



إدارة الشؤون الزراعية



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Green King Middle East FZC

PO Box 16111

Ras Al Khaimah

United Arab Emirates

February 26th, 2012

Subject: Trial of Deep Drip Watering System in Qatar

Dear Sirs,

I am very pleased to confirm that the Agricultural Affairs Department, Ministry of Environment Doha, Qatar conducted two trials on date palm trees at 'Rodat Al-Fars' experimental farms to evaluate the effectiveness of Deep Drip tree watering stakes – a product by Green King LLC, USA.

The trials were carried out during November 2010 and were continued until December 2011 under the supervision of Ministry of Environment in Qatar. The details of the tests and the relevant observations/results are as follows:

Trial # 1: Conducted on 3 date palm trees (Shi Shi variety), the estimated age of these trees is 15 years. The date palm trees were irrigated by 4 Deep Drip stakes of 36" size which were inserted into the ground at 80cm apart in a circle around the tree trunk. Similar numbers of trees were irrigated by Bubbler system as a control experiment for comparison purpose.

Trial # 2: Conducted on 3 off-shoots (Hairy variety), the age of these offshoots is 2 years. The off-shoots were irrigated by 3 Deep Drip stakes of 24" size which were inserted into the ground at 30cm apart in a circle around the off-shoot. Similar numbers of off-shoots were irrigated by Bubblers system as a control experiment for comparison purpose.

Two Water Meters were installed in each of the above trials to calculate the amount of water used for irrigation through Deep Drip as well as through the Bubblers.

Main Results:

1. Deep Drip tree watering stakes conserved about 50% of irrigation water in comparison to the Bubblers system.
2. No weeds and/or algae were grown in the area of tested trees irrigated by the Deep Drip tree watering stakes.
3. In the hard soil as well as for maintenance, it is difficult to remove the stakes and replace again.
4. Water soluble fertilizers can be easily used with Deep Drip watering stakes. However, the product is not suitable for insoluble fertilizers as it may block the holes in the watering stakes.
5. Comparing the 2 irrigation systems, there was no difference observed in either the growth or in the production of dates on the tested palm trees and off-shoots.




The above observations have been indicated in the photos in Appendix A.

With my kind regards,

✓ **Eng. Yousef K. Al-Khulaifi**
Director of Agricultural Affairs Department
Ministry of Environment
Doha-Qatar



Appendix A

	<ul style="list-style-type: none">• 'Rodat Al-Fars' – Experimental farm, Doha Qatar.
	<ul style="list-style-type: none">• The first three trees trialed with Deep Drip watering stakes.• The end three trees trialed with Bubbler system.• All 6 trees have grown equally.• The trees with Deep Drip installed have conserved 50% irrigation water.
	<ul style="list-style-type: none">• 36" Deep Drip watering stakes installed (Quantity 4)• No Weeds noted after over 1 year of trial.



- Palm Tree with Bubbler System.
- Weeds observed soon after the trials started.



- Water consumption meter reading noted for the 3 x trees using Deep Drip watering stakes.
- Reading noted at 73m³



- Water consumption meter reading noted for the 3 x trees using Bubbler system.
- Reading noted at 150m³



- 24" Deep Drip water stakes installed (quantity 3) around a shoot off.
- No Weeds noted after over 1 year of trial.



- Shoot Offs with Bubbler System.
- Weeds observed soon after the trials started.



- Water filter and water flow meters installed for the two independent irrigation systems.