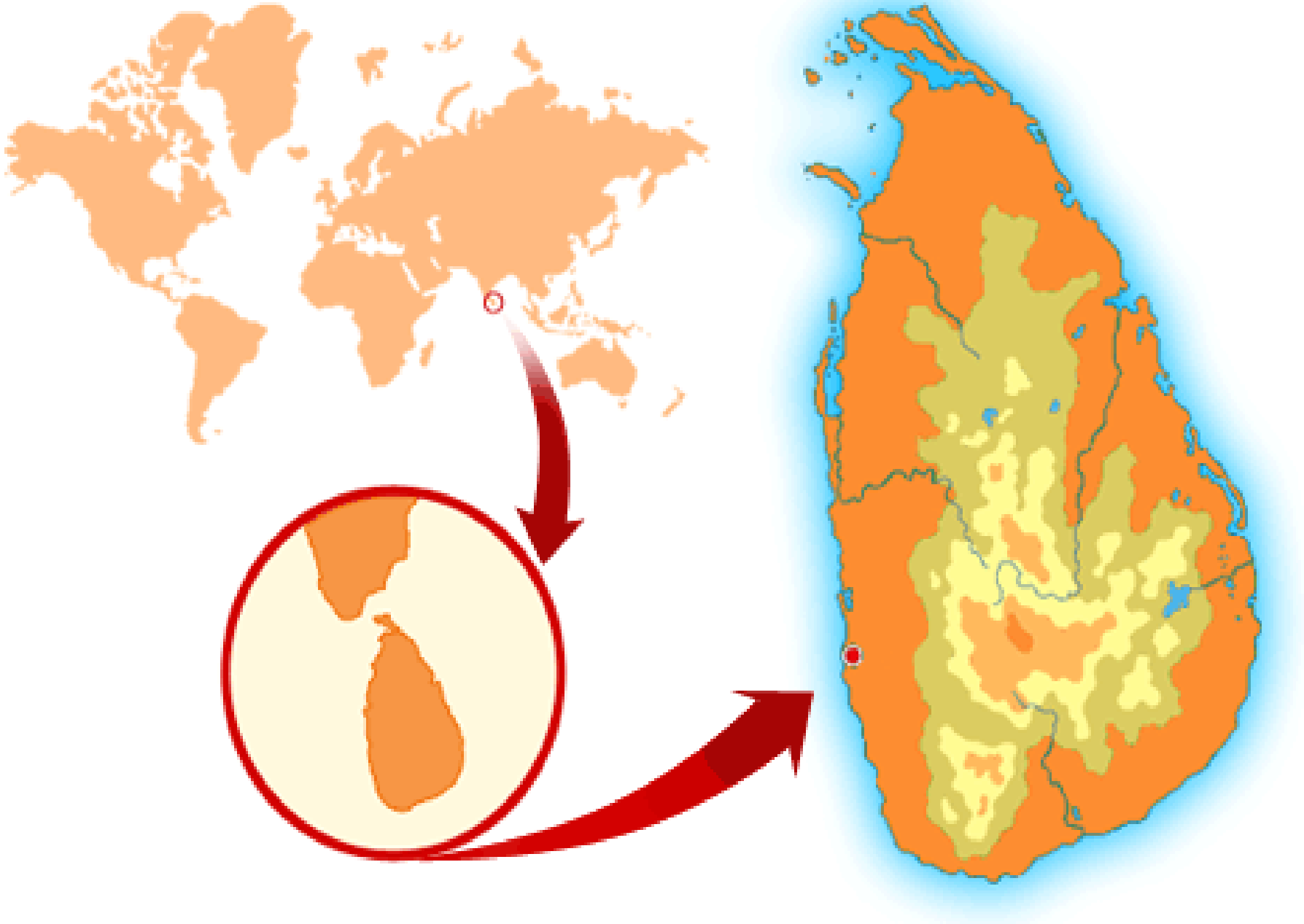


Action Plan

35th International Vegetable Training Course "Vegetables: From Seed to Table and Beyond" Module 1

