

# THE ARIZONA AGRICULTURIST

Price 15 Cents



A CAMPUS BEAUTY SPOT, UNIVERSITY OF ARIZONA

VOLUME IV

JANUARY, 1927

NUMBER 4

# Something wonderful is happening *again* to the harvest!

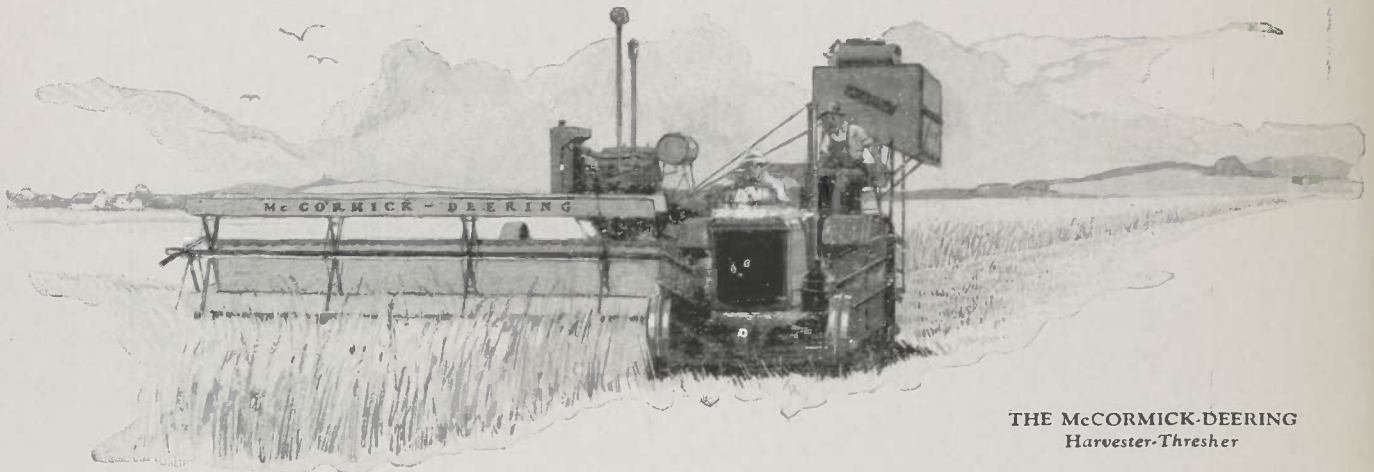


**I**N the days of King Tut, in the year when Columbus found America, even on the estates of George Washington, the slow hand harvesters were at their toil. Nations rose and fell, but the gleaners kept on gleaning as they had gleaned for ten thousand summers.

Then a wonderful thing happened to the harvest. A young Virginian built a machine to reap grain mechanically! His name was Cyrus Hall McCormick, and the year was 1831. For the first time in history men and women straightened their bent backs and watched a machine harvest the grain.

And the man with the machine did the work of six hand harvesters. A mighty deed was done for humanity when into one man's hand was put the power to raise bread for many mouths.

The McCormick reaper grew into the binder, and the new idea of machine farming brought many other machines. Men went into the cities and began to build industry. If something had not happened in harvesting to make bread plentiful and cheap, we could not have had railroads and automobiles, the telephone, electricity, the movies, the radio, and other wonders of the modern world.



THE McCORMICK-DEERING  
Harvester-Thresher

**N**OW, AGAIN, SOMETHING BIG is happening to the harvest. The Harvester-Thresher, a remarkable machine that *cuts and threshes* in one simple operation, has come to the rescue of the grain farmer of the west and is coming eastward. The work of gathering the grain, that seemed so swift when the reaper came, has become slow again with the familiar binder. Times have changed. Everything is speeded up. Time is precious on the farm. Man labor is high priced and scarce. Loss and profit are delicately balanced on the scale and big crops must be produced at minimum cost.

The McCormick-Deering Harvester-Thresher, illustrated above, carries the grain

straight from the standing stalk to the grain tank and wagon box, ready for the miller. By its aid the standing wheat can be put into the loaf of bread in a half day's time. It does away with shocking and extra handling, the twine bill, and the costs of separate threshing. It reduces weather risks. With a two-man crew it clears a 10 to 16-foot swath, cutting, threshing and cleaning forty-five acres of grain between sunrise and sunset.

Translating this into money terms, the McCormick-Deering Harvester-Thresher, with a saving of 20 cents per bushel in the harvesting of grain, already has saved vast sums of money for the farmers of America. The farmer of today and the future will find his way to profit and prosperity through the use of such modern methods and machines.

INTERNATIONAL HARVESTER COMPANY

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# McCORMICK-DEERING

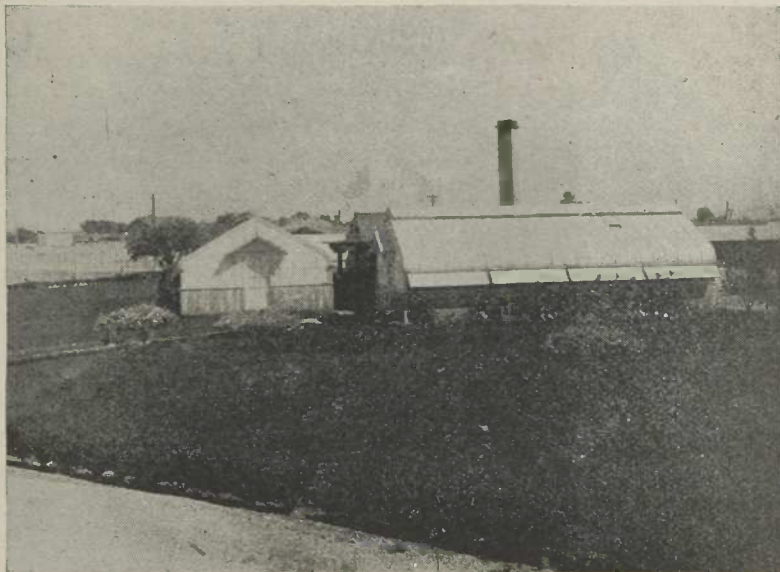
FARM-OPERATING EQUIPMENT

# THE ARIZONA AGRICULTURIST

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U. OF. A. GREENHOUSE



The producer of milk will now have available the same clean power, as the manufacturer of dairy products has long used.



# Rural electrification

*—a matter of business cooperation*

**A**LL FARMERS want to enjoy the comforts and convenience of electricity. How to get it is the question still to be answered by most of them. Yet rural electrification is merely a problem of business cooperation.

Electric service cannot be sold to isolated or occasional customers, as merchandise can. For electricity—like milk—cannot be stored to any practical degree; it must be consumed as produced.

Thus the cost of building transmission and distribution lines, and of keeping a supply of power ready for instant use, can only be met by having on every mile of line a sufficient number of consumers whose needs for electricity are many and varied.

That is the principal condition which governs complete rural electrification.

Lines can be built where groups of farmers will use enough power to make the extension of service a practical business undertaking, just as maintaining a milk route requires customers, not widely scattered, who use a steady supply.

