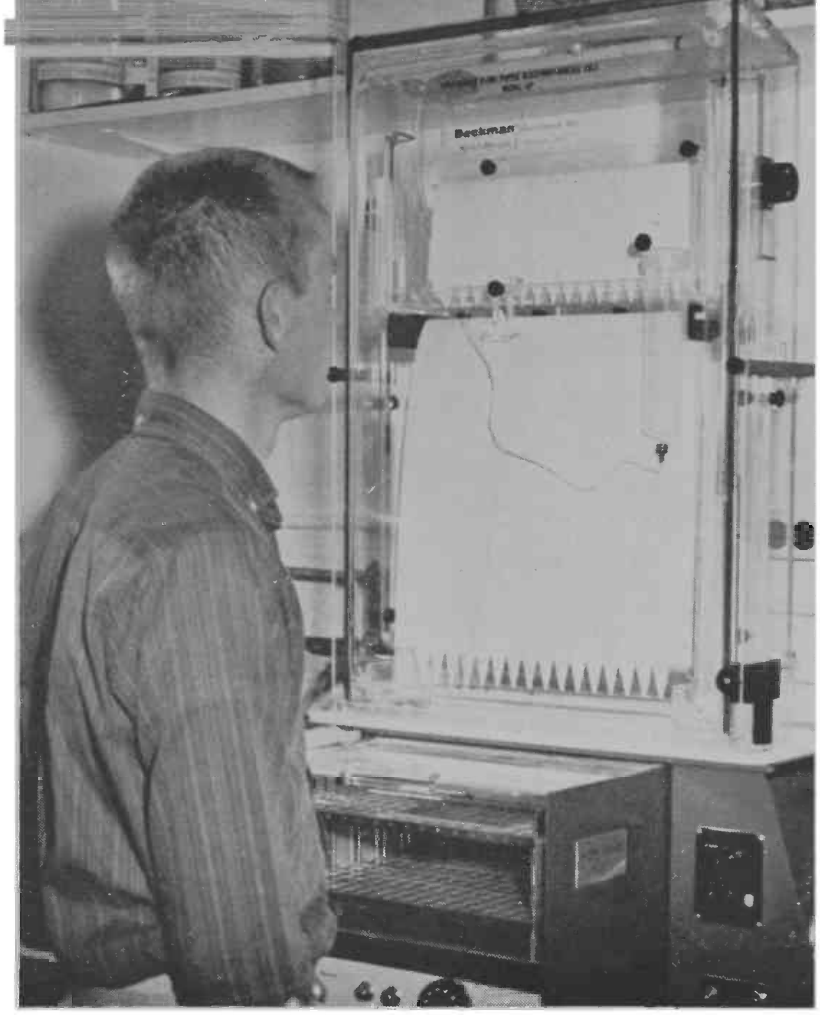
Here, in a brief picture story, we take the reader on a visit to the laboratories of the Department of Animal Pathology, The University of Arizona.

ABOVE, J. D. Cramer tabulates results of se
logical test. BELOW, Dr. L. W. Dewhirst, pa
sitologist, examines parasitological slide in t
microscope.



BELOW, Dr. W. J. Pistor, Department head, performs post-mortem examination of diseased chicks.

BELOW, the Animal Pathology laboratory at the Campbell Avenue farm, Tu

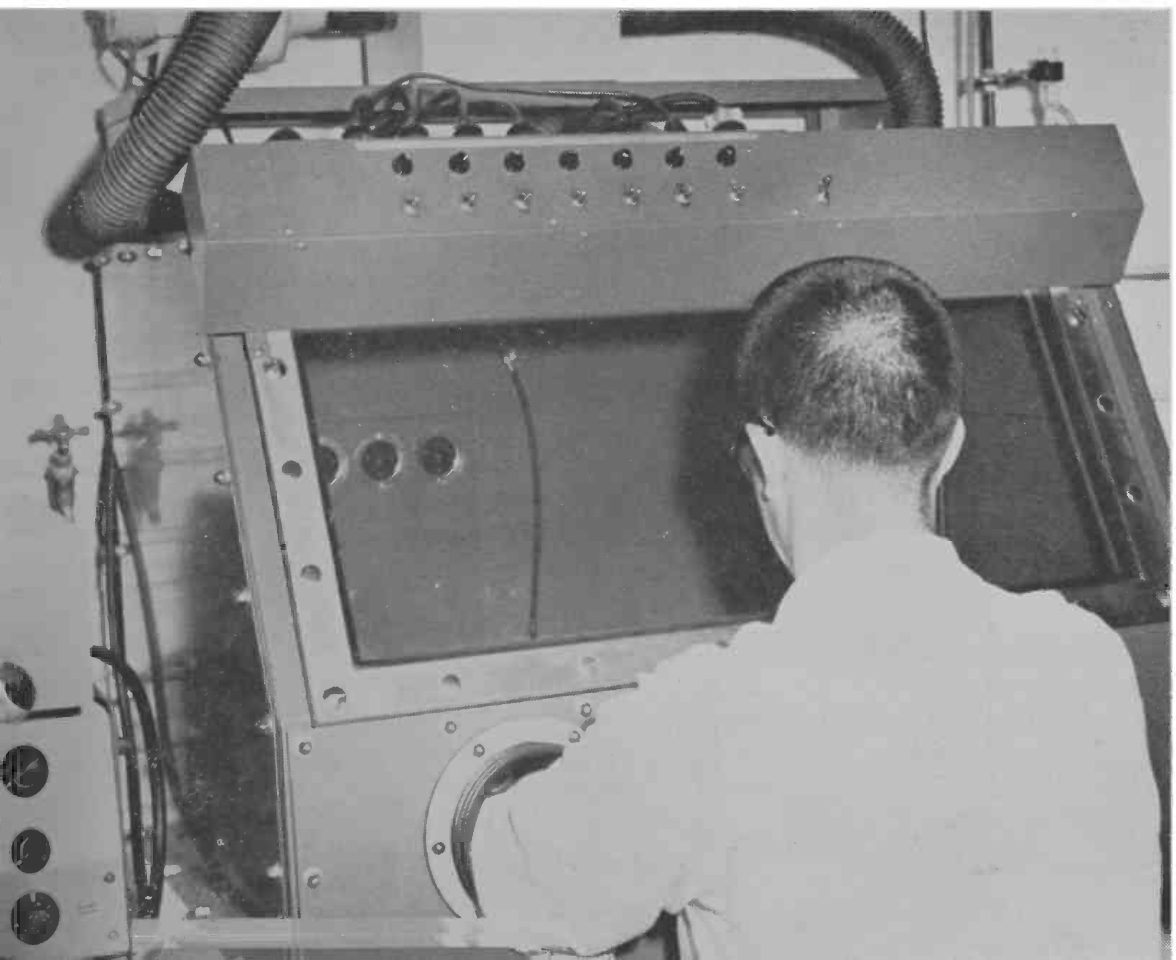


DR. R. H. DIVEN is shown, above, checking continuous flow electrophoresis apparatus.

