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# **Agro-ecosystems (agriculture) and food security**

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**By: Prof. L. W O'Garro,**

**Director, Centre for Food Security and Entrepreneurship,  
University of the West Indies, Barbados.**



# Concept of food security

## Pillars of food security

1. **Availability and stability:** ensures sufficient quantities of food are available consistently
2. **Access:** ensures sufficient resources to obtain appropriate food
3. **Use:** ensures food is utilized with due regard to the basic rules of nutrition, and with adequate water and sanitation

# Drivers of food security

## **Demand side**

1. Population growth and urbanization
2. Affordability
3. Changing consumer taste

# Drivers of food security

## **Supply side**

1. Climate change
2. Water scarcity
3. Availability of supply
4. Politics and national security

# Consensus view on global food security

- ▶ The outlook is bleak.
- ▶ It is one of the largest risks to society

## **Caribbean context: the food security situation**

- 1. Is the arable land, as a productive asset for agriculture, utilized optimally?**
- 2. Is agriculture functioning as a primary engine of economic growth?**
- 3. Is there adequate investment in agriculture to match crop production expectations?**
- 4. Is crop production based on the utilization of the most effective and appropriate available and emerging modern science and technology?**
- 5. Is agriculture functioning in a programmatic way to promote protection and conservation of the environment and sustainable use of the natural resource base?**

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***IS THE ARABLE LAND, AS A  
PRODUCTIVE ASSET FOR  
AGRICULTURE, USED OPTIMALLY?***

**AGRICULTURAL LAND HOLDINGS CULTIVATED AND THEIR  
CORRESPONDING ACREAGES DURING PERIOD 1972 TO  
2000 FOR ST. VINCENT**

**Number of holdings**

**Acreage**

**7 794 (Year 1972)**

**34 355**

**8 600 (Year 1986)**

**29 695**

**7 380 (Year 2000)**

**17 785**



## **Agricultural land holdings and their corresponding acreage for St. Lucia 1961 to 2007**

<b>Number of holdings/year</b>	<b>Area (acres)</b>
13 008 (year 1961)	87 375
10 938 (year 1974)	72 001
15 518 (year 1986)	58 016
13 336 (year 1996)	51 323
9 972 (year 2007)	30 204

**Agricultural census data for Dominica on the number of farms and their corresponding acreage during the period 1961 to 2001**

**Number of farms/year**

**Area (acres)**

8 792	(year 1954)	73 900
9 109	(year 1961)	76 300
7 992	(year 1976)	71 400
8 364	(year 1983)	43 000
10 100	(year 1995)	58 000
-	(year 2001)	50 016

Amount of farmland cultivated with food crops during 1999 to 2011 out of a total of 47 460 (2004) hectares for Trinidad

<b>Period</b>	<b>Hectares</b>
1999 to 2002	8 117
2003 to 2006	7 772
2007 to 2011	9 175

# The amount of agricultural land planted in St. Lucia during the period 1974 to 2007

<b>Year</b>	<b>Acreage</b>
1974	49 028
1986	48 849
1996	42 872
2007	24 530

## Areas of farms cultivated in Jamaica for the period 1954 to 2007

Year	Acres ( $\times 1000$ )
1954	1 914
1958	1 823
1961	1 711
1968	1 489
1979	1 327
2007	0.795

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***IS AGRICULTURE FUNCTIONING AS  
A PRIMARY ENGINE OF ECONOMIC  
GROWTH?***

# The Grenada situation

## **Agricultural land available:**

- ▶ 1961: 72 % (14 164 ha)
- ▶ 1995: 41 %
- ▶ 2014: 23.5 %

## **Contribution of the plant crop sector to the gross domestic product of St. Vincent and the Grenadines for the period 1979 to 2010**

<b>Period</b>	<b>GDP (percent)</b>
1979 to 1983	12.74
1984 to 1988	15.74
1989 to 1993	15.49
1994 to 1998	9.60
1999 to 2003	8.23
2004 to 2008	8.23
2009 to 2010	4.63



## Contribution of agriculture to GDP for St. Lucia during the period 2008 to 2012

<b>Year</b>	<b>GDP (percent)</b>
2008	4.37
2009	4.22
2010	3.22
2011	2.84
2012	3.10

Contribution of agriculture to GDP for St. Kitts and Nevis during the period 2000 to 2012

<b>Period</b>	<b>GDP (percent)</b>
2000 to 2003	1.96
2004 to 2007	1.71
2008 to 2012	1.52

# Contribution of agriculture to GDP for Jamaica during the period 1954 to 1999

Period	GDP (percent)
1954 to 1958	13.1
1961 to 1968	11.6
1991 to 1995	7.3
1996 to 1999	8.1

# Contribution of agriculture to GDP for Dominica during 2006 to 2012

<b>Year</b>	<b>GDP (percent)</b>
2006	10.84
2007	10.85
2008	12.60
2009	13.68
2010	12.78
2011	13.64
2012	15.17

**Eastern Caribbean dollar value of food imports and exports for St. Vincent and the Grenadines during the period 1981 to 2008**

**Value of imports (XCD)**

<b>43 165 000</b>	<b>(year 1981)</b>
<b>50 431 000</b>	<b>(year 1985)</b>
<b>79 756 000</b>	<b>(year 1990)</b>
<b>73 566 000</b>	<b>(year 1995)</b>
<b>114 747 000</b>	<b>(year 1997)</b>
<b>105 574 000</b>	<b>(year 2000)</b>
<b>119 330 500</b>	<b>(year 2005)</b>
<b>198 540 200</b>	<b>(year 2008)</b>

**Value of exports (XCD)**

<b>50 772 000</b>
<b>144 576 000</b>
<b>166 992 000</b>
<b>127 013 000</b>
<b>96 087 000</b>
<b>97 581 000</b>
<b>76 428 237</b>
<b>80 960 527</b>

## DOLLAR VALUE OF FOOD IMPORTS AND EXPORTS FOR ST. LUCIA

<b>Year</b>	<b>Exports (XCD)</b>	<b>Imports (XCD)</b>
2007	40 576 000	261 322 000
2008	65 796 000	292 053 000
2009	70 357 000	292 859 000
2010	48 710 000	276 535 000
2011	24 067 000	355 457 000
2012	24 267 000	360 167 000

## Dollar value of food imports and exports for St. Kitts/Nevis

<b>Year</b>	<b>Food exports (XCD)</b>	<b>Food imports (XCD)</b>
2005	667 577	86 909 812
2006	1 209 386	104 231 924
2007	1 760 694	115 375 452
2008	2 006 147	132 353 407
2009	2 574 678	136 947 105
2010	2 482 457	123 687 867
2010	2 673 565	130 918 386

## Value of food imports as a proportion of total imports for Jamaica during the period 1971 to 2001

Period	Value of food imports (percent of total value of all imports)
1981 to 1987	8.6
1988 to 1992	14.9
1993 to 1996	13.6
1997 to 2001	37.9



# The Grenada situation (2010 )

- ▶ Total agricultural imports: XCD 162.3 M
- ▶ Total agricultural exports: XCD 13.3 M
- ▶ Total food exports: XCD 41 M (4 % of domestic supply)
- ▶ Total food imports: XCD 142 M