

JAMAICAN PIG POPULATION

CENSUS 2012

Prepared for:



AND



Jamaica Social Investment Fund

Ministry of Agriculture and Fisheries

By:



TREVOR HAMILTON AND ASSOCIATES
Center for Excellence

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This is Part -1 of the consultancy Report. It focuses only on the Population Census 2012. Part -2 focuses on the Value Chain

TABLE OF CONTENTS

	Page #
1. SUMMARY	
1.1 Introduction	3
1.2 Key Findings	3
2. INTRODUCTION	
2.1 The Required Scope of Work	7
2.2 Coverage of the Census and Work Approach	7
2.3 Outline of This Report	10
3. OVERVIEW	
3.1 Population Trend and Structure	15
3.2 Indicative Analysis of the Population Data	19
4. THE IMPERATIVES FOR PRIMARY PRODUCT	
4.1 Present Advantages	32
4.2 Key Disadvantages For Present Production	33
4.3 Pig Farmers' Imperatives For The Value Chain	34
5. APPENDIX TABLES	41

1. SUMMARY

1.1 Introduction

1.2 Key Findings

1. SUMMARY

1.1 Introduction

This is Part -1 of the consultancy. It provides the comprehensive data base on the 2012 Pig Population in 62 Tables. These Tables include all of those usually produced in previous Census Reports as well as some new areas. The terms of reference required a descriptive of the Census. However, it has been broadened to present an analytical review mostly in the context of a value chain which is a major requirement of the consultancy.

1.2 Key Findings

- **The pig population is approximately 145k as against 142k in 2003 and 85,000 in 1998. It grew by 0.25% annually in the period 2003 to 2012.**
- **There are some noteworthy structural changes taking place. These include:**
 - Larger investors are entering the industry due to the fact that the average size has increased from 21 pigs (1998) to 27 pigs (2012) representing a growth of 29%.
 - 53.4% of the pig population is now owned by larger farmers (50 or more pigs) as compared with 44.2% in 1998.
- **While the pig population has grown by only 2% (2003 over 2012) the output of pork has grown by 41% (from 3.5 Million Kg to 4.95 M Kg) in the same period with the improved genetics which resulted in significant increase in the size of pigs as substantiated below:**
 - Dressed weight of fatteners sold to butchers increased by 21% from 54.6 Kg to 66 Kg in 2012 over 2003.
 - Dressed weight to packers/processors increased by 84% from 55.9 Kg in 2012 over 2003.
- **Farmers operate mostly with mixed specialization spanning these categories, which may not be the ideal for optimizing efficiencies:**
 - Fatteners
 - Weaners
 - Seed stock
 - Fatteners and Weaners
 - Fatteners and Feed stock
 - Weaners and Seed stock and Fatteners
 - Weaners and Seed stock

- **The farming business models are low value and price sensitive oriented. Therefore, farmers' fiscal viability is under threat. For example:**
 - Approximately 69% of the meat is sold to the fresh market which is extremely price sensitive.
 - Farmers estimate that the J\$307 per Kg farm gate price for dressed pork represents 94% of their operating costs.

- **Farmers have three (3) major challenges that have to be addressed by value chain and policy mechanisms to safeguard the viability of their investments. These are:**
 - The high mortality rate (20%) among pre-weaners requires them to have a much higher than normal sow population.
 - Ninety four percent (94%) of them rank uncompetitive priced feed as their number -1 threat for viability.
 - The inadequate transformation of their pork into differentiated customer demand driven products in order to give them better market positioning and prices.

- **Pig production is generating noteworthy economic impacts with the scope for some improvements:**
 - Its direct employment is about 9,357. This treats every pig farmer as an employee / job).
 - 16% of the farmers rely on pig production as their sole source of income.
 - Only 27% of the farmers are <40 years old
 - Women account for only 16% of the work force even though they represent 45% of the Jamaican labor force and they are regarded as good animal care givers.

- **Despite the many challenges farmers face, they are very committed to the future of the industry and therefore deserve to get all the necessary support from a value chain and policy support regime. For example:**
 - Approximately 30% will increase their sow population and only 4% will reduce it.
 - 49% of farmers have been in the industry for 5 or more years.
 - The majority of them invested a lot in their education and are therefore better candidates for banking and policy support risks in agriculture. Approximately 59% have attained high school and higher level of education.

- **The primary production segment of the industry (Pig Production) is operating with some advantages that will make the value chain model and the supporting policy regime very successful as substantiated below. These include:**
 - The potential economic multiplier factor for pork is estimated to be at least 3.2.
 - Approximately 90% accessibility to genetically improved seed stock. (The census however, did not validate the quality of the accessibility). Therefore the carcass weight continues to increase.

- There is a large CARICOM market for downstream pork products which is met by imports from Non-CARICOM countries.
 - There is excess processing capacity for meat products.
 - There is potential for Jamaica to become a worldwide differentiator in pork products using its world renowned “Jerk Pork” as the catalyst.
- **Given the range of challenges that the primary production of pork faces, the imperatives for the pork value chain to positively impact on primary production (which will be the output of Part -2 of this consultancy) will have to be the following:**
- Expansion in the use of genetics
 - Dramatic reduction in mortality
 - The supply of more competitively priced feed.
 - Major capital support to improve infrastructure and technical capacities.
 - An industry traceability system
 - Delivery of technical assistance services
 - Provision of real time data to support farming decisions.
 - Specialized credit service providers to improve accessibility to borrowed friendly funding.
 - Quality assurance service providers to facilitate traceability and compliance with public health standards.
 - Product differentiation
 - Brand development and recognition.
 - Export marketing

PART -2 PROVIDES DETAILS ON THE VALUE CHAIN

2. INTRODUCTION

- 2.1 The Required Scope of Work
- 2.2 Coverage of the Census and Work Approach
- 2.3 Outline of This Report

2. INTRODUCTION

2.1 The Required Scope of Work

The terms of reference requires the consultancy to produce and deliver a descriptive census of the Jamaican Pig Population using the format and tables in the 1998 and 2003 as the standard. This consultancy has produced the descriptive census in sixty two (62) Tables. This includes extending the 1998 and 2003 exercises in scope especially in operations and socio economic analysis.

2.2 Coverage of the Census and Work Approach

The census is presented in sixty two (62) Tables as follows:

- Table -1** Number Of Farmers By Parish And Type Of Operation
- Table -2** Number Of Farmers By Parish And Number Of Pigs Owned
- Table -3** Number Of Pigs By Parish And Number Of Pigs Owned
- Table -4** Number Of Farmers By Parish And Number Of Sows Owned
- Table -5** Number Of Sows Owned By Parish
- Table -6** Number Of Farmers By Parish And Number Of Pre-Weaners Owned
- Table -7** Number Of Farmers By Parish And Main Causes Of Death Of Piglets
- Table -8** Number Of Farmers By Parish And Years Of Experience In Pig Rearing
- Table -9** Number Of Farmers By Experience In Pig Rearing And Number Of Pigs Owned
- Table -10** Number Of Farmers And Sows By Parish And Type Of Management (Housing And Related Facilities)
- Table -11** Number Of Farmers And Replacement Gilts By Parish And Type Of Management (Housing And Related Facilities)
- Table -12** Number Of Farmers And Boars By Parish And Type Of Management (Housing And Related Facilities)
- Table -13** Number Of Pregnant Sows By Size Of Farms Owned And Type Of Management (Housing And Related Facilities)
- Table -14** Number Of Farmers And Pre-Weaners By Parish And Type Of Management (Housing And Related Facilities)
- Table -15** Average Number Of Piglets Farrowed And Weaned By Parish And Type Of Management (Housing And Related Facilities)
- Table -16** Number Of Farmers And Fatteners By Parish And Type Of Management (Housing And Related Facilities)

- Table -17** Average Mortality Rate Per 1000 By Parish And Type Of Management (Housing And Related Facilities)
- Table -18** Number Of Farmers By Main Cause Of Death Of Piglets, Type Of Management And Average Mortality Rate Per 1000 Piglets
- Table -19** Number Of Farmers By Main Causes Of Death Of Piglets By Number Of Sows Owned
- Table -20** Number Of Farmers By Parish And Number Of Weaners Sold During The Last Six Months
- Table -21** Number Of Weaners Sold During The Last Six Months By Parish And Type Of Management (Housing And Related Facilities)
- Table -22** Number Of Farmers With Access To Improved Seed Stock By Number Of Pigs Owned And Type Of Management (Housing And Related Facilities)
- Table -23** Number Of Farmers By Parish With And Without Access To Improved Seed Stock
- Table -24** Number Of Farmers With Access To Improved Seed Stock By Parish And Source
- Table -25** Number Of Farmers And Amount Of Unutilized Space (Sq. Ft.) By Parish And Number Of Pigs Owned
- Table -26** Number Of Farmers By Problems Encountered In The Past Year And Years Of Experience In Pig Rearing
- Table -27** Number Of Farmers By Parish And Problems Encountered In The Past Year
- Table -28** Number Of Farmers Using Pre-Starter By Brand And Quality Of Feed
- Table -29** Number Of Farmers Using Starter By Brand And Quality Of Feed
- Table -30** Number Of Farmers Using Grower By Brand And Quality Of Feed
- Table -31** Number Of Farmers Using Finisher By Brand And Quality Of Feed
- Table -32** Number Of Farmers Using Sow And Boar Ration By Brand And Quality Of Feed
- Table -33** Number Of Farmers Using Sow Chow By Brand And Quality Of Feed
- Table -34** Number Of Farmers By Number Of Pigs Owned And Whether Or Not They Mix Their Own Feed
- Table -35** Number Of Farmers By Parish And Whether Or Not They Mix Their Own Feed
- Table -36** Number Of Farmers Who Reported That They Mix Their Own Feed By Number Of Pigs Owned And Proportion Of Feed Mixed
- Table -37** Number Of Farmers Who Reported That They Mix Their Own Feed By Parish And Proportion Of Feed Mixed
- Table -38** Average Farm Gate Price Of Dressed Pork (\$/Kg) By Parish And Number Of Pigs Owned
- Table -39** Number Of Farmers By Method Of Disposal Used During Last Six Months By Number Of Pigs Owned

Table -40	Number Of Farmers And Number Of Pigs Disposed Of By Parish And Method Of Disposal During Last Six Months
Table -41	Average Dressed Weight (Kg) Per Pig By Parish And Method Of Disposal Used During Last Six Months
Table -42	Number Of Farmers By Parish, Age Group And Gender
Table -43	Number Of Farmers By Parish, Highest Level Of Education Attained And Gender
Table -44	Number Of Full-Time Employees In Pig Industry By Parish, Age Group And Gender
Table -45	Number Of Full-Time Employees In Pig Industry By Number Of Pigs Owned, Age Group And Gender
Table -46	Number Of Part-Time Employees In Pig Industry By Number Of Pigs Owned, Age Group And Gender
Table -47	Number Of Part-Time Employees In Pig Industry By Parish, Age Group And Gender
Table 48	Number Of Farmers By Main Source Of Income And Experience In Pig Rearing
Table -49	Number Of Farmers By Parish And Main Source Of Income
Table -50	Number Of Farmers By Main Sources Of Income And Number Of Pigs Owned
Table -51	Number Of Farmers By Parish And Projected Sow Population For The Next Six (6) Months
Table -52	Number Of Farmers Who Have Projected An Increase In Their Sow Population By Parish And Size Of Increase
Table -53	Number Of Farmers Who Have Projected A Decrease In Their Sow Population By Parish And Size Of Decrease
Table -54	Projected Increase/Decrease In Sow Population By Parish
Table -55	Number Of Farmers By Parish And Projected Replacement Gilt Population For The Next Six (6) Months
Table -56	Projected Increase/Decrease In Replacement Gilt Population By Parish
Table -57	Number Of Farmers By Parish And Projected Weaner Population For The Next Six (6) Months
Table -58	Projected Increase/Decrease In Weaner Population By Parish
Table 59	Number Of Farmers By Parish And Projected Boar Population For The Next Six (6) Months
Table -60	Projected Increase/Decrease In Boar Population By Parish
Table -61	Number Of Farmers By Parish And Projected Fattener Population For The Next Six (6) Months
Table -62	Projected Increase/Decrease In Fattener Population By Parish

While the terms of reference requires a descriptive presentation, the consultants have extended the scope with an analytical presentation to set the stage for determining the scope and strategies for broadening and deepening the value chain of the industry in order to optimize income, employment, equity in the distribution of income among the players and competitiveness of the industry.

The execution of the census entailed a comprehensive search for all farms and use of a structured data collection instrument to gather the requisite data. The instrument which was approved by the Ministry of Agriculture is provided as Exhibit 2-1 in this Report.

2.3 Outline of This Report

This Report is the Final Revised Edition. It has been revised to address comments (mostly pertaining to the analysis) from the participants in the Stakeholders' Workshop.

This Report is presented in four (4) Chapters structured to fully cover and even go beyond the Scope of Work for the Census Report section of the consultancy. The Chapters and span of coverage are:

- Chapter -1 **Summary** – This chapter highlights the dynamics of the primary production segment of the industry and the possibilities in the context of value added, competitiveness, income and employment and contribution to reduction of rural poverty.

- Chapter -2 **Introduction** - This sets out the scope of work, work approach, and introduces the Report.

- Chapter -3 **Overview** - This is an analytical presentation of the census focusing on: trend, structure and the indicative operational and market and socioeconomic dynamics.

- Chapter -4 **The Imperatives For Primary Production** outlines the present advantages and disadvantages in primary production and the imperatives for the value chain.

The Report comes with Tables in each Chapter as well as the Appendix Tables (62 Tables) which are indeed the contents of the data base for the Census.

EXHIBIT 2-1 FOLLOWS

Exhibit 2-1: PIG SURVEY - JAMAICA - November 2012

1. Name of Farmer

1 SURNAME 2 M. I. 3 FIRST NAME

2. Address of Farmer

3 DIST/TOWN 4 POST OFFICE/AGENCY 5 SEX

3. Location of Farm

6 DIST/TOWN 7 PARISH/SEQUENCE 8 AGE

3. b Level of academic attainment? Primary Secondary Tertiary Other, specify.....

