

## Horticultural.

### Construction of Forcing-houses.

The Michigan Experimental Station in a recent bulletin advises that the walls of green-houses below the surface be built of grout cement sand, and cobblestones, and that above the wood with from two to four thicknesses of board, two of building paper, and an air space. They would build the roof of permanent sash bars, and use glass at least twelve inches wide. In respect to heating, they have found hot water better than steam heating for small green-houses. For most purposes it is stated the combined overhead and under bench system seems better than to have the pipes either all overhead or under the benches.

### The Failure of the Fruit Crop: Its Probable Causes.

The fruit crop of 1889 was a short one, principally owing to severe frosts at the time the fruit was setting. It was naturally expected, therefore, that the crop of 1890 would be a very large one. But what are the facts? The fruit crop of the present year is the smallest that has been known for many years, and what is more to be regretted than the loss of this year's crop, the trees are in many instances attacked with some form of blight, which has wholly or in part prevented any increase in growth and which gives them a diseased appearance.

A somewhat similar visitation, but far less severe, visited the country some years ago, the effects of which could be observed on the trees for two or three years in the small additions to the growth that were made, and in the general absence of indications of vigor.

It is time, therefore, that the cause or causes of these visitations on both leaves and fruit should be investigated, and we are glad to notice that our American friends are astir in the matter. A bulletin has been issued on the subject from Cornell, which contains much that is not only suggestive but useful and practical.

The common explanation as to the causes of the falling of the blossom or of the fruit just after it is set, is that the wet weather prevents fertilization, and that the cold winds so interfere with and check growth that the fruit falls from lack of sustenance. Plausible as these explanations appear they are probably incorrect. It is now known that the blight in the leaf is caused by the apple-scab fungus, and it is supposed with good reason that the failure of the blossoms to set, and the falling of the fruit just after setting, is attributable to the same cause. Further investigations, however, will require to be made before this view may be set down as accepted.

There is no doubt that the cold and copious rains at the time of flowering is intimately associated with the quality and the fruit will not be first class on the trees that have suffered much from the blight, owing to an impaired vitality. The fruit is almost likely to suffer from the apple-scab fungus, which is always present to a limited extent, even in favorable years. It is this same fungus which causes the fruit to be more or less covered with scabs. Where these appear, the development of the fruit is arrested in that portion of it near the scab.

Experiments have been made during the past two seasons to discover a remedy that will also act as a preventative, and with much promise of success. L. H. Bailey, the Professor of Horticulture at Cornell

University, gives the following formulas to prepare an application which he seems confident will accomplish the desired end:—

1. "Dissolve 1 oz. carbonate of copper in 1 qt. of aqua-ammonia; dilute with 100 qts. of water when ready to apply.

2. "Place 2 lbs. of copper sulphate in sufficient hot water to dissolve it, and in another vessel dissolve 2½ lbs. carbonate of soda. Mix, and before using add 1½ pints of ammonia, and then dilute with water to about 30 gallons."

Fortunately the mixture is not a dear one. The cost for five or six applications of it on a large tree is not more than 25 cents, and so many applications in one season are not, in most cases, considered necessary. It is recommended that one application be given a short time before the blossoms open, another just after they fall, and a third with the presence of the apple-scab fungus; hence the prevalence of the popular idea that the wet weather is directly responsible for the failure of the fruit to set through lack of fertilization.

The injury to the tree is in many instances, most serious. Not only is the growth checked, but the functions of the tree become so impaired that it does not produce good fruit for a year or two thereafter, and in some instances, never again. Hence the visitation is most serious in its nature, because of its far reaching consequences.

The chances are that there will be an unusually heavy setting of blossoms next year again. When growth in fruit bearing trees is checked, this is pretty certain to follow. That the fruit may set is not improbable, but three or four weeks later. The mixture is applied by spraying.

