

Nursery Inspection From the Inspector's Side.

By E. W. Berger.

Mr. President, Ladies and Gentlemen:

The essential parts of this paper were written nearly a year ago, and were then intended to be a contribution toward supplementing Nursery Inspection (1) and (2), published by Prof. H. A. Gossard as Press Bulletins Nos. 6 and 7 of the Florida Agricultural Experiment Station, and republished in the Florida Agriculturist for June 19 and 26, 1907, pp. 5 and 7, respectively. The purpose of the paper was to set forth more fully the practices of inspectors as understood by the writer, based upon his own experience, and the experience of other inspectors obtained verbally and from their writings. The writer realizes that, considered from the standpoint of the ideal, the inspection of nurseries, as practiced in the United States, is frequently open to criticism; but the subject has been treated here as modified by the conditions which exist, rather than from an ideal point of view. In other words, we have to deal with a practical question and not a theory.

THE RIGHTS OF THE INTERESTED PARTIES.

These naturally come under three heads: those of the buyer, the nurseryman, and the inspector.

THE BUYER.—The buyer, or grower, is perhaps the most vitally interested of all, and generally has the least to

say in regard to the inspection of the goods he desires to buy. That the buyer might have much to say will be brought out later. The buyer has the right to be protected; but at its very best, a certificate from an inspector cannot be a perfect guarantee of freedom from insects and diseases; a fact noted in Nursery Inspection (2), and generally recognized by experienced inspectors. The point is, that it is physically impossible to examine every tree in a nursery, to say nothing of examining all parts of a tree. Nevertheless, a certificate signifies much. After the inspector has examined, say, the four sides of a large block of stock and has passed through it in several directions, carefully scrutinizing abnormal appearances as well as making a close inspection of an occasional tree, he feels reasonably certain whether the block is clean or not. Besides signifying that a diligent search has been made, a certificate implies that moral obligations have been assumed by the nurseryman. It thus becomes especially obligatory upon him to send out nothing but clean stock. Then there is a further deterring influence, namely the fear of exposure and forfeiture of the certificate if he sends out infested or diseased stock.

In view of the fact that a certificate cannot be an absolute guarantee, it has been suggested that a written guaran-

tee from the nurseryman should be substituted for a certificate. But why should a written guarantee from the nurseryman not be required to accompany the inspector's certificate? Every buyer has the power to demand such a guarantee. Again, it has been suggested, that fumigation should be substituted for a certificate, or that a certificate of fumigation from the nurseryman should be required to accompany each shipment of certified stock. The requirement of a certificate of fumigation from the nurseryman, together with an inspector's certificate, is the law in Georgia and some other states. Again, defoliation together with the cutting back of the tender growth should be required in all shipments, and several nurserymen now make this practice. In fact, one should practice not only defoliation and cutting back, but fumigation as well. There remains only the addition of the written guarantee, and I hope soon to see some nurserymen take this forward step. A nurseryman could give a guarantee which the inspector cannot give, because every tree sold ought to come under his or some competent person's scrutiny at the time of digging and packing.

It has been objected that fumigation, defoliation, and cutting back are injurious to trees. In regard to defoliation, the preponderance of evidence, so far as the writer can judge, indicates that, at least under certain climatic conditions, it is not injurious; and some even state instances where defoliated trees started off better than others not defoliated. Should fumigation cause the death of some trees and retard the growth of others—a doubt-

ful contingency—yet the loss of a few trees should not be deprecated when it may involve the saving of a whole grove from becoming overrun by insects. It is the writer's opinion that defoliation, together with cutting back and fumigation, should be practiced by all nurserymen, in fact insisted upon by the buyer, whether any noxious insects are suspected to be upon the stock or not; for there are other pests, such as rust mite, red spider, orange weevil, and perhaps still others, living on the leaves and roots [the grubs of the orange weevil live on the roots], which would probably be completely eradicated by this means.

No stock should be shipped partially exposed [leafy tops left uncovered], but it should be so covered and wrapped as to make it secure against becoming infested in transit. We need only to bear in mind the possibility that a package of citrus trees may come in contact, either in the express car or at the railway station, with a crate of scale-infested citrus fruit, or a package of peach, plum, or other similar trees, or with some San Jose scale-infested fruit; when the infestation may spread to the previously clean stock, if it was not completely and properly covered. All these requirements, I believe, are quite within the reach of the buyer, and need simply to be insisted upon when he contracts for his trees.

