

Fruit Meetings in the Niagara District

THE Niagara Peninsula Fruit Growers' Association held its annual series of public meetings during the last week in March. Meetings were held in Beamsville, Jordan Station, St. Davids and St. Catharines. The association was fortunate in securing as chief speakers the services of Mr. J. S. Woodward, of Lockport, N.Y., and Mr. Willis T. Mann, of Barker, N.Y., both of whom are well-known authorities and pleasing speakers.

SPRAYING

One of the most interesting addresses of the series was Mr. Mann's talk on spraying. "It is a profitable operation," said the speaker. "We cannot raise fruit without it. Spraying is absolutely essential to success. To spray intelligently, fruit growers should know something about the life history of the insect or the disease that he intends to combat."

The standard fungicide is Bordeaux mixture. Mr. Mann's formula is $3\frac{1}{2}$ lbs. copper sulphate, 6 lbs. lime, 40 gals. water. An excess of lime is used to prevent injury to foliage. The old formula in old conditions was effective without burning; now, new conditions and new methods of application have changed the effect on the foliage. The reason for this is not definitely known. It is supposed that the extreme fineness of the spray produced by power sprayers has a more intense effect on the foliage. The Geneva expt. station is conducting experiments along this line. The Bordeaux mixture is used for all fungous diseases, although for peach leaf curl the lime-sulphur wash is just as effective.

The lime sulphur wash is the best yet for the San Jose Scale. "I believe the San Jose Scale is a blessing in disguise," said Mr. Mann. "It can be controlled by the industrious man, while the careless grower will be crowded out of the business. This will elevate the standard of the fruit industry, and of the people connected with it."

APPLE CULTURE

In an address on "Apple Culture" Mr. Mann quoted statistics to show the relative positions of the various states in the production of apples. New York state produces more fruit per tree than any other apple-producing state. This is due to the fact that improved methods in culture and care are more generally adopted in that state than in others.

The practice of spraying increases both the price of the fruit in an orchard and the value of the orchard itself. The market demands good fruit and buyers quickly pick up a good article at a remunerative figure, and they enter the districts where good apples are grown and compete with each other in buying. To-day in planting orchards there have been radical changes made in care and methods of culture. Mr. Mann's system is to get two-year-old nursery stock of medium height (not large), well rooted, head about $2\frac{1}{2}$ ft. from the ground, allow the various branches to remain, prune very little, just enough to shape the trees, give thorough cultivation, spray systematically. The orchard he plants on the filler system, the desired distance of trees apart for certain varieties is 40×44 ft., so by filling in between with other varieties makes the trees 20×22 , the intervening trees are cut out when the trees commence to meet and crowd by this system. He has an orchard, seven years planted, which has produced crops for three consecutive years, and which last season produced 600 bush. on eight acres. Excessive pruning when the trees are small tends to produce wood growth. Then, when trees are large, low heading is practised by keeping the trees pruned back at the top as the tall apple orchards cannot be effectively sprayed and leave a margin of profit.

Mr. Mann advocates planting standard varieties known to be adapted to the particular locality where the orchard is to be planted.

Besides these he mentions Spitzenburg, a choice variety that has been discarded in some districts because not properly cared for. It is one of the finest apples when looked after as it should be in the matter of spraying, pruning, etc. Boiken, a newer apple, is also a valuable variety. It is an early and regular bearer, and when stored is free from scald, a serious warehouse trouble with most varieties of apples.

During the series of meetings Mr. Mann also delivered a valuable address on the "General Principles of Fruit Growing." This address will be published in a future issue of THE HORTICULTURIST.

ORCHARD COVER CROPS

In an address on the "Necessity and Value of Cover Crops," Mr. J. S. Woodward referred to the enormous quantity of plant food taken from the soil by crops of the different classes of fruits. Such a tax on the land should be returned by the use of some sort of fertilizing material. The most economical means of doing this is the use of cover crops. Hairy vetch is one of the best crops of this kind but the seed is expensive. It is a rapid and heavy grower and assimilates more nitrogen per acre than any other legume. According to experimental data, it has been shown to be worth \$43 per acre. About 30 lbs. to the acre makes a good thick cover. Mammoth clover is worth \$23 per acre, and is second in value to hairy vetch. Besides increasing the amount of nitrogen in the soil, these crops are valuable to protect the roots in winter, to improve the texture of the soil, and to hasten maturity of the woods of trees in the fall. Neither hairy vetch nor mammoth red clover will do well on a "sour" soil. To determine whether a soil is sour or not, use Litmus paper. Soils that are acid or sour may be improved by the use of lime. Oats and rye may be used as cover crops on soils that are already over rich in nitrogen.

