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GFE Global Squash Report Costa Rica - October 15, 2014

GFE Biofuels a subsidiary of Green Farms Energy Inc. a California Corporation. For the past Five years GFE Biofuels has been developing a commercial agricultural program focusing on two varieties of squash, the two varieties are Butternut Squash (Winter Squash), and Jamaican squash (Large Pumpkin like Squash). The Butternut Squash was our primary core Business. GFE uses a rotational system allowing for a much smaller footprint to complete our yearly planting program objectives. We clear and prepare four hundred rows at the start of the planting season; setting rows, installing plastic and drip line irrigation. The rotations consist of sections of twenty (20) rows. A new rotation is planted every fifteen (15) days. GFE works through each rotational section until it has planted all four hundred rows. Once the first section has been harvested, GFE plants the second rotation within the same section of rows. During an average year, GFE will achieve four (4) complete rotations of the entire 400 rows.

From the start of the program we gained a tremendous amount of knowledge through trials and tribulations while perfecting the farm infrastructure, irrigation systems, growing techniques, fertilizing programs, and soil treatments. Over the course of the first and second year we began to start concentrating on our soils. We started applying a product called MicroSoil®, Trace minerals, and Non-leachable Nitrogen. Within six (6) to nine (9) months we started seeing an increase in production, and a slight drop in Fertilizer and Pesticides costs. We continued to apply these soil-enriching products on a three-month application cycle for the next two (2) years. We observed continuous improvements in fruit production, fruit quality, fruit uniformity, and overall cost reductions in Fertilizer and Pesticides.

GFE's results over the three (3) year period were simply amazing. The MicroSoil® applications over this three-year period provided optimal growing conditions for our squash crops. The plant growth improved and the crop cycle was reduced from 110 days to 75 days. We experienced significant reductions in costs, primarily in Fertilizer and Pesticide use. In addition, the yield production improved by more than 370%.

Note: The quality of the fruit was exceptional; Brick count was at consistent premium levels along Nutrient count, and fruit uniformity.



Note: The plant: we witnessed several benefits while using MicroSoil®. The root structure improved, the vine thickness increased by 125%, and the capacity of the plant to handle larger quantity of fruit increased. (Before this program we yielded 5 to 7 exportable fruit per plant, in the third season using this program we yielded 18 to 22 exportable fruit per plant)

GFE – MicroSoil® Farming Program

The following will explain the step by step process we followed to achieve the results described in this report.

Step 1 – Create or have a surveyor provide you or your organization a grid map of the selected planting area

Step 2 - Review the grid map and select all areas of the map that show differences in the soils. Set marks on these areas so that you make sure to collect samples in each of these areas.

Step 3 - Download the instructions and permits provided to you by Biomasters INC.

Note: The download provides the permits, and the complete instruction on how to collect, bag, and send to the Laboratory in Memphis TN. The results will be forward to Corporate Headquarters located in Las Vegas NV. Once they have received the results they will turn around a program for you in a matter of days.

Step 4 – Once you have received the program for each of the select grid marks, you need to make sure you have the following materials on hand.

4a – MicroSoil® – 1 liter per 200 liters of Water

4b – Carbon Source – (we used Molasses, which was inexpensive)

4c – Nitrogen – The mix will depend of the program

4d – Trace Nutrients

Note: Depending on your planting cycle, it is best for each application of this program before each planting cycle, spray and disc into soils. Just that simple!

GFE program consisted of the following

MicroSoil® – 1 liter per ha.

Carbon - Molasses 5 gallons per 200 liters of water

Nitrogen – 40 kg per 200 liters

Trace Nutrients - 12 Oz. Per 200 liters

Note: GFE pre-mixed the batches and let them set in a warm place, but NOT in direct sun light for three days, so to increase the Bacteria and enzymes counts. The counts implode and multiple every 20 minutes in the right environment. (No direct sun light)

GFE application cycles where applied every three months for twenty four months.

Note: Noticeable difference where shown by the end of the third application.

