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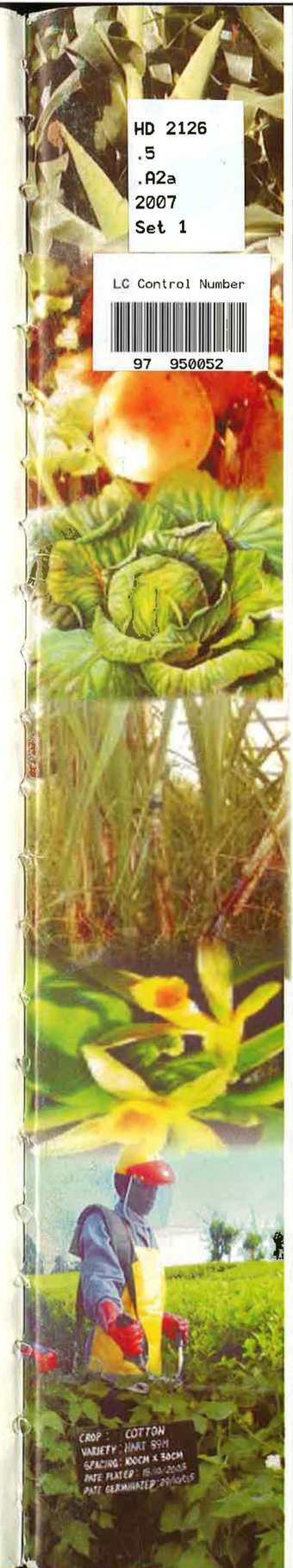

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Economic Review of Agriculture

2007

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Ministry of Agriculture

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ECONOMIC REVIEW OF AGRICULTURE 2007

Table of Contents

TABLE OF CONTENTS III
LIST OF FIGURES IV
LIST OF TABLES V
FOREWORD VII
ABBREVIATIONS VIII

1.0 OVERVIEW ON ECONOMIC PERFORMANCE 1

1.1 Overall Economic Performance 1
1.2 Performance of the Agricultural Sector 2
1.3 Addressing Food and Nutritional Security (MDG1) 3

2.0 TRENDS IN BUDGET ALLOCATION TO AGRICULTURE 5

3.0 KEY RECENT REFORMS 7

3.1 Key Policy and Legal Reforms – 2006 7
3.2.1 Strategic Issues - 8
3.2.2 Strategic Objectives – 8
3.3 Results Based Management Initiatives 9
3.4 Organizational Development 10
3.4.1 Trainings in Change Management 10
3.4.2 Staff rationalization 10

4.0 WORLD COMMODITY SITUATION 12

4.1 Cereals 12
4.1.1 Wheat 13
4.1.2 Coarse Grains 13
4.1.3 Rice 14
4.2 Cotton 14
4.3 Sugar 14
4.4 Coffee 15

5.0 FOOD CROPS 16

5.1 Maize 18
5.2 Wheat 19
5.3 Rice 19
5.4 Sorghum 20
5.5 Millets 21
6.6 Beans 21
6.7 Pigeon Peas 21
5.8 Cowpeas 22
5.9 Green grams 22
5.10 Arrow Roots 23
5.11 Cassava 23
5.12 Sweet Potatoes 24
5.13 Yams 24

6.0 INDUSTRIAL CROPS 25

6.1 Tea 25
6.2 Coffee 26
6.3 Sugar 28
6.4 Cotton 29
6.5 Pyrethrum 30
6.6 Tobacco 31
6.7 Sisal 31
6.8 Coconuts 31

7.0 HORTICULTURE 33

7.1 VEGETABLES 36
7.2 IRISH POTATOES 38
7.3 FRUITS 38
7.4 NUTS (MACADAMIA AND CASHEW NUTS) 41
7.4.1 Macadamia Nuts 41
7.4.2 Cashew nuts 41
7.5 HERBS AND SPICES 42
7.6 CUT FLOWERS 43
7.7 HORTICULTURAL CROPS EXPORTS 43

8.0 AGRICULTURAL INPUTS 45

8.1 ANNUAL FERTILIZER OFF-TAKE 2000 -2006 45
8.2 RETAIL FERTILIZER PRICES 46
8.3 SEEDS 47
8.4 CROP PROTECTION PRODUCTS 49
8.4.1 Import of Pest Control Products 49
8.5.2 Export of Pest Control Products 50

List of Figures

Figure 1.1: Kenya's GDP Growth Rates, 2002 - 2006 1
Figure 1.2: Kenya's Ag-GDP Growth Rates, 2000 – 2006 3
Figure 4.1: Trend in World Cereals Production and Consumption; 2002 - 2006 13
Figure 5.1: Food Crops Production, 2002-2006 16
Figure 6.1: Kenya's Tea Export Destinations, 2006. 26
Figure 6.2: Sugar Production by Sugar Company, 2006 29

List of Tables

Table 2.1: Expenditure for the Ministry of Agriculture (2002/03 – 2006/07) 5
Table 4.1: World Cereals Situation, 2002 – 2006 (million tons) 12
Table 4.2: World Cotton Situation, 2002 – 2006 14
Table 4.3: World Sugar Situation, 2002 – 2006 15
Table 4.4: Coffee Production by Exporting Countries, 2002 – 2006 15
Table 5.1: Production of Food Crops by Province, 2006 17
Table 5.2: Maize Production, 2002 - 2006 19
Table 5.3: Wheat Production, 2002 - 2006 19
Table 5.4: Rice Production, 2002 – 2006 20
Table 5.5: Sorghum Production, 2002 - 2006 20
Table 5.6: Millet Production, 2002 - 2006 21
Table 5.7: Beans Production, 2002 - 2006 21
Table 5.8: Pigeon Peas Production, 2002 - 2006 22
Table 5.9: Cowpeas Production, 2002 - 2006 22
Table 5.10: Green Grams Production, 2002 - 2006 23
Table 5.11: Arrow Roots Production, 2002 – 2006 23
Table 5.12: Cassava Production, 2002 - 2006 23
Table 5.13: Sweet Potatoes Production, 2002 - 2006 24
Table 5.14: Yams Production, 2002 - 2006 24
Table 6.1: Tea Production, 2002 - 2006 25
Table 6.2: Coffee Production, 2002 - 2006 27
Table 6.3: Coffee Export Destinations; 2004 - 2006 27
Table 6.4: Sugar Production, 2002 - 2006 29
Table 6.5: Cotton Production, 2002 - 2006 30
Table 6.6: Pyrethrum Production, 2002 - 2006 30
Table 6.7: Tobacco Production, 2002 - 2006 31
Table 6.8: Sisal Production, 2002 - 2006 31
Table 6.9: Coconut Production, 2002 - 2006 32
Table 6.10: Bixa Production, 2002 - 2006 32
Table 7.1: Summary of Horticultural Crops Production, 2002 - 2006 33
Table 7.2: Production of Horticultural Crops by Province, 2006 34
Table 7.3: Production of Major Vegetables 2002 – 2006) 35
Table 7.4: Production of Irish Potatoes, 2002 - 2006 37
Table 7.5: Major Fruits Production, 2002-2006 38
Table 7.6: Production Macadamia 2002 - 2006 40
Table 7.7: Cashew nuts Production, 2002-2006 41
Table 7.8: Herbs & Spices Production, 2002-2006 41
Table 7.9: Cut Flower Production, 2002-2006 42
Table 7.10: Fresh Horticultural Exports; 2002-2006 43
Table 8.1: Annual Fertilizer Off-take, 2000-2007 (tons) 44
Table 8.2: Average Retail Fertilizer Price, 2001-2006 (Kshs/50kg) 45
Table 8.3: Certified Seeds Production and Importation (2002-2006) 46
Table 8.4: Quantities and values of imported pesticides 2003/04 – 2005/06 49

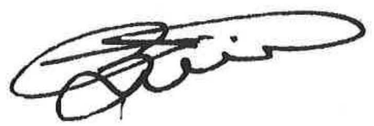
FOREWORD

This publication of the "Economic Review of Agriculture" represents the 2nd edition since its revival last year. As stated then, the revival of the publication was primarily to supplement existing sources for agriculture data that can be utilized for planning and informed-decision making. It is envisaged that the publication will be published annually.

We are therefore grateful to our stakeholders both in government and the private sector for useful comments received after the distribution of the initial edition. These comments have been useful in the preparation of this edition. It is also our wish that future publications will contain data on livestock and fisheries and other sub-sectors that contribute to Agriculture and Rural Development (ARD). The Ministry is also in the process of producing a compendium on agriculture data and eventually put it on a digital platform for ease of access.

This publication is divided into eight chapters as follows-: Chapter One provides an overview on Kenya's economic performance in the recent past and also highlights the share of agriculture in comparison with the overall economy; Chapter Two provides key highlights in government budget allocation to the Ministry over a five-year period; Chapter Three highlights key recent reforms in the Ministry that have under-pinned the now noticeable agricultural recovery in key sub-sectors. The reforms highlighted are both on policy and legal and are also elaborated in Annex 1; The World commodity situation is analyzed in chapter four and provides an opportunity for comparison with the local situation; Chapters five-seven provides basic trend-analysis on food crops, industrial crops and horticultural crops respectively. Finally, chapter eight highlights information on key agricultural inputs including seeds, fertilizer and pest control products.

Finally, I wish to thank the editorial team led by the Chief Economist, J.M Kirigwi and also the Agricultural Secretary, Dr. Wilson Songa for valuable inputs and finalization of the 2nd edition of the publication. In addition, I wish to acknowledge financial support for the printing of this publication extended by the Agricultural Sector Support Programme (ASPS), a DANIDA/GOK funded Project under the Ministry of Agriculture.



Romano M. Kiome (PhD, MBS)

PERMANENT SECRETARY

Abbreviations

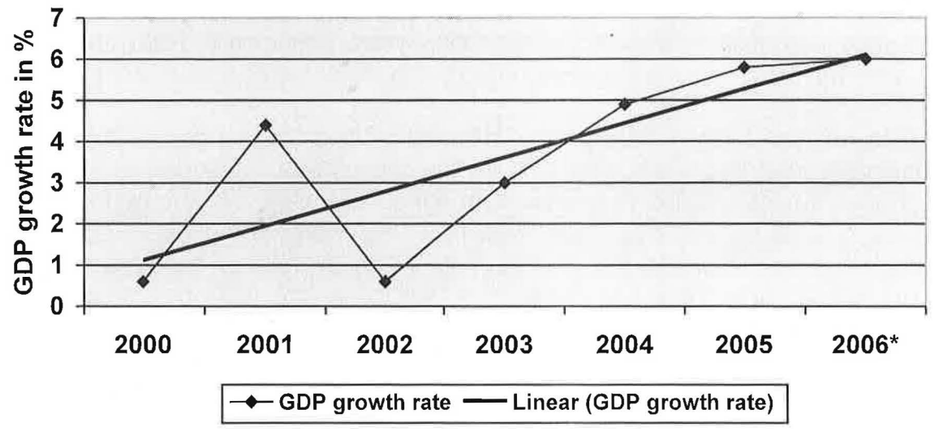
ACP	-	African Caribbean and Pacific
Ag-GDP	-	Agricultural Gross Domestic Product
ASAL	-	Arid and Semi Arid Land
BAT	-	British American Tobacco
COMESA	-	Common Market for Eastern and Southern Africa
CPMU	-	Central Planning and Monitoring Unit
EAC	-	East African Community
EDF	-	European Development Fund
EEC	-	European Economic Community
EPA	-	Economic Partnership Agreement
ERS	-	Economic Recovery Strategy for Wealth and Employment Creation
EU	-	European Union
EUREPGAP	-	European Good Agricultural Practice
FTA	-	Free Trade Area
FTC	-	Farmers Training Centre
GDP	-	Gross Domestic Product
GoK	-	Government of Kenya
GTZ	-	German Technical Cooperation
Ha	-	Hectare
HCDA	-	Horticultural Crops Development Authority
KARI	-	Kenya Agricultural Research Institute
Kshs	-	Kenya Shillings
KTDA	-	Kenya Tea Development Agency
MDG	-	Millennium Development Goal
NASEP	-	National Agricultural Sector Extension Policy
NCPB	-	National Cereals and Produce Board
NGOs	-	Non-Government Organizations
SRA	-	Strategy for Revitalizing Agriculture
US	-	United States of America
WB	-	World Bank

1.0 OVERVIEW ON ECONOMIC PERFORMANCE

1.1 Overall Economic Performance

The Kenyan economy continued to witness sustained turnaround underpinned by positive reforms and improved governance. Overall economic expansion rose from a low 0.6% in 2002 to 3.0% in 2003, and 4.9% in 2004 and eventually peaked at 5.8% in 2005, well above an annual population growth of about 2.5%. Preliminary data again suggests that the economy expanded further in 2006 compared to 2005 as shown in Figure 1.1.

Figure 1.1: Kenya's GDP Growth Rates, 2002 - 2006



*provisional

Kenya's economic expansion has been driven through key policy documents that provide sectoral priorities cascaded from the Economic Recovery Strategy for Wealth and Employment Creation (ERS) 2003–07. In the agricultural sector, the Strategy for Revitalizing Agriculture (SRA) for 2004–2014 remains the main reference document supplemented by specific Agriculture and Rural Development (ARD) sector Ministries' Strategic Plans and Performance Contracts (PCS).

It is envisaged that the economic expansion momentum will be consolidated further through Vision 2030 Strategy; a successor to the ERS. The Vision in particular isolates agriculture as a key sector in the strategy if the country is to realize the targeted average GDP growth rate of 10% annually in the next 25 years. The sector will therefore be expected to open new frontiers especially in the use of irrigation and exploitation of under-utilized lands.

Vision 2030 long-term strategy has been prepared along three key pillars:-

- **Economic:** Achieving an accelerated annual economic growth of 10% on a sustainable basis;
- **Social:** Building a just and cohesive society enjoying equitable social development in a clean and secure environment; and
- **Political:** Building an issue-based, people-centered, result-oriented and accountable democratic political system.

1.2 Performance of the Agricultural Sector

The agricultural sector contributes about 24% of the country's GDP and 60% of export earnings. Empirical evidence shows that there is a strong correlation between growth in agriculture and that of the GDP; for the economy to grow, the agriculture sector must also grow proportionately.

Through links with manufacturing, distribution and the service sector, agriculture indirectly contributes a further 27% to the country's GDP. Additionally, about 45% of government revenue is derived from agriculture while the sub-sector contributes over 75% of industrial raw materials. More important is agriculture contribution to the achievement of national food security as about 80% of the Kenyan population live in the rural areas and derive daily livelihood largely from agriculture related activities.

Growth in the sector however is largely dependent on weather patterns despite development of pro-active policy responses to mitigate the sector from adverse effects of drought. Other negative effects have emanated from market liberalization and global competitiveness. Growth trends have therefore exhibited fluctuations punctuated by both periods of declines and recovery depending on weather and somewhat availability of markets. However, appropriate policy interventions which became more focused and consolidated with the launch of the SRA in 2004 have contributed to sustained agricultural recovery. From a depressed -3.0 % real decline in 2002, the sector recovered to 2.6 % real growth in 2003 before finally registering a dramatic 6.7% real growth in 2005.

