



## Jojoba requires special attention

Black Mt. News - 9 June 1983

Plant adaptation for desert survival — one of three parts

by Christina Quick

A friend asked me, "I have a beautiful big jojoba plant in my yard and it has never had any beans. Why?"

Jojoba (*Simmondsia chinensis*) have male and female flowers on separate plants. Nuts ripen on the female plants usually in August. In Arizona, the male plants outnumber female plants by a ratio of three to one. It is speculated that perhaps female plants have a more difficult time germinating and establishing themselves than males, due to unknown factors.

Jojoba turn or twist their leaves during the hottest part of the day, exposing only the thin edges to the sun. Some plants curl or roll up their leaves, then unroll them during the cooler hours. Many desert plants have hairy stems and leaves which, in addition to catching and retaining atmospheric moisture, help to shield the leaf and stem surfaces from the wind burn.

Our desert plants have evolved through thousands of years, adapting for survival. Adaptation took a variety of forms. If the sun was intense, the plant would produce many spines to shade itself. If there were many winds, the plant would grow close to the ground, hugging for self-preservation.

The crucifixion thorn (*Castela emoryi*) has a very long taproot which goes far underground for moisture. It gives up its leaves in drought and functions through the stem.

The taproot of Mormon tea and fairy duster also have a very long taproot. This is the reason most native plants can not be transplanted successfully.

The ocotillo (*Fouquieria columnaris*), pronounced oak-o-tee-o, is void of leaves in drought, quickly refoiliates with rain, and may do this a half a dozen times in a year of intermittent rain.

All plant life on this earth develops according to

the ratio of moisture intake versus an exhaust process called transpiration. If this system of moisture control is in balance, almost any plant will grow in the desert.

The saguaro is the indicator plant of the Sonoran desert; but it is the creosote bush (*Larrea tridentata*) which really rules the Southwestern deserts. It will grow where nothing else will, with the possible exception of the cholla. This plant has nothing to do with the product creosote. No other shrub in the entire Southwest is as vastly distributed; and in the driest, hottest, most punishing regions, in clay or sand above a caliche hardpan, in places where the mean annual rainfall is less than 3 1/2 inches, the creosotes anchor beneath their distinctive bronze or mustard-green hue.

Their waxy leaves have a varnish-like shiny coating which reflects heat; while its amazing root systems probe the subsoil of up to 30 feet for moisture. Their seeds burst to life when rain is followed by temperatures that do not fall below 59 degrees. In drought, it sheds the olive-gray of its older, lower leaves. It keeps the small budding leaves, but they become brown and limp. Then there is a virtual shutdown of the photosynthetic and other processes. In this "hold" condition, it has survived almost total dehydration for prolonged periods.

Creosote bushes keep their distance from other plants. They seem to remain aloof from other vegetation. There is a disagreement among scientists and biologists as to the reason. The explanation widely accepted is that there is a dearth of humus and debris beneath these bushes — the winds have scoured the ground and it discourages establishment of seedlings of other plants.

That the creosote bush is a master at adaptation is attested to by evidence recently discovered that clones of the creosote bush may have been continuously in residence in the Southwest Mojave Desert for nearly 12,000 years.