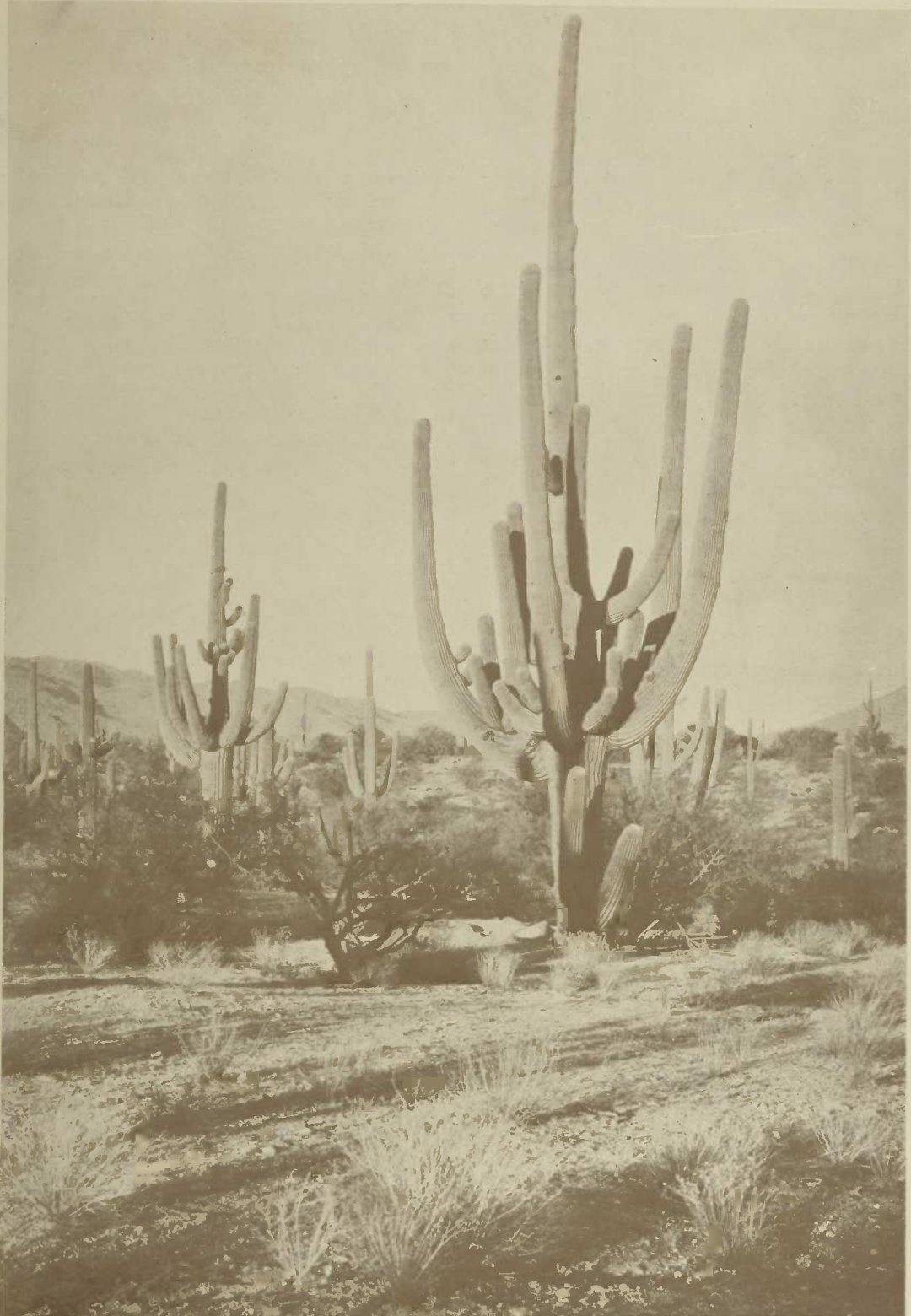


THE ARIZONA AGRICULTURIST





. . . the man who seeks to stem the advance of power farming might better take a broom to the seashore and sweep back the incoming tide.

A few remarks addressed to men who are going out at the close of a college year to take part in a summer of farming.



HERE is a seesaw on every farm. One end of it is held down by "farm profit" and on the other end sits "production cost," and as things go on the slackly managed farm the profit end is down and the cost end is up in the air. That is the easy way, the careless way, the old-fashioned way. Steady prosperity comes to live on the farm only when modern efforts are made to push costs down so that the profit end may rise.

One of the best-known agricultural authorities has lately made this interesting prophecy in connection with the future of farming:

"The cost of production on the farm will be lowered below anything yet known."

That statement, made in connection with a discussion of power farming, holds special promise for every man who has ambitions to run a farm profitably and happily.

POWER holds the secret of successful farming. It is power that controls production costs, beyond all other factors, and the importance of power is now being fully recognized. The demonstrated efficiency of the tractor and of bigger and better

equipment units is being set at work on every hand. We are in a new age. Snail-pace horse farming can no longer keep up with the times.

MAN POWER is making greater demands. A leading farm paper, *The Farmer*, of St. Paul, says, "All signs point to stronger competition for farm labor than prevailed last year. This will be the third successive year that the hired man has had his wages raised." The expensive farm laborer must be made to do three days' work in one, and only the tractor can make him do it.

Quoting another farm paper, the *Iowa Homestead*, "It is costly to ignore new methods which have proved their usefulness and economy. The tractor will ultimately be a feature of every well-equipped farm."

This is the heyday of the farm tractor. The trend toward power farming is like the gold rush to the Yukon, and gold is what the prospectors of the farm are seeking today. Special machinery to fit these times is producing liberal profit on the farms. Already over a half-million farms in the United States are equipped with tractors and belt and drawbar machines—and they are money-making farms. Last year a hundred thousand tractors were purchased. This year will see far more tractors than in any previous year.

The man who obstructs the advance of power farming might better take a broom to the seashore and sweep back the tide.

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ARIZONA AGRICULTURIST

A Farmer's Magazine for the Farmers of the Southwest

Vol. II

JUNE, 1925

No. 6

Some Early History of Dairying In Arizona

By W. S. CUNNINGHAM

Dairy Husbandman, University of Arizona

One of Arizona's Prime Industries Almost Entirely Ousted by King Cotton is Due for a Comeback. Many Fine Herds Now Being Developed in the Salt River Valley—The Stability of This Industry Will Not be Overlooked by the Enterprising Farmer of Today

DAIRYING, on a commercial scale, began in Arizona in about 1895. Before this time, dairying was practiced on a small scale by settlers who made butter and cheese on their farms. In 1896, however, a San Francisco firm sent an organizer to the Salt River Valley and he organized the farmers of that valley into a co-operative organization, with the result that the Maricopa Creamery was built in 1897. Emory Kays was the moving spirit of this first creamery, while Frank Mognegg was the first president. As there were no cream separators in the valley at that time, the whole milk was delivered to the creamery, about 16,000 pounds being the average amount of milk received daily during the summer months.

In addition to the Maricopa Creamery, there was another creamery in operation at Tempe in 1895, at the location of the present condensery. The information concerning this creamery is meager.

The Farmers' Co-operative Creamery, which is still running under that name, was started in 1899 by a group of farmers headed by Mr. Dawes. This creamery stopped operation in 1909, but resumed its activities in 1911, when the dairy industry began its rapid development.

The Hassayampa Creamery was first built on the Yuma road just west of Phoenix by August Heglund, in 1906. It was incorporated in Phoenix in 1908. It was managed by August Heglund until 1911, when its management was taken over by John Dennett.

In 1910, the Maricopa Creamery, which was about to go on the rocks, was taken over by B. G. Webster, who bought controlling interest and who continued as active manager until his death.