4. Number of Pigs by class and Management

CLASS	QUALITY	NON-QUALITY
a) Sows		
Total	9	10
i) Pregnant	11	12
ii) Nursing	13	14
iii) Other	15	16
b. Replacement Gilts	17	18
c. Preweaners	19	20
d. Fatteners	21	22
e. Boars	23	24
GRAND TOTAL (a+b+c+d+e)	25	26
Avg. No. Farrowed/Litter	27	28
Avg. No. Weaned/Litter	29	30

5. Main cause of death of piglets 1 Diarrhoea 2 Screw-worm infection

3 Crushing 4 Temperature Stress 5 Other (Specify) _____

6a. Number and avg. wt/pig disposed last six months

DISPOSAL	NUMBER	AVG. WT/PIG (kg)
Total	32	33
Butcher	34	35
Packers	36	37
Other Farmers	38	39
Other (specify) _____	40	41

b. What is the Farmgate Price of pork in area? _____/kg

7. What is your main source of income?

43
 1 Pig Rearing 2 Other Agriculture 3 Other (Specify) _____

8. What is your pig rearing experience?

44
 1 <6 months 2 months < 1 year 3 1 - < 2 years
 4 2 -< 5 years 5 > 5 years

9. What problems did you encountered in past year?

45 High Cost Of Feed 46 Water shortage 47 tation 48 ur
 49 Veterinary Service 50 nailability of market 51 v Pork Price 52 er (Specify) _____

10. What brand of feed does you use and state quality?

TYPE OF FEED	BRAND	QUALITY
Pig Starter	53	54
Pig Grower	55	56
Sow Ration	57	58
Hog Finisher	59	60

Brand : 1 - Supreme; 2 - Hi-Pro; 3 - Nutramix; 4 - Other

Quality: 1 - V. Good; 2 - Good; 3 - Fair; 4 - Poor; 5 - Don't Know

11. Unutilized Pig rearing space.

61

_____ Sq. metres or _____ sq. ft.

12a. Do you have access to quality seed stock?

62

1 Yes 2 No

63

b. If yes, state source _____

13a. What Projection for sow population do you have for the next six months?

64

1 Increase 2 Decrease 3 Intain

b. If 1 or 2, by how many?

65

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NAME OF INTERVIEWER : _____ DATE _____

SIGNATURE OF SUPERVISOR: _____ DATE _____

3. OVERVIEW

- 3.1 Population Trend and Structure
- 3.2 Indicative Analysis of the Population Data

3. OVERVIEW

3.1 *Population Trend And Structure*

3.1.1 Population of Pigs and Size of Farms

The Jamaican Pig Population in 2012 is 144,917 spanning 6556 farmers. This represents a 70% growth in population and 62.5% growth in number of farmers between 1998 and 2012 with the following highlights, as substantiated in Table 3-1:

- Overall growth rate of the population 2012 over 1998 is 70% or a straight line annual average rate of 5%. The average annual rate however was 13% for the period 1998 to 2003 and only 0.25% for the period 2003 to 2012.
- Overall growth rate of the number of farmers is 62.5% for the 2012 over 1998 or approximately 4.5% annually in the period. However,, like the population, most of the growth in the number of farmers took place between 1998 and 2003. The annual average straight line growth in this period was 11% as against only 0.5% in the period 2003-2012.

TABLE 3-1: THE JAMAICAN PIG POPULATION 1998 – 2012

Indicators	Years			Annual Average Growth Rate	
	2012	2003	1998	1998-2003	2003-2012
1. Farmers	6556	6253	4034	11%	0.5%
2. Pigs	144917	141656	85414	13.1%	0.25%
3. Sows	21411	19513	11331	-4.4%	1.1%
4. Replacement gilts	5264	4851	2811	14.5%	0.9%
5. Pre weaners	38616	48547	27611	15.2%	-2.3%
6. Fatteners	75050	64308	40764	11.6%	1.9%
7. Boars	4576	4435	2897	10.6%	0.4%
8. Avg. mortality rate/1000 pigs	203	210	203	0.7%	-0.4%

Sources: (1) 1998 IICA Pig and Pork Industry Report
 (2) 2003 Minag
 (3) Trevor Hamilton and Associates conducted Population Census 2012

The growth rate in the population has significantly decreased in the past nine (9) years mainly because: prices have been declining; the market share for pork has declined; the average dress weight of pigs has increased significantly (due to genetic improvements) and the mortality rate

remains high (at over 20%), Consequently, smaller producers due to their low cost of entry and exit have reduced their level of production or have discontinued their operations.

Further examination of the data, as assembled in Table 3-2 shows that significant growth has occurred in the category of farmers owning 50 and more pigs (approx 100% increase in the number of such farmers). This resulted in a change of the distribution of ownership between 1998 and 2012 with 53.4% of pigs now being owned by the larger farms as compared to 44.2% in 1998. This possibly indicates a greater level of investment in the industry and hence a greater commitment to growth and reduced propensity for the cyclical expansion and contraction observed in previous years. This changing structure has resulted in the average farm size being increased from about 16 in 1998 to 27 pigs in 2012(29% increase).

TABLE 3-2: NUMBER OF FARMERS AND PIGS BY YEAR AND SIZE GROUP OF PIGS

Year	5 – 49 Pigs		50 and over Pigs		No of Farmers Reported	Total No. of Pigs	Avg. Pigs/Farm
	Farmers	Pigs	Farmers	Pigs			
1988	4932	55124	133	28395	5065	83519	16
1990	1540	16718	124	26976	1664	43694	
1991	1320	15400	140	27427	1460	42827	
1992	1375	17624	181	29503	1556	47127	
1993	1751	23379	178	30644	1929	54023	
1998	3803	47687	232	37727	4035	85414	21
2003	5799	76532	454	65124	6253	141656	
2012	4858	66128	479	75861	5337	141989	27

Sources: (1) IICA for periods 1998 to 2003
(2) Trevor Hamilton and Associates for 2012

The increase in farm size has these implications:

- There are increased long term investments in the industry, therefore policy mechanisms to support its viability will be critical.
- The pig industry is maturing and stabilizing because the exit cost will be higher than in the past.
- The environment for promoting partnerships in a value chain network is becoming more conducive.
- Economic impact of the industry is increasingly more sustainable.

3.1.2 Geographical Distribution

The 2012 Census reveals that there are 6556 farmers (Appendix Table 1) distributed among all the parishes of Jamaica with St. Elizabeth having the largest and ranking No. 1 (13.9%) and

Kingston and St. Andrew the smallest and ranking number 13 (1.6%). The number of farms has increased by 4.8% as compared to the last census of 2003. And notably there have been significant shifts in the distribution of these farms across the parishes. St Elizabeth, though still accounting for the largest number of farms, actually declined by 11.2 %, while Portland was the growth leader with 138.6%. Kingston and St Andrew had the largest decline at 71.5%. All in all, the parishes that are leaders in livestock production: (St. Elizabeth, Manchester, Clarendon, St. Catherine and St. Ann) continue to dominate the production (except for Portland). The concentration of the pig farms in the livestock dominant parishes position the industry for enjoying the following which enhance its access to critical inputs and competitiveness and financial viability.

- It will benefit from easier access to critical livestock industry inputs such as: feed, veterinary service, slaughter houses, and appropriately trained workers.
- Credit institutions and credit officers who understand livestock financing.
- Most of these parishes: Clarendon, St. Elizabeth,, and Manchester have very low levels of economic diversification and therefore need the pig industry to become a part of the catalyst for stimulating economic growth and creating jobs.

3.1.3 Categories of Farms

Appendix Table 1 seeks to distribute these 6556 farmers among eight (8) specialized categories (ie fatteners, weaners, seed stock, fatteners and weaners, fatteners and seed stock, weaners and seed stock and fatteners, weaners and seed stock). Describing the Fatteners (only) category as accounting for 3886 or 59% of farms and the Fatteners and Weaners category accounting for 1661 or 25.3% of farms. It is not possible to compare this information to the previous census since the 2003 Census Report did not categorize the farms by this same method and though it reports pig category numbers by parish these would not be mutually elusive by farm and cannot be compared. These descriptors however differ from what is generally observed about the structure of the sector in Jamaica as most farms are known to be farrow to finish operations and specialized grow-out/fattener or breeder operations are relatively few.

The description of farmers by the following types of stocks carried would be useful especially since each of these types of producers contribute differently to the value chain and their efficiencies could be considered separately

- Commercial seed stock producer
- Farrow to finish producer
- Farrow to feeder operator
- Farrow to wean operators
- Feeder to finish operator

However this cannot be done in this analysis since the information provided in Appendix Table 1 is not rational.

3.1.4 Sows and Replacement Gilts

In 2012 sows comprised 14.8% of the total of the pig population. This figure almost doubles what was reported in 1998 and growing an additional 10% again between 2003 and 2012. There are 5794 (88.4%) of the 6556 farmers with sows with the following being the key features:

- 14 farmers now own more than 100 sows and St Catherine is the parish reporting the greatest number of sows (15.9%) replacing St Mary which showed a 38.4% decline.
- St. Catherine ranks No. 1 (15.9%) for share of the sow population (Table 3-5) St. Elizabeth ranks No. 1 (14%) for share of the farmers with sows (Table 4) as in 2003 but there was an actual decline of 8.5% of farms rendering its market share down from 16.3%
- Sow population is concentrated in the parishes of St Catherine, Clarendon, Westmoreland, St Elizabeth, Manchester and St. Mary
- Gilt population is highest in Portland, St Mary, Clarendon and St Catherine.
- The gilt to sow ration remains at 1:4

3.1.5 Boars

The 4,576 boars in the national population are owned by 3,092 farmers and the boar to sow ratio is 1: 4.7, still much lower than the desired 1:20 but significantly better than the previous ratios of 1:3.9 in 1998 and 1:4:4 in 2003. This is probably due to the increase in the number of larger farms and the impact of the availability of AI services.

3.1.6 Proweeners:

There are 2,429 farmers (37% of all farmers) with preweaners. (Appendix Table 6) – total of 38,616 preweaners 15.9 piglets per farm. St. Elizabeth ranks No. 1 as it accounts for 13.5% of the farmers with preweaners while Kingston and St. Andrew accounts for only 38 or 1.6% of the farmers with pre-weaners. In 2003 there were 3262 farmers with preweaners, total of 48547 preweaners or 14.9 piglets per farm.

Proweaning mortality remains at an unacceptable high of 203/1000 piglets born and crushing is the main cause of death among piglets forty three percent (43%) or 2845 of the farmers list it as the number -1 cause of death. (Appendix Table 7). Reports indicate that farmers state the high cost of materials for the construction of farrowing crates as the main deterrent for implementation of this simple and proven management intervention. With increasing farm size and greater commitment an increase in farmer education may be useful to demonstrate the cost: benefit of increasing its use on small and medium sized farms

Data on pigs sold includes the category of sales to “other farmers” at average weight of 14.73kg in 2003 and 17.62kg in 2012. This is interpreted as the population of (6 wk old) weaners sold to other farmers for fattening. Of note is the 19.6% increase in average weight.

3.1.7 Fatteners

In 2012, 51.8% of the pig population is represented by fatteners owned by 4705 of farmers. The majority of fatteners are found in Westmoreland and St Catherine. Fattener numbers increased by over 57.8% between 1998 and 2003 and a further 16.7% between 2003 and 2012.

More than twice as many fatteners are sold to butchers than to packers/processors. The average dressed weight has increased from 54.61kg (to butchers) and 55.98kg (to processors) in 2003 to 66kg and 82.64kg respectively in 2012. This represents a potential increase of pork production from 3.5 million kg in 2003 to 4.95 million kg in 2012. This raises the question of the ability of the market to absorb this increase. It may require interventions to avoid a glut situation.

3.2 *Indicative Analysis Of the Population Data*

3.2.1 General Economic Importance of Livestock Production

The primary production of pigs is a segment of the livestock farming subsector. Research has demonstrated that livestock production has a much higher propensity to generate deep and broad economic impacts. That is to say its multiplier effect is higher than that of other typical optional economic livelihoods. Namely: crops, fruits and vegetables, production, manufacturing and provision of services. Table 3-3 which follows, substantiate:

TABLE 3-3: COMPARATIVE ANALYSIS OF LIVESTOCK ECONOMIC MULTIPLIER IN LATIN AMERICA AND THE CARIBBEAN

<u>Indicators</u>	<u>Rate</u>
1. Economic Multiplier for Primary Production in Livestock.	3.2
2. Ratio of Primary Livestock Production Economic Multiplier to the Economic Multiplier for Crop Production.	1.6
3. Ratio of Primary Livestock Production Economic Multiplier to The Economic Multiplier for Fruits and Vegetables Production	1.1
4. Ratio of Primary Livestock Production Multiplier to Economic Multiplier for Manufacturing.	1.4
5. Ratio of Primary Livestock Production Economic Multiplier to The Economic Multiplier for Services.	1.1

Source: A Livestock Sector Development for Poverty Reduction, An Economic and Policy Perspective by FAO Table 4.4 and 4.5 pages 70-71
www.fao.org/docrep/015/2744e05.pdf

The following can be concluded from Table 3-3:

- Primary production of livestock, inclusive of pigs, can generate \$3.2 value for every dollar worth of activities on the farms. This is generated through other activities or providers that are integral to the primary production of pigs. Namely: genetic breeders, feed suppliers, financial service providers, transportation service providers, abattoirs, butchers, construction service providers, professional service providers, processors, wholesalers, retailers and restaurants among others.
- Pig farming should be one of the priority economic activities promoted to stimulate economic growth in rural Jamaica because its multiplier impact is much higher than what prevails for: crops and vegetables and fruit production as well as services (such as tourism) and manufacturing (such as apparel).

3.2.2 General Preconditions For Livestock Farming To Have High Economic Impacts

In order for primary production to realize its potential economic impact multiplier of say 3.2 as illustrated in Table 3-3, it will have to operate in a highly integrated value chain environment as schematically outlined in Exhibit 3-1 and highlighted below:

- **The on-farm operations** should have these features:
 - Certification as partners in the value chain.
 - Highly specialized by activities such as: breeding, weaning and fattening.
 - Strategic alliances with feed and drugs suppliers, to influence prices and the mix of feed.
 - Good record keeping practices
 - Animal ID system in operation
 - Alliances with professional service providers such as: Vets, breeding specialists, and animal health advisors.
 - Alliances with specialized credit institutions.
 - Alliances with renewable energy entities to convert on farm wastes to energy.
 - Alliances with abattoirs
 - Strategic alliances with specialized credit institutions to ensure that they access resources on a timely basis.
 - Alliances with producers of genetics
 - Members hips and partners hips with the JPFA which is the catalyst institution for promoting the value chain.
- **The processing stage of the industry** should have the following active value chain alliances:
 - Alliances between farms and state-of-the-art abattoirs.
 - Alliances with farmers and abattoirs.
 - Upgraded and certified abattoirs with traceability systems.

- R & D institutions should have alliances with processors.
- Credit programs for all stages of the value added chain are available to support participants.
- Certification as partners in the value chain
- Alliances with the standard bureau and other public health and safety related bodies

The marketing stage of the chain should have these features:

- Adaptation of a regional or national brand to distribute the pork and pork products
- Wholesalers and retailers should be in alliance with farmers and processors.

