

631.5  
D64  
2009

ON-THE-JOB TRAINING EXPERIENCES AT THE  
INSTITUTE OF PLANT BREEDING (IPB)

*Farm Practice*

CHRISTIAN B. DIZON

College of Agriculture, Forestry, Environment  
and Natural Resources

CAVITE STATE UNIVERSITY

Indang, Cavite

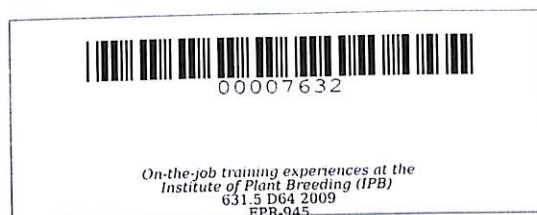
*April 2009*



<sup>c/</sup>  
**ON-THE-JOB TRAINING EXPERIENCES AT THE  
INSTITUTE OF PLANT BREEDING (IPB)**

**Farm Practice Report  
Submitted to the Faculty of the  
Cavite State University  
Indang, Cavite**

**In partial fulfillment  
of the requirements for the degree of  
Bachelor of Science in Agriculture  
(Major in Horticulture)**



**CHRISTIAN B. DIZON**  
**April 2009**



Republic of the Philippines  
**CAVITE STATE UNIVERSITY**  
**(CvSU)**  
**DON SEVERINO DE LAS ALAS CAMPUS**  
Indang, Cavite  
☎ (046) 415-0010 / 📠 (046) 415-0012  
E-mail: [cvsu@asia.com](mailto:cvsu@asia.com)



**COLLEGE OF AGRICULTURE, FORESTRY ENVIRONMENT,  
AND NATURAL RESOURCES**

Farm Practice Report of: **CHRISTIAN B. DIZON**

Title : **ON-THE-JOB TRAINING EXPERIENCES AT THE  
INSTITUTE OF PLANT BREEDING (IPB)**

**A P P R O V E D:**

  
**REGINA M. NOSA**  
Adviser

\_\_\_\_\_  
Date

  
**RENATO MARQUEZ**  
Technical Critic

\_\_\_\_\_  
Date

**JOSEFINO A. VIADO**  
Department Chairperson

\_\_\_\_\_  
Date

**ANALITA dM. MAGSINO**  
College Research  
Coordinator

\_\_\_\_\_  
Date

**ALEXANDER F. FERRE**  
Dean

\_\_\_\_\_  
Date

**Note:**

Original copy to be filed in the University Library and one copy each to be distributed to the following: Adviser, College Library and Student.

## **ABSTRACT**

**DIZON, CHRISTIAN BAMBA. On-the-Job Training Experiences at the Institute of Plant Breeding. Farm Practice. Cavite State University, Indang, Cavite. April 2009. Bachelor of Science in Agriculture Major in Horticulture. Adviser: Prof. Regina M. Nosa.**

The farm practice was conducted at the Institute of Plant Breeding from November 18, 2008 to February 26, 2009. The objective of the farm practice aimed to help the student gain experience and practical skills in crop production in plant propagation and nursery management was practiced in two main departments of the Institute of Plant Breeding, namely: The National Seed Foundation and The Plant Cell and Tissue Culture Laboratory.

At the National Seed Foundation, the student performed grafting, marcotting, inarching, seed sowing, and other propagation techniques in fruit crops.

At the Plant Cell and Tissue Culture Laboratory, he learned the procedures involved in the micro-propagation of banana and orchids. He was also trained to do other practices necessary to make the crops better and more productive such as weeding, application of fertilizers, application of pesticides, watering, transplanting and others.

As a whole, the student was able to acquire practical knowledge and further developed his skills in the different propagation techniques of different crops. He also learned the importance of such activities like crop improvement, seed multiplication and crop biotechnology through tissue culture as done in the institute.

## TABLE OF CONTENTS

|                                            | Page |
|--------------------------------------------|------|
| BIOGRAPHICAL DATA.....                     | iii  |
| ACKNOWLEDGEMENT.....                       | iv   |
| ABSTRACT.....                              | vi   |
| LIST OF TABLES.....                        | xi   |
| LIST OF FIGURES.....                       | xii  |
| LIST OF APPENDICES.....                    | xiii |
| INTRODUCTION.....                          | 1    |
| Importance of the Farm Practice.....       | 2    |
| Objectives of the Farm Practice.....       | 2    |
| Time and Place of the Farm Practice.....   | 3    |
| BACKGROUND OF THE INSTITUTE.....           | 4    |
| History.....                               | 4    |
| Mandates .....                             | 5    |
| Major Programs.....                        | 5    |
| Germplasm Collection and Conservation..... | 5    |
| Varietal Improvement.....                  | 5    |
| Crop Biotechnology.....                    | 5    |
| Seed Multiplication.....                   | 6    |
| Seed and Technology Dissemination.....     | 6    |
| Major Crops.....                           | 6    |

