MANY DYING HICKORY TREES

Investigations by Experts Reveal Fact That Bark-Beetle Is Most Destructive Insect Enemy.

Within the past ten years a large percentage of the hickory trees have died in various sections throughout the northern tier of states and southward through the Atlantic states, and to a greater or less extent within the entire range of natural growth of the various species.

While there are several and sometimes complicated causes of the death of the trees, investigations by experts of the bureau of entomology, U. S. department of agriculture, have revealed the fact that the hickory bark-beetle is by far the most destructive insect enemy and is therefore, in the majority of cases, the primary cause of the dying of the trees.

The first evidence of the presence and work of the beetle is the premature dying or falling of a few of the leaves in July and August, caused by the adult or parent beetles feeding on the bark at the base of the leaf stem, but this work alone does not kill the trees.

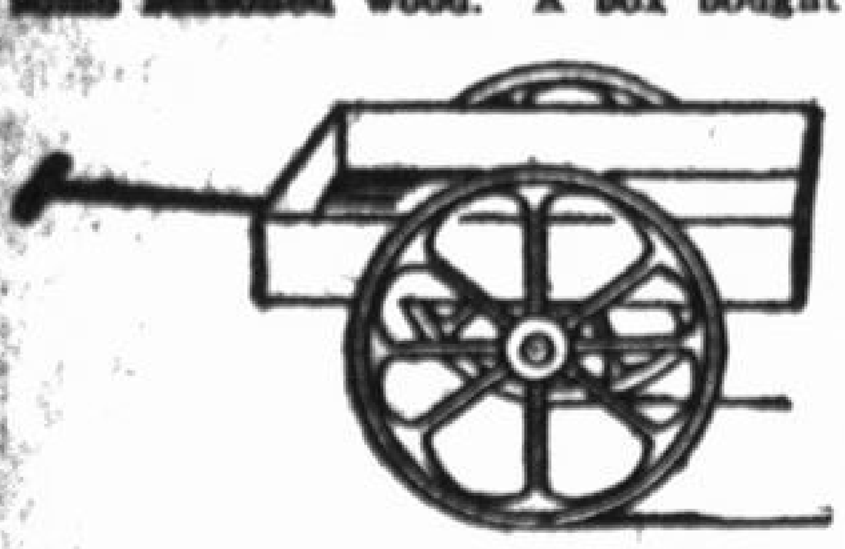
The next evidence of its destructive work is the dying of part of a tree or all of one or more trees. If the trees are dying from the attack of the beetle an examination of the inner bark and surface of the wood on the main trunks will reveal curious centipede-like burrows in the bark and grooved on the surface of the wood. These are galleries and burrows of the parent beetles and of their broods of young grubs or larvae. The girdling effect of these galleries is the real cause of the death of the trees.

The broods of the beetle pass the winter in the bark of the trees that die during the preceding summer and fall. During the warm days of March and April these overwintered broods complete their development to the adult winged form, which during May and June emerge through small round holes in the bark and fly to the living trees. They then attack the twigs to feed on the base of the leaves and tender bark and concentrate in the bark of the trunks and large branches of some of the living healthy trees and bore through the bark to excavate their short vertical egg galleries. The eggs are deposited along the sides of these galleries and the larvae hatching from them excavate the radiating food burrows which serve to girdle the tree or branch.

HANDY CART FOR ORCHARDS

Can Be Put Together by Using Two Cultivator Wheels—Tongue Made of Wooden Piece.

A handy cart can be made by using two cultivator wheels and the axle on which they have been running, says the Homestead. If no iron axle is available an axle may be made out of some seasoned wood. A box bought



A Handy Cart.

from the merchant may be secured to this by semi-circular bolts. A tongue can be made from a 2x2 piece and attached to bottom of box with nails or bolts.

HORTICULTURAL NOTES

Use cornstalks to protect fruit trees from the ravages of rabbits.

