ROOT-KNOT OF COTTON AND OTHER CROPS



ROOT-KNOT SHOWN ON A COTTON PLANT.

(Prepared by the United States Depart-ment of Agriculture.) |ble crops can be grown until the worms increase sufficiently to cause

is caused by minute eelworms, or nematodes, which bore into the roots and five there. The irritation of their presence results in the formation of irregular swellings, or galls, varying in size from tiny enlargements on the small roots to knots an inch or more in diameter on the large ones. The male worms are too small to be seen with the naked eye, but the females when full of eggs assume a spherical shape and may often be distinguished in freshly-broken roots as glistening pearly bodies half the size of a small pinhead. Each female may lay several hundred eggs, and thus the worms are

propagated. How Root-Knot Is Spread.

Root-knot may be carried from one field to another by any agency which will transfer some of the nematodes or their eggs, in exactly the same manner that wilt is disseminated. Drainage water is perhaps one of the most important means of spreading root-knot. In addition, a common agency for the introduction of the nematode into new territory is nursery stock. Seedling pecans, peaches, figs, mulberries, or negranates, and young asparagus, cabbage, eggplant, strawberry, tobacco and tomato plants purchased from infested sections may carry the worms in their roots or in the soil adhering to Iron, Brabham, and Monetta. These them. In the West, where the nema tode occurs guite commonly on the potato, the worms are carried in the tubers.

Sandy Soils Most Subject to Root. Knot.

essentially a disease of Rodt-knot is light solls. Although the disease may occur on heavier soils than wilt, yet it is not, as a rule, serious on softs containing a large proportion of clay. In general, the lighter the soll the more severe the root-knot injury. The places of greatest damage are usually light sandy spots or ridges in infected fields. In gardens which have been highly fer-tilized with stable manure root-knot is

Root-knot of cotton and other crops damage, when another rotation is necessary. The following crops are largely or entirely immune to root-knot:

> Barley Bean, velvet Grasses (nearly all) Kafr Millists (nearly all) Bean, vaivet Beggarweed, Flor ida Chufas Corn Cowpea, Brabham Towpea, Iron Cowpea, Monetta Grans, crab Flor-Mile Oats, winter

Root-Knot Increased by Most Varieties of Cowpeas.

Such varieties of cowpeas as the Whippoorwill, Clay, Black, Unknown, Red Ripper, New Era, and others are susceptible to root-knot that not

only are they seriously infured, but the growing of them on nematode-Infested fields greatly increases the num ber of worms in the soil, and conse quently the damage to subsequent cotton or other susceptible crops. It is a common complaint of farmers in wilt sections that the wilt is noticeably more severe after a crop of cowpeas of a variety which is susceptible to root-knot. This is due to the fact that the nematodes make points of entrance for the will fungus, which then kills or further injures the plants. A few varieties of cowpeas are highly resistant to nematodes, including the should be the only cowpeas planted on land infested with root-knot.

How to Recognize Cotton Root-Knot. The detection of cotton plants affect

ed by root-knot, except by an examinstion of the roots, is much more dif-ficult than in the case of wilt. Badly diseased plants are distinctly stunted but not appreciably deformed, as in wilt, and both leaves and stem have a pecultar sickly yellowish green color Measures for the Control of Root-Knot The rotation and diversification of crops are of fundamental importance to where the root-knot nematode is presTHE HERTFORD COUNTY, HERALD

the Illinois Experiment station.

A general rule is to feed one pound

of whole or skimmed milk to each eight pounds of live weight, rarely

feeding in excess of 12 pounds of either. The schedule of feeding used

by the Illinois station calls for four

bana, III.



Apple marketing plans should comprehend picking methods, grading and sizing methods, kind or kinds of packages to use, types of pack if box packages are contemplated, shipping methods and facilities, storage and methods of marketing the fruit to the best advantage.

The time of picking apples varies siderably with the variety. In any case, however, fruit should be mature efore any picking is done. Time of icking should be determined in part, nicking sh also, by the use to which the fruit is

Grading and sizing may be done by machinery. Some form of grading is necessary to realize the highest profit.



