

# **DEVELOPMENT ACTION PLANNING (DAP)**

**34<sup>th</sup> International Vegetable Training Course**  
**“Vegetables : From Harvest to Table”**  
**Module 2**



**Indonesian Center for Agricultural Postharvest R&D**

**Indonesian Agency for  
Agricultural Research and Development  
Ministry of Agriculture, Republic of Indonesia**

**Ir. Sunarmani, M.S.**

# 1. INTRODUCTION

- ❑ Indonesian Center for Agricultural Postharvest Research and Development (ICAPRD) is organizationally under Indonesian Agency for Agricultural Research and Development (IAARD), Ministry of Agriculture
- ❑ ICAPRD was officially established on December 30<sup>th</sup>, 2003
- ❑ ICAPRD offices are located in Bogor (Head Office) and Karawang (Research Station/Unit)



Bogor



Karawang

# MANDATES AND FUNCTION

1. To conduct program and evaluation of postharvest research and development
2. To conduct research on :
  - a. quality characteristics of agricultural products, product processing, quality improvement, by-product and waste utilisation and new product development
  - b. physical, chemical and biological process technology
  - c. quality system and agricultural product safety

# **The most useful modul**

1. Good Manufacturing Practices
2. Food Processing and Nutritional Quality of Vegetables and Fruits
3. Quality and Standard Control

# Postharvest Handling Technology and Processing of Chili in Indonesia

Sunarmani

Indonesian Center for Agricultural Postharvest R&D



**INDONESIAN AGENCY FOR AGRICULTURAL RESEARCH AND DEVELOPMENT  
MINISTRY OF AGRICULTURE OF REPUBLIC OF INDONESIA**

*Science, Innovation, Networks*





# Background

## Vegetables & Fruits

*commodities that strategically and economically important to Indonesia*



**Gross Domestic Product :  
Fruits US \$15.4 billion  
(Statistic of Indonesia,  
2012)**



**Gross Domestic Product :  
Vegetables  
US \$7.4 billion (Statistic  
of Indonesia, 2012)**

The increasing demand for domestic consumption since the awareness of nutritious food and health increases the consumption of vegetables and fruits per capita

The government programme to encourage export of vegetables and fruits

There is growing food industries in vegetables and fruits processing



Vegetable in Indonesia is getting more important nowadays because the scarcity of supply inducing high rate of inflation. The main vegetable is chilli.

Indonesian government today has “UPSUS” (special effort) programme to induce the supply of chilli. However, the appropriate postharvest technology is needed to support the increasing supply.

So the capability of postharvest researchers of vegetable particularly chili required to be improved.





# PROBLEM

- Production of chili in Indonesia is fluctuation that causes the price is unstable. Therefore it is needed appropriate handling to stabilize the price by applying innovative post harvest technology which is feasible to be applied by farmers, like minimally process with low cost.
- To enhance value added of chili, it is needed diversification of chili processing technology.

# Objectives

- To find appropriate handling techniques for fresh chilli.
- To develop appropriate post harvest technology of chili for farmers.
- Diversification of chili products.

# Activities

# POSTHARVEST HANDLING OF CHILLI

(conventional technology)