Don't forget to lay in your orchard heaters before you need them.

An orchard neglected for one year virtually puts it back three years.

The size of an apple can be influenced to quite a large degree by picking.

Keeping rabbits from damaging fruit trees is sometimes a difficult task.

Pear blight can be eradicated if you are thorough, careful and prompt in your work.

Keep the orchard clear of all dried brush, it being the harbor for injurious insects.

In setting an orchard stick to the proven varieties. Let some one else do the experimenting.

If you want a fine, early yellow peach, put two or three Triumph trees in your next nursery order.

An orchard will live longer, bear better and be more profitable by being well cultivated and enriched.

Mulching isn't to keep the strawberries from freezing, but to keep them from thawing after the ground is frozen.

Apples are about all out of growers' hands and in cold storage. It's now 45 cents a peck instead of 40 cents a bushel.

San Jose Scale may be kept in control as easily as any other pest of the orchard by adopting proper spraying methods.

Do not plant many varieties of trees in the new apple orchard. The apple buyers like to find as many of one variety as they can together.

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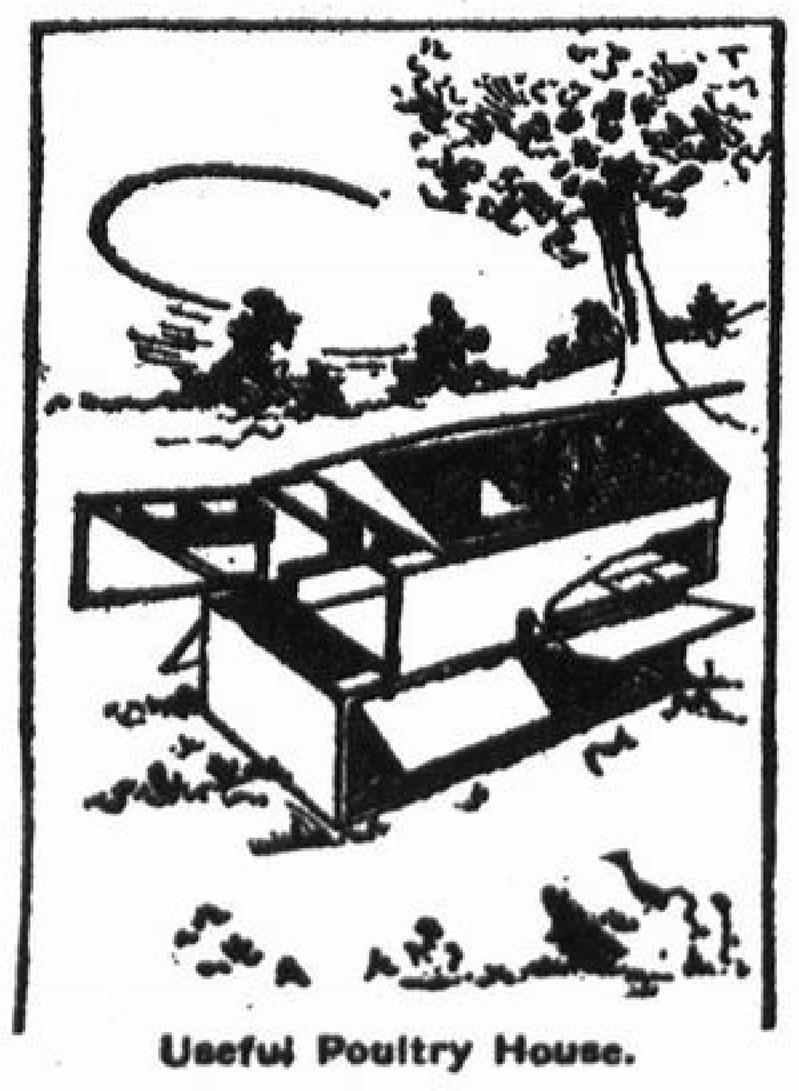
POULTRY

NEW YORKER INVENTS HOUSE

In Two Sections, With Walls and Roof Hung on Hinges—Quite Easy to Keep Ventilated.

