

TITLE: **Cactus**

DATE :: August 6, 20XX

| <b>Video<br/>Shot Description</b> | <b>Audio<br/>NARRATION</b>   |  |
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|                                   | The cactus family is a strikingly beautiful and hardy group of succulents whose unique variety is unmatched by decorative texture and ornamental color.  |  |
|                                   | Known in the plant kingdom as Cactaceae, there are over 2,000 species of cactus, all of them perennial, easy to grow, and a joy to care for.   |  |
|                                   | Although most cacti are native to North America, South America, and the West Indies, some species have origins in other parts of the world because they can grow and thrive just about anywhere. |  |
|                                   | The cactus is a distinctive and unusual plant that comes in a variety of sizes, shapes, and colors, with elaborate flowers and spines.   |  |
|                                   | They are hardy and right at home in very hot, dry climates, and are known to conserve water through the practical use of specific anatomical features in the stem.                               |  |
|                                   | Cactuses can be shrubs, trees, or ground cover. They all have fleshy skin and watery juice inside.   |  |
|                                   | Many species of cactus are night blooming and are pollinated by nocturnal animals and insects.   |  |
|                                   | Cacti come in a wide range of sizes, the smallest about 1 centimeter and globular, and the tallest known up to almost 20 meters and columnar.  |  |
|                                   | The life of a cactus can range from 25 to almost 300 years.  |  |

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|  | <b>Indoor Versus Outdoor</b>   |  |
|  | The growing season for Cacti is from April to September in the Northern Hemisphere, when the weather is warm. There are slight differences to consider when caring for indoor or outdoor cactus plants.                                |  |
|  | For indoor growing, pick an appropriate sized pot and check the moisture level. Water once every two to three weeks or when soil is dry.   |  |
|  | Give it good light but not serious hot bright sunlight in order to avoid sunburn.  |  |
|  | Provide low-nitrogen fertilizer during the growing season.   |  |
|  | You can even move the plant outside during this time and bring them in just for the winter.  |  |
|  | For outdoor growing, choose a good variety of cactus for your climate.   |  |
|  | Plant in well-drained soil early in the season so the new plant can take advantage of the warm summer months to establish itself.  |  |
|  | During the growing season, water once every two weeks or when soil is dry.   |  |
|  | <b>Soil and Potting</b>  |  |
|  | Plant your cactus in cactus or succulent soil, which you can buy at any plant and garden center. This mix will serve as the base for the plant and is usually a rich, porous loam made of a mixture of humus (leaves), sand, and clay. |  |
|  | You can also make your own soil mixture and experiment with what combination of ingredients works best based on where you live.  |  |
|  | If you are planting in a pot, choose a shallow pot made from porous clay, plastic, or glazed ceramic and make sure the size of the pot is in proportion to the plant with some space left to grow.                                     |  |
|  | You can place crushed granite or small pebbles on top of the planting mix to keep the top of the soil mix from caking and drying out faster than the rest of the soil below.   |  |
|  | <b>Light and Water</b>   |  |
|  | Cacti prefer bright or filtered light so they can maintain their healthy color and shape.  |  |
|  | If your cactus is outdoors, water once a week all year round or when it is near dry.   |  |

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|  | For indoor care, water once every two to three weeks or when soil is dry.  |  |
|  | Test the soil condition with your finger. It is better for the soil to be dry more often than too moist, which can cause rot. The rule of thumb with water is to provide the roots with just enough water as to prevent rotting or drying and dying. |  |
|  | <b>Growing Regions and Care</b>  |  |
|  | Cacti flourish in some of the harshest and hostile environments on Earth and they are designed to adapt and survive in these conditions.   |  |
|  | The Cactus family spans a surprisingly wide climatic and ecological spectrum, from rainless deserts at one extreme to tropical rain forests at the other.  |  |
|  | They range from sea level to a reported 5200 m altitude in the Andes and have considerable range in their resistance to frost.   |  |
|  | Cacti are native to the Americas and are mostly found in Central, South, and North America. Caring for cacti is dependent on many factors and varies by region.  |  |
|  | The top four Geographical regions for cacti include:   |  |
|  | 1. Mexico and the adjacent south-western United States, including southern California, Arizona, New Mexico, and south-west Texas.  |  |
|  | 2. The central Andes and the countries of Peru and Bolivia, including southern Ecuador, north-east Chile, and north-west Argentina.  |  |
|  | 3. Eastern Brazil, including the states of Maranhão and São Paulo.   |  |
|  | 4. Central-western and southern Brazil, Paraguay, Uruguay, and Argentina, excluding the north-west and southern parts).  |  |
|  | <b>Cold Versus Warm Climate Cacti</b>  |  |
|  | Cold climate cacti are hardy and will flourish in a region or zone where winter temperatures are cold enough for long periods of time, allowing the plants to bloom in the upcoming spring and summer seasons.                                       |  |
|  | Tolerant temperatures in the cold winter months include a range from 45 °F down to 0°F or lower.   |  |
|  | Cacti are fine in cold weather and significant snow. It's the freezing rain and ice that will surely kill a cold climate cactus.   |  |