So, to get electricity for your farm, get together with your neighbors and make your light and power company a cooperative business proposition. Ask your power company for information and cooperation.

The Committee on Relation of Electricity to Agriculture is composed of economists and engineers representing the U. S. Depts. of Agriculture, Commerce and the Interior, Amer. Farm Bureau Federation, National Grange, Amer. Society of Agricultural Engineers, Individual Plant Manufacturers, General Federation of Women's Clubs, American Home Economics Ass'n., National Ass'n. of Farm Equipment Manufacturers, and the National Electric Light Association.

# NATIONAL ELECTRIC LIGHT ASSOCIATION

29 West 39th Street, New York, N. Y.

# ARIZONA AGRICULTURIST

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VOLUME IV

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## PHENOMENAL THREE YEAR POULTRY DEVELOPMENT

By HARRY EMBLETON, Poultry Husbandman.

The Tucson Poultry Status Three Years Ago—A Need for More High Quality Eggs—The Southern Arizona Poultry Association.

TUCSON and its vicinity have enjoyed a wonderful development during the past three years. Three years ago four commercial poultrymen had 10,000 birds between them. At the present time some sixty-odd poultrymen and women have collectively better than 60,000 birds. This development has not come about by any "fly by night" method, but has developed gradually as economic conditions warranted.

Many agencies have been instrumental in aiding in this development. The University of Arizona, through its poultry division and extension service has been one of the leaders in this movement. The Arizona Egg-Laying Contest with its consistently good results has indicated to the nation the possible results that can be attained from poultry in Arizona. The monthly reports sent throughout the country have resulted in many inquiries being received by the poultry division of the University of Arizona asking for further information regarding the possibilities of poultry raising in this section.

The Tucson Sunshine Climate Club have also been instrumental in many coming here to "try their luck" at poultry raising. Since the possibilities in poultry raising have become apparent the Tucson Chamber of Commerce has given its moral and financial support to many movements the object of which was to "boost the industry." They have come to realize that the income through the poultry industry has had a material influence in bringing about prosperity within the City of Tucson.

This development was made possible mainly due to the fact that there was a shortage of poultry products on the Tucson market. This shortage could be, and was, overcome largely through shipping in eggs and poultry from other states. A considerable proportion of the population of Tucson, however, was healthseekers. They wanted a fresh home produced egg

and resented having to accept a shipped-in egg. It was a common experience to the poultryman to be bombarded with people coming out to his farm in order to get fresh eggs. In practically all cases the poultryman had long since engaged his eggs to local merchants, so could not take care of this demand. Now, it is not necessary for the consumer to take the time and go to the expense to go to the country for eggs, as all of the local merchants carry a supply of freshly home-produced eggs.

As one merchant of one of the large retail stores put it: "There is nothing our customers are so cranky about as eggs. They insist that they must be fresh and home-produced. If we do not have them they will go to the other end of the city to get them."

Tucson had to have a certain number of eggs to supply its wants. When they were not being produced locally they had to be shipped in from other states. A survey showed that this was taking place and that at least three car loads of eggs were being shipped in monthly.

It was very interesting to note the reaction of the local poultry producers to the further development of the industry. They resented it and said that "in three years' time we will not be able to give our eggs away." Those three years have passed and the poultrymen are getting a better price for their eggs than they were receiving at that time. They could not seem to see that Tucson had to have a certain number of eggs, and that it was just a question as to whether these wants were to be supplied with local eggs, which were so much more satisfactory to the consumer, or whether the merchants would still have to continue to send out of the State for their supply of eggs. Today most of the poultrymen see the situation in its true aspect although there are still a few that are pessimistic about the development.

Three years ago a peculiar condition existed on the Tucson market.

Eggs were selling from 15 to 20 cents less per dozen than they should have in accordance with a competitive price. The poultrymen were making their own competition among themselves. A realization of this condition brought about a more or less informal organization, the object of which was to do away with the competition among themselves and established a common price for eggs consistent with outside competition. California was the natural competitor and prices were set on California prices plus the cost of transportation and rehandling the eggs on the Tucson market. These quotations were published in local papers under the association heading, and have been one of the main factors in establishing prices on the Tucson market. There was a feeling that the association was formed in order to create an "egg trust" to arbitrarily fix prices. This, on the face of it, could not be even if it was so desired, for if prices were set in Tucson that were above California prices the merchants would immediately ship in California eggs for it is to their interest to sell eggs as cheaply as economic conditions would warrant in order to move a greater volume of eggs. Competition is the only factor that can "fix prices." The fact that eggs are selling ten cents a dozen below last year's prices shows that competition, and not any organization, is the price-fixing factor.

Another benefit which was brought about through the poultry organization was an understanding in regard to grades. The poultrymen by the exchange of ideas and experiences came to realize that it was the consumer who must be satisfied and that in order to satisfy them the poultrymen must establish grades with which the consumer could be satisfied and recognize. These grades were established through the efforts of the poultry organization.

During the spring of the year there  
(Continued on Page 12)

## WHY MEN FARM

By FRANCIS L. SMITH, '27.

### A Few Observations Concerning the Age Old Question—Why Men Leave the High Wages of the City for Less Money in the Country.

**W**HY do men farm? This question seems to be a logical one to students of the depression which followed the war present agricultural situation. The has been felt more strongly by the American farmers than by any other class of people. This depression, which at times has taken on a very serious aspect, has been going on since 1921. Farmers' prices are too low for them to pay their rents, interest, taxes, and current expenses. These costs have not declined in proportion to the decline of agricultural prices. The disparity in prices has spread much discontent among the rural folk. Many farmers are hopelessly in debt, and many others have lost their farms to creditors, and another large group of them are clinging on in the fond hope that times will be better in the future—a hope that is becoming weather worn with age.

The wage earners and professional men in the urban districts are on the high end of the price teeter-totter. Many of the farm boys are leaving their homes in quest of the glittering "sheckles" that seem to evade the farmer. It is estimated that the rural migration to urban centers is about a million a year. And yet, in spite of this dreary outlook, there are still many men engaged in this line of work. This is evidenced by the continuous and ample supply of agricultural commodities.

The reasons for men farming can be conveniently grouped under three heads: economic, psychological, and sociological.

#### Economic Reasons:

The statement is sometimes made that men farm because they know nothing else. The boy reared on a farm learns many of the arts and operations peculiar to this industry, both on the farm and about the farmstead doing chores, under the supervision of his father. His boyhood days are spent in a sort of apprenticeship, and when the boy grows up he finds that he is better qualified to go into farming than into any other occupation. The idea of having to spend an additional three or four years learning



The country makes the ideal place for landscape gardening.

a trade does not appeal to him when he has already mastered one. This, then, is a strong incentive for farm boys to become farmers. They begin as farm laborers, or tenants, and through a series of years they practice thrift and economy in saving money to purchase a farm.

It should be emphasized that these men do not choose the occupation of their boyhood because of an inferiority complex, or the inability to do something else. They are merely doing the thing which they think will pay them best.

