

AGRICULTURE STATISTICS 2013



DEPARTMENT OF AGRICULTURE
MINISTRY OF AGRICULTURE & FORESTS
ROYAL GOVERNMENT OF BHUTAN
THINPHU : BHUTAN

Contact Address:

Agriculture Extension & Information Management Section
Department of Agriculture
Tel: +975 2 336462/322228; Fax: +975 2 336186/323562
Email: imsdoa@moaf.gov.bt

Published by: Department of Agriculture, MoAF, Thimphu



སོ་ནམ་ལས་ཁུངས། སོ་ནམ་དང་ནགས་ཚལ་ལྷན་ཁག། དཔལ་ལྷན་འབྲུག་གཞུང།

DEPARTMENT OF AGRICULTURE
MINISTRY OF AGRICULTURE AND FORESTS
ROYAL GOVERNMENT OF BHUTAN
TRASHICHHODZONG : THIMPHU



FOREWORD

The Department of Agriculture is pleased to publish the Annual Agriculture Statistics for the year 2013. As usual, it contains data on agriculture area, production, productivity/yield and utilization aspects of the essential commodities. We have made an effort to document crop damages by wild life. There are two parts in this publication: Part I includes the data aggregated at the national level, while Part II contains the data at the Dzongkhag level.

Attempts have been made to bring improvements in the data quality through improved sampling methods and updating of the household listings.

We hope that the publication will be useful for planners, policy makers, researchers, extension personals, academicians and those who are involved in the development of agriculture sector.

Let me take this opportunity to congratulate our colleagues in the Department of Agriculture and dzongkhags for bringing out this publication.

GB Chettri
Offg. Director General



སོ་ནམ་ལས་ཁུངས། སོ་ནམ་དང་ནགས་ཚལ་ལྷན་ཁག། དཔལ་ལྷན་འབྲུག་གཞུང།

DEPARTMENT OF AGRICULTURE
MINISTRY OF AGRICULTURE AND FORSETS
ROYAL GOVERNMENT OF BHUTAN
TRASHICHHODZONG : THIMPHU



ACKNOWLEDGEMENTS

The Department of Agriculture would like to acknowledge the support and cooperation of the Dzongkhag Agriculture Officers and the Gewog Extension Officers of all the 20 Dzongkhags for their contributions in collecting data from the households. The support and facilitation of the Program Directors of Research & Development Centers for compilation and processing of data is also acknowledged. The overall coordination from the Agriculture Extension and Information Management Section (AEIMS) of the Department helped to implement the data collection and publication of this report.

We would also like to acknowledge the support, cooperation and guidance of the National Statistical Bureau (NSB) in improving the survey methodology, procedures for sampling and data analysis using CSPro software. The support and guidance from the FAO In depth Country Assessment Project (IDCA) for improving agricultural statistics is also highly appreciated.

CONTENTS

A. Methodology	1
1. Sampling frame	1
2. Questionnaire design	3
3. Sample size	3
4. Sampling Design	4
5. Data Collection	4
6. Data Entry and Processing	5
7. Data Analysis and Estimation	5
B. Survey Coverage and Scope	8
PART 1	9
C. SUMMARY FINDINGS	10
Table 1: Coverage of rural households by the survey 2013.	10
1. Demographic Characteristics	11
Table 1.1: Farming Households Population in 2013 ¹¹	
Table 1.2: Dzongkhag wise estimated total population residing on farm by sex in 2013.	12
Figure 1: Bhutan's total population residing on the farm by sex, 2013.	13
Figure 2: Dzongkhag wise Population Pyramid by sex, 2013.	13
2. Land Utilization 2013	14
3. Crop Production	15
Table 3.1: Cereal, Legumes& Pulses, Oilseeds, Roots /Tubers, Spices and Cucurbits production in 2013	15
Table 3.2: Potato and Vegetable production in 2013	16

4.	Fruit production	17
5.	Crop Utilization for 2013	18
6.	Fruit Utilization for 2013	20
7.	HHs Cash income	21
	Table 7.1: Dzongkhag wise proportion of HHs having earned / Not Earned Cash income from forest edible products and other activities	21
	Figure 3: Dzongkhag wise Proportion of HHs having earned cash income from forest edible product and other activities	22
	Figure 4: Rural Households Cash Income from forest edible product and other activities in year 2013 (million nu.)	22
	Table 7.2: Cash income from forest edible products and other activities in year 2013	23
	Table 7.3: Cash income from processed cereals products	23
8.	Food Security 2013	24
	Table 8.1: Proportion of farming households by self-sufficiency of food (agriculture crops) for 2013	24
	Table 8.2: Food shortage coping mechanism in 2013	25
	Figure 5: Estimated Proportion of farming HHs facing food (agriculture crop) shortages in the year 2013.	25
	Figure 6: Proportion of HHs using various coping mechanisms to address the food (agriculture crop) shortages in 2013 for Bhutan.	26
9.	Farming Constrains faced	26
	Table 9.1: Proportion of HHs affected by the various farming constrains in year 2013	26
	Figure 7: Percentage of farming HHs affected by various constrains in year 2013 for Bhutan.	27
10.	Crop Damage by Natural Calamities and Food grain lost to the wild animals during the year 2013	28
	Table 10.1: Dzongkhag wise proportion of HHs that experienced/ not experienced natural calamities that affect the yield and quality of the crops	28
	Table 10.2: Paddy estimated area and quantity lost to the wild animal	29

Figure 8:	Proportion of HHs that experienced the various natural calamities that affect the yield and quality of the crops for Bhutan in year 2013	29
Table 10.3:	Maize estimated area and quantity lost to the wild animal	30
Table 10.4:	Wheat estimated area and quantity lost to the wild animal	31
Table 10.5:	Barley estimated area and quantity lost to the wild animal	32
Table 10.6:	Millet estimated area and quantity lost to the wild animal	32
Table 10.7:	Buckwheat estimated area and quantity lost to the wild animal	33
11.	Road Access in 2013	34
Table 11:	Proportion of rural households by walking distance to the nearest motor able road point	34
	Part 2	35
12.	Cereal Crops	36
Table 12.1:	Paddy Cultivated area (acres), Production (MT) and Yield (kg/acre)	36
Table 12.2:	Maize Cultivated area (acres), Production (MT) and Yield (kg/acre)	37
Table 12.3:	Wheat Cultivated area (acres), Production (MT) and Yield (kg/acre)	38
Table 12.4:	Barley Cultivated area (acres), Production (MT) and Yield (kg/acre)	39
Table 12.5:	Buckwheat Cultivated area (acres), Production (MT) and Yield (kg/acre)	40
Table 12.6:	Millet Cultivated area (acres), Production (MT) and Yield (kg/acre)	41
13.	Vegetable Crops	42
Table 13.1:	Potato Cultivated area (acres), Production (MT) and Yield (kg/acre)	42
Table 13.2:	Asparagus Cultivated area (acres), Production (MT) and Yield (kg/acre)	43
Table 13.3:	Chilli Cultivated area (acres), Production (MT) and Yield (kg/acre)	44
Table 13.4:	Dally chilli Production	45
Table 13.5:	Cabbage Cultivated area (acres), Production (MT) and Yield (kg/acre)	46
Table 13.6:	Cauliflower Cultivated area (acres), Production (MT) and Yield (kg/acre)	47

Table 13.7:	Broccoli Cultivated area (acres), Production (MT) and Yield (kg/acre)	48
Table 13.8:	Beans Cultivated area (acres), Production (MT) and Yield (kg/acre)	49
Table 13.9:	Carrot Cultivated area (acres), Production (MT) and Yield (kg/acre)	50
Table 13.10:	Radish Cultivated area (acres), Production (MT) and Yield (kg/acre)	51
Table 13.11:	Turnip Cultivated area (acres), Production (MT) and Yield (kg/acre)	52
Table 13.12:	Peas Cultivated area (acres), Production (MT) and Yield (kg/acre)	53
Table 13.13:	Mushroom Cultivated	54
Table 13.14:	Tree tomato Production	55
Table 13.15:	Other Vegetables	56
Table 13.16:	Onion Bulb Cultivated area (acres), Production (MT) and Yield (kg/acre)	57
Table 13.17:	Garlic Cultivated area (acres), Production (MT) and Yield (kg/acre)	58
14.	Cucurbits Production	59
15.	Spices	60
Table 15.1:	Ginger Cultivated Area (acres), Production (MT) and Yield (kg/acre)	60
Table 15.2:	Cardamom Cultivated Area (acres), Production (MT) and Yield (kg/acre)	61
16.	Oil Seeds	61
Table 16.1:	Ground nut Cultivated Area (acres), Production (MT) and Yield (kg/acre)	61
Table 16.2:	Mustard Cultivated Area (acres), Production (MT) and Yield (kg/acre)	62
Table 16.3:	Soya Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)	63
Table 16.4:	Sunflower Cultivated Area (acres), Production (MT) and Yield (kg/acre)	63
Table 16.5:	Pyrilla (Naam) Cultivated Area (acres), Production (MT) and Yield (kg/acre)	64

17. Legumes & Pulses	65
Table 17.1: Rajma Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)	65
Table 17.2: Mung Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)	65
Table 17.3: Lentil Cultivated Area (acres), Production (MT) and Yield (kg/acre)	66
18. Roots and Tubers	66
Table 18.1: Sweet Potato Cultivated Area (acres), Production (MT) and Yield (kg/acre)	66
Table 18.2: Tapioca Cultivated Area (acres), Production (MT) and Yield (kg/acre)	67
Table 18.3: Yam Cultivated Area (acres), Production (MT) and Yield (kg/acre)	67
Table 18.4: Collocacia Cultivated Area (acres), Production (MT) and Yield (kg/acre)	68
19. Major Fruit Crops	69
Table 19.1: Apple Production and yield in 2013	69
Table 19.2: Mandarin Orange Production and yield in 2013	70
Table 19.3: Areca nut Production and yield in 2013	71
20. Other Fruit Crops	72
Table 20.1: Mango Production and yield in 2013	72
Table 20.2: Pear Production and yield in 2013	73
Table 20.3: Peach Production and yield in 2013	74
Table 20.4: Plum Production and yield in 2013	75
Table 20.5: Walnut Production and yield in 2013	76
Table 20.6: Jackfruit Production and yield in 2013	77
Table 20.7: Guava Production and yield in 2013	77
Table 20.8: Papaya Production and yield in 2013	78
Table 20.9: Pomegranate Production and yield in 2013	78
Table 20.10: Litchi Production and yield in 2013	79
Table 20.11: Persimmon Production and yield in 2013	80
Table 20.12: Banana Production and yield in 2013	80
Table 20.13: Other fruit crops	81
21. Dzongkhag level Crop Utilization of some Major Cash Crops	82
Table 21.1: Rice Utilization in 2013	82

Table 21.2: Potato Utilization in 2013	83
Table 21.3: Apple Utilization in 2013	84
Table 21.4: Mandarin Orange Utilization in 2013	84
Table 21.5: Areca nut Utilization in 2013	85
Table 21.6: Cardamom Utilization in 2013	85

A. METHODOLOGY

1. Introduction

The annual agriculture sample survey was initiated since 2004. Since, then the annual publication endeavours to present comprehensive information on area, production and yield of principle crops viz: food-grains, oil seeds, pulses and spices, Vegetables, Fruit Crops, Roots & tubers and other horticultural crops. The publication comprises of two parts, Part 1 at National level statistics which includes national level crop production data with other analysis like price and income data, crop and fruit utilization data, food security and coping mechanism etc. Part 2 comprises of Dzongkhag level crop production statistics.

2. Objectives

The objectives of the survey are:

- To establish reliable information on crop production and land use for planning and monitoring of agriculture development programmes.
- To collect information on indicators like annual crop production estimates, yield estimates, agriculture engaged area estimates, fruit crop production and trees estimates etc...
- The immediate objective is to generate data needed for preparation of the plans, programs and to assess the achievements.
- Develop time series data of land use and agriculture production trend.

3. Sampling frame

The Household listing is done by the geog agriculture extension officers. The geog agriculture extension officers annually submits the updated Household listings to the Dzongkhags. Then, the Dzongkhag validates and submits complied HHs lists to the Department.

However it was observed that with time the previous year format of HHs listing for the survey was outdated and inefficient, which resulted to an increase in number of non response (empty questionnaires) hence affecting the quality of estimates.

Due to the above drawbacks, the department decided to change the HHs listing format for the year 2013 annual agriculture sample survey. The new format given below in a table form was used to collect the latest updated HHs listing containing all the necessary required information's.