Harvesting/Picking



Collecting with PV sack



Curing on cement floor



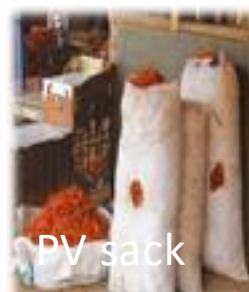
Transportation



Plastic sack



Carton box



PV sack

Packing



Sorting

**Potential losses :  
20-25%**

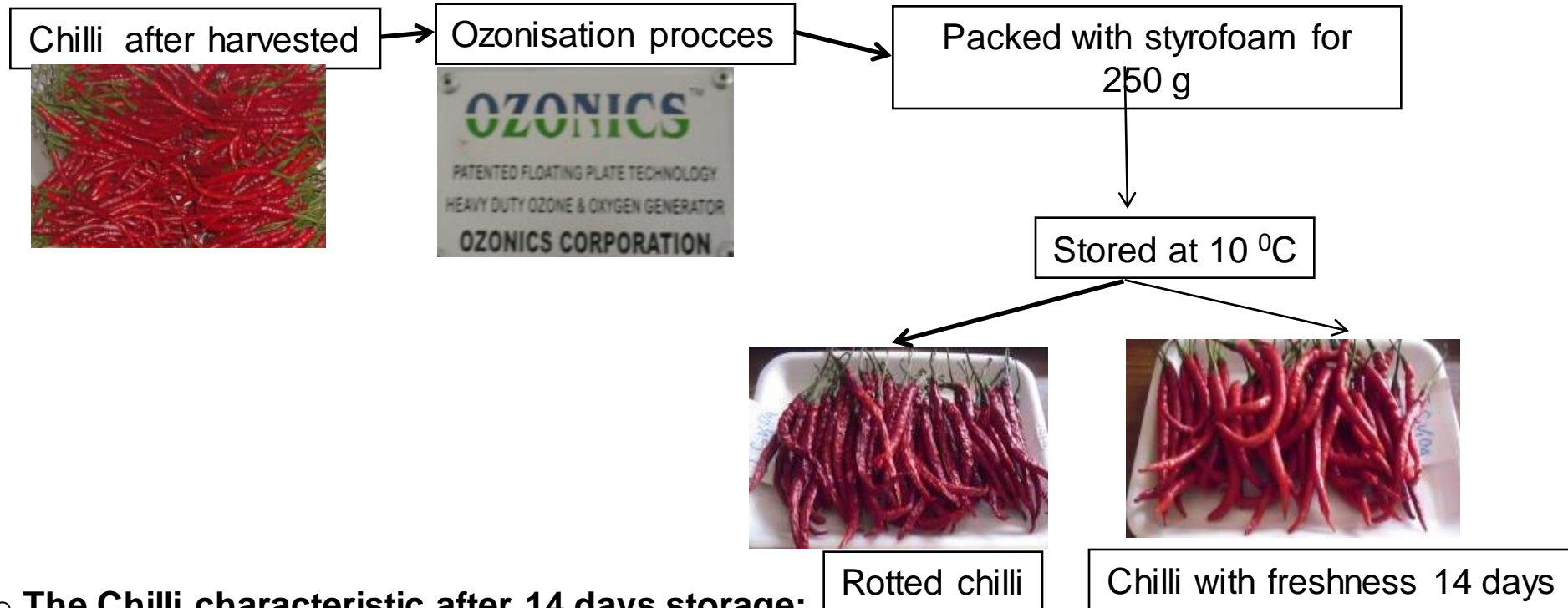
# Minimally Process





# Extended the Freshness Chilli by Using Ozon

## Flow Chart



### ○ The Chilli characteristic after 14 days storage:

- Kept freshness and their nutrition
- Acceptable by consumer
- Reduced a pesticide residu



# Extended the Freshness Chilli by Using GA3 Hormone & Fungicide



## ○ Flow Chart



Sorting



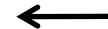
Dipping/Spraying with GA3+ fungicide



Spreading



Packing with styrofoam for 250 g



Fresh Chilli for 14 days storage

## ○ The Chilli characteristic after 14 days storage:

- Kept freshness and their nutrition
- Acceptable by consumer
- Decrease the weight loss less than 3%

# Diversification of Chilli Processing

- Chilli powder



- Chilli paste



- Chilli sauce



- Shredded chilli (*abon*)



# Benefit of Chili Product

- Provide chili benefit for human health.
- Contains high protein since it is added by dried shrimp, especially shredded chili (*abon*)
- Contains advantageous nutrients such as vitamin A, B,C, mineral, fiber and unsaturated fatty acid.

# CONCLUSION

- Handling process of chili to enhance self life until 14 days with temperature 10°C :
  1. Ozone
  2. GA3 hormone + Fungicide
- Diversification of chili product :
  1. Chilli powder
  2. Chilli paste
  3. Chilli sauce
  4. Shredded chilli (*abon*)

**BERKARYA CERDAS  
KREATIF DAN INOVATIF**

  
**BB-PASCAPANEN**





Thank You

Kop Kun Ka