

AGRICULTURE STATISTICS 2005



(Volume I)

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MINISTRY OF AGRICULTURE
ROYAL GOVERNMENT OF BHUTAN
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དཔལ་ལྷན་འབྲུག་གཞུང
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ཐིམ་ཕུ།



DEPARTMENT OF AGRICULTURE
Royal Government of Bhutan
Ministry of Agriculture
Tashichhodzong: Thimphu

“Walking the Extra Mile”

Foreword

The Agriculture Statistics 2005 is the second publication of the Department of Agriculture. An attempt has been made to present a comprehensive data concerning agriculture development to meet the data needs for various clients. The publication contains data on the agricultural area, production levels and constraints faced by farmers. Also, information related to agriculture through secondary data sources has been compiled and presented

We hope that the data in this publication will provide a better understanding of agriculture and will help make informed decisions for development. This is our ongoing effort to improve the database. There are constraints in collecting and managing the information.

The Department of Agriculture commends the inputs provided by the various agencies. We also extend our appreciation to the Dzongkhag Administrations for their support in the implementation of field data collection.

We hope that the data will be useful for policy makers, planners, administrators, managers, researchers and those who are involved in the development of RNR sector.

Lastly, I take this opportunity to congratulate my colleagues in the department and Dzongkhags who have taken this initiative to successfully bringing out this publication. Their efforts will go a long way in improving the database in agriculture.

Sherub Gyaltsen
DIRECTOR GENERAL
Date: 5 July 2007.

TABLE OF CONTENTS	ERROR! BOOKMARK NOT DEFINED.
1. INTRODUCTION.....	7
1.1 OBJECTIVES	7
1.2 ORGANIZATION OF THE SURVEY	7
1.3 Survey Methodology.....	8
1.4 Field Operation.....	8
1.5 Data Validation, Processing and Analysis.....	8
1.6 Data Limitations	9
1.7 Estimate of survey results.	9
TABLE: 3. DZONGKHAG WISE AGRICULTURAL LAND USE (ACRES) REGISTERED	11
TABLE 3.1 PADDY HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	12
TABLE 3.2 MAIZE HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	12
TABLE 3.3. WHEAT HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	13
TABLE 3.4. BARLEY HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	13
TABLE 3.5. FOXTAIL MILLET HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	14
TABLE 3.6. FINGER MILLET HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	14
TABLE 3.7 SWEET BUCKWHEAT HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	15
TABLE 3.8. BITTER BUCKWHEAT HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	15
TABLE 4.1 RAJMA BEAN HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	18
TABLE 4.2 MUSTARD HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	19
TABLE 4.3 SOYA BEAN HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	19
TABLE 4.4 SWEET POTATO HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	20
TABLE 4.5 GARLIC HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	20

TABLE 4.6 ONION HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	21
TABLE 4.7 GINGER HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	21
TABLE 4.8 CARDAMOM HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	22
TABLE 4.9 CHILI HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	22
TABLE 4.10 CABBAGE HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	23
TABLE 4.11 CAULIFLOWER HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	23
TABLE 4.12 CARROT HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	24
TABLE 4.13 RADISH HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	24
TABLE 4.14 TURNIP HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	25
TABLE 4.15 BEANS HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	25
TABLE 4.16 PEAS HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	26
TABLE 4.17 TOMATO HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	26
TABLE 4.18 POTATO HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	27
TABLE 4.19 GREEN LEAVES HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	27
TABLE 4.20 BROCCOLI HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	28
TABLE 4.21 PUMPKIN HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE)	28
TABLE 4.22 SQUASH HARVESTED AREA, PRODUCTION AND YIELD (KG/ACRE).....	29
5. PRODUCTION AND STATUS OF TREE CROPS.....	32
TABLE 5.1 APPLE TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE)	32
TABLE 5.2 MANDARIN TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE).....	32
TABLE 5.3 MANGO TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE).....	33
TABLE 5.4 PEAR TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE).....	33
TABLE 5.5 PEACH TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE)	34
TABLE 5.6 PLUM TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE)	34

TABLE 5.7 WALNUT TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE).....	35
TABLE 5.8 ARECANUT TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE)	35
TABLE 5.9 GUAVA TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE)	36
TABLE 5.10 BANANA TOTAL NUMBERS OF TREES, BEARING TREES, PRODUCTION AND YIELD (KG/TREE).....	36
6. CONSTRAINTS FACED BY THE FARMING COMMUNITY	37
TABLE 6.1 PERCENT HOUSEHOLDS BY CONSTRAINTS DURING 2005	38
TABLE 7 SUMMARY OF MAJOR CORPS FOR THE YEAR 2004 AND 2005 STATISTICS.....	39
TABLE 7.1 PADDY HARVESTED AREA AND PRODUCTION	39
TABLE 7.2 MAIZE HARVESTED AREA AND PRODUCTION.....	40
TABLE 7.3 WHEAT HARVESTED AREA AND PRODUCTION.....	41
TABLE 7.4 BARLEY HARVESTED AREA AND PRODUCTION.....	42
TABLE 7.5 FINGER MILLET HARVESTED AREA AND PRODUCTION	43
TABLE 7.6 FOXTAIL MILLET HARVESTED AREA AND PRODUCTION	44
TABLE 7.7 SWEET BUCKWHEAT HARVESTED AREA AND PRODUCTION	44
TABLE 7.8 BITTER BUCKWHEAT HARVESTED AREA AND PRODUCTION.....	45
TABLE 7.8 POTATO HARVESTED AREA AND PRODUCTION.....	46
TABLE 7.9 MUSTARD HARVESTED AREA AND PRODUCTION.....	47
7.10 CHILI HARVESTED AREA AND PRODUCTION.....	48
TABLE 7.11 PEA HARVESTED AREA AND PRODUCTION.....	49
TABLE 7.12 TOMATO HARVESTED AREA AND PRODUCTION	50
TABLE 7.13 BEAN HARVESTED AREA AND PRODUCTION.....	51
TABLE 7.14 RADISH HARVESTED AREA AND PRODUCTION.....	52
TABLE 7.15 TURNIP HARVESTED AREA AND PRODUCTION	53
TABLE 7.16 CABBAGE HARVESTED AREA AND PRODUCTION.....	54

TABLE 7.17 CARDAMOM HARVESTED AREA AND PRODUCTION	55
TABLE 7.18 GREEN LEAVES HARVESTED AREA AND PRODUCTION	56
TABLE 7.19 APPLE TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	57
TABLE 7.20 MANDARIN TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	57
TABLE 7.21 PEACH TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	58
TABLE 7.22 PEAR TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	59
TABLE 7.23 PLUM TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	60
TABLE 7.24 GUAVA TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	61
TABLE 7.25 MANGO TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	62
TABLE 7.26 BANANA TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	63
TABLE 7.27 ARECANUT TOTAL NUMBERS OF TREES, BEARING TREES AND PRODUCTION	63
8 FARM ROAD	64
TABLE 8.2 FARM ROADS DEVELOPMENT IN 9TH PLAN APRIL 2007	65
TABLE 8.3 POWER TILLER TRACKS DEVELOPMENT AND ACHIEVEMENTS	66
9 FARM MECHANIZATION PROGRAMME (AGRICULTURE MACHINERY CENTRE - AMC)	67
TABLE 9.1 SUPPLY OF FARM MACHINERIES, P.P EQUIPMENTS SUPPLIED TO THE VARIOUS DZONGKHAG (FROM 1ST JANUARY TO 31ST DECEMBER) 2005	67
TABLE 10: DZONGKHAG WISE PESTICIDES DISTRIBUTION FOR THE FINANCIAL YEAR 2005-06 (QUANTITY IN KG/LT.)	68
TABLE 10.1: SALE OF FERTILIZERS & HERBICIDES IN 2005	69
TABLE 11: INFORMATION ON WET LAND CONVERTED TO DRY LAND FOR THE YEAR 2005	70
TABLE 12: YEAR WISE AUCTION DETAILS OF THE AGRICULTURE COMMODITIES	70
TABLE 13: AGRICULTURE COMMODITIES EXPORTED FOR THE YEAR 2005	71
TABLE 14: THE LOANS DISBURSED DURING THE YEAR 2005 (JANUARY - DECEMBER) FOR AGRICULTURE FARMING BY THE BDFC BRANCHES DZONGKHAGS WISE	72

1. Introduction

The rural agriculture sample surveyed was initiated and conducted by Department of agriculture in 2005. The first agriculture census was conducted in 2004 covering the entire rural household. The data obtained have been processed, analyzed and presented at the Dzongkhag and geog level, which have been eventually summed up at the national level. The publication features area, production and yield in respect of principle crops of food-grains, oil seeds, pulses and spices, and horticultural crops. Further, the publication also provides information on food security levels and farm constraints.

1.1 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.
- The immediate objective is to generate data needed for preparation of the plans, programs and to assess the achievements.
- Prepare time series data of Land use and agriculture production trend.

1.2 Organization of the Survey

The survey is focussed on the rural farming household. IMS, DoA took the lead in the conceptualization, preparing of questionnaires and co-ordinating the sample survey. All attempts has been made to cover 201 geogs however, due to unavoidable circumstances Laya geog under Gasa could not be enumerated. The extension staff collected the data by using the set of questionnaire provided to them.

The rural agriculture data collected data are on

1. Land use status
2. Area and production of
 - Cereals
 - Oilseeds and spices
 - Pulses
 - Tree crops
 - Vegetables
3. Agricultural constraints

1.3 Survey Methodology

Sampling design

The survey adopted a systematic random sampling to select the rural farming households. A 10 percent sample was applied uniformly to all the Geogs irrespective of the sizes and economic activities undertaken. No further stratification was adopted.

Sampling Units and Sampling Frames

All the 201 Geogs in the country served as the domain for the sample survey. All the Geogs were included in the sample survey in order to cover different ecological resources endowment, and development stages. A household is the lowest sampling unit. The household lists for each Geog served as the sample frame from which a 10 percent sample was chosen for interview.

Sampling Procedures

The IMS, DoA in consultation with the DAOs and extension agents selected the sample households based on the household lists maintained in the geog centre. The sample was drawn from the fifth households from the list. The rest were similarly identified by using systematic random sampling by picking every fifteenth farmer to identify the required 10 % sample. This sample list was distributed to the enumerators for identification and interview. In the event that the sampled farmer was not available for interview, then the next farmer from the same locality was selected.

1.4 Field Operation

Since consistency of data depends on methodology of collection, it is highly important to brief the extension worker on proper procedures of data collection and development of sample frame. This will avoid data collection problems in the field and discrepancies of data at the time of compilation. Therefore, prior to the survey we have conducted briefing to all the Geog Agriculture Extension Agents. The extension agents are briefed on the contents of questionnaire, methodology and sample list. Questionnaires were also distributed along with the sample lists. The survey reference period was for the year 2005 and the enumeration was conducted from December 2005 till January 2006.

1.5 Data Validation, Processing and Analysis

There were three stages of data validation steps. The first step was the process of eliminating and data consistencies at geog level by the extension workers by comparing the yield from the annual crop cut. These inconsistencies data enumeration were removed. The second validation was the process of deleting the data that did not make any sense. The affect from the removal of such data is insignificant since the number of cases barely exceeded 5 percent of the total sample. The third validation was on local units measurements to standard unit. The farmers still use local measurement units that differ from place to place.

Instead of reporting in Kg and Acre they have reported in langdo, bags, baskets, etc. As a result, it not only poses difficulties in compilation but also affects the quality of data in terms of area and production. However, this year we have used the National Statistical Bureau publication on standardization of local units 2002 for standardization of commodities reported by the farmers.

Finally, the data entry was designed using Ms. Access. We organized two weeks workshop for all 20 Dzongkhags agriculture data managers in Paro with the surveyed questionnaires for final validation. The data entry was done at Rinpung Computer Training Centre at Paro in July 2006 with adequate training by the department.

1.6 Data Limitations

This publication attempts to present the data related to the rural farming households for the year 2005. Since this is the first uniform 10 percent sample survey, there are some inherent weaknesses. The publication presents data for the year 2005 and does not provide time series data.

It should also be noted that the data were collected by people with different social and educational background. Although various capacity development activities were conducted to enhance their skills and knowledge in conducting the surveys and data entry, one cannot completely forget the human nature associated with committing mistakes.

The primary source of data are the farmers who are not educated and do not keep records of their land area, production and many farmers under reports due to fear of taxation. The data collected are based on the memory they can remember as far back as possible. Lastly, like any other data gathering activities, the results are also subject to sampling and non-sampling errors. Utmost care has been considered to keep such errors to minimum level.

