

Country Report Sri Lanka

Eng. M.H.M.A. Bandara
Chief Engineer
Department of Agriculture
Sri Lanka

Introduction

- Annual growth rate of Agri sector – 13%
- Contribution to the GDP - 16.5%
- Population engaged in agriculture- 32%

70% of the rural population depend on agriculture, out of them 25% to 30% live in below the poverty level



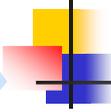
Introduction.....

- Per capita consumption of many food items below the minimum nutritional requirement level
- 32% of the country's food requirement imported spending million dollars



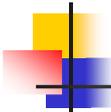
Introduction

- Agriculture is divided into two main groups
 - Paddy cultivation
 - Other field crops cultivation
- Paddy
 - 34% of the total cultivated area
 - Self sufficient and expecting surplus in this year



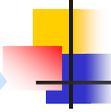
Introduction

- Situation of Other field crops
 - Most of the food items imported
 - Profit margin is not sufficient
 - Labour intensive operations
 - High production cost



Other Field Crops

- The production of other major field crops followed a volatile and declining trend in the 1990s. During the 1980s to early 1990s, potato, maize, and chili production increased significantly. Post 1996, however, the domestic production of these commodities began to decline as **restrictions on imports were liberalized**. A dramatic shift in area out of these crops primarily contributed to the production decline.



General Social situation

- With the economic transformation, the structure of employment also changed.
- Migration of agricultural labor towards the industrial and service sectors continues.
- Employment in industry, services, and other categories - grew at an average rate of 4.2% per year during 1990 to 2000.
- By contrast, employment in the agricultural sector grew negligibly, at an average rate of 0.3 % per year
- Agriculture is no more an attractive employment as the income is low and not recognized by the society.



R & D in Agricultural Engineering

Main R & D Institutes

- Farm Mechanization research Centre (FMRC)
- Institute of Post Harvest Technology (IPHT), National Engineering Research & Development Centre (NERDC)

(Private sector involvement in R & D is negligible)

Mechanization of Paddy Production

- The world agricultural scenario indicates that food security is the paramount concern of every nation. All technological advances in both developed and developing countries must gear towards increasing food production.
- The average operational farm size in Sri Lanka is 1.0 hectare where as in Asia it is ranging from 1 ha to 3 ha.. Research expenditures for agriculture in the country is very low which is about 0.5 of the GDP. In this year it has been proposed to increase this up to 2%.

Details of farm machinery in paddy cultivation

- Land preparation
 - Animal – Only in the areas with no access for machinery
 - Power Tiller – The most common machine
 - Four wheel tractor – use in the area having large plot sizes

Details of farm machinery in paddy cultivation

■ Plant Establishment

- Random Broadcasting – Common practice
- Manual Transplanting - Seldom used
- Row seeding - Becoming popular
- Seedling Broadcasting - Becoming popular
- Machine transplanting - Negligible

Details of farm machinery in paddy cultivation

■ Crop management

- Irrigation - Gravity
- Chemical spraying – Common practice
- Mechanical weeding – gaining popularity
- Through water management - Difficult

Details of farm machinery in paddy cultivation

- **Harvesting & Threshing**

Reaping – Manual and self propelled reaper

Threshing – Tractor driven high capacity
thresher is the common practice

Combine harvesting – Spreading very fast

Details of farm machinery in paddy cultivation

- **Processing**

Drying & Storage – Introduction of
suitable dryers is essential with the use
of combine harvester. At present
storage of the harvest is a big problem.

- **Milling – Done by commercial scale
millers**

Details of farm machinery in OFC cultivation

- Land Preparation

Commercialized Farming – Four wheel tractors 40 hp – 50 hp with disc plough, tine tiller and rotovator

Average farmer - Two Wheel tractor mostly with rotovator in all stages

Details of farm machinery in OFC cultivation

- Crop management

Irrigation – 2" centrifugal type water pumps where irrigation facilities not available

- Micro irrigation systems in commercial scale farming and also in protected agricultural systems

Weeding – Majority manual labour with hand tools, mini power tiller is used in some areas

Disease control – Use of chemical with knapsack type sprayer.

Details of farm machinery in OFC cultivation

- Harvesting and Processing

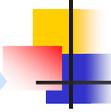
Harvesting – almost 100% manual

Processing – For maize mechanized shellers powered by either power tiller or four wheel tractor is used

Drying and storage – Not mechanized at all

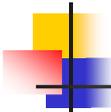
Farm Machinery Supply

- Majority is imported
- Local production is not supported by the un-favorable tax system and high cost of labour



Government Policies

- To overcome the adverse effect to the economy, Government has launched very effective measures and already it has shown satisfactory results.

