

INVESTMENT IN THE BEEKEEPING SUB-SECTOR



*Prepared by:
The Apiculture Unit
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Status of the Beekeeping Industry

The Beekeeping Industry in Jamaica is the fastest growing of the subsectors in agriculture at this time. Within the last four years (2005-2009) the Industry has had:

- a. >100% increase in beehive population
- b. 60% increase in beekeepers
- c. 71% increase in apiaries

As the demand for products of the beehive increase (resulting from improved awareness of the values of these products) more individuals recognise the need to satisfy this demand. The short term returns on investment is also another attractant to new investments. These returns are rivalled only by a very small number of the investment opportunities in the Agricultural Sector.

Beekeeping however has some distinct advantages such as:

- It does not require large acreages to establish an apiary
- It is not labour intensive
- Other activities can run concurrently with moderate operations
- Most activities in the apiary are timely
- The returns on investment can be significant (though heavily dependent on the level of management)
- Bees do not compete with man nor other animals for food
- That which is gathered and converted by the bees for the use of man could not otherwise be economically harnessed.

The cost to establish an apiary at the economic unit (50 hives) initially may be considered relatively high. This however is associated with the high cost of beekeeping equipment whether imported or locally produced.

Identification and Sourcing of Bee stock

Jamaica possesses a honeybee derived from three races of the *Aphis mellifera* spp. These races include the Italian honeybee (*Aphis mellifera lingustica*), Caucasian honeybee (*Aphis mellifera caucasica*) and the German black bees (*Aphis mellifera mellifera*). Physical features of these genetic lines are evident in any colony of honeybees in Jamaica. It is therefore difficult to find a colony which is pure, that is, of one specific race.

Sourcing Bees

In sourcing stock for the establishment of a new apiary, it is imperative that careful selection be undertaken in order to ensure genetic qualities of any particular line. Not all honeybees possess the same level of genetic characteristic and poor quality queens produce poor quality offsprings.

Very few beekeepers in Jamaica keep accurate record or any record whatsoever. Therefore, physical examination of the beehives must be done for selection. Inspection for pest status is another factor, as high infestation levels of varroa mites, small hive beetle or the wax moth may result in early loss of colonies. The American Foulbrood disease must be avoided at all cost as there is no cure or recommended treatment for this disease. Infected colonies therefore must be promptly destroyed.

Your Apiculture Extension Specialist operating from the Research and Development Division of the Ministry of Agriculture and Fisheries **must** be contacted for assistance when making a purchase of bees. (See listing on site)

Local Market

The sale of honey in Jamaica is traditionally measured by a 5-gallon pail, which currently fetches \$12,000 at the farmgate. The 750 ml bottle which is widely used (and must be discouraged) fetches upward of \$800 each at the retail price. Each gallon of honey contains 4.6 x 750 ml bottles.

Local demand is nowhere near saturation point and the demand for Jamaica's honey abroad is high. A facility established to purchase honey from farmers will soon begin to export large quantities of the product to North America and Europe. This facility, located at Linstead in St. Catherine is equipped with state of the art machinery for blending, filtering, settling, packaging and labelling. These equipment however will be relocated soon to a more appropriate building. It is envisioned that approximately 35% of current honey produced will be exported through the bottling plant. The plant provides a ready market for any quantity of honey. Other individuals and companies are also intending to get involved in the export of honey.

On the other hand, the local demand is being supplied by beekeepers directly in retail outlets such as supermarkets and health food stores while a large percentage is sold by higglers. Other suppliers purchase large quantities from the farmers, label retail containers and sell through various outlets. The hotels have not been strategically targeted.

Packaging

Diversifying quantities/amounts target end users at varying economic levels. This increases sale of the products and generates more returns on investments. The packaging and labelling must be attractive and in line with established standards. Creating and producing value-added products from the beehive have great potential as these are sought after for medicinal, cosmetic and food purposes.

Products of Beehive

The products of a beehive are diverse and all are of economic importance. Each product commands good wholesale/ retail prices.

Product	Average annual production / hive	Current cost	Market
Honey	8-12 gls (45.6 – 68.4kg)	\$2400/gal (\$4210/kg)	Local, North America & Europe
Bee Pollen	35lbs (15.9kg) / hive	\$3300 - \$4000 / kg	Local & Foreign
Propolis	2.2 lb (1.0kg) / hive	\$6650 / kg	Europe
Royal Jelly	-	US\$80 / once	Local & Foreign
Queen Bees	Dependent on size of operation	\$1200 each US\$25 each	Local North America
Packaged bees	“	US\$180 / kg	North America
Beehive single	“	\$12,000 - \$15,000	Local
Bee Venom	“	-	-
Bees wax	0.3 lbs/0.13kg / hive/year	\$1760	Local

When one contemplates beekeeping for profitable production, it must be pre-determined what products are to be produced. The production of several hive products can run concurrently with insignificant negative impact on any one.

