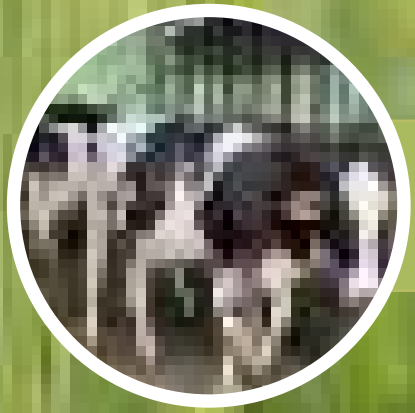
INTEGRATED AGRICULTURE AND LIVESTOCK CENSUS OF BHUTAN, 2022



NATIONAL STATISTICS BUREAU

Printed in Bhutan.
ISBN 978-99980-786-3-5

National Statistics Bureau
Royal Government of Bhutan
PO Box No 338
Thimphu, Bhutan
Tel: +975 2 333296, +975 2 335848
Fax: +975 2 323069
www.nsb.gov.bt

FOREWARD

The 2022 Integrated Agriculture and Livestock Census of Bhutan report presents the results of the first integrated census conducted by the National Statistics Bureau. It contains statistics on the profile of the farming population in the country with respect to crop production, livestock population and production in the country.

The main objective of the 2022 Integrated Agriculture and Livestock Census of Bhutan (2022IALC) was to collect information of crop growers and livestock holders including both household and institutional holders. The statistics in the report includes location of crop growers, their production by crop type, the number of livestock holders, number of livestock population by type, livestock production by type and geographical distribution of livestock holdings in the country. Such crop and livestock data are essential for economic development planning purposes and to provide a framework for future follow-up studies.

The integrated census was enumerated in 20 dzongkhags by 497 Tshogpas and 31 university graduate students, supervised by District Statistical Officers (DSOs). Enumeration took place from January 9 to February 20, 2023.

I hope that the information collected, processed, and reported in this census report provides opportunities for stronger evidence-based policy formulation. I extend my heartfelt appreciation to the staff of the NSB, Tshogpas of 205 Gewogs and all others, including the respondents, for their support and cooperation in the successful conduct of the census.

DIRECTOR
National Statistics Bureau

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF MAPS

LIST OF ANNEX TABLES

GLOSSARY

ASD:	Agricultural Statistics Division
BLDC:	Bhutan Livestock Development Corporation
CAPI:	Computer assisted personal interviewing
DoAMC:	Department of Agricultural Marketing and Cooperatives
DANTAK:	Project DANTAK
Chiwog:	The primary subdivision in Bhutan, similar to a district
DoA:	Department of Agriculture
DoL:	Department of Livestock
DSO:	District Statistical Officer
FAO:	Food and Agriculture Organization of the United Nations
GDP:	Gross domestic product
Village:	A group of chiwogs that collectively form a geographic unit below dzongkhags
HQ:	Head quarters
MT:	Metric ton
NSB:	National Statistics Bureau
PMO:	Prime Minister's office
PWD:	Public Works Department
RGoB:	Royal Government of Bhutan
RNR:	Renewable natural resources
RNR ST-WG:	RNR statistics technical working group
RNR SD:	RNR Statistics Division
STATA:	A statistical software package created in 1985 by StataCorp
TA/DA:	Travel allowance/daily allowance
ToE:	Training of enumerators
WB:	World Bank

ACKNOWLEDGEMENT

The National Statistics Bureau (NSB) successfully conducted the first integrated census from January 9 to February 20, 2023 with the financial support of the Royal Government of Bhutan (RGoB).

The quality of census data depends on the data collection system adopted and the support received from various stake holders, including respondents. For the preparation and administration of the 2022 Integrated Agriculture and Livestock Census (2022IALC), the NSB collaborated with many agencies of the government. We would like to thank and extend our appreciation to many government agencies and to our farming population for the support and cooperation rendered for the census.

These agencies include the Department of Local Governance & Disaster Management (DLGDM), the Ministry of Home Affairs; the Department of Agriculture (DoA) and the Department of Livestock (DoL), the Ministry of Agriculture and Livestock; District Statistical officers; Local Governance Officials particularly Tshogpas and Gewog Gups and Government livestock input farms.

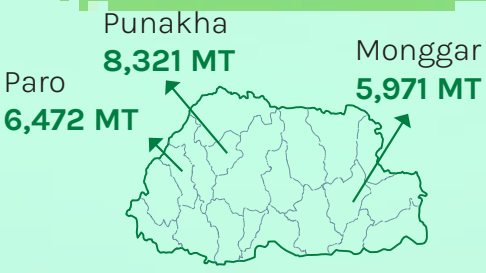
NSB would like to convey its gratitude to the integrated census team from the National Statistics Bureau, field supervisors, enumerators, dashboard managers, RNR statistics technical working group (RS-TWG) members and all the crop growers and livestock holders in the country for their support and co-operation.