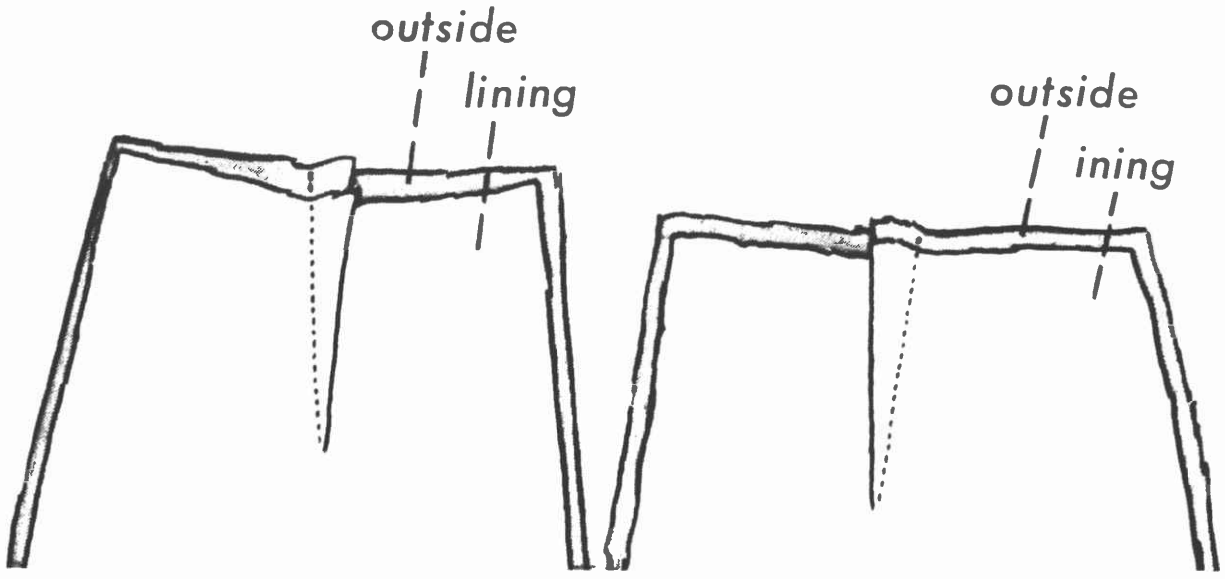
DR. PISTOR and Dr. Ned Rokey, head of the UA Animal Pathology laboratory at Mesa, discuss a research problem.

AT RIGHT, Dr. R. E. Reed, veterinary pathologist, and Dr. R. H. Diven, bio-chemist, draw blood samples for analysis in a valley fever study.

R. J. TRAUTMAN, mibrobiologist in the department, is shown below while transferring cultures in an isolator.



BELOW, R. J. Trautman is inoculating a culture medium with disease organisms.



AT LEFT are drawings showing the method termed underlining. Note that ← each piece of lining is attached to each cut piece of the garment before any stitching is done.

Linings for a Fashionable Look

Even though Dame Fashion says that for summer and fall, 1962, skirts will be fuller with a little flare at the hemline, she may not be saying that linings are no longer needed. Indeed, they can be needed for body and style of the garment, as often as for keeping the shape and preventing the shirt from stretching.

Ruth Allen

Linings may, in addition, serve as shadow-proofing devices, particularly in shorts, bermudas or any of the tapered pants styles if some of these garments are to be included in the sewing for family members.

There are at least three methods of inserting linings. The results of all three will be comparable, leaving the choice largely one of individual preference. The first one, illustrated above, is referred to as *Underlining* and means that each section of the garment will have a comparable piece placed on the wrong side of the fabric before any sewing is done. Darts, gathers, and seams will be sewed as if only one piece of fabric is being used.

Has Distinct Advantages

The advantage of this method could be that the two pieces of fabric in each section of the garment will remain exactly the same size, with no variations in breadth or length. This method may also be advantageous if the garment is to be laundered frequently, since the two layers are fastened together in more places and should result in easier ironing. One disadvantage of this method will be experienced if the fabric is heavy or thick, since darts are difficult to taper sharply when more than one piece of fabric is stitched at the same time.

The second method of inserting a lining, illustrated at left, below, suggests that the outside front of a garment be sewed together as a unit, the same done for the front lining and then the two fronts are placed together, wrong sides together. After the respective backs of the garment are treated similarly, the fronts and backs are sewed together with common side seams. This method can be used easily if only the back of the garment is to be lined. Zippers or other kinds of plackets are relatively easy to put in by this method, and the darts are much easier to stitch since only one piece of fabric is treated at a time. It is possible that the lining may not be the same width as the outside fabric unless care is taken.

Smooth — But Difficult

The third method to be used for linings, illustrated at right, above, may be the most difficult for inexperienced seamstresses. In this case, the outside of the

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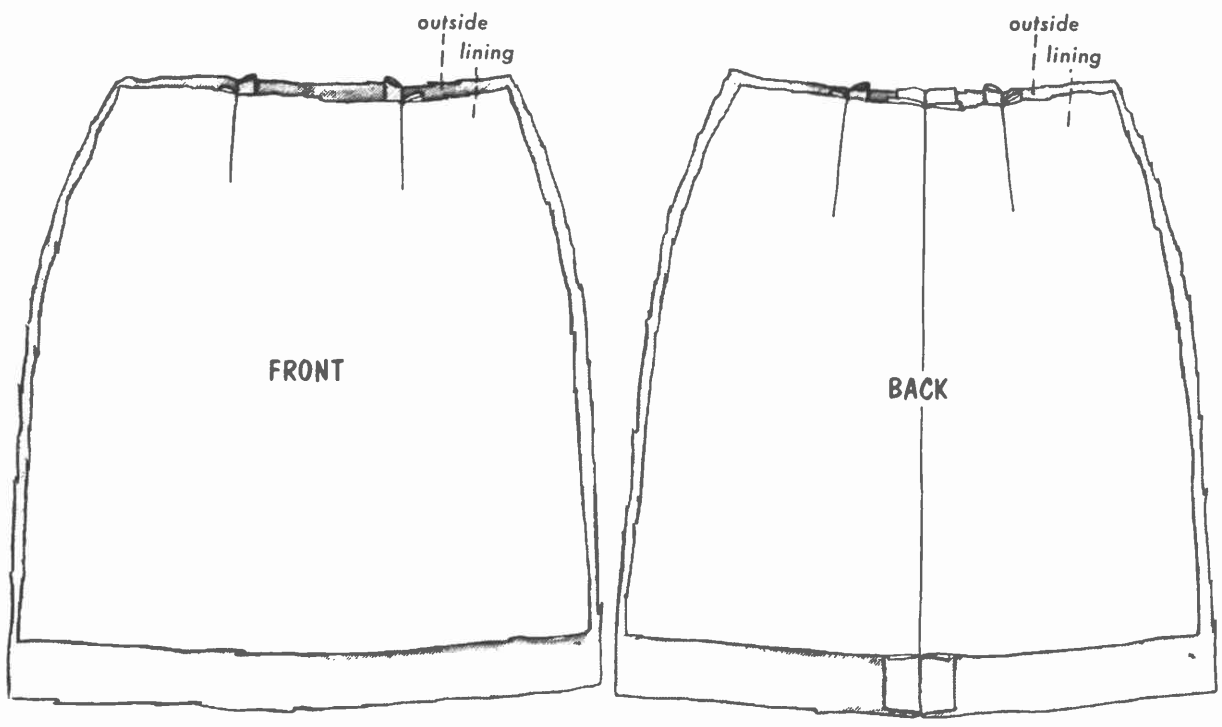


THE SECOND METHOD is shown here, front and back. Note that we complete ← the stitching on the front or back units of the garment and on the lining before joining the units.

