

Plant Materials Fact Sheet



Enterprise Budget for Citrus Maidenlane Germplasm Production

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An economic enterprise budget (see following spreadsheet pages) is an estimate or projection of costs and returns for a specific undertaking. The base unit for enterprise budgets, including this one for Citrus Maidenlane, is based on one acre, which lends itself to an equitable comparison to other economic enterprise budgets. The base unit may be adjusted by the landowner to reflect the actual production plot size as is the case with other traditional commodity crop budgets. The landowner may also populate the "Your Cost" column to estimate his/her own estimate of costs. This is an economic enterprise budget in that it includes variable and fixed costs as well as opportunity costs. An opportunity cost is an estimation of the revenue received, based on the given resources, if invested in another alternative.

Establishment Budget

Establishment Budget consists of variable costs that are solely related to the establishment of the rhizomial material.

Variable Costs

Variable costs may be called operating or direct costs, emphasizing that they arise from the actual operation of the enterprise

Planting Material

Costs were based on the scenario that the landowner would come to the Brooksville Plant Material Center (PNC) and transfer material to truck. Typically, commercial seed is used as the cost for the actual planting material, but for native plant production the costs from the harvest site were used to establish the cost of rhizomes themselves. This cost may also be used for an estimate of conducting a wild harvest to obtain vegetative material.

Rhizome material harvested at the Plant Material Center (PMC) included the use of a tractor, sprig digger and labor. Labor includes assisting with tractor and implement attachment and ensuring

material is loaded on wagon correctly during harvesting.

1 equipment operator and 1 laborer = 2 laborers x 4 hours = 8 hours estimated for 25 bushel harvest

(PMC Biological Science Technician estimate of labor for 25 bushel harvest. @ \$20.00 per hour for GS 8, Step 8)

Machinery

- Truck used to load and haul material from wagon to truck and transport to actual planting site.

University of Florida – Institute of Food and Agricultural Sciences (UF – IFAS) Equipment costs for self propelled equipment, 1.5 ton truck.

- Tractor and implements that were used for establishment included plow, disk and cultipacker. Disking was accomplished three times to ensure clean seedbed. Rhizomial material was placed on plots and then disked again for placement in the soil and then cultipacked. Refer to NRCS PMC "Planting and Production Recommended Guide for Citrus Germplasm Maidenlane" for establishment of production fields.

Fertilizer

Refer to NRCS PMC "Planting and Production Recommended Guide for Citrus Germplasm Maidenlane" for recommended fertilization rates.

Recommended fertilizer amounts were based on 500 lbs. per acre of 10-10-10 (500 lbs. x 10% of N, P, K = 50.00 lbs. per acre of N, P, K) of bulk fertilizer cost not bagged material cost.

Fertilizer costs were derived from UF-IFAS Crop Budgets, 2007, for Nitrogen, N; Phosphate, P₂O₅; and Potash K₂O.

Labor

Hired labor, or labor derived from family operators, will have the identical wage rate to estimate the cost of labor since the opportunity cost of using family labor would be hired labor. Labor needed to operate equipment is broken down as follows:

- 1 truck operator = 4 hours
- 1 tractor operator with plow, disk and cultipacker = 2.33 hours
- 1 laborer to assist with implement hookup = 1.00

Wage rates for Florida farm labor were taken from the National Agricultural Statistics Service (NASS), Farm Labor, August 2007. [\$9.50]

Interest on Cash Expenses

The interest on cash expenses is an estimated interest rate on the operating expenses. Even if capital is not borrowed, there is an opportunity cost for the farm operator's capital with the alternative being investing another enterprise. The 5% is rounded from the current 4.875% interest rate for federal projects.

Production Budget

Production budget is comprised of different costs from the establishment budget specifically for the harvesting and marketing of the vegetative material.

Planting Material

For the rhizomial material, once established there should be no need for future establishment efforts, however this is dependent on the depth of digging during harvest. If a majority of rhizomes are harvested, yields will be affected and thus the break-even price and the 'Your Cost' column may need to be adjusted for the cost of additional rhizomial material.

Fertilizer

Refer to NRCS PMC "Planting and Production Recommended Guide for Citrus Germplasm *Maidencane*" for recommended fertilization rates.

