

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

Batch 72

1. SUBJECT CLASSIFICATION	A. PRIMARY Food production and nutrition	AL00-0000-G526
	B. SECONDARY Animal production--Guyana	

2. TITLE AND SUBTITLE

Characteristics of livestock production in Guyana

3. AUTHOR(S)

Howze, Glenn

4. DOCUMENT DATE

1976

5. NUMBER OF PAGES

35p.

6. ARC NUMBER

ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

Tuskegee

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)

9. ABSTRACT

10. CONTROL NUMBER

PN-RAB-619

11. PRICE OF DOCUMENT

12. DESCRIPTORS

Livestock
Guyana
Surveys

13. PROJECT NUMBER

14. CONTRACT NUMBER
CSD-3676 211(d)

15. TYPE OF DOCUMENT

**THIS DOCUMENT HAS BEEN EVALUATED AS SUBSTANDARD COPY FOR
ROUTINE REPRODUCTION. EFFORTS IN AID/W TO OBTAIN A MORE
ACCEPTABLE COPY OF THE DOCUMENT HAVE NOT BEEN SUCCESSFUL.
DESPITE THIS DISADVANTAGE, WE HAVE CHOSEN TO REPRODUCE THE
DOCUMENT BECAUSE OF THE SUBJECT TREATED AND TO MAKE THE
DISCERNIBLE INFORMATION AVAILABLE.**

CSD-3676
Tuskegee^{211(d)}
PN-RAB-619

CHARACTERISTICS OF LIVESTOCK PRODUCTION IN GUYANA

by

Glenn Howze,
Professor of Sociology
Tuskegee Institute
Tuskegee Institute, Alabama

Livestock production is not a new enterprise in Guyana. The current system of production has developed over generations and was certainly well entrenched by the time that the country gained its independence. With the sole exception of poultry most of the livestock marketed in Guyana is still produced by the traditional system. When considering development alternatives for the livestock sector it is important that we consider the characteristics of current producers and have an understanding of the current modes of production.

Guyana has as a development goal not only an increase in food production but also an increase in the standard of living of the traditional food producer. Much of the current effort of the Ministry of Agriculture is directed toward upgrading the traditional producer. In the past few years the livestock division has developed an extension program designed to help the small producer with his livestock problems. An understanding of the current producer, his mode of production, and his problems is a prerequisite of a successful extension effort.

The Producer Survey

Since one of Tuskegee's roles in the 211-d consortium is sociology we felt that one of our major inputs to the consortium

effort in Guyana should be a profile of livestock producers. The Ministry was receptive to this idea and with the help of three Ministry officials, Mr. Ben Carter, Dr. Peter Fernandes and Mr. John Brownman, we designed a producer survey.

This morning I would like to make a brief presentation of the study focusing on the more important findings and commenting on some of the implications for livestock development. Tomorrow Dr. George Cooper, Dr. Ed Braye and I will conduct a longer and more specialized session and the survey's results can be discussed more in detail at that time.

Scope of Study

While the consortium has a particular interest in beef and cattle production we accepted a suggestion from the Ministry and included other types of livestock producers in the survey. Therefore, data was collected for cattle, swine, poultry and sheep and goat producers.

In an attempt to gain a comprehensive understanding of the producer and his production methodology we included a wide range of questions in our interview schedule. Specifically, we were concerned with the following topics:

1. Socio-economic characteristics of livestock producers.
2. Characteristics of land use.
3. Livestock breeding.
4. Herd health data.
5. Nutritional information.
6. Marketing practices.
7. Involvement with and attitudes toward livestock extension programs.

Since we had limited personnel, time and financial resources it was not possible to conduct a survey of the entire population of livestock producers. In consultation with Ministry personnel, it was decided to survey only those geographical areas that have significant numbers of livestock producers. The Rupununi District and large portions of the coastal areas were selected.

Sampling

Sampling posed a real problem to the study. There are no complete listings of producers. We attempted to devise sampling procedures that would insure a representative sample. The problems were different for the Rupununi and the Coast and different procedures were employed.

Since the Rupununi is an extremely important area for cattle production and since the Ministry felt that their information about the area was inferior to that for the Coast it was hoped that a complete enumeration could be done for the Rupununi. However, logistic considerations prevented this. A scarcity of vehicles, gasoline and support personnel combined to limit our efforts. We were only able to visit each village or ranch once and thus were only able to interview those producers who were present at the time of our visit. Despite this limitation we feel that our results for the Rupununi are representative.

The approach on the Coast was different. The coastal highways were divided into half mile segments and every tenth half mile was included in the survey. Interviewers were instructed to interview every producer in the sample half miles.