National Statistics Bureau
Thimphu

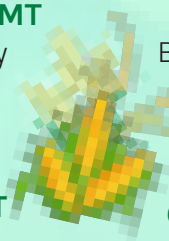
PRODUCTION AT A GLANCE

CROP PRODUCTION

Top three cereals production dzongkhag



CEREALS



- **40,744 MT** Paddy
- **1,133 MT** Buckwheat
- **25,981 MT** Maize
- **602 MT** Millet
- **770 MT** Wheat
- **615 MT** Barley
- **18 MT** Quinoa

SPICES

- **1,693 MT** Cardamom
- **3,711 MT** Ginger
- **24 MT** Sichuan Pepper

VEGETABLES

- **917 MT** Broccoli
- **3,206 MT** Cabbage
- **1,19 MT** Cauliflower
- **5,557 MT** Chili
- **1,300 MT** Carrot
- **1,943 MT** Radish

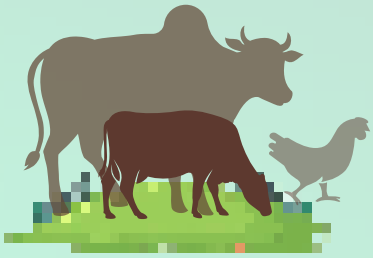
ROOTS AND TUBER

- **31,146 MT** Potato
- **28 MT** Sweet Potato
- **75 MT** Taro
- **74 MT** Ground Apple

FRUITS

- **2,223 MT** Apple
- **3,711 MT** Areca Nut
- **18,467 MT** Mandarin

LIVESTOCK PRODUCTION

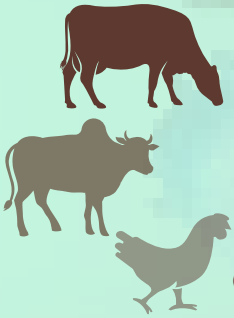


51,892 Livestock holders

98% Household sector
(**50,839** holders)

2% non-household sector
(**1,053** holders)

Top three livestock raised



Jersey cattle
(**23,761** holders)

Nublang-Thrabum
(**16,960** holders).

Poultry
(**19,808** holders)

DAIRY

42,255 MT
Milk

1,508 MT
Butter

2,382 MT
Cheese

130 MT Chugo

LIVESTOCK DEATH

21,472 Bovine Livestock

18,548 Cattle

232,758 Poultry

OTHER

101 Million
EGGS

37 MT
HONEY

21 MT
WOOL

LIVESTOCK BIRTH

Calves <1-year old
29,152 calves

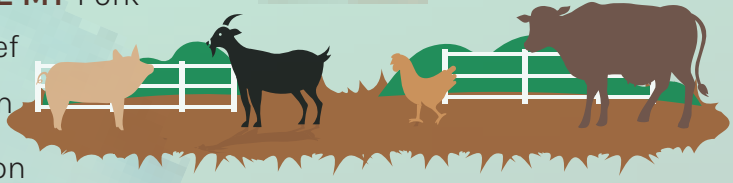
MEAT

1,232 MT Pork

1,822 MT Beef

944 MT Chicken

174 MT Chevon



19 MT Mutton **187 MT** Yak **37 MT** Fish

CHAPTER 1: INTRODUCTION

Background

Crop and livestock productions are the significant and growing source of income and growth in many developing worlds. Approximately crop and livestock sector contributed respectively 10.52 and 5.71 percent to the overall GDP growth in 2021. The rural households partially or fully depend on crop and livestock for their livelihoods. The crop production and livestock rearing provides them with a wide spectrum of benefits, such as cash income from the sale of dairy and livestock products, food, manure and power to plough their fields in many rural parts of Bhutan.

Reliable crop production and livestock statistics are important to help develop and implement food security programs, promote and monitor economic growth and poverty reduction policies, and develop sound investment strategies for the RNR sector in the country.

Earlier livestock censuses were conducted by the Department of Livestock (DoL) and the RNR Statistics Division (RSD) of the Ministry of Agriculture and Forests. RSD and its mandate to carry out RNR censuses and surveys were formally transferred to NSB in September 2022 by the government, upon which NSB established its Agricultural Statistics Division (ASD). Since then, NSB has been conducting agriculture and livestock surveys at the national level. For 2022, NSB conducted the first ever Integrated Agriculture and Livestock Census (2022 IALC) in close collaboration with the District Statistical Officers (DSOs) and support of the Tshogpas (Local Governance Members) of the Department of Local Governance and Disaster Management (DLGDM) of the Ministry of Home Affairs.

Census date and reference period

The 2022 IALC was conducted from 9th January to 20th February 2023. The reference date for census enumeration was 31 December, 2022, with January to December 2022 as the reference year. This means that the 2022 IALC provides population data as of 31st December, 2022 and production data for 2022.

Objectives of the census

The main objective of the integrated census was to assess the characteristics and performance of crop and livestock farming in the country. The census also had the following specific objectives:

- Record and maintain reliable information on Bhutan's crop production and livestock population and production for the development and implementation of food security programs.

- Establish reliable information on Bhutan's crop production, livestock population and production for planning and monitoring of the development programs.

- Collect information on crop and livestock indicators, such as annual crop roduction, livestock population, by characteristics such as crop type and animal breed for the development, promotion and monitoring of economic growth.

- Provide time series data on the crop production, and livestock population and production for the development of the RNR sector investment strategies.

Scope and coverage

The 2022 IALC is based on complete enumeration of crop growers and livestock holdings, covering the following types of holding:

- **Permanent holders:** holders in the household sector who permanently reside in the village who are involved either in crop production or rearing of livestock. For example, regular households in the village.

- **Temporary holders:** holders in the household sector who temporarily resides in the village, or are transient holdings either involved in the crop production or rearing of livestock, such as DANTAK workers, households residing in PWD Camps, school teachers who are into crop production or rearing of livestock, etc.

- **Institutional holders:** Institutional holders included all non-household or commercial holdings, such as functional cooperatives/farmers' groups, schools, tshethar tshogpas, Dratshang, etc who are involved in the crop production or rearing of livestock for any general/common purposes, etc.