Ê

Fruit-Weighing Apparatus.

A, Shoulder harness; B, spring balance a, scale for weighing a maximum of i pounds; b, scale calibrated to indicate fu box or parts of hox in tentis; c, pointer d, d, ropes; and e, e, steel hooks.

Through proper grading one New York firm received two years ago a minimum of \$3.56 a barrel for its fruit and as high as \$6 a barrel for the best grades. One experiment in honest grading and packing is usually sufficien to convince any grower of the policy of the practice.

The advantages of the various types of storage and the type best suited to his conditions must be determined by the individual. For the commercial grower iced storage is by far the best. For the average farmer or the man catering to a small market, a different form of storage is essential.

The co-operative plan of marketing apples has been very successful in some sections.

MORE MULCHING IN GARDENS Roots of All Plants That Lie Just Under Surface Suffer From Freezing

and Thawing. It would be greatly to our advansouthern agriculture verywhere i tage to do more mulching in our garand become absolutely necessary dens and about our shrubs and fruit. trees. Roots of all plants that lie just

"Guesswork in apportioning milk 1.85 to the dairy calf is expensive both from the fact that irregular amounts often cause digestive troubles and because more milk than necessary is frequently fed." This statement is quoted from Circular No. 202, published by

RAISING GUINEA FOWLS IS PROFITABLE

GUINEA FOWLS STEADILY INCREASING IN DEMAND.

Of the three varietles of guines fowl

"pearled" with white and is so

-pearl, white and lavender-pearl is

purebred birds for hatching can be ob-

outlet for a few day-old guinea chicks

lings, goslings, and turkey poults.

condition upon free range, they can be

confined if necessary and satisfactory

Marketing Guinea Fowls.

fowls is during the latter part of the

summer and throughout 'he fall. At

this time the demand in the city mar-

kets is for young birds weighing from

one to two pounds each. At about two

and one-half months of age guineas

pounds, and at this size they begin

The usual practice in marketing

game birds is to place them on the

market unplucked, and in most mar-

kets guinea fowls are so'l in this way.

They are more attractive with the

color of the guinea are likely to preju-

should be dressed in the same way as

common fowls. Before shipping any

quire of the dealer to whom they are

to be shipped whether the feathers

Removing Feathers.

keted with the feathers on, all that should be done is to bleed them by

severing the vein in the roof of the

vein in the roof of the mouth is severed

first, to insure thorough bleeding, and

sive movement of the muscles and can

Cold Weather Sets In-Damp-

ness is Worst Enemy.

If the guinea fowls are to be mar

should be removed.

be removed easily.

reaching the markets in August

The marketing season for guinea

results obtained.

From the United States Department of Agriculture.) Guinea fowls, which have suffered by far the most popular. It has a npopularity with farmers because of purplish gray plumage regularly dotted unced propensities for noise or making during the sleeping hours of handsome that frequently the feathers humans, are likely to rise above this objection in view of the steadily in-creasing demand for their delicious Breeding stock of the various varie-ties usually sells for \$2 to \$3.50 a pair, flesh, in the opinion of a poultry speor from \$3 to \$5 a trio. Eggs from cialist of the United States department of agriculture, With Eastern tained for 75 cents to \$1 for 15. Durmarkets offering 75 cents to \$1.50 a ing the last few years a limited market pair for these fowls, guinea-fowl raisfor guinea eggs has developed among commercial hatcheries which have an ing now is a profitable side line on Eastern farms, and many offer opportunities to the commercial poultryman along with their ordinary chicks, duckin a few cases. In Farmers' Bulletin 858, "The Guinea Fowl," the specialist While guineas can be kept in the best discusses the guinea business from the starting of a flock to marketing the produce, which is largely the meat.