R.G.Shyali Iroshani

INTRODUCTION

Name : R.G.Shyali Iroshani

Country : Sri Lanka

Organization :Department of Agriculture

Institute :Horticultural Crops Research and Development Institute

Position : Research Officer (Plant Breeding /sweet pepper) / Assistant Director of Ariculture (Research)

Responsibilities :

1. Working on Plant Breeding (Sweet pepper)

   Development of OP & hybrid varieties according to the national requirement

2. Co-ordinating and handling the program of exotic vegetable seed importation by private seed companies

   Adaptability testing prior to recommendation of commercial importation

Most useful topics

1. Designing vegetable research: experimental design and data analysis for vegetable research

2. Basic applied aspects of vegetable breeding and seed production

3. Variety screening for design traits

ACTION PLAN

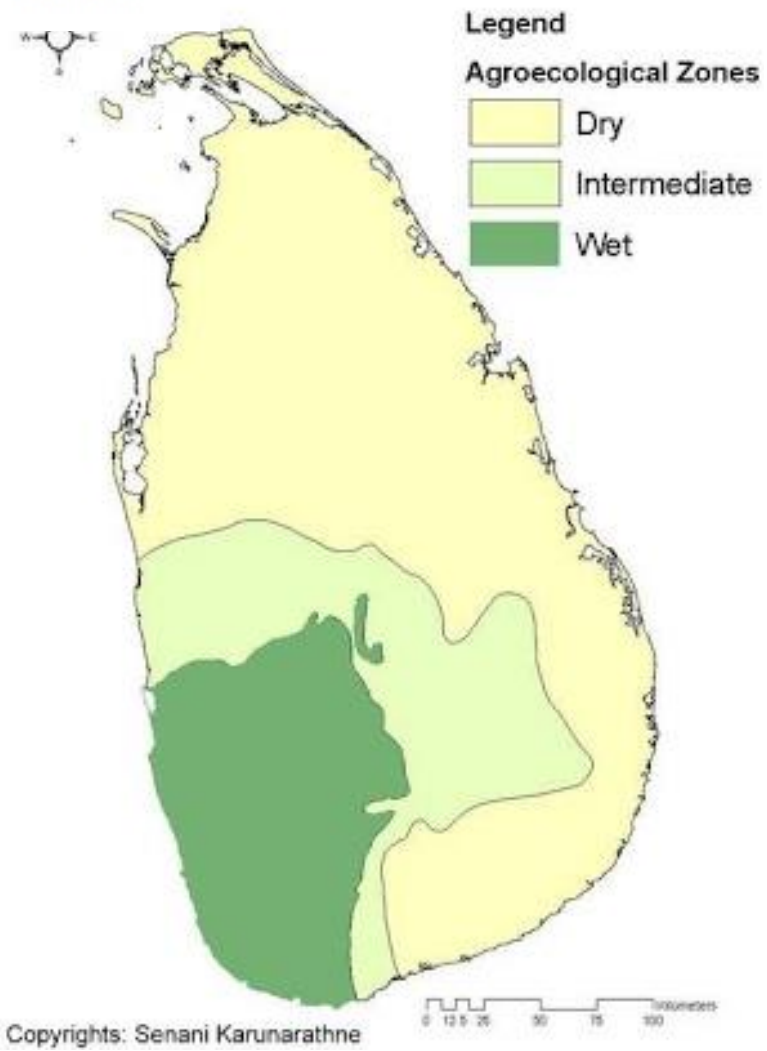
Development of heat and drought tolerant *Capsicum* (sweet pepper) varieties

Justification

Capsicum (Sweet pepper)

- Annual production - 23571 mt
- Annual cultivation area –3695 ha
- Percentage of total requirement - < 75%