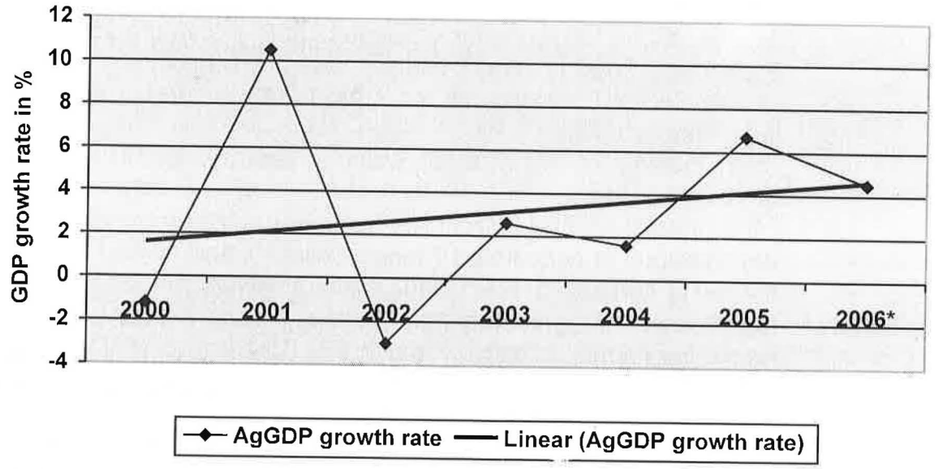
Empirical data however suggest that the rally experienced by the sector in 2005 as shown in Figure 1.2 encountered a slow-down in 2006. Performance in 2006 was therefore mostly underpinned by resurgence in the dairy industry and above average production of food crops including maize and beans driven by above average and well distributed rainfall across the country. In particular, harvests in the eastern parts of the country registered significant improvement from good rains experienced during the short-rains season of 2005. Thus, production of maize increased by 11% from 32.4 million bags in 2005 to 36.1 million bags in 2006. In the same period,

production of beans peaked at 5.9 million bags from 4.2 million bags representing an increase of over 41%.

In the same period, the value of horticultural exports increased by 14% from Kshs 37.998 billion in 2005 to Kshs 43.271 billion in 2006. Other commodities that performed well include rice production that rose by 12% from 57,942 tons in 2005 to 68,840 tons in 2006 mainly attributed to increase in the area under the crop.

Other key food crops that registered significant production increases were cassava (16%) and sweet potatoes (8%). Industrial crops however did not perform well in 2006, with production of tea dropping by 5.5% to stand at 310,578 tons, sugar production dropping by 3% to stand at 475,670 tons, while pyrethrum production declined by 24% to stand at about 763 tons.

Figure 1.2: Kenya's Ag-GDP Growth Rates, 2000 – 2006



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1.3 Addressing Food and Nutritional Security (MDG1)

It is estimated that about 51% of the Kenyan population lack access to adequate food and the little available is of poor nutritional value. The incidence and prevalence of food insecurity is more severe in Arid and Semi-Arid Lands (ASALs) due to lack of adequate resource-endowment necessitating periodic government intervention in the provision of relief food.

The Ministry of Agriculture has undertaken major policy reforms to address poverty and food insecurity in a holistic manner. These include formulation of appropriate strategies to improve agriculture production, increase real farm incomes and ensure availability and access to food. Recent national data suggest that poverty levels have on average decreased from a high of 56% of the population below poverty line to 46%; an 11 percentage-points decease translating to about 2 million Kenyans who have graduated from abject poverty in the last decade.

A number of projects have been initiated with the aim of accelerating the achievement of the MDG 1 on poverty and hunger. These include:

i) Kenya Agricultural Productivity Project (KAPP) with support from the World Bank covering 20 districts;
ii) National Agriculture Extension Programme (NALEP II) supported by Sida and covering 62 districts;
iii) Horticulture and Traditional Food Crops Development Programme covering 8 districts in Eastern Province and funded by IFAD;
iv) Agricultural Sector Research under KARI and agriculture Research Foundations supported by EEC/EDF, WB;
v) Njaa Marufuku Kenya (NMK) covering 71 districts and directly supported by the GoK;
vi) Agricultural Sector Programme Support (ASPS) covering 15 districts in Eastern and Coast Provinces and supported by Danida;
vii) Private Sector Development for Agriculture covering 9 districts and supported by GTZ;
viii) Strengthening of Agricultural Training Centres, formally the FTCs funded by the GoK;
ix) Land Development and Machinery Services funded by the GoK;
x) Rehabilitation of Agricultural Training Colleges; and
xi) Review of Agricultural Policy and Legal Framework funded by the GoK.
xii) Development of Community Agriculture in ASAL Areas (CADSAL).
xiii) Promoting Farmer Initiative through FFS (UNDP thro` FAO). This is a new project that will cover districts such as Kilifi, Taita Taveta, Nakuru, Bomet, Narok, Kitui, and Mwingi and the
xiv) National Accelerated Agricultural Inputs Access Program (NAAIAP), a project proposed to cover all agricultural districts in Kenya with initial funding by the GOK;

2.0 TRENDS IN BUDGET ALLOCATION TO AGRICLUTURE

Budget allocation to the Ministry improved further over the review period with allocation increasing from Kshs. 8.3 billion in 2005/06 to Kshs. 10.3 billion in 2006/07, representing a 24% increase. The major increase was on the development budget by 38% from Kshs. 3.22 billion in 2005/06 to Kshs. 4.43 billion in 2006/07 as shown in Table 2.1. Recurrent expenditure increased by 14% from Kshs. 5.11 billion in 2005/06 to Kshs. 5.85 billion in 2006/07.

Preliminary figures for 2007/08 indicate that total budget to the Ministry will increases to about Ksh 14.0 Billion. Accordingly, the recurrent budget will rise to Kshs 7.1 billion while the development budget will almost double to Kshs 6.9 billion from Kshs 3.6 billion in 2006/07.

Meanwhile, close analysis reveals that the proportion of the recurrent budget allocation that was actually spent by the Ministry also improved from 74% of printed estimates in 2004/05 to 99% in 2005/06. The same trend in actual spending was recorded for the development budget improving from 41% to 69% over the same period.

However, overall budget allocation to the Ministry has over the past five years remained below 0.8% of the Gross Domestic Product (GDP). The allocation increased from 0.59% of the GDP in 2005/06 to 0.73% in 2006/07. In comparison with total government budget, the allocation increased marginally from 2.31% in 2005/06 to 2.44% in 2006/07.

Meanwhile, total actual expenditure by the Ministry as a percentage of GDP also increased from 0.40% in 2004/05 to 0.51% in 2005/06 as the share of actual expenditure to total government expenditure also increased from 1.71% to 2.02% over the same period.

Table 2.1: Expenditure for the Ministry of Agriculture (2002/03 – 2006/07)

Item	2002/03		2003/04		2004/05		2005/06		2006/07
	Printed	Actual	Printed	Actual	Printed	Actual	Printed	Actual	Printed
Recurrent Budget	3,757.2	3,127.2	3,564.2	3,255.2	3,591.8	3,364.4	5,116.1	5,052.6	5,850.5
Development Budget	1,147.8	928.8	3,263.8	1,783.8	4,302.2	1,756.4	3,217.5	2,215.7	4,431.1
Total Expenditure	**4,905**	**4,056**	**6,828**	**5,039**	**7,894**	**5,120.8**	**8,333.6**	**7,268.3**	**10,281.7**
Total Expenditure as % of GDP*	0.51	0.42	0.71	0.52	0.62	0.40	0.59	0.51	0.73
Total Expenditure as % of total GOK expenditure	2.11	2.23	1.75	1.91	2.64	1.71	2.31	2.02	2.44
Development as % of total expenditure	23.4	22.9	47.8	35.4	54.5	34.3	38.6	30.5	43.1
Recurrent as % of total expenditure	76.6	77.1	52.2	64.6	45.5	65.7	61.4	69.5	56.9

Source: CPMU, MoA

Since the year 2002, the Ministry of Agriculture has prioritized budget allocation towards priority programmes that ensure higher returns on public investment and returns to farmers. During the 2005/06, for example, the Ministry was allocated a total of Kshs. 8.33 billion for both development and recurrent expenditures. Research and extension services received about 77% of these resources. The same trend was observed during 2006/07 when the same programmes accounted for 72% of total funding to the Ministry.

3.0 KEY RECENT REFORMS

During 2006, a number of policies, legal and institutional reforms were carried out by the Ministry. New management systems were also adopted and some of the key reforms are highlighted here below and in Annex 1.

3.1 Key Policy and Legal Reforms – 2006

During the year under review, the ministry carried out policy/legal reviews for a number of sub-sectors. These include the following;

3.1.1 Pyrethrum Industry Policy and Amendments of the Pyrethrum Act Cap 340: - The aim of the policy review is to liberalize the pyrethrum industry and separate the commercial from regulatory functions of the Pyrethrum Board of Kenya (PBK). Both draft policy and Amendment Bill are ready for submission to the Cabinet.

3.1.2 National Seed Industry Policy: - The review is aimed at giving clear direction for the sustainable development of the seed industry in order to avail high quality seed and planting materials to farmers. It is also geared towards harmonizing all seed related activities and legislation. The Draft Policy and Amendments Bill area ready and being subjected to stakeholder review before being taken to parliament. The National Seed Industry Arbitration Tribunal was gazetted in August 2006, while the draft Seed Varieties Regulations and the Plant Breeder's Rights Regulations have been finalized.

3.1.3 National Agricultural Sector Extension Policy (NASEP): - Aims at giving extension a sector-wide dimension and representation. It is also to guide and regulate the provision of agricultural extension service in the country. The draft policy is ready and has been circulated to sector ministries for comments. NASEP implementation framework is being prepared.

3.1.4 Development of a Sugar Policy and Amendment of Sugar Act. No.10 of 2001: - Aims at restructuring the sugar industry to make it more efficient and competitive in view of increased regional and global trade. Legal drafting of Sugar Bill has been finalized by Attorney General and waiting Cabinet approval of the new policy direction. The Sugar Arbitration rules 2006 were finalized and gazetted during the review period.

3.1.5 Amendment of the Coffee Act No. 9 of 2001: - these amendments are aimed at providing a window for direct coffee sale and marketing, establishment of Coffee Development Fund to finance the industry, and restructure the key industry institutions for efficient and effective service delivery. Coffee Development Fund is now operational and the Board of Trustees inaugurated in May 2006. Marketing of coffee rules were finalized and gazetted in July 2006 thus formally opening the second window.

3.1.1 Cotton Policy and Repeal of Cotton Industry Act Cap 335: - Aimed at reviving the cotton industry through policy interventions that address production, processing and marketing. It is also expected to establish a leaner Cotton Board to regulate industry; provide for greater involvement of the private sector, provide for establishment of Cotton Development Fund, Cotton Development Levy and Arbitration Tribunal. The Cotton Bill 2006 has been approved by parliament and made law.

3.1.2 National Food and Nutrition Policy (NFNP): Draft NFNP ready and has been presented to the Strategy for Revitalizing Agriculture (SRA) National Steering Committee. The Cabinet Memo and Bill are being developed by the SRA Technical Working Group (TWG) on Food and Nutritional Policy and Programmes.

3.1.3 National Potato Industry Policy (NPIP): The draft Potato Policy and strategy have been finalized having incorporated comments from stakeholders. Legal Notice No.44 of 27th May 2005 on potato standards has been produced and is being implemented.

3.2 **Revision of the Strategic Plan 2006 – 2010:** Over the review period, the Ministry's Strategic Plan was revised in order to embrace new strategies that address emerging issues and constraints. Eight (8) strategic issues and corresponding objectives were developed together with their implantation strategies and workplans which were further cascaded to the extension service provider at the village-level. The revision required a dramatic change in public service delivery as provided in the Ministry's Service Charter as part of the on-going public sector reforms.

3.2.1 Strategic Issues -

i. Inappropriate policy and legal framework;
ii. Inadequate market access;
iii. Low agricultural output and productivity;
iv. Inadequate land use practices;
v. Weak institutional framework;
vi. Poor access to agricultural information;
vii. Inadequate affordable credit and input to farmers; and
viii. Weak Institutional capacity and coordination in the ministry.

3.2.2 Strategic Objectives –

During the plan implementation, the ministry will be guided by the following strategic objectives:

i. Create an enabling environment for agricultural development through review of the current legal and policy framework;
ii. Promote market and product development by adopting a value chain approach;

iii. Facilitate increased productivity and agricultural output through improved extension, advisory support services and technology application;
iv. Promote conservation of the environment and natural resources through sustainable land use practices;
v. Restructure and privatize non-core functions of the ministry and its institutions and strengthen private–public partnerships;
vi. Improve access to agricultural information through an ICT-based information management;
vii. Facilitate accessibility of affordable credit and quality inputs to farmers; and
viii. Strengthen human resources development, including monitoring and evaluation (M&E) and coordination of staff functions within the ministry.

3.3 Results Based Management Initiatives

Several reform initiatives have been put in place to provide a foundation for the achievement of predetermined outputs for results-based management. The reform initiatives, at ministry level, are being coordinated by the Ministerial Management Unit. During the period under review, the Ministry undertook various reforms including:

Mandatory annual work plan preparation by staff, as a base for annual performance appraisal: The annual work plans are the building blocks for results based management. All the Ministry of Agriculture staff are now on the new Performance Appraisal System (PAS), which requires that realistic and achievable targets are set and on which they are appraised/evaluated at the end of the year. Staff evaluation has been done for 1st half of the year (July 2006 to June 2007).

Establishment of a Work Improvement Team (WIT): This team acts as a change agent that provides an inclusive point of contact for management dialogue. The team has played a pivotal role in the Voluntary Early Retirement Scheme (VERS) besides the continuous provision of an inclusive point of contact for management dialogue.

Performance Contracting (PC): Chief Executives and Chairmen of State Corporations of the Ministry, the Permanent Secretary and Heads of Department have signed their respective PCs and are implementing them accordingly.

Development of an Information Communication Technology (ICT) Policy and implementation of E-Government Strategy. This is aimed at modernizing Government operations. So far, the Kilimo house offices are networked and most Officers have access to internet greatly enhancing communication, through e-mail, not only amongst the officers but with other relevant stakeholders. There is an on going exercise to network field offices.

At the same time, the Ministry is building capacity in computer technology. In May 2006, Senior Staff of the Ministry completed a one-month computer course at Strathmore College. The training has since been extended to all staff at the Ministry Headquarters. The focus during this financial year (2006/2007) will be on the field staff.

Rapid Result initiatives (RRI): The introduction of the Rapid Results Initiatives (RRI), a management tool through which small components of larger projects can be geared to achieve set results in 100 days, was timely in that it provided a tool for fast tracking implementation of the Performance contracts and other Government reform agendas. Specifically, formation of RRI teams was meant to fast-track areas that were of immediate concern to jump start the economy. The RRI commodity and service based thematic teams; Tea, Coffee, Cotton, Sugar, Cereals, Pyrethrum, Procurement, Registry, Code of Ethics and Service Charter and Audits were launched on 29th November 2005. The first wave of the RRI was celebrated on 16th March 2006. The thematic teams achieved between 80% and 100% of their RRI goals.

At the moment efforts are underway to cascade the RRI to the field managers; DAOs, Principals of Training Institutes and Managers of the Rural Technology Development Centers (RTDC) this financial year (2006/2007).

Service Charter: The Service Charter of the Ministry has been prepared and has been circulated among Ministry staff and stakeholders.

3.4 Organizational Development

In order to improve service delivery and revitalize the agricultural sector, a number of organizational developments were carried out. Key among these was training in change management and staff rationalization.

3.4.1 Trainings in Change Management

Over the review period, trainings were mapped out for Ministry senior management on change management to embrace teamwork and be responsive to the reforms being introduced by the government.

3.4.2 Staff rationalization

Staff rationalization, which started in September 2005 was completed in March 2006. The aim was to enhance staff productivity and service delivery and involved spreading staff evenly all over the country and allocating duties according to areas of specialization. In order to improve visibility, a total of 5,072 extension officers were fitted with uniforms. In addition, 51 motor vehicles and 360 motorcycles were procured and distributed to the field with the aim of strengthening extension service delivery.

In March 2006, the ministry recruited 300 university graduate extension officers in the grade of agricultural officer II. This is expected to improve service delivery and address the succession problems currently facing the ministry occasioned by a recruitment embargo of over a decade.

Extension service delivery was improved further through establishment of 1,538 information desks in the provinces and districts as avenues of sharing agricultural information with farmers and other agricultural stakeholders.

4.0 WORLD COMMODITY SITUATION

4.1: Cereals

The world cereals production will drop by 39,510 million tons from 2,014.01 million tons in 2005/06 to 1,974.50 million tons in 2006/07. This is a 1.96% drop, which is mainly attributed to the 28.33 million tons (4.5%) drop in wheat production from 620.13 million tons in 2005/06 to 592.02 million tons in 2006/07. World production of course grains is expected to drop by about 10.4 million tons while rice production will register a marginal decline of about 1 million tons.