Demand is increasing.

increasing demand for guines fowls, the specialist says, comes from hotels and restaurants in the large cities, which are always eager to buy prime young stock. These they particularly like to use as a delicacy in bunquets and club dinners, guineas be-ing a good substitute for game birds such as grouse, partridge, quall, and weigh from one to one and one-half pheasant. The present supply comes largely from small farm flocks of 10 to 25 fowls. Such flocks require little the season advances the demand is care and expense to raise; consequent- for heavier birds. marketing price is largely profit. ly th

And as for that undesirable cry of the guinea fowl, the department specialist admits that this is a rather objectionable habit, but declares that it might often be listed as an asset. It feathers on and sell more readily, gives warning of marauders in the When dressed the small size and dark poultry yard and also, backed by a pugnacious disposition, constitutes an ef- dice the prospective customer, who may fective show of fight against hawks be unfamiliar with the bird's excellent and other enemies. In fact, says the eating qualities. For hotel and restaupoultryman, some farmers raise a few rant trade, however, guinea fowls what more milk at a younger age, guinea fowls with their turkeys and allow them to roost together so that a warning will be given if any theft is birds to a market it is advisable to inattempted during the night.

Develop Private Trade.

Guinea fowl raisers who are near the large Eastern markets or who have developed a trade among private customers are now receiving prices that make this industry very profitable. One poultryman near a New England summer resort has raised as many as 400 mouth, allowing them to hang head guinea fowls in one senson, selling them in August when they weighed if the feathers are to be removed, this resort has raised as many as 400 about one pound each at \$1.25 a pair. should be done by dry picking. The Wholesale prices in New York usually range from 75 cents to \$1 a pair for dressed spring guineas weighing two pounds to the pair, and from \$1.25 to groove in the roof of the mouth into \$1.50 a pair for those weighing three the brain. When the brain is pierced to four pounds to the pair. Old guinea the feathers are loosened by a convulfowls are not wanted and seldom bring more than 50 or 60 cents a pair.

INCREASE OF POULTRY URGED | SEE TO REPAIRS IN AUTUMN

Demand Can Be Met Most Effectively Get After Leaks and Cracks Before by Introduction of Better Stock and Methods.



If clay is mixed with water and "puddled" and then allowed to dry a ard, almost waterproof, and nearly dustless material is formed. If a smooth, well shaped road could be con structed of this material it would never become very muddy or very dusty, and would be an ideal carth road. Under ordinary conditions this ideal is not realized, because, after being puddled the earth dries in rots and holes which are rough while dry and which hold water like dishes it rains. If the muddy road, after



Dragging Road in Fall.

being puddled by the horses' hoofs and wagon wheels, can be smoothed out and properly shaped before drying then the ideal is attained, and smoothing and shaping is this the work accomplished by the road drag. The water standing in pools and puddies is spread out over a larger sur-face, so that it dries quickly, the minute holes or pores in the clay are smeared over and closed, making the surface more nearly waterproof; the ruts and holes are gradually filled up and made smooth, and just enough earth is moved toward the middle to give the proper crown. The result is smooth, hard, well-shaped road which will shed water and never becomes very muddy in wet weather or very dusty in dry weather.

From the above discussion it can readily be seen that dragging should be done when the road is wet, or at least when it is moist. The exact time to drag any given road will depend upon the character of the road material, and no exact rule can be given which will fit all cases. If tradac can be kept off from the dragged portion for awhile then the road may be dragged when it is very wet and sloppy, but if wagons are going to follow right behind the drag, making deep ruts as soon as the old ones are filled up, the dragging must be deferred until the road has partly dried out. Good judgment and experience on the part of the operator will soon tell him what is the best time to drag any given road. Roads which dry out quickly must be dragged immediately after a rain, while others may be allowed to dry for several days before being dragged. Dragging a dry road simply makes it dusty. Dragging should be done, if possible, after every rain, and as soon there-after as conditions are right.

SURFACING THE FARM ROADS

Materials Ordinarily Used in Building Roads Are Too Expensive—Few Good Suggestions.