Farming offers a type of security of life not found in other industries. Investment in land is considered the safest kind of an investment. It is tangible, ever-present, and secure. Prices may rise and fall; business may "go to the rocks;" stocks and bonds may become worthless; but the land remains practically the same in physical properties, its producing power unimpaired.

When men choose this occupation, they do it with the expectation of making a long time investment of their money and a life job of their time. The deflation has had its most disastrous effects upon those who bought when prices were inflated.

Their mistake was in purchasing at the wrong time.

Then, too, the farmer is his own employer. His job is secure as long as he can make farming pay. When times are hard, he may lose heavily, but he can at least keep from being poverty-stricken by raising plenty of farm commodities for home consumption.

The farming game may appeal to the young man with great initiative, because a man's greatest handicap is the limitations of his managerial ability. A farm is relatively easy to acquire, compared to other businesses of like proportions.

Another economic aspect of the question is the productivity of the individuals of the family. Farming is the one occupation wherein the whole family, rather than one or two members, aid in making the living. The children can profitably be employed. Most of the American farms are family size, and the majority of the work is done by the farmer and his family.

#### Psychological Reasons:

There are other reasons which prompt men to farm. Farming gives a man the opportunity to be his own boss, to use his initiative, to create,

plan, and execute his plans. It offers him a desirable outlet in aesthetic creation by beautifying his home surroundings. It gives an opportunity for those who find nature attractive, to study and appreciate her creations in the plant and animal kingdoms. It satisfies the innate desire of man to acquire property. This may even be expanded into the building up of a perpetual family estate. The old "Home Sweet Home" seems to have a predominating influence on some men's lives—they love to be in the home of their childhood.

**Sociological Reasons:**

There are some sociological advantages to farming which often lead men to choose this mode of life, or at least keeps them from leaving it when they become discouraged. The family as a social unit is more noticeable in our rural districts. The old home spirit is more manifest because of the nature of the work. The whole family is interested in the same problems, all are more or less acquainted with the situations and are able to participate and cooperate in the family problem more than the city family, where each member follows his own trade or profession. The home is the very center of the farmer's life. This accounts for the early marriages of our rural folk as compared with the urban people. The young farmer's wife is a helpmate as well as a help eat. The farm community usually offers a more ideal place to rear a family. There is productive work which may interest the growing children. The distractions and vices of the city are less apparent in the rural community, which is a decided advantage for the moral development of the young people. It has often been argued that the country is a more healthful place in which to live. The war statistics of the physical conditions of America's young men shows a decided advantage to the city boys. This, however, can be explained by the poor medical and dental care usually given rural children, because of the lack of good doctors in the vicinity.

When a man begins to grow old, he likes to have something to show for his life's efforts, and thus often purchases a farm, and by the time his productiveness is beginning to wane, he has the farm paid for. The ownership of land lends prestige to a man, especially in a farming community.



A good part of the farmer's pleasure comes from working out in the open.

**WHAT MAKES IDEAL FARMS?**

Frequently we hear mention of "the ideal farm?"

What, we ask, are its attributes?

That depends upon each one's own conception of what farm life should be.

Thinking of farm life generally, the ideal farm would be one that is broadly successful; a farm that yields the farmer and his family a living—full, adequate, complete—liberal in its material rewards, but not lacking in the social, esthetic and ethical values which make for character, contentment and genuine happiness.

All these resources lie latent in the soil—a great storehouse of possibilities, its capacity well-nigh unlimited. It awaits only the hand of the farmer to turn it, to plant the right seed and to nurture the plant. The key which unlocks the wealth of the fields, and brings forth treasures, material and spiritual, is the intelligence of the farmer.—New Jersey Agriculture.

Spots may be removed from clothing by covering the spot thickly on both sides with starch, which is left on for several hours, when it may be removed.

A few stitches of white thread taken through a spot on a woolen garment makes the spot easier to find when the garment is washed.

A garment is kept in shape more easily if always placed on a hanger when not in use.

**DAIRYMEN USING FRIGIDAIRE**

J. E. Gamalielson, Hilo dairyman and collaborator with the U. S. Experiment Station, is using a Frigidaire machine to keep his milk over night so that it can be delivered with the morning milk, and thus cut out one of the daily milk deliveries. He reports that the evening milk keeps perfectly in this machine and can be delivered the next morning with entire satisfaction to the customers. He proposes to give the consumers the benefit of the saving, reducing the price of milk accordingly.

By University of Hawaii, Extension Service.

She—"Do you think there are divorces in heaven?"

He—"I don't think so. You can't get a divorce without a lawyer, can you?"

Woodman, Woodman, spare that tree,  
Touch not a single bough,  
For something vicious, chases me,  
'Tis the husband of a cow.

Alabama Farmer.

The amount of grain fed to the flock depends upon the appetite and action of the birds. Drowsiness and laziness show signs of overfeeding. Birds are kept slightly hungry during the day and are fed enough to satisfy their hunger in the evening.

# ARIZONA AGRICULTURIST

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## EDITORIAL

### A NEW YEAR'S RESOLUTION

**W**ITH this issue of the Arizona Agriculturist, there comes the new year. It is a time for looking back on the last year to see where the mistakes have been made, where the things that seemed at the time to be proper and most ethical might have been changed for the better. It is a time to look to the future, to lay plans for the carrying out of more scientific methods, more practical ways of doing the task at hand, and a more economical manner of correlating all the farm enterprises into a business that will net the farmer more for his outlay of capital and labor.

At this time of year, it is well to analyze the system of accounts. Being the time for inventory, it presents the ideal moment for a change of system or in improvement of the old. The time when the farmer could farm from day to day, and month to month has past. To be successful, the farmer must be first of all a business man. No man in any other line of business would think of carrying on his business with think of carrying on his business with the small amount of books that the average farmer keeps, with a business of the same investment. It well behooves every farmer to at this time analyze his system of record keeping and make such changes as seem advisable.

### THE CASEMENT GRAZING REPORT

**A** FORTY percent increase in grazing rates is one of the recommendations of Dan D. Casement, who recently spent six

months in the National forests studying the conditions and trying to work out a suitable solution to the grazing rate problem which has been hanging fire, long since. This increase of forty percent, as Mr. Casement recommends, would be made in the form of installments of 25% annually for four years beginning with 1927. This means that there would be only 10% increase this year. This increase in grazing rates is the most important one of several suggestions making up his report of some 40 pages. Mr. Casement's suggestions, developed in six months, comprise a more nearly adequate and working basis for the solutions of the grazing problem, than the work of the whole Senate committee which toured the west in 1925 at a great expense and little beneficial results.

Dan D. Casement, Colorado Springs, Colorado, himself a user of the National Park grazing lands, as well as a successful farmer of Illinois and Kansas is one of the greatest authorities on large scale livestock production. Perhaps no man could have been selected by Secretary Jardine who was better fitted for the work of checking the findings of the Forest Service, in respect to disputed grazing questions, especially the methods of appraisal of the National Forest forage value.