In 1911 there began a very rapid development of the dairy industry



TYPICAL PASTURE SCENE IN PIMA COUNTY, WHERE DAIRYING IS ONE OF THE LEADING INDUSTRIES

in the Salt River Valley, due to the completion of the Roosevelt Dam. This development resulted in the starting of small creameries and cheese factories in various places in the valley, one of the largest plants being the milk condensery at Tempe. In 1917 Armour & Company completed a large milk condensing plant in Glendale.

In the beginning, most of the cows supplying milk for the creameries were range stock, called at that time by the farmers mountain cows. About 1896, however, Wm. Osborn shipped in some Jersey cows. About twenty years ago Wallace McDonald began shipping in improved breeds of cattle. He imported into the State Holstein-Friesian and Shorthorn cattle, obtained largely from Nebraska, and in 1907 he purchased a splendid lot of Ayrshire cattle at the National Dairy Show.

J. C. Adams also began importing Jersey cattle about twenty years ago, and a little later Henry Renaud brought in the foundation Holstein cows and bulls from which he established his famous herd, which is still in existence. He secured most of his

foundation animals from W. B. Barney of Iowa.

Frank Reed Sanders, who has probably had more influence on the dairy industry of the Salt River Valley than any other one person, began importing cattle into Arizona in large numbers fourteen years ago. Mr. Sanders is an excellent judge of dairy cattle, and he brought into the State improved types of both registered and grade Holstein, Jersey and Guernsey cattle. His importations were largely from New York, Massachusetts and Ohio.

Dairying became the leading industry of the Salt River Valley, increasing rapidly until the year 1917, when it was estimated there were more than 60,000 dairy cows in Maricopa county. In 1918, however, cotton became king, and in two years time 40,000 cattle were shipped out of the valley. It is believed that, eventually, dairying will come to its own again.

There are a few minor dairy sections of the State, as the Yuma Valley, Gila Valley, Santa Cruz Valley, etc., but in these sections dairying has never been highly developed.

The Sheep Industry In Arizona

By E. L. SCOTT

Assistant Animal Husbandman, University of Arizona

Arizona Practices Unique Sheep Management, Approaches the Ideal for Spring Lamb Production, and Exhibits Possibilities in Lamb Fattening—Range Sheep Industry is Permanent

MOST of Arizona's claim to economic fame is based upon her three "C's," copper, cattle and cotton, but she can rightly feel proud of her sheep industry. In 1924, approximately \$2,200,000 worth of Arizona sheep found their way to the markets. Add to this the value of last year's wool clip, or \$2,000,000, and you can get an idea of the value of the industry to the State. It is probable that the dollar value of this industry will become greater during the next few years. Increase in farm sheep, improved methods of range management, grading up of sheep, culling for wool production, and systematic, orderly marketing of standardized, quality products, both mutton and wool, will accomplish this without any increase in the number of animals on the ranges. The ranges of the State will not be interfered with to any great extent by dry-farming and intensified agriculture. There is perhaps no other State in the range area where sheep seem to fit so economically into the system of agriculture. Northern Arizona has long been recognized as excellent sheep range country. The central or desert type of range returns a greater profit from sheep than any other class of livestock. It would seem that the range sheep industry is here to stay.



RAMBOUILLET AND RAMBOUILLET-HAMPSHIRE CROSSBRED LAMBS ON ALFALFA-BARLEY PASTURE IN THE SALT RIVER VALLEY, 1923

Rambouillets Predominate

Most of the sheep grazing on Arizona ranges are of the fine wool type. Insufficient feed for fat lamb production, and the brushy type of range, necessitating a system of close herding, has caused the Rambouillet to be the most popular breed of sheep. Of these Rambouillets, both native and improved, about 650,000 head are owned by white people, and almost as many by Indians. The Indian sheep are mostly native or unimproved, and are held on the reservations the year round. Good breeding and selection have resulted

in a great improvement in the type of sheep owned by white people.

"Winter Tourists"

These sheep, over a half million of them, graze largely on the high plateau of the northern half of the State during the summer months. Half of these remain permanently in the northern sections and drop their lambs in May and June. After a summer's grazing, they are moved to shipping points, where old ewes and marketable lambs are sorted out, a large portion of the cull ewes finding their way into the Salt River Valley at the hands of spring lamb producers, many of the lambs going to the west coast or to Kansas City, and others to Denver to enter Colorado feed lots. The other half of the ewes are subjected to a system of management peculiar to Arizona. They "go south for the winter," and constitute a significant part of the winter tourists in the southern valleys. These ewes are either driven over stock driveways set aside for this purpose by the Government, or shipped by rail, according to the season. When grass is good on the driveways, many are driven, while in poor seasons the rail movements are heavy. This annual movement of from 150 to 200 miles gives them a change of climate, according to Mr. R. Wells, of the Bureau of Agricultural Economics, equal to a move



SALT RIVER VALLEY LAMBS ON JOURNEY TO THE NORTHERN RANGE



A TYPICAL GROUP OF NORTHERN ARIZONA LAMBS IN A DRY-LOT FEEDING TEST

from New York to Miami, Florida. It is a move from a cold, snowy range to a mild, warm valley among the citrus groves. Green winter feed, a saving to the home ranges, and a uniform, moderate temperature for lambing and shearing, are among the advantages that author lists for such management. These ewes are held in this "Sheep's Paradise" until sheared and both ewes and lambs are strong enough to move back to the cool summer plateau range, where, after a few months' grazing, they are herded to the nearest shipping point. Here the annual cycle begins again.

Spring Lambs

Many broken-mouthed and gummer ewes are culled out and either sent south by the owners or sold to early lamb producers who handle them in the same way. Some prime ewes are managed so that they will contribute their quota to the spring lamb industry. Ewes handled for spring lambs are bucked up early so their lambs will be dropped in November, December and January. These females are usually bred to mutton type rams. Hampshire bucks used for this purpose have been gaining in popularity and at present they are used almost to the exclusion of the other mutton breeds. Lambs dropped in November and December suckle their mothers and nibble on alfalfa pasture until they reach good finish and can compete with the hot-house lambs for Easter trade. Later lambs may be turned on the desert after rains, where brouse, Indian wheat and alfalaria furnish green nourishment. In April and May conditioned lambs are marketed and the remainder trailed

northward with the ewes and disposed of in the fall either as "summer fat" or feeder lambs. Lambs born in January during unusually good seasons, and young cut-backs from northern fall feeder sales help to swell the total number of lambs marketed in early spring. Some idea of the extent of this early lamb production can be gained from the fact that in 1924, 60,000 such lambs turned close to \$600,000 to their owners. There is every reason to believe that the number of spring lambs produced in Arizona may pass the 100,000 mark. The increase in number of farm sheep, selection of early breeding ewes, special care in feeding and in bucking up the ewes will contribute to a substantial increase in the spring lamb industry.

Farm Flocks

The farm flock is the one phase of the sheep industry in Arizona which has been most neglected. A

few progressive farmers have come to realize a cash income from farm sheep. The early spring lamb, the wool clip in the fall and the constant demand for good breeding stock make sheep on the farm an attractive proposition. Those farmers who keep sheep appreciate certain advantages resulting from the flock, such as the consumption of unmarketable roughages and scrubby and weedy types of vegetation— forage that is little relished by the other classes of livestock. Notice these farms and you will see that the fence corners, waste areas and ditch banks are always clean. Our southern irrigated valleys offer excellent opportunities for the development of the farm flock enterprise and with little expenditure many farmers could equip to handle sheep. At the present time there is a general increase of interest in the farm flock, especially in the southern half of the State.

No Premium for Finish

Arizona meat consumers will pay no premium for finished mutton or beef. If local market quotations can be used as an index, the consuming public actually prefers an under or moderately finished animal. The high cost of grain and prohibitive freight rates to eastern markets, together with insufficiently stimulated California markets, has served to impede the progress of lamb fattening in the State.