Format for 2013 annual agriculture sample survey HHs listing

Sl. No	Name of head of the HHs	Village	H.no	T. no	Land cultivated/ not cultivated	If Cultivated		Land left fallow		Land leased out		Land leased in	
						WLC	DLC	WLF	DLF	WLO	DLO	WLI	DLI
1	Pema	Benzibee	Ka-3-42	198	LC		11.37		4.63				
2	Jangchub	Benzibee	KA-3-39	106	LC		8.76		10.59				
3	Dolkar	Benzibee	KA-3-41	231	NC			3.7		1.5			
4	Sangay	Benzibee	KA-3-40	199	LC		14.87		7.93				

With the information collected using the above mention HHs listing format for 2013 sample survey the HHs which are engaged only in agriculture activities ie. LC HHs (Land cultivating HHs) were only included and NC HHs (Land not cultivating HHs/ empty HHs / Gungtongs) were excluded from the list in order to reduce the non response.

And also the agriculture land utilized area information collected with the above list was used as indicator/auxiliary information to come up with an appropriate sample size for the survey.

4. Questionnaire design

The survey questionnaire used for the Agriculture Survey 2013 was the revised version of the Agriculture Survey 2012. The revision was done by the Agriculture Extension and Information Management Section (AEIMS) of the Department of Agriculture (DoA) in consultation with the division heads and representatives of all the twenty Dzongkhags. The main purpose of the revision of questionnaire was to do away with some of the unwanted data variables in the previous questionnaire, to include that information which was felt necessary for the implementation of 11th five year plan and also to meet the demand of information with time.

5. Sample size

Given that the geographical distribution of crops at different ecological and climatic conditions, it is not feasible to produce precise survey results for all crops in each geog/sub districts. Since agriculture has many indicators to be estimated like annual crop production estimates, yield estimates, agriculture engaged area estimates and fruit trees estimates etc... which depends on so many variables both natural and unforeseen calamities, it was really difficult to come up with a rigid sample size which could give a precise unbiased efficient estimates.

For 2013 annual agriculture sample survey, the department is able to come up with a formula for sample size calculation using the information collected on agriculture utilized area from the new HHs listing format as an indicator.

The formulae given below were used for sample size calculation:

$$\text{The initial sample size } n_0 = \left(\frac{Z \cdot 100 \cdot \text{CV area}}{P} \right)^2$$

Here, n_0 = *is the initial sample size*

Z = *is the statistic that defines the level of confidence desired, at 95% Confidence Interval the value of $z = 1.96$*

$C.V$ = *non percentage C.V (coefficient of variation) of the agriculture utilized area was taken for this survey.*

Non percentage C.V = SD area / \bar{x} area

P = *the value of population proportion “ p ” or Margin of error is set at 15% ie. 0.15 at geog level.*

The final sample size is given by,

$$\text{Using Population correction factor we have: } n = \frac{n_0}{(1 + (n_0 / N))}$$

Where, N = Population size / total farming Households.

6. Sampling Design

For this year’s survey a Circular Systematic sampling method was adopted to select the sample at the geog/sub districts level pertaining to its advantage over the linear systematic sampling.

The farming households in the geog were taken as the ultimate sampling units from which the samples were selected using circular systematic sampling.

7. Data Collection

The data collection was carried out during April-July 2014 and as usual, by agriculture extension officials (EAs) posted in the gewogs under the supervision of Dzongkhag agriculture sector heads. Twenty assistant Dzongkhags agriculture officers (ADAOs) were briefed on the use of the questionnaire and methods of data collection, who in turn trained the field agriculture staff on the use of the questionnaire for data collection.

8. Data Entry and Processing

From, this year onwards the Department in consultation with the Dzongkhag Agriculture officials had decided to decentralize the data entry and processing at Dzongkhag level in order to improve the quality of data, save time and also to reduce the cost burden due to centralized data entry system at Thimphu.

The database for 2013 survey was designed in CSPRO software by the asst. IT officer of PPD in collaboration with the programmers from National Statistics Bureau. To facilitate the above mandate of decentralization the AEIMS under the Department in collaboration with the asst. IT officer of PPD had organised a four days training on CSPRO software for the focal persons from RDCs and Data Mangers (ADAOs) of 20 Dzongkhag from **9th to 12th September 2014** at Thimphu. During this four days training the focal persons from Re-search Development centres (RDCs) and the 20 Dzongkhag Data managers (ADAOs) were thoroughly trained in using CSPRO software for data entry and processing. The data entry and processing for 2013 agriculture sample survey was done at the Dzongkhag by the Dzongkhag Agriculture and Extension officers from October to November 2014. The ADAOs (Data managers) coordinated the data entry and processing at the Dzongkhags. After successfully completing the data entry and processing at Dzongkhag level the ADAOs were instructed to send the soft copy of the raw data in CSPRO file to the Department latest by end of November 2014 for further analysis purpose.

9. Data Analysis and Estimation

The data analysis was done in the month of December 2014 by the AEIMS officials under the Department of Agriculture. Data analysis was done in SPSS version 20 provided by NSB.

Yield Estimation:

For the major cereal crops, horticulture crops and fruit crops the yield provided by the survey was cross checked with the yield of the crop cuts carried out by the geog agriculture extension officers.

Where ever the department felt there was some issues related to the yield provided by the sample survey the yield estimated from the crop cut carried out by the geog extension officials were used.

Production= Estimated total area (from the sample survey) * Estimated yield (from the crop cut)

The weight estimation procedure was used to represent the estimates of population from the sample survey. Therefore it is necessary to multiply the data by a sampling weight, or expansion factor. The basic weight for each sample household would be equal to the inverse of its probability of selection. The sample design for the agriculture survey 2013 was a self-weighting within stratum, meaning that all the sampled or the enumerated households within a geog will have the same weight.

Adjustment for non-response/ Non response Weight

In order to adjust for the loss of representativeness caused by non-responding households, the weight of the responding units (Wt_Eh) was increased by deploying the following formulae. It is the reciprocal/inverse of the percentage responding units from the sample.

$$\text{Non response Weight / } W_{nr} = \frac{1}{Eh / Sh} \rightarrow \boxed{\frac{Sh}{Eh}}$$

Where: Sh = Sampled households in the geog
 Eh = Enumerated households in the geog

Design Weight / Weighting for probability of sample selection

The design weight or base weight is the inverse of probability of selection of the sample.

Based on the Circular systematic sampling design, the probability of selection for the sample households in a geog was calculated as follows:

$$\text{Design weight/Base weight/ } W_d = K \rightarrow \boxed{\frac{Nh}{Sh}}$$

Where: Nh = Total farming households in the geog
 Sh = Sampled farming households in the geog

Therefore the final weight becomes / $FW = W_d \times W_{nr}$
 (Or)

The Final WEIGHT = Design Weight × Non response Weight

Finally, the estimation for observed values in the gewogs has been obtained by multiplying each sample data with the final weight (FW) calculated for the each gewogs.

Therefore, the estimate of a *total value* (such as total production) is the product of the final weight, FW and the value, y_i , for each responding unit, summed over all responding units:

$$\hat{Y} = \sum_{i=1}^n \text{FW} \times y_i$$

Acknowledgements

The department would like to sincerely thank the FAO consultant for the IDCA project Bhutan and also the NSB officials for guiding and helping to come up with an appropriate formula for the sample size calculation. The department would also like to thank the dzongkhags, RDCs and gewog staffs.

B. SURVEY COVERAGE AND SCOPE

From the new updated total rural households (area list frame gathered from geog extension centres) of 57,653, at least 13,944 (24% on average) were selected for the enumeration. The coverage was 13,297 (95%) of the total sampled households of 13,944. The non-response or the absentees stood at 5% (647) of the households selected for the survey. With the updated and new format of Household listing for the 2013 annual agriculture sample survey the non response had come down to 5% from 15.47% of the previous year.

PART 1

National Level Statistics

C. SUMMARY FINDINGS

Following are the estimated Summary statistics based on the data collected from 13,297 sample farming Households from April to July 2014. The weight estimation method is used to estimate population parameters from the sample data.

Table 1: Coverage of rural households by the survey 2013.

Dzongkhag	Total HHs (Sample frame)Nh	Sampled HHs/Sh	Percent Sampled	Enumerated HHs/(Eh)	Percent Coverage
Bumthang	1,317	400	30	399	100
Chhukha	2,889	949	33	929	98
Dagana	4,206	1,312	31	1,254	96
Gasa	487	256	53	242	95
Haa	1,357	401	30	387	97
Lhuentse	2,338	635	27	615	97
Mongar	5,290	576	11	491	85
Paro	3,325	372	11	364	98
Pemagatshel	3,237	1,033	32	950	92
Punakha	3,506	1,048	30	932	89
S/Jongkhar	4,035	437	11	416	95
Sarpang	3,592	1,156	32	1,093	95
Thimphu	965	450	47	423	94
Trashigang	7,186	1,570	22	1,517	97
Trashiyangtse	3,286	334	10	321	96
Trongsa	1,691	459	27	447	97
Tsirang	3,108	465	15	460	99
Wangdue	3,961	1,374	35	1,361	99
Zhemgang	1,877	717	38	696	97
BHUTAN	57,653	13,944	24	13,297	95

1. Demographic Characteristics

Table 1.1: Farming Households Population in 2013

Dzongkhag	Avg responding age	Responding Sex in %		0-6 years		6-14 years		14-64 years		Above 64 years	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bumthang	45	21	79	346	352	494	456	1,511	1,972	319	365
Chhukha	46	61	39	762	707	1,007	877	4,763	5,028	586	621
Dagana	43	60	40	978	824	1,610	1,705	5,838	6,272	697	806
Gasa	51	50	50	72	39	184	145	646	701	58	85
Ha	47	43	57	390	390	385	378	1,915	2,160	393	299
Lhuentse	49	38	62	628	713	1,309	1,331	3,248	3,609	553	484
Monggar	44	44	56	1,171	1,094	2,282	1,708	7,004	7,699	1,101	1,007
Paro	52	39	61	360	595	1,096	971	3,963	4,911	934	1,020
Pema gatshel	50	53	47	331	411	787	624	3,757	4,400	763	730
Punakha	48	35	65	776	634	1,178	1,226	4,415	5,071	563	1,263
S/Jongkhar	48	75	25	738	631	1,400	1,485	5,625	5,494	752	625
Samtse	50	78	22	1,599	1,421	3,566	2,987	11,825	11,666	1,474	1,045
Sarpang	48	69	31	554	572	1,169	1,130	5,121	5,577	592	437
Thimphu	50	36	64	150	145	297	311	1,271	1,443	158	153
T/gang	48	61	39	1,286	1,132	2,811	2,788	9,462	10,192	1,675	1,533
T/yangtse	46	52	48	681	1,000	1,664	1,409	4,902	5,037	438	450
Trongsa	48	33	67	268	344	600	632	2,042	2,460	258	317
Tsirang	49	75	25	347	426	1,067	880	4,934	5,091	612	389
Wangdue	45	42	58	1,066	1,005	1,460	1,445	4,722	6,086	770	876
Zhemgang	47	55	45	511	479	1,024	855	2,994	3,136	537	640
BHUTAN	47	55	45	13,011	12,914	25,389	23,341	89,959	98,005	13,233	13,145

Table 1.2: Dzongkhag wise estimated total population residing on farm by sex in 2013.

Dzongkhag	Male Total	Female Total	Population total
Bumthang	2,670	3,145	5,816
Chhukha	7,118	7,233	14,352
Dagana	9,122	9,607	18,729
Gasa	959	969	1,928
Ha	3,084	3,228	6,312
Lhuentse	5,738	6,138	11,875
Monggar	11,559	11,508	23,066
Paro	6,353	7,496	13,850
Pemagatshel	5,637	6,165	11,801
Punakha	6,932	8,193	15,124
S/Jongkhar	8,516	8,234	16,750
Samtse	18,464	17,119	35,583
Sarpang	7,435	7,716	15,151
Thimphu	1,877	2,052	3,929
Trashigang	15,233	15,645	30,879
T/yangtse	7,685	7,897	15,582
Trongsa	3,169	3,753	6,922
Tsirang	6,960	6,785	13,745
Wangdue	8,017	9,412	17,429
Zhemgang	5,065	5,109	10,175
BHUTAN	141,592	147,404	288,997

Figure 1: Bhutan's total population residing on the farm by sex, 2013.