The industry association (JPFA) should come with significant capacities for delivering information, public education, communication and advocacy and technical assistance.

The level of governance and accountability for product performance should be developed through these mechanisms.

- A national system for animal traceability at every stage of production
- Modern regulations for enforcement of standards and quality
- An enabled industry association (JPFA).

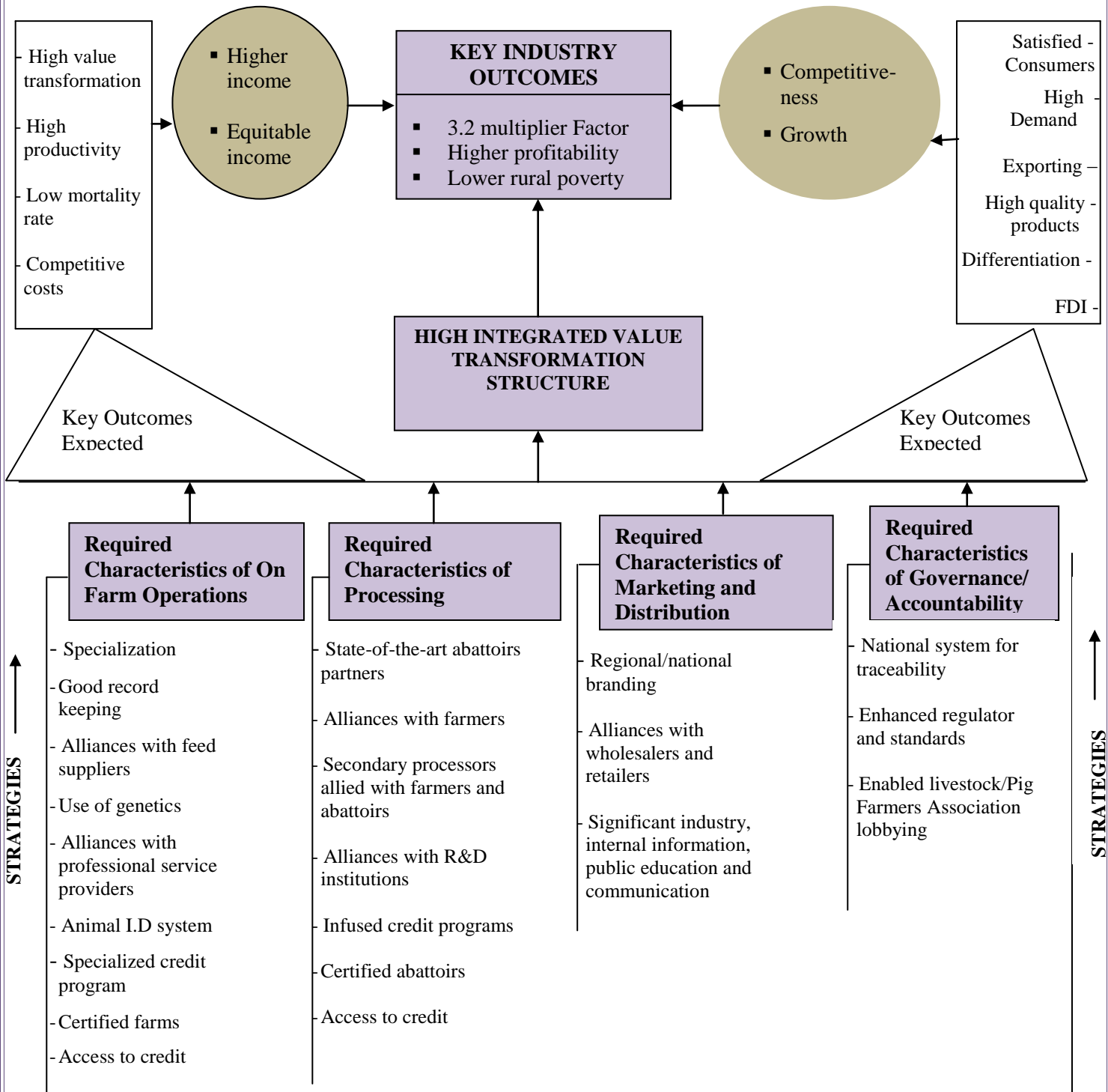
These highly integrated stages in the transformation chain as illustrated in Exhibit 3-1 will go a long way to successfully stimulate:

- | | |
|--|--|
| <input type="checkbox"/> High value transformation | <input type="checkbox"/> Export trade |
| <input type="checkbox"/> Higher productivity | <input type="checkbox"/> Differentiate provider |
| <input type="checkbox"/> Low mortality rate | <input type="checkbox"/> Increased inflow of FDI |
| <input type="checkbox"/> Competitive costs | <input type="checkbox"/> Quality assurance |
| <input type="checkbox"/> Consumer satisfaction | <input type="checkbox"/> High demand |

The overall impact of this type of industry structure will comprise:

- Higher rural income
- Improved competitiveness
- Growth
- Reduction of rural poverty
- Higher levels of profitability
- On-farm renewable energy

EXHIBIT 3-1: SCHEMATIC OVERVIEW OF THE MINIMUM VALUE CHAIN FOR THE PIG INDUSTRY



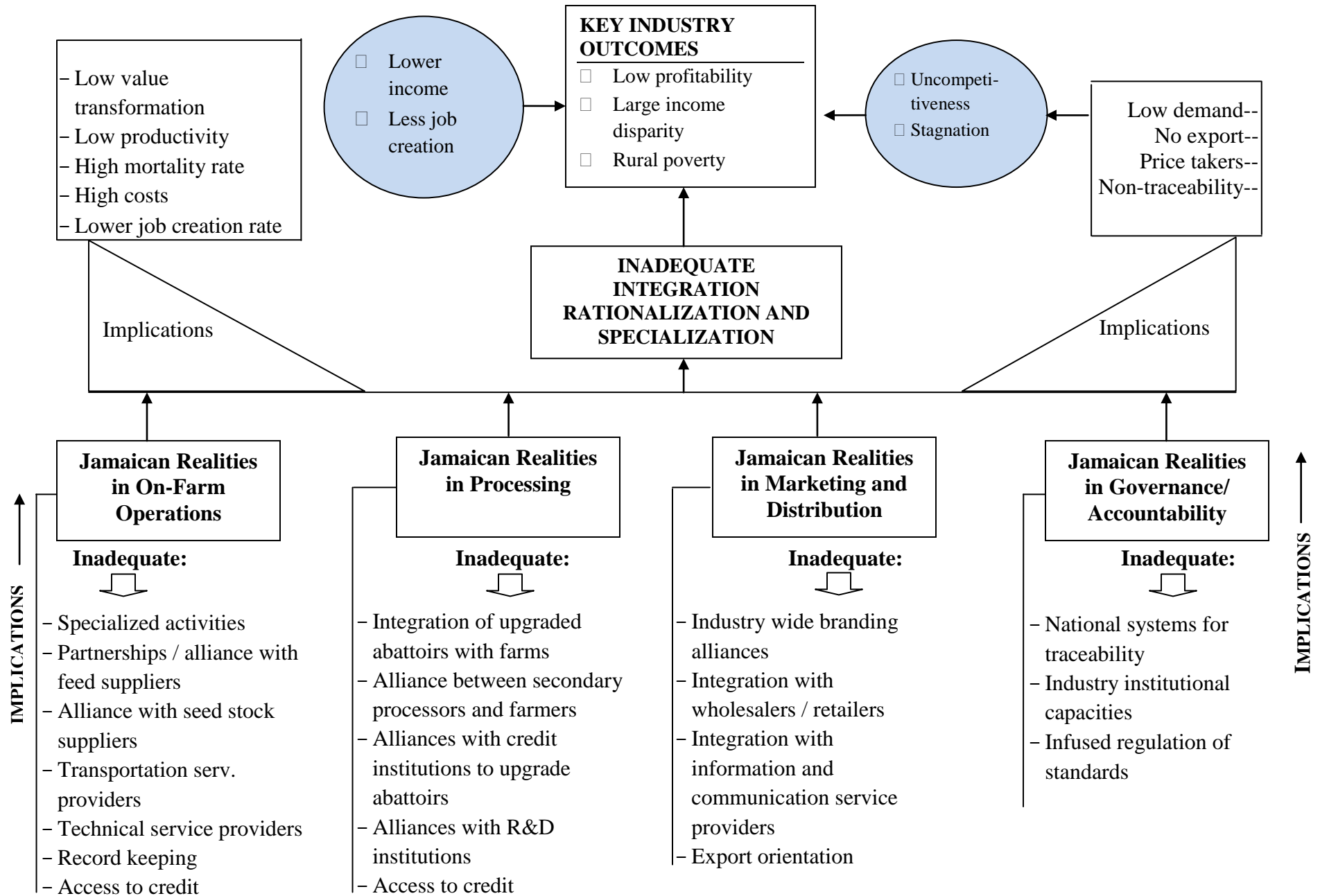
3.2.3 Jamaica's Comparative Situation

The actual situation in the Jamaican pig industry varies significantly from the requirement described in Section 3.2.3 and in Exhibit 3.1. Overall the industry suffers from inadequate: integration, rationalization, and specialists as schematically illustrated in Exhibit 3-2 and summarized below:

- The industry performance is characterized with:
 - Low value transformation
 - Low productivity
 - High morbidity rate
 - High operating cost
 - Low demand for the product
 - Unprofitable farm gate price
 - Lack of quality assurance

- The foregoing are driven by an unfavorable: primary production, processing marketing and governance environment. For example:
 - Primary production has these dominant characteristics inadequate specialization to achieve efficiency, operating as price takers from the feed suppliers, inadequate arrangements for suitable logistical support and inadequately organized professional support services.
 - The processing stage has very little operational arrangements with: farmers, R&D institutions and credit institutions.
 - The marketing has no national strategies such as: alliances with wholesalers and retailers and there are no arrangement for shared branding.
 - Finally at the governance / accountability level, there are no institutionalized or regulated mechanisms for traceability or for enhancing the capacity for institutionalized support to the industry.

EXHIBIT 3-2: SCHEMATIC OVERVIEW OF THE JAMAICAN PIG INDUSTRY



An in-depth analysis of the population data can be used to substantiate the foregoing situational analysis of the industry. The substantiation will be established only on the basis of the population data at this stage, mainly because this part of the consultancy focuses only on the pig population which is really primary production - the value chain analysis, which is presented in Part-2 of the consultancy. Tables 4-4 and 3-5 present the supporting data.

Nineteen (19) indicators have been used to draw from the population census. The situational analysis pertaining to the primary production stage of the value chain. They are:

- Indicator No. 1 Percent of farmers with 5 years or more experience
- Indicator No. 2 Annual growth rate of pig population over the past 8 years
- Indicator No. 3 Percentage of pregnant sows in acceptable quality housing
- Indicator No. 4 Percentage of pre-weaners in acceptable quality housing
- Indicator No. 5 Mortality rate
- Indicator No. 6 Percentage of farmers with access to improved seed stock
- Indicator No. 7 Percentage of farmers experiencing excessively high cost of feed
- Indicator No. 8 Percentage of pigs disposed to butchers / primary producers market
- Indicator No. 9 Average dressed weight per pig
- Indicator No. 10 Average farm gate price of \$307 per kg (Dressed) as a factor of the cost of production
- Indicator No. 11 Percentage of farmers that are female
- Indicator No. 12 Percentage of farmers with secondary and higher education
- Indicator No. 13 Percentage of full time employees who are women
- Indicator No. 14 Percentage of part time employees who are women
- Indicator No. 15 Percentage of farmers <40 years old
- Indicator No. 16 Percentage of farmers relying on pig farming as the sole source of income
- Indicator No. 17 Percentage of farmers who will increase sow population
- Indicator No. 18 Percentage of farmers who will decrease sow populaton
- Indicator No. 19 Direct full time employment in primary production

The following can be concluded about the primary production stage of the industry:

- Farmers are making significant commitments in the primary production stage of the industry. The industry is therefore growth oriented and should get all the necessary policy support which will be identified later. These commitments are substantiated by all the indicators with rating shaded in Green or Blue in Table 3-4. They are:
 - Farmers are aware of, and are accessing improved seed stock. Approximately 89% have access and are doing so. This is yielding increasing dressed weights for carcasses. The average dress weight for pigs sold to processors is now 83 Kg versus 56 Kg in 2003.
 - Farmers are attaining high levels of education as 59% of them have secondary and higher levels of education. This means that they will be quite comfortable seeking and adapting new technologies to their farming operations.
 - An estimated 30% of farmers intend to increase their sow population. This means that they intend to make long term investment in their operations.
 - Only 4% of farmers will reduce their sow population. Given the fact that 30% will increase theirs, it implicitly means that the net percentage of farmers that will increase their sow population is about 26%.
 - The primary segment of the industry has created an estimated 9,357* direct jobs.
- Twelve (12) of the nineteen indicators have rating shaded in yellow which means that there has to be major improvements in these areas for the primary production stage to realize higher productivity, competitiveness, profitability, and be equitable in the distribution of opportunities (gender, income, and the youth). These substantiate:
 - Farmers may need more training as less than 50% of them have 5 years or more experience.
 - The growth rate in the population in the past 8 years has been negligible. This is primarily due to lack of solid market strategies to shift demand from other meats to pork. Part of the reduction is also due to the fact that the dress weight per carcass has increased because of expanded use of genetically improved seed stocks.
 - The quality of housing for the animals need major capital injection to improve them. This is one of the main reasons for the 20% rate of mortality. Most of the pigs die from crushing. Financial services institutions will have to be a major player in the value chain model that will be developed in Part-2 of this Report.
 - Feed, which is by far the single largest input, continues to be the major challenge for the farmers. Ninety four percent (94%) reported that it is priced excessively high and it is the major source of erosion of the profitability in the primary production segment of the industry. The feed is provided by only two or three suppliers (depending on the type needed). The value chain model will have to be designed to address this issue.