A rather elaborate poultry house has been designed by a New York man. It is in two sections, one of which slides upon the other and is small enough to be easily taken apart. The lower section has screens along



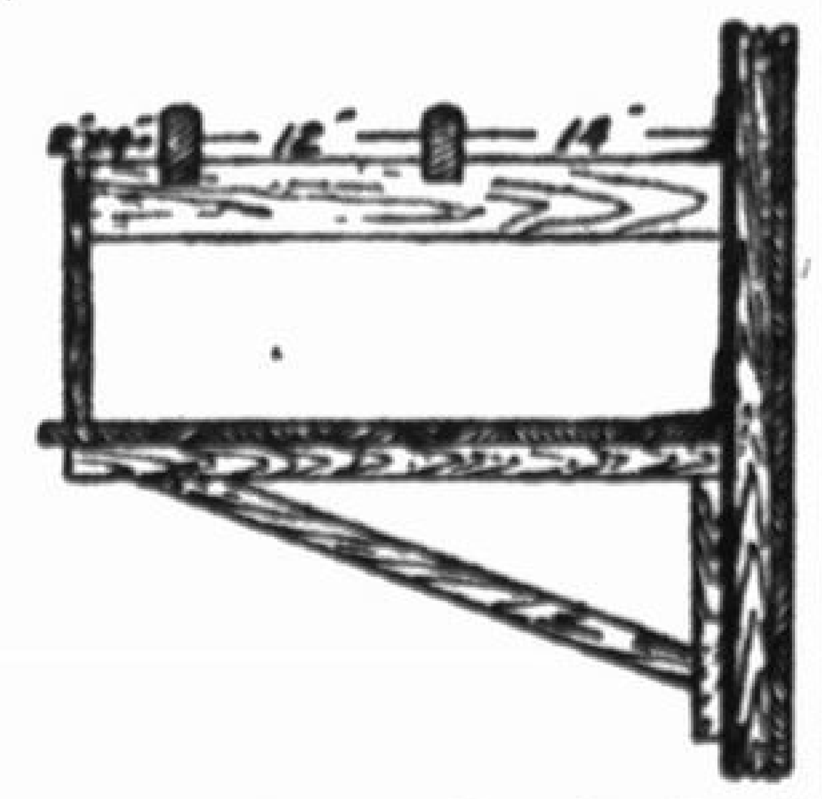
Useful Poultry House.

its side walls, while the wooden walls are hinged at the top so that they can be opened at any angle desired, chains holding them in position. In this way ventilation can be obtained and the interior protected from rain or too much light. The upper section, which has a peaked roof, has a door at one end and a series of roosts arranged around the sides and ends on the interior. One-half of the roof is screened, too, and the top on this side is hinged so that it can be kept open or closed. The entire roof can also be slid on or off at will. This arrangement makes it easy to clean the house thoroughly in all parts and keep it well ventilated, thus eliminating insect pests to a great degree.

PERCH SPACE FOR CHICKENS

Small Hens Generally Require About Six Inches While Larger Birds Should Be Allowed Eight.

As a general rule, small hens should have about six inches of perch space while the larger hens should be allowed eight inches. In the winter they huddle closer together, but in the summer there should be plenty of room to allow them to spread out. Perches should be 12 inches apart and not closer than 15 inches to the wall or ceiling. Show birds, especially



Hinged Perches and Dropping Board.

Leghorns or similar types should be kept at a greater distance from walls and ceilings. Many good birds are spoiled by "brooming" their tails against the walls.

There are several methods of making movable perches. One of the most common is by hinging them to the wall at the back.

POULTRY NOTES

The fowls must be fed at least twice a day.

Exercise is necessary for both health and egg production.

A box of crushed oyster shell should always be within reach.