Although the samples are not ideal we feel that our data are

representative.

Results

The survey was conducted during May, 1974. The interviewing was done by two Tuskegee students from Guyana and myself. The only difficulty we had obtaining cooperation was in a few areas along the coast.

One hundred twelve(112) livestock producers were interviewed during the survey. Table 1 presents the number of respondents for each of the major geographical areas and sub-areas. Forty-two (38 percent) of the respondents were from the Rupununi District and seventy (63 percent) were from the Coast.

Table II contains data showing the geographical distribution of producers by type of livestock produced. The data indicates that there is concentration of production.

--Cattle production is concentrated in the Rupununi, East Coast Demerara, West Coast Berbice and from the East Bank Berbice to the Upper Corentyne.

--Swine production is centered in East Bank Demerara, East Coast Demerara and the Lower Corentyne.

--Poultry production is found primarily in East Bank Demerara and East Coast Demerara.

--Swine producers are scattered. However none are found East Bank Demerara.

Socio-economic Characteristics

Tables III-IV contain socio-economic data for the respondents. Some of the major findings are:

--Ninety percent of the producers are male. The only important variations from this were for swine(21 percent were women) and sheep and goat producers (43 percent were women).

--Over 90 percent of the producers were married. The only important variation was for sheep and goat producers; only 71 percent were married.

- The modal age for the producers was 36 to 50. The Rupununi producers were younger than the Coastal producers. Swine producers tended to be older than the other types of producers.
- Seventy percent of the sample reported that they had a primary education. Over one-third of the Rupununi producers indicated that they did not have any formal education while none of the coastal producers were in this category. Poultry producers were the best educated while cattle and sheep and goat producers were the least.
- Eighty-five percent of the producers indicated that their occupation was farmer.
- East Indians, Africans, and Amerindians each constituted about about 30 percent of the sample. Cattle producers were most likely to be either East Indian or Amerindian. Swine producers were primarily African. Poultry producers were either East Indian or other. Sheep and goat producers were either East Indian or African.
- About two-thirds of the sample had incomes below \$2,000(G\$). Sheep/goat and swine producers had the lowest incomes and poultry producers had the highest.
- Two-thirds of the sample indicated that they were involved in both livestock and crop production. Only about one-fourth indicated that livestock were their principal agricultural activity. Cattle producers were the least likely to report specialization in livestock and poultry producers the most likely.

The general picture that emerges is that most of the producers in Guyana are low income subsistence farmers who depend on both crops and livestock for their livelihood.

Land Use Characteristics

Land tenure or the lack of it is a problem in both the Rupununi and on the Coast.

- In the Rupununi, land is either controlled by the villages or is on short term lease from the government. In both cases, producers report a reluctance to make any capital investment because of a lack of control.
- On the coast, only one-half of the producers indicated that they either owned or rented land. The proportion was highest for Swine producers and lowest for sheep and goat producers.

Given the land situation it may well be that one of the most productive thing that the government might do to encourage growth in the livestock sector is help make land available to the producer. The resettlement scheme for dairy producers at Moblissa and the pasture development work at Mattew's Ridge are examples of the Ministry's efforts in this direction.

Herd Characteristics

Tables VIII and IX contain data on herd size and composition. As you would expect there were important differences for the two geographical areas.

- The herds tended to be larger in the Rupununi than on the Coast. The median herd size in the Rupununi was 40 and on the coast 23.
- Excluding the RDC the largest herd was approximately 1200 in the Rupununi and 250 on the Coast.
- The median number of brood cows was 20 in the Rupununi and 11 on the Coast.
- In the Rupununi the median number of breeding bulls was 2 and on the Coast 0. This means that over half of the producers on the Coast did not own a breeding bull.
- Approximately half of the producers indicated that they had some sort of improved stock.
- About one-fourth of the Rupununi producers had herd in excess of 100 animals. Only 11 percent of the Coastal cattle producers were in that category.
- There is a positive relationship between both level of education and income and herd size.
- Amerindians and others reported larger herds. This is probably just a geographical function. These groups are found in the Rupununi.

Thus most of the cattle producers are small operators. There are very few that can be characterized as commercial producers.

An important point should be made about the data gathered in the Rupununi. Data on herd size and composition are primarily based on estimates. The level of management is very minimal and most producers, especially large producers, have only vague notions about herd size and composition.

Nutrition

Tables X-XII contain data concerning supplemental feeding for various types of livestock producers.

- Very few cattle producers reported supplemental feeding. The figure was significantly higher for the Coast (25 percent) than the Rupununi (7 percent).
- East Indian cattle producers (32 percent) reported the highest rate of usage; Amerindian the least (3 percent).
- Non-farmers (38 percent) who produced cattle were more likely to use supplements than farmers (12 percent).
- There was very high rates of supplemental feeding for swine and poultry producers. This is to be expected since most of these producers have commercial operations.