1.7 Estimate of survey results.

It may be noted that the estimate of the rural household will refer the rural agriculture households for the year 2005. The survey covered 5,334 rural households out of 6,182 sample household. The 1.4 percent non response or absentees was due to problems with the listings and some of the farmers are away on pilgrimage and on holidays. This agriculture statistics represent the total extrapolated for 61,825 rural household for the year 2005. The figure is the estimate based on the sample. However, we did not include nor publish the figures if the geogs have reported less than 3 samples. The sample represents the rural households only. Unlike in 2000 and 2004 statistics, the harvested area and production are high due to resettlement programs in the southern Dzongkhags.

3. Field Crops

Paddy

Paddy is the staple food in Bhutan. In year 2005, paddy production was 67,606 MT and the area under cultivation was 62,457 acres. The area under cultivation was increased due to resettlement programs in the southern Dzongkhags. All dzongkhags cropped paddy including Bumthang. Major paddy cultivation areas are found in south where terrain is gentler and more accessible to streams and river valley irrigation systems. Punakha, Sarpang, Samtse, Wangduephodrang, Dagana, Chhukha, Paro and Tsirang are the largest paddy growers.

Maize

Maize is a dry land crop cultivated in all the dzongkhags. It was cultivated on 75,859 acres with the total production of around 93,968 MT. It is also the staple food of the people.

Wheat and Barley

Wheat and barley are generally grown on dry lands but it is also cultivated as a second crop to paddy in the irrigated lands. While significant part of the wheat crop is generally cut as green fodder for cattle, the remaining is harvested to supplement food consumption. About 30,275 acres are cultivated and produced aggregate of 15,838MT.

Buckwheat

Buckwheat is a dry land crop thinly spread out across the country. Buckwheat is consumed by both human and animals. At least 16,063 acres of land was cultivated to buckwheat with 6,998 MT grains produced.

Millet

Millet is a dry land crop cultivated. Two different varieties – foxtail and finger millets exist. The latter is widely grown in the south and in the mid-hills partially for brewing and as a food supplement. About 6,826 MT of millets have been produced from 16,985 acres.

Table: 3. Dzongkhag wise Agricultural Land use (Acres) registered

Dzongkhag	Wet Land	Dry Land	Fallow	Tseri	Orchard	Kitchen Garden
Bumthang	-	4,680	9,336	1,154	134	220
Gasa	283	430	171	2	NA	27
Ha	111	2,190	362	1,065	67	113
Lhuentse	3,190	7,625	770	887	2	307
Mongar	2,003	24,366	1,175	640	17	61
Paro	3,954	6,744	593	733	679	535
Pemagatshel	146	15,528	2,022	229	22	65
Punakha	6,656	884	923	143	64	373
Sarpang	6,504	14,928	130	3,025	2,432	59
Thimphu	2,737	7,671	943	155	681	260
Trashigang	4,745	36,721	2,637	736	45	215
Trongsa	2,572	3,261	1,242	1,910	36	138
Wangdue	6,792	3,518	1,167	393	51	465
Yangtse	3,516	10,533	3,231	65	4	15
Chhukha	2,706	11,654	75	23,008	NA	256
Dagana*	3,190	13,248	31	3,196	NA	84
SamdrupJongkhar*	1,721	21,499	1,256	29,561	NA	7
Samtse*	9,604	15,257	141	13,997	NA	2
Tsirang*	6,388	24,262	231	3,260	NA	1
Zhemgang*	2,596	9,044	247	16,549	NA	131
Total	69,414	234,043	26,683	100,708	4,234	3,334

Source: Department of Survey and Land Records, MoA, Thimphu 2005

1. * As per the Thram records for 6 Dzongkhgas and rest cadastral survey data, 2004
2. Note: The area under cadastral survey pertains to the registered area and may not conform to the ground area as it has not been updated for those land Owners who have not paid up for the excess land.
3. The dry land also covers orchard land.
4. NA is not available

Table 3.1 Paddy Harvested Area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Bumthang	45	74	1,652
Chhukha	3,555	3,249	914
Dagana	4,033	3,145	780
Gasa	153	135	881
Ha	201	221	1,102
Lhuentse	1,787	2,397	1,341
Mongar	2,080	2,805	1,348
Paro	3,674	5,987	1,630
Pemagatshel	149	134	900
Punakha	4,455	6,915	1,552
SamdrupJongkhar	4,205	3,911	930
Samtse	11,858	9,105	761
Sarpang	8,238	8,753	1,063
Thimphu	1,807	2,693	1,491
Trashigang	3,712	4,297	1,158
Trashhi Yangtse	1,904	2,654	1,394
Trongsa	1,791	1,658	926
Tsirang	4,161	3,503	842
Wangdue	3,334	4,816	1,445
Zhemgang	1,316	1,155	877
Total	62,457	67,606	1,082

Table 3.2 Maize Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Chhukha	4,438	6,094	1,373
Dagana	8,035	5,448	678
Ha	207	153	738
Lhuentse	2,201	4,733	2,150
Mongar	7,026	10,533	1,499
Paro	21	11	522
Pemagatshel	2,773	3,344	1,206
Punakha	561	566	1,010
SamdrupJongkhar	7,941	11,591	1,460
Samtse	12,173	13,256	1,080
Sarpang	8,966	10,697	1,193
Thimphu	54	41	767
Trashhi Yangtse	2,296	5,204	2,267
Trashigang	8,180	11,163	1,365
Trongsa	1,099	1,144	1,041
Tsirang	6,242	5,098	817
Wangdue	417	412	989
Zhemgang	3,229	4,481	1,388
Total	75,859	93,968	1,239

Table 3.3. Wheat Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Bumthang	999	809	810
Chhukha	4,436	1,624	366
Dagana	931	390	419
Gasa	146	40	271
Ha	946	433	458
Lhuentse	363	365	1,004
Mongar	343	182	530
Paro	2,395	1,240	518
Pemagatshel	265	170	640
Punakha	1,412	570	404
SamdrupJongkhar	990	573	579
Samtse	1,692	810	479
Sarpang	1,339	670	500
Thimphu	750	472	630
Trashhi Yangtse	228	447	1,964
Trashigang	847	444	525
Trongsa	1,070	534	499
Tsirang	321	121	377
Wangdue	1,927	1,058	549
Zhemgang	426	296	694
Total	21,825	11,246	515

Table 3.4. Barley Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Bumthang	861	684	794
Chhukha	197	161	818
Dagana	89	47	531
Gasa	81	60	748
Ha	211	111	529
Mongar	1,968	936	475
Paro	406	209	516
Pemagatshel	433	205	474
Punakha	274	167	608
SamdrupJongkhar	553	308	558
Thimphu	206	240	1,163
Trashhi Yangtse	272	97	357
Trashigang	1,076	431	400
Trongsa	793	427	538
Wangdue	851	420	494
Zhemgang	180	89	495
Total	8,450	4,592	543

Table 3.5. Foxtail Millet Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Chhukha	181	103	569
Dagana	130	46	351
Pemagatshel	95	89	940
SamdrupJongkhar	797	338	424
Samtse	285	171	603
Sarpang	935	222	238
Tsirang	194	77	397
Zhemgang	419	108	257
Total	3,035	1,027	338

Table 3.6. Finger Millet Harvested Area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Chhukha	1,525	763	500
Dagana	1,429	628	439
Ha	50	15	302
Lhuentse	296	199	671
Mongar	114	27	234
Paro	105	32	301
Pemagatshel	36	12	341
Punakha	21	15	718
SamdrupJongkhar	849	321	379
Samtse	4,267	1,302	305
Sarpang	2,332	1,467	629
Trashhi Yangtse	253	115	453
Trashigang	458	165	361
Trongsa	174	75	430
Tsirang	1,172	370	316
Wangdue	49	14	277
Zhemgang	820	279	341
Total	13,950	5,799	416

Table 3.7 Sweet buckwheat Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Bumthang	726	523	719
Chhukha	1,556	659	423
Dagana	984	393	399
Ha	383	118	308
Lhuentse	40	28	686
Mongar	894	285	318
Paro	198	49	246
Pemagatshel	437	167	381
SamdrupJongkhar	1,637	610	373
Samtse	355	105	296
Sarpang	275	117	425
Trashhi Yangtse	57	39	688
Trashigang	1,371	364	265
Trongsa	152	123	805
Tsirang	23	6	285
Wangdue	146	74	512
Zhemgang	106	42	397
Total	9,342	3,700	396

Table 3.8. Bitter buckwheat Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production(MT)	Yield
Bumthang	648	514	793
Chhukha	688	398	578
Dagana	370	228	618
Gasa	10	5	517
Ha	334	132	396
Mongar	317	88	278
Paro	286	158	553
Pemagatshel	221	164	741
Punakha	371	179	484
SamdrupJongkhar	897	360	401
Samtse	449	146	325
Sarpang	256	115	450
Trashhi Yangtse	55	34	621
Trashigang	466	187	399
Trongsa	603	265	439
Wangdue	178	77	430
Zhemgang	573	249	435
Total	6,721	3,298	491

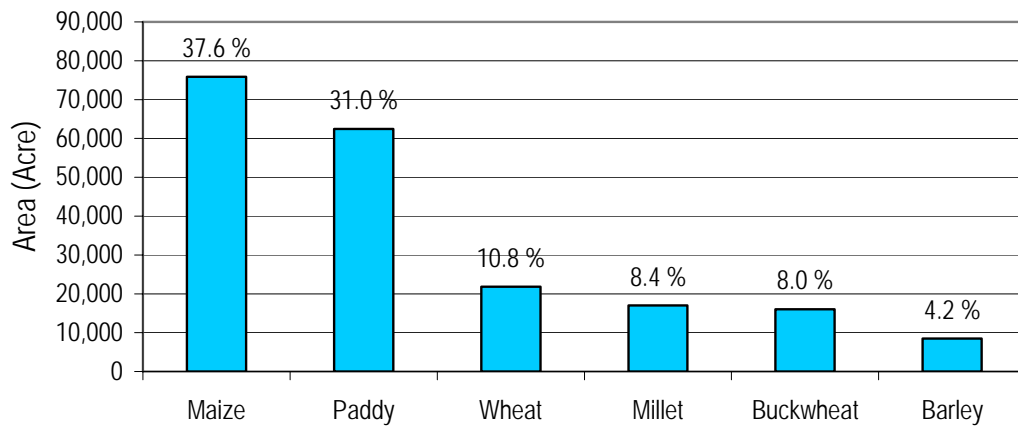


Figure: 1 Cereals crops cultivated area and percent in 2005

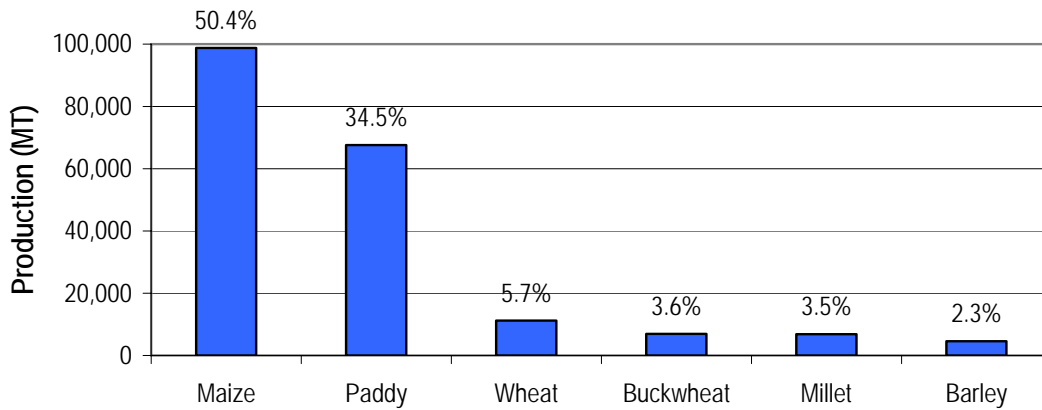


Figure:2 Cereal crops production and percent in 2005

4.Horticulture

Vegetable

A variety of vegetables are cultivated in the country mostly on subsistence level. Areas close to urban or accessible to motor roads produce substantial amount of vegetables for sale. Some of the major ones are chili, radish, turnip and potato. Vegetables have a comparative advantage as an off-season crop for the neighboring markets in India and Bangladesh.

