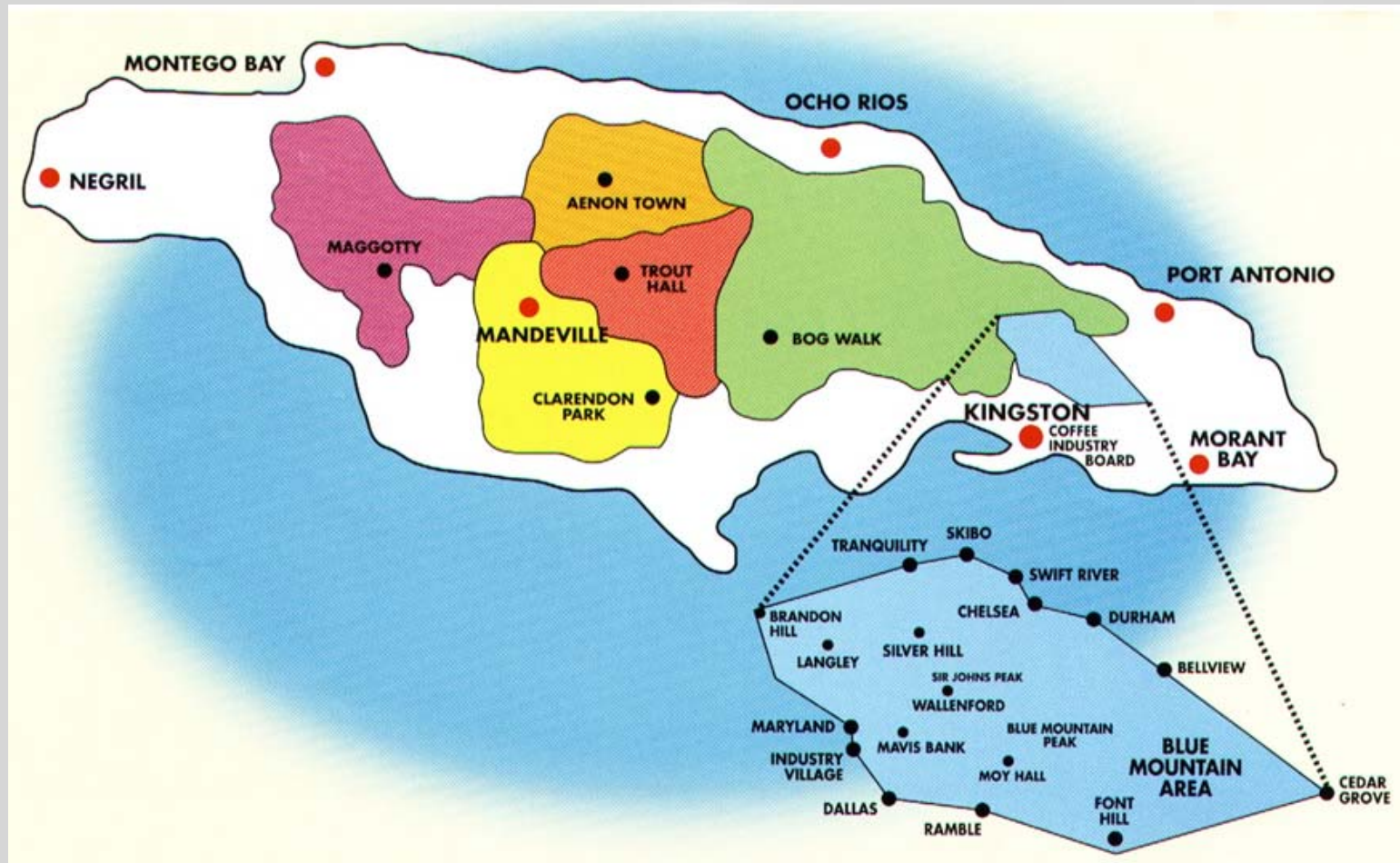


Activity of the
coffee berry borer-
Hypothenemus hampei (Ferrari)
on two Jamaican coffee farms.

