



Waterboxx Field Trial Report

07/10/2013

To study the performance of Waterboxx in Indian conditions, field trials are being undertaken by BAIF at various locations. The trials have begun in March 2013 and various performance parameters are being monitored. Data related to climate (temperature, rainfall, humidity), water level & plant growth (mortality, height, no. of branches) is recorded. Trials of a total of 40 Waterboxxes are being carried out at Champawat (Uttarakhand), Barmer (Rajasthan), Nanodara, Kutch, Chaswad (Gujarat), CRS Urulikanchan (Maharashtra) & Lakkihalli (Karnataka). The trees / plants selected for trials include pomegranate, water melon, musk melon, mango, sapota (chiku), lemon, ber, brinjal, okra & tamarind. The findings so far have been compiled in the following note.

Trial details

Place	Trial start date	No. of waterboxx	Plants
Nanodara	01-03-2013	7	Pomegranate, Water melon, Ber, Brinjal, Musk melon
Kutch	06-03-2013	5	Water melon
Chaswad	09-03-2013	10	Mango, Lemon, Brinjal, Okra
Lakkihalli	23-03-2013	8	Sapota (chiku), Mango
CRS	07-06-2013	1	Tamarind

Note : The detail information in respect of two locations i.e. Barmer (Rajasthan) and Champawat (Uttarakhand) are yet to be obtained

Climate parameters like temperature, humidity & rainfall are measured daily while water level & plant growth are monitored fortnightly. The methodology adopted for recording data periodically in the field at Nanodra, in respect of 7 Water Boxxes, has been presented separately in the enclosed Excel work sheet.

Plant growth

The plant growth under the trials is assessed by mortality, height & no. of branches. It is observed that waterboxx assists plant growth in difficult conditions. In the plants that have survived, progressive increase in height & no. of branches has been recorded. These plants



have also started yielding. To compare the waterboxx performance, same varieties of plants have been raised under normal conditions in control plots in Nanodara & Kutch. It is seen that the control plot plants have either dried up or the height attained is 30 – 50% lesser than the plants raised in waterboxx over the same period.

The survival rate at Nanodara & Kutch has been reported to be 80 – 100% while it is 40 – 60% in Chaswad as of August 2013. The plants at Lakkihalli have been destroyed due to termite attack.

Water level

The water level has dropped to less than half (13cm mark when fully filled) in about 3 – 4 months. This is under a maximum diurnal temperature of about 40 – 43 °C between March & May in the trial areas. There has been no other source of water availability in this period & hence the waterboxxess have been refilled manually. Since July 2013, the units have been completely filled due to the ongoing monsoon season. It is necessary to study the water retaining capacity of the waterboxx for a year between two consecutive monsoons.

Remarks

- It is seen that the waterboxx assists plant survival & growth in difficult circumstances by functioning as a water harvesting, micro irrigation & vaporization minimization unit. Fruits & vegetables like pomegranate, water melon, ber, musk melon & brinjal have been found to survive & grow in areas which fall under arid & semi arid zones. Fruits such as mango & lemon are found to have not survived in the trial.
- There has been report of water logging underneath the box during rains thereby hampering the germination of seeds.
- In areas with brackish water, the drip wick tends to clog due to salt deposit.
- The waterboxx needs to be removed between 6 months – 1 year once the plant adapts & stabilizes. But it is observed that the waterboxx cannot be lifted to remove in case of trees with large girth. It will suit practical applications better if the unit can be manufactured in 2 vertical halves which can be joined & separated with a fastener.



- In the earlier lot of waterboxxes, some issues with proper latching of cover to the box were reported.



Waterboxx trials at Kutch, Gujarat



Waterboxx trials at Nanodara, Gujarat



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