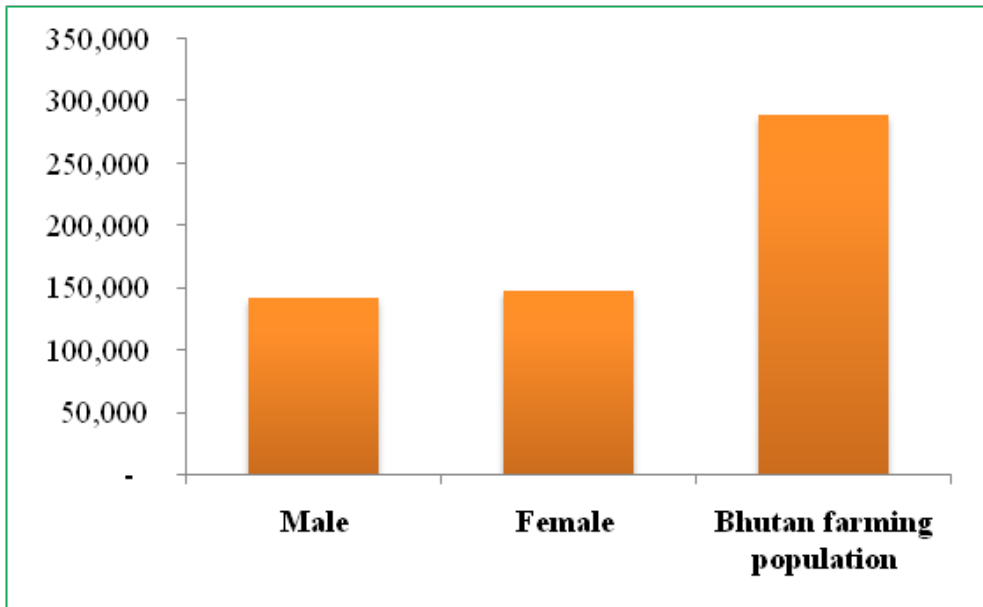
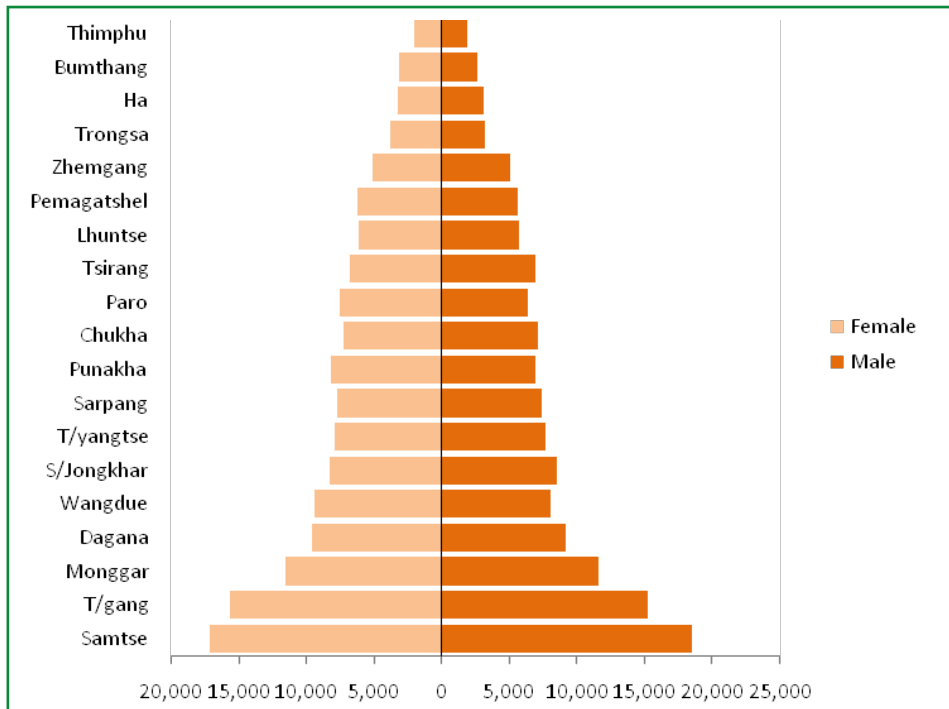


Figure 2: Dzongkhag wise Population Pyramid by sex, 2013.



2. Land Utilization 2013

Dry Land

Note: *Operational land holdings = Kamzhing own land cultivated + Kamzhing fallow + Kamzhing leased in.*

Since only the farming households which are engaged in agriculture activities are included in the annual sample survey 2013 excluding Gungtongs(empty HHs) and HHs having land but not engage in agriculture activities the Kamzhing left fellow could be much higher than the estimated figure from sample survey 2013.

In year 2013 of the total estimated **135,927** acres of operational Kamzhing land holdings **39,890** acres were left fellow.

Dzongkhag	Kamzhing Own land Cultivated (Acres)	Kamzhing left Fallow (Acres)	Kamzhing leased-Out (Acres)	Kamzhing leased-In (Acres)	Operational land holdings
Bumthang	2,220	3,535	169	304	6,059
Chhukha	8,232	1,255	123	50	9,537
Dagana	9,202	1,614	400	162	10,977
Gasa	389	72	2	1	462
Ha	2,713	807	12	24	3,544
Lhuentse	4,199	1,539	81	79	5,817
Monggar	7,613	4,631	281	146	12,391
Paro	3,917	574	91	9	4,499
Pemagatshel	3,913	4,368	226	111	8,392
Punakha	1,042	608	18	15	1,665
S/Jongkhar	6,142	3,574	67	126	9,843
Samtse	11,812	1,450	369	299	13,561
Sarpang	6,297	1,321	109	198	7,817
Thimphu	936	115	43	73	1,125
Trashigang	6,052	4,612	163	275	10,938
T/yangtse	2,251	2,492	172	145	4,887
Trongsa	2,582	2,753	165	45	5,380
Tsirang	6,972	964	135	34	7,970
Wangdue	3,458	855	216	367	4,680
Zhemgang	3,619	2,749	51	15	6,383
BHUTAN	93,562	39,890	2,894	2,475	135,927

3. Crop Production

Table 3.1: Cereal, Legumes& Pulses, Oilseeds, Roots /Tubers, Spices and Cucurbits production in 2013

Crop Type	Crop Name	Cultivated Area (acres)	Quantity Produced (MT)	Yield (Kg/Acre)
Cereal	Paddy	48,361	75,228	1,556
	Maize	58,338	75,715	1,298
	Wheat	5,441	4,286	788
	Barley	2,867	2,009	701
	Buckwheat	6,591	3,641	553
	Millet	5,053	2,951	584
	Cereal Total		126,650	163,830
Oilseeds	Ground nut	381	240	630
	Mustard	3,148	955	303
	Sun flower	17	3	159
	Soya bean	1,195	424	354
	Pyrrilla(Naam)	183	19	102
	Others	2	0.33	
	Oilseeds Total		4,926	1,640
Spices	Ginger	2,489	3,756	1,509
	Cardamom	6,904	1,162	168
	Spices Total		9,394	4,918
Legumes & Pulses	Rajma Bean	1,724	965	559
	Mung Bean	625	315	505
	Lentil	368	22	61
	Legumes & Pulses Total		2, 717	1,302
Roots/Tubers	Sweet Potato	155	82	530
	Tapioca	406	355	875
	Collocacia	279	159	569
	Yam	66	37	555
	Roots/Tubers Total		906	633

Table 3.2: Potato and Vegetable production in 2013

Crop Type	Crop Name	Cultivated Area (acres)	Quantity Produced (MT)	Yield (Kg/Acre)
Vegetables	Asparagus	480	283	589
	Chilli	5,171	8,321	1,609
	Cabbage	2,427	3,961	1,632
	Cauliflower	864	922	1,067
	Carrot	667	755	1,133
	Radish	2,932	4,534	1,546
	Turnip	1,619	9,757	6,028
	Beans	3,248	2,636	812
	Peas	1,230	1,180	959
	Tomato	550	632	1,149
	Egg plant	571	362	633
	Lady Finger	96	31	327
	Green leaves	2,064	2,063	1,000
	Broccoli	846	814	962
	Onion	779	420	539
	Garlic	1,744	752	431
	Cucumber		2,378	
	Pumpkin		3,935	
	Squash		2,366	
	Gourds		160	
	Cultivated Mushroom		19	
	Dally chilli		187	
	Tree tomato		329	
Vegetables Total	25,288	46,797		
	Potato	13,391	50,390	3,763

4. Fruit production

Commodities	Total Trees (No's)	Bearing Tree (No's)	Production (MT)	Yield (kg/bearing tree)
Apple	322,063	236,051	8,032	34
Mandarin orange	2,087,352	1,046,880	33,469	32
Areca nut	1,234,813	624,069	6,249	10
Mango	56,369	18,021	656	36
Pear	49,056	20,734	1,697	82
Peach	40,622	29,918	1,148	38
Plum	18,265	11,803	744	63
Walnut	42,419	12,156	350	29
Jackfruit	10,640	5,492	773	141
Guava	39,531	23,900	592	25
Papaya	6,117	4,225	106	25
Pomegranate	11,273	4,756	101	21
Litchi	23,415	4,076	169	41
Persimmon	8,471	4,965	225	45
Banana	328,705	116,560	1,489	13
Sugarcane			292	
Passion fruit			125	
Pine apple			57	

5. Crop Utilization for 2013

Crop Type	Crop Name	Qty retained for Seed (MT)	Qty Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market (in %)	
						Domestic	Export
Cereals	Paddy	1,200	521	41	19	93	7
	Maize	1,210	2,517	21	43	90	10
	Wheat	201	38	27	1	100	0
	Barley	86	26	33	0.9	97	3
	Finger millet	44	29	27	0.7	100	0
	Foxtail millet	6	0.5	19	0.02	100	0
	Sweet buckwheat	97	21	33	0.7	100	0
	Bitter buckwheat	81	2	54	0.086	100	0
Pulses	Rajma Bean	61	309	44	11	71	29
	Mung Bean	40	73	60	4	98	2
	Lentil	2	6	53	0.3	100	0
Oil seeds	Mustard	42	106	29	3	100	1
	Sunflower	0.2	0.7	163	0.2	91	9
	Soya bean	24	59	42	3	85	15
	Groundnut	17	82	64	4	96	4
	Pyrilla(Nam)	0.9	5	116	0.55	100	0
Roots & Tubers	Sweet Potato	3	4	24	0.08	100	0
	Tapioca		41	20	0.69	95	5
	Collocacia	6	8	24	0.1	100	0
Spices	Ginger	891	2,253	90	159	79	21
	Cardamom		650	937	626	47	53
	Garlic	98	329	91	24	96	4
	Onion bulb		83	56	4	96	4
Cucurbits	Cucumber		540	23	11	100	0
	Pumpkin		402	13	5	100	0
	Squash		179	14	2	100	0
	Gourds		26	29	0.8	99	1

Vegetables	Asparagus		105	87	12	99	1
	Chilli		3,311	62	149	99	2
	Cabbage		1,801	20	30	98	2
	Cauliflower		386	39	16.8	99	1
	Carrot		369	29	10.9	96	4
	Radish		894	14	11	99	1
	Turnip		51	20	1	99	1
	Beans		887	37	33	99	1
	Peas		516	33	13	95	5
	Tomato		114	33	3	98	2
	Potato	8,442	30,548	19	560	76	24
	Egg Plant		200	26	3	100	1
	Ladyfinger		6	27	0.17	100	0
	Green leaves		582	21	11	100	1
	Broccoli		230	45	10	99	1
	Cultivated Mushrooms		19	189	4	100	0
	Dally chilli		101	150	19	96	4
Tree tomato		64	35	2	99.3	.7	

6. Fruit Utilization for 2013

Commodities	Quantity Sold(MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market	
				Domestic	Export
Apple	5,433	34	155	79.7	20.3
Mandarin orange	26,049	24	463	70.2	29.8
Mango	532	45	16	92.5	7.5
Pear	345	34	9	97.9	2.1
Peach	139	31	5	98.3	1.7
Plum	145	27	4	98.7	1.3
Walnut	64	103	5	96.9	3.1
Areca nut	5,165	23	95	79.8	20.2
Jack Fruit	43	20	0.5	85.4	14.6
Guava	62	24	2	98.3	1.7
Papaya	32	18	0.3	100.0	0.0
Pomegranate	8	35	0.2	98.8	1.2
Litchi	52	31	1	93.8	6.2
Persimmon	50	35	1	100.0	0.0
Banana	320	23	6	96.6	3.4
Passion fruit	19	29	0.5	97.0	3.0
Pineapple	11	22	0.2	99.0	1.0

7. HHs Cash income

Table 7.1: Dzongkhag wise proportion of HHs having earned / Not Earned Cash income from forest edible products and other activities

Dzongkhag	Earned	Not Earned
Bumthang	77	23
Chhukha	24	76
Dagana	41	59
Gasa	73	27
Ha	53	47
Lhuentse	53	47
Monggar	56	44
Paro	29	71
Pemagatshel	61	39
Punakha	37	63
Samdrup Jongkhar	49	51
Samtse	20	80
Sarpang	39	61
Thimphu	57	43
T/gang	41	59
T/yangtse	57	43
Trongsa	27	73
Tsirang	35	65
Wangdue	37	63
Zhemgang	48	52
BHUTAN	42	58

Figure 3: Dzongkhag wise Proportion of HHs having earned cash income from forest edible product and other activities

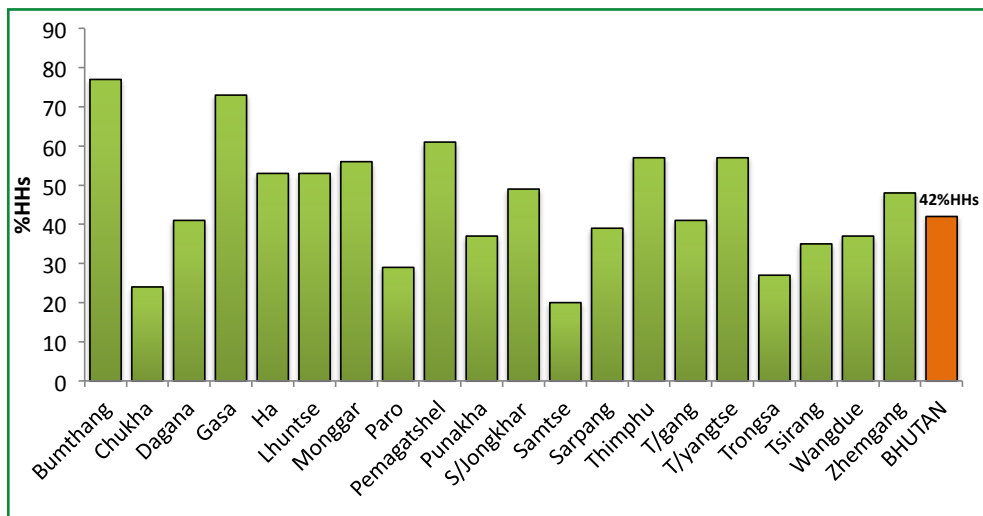


Figure 4: Rural Households Cash Income from forest edible product and other activities in year 2013 (million nu.)