Miss Allen is a Professor of Home Economics.

IN THE THIRD method, we stitch together all the units of the outside of the garment and all the units of the lining, then join at the waistline.

Water Use

The per capita use of water is skyrocketing at a far greater rate than our population growth.

In 1900, a total of 76 million Americans used only 40 billion gallons of water a day, an average of 526 gallons per person per day.

In 1960, 180.1 million Americans used 312 billion gallons of water daily, an average of 1732 gallons per person per day.

A conservative projection of the population growth shows that by 1975 there will be about 230 million Americans, and they will need 453 billion gallons of water per day, or 1963 gallons per person.

In 1900, before any of the big dams and reservoirs were built, Americans used only 8% of the water available to them.

In 1960, we used 60% of the water available.

By 1975, under today's conditions, we will use 88% of the water available to us.

To maintain today's ratio of water use to water available we must increase our supply to 755 billion gallons per day — a one-third increase. We have already begun to feel the pinch of the water shortage. In 1957, more than 1,000 communities in 47 states — about 15 out of every 100 Americans — suffered from restricted water use.

Yet, in that same year, water in great quantities roared through many sections of the country in flash floods, causing millions of dollars in damage, and making thousands homeless.

Americans now use only about one-eighth of the natural water supply available to them through rain and runoff. Due to natural and man-made pollution and depletion of water we have only about 515 billion gallons available to us out of a total potential of 4,330 billion gallons. In many areas our underground water supply is being depleted at a rapid rate also.

The growth of industry and electric power is putting an increased burden on our supply. Today, one out of every four gallons of water used in the United States is used by industry.

(Continued from Preceding Page)

garment is completed to the point where the waistline is to be finished. The lining is finished to the same degree. Then the lining is slipped inside the garment and the waistline finish is applied to both at the same time. In this case, the lining must be carefully turned under around the zipper or placket on the appropriate line, which can be a difficult technique for those people not used to it. This method does, however, present a completely smooth and finished appearance on the inside of the garment.

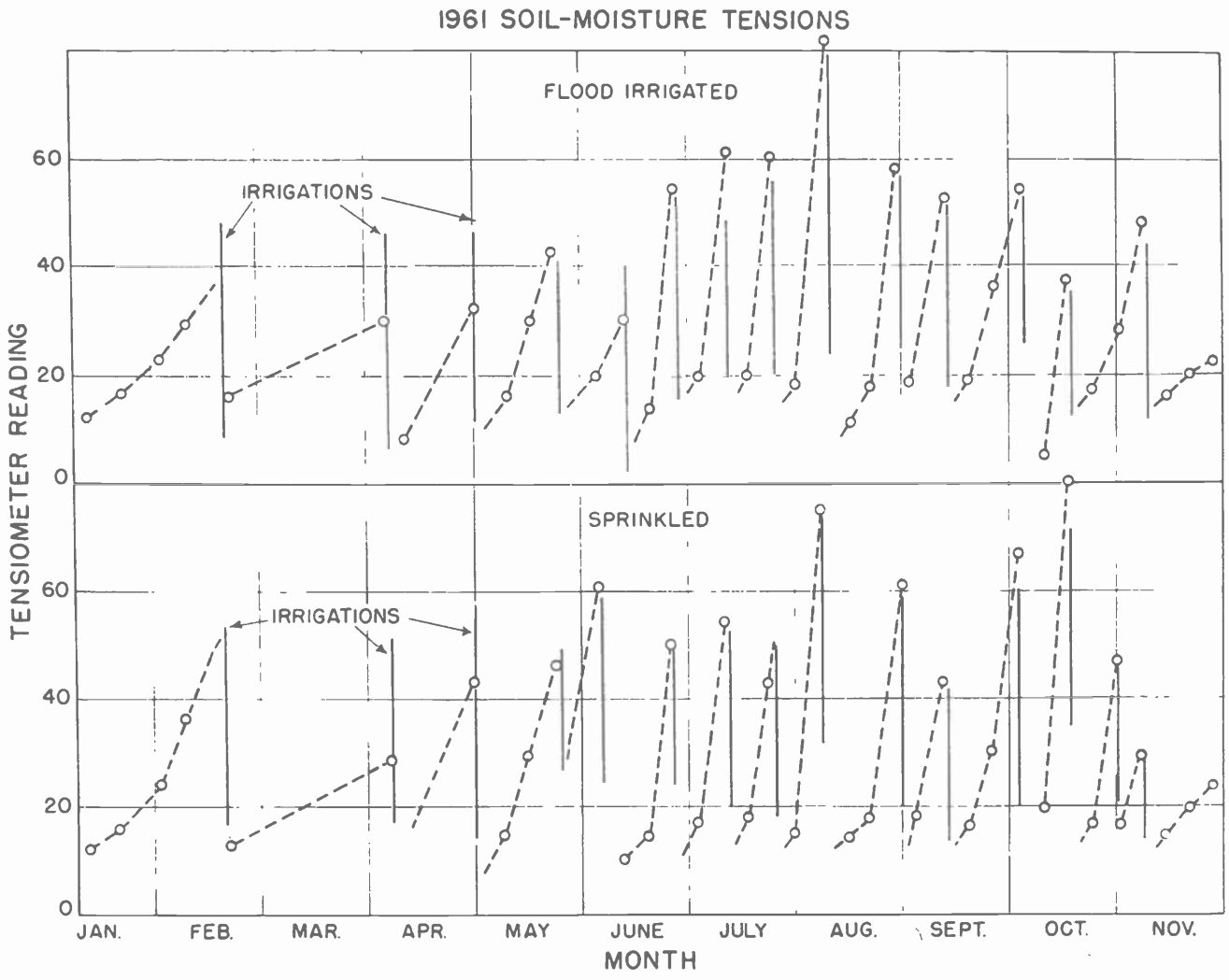
The selection of fabric for a lining will be of importance. The choice may depend on the reason for using a lining. As a general rule, the lining ought to be lighter in weight than the outside fabric, so that it does not interfere with the style or the natural performance of the garment.

Fiber Content Important

The fiber content of the lining should be considered, also. Taffetas, satins, twill linings, and flat crepes are suitable for wools, silks or synthetic fabrics, while cotton linings may be more suitable for cotton garments. The size of the finished lining must be controlled carefully, so that it is neither too large for the outside (thus creating wrinkles in the lining) nor too small, which will place undue stress on the lining and possibly produce unsightly wrinkles in the new garment.

PRETTY GIRLS are useful in the promotion of many agricultural products, with queens and princesses attending the merchandising of all kinds of foods and fibers. If gracious good looks are an index, none could be a better salesman than Miss Karen Carter of Yuma, Arizona's Junior Maid of Cotton.

(Photo courtesy ARIZONA FARMER-RANCHMAN)



GRAPH AT LEFT shows annual comparison of soil moisture conditions as indicated by tensiometers at the 18-inch level for sprinkled and flooded treatments. Note that the moisture condition resulting from the two methods of application was similar on the same date before each irrigation except in a few instances.

