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University of California
Agriculture and Natural Resources
Making a Difference for California

UC CE

The Green Scene

June 2024

Meetings and Announcements

Next Horticultural Tour—Spain and Portugal, May, 2025

In cooperation with Travel Gallery of Pasadena, I plan to offer our next horticultural tour to northern Spain and northern Portugal. The planned dates are May 11 – May 23, 2025. Unless there is something totally unforeseen, we will go with these dates.

The itinerary features at least two nights in all hotels, and much less driving with more free time than our previous hort tour to the UK. The tour begins at Madrid Barajas airport, moves to the north, moves to the west to the famous pilgrimage site of Santiago de Compostela, and then turns south to northern Portugal. We envision the southern California group traveling together from LAX to Madrid, leaving Sunday, May 11, with arrival early afternoon Monday, May 12.

Expect good food.

As we found in our previous hort tour to Spain, I know of no other country that handles large public spaces, e.g., squares and boulevards, as well as the Spanish.

I will also like to mention that I intend to offer a horticultural tour to Japan in spring, 2026. Japan has superb examples of garden design, and one of the world's premier rose gardens is there, which I visited in 2009 as part of an international rose symposium.

Master Gardener Program

UC Cooperative Extension in Kern County has received funding for a Master Gardener (MG) coordinator, and interviews for that position are progressing.

If you are interested in becoming a Master Gardener, you may call our office, 661 868-6200, or email cekern@ucdavis.edu, and ask to be put on the list for contact when the MG classes begin. We expect classes to begin this coming autumn.

Sun and Shadow

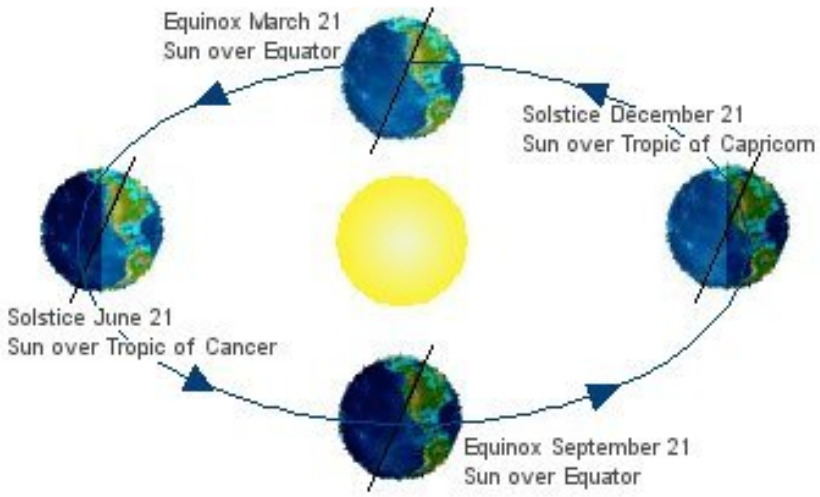
The position of the Sun and resulting shadows influence landscape plantings, especially of trees for shade.

The summer solstice has arrived as of June 20. On our calendar, we consider it to be the beginning of summer. In Europe, it is known as Midsummer's Eve, since it is the longest day of the year. On my back patio, I will mark the extent of the shadow of the house roof on the patio at 9 am, and then watch how the shadow moves at that time on successive days and weeks. After this date, physics is on our side as days will begin to get shorter, and eventually cooler, all the way to the winter solstice, which occurs around December 21.

Earth's axis is tilted 23½ degrees from the vertical with respect to the plane of Earth's orbit. That has large implications for our planet. To begin, the axial tilt means we

have seasons. If the axis were straight up, perpendicular to the orbital plane, there would be no seasons, since all latitudes would receive about the same amount of sunlight all year long. (The Earth's orbit is an ellipse, but the changes in solar radiation from closest to farthest approach to the Sun are relatively small. Earth is closest to the Sun during winter in the northern hemisphere.) Since there is a tilt, we experience summer in North America when the axis is tilted toward the Sun (left-hand position below), and winter when the axis is tilted away (right-hand position below).

Below a screenshot from a National Weather Service webpage.



The equator is the great circle (geometric term) around the center of the Earth. On either side there are circles of latitude (distance from the equator) at 23½ degrees, the Tropic of Cancer (to the north) and the Tropic of Capricorn (to the south). On these circles, the Sun will be 90 degrees overhead once a year—at the summer solstice for the Tropic of Cancer and during the winter solstice (as we experience in North America) for the Tropic of Capricorn.

Similarly, the Arctic Circle is 23½ degrees south of the North Pole (which is 90 degrees north latitude), so at latitude 66½ degrees. That's about the latitude of Iceland, and at the Arctic Circle and Antarctic Circle, there will be one day of "midnight sun," and in winter one day of complete darkness when the Sun does not rise above the horizon.

For Bakersfield, we're at 35 degrees north latitude, or about 12 degrees north of the Tropic of Cancer. So, we can calculate that at the summer solstice the maximum zenith angle of the Sun is 90 – 12 = 78 degrees. Sure enough, that's what the data say.

At the summer solstice in Bakersfield, the Sun rises not due east at 90 degrees but at 60 degrees. It sets not due west at 270 degrees but at 300 degrees. These values are not as easy to calculate. That means for afternoon shade, trees need to be not just west but also to the northwest.

After the summer solstice, the Sun will gradually rise and set closer to due east and west, and on the fall equinox, equal days and nights, the rise will be 90 degrees east and setting 270 degrees west. At that time, the zenith angle of the Sun will be 55 degrees, which is 90 – 35 = 55 degrees (Sun will be overhead at the equator minus 35 degree latitude at Bakersfield).

If you would like to explore these relationships with more precision, a website I like is https://www.timeanddate.com/sun/usa/bakersfield. I have spent a few pleasant hours looking at data for Bakersfield and other cities.

John Karlik
Environmental Horticulture/Environmental Science

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