The following table identifies the products and current market prices as well as possible markets

Cost of Production

Proposed Procurement	Unit	Unit Cost	Total Cost
Bee Hives/Colonies	25	13,000	325000
Hive Bodies	50	950	47,500
Hive Covers	15	600	9,000
Bottom Boards	15	650	9750
Queen Excluders	25	900	22500
Bee Frames	650	90	58500
Comb Foundation	37kg	2860	105820
Bee Veil	2	5000	10000
Bee Smoker	1	9000	9000
Hive Tool	1	1100	1100
Honey Extractor	1 *4 frames	120000	120000
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Establishing the Apiary

Step 1: Establish apiary of ten (10) colonies of honey bees

- Mount each hive at two 6" block height using four 6" blocks
- Add one hive body each complete with frames in comb foundation
- Treat each hive with two strips of Apistan for Varroa mite
- Allow bees to build out foundation into comb over 4 weeks

Step 2: Supering hives

- After each hive body of comb foundation has been completely built out with combs, place the third hive body similarly prepared on to the hive.
- Allow bees to fill out 50% of foundation sheets.
- Place Queen excluder between the 2nd and the 3rd hive body (from ground)
- Check for honey storage in super. A third hive body may be added if funds allow.
- Ensure that the queen bee is kept below the queen excluder.

Step 3: *Progressive Expansion*

- After the honey flow (February – April), remove one brood chamber from each hive and place it in similar pattern except that the entrance is turned @ 180^o angle from parent hive.
- Ensure that eggs/open brood are in both brood chambers with high population of worker bees.
- Remove the queen excluder, replace the honey super *

Step 4: *Brood chambers; boxes below queen excluder*

- Apiary now consists of 50 colonies
- Feed colonies with sugar syrup to encourage brood production and prevent starvation

Step 5: *Week # 6 after splitting hives*

- Thoroughly inspect combs for queen cells
- Hive with queen cells indicate queenless colony.
- Carefully replace combs with queen cells in the same position.
- If there are no queen cells in either hive replace one comb from each hive with open brood/eggs from an existing hive.
- If eggs/open brood is present in either hive add brood comb only to eggless hive.
- Check each colony for eggs and open brood
- Add one hive body each complete with frame and comb foundation to new hives
- Check for brood in both hive bodies from hives previously left at original site
- Repeat original splitting process, ensuring that open brood are in both boxes.

Step 6: *Expansion cont'd*

- Apiary now consists of 75 colonies
- Check for laying activity of the queens in the first set of splits
- If confirmed positive, add extra hive bodies complete with frames and foundation
- Repeat the splitting process when additional box is adequately populated.

Step 7: *Ensure that the bee population is adequate for continuing the splitting process*

Step 8: Feeding

- Ensure that bees have a constant supply of sugar syrup
- Consult your Apiculture extension specialist for any assistance required

Step 9: Preparing for honey crop

- Follow step # 2

Important Notes

1. All apiaries must be registered with the Ministry of Agriculture, Apiculture Unit, Bodles, Old Harbour upon establishment
2. This information must include the following
 - Beekeeper's Name
 - Address and phone number
 - Location of apiary and number of hives
3. For new beekeepers, success rate at splitting will be dependent on the initiative of the beekeeper.
4. Hive must be treated annually (June – August) against varroa mite infestation.
5. When mounting new hives in accordance with the above ensure that hive covers and bottom board are in place.
6. 1.4 lb of comb foundation is adequate to supply each additional hive body @ \$1200/lb.

Approximate Rate of Returns on investment

Each hive established according to step# 2 should yield an average of ten gallons (57.0 kg) of honey annually. Value \$2400 per gallon –\$ 24,000/hive/annum

The first 25 hives =250 gals of honey @\$2400 / gallon - \$600,000

Sourcing Beekeeping equipment/ Bee Colonies

- **Bees** – Contact the Apiculture Unit prior to making any purchase. This is to ensure that bees are obtained from healthy sources

- Hive bodies, frames, covers and bottom boards
 - ✓ Honey Comb Industries – contact 984-4004
 - ✓ Richards Woodwork – 566-6363
 - ✓ Links Incorporation – 326 -2284
 - ✓ All Island Bee Farmer Association (AIBFA) -962-0477-9

- Other equipment items
 - ✓ St Jago Farm Supplies – 981-1510
 - ✓ Beekeepers World – 866-6313

Technical Assistance

The Ministry of Agriculture and Fisheries provides technical assistance on all aspects of beekeeping in Jamaica. A team of Apiculture Extension Specialists are assigned to the Apiculture Unit with offices at the Research and Development Division.

Any other queries may be directed to:

*The Apiculture Unit
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Research and Development Division
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Old Harbour, St Catherine
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