

## **Jojoba successfully grown on six acres in Pakistan**

What is regarded as the only block of jojoba grown in Pakistan is now two years old and in "fine shape," according to its grower, M.H. Panhwar, president of Research and Development Engineers.

Panhwar, who admits he learned how to grow the native Sonoran Desert plant by "going through every conceivable paper published on jojoba since 1979," is so impressed with what he sees that he will soon extend the plantation from six to 20 acres.

Panhwar says the jojoba (planted April 1985) is now in the flowering stage. On a majority of plants, a few fertilized buds have been formed with pollination completed the end of March. Plants are marked as male or female as soon as flowers appear.

The farm is located 118 miles East NE of Karachi City and 14 miles east of the city of Hyderabad (Sindh). Located on 25° - 25' latitude, summer temperatures usually hit 113°F in May with a diurnal temperature difference of 30°F. Winter minimum temperatures fall to about 42°F with the maximum on the same day hitting in the mix-sixties range.

Panhwar's soils are alluvium and well-drained. Flood irrigation is the common practice. In order to help reduce water application, he has planted seeds on 3 ½ feet wide ridges. Furrows are also 3 ½ feet wide and 15" deep. Planting rate was 3750 seeds per acre, each 2 inches apart.

According to Panhwar, "In order to keep beds near the seed at field capacity for the first six to eight weeks after planting, soil in the ridges near the seeding points was removed and connected with furrows so that seed is only 5-6" above the bottom of the furrow. When plants emerged, soil was gradually added so that plants now are in the centre of the ridges and 15" above the furrow bottom."

Alternate ridges are irrigated every month and water application is only three inches in the alternate ridges to a depth of about three inches. In the months of April to August, water is applied every two weeks. Since each furrow irrigates two adjoining ridges, water applications reduced to 1 inch per watering. With about 17 irrigations a year and an average rainfall of six inches (July-August), no more than 23-24 inches are applied.

Panhwar notes that, "Our government's two organisations, PARC (Pakistan Agricultural Research Council) and ATDO (Appropriate Technology Development Organisation) have been trying to establish jojoba since 1974 with continuous failure.

"The two agencies also planted jojoba in pots (where roots coiled and suffocated the plants) or on the flat (where flood irrigation caused a fungal rotting)."

Pakistan has at least 250,000 square miles of land in the provinces of Sindh, Baluchistan and the Punjab where jojoba can successfully be raised. Hand picking inter-cultivation and pruning is no problem in that country because labour is so inexpensive.

How long will it take Panhwar to begin recovering his costs? About six years, according to his figures. In the meantime, however, the University of Wisconsin graduate (MS agricultural engineering) is in constant touch with suppliers of seed, plants and oil from the United States and Mexico and annually visits many farms. Wife Farzana a bio-chemist helps him in his pioneering effort.