Health Practices

Tables XIII-XV report data on health practices for the various categories of livestock producers. There is quite a bit of variation by type of producer, geographical area and some of the other variables.

- Over half of the cattle producers reported that their cattle had health problems. The rate was higher for the Rupununi than for the Coast.
- The most common health practice was drenching. Over half of the coastal cattle producers and about one-fourth of those in the Rupununi reported this practice.
- Spraying and deworming of cattle were common practices on the coast but not in the Rupununi.
- Vaccination for Rabies was more common in the Rupununi than on the Coast.
- The 48 percent of the Rupununi producers who reported foot and mouth vaccination had been part of the Ministry's effort to vaccinate all the animals in the South Rupununi after the disease had been discovered.

- Excluding foot and mouth vaccination, coastal cattle producers reported over-all higher rates of health care than Rupununi producers.
- There was a positive relationship between level of education and health practices.
- East Indian cattle producers had much higher rates of health care than the other ethnic groups.
- Swine and poultry producers tended to engage in health practices. Very few sheep and goat producer reported any health practice.
- Swine, poultry and sheep and goat producers all indicated that they felt their livestock had health problems.

Marketing

Tables XVIII and XIX contain selected marketing data for the livestock producers.

- Cattle tend to be marketed through one of the marketing organizations, wholesale butchers, or cattle dealers.
- Most cattle producers sell their animals on the hoof.
- Most coastal cattle producers indicated that they sold their animals by the head. Most Rupununi producers indicated that their animals were sold per pound carcass weight.
- There was significant variation with regards to satisfaction with price for cattle by geographical area. Over two-thirds of those on the coast were satisfied and only about one-third of the Rupununi producers were satisfied.
- About three-fourth of the swine producers marketed their animals through Guyana Marketing Corporation.
- Only 30 percent of the swine producers were satisfied with price.
- About two-thirds of the poultry producers indicated that they marketed their eggs and birds through wholesalers.
- Only 36 percent of the poultry producers were satisfied with the price they received for their products.
- Sheep and goat producers tended to market their animals to relatives and neighbors or through some other non-commercial market.

--Most sheep and goat producers were satisfied with the price they received for their animals.

Another important point to make about cattle producers is that most of them are not market-orientated; they do not raise cattle primarily for the purpose of selling them. On the Coast many people keep cattle as a mean for storing wealth not needed; a hedge against inflation. They sell animals when they need money for some special purpose. In the Rupununi, a producer will round up a few head of cattle when money is needed. In both places, the decision to market an animal is typically not made on the basis of the condition of the animal but rather on whether or not money is needed at that particular time.

Extension Programs

The final section of the survey had to do with producers' knowledge of, participation in, and attitudes toward various government livestock programs. This was of particular concern to Tuskegee since one of assignments in the consortium is extension. Later this morning Dr. George Cooper will be discussing extension and will report some of the findings. Also, these findings will be discussed in detail at the extension and sociology session tomorrow. This morning I would just like to outline some of the over-all patterns.

--Coastal producers tended to have more knowledge of and were more likely to participate in government programs than Rupununi producers.

--Swine and Poultry producers tended to have more involvement with the extension efforts than cattle and sheep and goat producers.

--Income is related positively to knowledge of and participation in extension programs.

--In general, East Indians had the highest rates of participation in government programs and Amerindians the

Concluding Statement

In general, the picture that emerges of the typical livestock producer (excluding poultry and some swine producers) is that of a subsistence, non-commercial producer. He has a low income, low level of education and tends to be involved in both crops and livestock. The level of management is very low in both the area of nutrition and that of health practices. He tends not to be orientated toward the market.

Obviously, one of the goals of the Ministry is to upgrade the traditional producer, moving him in the direction of commercial production. This is no easy task. Given the characteristics of the target population it seems to me that what is needed for Guyana is not some highly sophisticated and expensive livestock development effort. Rather, the cheapest and most likely the most effective effort might be to teach the traditional producer how better to manage his existing herd. Improved nutrition, health care, herd management and marketing could do much to increase production and increase the standard of living for the producer.