Mr. Casement's suggestions would cause to be brought into the U. S. treasury an increase of approximately \$700,000.00 annually. At the same time the United States would furnish to stockmen of the west a commodity at much less than its actual value. Although stockmen had come to look upon the grazing of National Forests

as a right developed from a long standing privilege we believe that they will see the justice and far-sightedness in the suggestions of Mr. Casement.

### "LETTUCE" THOMPSON TALKS

**M**R. William "Lettuce" Thompson gave two interesting lectures to the students and faculty of the College of Agriculture November 30. We feel that these lectures were of inestimable value and it is with great pleasure that we print here a brief of the first talk, that on growing lettuce.

Being a new industry in the state all phases of it have had to go through the mill of experience for ratification or rejection. Our climatic conditions are so vastly different from that of Florida where the bulk of the country's winter lettuce came a few years ago, that we could use but little of the information received from them upon the subject. So it has taken men like Mr. Thompson to forge ahead in gathering information which will be useful to the grower.

Mr. Thompson's first lecture was on the subject of the growing of lettuce. Marketing questions were discussed in another meeting.

The soil type best adapted to lettuce growing is a heavy soil. It delays the maturity of the crop ten to fifteen days but produces excellent lettuce. Light soils produce small heads which often turn yellow near the end of the season due to lack of fertility. Sods produce the best yields if they are plowed up in plenty of time to be well rotted before the lettuce is planted.

(Continued on Page 14)



# TEXAS ROOT ROT IN ARIZONA

By R. B. STREETS, Assistant Plant Pathologist.

## Early History of the Texas Root Rot; Distribution in the United States and Losses Resultant From the Disease

**O**F all the plant diseases which harrass the farmer in Arizona and certain other parts of the semi-arid and arid Southwest the most destructive and certainly the most difficult to control is Texas root rot. This disease, although it was first studied in 1888, and has been under investigation more or less continuously since 1906, still presents many baffling problems to both the farmer and the investigator. The fact that Texas root rot attacks nearly all of our taprooted plants, making it very difficult to formulate a satisfactory rotation, together with our inadequate knowledge of its method of overwintering and how long it may persist in the soil under various conditions make it very difficult to conquer or even hold in check.

### Distribution of Root Rot

Root rot is a distinctively Southwestern disease and is at present unknown outside of the states of Texas, New Mexico, Arizona and the narrow strip of cultivated land in California across the river from Yuma, Arizona. It has not yet been reported from Imperial Valley, Calif., probably because the strip of sand hills and desert between the Colorado river and the Valley form a barrier preventing its spread. It is significant that the disease is restricted to semi-arid regions where the soils are noticeably alkaline in reaction, and also to regions of comparatively low altitude where the winter temperatures are not severe. It appears that the fungus is well adapted to the rigorous climatic conditions of the Southwest but cannot withstand acid soils or cold winters.

The disease extends into Old Mexico especially along the borders of our infected states but no definite data is available of its importance there.

In Arizona, root rot is restricted to the southern half of the state, chiefly at the altitude below 4000 feet (where cotton can be grown). It is most prevalent and destructive in certain parts of the great irrigated valleys: the Yuma valley, the Salt River valley, and the Santa Cruz and Gila valleys. It is irregular in distribution, some districts suffering severely every year



Umbrella trees killed by root rot in city park.

while others are almost entirely free from the disease.

### Losses from Root Rot

Although root rot attacks many plants the data concerning losses caused by the disease is restricted to cotton and a few other major crops. Texas, where the disease was first observed and studied, has suffered much greater losses than other states because of her enormous acreage of cotton. The losses have more than kept pace with the rapid increase in acreage of cotton. Conservative estimates give the losses in Texas cotton alone as follows: 1887, \$1,000,000; 1903, \$2,000,000; 1906, \$3,000,000 (1.3 per cent of crop). Figures for recent years carefully compiled by the U. S. Department of Agriculture are even more impressive. In 1918, a dry year, Texas lost 5 per cent of the crop, or 130,000 bales valued at over \$18,000,000 (December 1 price, 28 cents). In 1919, a wet year, the loss was 10 per cent of the crop or 314,000 bales worth \$55,000,000 (December 1 price, 35 cents). In 1920, another wet year, the loss was 15 per cent or 630,000 bales, worth \$41,000,000 at the low price of 13 cents which prevailed that year. The final figures for 1926 are not available, but the reports indicate an unusually severe attack in Texas this year. The Wall Street Journal published figures showing that 2,800,000 acres (15 per cent) of the 19,000,000 acres in cotton in Texas this year were infected with root rot. This

not only means a loss this year but that nearly three million acres in Texas are unsuited to producing a profitable crop of cotton for several years to come.

In Arizona, the losses are much less in amount since our area under cultivation is so much smaller. However, the average loss for the years 1924 and 1925 was 8 per cent of the crop or approximately 8000 bales each year. This amount of cotton on December 1 prices (26.4 cents in 1924 and 21.5 cents in 1925) would be worth \$1,056,000 and \$864,000 for 1924 and 1925 respectively.

Root rot is also an important factor in the production of alfalfa as is shown by the following figures which are averages of the losses for the years 1924 and 1925: Alfalfa, 3 per cent; apple, 4 per cent; pear, 2 per cent; peach, 2.5 per cent; plum, 3.5 per cent; grape, 3 per cent; apricot, 1 per cent; sweet potato, 3 per cent. In addition to the above, there are annual losses to ornamental trees and shrubs, flowers and garden crops, running into thousands of dollars a year.

### Symptoms

The first symptom of root rot on cotton is a slight change in color, sometimes a trace of bronzing or yellowing, noticeable for a day or two before any wilting occurs. Such plants show a definitely higher leaf temperature which can be readily detected

(To be continued)

# PLANTING A CITRUS GROVE IN ARIZONA

By L. C. THAYER, '29.

## Orchard Should Be Situated in Warm Section—Air Drainage Is Essential To Growth and Development of Good Grove of Trees.

ONE of the important factors in the planting of a citrus grove is the selection of the orchard site. The points to consider in the selection of the orchard site are topography and soil. The topography or lay of the land determines the degree of frost which may be expected in a given locality. High plots of ground are more free from frosts than are the lower valleys, because cold air is heavy and settles in the lowlands. A few feet elevation may make a decided difference in the air drainage.

In general Arizona soils are well suited to citrus growing, but it is necessary in the selection of the orchard site to be sure that the soil does not contain alkali in injurious amounts. A total salt content of not more than two-tenths of one per cent is generally considered safe. The subsoil should not be so hard as to prevent water and root penetration. A tract of land should not be judged by the general appearance and nature of the surface soil. Soil borings should be made at intervals over the whole area to determine if the sub-soil is of the right kind. For citrus trees the soil should not be less than five to six feet deep.

It is necessary for the land to be properly leveled before the trees are planted. Not only should a uniform grade be established, but the land should be evenly cross-leveled. Improper leveling, resulting in high, dry spots, and the pocketing of irrigation water in the lower places, causes serious damages. The mistake of not leveling properly cannot be remedied satisfactorily after the trees are in place. The tools commonly used in grading are of the Fresno scraper, buck-scraper, and cross-bar drag. The Fresno scraper is used for long hauls, the buck-scraper for short hauls and finishing work, and the drag for filling in small depressions. After the land is "rough-leveled" it should be bordered and irrigated. Irrigation will settle the fields and settle the high and low spots.

