Dominican Republic

DOMINICAN COFFEE  Caribian Treasurer!

Consejo Dominicano del café
CBB Situation
(Hypothenemus hampeii)
In Dominican Republic

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Dominican Republic
LOCATION: Higher part of the tropical Rim.
Area: 48,000 km²
Area in coffee: 132,000 ha.
Coffee farmers: 50,000

Average annual production: 600,000 bags of 60 kilos
Average annual export: 70,000 bags of 60 kilos
Relative participation in PIB: 3.3%
ALTITUD and Distribution

Sierra Baoruco
Sierra Neyba
Cordillera Central
Cordillera Septentrional

4 systems mountains
400 to 1,500 mosl
CBB Situation
In Dominican Republic

- Detected:

Augst 1995, province Sanchez Ramírez
CBB Situation in Dominican Republic

- **Distribution**
  September 1995:
  - Monte Plata.
  - Duarte.
  - San Cristóbal.
  - National District.

- **Affected Area**
  September 1995:
  - 37,500 ha.

- **Level of infestation**
  - 32%
• Distribution

End of 1996:
All of producer provinces

• Affected Areas

End of 1996:
70% of Coffee communities
Year 1999

- Affected Area: 62,500 ha.
- Level of infestation: 9.2%

Year 2002

- Affected Area: 132,000 ha.
- Level of infestation: 15.4%
Year 2006

- Level of infestación: 6.7%

CBB Losses

It is been stimated that the loses from CBB damage is from 950 to 1500 tons of green beans yearly, this represent a reduction of income from the coffee sector from 1.7 and 2.2 U.S millions Dollars.
CBB ACTIONS AND PRACTICES TO CONTROL

- 1997: Chemical Control
- 1998: Biological Control
- 1999: CBB IPM
- 2000: Sanitation Practices
- 2002: National Traps program
Chemcal Control

This was the first activitie practiced in the Contry. Consisting in practicing few activities on heavy and masives aplications in all coffee communities infested with CBB.

We started in 1997 teaching producers and technitians about identifying hot spots, uses and management of chemical products and spraying equipment.

This was an offitial emergency activitie but descontinued on the same year.
**Bilological Control**

*Cephalonomia stephanoderis*

Is a program focus in the use of parasitoides. Began in 1997 with the first introduction from Honduras, and later a second introduction in 1998 from Guatemala with this one. We start our own production for the country. This year we establish four multiplication stations with the purpose to speediate massive production.
The yearly production level varies from 500,000 to 2,600,000 parasitoids, and have been distributed in about 250 farms.
Beauveria bassiana

Additional to parasitoides, we have collected, characterized and multiplied several strengths in the Lab at the University Autónoma de Santo Domingo, UASD, different strengths from this fungus was found in different coffee zones in the country, example: Ocoa, Bonao, Villa Trina, La Cumbre and Polo de Barahona. We have multiplied them on small scale and distributed on the fields as source for inoculation.
This Project begun with four components: Training, Communication, Biological Control, Investigation and validation.
Trainning to 1,065 technitians and 91,647 coffee farmers, in 4,174 educational sections. We establish 40 plots located in the principals communities and we support research and applied investigation.
This activity started in October of 2000, for a period of six months, to support coffee farmers in the realization of each labor and its importance like harvest all remain on the trees and from the ground (raysing, ripe over ripe, under ripe etc) with the main purpose of reducing the CBB population in their farms.
In 2001 we establish the first plot validated with the BROCAP trap in Los Cacaos, San Cristóbal, where we collect the first data in the country.

After the confirmation of the efficacy of the trap, we initiated the National trap program in the year 2002, this program still going.
With the intention of extending this program to more than 25,000 ha. And to assist more than 6,500 farms and farmers. The CODOCAFE acquired 50,000 new traps. Brocap and the farmers contributed with 20,000 traps home made for the post harvest period in which we collect over 500,000,000 CBB.
Millones de brocas capturadas en el período 2002-2007

Consejo Dominicano del café
Investigation about CBB in the Dominican Republic
Organization Involved

IDIAF (Institute of investigation)
CODOCafe (Gubermental entity for the coffee sector)
UASD e ISA (Universities)

Objective:

To Increase net income

1. Productivity and quality.
2. Diversification (other crops, PSA).
Investigation and Participation (All links from the chain).