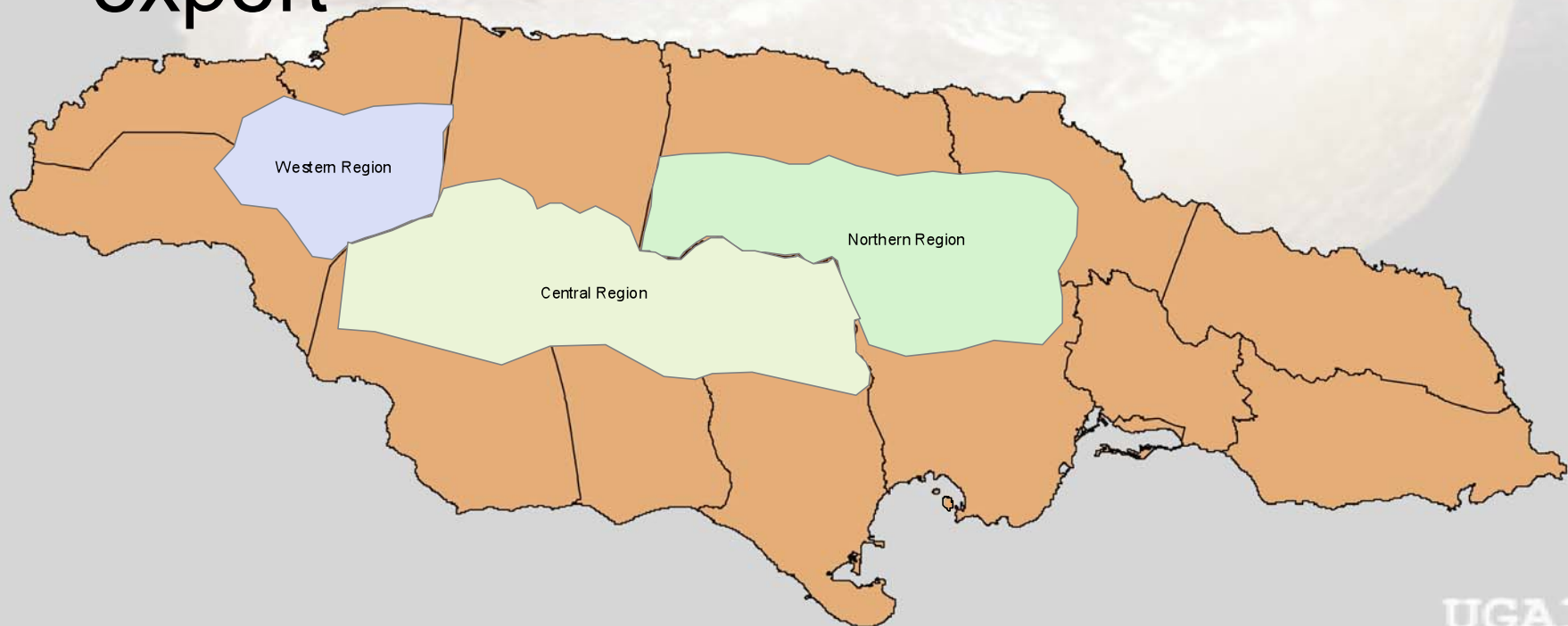
Gusland McCook
Dwight E. Robinson
Gerald Bryan