Potato

Potato cultivation has spread to all parts of the country and has become an important source of cash income to the farmers mainly in the west, central and in the east. Potato is a dry land crop although farmers in Paro valley do cultivate in wet lands preceding paddy cultivation. Available potato varieties generally do not fit well into wetland cropping systems in Paro, and as a result, most potato crops to be harvested before the tuber reaches its full potential size. The total production of the potato for the year 2005 was 53,594 MT in which 23,766.54 MT was exported to the neighboring country.

Chili

Chili, although a part of spice group is generally consumed like any other vegetables in this country. It forms an important part of the family diet and also as an important source of cash income to the farmers. Chili is cultivated in both wet and dry lands mainly in the mid hills from the west to east. Chilies popularly grown in the region are large, fleshy and mild and are liked by people for preparation of ema datsi, a delicacy in Bhutanese dishes. Chili is grown in all the Dzongkhags and especially in the rural villages the chili were dried and stored for domestic consumption for one year.

Radish and Turnip

Radish is another important crop mainly produced for domestic consumption. It is a dry land crop and forms an important part of the family diet. Their fleshy thick root goes well with pork dishes even on special occasions. Substantial amount of the produces sold go to institutions like schools and army establishments, which are appropriate for mass feeding.

Like radish, turnip is also a dry land crop produced for domestic consumption. People consume it, but most of it goes as feed for cattle and pigs. Its cultivation is well adapted especially to high land areas with production level reaching 21,107 MT.

Minor Vegetable Crops

Numerous minor vegetable crops are cultivated in this country. While many do exist as a kitchen garden crop, others such as tomato, carrots and beans are expanding in the more accessible areas. In a recent market survey carried out in Bangladesh, Bhutanese tomatoes have good potential as an off-season export crop.

Spices

Spices traditionally have been an integral part of most Bhutanese diets. Generally ginger, onion, garlic and cardamom are used in the preparation of curry dishes. Bhutanese in southern region use ginger and cardamom in tea, believed to have healing effects on body. Ginger is a sub-tropical crop cultivated mainly in the foothills. Ginger was cultivated in 2,435 acres producing 6,901MT. It is an important cash crop generally sold off to local and neighbouring markets in India. Its major risk is its volatile market prices. Local consumption level is minimal and processing facilities for ginger non-existent. Garlic and onion are grown in small quantities primarily to meet home consumption only.

Table 4.1 Rajma Bean Harvested area, Production and yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	46	32	690
Dagana	57	110	1,933
Lhuentse	32	35	1,116
Mongar	422	195	463
Paro	34	21	620
Pemagatshel	21	28	1,328
Punakha	35	56	1,619
Samtse	87	83	957
SamdrupJongkhar	127	226	1,774
Sarpang	36	26	727
Trashhi Yangtse	104	256	2,457
Tsirang	109	121	1,110
Wangdue	18	25	1,432
Zhemgang	13	8	596
Total	1,139	1,222	1,073

Table 4.2 Mustard Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	365	129	353
Chhukha	1,340	367	274
Dagana	1,090	441	404
Gasa	73	28	383
Ha	182	69	378
Lhuentse	115	72	629
Mongar	1,115	356	320
Paro	455	126	277
Pemagatshel	530	261	493
Punakha	1,064	183	172
SamdrupJongkhar	516	165	319
Samtse	1,207	410	340
Sarpang	1,485	531	357
Thimphu	352	243	690
Trashigang	1,032	298	289
Trongsa	576	146	253
Tsirang	1,307	260	199
Wangdue	607	208	343
Zhemgang	546	138	253
Total	13,956	4,382	314

Table 4.3 Soya Bean Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	36	81	2,256
Dagana	48	59	1,224
Lhuentse	67	212	3,171
Mongar	128	179	1,400
Pemagatshel	36	36	1,001
Punakha	47	29	618
Samtse	55	34	616
Sarpang	98	59	604
SamdrupJongkhar	281	296	1,053
Trashi Yangtse	238	463	1,949
Trashigang	199	142	713
Tsirang	101	28	278
Wangdue	30	5	168
Zhemgang	79	9	116
Total	1,445	1,634	1,131

Table 4.4 Sweet Potato Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Dagana	130	220	1,689
Mongar	299	414	1,384
Pemagatshel	36	51	1,427
Sarpang	65	75	1,157
Trashigang	237	524	2,213
Total	767	1,284	1,675

Table 4.5 Garlic Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	21	30	1,411
Dagana	60	32	543
Ha	6	8	1,349
Lhuentse	48	79	1,651
Mongar	57	26	453
Pemagatshel	16	22	1,401
SamdrupJongkhar	27	21	791
Trashi Yangtse	35	49	1,396
Trashigang	97	107	1,100
Zhemgang	5	3	542
Total	371	376	1,012

Table 4.6 Onion Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	28	19	688
Dagana	61	78	1,272
Lhuentse	107	186	1,733
Mongar	210	106	506
Paro	2	2	750
Pemagatshel	18	15	811
Punakha	41	43	1,040
SamdrupJongkhar	50	114	2,301
Samtse	8	5	607
Sarpang	67	51	749
Thimphu	27	29	1,063
Trashi Yangtse	38	72	1,917
Trashigang	159	120	754
Trongsa	28	43	1,543
Tsirang	44	23	518
Wangdue	50	77	1,558
Zhemgang	20	9	475
Total	958	992	1,035

Table 4.7 Ginger Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	242	578	2,393
Dagana	64	67	1,057
Lhuentse	4	7	1,813
Mongar	48	42	874
Pemagatshel	59	142	2,397
Punakha	3	2	813
SamdrupJongkhar	547	861	1,575
Samtse	552	4,054	7,343
Sarpang	394	563	1,428
Trashi Yangtse	14	15	1,130
Trashigang	136	172	1,267
Trongsa	5	4	897
Tsirang	285	305	1,070
Wangdue	40	63	1,577
Zhemgang	43	25	567
Total	2,435	6,901	2,834

Table 4.8 Cardamom Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	1,541	408	265
Dagana	735	90	122
Ha	279	47	170
Mongar	8	1	138
Samtse	2,749	578	210
Sarpang	521	66	126
Total	5,834	1,190	204

Table 4.9 Chili Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	56	123	2,202
Chhukha	275	448	1,630
Dagana	223	222	997
Gasa	41	34	832
Ha	51	60	1,191
Lhuentse	438	1,129	2,576
Mongar	591	764	1,294
Paro	602	2,041	3,392
Pemagatshel	440	626	1,423
Punakha	300	978	3,256
Samtse	210	83	397
Sarpang	146	94	647
SamdrupJongkhar	271	442	1,633
Trashigang	621	709	1,141
Thimphu	250	556	2,229
Trashhi Yangtse	194	564	2,907
Trongsa	320	505	1,577
Tsirang	206	186	901
Wangdue	265	760	2,870
Zhemgang	139	120	864
Total	5,638	10,447	1,853

Table 4.10 Cabbage Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	34	71	2,083
Chhukha	286	530	1,856
Dagana	88	147	1,682
Gasa	3	6	2,121
Ha	13	55	4,241
Lhuentse	53	109	2,034
Mongar	113	190	1,676
Paro	261	1,021	3,917
Pemagatshel	17	32	1,923
Punakha	27	47	1,768
SamdrupJongkhar	25	44	1,769
Samtse	76	30	393
Sarpang	48	39	821
Thimphu	36	85	2,360
Trashhi Yangtse	26	65	2,483
Trashigang	282	464	1,643
Trongsa	58	133	2,272
Tsirang	21	18	857
Wangdue	60	207	3,449
Zhemgang	48	52	1,086
Total	1,575	3,346	2,124

Table 4.11 Cauliflower Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	15	11	760
Dagana	18	9	500
Ha	9	19	2,240
Lhuentse	14	29	2,039
Mongar	66	119	1,817
Paro	2	1	550
Pemagatshel	11	14	1,292
SamdrupJongkhar	50	31	619
Samtse	20	6	315
Sarpang	9	4	408
Thimphu	15	31	2,019
Trashigang	82	144	1,763
Trashhi Yangtse	15	31	2,065
Tsirang	12	2	162
Wangdue	56	132	2,348
Zhemgang	2	2	760
Total	396	586	1,481

Table 4.12 Carrot Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	45	29	633
Chhukha	224	391	1,744
Ha	8	33	4,040
Lhuentse	35	79	2,244
Mongar	44	108	2,464
Paro	183	410	2,246
SamdrupJongkhar	13	17	1,367
Thimphu	127	271	2,130
Wangdue	13	50	3,707
Zhemgang	3	1	450
Total	695	1,389	1,999

Table 4.13 Radish Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	31	106	3,444
Chhukha	275	588	2,133
Dagana	292	606	2,071
Gasa	17	19	1,136
Ha	105	506	4,812
Lhuentse	205	618	3,010
Mongar	451	1,192	2,639
Paro	439	1,723	3,920
Pemagatshel	186	653	3,506
Punakha	146	550	3,770
SamdrupJongkhar	240	581	2,419
Samtse	279	381	1,385
Sarpang	221	280	1,268
Thimphu	165	583	3,534
Trashi Yangtse	257	732	2,849
Trashigang	598	1,075	1,796
Trongsa	131	653	4,982
Tsirang	250	363	1,453
Wangdue	296	1,195	4,037
Zhemgang	127	254	2,000
Total	4,713	12,637	2,681

Table 4.14 Turnip Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	84	230	2,732
Chhukha	199	376	1,890
Dagana	94	179	1,915
Gasa	18	25	1,392
Ha	288	2,212	7,679
Lhuentse	61	74	1,219
Mongar	73	126	1,734
Paro	360	1,602	4,448
Punakha	52	249	4,773
SamdrupJongkhar	40	50	1,246
Thimphu	267	885	3,311
Trashigang	86	71	819
Trongsa	66	223	3,376
Tsirang	16	7	413
Wangdue	324	2,160	6,671
Total	2,029	8,470	4,175

Table 4.15 Beans Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	33	23	679
Chhukha	145	134	920
Dagana	225	187	830
Gasa	4	3	717
Ha	19	18	947
Lhuentse	83	118	1,432
Mongar	144	220	1,521
Paro	68	126	1,854
Pemagatshel	40	55	1,386
Punakha	84	158	1,893
Samtse	165	90	547
Sarpang	201	129	644
SamdrupJongkhar	82	117	1,417
Thimphu	80	186	2,313
Trashigang	225	193	858
Trashi Yangtse	47	50	1,072
Trongsa	41	46	1,132
Tsirang	80	106	1,318
Wangdue	44	91	2,058
Zhemgang	56	44	782
Total	1,867	2,094	1,121

Table 4.16 Peas Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	270	356	1,319
Dagana	68	130	1,923
Gasa	6	1	233
Ha	237	333	1,401
Lhuentse	64	88	1,388
Mongar	174	141	814
Paro	687	1,405	2,046
Pemagatshel	13	13	957
Punakha	87	124	1,417
SamdrupJongkhar	162	164	1,015
Samtse	18	11	602
Sarpang	50	45	914
Thimphu	159	241	1,514
Trashigang	242	183	754
Trashhi Yangtse	11	13	1,241
Trongsa	12	14	1,125
Tsirang	154	119	773
Wangdue	56	105	1,887
Zhemgang	22	8	378
Total	2,491	3,495	1,403

Table 4.17 Tomato Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	120	157	1,307
Dagana	77	33	433
Ha	4	2	500
Lhuentse	37	45	1,193
Mongar	62	106	1,724
Paro	208	134	643
Pemagatshel	12	22	1,854
Punakha	17	33	1,954
SamdrupJongkhar	73	154	2,096
Samtse	82	380	465
Sarpang	82	82	1,003
Thimphu	116	403	3,487
Trashigang	130	257	1,980
Trashhi Yangtse	6	14	2,320
Trongsa	20	35	1,695
Tsirang	40	37	909
Wangdue	26	75	2,890
Zhemgang	27	13	474
Total	1,139	1,981	1,739

Table 4.18 Potato Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	827	4,524	5,473
Chhukha	1,069	5,599	5,238
Dagana	583	1,329	2,279
Gasa	43	55	1,272
Ha	351	2,236	6,378
Lhuentse	446	1,673	3,753
Mongar	1,107	2,856	2,581
Paro	1,293	7,582	5,864
Pemagatshel	607	1,801	2,968
Punakha	237	673	2,839
SamdrupJongkhar	398	958	2,407
Samtse	672	1,079	1,605
Sarpang	498	551	1,106
Thimphu	398	1,484	3,723
Tsirang	604	920	1,522
Trashhi Yangtse	540	2,649	4,904
Trashigang	3,182	8,224	2,585
Trongsa	163	698	4,273
Wangdue	1,317	8,406	6,381
Zhemgang	146	298	2,036
Total	14,482	53,594	3,701