* We calculate every pig farmer as an employee / job

- Approximately 69% of the farmers dispose their pigs through butchers, which means they concentrate on the fresh meat market segment which has the lowest value added and the highest level of sensitivity to demand and pricing. The value chain model will be designed to create an environment for differentiation, higher value added and less price sensitivity and higher consumer demand.
- The average farmgate price of J\$307 per kg is claimed to be equivalent to 96% of cost of the more efficiently operated farms. The solution to this will have to revolve around: feed, cost, demand, productivity, and reduction of mortality rate.
- These will have to be addressed in the value chain model.
 - While unemployment among females is 31% above the national rate, and they are regarded as potentially very caring for livestock, their levels of participation in the primary stage of the industry is marginal. They account for 16% of the employment and 28% of the farm operations. The value chain and production and environment, credit regimes, and policies will need to be designed to incentivize the industry to engage more women.
 - Only 27% of the farmers are under 40 years old. The needed long term innovations, growth and competitiveness of primary production will require a much higher percentage of younger entrepreneurs. The policy and value chain regimes will have to be designed to stimulate the participation of young entrepreneurs.
 - Pig farming is the sole source of income for only 16% of those who participate in it. The market related uncertainties, inadequate value chain and consequentially low profitability may be the key reasons for this situation. A much higher percentage of the players will have to begin to see it as a viable source of income for it to get the level of investment necessary to modernize and grow the sector.

**THE NEXT CHAPTER SUMMARIZES THE IMPLICATIONS OF
THESE FINDINGS FOR DEVELOPING AND MOBILIZING
COMMITMENTS TO A HIGH IMPACT VALUE CHAIN MODEL
FOR THE INDUSTRY**

TABLE 3-4: INDICATIVE SITUATIONAL ANALYSIS OF THE PRIMARY PRODUCTION STAGE OF THE JAMAICAN PIG INDUSTRY























SELECTED INDICATORS	MEASUREMENT	THE SITUATION	OVERALL RATING	REFERENCE TABLES
1. Percent of farmers with 5 years or more experience	%	49%		Appendix Table-8
2. Annual growth rate of pig population over the past 8 years	%	0.25		Table 3-1
3. Percentage of pregnant sows in acceptable quality housing	%	89		Appendix Table-13
4. Percentage of pre-weaners in acceptable quality housing	%	85		Appendix Table-14
5. Mortality rate (among preweaners)	%	20%		Appendix Table-17
6. Percentage of farmers with access to improved seed stock	%	89		Appendix Table-23
7. Percentage of farmers experiencing excessively high cost of feed	%	94%		Appendix Table-26
8. Percentage of pigs disposed to butchers / primary producers market	%	69		Appendix Table-40
9. Average dressed weight per pig (sold to processors)	kg	83		Appendix Table-41
10. Average farm gate price of \$307 per kg (Dressed) as a percentage of the cost of production	%	96%		<ul style="list-style-type: none"> □ Appendix Table-38 for farm gate price □ Estimate from farmers in terms of cost ratio
11. Percentage of farmers that are female	%	28		Appendix Table-42
12. Percentage of farmers with secondary and higher education	%	59		Appendix Table-43
13. Percentage of full time employees who are women	%	16		Appendix Table-44
14. Percentage of part time employees who are women	%	26		Appendix Table-46
15. Percentage of farmers <40 years old	%	27%		Appendix Table-42
16. Percentage of farmers relying on pig farming as the sole source of income	%	16		Appendix Table-49
17. Percentage of farmers who will increase sow population	%	30%		Appendix Table-51

TABLE 3-4 (Cond't): INDICATIVE SITUATIONAL ANALYSIS OF THE PRIMARY PRODUCTION STAGE OF THE JAMAICAN PIG INDUSTRY

SELECTED INDICATORS	MEASUREMENT	THE SITUATION	OVERALL RATING	REFERENCE TABLES
18. Percentage of farmers who will decrease sow populaton	%	4%		Appendix Table-53
19. Direct employment in primary production	each	9,357*		Table 3-5

LEGEND

 = Needs little or no improvements  = Needs modest improvements  = Needs major improvements

* We calculate every pig farmer as an employee / job

TABLE 3-5: COMPUTATION OF DIRECT ON FARM EMPLOYMENT*

CONSIDERATIONS	COMPUTATION	NUMBER	DATA SOURCE
1. Number of pig farmers		6,556	Appendix Table-1
2. Full time personnel	--	1,445	Appendix Tables 44 & 45
3. 2,712 part time employees	Converted into full time equivalent @ 2,712 x .5	1,356	Appendix Tables 44 & 45
TOTAL		9,357	

*The definition of employment here comprise the following:

1. Every farmer is calculated as a job
2. Full time employees whether family member or not is a full job
3. Part time employee whether family member or not is converted into full time jobs using 0.5 as the multiplier.

4. THE IMPERATIVES FOR PRIMARY PRODUCT

- 4.1 Present Advantages
- 4.2 Key Disadvantages For Present Production
- 4.3 Pig Farmers' Imperatives For The Value Chain

4. THE IMPERATIVES FOR PRIMARY PRODUCTION

Livestock farming, inclusive of pigs, has a very high propensity to impact positively on income, employment, reduction of rural poverty and improving equity in opportunities for livelihood among disadvantaged groups such as women whose unemployment rates are much higher than the national average. However, for these to be realized, primary production i.e pig farming will have to be operating in an environment that generates higher transformation of values, with infused seamless mechanisms for farmers to benefit. This value chain environment is designed in Part -2 of this consultancy. This Chapter therefore concentrates only on what should be the imperatives to adequately prepare the primary production stage (the pig farming stage) for the value chain. It is limited to this focus because this Report is really addressing the Population Census.

The analysis is presented in three (3) sections: the present advantages for primary production, the present disadvantages and the imperatives to set the stage for successful participation in a value chain enhancement program. These are presented as Sections 4.1, 4.2, and 4.3 respectively.

4.1 Present Advantages

The Primary Production subsector operates in an environment with the following advantages that will enhance the successful implementation of a value chain:

- Farmers are increasingly committed to the production given the fact that the average size of farms has increased almost 30% over the past 9 years and 70% over the past 24 years.
- Seed stock has improved with more than 80% of farmers accessing and benefitting from it. Consequently, there has been a significant increase in the carcass weight as well as the weight of weaners sold to farmers.
- The primary production is estimated to generate almost 6,598 direct jobs and based on FAO's estimated multiplier factors of 3.2 (see Table 3.2). This means that the overall employment impact could be about 21,000.
- Consumption of pork represents only 6.1% of total meat consumption, therefore with demand properly stimulated through product development and differentiation, there is significant potential for growth.
- There is a large CARICOM market for pork, but the supply has to be met from Non-CARICOM sources.
- Farmers' commitments to the future of the industry is solid, as an estimated 30% intend to increase their production of sows while only 4% intend to reduce it.
- Jamaica's Jerk Pork is World renowned, and therefore presents an excellent opportunity for the Jamaican Pork Industry to become global on the basis of being a unique differentiator.
- Jamaica is host to over one million (1,000,000) stop over tourists per year and this represents a significant and stable captive market for consumption pork products.
- Packaging plants, including a recently added one, have enough capacity for processing pork products.

ALL OF THE FOREGOING ARE COMPELLING REASONS TO CONCLUDE THAT THE PRIMARY PRODUCTION OF PORK IS A STRATEGICALLY IMPORTANT AND RISK WORTHY SUBSECTOR IN JAMAICA

4.2 Key Disadvantages For Present Production

Primary production faces some formidable disadvantages that will have to be addressed by value chain and policy related strategies. They are:

- Farmers are price takers in the procurement of feed which accounts for more than 60% of cost. More than 90% of farmers list high cost of feed as the No. 1 challenge.
- The mortality rate of 20% among weaners is excessive as it means that the net yield per sow is low. Consequently, more sows have to be maintained and the rate of operating profit could have been as high as 20% more.
- Approximately 69% of farmers' pork is destined to the low value transformation and most price sensitive segment of the market - the fresh pork market. Therefore their incomes are suppressed.
- There are no clearly established credit mechanisms to give the producers access to realistically affordable credit to support the improvement of infrastructure such as those for reducing mortality rate and to increase the carcass weight of the pig.
- Most of the farms, including all those with less than 50 pigs (47% of all farms), operate outside of a structured regime that guarantees consistent quality and public health standards. These include:
 - The lack of traceability of farms and animals.
 - The slaughtering of animals mostly at informal and/or substandard abattoirs.
 - High variation in the proportion of meat classified as being: tender and lean which are the two critical consumer decision making criteria.
- Slightly less than 50% of the farmers have 5-years or more experience in pig farming. Therefore hands on technical knowledge for increasing yields and general productivity and improving product standards is less than desired.
- The industry is not producing under any harmonized or significant brand to give the market any assurance about quality, standards or safety of the products.
- The communication and demonstration of on-going improvements in technology as well information about consumer preferences is extremely limited. Therefore farmers, especially those with under 50 pigs lack timely knowledge to solve problems and also do not always know what demand driven improvements are necessary for their products.
- Veterinary services, especially to farmers with under 50 pigs is disorganized, uncertain, and costly.

- Farmers are price takers for their pork because they have very little product differentiation. They produce and sell mostly fresh pork.
- There is inadequate specialization. Many farms are engaged in multiple stages of primary production ranging from breeding to fattening. They are therefore not likely to realize optimal levels of efficiencies.

4.3 Pig Farmers' Imperatives For The Value Chain

The value chain has to be designed to deliver incremental benefits to all critical areas of the competitive production and market readiness activities among farmers. Twenty One (21) factors have been identified as critical areas for competitive production and supply on farms. Thirteen (13) are drivers of competitive production readiness and eight (8) are critical drivers of market accessibility or penetration readiness. They are as follows:

PRODUCTION AND SUPPLY READINESS FACTORS



Committed Investors

Quality Assurance Systems

Genetically Improved Seed Stock

Good Record Keeping

Competitively Priced Feed

Low Mortality Rate

Experienced Farmers

Specialized Credit

Adequate Processing Facilities

Access to Vet. Service

Helpful Communication System

Specialized Production

On-farm Generated Renewable Energy

MARKET READINESS FACTORS



Farmers are Price Setters

Readiness for Captive Export Market

Brand Recognition

Differentiation

Domestic Market Loyalty

Helpful Market Data

Quality Assurance System Working

Loyalty in Tourist Market Segment

Differentiation

Domestic Market Loyalty

Exhibit 4-1 schematically outlines the relationships with production and the market. It also indicates the existing level of readiness in each area.

The understanding of this assessment sets the stage for building the value chain to benefit farmers. The following can be concluded from Exhibit 4-1:

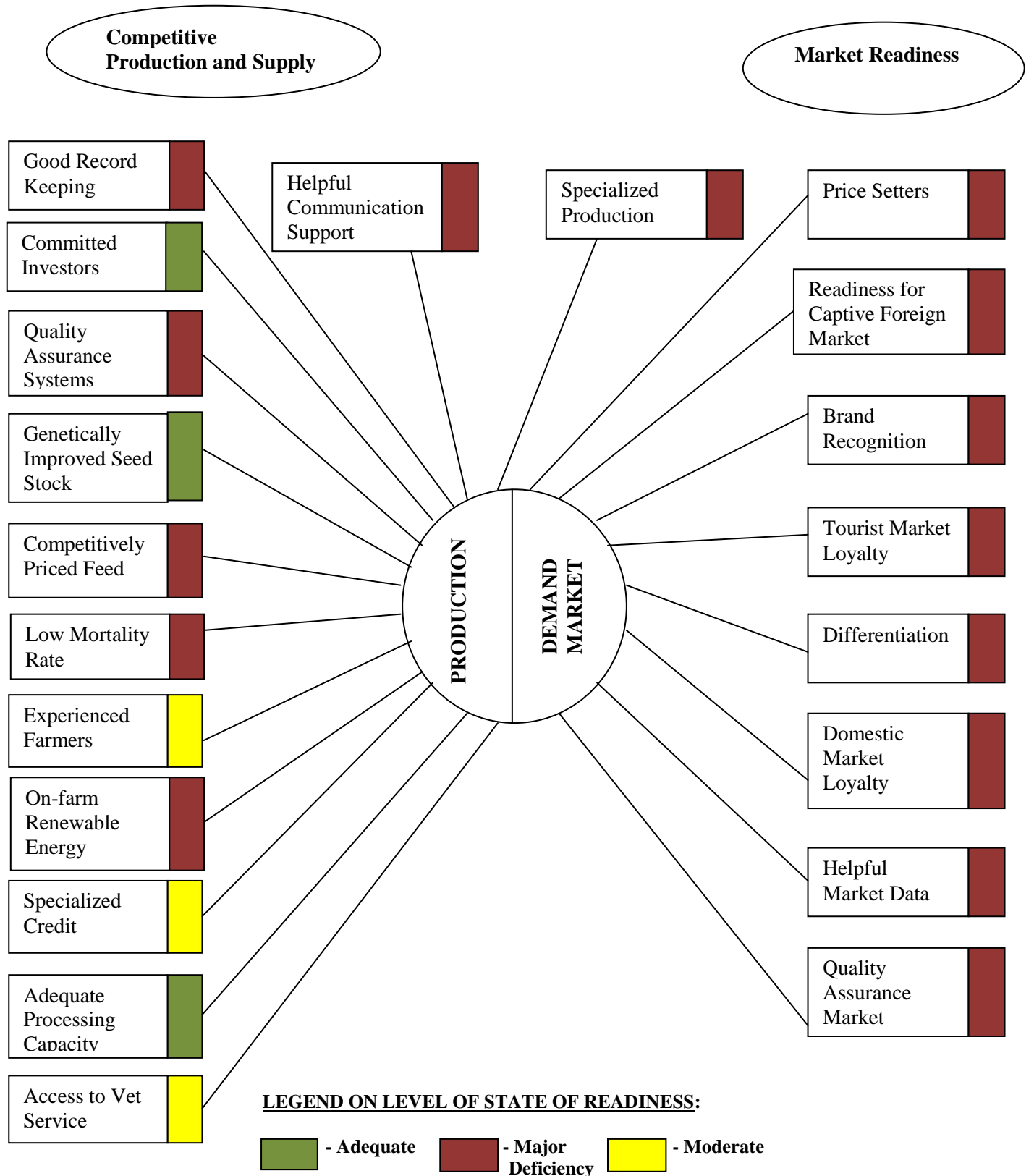
- The high percentage of committed farmers and major improvements in seed stock and the ample supply of processing capacities are three assets that should be among the major catalysts for promoting value chain operations in the industry. They have the highest state of readiness for competitive production.