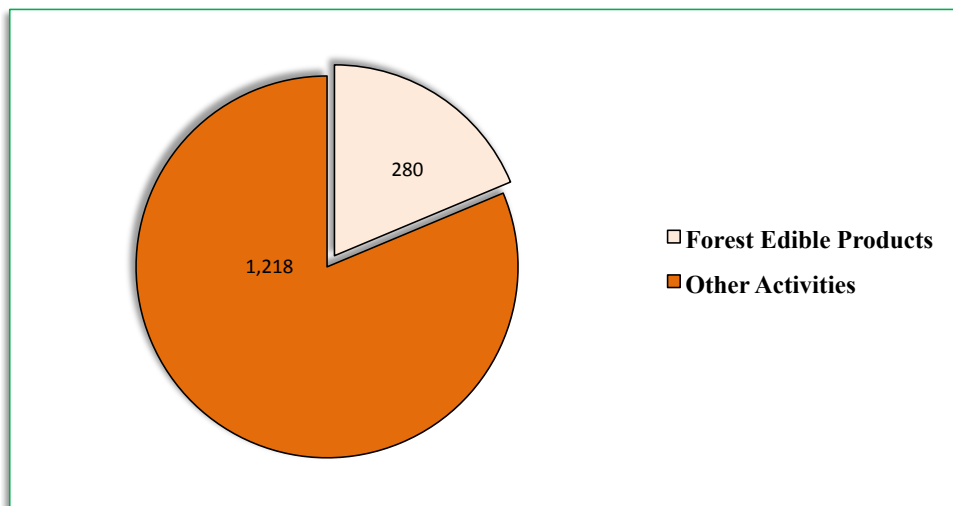


Table 7.2: Cash income from forest edible products and other activities in year 2013

Forest Edible Products	Amount Earned (Million Nu)
Bamboo products(Bamboo shoot)	0.87
Cane Products(Cane shoot/Patsha)	0.88
Fern(Nakay)	4.5
Damru	1.11
Medicinal Aromatic Plants & herbs	10.95
Wild Mushrooms	31.92
Cordyceps	229.74
Total Amount Earned	280
Other Activities	Amount Earned (Million Nu)
Weaving(Weaving and sale of woven products)	73.79
Pottering(Carrying luggage and other loads)	65.32
Business/Contact works	786.08
Part time skilled labour (eg. Carpentry ,Wood crafting, traditional painting)	293.15
Total Amount Earned	1,218

Table 7.3: Cash income from processed cereals products

Processed cereals	Qty Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market	
				Domestic	Export
Rice	1,667	70	124	99.8	0.2
Zaw	301	82	20	100	0
Tengma	540	101	61	97.5	2.5
Kharang	26	59	2	100	0
Wheat flour	73	49	3	100	0
Buckwheat flour	5	47	0.3	100	0
Zaw flour	3	60	0.2	100	0
Maykhuu	17	244	1	100	0
Local alcoholic beverage made out of cereals.			23	100	0

8. Food Security 2013

Table 8.1: Proportion of farming households by self-sufficiency of food (agriculture crops) for 2013

Dzongkhag	Did you produce enough agriculture crops (food) for your household?		%HHs with food (agriculture crops) shortage by months											
	Enough	Not Enough	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	39	61	49	49	46	43	43	42	41	37	35	39	45	43
Chhukha	66	34	5	9	16	19	22	24	21	20	16	12	7	4
Dagana	31	69	14	16	23	31	42	50	53	51	42	29	21	11
Gasa	28	72	69	69	70	70	71	71	70	69	69	69	69	69
Ha	49	51	26	33	35	37	35	27	23	19	16	16	18	26
Lhuentse	64	36	2	2	14	23	26	29	27	22	15	8	3	2
Monggar	86	14	3	4	5	5	7	8	5	2	1	1	1	2
Paro	78	22	10	11	12	9	11	11	11	9	7	5	5	7
Pemagatshel	72	28	4	3	5	21	7	5	4	2	2	1	1	2
Punakha	70	30	9	8	10	10	14	16	19	18	18	13	8	7
S/Jongkhar	59	41	7	10	14	15	19	23	19	14	12	6	5	7
Samtse	46	54	8	14	22	27	40	44	39	27	19	12	7	5
Sarpang	30	70	19	25	30	42	48	57	51	43	32	25	21	20
Thimphu	39	61	26	38	41	40	34	42	33	36	35	27	23	29
Trashigang	80	20	12	12	7	8	8	9	8	7	6	5	4	4
Trashiyangtse	77	23	1	2	3	6	11	13	13	10	8	5	2	0
Trongsa	39	61	19	19	21	29	47	54	53	49	45	30	20	19
Tsirang	47	53	10	16	20	27	38	44	44	34	27	18	11	9
Wangdue	71	29	10	11	12	13	14	16	18	20	19	13	8	7
Zhemgang	63	37	11	13	18	22	27	28	22	15	10	9	9	9
BHUTAN	61	39	11	13	16	20	24	26	25	21	17	13	9	9

Figure 5: Estimated Proportion of farming HHs facing food (agriculture crop) shortages in the year 2013.

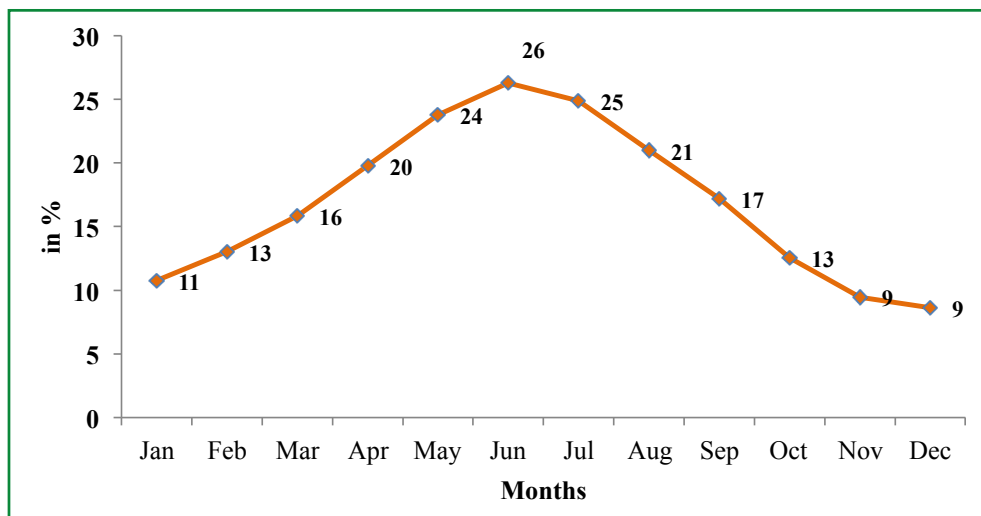
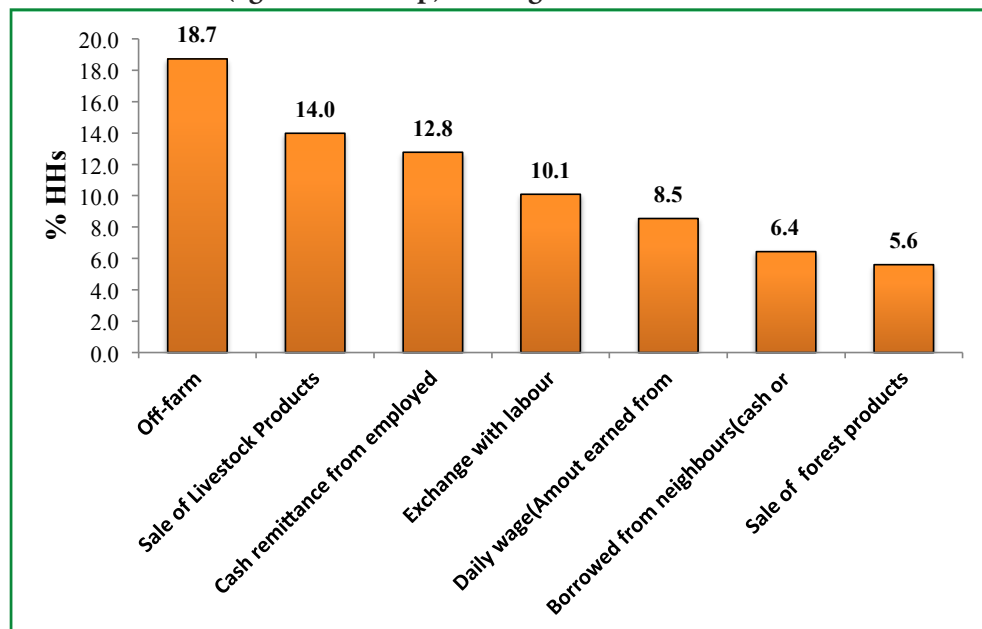


Table 8.2: Food shortage coping mechanism in 2013

Coping Mechanism used	HHs
Off-farm activities (weaving, pottering, Business/contract etc.)	18.7
Sale of Livestock Products	14.0
Cash remittance from employed members	12.8
Exchange with labour	10.1
Daily wage(Amount earned from working in others field)	8.5
Borrowed from neighbours(cash or agricultural products)	6.4
Sale of forest products	5.6

Figure 6: Proportion of HHs using various coping mechanisms to address the food (agriculture crop) shortages in 2013 for Bhutan.

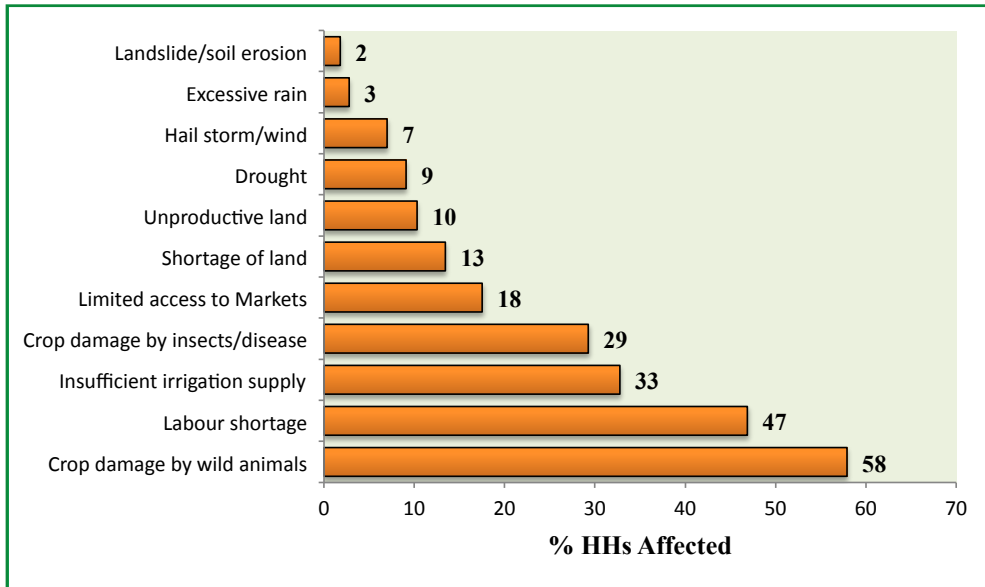


9. Farming Constrains faced

Table 9.1: Proportion of HHs affected by the various farming constrains in year 2013

Farming Constrains	% HHs affected by the various farming constrains
Crop damage by wild animals	58
Labour shortage	47
Insufficient irrigation supply	33
Crop damage by insects/disease	29
Limited access to Markets	18
Shortage of land	13
Unproductive land	10
Drought	9
Hail storm/wind	7
Excessive rain	3
Landslide/soil erosion	2

Figure 7: Percentage of farming HHs affected by various constrains in year 2013 for Bhutan.