|                                         |    |
|-----------------------------------------|----|
| ACTIVITIES UNDERTAKEN.....              | 8  |
| Asexual Propagation.....                | 8  |
| Papaya Seedling Production.....         | 8  |
| Other Nursery Practices.....            | 8  |
| Laboratory Activities.....              | 9  |
| OBSERVATION AND DISCUSSION.....         | 10 |
| Asexual Propagation.....                | 10 |
| Grafting.....                           | 10 |
| Marcoting.....                          | 11 |
| Inarching.....                          | 11 |
| Papaya Seedling Production.....         | 15 |
| Pollination.....                        | 15 |
| Air Drying of Seeds.....                | 15 |
| Sowing.....                             | 15 |
| Pricking.....                           | 15 |
| Application of Fertilizers.....         | 15 |
| Other Practices.....                    | 24 |
| Making a Layout of the Scion Grove..... | 24 |
| Tree Planting.....                      | 24 |
| Weeding.....                            | 24 |
| Soil Mixing.....                        | 24 |
| Soil Bagging.....                       | 24 |
| Rebagging.....                          | 24 |



|                                              |    |
|----------------------------------------------|----|
| Watering.....                                | 24 |
| Pest Control.....                            | 24 |
| Sales.....                                   | 24 |
| Tissue Culture Procedures.....               | 28 |
| Micropropagation of Banana.....              | 28 |
| Micropropagation of Orchids.....             | 28 |
| OUTCOME.....                                 | 36 |
| Knowledge Acquired and Skills Developed..... | 36 |
| Problems Encountered.....                    | 36 |
| SUMMARY, CONCLUSION AND RECOMMENDATION.....  | 37 |
| Summary.....                                 | 37 |
| Conclusion.....                              | 37 |
| Recommendation.....                          | 38 |
| BIBLIOGRAPHY.....                            | 39 |
| APPENDICES.....                              | 40 |

## LIST OF FIGURES

| Figure |                                             | Page |
|--------|---------------------------------------------|------|
| 1      | Organizational chart of the institute.....  | 7    |
| 2      | Peeling the branch for marcoting.....       | 12   |
| 3      | Peeled branch.....                          | 12   |
| 4      | Sawdust for marcotting.....                 | 13   |
| 5      | Covering the peeled branch.....             | 13   |
| 6      | Marcotted makopa.....                       | 14   |
| 7      | Triple rootstock.....                       | 14   |
| 8      | Female flower of papaya.....                | 16   |
| 9      | Actual pollination.....                     | 16   |
| 10     | The student pollinating papaya.....         | 17   |
| 11     | Wrapping of pollinated papaya .....         | 17   |
| 12     | Label of pollinated papaya flower.....      | 18   |
| 13     | Seed trays for papaya seeds.....            | 18   |
| 14     | Sowing of papaya seeds.....                 | 19   |
| 15     | Covering the seed trays.....                | 19   |
| 16     | Germinated papaya seeds.....                | 20   |
| 17     | Pricking.....                               | 20   |
| 18     | The student pricking papaya seedlings.....  | 21   |
| 19     | Fertilizer mixing for papaya seedlings..... | 22   |



|    |                                                          |    |
|----|----------------------------------------------------------|----|
| 20 | The student mixing the fertilizer.....                   | 22 |
| 21 | Dilution of the concentration to water.....              | 23 |
| 22 | The student applying fertilizer to papaya seedlings..... | 23 |
| 23 | Getting soil.....                                        | 25 |
| 24 | Putting sawdust.....                                     | 25 |
| 25 | Soil mixing.....                                         | 26 |
| 26 | Soil bagging.....                                        | 26 |
| 27 | Watering.....                                            | 27 |
| 28 | Tissue culture procedures for mass propagation.....      | 30 |
| 29 | Magnetic stirrer.....                                    | 31 |
| 30 | Testing the acidity of the culture medium.....           | 31 |
| 31 | Media preparation.....                                   | 32 |
| 32 | Refrigerated solutions.....                              | 32 |
| 33 | Media for orchids.....                                   | 33 |
| 34 | Covering the media with cotton plugs.....                | 33 |
| 35 | Sterilization.....                                       | 34 |
| 36 | Trimming the rooted explants.....                        | 34 |
| 37 | Subculture procedures.....                               | 35 |
| 38 | Sub-cultured orchids.....                                | 35 |

## LIST OF APPENDICES

| Appendix |                                | Page |
|----------|--------------------------------|------|
| A        | Scion Grove Lay-out.....       | 41   |
| B        | IPB Price List.....            | 42   |
| C        | Memorandum of Agreement.....   | 43   |
| D        | Certificate of Completion..... | 45   |
| E        | Farm Practice Evaluation.....  | 46   |

# **ON-THE-JOB TRAINING EXPERIENCES AT THE INSTITUTE OF PLANT BREEDING (IPB)**

**CHRISTIAN BAMBA DIZON**

---

---

A Farm Practice Report presented to the Faculty of the Department of Crop Science, College of Agriculture, Forestry, Environment and Natural Resources, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Agriculture (BSA), Major in Horticulture with Contribution No: CS-FP-2009-085. Prepared under the supervision of Prof. Regina M. Nosa.

---

---

## **INTRODUCTION**

National Seed Foundation (NSF) and Plant Cell and Tissue Culture Laboratory (PCTC-L) are both under the supervision of the Institute of Plant Breeding. These are the departments where the student spent most of his farm practice activities. Both departments go with the objectives of the institute. IPB has a goal to develop new and improved varieties of crops. They conduct studies in plant breeding and allied disciplines related to crop improvement. They also assist other agencies in multiplying quality seeds and vegetative materials of recommended crop varieties.

The National Seed Foundation is known to produce seeds of the latest hybrids. Aside from that, NSF also produces planting materials for fruit crops.

The Plant Cell and Tissue Culture Laboratory of IPB has tissue and cell culture technologies and applications as one of its major thrusts. These two departments are