Citrus Irrigation

Experiments on the Yuma Mesa

K. R. Frost and R. Rodney

Lemon trees planted experimentally in 1958 on the Yuma Mesa have required one-half as much water under sprinkler irrigation as under flood irrigation. During 1961 a total of 4.8 acre-feet per acre was applied to the sprinkled trees while the flood-irrigated trees required 9.5 acre-feet per acre to maintain similar moisture conditions.

The authors are an Agricultural Engineer and Associate Horticulturist, respectively, in the Agricultural Experiment Station.

SPRINKLED trees did better. That at left, below, was in sprinkle irrigation plot, while tree at right received flood irrigation.

Recent tree measurements show 10 percent greater girth for the 4-year-old trees on the sprinkler irrigated plots, and first yields were 4 to 10 percent higher for sprinkler irrigation. Results from this research indicate that water requirements, tree growth and operational costs for sprinkler irrigated citrus in the Yuma area can compare favorably with surface irrigation.

Comparison of Procedures

The experiment is planned so that about the same area per tree is irrigated in the sprinkled and in the flood plots. The wetted area for each flood row is 8 to 10 feet wide and 300 feet long and is irrigated rapidly in 20 to 25 minutes to minimize percolation losses. This procedure compares favorably with the usual practice of surface irrigation in this area and results in lower water applications than most growers are using.

In the sprinkled plots one sprinkler is installed near each tree to concentrate the water in a 10- to 12-foot diameter circle. An application of three inches of water is made during a 4-hour operating period. The soil is Superstition Sand, with a high infiltration rate. Water enters the soil rapidly, with no accumulation on the surface under sprinkler application.

Soil moisture samples taken four feet below the surface indicate water penetration to this depth for both treatments. Irrigations are bi-weekly during the summer months and as need is indicated by tensiometers during the remaining months.

Two Types of Plantings

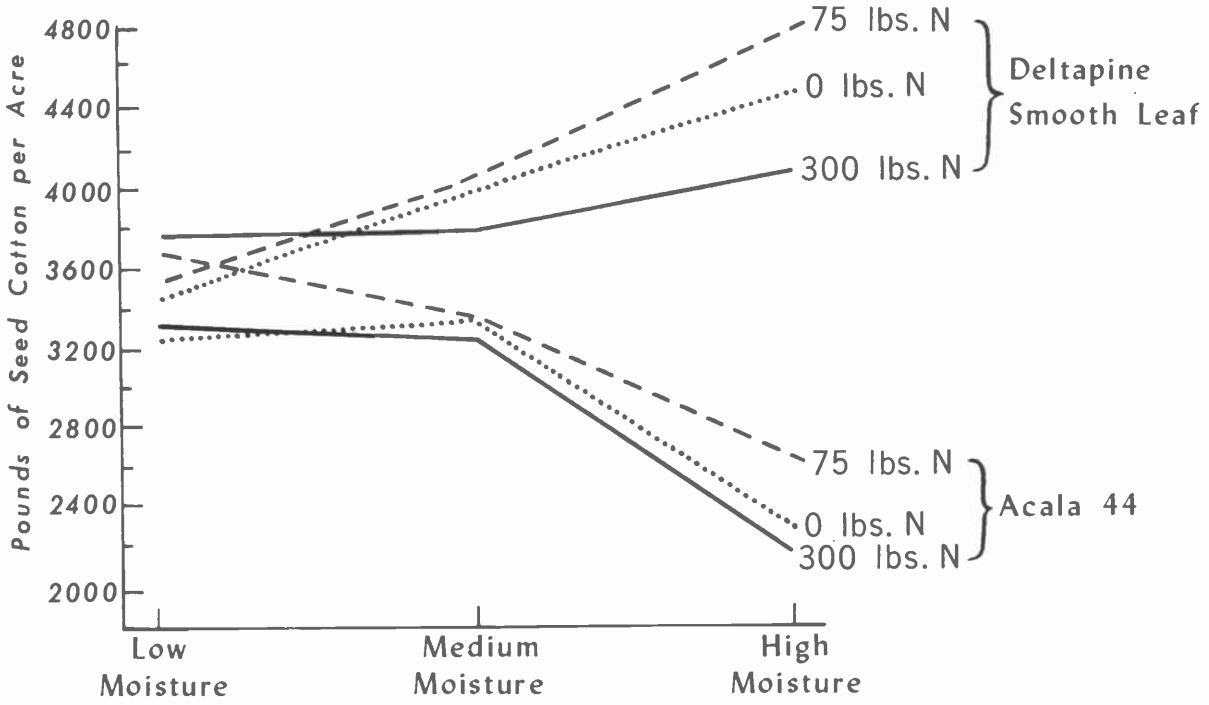
In both irrigation treatments half of the plots are hedgerow planted (11 feet between trees) and half of the plots are regular planted at 22 feet between trees. In both plantings, rows are spaced 23 feet apart. The sprinkler arrangements used result in the same water application per tree for hedgerow as for regular planting. In the flooded plots, the same amount of water per plot was applied, regardless of tree spacing. Therefore, irrigation of the hedgerows resulted in a lower average

(Continued on Next Page)

Acala, Deltapine Respond Differently To Water, Nitrogen

E. B. Jackson and H. F. Kreizinger

Dr. Jackson is an Associate Agronomist and Dr. Kreizinger an Assistant Agricultural Chemist, both stationed at the Yuma Branch Experiment Station.



THE GRAPH shows plainly how response of the two varieties differs, especially to heavy irrigation.

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application per tree. No differences in tree growth, yields or tree appearance have thus far been evident between the two methods of planting.

Costs of water application by the two methods are difficult to estimate because of the small area of the experiment. Labor requirements have been eight man-hours per irrigation for the flooded plots of 2½ acres. If one man could handle five times this flow, it is estimated that surface irrigation labor requirements would be about one man-hour per acre.

The sprinkled plots require no irrigation labor. However, nozzles need attention, the pump must be turned off and on and the equipment serviced. This has required about one-quarter man-hour per acre. On this basis, labor for surface irrigation would be much less for the permanently installed sprinklers than for surface irrigation. The electric power cost for the sprinkler pump is about 10 cents per acre-inch applied or, in this situation, 30 cents per acre per irrigation.

Save Half the Water

By more uniform application of water and better control, sprinklers can save half of the irrigation water with citrus growing on Superstition Sand, resulting in tree growth equal to that achieved by surface methods of irrigation. This is at operating costs comparable to present methods of application, also offering opportunities for automatic irrigation, and a chance to give temperature control in summer and in winter by sprinkling trees and soil.

Additional investigations are needed to work out cultural practices suitable with sprinkler irrigation and to arrive at a complete comparative economic analysis for the two systems.

The tendency of Acala cottons to grow rank has long been a serious problem in the Yuma and Wellton-Mohawk Valleys. Even with the most careful attention to what are considered good management practices, lint production has been highly variable.

Some growers have come up with four-bale yields, while others have grown plants that were nine feet tall and produced less than a bale of cotton. Currently, the rapid change-over from hand to machine picking is further complicating the situation.

In the spring of 1959, Yuma County cotton growers began switching from the Acala varieties to Deltapine Smooth Leaf. By 1961, the change-over was almost complete in the Yuma, South Gila, North Gila, Dome and Wellton-Mohawk Valleys. Here approximately 95 percent of the cotton acreage was planted to Deltapine. In the Parker area, the estimate was 50 percent.