- The value chain model will have to have strategic and effective partners to support production in eight (8) critical areas as follows:
 - On-farm record keeping
 - Supply of more competitively priced feed to contain production cost
 - Major capital support to improve infrastructure and technical capacities to reduce mortality rate.
 - Delivery of technical assistance of professional services to increase farmers' knowledge in order to improve efficiencies and reduce mortality rate.
 - Real time data on knowledge and market development and implications for producers.
 - Specialized credit service providers will also need the value chain to increase access to terms and conditions of financing to fund the modernization of production.
 - Quality assurance service providers and regulators will have to work in the value chain to support the industry to meet technical and public health standards and manage traceability so that the products can satisfy local, regional and international market standards.
 - On-farm generated renewable energy

- Market competitiveness of the farmer's outputs in the local tourism sector, the general domestic market and the CARICOM Market will have to be an imperative of the design of the value chain. Therefore strategic players will have to be those who provide these services:
 - Product differentiation
 - Brand development and marketing
 - Quality assurance management

THE DETAILS OF THESE STRATEGIES AND LIST OF SUGGESTED PARTNERS WILL BE PROVIDED IN PART-2

EXHIBIT 4-1: GAP ANALYSIS OF THE PRIMARY PRODUCTION STAGE OF THE JAMAICAN PORK INDUSTRY



LIST OF APPENDIX TABLES

TABLE -1	NUMBER OF FARMERS BY PARISH AND TYPE OF OPERATION
TABLE -2	NUMBER OF FARMERS BY PARISH AND NUMBER OF PIGS OWNED
TABLE -3	NUMBER OF PIGS BY PARISH AND NUMBER OF PIGS OWNED
TABLE -4	NUMBER OF FARMERS BY PARISH AND NUMBER OF SOWS OWNED
TABLE -5	NUMBER OF SOWS OWNED BY PARISH
TABLE -6	NUMBER OF FARMERS BY PARISH AND NUMBER OF PRE-WEANERS OWNED
TABLE -7	NUMBER OF FARMERS BY PARISH AND MAIN CAUSES OF DEATH OF PIGLETS
TABLE -8	NUMBER OF FARMERS BY PARISH AND YEARS OF EXPERIENCE IN PIG REARING
TABLE -9	NUMBER OF FARMERS BY EXPERIENCE IN PIG REARING AND NUMBER OF PIGS OWNED
TABLE -10	NUMBER OF FARMERS AND SOWS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -11	NUMBER OF FARMERS AND REPLACEMENT GILTS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -12	NUMBER OF FARMERS AND BOARS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -13	NUMBER OF PREGNANT SOWS BY SIZE OF FARMS OWNED AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -14	NUMBER OF FARMERS AND PRE-WEANERS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -15	AVERAGE NUMBER OF PIGLETS FARROWED AND WEANED BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -16	NUMBER OF FARMERS AND FATTENERS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

LIST OF APPENDIX TABLES

TABLE -17	AVERAGE MORTALITY RATE PER 1000 BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -18	NUMBER OF FARMERS BY MAIN CAUSE OF DEATH OF PIGLETS, TYPE OF MANAGEMENT AND AVERAGE MORTALITY RATE PER 1000 PIGLETS
TABLE -19	NUMBER OF FARMERS BY MAIN CAUSES OF DEATH OF PIGLETS BY NUMBER OF SOWS OWNED
TABLE -20	NUMBER OF FARMERS BY PARISH AND NUMBER OF WEANERS SOLD DURING THE LAST SIX MONTHS
TABLE -21	NUMBER OF WEANERS SOLD DURING THE LAST SIX MONTHS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -22	NUMBER OF FARMERS WITH ACCESS TO IMPROVED SEED STOCK BY NUMBER OF PIGS OWNED AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)
TABLE -23	NUMBER OF FARMERS BY PARISH WITH AND WITHOUT ACCESS TO IMPROVED SEED STOCK
TABLE -24	NUMBER OF FARMERS WITH ACCESS TO IMPROVED SEED STOCK BY PARISH AND SOURCE
TABLE -25	NUMBER OF FARMERS AND AMOUNT OF UNUTILIZED SPACE (SQ. FT.) BY PARISH AND NUMBER OF PIGS OWNED
TABLE -26	NUMBER OF FARMERS BY PROBLEMS ENCOUNTERED IN THE PAST YEAR AND YEARS OF EXPERIENCE IN PIG REARING
TABLE -27	NUMBER OF FARMERS BY PARISH AND PROBLEMS ENCOUNTERED IN THE PAST YEAR
TABLE -28	NUMBER OF FARMERS USING PRE-STARTER BY BRAND AND QUALITY OF FEED
TABLE -29	NUMBER OF FARMERS USING STARTER BY BRAND AND QUALITY OF FEED
TABLE -30	NUMBER OF FARMERS USING GROWER BY BRAND AND QUALITY OF FEED
TABLE -31	NUMBER OF FARMERS USING FINISHER BY BRAND AND QUALITY OF FEED
TABLE -32	NUMBER OF FARMERS USING SOW AND BOAR RATION BY BRAND AND QUALITY OF FEED

LIST OF APPENDIX TABLES

TABLE -33	NUMBER OF FARMERS USING SOW CHOW BY BRAND AND QUALITY OF FEED
TABLE -34	NUMBER OF FARMERS BY NUMBER OF PIGS OWNED AND WHETHER OR NOT THEY MIX THEIR OWN FEED
TABLE -35	NUMBER OF FARMERS BY PARISH AND WHETHER OR NOT THEY MIX THEIR OWN FEED
TABLE -36	NUMBER OF FARMERS WHO REPORTED THAT THEY MIX THEIR OWN FEED BY NUMBER OF PIGS OWNED AND PROPORTION OF FEED MIXED
TABLE -37	NUMBER OF FARMERS WHO REPORTED THAT THEY MIX THEIR OWN FEED BY PARISH AND PROPORTION OF FEED MIXED
TABLE -38	AVERAGE FARM GATE PRICE OF DRESSED PORK (\$/KG) BY PARISH AND NUMBER OF PIGS OWNED
TABLE -39	NUMBER OF FARMERS BY METHOD OF DISPOSAL USED DURING LAST SIX MONTHS BY NUMBER OF PIGS OWNED
TABLE -40	NUMBER OF FARMERS AND NUMBER OF PIGS DISPOSED OF BY PARISH AND METHOD OF DISPOSAL DURING LAST SIX MONTHS
TABLE -41	AVERAGE DRESSED WEIGHT (KG) PER PIG BY PARISH AND METHOD OF DISPOSAL USED DURING LAST SIX MONTHS
TABLE -42	NUMBER OF FARMERS BY PARISH, AGE GROUP AND GENDER
TABLE -43	NUMBER OF FARMERS BY PARISH, HIGHEST LEVEL OF EDUCATION ATTAINED AND GENDER
TABLE -44	NUMBER OF FULL-TIME EMPLOYEES IN PIG INDUSTRY BY PARISH, AGE GROUP AND GENDER
TABLE -45	NUMBER OF FULL-TIME EMPLOYEES IN PIG INDUSTRY BY NUMBER OF PIGS OWNED, AGE GROUP AND GENDER
TABLE -46	NUMBER OF PART-TIME EMPLOYEES IN PIG INDUSTRY BY NUMBER OF PIGS OWNED, AGE GROUP AND GENDER
TABLE -47	NUMBER OF PART-TIME EMPLOYEES IN PIG INDUSTRY BY PARISH, AGE GROUP AND GENDER
TABLE 48	NUMBER OF FARMERS BY MAIN SOURCE OF INCOME AND EXPERIENCE IN PIG REARING

LIST OF APPENDIX TABLES

TABLE -49	NUMBER OF FARMERS BY PARISH AND MAIN SOURCE OF INCOME
TABLE -50	NUMBER OF FARMERS BY MAIN SOURCES OF INCOME AND NUMBER OF PIGS OWNED
TABLE -51	NUMBER OF FARMERS BY PARISH AND PROJECTED SOW POPULATION FOR THE NEXT SIX (6) MONTHS
TABLE -52	NUMBER OF FARMERS WHO HAVE PROJECTED AN INCREASE IN THEIR SOW POPULATION BY PARISH AND SIZE OF INCREASE
TABLE -53	NUMBER OF FARMERS WHO HAVE PROJECTED A DECREASE IN THEIR SOW POPULATION BY PARISH AND SIZE OF DECREASE
TABLE -54	PROJECTED INCREASE/DECREASE IN SOW POPULATION BY PARISH
TABLE -55	NUMBER OF FARMERS BY PARISH AND PROJECTED REPLACEMENT GILT POPULATION FOR THE NEXT SIX (6) MONTHS
TABLE -56	PROJECTED INCREASE/DECREASE IN REPLACEMENT GILT POPULATION BY PARISH
TABLE -57	NUMBER OF FARMERS BY PARISH AND PROJECTED WEANER POPULATION FOR THE NEXT SIX (6) MONTHS
TABLE -58	PROJECTED INCREASE/DECREASE IN WEANER POPULATION BY PARISH
TABLE 59	NUMBER OF FARMERS BY PARISH AND PROJECTED BOAR POPULATION FOR THE NEXT SIX (6) MONTHS
TABLE -60	PROJECTED INCREASE/DECREASE IN BOAR POPULATION BY PARISH
TABLE -61	NUMBER OF FARMERS BY PARISH AND PROJECTED FATTENER POPULATION FOR THE NEXT SIX (6) MONTHS
TABLE -62	PROJECTED INCREASE/DECREASE IN FATTENER POPULATION BY PARISH

TABLE 1 NUMBER OF FARMERS BY PARISH AND TYPE OF OPERATION

Parish	Type of Operation							
	Total	Fatteners	Weaners	Seed stock	Fatteners & weaners	Fatteners & seed stock	Weaners & seed stock	Fatteners, weaners & seed stock
Total	6556	3886	594	26	1661	132	54	203
Kingston & St. Andrew	103	27	1	1	50			24
St. Thomas	201	159	5	1	34			2
Portland	766	663	18	1	82	1		1
St. Mary	467	146	21	11	137	102	9	41
St. Ann	621	333	30	1	250	4		3
Trelawny	532	503	5	1	17			6
St. James	285	237	2		45			1
Hanover	248	45	26	5	61	7	28	76
Westmoreland	481	202	147		130			2
St. Elizabeth	914	296	262		318	8	10	20
Manchester	702	371	48	1	262	4	5	11
Clarendon	632	497	11	2	118	1	1	2
St. Catherine	604	407	18	2	157	5	1	14

TABLE 2 NUMBER OF FARMERS BY PARISH AND NUMBER OF PIGS OWNED

Parish	Number of Pigs Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	6556	1219	2179	1699	980	260	219
Kingston & St. Andrew	103	22	24	28	20	2	7
St. Thomas	201	17	64	35	48	20	17
Portland	766	150	287	217	91	10	11
St. Mary	467	90	127	142	72	23	13
St. Ann	621	163	246	120	63	16	13
Trelawny	532	81	275	103	56	11	6
St. James	285	25	95	89	48	16	12
Hanover	248	50	45	80	39	18	16
Westmoreland	481	64	119	115	110	39	34
St. Elizabeth	914	269	271	237	105	16	16
Manchester	702	135	252	167	111	23	14
Clarendon	632	73	230	194	98	20	17
St. Catherine	604	80	144	172	119	46	43

TABLE 3 NUMBER OF PIGS BY PARISH AND NUMBER OF PIGS OWNED

Parish	Number of Pigs Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	144917	2928	14557	22665	28906	17632	58229
Kingston & St. Andrew	3014	56	157	359	632	114	1696
St. Thomas	7739	49	433	487	1538	1352	3880
Portland	9989	366	1906	2858	2584	643	1632
St. Mary	9449	224	834	1901	2108	1517	2865
St. Ann	8614	409	1584	1629	1782	1088	2122
Trelawny	7366	173	1763	1322	1594	708	1806
St. James	7050	59	626	1180	1366	1051	2768
Hanover	7178	119	307	1098	1156	1141	3357
Westmoreland	21624	162	849	1522	3399	2773	12919
St. Elizabeth	13623	601	1832	3184	2989	1168	3849
Manchester	12917	334	1662	2235	3214	1559	3913
Clarendon	13940	172	1632	2539	2866	1276	5455
St. Catherine	22414	204	972	2351	3678	3242	11967

TABLE 4 NUMBER OF FARMERS BY PARISH AND NUMBER OF SOWS OWNED

Parish	Number of Sows Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	5794	4907	526	210	113	24	14
Kingston & St. Andrew	93	75	10	4	2	2	
St. Thomas	182	118	38	15	9	1	1
Portland	698	640	42	9	7		
St. Mary	431	347	52	19	8	3	2
St. Ann	486	432	31	14	8	1	
Trelawny	477	437	27	8	3	1	1
St. James	195	160	22	8	4	1	
Hanover	233	174	35	11	10	3	
Westmoreland	434	312	62	39	16	2	3
St. Elizabeth	814	750	41	13	7	3	
Manchester	614	547	43	16	5	2	1
Clarendon	588	509	51	17	6	3	2
St. Catherine	549	406	72	37	28	2	4

TABLE 5 NUMBER OF SOWS OWNED BY PARISH

Parish	Number of Sows Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	21411	8212	3332	2629	3292	1548	2398
Kingston & St. Andrew	460	144	57	53	49	157	.
St. Thomas	1128	234	246	186	259	63	140
Portland	1514	977	258	109	170	.	.
St. Mary	1807	632	321	237	208	182	227
St. Ann	1335	661	191	176	232	75	.
Trelawny	1242	704	161	103	64	50	160
St. James	783	305	152	98	131	97	.
Hanover	1168	340	213	144	308	163	.
Westmoreland	2648	532	398	474	502	162	580
St. Elizabeth	1993	1183	256	166	226	162	.
Manchester	1792	936	270	202	139	145	100
Clarendon	2147	845	341	215	168	182	396
St. Catherine	3394	719	468	466	836	110	795

TABLE 6 NUMBER OF FARMERS BY PARISH AND NUMBER OF PRE-WEANERS OWNED

Parish	Number of Pre-weaners						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	2429	213	1054	726	328	76	32
Kingston & St. Andrew	38	5	16	5	8	3	1
St. Thomas	93	8	30	30	18	4	3
Portland	205	27	99	60	16	3	
St. Mary	207	6	98	74	20	8	1
St. Ann	173	14	77	51	24	7	
Trelawny	194	23	129	31	10		1
St. James	101	3	38	33	23	3	1
Hanover	110	9	32	43	15	8	3
Westmoreland	226	10	81	68	47	15	5
St. Elizabeth	328	31	149	108	33	6	1
Manchester	269	36	106	81	37	4	5
Clarendon	239	12	117	72	30	3	5
St. Catherine	246	29	82	70	47	12	6

TABLE 7 NUMBER OF FARMERS BY PARISH AND MAIN CAUSES OF DEATH OF PIGLETS

Parish	Main Causes of Death of Piglets						
	Diarrhoea	Screw-worm infection	Crushing	Temperature stress	Don't know	Other	No deaths
Kingston & St. Andrew	15		72	17	2	8	19
St. Thomas	16		120	23	1	19	25
Portland	58	11	340	10	44	64	256
St. Mary	79	4	238	69		1	159
St. Ann	52	4	246	27		11	333
Trelawny	9		163		11	22	329
St. James	5	2	131	15	3	11	118
Hanover	13	4	119	43		15	102
Westmoreland	53	2	268	3	2	40	114
St. Elizabeth	42	7	298	9	58	92	419
Manchester	51	6	286	30	5	66	310
Clarendon	81	4	340	6	1	37	188
St. Catherine	88	15	224	8	40	116	166