The generally accepted planting distance for grapefruit, Valencia oranges, and lemons is 24 by 24 feet; naval oranges, 22 by 22 feet; and tangerines, 20 by 20 feet. However,

22 by 22 feet is considered practical for all varieties in Arizona, and may be adopted as a general standard. In case of a heavy soil 24 by 24 feet would be a more satisfactory distance for grapefruit.

Below is a table showing the number of trees that can be planted per acre in the square system.

Distance Apart	No. of trees per acre
24 by 24 ft.....	76
22 by 22 ft.....	90
20 by 20 ft.....	108
15 by 15 ft.....	202

The square method of laying out orchards offers the greatest advantages. By this method the rows of trees intersect at right angles, which makes it easier to cultivate and irrigate the orchard. One method of marking the points where the trees are to stand is by means of a strong wire as long as the tract, with soldered buttons marking the planting distance. The operation is to square the corners or the area to be planted and place a stake at each corner. Now, stretch the wire along two opposite sides of the field and place a stake at each button on the wire. Complete the staking by stretching the wire crosswise of the field, beginning at one end and carrying it from one pair of stakes to the other, placing a stake at each point to be occupied by a tree. Use stakes of the same size and white-wash the tops so that they may be seen easily.

The most satisfactory citrus stock in commercial use in Arizona at the present time is the common sour (*Citrus aurantium* Linn.) This stock is resistant to gumosis. It is well adapted to grapefruit and the standard orange varieties. Unless a better one is found and thoroughly proved, Arizona growers should plant trees budded to this stock rather than to any other. In planting a new orchard only stock budded with wood selected from good bearing trees should be used. In purchasing trees one should insist on having the name of the orchard, the row and tree number from which the buds were taken. This makes it possible to obtain the bearing record of the parent trees.

Nursery stock is usually graded and sold according to its age and diameter one inch above the bud union. Two year old trees, when not stunted, have proved more generally satisfactory in Arizona than have younger ones. Trees of this age should caliper five-eighths of an inch or more, and be in vigorous condition.

Citrus trees should be planted during early spring from the first of March until the middle of May. Of course they should not be planted early enough for the frosts to harm them. Planting later than the middle of June is not to be recommended. Citrus trees should never be planted during fall or winter as the soil is cold and the trees will remain dormant until the warm weather of spring. The tender fibrous roots will decay or become stunted and the trees will make a very feeble growth.

A planting board 6 feet long of 1 by 4 inch material is secured. The board is notched in the center and the notch placed against the tree stake. A small stake is driven at each end of the board. The board should be in line with the tree rows to prevent disturbance of the placement stakes when the irrigation furrows are made.

After the placement stakes have been set, one is ready to dig the tree holes. A hole 20 inches wide and 16 inches deep is large enough unless the soil is hard or stony. In digging the holes, place the soil all on one side, opposite the irrigation furrow, and keep the top soil separate from the bottom soil. The soil is more fertile and better aerated, and should be used last in filling the hole when planting.

Before starting to plant make the irrigation furrows, locating them 2 to 3 feet from the tree holes, and see that the water is ready. The trees should be kept from exposure to the wind and sun before planting. In planting two men are necessary, one to hold the tree in place, and spread the roots, and the other to shovel the earth. The planting board is placed with the ends against the placement stakes. Remove a tree from the moss and quickly trim any crossed or damaged roots. Place the tree in the cen-

(Continued from Page 8)

# WORKING SCHEDULE FOR THE HOUSEWIFE

By MARGARET BOOHER, '27.

**A Working Schedule Is Needed Not Only for the Day But for the Week—  
Prevents Too Many Things Being Crowded into One Day.**

THE most efficient housekeeper will understand the need for planning her daily activities. She will make a very careful outline of her time, not only for the day but for the week, which can be reviewed and adjusted every morning to fit the particular need of that day.

There is a very worth while purpose to a working plan. It keeps a woman from throwing herself into whatever comes first to hand, and the day will not fly past filled with the unimportant rather than with the essential duties.

Yet making a working plan is not an easy task. Conditions are not the same in any two homes. One family may number three while another family seven or more. Location, house construction and plan, hours of meals and invalids in the family are a few of the factors which have to be considered.

Still the woman with the small family and the woman with the large family have the same problem which has to be solved differently and individually to fit each household. This problem is to plan and work out a schedule of all tasks so that all work will be related and will progress smoothly with as little interruption as possible.

Many women say that they cannot make a definite plan of daily work because the work for each day is so different and that there are so many separate kinds of tasks that it is impossible for them to make a schedule. However, it is because there are so many different tasks that a schedule is needed. If a woman were doing the same thing over and over again day after day, she would need no working plan. It is needed only when there are several pieces of different kind of work to be done at different hours with different tools. Then it is necessary to arrange each task in a logical order and on time, so that the worker may proceed with the least amount of friction and effort.

Upon comparing conditions in the homes it is found that no matter how large or how small the family there are some tasks which remain constant. Some of the daily tasks are:

1. Cooking and serving of three meals a day for all members of the family.

2. Dish and pot washing.

3. Bed making and care of bedrooms.

4. Light cleaning of all rooms in the house.

Then there are several weekly or special tasks:

1. Laundry, washing, and ironing.

2. Mending or sewing.

3. Thorough cleaning of house.

4. Window, silver or metal cleaning.

5. Special cooking or baking.

6. Refrigerator, pantry or closet cleaning.

7. Shopping and ordering of supplies.

There are two objects to every schedule or working plan. First, the order of the work which is by far the most important, and the lack of which is the cause for so much "nerves" and useless effort. Second, the time for work which can be decided only after the order is arranged and provided for.

The first thing to do in making a schedule is to think through the problem, and with pencil and paper write down the absolute conditions around which the schedule must center. For example, the first facts would be the hours of meals as these must be definite and upon them depend the cooking and some of the other work. Next, write down the order of the regular daily tasks in the way you think they will be best suited to your particular home. For instance, one must consider whether it is better to wash all the breakfast dishes, put kitchen in order and start lunch before making beds and doing light cleaning, or whether to merely put food away and scrape the dishes before making beds and doing light cleaning, and then return to start lunch later, doing breakfast and lunch dishes together. Each individual must determine the best order for her own individual case. This must be worked out experimentally by trying all plans in a systematic way.

The schedule of weekly or special tasks must be considered while mak-

ing the daily schedule. For example, in planning both the cooking and cleaning of Monday or Tuesday, one must consider whether or not the laundry is to be done on either of these days.

A great deal of the confusion of unscheduled work arises because too many things are crowded into the one day, while other days have too little. The aim or purpose of the schedule is to prevent this unevenness in work and to evenly distribute the work over the entire week.

The worker without a schedule frequently allows an unexpected piece of work to interrupt and confuse her entire day. It must be understood that a schedule is not a treadmill and does not mean perpetual work without rest, for every schedule must provide for definite periods of rest and recreation.