Plants Fitted Harvesters

Yuma County farmers were encouraged in this variety change by reports from the Imperial Valley that Deltapine had been giving consistently high yields on shorter plants which were well suited to machine harvest. Along with the new variety there came a formula for growing it which called for frequent irrigations and a high level of nitrogen fertility. Actually, this presented no problem because it happened to be the system already employed by many growers in managing their Acala.

To learn more about managing the Deltapine variety under local conditions, it was compared with Acala-44 in experiments involving different levels of moisture and nitrogen fertility. These studies were initiated in the spring of 1960 with plantings on the Oscar Wall's farm in the Dome Valley, and on the UA Experimental Farm in the Yuma Valley. They were continued in 1961 with plantings on the Bruce Church ranch in the North Gila Valley and on the UA Experimental Farm.

Since soil type can be expected to modify the response to such things as moisture and fertility, it will have to be taken into consideration in attempting to apply the results of these experiments to other areas. The soil on the Yuma Experimental Farm is a clay loam while that of the other two experimental sites is a lighter silt loam. However, the experiments conducted on these two soil types were handled similarly and gave essentially the same results.

Response to Water Differs

In the 1960 experiments, the two varieties responded very differently to the various soil moisture levels, but showed

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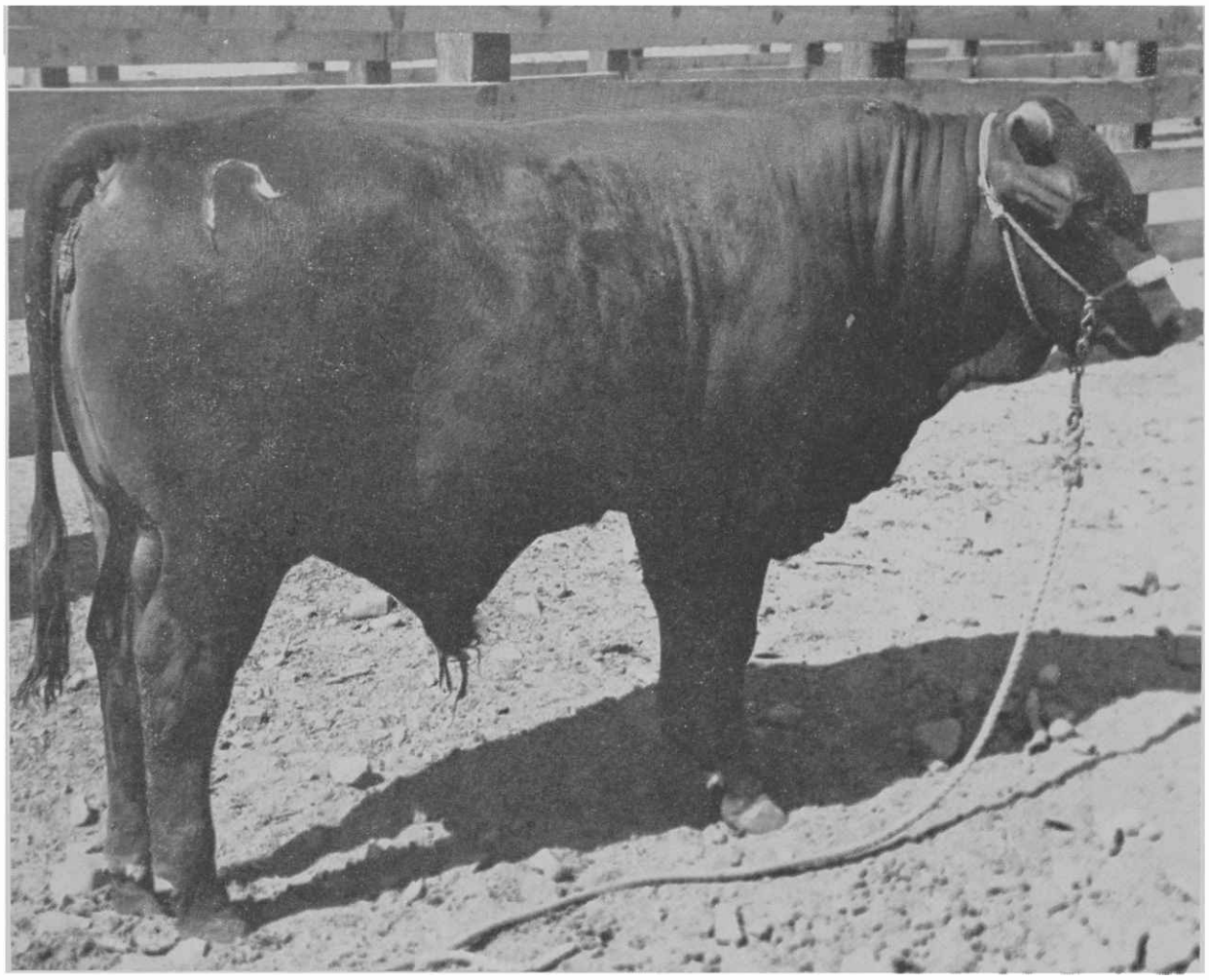
Top Gainer in UA Gain-Test Trials



A REMARKABLE GAIN of nearly four pounds of weight per day during the 130-day University of Arizona gain-test for young beef bulls was registered by Michael, a Santa Gertrudis from Ki-He-Kah Ranch, Tumacacori, Arizona.

Michael, shown above, topped the 60 bulls in the UA test group with an average daily gain of 3.82 pounds. The animal entered the test at age of seven months, weighing 584 pounds, and 130 days later, when the test period ended, he was weighed out at 1081 pounds. Test period was Oct. 16, 1961 to Feb. 23, 1962.

Both the sire and dam of Michael are of Hayden Rucker breeding from Okmulgee, Okla., a producer of show champions. Ranch and herd manager at Ki-He-Kah is Mr. Archie Bailey.

J. E. Horrigan, speaking for Ki-He-Kah Ranch, says they have not yet decided whether to sell Michael as a herd sire or retain him in the Ki-He-Kah herd. The Tumacacori area is center of some of the finest Santa Gertrudis herds in the country.

(Carl Safley photo)

Arizona Sheep Industry

Sheep numbers declined in Arizona in 1960. There were 450,000 head on farms and ranches in Arizona on January 1, 1961, compared to 454,000 head on January 1, 1960. However, the number on hand January 1, 1961, was approximately 38,000 head higher than the ten-year average (1950-59).

The 1961 Arizona lamb crop is estimated at 292,000 head compared to 293,000 head in 1960. Wool production in 1961 was approximately 3,243,000 pounds, about one per cent increase over the 1960 production of 3,204,000 pounds.

Income from sheep and lambs in 1961 is estimated at $4,000,000. And the income from the sale of wool was approximately $1,400,000, or a total cash income of approximately $5,400,000 compared to $5,600,000 for 1960. The reason for the decrease in income to sheep producers in 1961 was due primarily to the decline in price of slaughter and feeder lambs.

(Continued from Preceding Page)

no significant fertilizer response. The latter most likely was due to an adequate supply of nitrogen already present in the soil at both locations. The 1960 results suggested slight modifications in the irrigation schedules which were made in 1961. Experimental areas were also selected which were known to be lower in initial nitrogen fertility.

There was close agreement between the experiments at the two locations in 1961. Therefore, only the one conducted on the Experimental Farm will be described here to present the significant findings.