10. Crop Damage by Natural Calamities and Food grain lost to the wild animals during the year 2013

Table 10.1: Dzongkhag wise proportion of HHs that experienced/ not experienced natural calamities that affect the yield and quality of the crops

Dzongkhag	Experienced	Not Experienced
Bumthang	1	99
Chhukha	9	91
Dagana	11	89
Gasa	0	100
Ha	8	92
Lhuentse	6	94
Monggar	13	87
Paro	12	88
Pemagatshel	36	64
Punakha	3	97
S/Jongkhar	4	96
Samtse	7	93
Sarpang	2	98
Thimphu	23	77
T/gang	16	84
T/yangtse	10	90
Trongsa	4	96
Tsirang	8	92
Wangdue	2	98
Zhemgang	13	87
BHUTAN	10	90

Figure 8: Proportion of HHs that experienced the various natural calamities that affect the yield and quality of the crops for Bhutan in year 2013

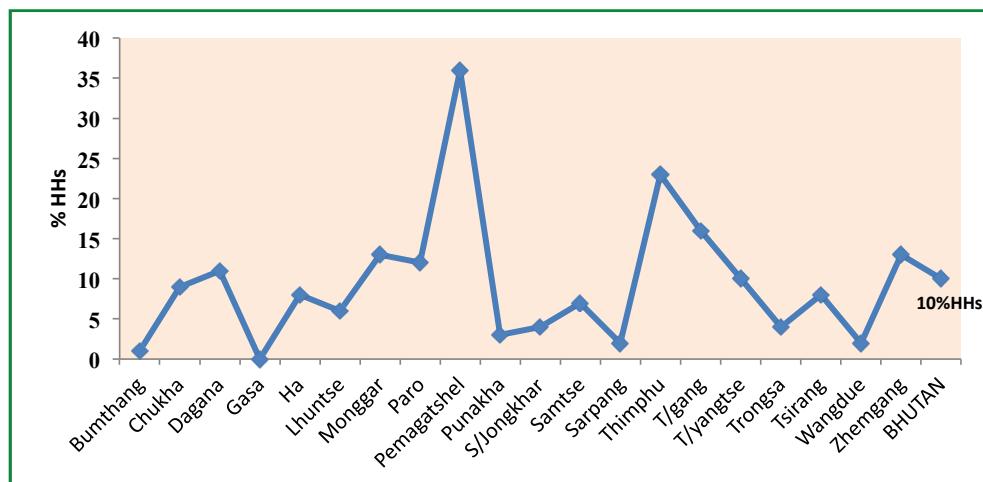


Table 10.2: Paddy estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost (MT)
Bumthang	21	13
Chhukha	72	62
Dagana	158	106
Gasa	1	0.4
Ha	16	16
Lhuentse	78	64
Monggar	59	37
Paro	159	127
Pemagatshel	7	7
Punakha	177	145
S/Jongkhar	102	75
Samtse	283	219
Sarpang	138	115
Thimphu	11	10
T/gang	97	71
T/yangtse	69	104
Trongsa	174	134
Tsirang	252	128
Wangdue	248	240
Zhemgang	76	88
BHUTAN	2,198	1,761

Table 10.3: Maize estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost (MT)
Bumthang	0.1	0.5
Chhukha	192	159
Dagana	546	308
Gasa	0.2	0.01
Ha	40	42
Lhuentse	290	238
Monggar	600	546
Paro	2	0.9
Pemagatshel	323	250
Punakha	20	26
S/Jongkhar	283	246
Samtse	415	278
Sarpang	561	381
Thimphu	0.3	0.1
T/gang	590	504
T/yangtse	159	301
Trongsa	224	206
Tsirang	730	400
Wangdue	38	26
Zhemgang	156	134
BHUTAN	5,171	4,043

Table 10.4: Wheat estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost (MT)
Bumthang	26	15
Chhukha	3	2
Dagana	2	0.3
Ha	70	33
Lhuentse	2	1.1
Mongar	7	5
Paro	59	34
Pemagatshel	3	1.4
Punakha	8	2
S/Jongkhar	15	9
Samtse	10	4
Sarpang	6	2
Thimphu	1	1
T/gang	2	2
T/yangtse	1	0.2
Trongsa	33	19
Wangdue	27	15
Zhemgang	7	7
BHUTAN	280	153

Table 10.5: Barley estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost(MT)
Bumthang	20	11
Dagana	9	3
Ha	6	1
Lhuentse	0.8	0.5
Paro	0.3	0.1
Pemagatshel	0.0	0.02
Punakha	1	0.3
S/Jongkhar	1	0.2
Samtse	2	0.1
Thimphu	1	0.8
T/gang	4	4
Trongsa	17	12
Wangdue	5	1
Zhemgang	0.3	0.2
BHUTAN	67	35

Table 10.6: Millet estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost (MT)
Chhukha	6	4
Dagana	4	2
Ha	19	5
Lhuentse	0.03	0.01
S/Jongkhar	7	1
Samtse	23	6
Sarpang	39	15
T/gang	0.08	1
T/yangtse	16	11
Trongsa	0.3	0.1
Tsirang	10	1
Zhemgang	0.03	0.0
BHUTAN	125	46

Table 10.7: Buckwheat estimated area and quantity lost to the wild animal

Dzongkhag	Area lost(Acres)	Quantity lost (MT)
Bumthang	59	53
Chhukha	5	2
Dagana	39	11
Ha	37	12
Mongar	5	0.9
Paro	3	3
Pemagatshel	1	0.5
Punakha	2	0.3
S/Jongkhar	25	10
Samtse	2	1
Sarpang	1	0.2
T/gang	2	1
T/yangtse	0	0.2
Trongsa	75	38
Tsirang	1	0.5
Wangdue	3	1
Zhemgang	11	5
BHUTAN	271	141

11. Road Access in 2013

Note: The road access refers to the accessibility of farming households to any type of roads that are pliable for motor vehicles

Table 11: Proportion of rural households by walking distance to the nearest motor able road point

Dzongkhag	Less than 1 hour	1 to 3 hours	4 to 6 hours	Above 6 hours
Bumthang	98	2	0	0
Chhukha	49	22	5	23
Dagana	70	23	3	3
Gasa	32	0	0	68
Ha	63	3	2	31
Lhuentse	77	19	3	1
Monggar	71	23	2	4
Paro	87	13	0	0
Pemagatshel	91	7	1	1
Punakha	79	19	1	1
S/Jongkhar	58	18	14	9
Samtse	49	28	12	10
Sarpang	78	8	6	8
Thimphu	83	4	0	13
T/gang	75	19	1	5
T/yangtse	79	15	6	1
Trongsa	77	21	0	1
Tsirang	81	14	3	2
Wangdue	65	23	9	2
Zhemgang	44	24	23	9
BHUTAN	71	18	5	6

PART 2

Dzongkhag Level Statistics

12. Cereal Crops

Table 12.1: Paddy Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Paddy area(acres)	Paddy production (MT)	Yield(Kgs/acre)
Bumthang	170	259	1,519
Chhukha	1,865	2,461	1,320
Dagana	3,656	5,542	1,516
Gasa	121	147	1,215
Ha	143	178	1,247
Lhuentse	2,329	3,944	1,693
Mongar	1,029	1,431	1,391
Paro	4,247	9,891	2,329
Pemagatshel	45	43	951
Punakha	5,908	11,028	1,867
S/Jongkhar	2,310	2,663	1,153
Samtse	7,175	8,969	1,250
Sarpang	4,274	5,518	1,291
Thimphu	562	1,065	1,895
Trashigang	1,637	2,356	1,439
T/yangtse	1,680	2,326	1,384
Trongsa	1,749	2,486	1,422
Tsirang	3,704	4,984	1,345
Wangdue	4,455	8,362	1,877
Zhemgang	1,302	1,576	1,210
BHUTAN	48,361	75,228	1,556

Table 12.2: Maize Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Produced(MT)	Yield(kg/acres)
Bumthang	0.86	0.63	735
Chhukha	3,192	2,713	850
Dagana	6,423	7,655	1,192
Gasa	.230	0.09	386
Ha	330	329	994
Lhuentse	2,828	5,032	1,779
Mongar	8,494	14,767	1,739
Paro	56	53	947
Pemagatshel	4,643	6,113	1,317
Punakha	230	230	1,000
S/Jongkhar	5,464	6,818	1,248
Samtse	4,623	4,046	875
Sarpang	4,191	5,687	1,357
Thimphu	12	9	794
Trashigang	5,416	7,071	1,306
T/yangtse	1,781	3,046	1,710
Trongsa	1,286	1,730	1,346
Tsirang	5,359	5,150	961
Wangdue	340	330	972
Zhemgang	3,669	4,937	1,345
BHUTAN	58,338	75,715	1,298

Table 12.3: Wheat Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield(kg/acre)
Bumthang	453	353	780
Chhukha	252	184	730
Dagana	60	38	630
Gasa	17	15	862
Ha	571	405	710
Lhuentse	88	60	680
Mongar	429	279	650
Paro	610	516	846
Pemagatshel	21	14	641
Punakha	551	413	750
S/Jongkhar	186	165	884
Samtse	71	46	647
Sarpang	63	40	640
Thimphu	119	110	921
Trashigang	143	125	875
T/yangtse	31	22	718
Trongsa	654	613	937
Tsirang	137	93	682
Wangdue	873	703	806
Zhemgang	111	91	826
BHUTAN	5,441	4,286	788

Table 12.4: Barley Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield(Kg/acres)
Bumthang	325	350	1,080
Chhukha	75	86	1,145
Dagana	104	54	525
Gasa	210	208	989
Ha	35	27	767
Lhuentse	6	4	745
Mongar	750	439	586
Paro	93	78	842
Pemagatshel	36	15	430
Punakha	15	9	598
S/Jongkhar	250	115	460
Samtse	85	40	470
Sarpang	7	3	432
Thimphu	19	11	573
Trashigang	195	160	821
T/yangtse	13	8	614
Trongsa	300	184	613
Tsirang	20	9	450
Wangdue	276	179	647
Zhemgang	53	29	541
BHUTAN	2,867	2,009	701

Table 12.5: Buckwheat Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production (MT)	Yield(Kg/acres)
Bumthang	631	427	677
Chhukha	562	315	561
Dagana	610	220	360
Gasa	2	2	898
Ha	490	319	650
Lhuentse	11	9	825
Mongar	218	96	441
Paro	169	128	757
Pemagatshel	393	201	512
Punakha	143	110	773
S/Jongkhar	1,012	612	605
Samtse	141	65	462
Sarpang	301	154	511
Trashigang	400	185	462
T/yangtse	16	6	352
Trongsa	727	397	546
Tsirang	152	53	349
Wangdue	356	182	512
Zhemgang	256	160	626
BHUTAN	6,591	3,641	553

Table 12.6: Millet Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (Kg/acre)
Chhukha	459	239	520
Dagana	618	402	650
Gasa	2	1.15	600
Ha	122	47	390
Lhuentse	53	36	684
Mongar	53	22	416
Paro	16	9	600
Pemagatshel	292	166	570
Punakha	1.45	0.7	460
S/Jongkhar	270	156	578
Samtse	952	524	550
Sarpang	919	490	533
Thimphu	0.08	0	120
Trashigang	73	44	612
T/yangtse	300	288	960
Trongsa	88	31	353
Tsirang	648	415	640
Wangdue	23	12	552
Zhemgang	165	67	406
BHUTAN	5,053	2,951	584

13. Vegetable Crops

Table 13.1: Potato Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(acres)	Production (MT)	Yield (kg/acre)
Bumthang	622	4,005	6,439
Chhukha	817	5,378	6,581
Dagana	161	171	1,060
Gasa	63	189	3,004
Ha	555	2,491	4,485
Lhuentse	341	1,106	3,242
Mongar	2,166	5,170	2,387
Paro	689	2,678	3,888
Pemagatshel	582	1,185	2,037
Punakha	76	186	2,431
S/Jongkhar	1,119	2,047	1,829
Samtse	81	108	1,340
Sarpang	148	93	630
Thimphu	238	1,058	4,454
Trashigang	1,922	6,400	3,331
T/yangtse	763	3,055	4,002
Trongsa	130	507	3,904
Tsirang	594	261	439
Wangdue	2,235	14,165	6,338
Zhemgang	89	137	1,542
BHUTAN	13,391	50,390	3,763