N.B. Main cause of death is not mutually exclusive

TABLE 8 NUMBER OF FARMERS BY PARISH AND YEARS OF EXPERIENCE IN PIG REARING

Parish	Years of Experience in Pig Rearing						
	Total	Not stated	Less than 6 months	6 months -< 1 yr	1 -< 2 yrs	2 -< 5 yrs	5 yrs or more
Total	6556	23	353	725	848	1382	3225
Kingston & St. Andrew	103	3	2	4	9	22	63
St. Thomas	201		9	29	29	43	91
Portland	766	1	18	86	69	119	473
St. Mary	467	3	16	18	127	177	126
St. Ann	621	1	30	85	98	177	230
Trelawny	532		19	40	56	111	306
St. James	285	2	13	54	62	66	88
Hanover	248	1	66	33	19	30	99
Westmoreland	481	2	35	70	49	96	229
St. Elizabeth	914	1	46	106	104	195	462
Manchester	702	1	76	104	55	101	365
Clarendon	632	5	13	63	101	124	326
St. Catherine	604	3	10	33	70	121	367

TABLE 9 NUMBER OF FARMERS BY EXPERIENCE IN PIG REARING AND NUMBER OF PIGS OWNED

Years of Experience in Pig Rearing	Number of Pigs Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	6556	1219	2179	1699	980	260	219
Not stated	23	2	6	4	2	2	7
Less than 6 months	353	117	119	64	37	9	7
6 months -< 1 yr	725	218	251	155	79	12	10
1 -< 2 yrs	848	181	285	235	109	20	18
2 -< 5 yrs	1382	196	454	394	250	53	35
5 yrs or more	3225	505	1064	847	503	164	142

**TABLE 10 NUMBER OF FARMERS AND SOWS BY PARISH AND TYPE OF MANAGEMENT
(HOUSING AND RELATED FACILITIES)**

Parish	Type of Management/Housing Facilities					
	Total		Quality		Non-Quality	
	No. of Farmers	No. of Sows	No. of Farmers	No. of Sows	No. of Farmers	No. of Sows
Total	5794	21411	4395	18814	1399	2597
Kingston & St. Andrew	93	460	84	438	9	22
St. Thomas	182	1128	162	1083	20	45
Portland	698	1514	617	1413	81	101
St. Mary	431	1807	419	1782	12	25
St. Ann	486	1335	446	1283	40	52
Trelawny	477	1242	370	1089	107	153
St. James	195	783	167	725	28	58
Hanover	233	1168	213	1129	20	39
Westmoreland	434	2648	232	2251	202	397
St. Elizabeth	814	1993	330	1159	484	834
Manchester	614	1792	471	1547	143	245
Clarendon	588	2147	521	2047	67	100
St. Catherine	549	3394	363	2868	186	526

TABLE 11 NUMBER OF FARMERS AND REPLACEMENT GILTS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities					
	Total		Quality		Non-Quality	
	No. of Farmers	No. of Gilts	No. of Farmers	No. of Gilts	No. of Farmers	No. of Gilts
Total	1564	5264	1327	4803	237	461
Kingston & St. Andrew	8	25	8	25		
St. Thomas	41	244	41	244		
Portland	369	972	344	925	25	47
St. Mary	157	890	156	876	1	14
St. Ann	142	299	137	290	5	9
Trelawny	57	225	51	212	6	13
St. James	88	284	76	245	12	39
Hanover	62	232	60	230	2	2
Westmoreland	117	418	69	327	48	91
St. Elizabeth	129	291	61	182	68	109
Manchester	158	423	130	376	28	47
Clarendon	133	508	122	483	11	25
St. Catherine	103	453	72	388	31	65

TABLE 12 NUMBER OF FARMERS AND BOARS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities					
	Total		Quality		Non-Quality	
	No. of Farmers	No. of Boars	No. of Farmers	No. of Boars	No. of Farmers	No. of Boars
Total	3092	4576	2596	3921	496	655
Kingston & St. Andrew	55	85	51	80	4	5
St. Thomas	118	165	110	156	8	9
Portland	383	498	345	448	38	50
St. Mary	312	425	305	418	7	7
St. Ann	307	451	290	421	17	30
Trelawny	235	338	189	282	46	56
St. James	131	180	115	162	16	18
Hanover	146	291	135	266	11	25
Westmoreland	258	389	172	272	86	117
St. Elizabeth	240	323	136	203	104	120
Manchester	308	485	253	415	55	70
Clarendon	258	386	248	373	10	13
St. Catherine	341	560	247	425	94	135

TABLE 13 NUMBER OF PREGNANT SOWS BY SIZE OF FARMS OWNED AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Number of Pigs Owned	Type of Management/Housing Facilities		
	Total	Quality	Non-Quality
Total	10594	9403	1191
1 - 4	1114	748	366
5 - 9	929	717	212
10 - 19	1303	1051	252
20 - 49	1691	1490	201
50 - 99	1188	1097	91
100 & over	4369	4300	69

TABLE 14 NUMBER OF FARMERS AND PRE-WEANERS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities					
	Total		Quality		Non-Quality	
	No. of Farmers	No. of Pre-Weaners	No. of Farmers	No. of Pre-weaners	No. of Farmers	No. of Pre-weaners
Total	2429	38616	1895	33689	534	4927
Kingston & St. Andrew	38	757	36	730	2	27
St. Thomas	93	1944	87	1898	6	46
Portland	205	2182	190	2076	15	106
St. Mary	207	2855	202	2810	5	45
St. Ann	173	2359	162	2264	11	95
Trelawny	194	2066	151	1774	43	292
St. James	101	1712	90	1612	11	100
Hanover	110	2175	103	2101	7	74
Westmoreland	226	5272	134	4289	92	983
St. Elizabeth	328	4110	142	2412	186	1698
Manchester	269	3744	211	3205	58	539
Clarendon	239	4023	212	3804	27	219
St. Catherine	246	5417	175	4714	71	703

TABLE 15 AVERAGE NUMBER OF PIGLETS FARROWED AND WEANED BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

	Type of Management/Housing Facilities					
	All		Quality		Non-Quality	
	Avg. # Farrowed	Avg. # Weaned	Avg. # Farrowed	Avg. # Weaned	Avg. # Farrowed	Avg. # Weaned
All	10	8	10	8	9	8
Kingston & St. Andrew	10	8	10	8	9	8
St. Thomas	10	9	10	9	9	8
Portland	10	8	10	8	9	8
St. Mary	9	8	9	8	9	8
St. Ann	10	8	10	8	9	7
Trelawny	8	6	8	7	7	6
St. James	10	8	10	8	9	7
Hanover	10	8	10	9	9	7
Westmoreland	10	9	11	9	10	8
St. Elizabeth	9	8	10	8	9	8
Manchester	10	8	10	8	9	7
Clarendon	10	8	10	8	9	7
St. Catherine	10	8	10	8	9	7

TABLE 16 NUMBER OF FARMERS AND FATTENERS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities					
	Total		Quality		Non-Quality	
	No. of Farmers	No. of Fatteners	No. of Farmers	No. of Fatteners	No. of Farmers	No. of Fatteners
Total	4705	75050	3713	68000	992	7050
Kingston & St. Andrew	70	1687	64	1598	6	89
St. Thomas	175	4258	156	4128	19	130
Portland	557	4823	508	4611	49	212
St. Mary	326	3472	317	3431	9	41
St. Ann	456	4170	423	4031	33	139
Trelawny	349	3495	283	3149	66	346
St. James	237	4091	192	3706	45	385
Hanover	140	3312	129	3252	11	60
Westmoreland	341	12897	200	11653	141	1244
St. Elizabeth	599	6906	300	5107	299	1799
Manchester	499	6473	390	5808	109	665
Clarendon	461	6876	412	6586	49	290
St. Catherine	495	12590	339	10940	156	1650

TABLE 17 AVERAGE MORTALITY RATE PER 1000 BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities		
	All	Quality	Non-Quality
All	203	199	219
Kingston & St. Andrew	180	181	169
St. Thomas	184	186	168
Portland	218	218	217
St. Mary	166	166	152
St. Ann	181	183	164
Trelawny	239	229	293
St. James	214	210	241
Hanover	201	202	200
Westmoreland	168	168	169
St. Elizabeth	199	189	206
Manchester	223	211	269
Clarendon	202	198	235
St. Catherine	234	216	269

TABLE 18 NUMBER OF FARMERS BY MAIN CAUSE OF DEATH OF PIGLETS, TYPE OF MANAGEMENT AND AVERAGE MORTALITY RATE PER 1000 PIGLETS

Main Cause of Death of Piglets	Type of Management									
	Quality					Non-Quality				
	Less than 150	150 - 200	201 - 250	251 - 300	Over 300	Less than 150	150 - 200	201 - 250	251 - 300	Over 300
Diarrhoea	21	145	58	27	53		19	24	7	27
Screw-worm infection	1	18	8	4	1	1	2	4	2	3
Crushing	185	805	242	118	208	44	153	80	23	71
Temperature stress	11	92	25	8	26	1	3	3	1	7
Don't know	10	18	12	9	27	3	13	11	8	9
Other	23	86	51	22	62	12	28	13	7	42
No deaths	7	55	23	14	24	4	16	8	3	8

N.B. Main cause of death is not mutually exclusive

**TABLE 19 NUMBER OF FARMERS BY MAIN CAUSES OF DEATH OF PIGLETS BY
NUMBER OF SOWS OWNED**

Main Causes of Death of Piglets	Number of Sows Owned						
	None	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Diarrhoea	11	399	84	40	23	2	3
Screw-worm infection		50	6		3		
Crushing	53	2239	327	138	66	13	9
Temperature stress	5	185	37	19	9	4	1
Don't know	9	144	9	4		1	
Other	7	383	53	30	21	4	4
No deaths	682	1769	62	11	9	4	1

N.B. Main cause of death is not mutually exclusive

**TABLE 20 NUMBER OF FARMERS BY PARISH AND NUMBER OF WEANERS SOLD
DURING THE LAST SIX MONTHS**

Parish	Number of Weaners Sold						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	1591	558	545	269	153	40	26
Kingston & St. Andrew	18	5	6	5	2		
St. Thomas	54	30	8	5	6	4	1
Portland	138	67	51	16	3	1	
St. Mary	74	45	18	9	1		1
St. Ann	214	49	97	45	17	3	3
Trelawny	184	118	43	11	7	5	
St. James	26	7	9	8	2		
Hanover	37	8	13	7	6	2	1
Westmoreland	132	22	30	28	36	8	8
St. Elizabeth	314	57	165	65	21	3	3
Manchester	157	53	45	38	15	4	2
Clarendon	140	63	33	19	19	3	3
St. Catherine	103	34	27	13	18	7	4

TABLE 21 NUMBER OF WEANERS SOLD DURING THE LAST SIX MONTHS BY PARISH AND TYPE OF MANAGEMENT (HOUSING AND RELATED FACILITIES)

Parish	Type of Management/Housing Facilities		
	Total	Quality	Non-Quality
Total	23592	20142	3450
Kingston & St. Andrew	163	163	.
St. Thomas	830	758	72
Portland	895	843	52
St. Mary	486	479	7
St. Ann	2305	2215	90
Trelawny	1146	1014	132
St. James	220	177	43
Hanover	653	627	26
Westmoreland	5315	4737	578
St. Elizabeth	3139	1262	1877
Manchester	1934	1709	225
Clarendon	2603	2550	53
St. Catherine	3903	3608	295

**TABLE 22 NUMBER OF FARMERS WITH ACCESS TO IMPROVED SEED STOCK BY
NUMBER OF PIGS OWNED AND TYPE OF MANAGEMENT (HOUSING AND RELATED
FACILITIES)**

Size Group of Pigs Owned	Type of Management/Housing Facilities		
	Total	Quality	Non-Quality
Total	5812	4510	1302
1 - 4	1103	727	376
5 - 9	1795	1361	434
10 - 19	1528	1190	338
20 - 49	923	793	130
50 - 99	250	229	21
100 & over	213	210	3

TABLE 23 NUMBER OF FARMERS BY PARISH WITH AND WITHOUT ACCESS TO IMPROVED SEED STOCK

Parish	Total	With Access	Without Access	Not applicable
Total	6556	5812	533	211
Kingston & St. Andrew	103	103		
St. Thomas	201	131	70	
Portland	766	733	32	1
St. Mary	467	429	22	16
St. Ann	621	554	22	45
Trelawny	532	508	14	10
St. James	285	263	22	
Hanover	248	240	8	
Westmoreland	481	437	5	39
St. Elizabeth	914	815	44	55
Manchester	702	568	131	3
Clarendon	632	586	8	38
St. Catherine	604	445	155	4

TABLE 24 NUMBER OF FARMERS WITH ACCESS TO IMPROVED SEED STOCK BY PARISH AND SOURCE

Parish	Source								
	Total	No response	A.I	Own boar	Other farmer	All of the above	A.I & own boar	A.I & other farmer	Own boar & other farmer
	Count	Count	Count	Count	Count	Count	Count	Count	Count
Total	5812	20	122	1827	3476	139	48	52	128
Kingston & St. Andrew	103			3	64	1	1	3	31
St. Thomas	131			102	21		7	1	
Portland	733	1	11	311	387	7		1	15
St. Mary	429	4	6	95	226	88	6		4
St. Ann	554		18	177	317	8	4	1	29
Trelawny	508	6	2	192	302	3			3
St. James	263	2	2	89	168			2	
Hanover	240		18	121	91	5	3	2	
Westmoreland	437	3	11	177	242	1		2	1
St. Elizabeth	815	1	2	181	621	5	1		4
Manchester	568		11	193	315	5	12	11	21
Clarendon	586		25	127	405		10	8	11
St. Catherine	445	3	16	59	317	16	4	21	9

