HEALTHY KHEJRI TREE

Khejri or *Prosopis cineraria* (L) Druce, is a small to medium size tree, found mainly in the arid and semi arid areas of western states of India specially in the Thal/Thar Desert of Rajasthan. It plays a vital role in preserving the ecosystem and a symbol of socio-economic development of the arid regions. It is also known as the 'Kalp Taru', Jhanti, Kandi (in sindhi) or Shami (in sanskrit).

Severe mortality of Khejri trees was recorded in North-Western Rajasthan, which is increasing day by day. The cause of Khejri mortality encompasses the combined influence of biotic as well as abiotic factors.

PROCESS OF KHEJRI DRYING

BIOTIC FACTORS

Biotic factors include a root rot fungus *(Ganoderma lucidum)* and a root borer *(Acanthophorus serraticornis)*. *G. lucidum* produces lignolytic enzyme which degrades lignin. The fungus produces leathery fruiting body near collar region of the tree, a main characteristics of the fungus, while top drying is main identifiable characteristics of disease. *A. serraticornis* is a rare giant long-horned beetle and its larvae severely damage the root system of the Khejri trees.

Ganoderma lucidum

TOP DYEING SYMPTOMS

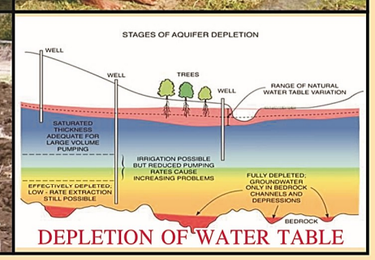
Larva of *Acanthophorus serraticornis* in khejri root

Larva of *Acanthophorus serraticornis* in laboratory

Acanthophorus serraticornis Beetle

ABIOTIC FACTORS

The abiotic factors include continuous depletion of water table due to over exploitation of ground water by way of tube wells, using of pesticides, change in agricultural practices, increased use of tractors and mechanized cultivation, (harming the standing trees roots and new sprouts and natural regeneration), extensive lopping etc. These all play important roles in large-scale drying of Khejri.



PRELIMINARY RECOMMENDATIONS FOR MANAGEMENT

The package of practices developed by AFRI against Khejri mortality during the last 15 years are:

Indiscriminate lopping of trees seems to be the primary cause of disease/pest infestation. Hence, a gap of one year in lopping practice, with two third lopping is advisable. For Sangri fruit harvesting, lopping is recommended in May-June, otherwise in Nov.-Dec. months.

The lopped portions / open wounds should be treated with AFRI PASTE* just after lopping activity to check the fungal infection and egg laying by the shoot borers.

AFRI PASTE | SHOOT TREATMENT | AFTER TREATMENT

Dried trees and severely infected trees should be uprooted and the felled trees should be lifted from the vicinity immediately to reduce population build up of pathogens.

The soil around the root system should be loosened and then treated with a suspension containing Carbendazim 50

wp (1ml/litre) + Chloropyriphos (1ml/litre) + Growth promoter (@2ml/litre). A quantity of 15-20 liters chemical suspension per tree should be applied. The treatment should be repeated at 3 month intervals till recovery (leaf fodder, the loong production is increased).

APPLICATION OF CARBENDAZIM 50 WP (1ML/LITRE) + CHLOROPYRIPHOS (1ML/LITRE) + GROWTH PROMOTER (@2ML/ LITRE) @ 15 LITRE PER TREE AFTER EACH QUARTER

TREATED KHEJRI TREE

INCREASED LOONG PRODUCTION

AWARENESS PROGRAM WITH FARMERS

Shoot treatment + Root treatment (as recommended above) + 2/3rd lopping (during November-December) at alternate year are proved to be the best treatment.

Due to tractorization during agricultural practices, natural regeneration of khejri has got reduced. To maintain the sustainability of nature, naturally regenerated Khejri trees should be protected and promoted on farmer's lands. Farmers should also be motivated for planting and maintaining khejri trees in their field.

