

REPORT ON THE BEHAVIOR OF SWEET POTATO (*Ipomoea batatas*) UNDER THE INFLUENCE OF **TERRABELLA®**

I. Introduction

Cultivation of Sweet Potatoes (*Ipomoea batatas*) is increasing around the world, largely for its nutritional value; the sweet potato surpasses other vegetables in terms of fiber content and carbohydrate content, including complex carbohydrates, proteins, vitamins A and C and minerals such as iron and calcium.

Israel has the world's highest sweet potato yields, reaching up to 80 tons/10,000m², due to very precise irrigation controls, nutrient supplies, and close crop monitoring.

In April, 2013, the Ozer Farm, in the Gan Sh'muel area of Israel, agreed to do a trial of **TerraBella®** inside a four dunam (4,000m²) field of sweet potatoes.

II. Test Process

Notes

- The **TerraBella®** solution prepared according to directions. Care was taken to avoid the use of chlorinated water.
- Field irrigation performed by a system of mini-sprinklers that enabled precise application and testing of 50%, 100%, and 200% of the recommended **TerraBella®** dosage.
- Applications were done in April 2013, June 2013 and July 2013 - the last one after the field was already in the flowering stage.
 - As per application instructions, the first two applications occurred before flowering.
- Four sample groups were taken from ten beds. Each sample group was taken from an area of 10m² randomly selected from inside the bed.
- The four groups were taken to distinguish among the effects of (A) an early harvest (4.5 months vs. 5.5 months) and (B, C, and D) varied doses of **TerraBella®** as a percent of recommended.

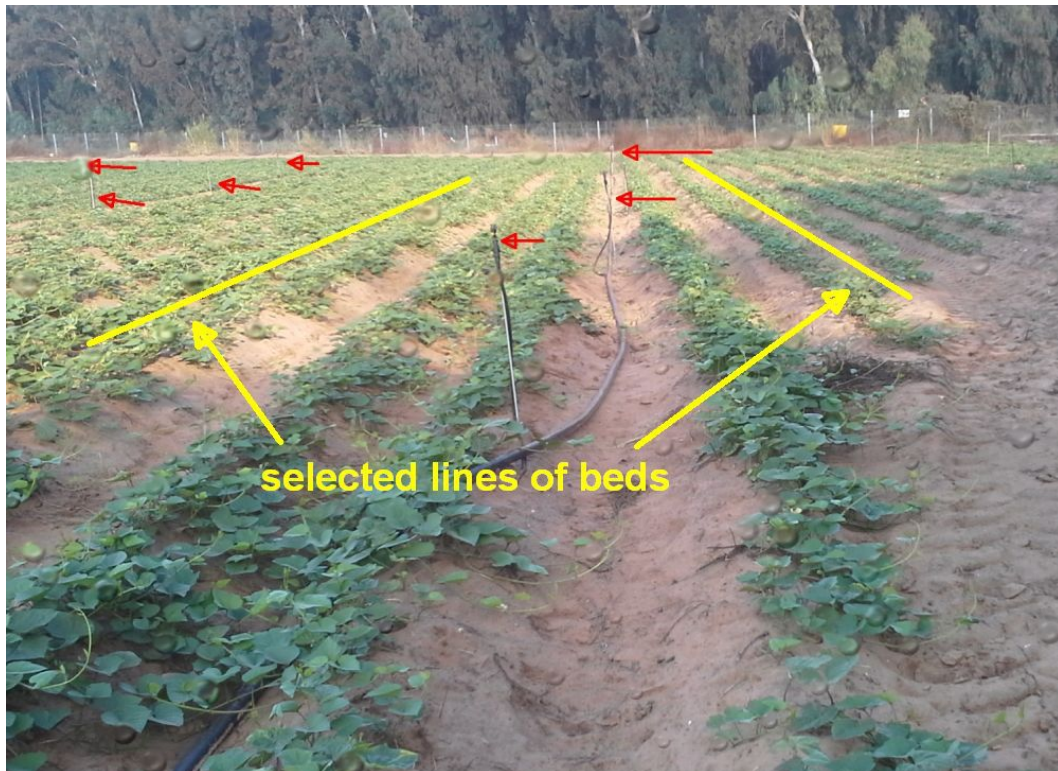
Sample	Beds	Dosage (% of recommended)	Harvest Date
A	1-2	100%	Sept. 1, 2013
B	3-5	100%	Oct. 1, 2013
C	6	50%	Oct. 1, 2013
D	7-10	200%	Oct. 1, 2013



Preparing the **Terrabella**[®] solution, adding it to the Fertilizer Tank



Mature Sweet Potato plants, not yet filling its roots (keys for comparison)



Young sweet potato plants showing the irrigation pattern and the collection area

- **Results**

Qualitatively, the **TerraBella®** treated areas, as well as the control areas, looked healthy and vigorous. It is also interesting to note that the filling of the roots into bulbaceous bodies happens quite late in the plant development.