Split carrots, turnips and cabbage in half, instead of chopping fine.

Clear fresh water is necessary for the hens at all times and all seasons.

The most profitable way to keep chickens of any kind is to feed them well.

To obtain a supply of winter eggs we must have the chicks out early in the spring.

Old fowls require less feed than young ones and it is a mistake to overfatten them.

The walls and roosts should be kept free from mites, which suck the life-blood of the fowls.

Cement floors should be well covered with straw. The bare floor is too hard and too cold.

After the second annual molt hens are apt to become eggbound, especially if well fed and fat.

When the clean, fresh eggs are gathered they should be put in a clean, dry, cool place until marketed.

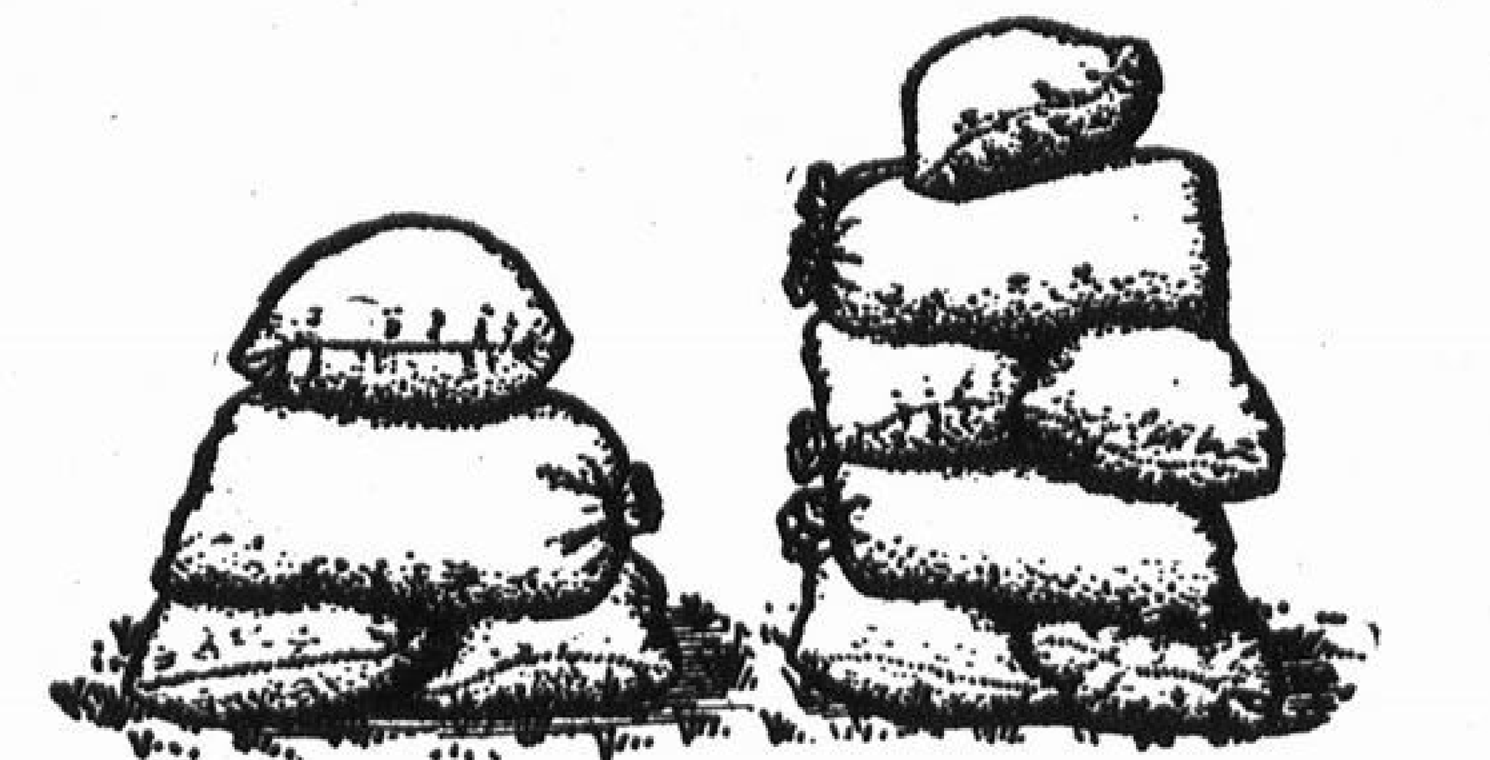
A plump young turkey, dressing from eight to fifteen pounds, finds a market at almost any season of the year.