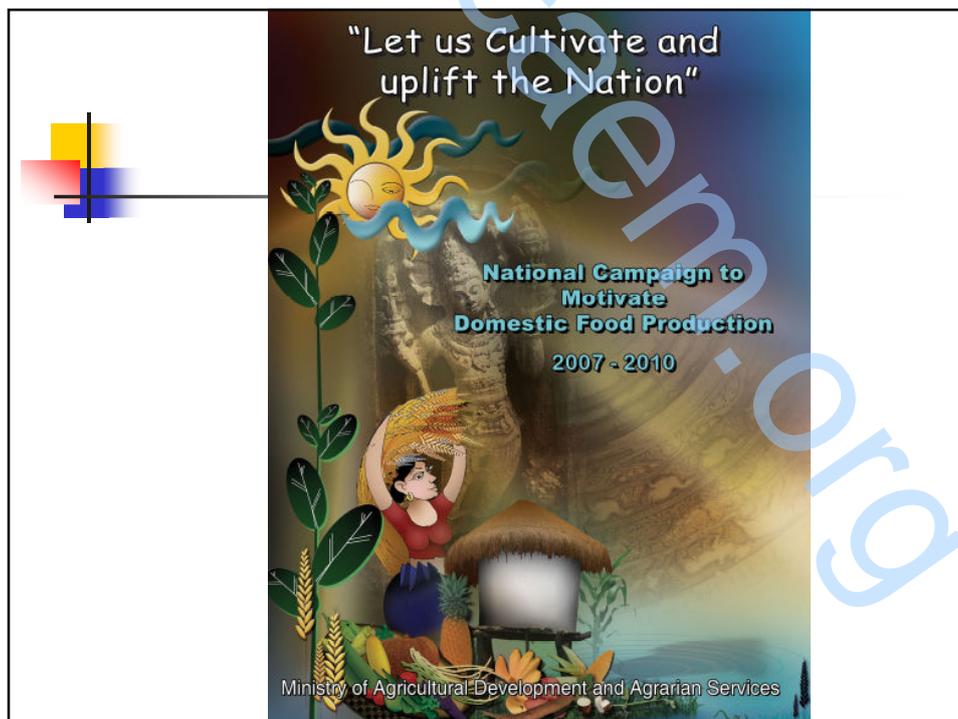


Farm Machinery Act

- The purpose of *The Farm Machinery Act* is to regulate the sale and distribution of Farm Machinery or parts . *The Act* is applicable to leases as well as sales. *The Act* provides legal guidelines for warranties, sales contracts, emergency parts service and compensation claims. It will **protect farmer, distributor, dealer and environment**

Government Policies.....

- Introduction of "**Api Wawamu Rata Nangamu**" (Let's Cultivate and Uplift the Nation), National Campaign to Motivate Domestic Food Production Programme
- Extension of **Granery Area** programme
- Introduction of tax system to prevent local producer
- Promotion of **organic fertilizer** production (urban waste disposal programme. Farmer level and commercial level)



Objectives

1. Increasing the production of essential food crops
2. Enhancing the contribution of agriculture to the GNP
3. Ensuring the food and nutrition security of the people
4. Improving the consumption pattern of the people
5. Reduction of foreign exchange spent on food imports annually
6. Improving the income of the farming community
7. Reducing the use of chemical fertilizer by 25% in the next 03 years by enhancing the use of organic manure
8. Dissemination of modern and appropriate technologies
9. Encouraging youth towards agriculture
10. Promoting environment-friendly and local/traditional agricultural methods

National Food Production Drive Programme

- Provide incentives to cultivate abandoned cultivable lands
- Development of infra-structure facilities to cultivate abandoned lands
- Provide technical packages to establish urban home gardens
- Conduct competitions to select the best home garden in different categories (Urban, rural, Government residence, Offices etc.)
- Conduct awareness programmes on available technology
- Promote school home gardening
- Promote appropriate farm machinery

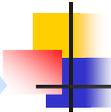
National Food Production Drive Programme

Selected crops

- **Paddy**
- **Other field crops** (Maize, Chili, onion, Black gram, Green gram, Cowpea, Groundnut)
- **Fruits** (Banana, Papaw, Pineapple, grapes, Mango, Delum, avocado, mangusteen, Rambutan)
- **Vegetable** (Beans, Brinjal, Okra, Wing beans, Root crops)
- **Spices**

Granary Area Programme (GAP)

- Approximately 113,000 ha was covered under this programme in highly potential major irrigation schemes, where the average paddy yield has reached around 6.0 t/ha. In future further extend of 164,000 ha will be covered and it is expected to increase the national average paddy yield from 4 t/ha to 5 t/ha.



Production and Utilization of Organic Fertilizer

- Through promoting production of organic manure it is expected to reduce the use of chemical fertilizer and it will solve the problem of urban waste disposal
- Training programmes, awareness programmes and field demonstrations will be organized in compost production
- Local government authorities will be encouraged in effective waste management



Promotion of Appropriate Farm Machinery

Favorable tax systems are in effect in allowing tax free importation of farm machinery which are not produced locally. Heavy import duty charged for the machinery which are being produced locally in order to protect and promote local production .