- **Government farms:** This included state-owned enterprises, such as livestock farms established by the Government to support the development of the livestock sector by the Department of Livestock (DoL), Ministry of Agriculture and Livestock. The following list of government farms/central farms were captured:

  - Regional Poultry and Piggery Breeding Centre, Monggar
  - National Development Centre for Aquaculture, Sarpang
  - National Nublang Breeding Centre, Trashigang
  - Regional Mithun Breeding Centre, Samdrup Jongkhar
  - National Piggery Development Centre, Sarpang
  - Trout Breeding Centre under National Research and Development Centre for Riverine and Lake Fisheries, Haa
  - Regional Centre for Aquaculture, Samdrup Jongkhar
  - Acipculture Research and Development Unit, Bumthang
  - Regional Cattle Breeding Centre, Chhukha

- National Small Ruminants Research and Development Centre, Bumthang
- National Cattle Breeding Centre, Bumthang
- National Equine Research and Development Centre, Bumthang
- Regional Poultry Breeding Centre, Paro
- National Poultry Research Development Centre, Sarpang
- National Nucleus Pig Breeding Centre, Thimphu
- National Dairy Development Centre, Thimphu

Census preparation

Like any other census, the 2022 Integrated Agriculture and Livestock Census of Bhutan (2022 IALC) followed standard census methodologies and operations to assure quality data.

The initial preparation of the census included drafting a budget proposal and then submitting it to the Ministry of Finance (MoF). Following an assessment of the proposal, it was endorsed by MoF. Pre-census activities started from early October 2022 and the main census was conducted from 9th January to 120th February 2023, with financial support from the Royal Government of Bhutan (RGoB) and technical support from the renewable natural resources (RNR) statistical technical working group (RS-TWG).

The RS-TWG included officials from the Department of Agriculture (DoA), the Department of Livestock (DoL), the Department of Agricultural Marketing and Cooperatives (DAMC), the Bhutan Agriculture and Food Regulatory Authority (BAFRA) of the Ministry of Agriculture and Livestock (MoAL), and the National Statistics Bureau.

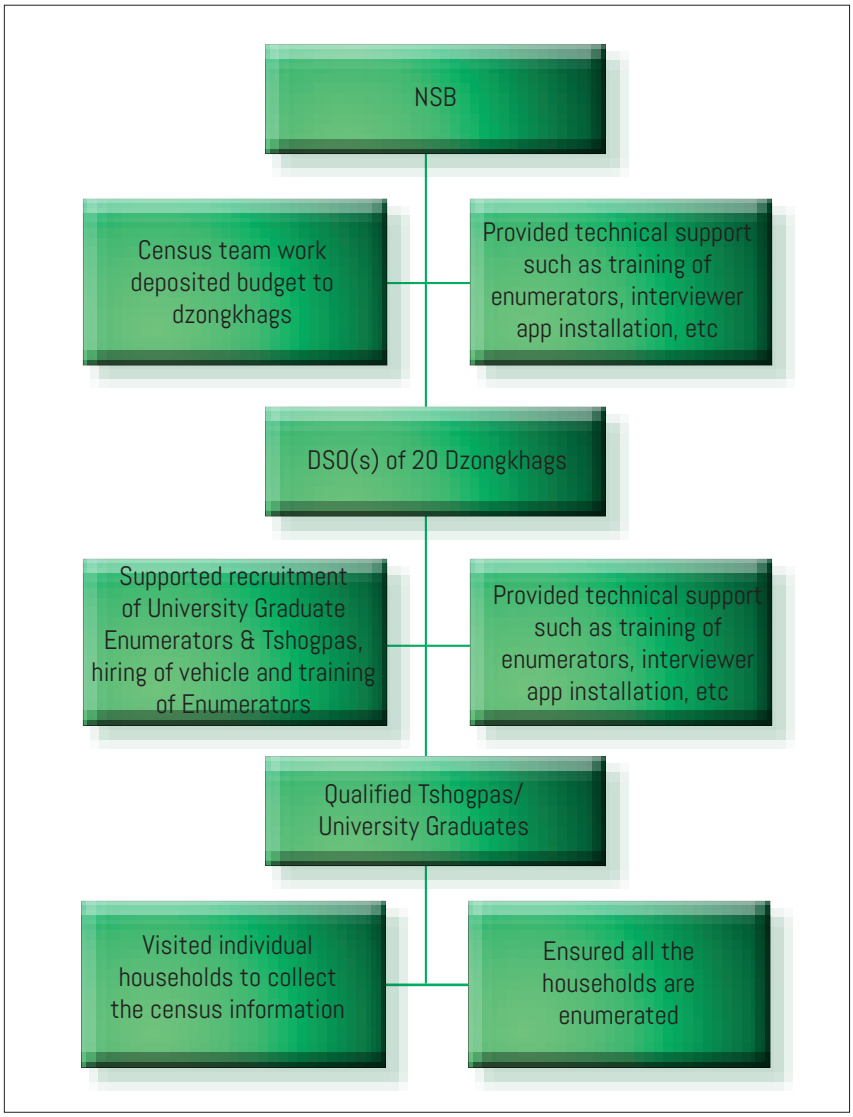
Stakeholder participation

To ensure proper coordination and planning, the NSB, with support of the RS-TWG, convened several rounds of workshops to finalize the questionnaire and census operational plan. Two major stakeholder workshops were conducted at various stages of the census preparatory phase. To seek the support and cooperation of MoAL and agree on census administration and implementation strategies, as well as on the information to be produced by the census, the census operational plan, presented in Figure 1.01, was adopted.

As instructed by the Prime Minister's Office (PMO), the NSB involved 497 Tshogpas with class VIII or above for the field census data collection. For gewogs/chiwogs without the qualified Tshogpas, the District Statistical Officers (DSOs) from respective dzongkhags supported the NSB with recruitment of university graduates as temporary enumerators for field data collection.