To insure success have the buildings for the hens ready early, and choose fowls of the right age and in good condition.

Greater Farm Efficiency

Better Crops by Better Fertilizing

By PROF. A. R. WHITSON, Wisconsin College of Agriculture



Manure vs. Manure With Rock Phosphate on potatoes. The Use of Rock Phosphate in Addition to the Manure increased the yield 47 per Cent.

The development of the use of fertilizers in the United States has increased at a very rapid rate within the last two or thre decades. Their use in the eastern and southern states is extensive. Within this period, however, Wisconsin agriculture has gone largely in the direction of dairying and in this system of farming the fertility of the soil, as is well known, is more generally conserved than in systems where a large part of the product of the farm is sold in the form of vegetables or grain. For this reason, in part, the use of commercial fertilizers in this state has been very limited. Moreover, the agricultural press of the state and the teaching of the Agricultural college has been opposed to the use of commercial fertilizers largely because the emphasis was placed on the advantages of dairying in the conservation of soil fertility. The time has come, however, when it is not profitable for farmers of the state to longer overlook the advantages which may come from the proper use of commercial fertilizers. There is much land in the state not adapted to dairying, such as large areas of sandy and marsh soil, and some sections of clay loam where the topography is so rough that the necessary amount of corn for silage cannot be grown to advantage. On lands of this class, other products must be grown for the market and it is in the growing of such crops as cabbage, potatoes, sugar beets, peas and corn for canning purposes, and other special crops that the use of commercial fertilizers is needed.

The large yields of practically all farm crops produced in such European countries as England, Germany and France, are frequently mentioned in agricultural papers as an evidence of the possibilities of intensive cultivation. By far the most important factor making possible such increases is the use of commercial fertilizers. It would be a difficult matter to find a farm of any importance in any of these countries on which a considerable amount of commercial fertilizers is not used. Nearly one-half of the immense output of our own phosphate mines is shipped abroad and in addition to that, enormous quantities of phosphate are mined in Europe and produced in the form of Thomas slag in the reduction of British iron ore which runs high in that element. Germany possesses practically the world's supply of potash fertilizer and this is drawn on heavily by that and adjacent countries. In addition to this, the growth of green manuring crops, practically always of the legume family, adds to the nitrogen supply, although enormous quantities of special nitrogen fertilizers are also used.

Without desiring in the least to underestimate the importance of dairy or other stock farming in its effect on the fertility of the soil, we feel that we can no longer afford to neglect the use of commercial fertilizers where they are called for.