Note: results and timeframe will depend upon the level of deration of the soil for which MicroSoil® is being applied. This is where the soil testing provides MicroSoil® Engineers a starting point to build the correct protocol. If the applications are carried out according to the program, MicroSoil® will correct the soil conditions in less than two years. Remember, the soil will be constantly improving from the first application through the two-year target



Photos of the application

GFE Program – We perform the applications four times per annual basis, or before each planting rotations. The mixture is twenty kilograms Nitrogen, five gallons Molasses, and one liter of MicroSoil® per two hundred liters of Water



Photo of Disking the MicroSoil® into the soil:

GFE-Land-Prep program

Once we have applied the soil-building product MicroSoil® to the next rotation, we run a disc-tool over the area with two deep passes. This process moves the MicroSoil® deep into the soil allowing it to start working at a much faster rate. Once the MicroSoil® builds up a solid bacteria and enzyme count it will start breaking down the organic material into a nutrient source for the new seedlings going in.

Note: Organic Matter needs to be at least 20 Kg. per hectare. GFE maintains the Organic Matter at 40Kg. per hectare; we use a blend of Horse and Dairy Dung – mix ratio 60% Cow Dung to 40% Horse manure. With the combination of the manure and carbon source in the MicroSoil® mixture this provides the bacteria and enzymes an energy/food source allowing the product to work at an optimum level. GFE has seen firsthand just how powerful this product can be if used correctly.



Note: The manure mix is applied one time per annual cycle

Photo of prepared rows:

The next step in this process is setting the row for proper spacing. We set the line and form the row spacing so we can sift the soil and break it down into very fine particles, preparing it for the next step, which is running drip lines and setting the plastic growing medium. The plastic prevents weed growth and eliminates a majority of the normal cost for weed abatement. You will also see a saving on pesticides and fertilizers



Photo of Installed plastic:

The next step is to install the plastic growing medium and set the holes for planting. We use 35cm spacing between plants, row spacing; 3 meter spacing from the row center to center. The rows in this picture are 220 meters long. This spacing will give us 628 plants per row, with a total plant count 1508.



Photo of Germinated Squash Plants:

The plants are starting to germinate and break through the surface; we have increased our germinating percentage using the MicroSoil® product by 4% over past two years. We are seeing mortality rate of less than 1.5%, giving us an average germination rate of 98.5%. Germination time has been reduced from 10 days to between 5 and 7 days, with the majority of plants germinating in less than five days. The plants are on average far healthier and stronger from start in this new program. Plant development is faster and larger in a shorter amount of time.



Photo of Squash Plants 21 Days old:

This photo illustrates my point on the growth rate and size and developmental aspect of this new program. We have been studying and developing this program for more than **seven years, documenting all the processes and steps to build upon what we have learned and to continuously improve our processes and increase our yields each rotation. We hit a wall when we got to point where the plant of a normal size could only support so much fruit with current nutrient uptake system that we were forced to live with. So we started looking for a product or process to improve our soils to increase our uptake systems. We started researching better ways to improve and rebuild the soils throughout the farm. During this research I came across MircoSoil. I studied it thoroughly before making this move. The move was the right one; today our soils are performing excellent; the proof is in the plants.**

- * Plants size: vine growth large, leaf size larger in diameter * Vine sizes averages are 3/4 to 1 inch in diameter, Before 1/2 or less**
- * Root structure: Volume of roots and Size increase significantly * Feeder Roots: increase significantly**
- * Fruit per plant: Increase to 14 to 22 fruit per plant**



Photo of Squash plant at 45 days: You can see weed growth is at minimum, plant growth is strong



Photo of Squash plants 70 days:

Note: The plants are seventy days old and about five to seven days from harvest, Notice the rich color of the plants, and almost no weed growth. We have been able to reduce the growing time by more than thirty-five days. This is a huge success for us, being that now we can get another complete rotation in the same annual growing cycle. This has increased our bottom line profits for the year.



Photo of Harvesting –production of a single plant

This photo is the fruit production from one plant. This is where we have seen exceptional results from working and improving our soils. The production across the board has improved to a point where we grow a smaller footprint to maintain our current contracts for exportation. The ability to use a smaller planting area has translated into significantly lower costs and provided an increase in production. The results have been an increased number of first quality fruit, lower percentage of second and third grade product. The uniformity of the fruit is outstanding and the product is a much higher quality. The presentation is outstanding and the nutrient value has increased by more than 30%. With all the improvements to the production and cost reductions, MicroSoil® has improved our program across the board.



