



This report covers the harvest period September 2022 to September 2023 at the El Rayo Farm in Guanajuato, Mexico. The farm is one of 13 operated by Agropecuria El Sagrado, a successful grower for Taylor Farms of Mexico.



A Rainmaker MK3 was installed in July of 2022, to treat the highly mineralized well water, and to improve soil growing conditions with a goal of increasing crop yields. Six crops were grown on 43 hectares (104 acres) consisting of multiple individual adjacent plots. They were:



Romaine lettuce
Cauliflower
Broccoli
Corn
Spinach
Green beans



### **CONTROL**

The control used was an adjacent farm, also operated by El Sagrado. This farm was irrigated from a different well, and did not have a Rainmaker. Initial soil conditions, ongoing weather conditions and added fertilizers, etc., were all identical.

## **TEST PERIOD**

The test was run over a one-year period from August 2022 to August 2023, with an initial harvest in October 2022, and a final harvest in August 31st, 2023.

Because of the intricacy of the cultivation of different crops on El Rayo and the adjacent control farm, the methodology selected by the project manager, Dr. Roberto Maurer was as follows:



Dr. Roberto Maurer, Tony Humble Rancho El Rayo, Guanajuato, March 15th, 2023

#### **METHODOLOGY:**

- 1. Select the best yielding plot from each of the six crops, from both El Rayo and the control farm.
- 2. Calculate the yield per hectare of both treated and untreated for each of the six crops.
- 3. Calculate the difference in yield per hectare for each crop (e.g., 25% for Romaine in the chart below.)
- 4. Multiply this difference by the price paid by the customer to calculate the incremental revenue generated per hectare for each crop (e.g. \$1,820 for Romaine, below)
- 5. Finally, multiply this differential by the hectares used at El Rayo for each crop, to come up with the incremental revenue attributable each crop across the whole farm (e.g., \$31,454 for Romaine, below).
- 6. The results table was as follows:



# **EL RAYO**

YEAR	CROP	AREA	DISTRIBUTION %	CONTROL	\$/HA	NET REVENUE INCREASE EL RAYO
2023	ROMAINE	17.28	17.05%	25%	\$1,820.28	\$31,454.44
2023	CAULIFLOWER	10.65	10.51%	19%	\$2,419.92	\$25,772.15
2023	BROCCOLI	18.33	18.08%	12%	\$831.16	\$15,235.16
2023	CORN (HAIL DAMAGE)	20.7	20.42%	0%	\$0.00	\$0.00
2022	SPINACH	21	20.72%	60%	\$4,099.14	\$86,081.94
2022	GREEN BEANS	<u>13.4</u>	<u>13.22%</u>	45%	\$3,872.61	\$51,892.97
		<u>101.36</u>	<u>100.00%</u>			\$210,436.66
TOTAL HA CULTIVATED 22/23 43 FARM CROP TURNOVER RATE 2.36					ANNUAL ROI	526.09%

### **KEY ANALYTICS:**

- 1. <u>Crop Turnover:</u> The farmer has a strong reputation in the area, and was able to turn over the 43 hectares 2.36 (2-1/3) times in one 12-month period. This equates to more than 2 growing seasons in Canada. These extraordinary results are potentially achievable by any farmer in Mexico using similarly robust cultivation methods, in conjunction with Rainmaker technology.
- 2. Specific Crop Profitability. The three most profitable crops in terms of incremental revenue per hectare were (i) spinach (\$4,099), (ii) green beans (\$3,872) and (iii) cauliflower (\$2,419), indicating a potential future focus on these three crops for use of the available acreage (for any farm). Romaine was a close 4th at \$1,828 per hectare higher than the control, and could have been much higher had more land been dedicated to the top 2 green beans and spinach subject of course to the seasonality of these crops.
- 3. Zero Results for Corn/ High Average Return per Crop: These results also accounted for a zero incremental return on corn, which suffered significant hail damage during the growing season. This demonstrates the Rainmaker's potential for overcoming the impact of serious weather events by generating outstanding results from the other crops. In this case, 20.7 hectares (20% of all area cultivated during the year) was seriously reduced in revenue on all adjacent farms, but the overall effect was an average incremental benefit of \$2,174 per hectare for all six crops, including corn.



### OTHER KEY FACTORS.

- 1. Soil Scout: We installed a set of three Soil Scout moisture sensors to track moisture levels across the farm, and provide 12 months of data for building a smartphone app to enable the farmer to execute irrigation start time and duration with precision. This was very successful, helping to optimize El Rayo's irrigation schedule, pointing to strong potential for the use of Soil Scout in conjunction with the Rainmaker globally.
- 2. <u>Farmer/ Processor Motivation</u>: The Mexican Market is extremely competitive, where poor results often mean instant bankruptcy. The Rainmaker is positioned to make the key difference between a <u>loss</u>, using current methods, and a <u>profit</u> using Rainmaker in combination with Soil Scout/ Irrigation management. Seeing the verifiable results in El Rayo will undoubtedly motivate both individual farmers, and processors who rely on a consistent supply of high-quality produce, to test out try the Rainmaker. There are at least 30 major producers, who between them could easily order 50-60 units for testing, to be followed by much larger orders once the testing has been completed and results verified.

**Dr. Roberto Maurer** 

Chief Agronomist, EcoCultivos Mexico.

**Tony Humble** 

CEO Soilcare.

November 20th, 2023.