Farmers use heavy irrigations in hybrid crops with extensive use of chemicals/fertilizers in their field. Due to this natural micro-habitat/niches of Khejri has disturbed and has become more prone to various diseases. Therefore fertilizers and chemicals should be used judiciously in the field.

The trees showing partial die-back symptoms should be dealt with for their treatment on priority basis in order to check further spread of the disease/ pest.

AFRI PASTE*

**One part of Copper Carbonate (½ Kg) + One part Red Lead (½ Kg) + Raw Linseed oil (1.25 liter) or two part white petroleum jelly (1 kg) and 2 ml Monocrotophos. (modified Chaubattia paste)*. Mix Copper Carbonate and Red Lead homogeneously then add raw linseed oil (also known as Alsi ka tel) and add insecticide (Monocrotophos) and can be apply by brush or by hand using gloves. (The paste has toxic effect, hence hand should be thoroughly washed with soap after given treatment.)

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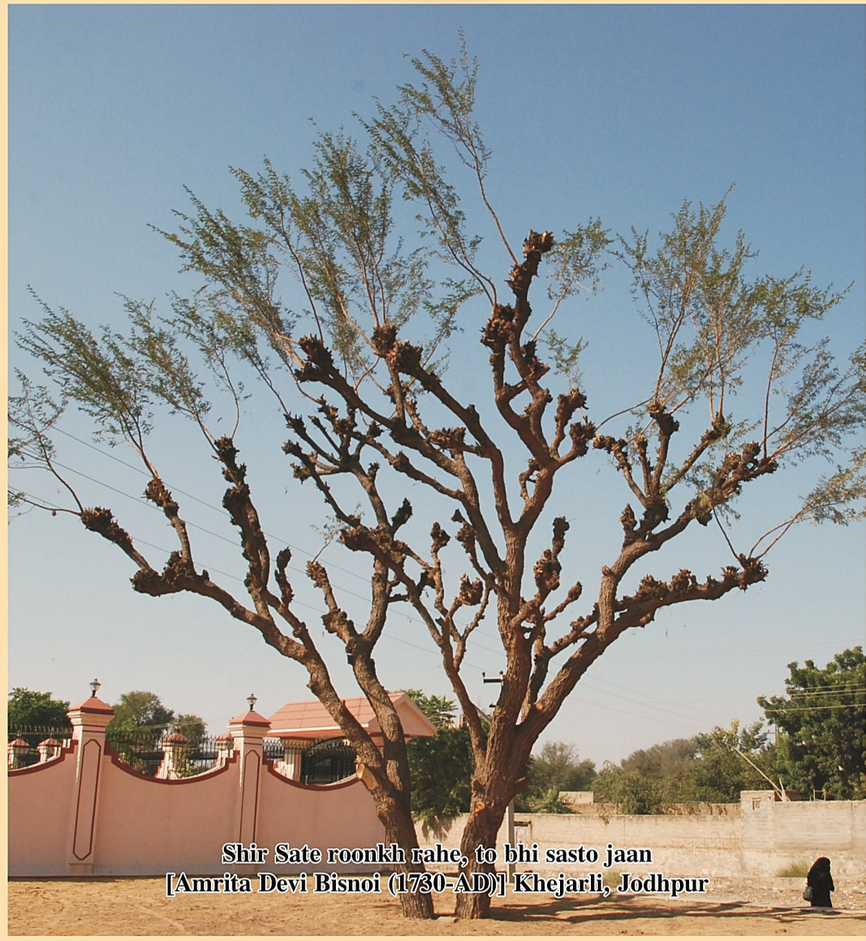
KHEJRI
(PROSOPIS CINERARIA)
MORTALITY: CAUSES, SEVERITY & REMEDIES
In North-Western Rajasthan



Shir Sate roonkh rahe, to bhi sasto jaan
[Amrita Devi Bisnoi (1730-AD)] Khejarli, Jodhpur

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