The dzongkhag also procured transportation for the census field operations. DSOs also supported field census supervision and other logistical arrangements for enumerators, such as identification of crop or livestock households or both, deployment of enumerators, and enumerator lodging and payment of daily allowances.

Figure 1.0 1: Census operational plan



Questionnaire design

The 2022 IALC was conducted by NSB for the first time, with the census questionnaire thoroughly reviewed by members of the RS-TWG. Two versions of the questionnaire were drafted based on recommendations and feedback from stakeholder workshops.

The questionnaire version A (available in the Annex) was developed to collect data in Computer Assisted Personal Interviewing (CAPI) from households and non-household respondents. Version B was developed to collect information in Computer Assisted Web-interviewing (CAWI) from government farms. The main census questionnaire for households and non-household sectors (see Annex), contained the following modules:

- **Module A:** Identification. This module had basic information about the name and location of the crop grower/livestock holders, as well as information about the type of holding collected during the frame listing.

- **Module B:** Household member demography. This module collected information about the gender, age, education, marital status and relationship of the household members who normally work on farm in the household and lived together for atleast 6 months. The module excluded school going children.

- **Module C:** Crop production. This module collected information about the type of crops grown, including information on the sown area, area loss and harvested production during the reference year.

- **Module D:** Livestock production. This module collected information about the type of bovine livestock, including head counts, breed type and deaths during the reference year. This module also collected information about the number of fish ponds, area covered and type of fish that the holder raised. This module gathered information about the rearing of bees, by beehive type, and about honey production, and other livestock products including dairy, meat, eggs and wool.

The final census questionnaire was agreed and finalized for implementation using computer assisted personal interviewing (CAPI) for household and non-household sector and computer assisted web-interviewing (CAWI) for government farms. Following the finalization of the questionnaires, field instructions were developed to guide the enumerators and were incorporated as interviewer instructions in the CAPI, or digitized, questionnaire. The CAPI questionnaire was tested several times in census pilot and revised based on the evaluation of the pilot.

Data capture methodology

The World Bank's (WB) Survey Solutions was used to digitize the questionnaire and enter and capture data from respondents. Survey Solutions is a free software package developed by the WB to assist governments, national statistics offices, and NGOs in implementing advanced surveys using mobile devices. The software and digitized questionnaires were loaded into tablets to guide the enumerators through the questionnaire and data collection.

This method of digitized data collection and capture is called Computer Assisted Personal Interviewing (CAPI).

A number of consistency and data validation checks were incorporated in the digitized data collection, such as automatic skip patterns. Automatic skip patterns ensure that when specific questions need to be skipped - depending on answers to previous questions - the program automatically guides the enumerator to the next question.

The large number of validation checks incorporated into the digitized questionnaire also helped improve data quality, by limiting or avoiding errors in data entry or incorrect answers. Furthermore, specific instructions were provided for each question to help enumerators and respondents in dealing with that question. After the data collection was completed, the data were exported from survey solutions to STATA for analysis.

Listing updates of permanent holders

The listing was conducted with support from the Tshogpas in respective Chiwogs. Tshogpas from 205 gewogs updated the list of crop growers and livestock households residing in their respective chiwogs, and the updated list, was later shared to NSB. The updated list frame received from Tshogpas were checked and corrected for inconsistencies to enable university graduate enumerators to locate households during the census for those missing Tshogpas.

Census method and operations

Conduct of pilot census

A pilot census was conducted to check the structure and flow of the questionnaire and to estimate the average time required to enumerate a household. A pilot is important to test the procedures related to enumeration and to improve supervisor training and data processing.

Officials from the Agricultural Statistics Division (ASD) of the NSB conducted the in-house pilot census over a period of two weeks. The findings from the pilot census were used to make necessary corrections and improve the structure and flow of the census questionnaire. The pilot also helped to plan field operations and establish the number of supervisors and enumerators to be recruited to complete field enumeration in the allocated time.

Recruitment and training of census staff

For the main census, 20 dzongkhag supervisors and 497 Tshogpas and 31 university graduates were deployed as enumerators (see Table 1.01). Based on the pilot census, an enumerator was estimated to complete data collection for, or enumerate, 10 households per day. The number of enumerators required in dzongkhags were estimated based on the updated household list and estimated enumerations per day.

District Statistical Officers (DSOs) were identified as the supervisors, and a pool of class VIII or above Tshogpas and a few university graduates were recruited as enumerators from respective dzongkhags. A total of 12 NSB officials were selected as Master Trainers for the Training of Enumerators (ToE) and 9 NSB officials including 10 intern students from the College of Natural Resources and Sherubtse College, Royal University of Bhutan (RUB) were assigned as Dashboard Managers. The recruitments of enumerators were conducted by District Statistical Officers (DSOs) in the respective dzongkhags.

The trainings for enumerators were conducted for three days for each dzongkhag, from 5th to 15th January, 2023. During the training, enumerators were introduced to the general background of the census and the concepts and definitions of the terms contained in the questionnaire. They were also trained in the various enumeration procedures and in recording responses to the questionnaire electronically in their android device. During the training sessions, mock interviews in different dialects were conducted to equip enumerators with interviewing techniques.