Fattening Arizona Lambs

Having studied sheep movements and reviewed briefly the feed situation, the question at once presents itself as to whether or not Arizona grown feeds can be used to advantage in fattening these range lambs,

(Continued on page fourteen)



SHEEP ON SUMMER RANGE IN COCONINO COUNTY

ARIZONA AGRICULTURIST

A Farmer's Magazine for the Farmers of the Southwest

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FRESHMEN COP HONORS

THE First Annual Judging Day, held at the University Farm, Saturday, May 2nd, by the faculty and students of the College of Agriculture, was a huge success, if numbers and co-operation mean anything. The entire faculty and close on to sixty students participated in various ways, each contributing their bit to the initial event, which is destined to become one of the major activities of the "Aggie" men in future years.

Speaking of honors, the Freshmen carried off the majority of these. Poultry Judging, Farm Crops Judging, and best all-around judge winners were Freshmen. However, this fact is not to be deplored, but rather cherished, for these men have three years of school before them in which to improve their efficiency to such an extent as to cause national competitors considerable worry. Listing the winners of the various events, they read as follows:

Winner in the animal husbandry division, P. L. McInnes.

Winner in the dairy husbandry division, R. Hamblin.

Winner in the agronomy division, H. Mundehenke.

Winner in the poultry division, L. J. Finch.

Best all-around judge of the day, H. Mundehenke.

Each of the above men will receive a medal symbolic of aptitude in his own particular line, and the best all-around judge is to have his name inscribed on a beautiful silver cup, which will be on display in the Dean's office at all times.

The "gala" event of the day was the faculty-student ball game, in which the latter emerged victorious to the minute score of 13 to 12. At the outset of the game things looked rather dubious for the students, when the only available bat was broken, but, nothing daunted, a few pick handles were forthcoming and the swiftest went merrily on.

OUR ADVERTISERS

TO INSURE the success of any farm journal of merit, a great deal more than the publishing of good articles is required. Consider for a moment the advertising—the basis of financing practically all publications of this nature. THE ARIZONA AGRICULTURIST has been a success this year, and we are here to stay, but that success is in no mean measure due to the firms whose advertisements have appeared in it. Then, Mr. Reader, if this magazine is of interest to you, and remembering that its reaching you has been made possible by the advertising in it, is it not for you to notice the firms who have done a considerable part in bringing this publication to you?

To our advertisers during the past year we are very grateful, especially in view of the fact that during the first part of the year we were in what you might call the formative stage of development, with our advertising value unknown. Thus, in putting out an agricultural magazine to the farmers of the Southwest, we owe our beginning to the business men of Tucson and elsewhere who have so splendidly backed us during the first year. Whether their confidence

proves in vain depends upon us and upon you. Let us make them feel by our patronage that the trust they have placed in THE AGRICULTURIST was not in vain.

LAST EDITION THIS YEAR

THIS is the last edition of THE AGRICULTURIST to be published until next October. Members of our staff are scattered far and wide during the vacation months, and it is impossible to issue a publication during the summer months. However, we will again be on deck with a "better than ever" publication next October. Watch for it.

To you, kind reader, we owe a message of thanks for your wholehearted support and patronage. We have had a very successful season, and we feel that our progress has been somewhat dependent upon you. Receive the thanks of the "Aggies" for your interest in us.

The next issue of THE AGRICULTURIST will be put into the mails about October 1st.

PECAN COMPANY ORGANIZED

Articles of incorporation have been filed with the Arizona Corporation Commission by the Arizona Pecan Orchards, Inc., of Tucson. The incorporators are George R. Darnell and John H. Campbell, both of Tucson. The capital stock is \$50,000. The company is planning on planting an extensive acreage to the pecan for commercial sale, and conduct nurseries for the propagation of the trees.

Arizona Veteran Makes Good In The Poultry Business

HOMELESS, "broke" and tubercular from gas, Willie Simon Baker was part of the wreckage of the World War when he was discharged from the Fourth Division late in 1919. A backwoods boy in Tennessee, he had run away from home before the war and stretched his age two years to enlist in the army. Today he is the owner of a thriving Arizona chicken farm, has established a comfortable home for his wife and baby and has recovered his health.

Baker's struggle back to independence after his war experience had made him a ward of the government is pointed to by the American Legion as evidence that disabled war veterans are made of the stuff that means success if given intelligent help in entering a line of work in which their disabilities will not be too great a handicap. The American Legion Endowment Fund for disabled veterans and the orphans of former service men is being raised

to give every disabled veteran the chance for success that was given Baker.

Baker's fight to re-establish himself in life began when he was discharged from a government hospital in the summer of 1921, after two years' treatment, as an arrested case of tuberculosis. He had no parental roof to which to return. He soon was married and faced the problem of supporting a family.

The government extended help, placing Baker on a five-acre tract near Phoenix, Arizona, which he was to develop into a poultry farm. When he moved to his farm, Baker's total assets were \$27.50 cash, an automobile and a helpful wife.

Baker's start on the farm was discouraging, as the chickens he purchased proved to be worthless stock. In the spring of 1923 he made a re-start, selling all his chickens, building a brooder house and obtaining 500 White Leghorn baby chicks of reliable stock.

From this time Baker's project seemed an assured success. His chicks grew with astounding speed; his watermelon patch flourished and the alfalfa that he put in seemed fairly to jump out of the ground. He found his finances in such shape that by the spring of 1924 he was able to purchase five acres of adjoining land. The last winter he purchased ten acres additional.

In September, 1924, Baker established a baby chick hatchery, filling a long felt need in his locality. His incubators have been turning out approximately 4,000 chicks a month.

As Baker's farm now stands it represents a total net value of over \$8,000. This is an increase of over 800 per cent in two and one-half years. In addition Baker now rates his health as 100 per cent. He has a comfortable three-room house and a 19-months-old daughter to make it a real home.

Rayless Goldenrod Poisoning

By PROF. E. B. STANLEY
Animal Husbandman, University of Arizona

Losses of livestock have recently been reported by stockman in the vicinity of Florence and Continental, and the cause has been attributed to the poisonous effects from eating Rayless Goldenrod, a plant commonly known as burro weed. It is also referred to sometimes as "jiminy weed." The plant is found over large areas in southern Arizona. Dean J. J. Thornber described the plant (*Bigelovia coronata*) in the 31st Annual Report of the Agricultural Experiment Station as follows: "It belongs to the goldenrod group of the sunflower family, and is a woody shrub, one to three feet tall. The leaves are skeleton-like, and pinnately parted nearly to the midribs. The flowers are golden yellow, and borne mostly in terminal clusters in the summer and fall. The whole plant is strongly resinous, with a pronounced bitter odor, and stock rarely eat it except when driven by stress of hunger. Sheep and goats,

however, eat the blossoms and seed heads, and appear to relish them."

Losses have been reported for some years by stockmen to the south and west of Tucson. One rancher lost 65 horses and about 30 head of cattle. Rayless goldenrod was the only plant growing in abundance where this stock ranged. No further losses resulted among the stock after they were turned out on the open range where feed was fairly good.

Paunch contents of cattle that have died recently in the vicinity of Florence were examined, and found to contain large quantities of rayless goldenrod. Stockmen in the vicinity of Continental have reported a trouble affecting cattle and horses in that district, the symptoms of which correspond to those described by Dr. C. Dwight Marsh, of the United States Department of Agriculture, for "Alkali Disease," or Rayless Goldenrod poisoning. The affected stock are located in a district infested with the burro weed, and

stockmen report that cattle and horses have been observed to eat parts of the plant.