Agro- ecological zones



Copyrights: Senani Karunarathne

- Wet Zone - 15

RF -1700-3300mm

T^0 - 28^0 C

- Intermediate Zone - 20

RF -1750-2500mm

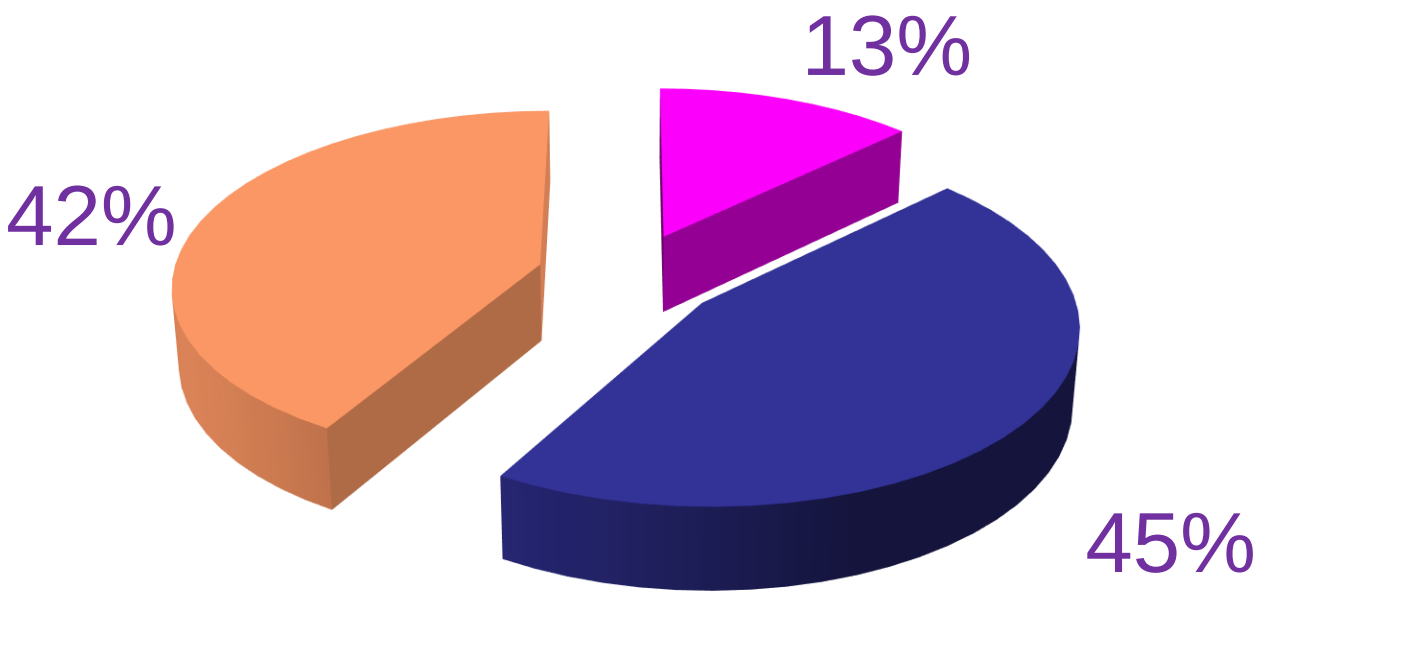
T^0 - 28^0 C

- Dry Zone -11

RF -1750 mm

T^0 - 28^0 C

Area distribution of sweet pepper cultivation in Sri Lanka



Due to climate change;

- increasing maximum and minimum temperature
- changing pattern of the rainfall distribution
  - long dry periods
  - rainfall with high intensity

Capsicum (sweet pepper) varieties show low productivity - 6.38mt / ha *(Agstat -2015)*