Recommended fertilizer amounts were based on 500 lbs. per acre of 10-10-10 (500 lbs. × 10% of N, P, K = 50.00 lbs. per acre of N, P, K) of bulk fertilizer cost not bagged material cost.

Fertilizer costs were derived from UF-IFAS Crop Budgets, 2007, for Nitrogen, N; Phosphate, P₂O₅; and Potash K₂O.

Machinery

- Tractor and other implements were used to preharvest to mow, raking and baling surface vegetative material as recommended preparatory to rhizome harvesting to be able to dig rhizomes.
- At harvest, a digger/inverter was used to collect the rhizomial material from underground.
- Truck is utilized to transport vegetative material after harvest from the production field to a processing barn so rhizomial material can be weighed and bagged for transport. (1 truck operator = 2.00 hour)

Processing

Labor is utilized to transport vegetative material after harvest from the production field to a processing barn so rhizomial material can be weighed, bagged and shipped for transport. (1 laborer = 2.00 hour)

Irrigation System, Sprinkler

Total estimated average cost of a solid set sprinkler irrigation system is estimated at \$2,500 per acre. An amortization rate based on the current 4.875% interest rate for federal projects, 30 year lifespan, and 2% factor for operation and maintenance of the irrigation system was used to calculate an average annual cost. The solid set sprinkler irrigation system cost includes the cost of all materials, equipment use and labor required to install manifold, main lines, sub-main lines, laterals, risers and sprinklers.

Land Use

Land use is used as an estimate of rental rate for that particular land type, even if the land is owned. This serves as an opportunity cost, since the alternative is to rent it to another farm operator.

The University of Florida – Institute of Food and Agricultural Sciences (UF-IFAS) 2006 Florida Land Value Survey for cash rent of non-irrigated cropland was used for Land Charge or Land Use estimates. Cash rent for irrigated cropland was not available.

Interest on Cash Expenses

The interest on cash expenses is an estimated interest rate on the operating expenses. Even if capital is not borrowed, there is an opportunity cost for the farm operator's capital with the alternative being investing another enterprise. The 5% is rounded from the current 4.875% interest rate for federal projects. Land use charge is not calculated in the total interest on cash expenses.

Fixed Costs

Fixed costs may be called ownership or indirect costs. The term ownership costs refer to the fixed costs arising from owning machinery, buildings or land. They result from owning the asset and would exist even if they were not used and remained idle.

Machinery

Interest, Insurance, Housing - Interest on machinery is amortized over its useful life is estimated regardless if any money was borrowed to purchase the machinery. Insurance costs for machinery are based on a percentage of the purchase price. If insurance were not included, then a substitute for the risk of replacing equipment should be estimated. Housing costs include shelter and tools for machinery used for the enterprise.

Depreciation, Taxes - Depreciation is an estimation of mechanical age of the machinery and is calculated as an average annual depreciation and then converted to a per acre cost. Farm machinery is subject to tangible personal property taxes in the state and thereby is included in the enterprise budget. It is a percentage of 1.5% of the machinery depreciation on a per acre cost.

Overhead

Overhead expenses are typically miscellaneous expenses that cannot be directly tied to one particular enterprise, but are an integral part of the operation such as farm shop expenses, advertising and farm liability insurance. Overhead is calculated as a percentage of variable costs.

Management

Management costs involve supervisory and administrative costs that are inherent to management. Management costs may be considered as a rate of expected return, or profit, to management, but should be recognized as a cost within the budget, since the actual level of return is dependent on market price. Management costs are calculated as a percentage of variable costs.

Break Even Analysis

A break even analysis is calculated as a break even price or break even yield and provides an estimate of economic profit or return. Because of market demand is difficult to estimate, a break even yield based on PMC estimates were used to establish a break-even price. Of course, the break-even price, or market price, is an estimate which may differ based on individual operators variable and fixed costs. Essentially, a break even price is the market price needed to cover estimated costs based on an anticipated level of production, or yield. The ranges of yields listed are based on potential estimates given from the PMC, Brooksville, FL.