Table 13.2: Asparagus Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield(Kg/acre)
Bumthang	0.7	0.5	670
Chhukha	13	19	1,551
Dagana	30	1.46	50
Gasa	0.1	0.0	73
Ha	10	2	194
Lhuentse	3	1	238
Mongar	89	30	334
Paro	125	101	810
Pemagatshel	3	3	750
Punakha	28	42	1,502
S/Jongkhar	51	35	692
Samtse	3	0.5	195
Sarpang	2	0.3	162
Thimphu	11	8	713
Trashigang	53	21	403
T/yangtse	13	3	238
Trongsa	2	4	1,653
Tsirang	31	1	42
Wangdue	13	10	754
Zhemgang	0.5	0.2	511
BHUTAN	480	283	589

Table 13.3: Chilli Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Areas(Acres)	Production (MT)	Yield(Kg/acre)
Bumthang	45	58	1,292
Chhukha	244	410	1,679
Dagana	266	147	551
Gasa	15	21	1,372
Ha	95	79	832
Lhuentse	255	422	1,656
Mongar	548	829	1,511
Paro	823	1,963	2,386
Pemagatshel	272	111	409
Punakha	291	808	2,775
S/Jongkhar	270	475	1,761
Samtse	241	228	944
Sarpang	80	46	576
Thimphu	92	309	3,375
Trashigang	586	815	1,390
T/yangtse	264	475	1,803
Trongsa	132	186	1,409
Tsirang	238	126	531
Wangdue	358	741	2,071
Zhemgang	55	71	1,288
BHUTAN	5,171	8,321	1,609

Table 13.4: Dally chilli Production

Dzongkhag	Dolay chilli Production(MT)
Chhukha	7
Dagana	27
Gasa	-
Ha	1
Lhuentse	2
Mongar	37
Paro	-
Pemagatshel	3
Punakha	1
S/Jongkhar	3
Samtse	15
Sarpang	13
Thimphu	0.3
Trashigang	10
T/yangtse	4
Trongsa	0.2
Tsirang	41
Wangdue	19
Zhemgang	5
BHUTAN	187

Table 13.5: Cabbage Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Areas(Acres)	Production (MT)	Yield (kg/acre)
Bumthang	45	146	3,238
Chhukha	92	174	1,896
Dagana	83	140	1,684
Gasa	10	16	1,690
Ha	43	144	3,315
Lhuentse	90	77	850
Mongar	309	436	1,409
Paro	212	995	4,697
Pemagatshel	116	75	646
Punakha	24	56	2,353
S/Jongkhar	102	87	848
Samtse	93	77	829
Sarpang	228	251	1,100
Thimphu	39	186	4,819
Trashigang	419	407	969
T/yangtse	59	181	3,082
Trongsa	47	99	2,111
Tsirang	341	289	850
Wangdue	44	93	2,083
Zhemgang	31	33	1,079
BHUTAN	2,427	3,961	1,632

Table 13.6: Cauliflower Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield(Kg/acre)
Bumthang	13	44	3,407
Chhukha	31	28	888
Dagana	23	42	1,803
Gasa	1	2	2,330
Ha	7	23	3,180
Lhuentse	27	28	1,014
Mongar	219	159	725
Paro	22	82	3,793
Pemagatshel	28	11	387
Punakha	3	5	1,467
S/Jongkhar	38	37	977
Samtse	55	36	643
Sarpang	23	21	874
Thimphu	31	100	3,255
Trashigang	176	114	648
T/yangtse	32	71	2,189
Trongsa	17	19	1,080
Tsirang	91	66	725
Wangdue	16	25	1,555
Zhemgang	8	10	1,210
BHUTAN	864	922	1,067

Table 13.7: Broccoli Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (Kg/acre)
Bumthang	9	25	2,759
Chhukha	38	30	787
Dagana	31	34	1,097
Gasa	5	1	276
Ha	3	2	783
Lhuentse	20	19	933
Mongar	167	111	667
Paro	32	95	2,951
Pemagatshel	6	4	653
Punakha	134	221	1,654
S/Jongkhar	26	25	938
Samtse	27	20	729
Sarpang	65	24	370
Thimphu	24	20	829
Trashigang	82	44	538
T/yangtse	16	18	1,098
Trongsa	17	9	522
Tsirang	121	90	740
Wangdue	16	15	967
Zhemgang	6	6	1,081
BHUTAN	846	814	962

Table 13.8: Beans Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield (kg/acre)
Bumthang	8	24	2,951
Chhukha	170	147	864
Dagana	208	97	466
Gasa	3	7	1,927
Ha	13	16	1,198
Lhuentse	93	86	922
Mongar	372	340	916
Paro	112	279	2,500
Pemagatshel	155	70	454
Punakha	232	289	1,248
S/Jongkhar	163	144	882
Samtse	252	140	556
Sarpang	214	92	429
Thimphu	19	72	3,791
Trashigang	448	206	459
T/yangtse	51	76	1,513
Trongsa	42	63	1,506
Tsirang	548	232	422
Wangdue	117	229	1,950
Zhemgang	28	28	998
BHUTAN	3,248	2,636	812

Table 13.9: Carrot Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield(kg/acre)
Bumthang	10	37	3,670
Chhukha	116	188	1,620
Dagana	4	4	1,018
Gasa	2	4	1,930
Ha	12	25	2,082
Lhuentse	8	8	982
Mongar	194	79	407
Paro	35	113	3,181
Pemagatshel	39	5	138
Punakha	6	10	1,786
S/Jongkhar	9	7	853
Samtse	35	13	375
Sarpang	13	5	380
Thimphu	26	113	4,334
Trashigang	61	40	653
T/yangtse	11	18	1,742
Trongsa	19	31	1,620
Tsirang	37	18	478
Wangdue	28	34	1,247
Zhemgang	2	3	1,202
BHUTAN	667	755	1,133

Table 13.10: Radish Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield (Kg/acre)
Bumthang	15	71	4,731
Chhukha	87	172	1,980
Dagana	138	197	1,429
Gasa	14	20	1,451
Ha	62	124	2,010
Lhuentse	72	98	1,363
Mongar	502	604	1,204
Paro	157	317	2,024
Pemagatshel	167	186	1,116
Punakha	77	187	2,435
S/Jongkhar	324	361	1,114
Samtse	147	96	653
Sarpang	56	68	1,212
Thimphu	60	314	5,238
Trashigang	479	497	1,039
T/yangtse	45	184	4,072
Trongsa	66	143	2,173
Tsirang	204	217	1,061
Wangdue	222	616	2,772
Zhemgang	40	62	1,567
BHUTAN	2,932	4,534	1,546

Table 13.11: Turnip Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (Kg/acre)
Bumthang	42	317	7,538
Chhukha	44	314	7,117
Dagana	12	8	679
Gasa	13	22	1,657
Ha	291	2,407	8,278
Lhuentse	5	4	716
Mongar	10	12	1,154
Paro	147	650	4,421
Pemagatshel	3	3	949
Punakha	14	29	2,077
S/Jongkhar	4	4	803
Samtse	8	2	240
Sarpang	0	0.5	1,123
Thimphu	34	225	6,544
Trashigang	12	66	5,489
T/yangtse	3	3	1,064
Trongsa	15	75	5,051
Tsirang	13	0.8	61
Wangdue	946	5,616	5,934
Zhemgang	0.17	0.4	2,222
BHUTAN	1,619	9,757	6,028

Table 13.12: Peas Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (kg/acre)
Bumthang	27	13	471
Chhukha	272	369	1,356
Dagana	20	14	698
Gasa	1	2	1,829
Ha	101	127	1,259
Lhuentse	9	13	1,415
Monggar	174	59	342
Paro	147	235	1,595
Pemagatshel	82	9	106
Punakha	47	46	991
S/Jongkhar	34	22	663
Samtse	27	10	362
Sarpang	10	10	994
Thimphu	28	68	2,452
Trashigang	101	38	381
T/yangtse	12	17	1,329
Trongsa	12	14	1,150
Tsirang	98	68	697
Wangdue	27	44	1,633
Zhemgang	2	2	1,051
BHUTAN	1,230	1,180	959

Table 13.13: Mushroom Cultivated

Dzongkhag	Cultivated Mushroom Production (MT)
Chhukha	6
Dagana	0.2
Gasa	0.005
Ha	0.2
Lhuentse	0.0
Mongar	3
Paro	2
Pemagatshel	0.17
Punakha	0.04
S/Jongkhar	3
Samtse	1
Sarpang	0.39
Thimphu	0.34
Trashigang	2
T/yangtse	0.10
Trongsa	0.46
Tsirang	-
Wangdue	0.47
Zhemgang	0.06
BHUTAN	19

Table 13.14: Tree tomato Production

Dzongkhag	Production(MT)
Chhukha	7
Dagana	21
Gasa	5
Ha	2
Lhuentse	33
Mongar	40
Pemagatshel	14
Punakha	46
S/Jongkhar	18
Samtse	2
Sarpang	12
Trashigang	23
Trashiyangtse	19
Trongsa	7
Tsirang	36
Wangdue	31
Zhemgang	12
BHUTAN	329

Table 13.15: Other Vegetables

Dzongkhag	Tomato Production (MT)	Egg Plant production(MT)	Lady Finger production(MT)	Green leaves production(MT)
Bumthang	3.9	0.0	-	30.0
Chhukha	81.1	7.9	0.6	161.2
Dagana	15.9	20.7	6.0	235.4
Gasa	-	0.1	-	12.4
Ha	25.0	3.1	1.0	25.5
Lhuentse	2.4	29.9	0.5	41.1
Mongar	48.1	36.1	6.3	376.7
Paro	184.6	33.5	0.1	74.6
Pemagatshel	17.3	6.6	0.4	47.6
Punakha	19.1	45.2	0.2	77.8
S/Jongkhar	13.4	25.7	3.0	145.9
Samtse	26.9	16.5	3.5	175.7
Sarpang	33.3	10.3	3.5	74.1
Thimphu	9.6	1.1	0.2	66.4
Trashigang	30.5	19.7	1.4	116.8
T/yangtse	17.8	28.2	0.1	55.0
Trongsa	3.3	25.9	2.1	35.7
Tsirang	26.1	15.7	1.9	182.6
Wangdue	70.5	26.8	0.2	101.7
Zhemgang	2.9	8.4	0.6	26.8
BHUTAN	632	362	31	2,063

Table 13.16: Onion Bulb Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (kg/acre)
Bumthang	.4	0.2	436
Chhukha	22.8	29	1,285
Dagana	33.3	16	475
Ha	.9	2	1,790
Lhuentse	22.9	39	1,690
Mongar	39.9	40	994
Paro	9.5	4	372
Pemagatshel	12.8	7	515
Punakha	23.2	19	813
S/Jongkhar	76.5	90	1,180
Samtse	20.8	12	568
Sarpang	30.9	25	808
Thimphu	3.1	8	2,734
Trashigang	299.0	35	116
T/yangtse	27.0	31	1,139
Trongsa	4.4	2	435
Tsirang	105.9	28	268
Wangdue	41.8	30	730
Zhemgang	4.3	4	863
BHUTAN	779	420	539

Table 13.17: Garlic Cultivated area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (kg/acre)
Bumthang	22	11	499
Chhukha	12	4	349
Dagana	71	27	380
Gasa	10	13	1,369
Ha	54	20	361
Lhuentse	84	52	624
Mongar	331	142	427
Paro	6	4	654
Pemagatshel	133	23	169
Punakha	65	40	619
S/Jongkhar	121	45	368
Samtse	35	6	169
Sarpang	13	7	509
Thimphu	2	5	2,350
Trashigang	519	180	346
T/yangtse	73	75	1,028
Trongsa	21	10	464
Tsirang	81	21	259
Wangdue	79	59	744
Zhemgang	11	9	810
BHUTAN	1,744	752	431

14. Cucurbits Production

Dzongkhag	Cucumber Production(MT)	Pumpkin Production(MT)	Squash Production(MT)	Gourds Production (MT)
Bumthang	5	3	-	-
Chhukha	77	160	242	8
Dagana	98	306	152	10
Gasa	5	3	2	-
Ha	12	33	10	6
Lhuentse	127	243	45	3
Mongar	239	456	257	4
Paro	61	253	0.2	-
Pemagatshel	112	265	100	8
Punakha	497	163	106	14
S/Jongkhar	357	498	171	25
Samtse	61	196	155	29
Sarpang	52	138	173	10
Thimphu	16	63	1	1
Trashigang	230	382	87	19
T/yangtse	145	258	44	2
Trongsa	53	86	20	5
Tsirang	87	187	767	11
Wangdue	118	173	21	5
Zhemgang	27	68	14	1
BHUTAN	2,378	3,935	2,366	160