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|  | Location is key to the survival of cacti in a cold climate. After all, they adapted to cold weather because of their ability to seek out the best places to grow.  |  |
|  | You can place a cold weather cactus in flower pots or plant them rock gardens outdoors and even move them around to a better location if the weather takes a nasty turn.   |  |
|  | Warm climate cacti include both desert cacti found in very hot, dry areas, and jungle cacti found in the rain forest. They include some of the more common species that are easily identified by the majority of people.   |  |
|  | Desert cacti are found in arid regions and on islands.   |  |
|  | Their care requirements are somewhat similar to that of jungle cacti.  |  |
|  | A good well-draining soil blend of perlite, pumice, potting soil, rock, sand, peat, coir, and gravel, will suffice. Experiment until you find the right mix for your cactus.   |  |
|  | Watering once a week is acceptable for hot, dry areas and once every three to four weeks for humid areas.  |  |
|  | The environment you grow your cactus in will no doubt be different from the environment they are native to.  |  |
|  | The key to moisture isn't to avoid watering in order to simulate a dry native environment, but rather to never over-water.   |  |
|  | Unlike the jungle cacti, desert cacti thrive with lengthy amounts exposure to light.   |  |
|  | Jungle cacti tend to grow in trees or on rocks, absorbing nutrients from the air or dead leaves and other debris collected nearby.   |  |
|  | The best kind of soil mix for Jungle cacti includes orchid bark, perlite, potting soil, peat, coir, pumice, and oak leaf mold. As a rule of thumb, re-pot plants every two years to refresh them, shortly after your plant has finished blooming and when it is ready to begin a growth cycle. |  |
|  | Water cacti twice a week during hot, dry periods and every other week when it's cool and rainy.  |  |
|  | A generous amount of light is essential to maintain plants with healthy stems and to stimulate blooming.   |  |

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|  | <p style="text-align: center;"><b>Propagation</b></p> <p>The process of propagation results in the creation of new cactus plants via seeds, cuttings, or graftings.</p>   |  |
|  | <p style="text-align: center;"><b>1. Seeds</b></p> <p>Seeds germinate within two to four weeks after sowing in temperatures between 70 and 90 degrees. Seeds can be planted at any time of the year.</p>                    |  |
|  | <p>Scatter seeds lightly over soil and cover them with 1/8 inch of soil. Make sure to cover the pot after sowing the seeds with glass, plastic pans, or plastic bags to keep the moisture in initially.</p>                 |  |
|  | <p>When the seeds appear above the soil, remove the covering to allow light in.</p>   |  |
|  | <p>After a month or two, when the seedlings are large enough to be handled, they can be planted in separate pots. Monitor exposure to sunlight and water.</p>   |  |
|  | <p>Propagating from seeds is the slowest but most interesting option for multiplying cactuses because you can watch the entire process unfold.</p>  |  |
|  | <p style="text-align: center;"><b>2. Cuttings</b></p> <p>The quickest way to propagate new cacti involves stem-cutting. Allow the cutting to dry for at least ten days before planting in a warm and shady environment.</p> |  |
|  | <p>Place the cutting in moist soil in warm temperature and it will strike new roots almost immediately.</p>   |  |
|  | <p>The cactus stem is very different from the stems of most other plants and no comparison can be made between them and their root-developing power. Excessive moisture is the only enemy to fresh cuttings.</p>            |  |
|  | <p style="text-align: center;"><b>3. Graftings</b></p> <p>Propagation by grafting onto other genera or stronger plants is desirable if you are looking to achieve extraordinary plants.</p>                                 |  |
|  | <p>Species and genera unite freely with one another to make for some very interesting and unusual combinations.</p>   |  |

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|  | <p>Two general rules must be followed no matter what your grafting motivation in order to ensure a speedy union:</p> <p>(1) A period of vigorous growth is the best time to perform the operation, and</p> <p>(2) The parts that are to be grafted together must be cut specifically to fit each other and then bound together so that they are in constant contact until they are united – tight enough to prevent slipping but not too tight to prevent the flow of sap that will glue them.</p>   |  |
|  | <p>It is very important that the newly bound graftings receive some shade during this crucial time period.</p>   |  |
|  | <p><b>Easy Beginner Species</b></p> <p>If you are just starting out growing and caring for cactuses as a beginner hobbyist, there are some plants that are better to start with than others.</p>   |  |
|  | <p>The following "easy to grow" plants produce beautiful flowers, spines or wool, and are tolerant of beginner mistakes:</p> <ul style="list-style-type: none"> <li>• Aeonium "Zwartkop"</li> <li>• Agave ferdinandis-regis</li> <li>• Bowiea nana</li> <li>• Cereus cv. "Ming Thing Blue"</li> <li>• Chamaecereus cv. "Giant Peanut Cactus"</li> <li>• Crassula gollum "dwarf"</li> <li>• Drimia haworthioides</li> <li>• Euphorbia cylindrifolia</li> <li>• Euphorbia decaryi decaryi</li> <li>• Euphorbia ingens monstrose</li> <li>• Euphorbia lactea crest (green)</li> <li>• Ferocactus</li> <li>• Fockea crispa</li> <li>• Fockea edulis</li> <li>• Gasteria liliputana</li> <li>• Gymnocalycium</li> <li>• Kalanchoe</li> <li>• Lobivia</li> <li>• Mammillaria elongata</li> <li>• Notocactus leninghausii</li> <li>• Notocactus magnificus</li> <li>• Notocactus scopi muriellii</li> <li>• Pachypodium geayi</li> <li>• Pachypodium lamerei</li> <li>• Portulacaria afra variegata</li> <li>• Sansevieria patens</li> <li>• Rebutia</li> <li>• Sansevieria patens</li> <li>• Sulcorebutia</li> </ul> |  |