Table 4.19 Green Leaves Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Bumthang	1	2	1,937
Chhukha	120	301	2,504
Dagana	110	228	2,081
Gasa	8	7	892
Ha	17	17	975
Lhuentse	67	185	2,754
Mongar	145	202	1,394
Paro	64	96	1,490
Pemagatshel	31	41	1,354
Punakha	45	90	2,009
Samtse	186	254	1,366
Sarpang	138	225	1,632
Thimphu	27	53	1,973
Trashhi Yangtse	39	99	2,566
Trashigang	173	185	1,067
Trongsa	47	60	1,277
Tsirang	84	184	2,193
Wangdue	37	86	2,342
Zhemgang	96	103	1,066
Total	1,433	2,417	1,686

Table 4.20 Broccoli Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Ha	2	2	932
Lhuentse	11	11	1,000
Mongar	34	79	2,331
Paro	20	14	698
Pemagatshel	7	5	667
Punakha	16	36	2,240
Thimphu	4	5	1,200
Trashi Yangtse	17	12	713
Trashigang	9	7	713
Wangdue	8	18	2,250
Zhemgang	2	1	633
Total	131	190	1,453

Table 4.21 Pumpkin Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	110	697	6,363
Dagana	69	220	3,209
Ha	28	138	4,931
Lhuentse	49	93	1,909
Mongar	316	920	2,909
Paro	349	490	1,404
Pemagatshel	176	608	3,448
Punakha	168	545	3,239
SamdrupJongkhar	170	837	4,923
Samtse	129	391	3,028
Sarpang	136	182	1,337
Thimphu	9	14	1,521
Trashi Yangtse	28	58	2,074
Trashigang	180	393	2,177
Trongsa	32	179	5,526
Tsirang	99	466	4,720
Wangdue	25	112	4,435
Zhemgang	49	147	3,004
Total	2,123	6,490	3,058

Table 4.22 Squash Harvested area, Production and Yield (Kg/Acre)

Dzongkhag	Area (acre)	Production (MT)	Yield
Chhukha	74	448	6,017
Dagana	64	320	5,026
Mongar	44	190	4,280
Pemagatshel	34	134	3,909
Punakha	10	21	2,077
SamdrupJongkhar	65	770	11,784
Samtse	93	254	2,740
Sarpang	92	244	2,659
Trashhi Yangtse	4	51	12,583
Trashigang	77	205	2,640
Trongsa	36	52	1,427
Tsirang	89	122	1,365
Wangdue	2	11	7,000
Zhemgang	22	72	3,249
Total	708	2,893	4,088

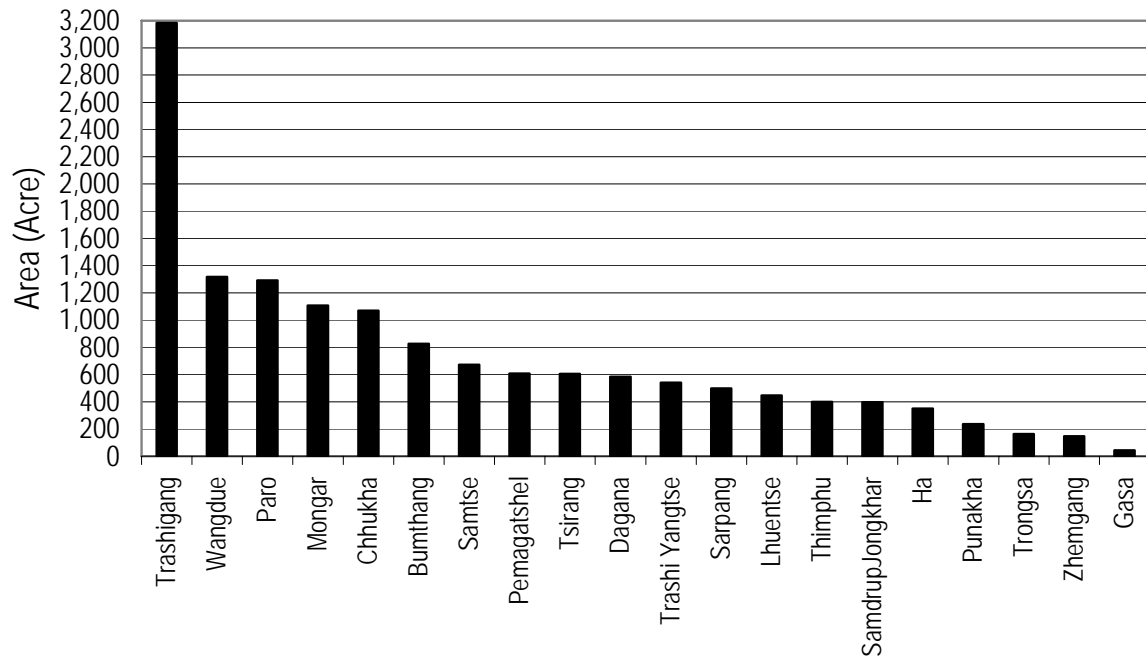


Figure 3: Potato cultivated Area in 2005

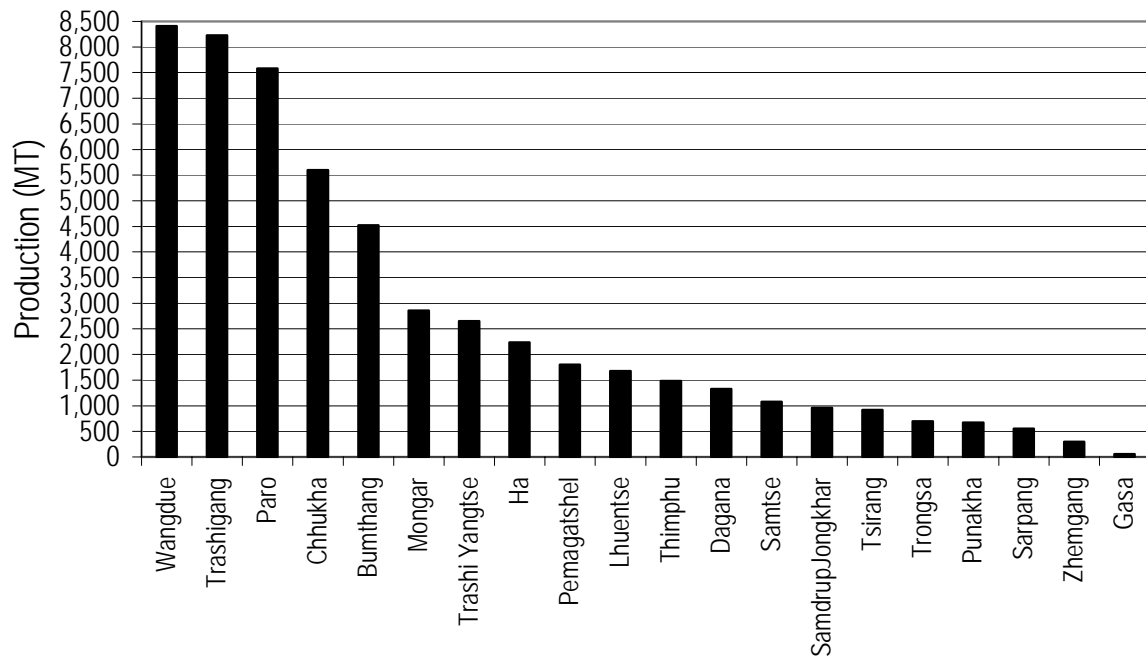


Figure 4: Potato production in 2005

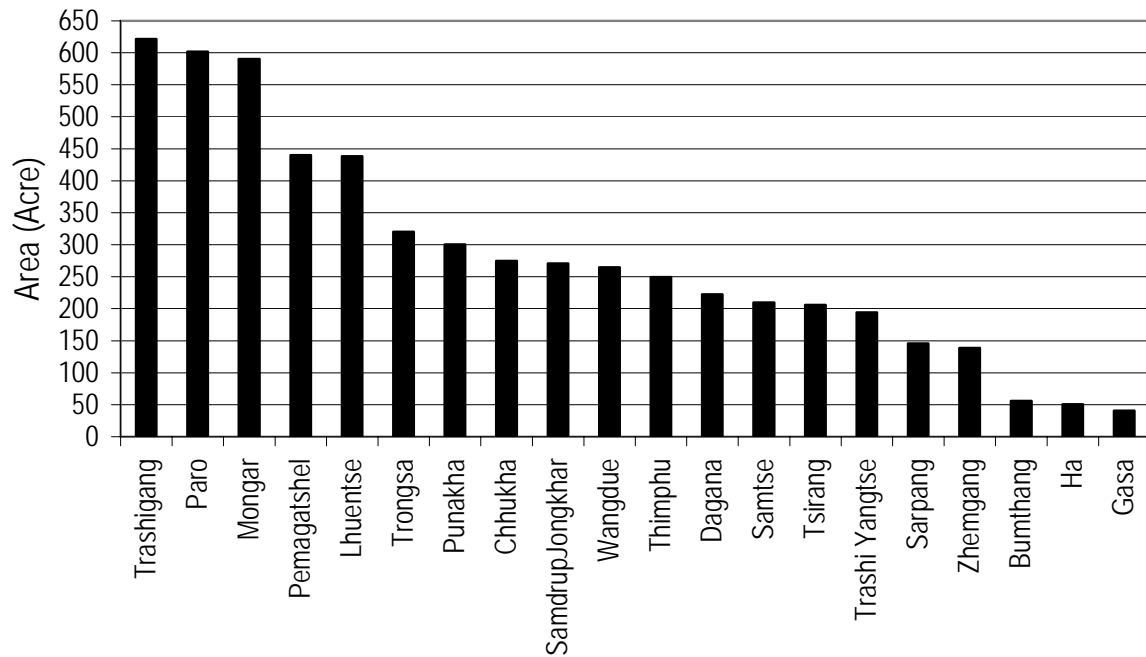


Figure 5: Chili cultivated area in 2005

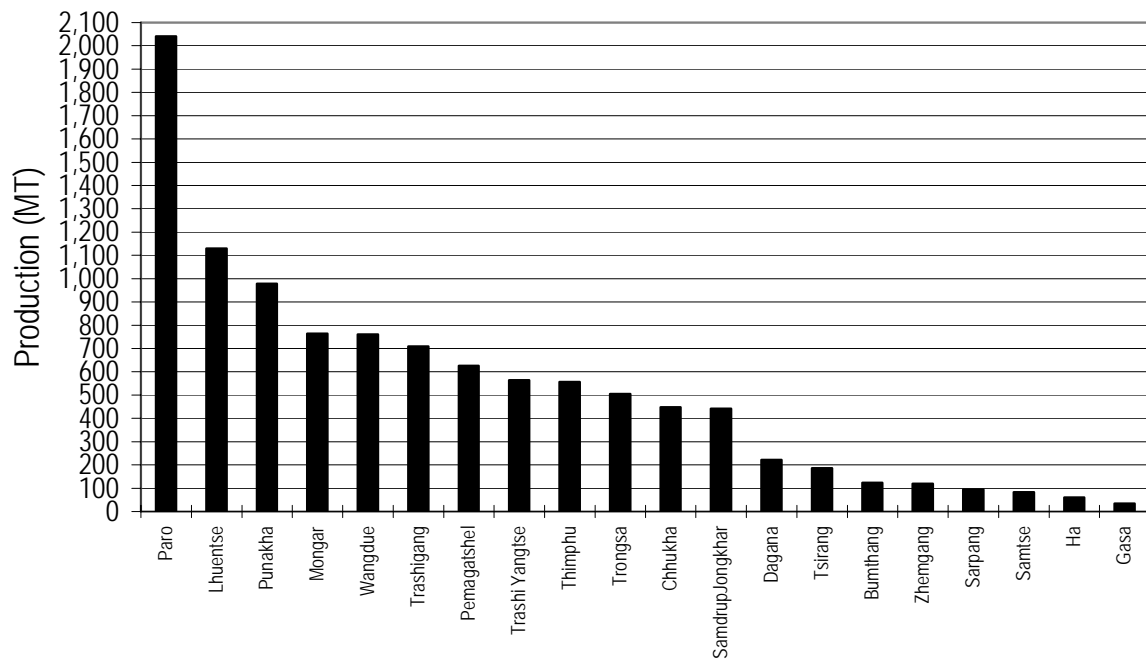


Figure 6: Chili production in 2005

5. Production and status of Tree Crops

Table 5.1 Apple total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Bumthang	14,778	10,945	363	33
Chhukha	11,600	8,090	227	28
Ha	26,957	21,518	514	24
Mongar	3,735	2,419	42	17
Paro	209,237	167,412	4,948	30
Pemagatshel	1,072	938	23	25
Punakha	1,774	730	15	20
Thimphu	145,173	116,485	4,084	35
Trashigang	4,644	4,537	78	17
Trashi Yangtse	1,118	610	22	35
Trongsa	1,118	688	17	25
Wangdue	4,496	4,151	87	21
Total	425,703	338,524	10,421	31