Despite the overall drop in cereals production, most parts of Africa will register above average production of cereal crops. These are particularly in the North, Western, Central, Eastern and most countries of Southern Africa. This is mainly attributed to improved weather conditions in these regions. The Far East Asia will also record high production levels.

Consumption of cereals is however expected to continue rising from 2,026.75 million tons in 2005/06 to 2,050.22 million tons in 2006/07 thus exceeding production by 3.8%. This development will result in consumption eating into existing stocks thus leading to the world end year stocks for cereals reducing by 19% from 394.65 million tons in 2005/06 to 318.93 million tons in 2006/07.

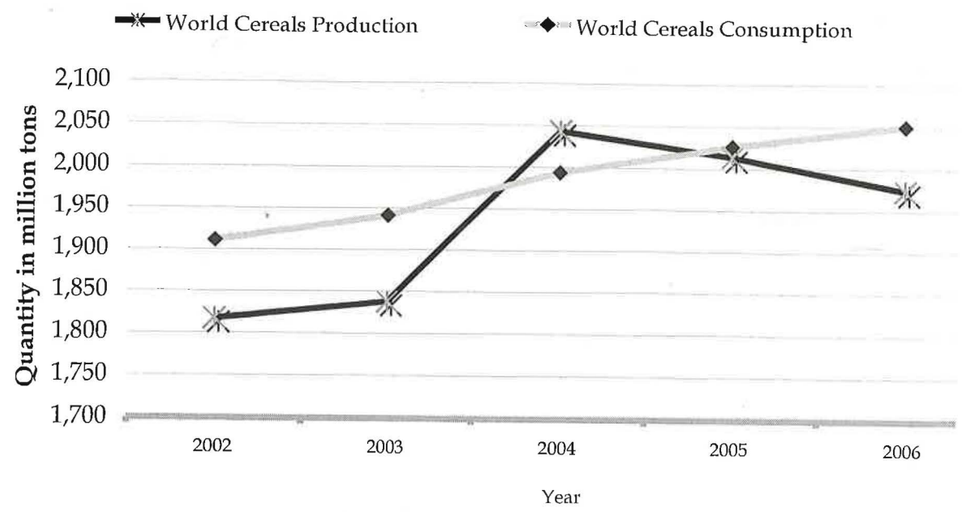
Table 4.1: World Cereals Situation, 2002 – 2006 (million tons)

Year	2002/03	2003/04	2004/05	2005/06	2006/07*
Wheat	566.86	549.61	628.56	620.13	592.02
Coarse grains	871.82	897.32	1,014.07	977.60	967.21
Rice	378.31	391.02	400.47	416.28	415.27
Total Production	**1,816.99**	**1,837.96**	**2,043.13**	**2,014.01**	**1,974.50**
Wheat	601.67	587.93	610.05	624.42	618.16
Course grains	901.00	940.82	975.92	989.19	1,014.36
Rice	408.38	412.74	407.72	413.14	417.71
Total Consumption	**1,911.05**	**1,941.49**	**1,993.69**	**2,026.75**	**2,050.22**
Wheat	167.07	128.75	121.83	120.80	166.44
Course grains	165.39	121.90	117,98	119.28	81.29
Rice	107.23	85.51	78.15	81.29	78.25
Total End Year Stocks	**439.68**	**336.15**	**407.39**	**394.65**	**318.93**

Source: USDA- WASDE
* Projections as at Feb.2007

Figure 4.1 shows that since 2004, world cereals production has been on a general downward trend while consumption continues to grow. The consequence will be increased world market prices for cereals as the shortage begin to bite. Kenya being a net food importer will thus have to bear the burden of increased world market prices. This calls for concerted efforts to increase local food production to mitigate against the expected rise in world food prices.

Figure 4.1: Trend in World Cereals Production and Consumption; 2002 - 2006



Source: USDA- WASDE

4.1.1 Wheat

World production of wheat is projected to drop by 4.5% from 620.13 million tons in 2005/06 to 592.02 million tons in 2006/07. This production will fall far below demand estimated at 624.42 million tons leading to the shortfall of 32.6 million tons being met through utilization of existing stocks. This shortfall is expected to result in draw down of world wheat stocks to their lowest levels since early 1980s.

The continuous drop in production of wheat and the higher demand levels have resulted in rising world wheat prices. In the US, for example, the prices increased by 31% from US$ 167 per ton in November 2005 to US $ 219 per ton in November 2006. This is the highest price since 1996. With projected continued decline in production, it is expected that the world prices will continue on the upward trend that will significantly increase Kenya's wheat import bill.

4.1.2 Coarse Grains

Like in the case of wheat, production of course grains, and particularly maize, will continue on a downward trend from 1,035.2 million tons in 2004/05 to 981.2 million tons in 2006/07. With the demand continuing on the upward trend, it is expected that the world course grains stocks will drop from 189 million tons in 2005/06 to 151.2 million tons in 2006/07. Consequently, prices of maize increased by 70%

from US$ 97 per ton in November 2005 to US$ 166 per ton in November 2006, a trend which is expected to continue. This large price increase may seriously affect Kenya if we were to import maize to meet the local demand.

4.1.3 Rice

It is projected that rice production will register a slight drop from 416.28 million tons in 2005/06 to 415.27 million tons in 2006/07 representing a 0.2% drop. Consumption will however continue on an upward trend from 416.4 million tons to 417.71 million tons over the same period representing an increase of 1.1%. These developments are expected to result in consumers eating into existing stocks so that the rice stocks at the close of 2006/07 marketing season will drop to 78.25 million tons from 81.29 million tons registered the previous year.

World rice prices registered an overall upward trend over the last few years. For example, in Thailand, the export price increased from US$ 283 per ton in November 2005 to US$ 305 per ton in November 2006. Although the drop in world production is not significant, the rise in prices may increase Kenya's rice import bill, an issue that can be addressed through increased local production.

4.2 Cotton

World cotton production is expected to register a slight increase from 114.14 million bales in 2005/06 to 116.72 million bales in 2006/07. However, demand is expected to rise even faster from 115.8 million bales to 121.17 million bales over the same period as shown in Table 4.2.

Table 4.2: World Cotton Situation, 2002 – 2006

	2002/03	2003/04	2004/05	2005/06	2006/07*
Production (Mil bales)	80.23	93.49	120.19	114.13	116.72
Consumption (Mil bales)	98.60	97.80	108.82	115.80	121.35
End of Year Stock (Mil bales)	36.49	32.66	53.94	54.31	52.92

Source: USDA – WASDE
* Projection as at February 2007

4.3 Sugar

World Sugar production has commenced on a recovery trend registering a 2.8% increase from 140.67 million tons in 2004/05 to 144.71 million tons in 2005/06. This is expected to increase further by 10.45 million tons (7%) to 155.2 million tons in 2006/07, compared to projected consumption of 145.73 million tons in 2006/07 as shown in Table 4.3.

The increase in production was stimulated by increase in World Sugar prices from Kshs. 11,049 per ton in 2004 to Kshs. 15,277 per ton in 2005 and further to Kshs. 22,762 per ton in 2006. However, with increased supply, price is expected to drop

to Kshs. 16,990 per ton in 2007. In comparision, Kenya's domestic sugar price has been on a general upward trend rising from Kshs. 28,833 per ton in 2002/03 to Kshs. 52,547 per ton in 2005/06. The large difference between domestic and world sugar prices makes the Kenyan economy a target for cheap sugar imports.

Table 4.3: World Sugar Situation, 2002 – 2006

	2002/03	2003/04	2004/05	2005/06	2006/07*
Production in million tons	148.51	132.36	140.72	144.71	155.16
Consumption in million tons	138.95	139.60	142.79	142.82	146.03
Price in Kshs per ton	10,956.8	11,049.4	15,277.9	22,762	16,990
Ending Stocks (million tons)	40.37	38.38	34.16	30.97	30.91

Source: USDA – WASDE
* Projection as at February 2007

4.4 Coffee

World coffee production registered 11.71% increase from 6.95 million tons in 2005 to 7.34 million tons in 2006. This increase was attributed to favourable world coffee prices that registered a steady increase from US$ 1,051 per ton in 2002 (74/= per Kg) to US$ 2,090 in 2006 (Kshs. 147 per Kg). The scenario if sustained could trigger a sustained rehabilitation of the domestic crop given that there are indications that world production could fall to about 6.54 million tons in 2007. Further improvement in local production could occur if the local marketing agents transfer part of the windfall prices to local farmers.

Table 4.4: Coffee Production by Exporting Countries, 2002 – 2006

	2002	2003	2004	2005	2006	2007*
Total Production by exporting countries (Million tons)	6.42	7.32	6.22	6.95	7.34	6.54
Average price in Kshs per ton	73,596	80,123	95,725	127,716	146,775	163,288

Source: USDA – WASDE
* Projection as at February 2007

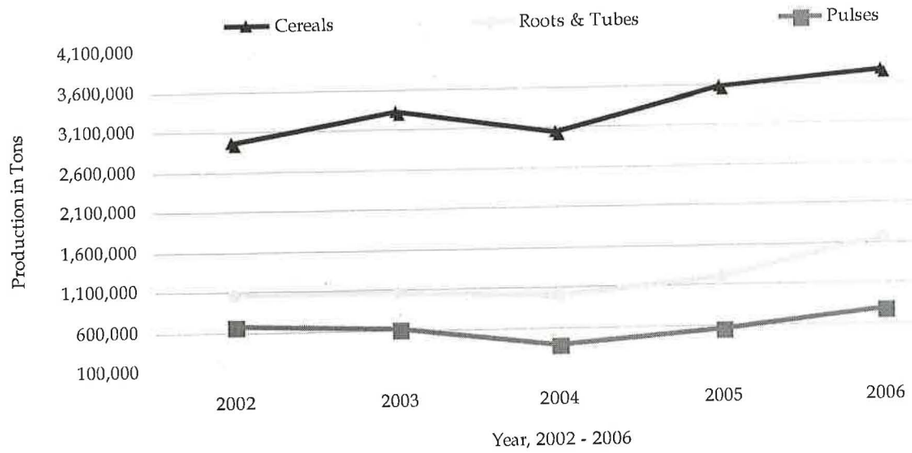
5.0 FOOD CROPS

Food crops are classified into: cereals (maize, wheat, sorghum, rice, millet); pulses (beans, pigeon peas, cow peas, chick peas, green grams); and roots and tubers (sweet potatoes, cassava, arrow roots and yams). In general, the food crops sub-sector has registered a slow growth since 2001.

Among the major crops, which have witnessed increase in production during the review period include; maize whose production increased by 11.4% from 32.4 million bags in 2005 to 36.1 million bags in 2006. This increase was attributed to favourable weather conditions during both the long and short rains and increased area under the crop. Rice production also increased by 12% from 57,942 tons in 2005 to 64,840 tons in 2006.

Similar trends were registered under the pulses where production of beans recorded about 41% increase from 4.2 million bags in 2005 to 5.9 million bags in 2006. The production trend for the other food crops during the review period was equally impressive as illustrated in Figure 5.1.

Figure 5.1: Food Crops Production, 2002-2006



Source: Department of Land and Crops Development and Management

On a national scale, production of food crops is distributed in all administrative provinces in Kenya as shown in Table 5.1. Nyanza produces mainly maize, beans, rice, sorghum, millet, sweet potatoes, cassava and soya beans. In the Rift Valley, the major food crops grown are maize, wheat, beans and millet while in Eastern province, maize, beans, sorghum, millet, cowpeas, green grams, pigeon peas, arrow roots and yams are produced. In Western Province, maize, beans, sorghum, sweet potatoes, cassava, arrow roots and soya beans are produced. At the Coast, cowpeas, green grams, and cassava are produced while in Central the major food crops are maize and rice.

Table 5.1: Production of Food Crops by Province, 2006

Crop	Units of Measurements	Province								Total
		Rift Valley	Nyanza	Eastern	Western	Coast	Central	North Eastern	Nairobi	
Maize	Crop area (ha)	627,362	273,055	523,931	215,159	88,475	151,596	6,470	2,137	1,888,185
	Bags	18,691,784	5,290,655	3,973,827	5,969,422	642,250	1,489,220	9,718	19,530	36,086,406
	Yield (Bag/ha)	29.8	19.4	7.6	27.7	7.3	9.8	1.5	9.1	18.3
	Value (bil. Kshs)	24.3	6.3	5.3	7.8	0.8	1.9	0.013	0.025	46.44
Wheat	Crop area (ha)	126,970	-	17,150	692	-	5,676	-	-	150,488
	Bags	3,800,000	-	36,990	18,684	-	122,780	-	-	3,978,454
	Yield (Bag/ha)	30	-	2	27	-	22	-	-	26.4
	Value (Mil. Kshs)	6,500	-	65.3	33.6	-	221	-	-	6,820
Beans	Crop area (ha)	285,332	137,610	318,639	143,219	3,525	105,813	243	1,010	995,391
	Bags	1,800,000	888,835	1,588,052	1,052,903	14,533	559,015	319	5,230	5,908,887
	Yield (Bag/ha)	6.3	6.5	5.0	7.4	4.1	5.3	1.3	5.2	5.9
	Value (Mil. Kshs)	4,800	2,400	3,800	2,500	36	1,400	0.8	15	14,951
Rice	Crop area (ha)	-	4,552	-	702	1,916	15,750	186	-	23,106
	Bags (50 Kgs)	-	251,694	-	14,593	15,836	1,013,850	838	-	1,296,811
	Yield (Bag/ha)	-	55.3	-	20.8	8.3	64.4	4.5	-	56.1
	Value (Mil. Kshs)	-	880.9	-	51.1	55.4	2,331.9	2.9	-	3,322.2
Sorghum	Crop area (ha)	12,942	48,824	76,339	20,663	1,951	225	2,920	3	163,865
	Bags	129,420	643,712	437,562	227,293	11,706	1,125	8,760	6	1,457,503
	Yield (Bag/ha)	10.0	13.0	6.0	11.0	5.5	5.0	3	2.0	9.8
	Value (Mil. Kshs)	363.4	615.5	493	325	6	1.5	13.5	0.006	1,828
Millet	Crop area (ha)	34,996	23,492	71,706	6,777	625	116	-	-	137,711
	Bags	235,233	182,967	411,826	47,997	1,616	356	-	-	879,995
	Yield (Bag/ha)	6.7	7.8	5.7	7.1	2.6	3.1	-	-	6.4
	Value (Mil. Kshs)	312.0	580.0	509.7	86.4	3.0	1.1	-		1,492.0
Cow Peas	Crop area (ha)	1,931.0	3,039	147,260	841	7,992	623	285	8	161,971
	Bags	15,385	16,704	886,306	4,205	49,154	3,651	147	26	975,551
	Yield (Bag/ha)	8.0	5.5	6.0	5.0	6.2	6.0	0.5	3.3	6.0
	Value (Mil. Kshs)	38.6	50.1	2,240.8	12.5	137.6	7.9	0.4	0.10	2,488
Green Grams	Crop area	749.0	1,735	91,021	293	8,992	37	55	-	102,882
	Bags	2,976	8,315	450,116	1,376	19,179	161	89	-	482,212
	Yield (Bag/ha)	4.0	24.9	4.9	4.7	2.1	4.4	1.6	-	4.7
	Value (Mil. Kshs)	10.4	29.1	1,463	4.8	67.1	0.6	0.3	-	1,575
Pigeon Peas	Crop area (ha)	592.0	-	195,669	-	-	369	-	-	196,630

Pigeon Peas	Crop area (ha)	592.0	-	195,669	-	-	369	-	-	196,630
	Bags	3,035	-	1,226,539	-	-	1,868	-	-	1,231,442
	Yield (Bag/ha)	5.1	-	6.3	-	-	5.1	-	-	6.3
	Value (Mil. Kshs)	8.5	-	3,319	-	-	5.3	-	-	3,332.8
Sweet Potatoes	Crop area (ha)	1,882.0	41,120	7,187	16,526	1,033	7,189	-	-	74.937
	Tons	17,018	493,440	55,070	138,921	7,339	12,858	-	-	724,646
	Yield (Tons/ha)	9.0	12.0	8.0	8.4	7.1	1.8	-	-	9.7
	Value (Mil. Kshs)	89.9	4,154.5	1,151	1,695	66	333.6	-	-	7,490
Cassava	Crop area (ha)	1,935	19,650	10,419	24,130	11,778	590	-	13	68,502
	Tons	21,302	216,150	59,452	247,790	106,911	4,928	-	406	656,633
	Yield (Tons/ha)	11.0	11.0	6.0	10.0	9.0	8.0	-	8.0	9.6
	Value (Mil. Kshs)	159.8	1,621.1	445.9	1,858.5	801.8	37	-	0.8	4,925
Arrow Root	Crop area (ha)	80.9	-	1,112	597	-	1,294	-	60	3,144
	Tons	677	-	6,532	6,227	-	8,932	-	478	22,846
	Yield (Tons/ha)	8.4	-	5.9	10.4	-	6.9	-	8.0	7.3
	Value (Mil. Kshs)	20.9	-	131	125	-	189.00	-	8	473.9
Yams	Crop area (ha)	-	-	723	-	-	32	-	-	755
	Tons	-	-	5,516	-	-	2,485	-	-	8,001
	Yield (Tons/ha)	-	-	7.6	-	-	78.1	-	-	10.6
	Value (Mil. Kshs)	-	-	70.4	-	-	12.4	-	-	82.8
Soya Beans	Crop area (ha)	212.0	1,624	91	566	-	20	-	-	2,513
	Bags	170	19,340	857	2,627	-	79	-	-	23,073
	Yield (Bag/ha)	0.8	11.9	9.4	4.6	-	3.9	-	-	9.2
	Value (Mil. Kshs)	5.2	87.0	1.0	11.8	-	0.3	-	-	105.4

Source: Department of Land and Crops Development and Management

5.1 Maize

Although maize is grown mainly as a staple food crop across the country, it is also a good source of income to many families. It is a major commodity in all farm-products marketing channels and is relatively easy to add value to, making it possible to generate several products. Some of these include: cooking oil, flour, maize germ, bran, and breakfast cereals. Maize is also an intermediate product in the dairy industry as a constituent of animal feed formulation.