Photo of Harvested Squash after processing completed:

Note: Notice the uniformity of this Squash, no blemishes, Brick Counts Elevated by 30 %. The complete production numbers will be provided in a spreadsheet followed in this report.

Method Before MicroSoil®

| Activity | Code | Unit | Unit/Ha | Cost/Unit | Cost/Ha |
|---------------------------------------|------|------|---------|-----------|--------------------------|
| Nutrition | | | | | |
| Amonium Nitrate | Fert | Kg | 120 | \$0.43 | \$51.60 |
| Potassium Nitrate | Fert | Kg | 60 | \$1.44 | \$86.40 |
| Calcium Nitrate | Fert | Kg | 60 | \$0.78 | \$46.80 |
| Magnesium Nitrate | Fert | L | 0.0 | \$3.50 | \$0.00 |
| Urea | Fert | Kg | 80 | \$0.75 | \$60.00 |
| Monoamonic Phosphate | Fert | Kg | 250 | \$1.26 | \$315.00 |
| Boric Acid | Fert | Kg | 12 | \$1.04 | \$12.48 |
| Potassium Sulphate | Fert | Kg | 0 | \$0.96 | \$0.00 |
| Magnesium Sulphate | Fert | Kg | 150 | \$0.29 | \$43.50 |
| Zinc Sulphate | Fert | Kg | 10.0 | \$1.18 | \$11.80 |
| Manganesum Sulphate | Fert | Kg | 5.0 | \$1.75 | \$8.75 |
| Potassium Chloride | Fert | Kg | 210 | \$0.77 | \$161.70 |
| Foliar fertilizers | Fert | L | 2.0 | \$140.00 | \$280.00 |
| Carboxilic acids | Fert | L | 21.0 | \$4.69 | \$98.49 |
| Sodium molibdate | Fert | Kg | 0.1 | \$65.00 | \$6.50 |
| | | | | | |
| Nutrition Subtotal | | | | | <u>\$1,183.02</u> |
| | | | | | |
| Pesticides | | | | | |
| Trichoderma | Ins | kg | 12 | \$7.70 | \$92.40 |
| Bacteria + Ievadura | Ins | L | 25 | \$0.30 | \$7.50 |
| Bacillus Thuringensis (Costar) | Ins | kg | 3 | \$32.00 | \$96.00 |
| Bacillus Thuringensis (Dipel) | Ins | kg | 3 | \$18.50 | \$55.50 |
| Spinosad (Tracer) | Ins | L | 2 | \$425.00 | \$850.00 |
| Imidacloprid 70WG (Confidor) | Ins | Kg | 0.43 | \$242.00 | \$102.00 |
| Imidacloprid 20OD (Plural) | Ins | L | 0.8 | \$97.00 | \$77.60 |
| Tiametoxan 25 WG (Actara) | Ins | kg | 0.5 | \$185.00 | \$92.50 |
| Deltametrina (Decis 2.5% EC) | Ins | L | 1.5 | \$45.00 | \$67.50 |
| Abamectina 18 EC (Abaco) | Ins | L | 0.3 | \$26.00 | \$7.80 |
| Mancozeb 43 SC (Biomancozeb) | Fung | L | 8 | \$6.50 | \$52.00 |
| Dimetomorf 69WP (Acrobat WP) | Fung | kg | 3 | \$23.00 | \$69.00 |
| Dimetomorf CT (Acrobat ct) | Fung | L | 1.45 | \$32.00 | \$46.40 |
| Azoxistrobin+Difenoconazole (amistar) | Fung | kg | 0.75 | \$165.00 | \$123.75 |
| Boscalid+Pyraclostrobin (Bellis) | Fung | kg | 0.7 | \$130.00 | \$91.00 |

| | | | | | |
|----------------------------|-------|----|-----|----------|--------------------------|
| Micobutanil 40WP (Rally) | Fung | kg | 0.8 | \$205.00 | \$164.00 |
| pH Boofer | Otros | kg | 4.5 | \$18.00 | \$81.00 |
| | | | | | |
| Subtotal Pesticides | | | | | <u>\$2,075.95</u> |