TABLE I

NUMBER AND PERCENT OF RESPONDENTS FROM EACH OF THE
MAJOR GEOGRAPHICAL AREAS AND SUB-AREAS

	F	%
Geographical Area		
Rupununi District	42	38
Coastal Region	<u>70</u>	<u>63</u>
Total	112	101
Geographical Sub-Area		
North Rupununi	24	21
South Rupununi	18	16
East Bank Demerara	10	9
West Bank Demerara	3	3
East Coast Demerara	25	22
West Coast Berbice	9	8
East Bank Berbice, Canje and Upper Corentyne	10	9
Lower Corentyne	9	8
Black Bush Polder	4	4

TABLE II
GEOGRAPHICAL DISTRIBUTION OF PRODUCERS BY TYPE
OF LIVESTOCK PRODUCED

	Type of Livestock			
	Cattle ¹ (78)	Swine ² (24)	Poultry ³ (11)	Sheep/Goats ⁴ (17)
Geographical Area				
Rupununi District ⁵	54	0	0	0
Coastal Area	46	100	100	100
Geographical Sub-Area				
North Rupununi	23	0	0	0
South Rupununi	31	0	0	0
East Bank Demerara	1	29	36	0
West Bank Demerara	1	8	0	6
East Coast Demerara	14	38	27	21
West Coast Berbice	10	8	0	18
East Bank Berbice, Canje and Upper Corentyne	10	4	18	18
Lower Corentyne	4	13	18	19
Black Bush Polder	5	0	0	6

¹A respondent was classified as a cattle producer if he owned five or more head of cattle.

²A respondent was classified as a swine producer if he owned five or more swine.

³A respondent was classified as a poultry producer if he had a flock of 1,000 birds.

⁴A respondent was classified as a sheep/goat producer if he had a herd of ten or more sheep and/or goats.

TABLE III*
 SELECTED SOCIAL CHARACTERISTICS OF LIVESTOCK
 PRODUCERS BY GEOGRAPHICAL AREA

Characteristic	Rupununi (%)	Coast (%)	Total (%)	χ^2/P
Sex of Producer (110)				
Male	90	90	90	.06
Female	10	10	10	NS
Marital Status (110)				
Married	88	94	92	.67
Non-married	12	6	8	NS
Age (104)				
35 and under	41	18	26	7.85
36-50	38	39	38	.02
51 and over	22	43	36	
Education (110)				
None	37	0	13	29.44
Primary	50	86	70	
Secondary & College	13	14	16	.001
Occupation (108)				
Farmer	85	88	87	.01
Non-farmer	15	12	13	NS
Ethnic Identity (110)				
East Indian	2	46	30	81.06
African	7	42	29	
Amerindian	78	0	29	.001
Other	12	12	12	

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE IV*
 SELECTED SOCIAL CHARACTERISTICS OF LIVESTOCK PRODUCERS
 BY TYPE OF LIVESTOCK PRODUCED

	Type of Producer				X ² /P
	Cattle	Swine	Poultry	Sheep/Goats	
Sex					
Male	95	79	100	57	13.86
Female	5	21	0	43	.003
Marital Status					
Married	92	95	100	71	5.06
Non-married	8	5	0	29	NS
Age (years)					
35 and under	33	0	30	29	9.91
36-50	35	47	40	43	NS
51 and over	32	53	30	29	
Education					
None	20	0	0	0	22.52
Primary	71	89	50	100	
Secondary	9	11	50	0	.001
Ethnic Identity					
East Indian	30	5	55	57	74.41
African	15	95	0	43	
Amerindian	44	0	0	0	.001
Other	11	0	45	0	
Occupation					
Farmer	89	84	80	86	.80
Non-farmer	11	16	20	14	NS

*Sample size varies due to non-responses and non-applicability of questions. Except where noted, reported figures are percentages.

TABLE V*

INCOME OF LIVESTOCK PRODUCERS BY GEOGRAPHICAL AREA,
PRINCIPAL TYPE OF LIVESTOCK PRODUCED
OCCUPATION AND ETHNIC IDENTITY

	Income			X ² /P
	Below 2,000 (G\$)	2,000 5,000 (G\$)	Above 5,000 (G\$)	
Total Sample (92)	68	23	9	
Geographical Area				
Rupununi (39)	67	23	10	6.25
Coast (53)	70	23	8	.04
Type of Livestock Produced				
Cattle (65)	68	26	6	25.28
Swine (7)	81	19	0	
Poultry (16)	29	14	57	
Sheep/Goats (4)	100	0	0	.001
Occupation				
Farmer (78)	71	21	9	2.03
Non-Farmer (13)	54	38	8	NS
Ethnic Identity				
East Indian (24)	63	29	8	23.65
African (27)	78	19	4	
Amerindian (30)	73	27	0	.001
Other (11)	45	9	45	
Age				
35 and under	75	25	0	3.76
36-50	60	27	13	NS
51 and over	68	21	12	
Education				
None	93	7	0	
Primary	22	23	5	13.47
Secondary and above	36	36	27	.01