Maize production continued on an upward trend increasing by 11.5% from 32.4 million bags in 2005 to 36.1 million bags in 2006 as shown in Table 5.2. This was attributed to improved weather conditions in all maize growing areas, increased area under the crop and stable and favorable producer prices in 2005 averaging Kshs 1,300. Over the period under review, total value of maize increased by 6% from 44.19 billion in 2005 to 46.91 billion in 2006.

Table 5.2: Maize Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	1,592,315	1,670,914	1,819,817	1,760,618	1,888,185
Production					
90 Kgs bags	26,762,182	30,120,530	27,249,721	32,423,963	36,086,406
Tons	2,411,007	2,713,561	2,454,930	2,918,157	3,247,777
Unit Price per bag (Kshs)	1,052	1,358	1,482	1,363	1,300
Average Yield (bags/ha)	17	18	15	18	19
Consumption (bags)	29,165,000	30,150,000	31,135,000	32,120,000	33,105,000
Imports (tons.)	16,326	115,905	241,757	49,621	-
Total Value (billion Kshs.)	28.13	40.90	40.38	44.19	46.91

Source: Department of Land and Crops Development and Management, and NCPB

Among the challenges facing maize production is low yields achieved by small holders which are as low as 20% of the potential. Other challenges include unreliable rainfall, poor crop husbandry, inadequate use of farm inputs, and high cost of production.

5.2 Wheat

Wheat continued on a downward trend with production dropping from 4.21 million bags in 2003 to 4.17 million bags in 2005 and further dropping by 2.1% to register 3.98 million bags in 2006 while area under the crop reduced by 5.6% as shown in Table 5.3. The drop was attributed to farmers opting to put more land under maize which has been fetching good and stable prices.

Table 5.3: Wheat Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (Ha)	144,794	151,135	145,359	159,477	150,488
Production					
90 Kg bags	3,413,501	4,207,278	4,173,652	4,063,294	3,978,454
Tons	307,523	379,034	397,005	365,696	358,061
Unit Price per bag (Kshs)	1,552	1,718	1,995	1,639	1,714
Average Yield (bags/ha)	24	28	29	25	26
Consumption (tons)	884,350	883,120	889,020	893,120	903,120
Imports (tons)	515,179	502,115	404,060	621,839	-
Total Value (billion Kshs.)	5.30	7.23	8.33	6.66	6.82

Source: Department of Land and Crops Development and Management, and NCPB

5.3 Rice

Area under rice has continued to increase over the last four years, increasing from 10,781 ha in 2003 to 15,940 ha in 2005 as highlighted in Table 5.4. In 2006, area under the crop increased further by 45% to reach 23,106 ha. This resulted in rice

production increasing by 12% from 57,942 tons in 2005 to 64,840 tons in 2006. Much of the increase was attributed to Central Province where production increased from 43,192 tons in 2005 to 50,692 tons in 2006.

It is expected that with the continued opening up of new rice production areas under the Dominion in Siaya and Bunyala Irrigation Scheme in Busia District, production will continue to rise.

Table 5.4: Rice Production, 2002 – 2006

Year	2002	2003	2004	2005	2006
Area (ha)	13,000	10,781	13,322	15,940	23,106
Production					
50 Kg bags	899,910	809,959	985,801	1,158,829	1,296,811
Tons	44,996	40,498	49,290	57,942	64,840
Unit Price per bag (Kshs)	2,850	2,900	3,250	3,400	3,500
Average Yield (bags/ha)	69.22	75.13	74.00	72.70	56.12
Consumption (tons)	247,000	258,600	270,200	279,800	286,000
Imports (tons)	14 ,705	213,342	223,190	228,206	NA
Total Value (billion Kshs.)	0.70	0.65	1.30	0.90	3.3

Source: NCPB and Department of Land, Crops Development and Management

5.4 Sorghum

Sorghum plays a key role in food security, especially in areas with inadequate rainfall. Area under the crop increased by 34% from 122,368 ha in 2005 to 163,865 ha in 2006. This was attributed to relief seed issued by government in both seasons of the year to promote food security. However, despite increase in area under the crop, production dropped from 1,668,081 bags in 2005 to 1,450,584 bags in 2006, a 13% decline. This was mainly due to the prolonged short rains in Eastern and Coast provinces resulting in low production per unit area as shown in Table 5.5.

Table 5.5: Sorghum Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (Ha)	144,294	148,985	123,155	122,368	163,865
Production					
90 Kg bags	1,284,271	1,413,505	961,034	1,668,081	1,457,503
Tons	115,700	127,343	86,580	150,127	131,188
Unit Price per bag (Kshs)	1,706	1,888	2,200	1,700	1,254
Average Yield (bags/ha)	9	9	8	14	9
Consumption (bags)	1,305,000	1,342,000	1,100,000	1,425,000	1,510,000
Total Value (billion Kshs.)	2.19	2.67	2.11	2.84	1.83

Source: Department of Land, Crops Development and Management

5.5 Millets

Millet is classified into three categories namely; Finger, Bulrush and Foxtail millet. The most common type is the finger millet used in fermenting the local brews and porridge. In 2006, area under the crop increased to 124,757 ha from 92,430 ha in 2005 as shown in Table 5.6. Production increased from 660,900 bags to 879,995 bags over the same period. Increase in area was attributed to the relief seed issued by the government country-wide during the long rains and in Coast Province during the short rains in an attempt to improve food security and achieve MDG 1 on poverty and hunger.

Table 5.6: Millet Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	118,700	108,343	129,750	92,430	137,711
Production					
90 Kg bags	802,835	707,419	834,397	660,900	879,995
Tons	72,327	63,731	75,171	59,481	79,207
Unit Price per bag (Kshs)	2,327	2,575	2,800	2,400	1,700
Average Yield (bags/ha)	7	7	6	7	6.4
Total Value (billion Kshs.)	1.87	1.82	2.34	1.59	1.5

Source: Department of Land, Crops Development and Management

6.6 Beans

Production of beans continued on an upward trend, increasing by 41% from 4,175,772 bags recorded in 2005 to 5,908,887 bags in 2006. This increase was attributed to the good weather conditions in production areas that resulted in yields rising from 4 bags per ha in 2005 to 6 bags per ha in 2006 as highlighted in Table 5.7. Area under the crop however dropped from 1,043,477 ha to 995,391 ha over the same period, possibly due to depressed 2005 market prices.

Table 5 .7: Beans Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	928,651	879,032	872,070	1,034,477	995,391
Production					
90 Kg bags	5,341,594	4,763,928	2,576,020	4,175,772	5,908,887
Tons	481,225	429,183	232,074	375,820	531,800
Unit Price per bag (Kshs)	2,457	2,833	3,000	2,500	2,540
Average Yield (bags/ha)	6	5	3	4	6
Consumption (bags)	440,000	415,000	310,000	400,450	460,000
Total Value (billion Kshs.)	13.12	13.50	7.73	10.44	18.02

Source: Department of Land and Crops Development and Management

6.7 Pigeon Peas

Production of pigeon peas recorded a significant recovery from 1.06 million bags in 2005 to 1.23 million bags in 2006, a 15% increase as shown in Table 5.8.

Area under the crop also increased from 180,240 ha in 2005 to 196,630 ha in 2006. This increase came mainly from Eastern province where production rose significantly from 766,000 bags to 1,226,539 bags over the same period.

Table 5.8: Pigeon Peas Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	164,453	183,612	195,308	180,240	196,630
Production					
90 Kg bags	1,035,590	1,091,998	1,171,838	1,055,000	1,231,442
Tons	93,296	98,378	105,571	94,950	110,841
Unit Price per bag (Kshs)	2,600	2,800	3,000	2,800	2,706
Average Yield (bags/ha)	6	6	6	6	6.3
Consumption (bags)	1,050,000	1,100,000	1,150,000	1,160,000	1,180,000
Total Value (billion Kshs.)	2.69	3.06	3.52	2.95	3.33

Source: Department of Land, Crops Development and Management

5.8 Cowpeas

Cowpeas witnessed a marked increase in production by 572,867 bags from 402,684 bags in 2005 to 976,551 bags in 2006 representing a 142% increase. Area under the crop increased from 72,654 ha to 161,971 ha over the same period. Due to provision of relief seed by the government, more land was put under the crop especially in Eastern and Coast provinces. This, together with adequate rains in the two regions, resulted in high production during the review period as highlighted in Table 5.9.

Table 5.9: Cowpeas Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	122,398	151,679	125,189	72,654	161,971
Production					
90 Kg bags	659,651	521,334	325,463	402,684	975,551
Tons	59,428	46,967	29,321	36,242	87,808
Unit Price per bag (Kshs)	3,150	3,240	4,500	2,000	2,550
Average Yield (bags/ha)	5	3	3	6	6
Total Value (billion Kshs.)	2.08	1.69	1.46	1.45	4.25

Source: Department of Land, Crops Development and Management

5.9 Green grams

Production of green grams increased by 40% from 365,458 bags in 2005 to 482,212 bags in 2006 as shown in Table 5.10. The increase was due to the rise in area under the crop following provision of relief seed by the government to farmers in Eastern and Coast provinces and favorable weather conditions in green grams producing areas.

Table 5.10: Green Grams Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	69,551	70,312	94,149	87,510	102,882
Production					
90 kg bags	343,504	290,232	290,543	365,458	482,212
Tons	30,946	26,147	26,175	32,891	43,399
Unit Price per bag (Kshs)	4,500	4,860	5,400	4,680	3.266
Average Yield (bags/ha)	5	4	3	4	5
Total Value (billion Kshs.)	1.55	1.41	1.57	1.71	1.57

Source: Department of Land, Crops Development and Management

5.10 Arrow Roots

Area under arrowroots increased from 2,332 ha in 2005 to 3,144 ha in 2006. Despite this increase, production dropped from 27,326 tons to 22,846 tons over the same period as shown in Table 5.11 This was blamed on poor quality planting material and poor crop husbandry.

Table 5.11: Arrow Roots Production, 2002 – 2006

Year	2002	2003	2004	2005	2006
Area (ha)	2,265	2,906	2,140	2,332	3,144
Production					
Tons	15,856	21,134	12,840	27,326	22,846
Unit price (Kshs per 100 kg bag)	1,210	1,025	1,250	970	1,020
Average Yield (tons/ha)	7	7	6	11	8
Total Value (billion Kshs.)	0.19	0.21	0.16	0.27	0.23

Source: Department of Land, Crops Development and Management

5.11 Cassava

Cassava continued to register positive growth with production increasing by 16% from 566,400 tons recorded in 2005 to 656,633 tons in 2006. Area under the crop also increased from 68,320 ha in 2005 to 68,502 ha in 2006 as highlighted in Table 5.12. The increase was attributed to application of clean planting material from KARI which is free from cassava Mosaic Virus.

Table 5. 12: Cassava Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	81,967	53,297	56,010	68,320	68,502
Production					
Tons	601,976	421,317	388,713	566,400	656,633
Average Yield (tons/ha)	7	8	7	8	9.6
Unit Price per ton (Kshs)	6,779	7,504	8,000	6,500	6,500
Total Value (billion Kshs.)	4.1	3.2	3.1	3.7	4.3

Source: Department of Land, Crops Development and Management

5.12 Sweet Potatoes

Production of the crop increased by 8% from 671,709 tons in 2005 to 724,646 tons in 2006 as highlighted in Table 5.13. Area under the crop also increased from 61,300 ha to 74,937 ha over the same period. This was linked to availability of planting material and favourable rains during both seasons.

Table 5.13: Sweet Potatoes Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	60,410	58,770	60,701	61,300	74,937
Production					
Tons	513,485	587,700	546,309	671,709	724,646
Average Yield (tons/ha)	9	10	9	11	9.6
Unit Price per 100 kg bag (Kshs)	1,250	1,120	1,280	1,420	1,460
Total Value (billion Kshs.)	6.42	6.58	6.99	9.54	4.7

Source: Department of Land, Crops Development and Management

5.13 Yams

Production of yams in Kenya is mainly in Central and Eastern provinces, where production has been limited mainly to valley bottoms. Area under the crop remained relatively constant in the last five years while production increased from 7,238 tons in 2005 to 8,001 tons in 2006 as shown in Table 5.14

Table 5.14: Yams Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	960	952	836	835	842
Production					
Tons	7,584	8,007	7,086	7,238	8,001
Average Yield (tons/ha)	8	8	8	9	9.5

Source: Department of Land, Crops Development and Management

6.0 INDUSTRIAL CROPS

Major industrial crops grown in Kenya are tea, coffee, sugarcane, cotton, sunflower, pyrethrum, barley, tobacco, sisal, coconuts, and bixa.

6.1 Tea

Tea is still one of the leading foreign exchange earners in Kenya after tourism and horticulture. Area under the crop increased from 141,300 ha in 2005 to 147,080 ha in 2006. However, production dropped by 17,922 tons (5.5%), from 328,500 tons in 2005 to 310,578 tons in 2006. The drop was attributed to unfavorable weather conditions, particularly frost that affected some tea growing areas.

In exports, the industry recorded improved earnings with an increase of 11.8% to reach Kshs. 47.3 billion (US$ 655 million) in 2006 from Kshs. 42.3 billion (US$ 559 million) recorded in 2005. This was mainly due to a 23% increase in the price of black tea. The export volume however dropped by 10.3% from 349,700 tons in 2005 to 313,700 tons in 2006.

During the period under review, local consumption volume increased by 18% to 16,500 tons from 14,000 tons registered in 2005 and remains considerably low as shown in Table 6.1. Registered increase in local consumption was attributed to generic promotion activities by the Tea Board of Kenya, introduction of new brands and intense brand promotion by tea packers.