Regions Of Jamaica

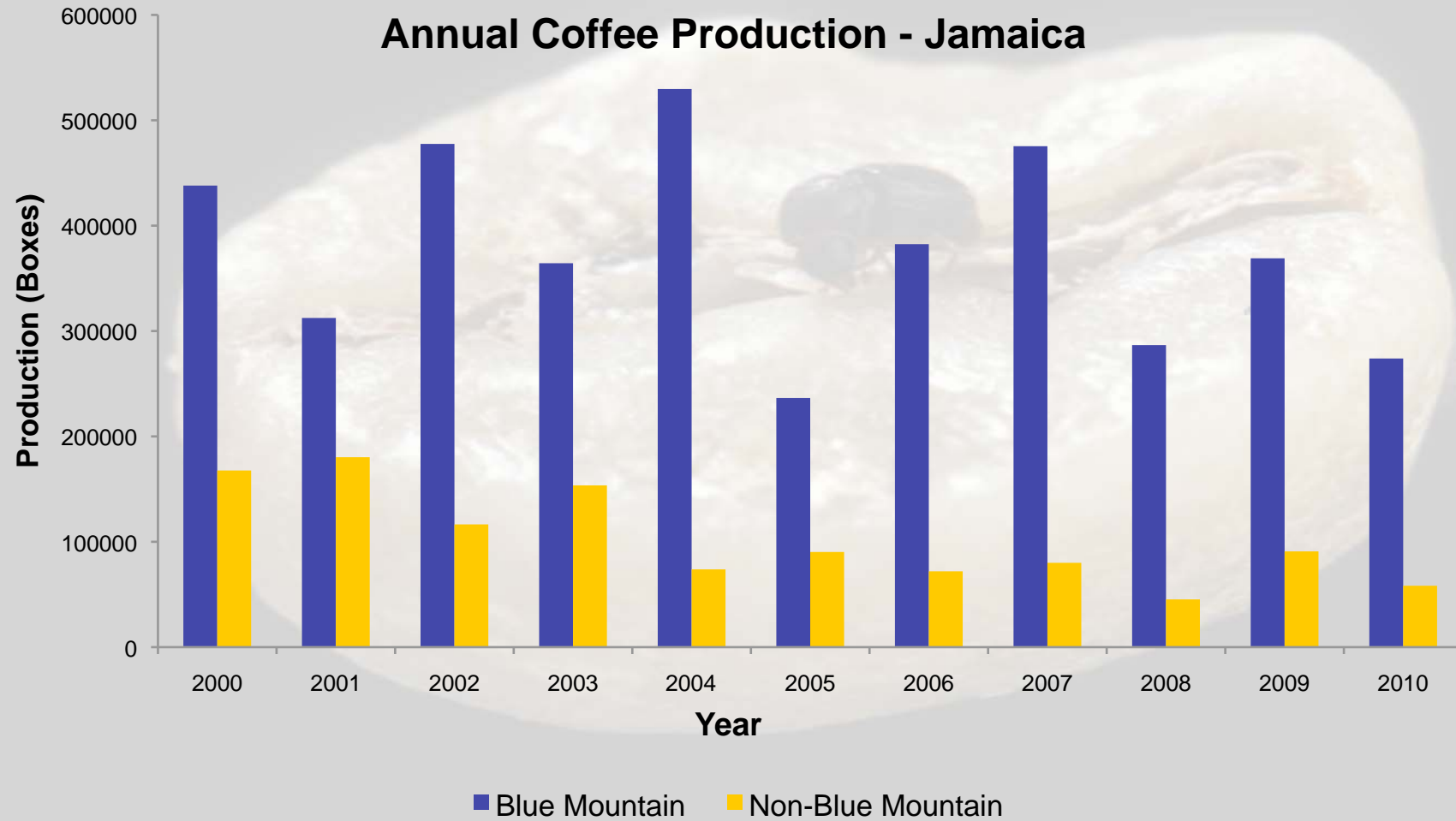


Introduction

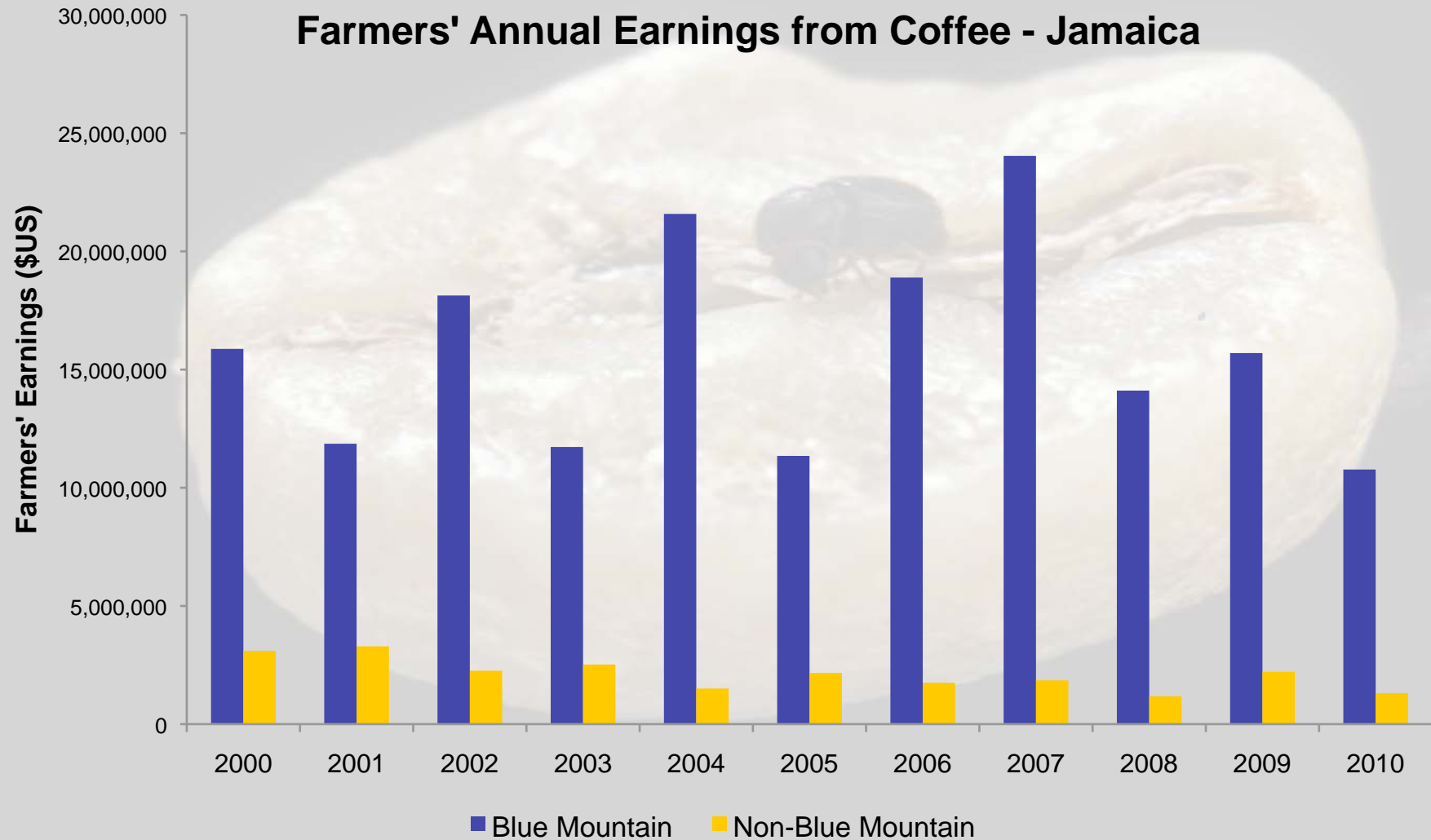
- Coffee was introduced to Jamaica in 1728
- Generates US \$20-30m annually from export



Introduction



Introduction



Introduction

- Coffee Berry Borer (CBB) first identified in Jamaica in 1978
- Current economic losses due to CBB are estimated at US\$2.0-3.0 million annually

Introduction

- Methods of control in Jamaica:
 - Cultural – post-harvest removal of berries from trees, field sanitation
 - Limited biological control
 - Chemical control - Endosulfan is still the chemical of choice

Introduction

- The progress towards a successful IBM programme in Jamaica has been slow
- This is due in part to a lack of data on the incidence and levels of infestation of the CBB, and its activity at different stages of the crop cycle

Introduction

- Data on CBB activity would assist in the decision making process associated with various components of an IBM programme

Materials & Methods

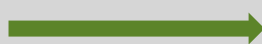
- The studies were conducted from January 2006 to December 2008 at Baron Hall and Mountain Hill



