

Palms in Mediterranean Climates

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The Mediterranean Climate takes its name from the Mediterranean Sea, which warms quickly because it is almost closed. Water temperature in winter does not drop below 13°C (55°F), while in summer in some places, it surpasses 30°C (86°F). The result is a very particular climate where summer is hot and dry, and autumn ushers in a warm and wet rainy season. Winter is mild with good showers, and spring commences as temperatures slowly rise. The Mediterranean climate varies greatly according to rainfall, from 200 mm to 1 500 mm annually, and consequently, we have to consider different kinds of Mediterranean climates. These climates are extremely variable with some very wet years and some particularly dry ones.

Mediterranean climates are not common because of the very special conditions involved: proximity to both sea and mountains. Such climates are found at elevations below 700 m and less than 250 km from the sea. Five areas in the world have Mediterranean climates. The first is, of course, the Mediterranean basin where the climate type is found from 28°N to 45°N and from 18°W to 42°E. Within these limits, annual rainfall decreases eastward and southward with drier summers. The second area is California, from Cape Mendocino south beyond San Diego, the coastal mountains, the northern and central California plains, and the western ridge of Sierra Nevada mountains. The third area is coastal Chile, from south of Concepcion (38°S) to north of Valparaiso (32°S). The fourth area is the Cape Province in South Africa, from Cape Town eastward to Knysna (34°S, 23°E) and all along the west coast of the South African Republic. The last area is southwestern coastal Australia, from Esperance (34°S, 122°E) to Geraldton (29°S, 115°E).

In Mediterranean climates, cold temperatures are rare and, in some locations, frost is unknown, a condition which should allow one to grow quite a large number of palm species. On the other hand, due to the latitude (between 30° to 45°), the sun is not very high in winter. Therefore,

temperatures do not rise high and quickly enough during the day, especially in the higher latitudes, to make it possible to grow lowland tropical palms. In summer, if the temperature is perfect for palms, the lack of water creates a climate that is the exact opposite of tropical climates. Since most palms come from summer rainfall areas it is necessary to give ample watering in summer, the quantity depending on the rainfall of the area.

Although cold is generally not a problem, these areas are not far enough from the Poles to be protected from occasional cold spells. In such cases, the damage may be significant on some palm species. After such a trauma, treatment with fungicide is even more necessary in order to prevent the rapid spread of disease in the winter rainy season.

Another important phenomenon in Mediterranean climates is the winds. Whether they are the Santa Ana in California or the Mistral in western Europe, their strength can be even more damaging than some tropical ones as they dry everything in their paths. There is little one can do, but if water is available in great quantity, one may spray plants when the wind blows to raise the level of humidity in the air.

Planting and transplanting require following some special rules. Like everywhere else planting has to be done during the warmer months, but in some locations, summer is not the best period. The absence of rain lets the soil dry out completely, especially on slopes with well-drained soils, such as granitic soils, and on lands which have not been cultivated (therefore irrigated) for a long period. If you plant in May and June, the ground is not yet dry, and it is easier to keep the newly planted palm moist. October is also a good time to plant because it is less hot but still warm and is the beginning of the rainy season.

You should have the pH of the water and soil analyzed if you have any doubts about their alkalinity. Even though palms are quite tolerant, they may suffer from an extremely high level of lime



The best palms for Mediterranean climates may be classified in four groups depending on their drought resistance.

Group 1. The best palms are obviously those growing in Mediterranean climates: *Brahea armata*, *B. edulis*, *Chamaerops humilis*, *Jubaea chilensis*, *Phoenix canariensis*, *P. dactylifera*, *P. theophrasti*, *Washingtonia filifera*, and *W. robusta*.

Group 2. Those from arid zones are good but may need protection from the rain during winter: Other *Brahea* spp. and palms from dry areas in South America, such as all *Trithrinax* spp., *Butia* spp., most *Syagrus* spp., especially those growing in cerrado vegetation (see Henderson, A., G. Galeano, and R. Bernal. 1995. Field Guide to the Palms of the Americas. Princeton Univ. Press).

Group 3. Those from temperate oceanic zones or from medium altitudes in tropical zones will need to be watered during the summer months and young plants should be protected from the sun. In this group are all *Trachycarpus* spp., *Sabal* spp., *Parajubaea* spp., and *Ceroxylon* spp.

Group 4. Those which are very adaptable: *Livistona* spp., *Archontophoenix* spp., the common species of *Chamaedorea* (see Hodel, D. 1992. *Chamaedorea Palms: The Species and Their Cultivation*. Allen Press, Lawrence, KS.).

and develop nutrient deficiencies. Fertilization should be given with slow release products at least three times a year, viz., in March when the weather starts to warm up, in June to have the best growing season possible during summer, and in October to allow the plant to store the food it cannot draw from its roots during the winter months when the soil temperature is too low. The amount depends on the species and the soil conditions but will follow the general ratio of 3-1-3, along with one part magnesium plus micro-nutrients.

Pests and diseases may be problems where there is a great concentration of plants, especially if elementary sanitation rules are not respected. In Mediterranean climates the problems and their solutions are the same as elsewhere, but they still depend more on the actual areas than on the climates. There are special pests and diseases which are more commonly found on palms in Mediter-

anean climates. They are often increased by over-watering during the hottest months. Date palms (*Phoenix dactylifera*) are frequently affected by *Graphiola* in the wetter Mediterranean climates. *Fusarium* is a more problematic disease on *Phoenix* species, especially on dates, and has killed many palms in the southern border of the Mediterranean sea. This disease has spread in the recent years due to the demand for large palms from infected areas imported for landscaping. *Phytophthora*, *Ganoderma*, *Gliocladium*, and rachis blight have been spreading in the last twenty years in the Mediterranean region.

Growing palms in Mediterranean climates is no more difficult than elsewhere if you keep in mind the rule dictated by nature: recreate as closely as possible the climate of the plant's habitat. This method does not mean you have to pamper your palm too much; just good care is the rule.

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1. Four outstanding palms for Mediterranean climates. *Brahea edulis* (upper left). *Jubaea chilensis* (lower left). *Phoenix canariensis* (upper right). *Jubaeopsis caffra* (lower right). (Photos by S. Zona)