The symptoms in poisoned animals, as described by Dr. C. Dwight Marsh in the United States Department Circular No. 180, "The Alkali Disease of Livestock in the Pecos Valley," are as follows: "The first symptom noted is marked depression. The animals are inactive, usually stand humped up, and move with a stiff gait, this stiffness being especially marked in the forelegs. When the animal is made to move about, sometimes the forelegs give way, it comes down on its knees, and may even attempt to walk about in this posture. The inactivity increases and culminates in extreme weakness. In the later stages, the animal lies down most of the time, and eventually is unable to get on its feet. Constipation occurs in all cases, but this condition may be pre-

(Continued on page fifteen)

Arizona Egg-Laying Contest In Comparison With Others

By J. E. BACKMAN
Assistant in Poultry, University of Arizona

A Brief Review of the First Six Months of Production and the Outlook for the Remaining Six Months—Contest Managers Are Looking Forward to an Increased Average Per Bird as Well as High Individuals—Will the 300-Egg Mark be Reached?

APRIL 30th marked the completion of the first six months of production in the Arizona Egg Laying Contest, or one-half of the year. During this period the per cent production was 56.6%, as compared to 56.1% for the same period of last year's contest. This shows a decided improvement, considering that twice the number of birds are entered in the present contest.

The high bird to date for the six months has laid 151 eggs in 181 days, or 83.4% production. The high hen of last year for the same period had 139 eggs, or 76.3% production. At present there are 19 birds that exceed the production of the high bird for last year. It is interesting to note here, also, that the two birds of last year's contest having highest production for the first six months, finished the contest with the highest individual production for the year, 274 eggs and 273 eggs, respectively. If such a comparison can be used as a criterion for final results in the present contest remains to be seen.

In last year's contest the high pen for the first six months of production failed to place among the three highest in the finals. At that time there was only a variation of 24 eggs between first and second place at that period. But the pens holding second and third place for the period moved up to first and second place in the finals. This year only a 6-egg margin separated first and

	Aver. Eggs per Bird	High Individual	Aver. High Pen
Washington.....	207.8	317	281.6
Arizona.....	204.9	274	252.2
N. American Del.....	176.8	281	243.4
Arkansas (Monticello).....		267	228.2
Missouri.....	195	298	267.2
California (Pomona).....	178.3	290	230.6
California (Sonoma Co.).....	185.8	292	230.8
Oklahoma.....	186.5	295	254.0

second place, and 24 eggs separated first and third place. Keener competition for the high honors are expected in this present contest.

Table No. 1 shows a comparison of production of the present contest with that of last year (taken from April report of Arizona Egg Laying Contest.

The Arizona Egg Laying Contest finished second last year in the average eggs per bird. Table No. 2 shows the placements of some of the leading contestants for last year.

From the results obtained in the Arizona contest for the first six months this year it points to much higher averages than are listed in table No. 2 for last year. This, however, is dependent upon several factors, and possibly weather conditions will be one of the most important to contend with. During the next four months Arizona will experience its hot summer weather. The remaining two months, however, should be in our favor, if previous years can be taken as a basis.

Below are listed, where such figures are available in reports, the per cent production to date in the several contests. All these figures are for the first six months period of the present contests:

- Sonoma Co., Calif., Contest...58.08%
- West. Washington Contest...57.7 %
- Missouri National Contest...57.0 %
- Arizona Contest.....56.5 %
- Oklahoma Contest.....52.34%
- Santa Cruz, Calif., Contest...50.5 %
- Alabama Contest.....48.4 %

From last year's contest, the per cent production for the first six months and for the twelve months were the same, namely 56.1%. Drawing indirect conclusions, that means that for the remaining six months our birds should produce a 56.5% lay, or very close to it.

There is still one important comparison that should be of interest to the reader. Below is shown the production of high individuals to date (six months) in the present contests:

- Western Washington.....165 eggs
- Missouri Contest
- (Mountain Grove, Mo.).....162 eggs
- Sonoma Co., Cal., Contest...152 eggs
- Pomona Co., Cal., Contest...154 eggs
- Arizona Contest.....151 eggs
- Oklahoma Contest.....150 eggs
- Santa Cruz Co., Cal., Contest146 eggs
- Missouri Pullet Contest.....140 eggs
- Arkansas Contest.....140 eggs

The high lead held by the Washington contest is, without doubt, partly due to artificial illumination used in that contest. The Arizona Egg Laying Contest hopes to have that factor for increased production present in next year's contest.

69.9% production for the month, 1925	(219 birds)
75.7% production for the month, 1924	(120 birds)
81.9% production high pen for month, 1925	(12 birds)
86.6% production high pen for month, 1924	(6 birds)
72.4% production high pen to date, 1925	(12 birds, 181 days)
68.2% production high pen to date, 1924	(6 birds, 182 days)
96.7% production high hen for month, 1925	
96.6% production high hen for month, 1924	
83.4% production high hen to date, 1925	(181 days)
76.3% production high hen to date, 1924	(182 days)
56.6% production contest to date, 1925	(223 birds, 18 days)
56.1% production contest to date, 1924	(120 birds, 182 days)

The Pecan As A Money Maker For Arizona

By FRANK T. BINGHAM, '25

A Graceful Shade Tree That Pays Its Way—Long Growing Season of Our Lower Valleys Makes for Early Maturity—Fifteen Hundred Acres Set Out to Paper-Shell Varieties Last Year—Substantial Increase in Acreage Predicted for Next Year

PECANS have found a home in Arizona. Originally introduced into the State, they have found a congenial soil and climate in most of our lower valleys, and are making records as to growth of tree and bearing qualities that compare favorably with the best from any section of the country.

Scattered here and there over the State are several orchards ranging from eight to fifteen years of age, and the rapid expansion of the pecan industry of the State, which has been especially marked during the last four or five years, is due to the behavior of these few older orchards. Nuts from one of these older orchards located near Yuma, Arizona, have brought as high as one dollar a pound on the market as choice nuts. Of course, this price is exceptional, and should not be taken as a standard, but pecan growers in this section of the country can expect to obtain a good price for their product, due to the nature of the Arizona market and the limited supply of nuts of the better quality. Thus it is not at all surprising that where a single orchard crop brought such a phenomenal price, that people would begin to think about setting out orchards, on the assumption that what one orchard does, may, under similar circumstances, be duplicated by a hundred, or even a thousand, others.

Contrary to the opinion of a well known nut specialist who is quoted as saying, "The future development in Arizona, as well as in California, must compete with the cheap land and labor and the tremendous development in the South," it is becoming quite evident that Arizona, with her fertile soil and abundant irrigation water, will be able to produce a larger and better pecan than a considerable area of this great Southland. To substantiate this statement partially, the following incident is related:

A few nuts of the Success variety, produced in the Yuma Valley, were sent to a large nursery company in Texas. These nuts numbered 28 to the pound. The nursery officials, upon the receipt of these nuts, wanted to know where in the world such



A MAGNIFICENT ORCHARD OF MATURE PECANS SHOWING THE IMMENSE PROPORTIONS THESE TREES ATTAIN

pecans grew, as they had never seen such large specimens of this variety before. Later \$1,000 was offered by the nursery company for the tree that produced the nuts, as a source of budwood. This tree at fifteen years of age produced 110 pounds of nuts running 32 to the pound tree run. The question might well be asked, could the nursery produce trees from buds secured from this tree that would produce pecans of such size and quality if planted in Texas, or would they have to buy up Arizona's soil, climate and water in addition?

A. F. Kinison, horticulturist at the University of Arizona, estimates that there has been fully 1,500 acres of pecans set out in Arizona during the season just closed. Several orchards of 80 acres each are included in this. It can, however, be safely stated that there are now 2,000 acres in pecan orchards in the State, and that the acreage will undoubtedly be increased to a considerable extent this coming season.

