Tropical Root Crops: Strategies for Sustainable Development and Food Security

Dr Satish Chandra
Councillor South Pacific, ISTRC
Canberra, Australia

Overview

- Hunger and food security
- Production
- Consumption
- Importance for world food security
- Emerging global factors
- Strategies to improve household food security and incomes
- Example from the South Pacific
- Threat from global warming

Hunger and Food Security

- 850 million people suffer from hunger
- 5 million children die of hunger and malnutrition
- 600 million poor produce/consume TRC
- Incomes <1USD/person/day
- Definition of food security – always available; have means of access; nutritionally adequate; acceptable within given culture

Challenges Facing Us

- How can we improve food security through TRC?
- Is sustainable food security possible?
- What conditions are necessary?
- Threat from global warming and climate change
- What can we do as scientists, extension workers, and policy developers?

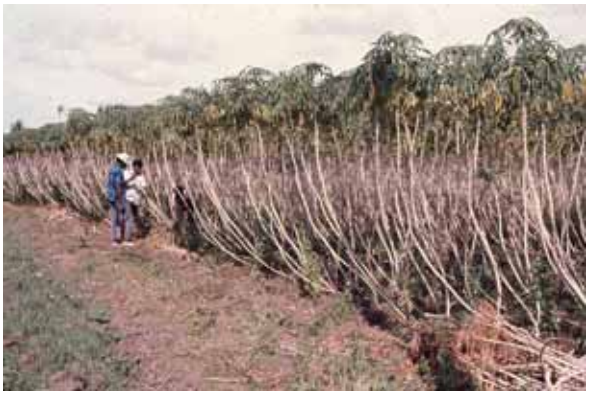


Table 1. Root Crop Production (1000t) in 2003

Regions	Cassava	Sweet Potatoes	Yams	Taro	Potatoes
Africa	101,916	10,787	38,204	6,577	12,530
North Central America	1,411	1,526	601	19	28,670
South America	30,069	1,262	566	9	14,128
Asia	55,527	107,583	208	1,977	122,833
Oceania	177	641	332	357	1,774
Europe	-	54	2	-	130,875
World	**189,100**	**121,853**	**39,913**	**8,939**	**310,810**

Source: FAO Production Yearbook, 2003

Table 2. Root Crop Consumption (kg/capita) in 2003

Regions	Cassava	Sweet Potatoes	Yams	Taro	Potatoes
Africa	122	13	46	8	15
North Central America	3	3	1	-	57
South America	84	4	2	-	40
Asia	15	28	-	1	33
Oceania	6	20	10	11	56
Europe	-	-	-	-	180
World	**30**	**20**	**6**	**1**	**50**

Source: FAO Production Yearbook, 2003

Importance for World Food Security

- Food security improves with easy and long-term access to food – TRC provide this
- Ability to grow in diverse climatic and soil conditions
- Large amounts of edible yield per unit of effort
- Low amount of energy to convert to consumable food
- All members of household can consume
- People of many cultures and tradition rely on TRC as their main staple food
- No other staple food can claim such characteristics

Emerging Global Factors

- World's cereal production stabilised
- Population growth outpacing cereal production
- Diverting cereal into animal feed for meat
- Climate change reducing cereal production and increasing volatility
- Diverting food crops to bio-fuels
- Water a declining resource and getting expensive
- TRC becoming more important for world food security

Strategy Using Economic Growth, Price Incentives and High Yields

- Poor farmers respond to price
- Increase household income with additional production for sales/marketing
- Production increases with basic improvements to husbandry/technology
- Net increase in household incomes improves food security

Impact

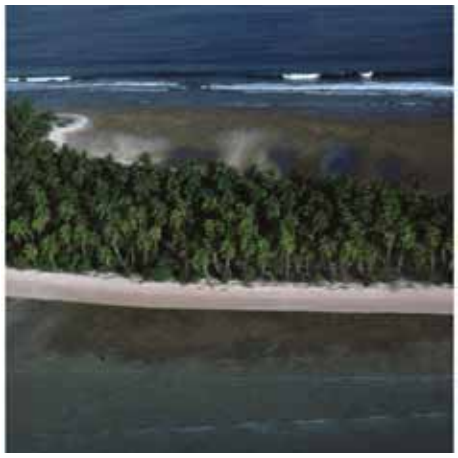
- Increased economic activity locally generates economic growth regionally
- More and more poor households lifted out of poverty
- Become more food secure long-term
- Economic growth is the only solution to long-term poverty alleviation

Strategies for Sustainable Development: Case of the South Pacific

- Improvement to household food security through TRC already happening widely
- Response to economic growth, price incentives, and high production potential of TRC
- Fiji, Samoa and Tonga are good examples
- Despite their smallness, remoteness, and high per unit cost of production
- Many TRC producing households live in relative affluence

An Effective Development Strategy in the South Pacific

- High consumption of TRC – above 200 kg/capita/year in 7 countries
- Significant exports to New Zealand and Australia
- Two basic needs met – subsistence, cash
- Three benefits identifiable
  - greater household food security
  - better nutritional balance
  - increased cash incomes
- State of subsistence-commercial affluence
- Nothing sacrificed – an effective strategy
- Sea-level rising – an enormous threat



Conclusions

- Important for improving food security
- High yields, easy availability, nutritionally adequate, family-wide consumption, high energy efficiency, acceptable in most cultures
- Production/consumption regions match world's rural poor
- Strategic opportunities offered by, economic growth, price response, and high production potential
- Example from the South Pacific
- An effective development strategy
- What does global warming and climate change mean for future of TRC?