Baron Hall

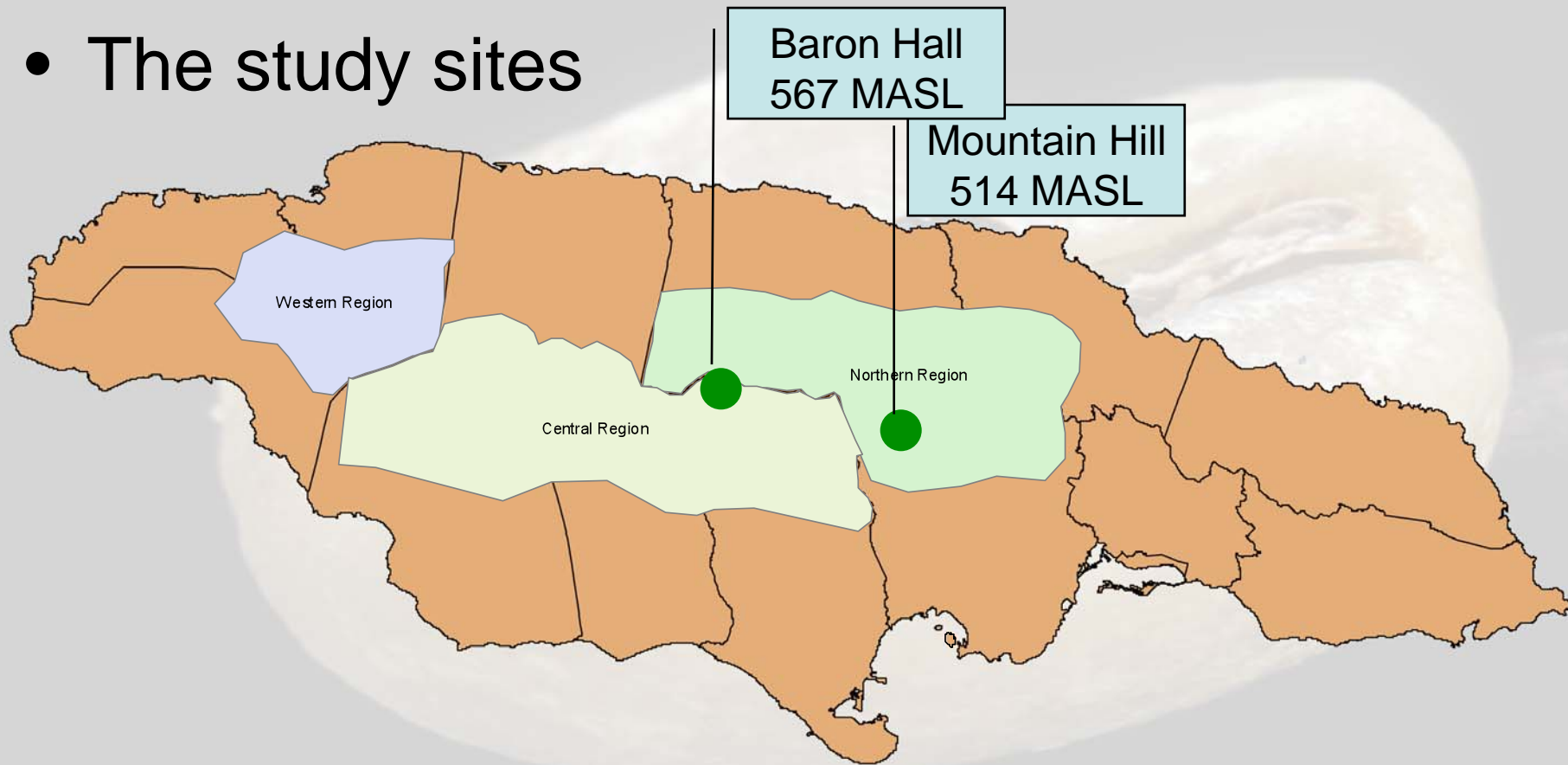


Mountain Hill



Materials & Methods

- The study sites



- Three plots (planting distance of 3.0m X 1.5m) were randomly selected for monitoring on each farm

Materials & Methods

- Each plot was divided into 500 m² grids and either a BROCAP® trap or a rustic trap placed in each grid to obtain a trap density of 20 traps per hectare