-loss of pollen viability → higher T^0

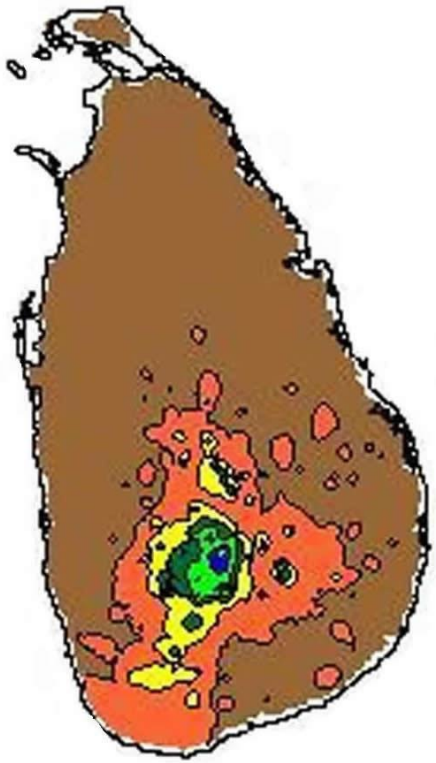
-poor growth → water stress

With these constraints

gap between production & requirement ↑

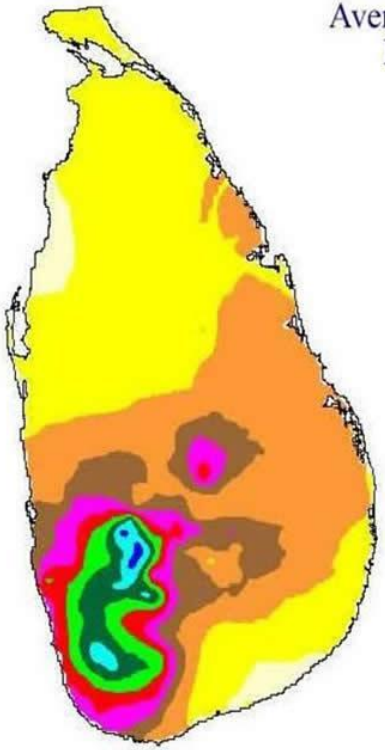
HORDI

Average Annual Maximum Temperature



Source : Department of Meteorology

Average Annual Rainfall



ANNUAL AVERAGE RAINFALL

(COMPUTED FOR THE STANDARD AVERAGING PERIOD OF 1961-1990 IN MILLIMETERS)

Source : Department of Meteorology

CA 8

HYW

LYW

Prarthana F1

New varieties

- Suitable for different agro – climatic conditions
- Heat tolerant varieties
- Drought tolerant varieties

General objectives

To develop of varieties with

- High yield (20-25 mt/ha)
- Mild pungency
- Resistant / tolerant to bacterial wilt
- Shiny appearance
- Light green in colour

Specific objective

To develop heat tolerant & drought tolerant OP & hybrid (F1) varieties

Methodology

1. Germplasm collection (2016)
2. Germplasm evaluation (2016-2017)

a) Evaluation for heat tolerant trait

in-vitro method – pollen germination in artificial growth medium in different range of temperature

b) Evaluation for drought tolerant trait

different soil moisture levels at different stages of life cycle (movable tunnel)

3. Incorporate heat & drought tolerant traits to lines having other desirable traits by inter – species & intra - species crosses (2017 -2018)

4. Development of OP varieties (2017-2021)

- Generation advancement (Development of inbred lines by selfing and sib- pollination)
- Yield and quality evaluation
- MAB will be applied