Table 5.2 Mandarin total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Chhukha	340,303	243,797	8,155	33
Dagana	170,854	109,755	4,944	45
Lhuentse	10,401	5,881	206	35
Mongar	59,258	39,702	1,448	36
Pemagatshel	55,588	37,836	2,087	55
Punakha	32,414	18,012	572	32
SamdrupJongkhar	348,746	182,669	4,865	27
Samtse	196,117	153,458	4,088	27
Sarpang	278,046	204,756	8,138	40
Thimphu	2,891	2,640	152	57
Trashi Yangtse	19,989	13,190	383	29
Trashigang	25,709	20,625	863	42
Trongsa	5,559	5,089	195	38
Tsirang	262,097	180,948	9,581	53
Wangdue	19,056	11,509	341	30
Zhemgang	142,251	80,245	2,351	29
Total	1,969,280	1,310,112	48,367	37

Table 5.3 Mango total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Chhukha	592	592	41	70
Dagana	1,850	1,726	85	49
Lhuentse	1,152	960	18	18
Mongar	4,313	3,660	143	39
Pemagatshel	949	831	37	44
Punakha	2,470	1,233	51	41
SamdrupJongkhar	3,151	3,256	83	25
Samtse	3,552	3,398	179	53
Sarpang	5,880	4,867	279	57
Trashhi Yangtse	1,242	621	10	16
Trashigang	2,906	2,223	64	29
Tsirang	1,945	1,286	46	36
Zhemgang	500	333	12	35
Total	30,501	24,986	1,048	42

Table 5.4 Pear total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Bumthang	536	536	10	19
Chhukha	2,411	1,937	46	24
Dagana	2,833	2,833	216	76
Gasa	149	149	5	34
Lhuentse	2,539	2,480	125	50
Mongar	4,452	4,082	160	39
Paro	1,414	1,218	65	53
Pemagatshel	1,072	715	25	35
Punakha	1,933	1,933	31	16
SamdrupJongkhar	285	253	4	14
Samtse	1,568	1,499	56	38
Sarpang	1,105	1,105	51	46
Thimphu	1,605	1,550	66	43
Trashhi Yangtse	1,774	1,774	38	21
Trashigang	6,388	6,317	275	44
Trongsa	762	762	50	65
Tsirang	3,986	3,784	97	26
Wangdue	1,414	1,300	67	51
Zhemgang	321	321	15	46
Total	36,546	34,549	1,402	41

Table 5.5 Peach total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Bumthang	602	602	11	18
Chhukha	3,306	2,793	78	28
Dagana	3,299	3,263	244	75
Gasa	166	166	3	20
Ha	428	321	14	43
Lhuentse	4,342	4,129	186	45
Mongar	7,161	6,767	252	37
Paro	4,251	4,079	285	70
Pemagatshel	2,253	2,253	86	38
Punakha	2,052	2,052	73	36
SamdrupJongkhar	8,143	7,480	179	24
Samtse	1,416	1,297	33	25
Sarpang	2,878	2,789	123	44
Thimphu	2,978	2,875	74	26
Trashhi Yangtse	2,545	2,545	66	26
Trashigang	8,801	8,563	470	55
Trongsa	1,624	1,624	146	90
Tsirang	1,652	1,613	92	57
Wangdue	2,295	2,820	130	46
Zhemgang	1,293	1,293	30	23
Total	61,484	59,323	2,576	43

Table 5.6 Plum total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Bumthang	470	423	25	58
Chhukha	1,561	1,588	49	31
Dagana	1,917	1,917	90	47
Ha	551	448	17	37
Lhuentse	3,021	994	51	52
Mongar	2,444	2,444	93	38
Paro	1,948	574	23	41
Pemagatshel	2,397	2,397	90	37
Punakha	997	757	22	29
SamdrupJongkhar	2,511	2,511	137	55
Samtse	674	674	6	9
Sarpang	888	711	58	82
Thimphu	2,055	2,055	66	32
Trashhi Yangtse	830	830	18	22
Trashigang	3,562	3,347	144	43
Trongsa	383	383	5	13
Tsirang	2,471	2,147	171	80
Zhemgang	609	406	13	33
Total	29,289	24,605	1,079	44

Table 5.7 Walnut total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Bumthang	1,602	812	16	19
Chhukha	2,600	1,480	43	29
Dagana	1,889	1,759	34	20
Lhuentse	2,383	1,743	55	32
Mongar	4,905	4,315	111	26
Paro	3,101	2,426	141	58
Pemagatshel	2,447	2,447	48	20
Punakha	1,211	1,054	26	25
SamdrupJongkhar	972	794	10	13
Thimphu	2,416	1,918	65	34
Trashhi Yangtse	5,134	4,518	139	31
Trashigang	7,177	6,519	259	40
Zhemgang	734	734	12	16
Total	36,571	30,519	958	31

Table 5.8 Arecanut total numbers of trees, bearing trees, production and yield (kg/Tree)

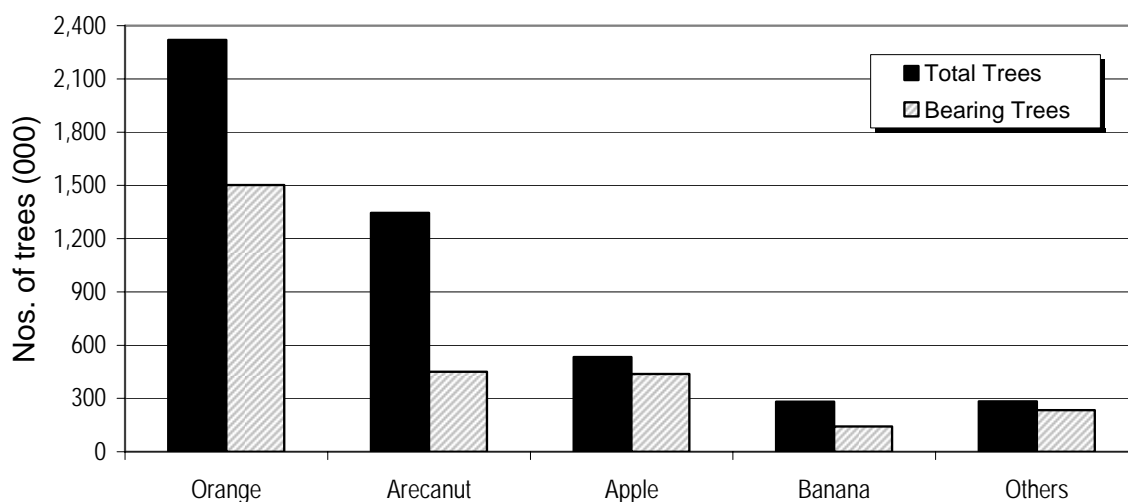
Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Chhukha	74,002	38,687	1,535	40
Dagana	2,370	1,778	89	50
SamdrupJongkhar	84,482	39,379	704	18
Samtse	250,379	134,965	2,035	15
Sarpang	451,849	105,159	2,253	21
Total	863,082	319,967	6,616	21

Table 5.9 Guava total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Chhukha	2,084	1,563	75	48
Dagana	757	757	28	37
Lhuentse	1,067	1,067	31	29
Mongar	4,664	4,042	114	28
Pemagatshel	2,539	2,348	70	30
Punakha	2,533	2,427	81	33
SamdrupJongkhar	7,527	6,500	132	20
Samtse	2,684	2,684	75	28
Sarpang	2,433	1,864	56	30
Thimphu	591	548	26	48
Trashigang	2,574	2,574	117	45
Trongsa	1,032	1,032	82	80
Tsirang	3,142	2,847	100	35
Wangdue	850	737	25	34
Zhemgang	2,061	1,953	48	25
Total	36,537	32,943	1,061	32

Table 5.10 Banana total numbers of trees, bearing trees, production and yield (kg/Tree)

Dzongkhag	Total trees	Bearing trees	Production (MT)	Yield
Chhukha	8,370	5,159	86	17
Dagana	11,623	7,813	184	24
Lhuentse	3,637	2,353	81	34
Mongar	17,348	9,279	146	16
Pemagatshel	7,355	6,416	179	28
Punakha	4,697	3,194	69	22
SamdrupJongkhar	36,731	15,945	142	9
Samtse	44,731	26,415	638	24
Sarpang	32,751	20,092	369	18
Thimphu	1,121	735	11	15
Trashi Yangtse	936	936	24	25
Trashigang	8,371	4,767	119	25
Trongsa	941	941	27	29
Tsirang	22,516	14,343	205	14
Wangdue	2,014	932	26	27
Zhemgang	11,609	4,890	70	14
Total	214,751	124,208	2,376	19



Figures 13. Bearing and non bearing of fruit trees in 2005.

6. Constraints faced by the Farming Community

Farm Constraints

Farming households encountered some level of constraints while farming. Some households get severely affected resulting in substantial farm production losses. Constraints such as drought, flood, hailstorm, etc. are unpredictable although no encounters have been reported during the year other than the dry spell for paddy cultivation.

Wild animal damage ranked as the leading factor for substantial amount of food crop losses in rural areas. 30.4 percent of farm households on an average have reported wild animal damage. Worst among all is the wild boar damage. Bumthang, Haa, Trongsa, Zhemgang, Mongar, Yangtse, Pemagatshel, Trashi Yangtse and S/Jongkhar Dzongkhags. The damage was caused not only by wild boar, other sources of wild animal damage includes monkey, deer, elephant, bear, porcupines and birds.

Table 6.1 Percent households by constraints during 2005

Dzongkhag	Crop damage by wild animals	Crop damage by insects & pests	Land shortage	Labour shortage	Insufficient irrigation	Drought	Excessive rains	Hail storm
Thimphu	25.1	19.4	3.3	20.4	13.3	17.1	0.0	1.4
Paro	22.0	6.0	11.2	25.4	15.5	15.2	4.3	0.3
Ha	34.1	6.5	8.9	26.6	14.0	7.5	1.4	1.0
Chhukha	26.4	14.2	10.7	18.2	15.7	8.3	4.7	1.9
Samtse	27.3	18.1	13.3	13.1	21.5	3.0	2.4	1.3
Punakha	21.6	15.7	6.2	23.4	24.5	8.6	0.0	0.0
Gasa	15.6	28.9	20.0	24.4	2.2	6.7	0.0	2.2
Wangdue	30.0	15.2	10.0	17.6	15.1	7.2	0.6	4.3
Tsirang	32.9	9.8	9.8	16.0	24.2	6.9	0.3	0.0
Dagana	31.6	12.6	9.5	17.7	23.5	3.7	0.7	0.7
Bumthang	35.5	6.5	8.4	38.3	5.6	4.7	0.9	0.0
Trongsa	34.2	8.9	5.8	24.1	21.4	3.5	0.4	1.6
Zhemgang	36.2	8.4	5.7	19.2	24.1	0.8	3.2	2.4
Sarpang	31.4	11.1	7.6	15.5	24.5	6.4	3.4	0.0
Lhuentse	27.4	6.5	14.3	18.0	21.9	7.6	0.9	3.5
Mongar	33.2	5.6	8.9	31.2	8.3	2.8	7.2	2.8
Trashigang	31.9	8.2	10.6	28.5	11.6	1.2	7.0	1.1
Trashi Yangtse	38.1	9.8	10.4	21.1	17.0	0.8	1.5	1.3
Pemagatshel	30.8	5.6	7.1	28.8	10.5	1.0	10.1	6.0
SamdrupJongkhar	43.5	13.1	4.0	20.8	10.6	2.7	4.0	1.4
All Dzongkhags	30.4	11.5	9.3	22.4	16.2	5.8	2.6	1.7

Table 7 Summary of Major corps for the year 2004 and 2005 statistics**Table 7.1 Paddy Harvested Area and Production**