Potash and phosphoric acid, also, should be added to the soil as they are required in the building up of plant tissues and in producing high color, flavor and body in the fruit.

Mr. Woodward spoke in an interesting manner on "The Leaf; its Office, its Importance, and How to Keep it Healthy." A leaf is very highly organized. A study of this organ is of

practical value to the fruit grower. By means of illustrative charts Mr. Woodward showed the mechanism of the leaf. He showed how the leaf does work for the whole tree or plant—how it breathes and how it absorbs and digests plant food. Out of crude materials it makes food and it cannot do this unless in contact with sunlight.

The leaf must be kept healthy. When it is diseased both the stomach and the lungs of the tree are effected and the tree cannot produce fruit. When the leaf is covered with fungi it should be treated with spray mixtures. When the leaf appears yellow in color, the tree needs nitrogen. Other conditions indicate a want of potash and phosphoric acid. The leaf and the tree must be given these constituents, through the roots, by the use of cover crops, commercial fertilizers and barnyard manure.

THE IDEAL PEACH ORCHARD

This topic furnished the subject matter of another address by Mr. Woodward. He said that successful peach culture depends first of all upon the location. The St. Catharines district is particularly favored in this respect. An ideal soil must be chosen also, and that is one of sandy nature, well drained but retentive of moisture. The trees should be set out when one year old and cut back to a foot or a foot and a half from the ground. Low-headed trees are best for purposes of spraying and harvesting. The work of fighting the San Jose scale is lessened when the trees are headed low.

The trees should be planted 20 ft. apart. This facilitates the work of cultivation, pruning, spraying, etc., and it allows the sun to get in. A peach orchard must be looked after. A man who neglects his orchard for one year had better tear it out and begin again. It will never make up for the loss occasioned by a year's carelessness. The orchard may be inter-cropped with beans or potatoes for two years but not longer.

Mr. Woodward pointed out that it is unwise to allow a peach tree to overbear. There is as much of a strain on a tree in bearing small peaches as large ones, as it is forming the pit that saps the strength of the tree. Peaches should be thinned in June, when the newly formed fruit is about the size of the end of a person's thumb.—A.B.C.

Bulletins for Fruit and Vegetable Growers

DURING the past few weeks numerous bulletins and reports have reached THE HORTICULTURIST from the different colleges and experiment stations in America. They contain valuable information for the fruit grower or the market gardener. Lack of space prevents us giving a full review of each, but a brief outline will show our readers their value. Those who wish to secure them for reference can, in most cases, have them by writing to the college or station from which they are issued.

VERMONT BULLETINS

Bulletin 119 of the Vt. Expt. Station discusses the occurrence of plant diseases throughout that state during 1905. Apple scab and pear blight, brown rot of plum, bacterial diseases of vegetables, including the early and late blights and the potato rot are dealt with fully. Preventives and remedies are discussed in each case. In this bulletin lettuce culture is outlined, and the results from crops grown in flats compared with those grown on benches. Experiments have shown that a greater net profit can be secured from closely planted lettuce than from that given sufficient space to develop into full sized plants.

Bulletin 120 gives the results of experiments in planting white pines. It has been shown that this tree is very profitable for forest planting under most conditions. Bulletin 121 deals with the laws governing the sales of commercial fertilizers in that state. Tables showing the amount of available nitrogen, phosphoric acid, and potash in the various brands put up by the different manufacturers, are given.

The susceptibility to rot of potatoes is dealt with in bulletin 122. Experiments have been conducted to show the resistance of vines to blight and tubers to rot and to scab. Careful notes were taken during the experiments regarding the conditions of the soil and the cultural methods adopted.

THE PENNSYLVANIA STATION

Bulletin 76, from the State College, Centre County, Pa., contains an outline of experiments conducted in testing varieties of potatoes. Before planting the tubers were treated for scab with a solution of two oz. corrosive sublimate to 16 gal. of water for $1\frac{1}{2}$ hours. The best early maturing varieties included Eureka, Early Norwood, Pride of Michigan, Freeman, and Six Weeks. Some of the best late matur-