TABLE 25 NUMBER OF FARMERS AND AMOUNT OF UNUTILIZED SPACE (SQ. FT.) BY PARISH AND NUMBER OF PIGS OWNED

Parish	Number of Pigs Owned													
	Total		1 - 4		5 - 9		10 - 19		20 - 49		50 - 99		100 & over	
	Q89Sq.Ft		Q89Sq.Ft		Q89Sq.Ft		Q89Sq.Ft		Q89Sq.Ft		Q89Sq.Ft		Q89Sq.Ft	
	No. of farmers	Unused space	No. of farmers	Unused space	No. of farmers	Unused space	No. of farmers	Unused space	No. of farmers	Unused space	No. of farmers	Unused space	No. of farmers	Unused space
Total	1144	429801	190	34119	320	51073	308	81681	222	102950	51	26641	53	133337
Kingston & St. Andrew	24	5280	5	1280	7	830	5	1550	5	1320			2	300
St. Thomas	11	29197			3	673	1	480	4	2096	1	500	2	25448
Portland	180	23076	38	3839	63	6722	48	8376	30	3995	1	144		
St. Mary	172	40597	40	6462	44	8018	51	9877	24	6464	6	1596	7	8180
St. Ann	116	8933	23	1205	40	2071	29	1807	16	1561	4	749	4	1540
Trelawny	46	11769	6	850	8	1381	13	4444	13	2450	6	2644		
St. James	18	4810	2	280	8	1662	4	284	2	84			2	2500
Hanover	48	19112	9	1030	5	752	14	6620	10	4834	5	728	5	5148
Westmoreland	48	51567	9	7704	3	960	4	6784	19	18244	8	11150	5	6725
St. Elizabeth	68	95873	11	1421	23	4867	12	2282	13	15809			9	71494
Manchester	125	33597	21	2528	43	10087	31	9168	24	9224	4	1190	2	1400
Clarendon	167	41016	12	1516	52	9358	63	12415	35	16423	2	400	3	904
St. Catherine	121	64974	14	6004	21	3692	33	17594	27	20446	14	7540	12	9698

TABLE 26 NUMBER OF FARMERS BY PROBLEMS ENCOUNTERED IN THE PAST YEAR AND YEARS OF EXPERIENCE IN PIG REARING

Problems Encountered	Years of Experience in Pig Rearing					
	Not stated	Less than 6 months	6 months - < 1 yr	1 -< 2 yrs	2 -< 5 yrs	5 yrs or more
High cost of feed	15	307	671	811	1326	3072
Water shortage	7	99	158	149	257	541
Sanitation	2	4	10	10	7	20
Labour	1	7	7	5	4	18
Veterinary service	2	41	47	45	88	164
Unavailability of market	6	51	111	159	389	1038
Low pork price	5	22	97	134	283	692
Praedial larceny		1	2	3	10	26
Lack of finances to expand/improve business		6	9	20	23	61
None		13	17	14	14	30
Other		1	3	10	16	56

N.B. Problem is not mutually exclusive

TABLE 27 NUMBER OF FARMERS BY PARISH AND PROBLEMS ENCOUNTERED IN THE PAST YEAR

Parish	Problems Encountered										
	High cost of feed	Water shortage	Sanitation	Labour	Veterinary service	Unavailability of market	Low pork price	Praedial larceny	Lack of finances to expand/improve business	None	Other
Kingston & St. Andrew	92	10	2	4	6	6		1	7	2	3
St. Thomas	193	58	8	4	15	34	32	2			5
Portland	670	109		2	8	202	31	2	8	30	13
St. Mary	460	24	2	3	88	115	136	1	12		3
St. Ann	597	172	3	11	54	46	77	2	24		5
Trelawny	507	38	3		8	79	215	5	3	5	7
St. James	282	63	8	2	7	32	181	2	16		5
Hanover	235	113	14	2	54	24	44	1	6		3
Westmoreland	473	115	2	5	14	145	27	1	5		7
St. Elizabeth	879	93		1	12	431	282	10	3	11	8
Manchester	621	163	3	2	65	213	46	3	18	33	5
Clarendon	618	99	2	3	31	301	70	3	7	1	1
St. Catherine	575	154	6	3	25	126	92	9	10	6	21

N.B. Problem is not mutually exclusive

TABLE 28 NUMBER OF FARMERS USING PRE-STARTER BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed					
	Total	Very good	Good	Fair	Poor	Don't know
Total	190	41	127	15	1	6
Hi-Pro	108	19	76	8		5
Nutramix	81	22	50	7	1	1
Other	1		1			

TABLE 29 NUMBER OF FARMERS USING STARTER BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed					
	Total	Very good	Good	Fair	Poor	Don't know
Total	1080	213	762	83	6	16
Supreme	5	2	2			1
Hi-Pro	626	118	450	45	3	10
Nutramix	447	93	308	38	3	5
Other	2		2			

TABLE 30 NUMBER OF FARMERS USING GROWER BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed					Don't know
	Total	Very good	Good	Fair	Poor	
Total	6384	1241	4730	318	15	80
Supreme	56	10	39	3	1	3
Hi-Pro	4111	906	3019	132	5	49
Nutramix	2206	321	1668	181	9	27
Other	11	4	4	2		1

TABLE 31 NUMBER OF FARMERS USING FINISHER BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed				Don't know
	Total	Very good	Good	Fair	
Total	832	132	623	62	15
Supreme	9		6	2	1
Hi-Pro	573	73	446	46	8
Nutramix	246	57	169	14	6
Other	4	2	2		

TABLE 32 NUMBER OF FARMERS USING SOW AND BOAR RATION BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed					
	Total	Very good	Good	Fair	Poor	Don't know
Total	4320	749	3273	234	9	55
Supreme	27	7	18		1	1
Hi-Pro	2556	536	1885	99	4	32
Nutramix	1728	204	1363	135	4	22
Other	9	2	7			

TABLE 33 NUMBER OF FARMERS USING SOW CHOW BY BRAND AND QUALITY OF FEED

Brand of Feed	Quality of Feed					
	Total	Very good	Good	Fair	Poor	Don't know
Total	1282	301	879	68	3	31
Supreme	35	6	24	2		3
Hi-Pro	784	180	552	33		19
Nutramix	459	112	302	33	3	9
Other	4	3	1			

TABLE 34 NUMBER OF FARMERS BY NUMBER OF PIGS OWNED AND WHETHER OR NOT THEY MIX THEIR OWN FEED

Number of Pigs Owned	Do you mix your own feed?		
	Total	Yes	No
Total	6556	1085	5471
1 - 4	1219	119	1100
5 - 9	2179	264	1915
10 - 19	1699	296	1403
20 - 49	980	245	735
50 - 99	260	84	176
100 & over	219	77	142

TABLE 35 NUMBER OF FARMERS BY PARISH AND WHETHER OR NOT THEY MIX THEIR OWN FEED

Parish	Do you mix your own feed?		
	Total	Yes	No
Total	6556	1085	5471
Kingston & St. Andrew	103	35	68
St. Thomas	201	18	183
Portland	766	80	686
St. Mary	467	53	414
St. Ann	621	6	615
Trelawny	532	22	510
St. James	285	18	267
Hanover	248	9	239
Westmoreland	481	112	369
St. Elizabeth	914	51	863
Manchester	702	149	553
Clarendon	632	234	398
St. Catherine	604	298	306

**TABLE 36 NUMBER OF FARMERS WHO REPORTED THAT THEY MIX THEIR OWN FEED
BY NUMBER OF PIGS OWNED AND PROPORTION OF FEED MIXED**

Number of Pigs Owned	Percentage of Feed Mixed					
	Total	Not stated	Less 25%	25 - 49%	50 - 75%	Over 75%
Total	1085	248	183	314	306	34
1 - 4	119	21	30	29	31	8
5 - 9	264	61	40	92	64	7
10 - 19	296	63	51	91	84	7
20 - 49	245	63	32	71	74	5
50 - 99	84	21	18	19	22	4
100 & over	77	19	12	12	31	3

TABLE 37
NUMBER OF FARMERS WHO REPORTED THAT THEY MIX THEIR OWN FEED BY
PARISH AND PROPORTION OF FEED MIXED

Parish	Percentage of Feed Mixed					
	Total	Not stated	Less 25%	25 - 49%	50 - 75%	Over 75%
Total	1085	248	183	314	306	34
Kingston & St. Andrew	35	3	5	25	2	
St. Thomas	18	3	5	6	4	
Portland	80	3		8	67	2
St. Mary	53	52			1	
St. Ann	6	4	2			
Trelawny	22	15	4	2	1	
St. James	18	3	11	3		1
Hanover	9	8	1			
Westmoreland	112	34	29	34	15	
St. Elizabeth	51	2	15	18	9	7
Manchester	149	27	39	51	27	5
Clarendon	234	55	27	70	79	3
St. Catherine	298	39	45	97	101	16

TABLE 38 AVERAGE FARM GATE PRICE OF DRESSED PORK (\$/KG) BY PARISH AND NUMBER OF PIGS OWNED

Parish	Number of Pigs Owned						
	All	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
All	307.42	305.38	303.76	308.74	311.53	314.43	318.65
Kingston & St. Andrew	327.23	321.90	330.45	325.57	325.79	340.00	340.00
St. Thomas	284.45	282.12	283.38	285.37	286.70	283.25	284.06
Portland	309.33	308.20	309.67	308.04	310.40	312.44	329.09
St. Mary	337.10	340.50	339.86	332.65	333.06	340.52	352.00
St. Ann	272.37	263.62	272.28	281.88	274.37	280.50	275.92
Trelawny	311.40	312.78	310.93	311.27	309.63	314.00	336.05
St. James	306.49	301.52	301.82	308.98	314.97	309.03	298.83
Hanover	319.55	321.67	319.64	319.24	318.64	313.56	323.25
Westmoreland	320.86	322.59	321.51	322.12	319.20	319.57	317.81
St. Elizabeth	299.63	305.64	295.56	295.80	303.57	293.77	305.46
Manchester	295.71	299.53	290.42	296.67	300.70	299.30	296.47
Clarendon	304.26	305.29	305.25	299.33	306.04	315.60	317.94
St. Catherine	333.46	327.29	323.85	334.83	339.80	341.85	348.44

TABLE 39 NUMBER OF FARMERS BY METHOD OF DISPOSAL USED DURING LAST SIX MONTHS BY NUMBER OF PIGS OWNED

Method of Disposal	Number of Pigs Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Butcher	2412	266	719	673	489	151	114
Packers	112	2	9	12	29	21	39
Other farmers	1591	300	461	378	297	87	68
Other	649	71	153	169	139	55	62
Not reported/None	2617	666	990	672	240	33	16

N.B. Method of disposal is not mutually exclusive

TABLE 40 NUMBER OF FARMERS AND NUMBER OF PIGS DISPOSED OF BY PARISH AND METHOD OF DISPOSAL DURING LAST SIX MONTHS

Parish	Method of Disposal							
	Butcher		Packers/Processors		Other farmers		Other	
	No. of Farmers	No. of Pigs	No. of Farmers	No. of Pigs	No. of Farmers	No. of Pigs	No. of Farmers	No. of Pigs
Total	2412	25629	112	11655	1591	23592	649	13181
Kingston & St. Andrew	12	280			18	163	38	1049
St. Thomas	104	1580			54	830	11	414
Portland	224	1819	2	47	138	895	186	1610
St. Mary	211	1152	3	50	74	486	47	370
St. Ann	253	1802	13	406	214	2305	25	286
Trelawny	246	1161	1	1	184	1146	28	949
St. James	114	1419	4	100	26	220	17	230
Hanover	102	1263	1	50	37	653	39	2617
Westmoreland	163	2662	53	9241	132	5315	3	77
St. Elizabeth	219	2066	16	278	314	3139	26	1858
Manchester	259	1742	7	801	157	1934	93	1294
Clarendon	223	1806	11	671	140	2603	80	1410
St. Catherine	282	6877	1	10	103	3903	56	1017

TABLE 41 AVERAGE DRESSED WEIGHT (KG) PER PIG BY PARISH AND METHOD OF DISPOSAL USED DURING LAST SIX MONTHS

Parish	Method of Disposal			
	Butcher	Packers/ Processors	Other farmers	Other
All	66.00	82.64	17.62	53.85
Kingston & St. Andrew	55.00		21.64	47.30
St. Thomas	84.42		34.77	68.01
Portland	77.67	75.00	18.40	68.94
St. Mary	44.14	55.15	16.11	40.87
St. Ann	76.28	77.14	15.48	49.91
Trelawny	61.90		18.10	42.98
St. James	53.11	72.50	21.38	48.35
Hanover	45.61	36.00	28.29	46.93
Westmoreland	83.06	87.13	16.83	15.94
St. Elizabeth	74.92	90.91	12.96	56.80
Manchester	61.79	74.22	14.71	34.48
Clarendon	63.81	78.01	20.28	57.43
St. Catherine	62.88	72.73	21.24	56.50

TABLE 42 NUMBER OF FARMERS BY PARISH, AGE GROUP AND GENDER

Parish	Age Group																	
	Total			Less than 20 yrs	20 -< 30 yrs		30 -< 40 yrs		40 -< 50 yrs		50 -< 60 yrs		60 yrs or more		Not applicable	Not stated		
	M	F	N/A	M	F	M	F	M	F	M	F	M	F	M	F	N/A	M	F
Total	4676	1854	26	51	6	434	144	782	351	1042	501	1002	435	1293	392	26	72	25
Kingston & St. Andrew	82	21		1		4		17	2	13	5	13	5	18	3		16	6
St. Thomas	161	40		1	1	13	6	22	9	45	10	38	8	42	6			
Portland	599	164	3	10	1	72	10	114	36	124	42	138	40	141	35	3		
St. Mary	352	114	1	4		18	8	82	25	105	45	63	23	78	13	1	2	
St. Ann	425	194	2	3	1	36	11	72	40	103	52	92	45	115	45	2	4	
Trelawny	405	124	3	2		22	5	46	8	68	21	106	46	159	44	3	2	
St. James	232	53		1		22	3	49	5	61	18	40	13	59	13			1
Hanover	186	61	1	1		17	7	25	8	43	14	42	17	58	15	1		
Westmoreland	359	122		2		34	8	65	27	79	37	74	17	93	29		12	4
St. Elizabeth	473	440	1	8	2	55	45	79	79	104	121	89	88	137	100	1	1	5
Manchester	490	209	3	4		55	20	76	36	105	61	105	47	134	43	3	11	2
Clarendon	461	167	4	7	1	39	17	62	35	82	39	107	45	147	25	4	17	5
St. Catherine	451	145	8	7		47	4	73	41	110	36	95	41	112	21	8	7	2