In addition to the pre-irrigation, there were three different irrigation schedules as shown in the following diagram. Approximately four inches of water was applied in each irrigation.

	April	May	June
High Moisture	x	x x	x
Medium Moisture	x	x x	x
Low Moisture	x	x	x x

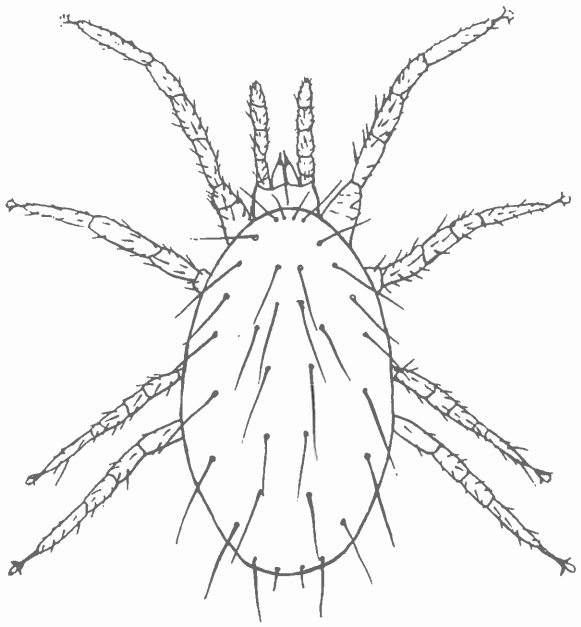
	July	August	September
High Moisture	x x x	x x x x	x x
Medium Moisture	x x	x x	x x
Low Moisture	x	x x	x

Nitrogen treatments were selected on the basis of previous experience to represent: (1) An insufficient level of fertility, (2) A level deemed to be about right for the heavy valley soil and (3) A level considered to be excessive. They were 0, 75, and 300 pounds of elemental nitrogen, as urea, per acre, side-dressed before the first irrigation.

As shown in the graph and supported by statistical analysis, the general conclusions were: (1) There was no important difference in yield between varieties at the lowest level of soil moisture; (2) As the frequency of irrigations increased, Deltapine did progressively better, while Acala did progressively worse; (3) There were no important differences among levels of nitrogen at low and medium moisture, but there was a *significant depression* in yield in both varieties from high nitrogen under the high irrigation frequency; and (4) Over-all, 75 pounds of nitrogen gave higher yields than 300 pounds of nitrogen.

Overfertilizing Undesirable

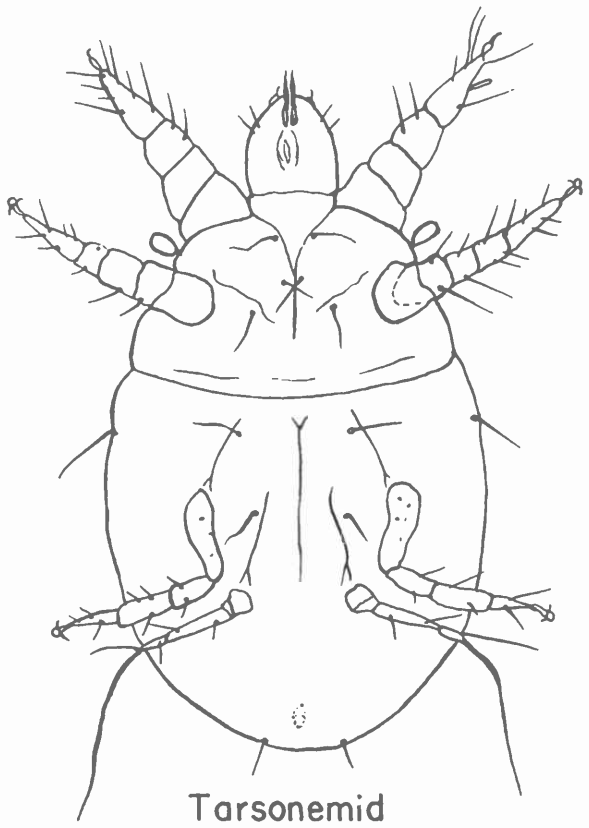
In these experiments, Deltapine Smooth Leaf required more frequent irrigations than Acala-44, but did not require more nitrogen. Results from two years of work with the two cotton varieties lead to the conclusion that many farmers have been trying too hard in growing Acala. They fertilized too heavily and irrigated too often. Rank cotton and low yields have been their principal accomplishments. With the switch to Deltapine, the custom of irrigating every 7 to 10 days during the hot summer months seems to be about right. But the prevalent idea that this must be accompanied with 300 pounds of nitrogen should be very carefully re-examined.



Phytoseiid

PLANT MITES OF ARIZONA

Donald M. Tuttle



Tarsonemid

More than 200 species of mites have been added to a list of 56 species listed in a report published by D. M. Tuttle and F. F. Bibby in April 1959. A few of these 200 were new species and most of the others were new records for Arizona.

In addition to these species of mites, at least another hundred have been collected which are new and undescribed. Mites have been collected extensively from crop plants. During the past three years, the desert fauna has been searched around Yuma and several out-of-the-way areas of Yuma County for mite specimens.

Besides Yuma County, some mites have been collected in Pinal, Maricopa and Coconino counties. Most of the records and a majority of the species now known represent Yuma County.

New Species Appearing

The southwest appears to be extremely rich in new species. Since many mites are specific in their host plants, all kinds of plants must be examined. Further collecting throughout Arizona will add much to the records and to the list of other mite species and undescribed species.

The search for plant mites can be done throughout the year in Arizona. During the winter months it would be difficult to collect in the northern part of the state. However, the southern third of the state offers opportunities even in the winter period. Small portions of plant material are collected in the field. These are placed in paper sacks and labeled. Different species of plants are sought.

Careful observation for deformed plant parts, stippled leaves, yellowish leaves and unhealthy plants are some of the methods of detecting mite presence. The plant material is brought into the laboratory and kept cool until examined. Various techniques can be used searching for mites from these field samples. Sometimes suspicious material is examined directly under a binocular microscope. Two other methods are: sifting by beating over screen pans, or placing plant material in in a berelese funnel. The latter involves a screen container placed in a funnel and a heat source applied from the top. Upon drying, the mites are forced down and fall into a preservative solution.

Work Slow Up to Now

Progress in our knowledge of mites has been slow for several reasons. Prior to 1940 there were only a few scattered workers in acarology. Now several students have been drawn from the related fields of entomology, zoology and parasitology. Mites have been neglected because of the extremely small size of many (.5 mm. and smaller).

Recent techniques have speeded the study, such as methods of collecting, clearing, preserving and advances in microscopes. The phase microscope has been of tremendous importance to the mite students. Problems caused in agriculture and the recognition of mites as vectors of several human diseases helped stimulate interest in the acarino (mites).

The largest number of known species of plant mites occurring in Arizona belong to the Eriophyid family (*Eriophyidae*). Strangely, this family is the exception to the rule, in that they have only two pairs of legs, whereas all the other adult mites are characterized by four pairs. Eriophyids are among the smallest mites, measuring up to 0.2 mm. in length. (To visualize this 0.2 mm. size — one-fifth of a millimeter long — imagine a mite so tiny it would take 175 of them to reach across a sheet of 35 mm. film such as we use in taking color slide pictures.) At present, approximately 100 species have been discovered in Arizona and at least half of these were new or undescribed species.