15. Spices

Table 15.1: Ginger Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield(kg/acre)
Chhukha	373	558	1,495
Dagana	57	39	672
Ha	5	2	370
Lhuentse	6	3	452
Mongar	51	23	449
Paro	0.80	0	200
Pemagatshel	277	188	680
Punakha	2	2	828
S/Jongkhar	391	747	1,908
Samtse	718	1,560	2,173
Sarpang	283	407	1,437
Trashigang	16	12	746
T/yangtse	11	12	1,091
Trongsa	13	11	840
Tsirang	234	146	624
Wangdue	6	4	791
Zhemgang	43	42	968
BHUTAN	2,489	3,756	1,509

Table 15.2: Cardamom Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield(kg/acre)
Chhukha	1,427	178	125
Dagana	515	26	50
Ha	648	127	197
Lhuentse	1	0.04	31
Mongar	21	3	155
Pemagatshel	25	0.6	23
S/Jongkhar	15	2	105
Samtse	3,400	743	219
Sarpang	595	71	120
Trashigang	9	1.4	155
Trongsa	88	3	37
Tsirang	139	5	40
Zhemgang	20	0.1	4
BHUTAN	6,904	1,162	168

16. Oil Seeds

Table 16.1: Ground nut Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield(kg/acre)
Dagana	0.98	0.3	282
Lhuentse	0.45	0.7	1,491
Mongar	38	25	657
Pemagatshel	69	33	485
Punakha	5	3	607
S/Jongkhar	9	8	840
Samtse	0.1	0.04	433
Trashigang	128	56	434
Trashi yangtse	116	111	963
Trongsa	0.36	0.1	200
Tsirang	14	2	153
Wangdue	0.41	0.5	1,208
Zhemgang	0.03	0.03	1,000
BHUTAN	381	240	630

Table 16.2: Mustard Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (kg/acre)
Bumthang	57	18	314
Chhukha	508	128	252
Dagana	247	69	278
Gasa	6	2	384
Ha	161	42	258
Lhuentse	26	12	459
Monggar	135	43	318
Paro	132	52	397
Pemagatshel	35	8	215
Punakha	159	28	178
S/Jongkhar	429	140	325
Samtse	104	29	279
Sarpang	404	176	436
Thimphu	8	5	607
Trashigang	151	50	334
Trashiyangtse	66	8	114
Trongsa	85	15	182
Tsirang	105	25	238
Wangdue	229	75	327
Zhemgang	101	30	300
BHUTAN	3,148	955	303

Table 16.3: Soya Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield (kg/acre)
Chhukha	16	7	399
Dagana	17	7	422
Ha	4	2	375
Lhuentse	9	3	346
Mongar	209	149	713
Pemagatshel	176	35	197
Punakha	4	5	1,137
S/Jongkhar	192	62	324
Samtse	14	5	334
Sarpang	1	1	708
Trashigang	262	86	328
T/yangtse	222	31	141
Trongsa	2	0.6	260
Tsirang	48	23	487
Wangdue	1	0.5	595
Zhemgang	18	8	430
BHUTAN	1,195	424	354

Table 16.4: Sunflower Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production(MT)	Yield (kg/acre)
Bumthang	3	0.34	105
Dagana	0.02	0.002	100
Pemagatshel	0.09	0.07	757
Punakha	1	0.12	83
S/Jongkhar	1	0.03	36
Samtse	0.03	0.01	200
Sarpang	0.12	0.02	140
Trashigang	0.33	0.27	808
Trongsa	0.36	0.07	200
Tsirang	9	2	188
Zhemgang	2	0.11	60
BHUTAN	17	3	159

Table 16.5: Pyrilla (Naam) Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production (MT)	Yield(kg/acre)
Chhukha	0.5	0.3	524
Dagana	4	1.1	294
Ha	24	4	164
Lhuentse	2	1.2	785
Pemagatshel	103	4	44
Punakha	1	0.1	124
S/Jongkhar	22	4	168
Samtse	0.1	0.0	99
Sarpang	3	0.3	135
Trashigang	4	0.8	197
T/yangtse	1	0.2	250
Trongsa	2	0.1	62
Tsirang	10	1.0	105
Wangdue	2	0.5	223
Zhemgang	6	1.0	161
BHUTAN	183	19	102

17. Legumes & Pulses

Table 17.1: Rajma Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production (MT)	Yield (kg/acre)
Chhukha	8	5	623
Dagana	311	71	229
Lhuentse	2	1	731
Mongar	667	627	940
Pemagatshel	35	18	513
Punakha	3	2	673
S/Jongkhar	210	96	457
Samtse	6	3	416
Sarpang	5	2	472
Trashigang	419	112	266
T/yangtse	15	10	642
Trongsa	0.33	0.1	300
Tsirang	39	15	385
Zhemgang	2	2	868
BHUTAN	1,724	965	559

Table 17.2: Mung Bean Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production (MT)	Yield (kg/acre)
Chhukha	2	0.99	632
Dagana	166	45	271
Lhuentse	1	0.3	303
Mongar	224	188	840
Pemagatshel	6	0.7	117
S/Jongkhar	69	24	353
Samtse	63	8	126
Sarpang	5	2	465
Trashigang	28	18	628
T/yangtse	12	4	317
Tsirang	47	23	493
Zhemgang	2	0.9	388
BHUTAN	625	315	505

Table 17.3: Lentil Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield (kg/acre)
Chhukha	4	3	682
Dagana	0.7	0.1	141
Pemagatshel	6	1.2	183
S/Jongkhar	36	9	242
Samtse	282	2	7
Sarpang	4	0.4	91
Trashigang	1.1	0.5	450
Tsirang	33	7	196
BHUTAN	368	22	61

18. Roots and Tubers

Table 18.1: Sweet Potato Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivate area(Acres)	Production(MT)	Yield(kg/acre)
Bumthang	0.1	0.03	400
Chhukha	0.7	0.75	1,071
Dagana	18	11	611
Ha	7	3	420
Lhuentse	0.1	0.06	667
Monggar	16	10	608
Pemagatshel	20	9	420
Punakha	1.2	0.60	513
S/Jongkhar	28	13	470
Samtse	4	2	571
Sarpang	7	5	687
Trashi gang	14	12	804
T/yangtse	4	2	525
Trongsa	1.0	0.53	536
Tsirang	28	9	320
Wangdue	1.1	1	904
Zhemgang	2	3	1,424
BHUTAN	155	82	530

Table 18.2: Tapioca Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Cultivated Area(Acres)	Production(MT)	Yield(kg/acre)
Chhukha	63	45	726
Dagana	39	43	1,095
Ha	3	1.4	418
Mongar	4	2	578
Pemagatshel	42	25	598
Punakha	0.42	0.7	1,677
S/Jongkhar	33	41	1,245
Samtse	86	100	1,168
Sarpang	51	43	841
Trashigang	9	1.5	167
T/yangtse	2	1.4	701
Tsirang	64	39	609
Wangdue	0.46	0.6	1,389
Zhemgang	10	11	1,098
BHUTAN	406	355	875

Table 18.3: Yam Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production(MT)	Yield (kg/acre)
Chhukha	.36	0.3	737
Dagana	3	5	1,420
Pemagatshel	6	7	1,200
S/Jongkhar	16	3	203
Samtse	3	6	1,983
Sarpang	5	6	1,100
Thimphu	.08	0.1	667
Tsirang	32	8	240
Zhemgang	1.18	2	1,858
BHUTAN	66	37	555

Table 18.4: Collocacia Cultivated Area (acres), Production (MT) and Yield (kg/acre)

Dzongkhag	Area(Acres)	Production (MT)	Yield (kg/acre)
Chhukha	5	5	1,157
Dagana	6	5	882
Mongar	55	33	603
Pemagatshel	33	32	976
S/Jongkhar	93	18	197
Samtse	23	22	934
Sarpang	11	10	935
Trashigang	0.2	0.5	2,410
T/yangtse	5	6	1,354
Tsirang	46	24	510
Wangdue	0.4	1	1,754
Zhemgang	2	2	1,023
BHUTAN	279	159	569

Horticulture Fruit Crop Production in 2013

19. Major Fruit Crops

Table 19.1: Apple Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Bumthang	7,620	6,751	149	22
Chhukha	3,834	3,330	88	26
Dagana	184	41	0.5	11
Gasa	84	50	0.3	6
Ha	29,957	19,142	555	29
Lhuentse	1,552	494	6	12
Monggar	2,978	771	21	27
Paro	196,179	154,001	5,698	37
Pemagatshel	363	79	1	11
Punakha	279	184	4	24
S/Jongkhar	584	20	0.1	5
Samtse	221	221	0.4	2
Sarpang	52	9	-	-
Thimphu	55,504	47,420	1,434	30
Trashigang	4,753	1,758	39	22
Trashiyangtse	13,064	436	15	35
Tsirang	169	51	0.2	4
Wangdue	1,994	1,260	19	15
Zhemgang	2,693	33	1	21
BHUTAN	322,063	236,051	8,032	34

Table 19.2: Mandarin Orange Production and yield in 2013

Dzongkhag	Total Tree	Bearing Tree	Production (MT)	Yield (kg/bearing tree)
Chhukha	166,154	114,112	2,510	22
Dagana	333,308	188,543	4,154	22
Gasa	55	44	0.4	8
Ha	802	796	20	25
Lhuentse	27,301	7,429	264	35
Monggar	155,172	41,399	1,505	36
Pemagatshel	343,851	146,338	3,805	26
Punakha	21,660	14,742	422	29
S/Jongkhar	204,100	94,873	4,303	45
Samtse	98,722	62,498	1,215	19
Sarpang	210,802	153,879	5,291	34
Trashigang	91,419	11,726	535	46
T/yangtse	28,727	9,354	354	38
Trongsa	23,433	8,361	293	35
Tsirang	167,407	124,141	7,283	59
Wangdue	10,316	4,943	118	24
Zhemgang	204,121	63,703	1,398	22
BHUTAN	2,087,352	1,046,880	33,469	32

Note: Reduced production of mandarin in year 2013 could be attributed to declining citrus in most Dzongkhags, particularly in Pemagatshel where affected households are removing trees and replacing them with mangoes & litchi, in addition to reduced production in most Dzongkhags (Samtse for instance – as a result of hailstorm during flowering & old and declining orchards being converted to cardamom plantations).

Table 19.3: Areca nut Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production (MT)	Yield (kg/bearing tree)
Bumthang	5	5	0.0	1
Chhukha	40,954	30,562	278	9
Dagana	138,747	73,743	671	9
Ha	19		-	
Mongar	5,215	2,189	9	4
Pemagatshel	2,820	509	7	13
Punakha	8	4	0.0	10
S/Jongkhar	58,783	39,182	585	15
Samtse	402,678	198,185	2,180	11
Sarpang	582,732	278,439	2,506	9
Thimphu	4	4	0.0	6
Trashigang	13	10	0.1	5
Trashiyangtse	61	61	0.3	5
Trongsa	8		-	
Tsirang	516	156	0.3	2
Zhemgang	2,252	1,019	13	13
BHUTAN	1,234,813	624,069	6,249	10

20. Other Fruit Crops

Table 20.1: Mango Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	1,248	694	16	23
Dagana	9,890	1,153	47	40
Gasa	3	3	0.1	20
Lhuentse	154	39	1	30
Mongar	4,800	1,981	62	31
Pemagatshel	6,744	1,162	50	43
Punakha	1,783	934	31	34
S/Jongkhar	6,586	2,195	102	47
Samtse	2,367	1,425	64	45
Sarpang	6,201	2,911	129	44
Trashigang	4,291	1,327	46	35
Trashiyangtse	3,366	357	15	41
Trongsa	609	280	12	44
Tsirang	3,748	2,419	60	25
Wangdue	679	323	4	12
Zhemgang	3,899	818	16	19
BHUTAN	56,369	18,021	656	36

Table 20.2: Pear Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Bumthang	283	162	8	47
Chhukha	715	551	16	30
Dagana	2,020	1,604	153	96
Gasa	407	104	2	24
Ha	22	2	0.1	30
Lhuentse	1,986	912	71	77
Mongar	7,374	3,599	171	48
Paro	1,870	1,254	48	39
Pemagatshel	671	326	22	67
Punakha	2,750	1,824	114	63
S/Jongkhar	3,463	1,585	98	62
Samtse	793	584	22	37
Sarpang	1,305	908	197	217
Thimphu	338	215	5	23
Trashigang	9,159	2,935	169	58
Trashiyangtse	3,257	473	9	18
Trongsa	7,822	381	8	20
Tsirang	2,501	1,679	528	315
Wangdue	1,954	1,465	52	35
Zhemgang	368	173	5	27
BHUTAN	49,056	20,734	1,697	82