Promotion of Appropriate Farm Machinery

The National objectives in promoting Farm appropriate farm machinery,

- To increase the fertilizer use efficiency
- To minimize the use of Agro Chemicals
- To increase the water use efficiency
- To reduce the post harvest losses
- To encourage to use machinery effectively

Machinery For Paddy Cultivation



FMRC 4 Row Transplanter



4 Row bucket seeder



FMRC 6 row drum seeder



Weeders



Cono weeder



Self propelled weeder



Hand tractor coupled High capacity thresher



For Maize



Manual Seeder



Hand tractor coupled seeder for Pulses and Maize



Maize and pulses cultivation



Weeding



Weeding and Ridging

Axial water pump for irrigation



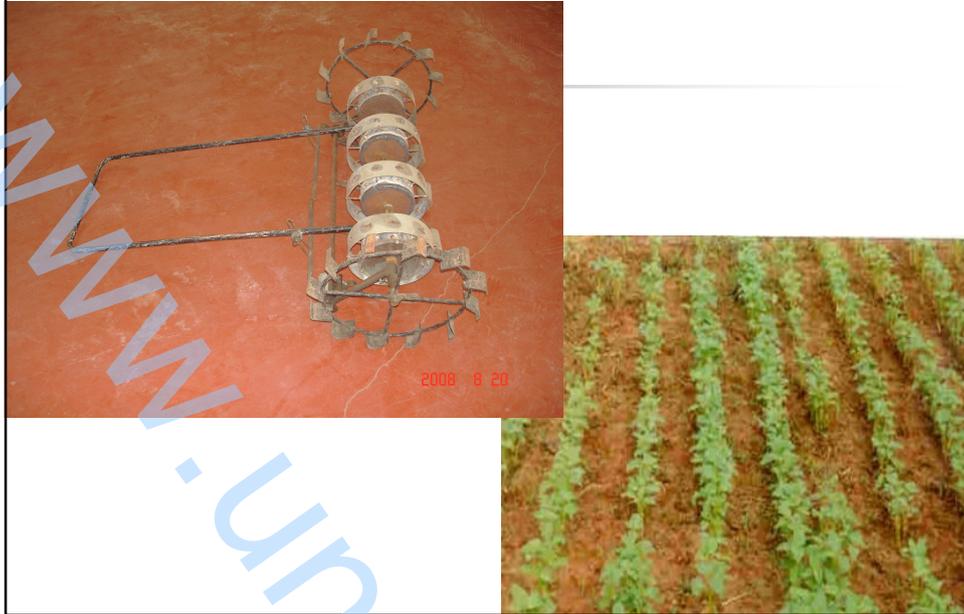
Hand Tractor attached multi-crop Thresher



Machineries for other crops



Sesame / Finger millet seeder



Finger Millet thresher (ongoing)



Ground Nut Decorticators



Manual

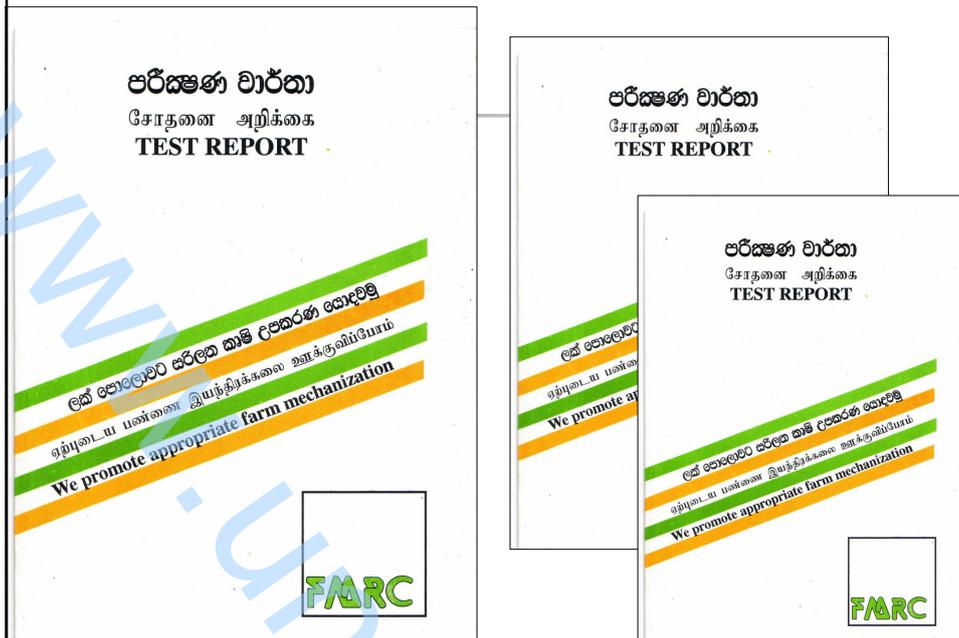


Electrical

Pulse Processing Machine



Testing and Evaluation



Testing and Evaluation of all kinds of Agricultural Machineries