On All Plant Parts

Some are leaf vagrants, others form galls, many inhabit buds, some are associated with flowers, a few under stipules, occasionally on terminal growth, and etc. Although a majority of Eriophyids are found on perennial plants, annual plants are also hosts.

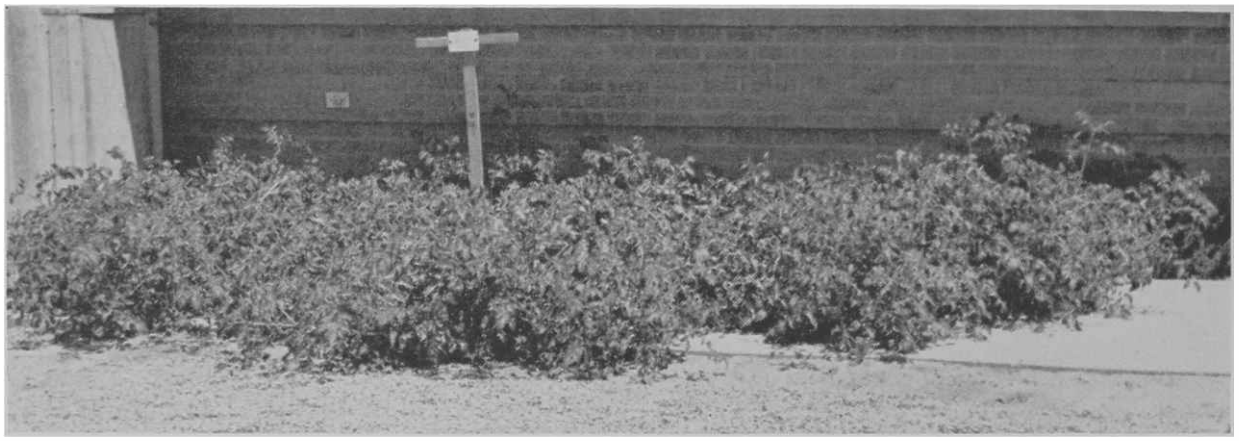
Perhaps the most destructive group to Arizona agriculture are the spider mites, family Tetranychidae. Many of this group form silk webbing on the leaves of plants. These are medium size mites (0.5-1.0 mm. in length). The body is soft and varies in color from red, yellowish, greenish, orangish and is often pigmented with dark color patterns. Spider mites are common pests on most of the agricultural crops.

Others are found in our gardens and on ornamentals. All types of vegetation seem to be inhabited by various species. The best known member of this family is the 2-spotted spider mite which attacks

(Continued on Next Page)

Dr. Tuttle is an Associate Entomologist stationed at the Yuma Branch Experiment Stations. A man of varied talents, he not only made the studies described here, then wrote the description, but also drew the pictures of the mites which accompany his article. He is an authority on mites.

This Plant Prodigious Producer



THIS CHERRY TOMATO plant at the University's Cotton Research Center may not be the most productive in the Southwest, but it'll do until a challenger comes along. Dr. Lester Blank, USDA Plant Pathologist at the Cotton Cener, obtained the seed, planted it inside the building in a flower pot, then transplanted it outside in November, 1961.

The plant thrived until it froze back in February, 1962. The dead above-ground parts were cut off, then the plant began new growth. As of June 1 it covered an area exceeding 7 by 13 feet — nearly 100 square feet of ground area!

And up to June 20, it has produced 1,990 ripe cherry tomatoes, and the green fruit on the plant at that time assures a total production from one plant of more than 2,500 tomatoes. Fred Arle, USDA Agronomist at the Cotton Center, has taken official charge of the remarkable plant since it was set outside, doing the fertilizing and watering, and keeping official tally of production.

Pahnish New Head Of Gamma Sigma Delta

The fifth annual banquet and initiation ceremony of the Arizona Chapter of Gamma Sigma Delta, the national honor society of agriculture, was held this spring at The University of Arizona Student Union.

Faculty members initiated were Dr. William J. Pistor, Dr. Albert Siegel, and Dr. Milton Zaitlin. Graduate students entering the society were John A. Booth, Ray A. Cattani, Kurt C. Feltner and Leonard W. Storm.

Graduating seniors accepted by the society were John J. Murphy, Jonathan E. Peek, and LaMonte D. Pischke. Mr. Pischke also received a traveling trophy for being the senior in agriculture with the highest scholastic rank.

Dr. O. F. Pahnish succeeds S. D. Resnick as president of the Arizona Chapter; Dr. R. E. Briggs succeeds Dr. O. F. Pahnish as vice-president; Dr. M. H. Schonhorst succeeds Dr. R. E. Briggs as secretary; and Dr. B. L. Reid succeeds Dr. A. L. McComb as treasurer. The newly appointed historian is E. B. Stanley.

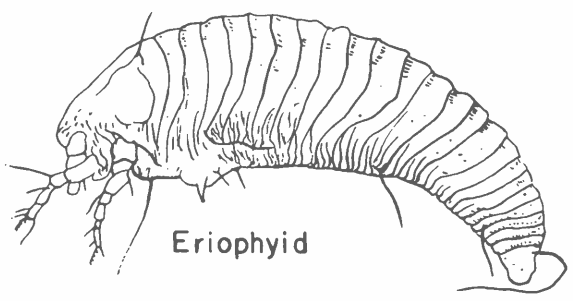
Trade names used in this magazine do not endorse products named nor imply criticism of similar ones not mentioned.

(Continued from Preceding Page)

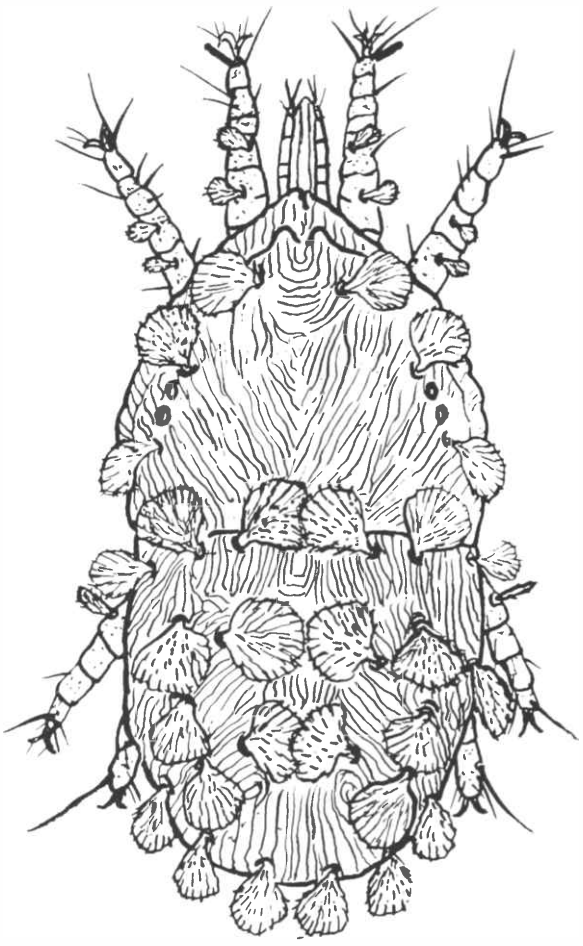
many kinds of plants. Some new species from Arizona are being described among several genera.