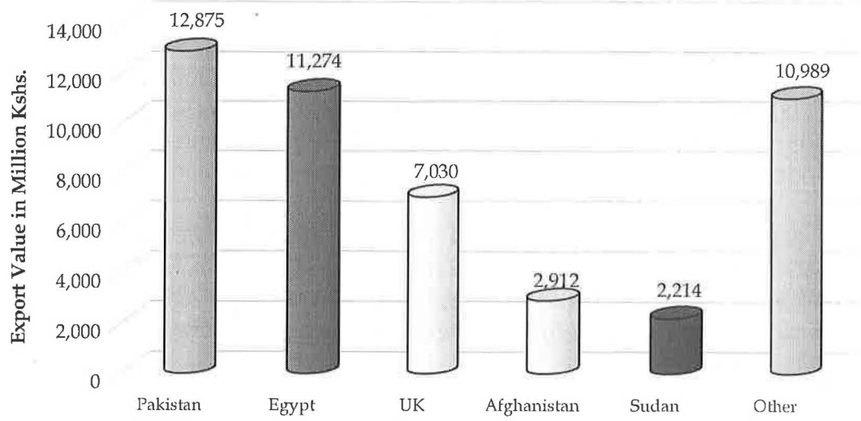
Table 6.1: Tea Production, 2002 - 2006

Year		2002	2003	2004	2005	2006
Estates	Area (ha)	44,400	45,100	48,800	48,600	51,300
	Production					
	Tons	111,200	112,900	132,100	130,800	119,401
	Yield (tons/ha)	2.5	2.5	2.7	2.7	2.3
Small Holders	Area (ha)	85,900	86,400	88,000	92,700	95,780
	Production					
	Tons	175,900	180,800	192,600	197,700	191,177
	Yield (tons/ha)	2.0	2.1	2.2	2.1	2.0
Total Area (ha)		130,300	131,500	136,800	141,300	147,080
Total Production (tons)		287,100	293,700	324,700	328,500	310,578
Price of Black Tea (per 100 kg)		11,639	11,793	12,696	11,824	14,642
Consumption (million kgs)		12.6	12.6	13.6	14.0	16.5
Exports (million kgs)		272.4	269.9	333.8	349.7	313.7
Exports (million Kshs.)		34,306.3	33,394.1	43,446.7	42,862.9	47,297.4
Imports (million Kshs.)		175.9	180.3	553.2	571.2	-

Source: Tea Board of Kenya
NB: Variations between export volumes compared with domestic production is explained by re-exports emanating from quantizes imported for blending purposes as well as export of carry-over stocks.

During 2006, Pakistan maintained its position as the leading export market for Kenya tea having imported 84.5 million kgs of tea from Kenya worth Kshs 12.8 billion. It is followed by Egypt, which imported 78.8 million kgs worth Kshs. 11.3 billion. Other major export markets include United Kingdom, Afghanistan and Sudan as illustrated in Figure 6.1.

Table 6.1: Kenya's Tea Export Destinations, 2006.



6.2 Coffee

Kenya produces mild Arabica coffee that is of unique high quality. The desirable quality attributes are derived from inherent genetic characteristics of selected coffee varieties, climate, soil conditions and proper field and post harvest management.

Over the last decade, coffee production has been on a general downward trend. However, during the year under review, coffee production increased by 7% from 45,200 tons in 2005 to 48,303 tons in 2006 as shown in Table 6.2. The increase was mainly by smallholders whose share rose from 24,500 tons in 2005 to 27,046 tons in 2006. The estates also increased production from 20,745 tons in 2005 to 21,257 tons in 2006. Overall, increase in production was attributed to improved crop husbandry following planned introduction of the Coffee Development Fund (CoDF) from where farmers can now access credit for coffee development.

In order to address the challenges facing the coffee industry, the government has put the following measures in place:-

- Introduction of direct sales alongside the coffee auctions;
- Establishment of the Coffee Development Fund to provide sustainable and affordable credit;
- Debt relief of Kshs. 3.2 billion to cooperative coffee farmers;
- Revitalization of farmers' institutions such as the ATCs, the AFC and the KFA.

Table 6.2: Coffee Production, 2002 - 2006

Year		2002	2003	2004	2005	2006
Estates	Area (ha)	42,000	42,000	42,000	42,000	42,000
	Production					
	Tons	23,073	21,417	18,473	20,745	21,257
Small Holders	Area (ha)	128,000	128,000	128,000	128,000	128,000
	Production					
	Tons	28,822	34,026	29,958	24,500	27,046
Yield (tons/ha)	Estate	0.6	3.0	3.0	0.5	0.5
	Small Scale	0.2	0.3	0.2	0.2	0.2
Total crop area (ha)		170,000	170,000	170,000	170,000	170,000
Total Production (tons)		51,895	55,443	48,431	45,245	48,303
Price of processed coffee (per 100 kg)		11,639	11,793	12,696	11,824	10,952
Local Consumption (tons)		2,076	2,218	1,937	1,810	1,932
Exports (million Kshs.)		6,536.6	6,075.3	7,135.2	8,224.7	8,704.3
Total Value (billion Kshs.)		6.76	5.70	6.70	8.33	8.7

Source: Coffee Board of Kenya
Local consumption at 4% of the total production

In the same period, export of coffee increased by 2.6% to reach 43,302 tons in 2006 from 42,196 tons recorded during the previous year as highlighted in Table 6.3 with the USA, Sweden and Germany being major destinations. The export earnings also increased by 6% from Kshs. 8.225 billion in 2005 to Kshs. 8.704 billion in 2006 representing the highest coffee export-earnings over a 5-year period.

Table 6.3: Coffee Export Destinations; 2004 - 2006

Years	2004			2005			2006		
Country	Export volume in tons	Export Value (million Kshs.)	Price per ton (Kshs)	Export volume in tons	Exports Value (million Kshs.)	Price per ton (Kshs)	Export volume in tons	Exports Value (Kshs.)	Price per ton (Kshs)
Member Countries									
Germany	10,290	1,896.1	184,267	11,525	2,093.4	181,641	17,383	2,974.1	171,092
Sweden	6,102	857.8	140,574	5,200	946.4	181,999	5,181	983.5	189,827
USA	4,656	912.3	195,949	4,449	1,133.8	254,842	4,510	1,610.8	357,201
Belgium	3,636	536.2	147,491	5,044	913.2	181,047	2,490	464.6	186,581
UK	3,144	532.7	169,404	2,627	620.2	236,063	1,801	497.3	276,041
Finland	3,137	448.8	143,062	2,241	426.3	190,230	2,733	534.9	195,719
Netherlands	2,835	370.8	130,814	3,220	555.5	172,550	2,122	360.5	169,901
Norway	1,219	174.3	142,962	1,348	262.7	194,908	878	136.9	156,048
France	682	69.6	102,034	756	198.7	262,801	454	82.8	181,133
Japan	757	131.0	172,926	793	165.9	209,175	478	114.4	239,244
Spain	579	77.5	133,908	406	80.7	199,059	245	42.0	171,235
Denmark	575	50.4	87,750	206	48.1	233,962	752	141.3	187,949
Italy	444	72.5	163,202	401	69.8	173,986	422	86.5	205,050
Switzerland	377	68.2	180,635	103	20.4	197,274	226	45.0	199,359
Portugal	318	30.2	94,999	55	34.2	619,530	112	21.1	195,012
Ireland	206	26.9	130,551	152	22.2	146,584	77	16.5	259,590
Greece	40	23.8	601,796	28	4.1	144,163	19	2.8	145,612
Singapore	19	1.9	98,540	-	-	-	19	3.9	202,356
Total	**39,016**	**6,281.0**	-	**38,554**	**7,595.8**	-	**39,902**	**8,119.2**	-
Non-member Countries	**6,402**	**854.2**	-	**3,642**	**628.9**	-	**3,400**	**585.0**	-
Total for all Destinations	**45,418**	**7,135.2**	-	**42,196**	**8,224.8**	-	**43,302**	**8,704.2**	-

Source: Coffee Board of Kenya

6.3 Sugar

The sugar industry plays a key role in the agricultural sector supporting 200,000 small scale farmers directly and an estimated 6 million Kenyans indirectly. In the last four years, the government initiated priority measures necessary for the recovery of the industry which included; good corporate governance, reduced interest rates on sugar development fund, waiver of past charges on sugar development fund loans and levies, stepping up research fund to 1% of the sugar levy collected, and successfully negotiated for a four-year COMESA safeguard to allow the industry sufficient time to carry out further reforms to ensure that the sugar sub-sector develops and becomes competitive. However, the safeguard measure is coming to an end in February 2008 after domestic production will be exposed to duty and quota free access from the COMESA FTA countries.

Despite government interventions, a number of constraints still face the industry which include: weak research and extension services leading to low productivity at the farm and factory levels; ineffective out-growers institutions; lack of active participation by most farmers in cane farming; poor synchronization of cane development and factory capacities; poor state of infrastructure; high cost of production; high indebtedness and insolvency of many sugar companies; poor governance in farmers' institutions; inadequate funds for factory re-habilitation, maintenance of infrastructure and modernization/expansion of factories; poor marketing strategies; over-reliance on a narrow product base; reliance on rain-fed cane; and a bloated workforce in the industry.

It is envisaged that approval and implementation of the draft Sugar Policy and the Amendment Bill that are due for submission to the Cabinet will address most of the constraints.

During the review period, sugar production continued to register drop in production for two consecutive years. Production decreased from 516,803 tons in 2004 to 488,997 tons in 2005 and further by 2.5% to reach 475,670 tons in 2006. However, area under sugarcane increased by 12% from 131,507 ha in 2004 to 144,765 ha in 2005 and further to 147,730 ha in 2006. The low sugar production was attributed to extreme wet weather conditions which hampered cane delivery to the factories for milling. This condition was aggravated by cane shortage in Mumias and West Kenya zone which resulted in the harvesting of pre-mature cane triggering low sugar returns as shown in Table 6.4

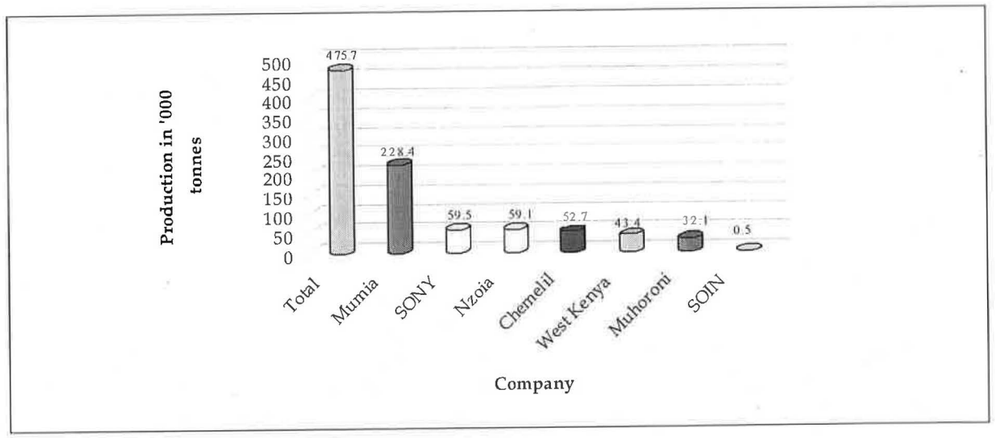
Table 6.4: Sugar Production, 2002 - 2006

Year		2002	2003	2004	2005	2006
Area (ha)	Under Cane	126,826	122,580	131,507	144,765	147,730
	Harvested	54,010	50,468	54,191	56,537	54,621
Sugarcane production (tons)		4,501,363	4,204,055	4,660,995	4,800,820	4,932,839
Yield of Sugarcane (tons/ha)		70.7	69.2	73.8	71.5	70.89
Price of Cane (Kshs./tons)		2,015	1,800	1,800	1,910	2,027
Sugar Production (tons)		494,249	448,489	516,803	488,997	475,670
National Consumption (tons)		652,129	663,780	669,914	695,622	718,396
Domestic price of sugar (Kshs/ton)		32,520	28,833	33,810	48,449	52,547
Exports (tons)		12,046	11,300	11,580	21,760	13,533
Imports (tons)		129,966	182,225	164,020	167,235	166,280
Imports (million Kshs)		2,936	3,786	3,823	4,048	4,801

Source: Kenya Sugar Board

Mumias Sugar Company is still the largest sugar producer, accounting for 228,378 tons of sugar, followed by South Nyanza Sugar Company (SonySugar) at 59,462 tons in 2006 as illustrated in Figure 6.2. The newly constructed Soin Company added 513 tons of sugar into the local market.

Figure 6.2: Sugar Production by Sugar Company, 2006



On the export regime, Kenya exports sugar basically to the EU market. This is due to preferential price treatment that the country enjoys into that market under the ACP-EU Sugar Protocol. However, due to the EU Sugar Regime Reforms, these prices are set to drop from 523 Euros per ton in 2005/06 to 335.2 Euros per ton in 2009/10.

6.4 Cotton

Cotton is a cash crop that can thrive in the arid and semi-arid areas where rainfall is unreliable. The sub-sector has a potential to benefit 8 million people, majority of

whom live in the ASAL areas with limited alternative opportunities for development. The country has potential of producing 300,000 bales of lint per year while the local demand is 200,000 bales to meet the annual local fabric demand of over 225 million square meters. In the past, production stagnated at 20,000 bales produced from 30,000 hectares under rain-fed condition with yield in the range of 400-600 kgs of seed cotton per hectare.

Cotton production registered an improved performance from 19,414 tons in 2005 to 22,492 tons in 2006 as shown in Table 6.5. This was attributed to the effort of the government in revitalizing the cotton industry through farmer-mobilization and provision of quality planting materials.

Table 6.5: Cotton Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	20,171	24,955	30,000	32,357	36,277
Production of Seed Cotton (tons)	12,808	17,776	18,000	19,414	22,492
Price of Seed cotton (Kshs./kg)	17.0	21.0	19.0	20.0	21.0
Yield (tons/ha)	0.6	0.7	0.6	0.6	0.6
Import (tons)					
Total Value of Seed cotton (million Kshs)	218	373	342	388	472

Source: Cotton Secretariat

6.5 Pyrethrum

Pyrethrum production has shown a steady decline over the last five years, dropping rapidly from 10,953 tons in 2002 to 762.7 tons in 2006 as highlighted in Table 6.6 This reduction is largely attributed to past non-payment of outstanding grower's arrears for deliveries to the Pyrethrum Board of Kenya caused by severe cash flow problems. This was partly triggered by a glut in the world market that affected all major pyrethrum producers in the world at the beginning of the new millennium. The net effect has been a shift by growers from pyrethrum growing to other alternative profitable enterprises.

Recent government indications to address farmers' arrears and renewed interest and improvement in world market prices are expected to trigger a turnaround in the sub-sector. This is further demonstrated by increased area under the crop from 4,522 ha in 2005 to 6,325 ha in 2006.

Table 6.6: Pyrethrum Production, 2002 - 2006

Year	2002	2003	2004	2005	2006*
Area (ha)	18,210	17,520	10,950	4,522	6,325
Production of Dry Flower (tons)	10,953	5,796	2,207	1,003	762.7
Price of Dry Flower (Kshs./kg)	73.0	73.0	73.0	73.0	73.0
Yield (tons/ha)	0.6	0.3	0.2	0.2	0.2
Exports (tons of pyrethrum extract)	81	123	133	124	na
Local Value (Kshs mil)	1,271.5	781.9	305.7	158.1	133.1

NB: The dry flowers have 1.4% pyrethrin content.
Source: Pyrethrum Board of Kenya (PBK) & Department of Land and Crops Development and Management

6.6 Tobacco

Tobacco production increased from 15,959 tons of dry leaves in 2005 to 17,607 tons in 2006 as shown in Table 6.7. This increase was attributed to increase in area under the crop in the year under review.

Table 6.7: Tobacco Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area (ha)	13,983	14,000	16,360	10,296	12,179
Production (tons of dry leaves)	14,900	13,871	13,983	15,959	17,605
Price of Dry Leaves (Kshs./kg)	65	65	65	65	65
Yield (kgs/ha)	1,066	991	855	1,550	1,400
Exports (tons)	15,078	12,368	24,503	15,431	
Total Local Value (Kshs. mil)	969	902	909	1,037	1,144

Source: Department of Land and Crops Development and Management

6.7 Sisal

Sisal production increased by 3% from 25,600 tons in 2005 to 26,375 tons in 2006. This was attributed to improved weather conditions in sisal growing areas. This resulted in yields rising from 0.8 tons per ha to 1.08 tons per ha over the same period. Export volume increased from 19,771 tons in 2005 to 22,300 tons in 2006 as shown in Table 6.8.