Method After MicroSoil®

| Activity | Code | Unit | Unit/Ha | Cost/Unit | Cost/Ha |
|--------------------------------|------|------|---------|-----------|--------------------------|
| Nutrition | | | | | |
| Amonium Nitrate | Fert | Kg | 0 | \$0.43 | \$0.00 |
| Potassium Nitrate | Fert | Kg | 168 | \$1.44 | \$241.92 |
| Calcium Nitrate | Fert | Kg | 168 | \$0.78 | \$131.04 |
| Magnesium Nitrate | Fert | L | 0.0 | \$3.50 | \$0.00 |
| Urea | Fert | Kg | 20 | \$0.75 | \$15.00 |
| Monoamonic Phosphate | Fert | Kg | 0 | \$1.26 | \$0.00 |
| Boric Acid | Fert | Kg | 2.4 | \$1.04 | \$2.50 |
| Potassium Sulphate | Fert | Kg | 0 | \$0.96 | \$0.00 |
| Magnesium Sulphate | Fert | Kg | 0 | \$0.29 | \$0.00 |
| Zinc Sulphate | Fert | Kg | 12.0 | \$1.18 | \$14.16 |
| Manganesum Sulphate | Fert | Kg | 0.0 | \$1.75 | \$0.00 |
| Potassium Chloride | Fert | Kg | 0 | \$0.77 | \$0.00 |
| Foliar fertilizers | Fert | L | 0.0 | \$140.00 | \$0.00 |
| Carboxilic acids | Fert | L | 0.0 | \$4.69 | \$0.00 |
| Sodium molibdate | Fert | Kg | 0 | \$65.00 | \$0.00 |
| MAP 12-61-0 | Fert | Kg | 168 | \$1.74 | \$292.32 |
| Magnesium | Fert | Kg | 1.8 | \$10.00 | \$18.00 |
| Manganesum | Fert | Kg | 2.4 | \$10.00 | \$24.00 |
| Growmore 20-20-20 | Fert | Kg | 3.36 | \$10.00 | \$33.60 |
| Liquid Potasium (24%) | Fert | cc | 3360 | \$0.06 | \$201.60 |
| Liquid Calcium | Fert | cc | 3360 | \$0.01 | \$20.16 |
| Liquid Boro | Fert | cc | 3360 | \$0.01 | \$23.52 |
| Micro Soil | Fert | L | 1 | \$46.00 | \$46.00 |
| Molasses | Fert | L | 18.7 | \$0.40 | \$7.48 |
| | | | | | |
| Nutrition Subtotal | | | | | <u>\$1,071.30</u> |
| Pesticides | | | | | |
| Trichoderma | Ins | kg | 0 | \$7.70 | \$0.00 |
| Bacteria + levadura | Ins | L | 0 | \$0.30 | \$0.00 |
| Bacillus Thuringensis (Costar) | Ins | kg | 0 | \$32.00 | \$0.00 |
| Bacillus Thuringensis (Dipel) | Ins | kg | 0.72 | \$18.50 | \$13.32 |
| Spinosad (Tracer) | Ins | L | 0 | \$425.00 | \$0.00 |
| Imidacloprid 70WG (Confidor) | Ins | Kg | 0.144 | \$242.00 | \$34.85 |
| Imidacloprid 20OD (Plural) | Ins | L | 0 | \$97.00 | \$0.00 |