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|  | <p>If you invest the time in learning how to care for these starter species, you should have no problem moving on to successfully caring for more exotic varieties.</p>                                    |  |
|  | <p><b>Variety</b></p> <p>Cacti all belong to one family, Cactaceae. There many varieties spanning every imaginable shape and size.</p>   |  |
|  | <p>Of these hundreds of varieties, almost all of them originated in the Americas, and most of them in deserts and arid regions.</p>  |  |
|  | <p>Some varieties of cacti are jungle plants, such as the Holiday cactus and orchid cactus.</p>  |  |
|  | <p>There are cacti trees which are the largest of all varieties of cacti from the saguaro to the Joshua tree.</p>  |  |
|  | <p>On the other end of the spectrum there are small cacti that serve as ground cover.</p>  |  |
|  | <p>The two most common classes of cactus are those which are either sun-loving and desert, or shade-loving and tropical.</p>   |  |
|  | <p>Cacti are found in a variety of different climates, from tropical cacti like Epiphyllums and Rhipsalis, to the drought hardy desert Copiapos, which subsists mainly on the moisture from ocean fog.</p> |  |
|  | <p>The cactus family includes many thousands of varieties and species, far too many to name.</p>   |  |
|  | <p>Some of the most common cactuses found in the Southwestern United States include the barrel, prickly pear, organ pipe, cholla, barrel, and saguaro cactuses.</p>  |  |
|  | <p><b>Species</b></p> <p>The many different types of cactus species each have distinct differences in their features.</p>  |  |
|  | <p>Some cacti have small leaves, so that they reduce the surface area through which water can be lost by transpiration, while others have larger leaves.</p>   |  |
|  | <p>There are small rounded, flat, or cylindrical plants and shrubby, segmented, sprawling ones.</p>  |  |

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|  | <p>A cactus can be identified by researching which of 35 main growth forms match, which can be found within eight different categories, including:</p> <ul style="list-style-type: none"> <li>• Globular</li> <li>• Climbing</li> <li>• Pendant</li> <li>• Leaf-like</li> <li>• Columnar</li> <li>• Caespitose</li> <li>• Articulate</li> <li>• Prostrate</li> </ul> |  |
|  | <p>Certain cactus species, like the prickly pear, have developed ephemeral leaves that last for a short period of time when the stem is still in its early stages of development.</p>  |  |
|  | <p>The saguaro cactus has a very short growing season and a very long dormancy, which gives it the ability to store massive amounts of water and to form new roots quickly.</p>  |  |
|  | <p>The Ferocacti of the Southwestern Deserts of the United States have developed abundant radial spines to deal with strong sunlight and heat.</p>   |  |
|  | <p>Other cacti have fur and or an excess of spines in the area where sensitive new growth occurs for the same reason.</p>  |  |
|  | <p>The organ pipe cactus has tall stems that grow in groups, looking somewhat like a set of organ pipes.</p>   |  |
|  | <p>Because these “arms” are sensitive to cold and the plant surface area is relatively small they experience difficulty in producing enough plant food to stay alive.</p>  |  |
|  | <p>Branching is a way to increase their surface area, and ability to produce food.</p>   |  |
|  | <p>Although they widely differ, cactus plants all have a spine cushion or areole, which is a radial arrangement of spines on padded buds where shoots and flowers appear.</p>  |  |
|  | <p>Even though the areoles differ in structure on different kinds of cacti, this is one way to distinguish one plant from another.</p>   |  |
|  | <p><b>Conclusion</b></p> <p>Growing your own cacti can be a tremendously rewarding experience requiring minimal effort. Through experimenting, you will discover a growing environment that works best for your situation.</p>   |  |

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|  | Once you determine the best soil, water, and light arrangement for your location, your cacti will flourish, surprising and delighting you with their unique range of features, flowers, and unusual growth forms. |  |
|  | The art of growing cacti can bring many years of enjoyment to any plant hobbyist.   |  |