Table 6.8: Sisal Production, 2002 - 2006

Year	2002	2003	2004	2005	2006	2007 (Projection)
Area (ha)	36,430	34,650	31,800	31,800	24,962	39,800
Production (tons)	22,108	25,009	26,604	25,600	26,375	27,620
Yield (tons/ha)	0.6	0.7	0.8	0.8	1.08	1.08
Local Consumption (tons)	6,136	5,926	5,522	4,335	5,278	5,320
Exports (tons)	17,642	20,470	20,876	20,609	19,771	22,300
Value of Export (million Kshs.)	708.6	826.8	1,108.7	1,144.9	1,071.6	1,246.0

Source: Department of Land and Crops Development and Management

6.8 Coconuts

About 150,000 households derive their livelihood either directly or indirectly from coconuts. Production of the crop remained fairly stable over the last two years, although the area under the crop dropped marginally from 37,293 ha in 2005 to 37,137 ha in 2006 as highlighted in Table 6.9. Production also registered a marginal drop from 61,824 tons to 61,117 tons over the same period. It has been noticed that the rhinoceros beetle and coreid bug could threaten the performance of the coconut trees in future.

Table 6.9: Coconut Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area under Crop (ha)	43,682	42,220	43,162	37,293	37,137
Production (tons)	61,052	56,937	69,245	61,824	61,117
Yield (tons/ha)	1.4	1.3	1.6	1.7	1.6
Unit Price (Kshs./kg)	11.2	12.3	11.2	11.2	11.3
Total Value (million Kshs.)	683.8	700.3	775.5	692.4	690.6

Source: Department of Land and Crops Development and Management

6.7 Bixa

Production of bixa continued on an upward trend, increasing from 3,003 tons in 2002 to 6,468 tons in 2005. During the year under review, bixa production increased further from 6,468 tons in 2005 to 6,607 tons in 2006. Area under the crop increased from 5,252 ha to 5,658 ha over the same period as shown in Table 6.10. The produce is mainly exported with very little local consumption.

Table 6.10: Bixa Production, 2002 - 2006

Year	2002	2003	2004	2005	2006
Area under Crop (ha)	5,474	5,537	5,519	5,252	5,658
Production (tons)	3,003	3,182	6,117	6,468	6,607
Yield (tons/ha)	0.5	0.6	1.1	1.2	0.86
Total Value (Kshs millions)	27	29	61	65	77

Source: Department of Land and Crops Development and Management

7.0 HORTICULTURE

The horticulture sub-sector products include cut-flowers, vegetables, fruits, nuts, herbs and spices. Area under horticultural crops dropped from 403,749 ha in 2005 to 380,965 ha in 2006 as shown in Table 7.1. The drop in area was mainly registered in fruits, vegetables and Irish potatoes. However, area under cut-flowers, macadamia nuts, herbs and spices increased. Production of the crops, on the other hand dropped from 4.45 million tons to 4.1 million tons over the same period.

Despite the overall drop in production, the value of horticultural crops increased from Kshs. 52.1 billion in 2005 to Kshs. 54.45 billion in 2006 which was attributed to better prices. In 2006, total volume of fresh produce exported rose to 162,232 tons valued at Kshs. 42.12 billion from 162,196 tons valued at Kshs. 37.99 billion in 2005.

Table 7.1: Summary of Horticultural Crops Production, 2002 - 2006

Crop	Unit of Measurement	Year				
		2002	2003	2004	2005	2006
Fruits	Crop area (ha)	140,755.0	148,926.0	152,681.0	155,498.0	152,522.0
	Tons	2,173,189.0	1,951,962.0	1,966,713.0	1,905,350.0	1,628,485.0
	Yield (Tons/Ha)	15.4	13.1	12.9	12.3	10.7
	Value (Million Kshs.)	15,245.0	11,852.0	14,784.0	20,012.0	16,401.9
Nuts (Macadamia)	Crop area (ha)	2,557.0	2,419.0	2,583.0	2,591.0	3,277.0
	Tons	13,837.0	11,134.0	10,910.0	12,958.0	18,161.0
	Yield (Tons/Ha)	5.4	4.6	4.2	5.0	5.5
	Value (Million Kshs.)	171.0	250.0	352.0	762.0	822.0
Vegetables	Crop area (ha)	98,908.4	112,300.0	128,484.0	122,305.0	111,890.0
	Tons	1,050,842.0	1,060,003.0	1,084,412.0	1,392,037.0	1,457,831.4
	Yield (Tons/Ha)	10.6	9.4	8.4	11.4	13.0
	Value (Million Kshs.)	7,975	17,056	17,668	17,451	19,322.3
Irish Potatoes	Crop area (ha)	111,728.0	112,300.0	128,484.0	120,842.0	107,908.0
	Tons	861,566.0	1,060,003.0	1,084,412.0	980,163.0	784,596.0
	Yield (Tons/Ha)	7.7	9.4	8.4	8.1	7.3
	Value (Million Kshs.)	4,308.0	4,580.0	5,157.0	5,531.0	6,711.2
Herbs & Spices	Crop area (ha)	1,606.0	1,944.0	1,957.0	2,513.0	2,944.7
	Tons	8,357.0	11,235.0	10,184.0	12,915.0	23,427.5
	Yield (Toms/Ha)	5.2	5.8	5.2	5.1	8.0
	Value (Million Kshs.)	180.6	267.3	314.7	522.2	582.0
Cut Flowers	Crop area (ha)	2,092.7	1,798.0	2,177.0	2,098.0	2,423.8
	Volume (million Stems)	978.4	855.0	1,444.0	3,290.0	3,844.7
	Yield (Tons/Ha)	0.5	0.5	0.7	1.6	1.0
	Value (Million Kshs.)	4,141.9	3,796.4	5,173.3	7,809.1	10,608.8
Totals	Area (ha)	356,647	375,181	387,535	403,749	380,965.5
	Value (million Kshs)	32,021.3	37,801.3	43,448.2	52,085.7	54,448.2

Source: Department of Land and Crops Development and Management

In terms of volume, fruits are mainly produced in Nyanza, Eastern and Central provinces; vegetable are mainly produced in Central, Nyanza and Rift Valley provinces while cut-flowers are mainly in Rift Valley as demonstrated through Table 7.2.

Table 7.2: Production of Horticultural Crops by Province, 2006

Crop	Units of Measurements	Province								Total
		Rift Valley	Nyanza	Eastern	Western	Coast	Central	North Eastern	Nairobi	
Fruits	Crop area (ha)	12,679.0	41,187.0	35,607.0	16,978.0	22,991.0	21,867.0	1,163.0	50.0	152,522.0
	Tons	179,453.0	623,637.0	285,862.0	92,137.0	160,275.0	276,537.0	10,251.0	333.0	1,628,485.0
	Yield (Tons/Ha)	14.2	15.1	8.0	5.4	7.0	12.6	8.8	6.7	10.7
	Value (Million Kshs.)	2,017.2	5,230.7	2,332.6	1,908.7	2,110.9	2,704.7	85.4	11.7	16,401.9
Macadamia Nuts	Crop area (ha)	310.0	2.0	1,407.0	-	-	1,558.0	-	-	3,277.0
	Tons	957.0	13.0	8,839.0	-	-	8,352.0	-	-	18,161.0
	Yield (Tons/Ha)	3.1	6.5	6.3	-	-	5.4	-	-	5.5
	Value (Million Kshs.)	63.1	0.2	265.1	-	-	493.6	-	-	822.0
Nuts (Peanuts)	Crop area (ha)	939.3	18,175.0	4.0	3,790.0		-	-	-	22,908.3
	Tons	867.2	586,760.0	8.0	1,943.0		-	-	-	589,578.2
	Yield (Tons/Ha)	0.9	32.3	2.0	0.5		-	-	-	25.7
	Value (Million Kshs.)	41.0	5,056.0	0.04	-	-	-	-	-	5,097.0
Nuts (Cashew nuts)	Crop area (ha)					27,602				27,602
	Tons					14,117				14,117
	Yield (Tons/Ha)					0.5				0.5
	Value (Million Kshs.)					635.3				635.3
Vegetables	Crop area (ha)	28,537.0	27,277.0	9,578.0	7,041.0	3,628.0	34,811.0	623.0	395.0	111,890.0
	Tons	398,445.0	425,448.0	133,811.0	7,778.6	2,473.7	485,020.0	666.1	4,189.0	1,457,831.4
	Yield (Tons/Ha)	14.0	15.6	14.0	1.1	0.7	13.9	1.1	10.6	13.0
	Value (Million Kshs.)	4,188.1	5,987.6	1,489.1	1,001.5	415.7	6,041.2	126.2	72.9	19,322.3
Irish Potatoes	Crop area (ha)	39,020.0	2,086.0	21,451.0	5,108.0	10.0	39,728.0	-	505.0	107,908.0
	Tons	370,763.0	39,145.0	230,802.0	67,309.0	113.0	75,764.0	-	700.0	784,596.0
	Yield (Tons/Ha)	9.5	18.8	10.8	13.2	11.3	1.9	-	1.4	7.3
	Value (Million Kshs.)	2,698.0	632.5	918.4	306.0	0.5	2,146.8	-	9.0	6,711.2
Herbs & Spices	Crop area (ha)	1,233.0	131.5	543.2	185.0	342.0	498.0	-	12.0	2,944.7
	Tons	12,913.0	671.7	3,111.8	1,626.0	1,367.0	3,709.0	-	29.0	23,427.5
	Yield (Toms/Ha)	10.5	5.1	5.7	8.8	4.0	7.4	-	2.4	8.0
	Value (Million Kshs.)	129.7	50.8	62.9	69.9	84.6	181.6	-	2.5	582.0
Cut Flowers	Crop area (ha)	2,111.8	-	50.0	-	-	262.0	-	-	2,423.8
	Production in Million Stems	3,446.0	-	13.0	-	-	385.4	-	-	3,844.7
	Yield (Tons/Ha)	1.6	-	0.3	-	-	1.5	-	-	1.0
	Value (Million Kshs.)	6,892.6	-	5.0	-	-	3,711.2	-	-	10,608.8

Source: Department of Land and Crops Development and Management

7.1 Vegetables

Major vegetables include: cabbages, kales, spinach, French beans, tomatoes, carrots and onions. Other vegetables such as cucumbers, lettuce, turnips, broccoli, red cabbage, cauliflower courgettes are also grown but on a limited scale targeting markets in the hotel and hospitality industry. Traditional vegetables have also been popular for local consumption in both rural and urban areas. These include amaranthus, spider weed, mitoo, cowpeas, etc.

Production of cabbages consistently increased from 248,523 tons in 2003 to 529,003 tons in 2005 before dropping by 21% to record 416,373 tons in 2006. Similar trend was registered for French Beans whose production dropped by 30% from 62,189 tons in 2005 to 43,821 tons in 2006. Production of tomatoes remained fairly stable, though marginally dropping from 337,447 tons to 334,478 tons over the same period as shown in Table 7.3.

Table 7.3: Production of Major Vegetables 2002 – 2006)

Crop	Units of Measurements	Year				
		2002	2003	2004	2005	2006
Cabbage	Crop area (ha)	18,905.0	20,809.0	19,531.0	20,527.0	20,513.1
	Tons	260,774.0	337,076.0	348,176.0	529,003.0	416,373.0
	Yield (Tons/Ha)	13.8	16.2	17.8	25.8	20.3
	Local Value (Million Kshs.)	1,171.0	1,650.0	1,918.0	2,272.0	1,915.6
	Export in Tons	82.7	4.5	8.5	10.9	13.1
	Value of Export (Million Kshs.)	3.61	0.54	1.80	1.71	1.4
Tomatoes	Crop area (ha)	17,430.0	18,163.0	22,784.0	20,743.0	19,541.6
	Tons	284,859.0	3,370,756.0	328,510.0	337,447.0	334,478.7
	Yield (Tons/Ha)	16.3	185.6	14.4	16.3	17.1
	Local Value (Million Kshs.)	4,513.0	5,103.0	2,999.0	3,241.0	4,921.3
	Export in Tons	33.0	6.1	7.2	4.3	0.8
	Value of Export	2.04	0.52	0.70	0.10	0.08
Kales	Crop area (ha)	23,121.0	23,892.0	24,933.0	26,818.0	28,898
	Tons	317,281.0	371,896.0	335,135.0	315,159.0	403,701
	Yield (Tons/Ha)	13.7	15.6	13.4	11.8	14.0
	Local Value (Million Kshs.)	2,061.0	4,982.0	5,013.0	4,511.0	4,538.8
	Export in Tons	-	-	-	-	-
	Value of Export	-	-	-	-	-
Onions	Crop area (ha)	5,964.0	6,476.0	6,513.0	6,395.0	6,800.0
	Tons	60,536.0	65,761.0	64,322.0	68,860.0	84,542
	Yield (Tons/Ha)	10.2	10.2	9.9	10.8	12.4
	Local Value (Million Kshs.)	1,185.0	1,397.0	1,645.0	1,415.0	1,510.7

Crop	Units of Measurements	Year				
		2002	2003	2004	2005	2006
	Export in Tons	723.8	517.7	420.7	462.9	57.7
	Value of Export (Million Kshs.)	235.6	175.0	34.1	42.3	0.8
Carrots	Crop area (ha)	3,654.0	4,208.0	3,088.0	2,737.0	2,874
	Tons	37,281.0	44,324.0	35,519.0	28,750.0	31,220
	Yield (Tons/Ha)	10.2	10.5	11.5	10.5	10.9
	Local Value (Million Kshs.)	1,185.0	1,397.0	1,645.0	1,415.0	748.8
	Export in Tons	723.8	517.7	420.7	462.9	63.6
	Value of Export (Million Kshs.)	235.6	175.0	34.1	42.3	15.1
French Beans	Crop area (ha)	6,482.0	5,521.0	6,291.0	7,004.0	6,154
	Tons	28,818.0	31,379.0	48,487.0	62,189.0	43,821
	Yield (Tons/Ha)	4.4	5.7	7.7	8.9	7.1
	Local Value (Million Kshs.)	871.0	980.0	994.0	1,226.0	733.9
	Export in Tons	19,056.0	25,174.0	32,741.0	37,795.0	31,870
	Value of Export	4,466.7	4,271.7	5,527.9	7,682.5	9,143.7
Spinach	Crop area (ha)	862.0	2,124.0	2,138.0	2,172.0	2,613
	Tons	8,296.0	24,791.0	26,738.0	29,173.0	35,095
	Yield (Tons/Ha)	9.6	11.7	12.5	13.4	13.4
	Local Value (Million Kshs.)	150.0	177.0	287.0	216.0	234.8
	Export in Tons	2.6	0.8	0.1	9.7	29.90
	Value of Export (Million Kshs.)	0.70	0.19	0.02	2.64	5.27
Garden Peas	Crop area (ha)	6,522.0	7,181.0	6,580.0	5,313.0	7,564
	Tons	26,013.0	25,174.0	23,327.0	22,798.0	28,229
	Yield (Tons/Ha)	4.0	3.5	3.5	4.3	3.7
	Local Value (Million Kshs.)	388.0	350.0	321.0	458.0	690.6
	Export in Tons	-	-	1,806.0	2,206.0	2,064.4
	Value of Export	-	-	449.3	728.9	671.8
Snow Peas	Crop area (ha)	870.0	1250	1,256.0	1,550.0	1,383.9
	Tons	2,766.0	4,903.0	5,184.0	5,578.0	9,282.1
	Yield (Tons/Ha)	3.2	3.9	4.1	3.6	6.7
	Local Value (Million Kshs.)	95.1	229.1	297.5	368.9	376.0
	Export in Tons	2,425.0	1,974.0	2,568.0	1,739.0	2,644.3
	Value of Export	741.6	492.9	953.1	448.5	843.7
Asian Vegetables	Crop area (ha)	1,985.0	1,911.0	2,353.0	2,832.0	3,074
	Tons	11,189.0	13,589.0	16,337.0	18,958.0	20,761
	Yield (Tons/Ha)	5.6	7.1	6.9	6.7	6.8
	Local Value (Million Kshs.)	205.1	266.0	312.5	369.4	356
	Export in Tons	11,009.0	13,186.0	16,129.0	18,413.0	18,908.6
	Value of Export	205.1	254.0	293.2	358.3	346.2

Source: HCDA and Department of Land and Crops Development and Management

Production of vegetable such as kales, onions, spinach, Asian vegetable, and carrots increased in 2006. Kales production increased by 28% from 315,159 tons in 2005 to 403,701 tons in 2006 while that for onions increased by 23% from 68,860 tons in to 84,542 tons over the same period.