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE VI*
**PRINCIPAL AGRICULTURAL ACTIVITY BY GEOGRAPHICAL AREA, AGE,
 EDUCATION, ETHNIC IDENTITY, OCCUPATION, INCOME
 AND PRINCIPAL TYPE OF LIVESTOCK PRODUCED**

	Principal Agriculture Activity			· X ² /P
	Livestock	Food Crop	Both	
Total Sample (112)	27	5	67	
Geographical Area				
Rupununi (42)	29	10	62	2.50
Coast (69)	26	3	70	NS
Age (years)				
35 and under (27)	26	11	63	2.35
36-50 (40)	30	3	68	
51 and over (36)	25	6	69	NS
Education				
No formal education (14)	14	7	79	7.50
Primary (77)	22	5	73	
Secondary and college (17)	53	6	41	.10
Ethnic Identity				
East Indian (33)	33	0	67	16.69
African (32)	25	0	75	
Amerindian (32)	16	9	75	.01
Other (12)	33	25	42	
Occupation				
Farmer (93)	24	5	71	2.57
Non-farmer (14)	43	7	50	.28
Income (G\$)				
Less than 2,000 (62)	18	8	74	15.71
2000-5,000 (21)	24	0	76	
Over 5,000 (8)	75	13	.13	.003
Most Important Livestock				
Cattle (73)	21	7	72	8.94
Swine (20)	30	0	70	
Poultry (11)	55	9	36	N.S.
Sheep/Goats (7)	43	0	57	

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE VII*
 SELECTED CHARACTERISTICS OF LAND USE FOR COASTAL AREA
 BY PRINCIPAL TYPE OF LIVESTOCK PRODUCED

	% Owning Land	% Renting Land	% Owning and/or Renting Land
Geographical Area Coast (70)	31	30	50
Type of Livestock			
Cattle (32)	22	44	56
Swine (20)	55	20	70
Poultry (11)	18	18	18
Sheep/Goats (7)	14	0	14

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE VIII*
SELECTED HERD CHARACTERISTICS FOR CATTLE PRODUCERS(1973)

Characteristic	Rupununi	Rupununi minus RDC**	Coast	Total
Total Number of Cattle (78)	30,846	4,846	1,688	32,534
Smallest Herd Size	10	10	8	8
Largest Herd Size	26,000	1,200	250	26,000
Median Herd Size	41	40	23	30
Total Number of Breeding Age Cows (78)	10,453	2,453	534	10,987
Smallest No. of Cows	4	4	3	3
Largest No. of Cows	8,000	600	120	8,000
Median No. of Cows	21	20	11	14
Total Number of Breeding Age Bulls (75)	581	181	20	601
Smallest No. of Bulls	0	0	0	0
Largest No. of Bulls	400	89	4	400
Median No. of Bulls	2	2	0	1
Total Number of Calves (69)	851	851	273	1,124
Smallest No. of Calves	1	1	2	1
Largest No. of Calves	198	198	55	198
Median No. of Calves	13	13	6	6
Total Number of Unbred Heifers (69)	1,085	585	238	1,323
Smallest No. of Heifers	0	0	0	0
Largest No. of Heifers	500	157	60	500
Median No. of Heifers	6	6	4	5
Total Number of Steers (69)	6,414	414	44	6,458
Smallest No. of Steers	0	0	0	0
Largest No. of Steers	6,000	156	20	6,000
Median No. of Steers	4	4	0	0
% with Improved Stock (78)	45	45	53	49

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

** Rupununi Development Company.

TABLE IX

SIZE OF HERD BY GEOGRAPHICAL AREA AND
SELECTED SOCIO-ECONOMIC CHARACTERISTICS

	Size of Herd			X ² /P
	20 or less	21-99	100+	
Total	.38	44	18	
Geographical Area				
Rupunununi District	29	46	24	7.71
Coast	47	42	11	.02
Age				
35 and under	52	80	17	4.00
36-50	28	56	16	NS
51 and over	32	50	18	
Education				
None	29	64	7	4.83
Primary	44	40	16	NS
Secondary & College	14	57	29	
Income (G\$)				
Less than 2,000	52	41	7	
2,000-5,000	11	67	22	21.64
over 5,000	0	25	75	.005
Ethnic				
East Indian	36	50	14	
African	58	33	8	4.24
Amerindian	31	47	22	NS
Other	30	40	30	
Occupation				
Farmer	37	44	19	.23
Non-farmer	38	50	13	NS