	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Dzongkhag				
Bumthang	7	11	45	74
Chhukha	1,279	1,507	3,555	3,249
Dagana	3,406	2,967	4,033	3,145
Gasa	130	117	153	135
Ha	169	138	201	221
Lhuentse	1,282	1,405	1,787	2,397
Mongar	1,317	1,500	2,080	2,805
Paro	2,990	4,876	3,674	5,987
Pemaqatshel	110	140	149	134
Punakha	4,401	6,906	4,455	6,915
SamdrupJongkhar	1,832	1,385	4,205	3,911
Samtse	8,220	6,640	11,858	9,105
Sarpang	7,636	9,762	8,238	8,753
Thimphu	1,523	1,965	1,807	2,693
Trashigang	2,553	3,913	3,712	4,297
Trashi Yangtse	939	1,257	1,904	2,654
Trongsa	1,620	1,487	1,791	1,658
Tsirang	2,951	2,511	4,161	3,503
Wangdue	3,129	4,883	3,334	4,816
Zhemgang	1,092	956	1,316	1,155
Total	46,586	54,326	62,457	67,606

Table 7.2 Maize Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Chhukha	1,294	2,163	4,438	6,094
Dagana	6,286	10,771	8,035	5,448
Ha	112	181	207	153
Lhuentse	2,309	4,936	2,201	4,733
Mongar	6,116	12,967	7,026	10,533
Paro	12	4	21	11
Pemagatshel	1,391	1,309	2,773	3,344
Punakha	147	296	561	566
SamdrupJongkhar	5,132	8,326	7,941	11,591
Samtse	9,137	12,203	12,173	13,256
Sarpang	4,945	8,237	8,966	10,697
Thimphu	18	17	54	41
Trashhi Yangtse	1,211	2,633	2,296	5,204
Trashigang	8,247	14,765	8,180	11,163
Trongsa	901	1,377	1,099	1,144
Tsirang	4,103	5,492	6,242	5,098
Wangdue	111	214	417	412
Zhemgang	2,467	4,677	3,229	4,481
Total	53,939	90,568	75,859	93,968

Table 7.3 Wheat Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Bumthang	564	514	999	809
Chhukha	639	323	4,436	1,624
Dagana	207	118	931	390
Gasa	111	54	146	40
Ha	597	337	946	433
Lhuentse	91	80	363	365
Mongar	20	7	343	182
Paro	988	557	2,395	1,240
Pemagatshel	6	5	265	170
Punakha	591	226	1,412	570
SamdrupJongkhar	107	31	990	573
Samtse	627	258	1,692	810
Sarpang	58	31	1,339	670
Thimphu	496	529	750	472
Trashhi Yangtse	14	8	228	447
Trashigang	44	24	847	444
Trongsa	552	239	1,070	534
Tsirang	87	20	321	121
Wangdue	1,513	736	1,927	1,058
Zhemgang	272	95	426	296
Total	7,584	4,192	21,825	11,246

Table 7.4 Barley Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Bumthang	526	431	861	684
Chhukha			197	161
Dagana	102	35	89	47
Gasa	178	125	81	60
Ha	141	55	211	111
Lhuentse	7	5		
Mongar	276	95	1,968	936
Paro	164	99	406	209
Pemagatshel	41	25	433	205
Punakha	49	23	274	167
SamdrupJongkhar	122	47	553	308
Samtse	69	25		
Sarpang	4	1		
Thimphu	24	23	206	240
Trashhi Yangtse	26	15	272	97
Trashigang	92	32	1,076	431
Trongsa	463	188	793	427
Tsirang	18	3		
Wangdue	366	152	851	420
Zhemgang	119	44	180	89
Total	2,787	1,423	8,450	4,592

Table 7.5 Finger Millet Harvested Area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Chhukha			1,525	763
Dagana	929	378	1,429	628
Ha	38	14	50	15
Lhuentse	101	77	296	199
Mongar			114	27
Paro	21	21	105	32
Pemagatshel	23	21	36	12
Punakha			21	15
SamdrupJongkhar	502	156	849	321
Samtse	2,615	593	4,267	1,302
Sarpang	1,462	582	2,332	1,467
Trashhi Yangtse	80	41	253	115
Trashigang	67	21	458	165
Trongsa	38	8	174	75
Tsirang	460	118	1,172	370
Wangdue	40	17	49	14
Zhemgang	164	45	820	279
Total	6,540	2,092	13,950	5,799

Table 7.6 Foxtail Millet Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Chhukha			181	103
Dagana	74	20	130	46
Mongar	28	5		
Paro	1	1		
Pemagatshel	45	29	95	89
Punakha	2	1		
SamdrupJongkhar	175	80	797	338
Samtse	63	10	285	171
Sarpang	93	33	935	222
Trashhi Yangtse	8	6		
Trashigang	2	1		
Tsirang	50	12	194	77
Wangdue	17	8		
Zhemgang	229	71	419	108
Total	787	277	3,035	1,027

Table 7.7 Sweet buckwheat Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Bumthang	354	272	726	523
Chhukha			1,556	659
Dagana	444	135	984	393
Gasa	31	13		
Ha	180	44	383	118
Lhuentse			40	28
Mongar	123	35	894	285
Paro	41	18	198	49
Pemagatshel	16	7	437	167
Punakha	41	11		
SamdrupJongkhar	835	239	1,637	610
Samtse	447	112	355	105
Sarpang	217	68	275	117
Thimphu	1	1		
Trashhi Yangtse	2	2	57	39
Trashigang	492	240	1,371	364
Trongsa	176	52	152	123
Tsirang	137	26	23	6
Wangdue	83	47	146	74
Zhemgang	87	40	106	42
Total	3,707	1,362	9,342	3,700

Table 7.8 Bitter buckwheat Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production(MT)
Bumthang	295	230	648	514
Chhukha			688	398
Dagana	400	100	370	228
Gasa	60	7	10	5
Ha	150	66	334	132
Lhuentse	4	3		
Mongar	51	11	317	88
Paro	66	29	286	158
Pemagatshel	39	18	221	164
Punakha	82	48	371	179
SamdrupJongkhar	145	38	897	360
Samtse	156	30	449	146
Sarpang	128	47	256	115
Thimphu	3	2		
Trashhi Yangtse	86	18	55	34
Trashigang	81	33	466	187
Trongsa	429	158	603	265
Tsirang	17	7		
Wangdue	258	218	178	77
Zhemgang	179	86	573	249
Total	2,629	1,149	6,721	3,298

Table 7.8 Potato Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	657	7,234	827	4,524
Chhukha	1,282	7,705	1,069	5,599
Dagana	171	614	583	1,329
Gasa	37	35	43	55
Ha	211	1,783	351	2,236
Lhuentse	82	291	446	1,673
Mongar	954	3,929	1,107	2,856
Paro	806	2,415	1,293	7,582
Pemagatshel	164	529	607	1,801
Punakha	55	240	237	673
SamdrupJongkhar	253	651	398	958
Samtse	82	258	672	1,079
Sarpang	134	704	498	551
Thimphu	235	1,239	398	1,484
Tsirang	180	484	604	920
Trashi Yangtse	258	1,405	540	2,649
Trashigang	1,769	8,444	3,182	8,224
Trongsa	100	632	163	698
Wangdue	985	8,692	1,317	8,406
Zhemgang	40	121	146	298
Total	8,455	47,405	14,482	53,594

Table 7.9 Mustard Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	115	28	365	129
Chhukha	412	119	1,340	367
Dagana	308	125	1,090	441
Gasa	43	12	73	28
Ha	26	12	182	69
Lhuentse	55	43	115	72
Mongar	105	28	1,115	356
Paro	180	56	455	126
Pemagatshel	27	23	530	261
Punakha	375	136	1,064	183
SamdrupJongkhar	281	96	516	165
Samtse	424	128	1,207	410
Sarpang	328	110	1,485	531
Thimphu	165	59	352	243
Trashiyangtse	94	11		
Trashigang	289	136	1,032	298
Trongsa	213	202	576	146
Tsirang	370	177	1,307	260
Wangdue	461	175	607	208
Zhemgang	232	92	546	138
Total	4,503	1,768	13,956	4,382

7.10 Chili Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	2	7	56	123
Chhukha	255	352	275	448
Dagana	172	64	223	222
Gasa	10	4	41	34
Ha	27	50	51	60
Lhuentse	175	369	438	1,129
Mongar	392	417	591	764
Paro	323	492	602	2,041
Pemagatshel	78	153	440	626
Punakha	185	623	300	978
Samtse	80	16	210	83
Sarpang	30	28	146	94
SamdrupJongkhar	90	85	271	442
Trashigang	574	457	621	709
Thimphu	77	211	250	556
Trashi Yangtse	118	292	194	564
Trongsa	111	295	320	505
Tsirang	83	74	206	186
Wangdue	201	402	265	760
Zhemgang	77	63	139	120
Total	3,060	4,454	5,638	10,447

Table 7.11 Pea Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	2	6		
Chhukha	37	35	270	356
Dagana	15	20	68	130
Gasa	3	2	6	1
Ha	53	110	237	333
Lhuentse	10	12	64	88
Mongar	13	17	174	141
Paro	164	254	687	1,405
Pemagatshel	1	1	13	13
Punakha	51	80	87	124
SamdrupJongkhar	3	2	162	164
Samtse	26	29	18	11
Sarpang	1	1	50	45
Thimphu	1	1	159	241
Trashigang	22	24	242	183
Trashi Yangtse	5	5	11	13
Trongsa	1	2	12	14
Tsirang	9	13	154	119
Wangdue	24	40	56	105
Zhemgang	8	8	22	8
Total	449	662	2,491	3,495

Table 7.12 Tomato Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	1	1		
Chhukha			120	157
Dagana	20	7	77	33
Ha	1	1	4	2
Lhuentse	5	9	37	45
Mongar	9	21	62	106
Paro	25	60	208	134
Pemagatshel	1	1	12	22
Punakha	7	12	17	33
SamdrupJongkhar	7	4	73	154
Samtse	1	1	82	380
Sarpang	10	19	82	82
Thimphu	8	14	116	403
Trashigang	4	10	130	257
Trashi Yangtse	1	1	6	14
Trongsa	2	9	20	35
Tsirang	5	5	40	37
Wangdue	8	5	26	75
Zhemgang	19	4	27	13
Total	134	184	1,139	1,981

Table 7.13 Bean Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang			33	23
Chhukha	40	27	145	134
Dagana	237	61	225	187
Gasa	6	3	4	3
Ha	8	10	19	18
Lhuentse	15	16	83	118
Mongar	187	191	144	220
Paro	29	43	68	126
Pemagatshel	67	73	40	55
Punakha	77	122	84	158
Samtse	99	21	165	90
Sarpang	69	47	201	129
SamdrupJongkhar	77	54	82	117
Thimphu	24	71	80	186
Trashigang	203	205	225	193
Trashi Yangtse	86	42	47	50
Trongsa	20	23	41	46
Tsirang	137	263	80	106
Wangdue	58	63	44	91
Zhemgang	53	35	56	44
Total	1,492	1,370	1,867	2,094

Table 7.14 Radish Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	6	50	31	106
Chhukha	49	104	275	588
Dagana	323	215	292	606
Gasa	33	50	17	19
Ha	125	792	105	506
Lhuentse	61	213	205	618
Mongar	284	881	451	1,192
Paro	97	243	439	1,723
Pemagatshel	96	355	186	653
Punakha	50	72	146	550
SamdrupJongkhar	135	239	240	581
Samtse	227	88	279	381
Sarpang	68	90	221	280
Thimphu	44	227	165	583
Trashhi Yangtse	31	105	257	732
Trashigang	303	790	598	1,075
Trongsa	57	314	131	653
Tsirang	110	162	250	363
Wangdue	168	441	296	1,195
Zhemgang	114	197	127	254
Total	2,381	5,628	4,713	12,637

Table 7.15 Turnip Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	3	24	84	230
Chhukha	49	104	199	376
Dagana	18	16	94	179
Gasa	8	15	18	25
Ha	122	1,016	288	2,212
Lhuentse	1	1	61	74
Mongar	9	22	73	126
Paro	188	649	360	1,602
Pemagatshel	1	4		
Punakha	28	47	52	249
SamdrupJongkhar	1	3	40	50
Thimphu	41	198	267	885
Trashiyantse	3	5		
Trashigang	2	5	86	71
Trongsa	24	109	66	223
Tsirang	3	5	16	7
Wangdue	451	1,903	324	2,160
Zhemgang	10	13		
Total	962	4,139	2,029	8,470

Table 7.16 Cabbage Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	5	41	34	71
Chhukha	127	244	286	530
Dagana	14	30	88	147
Gasa	6	5	3	6
Ha	7	22	13	55
Lhuentse	35	204	53	109
Mongar	81	188	113	190
Paro	147	486	261	1,021
Pemagatshel	15	45	17	32
Punakha	3	7	27	47
SamdrupJongkhar	6	11	25	44
Samtse	2	2	76	30
Sarpang	8	7	48	39
Thimphu	10	32	36	85
Trashhi Yangtse	22	37	26	65
Trashigang	104	324	282	464
Trongsa	5	9	58	133
Tsirang	16	21	21	18
Wangdue	68	121	60	207
Zhemgang	23	43	48	52
Total	704	1,879	1,575	3,346