Table 1.0 1: Enumerators recruited, by dzongkhag and training date, 2022

Dzongkhag	No. of Tshogpas involved	No. of University Graduate recruited	Total	Date of Training
Monggar	33	7	40	5-7 January 2023
Trashi Yangtse	21	-	21	9-11 January 2023
Lhuentse	16	1	17	9-11 January 2023
Trashigang	26	7	33	13-15 January 2023
Bumthang	8	-	8	5-7 January 2023
Trongsa	11	-	11	5-7 January 2023
Zhemgang	17	3	20	9-11 January 2023
Wangdue Phodrang	24	7	31	13-15 January 2023
Dagana	40	-	40	5-7 January 2023
Tsirang	36	-	36	9-11 January 2023
Punakha	21	-	21	13-15 January 2023
Gasa	6	-	6	13-15 January 2023
Samtse	62	-	62	5-11 January, 2023
Chhukha	30	-	30	13-15 January, 2023
Haa	11	3	14	5-7 January 2023
Paro	31	-	31	9-11 January 2023
Thimphu	16	-	16	13-15 January 2023
Sarpang	35	-	35	5-7 January 2023
Samdrup Jongkhar	30	-	30	9-11 January 2023
Pema Gatshel	23	3	26	13-15 January 2023
Bhutan	**497**	**31**	**528**	

Enumeration

The main census was conducted from 9th January to 20th February 2023. This was a little more than a month to allow for follow-ups on household responses and revisits.

District Statistical Officers (DSOs) supervised the field enumeration by developing the enumerators' deployment plan. The enumerators assigned to specific chiwog executed the field enumeration. Apart from the DSOs supervising the fieldwork of the enumerators, there were 19 dashboard managers at NSB headquarters (HQ), who assigned questionnaires to the field teams and checked the quality of the results. The dashboard managers were also tasked to validate the data received from the field.

Data processing phase

Data compilation and consolidation

After the data were collected from the field, they were compiled and stored in two different data sets. For version A of the questionnaire, the data collected from the household and non-household sectors were extracted from Survey Solutions. For version B, data from the government livestock input farms were maintained separately. Both raw data sets were then exported in STATA format and stored for further cleaning and data validation.

Data validation and editing

During data collection, the dashboard managers helped assign questionnaires to enumerators in the field, and verified the quality and consistency of each completed questionnaire.

The respective dzongkhag dashboard manager assigned questionnaires and reviewed and validated the submitted questionnaires. Missing, incomplete, and inconsistent responses were also verified, and the associated questionnaire was rejected as soon as it was received from an enumerator. Enumerators verified a rejected questionnaire, corrected errors and missing data by calling the associated household, and re-submitted the questionnaire after correction. This iteration process was repeated several times, if required, until the data were corrected. The data were then verified in two additional stages, first by the dashboard managers and then at the NSB HQ.

After the data collection was completed, the consolidated dataset was thoroughly checked to identify any remaining missing values, errors, and inconsistencies. In many cases, data issues were followed up through telephone calls with the households involved to resolve the problems. The final data set was then made ready for analysis after several rounds of cleaning and validation.

Analysis and report writing

A tabulation plan and report outline were developed during the census preparation phase. A core set of basic

tables was produced in accordance with the tabulation plan. This was used as the basis for the presentation and analysis of results in the census report.

The 2022 IALC report writing team was formed internally to draft the respective sections and chapters of the report. The analysis results and report chapters underwent several rounds of internal review.

Census data quality assurance

The quality of data is of primary importance for accuracy, relevance, reliability and validity of results. The census team implemented measures to support good practices in data collection and and to minimize errors in the data collection.

Data quality was enhanced through a variety of measures, from careful attention and stakeholder participation in questionnaire design, to fine tuning the questionnaire, to ensuring the content obtained the most relevant information for key users, such as the Department of Livestock, Ministry of Agriculture and Livestock. In data collection, enumerators played an important role in obtaining accurate and quality information from respondents. Thus, training of enumerators (ToE) was conducted for 3-days to provide a thorough understanding of the concepts, definitions, logical reasons for and objectives of the questions to be asked of respondents.

Furthermore, the census team from NSB validated the data collected by supervising enumerators during the CAPI data collection and at the field enumeration level. Some of the validation and consistency checks put in the CAPI-questionnaire also helped to identify or prevent errors in responses and data entries, which helped clean the data during field enumeration.

In the next stage, the completed household questionnaires were also checked thoroughly at HQ. The HQ census team validated the data by examining the distribution of variables on the livestock population and production after the completion of the census, and performed internal and external validations. Where necessary, the census team randomly called crop growers and livestock households with questionnaires that needed further data validation.

Cost of census data collection

The costs of data collection play a key role in determining the quality of data. The costs of 2022 IALC data collection was estimated based on the number of census staff (primarily enumerators and field supervisors), the training of enumerators, the likely number of interviews per day per enumerator based on the pilot interview, and costs of other census activities, such as that of hiring of transportation. About ngultrum (Nu.) 13.53 million were released to the 20 dzongkhags, of which about Nu. 13.05 million were reported as expenses (see Table 1.02).

Cost of Enumeration

The cost of enumeration included payment of daily subsistence allowance (DSA) to enumerators during the training of enumerators (ToE) and field data collection. University graduates who were recruited as enumerators were paid Nu. 400 per day and provided working lunch, tea and snacks during the training of enumerators (ToE), and Nu. 1,100 per day during the field data collection for the duration taken to complete the enumeration.

Furthermore, one-time voucher allowances of Nu. 1,000 were paid to enumerators to communicate with the Dashboard Managers in HQ and respondents for any data inconsistency check. For chiwogs, where field enumeration was conducted by Tshogpas, their entitlements were paid as per the Local Governance (LG) rules and regulations.

The other costs of enumeration included hiring of transportation to move field staff from one enumeration area to another. The number of vehicle to be hired, by dzongkhag, was estimated by the NSB HQ team, while the respective dzongkhags hired the vehicles locally.

Associated cost of NSB HQ

In addition to the costs of enumeration, there were a few other cost components, such as convening of consultation workshops with the RS-TWG members for drafting the questionnaire and providing master training to the census staff from NSB for ToE in dzongkhags. Field monitoring by the NSB census staff was yet another important exercise conducted to ensure the quality of data from the field. The master trainers, upon completion of the ToE, monitored the dzongkhags during the field operations.

