

may attend the industry of the orchardist. With miscible oil No. 2, the amount requisite for spraying is first placed in a suitable receptacle, and water to the extent of two or three times the volume of the oil is then slowly added. Continual stirring is necessary until proper emulsification is secured, which is indicated by the liquid assuming a creamy-brown colour. The oil thus emulsified is then added to the tank of the spraying machine which has been filled with water. The agitator is then brought into play, and the whole contents of the tank thoroughly mixed. Nicotine sulphate may then be added, followed by arsenate of lead, the latter as in the case of the soap mixture being diluted with water. It is well to remember that the paste form of the commercial arsenate of lead carries with it a certain percentage of water. Consequently, if by any chance the lead arsenate becomes dry, due allowance for this fact must be made in calculating the amount required.

Throughout the campaign of control carried on during the seasons of 1916 and 1917, careful records were kept on the cost of spraying.\* It was shown that the cost of the ingredients necessary for making three applications of the soap-nicotine-arsenate mixture by power machines, varied in different orchards from 13 cents to as much as 40 cents per tree. This variation was shown to be due to differences in the size of the trees, to the varying number of trees planted per acre, to differences in the cost of labour, to the accessibility or inaccessibility of water, and to the degree of thoroughness in applying the spray. It was further shown that the cost for labour alone amounted to one to two cents for each minute, whether the power machines were in use or were not actually spraying. Thus, it is important that orchardists should not delay longer than necessary in refilling the tanks or in accomplishing the various operations incidental to spraying.

#### TYPES OF MACHINES AND NOZZLES.

Without enlarging on the recommendations in regard to the kinds of spraying machine considered suitable for use in the control of thrips in an orchard, it may be briefly stated that by far the most satisfactory results attended the employment of high-power, motor-driven outfits capable of generating from 175 to 200 pounds pressure. If hand-power machines developing a lesser pressure than this are used, the most effective results cannot be reasonably expected; and more than one application may be necessary to obtain results comparable to those received where only a single treatment is made under higher pressure, inasmuch as the power machine accomplishes more work in a shorter time and does it more efficiently.

The type of nozzle which has given the best results is one that throws a coarse, driving spray. For later applications, it has been found that nozzles which throw a more spreading form of spray answer the purpose admirably, especially in the case of those made against the larvæ after blossoming is over.

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\* See "The Agricultural Gazette of Canada," Vol. 4, No. 1, Jan., 1917 pp. 13-16.