Many of the materials ordinarily employed in road construction will be found too expensive for use in improving the farm roads. One or more of the following will, however, usually be found available and within the means of the farmer for surfacing his

Splendid Dairy Type. pounds of whole milk to a Jersey calf the first two days; six to eight pounds from third to twenty-eighth day: three to four pounds of both skim milk and whole milk from twentyeighth to thirty-fifth day; eight to ten pounds skim milk from thirty-fifth to fifty-sixth day, and ten to tweive pounds from fifty-sixth to ninety-first day. A holstein calf is given somethough rarely does the total fed go

above 12 pounds.

PROPER GROWTH OF CALVES

Puzzling Question to Gray Heads in Calf Business-Much Depends on Ration Furnished.

How fast should my calves grow? is a puzzling question even to gray heads in the calf-raising business. This will depend to a large extent on the kind of ration fed, but in order for any ration to be considered a definite success the calves should show a gain of at least a pound a day each day for the first six months. Many ordinary dairymen are getting a pound and a half gain daily.

In height these same calves should increase from one and one-half to two Inches per month for the first half year. The height and weight have a definite relation for average sized calves dur-ing this first period. After six months this relation gradually changes and the weight outstrips the height. At one month of age a normal calf of any

Such Manner That He Will Make

Best Quality of Butter.

know how to handle his cream and

churn in such a manner that he will

bake the best quality of butter from

it. The cream must be ripened even-

ly and then churned at the prope

temperature. If too warm the butter

will come quickly, but will not be

will take longer to churn. Generally

churning will require from 30 to 35

minutes when cream is at the proper

It is Best Way.

It has been found that the type of

est, because that is the easies

firm and granular. If too cold it

thre

The

Ur

Root-Knot Attacks Many Farm Crops

Unlike wilt, root-knot attacks a very large number of plants, many of which are important farm crops. Those subject to root-knot injury may be divided into two groups, according to their degree of susceptibility. Some of the crops most severely attacked by root-knot are as follows:

Bean, soy	Eggplant
Bean, lima	Fig.
Beet	Lettuce
Cantaloupe	Okra
Carrot	Peach
Celery	Pecan
Claver, bur	Pomegranate
Clover, crimson	Potnto
Cowpea (all varie-	Balsify
ties except iron.	Squash
Brabham and Mo-	Tobacco
netta)	Tomato
Chaumhar	Watermalon

Plants less severely injured by root knot are the following:

Alfalfa	Pea, garden
Asparagus	Potato, swee
Bean, snap	Padish
Cabbage	Epinach
Clover, sweet	Strawberry
Collard	Sugar cane
Cotton	Vetch, comm
Mulberry	Vetch, hairy
Onton	21.90 8 9 7 1 Par 1 1 - 19 18

A few common weeds are subject to nematode injury and should therefore be eradicated where the attempt is be ing made to reduce root-knot in fields. most severely injured are the bal-The most severely injured are the ma-loon vine, the maypop or passion flow-er, and the papaya or melon pawpaw. Weeds less severely affected by root-knot are mayweed, pursiane and sweet fennel

Some Farm Crops Resistant to Root-Knot.

Fortunately, a few farm crops are largely or entirely immune to root-knot. By employing these in suitable nematodes may be starved rotations. out on infested fields, so that suscept

Attend Poultry Shows. Attend the poultry shows in your neighborhood and if you have any extra fine birds take them along. They may not win, but your interest in then will prompt you to learn what a really good bird 1s.

Having Faith in Fowla Having faith in your fowls will help matters along wonderfully, if this faith is backed up with the stantial things necessary to keep the