A species of leaf blight, somewhat similar, also attacks the pear, and it affects adversely both the leaf and the fruit. The fungus is found on the pear leaf in more or less definite spots. This is not to be confounded with the pear blight, which blackens all the leaves on a stem or on a part of it, and for which the only known remedy is removal below the diseased portion. What is termed the Bordeaux mixture has been found a sufficient remedy for the pear leaf-blight, which occurs on the leaf in spots. The following formula is given by Professor Bailey, for making this mixture: Dissolve 6 pounds of sulphate of copper in 16 gallons of water. In another vessel shake 4 pounds of fresh lime in 6 gallons of water; when the latter cools pour it slowly into the copper solution, mixing the two thoroughly. It is best to prepare the mixture a day or two before using.

## The Apiary.

### The Extermination of Foul Brood.

As many of our readers are doubtless aware, an Act was passed during the last session of the Legislature, having for its object the extermination of the foul brood in the Province, so far, at least, as this may prove practicable. This Act was passed at the urgent request of the Bee Keepers' Association of Ontario, and is stated on the high authority of Mr. Allen Pringle, the President of the Bee-Keepers' Association, to be the best of its kind in any country.

It provides for the appointment of an inspector and sub-inspector whose duties are to journey through the Province when notified by the Inspector; examine all colonies infected or supposed to be infected; give such directions as are likely to prove successful where cure is deemed possible, and personally superintend the carrying out of these so far as necessary, and

when the case is one of the virulent or malignant type, to order the hives and appurtenances belonging to them to be burned in his presence. He is armed with authority to enter any yard when so notified by the President of the Bee-Keepers' Association, and in case of resistance, may apply to a magistrate who will swear in a sufficient number of constables to enable him to enter such yard, and to burn all the diseased colonies that may be found within it.

The President of the Bee-Keepers' Association may, on his own personal knowledge, or on the complaint of any bee-keeper, issue an order to the Inspector to proceed to any yard in the Province, when so notified, with a view to its purification. The complainant may be required by the President of the Bee-Keepers' Association to deposit with him the sum of \$5 at the time of entering the complaint, as a guarantee of good faith.

Thus it is that legislation has been secured at last, which, had it been secured many years ago, would have saved thousands of dollars to the bee-keepers of this Province. Some, unmindful of the interests of others, may look upon the Act as high-handed and tyrannical, an unjustifiable interference with the liberty of the subject. Its passage is but another illustration of the truth that in business matters at least, men recognize this important principle and act upon it: that the individual in prosecuting any calling, must have some regard to the welfare of his neighbor.

Mr. Wm. McEvoy, the present Inspector, has been wisely chosen. He it was who years ago announced in the *LIVE STOCK JOURNAL*, that foul brood ordinarily could be cured, but we will have occasion to refer to this more fully in a subsequent issue. Mr. McEvoy has had much experience in the cure of this disease since the period referred to, and is therefore an adept at this critical work.

The extreme step of burning any colonies has not yet been taken by the Inspector, nor will it be taken, he assures us, without the strongest reason for doing so. This is a very wise course to adopt, for it will prevent the cry getting abroad that property has been wantonly destroyed.

The extent of the ravages of this bee plague is greater than was supposed by most bee-keepers even, but the vigorous steps now taken cannot fail to have the effect of circumscribing it, if not exterminating it altogether, for a time at least. Of course the country cannot be kept free from it at all times owing to the independent nature of its origin in some instances.

The work of the Inspector will be very helpful in other ways in addition to the reduction of the disease. It will impart to very many a knowledge of the exact method of dealing with it themselves. This knowledge is being imparted by that most effective method, ocular demonstration, and in the presence of individuals who will be most eager pupils through the constraining influence of financial loss. For the small sum expended by the Government in the eradication of this disease, a rich harvest will be reaped in the form of the greatly increased development of this important industry.

"THE September number just to hand, and I must say it reflects great credit on the enterprise of the publishers." J. G. Brown, Manager Hope Farm, St. Jean Baptiste, Manitoba.

GEORGE CRAIG, Hinchforth Stock Farm, Manitoba, writes: "I am always pleased to get the *JOURNAL*. It is always full of valuable information. You are doing a good work, and I wish you every success."

"I AM glad to see that under the new management the *JOURNAL* still maintains its right to be classed as one of the best Agricultural Journals in the country, in fact second to none that I have seen or known." T. S. S. Sproule, Markdale, Ontario.