Further, in regard to a written guarantee from the nurseryman, it will be evident that the nurseryman could not give a guarantee of freedom from insects and diseases extending ahead over any long period of time. The best form of written guarantee would pro-

bably be one to the effect that the stock was guaranteed to be free from all living insects (mites included), insect larvae, insect eggs, or other diseases, at the time of its delivery. If newly-set stock is found to be free from infestation when it has matured a new crop of foliage, this would be fairly clear evidence that it was clean when received. If infestation with insects, or infection with disease, was discovered by the time a new crop of foliage had matured, expert evidence [inspection of the neighboring premises, and of the nursery from which the stock was obtained] would have to decide the case. Such a guarantee would also be in the nature of a challenge to the buyer or grower to find insects and disease if he could; and no nurseryman would make such a challenge if the stock he shipped was not clean.

In conclusion, the writer believes that the grower can best protect himself by making the following requirements the conditions of buying a nurseryman's stock:

1. A written guarantee that the stock is free from noxious insects and diseases at the time of its delivery.

2. A written guarantee that the contents of each package have been properly fumigated prior to shipment [ornamentals and other stock which would be killed by fumigation alone not to be fumigated, or fumigated with a smaller dose].

3. The complete defoliation and cutting back of all stock (especially citrus) prior to shipment [ornamentals and other stock which would be killed by such treatment alone excepted].

4. Complete protection of the stock from outside contamination through insects and diseases during transportation, by a properly constructed box or other covering.

The writer also desires to direct the growers' attention to the following law:

Ch. 4814, Acts 1899, Sects. 1 and 2.

3701. The Sale or giving away of Diseased Nursery Stock or Seeds.—It shall be unlawful for any person to knowingly sell or give away any diseased nursery stock or seeds in the State of Florida. Any person violating this section shall be fined not more than five hundred dollars or imprisoned not more than six months.—Gen. Statutes of the State of Florida, 1906.

From the foregoing it will be seen that the grower has these matters wholly under his control, and all that is necessary is for him to take advantage of his rights.

THE NURSERYMAN.—That the nurseryman also has some rights must be conceded. When nursery inspection has become definitely established under well-defined laws and regulations within a State; and when a larger number of nurserymen have learned to realize that a knowledge of insect pests and plant diseases is quite as important to their business as the ability to grow plants; and when by the bringing of gradually increasing pressure by inspectors from year to year, greater vigilance will be exercised and thoroughly up-to-date methods be employed in all nurseries; we may assume it proper to refuse a nurseryman a certificate in whose stock but one specimen even of a species of noxious insect is found. But where, as in Flor-

ida, nursery inspection has not become systematized; and where, furthermore, citrus nursery stock has not before been certified [the writer did this for the first time last fall, when several states and foreign countries required citrus stock to be admitted under certificate only]; it appears no more than fair that conditions of fumigation, defoliation, etc., should sometimes be required in giving a certificate in lieu of absolute freedom from insects. I admit that to the buyer one insect is as bad as a thousand, and the case merits careful thought and consideration. But the nurseryman having spent thousands of dollars to grow his trees, feels that to be refused a certificate means bankruptcy. The grower hardly desires to see the nurseryman bankrupt, neither does he wish to see his own property jeopardized. In such an instance the inspector almost invariably steps into the breach, so to speak. His knowledge of a certain pest, for instance, convinces him that the stock should be absolutely safe when cut back, defoliated and fumigated. He requires this as a condition of giving the certificate. The nurseryman assumes the moral obligation of good faith and the other conditions previously referred to, and the case is generally settled; unless the nurseryman, to his discredit and to the detriment of the inspector, breaks faith. Besides the above stipulations the inspector may require the destruction of all infested trees, and the exclusion of certain blocks of stock from the market; or the entire nursery may be placed under quarantine pending a period of cleaning up. All of these practices are in the nature of a compromise; but

they are practiced by all inspectors in some form or other, as will be evident from a perusal of the literature available on the subject.

In connection with this same point we may imagine the case of two nurserymen, one of whom succeeds in concealing any disease in his stock; while the other one does not attempt this, and even points out the doubtful trees to the inspector. Under a cast-iron rule of "one insect—no certificate," the honest man would fail to get a certificate, while his less honest neighbor would get one. Again, of two neighboring small nurseries, the one is perhaps found infested or diseased; the other one is not, and gets a certificate. The whole of a large nursery is as large as two small ones; one portion is perhaps infested, the other part not. In view of the fact that the inspector can hardly, under ordinary conditions, refuse a certificate to the small clean nursery; then ought not the large nursery to be certified, with proper restrictions, to the extent of its clean portions, leaving the infested portion without any certificate? Besides, if the man with the clean, small nursery is dishonest, he may buy infested stock from his neighbor and sell it under his certificate.