With the great demand for nursery stock, which is not grown within the State to any extent, the farmer has been an easy prey for the unscrupulous nursery man. Itinerant, self-styled pecan specialists, and unreliable nursery representatives from without the State, have been waxing

fat from their proceeds. Almost any kind of stock has been sold for standard varieties. Just recently an extension worker was called to view an orchard which did not seem to show marked signs of development, and, upon examination, found that the farmer had procured and set out a miscellaneous planting of seedlings for a known and proven variety. In this instance the farmer was compelled to top work his entire orchard at a great expense and loss of time. Fortunately, for instances such as this, we have in horticulture the practices of budding and grafting, which reproduce unerringly every characteristic of the plant from which the cion or bud wood is selected. But the great loss of time in the development of his orchard is the heart-breaker to the average farmer.

The popularity of the pecan in Arizona is due not only to the high price which the crop brings, but also to the fact that intercropping may be resorted to for a number of years, thereby enabling the farmer to subsist while he is materially increasing the value of his land. Crops may be grown between the rows for the first six or seven years without serious damage to the trees. A number of

(Cont'd on page 16)

Follow-Up Work In The Vineyard

By DAVID W. HULET, '25

Follow-Up Work is as Essential as Pruning and Training if the Vineyard is to be Kept in a Healthy, Prolific Condition; and if High Quality Fruit is to be Expected

HIGH quality fruit is next in importance to planting the proper variety of grapes. High quality is shown by well formed bunches with large berries having uniform color, and with high sugar content. Quality and heavy production are the goals of the commercial grape grower, and are only attained through constant and scientific care of the vineyard.

The grower has such problems to meet as irrigation, cultivation, intercropping, summer pruning, insect and disease control, fertilization, and proper ripening of the grapes.

Frequency and amount of irrigation depends largely upon the character of the soil. It is commonly known that a heavy soil requires a longer application in order that the water may penetrate to the necessary depth. Old vines require, for best results, a penetration of six feet or over; for this, the furrow method is satisfactory if the water is allowed to run slowly. If alkali begins to show in too great an abundance, it can be washed down by using the flood method.

The amount and time of irrigation materially influences the size and quality of the fruit, vine growth, and the time of ripening. Recent experiments carried on at the Mesa Farm



A CLEAN, WELL CULTIVATED VINEYARD

have shown that irrigation at the time of blossoming causes considerable shattering of the young bunches. In general, it is better to fill the soil with water during the winter and early summer, so that it will not be necessary to irrigate during the ripening season.

After blossoming time, the vineyard should be irrigated regularly until the berries reach normal size and begin to sugar. After the grapes are picked, irrigate moderately until the first of September. Do not irrigate again until after the

leaves have fallen; this will allow for the maturing of wood, and will also retard new vine growth. Apply one or two irrigations during the winter—this, of course, will depend on the condition of the soil at that time. Begin regular irrigations early in February.

Cultivation is an important aid to penetration, as it breaks up the tight surface layer which forms after water is applied. It also assists in the proper aeration of the soil; and in addition to these benefits, it serves for a control of weeds and grass. On tight soils it is an advantage to run a subsoiler between the rows about every three years. During the winter the vineyard should be plowed to a depth of about six inches, thus breaking up the ground thoroughly and cutting off the surface roots of the vines.

Grape vines will stand a certain amount of intercropping, but it is rarely advisable except, perhaps, when the vineyard is young, and the grower is in need of a cash crop to assist in carrying on the project. Melons, beans, sweet potatoes and Irish potatoes are satisfactory intercrops. Cover crops may be grown during the winter to supply organic matter to the soil. Low growing varieties of vetches and Dwarf Gray Sugar garden peas are very good. The cover crop should be disked in the following spring, and clean cultivation practiced during the summer.

Summer pruning consists of dis-



A WELL DEVELOPED VINE THAT HAS BEEN KEPT FREE FROM SUCKERS AND WATER SPROUTS

budding, pinching back, and removing suckers and water sprouts. This work should be carefully attended to in the early part of the growing season, because all young, succulent growth derives its nourishment largely from the older parts of the vine, and results in a direct loss if shoots are permitted to grow, and are then cut off. The productive part of the vine needs the whole food supply if the best results are to be obtained. To remove shoots after they have grown fifteen or twenty inches seriously injures the vine; the best practice is to leave them on until the vines are pruned in the winter.

One of the most serious insect pests in the Southwest is the grape leaf-hopper. This insect feeds on the epidermis of the leaves, and may even defoliate the plant in many instances. Dusting with nicodust or calcium cyanide is a partial means of control. The grape leaf skeletonizer is another serious pest in some sections. They usually begin in one corner of the field on a single plant, and from there spread to all parts of the vineyard, devouring all foliage on their way. If the grower would use a poison spray as soon as the pest is located in the vineyard, and before they have time to spread, he would have a very good chance of stopping them before they could do serious damage. A lead arsenate spray may be used for this purpose.

Fertilization has not yet become a serious problem in Arizona. However, it is a good plan to keep up the fertility of the soil. Barnyard manure supplies both organic matter and fertilizing elements. Manure is best applied by placing it in trenches between the rows and then covering it over with soil. Alfalfa straw and bean straw are both valuable additions to the soil when plowed under. Commercial fertilizers have not yet been used to any great extent in Arizona.

Grape growers in Arizona are producing mostly early table varieties. This is because the Arizona crop can be placed on the market at a time when competition from other states is at a minimum. Some Arizona growers have yielded to the temptation which the early season prices offer, and have placed their fruit on the market before the sugar content had reached a high enough per cent. This has not only resulted in a loss

to them, but it has depressed the market for those who sell after them. If a strong demand is to be created for early grapes, it must be fostered by placing only high quality fruit on the market.

The minimum sugar content for picking grapes should be 17%, and it is much better to have the percentage of sugar even higher than that. Grapes are conveniently tested by the use of saccharometer, and the percentage of sugar accurately determined. Each grower of early grapes should have one handy. As it has been previously pointed out, the vineyard should not be irrigated at the time of picking, but if it becomes necessary to do so, picking should be discontinued for several days. One irrigation at this time may reduce the sugar content as much as 5%.

Growers of early grapes in Arizona should realize that if they are to establish a profitable market for their product, it must be upon the basis of high quality. Careful attention to the best vineyard practices is a means by which this can be accomplished.

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QUESTIONS AND ANSWERS

Q. Some of my hens are dying. They seem to droop around for a few days and then die. Upon opening one it was found that the oviduct and ovary appeared normal, in fact all internal organs seemed to be normal; but the liver, upon close examination, showed somewhat dark, and all blood vessels were prominent, red and seemed enlarged. What do you think is causing this? O. M. B.

A. The symptoms you describe indicate that the trouble is what is known as protein poisoning, and brought about by the consumption of too much protein food, such as meat scraps, different forms of milk, etc. Too heavy a consumption of laying mash is often a cause of this trouble also.

The remedy is quite apparent. Cut down in mash consumption by feeding more grain.

HARRY EMBLETON,
Poultry Husbandman.

Q. Will you please send me what material you have on controlling the Mexican Bean Beetle, and the name of the firm where I can get dust sprayers. J. C. M.

A. The Mexican Bean Beetle is best controlled by dusting with a mixture of 1 part sodium fluosilicate to 10 parts of lime. The vines should be dusted several times at intervals of 10 days to keep the beetles in check. Sodium fluosilicate has given better results than the arsenical dust, due to the fact that it is a contact as well as a stomach poison. However, the beetles can also be controlled by spraying with a mixture of 3 lbs. hydrated lime, 1½ lbs. calcium arsenate and 100 gallons of water. Lead arsenate should not be used on account of its burning effect on the leaves.

D. W. ALBERT,
Horticulturist.

Q. How many pounds of shelled corn will it take to feed a pig from birth to 150 lbs? To 200 lbs? Please give maximum. I want to feed only corn and water. E. K.

A. Corn when fed alone is a very poor feed and does not constitute a balanced ration for hogs or any class of livestock. If you were to feed corn alone, it would require about 550 lbs. to produce 100 lbs. of gain, and the pigs would gain at the rate of one-half pound daily. But hogs

will not thrive on such a poorly balanced ration, and I would recommend that you consider feeding some other feeds, such as skim milk, alfalfa hay or pasture, garbage or tankage, with the corn, to make a satisfactory fattening ration.