TABLE X
PERCENT OF CATTLE PRODUCERS USING SELECTED FEED
SUPPLEMENTS BY GEOGRAPHICAL AREA

Supplement	Geographical Area		
	Rupununi (42)	Coast (36)	Total (78)
Salt	5	0	3
Minerals	2	14	8
Green Chop	0	6	3
Hay	0	6	0
Rice Bran	0	6	3
Molasses	0	11	5
Other	0	6	3

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XI*
 PERCENT OF CATTLE PRODUCERS USING ONE OR MORE OF THE
 FEED SUPPLEMENTS BY GEOGRAPHICAL AREA, SELECTED
 SOCIO-ECONOMIC CHARACTERISTICS AND SIZE OF HERD

Characteristic	%	X ² /P
Total (78)	15	
Geographical Area		
Rupununi (42)	7	3.48
Coast (36)	25	.06
Age of Respondent		
35 and under (23)	9	1.26
36-50 (25)	20	
51 and over (22)	14	NS
Education		
None (14)	0	4.59
Primary (50)	20	
Secondary and College (11)	18	.10
Ethnic Identity		
East Indian (22)	32	
African (12)	8	
Amerindian (32)	3	.02
Other (10)	10	
Occupation		
Farmer (68)	12	2.03
Non-farmer (8)	38	NS
Income (G\$)		
Less than 2,000 (44)	7	3.51
2,000-5,000 (18)	22	
Over 5,000 (4)	25	NS
Size of Herd (number of cattle)		
20 or less (29)	14	.01
21-99 (34)	15	
100+ (14)	14	NS

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XII*
 SELECTED NUTRITIONAL PRACTICES OF SWINE, POULTRY
 AND SHEEP/GOAT PRODUCERS

Nutritional Practices	Type of Producer		
	Swine (24)	Poultry (11)	Sheep/Goats (17)
Pasture Animals	29	not applicable	94
Commercial Feeds	88	100	6
Additional Supplements	71	65	10

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XIII
 SELECTED HEALTH PRACTICES OF CATTLE PRODUCERS
 BY GEOGRAPHICAL AREA

Health Practices	Rupununi (42)	Coast (36)	Total (78)
Drenching	24	58	40
Dipping	0	0	0
Spraying	5	25	14
Blackleg Vaccination	0	0	0
Foot and Mouth Vaccination	48	0	26
Rabies Vaccination	43	19	32
Antibiotics Used	0	3	1
Footbaths	0	3	1
De-worming	21	56	37
Clamps Used for Castration	5	23	13
Health Problems Noted	64	51	58

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XIV*

PERCENT OF CATTLE PRODUCERS IMPLEMENTING ONE OR MORE OF THE
SELECTED HEALTH PRACTICES (INCLUDING AND EXCLUDING FOOT
AND MOUTH VACCINATION) BY GEOGRAPHICAL AREA, SELECTED
SOCIO-ECONOMIC CHARACTERISTICS AND SIZE OF HERD

Characteristic	% Including Foot & Mouth Vaccination	χ^2/P	% Including Foot & Mouth Vaccination	χ^2/P
Total Sample (78)	73		62	
Geographical Area				
Rupununi (42)	76	.17	57	.78
Coast (36)	69	N.S.	69	N.S.
Age				
35 and under (23)	78	4.08	70	3.74
35-50 (25)	84	.13	76	N.S.
51 and over (22)	59		50	
Education				
None (14)	64	.77	43	2.78
Primary (50)	76	N.S.	66	N.S.
Secondary & College (11)	72		71	
Income (G\$)				
Less than 2,000 (44)	64	2.67	52	5.36
2,000-5,000 (18)	89	N.S.	83	N.S.
Over 5,000 (4)	75		50	
Ethnic Identity				
East Indian (22)	82	5.28	82	6.74
African (12)	50	N.S.	50	N.S.
Amerindian (32)	78		59	
Other (10)	60		40	
Occupation				
Farmer (68)	71	1.85	62	.12
Non-farmer (8)	100	.67	75	N.S.
Size of Herd				
Less than 20 (29)	62	3.09	55	1.07
21-99 (34)	76	N.S.	67	N.S.
Over 100 (14)	86		64	

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XV
 SELECTED HEALTH ITEMS OF SWINE, POULTRY AND
 SHEEP/GOAT PRODUCERS

Health Item	Type of Producer		
	Swine (24)	Poultry (11)	Sheep/Goats (17)
Parasite Control	88	**	29
Vaccination	25	91	0
Antibiotics	**	100	**
Iron Injections	71	**	**
Health Problems Noted	75	100	71