Measures taken to reduce data collection costs

The estimates of data collection costs were based on a number of data collection costs, assumptions and parameters. For example, based on the pilot census, NSB determined the number of households to be enumerated daily by each enumerator as six to eight households on average. Accordingly, enumerators were hired, and deployed in groups of four per vehicle.

Management took various steps to minimize data collection costs and maximize data quality. One example was the use of local enumerators. Dzongkhags recruited enumerators from their locality, which helped plan for and minimize costs of accommodation and transportation, as well as other logistics costs.

Tshogpas were also able to communicate with respondents in their dialect, which enhanced understanding of the questionnaire and improved other aspects of data collection and reporting. Where possible, the DSO(s) also collaborated with gewog administration for the use of their vehicles during the census, by using their census budgets to cover fuel costs and travel allowance/ daily allowance of drivers.

Table 1.0 2: Cost of census data collection, by dzongkhag, 2022

Dzongkhag	Total Work Deposit	Actual Expenditure
Bumthang	252,000.00	232,476.00
Chhukha	8,18,816.00	8,18,816.00
Dagana	1,001,266.00	1,001,266.00
Gasa	153,000.00	131,814.00
Haa	342,000.00	318,520.00
Lhuentse	445,367.00	445,367.00
Monggar	1,164,748.00	1,164,748.00
Paro	657,000.00	537,340.00
Pema Gatshel	709,762.00	709,762.00
Punakha	504,000.00	424,549.00
Samdrup Jongkhar	702,000.00	695,206.00
Samtse	1,504,000.00	1,503,143.00
Sarpang	846,000.00	786,252.00
Thimphu	370,850.00	370,850.00
Trashigang	530,512.00	530,512.00
Trashi Yangtse	1,111,484.00	1,111,484.00
Trongsa	334,158.00	334,158.00
Tsirang	738,000.00	585,776.45
Wangdue Phodrang	830,439.00	830,439.00
Zhemgang	517,795.00	517,795.00
Total	**13,533,197.00**	**13,050,273.45**

Structure of the report

The census report presented here contains five chapters. The introductory chapter provides the general context of conducting the integrated census, including the objectives of the census and its scope and coverage. It also describes the methodological and operational procedures implemented in the census, to offer readers and census users a better understanding of how the census results have been obtained and how they should be interpreted.

The chapter also describes: stakeholder participation; the design of the questionnaire; data collection and capture; pre-census listing operations; training of enumerators and supervisors; census enumeration; data processing; including data compilation; consolidation; validation and editing; —and tabulation, analysis, followed by report writing.

Chapter two discusses the basic household demography of the crop growers and livestock holders. This is important as it provides the empirical understanding of the demographic change of the farming population in the country.

Chapters three to five cover the subject matter of the census. Chapter three presents the statistics on crop production by different crop types. Chapter four, describes the different types of livestock population including the herd structure and its dynamics. It also presents the count of animals, by type, on census data, and the number of animals that exited the population through death during the census reference year. Additional information on calves aged less than 1 year are provided to keep track of newborn cattle during the 2022 reference year.

Chapter five presents data on the production of livestock — dairy products; meat; eggs; honey and wool. This chapter also includes information on apiculture and aquaculture, such as the numbers of bee farmers, types of beehives, and the number of fish farmers and harvested production of fish. It is worth noting that apiculture, or bee farming, has grown in recent years in Bhutan.

The report concludes with annexes that provide more detailed statistical tables as well as the census questionnaires.

CHAPTER 2: HOUSEHOLD MEMBERS DEMOGRAPHY

Introduction

The chapter presents the general demographic characteristics of the agricultural holdings, including aspects of the respondents and other items by type and location. These are essential items and such items were included in the census for national and international comparisions.

Type of agricultural holdings

In many countries, the population of agricultural holdings is divided into two subpopulations:

- holdings in the non-household sector (commercial holdings) and
- holdings in the household sector (holdings run by households or physical persons).

An agricultural holding is defined as an economic unit under single management comprising all livestock kept and all land used wholly or partly for agriculture production purposes, regardless of the ownership (WCA 2020). In developing countries, the majority of the holdings are in the household sector, i.e. holdings that are predominantly run by families.

As per the results of the 2022 IALC of Bhutan, about 67,093 agricultural holdings were recorded in the census. Table 2.01 shows that household sector dominates all other holding types with 96 percent, while the non-household sector is negligible (4 percent). The household sector in Bhutan includes those permanent or regular households that grow crops or rear livestock for their own consumption or sale.

The non-household sector includes entities such as private commercial farms, agriculture groups or cooperatives that are run by a group of farmers who leases land either from the government or community, share labour and market the produce for join profit. It also includes schools, institutions and monasteries that often lease out land to others but sometimes may employ a caretaker or manager to run the farm or sometimes the monks or students of a Shedra grow vegetables for their own consumption.

Temporary households like DANTAK/ PWD roadside workers/Army camps, Tshethar Tshogpa, Milk Processing Units (MPUs) and the 'others' category which includes those holdings other than those categorized above such as kukhor-owned holdings that are usually managed by a caretaker and armed force premises holdings who also rears some livestocks were put under the non-household sector.