It has been repeatedly demonstrated by many farmers that root-knot can be controlled by the use of proper crop The principles on which rotations. such rotations are based are (1) the use of crops immune to nematode attacks until the nematodes are sufficiently reduced so that susceptible crops may be

profitably grown and (2) the eradication of all weeds subject to root-knot. The use of crops that will return a profit and the building up of the fertility of the soil are also important considerations. Every farmer must work out for himself the particular rotations suited to his farm and his type of

farming. If land is very badly infested with natodes as well as wilt, a two-year or three-year rotation with immune

crops is recon ended before susceptible crops, including cotton, are grown, and they should not be grown for more than one or two years thereafter before the cotation with immune crop repeated. When the uld b tation is less severe, a one year or twoyear rotation will do much to put the

and in condition to grow the crops desired. In planning rotations for land in

fested with root-knot, susceptible crops, such as tobacco, sweet potatoes, otton, cantaloupes, okra, and toma toes should never follow one another. The damage increases each year so long as susceptible crops are planted. If the first crop should escape serious injury, the nematodes will increase in

the soll to such an extent that the sec ond crop will be almost sure to show a decided loss. Immune crops should always he diternated with susceptible ones and the nematode injury thereby reduced to a minimum

Causes for Scours. Scours are caused by three things filthy quarters, unclean drinking ves sels and overfeeding. Prevention is better than a cure.

Keep Boar Thrifty. The boar should be kept thrifty durng the su lowed to fatten.

Kill Chickens and Eggs. Rats are great destroyers ens and eggs.

under the surface suffer from the albreed weighs, approximately ternating freeze and thaw of our bropounds for each inch in height, but at the end of the six months' period the ken winters. The soll lifts as it thaws; weight has increased to six and oneconsequently there is a misplacemen half pounds for each inch in height. of the roots. Their close contact with the soil is broken and their delicate From that time on there is a continued root connections are often strained apart. Even our hardler plants would height until maturity. make more steady growth for mulch-

Careless mulching, however, may prove an injury rather than a benefit. If applied before the ground has fro-zen about bulbs and fleshy roots it offers shelter to the burrows of field mice and invites them to a good feed supply as well. If applied after the ground freezes it insures cold storage

for the root system until time for a safe start in the spring, as it retards the thawing of the frozen soll.

SET OUT ORCHARD IN FALL

Generally Not So Much Press Hurry of Work-Rains Will Settle the Soil.

In the fall there is generally not s rork as much pressure and hurry of is the case in the spring, and this is a good time to set out an orchard. The rains of fall and winter will set the earth among the roots so that growth can begin at the earliest moment in the spring.

PRUNE SMALL BUSH FRUITS

Work May Be Done on Currants and Gooseberries Soon as Leaves Fall. or in Spring.

Currants and gooseberries may be pruned as soon as the leaves fall; or the work may be left until early spring. Cut back one-third of this year's growth, and thin out surplus, diseased or unthrifty shoots. Old bushes may have two-thirds of the present year's

Join With Neighbors.

of wholesale prices,

low zero.

sirable. growth removed.

Avoid Fail Planting. Fall planting of fruit trees is not to be recommended in localities where Not a bit of profit in feeding bad ay to a good cow. Results show

winter temperature drops far bethe cow is fed, so be careful, Identification Marks

Marks for identification should be Join with your neighbors in buying spraying materials and thus get the plain without disfiguring the an

(From the United States Department of

An appeal to poultry misers to intheir production of poultry, crease ment, and eggs has been issued by the American Association of Instructors widening in the relation of weight to and / Investigators in Poultry Husbandry, which met recently at Amherst, Mass. These poultry experts, in a resolution, state that there will be BUTTER MAKER SHOULD KNOW an unprecedented demand for breeding stock and poultry products, which Must Handle Cream and Churn in can be met most effectively by the introduction of approved methods and better stock and management in each flock farm butter maker should

The association urges particular own ers of flocks not to sacrifice valuable chickens simply because feed has become abnormally high in price. They point out that such a practice will tend to reduce the supply of breeding stock and lead to serious reduction in utput

The members of the association who are the experts in poultry hu bandry from the several state agricultural colleges and the United States department of agriculture, stand ready to help all poultry producers to get maximum results.

Agricultural Department of Oxford Academy Makes Handsome Profit on Small Flock.

churn that permits concussion of the cream against the sides of the churn try before killing. Last fall the agricultural department of Oxford acad emy, New York, bought a few small chickens for 57 cents each, fed them sold them three weeks later for \$1.19 In addition, it is easier to avoid diseach-a gain of 62 cents. They gained one pound four ounces each, or 35 per | individual observation. cent, at, a cost of 14 cents per each pound of gain.