Since the plan considers every member of the family, it necessarily needs the cooperation of the whole family. If children have tasks to do, they should be scheduled and planned for just as definitely as their mothers'. They must take their responsibility and learn to be helpful in many ways.

In planning her work, the "housekeeper" must not forget that she is also the "homemaker," and that each family life is interwoven with immaterial needs. Hospitality, well-planned and not too informal, cannot be left out of the scheme of family life.

So now that it is New Years, and everyone is making plans for the following year, let us not forget the Working Plan.

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## MARKETING OF RETAIL MILK IN ARIZONA

By A. G. CARNS, '27.

### Some of the Factors Influencing Cost of Marketing Milk—Problems of the Retail Dairyman—Suggestions for Consideration.

ONE of the chief factors in successful farming is efficient marketing and this applies to all phases of agricultural production. In these days of specialization of labor and the separation of producers from consumers, distribution has come to be a vital part of our industrial welfare. With only about forty per cent of the people of the United States on the farms there is necessarily many people in other fields of production and distribution which help to make possible the consumption of agricultural products. Thus a problem for the retailer of milk is to efficiently market his milk as well as efficiently produce it. How can this be done?

There are several factors which greatly influence marketing of retail milk, and before any constructive action can be taken to improve the situation in any community the conditions existing should be carefully studied. Such factors as: Cost of production per gallon up to the time the milk is ready to be prepared for retailing, cost of preparation for retailing, cost of delivery, price received for the milk, and the type and nature of the trade, need to be considered. These factors will be taken up in more detail. The cost per gallon of producing the milk must be known so as to obtain a basis for determining what the price received should be, after counting out cost of marketing. Naturally the cost of production should be as low as possible but this is in the field of production and needs not be considered in detail. However the cost of production and also the cost of marketing should both be as low as possible to make for successful dairying and one without the other will not make for success, and herein lies the chief cause for failure in dairying. Too many dairymen expend much energy and time on efficient production only to give it away through wasteful methods of marketing or distribution. A recent cartoon well illustrates this condition. The picture includes a farmer milking a cow (labeled production) into a pail which leaks in many places, and the streams of milk losing out are labeled



A well equipped barn is a great aid in the production of good market milk.

“wastes of distribution.” The cow gets her feed from the pasture of natural resources which are gradually decreasing.

The cost of preparation of milk for retailing or hauling is where the specific marketing problem begins. The amount of preparation of course depends upon the trade demand, which include a high quality of product, which in turn require much care and expense in preparation. The milk must be aerated, pasteurized, cooled, bottled and kept in a sanitary condition. The above services are very expensive at best. One of the largest and most efficient dairies in Arizona has a cost of six cents per gallon for preparation of milk for hauling. In others, this cost runs as high as eight or ten cents per gallon. This is very expensive when it is considered that in this same district the low cost of production is twenty-three cents per gallon. What are some of the reasons for excessive costs of preparation? Poor equipment, lack of system and inefficient methods have their part. There is usually much loss due to shrinkage of the milk supply caused by spilling, and breakage of bottles. One dairyman states that he loses five per cent of his milk through shrinkage; another dairyman says that breakage of bottles cost him two to

two and a half dollars a day. Such losses as these soon eliminate any possible profits in the business. Pasteurization alone increases the cost of marketing from eight to ten cents per gallon.

The next step in the marketing process is the hauling and distribution of the prepared milk to the markets. This is the most expensive step in the marketing process in Arizona. This offers the greatest possibilities for improvement, and consequent increased savings. In one district it has been shown that the minimum cost of delivery ranges from eleven to sixteen cents per gallon. It is therefore quite evident that on the average the costs of distribution are nearly as much as the costs of production, showing the importance of the marketing phase of the industry. Because of the complexity of the marketing of retail milk there is much opportunity for wastes and inefficiency. Because of the nature of the product it must be kept cool, clean and placed on the market in a few hours after being produced. How then can all these services be performed at the least cost and in the most satisfactory manner?

Much saving could be made by greater concentration of the facilities for delivery of milk in the larger cities such as Tucson and Phoenix.

There are seven dairies delivering milk in Tucson and 24 in Phoenix, and there is much overlapping of these routes. It is at this step in the process that the greatest waste occurs. The seven retailers in the Tucson District own together eighteen trucks that are used for hauling and these call for a minimum of eighteen men a day. If these producers should organize for delivery purposes alone, they could eliminate about half this number of trucks and drivers, since the town could be divided into sections with one truck to each section; nor would they need to sacrifice the identity of their own individual product. They could keep their own particular labels and every truck could haul all brands and distribute the proper one to the proper customer. In order to carry out such a plan it would be desirable that a stock company be formed consisting of retailers who would then hire a capable business and marketing man to manage the central station. In a small district there would be little cost involved in such a distribution plant, the purpose being only to centralize the distribution so as to eliminate a large number of trucks and drivers. One good and efficient business man with a small amount of clerical aid could attend to the office work. Not only could savings in distribution be made by such a system but greater efforts could be exerted in satisfying the trade, as the central manager could study the specific marketing problems more carefully than the average dairyman; this does not imply that the market manager would have the right to work up any one particular dairy's trade to the injury of another's. It means merely that the manager could be awake for improvements in distribution and see that the milk was delivered in the most efficient manner. But such a system would do more than this. It would tend to standardize milk to a high quality and thus unite the interests of efficient dairies which would in turn make for greater cooperation. The producers could buy much of their supplies on a wholesale scale, and thus make large savings that they could not make by buying individually. If the producers can cooperate in some one phase of their industry as this, without having to sacrifice too much of their time, money and individual ability in production; they have much to gain in

## ALUMNI NOTES

GUY TRAIL '24, who went to his Missouri farm immediately after graduation from the U. of A. recently returned to Tucson, and is now working for the Tucson Citizen. He plans to return to Missouri in the spring.

ABDUL MEHREZ '26, Major in Agronomy, is studying for his Master's degree in the University of California, at Berkeley.

D. G. MULLINS '25, received his Master's degree in Poultry Husbandry last year. He left Agriculture however, for the time and is selling Chevrolets for the O'Rielly Motor Company, Tucson, Arizona.

HIRAM "SHORTY" SHOUSE '26,

the way of savings and little to lose. Furthermore such a system would be a step or a means of education of the producers in cooperation, which at present seems to be the best method of solving the producers' marketing problems. It would tend to get the producers together so as to get them interested in marketing on a cooperative plan. It goes without saying that successful large industries today operate on a large scale especially in distribution of their products so as to cut down overhead costs, so why not the dairyman? Thus there is ample opportunity for Arizona dairymen to improve their methods of distribution and by so doing make savings that will be of material benefit to themselves and the community, for what is for the betterment of individuals is for the betterment of the group of which they are a part.