Quantitatively, **TerraBella®** increased yield **33% at the September 1 harvest and 21% at the October 1 harvest**. Detailed results:

Sample A: 100% dosage; collected September 1st 2013

	Weight - 10m ² of TerraBella® treated (Kg)	Weight - 10m ² of the Control (Kg)	Difference (Kg)	Difference (%)	Projected weight - 1,000m ² TerraBella® treated (tons)	Projected weight - 1,000m ² Control (tons)
bed 1	107.5	83			10.6	8.2
bed 2	99.5	73			9.9	7.2
Mean weight	103.5	78	25.5	33%	10.2	7.7

Sample B: 100% dosage; collected October 1st, 2013

	Weight - 10m ² of TerraBella® treated (Kg)	Weight - 10m ² of the Control (Kg)	Difference (Kg)	Difference (%)	Projected weight - 1,000m ² TerraBella® treated (tons)	Projected weight - 1,000m ² Control (tons)
bed 3	86	81			8.5	8.0
bed 4	79	54			7.8	5.3
bed 5	95	80			9.4	7.9
Mean weight	87	72	15	21%	8.6	7.1

Sample C: 50% dosage; collected October 1st, 2013

	Weight - 10m ² of TerraBella® treated (Kg)	Weight - 10m ² of the Control (Kg)	Difference (Kg)	Difference (%)	Projected weight - 1,000m ² TerraBella® treated (tons)	Projected weight - 1,000m ² Control (tons)
bed 6	38.5	38	0,5	1.32%	3.8	3.8

Sample D: 200% dosage; collected October 1st, 2013

	Weight - 10m ² of TerraBella® treated (Kg)	Weight - 10m ² of the Control (Kg)	Difference (Kg)	Difference (%)	Projected weight - 1,000m ² TerraBella® treated (tons)	Projected weight - 1,000m ² Control (tons)
bed 7	59	58		2%	5.8	5.7
bed 8	63.5	45		41%	6.3	4.5
bed 9	88.5	66		34%	8.8	6.5
bed 10	66	59		12%	6.5	5.8
Mean weight	69	57	12.25	21%	6.9	5.6



Mature Sweet Potato field showing already profuse flowering

Conclusion

- A simple comparison of the (100% dosage) yields of the **TerraBella**[®] treated beds with the control shows a significant increase (vs. control) of 33% at the earlier harvest and 21% at the typical harvest date.
 - Studies by the Food and Agriculture Organization of the United Nations (FAOSTAT) show that Israel has the highest sweet potato yield in the world, at 320,000 hectograms per hectare. (Source: <http://www.factfish.com/statistic-country/israel/sweet%20potatoes,%20yield>) *In a country where farmers already get the most from the soil, **TerraBella**[®] pushes the yield up further.*
 - When only 50% of the recommended dosage is used, the yield is comparable to the control. Using more than recommended shows no additional benefit: when 200% was used, the yield increase vs. control is comparable to using 100
 - We can interpret this finding as follows: the recommended dosage of **TerraBella**[®], will create the favorable, optimal microbiological environment that will allow the plants to express all of its genetic and biological potential. Once that “optimal” level of inoculation is achieved, the generated “microbiological community” will remain stable for the time of the crop growth.
- The **return on investment** for the farmer is central to the decision to use **TerraBella**[®]. For this harvest, considering the cost of the **TerraBella**[®] and revenue per unit, the **21% yield increase** generated an **ROI of 1,306%**.



TerraBella® has shown that it generates a high ROI, while contributing to a more biologically balanced soil, with correct root development and better absorption of nutrients from the soil. *Even in a situation like this, where the starting point (control environment) is highly productive land, TerraBella® further increased the yield.*

For more information about TerraBella® or this case study, please call Aquabella Organic Solutions at 1-707-829-3347 or email info@aquabellaorganics.com.