CALIFORNIA FARM BUREAU FEDERATION

Farmers sweat winter's lack of chill hours

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Tehama County almond and walnut grower Bruce Lindauer's farming operation weathered the New Year's rainstorms pretty well, but still he said he worries about his nut crop.

"I'm really getting concerned about our chilling hours on our tree commodities, because it has been too warm through December and into January," said Lindauer, who is president of Tehama County Farm Bureau. "This is supposed to be prime time for chilling hours to meet the dormancy requirement of the trees, and it is not happening.

"This could be a problem that affects all of the tree commodities--almonds, walnuts, prunes, pistachios, pears, peaches. With this 60-degree weather in December and January, as a grower I'm getting worried."

During the past two years, chill-hour accumulations at the data collection station in Gerber have been about 600 hours. On Jan. 12, the total was 463 hours. The data is collected by the University of California, Davis and made available online.

California accounts for nearly 40 percent of the nation's fruit and nut production and 65 percent of the national value of fruit and nut crops. In 2004, the state produced 13.3 million tons of fruit and nuts, valued at nearly $10 billion.

Stone and pome fruit trees rely on enough chill hours for flowers and leaf buds to develop normally, experts at the University of California say. If the buds do not receive sufficient chilling temperatures during winter to completely release dormancy, trees may develop physiological symptoms, such as delayed and extended bloom, delayed foliation, reduced fruit set and reduced fruit quality.

Growers and industry closely track chill hours beginning in November to get a sense of the orchard management practices that will be needed in the spring and to compare the past year's weather and crop load, tree crop experts say. The optimum number of hours needed for normal development varies, however, depending on variety and species.

When asked how important chill hours are for cherries, Jim Culbertson, executive manager of the California Cherry Advisory Board in Lodi, said, "Let's put it this way. If we never had a chill hour, we'd still have a cherry crop.

"Chill hours help create a good situation for growing cherries. Life goes on without chill hours, but when we don't have them, what we end up with is an erratic, staggered bloom and the possibility of some bud viability and weakness problems. Too few chill hours may diminish the crop.

"Adequate chill hours strengthen the whole equation: better bloom, larger crop, more uniform fruit, easier harvest," Culbertson continued. "If you could dial in weather conditions and have the world just the way you want it, then you'd have more chill hours."

The optimal number of cold hours for cherries is somewhere between 1,000 and 1,200, Culbertson said. So far this winter, the state's cherry growing regions have logged about 450 hours--and time is running out.

In 2004, California cherry farmers harvested 26,000 acres of cherry trees and produced a crop

valued at more than $123 million, the largest and most valuable crop in the past decade.

"We could play some catch-up in January, if the storm and temperature patterns change," Culbertson said. "We're in a critical phase in January--wanting more cold weather, waiting for it to come. What we need are extended days of fog and cold temperatures."

Stanislaus County farm advisor Roger Duncan, who specializes in tree crops, said, "Going into the holiday season, we were actually doing fairly well with chill hours. We started out with a warm fall, but then got a lot of cold weather. About mid-December we were pretty close to normal.

"But now we're definitely low. Since about mid-December we've gone through a period of time when the lows were in the 50s and 60s, which isn't doing us any good at all," Duncan said. "At this time we want temperatures below 45 degrees. There's more than one model for accumulating chilling hours, but the old standard is basically counting the number of hours temperatures are under 45 degrees.

"According to my calculations we have about 470 chill hours now in this area," Duncan added. "My records indicate that, on average, we should be at about 600 hours at this time."

Unlike cherries, which generally require more chilling, almonds have a fairly low chill requirement, Duncan said.

California produces about 80 percent of the world's almonds on more than 550,000 acres, and unlike other types of tree crops, almonds enjoy the state's Mediterranean climate. The almond growing region stretches more than 500 miles through the Central Valley, from Red Bluff to Bakersfield.

"What we want more than anything in almonds is a good compact bloom," Duncan said. "In a lot of orchards, there are two varieties planted for improved pollination. It's very important to have those varieties blooming at the same time. In years with low chill hours, we tend to see a gap between bloom times and sometimes the quality of the flowers is affected and there is less fruit set.

"But, it's still early," he said. "The best chilling is mid-December to early January. About Feb. 15 is the end of chill accumulation. We still have some time."

In Stanislaus County at Denair, chill-hour accumulations were 468 on Jan. 12, 2006, with totals for the past two years for the same date being 577 and 586, respectively. In Mendocino County at Hopland the total on Jan. 12 was 453, with totals on that date the previous two years standing at 719 and 601.

In Kings County at Kettleman, chill hours on Jan. 12 this year totaled 226, with same date totals for the previous two years standing at 444 and 376, respectively. For Sutter County at Nicholaus, accumulations to Jan. 12 totaled 448, with 626 and 526 totals for the previous years.

In San Benito County, which usually gets 600 to 1,000 chill hours, the total on Jan 12 stood at about 300. This situation is worrying local growers who fret that this year's crop will be difficult to predict in terms of bloom, fruit set, harvest and production.

For online information about current and historical chill hours for fruit and nut trees, go to **fruitsandnuts.ucdavis.edu/chillcalc/index.cfm**.

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