Note: N/A = Not Applicable – applies to institutions only

**TABLE 43 NUMBER OF FARMERS BY PARISH, HIGHEST LEVEL OF EDUCATION
ATTAINED AND GENDER**

Parish	Highest Level of Education													
	Total			Primary		Secondary		Tertiary		Vocational		Not applicable	Not stated	
	M	F	N/A	M	F	M	F	M	F	M	F	N/A	M	F
Total	4676	1854	26	1956	717	2248	969	210	80	27	13	26	235	75
Kingston & St. Andrew	82	21		43	10	23	6	5	2		1		11	2
St. Thomas	161	40		69	8	75	29	13	2				4	1
Portland	599	164	3	194	41	383	111	17	11	1		3	4	1
St. Mary	352	114	1	210	74	120	34	2	2	2		1	18	4
St. Ann	425	194	2	215	107	173	67	12	5	4	4	2	21	11
Trelawny	405	124	3	290	96	81	24	4		4		3	26	4
St. James	232	53		33	9	166	35	30	8				3	1
Hanover	186	61	1	75	27	87	25	20	6	4	3	1		
Westmoreland	359	122		65	25	217	77	30	4				47	16
St. Elizabeth	473	440	1	212	162	230	253	15	15	1		1	15	10
Manchester	490	209	3	191	71	252	125	18	7	3	2	3	26	4
Clarendon	461	167	4	140	29	265	123	21	4	2	1	4	33	10
St. Catherine	451	145	8	219	58	176	60	23	14	6	2	8	27	11

Note: N/A = Not Applicable – applies to institution

TABLE 44 NUMBER OF FULL-TIME EMPLOYEES IN PIG INDUSTRY BY PARISH, AGE GROUP AND GENDER

Parish	Total		Non-Family Members				Family Members			
			Less than 30 yrs		30 yrs & over		Less than 30 yrs		30 yrs & over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total	1214	231	221	22	340	21	228	42	425	146
Kingston & St. Andrew	139	42	13	1	11	5	29	5	86	31
St. Thomas	47	4	11	2	21		5	1	10	1
Portland	73	2	28	1	27		6	1	12	
St. Mary	54	5	6	2	26		8		14	3
St. Ann	80	10	10	1	14	1	19	4	37	4
Trelawny	72	8	6		16	1	8		42	7
St. James	22	2	12	1	2		3		5	1
Hanover	82	16	34	9	37	3	2		9	4
Westmoreland	80	7	22	1	41	4	10		7	2
St. Elizabeth	39	3	4		20	3	5		10	
Manchester	70	4	22		33	2	5		10	2
Clarendon	92	4	28	1	34		13		17	3
St. Catherine	364	124	25	3	58	2	115	31	166	88

TABLE 45 NUMBER OF FULL-TIME EMPLOYEES IN PIG INDUSTRY BY NUMBER OF PIGS OWNED, AGE GROUP AND GENDER

Size Group of Pigs Owned	Total		Non-Family Members				Family Members			
			Less than 30 yrs		30 yrs & over		Less than 30 yrs		30 yrs & over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total	1214	231	221	22	340	21	228	42	425	146
1 - 4	78	20	3	3	6	1	18	3	51	13
5 - 9	160	58	8		13		43	10	96	48
10 - 19	205	54	18	2	31	1	62	14	94	37
20 - 49	267	47	46	2	90	6	44	4	87	35
50 - 99	144	13	18	1	60	7	25		41	5
100 & over	360	39	128	14	140	6	36	11	56	8

TABLE 46 NUMBER OF PART-TIME EMPLOYEES IN PIG INDUSTRY BY NUMBER OF PIGS OWNED, AGE GROUP AND GENDER

Size Group of Pigs Owned	Total		Non-Family Members				Family Members			
			Less than 30 yrs		30 yrs & over		Less than 30 yrs		30 yrs & over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total	2003	709	155	5	351	21	638	176	859	507
1 - 4	265	145	4		18	1	77	38	166	106
5 - 9	513	229	19	1	50	7	212	62	232	159
10 - 19	536	199	35		62	2	206	51	233	146
20 - 49	381	102	38	2	95	5	99	18	149	77
50 - 99	148	20	14	2	59	3	28	1	47	14
100 & over	160	14	45		67	3	16	6	32	5

TABLE 47 NUMBER OF PART-TIME EMPLOYEES IN PIG INDUSTRY BY PARISH, AGE GROUP AND GENDER

Parish	Total		Non-Family Members				Family Members			
			Less than 30 yrs		30 yrs & over		Less than 30 yrs		30 yrs & over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total	2003	709	155	5	351	21	638	176	859	507
Kingston & St. Andrew	14	5	5		3		1	2	5	3
St. Thomas	47	2	12		21	2	9		5	
Portland	88	17	6		21	1	30	2	31	14
St. Mary	66	10	3		10		23	4	30	6
St. Ann	258	87	20		31	5	81	31	126	51
Trelawny	142	24	7		50	3	10	5	75	16
St. James	67	16	25	1	16		10	4	16	11
Hanover	53	12	4	1	32	3	11		6	8
Westmoreland	40	2	13		23		2	1	2	1
St. Elizabeth	496	314	21		23	2	169	88	283	224
Manchester	96	10	11	2	52	3	20	3	13	2
Clarendon	340	99	16		25	1	194	15	105	83
St. Catherine	296	111	12	1	44	1	78	21	162	88

TABLE 48 NUMBER OF FARMERS BY MAIN SOURCE OF INCOME AND EXPERIENCE IN PIG REARING

Main Source of Income	Years of Experience in Pig Rearing						
	Total	Not stated	Less than 6 months	6 months - < 1 yr	1 -< 2 yrs	2 -< 5 yrs	5 yrs or more
Total	6556	23	353	725	848	1382	3225
Not stated	66	4	9	14	7	6	26
Pig rearing	1038	6	50	81	109	277	515
Other agriculture	3691	10	180	385	461	733	1922
Other	1761	3	114	245	271	366	762

TABLE 49 NUMBER OF FARMERS BY PARISH AND MAIN SOURCE OF INCOME

Parish	Main Source of Income				
	Total	Not stated	Pig rearing	Other agriculture	Other
Total	6556	66	1038	3691	1761
Kingston & St. Andrew	103		27	57	19
St. Thomas	201	1	38	116	46
Portland	766	5	44	403	314
St. Mary	467	7	175	234	51
St. Ann	621	6	10	451	154
Trelawny	532	4	23	342	163
St. James	285	3	7	192	83
Hanover	248	1	113	115	19
Westmoreland	481	4	129	221	127
St. Elizabeth	914	10	233	428	243
Manchester	702	14	111	421	156
Clarendon	632	8	51	402	171
St. Catherine	604	3	77	309	215

TABLE 50 NUMBER OF FARMERS BY MAIN SOURCES OF INCOME AND NUMBER OF PIGS OWNED

Main Sources of Income	Number of Pigs Owned						
	Total	1 - 4	5 - 9	10 - 19	20 - 49	50 - 99	100 & over
Total	6556	1219	2179	1699	980	260	219
Not stated	66	15	17	16	7	5	6
Pig rearing	1038	122	199	258	242	99	118
Other agriculture	3691	763	1354	989	452	80	53
Other	1761	319	609	436	279	76	42

TABLE 51 NUMBER OF FARMERS BY PARISH AND PROJECTED SOW POPULATION FOR THE NEXT SIX (6) MONTHS

Parish	Projected Change in Sow Population			
	Total	Increase	Decrease	Maintain
Total	6556	1969	260	4327
Kingston & St. Andrew	103	21	4	78
St. Thomas	201	117	1	83
Portland	766	177	43	546
St. Mary	467	211	24	232
St. Ann	621	270	1	350
Trelawny	532	17	52	463
St. James	285	86	9	190
Hanover	248	74	10	164
Westmoreland	481	163	25	293
St. Elizabeth	914	175	58	681
Manchester	702	124	10	568
Clarendon	632	330	7	295
St. Catherine	604	204	16	384

**TABLE 52 NUMBER OF FARMERS WHO HAVE PROJECTED AN INCREASE IN THEIR
SOW POPULATION BY PARISH AND SIZE OF INCREASE**

Parish	Size of Increase (Number of Sows)							
	Total	Not stated	1 - 10	11 - 20	21 - 30	31 - 40	41 - 50	50 & over
Total	1969	20	1878	48	11	2	2	8
Kingston & St. Andrew	21		20	1				
St. Thomas	117		108	5	2			2
Portland	177		168	8	1			
St. Mary	211	1	210					
St. Ann	270	3	256	8	1		1	1
Trelawny	17		17					
St. James	86		84	2				
Hanover	74	1	70		1		1	1
Westmoreland	163	13	138	9	1			2
St. Elizabeth	175	1	167	5	1	1		
Manchester	124		124					
Clarendon	330		324	4	2			
St. Catherine	204	1	192	6	2	1		2

TABLE 53 NUMBER OF FARMERS WHO HAVE PROJECTED A DECREASE IN THEIR SOW POPULATION BY PARISH AND SIZE OF DECREASE

Parish	Size of Decrease (Number of Sows)					
	Total	Not stated	1 - 10	11 - 20	31 - 40	41 - 50
Total	260	13	239	6	1	1
Kingston & St. Andrew	4		4			
St. Thomas	1			1		
Portland	43	1	42			
St. Mary	24	1	22	1		
St. Ann	1		1			
Trelawny	52		52			
St. James	9	1	7	1		
Hanover	10		10			
Westmoreland	25	6	16	2		1
St. Elizabeth	58	1	55	1	1	
Manchester	10	2	8			
Clarendon	7	1	6			
St. Catherine	16		16			

TABLE 54 PROJECTED INCREASE/DECREASE IN SOW POPULATION BY PARISH

Parish	Projected Change in Sow Population	
	Increase	Decrease
Total	7964	647
Kingston & St. Andrew	66	13
St. Thomas	1365	20
Portland	674	73
St. Mary	542	91
St. Ann	1054	2
Trelawny	50	80
St. James	291	32
Hanover	314	21
Westmoreland	743	129
St. Elizabeth	475	141
Manchester	328	11
Clarendon	918	12
St. Catherine	1144	22

TABLE 55 NUMBER OF FARMERS BY PARISH AND PROJECTED REPLACEMENT GILT POPULATION FOR THE NEXT SIX (6) MONTHS

Parish	Projected Change in Replacement Gilt Population			
	Total	Increase	Decrease	Maintain
Total	6556	805	61	5690
Kingston & St. Andrew	103	6	1	96
St. Thomas	201	31		170
Portland	766	144		622
St. Mary	467	194	17	256
St. Ann	621	196	1	424
Trelawny	532	1	4	527
St. James	285	25	2	258
Hanover	248			248
Westmoreland	481	1		480
St. Elizabeth	914	12	6	896
Manchester	702	18	29	655
Clarendon	632	115		517
St. Catherine	604	62	1	541

**TABLE 56 PROJECTED INCREASE/DECREASE IN REPLACEMENT GILT POPULATION
BY PARISH**

Parish	Projected Change in Replacement Gilt Population	
	Increase	Decrease
Total	3295	259
Kingston & St. Andrew	27	1
St. Thomas	647	
Portland	422	
St. Mary	652	120
St. Ann	727	6
Trelawny	1	42
St. James	141	1
Westmoreland	9	
St. Elizabeth	78	11
Manchester	60	76
Clarendon	323	
St. Catherine	208	2

**TABLE 57 NUMBER OF FARMERS BY PARISH AND PROJECTED WEANER POPULATION
FOR THE NEXT SIX (6) MONTHS**

Parish	Projected Change in weaner Population			
	Total	Increase	Decrease	Maintain
Total	6556	1223	320	5013
Kingston & St. Andrew	103	26	1	76
St. Thomas	201	23		178
Portland	766	79	2	685
St. Mary	467	187	31	249
St. Ann	621	206		415
Trelawny	532	1	163	368
St. James	285	23	1	261
Hanover	248			248
Westmoreland	481	1		480
St. Elizabeth	914	328	91	495
Manchester	702	105	29	568
Clarendon	632	194		438
St. Catherine	604	50	2	552

TABLE 58 PROJECTED INCREASE/DECREASE IN WEANER POPULATION BY PARISH

Parish	Projected Change in weaner Population	
	Increase	Decrease
Total	32198	3035
Kingston & St. Andrew	495	5
St. Thomas	3950	
Portland	1007	28
St. Mary	3168	295
St. Ann	7693	
Trelawny	10	1349
St. James	576	
Westmoreland	40	
St. Elizabeth	4676	934
Manchester	1353	418
Clarendon	4616	
St. Catherine	4614	6

TABLE 59 NUMBER OF FARMERS BY PARISH AND PROJECTED BOAR POPULATION FOR THE NEXT SIX (6) MONTHS

Parish	Projected Change in boar Population			
	Total	Increase	Decrease	Maintain
Total	6556	823	86	5647
Kingston & St. Andrew	103	20	1	82
St. Thomas	201	98	1	102
Portland	766	116	11	639
St. Mary	467	118	15	334
St. Ann	621	165	1	455
Trelawny	532	6	33	493
St. James	285	24	1	260
Hanover	248	4		244
Westmoreland	481	7	2	472
St. Elizabeth	914	24	16	874
Manchester	702	17	1	684
Clarendon	632	131		501
St. Catherine	604	93	4	507

TABLE 60 PROJECTED INCREASE/DECREASE IN BOAR POPULATION BY PARISH

Parish	Projected Change in boar Population	
	Increase	Decrease
Total	1128	125
Kingston & St. Andrew	50	1
St. Thomas	171	2
Portland	125	16
St. Mary	137	17
St. Ann	284	
Trelawny	6	60
St. James	28	
Hanover	5	
Westmoreland	11	2
St. Elizabeth	24	21
Manchester	19	1
Clarendon	131	
St. Catherine	137	5

TABLE 61 NUMBER OF FARMERS BY PARISH AND PROJECTED FATTENER POPULATION FOR THE NEXT SIX (6) MONTHS

Parish	Projected Change in Fattener Population			
	Total	Increase	Decrease	Maintain
Total	6556	1444	570	4542
Kingston & St. Andrew	103	11		92
St. Thomas	201	140	1	60
Portland	766	113	36	617
St. Mary	467	180	41	246
St. Ann	621	270		351
Trelawny	532		305	227
St. James	285	31	10	244
Hanover	248		1	247
Westmoreland	481	19	15	447
St. Elizabeth	914	187	97	630
Manchester	702	68	40	594
Clarendon	632	202	1	429
St. Catherine	604	223	23	358

TABLE 62 PROJECTED INCREASE/DECREASE IN FATTENER POPULATION BY PARISH

Parish	Projected Change in Fattener Population	
	Increase	Decrease
Total	37397	5806
Kingston & St. Andrew	186	
St. Thomas	8428	15
Portland	1718	241
St. Mary	2606	400
St. Ann	9189	
Trelawny		3118
St. James	758	75
Hanover		15
Westmoreland	1082	419
St. Elizabeth	3266	1107
Manchester	1074	256
Clarendon	3768	6
St. Catherine	5322	154