The stringent market standards such as the EUREPGAP played a significant role in lowering the capacity of smallholders to access some markets particularly the European Union (EU). This particularly affected export of onions and carrots that registered significant drop in export volumes. However, export of garden peas picked up in 2004 with an export value rising to Kshs. 671 million in 2006.

7.2 Irish Potatoes

Irish potato is an important food crop especially for urban population and its demand has continued to increase over the years. However, production of the crop is threatened by the outbreak of bacterial wilt that has been reported in almost all production areas. Use of non-certified planting materials has not only lowered produce quality but also the volumes.

Production of potatoes dropped by 10% from 1.1 million tons in 2004 to 0.98 million tons in 2005, with a further drop to 0.78 million tons in 2006 as highlighted in Table 7.4. Yield continued to drop from 8.1 tons per ha in 2005 to 7.3 tons per ha in 2006. This was due to low quality seeds and widespread attack by bacteria wilt, coupled with the routine problems of fungal blights which reduce the effective period for tuber formation.

Table 7.4: Production of Irish Potatoes, 2002 - 2006

Crop	Units of Measurements	Year				
		2002	2003	2004	2005	2006
Irish Potatoes	Crop area (ha)	111,728.0	126,490.0	128,484.0	120,842.0	107,907.0
	Tons	861,566.0	1,223,531.0	1,084,412.0	980,163.0	784,506
	Yield (Tons/Ha)	7.7	9.7	8.4	8.1	7.3
	Price per 110 kg bag Kshs	1,360	1,120	1,390	1,400	1,560
	Value (Million Kshs.)	4,308	5,287	5,157	5,531	6,711.4

Source: Department of Land, Crops Development and Management

7.3 Fruits

The fruit industry is an essential source of produce sold in the domestic market. Fruits are grown as a food source, income generation and as raw material for the processing industry. Bananas, citrus, avocadoes, mangoes, pineapples, paw paws and passion fruits are Kenya's most common fruits. Other fruits include: watermelons, pears, plums, strawberries, apples and tree tomatoes.

Production of bananas remained fairly stable at about 1.05 million tons in 2006. Production of citrus dropped from 113,098 tons in 2005 to 98,382 tons in 2006 as that for mangoes dropped from 188,658 tons to 163,726 tons over the same period. Other fruits that registered drop in production are avocadoes, and pineapples. However, production of other fruits such as paw paw, apples, and water melons increased during the year under review as shown in Table 7.5.

The industry however is under very severe competition from vegetable and fodder and available land particularly in small holders farms. Erratic weather patterns had a severe effect in the flowering and maturity of some fruits. Dry spells and pest incidences had major effect on the production and quality of the produce.

Table 7.5: Major Fruits Production, 2002-2006

Year	2002	2003	2004	2005	2006
Banana					
Crop area (ha)	78,156	79,598	81,673	83,687	82,517.8
Production (tons)	1,073,001	1,019,377	1,036,138	1,006,870	1,058,018
Local Value (Kshs)	7,121,561,680	6,467,429,520	7,643,174,487	8,376,753,300	9,298,122,000
Yield (tons/ha)	13.7	12.8	12.7	12.0	12.8
Export volume (tons)	18	17	16.5	17.2	6.4
Value of Export (Kshs)	2,094,998	6,844,601	6,844,601	5,211,561	1,590,981
Citrus					
Crop area (ha)	15,051	15,035	15,007	14,793	13,905
Production (tons)	116,336	129,532	118,190	113,098	97,382
Local Value (Kshs)	1,494,447,280	1,898,089,769	1,660,549,440	1,633,638,453	1,651,705,042
Yield (tons/ha)	7.7	6.7	7.8	7.6	7.1
Export volume (tons)	5.4	33.1	1.9	10.7	0.4
Value of Export (Kshs)	139,556	1,129,433	230,107	1,140,642	54,009
Mangoes					
Crop area (ha)	16,673	17,268	18,094	18,738	21,264
Production (tons)	176,504	183,486	183,440	188,658	163,726
Local Value (Kshs)	1,078,928,300	1,108,434,900	1,360,345,099	1,046,421,625	1,057,046,600
Yield (tons/ha)	10.6	10.6	10.1	10.0	7.7
Export volume (tons)	7,081	2,226	2,009	1,002	1,182
Value of Export (Kshs)	341,371,410	273,611,917	170,140,162	92,566,760	88,643,232
Avocados					
Crop area (ha)	4,880	5,099	6,421	7,414	7,649
Production (tons)	62,431	70,948	80,316	99,960	91,369
Local Value (Kshs)	453,261,740	558,379,555	769,883,481	1,046,421,625	865,079,653
Yield (tons/ha)	10.7	13.9	12.5	12.7	11.9
Export volume (tons)	12,889	19,020	15,960	15,243	12,960
Value of Export (Kshs)	682,745,535	892,871,043	1,024,941,272	873,296,576	586,659,456
Passion Fruit					
Crop area (ha)	2,991	3,435	4,024	3,941	4,419
Production (tons)	29,118	28,993	31,951	32,551	32,744
Local Value (Kshs)	709,289,480	727,943,100	941,660,858	977,331,958	953,901,863
Yield (tons/ha)	9.7	8.4	7.9	8.3	7.4

Year	2002	2003	2004	2005	2006
Export volume (tons)	1,023	1,506	1,335	998	179.8
Value of Export (Kshs)	161,418,813	393,783,047	432,003,111	885,760,192	118,922,224
Pineapples					
Crop area (ha)	13,193	11,892	14,473	15,158	15,123
Production (tons)	619,860	399,103	536,948	593,712	447,558
Local Value (Kshs)	3,436,184,620	1,847,199,750	1,426,696,659	1,246,931,450	1,342,674,000
Yield (tons/ha)	47.0	38.6	37.1	40.0	18.5
Export volume (tons)	336	486	598	1,388	155
Value of Export (Kshs)	33,055,201	34,183,411	77,100,694	44,548,160	19,247,329
Paw paws					
Crop area (ha)	7,974	8,277	8,718	8,448	8,643
Production (tons)	81,811	86,491	86,264	79,567	85,210
Local Value (Kshs)	702,958,960	706,492,052	700,501,053	774,937,091	794,977,587
Yield (tons/ha)	11.7	10.4	11.2	9.4	9.9
Export volume (tons)	6	9	13	12	5.4
Value of Export (Kshs)	337,949	646,630	2,705,135	2,328,873	1,128,515
Apples					
Crop area (ha)	201	220	226	239	256
Production (tons)	1,178	1,442	1,379	1,431	1,626
Local Value (Kshs)	27,966,800	28,107,250	27,075,780	26,675,082	37,456,000
Yield (tons/ha)	5.9	6.6	6.1	6.0	6.4
Export volume (tons)	99	17	22	34	0.7
Value of Export (Kshs)	7,102,426	1,129,766	2,221,794	4,069,838	70,356
Plums					
Crop area (ha)	700	784	783	843	824
Production (tons)	4,885	5,250	4,259	5,845	5,868.3
Local Value (Kshs)	44,343,800	43,930,400	32,690,161	33,363,490	36,500,000
Yield (tons/ha)	7.0	8.0	5.4	10.8	6.8
Export volume (tons)	1.500	0.031	0.009	0.010	-
Value of Export (Kshs)	162,690	1,508	438	78,650	-
Water Melon					
Crop area (ha)	684	684	2,269	1,286	1,642
Production (tons)	5,871	6,187	12,679	8,520	10,828
Local Value (Kshs)	52,352,604	55,747,000	110,823,250	75,746,761	88,163,200
Yield (tons/ha)	8.5	9.0	5.6	6.6	6.6
Export volume (tons)	19	13	6.5	5.2	4.9
Value of Export (Kshs)	2,163,615	523,094	702,725	366,426	402,348
Tree Tomatoes					
Crop area (ha)	140	283	306	328	376
Production (tons)	966	2,429	2,902	3,287	3,810
Local Value (Kshs)	9,038,520	31,753,700	42,195,901	49,285,600	51,168,000
Yield (tons/ha)	6.9	8.6	6.2	7.0	10.1
Export volume (tons)	-	-	-	-	-
Value of Export (Kshs)	-	-	-	-	-
Strawberry					
Crop area (ha)	18	30	41	44	39
Production (tons)	120	221	229	254	240

Year	2002	2003	2004	2005	2006
Local Value (Kshs)	6,560,000	9,430,000	11,550,000	12,998,200	11,940,000
Yield (tons/ha)	6.7	7.4	5.6	5.8	6.2
Export volume (tons)	44	55	0.6	0.020	0.017
Value of Export (Kshs)	20,556,009	33,471,727	156,978	16,560	391

Source: HCDA and Department of Land and Crops Development and Management

7.4 Nuts (Macadamia and Cashew nuts)

Nuts are grown for local processing and exports. They are used in roasting and confectionary industries as additives to flavour foods. The Key nuts include macadamia, peanuts and cashew nuts.

7.4.1 Macadamia Nuts

Over the review period, the area under Macadamia nuts consistently increased from 2,557 ha in 2002 to 3,277 in 2006. Production increased by 40% from 12,958 tons in 2005 to 18,161 tons in 2006 as shown in Table 7.6. There has however been a problem of harvesting of low quality nuts by farmers. This is currently being addressed through the draft Nuts Policy.

Table 7.6: Production Macadamia 2002 - 2006

Crop	Units of Measurements	Year				
		2002	2003	2004	2005	2006
Macadamia	Crop area (ha)	2,557	2,613	2,683	2,691	3,277
	Tons	13,837.0	13,144.0	10,910.0	12,958.0	18,161.0
	Yield (tons/ha)	5.4	5.0	4.1	4.8	5.5
	Local Value (million Kshs.)	170.0	249.8	351.8	761.6	822.0
	Export in tons	916.0	171.0	28.0	811.0	0.036
	Value of Export (million Kshs.)	22.9	6.8	1.1	72.3	-

Source: HCDA and Department of Land and Crops Development and Management

7.4.2 Cashew nuts

In the Coast Province, cashew nuts are some of the most important commercial crops. Area under the crop dropped from 28,223 ha in 2005 to 27,602 ha in 2006. Current trees are old (over 30 years) neglected leading to build-up of diseases and pests. This has triggered a general decline in yields from 20-25 kgs per tree to 3-5 kgs per tree.

Production increased marginally from 13,276 tons in 2005 to 14,117 tons in 2006 as shown in Table 7.7. This was attributed to improved marketing, and particularly the increase in the number of players marketing and exporting the crop. If proper care is given to the tree, the crop can reduce poverty levels considerably. Concerted efforts are being made through stakeholders to improve productivity.

Table 7.7: Cashew nuts Production, 2002-2006

Year	2002	2003	2004	2005	2006
Area (ha)	30,011	29,020	27,805	28,223	27,602
Production (tons)	7,626	11,075	12,435	13,276	14,117
Price (Kshs/kg)	25	20	35	50	30
Yield (tons/ha)	0.3	0.4	0.4	0.5	0.4
Value (million Kshs)	190.7	221.5	435.2	663.8	329.4

Source: Department of Land and Crops Development and Management

7.5 Herbs and Spices

Major herbs include chilies, coriander, garlic and leeks. These are mainly grown in kitchen gardens and target home consumption, hotels and domestic market. Production of chilies increased from 3,001 tons in 2001 to 5,599 tons in 2003. Since then, production of the crop has been on a downward trend, dropping to 5,199 tons in 2005 and further to 4,292 tons in 2006. Coriander production consistently increased from 222 tons in 2002 to 1,799 tons in 2005 before dropping to 1,495 tons in 2006 as shown in Table 7.5. Some herbs and spices are destined for export. However, the export market has set strict entry standards that small holders are challenged to meet in the short term.

Table 7.8: Herbs & Spices Production, 2002-2006

	2002	2003	2004	2005	2006
Chilies					
Crop area (ha)	768	1,011	842	1,287	1,286
Production (tons)	3,152	5,599	5,214	5,199	4,292
Total Value (Kshs)	83,977,440	81,826,000	74,563,626	94,359,244	96,682,385
Yield (tons/ha)	4.1	5.5	6.2	4.0	3.3
Export volume (tons)	622	353	541	796	724
Value of Export (Kshs)	74,018,078	68,681,832	177,688,264	295,037,225	172,770,312
Coriander					
Crop area (ha)	187	278	272	309	339
Production (tons)	222	349	1,340	1,799	1,495
Yield (tons/ha)	1.2	1.3	4.9	5.8	4.4
Export volume (tons)	34	11	14	-	0.2
Value of Export (Kshs)	7,881,817	1,940,070	1,785,382	-	29,222
Celery					
Crop area (ha)	131	95	87	112	-
Production (tons)	1,047	849	919	960	-
Local Value (Kshs)	20,900,000	17,067,355	18,474,557	19,298,776	-
Yield (tons/ha)	8.0	8.9	10.5	8.5	-
Export volume (tons)	1	4	1.3	0.4	0.03
Value of Export (Kshs)	69,567	247,821	75,548	42,627	3,866

Source: HCDA and Department of Land and Crops Development and Management

7.6 Cut Flowers

Cut flowers contribute significantly to the composition of horticulture sub-sector. Large-scale growers dominate production of the crop for export purposes. Currently, the sub-sector is the leading agricultural foreign exchange earner. The sub-sector has continued to maintain a strong position in export values over the last three years. However, a new challenge on carbon emission labeling has surfaced from some export markets which may affect the flower as well as other horticultural crops export regime.

Production of cut-flowers has consistently increased from 855 million stems in 2003 to 3,290 million stems in 2005 and further by 17% to reach 3,844 million stems in 2006. Area under flowers however consistently dropped from 2,463 ha in 2001 to 1,777 ha 2004 before recovering to 2,424 ha in 2006. Earning from export of flowers rose to Kshs. 23,560 million in 2006 from Kshs. 22,238 million in 2005. This trend are demonstrated in Table 7.9.

Table 7.9: Cut Flower Production, 2002-2006

Year	2002	2003	2004	2005	2006
Crop area (ha)	2,093	1,798	1,777	2,098	2,424
Production in mil stems	978.4	855	1,444	3,290	3,844
Local Value (Kshs mil.)	4,141.93	3,796.359	5,173.259	7,809.072	10,603,797
Export volume in Tons	52,097	60,983	71,805	82,238	86,480
Value of Export (Kshs mil)	14,792.40	16,495.53	18,092.18	22,238.01	23,560.57

Source: HCDA and Department of Land and Crops Development and Management

7.7 Horticultural Crops Exports

Overall, the volume of exported fresh horticultural produce consistently increased from 119,262 tons in 2002 to 164,021 tons in 2006. The major contributors are cut flowers whose export volume increased from 52,097 tons in 2002 to 86,480 tons in 2006. Export volume for vegetables increased from 43,969 tons to 61,348 tons over the same period. The value of exports also consistently increased from Kshs. 26.5 billion in 2002 to Kshs. 43.3 billion in 2006 as highlighted in Table 7.10.