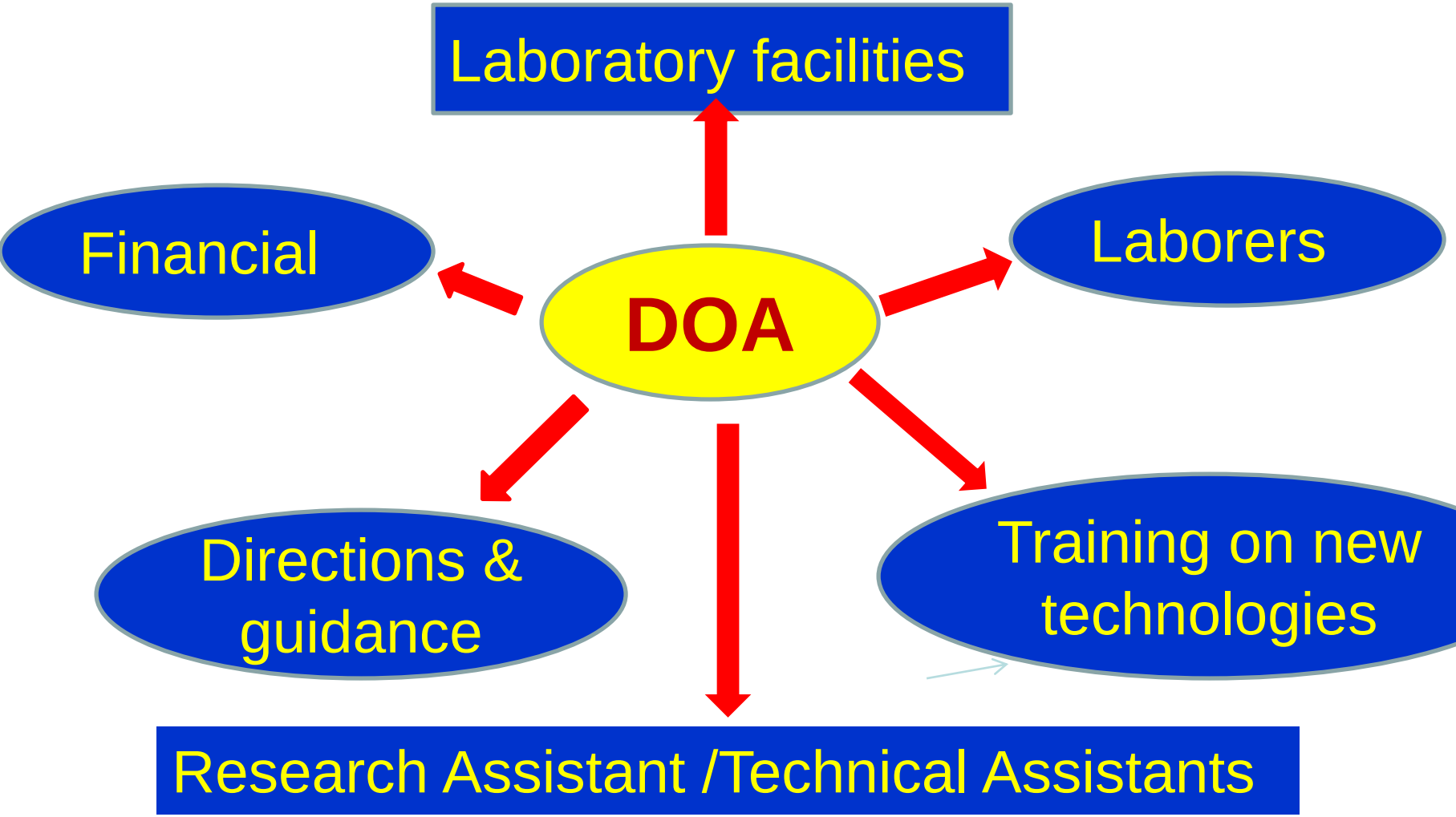
5. Development of hybrid varieties (2017 – 2022)

- Generation advancement (Development of inbredlines by selfing and sib-pollination)
- Hybridization – Di-allel method
- Yield and quality evaluation
- MAB will be applied

Expected output

Heat and drought stress tolerant OP and hybrid (F1) varieties

RESOURCES


Laboratory facilities
Financial
Laborers
DOA
Directions & guidance
Training on new technologies
Research Assistant /Technical Assistants

Challenges?????

Germ plasm collection

Acknowledgement

AVRDC

AARDO

DOA – Sri Lanka

All participants

Memories never die..... See you .....