

Almond Board of California Disease Forecasts 2023
in cooperation with the University of California and Semios

Table 1. Daily risk assessment disease forecasts for Thur., July 6 through Wed., July 12, 2023*

No.	County	Region	Alternaria leaf spot (date, value, level)^	Anthracnose (date, value, level)^	Bacterial spot (date, value, level)^	Almond scab sporulation level (date, LW value, Precip.)^
1	Butte	West	0	0	0	0
2	Colusa	East	0	0	0	0
3	Fresno	Central	0 (7-day index=3 to 0; Season DSV=4) Low	0	0	0
4	Fresno	East	0 (7-day index=7 to 0; Season DSV=13) High	0	0	0
5	Fresno	West	0	0	0	0
6	Kern	Central	0	0	0	0
7	Kern	East	0 (7-day index=9 to 0; Season DSV=68) High	0	0	Anticipated due to high LW last week
8	Kern	West	0	0	0	0
9	Madera	Central	0 (7-day index=1 to 0; Season DSV=4) Low	0	0	0
10	Merced	Central	0	0	0	0
11	Stanislaus	Central	0	0	0	Low (7-5: 2 h; 0 mm)
12	Stanislaus	East	0	0	0 (7-day index=0.48 to 0) Low	Low (7-5 to 7-6: 2 to 4 h; 0 mm)
13	Stanislaus	West	0 (7-day index=3 to 0; Season DSV=3) Low	0	0	Low (7-5: 3 h; 0 mm)

* - 7-day forecasts are based on temperature (inside- and outside-canopy measurements), precipitation, and leaf wetness which are powered by the Semios® precision farming platform.

^ - Numerical risk is scaled as follows: 0 = no risk, 1 = action threshold (Note: values may exceed 1 due to hourly accumulations).

Industry Advisory - Summary for Selected Almond Growing Regions

Accumulated hours of leaf wetness (LW) in several regions last week resulted in continued scab sporulation and Alternaria leaf spot risk. Accumulated LW last week was high for Kern-E with 70 h; moderate for Fresno-C, -E with 26-44 h and Madera-C and Stanislaus-W with 14-17 h; low for Stanislaus-C and Butte-W with 2-3 h; and 0 for the remaining regions with 0 mm precipitation in all regions. Overall, Kern-E still has the highest seasonal DSV. Fresno-E jumped to a seasonal high DSV of 13; thus, this is above the action threshold, and fungicide treatments are justified if using a threshold of 8-10 accumulated 7-day DSV. Monitoring scab twig lesions for sporulation and assessing leaves and fruit for scab or leaves for Alternaria leaf spot should be done routinely (i.e., weekly or bi-weekly) to verify forecasts. Fungicides should be applied on a schedule with additional LW and DSV accumulation to reach action or critical levels starting three weeks after the last application.

In the coming week, no rainfall and low LW are forecasted for three regions, and warming temperatures are predicted for all regions (Table 2). There is a zero risk for Alternaria leaf spot in most regions, but risk is high in Kern-E and Fresno-E (Table 1). There is zero risk forecasted for anthracnose and bacterial spot in all regions except Stanislaus-E with a low risk for bacterial spot. With warm temperatures, low humidity, and low LW forecasted, scab sporulation is predicted to be low. All other regions are at zero risk for summer foliar and fruit diseases. A summary of selected forecasted environmental conditions in the coming week is shown in Table 2. Again, these are regional forecasts and favorable microclimates may exist that emphasize monitoring orchards based on the orchard's disease history in previous years.

The website <https://www.ag-radar.com> (password: Almondboard2022) displays actual and forecasted disease risk assessments for each region. Because these are regional forecasts, actual and predicted precipitation may vary among locations within each region. Additionally, historical records and experience for specific locations should be considered. This advisory will be updated weekly. The website "2022 Fungicide Efficacy Tables" is available to optimize fungicide selection and applications (<http://ipm.ucanr.edu/PDF/PMG/fungicideefficacytiming.pdf>).

Industry Advisory - Summary for the season

This will be the last advisory for the 2023 season. Disease risk assessments were forecasted for most growing regions of the state. As we head into the hull split stage of Nonpareil almonds and soon other varieties, the best strategy to limit hull rot is to:

- 1) not over-fertilize with nitrogen especially, in the month before hull split;
- 2) provide balanced nutrition with potassium and phosphate foliar fertilizers in the weeks before and during hull split;
- 3) limit over-watering in the weeks before hull split and continue until harvest (i.e., practice regulated deficit irrigation);
- 4) use recommended fungicides in the Navel Orange Worm or NOW insecticide applications.

FRAC Codes 3, 7, 11, and 19 are effective against hull rot, and fungicide products with these FRAC codes can be applied in tank mixtures with insecticides before symptoms are observed and should be used as protective treatments.