A

### PLANTING CITRUS GROVE IN ARIZONA

(Continued from page 8)  
ter of the "Y" notch of the planting board, with the bud facing the north. The tree should be planted as high as possible, without causing the roots to be exposed, to allow for settling and to be sure that the bud union will be high enough above the ground to prevent infection from gumosis. The earth should be shoveled to the center of the hole, so that it will roll down into the hole in the shape of a cone, materially assisting the planter in placing the roots in the proper position. Getting the roots in their natural position and properly spaced is very important. Press the soil firmly

major in Dairy Husbandry, left the come in contact with the roots. No cently to accept a position with Mr. Tweedy at Mesa, Arizona.

CHARLEY SMITH, recently resigned his position as County Agricultural Extension Agent of Cochise County to accept a position in a bank at Wilcox. Smith has made a commendable record in Cochise County and we hate to see him go.

GEO. W. SCHEERER '16, has been appointed County Extension Agent in Pinal County. George has had six years experience farming since graduation and we look forward to the work of a good man.

by hand and do not let any dry soil come in contact with the roots. No fertilizer of any kind should be placed in the tree hole before or during the time of planting as it is likely to injure or even kill open-rooted trees.

After the trees are planted well-rotted stable manure can be applied on two sides in deep furrows about two feet away from the trees. When the hole has been filled level with the ground a basin 3 feet in diameter can be made around the tree. Water is turned into the basin from the irrigation furrow and allowed to thoroughly soak the soil around the tree. The trees are then watered again the second day.

Another method used frequently is to plant ball rooted trees. These are trees that come from the nursery with a ball of earth on the roots. The trees are planted so that the top of the ball will be even with the ground surface after the soil has settled. The trees should be thoroughly irrigated so that the water will be sure to soak up the ball of dirt around the roots.

The trees should be whitewashed and a wrapper placed around the trunk. Perforated wax paper or yucca wrappers are desirable for this purpose. The following formula makes a very satisfactory whitewash: 7 pounds of unslaked lime, 2 pounds of sulphur, 2 pounds of salt mixed with water sufficiently to make a thin paste. The top of the tree and ends of cut branches should be covered with melted wax or paraffin to prevent the tips from drying out. The trees will not require any pruning during the first summer after planting.

**A PHENOMENAL THREE-YEAR  
POULTRY DEVELOPMENT**

(Continued from Page 1)

was always a normal surplus on the market. This condition could not be avoided as long as the hens insisted on laying more eggs at that time than at any other time during the year. This, however, made a difficult situation for both the producer and consumer. It resulted in cheap eggs in the spring and high-priced eggs in the fall. The poultrymen, realizing this, have made an organized effort to have cold storage facilities established so that this normal surplus of spring could be carried over to the period of scarcity in the fall, thereby making it possible to sell a cheap egg in the fall due to increasing the volume of eggs that could be put on the market at that time. This condition would benefit both producer and consumer alike. To date, however, the organization has not been able to have these facilities established. They are still working on this question, however, and hope to make it a reality in the near future.

Another condition that was soon realized was the fact that half of the poultrymen's time was spent in marketing his product. If this time could be spent on his farm he could increase the size of his flock and his profit accordingly. A realization of this condition brought about the organization of the Southern Arizona Poultry Association, Inc., a formal organization of the old organization. Stock was sold based on the number of birds on each farm. A permanent manager was hired with a bookkeeper, egg grader and candler, and truck driver, as his working organization. A delivery truck was purchased and warehouse rented. This organization included 80 per cent of the poultry producers in the Tucson district.

In addition to the new organization saving the poultryman time in his marketing, the fact that all eggs are pooled, graded, and candled, assures the consuming public a more uniform product of better quality. It benefits the retail merchant as he realizes he will have a constant supply of home-produced eggs of excellent quality, and uniform grade which can be had at a moment's notice.

Just how long and to what extent this development in poultry can continue is problematical. It will depend

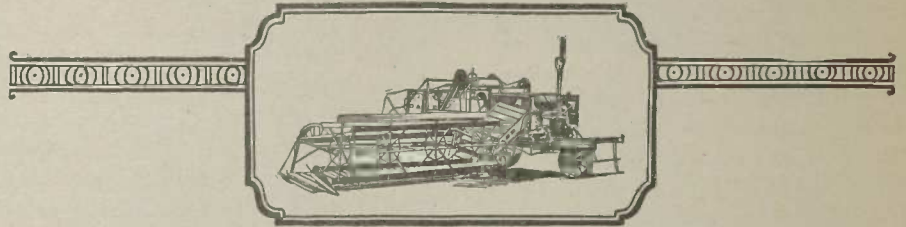
considerably as to whether cold storage facilities can be provided. It will also depend upon the demand for cold

storage eggs. There is a certain class of trade which will normally continue to use this class of egg.

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**T**HE reorganization of Agriculture to a profit basis moves fast when farmers begin to study their individual production costs. As soon as they see where the money is going, they get busy.

In every instance, power and labor make up a large percentage of these costs—40 to 80 per cent. It is not always easy to see this, especially for the farmer who does his own work, and raises and feeds horses on the farm, because his actual cash outlay is so small.

Nevertheless, the cost is there. It shows up in the output per worker, in the number of acres one man can plow in a day, in the difference in results between average and best practices. The value of labor saving machinery becomes apparent, and wise farmers use the best they can buy—which is why so many prosperous farmers are using Case machines.



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## Questions and Answers

Q. How should cions for spring grafting be treated if they are cut now?—Y. R. K.

Ans. If cions are received at this season of the year either directly from the orchard or from nurserymen, they should be packed immediately in some moist material such as spagnum moss or sawdust and stored in a cool location until time for use. A uniformly cool basement or cellar is a suitable storage place, or the cions may be buried a foot or more in depth in moist soil on the north side of a building. If it is desired to hold them for use after the normal time for them to start growth, it is necessary that they be placed in cold storage.

A. L. Kinnison, Citriculturist.

Q. What kind of dairy cow feed will the following formula make: 300 lbs. ground maize, 300 lbs. steamed rolled barley, 200 lbs. cotton seed meal, 200 lbs. bran, total 1000 lbs. I have plenty of alfalfa hay and barley pasture for roughage.—D. A. G.

Ans. This is a satisfactory formula. The grain mixture would be improved, however, if ground yellow corn were substituted for the ground maize. Corn is more palatable than milo maize and is generally considered a better feed for dairy cows where fed in a grain mixture. Which of these grains you should use will depend on the price. At the same price corn is preferable. Roughly, the grain sorghums are worth ten per cent less than corn.

W. S. Cunningham,  
Dairy Husbandman.

Q. What is a quick and effective control for chicken lice?—P. D. Q.

Ans. Chicken lice live on the bird's body, therefore the body must be treated. Sodium floride, a powder obtainable at any drug store is very effective for lice. It is applied by what is known as the "pinch" method. A "pinch" should be applied in the following parts: in the fluff around the vent, under each wing, down the feather tract along each side of the breast bone and in the neck feathers.

H. Embleton,  
Poultry Husbandman.

Q. What is the best treatment for roup chickens?—G. D.

Ans. Drafty houses, and overcrowd-

ing are the principle causes of roup. These conditions should be corrected first. To treat individual birds, make about a two per cent solution of lysol or creoline with warm water. Press out the mucus in the nasal passage,

then holding the bird's mouth open with a finger immerse its head in the above solution and hold for a second or two.