Table 7.17 Cardamom Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Chhukha	357	73	1,541	408
Dagana	460	90	735	90
Ha	471	86	279	47
Mongar	2	1	8	1
Pemagatshel	4	1		
Samdrupjongkhar	14	3		
Samtse	2,895	549	2,749	578
Sarpang	41	8	521	66
Trashigang	3	1		
Trongsa	1	1		
Tsirang	26	4		
Total	4,274	817	5,834	1,190

Table 7.18 Green Leaves Harvested area and Production

Dzongkhag	2004		2005	
	Area (acre)	Production(MT)	Area (acre)	Production (MT)
Bumthang	3	3	1	2
Chhukha	54	71	120	301
Dagana	112	56	110	228
Gasa	4	3	8	7
Ha	13	17	17	17
Lhuentse	23	39	67	185
Mongar	95	99	145	202
Paro	28	22	64	96
Pemagatshel	31	28	31	41
Punakha	24	33	45	90
Samdrup jongkhar	47	50		
Samtse	280	217	186	254
Sarpang	113	149	138	225
Thimphu	27	41	27	53
Trashhi Yangtse	26	33	39	99
Trashigang	197	265	173	185
Trongsa	9	18	47	60
Tsirang	107	118	84	184
Wangdue	487	941	37	86
Zhemgang	90	68	96	103
Total	1,770	2,271	1,433	2,417

Table 7.19 Apple total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Bumthang	12,463	7,575	161	14,778	10,945	363
Chhukha	5,887	3,184	86	11,600	8,090	227
Dagana	279	98	2			
Ha	21,903	12,267	168	26,957	21,518	514
Lhuenste	1,622	746	15			
Mongar	1,669	486	9	3,735	2,419	42
Paro	203,628	135,526	2,861	209,237	167,412	4,948
Pemagatshel	392	48	2	1,072	938	23
Punakha	1,286	204	4	1,774	730	15
SamdrupJongkhar	369	382	4			
Thimphu	130,381	81,097	2,515	145,173	116,485	4,084
Trashigang	1,279	518	9	4,644	4,537	78
Trashhi Yangtse	1,158	875	20	1,118	610	22
Trongsa	625	76	1	1,118	688	17
Tsirang	22	22	1			
Wangdue	3,984	2,973	58	4,496	4,151	87
Zhemgang	12	5	1			
Total	386,959	246,082	5,917	425,703	338,524	10,421

Table 7.20 Mandarin total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Chhukha	304,912	212,563	5,675	340,303	243,797	8,155
Dagana	151,079	93,518	3,532	170,854	109,755	4,944
Haa	370	296	8			
Lhuentse	10,250	4,823	201	10,401	5,881	206
Mongar	46,884	20,303	794	59,258	39,702	1,448
Pemagatshel	58,813	30,675	1,130	55,588	37,836	2,087
Punakha	34,831	16,203	388	32,414	18,012	572
SamdrupJongkhar	336,521	161,618	4,614	348,746	182,669	4,865
Samtse	182,867	138,717	3,477	196,117	153,458	4,088
Sarpang	268,501	118,998	6,088	278,046	204,756	8,138
Thimphu	1,911	1,312	43	2,891	2,640	152
Trashhi Yangtse	11,270	5,842	167	19,989	13,190	383
Trashigang	15,889	7,369	256	25,709	20,625	863
Trongsa	6,680	2,623	28	5,559	5,089	195
Tsirang	260,323	99,113	3,501	262,097	180,948	9,581
Wangdue	13,960	7,790	265	19,056	11,509	341
Zhemgang	126,251	61,644	1,748	142,251	80,245	2,351
Total	1,831,312	983,407	31,915	1,969,280	1,310,112	48,367

Table 7.21 Peach total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Bumthang	199	71	1	602	602	11
Chhukha	1,939	1,799	22	3,306	2,793	78
Dagana	1,085	804	30	3,299	3,263	244
Gasa				166	166	3
Ha	316	125	5	428	321	14
Lhuentse	3,515	2,164	86	4,342	4,129	186
Mongar	2,199	1,598	57	7,161	6,767	252
Paro	1,266	857	21	4,251	4,079	285
Pemagatshel	558	443	22	2,253	2,253	86
Punakha	790	613	19	2,052	2,052	73
SamdrupJongkhar	1,359	1,177	49	8,143	7,480	179
Samtse	115	85	2	1,416	1,297	33
Sarpang	174	168	8	2,878	2,789	123
Thimphu	827	547	19	2,978	2,875	74
Trashhi Yangtse	818	742	18	2,545	2,545	66
Trashigang	4,466	2,579	162	8,801	8,563	470
Trongsa	287	225	7	1,624	1,624	146
Tsirang	285	263	9	1,652	1,613	92
Wangdue	679	474	22	2,295	2,820	130
Zhemgang	444	299	15	1,293	1,293	30
Total	21,321	15,033	574	61,484	59,323	2,576

Table 7.22 Pear total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Bumthang	211	176	3	536	536	10
Chhukha	301	203	3	2,411	1,937	46
Dagana	978	624	26	2,833	2,833	216
Haa	18	11	1			
Gasa				149	149	5
Lhuentse	1,498	1,342	47	2,539	2,480	125
Mongar	1,409	681	22	4,452	4,082	160
Paro	435	327	7	1,414	1,218	65
Pemagatshel	59	29	1	1,072	715	25
Punakha	1,259	750	21	1,933	1,933	31
SamdrupJongkhar	152	74	7	285	253	4
Samtse	294	201	9	1,568	1,499	56
Sarpang	316	309	4	1,105	1,105	51
Thimphu	971	665	18	1,605	1,550	66
Trashhi Yangtse	833	817	33	1,774	1,774	38
Trashigang	1,684	775	18	6,388	6,317	275
Trongsa	276	184	7	762	762	50
Tsirang	1,764	1,549	38	3,986	3,784	97
Wangdue	1,172	733	29	1,414	1,300	67
Zhemgang	9	9	1	321	321	15
Total	13,639	9,459	295	36,546	34,549	1,402

Table 7.23 Plum total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Bumthang	221	73	2	470	423	25
Chhukha				1,561	1,588	49
Dagana	350	297	12	1,917	1,917	90
Ha	37	26	1	551	448	17
Lhuentse	939	770	34	3,021	994	51
Mongar	852	642	35	2,444	2,444	93
Paro	281	204	5	1,948	574	23
Pemagatshel	437	290	16	2,397	2,397	90
Punakha	304	210	6	997	757	22
SamdrupJongkhar	155	114	2	2,511	2,511	137
Samtse	7	4	1	674	674	6
Sarpang	5	5	1	888	711	58
Thimphu	314	193	7	2,055	2,055	66
Trashigang	740	560	11	830	830	18
Trashigang	1,353	802	17	3,562	3,347	144
Trongsa	107	69	2	383	383	5
Tsirang	549	500	23	2,471	2,147	171
Wangdue	275	172	7			
Zhemgang	53	40	3	609	406	13
Total	6,979	4,971	185	29,289	24,605	1,079

Table 7.24 Guava total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Chhukha				2,084	1,563	75
Dagana	694	608	35	757	757	28
Lhuentse	20	20	1	1,067	1,067	31
Mongar	50	24	1	4,664	4,042	114
Pemagatshel	177	145	6	2,539	2,348	70
Punakha	2,488	2,028	44	2,533	2,427	81
SamdrupJongkhar	896	561	113	7,527	6,500	132
Samtse	2			2,684	2,684	75
Trashhi Yangtse	46	25	1			
Sarpang				2,433	1,864	56
Thimphu				591	548	26
Trashigang				2,574	2,574	117
Trongsa	25	25	1	1,032	1,032	82
Tsirang				3,142	2,847	100
Wangdue	304	271	8	850	737	25
Zhemgang	336	193	2	2,061	1,953	48
Total	5,038	3,900	212	36,537	32,943	1,061

Table 7.25 Mango total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Chhukha				592	592	41
Dagana	1,348	719	20	1,850	1,726	85
Lhuentse	853	126	3	1,152	960	18
Mongar	4,803	1,445	55	4,313	3,660	143
Pemagatshel	665	337	9	949	831	37
Punakha	1,196	328	8	2,470	1,233	51
SamdrupJongkhar	1,720	545	15	3,151	3,256	83
Samtse	286	113	4	3,552	3,398	179
Sarpang	2,247	548	19	5,880	4,867	279
Trashhi Yangtse	427	99	5	1,242	621	10
Trashigang	1,239	233	11	2,906	2,223	64
Trongsa	177	44	2			
Tsirang	201	88	3	1,945	1,286	46
Wangdue	1,119	474	34			
Zhemgang	1,920	27	1	500	333	12
Total	18,201	5,126	189	30,501	24,986	1,048

Table 7.26 Banana total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Chhukha	992	3,397	75	8,370	5,159	86
Dagana	11,409	9,397	396	11,623	7,813	184
Haa	41	59	2			
Lhuentse	2,733	898	19	3,637	2,353	81
Mongar	16,312	1,570	20	17,348	9,279	146
Pemagatshel	3,496	1,228	27	7,355	6,416	179
Punakha	2,634	1,366	26	4,697	3,194	69
SamdrupJongkhar	18,359	8,942	143	36,731	15,945	142
Samtse	27,738	10,215	184	44,731	26,415	638
Sarpang	30,272	10,126	185	32,751	20,092	369
Thimphu	313	217	5	1,121	735	11
Trashhi Yangtse	1,236	621	21	936	936	24
Trashigang	12,932	5,364	96	8,371	4,767	119
Trongsa	1,003	342	5	941	941	27
Tsirang	12,366	10,566	185	22,516	14,343	205
Wangdue	851	572	21	2,014	932	26
Zhemgang	2,764	1,372	24	11,609	4,890	70
Total	145,451	66,252	1,434	214,751	124,208	2,376

Table 7.27 Arecanut total numbers of trees, bearing trees and production

Dzongkhag	2004			2005		
	Total trees	Bearing trees	Production (MT)	Total trees	Bearing trees	Production (MT)
Chhukha	73,711	34,667	956	74,002	38,687	1,535
Dagana	1,083	59	1	2,370	1,778	89
SamdrupJongkhar	53,409	17,481	344	84,482	39,379	704
Samtse	127,485	44,497	670	250,379	134,965	2,035
Sarpang	449,743	71,290	1,448	451,849	105,159	2,253
Tsirang	39	20	1			
Total	705,470	168,014	3,420	863,082	319,967	6,616

8 Farm Road

Farm Roads Programme Objectives

- To link potential Agri-horticultural production areas in the hinterland to markets
- To bring production areas and farmers closer to markets and other social amenities
- To open up production and potential production areas for more intensive farming through farm mechanisation
- To improve efficiency in delivery of inputs and services to villages/farms
- To improve accessibility from villages in order to make rural life more attractive

8.1 Farm Roads Development Strategy

- To achieve the above objectives a development strategy is set in line with the
- Guidelines for farm road development:
- Selection of farm roads shall be governed by several parameters/selection criteria as specified in the MoA Guidelines for farm road development
- Where prioritization is necessary because of resource constraint, priority shall be given to those potential areas with fewer roads if all other criteria are met.
- Farm road development will be taken up in an Environment Friendly Method and in accordance with guidelines of the Ministry of Agriculture to ensure long-term sustainability
- Participation by beneficiaries in all stages of farm road development is a necessary. A similar approach to that of National Irrigation Policy will be adopted.

