

PROGRAM.....CHATS BY THE WEATHER MAN.....

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NOT FOR PUBLICATION

ANNOUNCEMENT: Today's CHAT BY THE WEATHER MAN tells one important way that man is taking advantage of his science to beat the weather. The Weather Man is going to talk about protecting orchards from frost and orchardists should be interested because they want to know how it's done. Other folks should also be interested because they want a supply of apples and other fruits this year. So please stand by.

---ooOoo---

The Weather Man and I were driving through a beautiful stretch of rolling orchard country. The buds were beginning to burst already on some of the trees. It looked as if the trees were stretching out tiny pink fingers into the warm spring air.

Anyhow, that's what I was thinking.

Just then, the Weather Man looked at me and said, "Mark Twain was wrong, Jim".

Now I've always been a great admirer of Mark Twain. "How come?" I said, rather warmly, I guess.

"Well, he said that 'everybody talks about the weather but nobody does anything about it'", my friend, the W.M. said.

"Oh, that," I said. "I guess we'll have to allow Mark Twain enough author's license to make a joke about the weather, won't we?" I asked.

"But we do do something about it, Jim," he said. "Take these orchards for example. In the old days, the prosperity of the fruit growers depended almost entirely on the weather. Good growing weather--- no late frosts-- that meant good crops, as a rule. Of course the insect pests had to be considered. And the orchardist had to pay attention to his markets, too. But old Jack Frost used to take a lot of the profit out of fruit growing."

"How has that changed lately?" I wanted to know. "We still get frosts, don't we? I don't know as I've heard that frozen crops have been entirely eliminated in the last few years, either."

The Weather Man smiled. "Oh, I didn't mean that man in his wisdom has cut out frosts," he drawled. "But man has learned that frost isn't the unbeatable, blustering old fellow we once thought he was. Nowadays, we let him come-- but we get ready for him with our oil burners and our frost warnings. A few heaters in the orchard is generally enough to get old Jack down and hogtie him."

"That's all very well," said I. "But first you must know when he's coming so as to have a warm reception all ready for him."

"Easy. That's where the Weather Bureau steps in. Last winter, in one very important fruit-growing district, the weather observers made 48 distinct low temperature forecasts. Seventy nine per cent of these forecasts were correct within one degree. Ninety eight per cent were correct to within two degrees. The greatest miss during the entire winter was only 2.7 degrees. When temperatures are expected to fall as low as 32 degrees in any district during the night, a forecast is made and spread widely through that district. This forecast contains a definite statement, sometimes to tenths of a degree, as to just how low the temperature is expected to fall. I've just told you how few misses there are. There are eight trained Weather Bureau men assigned to the frost work and the forecasts are amazingly accurate.

"You know, Jim," the Weather Man went on, "there are certain warm-climate fruits, such as oranges, lemons, olives, dates, and figs. Then there are fruits, such as apples, cherries, currants, gooseberries, and cranberries, that thrive in cool regions. Because certain fruits thrive best in certain regions, farmers and fruit growers have learned the limitations of those fruits and governed their orchard work accordingly. Citrus fruit originated in the tropics and for that reason, citrus growing in the United States is limited to warm country, such as California and Florida. But even there, they sometimes have late frosts and that means that artificial protection against late frosts is demanded. The fruit industry is a huge business and can afford to spend large sums of money for this protection."

"But what I want to know is how orchardists protect the fruit from the frost," I put in.

"Well, in the early days, they built log fires in the orchard," the W. M. told me. "Later on, they used coke burners. About 1896, orchardists were burning coal among the trees and by 1910, open cans or pots, holding one or two gallons of oil, were introduced. Since then, that last practice has become most popular. Take the destructive freeze of 1913, for instance. That big frost hastened the use of burners in practically all of the big citrus orchards. The growers decided that if they were to keep the fruit growing industry on a paying basis, they'd have to be prepared to protect their fruit against unexpected visits of freezing weather. At first they thought that the best protection was gained by covering the orchard with a dense blanket of smoke. They soon found out, however, that heat, not smoke, is what is needed. And so nowadays, the up-to-date growers use a well-made heater with a capacity of nine gallons of oil, well-fitting draft regulators, and improved smoke stacks. These reduce the quantity of smoke to a minimum. The heaters cost about three dollars each. About 50 heaters are needed for each acre of orchard."

"Why is it," I asked, "that fruit needs protection when vegetables and other crops seem to get along without it, fairly well?"

"Some vegetables and other crops do need frost protection--at least in some parts of the country," the Weather Man said. "You cover your young tomato plants, don't you? But the weather risk in fruit growing is far greater than for most other crops, mainly because of low winter temperatures which damage twigs and buds, and spring frosts which kill advanced buds and blossoms. Sometimes, short periods of warm weather in the winter start the buds growing. The cold weather that comes later will kill these buds--if they're not protected. Then, too, vegetables and similar crops are annuals, planted every year. A farmer can plant his seed when danger from frost is past. But the fruit trees last many years and they stand there in the orchard at the mercy of any sudden freeze that happens to come along."

"I see," said I. "Now tell me how they operate the heaters on a large scale".

"First of all, Jim, the orchard heating must be done systematically, to be successful. There must be plenty of equipment and a good reserve of fuel oil. The really big-time orchardists build central tanks in their orchards. These serve as reservoirs for the fuel oil and are filled during the summer. In California, the heaters are placed in the orchards about October 15th. Then they're all ready for any early frosts. Then, with the heaters all set and plenty of oil on hand for emergencies, word from the Weather Bureau as to the approach of a cold wave is awaited. We usually pass the word along two or three days ahead of the approaching freeze. The big orchards are divided into sections, with a central weather station in each section. A watchman is placed at each central station. When the temperature at his station gets near the danger point, a runner is sent out to find the temperature in the coldest spot in the orchard. He returns quickly, and, if the temperature has reached the danger point, a gang of lighters is sent out to light the burners. At first, only part of the heaters are lighted. Then, if it still grows colder, more are set burning. If it gets warmer, fewer heaters are lighted. In this way--- aided by forecasts from the Weather Bureau stations, - the fruit grower is able to save oil and his fruit at the same time. It's a mighty good thing, too, for both are valuable. Vast sums of money are saved in this way every year. Furthermore, a big orchardist rarely loses his fruit crop these days. They're getting wise and they know what to do to protect their valuable crop."

Just then we were hailed by a man we know and stopped to talk to him for a bit. But the Weather Man had told me something that I was to think about for some time after that. I found,

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ANNOUNCEMENT: The Weather Man will go on the air from Station _____ again on Wednesday, April 18. Watch for him.

National Oceanic and Atmospheric Administration

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