Sweetens Atmosphere.

A little lime scattered over the dropping board. In the bottom of the nests and on the floor of the house sweetens the atmosphere and aids greatly in keeping down the mites.

Good Place for Ashea

A good place to put coal ashes is in coal ashes.

Nothing is much more dismal than a leaky hen house on a rainy day; the sand and clay, cinders, brickbats from hens huddle in the light spots; the drip, drip of the rain splashes and spreads; the indescribable smell of the damp droppings permeates the After a few days of such weather comes the sickly smell of roup, and the thought of getting eggs for eating from such a place is anything but ap petizing. Dampness quicker than cold

will rob chickens of their "pep." Get after leaks before the weather turns too cold. Make the house warm without being "close." Remove drop pings and scour ground from a dirt

floored house, and scatter well-slaked lime in the damp places. Be sure that no lumps of lime remain. When the house is patched, the windows cleaned. and the floor renewed, the chickens become more alert; cheerful singing accompanies the busy scratching to which the hens betake themselves

by day nor mites by night.

FINISH POULTRY FOR MARKET Most Satisfactory Method is to Con

fine Fowls in Small Crates Where . Feeding Is Easy.

The most satisfactory method nishing chickens for market is to confine them to small crates where exercise will be restricted and to feed eavily for ten days or two weeks on a wet, sloppy mash made with milk. The advantages of the crate method of feeding over all other methods are that it is more sanitary, the fowls are more easily controlled, feeding is

easier and greater gains are secured. ease since every chicken fed is under

WOMEN MAKING MOST MONEY

Get Bigger Returns From Intelligent Care of Flock Than Men Get From General Farming

No one will gainsay the staten that there are some enterprising farm wives and daughters who are making more clear money every year from the intelligent care of a flock of purchred corner of the poultry house. Hens birds, and sometimes' mongreis, than like to scratch and dust themselves in the husband and father from his general farm work

roads and paths; gravel, mixtures of old buildings, brickyard waste and quarry waste. The material selected should, however, be hard enough to withstand crushing under heavy loads and possess sufficient binding power to compact well and maintain a firm, hard surface under all ordinary weath er conditions.

IMPROVE ROADS AND DRIVES

Where Any Considerable Amount of Hauling Is Necessary Surface Improvement is Needed.

Immediately Roads and drives around the farmyard and barns which are used very frequently are usually of sufficient importance to warrant some surface improvement. Very light or extremely sandy solls cut up hadly dry weather, while certain heavy always provided they have neither lice and absorbent solls become very sticky and soft during the rainy seaso Where any considerable amount of hauling is necessary, roads over solls or this character may require to be surfaced.

\$300,000,000 Lost Yearly. The farmers of the United States have been allowing \$300,000,000 in real money to escape from their pockets each year because of poor ros ads, according to the testimony of experts who made a survey of the effect of bad roads upon markets for the department of agriculture.

Building Plank Road.

For the sake of economy and conenlence, a plank road constructed in portable parts is being laid across the California desert.

Work in California

The state of California has voted \$15,000,000 to be spent in perfecting the state highway system, and not a single county failed to give the powering measure a majority

Keep Machinery at Work

Maybe your neighbor could make nod use of some farm implement that you have stored away in a shed, or you could use an improved machine of his part of the time. Keep all available machinery at work during daylight hours.

IT PAYS TO FATTEN POULTRY It pays handsomely to fatten poul 18 cents worth of milk and mash and

and best way to separate the fat globules of cream, so they may be collected. A good example of this type

is the barrel churn which is com ly used in some modified form. Purebred Bull Improves Herd.

Almost any purebred bull with good milking ancestry will improve a herd of grade or scrub cows. That does not infer that the best bull is not de

No Profit In Bad Hay.

BARREL CHURN IS EXCELLENT Permita Concussion of Cream Against Sides Separating Fat Globules-

temperature.