Materials & Methods

- Traps were hung on a branch of a plant in the centre of the grid at a height of 1.20 metres from the ground.
- The attractant used in all traps was a 1:1 mixture of ethanol and methanol



Materials & Methods

- Each trap was supplied with 250 mL of capturing solution (5% soap-water solution with 5% bleach)
- Sites were visited fortnightly and the contents of each trap collected and the volume of CBB determined and recorded

Materials & Methods

- A “volume/number” reference scale of 500 CBB per mL was used to determine the number of CBB captured.
- The capturing fluid in each trap was replenished and the dispenser containing the attractant mixture replaced.

Materials & Methods

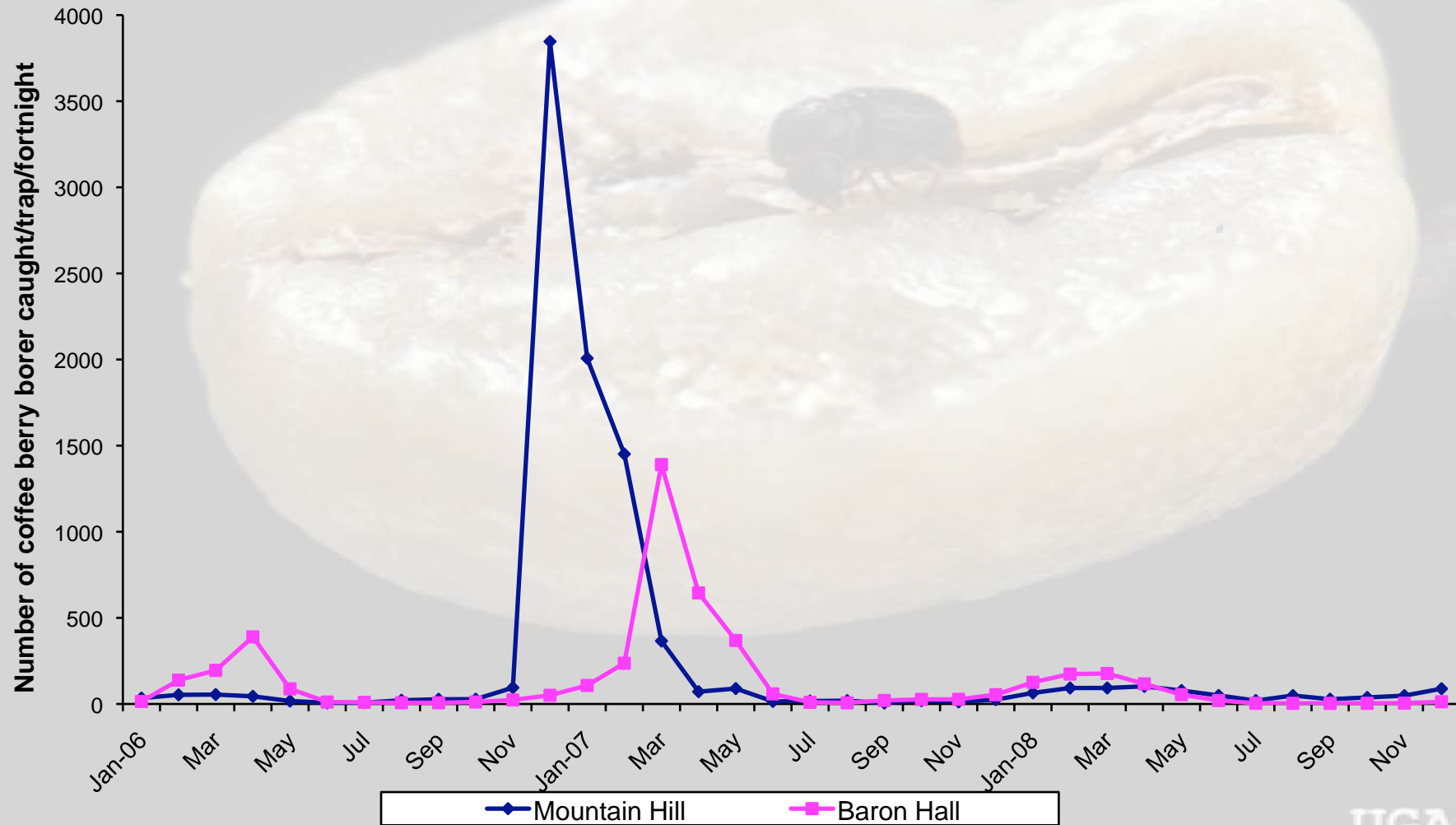
- A HOBO® thermohygrometer was used to record temperature and relative humidity
- Rainfall data was collected from rain gauges which were installed in an open area at the study sites

