

# Kind of Tree-planting Activities in United Arab Emirates

## Part 3: How to plant trees in large scale afforestation

### Seedling production

Seedlings are produced in nursery stations of the Forestry Department. The cultivation media is a mixture of sand and compost (6:1). Seedling production starts in November or December, before winter comes. Seeds are sown either in black plastic pots filled with soil or directly in nursing field. In the latter case, seedlings in nursing field will be transplanted into black plastic bags when they grow big enough. These seedlings are put in nursing fields without shading. Seeds of indigenous species need scarification before sowing, in order to break their dormancy and to increase rate of germination.

### Type of planting

In large scale afforestation, 40-50 ha of land is regarded as one unit and enclosed with fence in order to protect trees from browsing by camels, sheep and goats. Density of trees are standardized at 7 x 7m lattice. It is said that if the intervals are shorter than 7m, many trees have to be thinned out as they grow up, which means water consumed by those thinned out trees are wasted. However, when planted at 7m intervals, it takes long time before trees grow enough as wind and/or sand protection forests. To shorten the time, another method has been tried recently, which plants trees at 3.5 x 3.5m lattice outside main afforestation area.

### How to plant trees

The size of a hole for planting a tree is specified as 1 x 1 x 1m. After putting NPK complex fertilizers and composts (animal manure) in the hole, a 1-2 years old, 50-60 cm tall seedling is planted in it. After filling back the hole, the planted trees are enclosed with tree guards. Planting, fertilizing and maintenance are handled by local workers. Two kinds of fertilizers (Urea and mixed fertilizer) are put for 3 months during winter.

### How to irrigate

Planted trees are irrigated by drip irrigation using underground water. Water is pumped up and sent through underground pipes to the terminals set on the ground. Amount of water for one tree is about 40 liter a day. From the second year onward, trees are irrigated once 2 or 3 days considering effect of leaching accumulated salt in the soil to downward. Quality of irrigation water is generally bad. It usually contains 4,000-10,000 ppm, occasionally more than 15,000 ppm of salt. The salt accumulates and crystallizes at the foot of trees, and when



the rain falls, seldom if ever, the accumulated salt dissolves and damages the planted trees. To avoid this problem, salt crusts are removed when needed.

Bu Harna Forest, planted in 1984. Main tree species are *Acacia arabica*, *Acacia modesta*, *Prosopis cineraria*, *Zizyphus jujuba* and *Melia azadirachta*. Tall trees and shrubs are planted all together at 2.5-3 m intervals. Initial purpose of this forest was commercial cutting, but no cutting has been done so far. Compared with other forests, color of the soil is darker, probably because more fallen leaves are accumulated due to high density afforestation. Quality of irrigation water is good, 0.7mS/cm (approximately 500ppm).