| | | | | | |
|---------------------------------------|-------|----|-------|----------|-----------------|
| Tiametoxan 25 WG (Actara) | Ins | kg | 0 | \$185.00 | \$0.00 |
| Deltametrina (Decis 2.5% EC) | Ins | L | 0 | \$45.00 | \$0.00 |
| Abamectina 18 EC (Abaco) | Ins | L | 0 | \$26.00 | \$0.00 |
| Mancozeb 43 SC (Biomancozeb) | Fung | L | 0 | \$6.50 | \$0.00 |
| Dimetomorf 69WP (Acrobat WP) | Fung | kg | 0 | \$23.00 | \$0.00 |
| Dimetomorf CT (Acrobat ct) | Fung | L | 0 | \$32.00 | \$0.00 |
| Azoxistrobin+Difenoconazole (amistar) | Fung | kg | 0 | \$165.00 | \$0.00 |
| Boscalid+Pyraclostrobin (Bellis) | Fung | kg | 0 | \$130.00 | \$0.00 |
| Micobutanil 40WP (Rally) | Fung | kg | 0 | \$205.00 | \$0.00 |
| pH Boofer | Otros | kg | 0 | \$18.00 | \$0.00 |
| Muralla 6.0 19 OD (White Fly) | Ins | cc | 432 | \$0.04 | \$17.28 |
| Proclaim (Worms) | Ins | Kg | 0.288 | \$250.00 | \$72.00 |
| Loresban 48 ED (Worms) | Ins | cc | 288 | \$0.02 | \$4.32 |
| Locnote | Ins | Kg | 1.73 | \$54.00 | \$93.42 |
| Orizal | Ins | cc | 288 | \$0.01 | \$2.88 |
| Gengeo | Virus | cc | 720 | \$0.03 | \$21.60 |
| Carbendazina Biocarben 50 SC | Fung | cc | 19680 | \$0.01 | \$118.08 |
| Fusilade | Herb | cc | 1968 | \$0.03 | \$59.04 |
| | | | | | |
| Subtotal Pesticides | | | | | \$436.79 |

| Summary of Cost Savings | | | |
|--------------------------------|--------------------------|-------------------------|-------------------|
| Per Hectare | | | |
| | Before MicroSoil® | After MicroSoil® | Savings |
| Nutrition | \$1,183.02 | \$1,071.30 | \$111.72 |
| Pesticides | \$2,075.95 | \$436.79 | \$1,639.16 |
| Totals | \$3,258.97 | \$1,508.09 | \$1,750.88 |

Production Before MicroSoil®

| | | | | |
|-------------------------------------|--|--|---|--------------------|
| Harvest average (Kilos per Ha) | | | | 21500 |
| | | | | |
| PRODUCTION ANALYSIS | | | - | |
| Production (Kilo/Ha) FIRSTS | | | | 21500 |
| Sale price (\$ per Kilo) | | | | \$ 0.60 |
| Sales (\$) | | | | \$11,825.00 |
| | | | | |
| Production (Kilo/Ha) SECONDS | | | | 6000 |
| Sale price (\$ per Kilo) | | | | \$0.30 |
| Sales (\$) | | | | \$1,800.00 |
| | | | | |
| Total Sales | | | | \$13,625.00 |
| | | | | |
| Production cost (\$) | | | | \$5,404.53 |
| Unit cost (\$/Kilo) | | | | \$0.20 |
| Net profit (\$) | | | | \$8,220.48 |
| | | | | |
| | | | | |

Production After MicroSoil® Program Second Year

| | | | | |
|--------------------------------|--|--|---|--------------|
| Harvest average (Kilos per Ha) | | | | 67200 |
| | | | | |
| PRODUCTION ANALYSIS | | | - | |

| | | | | | |
|-------------------------------------|--|--|--|--|--------------------|
| Production (Kilo/Ha) FIRSTS | | | | | 55000 |
| Sale price (\$ per Kilo) | | | | | \$0.60 |
| Sales (\$) | | | | | \$33,000.00 |
| | | | | | |
| Production (Kilo/Ha) SECONDS | | | | | 12200 |
| Sale price (\$ per Kilo) | | | | | \$0.45 |
| Sales (\$) | | | | | \$5,490.00 |
| | | | | | |
| Total Sales | | | | | \$38,490.00 |
| | | | | | |
| Production cost (\$) | | | | | \$9,350.00 |
| Unit cost (\$/Kilo) | | | | | \$0.13 |
| Net profit (\$) | | | | | \$29,140.00 |

| Summary of Production | | | |
|------------------------------|--------------------------|-------------------------|-----------------|
| Per Hectare | | | |
| | Before MicroSoil® | After MicroSoil® | Increase |
| Harvest (Kilos) | 21,500 | 67,200 | 45,700 |
| Net Profit (\$) | \$8,220.48 | \$29,140.00 | \$20,919.52 |