Surveys of farm roads will be done on a multi-disciplinary basis encompassing socio-economic, techno-feasibility, and environmental impacts to ensure long-term viability

Table 8.2 FARM ROADS DEVELOPMENT IN 9th PLAN April 2007

Sl.		Plan	Spillover	Total	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
No.	Dzongkhags	Target(Km)	Km	Km	Km	Km	Km	Km	Km	Km
1	Bumthang	9.00	11.00	20.00	5.00	21.90	4.50	9.79	0.00	41.19
2	Chukha	15.00		15.00	0	3.50	4.77	0	5.88	14.15
3	Dagana	24.00	5.00	29.00	0	8.05	6.75	7.65	3.50	25.95
4	Gasa	14.00		14.00	0	0	2.00	2.08	0.00	4.08
5	Haa	5.00		5.00	0	0	4.30	8.90	0.00	13.20
6	Lhuentse	75.00	11.00	86.00	5.00	5.70	11.50	13.00	0.00	35.20
7	Mongar	13.00		13.00	5.00	7.00	5.20	13.70	2.43	33.33
8	Paro	42.00		42.00	0	7.52	14.15	7.50	0.00	29.17
9	Pemagatshel	18.00		18.00	0	17.62	0.00	0.00	3.50	21.12
10	Punakha	15.00		15.00	0	6.42	3.90	31.09	0.00	41.41
11	S/Jongkhar	97.00	12.00	109.00	0	8.10	11.40	2.00	5.00	26.50
12	Samtse	14.00		14.00	0	3.49	9.00	0	0.00	12.49
13	Sarpang	10.00		10.00	0	6.70	7.80	3.15	3.00	20.65
14	Tashigang	68.00		68.00	9.50	34.66	12.00	10.50	15.50	82.16
15	Thimphu	36.63		36.63	0	7.25	9.30	0	0.00	16.55
16	Trongsa	9.00		9.00	0	2.80	6.20	5.38	0.00	14.38
17	Tashiyangtse	45.00		45.00	4.00	8.50	0	10.00	0.30	22.80
18	Tsirang	10.00		10.00	0	2.00	8.00	2.96	5.00	17.96
19	W/phodrang	22.00		22.00	0	24.20	7.28	0.00	3.00	34.48
20	Zhemgang	17.00		17.00	0	5.91	2.00	4.10	3.50	15.51
	Grand Total	558.63	39.00	597.63	28.50	181.32	130.05	131.80	50.61	522.28

Source: Engineering Division, DoA

Table 8.3 Power Tiller Tracks Development and achievements.

Sl. No.	Dzongkhag/ Geog	Length Km	Completed (km) 02-03	Completed (km) 03-04	Completed (Km) 04-05	Completed (Km) 05-06	Total (Km)
1	Trongsa	34.00	0	0	7.50	21.75	63.25
2	Haa	8.00	0	0	0	1.50	9.50
3	Paro	9.80	0	0	0.50	3.30	13.60
4	Mongar	34.64	0	0	0	4.87	39.51
5	Trashigang	37.30	0	0	0	4.00	41.30
6	Dagana	19.00	0	0	0	0	19.00
7	Lhuentse	35.00	0	0	2.00	8.00	45.00
8	Chukha	17.00	0	0	0	0	17.00
9	Wangduephodrang	19.00	0	0	0	0	19.00
10	T/yangtse	21.00	0	0	0	0	21.00
11	Zhemgang	2.50	0	0	0	0	2.50
12	Tsirang	28.00	0	0	0	0	28.00
13	Punakha	17.59	0	0	0	5.00	22.59
14	Pemagatshel	15.00	0	0	0	0	15.00
15	S/Jongkhar	11.80	0	0	0	0	11.80
	Total	309.63	0.00	0.00	10.00	48.42	368.05

Source: Engineering Division, DoA

9 Farm Mechanization Programme (Agriculture Machinery Centre - AMC)

The AMC was established in 1983 with the objective of creating an effective and a standardized farm mechanization programme. The Ministry of Agriculture has been making continuous effort to alleviate farm labour constraints by either developing within the country or procuring from outside and introducing, appropriate labour saving agricultural machinery and tools. The organization with its two regional Centres is responsible for providing services in connection with procurements, developments, supply, installation, repair and maintenance and training in the operation and maintenance of all agriculture machines in the country.

Table 9.1 Supply of Farm Machineries, P.P Equipments supplied to the various Dzongkhag (From 1st January to 31st December) 2005

Description	Bumthang	Chhukha	Dagana	Gasa	Ha	Lhuentse	Mongar	Paro	Pemagatshel	Punakha	S/Jongkhar	Samtse	Sarpang	Trashigang	Thimphu	Trashigang	Trogsa	Tsirang	Wangdue	Zhemgang	Total
Power Tiller with rotary tiller	1	1	1	1		2	5	6	3	3	2	1	2	1	2	9		3	1	1	45
Trailer	1	1	1	1		2	5	6	3	3	2	1	2	1	2	9		3	1	1	45
Trailer (AMDC)	1																				1
Bottom Plow	1	1	1	1		2	5	6	3	3	2	1	2	1	2	9		3	1	1	45
Paddy Wheel	1	1	2			2	5	7		3	2	2	4		5	2		1	4		41
Diesel Engine	2	3	7	3	2	23	49	4	2	22	9	4	4	14	13	24	16	11	14	12	238
Electric motor							2	9				5	6	2	7	7			6	1	45
Attachaki	2	3	6			24	49	5	2	1	8	6	13	17	2	30	14	8	6	13	209
Rice huller	2	3	9	3	2	21	29	6		23	6	9	10	16	13	22	14	10	18	10	226
Corn flake machine							14		2						3	4	1			8	32
Oil mill sets								2			1										3
Power Chain Saw															1						1
Brush Cutter		2						3					3		6					2	16
Power Sprayer															1						1
Chaft cutter															1			5	1		7
Bullock Drawn Plough							7	2	2				1			21					33
Land Mover										1											1
Maize Sheller							4	4			3				3	19	2				35
Mini desingrator								2													2
P.P Equipments	8	86	1		6			23			1	1	15		128	2	87	67	8	1	434
Power Sprayer															1						1
Rotary Paddy Weeder								1													1
Vinyl Sheet	11							479							164	150					804
Watering Can	2				17			25		28		1			114		35	1			223
Wheel Barrow			1		9			13							13		4				40
Winnower	1							19				1			6						27

Source: AMC, Paro, 2006

**Table 10: Dzongkhag wise pesticides distribution for the financial year 2005-06
(Quantity in kg/lt.)**

Particulars	
I: Insecticides	Total supplied
Chlorpyrifos 20EC	517
Cypermethrin 10E	642
Dimethoate 30EC	361
Fenvelerate 0.4 D	1200
Malathion 5D	316
Total Insecticides	3,036
II: Fungicides	
Bordeaux Mixture	133
Captan 50 WP	120
Cu. oxychloride 50	169
Carbendazim 50W	554
Hexconazole 5E	108
Mancozeb 75WP	1022
Ridomil 72 WP	136
Tricyclazole 75 W	18
Tridimorph 80 EC	150
Total Fungicides	2,410
III: Herbicides	
Glyphosate 41 EC	348
Metribuzin 70 W	672
Total Fungicides	1,020
IV: Rodenticides	
Z. phosphide 80W	37
Bromadiolone	1
Total Rodenticides	38
V: Acaricides	
Dicofol	20

Source: NPPC, Semtokha, 2007

Table 10.1: Sale of Fertilizers & Herbicides in 2005

Dzongkhag	Butachlor Qty. (MT)	Dzongkhag	Fertilizers Qty. (MT)
Thimphu	17.55	Thimphu	187.24
Paro	67.45	Paro	268.39
HA	1.00	HA	43.00
Chukha	4.99	Chukha	230.84
Samtse	1.30	Samtse	11.30
Punakha	30.20	Punakha	146.20
Gasa	-	Gasa	-
Wangdue	60.56	Wangdue	506.57
Tsirang	-	Tsirang	-
Dagana	4.92	Dagana	3.30
Bumthang	-	Bumthang	503.99
Trongsa	12.90	Trongsa	23.50
Zhemgang	1.21	Zhemgang	4.00
Sarpang	6.79	Sarpang	3.40
Lhuentse	10.00	Lhuentse	46.00
Mongar	6.12	Mongar	142.10
Trashigang	17.63	Trashigang	701.90
Yangtse	22.00	Yangtse	165.00
Pemagatshel	-	Pemagatshel	104.05
S/jongkhar	-	S/jongkhar	24.00
Total =	264.62	Total =	3,114.78

Dzongkhag	Plants and seedlings (Qty. in Nos)	Dzongkhag	Seed potato (Qty. in Mt)
Thimphu	3,283	Thimphu	54.30
Paro	14,680	Paro	34.85
Ha	5,167	HA	16.80
Chukha	24,441	Chukha	40.05
Samtse	139	Samtse	0.90
Punakha	3,524	Punakha	7.00
Gasa	2,000	Gasa	2.10
Wangdue	15,100	Wangdue	0.00
Tsirang	352	Tsirang	0.00
Dagana	-	Dagana	4.00
Bumthang	237	Bumthang	0.00
Trongsa	1,982	Trongsa	6.50
Zhemgang	35,134	Zhemgang	11.55
Sarpang	2,039	Sarpang	2.00
Lhuentse	-	Lhuentse	4.00
Mongar	2,695	Mongar	5.30
Trashigang	76,433	Trashigang	32.35
Yangtse	13,060	Yangtse	0.00
Pemagatshel	2,110	Pemagatshel	8.00
S/Jongkhar	502	S/Jongkhar	0.00
Total=	202,878		229.70

Source: DSC, Paro 2005

Table11: Information on Wet Land converted to dry land for the year 2005

Dzongkhag	Area (acres) proposed	Area (acres) approved	Area (Acres) not approved
Trashigang	7.85	2.95	4.90
Gasa	1.86	0.25	1.61
Punakha	2.94	0.14	2.80
Paro	2.76	1.33	1.48
Wangdue	4.77	1.84	2.93
Chukha	1.50	1.50	0.00
Pemagatshel	4.80	4.80	0.00
Trashiyangtse	0.24	0.24	0.00
Total	26.72	13.05	13.72

Source: LMS,DoA

Table 12: Year wise Auction Details of the Agriculture Commodities

Items	Year	
	2004	2005
	Qty (MT)	Qty (MT)
Potato	22,834.77	23,766.54
Apple	147.30	0.37
Orange	2,218.07	1.92
Other Fruits	1.88	0.00
Pulse/Spices	384.95	0.45
Vegetable	1,994.34	1.89
Total	27,581.31	23,771.16

Source:AMS, MoA compiled from FCB(s) of Phuntsholing, Gelephu, Sarpang, SamdrupJongkhar, Samtse

Table 13: Agriculture commodities exported for the year 2005

Items	Country	Qty (MT)
Apple	Bangladesh	3677.399
Apple	India	1066.065
Total		4,743.464
Mandarin	Bangladesh	15968.873
Mandarin	India	2608.794
Total		18,577.667
Mushroom	Japan	2.0334
Mushroom	Singapore	0.3897
Mushroom	Bangladesh	0.1080
Mushroom	Thailand	0.0200
Mushroom	India	0.1540
Mushroom	Malaysia	0.0040
Mushroom	Nepal	0.0180
Mushroom	Taiwan	0.0050
Mushroom	France	0.0005
Total		2.7326

Source: Bhutan Agriculture & Food Regulatory Authority, MoA

Table 14: The loans disbursed during the year 2005 (January - December) for agriculture farming by the BDFC branches Dzongkhags wise

Branch Office	upto Nu. 50,000.00		Above Nu. 50,000.00		Total	
	Nos. of Clients	Amount Sanctioned	Nos. of Clients	Amount Sanctioned	Nos. of Total Clients	Total amount Sanctioned
Thimphu	-	885,000	375	17,080,000	375	17,080,000
Paro	21	952,000	515	29,575,000	536	30,560,000
Wangdue	35	1,012,500	587	21,272,000	622	22,449,000
Punakha	49	-	466	15,324,000	515	16,336,500
Gasa	-	-	107	3,745,000	107	3,745,000
Haa	-	-	306	17,512,000	306	17,512,000
Chhukha	-	-	405	20,196,000	405	20,196,000
Phuentsholing	-	1,122,500	177	7,572,000	177	7,572,000
Trashigang	45	479,000	416	14,064,068	461	15,186,568
Trashiyangtse	44	890,000	254	8,565,000	298	9,044,000
Monggar	37	-	393	12,155,000	430	13,165,000
Lhuentse	-	-	159	5,018,600	159	5,018,600
Pemagatsel	-	-	244	9,897,000	244	9,897,000
S/Jongkhar	-	682,500	177	9,305,000	177	9,305,000
Wamrong	21	1,520,000	165	4,431,600	186	5,531,100
Bumtha	56	-	398	15,523,000	454	17,043,000
Trongsa	-	547,500	216	9,701,000	216	9,701,000
Zhemgang	31	240,000	258	9,033,000	289	9,580,500
Sarpang	6	-	259	13,578,000	265	14,878,000
Dagana	-	-	203	5,885,000	203	6,455,000
Total	345	8,331,000	6,080	249,432,268	6,425	260,255,268

Source: BDFC, Thimphu 2006