Citrus Maidencane

Panicum hemitomon

Based on NRCS Plant Materials Center "Planting and Production Guide for Citrus Germplasm Maidencane"

| VARIABLE COSTS | | | | | |
|---|---------|----------|-----------|------------|-----------|
| ITEM | UNIT | QUANTITY | UNIT COST | TOTAL COST | YOUR COST |
| HARVEST | | | | | |
| Machinery | | | | | |
| Digger/Inverter | Hr. | 4.00 | \$20.42 | \$81.68 | |
| Labor | | | | | |
| | Hr. | 8.00 | \$20.00 | \$160.00 | |
| ESTABLISHMENT | | | | | |
| Machinery | | | | | |
| Truck | Hr. | 4.00 | \$4.29 | \$17.16 | |
| Tractor and Implements | Acre | 1.00 | \$66.56 | \$66.56 | |
| Fertilizer | | | | | |
| Nitrogen - N | Lb. | 50.00 | \$0.40 | \$20.00 | |
| Phosphate - P ₂ O ₅ | Lb. | 50.00 | \$0.33 | \$16.50 | |
| Potash - K ₂ O | Lb. | 50.00 | \$0.23 | \$11.50 | |
| Labor | | | | | |
| | Hr. | 6.33 | \$9.50 | \$60.12 | |
| Interest on Cash Expenses | | | | | |
| | Dollars | | 6.00% | \$26.01 | |
| Total Establishment Costs | | Acre | 1.00 | | \$459.53 |
| PRODUCTION | | | | | |
| Fertilizer | | | | | |
| Nitrogen - N | Lb. | 50.00 | \$0.40 | \$20.00 | |
| Phosphate - P ₂ O ₅ | Lb. | 50.00 | \$0.33 | \$16.50 | |
| Potash - K ₂ O | Lb. | 50.00 | \$0.23 | \$11.50 | |

| | | | | | |
|---------------------------------------|---------|-------|------------|----------|--|
| Machinery | | | | | |
| Preharvest – Tractor and Implements | Acre | 1.00 | \$56.28 | \$56.28 | |
| Harvest – Digger/Inverter | Acre | 1.00 | \$20.42 | \$20.42 | |
| Truck | Hr. | 2.00 | \$4.29 | \$8.58 | |
| Labor | Hr. | 6.05 | \$9.50 | \$57.47 | |
| Processing | Hr. | 2.00 | \$9.50 | \$19.00 | |
| Irrigation System, Sprinkler | Dollars | | \$2,500.00 | \$231.62 | |
| Land Use | Acre | 1.00 | \$50.00 | \$50.00 | |
| Interest on Cash Expenses | Dollars | | 6.00% | \$26.48 | |
| Annualized Establishment Costs | Years | 30.00 | \$459.53 | \$33.38 | |
| TOTAL VARIABLE COSTS | Acre | 1.00 | | \$551.23 | |

| FIXED COSTS | | | | | |
|------------------------------|---------|----------|---------|----------|-----------|
| ITEM | UNIT | QUANTITY | PRICE | COST | YOUR COST |
| Machinery | | | | | |
| Interest, Insurance, Housing | Acre | 1.00 | \$80.41 | \$80.41 | |
| Depreciation, Taxes | Acre | 1.00 | \$10.92 | \$11.08 | |
| Overhead | Dollars | | 5.00% | \$27.56 | |
| Management | Dollars | | 10.00% | \$55.12 | |
| TOTAL FIXED COSTS | | | | \$174.18 | |
| TOTAL COSTS | Acre | 1.00 | | \$725.41 | |

BREAK EVEN ANALYSIS

| ITEM | UNIT | QUANTITY | TOTAL COST | BREAK EVEN PRICE | YOUR COST |
|----------|------|----------|------------|------------------|-----------|
| Rhizomes | Bu. | 60.00 | \$725.41 | \$12.09 | |
| | Bu. | 70.00 | \$725.41 | \$10.36 | |
| | Bu. | 80.00 | \$725.41 | \$9.07 | |
| | Bu. | 90.00 | \$725.41 | \$8.06 | |
| | Bu. | 100.00 | \$725.41 | \$7.25 | |
| | Bu. | 110.00 | \$725.41 | \$6.59 | |