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

** Not applicable.

TABLE XVI
 SELECTED ANIMAL RECORD-KEEPING ACTIVITY OF CATTLE
 PRODUCERS BY GEOGRAPHICAL AREA

Type of Record	Rupununi (42)	Coast (36)	Total (78)
Breed Type	2	6	4
Birth Date	2	14	8
Date First Bred	0	9	4
Number of Calf Births	0	17	6
Number of Calf Deaths	0	9	3
Cull Date	0	3	1
Reason for Culling	0	3	1
Gallons of Milk Produced (dairy cattle only 17)	0	6	6

* Sample size various due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XVII*

PERCENT OF CATTLE PRODUCERS REPORTING THAT LIVESTOCK
RECORDS WERE KEPT BY GEOGRAPHICAL AREA,
SELECTED SOCIO-ECONOMIC CHARACTERISTICS AND SIZE OF HERD

Characteristic	%	χ^2/P
Total Sample (78)		
Geographical Area		5.66
Rupununi (42)	2	.02
Coast (36)	22	
Age		1.13
35 and under (23)	4	N.S.
35-50 (25)	8	
51 and over (22)	9	
Education		2.26
(14)	0	N.S.
Primary (50)	10	
Secondary & College (11)	0	
Income (G\$)		.23
Less than 2,000 (44)	5	N.S.
2,000-5,000 (18)	6	
Over 5,000 (4)	0	
Ethnic Identity		7.35
East Indian (22)	14	.06
African (12)	25	
Amerindian (32)	0	
Other (10)	10	
Occupation		.09
Farmer (68)	9	N.S.
Non-farmer (8)	13	
Size of Herd		2.36
Less than 20 (29)	17	N.S.
21-99 (34)	6	
Over 100 (14)	7	

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XVIII
 SELECTED MARKETING CHARACTERISTICS OF CATTLE
 PRODUCERS BY GEOGRAPHICAL AREA

Characteristic	Rupununi	Coast	Total
Number of Producers			
Selling Cattle to:			
Abattoir	2	4	6
Meat Marketing Ltd.	9	3	12
Guyana Marketing Corp.	1	3	4
Cattle Dealer	7	4	11
Wholesale Butcher	0	15	15
Super Market	1	3	4
Other (neighbors, friends, etc)	7	3	4
Usually Sell Cattle: (66)			
On the Hoff	67	92	76
Carcus	17	4	12
Other	17	4	12
Form of Price Determination: (66)			
Per Head	24	75	42
Per lb. Live Weight	10	0	6
Per lb. Carcass Weight	67	25	52
Satisfied with Price (66)	37	68	42

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XIX*
 SELECTED MARKETING CHARACTERISTICS FOR SWINE,
 POULTRY AND SHEEP/GOAT PRODUCERS

	Swine (23)	Poultry/Eggs (11)	Sheep/Goats (11)
Usual Buyer			
Neighbors/Relatives	4	0	45
Wholesalers	0	66	0
Guyana Marketing Corp.	74	0	
Other	22	33	55
Satisfied with Price	30	36	82

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XX^{*}RESPONSES TO SELECTED EXTENSION AND RELATED ITEMS
BY GEOGRAPHICAL AREA

	Rupununi %	Coast %	Total %	X ²	P.
Knowledge of Extension Program (111)	69	91	83	7.61	N.S.
Requested Assistance from Extension Program (91)	62	76	71	7.22	N.S.
Received Assistance from Extension Service (65)	72	77	75	.002	N.S.
Satisfied with Assistance (49)	77	92	88	.80	N.S.
Extension Agent Visited Farm (108)	54	79	69	6.61	N.S.
Govt. Vets Vaccinate Animals (74)	74	22	51	17.59	N.S.
Attended Livestock Demonstration (109)	2	10	7	1.43	N.S.
Attended Livestock Seminar (108)	0	27	17	11.85	N.S.
Attended Field Day (108)	0	6	4	1.18	N.S.
Attended Field Tour (109)	0	4	3	.62	N.S.
Heard of Livestock Development Project (69)	51	64	57	.69	N.S.
Considered Getting Loan from LDP (39)	71	17	46	9.60	N.S.
Knowledge of Agricultural Bank (111)	45	80	67	12.45	N.S.
Tried to Get Loan from Agricultural Bank (74)	0	18	14	14.21	N.S.
Think Agricultural Cooperatives are Good (98)	86	84	85	0	N.S.
Interested in Participating in Agricultural Cooperative (100)	81	81	81	.05	N.S.

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, percentages are based on the total sample size.