Table 2.0 1: Agricultural holding, by dzongkhag, and by type, 2022

Dzongkhag	Household Sector	Non-Household Sector	Total
Bumthang	1,249	40	1,289
Chhukha	4,317	191	4,508
Dagana	4,474	188	4,662
Gasa	550	4	554
Haa	1,189	17	1,206
Lhuentse	1,890	87	1,977
Monggar	4,974	392	5,366
Paro	3,175	191	3,366
Pema Gatshel	3,216	59	3,275
Punakha	2,438	102	2,540
Samdrup Jongkhar	3,853	61	3,914
Samtse	9,377	118	9,495
Sarpang	4,286	121	4,407
Thimphu	1,180	384	1,564
Trashigang	5,984	123	6,107
Trashi Yangtse	2,278	196	2,474
Trongsa	1,422	66	1,488
Tsirang	3,508	116	3,624
Wangdue Phodrang	2,991	198	3,189
Zhemgang	2,002	86	2,088
Bhutan	**64,353**	**2,740**	**67,093**

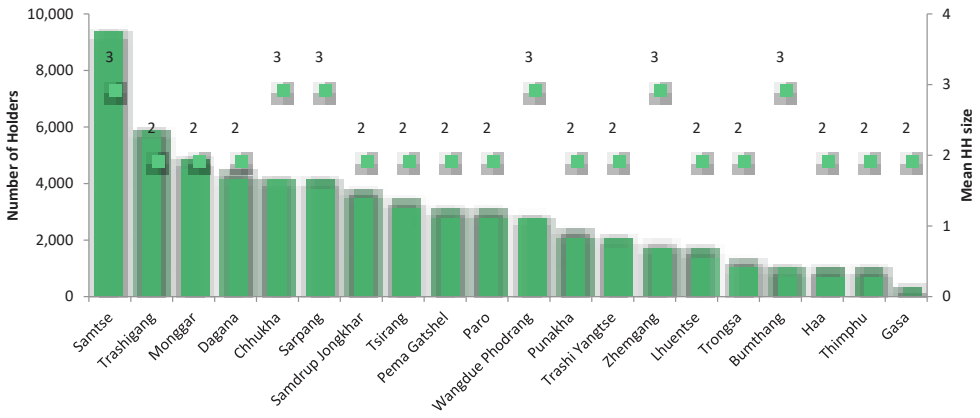
Household sector holdings

Understanding the demographic characteristics of the households are important to gain a better knowledge of the social dimensions of the farming households. The information on demography was asked only to the household sector and not to all other holding types. The demographic information was asked to all household members who are usually resident in the household atleast 6 months or more, shares meals together, and would have a household head who makes the major economic or social decision. The census recorded 64,185 household heads.

Household size

There are 64,353 households distributed in different dzongkhags. Figure 2.01 shows the distribution of household sector holders, by dzongkhag and by household size. The national average farming household size is observed at 2 persons. Across the dzongkhags, Bumthang, Chhukha, Samtse, Sarpang, Wangdue Phodrang and Zhemgang have the highest national average household size with 3 persons. There is no significant difference in the average household size across dzongkhags.

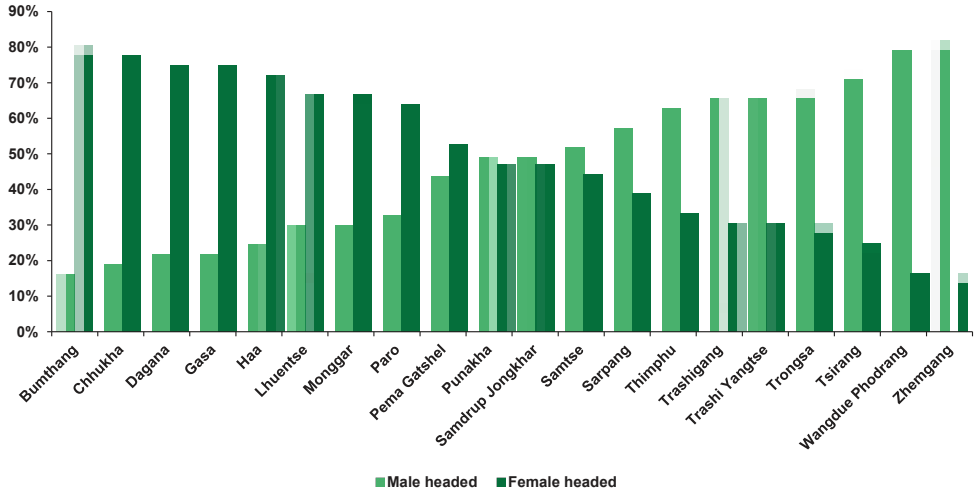
Figure 2.0 1: Distribution of household sector holders, by dzongkhag and by household size, 2022



Gender distribution of the household head

Figure 2.02 shows the share of male and female headed households across the dzongkhags. In general households are more likely to have more males compared to females as head of the households. Pema Gatshel, Punakha, Samdrup Jongkhar and Samtse dzongkhags have no gender disparity in terms of the household head. However, there are dzongkhags such as Bumthang, Chhukha, Dagana and Haa with higher number of female-headed households compared to their male counterpart.

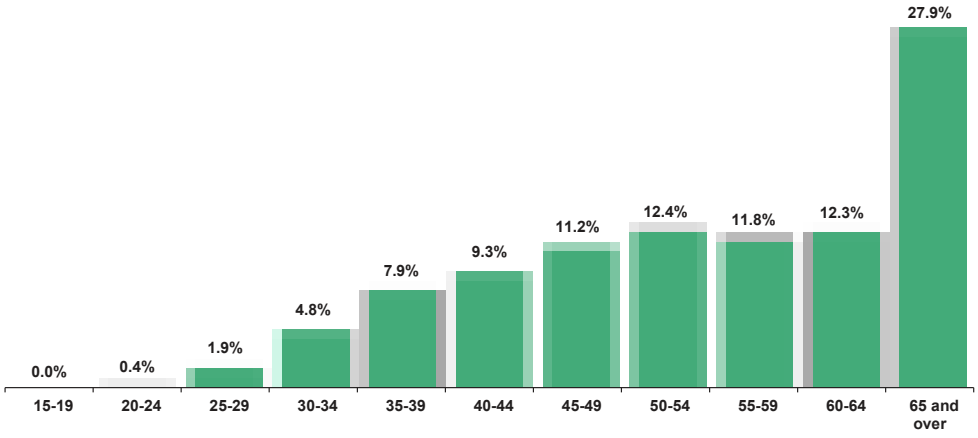
Figure 2.0 2: Share of male and female headed households, by dzongkhag, 2022