Contrary to a rather common opinion, the kind of commercial fertilizers called for depends more on the character of the soil to be treated than on the crops to be grown. The amount to be used will depend to some extent on the kind of crop grown since some crops remove much larger quantities of the mineral elements from the soil than do others, but the particular kind of fertilizer needed is determined almost exclusively by the character of the soil. Much can be learned regarding the feeding of crops from experience gained in the feeding of animals. Just as it is well known that a certain balance among the ingredients of feed for stock should be maintained, so should there be a balance in the different elements of fertility available to growing crops. When crops are to be grown on marsh land which is extremely high in nitrogen but just as extremely low in phosphorus, and often in potash, these deficiencies must be made good in some way. Sandy soils, on account of their coarse texture and generally low content of all the essential elements, must frequently be supplied with practically all the essential elements for plant growth. The nitrogen may be added either directly in artificial fertilizers or indirectly through the growth of leguminous plants which have the power of fixing that element from the atmosphere. The nitrogen can be gathered in this way much more cheaply than it can be purchased and moreover, when added in the form of vegetable matter it decomposes and becomes available to growing crops slowly so that there is little danger of its loss by leaching from the soil, while nitrate of soda or sulphate of ammonia are extremely soluble and apt to be largely lost in the case of heavy rains falling on the sandy soils. However, there are frequently cases where the use of a light dressing even of nitrogen salts is profitable. This would ordinarily be in the growing of certain special crops that have a high gross return per acre. It is along this line that there is considerable possibility in the development of the various forms of nitrogen containing fertilizers. The new form of cokeing oven makes possible the saving of practically all of the nitrogen in coal undergoing the cokeing process and this by-product is being put on the market in increasingly large amounts. The manufacture of nitrogen-containing salts by electrolytic methods is also increasing. A number of plants for this purpose have been installed recently in European countries and one or two in this country.

Clay soils are ordinarily abundantly supplied with potassium and on account of their good water-holding capacity, grasses and other plants which will add organic matter can be grown for supplying this substance and consequently nitrogen, and the only direct fertilizing element usually needed is phosphorus, but probably more than half of the clay loam soils of this country under crop could be fertilized with phosphate fertilizers profitably under present conditions. Heavy clay soils in the northern part of Wisconsin which have been under crop but a few years have shown increases in yield running from 15 per cent. to 50 per cent. as a result of supplementing barnyard manure with rock phosphate.

But even on farms where practically all of the crops grown are fed, there is a possibility of considerable loss in fertility. Only where large amounts of concentrated feed stuffs are fed is the supply of phosphorus maintained. Probably the greatest loss on such farms takes place in the leaching of barnyard manure and there is certainly a great possibility in the direction of conserving fertility by protecting barnyard manures from leaching and also from too rapid heating in the process of composting. It is just as important that a thoroughly good practicable system of housing and hauling the manure on the farm be worked out as that the stock be properly housed and cared for. The use of peat for bedding, by which its nitrogen is added to that of the manure, is another method which may add greatly to the nitrogen in use on the farm. This material contains in the condition in which it would be used for bedding from two to three per cent. of nitrogen or more than clover or alfalfa hay would contain, and twice as much as barnyard manure. It occurs in enormous quantities in this state and it only needs a little encouragement in its use to develop the industry to the extent to which it exists in European countries.

Another matter which ought to be recognized at once in the development of agriculture is that it is very much easier to maintain the fertility of soil than it is to reproduce it after it has once been lost by an exhaustive system of farming. This applies particularly to the sandy soils, but is also true in the case of the clay loam soils. Sandy soils frequently show good producing power for the first two or three years and no special care is given to maintain the fertility until the farmer suddenly finds that his crops have become very much less and it is then very much more difficult to reproduce the fertility than it would have been to adopt proper methods at the start.

Those who are planning to use commercial fertilizers should make it a point to become thoroughly familiar with the different forms of fertilizers containing the elements which they desire to add to their soil and with the basis on which the price for the same is figured. It is customary for the fertilizer manufacturers to prepare mixed fertilizers containing all the essential elements in varying proportions. These are recommended to the farmer under trade names such as Tobacco Special, Potato Special, Corn Special, etc., thus implying that they have some particular advantage for those particular crops. As previously stated, this is not the case and the farmer is usually obliged to buy in such mixed fertilizers elements which he does not need and is often obliged to pay higher prices for those he does want than if he were to buy them in a pure form. Buying a fertilizer containing a single element is to be recommended. It will occasionally be desirable to mix phosphate and potash fertilizers, but this can be done on the farm to good advantage.