TABLE XXI[†]RESPONSES TO SELECTED EXTENSION AND RELATED ITEMS
BY TYPE OF LIVESTOCK PRODUCER

	Cattle (72) %	Swine (24) %	Poultry (11) %	Sheep/Goats (17) %	χ^2	P
Knowledge of Extension Program	77	100	100	71	9.01	.03
Requested Assistance from Extension Program	55	80	80	100	3.32	N.S.
Received Assistance from Extension Service	75	88	63	60	2.62	N.S.
Satisfied with Assistance	85	93	80	100	1.20	N.S.
Extension Agent Visited Farm	61	100	91	33	17.51	N.S.
Get Vets Vets, etc. Animals	53	0	50	0		
Knowledge of Agricultural Bank	68	95	55	86	11.07	N.S.
Tried to Get Loan from Agricultural Bank	12	26	0	0	4.58	N.S.
Think Agricultural Cooperatives are Good	89	84	56	86	6.75	N.S.
Interested in Participating in Agricultural Cooperative	81	88	57	83	3.19	N.S.

[†] Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

TABLE XXII

RESPONSES TO SELECTED EXTENSION AND RELATED ITEMS
BY SIZE OF HERD

	-20 or Less	21-99	100+	χ^2	P
Knowledge of Extension Program (76)	71	82	79	1.06	N.S.
Requested Assistance from Extension Program (59)	62	71	60	.69	N.S.
Received Assistance from Extension Service (39)	69	90	33	8.04	.02
Satisfied with Assistance	100	78	100	**	
Extension Agent Visited Farm (74)	56	68	62	.93	N.S.
Govt. Vets Vaccinate Animals (72)	42	59	50	1.69	N.S.
Attended Livestock Demonstration (75)	85	94	86	**	
Attended Livestock Seminar (75)	91	97	93	...	
Attended Field Day (75)	93	100	93	**	
Attended Field Tour (75)	100	100	100	**	
Heard of Livestock Development (68)	45	58	69	1.95	N.S.
Considered Getting Loan from LDP (38)	40	37	67	2.32	N.S.
Knowledge of Agricultural Bank (76)	61	62	57	.08	N.S.
Tried to Get Loan from Agricultural Bank (46)	18	14	13	**	
Think Agricultural Cooperatives are Good (66)	96	81	100	**	
Interested in Participating in Agricultural Cooperative (57)	86	83	73	.96	N.S.

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

** Expected cell values are too small to compute χ^2 .

TABLE XXIII*

RESPONSES TO SELECTED EXTENSION AND RELATED ITEMS
BY AGE OF PRODUCER (Age in Years)

	35 And Under	35-50	51 And Under	X ²	P
Knowledge of Extension Program (104)	70	93	84	5.77	.05
Requested Assistance from Extension Program (86)	68	75	68	.05	N.S.
Received Assistance from Extension Service (61)	77	78	71	.27	N.S.
Satisfied with Assistance (46)	100	90	80	**	**
Extension Agent Visited Farm (101)	52	80	67	5.64	.10
Wet. Pets Vaccinate (62)	54	60	32	3.75	N.S.
Knowledge of Agricultural Bank (104)	56	70	73	2.37	N.S.
Wanted to Get Loan from Agricultural Bank (70)	7	21	7	**	**
Think Agricultural Cooperatives are Good (89)	91	89	76	3.20	N.S.
Interested in Participating in Agricultural Cooperative	90	87	73	2.89	N.S.
Wanted to Participate in Board of Livestock Development Project (63)	52	58	61	.32	N.S.
Wanted to Consider Seeking Loan from LDP (33)	45	57	36	1.09	N.S.

* Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

** Expected cell values are too small to compute X².

TABLE XXIV*
 RESPONSES TO SELECTED EXTENSION AND RELATED ITEMS
 BY EDUCATION OF PRODUCER

	None	Primary	Secondary & College	X ²	P
Knowledge of Extension Program (105)	71	85	77	1.64	N.S.
Requested Assistance from Extension Program (85)	70	70	78	.25	N.S.
Received Assistance from Extension Program (60)	86	80	57	2.20	N.S.
Satisfied with Assistance (47)	67	92	75	**	**
Extension Agent Visited Farm (102)	57	72	69	1.26	N.S.
Have Pets Vaccinate Animals (59)	71	46	57	**	**
Knowledge of Agricultural Bank (105)	29	72	62	9.78	.01
Tried to Get Loan from Agricultural Bank (68)	0	14	13	**	**
Think Agricultural Cooperatives are Good (92)	67	87	83	3.02	N.S.
Interested in Participating in Agricultural Cooperative (78)	67	88	73	3.57	N.S.
Heard of Livestock Development Project (64)	36	57	83	4.10	N.S.
Considered Seeking Loan from LDP (35)	40	36	80	3.31	N.S.

*Sample size varies due to non-responses and non-applicability of questions. Sample size is contained in parentheses. Except where noted, reported figures are percentages.

**Expected cell values are too small to compute X².