Producer
Midman
Associations
Exporter

**Fast and validated process adopted for a Technologica development**
# CBB BIOLOGICAL STUDIES

## LEVEL OF INCREMENT & INFESTATION

Natural Behavior In Low zone (500 to 600 mosl)

<table>
<thead>
<tr>
<th>Days</th>
<th>% of Infestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>First monitoring</td>
<td>2</td>
</tr>
<tr>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>57</td>
<td>10</td>
</tr>
<tr>
<td>72</td>
<td>20</td>
</tr>
<tr>
<td>102</td>
<td>75</td>
</tr>
</tbody>
</table>
CBB effect in premature beans

First days more vulnerable (4 %)
Diameter more susceptible: 6 mm

Damage total caused for CBB (7.49%)
CBB behaibor and position

Zona Alta > 1,000 msnm

Porciento de brocas según estado de posicionamiento

A
B
C
D

High % from the beginning

Constant flowers
### CBB Reproduction

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Low Zones</th>
<th>High Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs/fruit</td>
<td>0.2 a 4.1</td>
<td>0.42 a 1.03</td>
<td></td>
</tr>
<tr>
<td>Larvae/fruit</td>
<td>4.1</td>
<td>0.81</td>
<td></td>
</tr>
</tbody>
</table>

**Graph:**
- **Huevos**
- **larvas**
- **pupas**

**Semanas por floración primaria**

<table>
<thead>
<tr>
<th>Semanas por floración primaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>Número promedio de instares por fruto</td>
</tr>
</tbody>
</table>
Sanitation during & after harvest

Ground collection

Re-recollection

- Reduce level of infestation up to 4%.
- The efect of practicing RE-RECOLLECTION IS FROM 7.6 to 54%, a second RE Re recollection will reduced significaly the population but will increased 133% of costs on this studye.
Cost analysis per activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Fruits w/CBB (%)</th>
<th>Cost/ha (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repela+pepena+graniteo</td>
<td>1</td>
<td>141.72</td>
</tr>
<tr>
<td>Repela</td>
<td>6</td>
<td>51.56</td>
</tr>
<tr>
<td>Repela +graniteo</td>
<td>5</td>
<td>111.70</td>
</tr>
<tr>
<td>Repela+pepena</td>
<td>7</td>
<td>128.95</td>
</tr>
<tr>
<td>Pepena+graniteo</td>
<td>8.8</td>
<td>128.00</td>
</tr>
<tr>
<td>Graniteo</td>
<td>12</td>
<td>137.5</td>
</tr>
</tbody>
</table>

- The effects for each activity depend on the agronomic management and the farm productivity.
Parasitoids

- **Establishment**: 1.28 parasitoids/fruit
- **Distribution in a zona**: 1.5 km 0.9 parasitoids/fruit
Cultural practices and traps

![Graph showing % infestation over time for different treatments: Repela+trampa, Pepena+trampa, Graniteo+trampa, and Testigo.]
### Traps evaluation

<table>
<thead>
<tr>
<th>TRAPS</th>
<th>CBB CAPTURED</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brocap</td>
<td>36,200</td>
<td>100 %</td>
</tr>
<tr>
<td>Model L (4)</td>
<td>34,900</td>
<td>96 %</td>
</tr>
<tr>
<td>Other Models (average)</td>
<td>19,487</td>
<td>53 %</td>
</tr>
</tbody>
</table>
Capture table
Conclusion

✓ All programs, projects and practices toward control of CBB need continuity with a long term to ensure a sustained producing system in the application of all activities.

✓ The most valuable and effective tools on the IPM in the country are: repela, trampeo y control biológico. We request focus dedication and resources to support this practices.