Generally, 1 to 2 applications of fungicides are sufficient in an integrated program that includes cultural practices. In years with low crop yield estimates on any variety, no fungicide applications will be needed in these orchards.

I will continue to work with Semios and the Almond Board of California on disease risk forecasts and weekly postings. In addition to Alternaria leaf spot, anthracnose, bacterial blast, bacterial spot, and scab sporulation, we hope to improve and continue these forecasts in next year's program. We thank you for your patience in developing this program as we conclude our second season, and we look forward to next spring season.

The website <https://www.ag-radar.com> (password: Almondboard2022) displays actual and forecasted disease risk assessments for each region. Because these are regional forecasts, precipitation may vary with region and differ for the forecasted weather and diseases. Please check <https://www.ag-radar.com> for up to date daily forecasts. Historical records and experience for specific locations should be considered. "2022 Fungicide Efficacy Tables" were posted at <http://ipm.ucanr.edu/PDF/PMG/fungicideefficacytiming.pdf> on 3-21-22 and at <https://cfn-fungicides.ucr.edu/efficacy-tables> on 5-1-22.

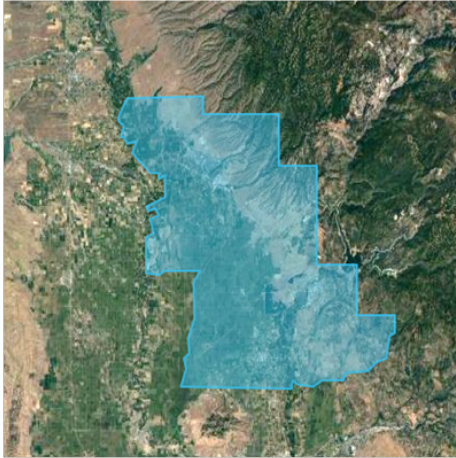
Table 2. Forecasted weather for Thur., July 6 through Wed., July 12, 2023*

No.	County	Region	Date	Avg Temp (in canopy) °C	Avg Humidity (%)	Precip. (date: mm)	Leaf Wetness avg. h (date: h)
1	Butte	West	7-6 to 7-12	24.0 to 29.8	24.1 to 63.3	0	0
2	Colusa	East	7-6 to 7-12	22.5 to 28.5	34.2 to 64.7	0	0
3	Fresno	Central	7-6 to 7-12	23.6 to 29.4	27.8 to 52.1	0	0
4	Fresno	East	7-6 to 7-12	24.5 to 29.3	27.7 to 49.3	0	0
5	Fresno	West	7-6 to 7-12	23.4 to 27.9	24.8 to 39.7	0	0
6	Kern	Central	7-6 to 7-12	23.7 to 29.2	23.1 to 47.6	0	0
7	Kern	East	7-6 to 7-12	26.5 to 31.6	22.4 to 46.7	0	0
8	Kern	West	7-6 to 7-12	25.2 to 29.8	24.4 to 50.2	0	0
9	Madera	Central	7-6 to 7-12	22.8 to 28.5	29.7 to 52.6	0	0
10	Merced	Central	7-6 to 7-12	22.5 to 28.3	30.9 to 54.8	0	0
11	Stanislaus	Central	7-6 to 7-12	22.2 to 27.4	32.7 to 59.1	0	<1 (7-5: 2 h)
12	Stanislaus	East	7-6 to 7-12	21.0 to 27.6	32.2 to 59.6	0	<1 (7-5 to 7-6: 2 to 4 h)
13	Stanislaus	West	7-6 to 7-12	21.1 to 27.5	30.6 to 62.8	0	<1 (7-5: 3 h)

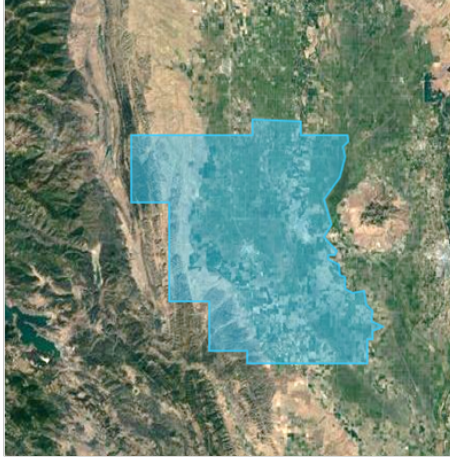
Note: In this table, the order of some regions is the same as table 1 and was generated using the RADAR on-line forecasted report powered by the Semios® precision farming platform.

Fig. 1. Maps of counties and regions.

Butte West



Colusa East



Fresno Central



Fresno East



Fresno West



Fig. 2. Maps of counties and regions.

Kern West



Kern East



Kern Central



Stanislaus Central



Stanislaus East



Stanislaus West

