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Hawaii Export Foliage Inc. /
High Technology Development Corporation

Foliage Production

Mechanized "Stock Plant Production" for Dracaenas

April 2004

Executive Summary

- *Client: Hawaii Export Foliage Inc. Hilo, HI*
- *Principal Agency: High Technology Development Corporation, Innovative Solutions Program , Honolulu, HI*
- *Contractor /Consultant: Dan Kuhn, Hawaii, New Zealand*
- *Letter of Agreement: L – 04-227*

Scope of Services:

a. Develop a mechanized plan for most maintenance tasks. Eliminate hand labor to the extent possible.
b. Develop a precise field layout for a new 45-acre parcel, incorporating unitized field sizing (units of 1 or 2 acres) for easier maintenance tasks and record keeping.
c. Develop a field preparation plan that allows for ATV access (level land, remove rocks, etc.).
d. Supervise preparation of initial 3 to 5 acres.
e. Develop weed control and fertility programs, including record keeping systems. Fertility program to include schedules for tissue and soil analysis, pre-plant and maintenance fertilizer (granular and foliar); investigate composting and bio approach.
f. Select, adapt, engineer, calibrate and test ATV spray systems. Train operators and see equipment in operation; make adjustments.
g. Conduct a financial analysis of existing field stock operation.** Develop record keeping systems that will track field productivity and actual costs.

** to include field preparation costs, labor, equipment, fertilizers, herbicides, repair and maintenance, fuel, as well as project yields from new system. Calculate the projected cost per foot of cane.

Project Objectives

- Optimize cane production via a mechanical approach.
- Lower the cost of production to $0.45 per foot or less.
- Increase the quantity of cane produced per acre.
- Develop methodology and systems to mechanize production.
- Supervise and implement systems on an initial 10acre parcel.

Summary Observations and Recommendations

1. Finished Dracaena Plants at Hawaii Foliage Export (HFE) are of superb quality. Uniformity, head size and root formation are of excellent quality.
2. Current stock fields are primarily maintained by hand and require considerable labor inputs. The Honomu "Stock Plant Site" alone requires 6 full time workers, translating into $120,000 in annual labor costs with low output.
3. Current field work is primarily manual weed control, with a backpack sprayer. Tractor spraying is used along the outside of the growing beds. Some beds are quite overgrown, requiring considerable manpower for restoration.
4. Hand or tractor spraying in uneven terrain is difficult. Controlling weeds in an overgrown environment results in overspray of the desirable plants. Some beds have empty spots or small plants that "lag behind." Inter-planting needs to be done early for uniform development.
5. The supposition is made that poor stock plant performance is due to "Round Up" overspray. Even small amounts of "Round Up" will accumulate and eventually "kill" the plant. (This speculation needs to be confirmed.)
6. Alternative weed control, from systemic to contact herbicide and eventually to limited herbicide use, needs implementation.
7. The proposed system will mechanize field stock maintenance, through the use of "All Terrain Vehicles" (ATV). New field layout will increase production and reduce maintenance costs.
8. Lower chemical usage with "Low Volume Spray Heads" will save money and reduce negative impacts on the stock plants and environment. The inadvertent overspray that occurs with manual spraying will be reduced or eliminated.
10. Cane production costs should be $ 0.45 per foot or less. Production of "Character Cane" at the end of the growing cycle (7+ years) would add extra revenue.

Conclusion and Next Steps

Conclusion

It is exciting to realize that it is possible to make money on cane production, or reduce cost substantially. The conclusions are not “ironclad” and need to be confirmed. The assumptions might change.

It is fair to say that the assumptions used are based on reality and have a good chance to actually come true. There is enough leeway in the numbers to still look good even at double the proposed costs.

The actual field preparation trial helped greatly to arrive at realistic numbers and it confirmed the possibility of using equipment and reduce herbicide use. The initial growth in this trial area is very encouraging.

There is still more work needed to implement a complete system and development time is required to fine tune the system.

It would be wonderful if HEF would not only produce outstanding finished plants, but also be a leader in the growing of cane.

Next Steps

1. Select and lease new Stock Growing area
2. Adapt field layout to the actual location
3. Select required equipment and make adaptations
4. Implement field preparation and planting
5. Select and seed ground cover
6. Design “Chart of Accounts” and implement Cost Centers
7. Build up ground to optimum fertility levels
8. Happy “stock plant” growing!