Flat Mites Abundant

Another group of plant mites particularly abundant in Arizona and causing damage to crops are the flat mites, family Tenuipalpidae. The Lewis flat mite occurs on citrus and related plants. Others are abundant on woody plants found around homes and those growing on the desert. Most of these are host specific and new species are encountered continually from various areas.



The Tarsonemids are another much flattened family of mites. Several species of these apparently occur in Arizona. Only a few of the collected specimens have been determined. These pale mites are particularly abundant on grasses. They are very small and well hidden on the plant parts in most cases.



Tenuipalpid

Affect Stored Foods

Several families of mites are associated with stored foods. A few are of economic importance and cause considerable damage. Much of our knowledge of these mites is from British research workers. The family Acaridae is one of the more important groups. Some species in this family are widely distributed in the United States on many stored crops.

Several families of predatory mites occur along with the plant mites. Among the more common ones are Phytoseiidae, Tydeidae, Erythraeidae, Cunaxidae, Bdellidae, Anystidae and Cheyletidae. Most of these are larger mites with well developed mouthparts for probing other mites and small insects. The bodies of some families are abundantly covered with seta and others have a heavily chitinized body wall. The Phytoseiids are perhaps the best known of the group.

Little is known about other families. Most of the Tydeids have not been described. At least 15 new species of Tydeids from Arizona are being described at present. Some undescribed species in most of the predaceous families have been collected in Arizona.

Typewriter Queen of the Rodeo

ATTRACTIVE WINNER of the Alex Parker journalism award at The University of Arizona is Miss Kathleen Kohlstaedt, sophomore from Indianapolis. The award is named for a veteran member of The (Tucson) Arizona Daily Star staff who was deeply interested in success of the UA Journalism Department. It goes to the student who, in the judgment of the department staff, has been "best reporter of the year" on The Wildcat, UA student newspaper.

Katie Kohlstaedt, whose first love is horses, is a dual agriculture-journalism major. Her award was based on her "one-woman special" rodeo edition of The Wildcat.

Katie conceived the idea for that special edition, got the information, wrote the stories and took the pictures which made up that issue.

Milk Production

Arizona dairymen continued to produce milk in excess of that needed for Class I uses by about 21 per cent during 1961.

Dairymen delivered over 450.5 million pounds of milk to handlers regulated by the Federal Milk Marketing Order. Class I sales accounted for 356.4 million pounds and Class II sales were 94.1 million pounds.

Total cash receipts from dairying amounted to an estimated $26 million during 1961. Of this amount $23.5 million was from the sale of milk and milk products and $2.5 million was received from the sale of dairy animals.

Surface Indicators

The needs of the army and the soil researcher are the same. The soils researcher is interested in making measurements of soil structure and moisture and its relationship to plants. He is interested in the effect that man's cultivation may have on the soil.

The army is interested in locating land mines. It is possible to make land mines of several materials but to be effective they all have to be buried in the soil.

The Army Corps of Engineers, Research and Development laboratories at Ft. Belvoir, Virginia, has provided a grant to the University of Arizona to obtain a quantitative evaluation of the effect the burial of a mine has on the soil.

Dr. Anderson, Soil Physicist, and Dr. Buol, Soil Genesis and Classification researcher, are leaders on this project to determine a method of detecting the disturbed soil from the undisturbed soil in a variety of soil and climatic conditions.

Leche por Salud

Cualquiera clase de leche (de vaca, oveja, cabra, burra) es buena, siempre que proceda de animales sanos. La leche es el alimento más completo y por consiguiente el mejor y más necesario para los niños, mujeres embarazadas y lactantes. Puede consumirse en varios formas: entera o descremada, fresca, condensada o en polvo; asi también como cuajada o queso. Un trozo de queso de una onza posee la mayor parte de las sustancias nutritivas contenidas en un vaso de leche.

—TIERRA

Students Pick Fazio

Unanimous vote of the College of Agriculture's Student Council has given the coveted "Outstanding Professor of the Year" award to Steve Fazio, associate professor of horticulture.

This is the second year the award has been given. Last year it went to Dr. William J. Pistor, head of the Department of Animal Pathology. "Bill" Pistor, in turn, this spring was named "Outstanding Faculty Member of the Year" by the Bobcats, an all-university student activity group.

Like Pistor, Steve Fazio is an Arizona native and graduate of The University of Arizona. The horticulturist, born in Phoenix, received both B.S. and M.S. degrees from this university, has a daughter, Mary Jean, who attended school here, and a son, Steve Jr., a freshman in the College of Liberal Arts.

The coveted award from the students

comes as Fazio celebrates completion of 20 years on the UA Horticulture staff. And to top it all, Mary Jean, now married and a housewife, has just presented the popular horticulturist with his first grandchild.

Just one footnote: Both this year and last, the judgment of the students is thoroughly endorsed by staff colleagues in the College of Agriculture.

Arizona's 1962 Dairy Princess

GLOWING WITH attractive health — which implies the health-giving nourishment of dairy products — is the 1962 Arizona Dairy Princess, Miss Sharon Louise Rovey of Glendale. A graduate of Glendale High School, Sharon lives on a 500 acre farm and plans to enter The University of Arizona next fall, where she will major in Home Economics. Meanwhile, she will be busy much of this summer attending various events and gatherings, symbolizing the healthful goodness of milk, ice cream, and other dairy products. (Photo courtesy ARIZONA FARMER-RANCHMAN)

Homemaker Conference On Campus Draws 225

More than 225 Arizona homemakers from all of the state's 14 counties attended the sixteenth Town & Country Life Conference on The University of Arizona campus, June 11-15.

Miss Jean M. Stewart, state leader in home economics extension, pointed out that much interest was shown in the classes conducted during the event.

The visiting homemakers followed the discussions on the making of a will for family security, achieving happiness in marriage, emotional maturity in relation to parenthood, well adjusted children, flower arranging workshop, use of color in the home, learning to create watercolor paintings, playing simple musical instruments for enjoyment, new features and safe use of appliances, consumer credit, job security of the future in the changing business technology, and development of leadership confidence.

While registering for the conference, the homemakers met to officially form the Arizona Homemakers Council. Officers elected were: President, Mrs. Bert Wood of Camp Verde; Vice-President, Mrs. N. O. Weatherby of Klondike; Secretary, Mrs. Charles Rulapaugh of Phoenix; and Treasurer, Mrs. Theron Johnston of Tucson.

Objectives of the Arizona Homemakers Council are to encourage continuing adult education of all state homemakers in family living and to develop more effective leadership by member participation.

Egg Income Down

Total sales from poultry and eggs in Arizona during 1961 amounted to $7 million compared to $7.5 million in 1960. Eggs were the major source of income, producing $5 million — down from $5.5 million in 1960.

Other sources of income were: eggs and poults shipped out-of-state, turkeys, commercial broilers, and farm chickens (primarily hens).

In Arizona the average number of laying hens, total number of eggs produced, and eggs produced per hen decreased again in 1961 — the second straight year. Egg prices, on the other hand, have increased each year since 1959 — a cyclical year of heavy production in the U. S.

As a result of fewer hens and a lower rate of lay, total eggs produced in the state decreased from 161 million in 1960 to 145 million in 1961.