E. B. STANLEY,
Animal Husbandman.

Q. Will you please tell me the relative food values, for cow feed, of the following: Corn, raw and cooked; rolled barley, raw and cooked; cottonseed cake, testing 43% protein? J. K. F.

A. Concerning the relative food values of the feeds mentioned, rolled barley is about 90% of the feeding value of corn. There is no advantage in cooking these feeds, but rather their value is impaired by cooking. Cottonseed cake is not comparable to these two feeds, in that it is highly nitrogenous, but when used to supplement corn or barley, 100 lbs. of the cake will effect a saving of from 250 to 300 lbs. of the grain.

E. B. STANLEY,
Animal Husbandman.

Q. When is the best time to plant alfalfa, without irrigation, under such conditions as found near Bowie, Arizona? What variety of alfalfa is best to plant?

A. If you were attempting to plant alfalfa under an irrigation system I would recommend that you wait until March or April before planting at your altitude. Since you intend to raise alfalfa without irrigation, your big problem is the matter of soil moisture. Since most of the rainfall in and around your section of the state comes during the winter months, and again during the sum-

mer months, the best chances for a good stand would be increased if the alfalfa were planted somewhere near the beginning of each of these rainy seasons. If planting is delayed until late in the spring, the chances are rather meager that the supply of moisture will be sufficient to allow the root system to become developed to such an extent that it will withstand drought periods, awaiting summer rainfall.

I believe your chances will be slightly better with Hairy Peruvian than with the common variety. The former County Agent C. R. Anderson recommended the Hairy Peruvian in preference to common alfalfa for most of the various parts of the county. I know of several Hairy Peruvian fields near Willcox which have been giving good satisfaction.

R. S. HAWKINS, Agronomist.

Q. Is sweet clover more resistant than alfalfa to alkali?

A. Yes, sweet clover is slightly more resistant to alkali than alfalfa. Flood your ground continuously from 30 to 60 hours before planting in case your ground is high in alkali, in order to get your clover to start. Rhodes grass is more resistant to highly alkaline conditions than any other crop that has been tried in Arizona.

R. S. HAWKINS,
Agronomist.

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ALUMNI NOTES

Jack Magee, '24, is now with the Santa Rita Range Reserve forces, whose offices are at Continental, Arizona.

Frederick Augustus Ronstadt, '19, is representative for the International Harvester Company in Spain and Portugal. Frederick was a recent visitor to the campus.

Daniel "Pot" Younkin, '24, was a recent visitor to the campus also. "Pot" was called down from Holbrook for his Master's examination.

Guy Trail, '24, has gone back to the farm, in old Missouri. Guy just could not stand the fast life of the city, and upon graduating here took the first train back to the farm.

Nathan Mathews, '25, can be reached at Extension, Louisiana. Nathan was called home before he could complete his course here, and at the present is conducting an extensive cotton project.

H. J. Fulton, '24, has given up the teaching profession and has turned to farming. Fulton will go in for citrus in the Salt River Valley.

Paul Loucks, '24, is to be the new agricultural teacher at the Florence High School. It is to be remembered that Paul taught several academic subjects at this same institution this year. Undoubtedly the "Boll Weaver" was quite a success as a teacher of academic subjects, but we are expecting greater things of him in the field of agriculture.

George Kenneth York, '24, erst-while editor of the Southwestern Record, is about to embark on an extended trip through Labrador. George was particularly interested in biology while in school, and has long wished to study the flora of that far north country. Mr. York will be accompanied on this tour by his wife and their three sons, George, Kenneth and Oswald.

EXPERIMENTS TO SOLVE ALKALI PROBLEMS

Should the outcome of certain pump water experiments, carried on in connection with alkali soils problems by H. Stewart, Maricopa County Agent, C. A. Catlin and B. J. Showers, prove new ideas recently conceived, a very significant and far-reaching effect would result. There would be a considerable increase in well water irrigation, and consequent acreage increase in alkali soil reclamation, states Director Ross of the extension department of the University of Arizona.

The prevalent and popular belief with farmers and agriculturists in alkali regions is that pump water comes up out of the ground saturated with alkali, and deposits it in the irrigated soil. Thus in those regions gravity water is greatly preferred, and as it is always scarce, crops suffer.

The new idea contends that the reverse is true—that deep well water does not add alkali, but rather removes it. Although not definitely established, there are good reasons to suspect the veracity of the conten-

tion. In this State, should the farmers be convinced of this probability, they would revert to the use of well water, which in most cases is in abundance, and could materially increase the acreage of the land under cultivation, and the products of the land already cultivated.

Mr. Cragin, expert irrigation engineer of Phoenix, expresses great interest in the outcome of these experiments, stating that perhaps it would change the plan of reclamation of land in all the alkaline agricultural districts of the United States.

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THE SHEEP INDUSTRY IN ARIZONA

(Continued from page 5)

and whether these finished lambs can be marketed to advantage either within the State or on the larger markets.

The Arizona Agricultural Experiment Station in 1923 began some investigational work for the purpose of determining the potential possibilities of utilizing our irrigated pasture and locally grown feeds for fattening purposes. Two years' work with 108 lambs divided into four groups and turned into alfalfa-barley pasture supplemented with a little hay and some grain, has produced results which are convincing that this type of fattening will pay if properly managed. During 72 and 76-day feeding tests, these groups made an average daily gain of from .228 to .328 pounds. The necessary buying margin was almost negligible in each case. In fact, the results indicate that one can pay for feeder lambs within a quarter of a cent of what he expects to get for fat ones and still "break even" under this system of management. The Station also started some dry lot feeding this year. Hegari silage, Arizona's premier silage crop, was found to have practically the same feeding value as locally grown corn silage when fed with rolled barley and cottonseed meal. At local current prices, cottonseed meal proved a more economical protein supplement to rolled barley and corn silage than either alfalfa hay or cold pressed cottonseed cake.

In the Salt River Valley, where cottonseed products, silage crops, alfalfa hay, and green pastures are abundant and grain is extremely high priced, it is possible that a short feeding period with a high protein ration offers the best solution to the lamb feeding problem in Arizona. It will give all of the finish necessary for local market demands. As other markets become more inviting, some grain can be fed economically in order to meet their demand for greater finish.

PASTEURIZING MILK

IN THE HOME

To pasteurize milk in the home, use a small pail with a perforated false bottom. This may be provided

by inverting a pie pan which has a few holes punched in the bottom. This will prevent bumping of the bottles. Insert a thermometer through the cap of one of the bottles. Place the bottles of milk in the pail and fill the pail with water nearly to the level of the milk. Heat pail on stove or over gas flame until the thermometer shows a temperature of 150 degrees Fahrenheit. Add

cold water to pail until temperature of water in pail shows a temperature of 145 degrees. Let stand at this temperature for 30 minutes, then cool milk promptly by running cold water into pail. A wire basket to hold the bottles upright in the water is very convenient. After the milk has been cooled to the temperature of the water, it should be removed and packed in ice.



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RAYLESS GOLDENROD POISONING

(Continued from Page 7)

ceded by a period of diarrhea. In the latter stages the feces are not only hard, but also bloody. Marked muscular trembling is present, and this may be considered as diagnostic of the disease; in fact, sometimes the disease of known as the 'trembles.' Exercise will bring on these periods of trembling more quickly, and in many cases the trembling is so marked that the animal presents an appearance of shivering.

The temperature remains normal during the illness, but as a rule it falls shortly before death.

The respiration in the sick animals, shortly before death, is very characteristic. In the later stages the animals breathe in a series of gasps.

Some of the animals kick about a little before death, but there are no violent struggles, and sometimes they die with no preceding movements."