L. C. Boggs,  
Assistant Poultry Husbandman.

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## EDITORIAL

(Continued from page 6)

The incorporation of humus in the soil is necessary. This may be furnished with manure, hay or sod from alfalfa or Bermuda grass. Alfalfa sod which is especially recommended should be plowed up and one crop of wheat grown prior to the planting of the lettuce. If the lettuce seed is planted in soil filled with poorly rotted sod, germination of the seed will be slow, uncertain, and the growth will be retarded until the latter part of the season when it will be so rapid that the heads will burst.

The preparation of the seed bed is very important. The land should be level to afford even penetration of water. Plenty of water prior to planting is a prime essential. The soil should be filled with water down several feet.

The seed is planted in beds, and on each side of a row. The distance between the furrows on either side of the row is four feet.

The seed supply of lettuce is rather limited because it is a new industry. Only the best seed should be purchased, which is of pedigreed stock; but the high percentage of germination and increased yield, pay for the extra initial cost.

The irrigation after the plants have started growth are of special importance. A large part of the loss by blight is due to faulty irrigations. The root development of the young plants is enormous as the ground must be in an ideal condition for them to go down.

The length of the season and the spacing of the plants in thinning depends largely upon the time of planting. Usually plantings made before September 10 mature in 80 days. The distance between these plants should be not less than 10 inches. Plantings made between September 15 and October 10 take 90 to 95 days to mature. These may be spaced as close as 14 inches in the row. Plantings made during November and up to December 10 require 110 to 120 days to reach maturity. These may be spaced as harvested in 90 to 100 days. This reclose as 14 inches. January lettuce requires the 16 inch spacing.

There should be enough moisture in the soil to supply the plants from planting time till thinning. The fields should be so leveled that long runs of

water are avoided. A forty rod run is the best length. This gives the land a uniform amount of water throughout without waiting.

The cultivations should be often enough to keep a good mulch on the soil. The dirt should be thrown up around the roots near the plant when the cultivation is completed.

There are a number of diseases which are serious to the industry. Leaf Rot, so prevalent in other sections is not serious in the Salt River Valley. Slime is a very infectious disease which attacks the center of the head and cannot be easily detected. It spreads rapidly and proves very serious in shipping. Tip Burn is probably due to the excessive sunshine. There is another disease which affects the roots, the causal organism of which has not been isolated.

Of the insect pests, the bean thrips and the aphid are the most serious; the former causing a total loss in some cases.

F. L. Smith.

#### TREND OF LIVESTOCK AND HUMAN POPULATION SHOWN IN REVISED CIRCULAR

Discussing the close relation between the production of food animals and consumption of meat, Department Circular 241-C, just issued by the United States Department of Agriculture in revised edition, shows important trends in the development of the nation's livestock industry.

Under the title, "Food Animals and Meat Consumption in the United States," John Roberts and associates in the Bureau of Animal Industry have reduced to a comparable basis statistics gathered in various ways since 1850. The results show trends of animal and human population in a manner of interest to livestock raisers and consumers alike.

The circular deals, also, with such topics as monthly ratios of births and slaughter of food animals, dressed-meat yields, meat production, consumption, and foreign trade, and the per capita consumption of the different classes of meats in the United States and foreign countries. Charts show graphically seasonal and yearly trends on the foregoing subjects.

The circular may be obtained, as long as the supply lasts, on application to the United States Department of Agriculture.



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**COTTONSEED MEAL IS  
RECOMMENDED BY PIMA  
AGENT AS CHICK FEED**

County Agent C. A. Brown has just completed an investigation of protein supplements for poultry mashes with the result that he is recommending the substitution of cotton seed meal for meat scrap, tankage and other animal proteins. He has found the vegetable protein when used with minerals almost as effective as the animal protein and then there is a decided saving of money.

At the outset of his investigation, Mr. Brown sent a questionnaire to 15 state experimental poultry stations. New Mexico, Texas, Oklahoma, Missouri and Illinois reported favorable results with vegetable proteins. H. L. Kempster of the Missouri station wrote that "cottonseed meal when supplemented with minerals will give about the same results as meat scraps or tankage."

The Pima county agent is using a mash made of 650 pounds of bran, 375 pounds of shorts, 375 pounds of ground milo, 600 pounds of cottonseed meal, 48 pounds of bone meal, 16 pounds of ground limestone and 16 pounds of dairy salt. The price of this mash is \$48 per ton compared with from \$60 to \$65 per ton when animal protein is used.

The Arizona poultry experiment station is planning to run an experiment on vegetable proteins this year.

"We have an abundant supply of fresh cottonseed meal here and the question of finding a cheaper substitute for the high-priced animal proteins is of vital importance to every poultryman," Mr. Brown stated. "Leading poultrymen the country over have only recently recognized that minerals are very essential in mashes made up with vegetable proteins."

**PIMA COUNTY FARMERS MAY  
PLANT 3000 ACRES OF PEAS**

Pima county farmers are considering the advisability of planting green peas on acreage estimated at 3000 acres, according to a survey made by the chamber of commerce in co-operation with the county agricultural agent. The chamber has been in correspondence with a large marketing company in San Diego, which is sending a representative here to confer with the farmers.

A representative of the company was to come here the end of this week, but as notice of his contemplated trip did not arrive in time to call the farmers together, he was asked to delay his trip until the middle of next week. A general meeting of farmers interested in growing green peas will be held at that time, at the office of County Agent C. B. Brown.

In correspondence from the coast marketing firm, market conditions are pointed out, with the view of having the Tucson crop come on the market at a time when prices are good. By marketing peas from Mexico, Idaho, California and other points, the coast company is able to supply green peas for the market practically all of the year.

It was proposed that the local crop be planted at such a time that the crop would be ready for market late in the fall, by late planting, so that the peas would be shipped after coast or other markets had already sold their crop.

In a survey made here lately, it was found that approximately 3000 acres would be available for the crop, which requires a rich soil, and plenty of water. A large proportion of this acreage was planted to cotton the past season, but the cotton acreage is being greatly reduced for the coming season.

Hardwood cuttings of deciduous shrubs and roses are placed in sand or sandy loam in a well drained location, says the Oregon station. The cuttings are dug in the spring when roots have formed and planted where they will get careful attention throughout the summer. A "heel" is not necessary on rose cuttings.

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**JOHN J. THORNBER,**  
Dean College of Agriculture

**CLOYD H. MARVIN,**  
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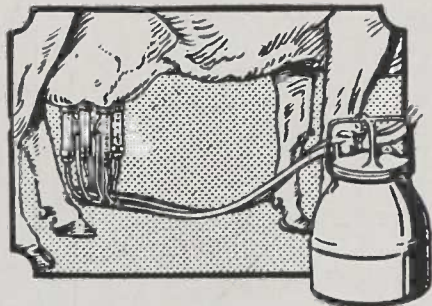
**204 " " "All right."**

**143 " " "Good."**

**132 " " "Better than hand milking."**

**All the rest — except 13 out of 1160 — gave favorable answers.**

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