Table 20.3: Peach Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Bumthang	299	227	5	20
Chhukha	815	529	14	26
Dagana	2,249	1,502	70	47
Gasa	132	82	1	12
Ha	249	2,754	4	2
Lhuntse	2,185	1,594	73	46
Mongar	5,671	3,578	143	40
Paro	3,962	3,460	126	36
Pemagatshel	2,976	2,085	80	38
Punakha	2,127	1,175	47	40
S/Jongkhar	3,055	1,949	84	43
Samtse	1,016	893	54	60
Sarpang	702	429	24	56
Thimphu	437	395	13	33
Trashigang	5,136	2,934	128	44
Trashiyangtse	3,932	3,024	70	23
Trongsa	779	249	4	18
Tsirang	1,340	851	148	174
Wangdue	1,821	1,362	32	24
Zhemgang	1,741	846	26	31
BHUTAN	40,622	29,918	1,148	38

Table 20.4: Plum Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Bumthang	364	290	6	21
Chhukha	341	231	5	23
Dagana	1,595	1,159	65	56
Gasa	7	7	0	62
Ha	131	83	3	38
Lhuentse	1,177	900	121	134
Mongar	3,361	2,169	111	51
Paro	795	627	27	43
Pemagatshel	984	691	26	37
Punakha	466	344	14	41
S/Jongkhar	1,306	617	49	80
Samtse	115	92	1	14
Sarpang	593	422	41	96
Thimphu	284	203	7	33
Trashigang	2,548	1,452	137	94
Trashiyangtse	1,606	1,061	27	25
Trongsa	537	135	3	26
Tsirang	1,005	766	81	105
Wangdue	632	320	10	30
Zhemgang	421	234	10	41
BHUTAN	18,265	11,803	744	63

Table 20.5: Walnut Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Bumthang	934	463	5	11
Chhukha	512	10	0.04	4
Dagana	2,671	658	19	29
Gasa	15	5	0.1	11
Ha	968	239	3	14
Lhuentse	1,364	520	36	69
Mongar	4,288	932	32	35
Paro	2,396	1,550	60	39
Pemagatshel	2,369	586	17	29
Punakha	3,000	928	11	12
S/Jongkhar	3,489	773	26	33
Samtse	97	58	0.3	6
Sarpang	833	117	1	8
Thimphu	566	458	9	21
Trashigang	8,028	2,278	73	32
Trashiyangtse	4,118	1,418	23	17
Trongsa	1,056	83	2	24
Tsirang	627		-	
Wangdue	2,451	607	14	23
Zhemgang	2,637	473	18	37
BHUTAN	42,419	12,156	350	29

Table 20.6: Jackfruit Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	102	74	6	83
Dagana	708	364	38	104
Mongar	253	140	14	101
Pemagatshel	1,122	403	59	147
Punakha	16	12	0.47	38
S/Jongkhar	680	291	55	191
Samtse	905	613	98	160
Sarpang	6,132	3,193	476	149
Trashigang	14	9	0.33	35
Trashiyangtse	10		-	
Trongsa	183	114	4	38
Tsirang	189	70	8	107
Wangdue	18	12	1	93
Zhemgang	309	197	12	63
BHUTAN	10,640	5,492	773	141

Table 20.7: Guava Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	845	552	15	26
Dagana	6,492	3,108	77	25
Lhuentse	761	736	24	33
Mongar	3,248	2,353	68	29
Pemagatshel	3,510	2,505	63	25
Punakha	4,148	3,575	69	19
S/Jongkhar	6,219	1,528	50	33
Samtse	1,356	1,126	24	21
Sarpang	3,637	2,315	55	24
Trashigang	1,826	1,224	36	30
Trashiyangtse	1,627	921	11	12
Trongsa	902	727	26	35
Tsirang	2,102	1,447	38	26
Wangdue	1,971	1,247	23	19
Zhemgang	888	535	12	23
BHUTAN	39,531	23,900	592	25

Table 20.8: Papaya Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	65	53	0.5	9
Dagana	384	317	7	22
Lhuentse	10	10	0.3	32
Mongar	366	310	6	21
Pemagatshel	873	547	7	13
Punakha	105	89	3	34
S/Jongkhar	731	351	11	30
Samtse	286	231	6	28
Sarpang	1,428	1,144	37	32
Trashigang	341	218	5	21
Trashiyangtse	235	119	1	10
Trongsa	93	77	1	18
Tsirang	1,020	633	19	30
Wangdue	51	43	1	24
Zhemgang	129	84	2	18
BHUTAN	6,117	4,225	106	25

Table 20.9: Pomegranate Production and yield in 2013

Dzongkhag	Total Trees	Bearing Trees	Production(MT)	Yield (kg/bearing tree)
Chhukha	76	15	0.1	5
Dagana	3,749	659	12	18
Lhuentse	284	204	7	35
Monggar	918	424	10	23
Paro	177	115	3	29
Pemagatshel	338	160	3	21
Punakha	716	504	6	13
S/Jongkhar	222	64	1	11
Samtse	99	93	3	28
Sarpang	393	123	4	29
Thimphu	4	4	0.04	10
Trashigang	1,026	581	10	18
Trashiyangtse	829	481	4	9
Trongsa	861	435	13	31
Tsirang	653	320	12	38
Wangdue	854	545	11	21

Zhemgang	73	31	0.3	10
BHUTAN	11,273	4,756	101	21

Table 20.10: Litchi Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	264	45	1	27
Dagana	2,841	576	10	18
Mongar	356	45	1	30
Paro	9	9	0.3	27
Pemagatshel	1,094	25	0.4	17
Punakha	13	10	0.1	15
S/Jongkhar	1,904	70	3	40
Samtse	1,635	782	35	45
Sarpang	13,773	2,460	116	47
Trashigang	45	18	0	25
Trongsa	18	3	0.1	35
Tsirang	781	12	0	20
Wangdue	18	5	0.2	39
Zhemgang	665	16	0.3	20
BHUTAN	23,415	4,076	169	41

Table 20.11: Persimmon Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	55	24	0.3	13
Dagana	57	32	2	72
Gasa	13	13	0.5	38
Lhuentse	348	74	1	20
Monggar	1,892	793	34	42
Paro	270	165	15	91
Pemagatshel	335	93	2	22
Punakha	1,649	1,267	70	55
S/Jongkhar	715	294	4	15
Samtse	73	46	1	15
Thimphu	27	27	0.4	16
Trashigang	640	321	6	20
Trashiyangtse	251	118	6	48
Trongsa	142	119	3	26
Tsirang	115	30	1	19
Wangdue	1,744	1,474	78	53
Zhemgang	145	76	1	9
BHUTAN	8,471	4,965	225	45

Table 20.12: Banana Production and yield in 2013

Dzongkhag	Total Trees	Bearing Tree	Production(MT)	Yield (kg/bearing tree)
Chhukha	15,259	3,866	57	15
Dagana	41,550	20,771	270	13
Ha	260	177	2	10
Lhuentse	571	414	8	19
Mongar	22,471	7,459	59	8
Pemagatshel	29,183	6,277	73	12
Punakha	5,396	788	12	15
S/Jongkhar	44,008	13,972	124	9
Samtse	30,181	10,922	165	15
Sarpang	44,911	16,385	281	17
Trashigang	21,322	6,675	71	11
Trashiyangtse	11,763	1,374	18	13
Trongsa	4,083	1,770	34	19
Tsirang	38,631	17,655	242	14

Wangdue	7,262	2,787	26	9
Zhemgang	11,854	5,268	51	10
BHUTAN	328,705	116,560	1,489	13

Table 20.13: Other fruit crops

Dzongkhag	Sugarcane Production (MT)	Passion fruits Production(MT)	Pine Apple Production(MT)
Chhukha	7	2	1
Dagana	34	17	7
Gasa	-	0.3	-
Ha	1	0.1	-
Lhuentse	1	2	0.0
Mongar	7	27	5
Pemagatshel	77	14	3
Punakha	12	8	-
S/Jongkhar	45	11	18
Samtse	7	2	5
Sarpang	7	8	16
Trashigang	22	11	1
Trashiyangtse	17	1	0.1
Trongsa	4	1	-
Tsirang	34	10	0.4
Wangdue	10	4	-
Zhemgang	7	5	1
BHUTAN	292	125	57

21. Dzongkhag level Crop Utilization of some Major Cash Crops

Table 21.1: Rice Utilization in 2013

Dzongkhag	Quantity sold(MT)	Avg Unit Price(Nu/kg)	Amount Earned (Million Nu)	Type of Market (in)	
				Domestic	Export
Bumthang	2	80	0.13	100	0
Chhukha	17	71	1	100	0
Dagana	23	54	1	100	0
Gasa	0.9	70	0.06	100	0
Ha	3	100	0.3	100	0
Lhuentse	23	66	1	100	0
Mongar	29	68	2	100	0
Paro	799	71	57	99	1
Punakha	465	87	43	100	0
S/Jongkhar	42	45	2	100	0
Samtse	1	47	0.05	100	0
Sarpang	19	44	0.9	100	0
Thimphu	18	67	1	100	0
Trashigang	57	58	3	100	0
T/yangtse	49	49	2	100	0
Trongsa	14	76	1	100	0
Tsirang	19	58	1	100	0
Wangdue	86	69	5	100	0
Zhemgang	0.2	90	0.018	100	0

Table 21.2: Potato Utilization in 2013

Dzongkhag	Qty Retained for Seed (MT)	Qty Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market (in)	
					Domestic	Export
Bumthang	632	2,201	16	36	55	45
Chhukha	641	3,240	22	67	70	30
Dagana	12	48	26	1	100	0
Gasa	22	100	18	2	96	4
Ha	436	1,285	18	23	92	8
Lhuentse	97	357	16	5	90	10
Monggar	911	2,205	22	67	67	33
Paro	420	2,045	19	37	85	15
Pemagatshel	357	590	15	8	94	6
Punakha	12	39	25	1	100	0
S/Jongkhar	162	767	16	12	99	1
Samtse	8	14	19	0.3	98	2
Sarpang	5	4	25	0.1	100	0
Thimphu	232	673	22	14	79	21
Trashigang	1,394	4,044	18	71	43	57
T/yangtse	416	1,844	15	26	77	23
Trongsa	60	210	20	4	76	24
Tsirang	23	97	27	2	92	8
Wangdue	2,581	10,744	18	183	100	0
Zhemgang	20	39	29	1	100	0

Table 21.3: Apple Utilization in 2013

Dzongkhag	Quantity Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million NU)	Type of Market (in)	
				Domestic	Export
Bumthang	58	14	0.76	100	0
Chhukha	2	25	0.08	100	0
Gasa	0.1	80	0.01	100	0
Ha	314	16	5	96.2	3.8
Paro	4,290	31	124	71.2	28.8
Thimphu	737	35	25	90.1	9.9
Trashigang	24	33	0.7	100	0
T/yangtse	4	38	0.07	100	0
Wangdue	2	38	0.06	100	0

Table 21.4: Mandarin Orange Utilization in 2013

Dzongkhag	Quantity Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market (in)	
				Domestic	Export
Chhukha	2,074	15	29	32	68
Dagana	3,924	17	55	91	9
Ha	2	30	0	100	0
Lhuentse	65	33	2	100	0
Mongar	901	25	17	59	41
Pemagatshel	2,459	17	44	92	8
Punakha	312	53	11	99	1
S/Jongkhar	4,029	16	52	98	2
Samtse	1,005	54	35	40	60
Sarpang	4,991	31	109	75	25
Trashigang	353	25	6	58	42
T/yangtse	206	17	3	82	18
Trongsa	194	21	4	68	32
Tsirang	4,426	18	77	43	57
Wangdue	59	45	2	100	0
Zhemgang	1,049	17	17	22	78

Table 21.5: Areca nut Utilization in 2013

Dzongkhag	Quantity Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market (in)	
				Domestic	Export
Chhukha	253	19	2	95	5
Dagana	651	14	9	46	54
Mongar	8.6	12	0.1	100	0
Pemagatshel	3	42	0.1	100	0
Samdrup Jongkhar	497	14	6	91	9
Samtse	1,891	18	33	78	22
Sarpang	1,856	35	45	86	14
Zhemgang	6	28	0.2	100	0

Table 21.6: Cardamom Utilization in 2013

Dzongkhag	Quantity Sold (MT)	Avg Unit Price (Nu/kg)	Amount Earned (Million Nu)	Type of Market (in)	
				Domestic	Export
Chhukha	94	927	84	52	48
Dagana	22	871	20	100	0
Ha	107	1,076	116	25	75
Mongar	0.4	650	0.27	100	0
Pemagatshel	0.1	424	0.01	59	41
S/Jongkhar	1.6	467	0.43	100	0
Samtse	378	994	378	30	70
Sarpang	40	814	22	87	13
Trashigang	0.3	298	0.1	64	36
Trongsa	3	953	3	8	92
Tsirang	3	726	2	57	43
Zhemgang	0.1	80	0.01	100	0