Congestion in the fourth stomach and small intestines, sometimes extending into the large intestine and rectum, were found in animals which died from the disease.

No particular medicinal treatment is recommended. A purgative like Epsom salts will relieve the constipated condition, but the only recourse to stop the trouble is to move the animals from the infested area and give them good feed.

—A—

NICOTINE DUSTS LOSE

STRENGTH WHEN NOT PROPERLY PACKED

"Nicotine dusts," which have recently come into extensive use for the control of certain insect pests, present a serious problem to the manufacturers because of the fact that they deteriorate in strength in the usual form of commercial packing. This makes it difficult for the manufacturers to label their product as to its percentage of ingredients, in accordance with the Federal Insecticide and Fungicide Act, and the consumer has no assurance that the product he is obtaining will be efficient. The United States Department of Agriculture has undertaken some tests and investigations to determine the extent of such losses and indicate the most suitable type of container which would make possible the marketing of a more uniform and standard product.

The findings of the investigators so far have been published in Department Bulletin 1312, just issued by the United States Department of Agriculture. Among other results, it is stated that canvas bags, pasteboard boxes and paraffined boxes are unsatisfactory containers for nicotine dusts. Air-tight metal or glass containers only should be used for pack-

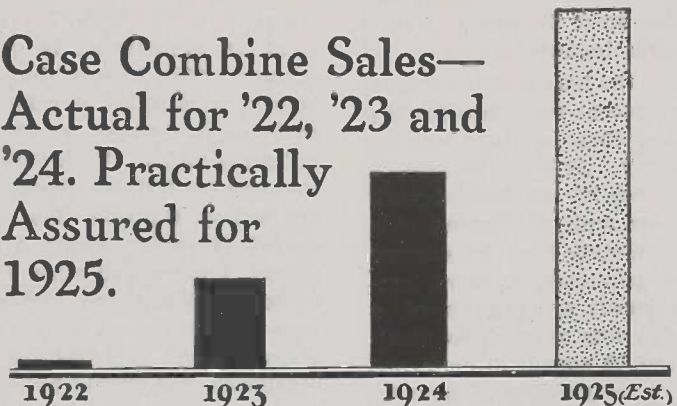
ing them commercially.

A copy of the bulletin may be obtained, as long as the supply lasts, upon request, from the United States Department of Agriculture, Washington, D. C.

—A—

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A PROSPECTUS OF THE PECAN INDUSTRY IN ARIZONA

(Cont'd from page 9)

farmers are interplanting with grapes, while others are using alfalfa or some cultivated crop. The cultivation given the trees by interplanting affords a very satisfactory tree growth, while at the same time keeps down disease and insect pests to a considerable extent. Legumes are used in some instances, where the soil needs improving.

Thanks to the long growing season in Arizona, pecans come into bearing much earlier than in other sections of the country. It is not uncommon for some trees of the budded varieties to bear fruit the second year after transplanting from the nursery row to the permanent orchard location. Instances are known of a budded tree, five years from planting, yielding 15 pounds of nuts; one seven years old yielding 25 pounds; one nine years old yielding 70 pounds, and one fifteen years old yielding 100 pounds. Seedlings much older have been known to yield as much as 250 pounds annually. However, a crop of any commercial importance cannot be expected until the sixth or seventh year. In the South Atlantic States, commercial returns are not realized in less than twelve years.

Field plantings in Arizona are made from November to March. However, early winter plantings are being favored, as such plantings allow for a better root establishment before the leaves begin to appear in the spring, thus cutting down mortality to a considerable extent.

The most popular type of nursery tree seems to be the lateral rooted one, which, due to the abundance of small, tough lateral roots, is the better enabled to withstand the rigors of transportation and transplanting.

Many farmers, and even city residents, have adopted the commendable practice of planting the pecan in their yards for both shade and ornament, and they have found that, although a little slow in growth, the pecan never stops until it lifts its proud head above all other trees. Its symmetrical form, its graceful branches, the straight trunk and its foliage, make it a thing of beauty unsurpassed as an ornamental—yet also producing a fine crop of the choicest of nuts.

Pecan culture in Arizona, like in many other sections of the country,

is still in the experimental stage, but even at that, several promising varieties of paper shell nuts have proven their liking for the hot, dry climate of Arizona. The Success variety seems to do remarkably well here, in spite of the fact that it is a coastal variety, and we are having equal success with the Schley and Delmas. There are also several plantings of the Stuart and Frotcher varieties, which look very promising.

A member of the staff of the Division of Edible Nuts, Texas Department of Agriculture, is quoted as saying: "We believe that you are making a mistake in using coastal varieties in Arizona, as they are a failure in Texas. We would suggest that you try Halbert, Burkett, Western Schley, Onliwon, San Saba Improved, Sovereign, Mosty, Alexander, Govett, Bowers, and other Texas varieties." While the writer agrees with the Texas authorities that many of their varieties are of high excellence, and should be planted in Arizona, particularly for the shelled pecan trade, he also believes that we have sufficient evidence of the coastal varieties, such as Success, Schley and Delmas, doing well with us, as to justify the planting of these varieties for the fancy trade.

The question as to whether pecan plantings in Arizona on a large commercial scale can be made to pay is a matter yet to be solved by time alone. However, the future of the infant industry looks rather bright, and the writer will venture to say that there is prosperity in store for the man who will care for the pecan tree as well as a citrus tree is supposed to be cared for, for the man who first of all loves trees like the man who wrote:

I think I shall never see
A poem as lovely as a tree.
A tree whose hungry mouth is prest
Against the earth's sweet flowing
breast;
A tree that looks at God all day,
And lifts her leafy arms to pray;
A tree that may in summer wear
A nest of robins in her hair;
Upon whose bosom snow has lain,
Who intimately lives with rain;
Poems are made by fools like me,
But only God can make a tree.

WASTE OIL GOOD MITE KILLER

Waste oil removed from the crank case of tractors and automobiles can be put to good use freeing poultry flocks of mites, advises the Pennsylvania Department of Agriculture.

An oil spray can be used effectively to kill the mites found on and near roosts. Almost any oil can be used, but, since many flock owners have automobiles, the waste crank case oil is the most practical material. Besides oil, a strong lime sulphur, such as that used in the dormant spraying of fruit trees, can be used to kill poultry mites.

When it comes to chicken lice, specialists state that sodium fluoride is perhaps the most satisfactory material to use. This material is a white powder which, if carefully handled, is harmless to man, but is an effective lice killer. During the fall, chickens are most successfully treated by the so-called pinch method. Seven pinches of the powder are used on each chicken, a pinch being the amount of powder one can hold between the thumb and forefinger. The first pinch is rubbed into the feathers on the back of the neck, the second and third on the back near the base of either wing, the fourth on the rump, the fifth under the vent, and the sixth and seventh under and around either thigh. Care must be exercised to keep the dust out of the eyes and vent. Usually one application of the chemical gives a complete control.

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DEATH OF DATE PALMS MYSTIFIES UNIVERSITY EXPERT

Dr. R. B. Streets, assistant plant pathologist, has just returned from Yuma, where he spent the last two weeks investigating the sudden demise of a number of large date palms on one of the valley farms.

When a cabbage or two dies, it does not attract much attention, but when a large date palm, valued at four or five hundred dollars, suddenly dies before the eyes of its proud owner, there is considerable interest in the reason for its death, and how the malady can be prevented from becoming prevalent. Date palms are extremely slow in maturing, and it is little short of catastrophe for one of these splendid specimens to die.

Literature on diseases of the date palm is very meager, states Dr. Streets, and it is not yet possible to definitely say whether the affliction has been observed in other regions or not. It is thought, however, that this is something entirely new in the annals of plant pathology.

Much time and effort was spent by Dr. Streets in dissecting the palms to study the various stages in the progress of the disease through the plant tissue. The data secured, it is confidently expected, will enable date growers to prevent the appearance of the disease in their plantings.