THE INSPECTOR.—The rights of the inspector—what are they? He is entitled to a hearing if anything is supposed to be going wrong. He should be the first one to be notified. Thus, last fall, the entomologist of a certain southern state wrote to me stating that there were rumors of unclean stock having been shipped into that state from Florida. I asked him to send me particulars at once. He answered

that he would as soon as he had seen the stock in question; but as he was never heard from again in regard to this matter, it is to be presumed that the rumor was without foundation.

The inspector must insist upon the right to use his judgment. It is not unfair to assume that his knowledge of insects qualifies him for this beyond all others, few excepted. In the facts already discussed, the writer has implied that, under certain restrictions and preliminary operations, certificates are sometimes issued where adherence to a fixed rule would prohibit this. Inspection in Florida is not for Florida itself, but for other states and countries which admit stock only under certificate. The inspection requirements of these states and countries will therefore naturally be made the chief guide in the inspection of Florida nurseries. Furthermore, when the writer was in doubt he wrote to the entomologist of a certain southern state into which he knew that large quantities of citrus would be shipped from Florida, and received the following answer: "Our plan in Louisiana is to give a certificate of inspection to nurseries, even when whitefly is present; provided, of course, that we have no reason to believe the nurseries in question will not thoroughly defoliate the stock." With this statement in mind, I acted so as to meet the exigencies of the case, and I believe that the interests of the grower have been safeguarded; for no one has yet claimed to have found whitefly on citrus stock sold under the writer's certificate. I did more than the previous statement exacted, for I required the stock to be fumigated besides;

which to the best of my knowledge, together with cutting back and complete defoliation, makes citrus trees safe from whitefly. The following circular was sent to nurserymen on November 12, 1907, and a revised form will be issued during this summer or fall.

PRELIMINARY CIRCULAR TO NURSERYMEN.

Following are several simple requirements, compliance with which is expected from every nurseryman receiving a certificate:

1. To fumigate all nursery stock prior to shipment; excepting shipments to states and countries that fumigate all stock at the port of entry; excepting to parties desiring to do their own fumigation; and excepting a few ornamentals, such as roses, that do not stand fumigation, and conifers.

2. To defoliate all stock, if not already defoliated, at the time of shipment. A few ornamentals that do not stand defoliation are alone excepted; and shipments of citrus stock may be excepted during November and December if the buyer so requests, provided the same are fumigated and completely enclosed in a box or in burlap.

3. Since it is impossible for the inspector to examine every tree in the nursery, it is imperative for the nurseryman to see to it that no diseased stock is sent out. This should be a simple matter, since each tree must be handled several times in preparing it for shipment.

4. The inspector reserves the right to re-inspect, at the expense of the nurseryman, any nursery previously

certified, for the purpose of verifying that all conditions have been, or are being, fulfilled; and to annul the certificate if the conditions in the nursery prove unsatisfactory, or if any requirements upon which the certificate is conditioned are violated.

N. B.—The purpose of Rule 1 is not to encourage nurserymen to be less careful in keeping out whitefly, scales, etc.; for a badly infested nursery will

not be certified under any conditions.

E. W. BERGER.

Entomologist to Florida Agricultural Experiment Station, Gainesville.

In conclusion, the present inspector can in no sense be considered a state official, and inspections have been carried on by the Experiment Station solely to meet the exigencies of nurserymen doing business with other states and with foreign countries.

THE GROWER'S SIDE.

C. B. Thornton.

Mr. President, Ladies and Gentlemen:

As a member of the Committee on Nursery Inspection would say: In my opinion, the only measure to insure justice to all, is a State law, so framed that all nurserymen in Florida large or small, selling trees in the State, especially citrus trees, are compelled to have a certificate duly attested, from a State officer, competent to judge, stating the absolute condition of the trees offered for sale and this done often enough to give security to the buyer. This is a drastic remedy but in no other way can positive security be given the buyer nor an impartiality hindered between the different nurserymen.

As a prominent nurseryman writes me: "How much good will it do you if I sell a lot of nursery trees to you, duly inspected, passed, and finally to make sure, fumigated and your neighbor "J"—,

going to a little out of the way nursery, buys a lot of trees infested with scale, mealy bug, white fly and all other ills? How long will your trees stand in their neighborhood without becoming infested? At present nursery inspection is simply of no value to Florida and with the exception of out of the State and West Indian business, it does not amount to a row of pins." This is from an experienced, successful nurseryman. Unless a severe State measure is passed, all that should be required of a Florida nurseryman is, that he has his stock free from white fly and mealy bug. These two are the most dreaded and justly so. Unless radical measures are taken at once, the white fly will be prevalent in all citrus growing parts of the State as the common purple or long scale is at present and this in spite of all sprays, fumigations, fungus or other preventatives.