Materials & Methods

- Data were analyzed by ANOVA and T-tests using GENSTAT Version 11.

RESULTS

Fluctuations in the number of coffee berry borer, *Hypothenemus hampei* (Ferrari) caught per trap per fortnight at coffee farms located at Baron Hall and Mountain Hill in Jamaica between January 2006 and December 2008.



RESULTS

- The relatively high level of activity throughout the year is unusual, given the fact that coffee grown in these areas has a distinct phenological cycle
- This may be an indication that the level of field sanitation at these sites is below acceptable standards

RESULTS

Mountain Hill

CBB caught per trap per fortnight ranged from 5 ± 1 in September 2007 to a high of 3846 ± 1462 in December 2006

Baron Hall

CBB caught per trap per fortnight ranged from 4 ± 1 in October 2008 to a high of 1390 ± 254 in March 2007

RESULTS

- CBB activity was similar at Mountain Hill during 2006 (353 ± 318 CBB/trap/fortnight) and 2007 (341 ± 192 , CBB/trap/fortnight)
- The CBB activity in 2006 and 2007 was significantly higher than that observed in 2008 (63 ± 8 CBB/trap/fortnight)

RESULTS

- CBB activity at Baron Hall was significantly different ($P < 0.001$) each year

79 \pm 33 CBB/trap/fortnight in 2006

246 \pm 118 CBB/trap/fortnight in 2007

58 \pm 20 CBB/trap/fortnight in 2008

- The mean number (253 \pm 55) of CBB caught per trap per fortnight at Mountain Hill over the three-year period was significantly higher ($P = 0.022$) than the mean number caught at Baron Hall (125 \pm 10) during the same period.

RESULTS

- CBB activity generally increased in March and April of each year
- The unusually high CBB activity at Mountain Hill between December 2006 and February 2007 may have been associated with a higher than usual quantity of unharvested coffee berries remaining on trees

RESULTS

- Lower levels of activity occurred between June and October of each year
- Fluctuations in the CBB activity coincided with the crop phenology
- The increased CBB activity coincides with periodic flushes of flowering which occurs between late February and early May

RESULTS

- The peak activity occurred slightly ahead of the traditional May-rains but coincided with the time at which new berries reach the CBB susceptible stage
- There was no correlation between rainfall, temperature and humidity, and the number of CBB caught

Conclusions

- ✓ Consistently high levels of CBB activity on the farms at critical stages during the cropping cycle
- ✓ Consistently high levels of CBB activity suggests poor ecological management practices on these farms
- ✓ The study confirms the value of the borer traps as a monitoring tool

RESULTS

- The decline in CBB activity in 2008 may have been associated with the effects of Hurricane Dean which impacted Jamaica in August 2007

Conclusions

- ✓ Activity data can assist in the decision making process for intervention to suppress the CBB population
- ✓ There is a possibility that the traps may be used as a pest management tool
- ✓ There is a need to determine the relationship between activity and infestation levels of the CBB in these areas.

A photograph of a dense, green forest covering a hillside. The trees are various shades of green, and the overall scene is bright and natural. A semi-transparent green rectangular box is centered over the middle of the image, containing the text 'THANK YOU FOR YOUR ATTENTION!' in a bold, black, sans-serif font. The text is arranged in three lines: 'THANK YOU' on the top line, 'FOR YOUR' on the middle line, and 'ATTENTION!' on the bottom line.

**THANK YOU
FOR YOUR
ATTENTION!**