SHALL THE FARMER RIDE

A SEDAN OR A PLOW?

"Every farmer owns a car."—Does he? "Well, most of them do." And that is all right, a car is a good thing for a farmer to have. However many farmers have a car who do not have nearly enough farm implements to operate their farms efficiently. A farmer cannot "produce anything" with a car, but he can with a good set of farm implements and equipment. A study of retail prices of farm implements and of automobiles discloses that fact that an almost complete line of farm machinery (as complete as is found on many farms having sedans) can be bought for the same money as is paid for the lowest priced sedan on the market.

Cream separator	\$82.50
Corn planter, 2-row	87.50
Riding cultivator, 6-shovel	65.00
Drag harrow, 60-tooth	24.00
Disc harrow, 6-ft	65.00
Culti-packer, 7-ft	95.00
Walking plow	25.00
Mower, 5-ft	85.00
Rake, 9-ft	46.00
Grind stone	6.00
Engine, 3-HP	120.00

Feed grinder, 6-in., corn and cob	40.00
Corn sheller, one hole	17.00
Total	\$759.00

Isn't it possible that many of our farmers spend too much time riding in a car when they should be riding on a plow? Is it the low returns from farming that bothers them or the low returns from "joy riding?"

REASONS FOR A SILO

1. More feed can be stored in a given space in form of silage than in form of fodder or hay.
2. A small loss of food material when a crop is made into silage.
3. Corn silage is a better feed than corn fodder.
4. An acre of corn or kafir can be placed into a silo at less cost than the same area when husked and shredded.
5. Crops can be put in the silo during weather which could not be utilized for curing fodder or hay.
6. More stock can be kept on a given area of land when silage is the basis of a ration.
7. Less wasted in feeding silage than fodder.
8. Silage is very palatable.
9. Silage, like other succulent feeds, has a beneficial effect upon the digestive organs.
10. Silage is the cheapest and best form in which a succulent feed can be provided in the winter.
11. Silage can be used for supplementary pasture more cheaply than can soiling crops, because it requires less labor and cattle like silage better.
12. Converting corn or kafir crops into silage clears the land and leaves it ready for another crop.

FOODS THAT KEEP CHILDREN GROWING AND HEALTHY

Milk, eggs, fruits, and vegetables, especially the green leafy vegetables such as turnips and mustard greens, lettuce and cabbage, keep children growing, healthy and happy, say food specialists of the Agricultural Extension Service, University of Tennessee. From these foods come the vitamins, minerals and proteins which are required to make perfect teeth and bones, pure blood and firm strong muscles.

The lack of life-giving substances in the diet tends to interfere with growth, break down health and increase the danger of taking colds and other diseases.

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**STOCK MANIPULATION
MUST BE STOPPED**

Manipulation of prices by grain exchanges must be stopped according to a warning given by Secretary of Agriculture, Jardine, who made public a preliminary report of the findings of the unprecedented fluctuations in future grain quotations at the beginning of the year.

The Chicago Board of Trade must take prompt action to promulgate stricter rules to prevent a re-occurrence of wild speculation or else face the probability of more stringent laws regulating the trading in futures.

The inquiry which is still being pushed, has uncovered some evidence of manipulation, but no proof has been obtained so far upon which a conviction could be obtained. The Secretary's warning was tantamount to a threat to put the Chicago Board out of business by revoking its charter as a contract exchange unless immediate remedies are provided.

Secretary Jardine, it was disclosed, issued a similar warning in person Monday to a group of representatives of the Chicago Board of Trade, including its president, Frank L. Carey. The Secretary made it plain that the exchange must draft more definite and stringent rules facilitating the operation of Federal supervision, preventing the development and dissemination of rumors in the nature of false, misleading and inaccurate reports and statements, preventing actual or attempted cornering of the markets and discouraging any tendency toward extensive over speculation.

Recalling how bitterly the grain exchanges fought the passage of the Capper-Tincher act and how greatly opposed they are to the further curbing of grain trading by Federal statute, Jardine told them he would surely suggest more legislation unless they took matters immediately into their own hands and "clean house."

He served notice that the investigation, in which the Department of Agriculture has been aided by the Department of Justice, will go on and if evidence is found upon which a conviction may be hoped for the department will prosecute to the limit of the law.

Please mention the ARIZONA AGRICULTURIST when writing advertisers.

TO LIGHT UP POULTRY PENS

The poultry experiment ranch at the University announces that installation of electrically lighted experiment pens will be effected this summer. H. C. Embleton, head of the poultry department, has sponsored the work to increase the efficiency of the ranch.

Last year trial pens were lighted containing baby chicks, and it was found to have shortened the growth period appreciably. The principle of lighting chicken pens comes from the habit the fowls have of eating incessantly as long as they can see the food. This increased consumption necessarily caused an increased production.

Last year the Arizona fowls were the second best layers in the United States, the only set beating them being those of Washington, where the pens are electrically illuminated. Thus, if we can do so creditably with unlighted pens, the installation of this improvement should increase our national standing.

SCRUB BULL UNPROFITABLE

In an experiment conducted by the U. S. Dept. of Agriculture, a pure bred steer and a scrub weighing the same were fed alike in the same lot for five and one-half months. At the end of that time both were slaughtered, the pure bred dressing 715 pounds or 61 per cent, while the scrub dressed only 470 pounds, or 42 per cent. At wholesale the pure bred returned 19 cents per pound while the scrub brought only twelve cents. Considering differences in price and weight the pure bred paid more than double the price of the scrub. The pure bred required no more attention than the scrub. Then one must conclude that it is a poor business policy to use scrub sires.—Ex.

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Of course you will not be satisfied with your graduation, which is no mean mark of achievement, but you are looking forward to four years of college work. The UNIVERSITY OF ARIZONA, A CLASS-A UNIVERSITY, IS THE LOGICAL INSTITUTION FOR YOU TO ATTEND, be-

cause it is your University, it belongs to the people of Arizona.

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are well paid, and a broad field of opportunity awaits you.



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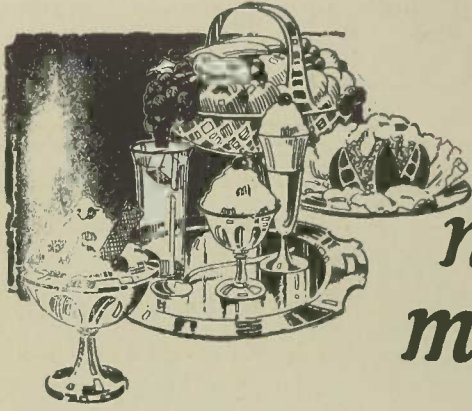
A four-year course in Home Economics trains young women for work in home economics as Teachers in High Schools, County Home Demonstration Agents, and Specialists in foods and cookery, clothing, and household management.

Receive the hearty congratulations of the UNIVERSITY OF ARIZONA COLLEGE OF AGRICULTURE for a happy commencement and graduation. We shall be looking for you next fall.

For Detailed Information Address:

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With Frigidaire electric refrigeration in your home you can make many new and delicious desserts—ices, sherbets, mousses, frozen custards and puddings. And all of them can be made very easily.

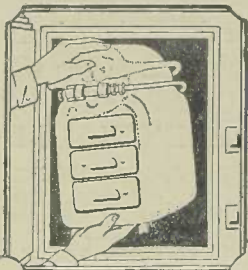
Simply mix the ingredients and place them in one of the freezing trays. That's all you need to do. In a few hours your desserts will be frozen to perfection—ice-cold, firm, delicious. And if not all of it is used, the rest may be kept frozen as long as you wish.

Frigidaire offers other advantages, too. It saves the possible annoyance, muss and uncertainty of outside ice supply. It maintains a constant, *dry* cold that preserves all the original purity, freshness and flavor of foods. It safeguards health by guarding against the development of harmful bacteria.

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