Table 7.10: Fresh Horticultural Exports; 2002-2006

Year	2002	2003	2004	2005	2006
Fruits and Nuts					
Volume of Exports in tons	22,482	23,575.4	20,089.7	18,522	15,405
Value (million Kshs)	1,461.6	1,461.6	1,803.0	2,049.9	1,737
Vegetables					
Volume of Exports in tons	43,969.7	48,270.5	52,805	61,220	61,348
Value (million Kshs)	10,245.1	10,390.8	11,820.5	13,574.6	17,823
Herbs and Spices					
Volume of Exports in tons	712.8	405.6	26	398	787.9
Value (million Kshs)	93.3	79.4	4.7	135.8	197.7
Cut flowers					
Volume of Exports in tons	52,097.4	60,982.9	66,805	82,056	86,480
Value (million Kshs)	14,792.4	16,495.5	18,092	22,238	23,561
Totals					
Volume of Exports in tons	**119,262.1**	**133,232.5**	**139,726**	**162,196**	**164,021**
Value (million Kshs)	**26,592.5**	**28,839.6**	**31,720.4**	**37,998**	**43,319**

Source: HCDA

8.0 AGRICULTURAL INPUTS

8.1 Annual Fertilizer Off-take 2000 -2006

The annual fertilizer off-take is on a general upward trend increasing from 312,440 tons in 2003/04 to 351,776 tons in 2004/05 and further to 383,285 tons in 2005/06 as shown in Table 8.1. The 2006/07 off-take is again being estimated at 410,214 tons, a 7% increase over the 2005/06 level. This could be attributed to improved marketing coupled with favourable and predictable producer prices for some crops such as maize and generally stable prices for popular fertilises.

The major contributors to off-take increase are planting fertilizers that increased from 172,760 tons in 2005/06 to 200,011 tons in 2006/07. The off-take of fertilizer imported specifically for tea production increased from 60,624 tons in 2005/06 to 70,325 tons in 2006/07.

Table 8.1: Annual Fertilizer Off-take, 2000-2007 (tons)

TYPE OF FERTILIZER	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07*
PLANTING							
DAP	88,567	98,285	116,295	105,724	150,569	136,254	164,964
MAP	25,441	10,476	31,674	1,144	3,420	2,157	2,712
TSP	341	-	3,948	4,622	201	599	3,198
SSP	470	470	1,970	3,999	2,010	6,000	4,980
NPK20:20:0	7,236	2,416	16,952	13,761	2,945	9,036	7,982
NPK23:23:0	15,822	10,868	21,987	8,567	10,300	18,713	16,175
Sub Total	**137,878**	**122,516**	**192,825**	**137,817**	**169,445**	**172,760**	**200,011**
TOP-DRESSING							
CAN	57,526	44,560	59,801	30,700	51,456	59,739	69,714
ASN	350	850	630	-	-	-	500
UREA	16,552	37,557	24,288	45,084	25,017	41,071	28,554
SA	3,400	5,325	425	4,005	-	1,029	1,340
Sub Total	**77,828**	**88,292**	**85,144**	**70,617**	**76,473**	**101,839**	**100,107**
TEA							
NPK25:5:5:5s	60,951	78,531	52,000	64,764	76,375	58,276	69,550
NPK25:5:5:3.95s+2.6MgO	8,461	-	-	348	-		-
NPK22:21:17	-	-	-	20	-	21	7
NPK22:6:12+5S	11,442	220	12,083	185	-	2,327	768
Sub Total	**80,854**	**78,751**	**64,083**	**47,168**	**76,375**	**60,624**	70,325
COFFEE							
NPK18:4:12	2,258	3,658	7,514	2,150	-	-	-
NPK20:10:10	1,522	6,157	2,765	888	-	10,053	3,317
NPK17:17:17:	5,788	12,227	2,377	5,209	2,948	16,717	15,517
NPK16:16:16	-	-	-	-	-	210	-
Sub Total	**9,568**	**22,042**	**12,656**	**16,985**	**2,948**	**26,980**	18,834
TOBACCO							
NPK12:2:43	-	-	-	-		-	-

TYPE OF FERTILIZER	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07*
NPK8:16:24+MgO+0.1%B	-	-	-	252	542	-	-
NPK15:15:6+4MgO+0.1%B	-	-	-	-		-	-
NPK16:12:24	-	-	-	-		-	-
NPK5:15:25	-	-	-	-		-	-
NPK13:9:21+MgO	-	-	-	-		-	-
NPK10:4.7:0.2	-	-	-	-		-	-
Sub Total	-	-	-	**252**	**542**	-	-
SPECIALISED							
MgNo3	1,590	929	1,595	799	208	420	738
MgSo4	245	4,160	2,071	3,221	1,026	3,150	3,040
CN	399	2,769	2,913	6,916	3,997	900	597
MOP/SOP	539	1,125	1,593	6,121	12,510	10,396	6,411
AN	204	312	219	623	749	2,746	1,006
Iron chelate	1	2,285	5	57	10		2,020
Potassium Nitrate	-	201	813	2,298	644		2,083
NPK28:28:0	2,890	174	2,736	-	-		-
NPK19:19:19	2,548	234	2,314	11	42	118	539
NPK19:19:19+M.E+1%MgO	-	1,915	20	-	-		4
Ferrous sulphate	1,315	172	563	1,780	-	1,475	1,987
Organic fertilizer	185	816	8,320	9,865	-		1,000
Others	1,366	2,756	2,367	-	6,808	1,877	1,514
Sub Total	**11,282**	**17,848**	**25,528**	**31,691**	**25,994**	**21,082**	**20,938**
GRAND-TOTAL	**317,409**	**329,449**	**335,009**	**312,440**	**351,776**	**383,285**	**410,214**

Source: Department of Agribusiness, Market Development and Agricultural Information
* Estimate

8.2 Retail Fertilizer Prices

The retail price of fertilizer has over the last three years remained fairly stable with only a few fertilizers such as UREA and NPK 17-17-17 registering increases in prices as shown in Table 8.2.

Table 8.2: Average Retail Fertilizer Price, 2001-2006 (Kshs/50kg)

Fertilizer Type	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
SSP	825	850	850	1,100	1,100	1,075
TSP	1,150	1,150	1,500	1,600	1,680	1,680
DAP	1,150	1,125	1,500	1,680	1,700	1,730
MAP	1,050	975	1,450	1,680	1,700	1,625
ASN	900	925	1,250	1,300	1,350	1,300
CAN	850	900	1,250	1,350	1,350	1,375
SA	700	750	1,250	1,300	1,300	1,125
UREA	750	900	1,250	1,400	1,450	1,600
NPK 20:20:0	1,075	1,100	1,350	1,600	1,600	1,630
NPK 20:10:10	1,075	1,100	1,250	1,350	1,400	1,450
NPK 25:5:5	1,250	950	1,250	1,400	1,400	1,420
NPK 17-17-17	1,200	980	1,250	1,400	1,450	1,620
KCL	1,200	1,100	1,250	1,400	1,400	1,420
NPK 23:23:0	1,075	1,065	1,400	1,600	1,600	1,630

Source: Department of Agribusiness, Market Development and Agricultural Information

8.3 Seeds

Production of certified seeds for various crops continued on an upward trend during the year under review, rising from 29,879 tons in 2005 to 34,682 tons in 2006. Import of seeds also increased from 3,847 tons to 4,773 tons over the same period. Production of certified maize seed increased from 24,215 tons in 2005 to 28,978 tons in 2006, with imports rising from 2,345 tons to 3,022 tons over the same period as highlighted in Table 9.5.

Following efforts to revive the cotton industry, production of certified cotton seed increased from 0.4 tons in 2005 to 4.8 tons in 2006. Production of sorghum seed also increased from 230 tons to 492 tons over the same period.

Table 8.3: Certified Seeds Production and Importation (2002-2006)

Crop	Description	Quantities produced and imported				
		2002	2003	2004	2005	2006
Barley	Local production (KG)	484,500.0	659,400.0	1,394,248.3	1,650,650.0	1,626,900.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	484,500.0	659,400.0	1,394,248.3	1,650,650.0	1,626,900.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Beans	Local production (KG)	448,376.0	568,678.6	392,646.7	607,957.9	172,960.0
	Imports (KG)	241,896.2	348,391.5	261,378.2	567,851.1	0.0
	Total (KG)	690,272.2	917,070.1	654,024.9	1,175,808.9	172,960.0
	Imports (as % of Total)	35.0	38.0	40.0	48.3	0.0
Oats	Local production (KG)	0.0	4,950.0	0.0	12,090.0	2,820.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	4,950.0	0.0	12,090.0	2,820.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Flower	Local production (KG)	8,939.8	501.0	499.5	180.7	453.5
	Imports (KG)	4,184.3	501.0	352.4	227.7	453.5
	Total (KG)	13,124.0	1,002.0	851.9	408.3	907.0
	Imports (as % of Total)	31.9	50.0	41.4	55.8	50.0
Herbage	Local production (KG)	203,587.0	85,684.0	69,591.0	55,877.5	0.0
	Imports (KG)	14,700.0	2,815.0	25,250.0	6,244.0	0.0
	Total (KG)	218,287.0	88,499.0	94,841.0	62,121.5	0.0
	Imports (as % of Total)	6.7	3.2	26.6	10.1	0.0
Maize	Local production (KG)	8,533,162.0	26,952,871.9	24,881,202.7	24,215,835.0	28,978,043.0
	Imports (KG)	497,916.0	1,101,644.1	1,351,032.0	2,345,544.0	3,022,287.0
	Total (KG)	9,031,078.0	28,054,515.9	26,232,234.7	26,561,379.0	32,000,330.0
	Imports (as % of Total)	5.5	3.9	5.2	8.8	9.4
Millet	Local production (KG)	214,156.0	183,301.0	54,139.0	45,147.0	32,576.0
	Imports (KG)	0.0	0.0	3,050.0	0.0	0.0

Crop	Description	Quantities produced and imported				
		2002	2003	2004	2005	2006
	Total (KG)	214,156.0	183,301.0	57,189.0	45,147.0	32,576.0
	Imports (as % of Total)	0.0	0.0	5.3	0.0	0.0
Peas	Local production (KG)	529,240.1	604,498.5	536,250.0	473,507.6	0.0
	Imports (KG)	253,857.3	240,626.0	443,591.0	444,398.0	0.0
	Total (KG)	783,097.4	845,124.5	979,841.0	917,905.6	0.0
	Imports (as % of Total)	32.4	28.5	45.3	48.4	0.0
Pigeon peas	Local production (KG)	0.0	0.0	0.0	19,240.0	7,300.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	19,240.0	7,300.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Finger Millet	Local production (KG)	0.0	0.0	0.0	0.0	3,242.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	0.0	3,242.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Cow peas	Local production (KG)	0.0	0.0	0.0	0.0	102,180.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	0.0	102,180.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Green Grams	Local production (KG)	0.0	0.0	0.0	0.0	24,622.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	0.0	24,622.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Ground Nuts	Local production (KG)	0.0	0.0	0.0	0.0	369.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	0.0	369.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Pasture	Local production (KG)	0.0	0.0	0.0	0.0	28,791.0
	Imports (KG)	0.0	0.0	0.0	0.0	602.0
	Total (KG)	0.0	0.0	0.0	0.0	29,393.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	2.0
Soya Beans	Local production (KG)	0.0	0.0	0.0	0.0	488.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	0.0	488.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Cotton	Local production (KG)	0.0	0.0	0.0	400.0	4,852.5
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	0.0	0.0	0.0	400.0	4,852.5
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Sorghum	Local production (KG)	1,339,125.0	737,070.0	297,693.0	230,662.0	492,410.0
	Imports (KG)	5,225.0	18,000.0	0.0	18,000.0	10,000.0
	Total (KG)	1,344,350.0	755,070.0	297,693.0	248,662.0	502,410.0

Crop	Description	Quantities produced and imported				
		2002	2003	2004	2005	2006
	Total (KG)	1,344,350.0	755,070.0	297,693.0	248,662.0	502,410.0
	Imports (as % of Total)	0.4	2.4	0.0	7.2	2.0
Sunflower	Local production (KG)	82,953.0	322,128.0	63,669.0	145,246.0	148,718.0
	Imports (KG)	0.0	18,000.0	9,210.0	13,200.0	28,200.0
	Total (KG)	82,953.0	340,128.0	72,879.0	158,446.0	176,918.0
	Imports (as % of Total)	0.0	5.3	12.6	8.3	15.9
Safflower	Local production (KG)	0.0	0.0	385.0	300.0	486.0
	Imports (KG)	0.0	0.0	0.0	300.0	0.0
	Total (KG)	0.0	0.0	385.0	600.0	486.0
	Imports (as % of Total)	0.0	0.0	0.0	50.0	0.0
Tobacco	Local production (KG)	0.0	0.0	12.7	0.0	0.0
	Imports (KG)	0.0	0.0	12.7	0.0	0.0
	Total (KG)	0.0	0.0	25.3	0.0	0.0
	Imports (as % of Total)	0.0	0.0	50.0	0.0	0.0
Vegetables	Local production (KG)	438,050.4	553,964.0	423,516.0	579,626.9	1,685,598.2
	Imports (KG)	199,637.2	307,258.6	225,155.0	451,741.3	1,712,284.7
	Total (KG)	637,687.6	861,222.6	648,671.0	1,031,368.2	3,397,882.9
	Imports (as % of Total)	31.3	35.7	34.7	43.8	50.4
Wheat	Local production (KG)	716,523.0	530,200.0	1,045,214.0	1,842,592.0	1,369,281.0
	Imports (KG)	0.0	0.0	0.0	0.0	0.0
	Total (KG)	716,523.0	530,200.0	1,045,214.0	1,842,592.0	1,369,281.0
	Imports (as % of Total)	0.0	0.0	0.0	0.0	0.0
Total	Local production (KG)	12,998,612.3	31,203,247.0	29,159,066.9	29,879,312.4	34,682,090.2
	Imports (KG)	1,217,415.9	2,037,236.1	2,319,031.2	3,847,506.0	4,773,827.2
	Total (KG)	14,216,028.2	33,240,483.0	31,478,098.1	33,726,818.5	39,455,917.4
	Imports (as % of Total)	8.6	6.1	7.4	11.4	12.1

Source: KEPHIS

8.4 Crop Protection Products

8.4.1 Import of Pest Control Products

Approximately 7,708 metric tons of pesticides with a value of Kshs. 4.5 billion were imported into the country in 2005/2006. The major active substances involved were Glyphosate 1,3-Dichloropropene, Amitraz, Mancozeb, Imiprothrin, D'allethrin, Chlorothalonil, Copper hydroxide, Cuprous Oxide, Dimethoate, metolachlor+Atrazine; Sulphur, Diazinon, Methyl Bromide, Dektamethrin, 2, 4-D Amine and Cobox in order of decreasing volume. A summary of quantity and value of imports in the last three years is shown in Table 8.4.

Table 8. 4: Quantities and values of imported pesticides 2003/04 – 2005/06

Category	2003/2004		2004/2005		2005/2006	
	Quantity in tons	Value in '000' Kshs	Quantity in tons	Value in '000' KSHS	Quantity in tons	Value in '000' Kshs
Insecticide	2,465	2,411	2,881	2,077	2,844	2,031
Fungicide	1,657	925	2,031	1,113	2,361	1,506
Herbicide	1,396	571	1,538	650	1,311	620
*Others	723	142	597	133	1,192	337
Total	**6,241**	**4,049**	**7,047**	**3,973**	**7,708**	**4,494**

* These include fumigants, rodenticides, growth regulators, defoliators, proteins, surfactants, wetting agents.
Source: Pest Control Products Board.

Quantities of imported pesticides continued on an upward trend, rising from 7,047 tons in 2004/05 to 7,708 tons in 2005/06. The major contributors to this increase are fungicides that increased from 1,657 tons in 2003/04 through 2,031 tons in 2004/05 to 2,361 tons in 2005/06. This can be attributed to the revival of coffee farming, where especially copper based fungicides are on high demand. However, the quantity of imported insecticides dropped by approximately 37 tons between 2004/05 and 2005/06.

Although it is believed that Kenyan farmers are turning to chemical weed control instead of the traditional manual weed control, the amounts of herbicides imported into the country has been fluctuating since 2003/2004. Quantities of herbicides imported dropped from 1,538 tons in 2004/05 to 1,311 tons in 2005/06.

8.5.2 Export of Pest Control Products

During 2006, approximately 82 metric tons of pesticides worth Kshs. 36 million were exported from Kenya to the neighboring countries mainly to Burundi and Tanzania. The pesticides exported were mainly piriphos methyl + permethrin and Chlorfenvinphos.