Population in the household sector

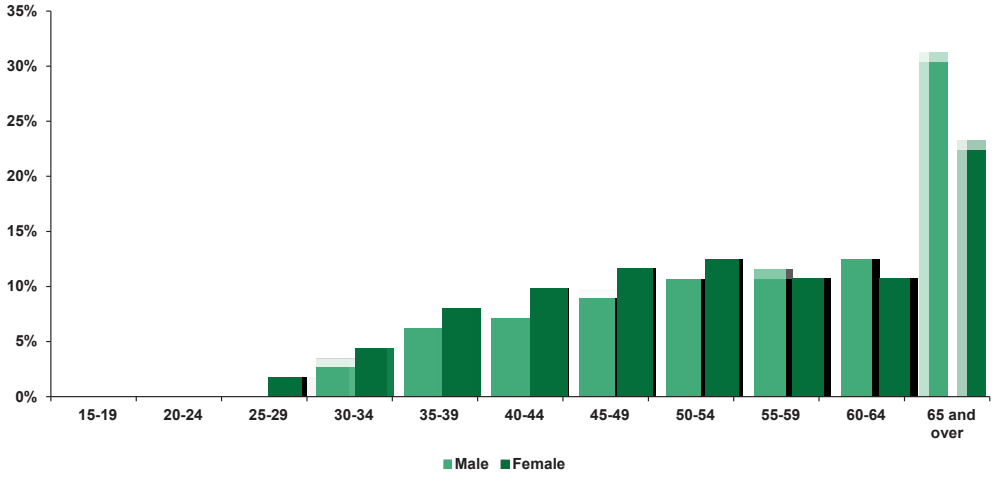
The household sector which consisted of 64,353 holdings have a total population of 151,723 persons. Figure 2.03 shows the percentage distribution of the population by age group. The working youth population in the household sector is about 2.3 percent and there is 27.9 percent of the total household sector who are 65 years and above.

Figure 2.0 3: Distribution of population in the household sector, by dzongkhag and by age, 2022



A detailed age profile by gender of farming households can be obtained from Figure 2.04. The figure shows a concentration of females in the young and adult ages, with a tail extending into older ages. The distribution by gender shows overrepresentation of females in the age categories upto 54 years. There is a clear evidence that in the prime working age groups, there are more females than males on the farms.

Figure 2.0 4: Distribution of population in the household sector, by gender and by age, 2022



CHAPTER 3: CROP PRODUCTION

Cereals

Following the World Programme for the Census of Agriculture 2020 (WCA 2020) of the Food and Agriculture Organization (FAO) of the United Nations, the 2022 Integrated Agriculture and Livestock Census was conducted covering different aspects of the cereal crops. FAO includes wheat, rice paddy, barley, maize, popcorn, rye, oats, millets, sorghum, buckwheat, quinoa, fonio, triticale, canary seed, mixed grain and cereals nec as cereals. For the case of Bhutan, the core cereal crops grown by small agricultural holders are paddy, maize, wheat, barley, buckwheat, millet and quinoa. The focus of the current chapter is on crop production including area under cultivation for these major cereal and other crops, and the discussion of the results is limited to presenting the crop production and area at the dzongkhag level.

Crop production is particulary sensitive to prevailing weather and climatic conditions during the key times of the growing season. For example, most Bhutanese farmers report crop damage during the stage of plant's development due to heavy rain fall, strong winds or in some cases due to summer droughts and heat waves causing significant yield losses. Although, sound and timely crop production statistics are key to inform decisions, policies and investements that help tackle issues related to food and agriculture, generating precise crop production statistics still remain as challenge. It is for this reason that crop production is sensitive to weather conditions throughout the growing season and at harvest.

The crop production of all cereal crops presented here in this chapter were as reported by the smallscale agriculture holders during the census except for paddy and maize. *The production of paddy and maize were computed by multiplying the harvest area of the holding as reported in the census with the crop cut yield of the respective gewogs (i.e. area harvested by the households [as reported based on the sown area minus the crop area lost] * crop cut yield of the gewog) received from the Ministry of Agriculture and Livestock (MoAL).* Production, other than paddy and maize reported here refers to the actual harvested production from the field during the census reference period. All the production data are presented in tonnes (MT) while area are in acres (Acre). The production of main cereals was 70,168 MT in 2022. This was 6,319 MT less than in 2021, which is 8 percent decline. Table 3.01 shows the harvested production of main cereals by type in 2022.

The top three dzongkhags that produced the highest cereals were Punakha, Paro and Monggar. Punakha dzongkhag harvested 8,321 MT, Paro harvested 6,472 MT and Monggar harvested 5,971 MT of main cereals in 2022 (see Map 3.01). These three dzongkhags accounted for more than one fifth (30 percent) of the total harvested production of main cereals in 2022. Map 3.01 shows that dzongkhags such as that of Punakha, Paro, Wangdue Phodrang, Samtse, Sarpang, Dagana and

Trongsa are dominant dzongkhags in the paddy cultivation while Trashigang, Monggar, Pema Gatshel and Samdrup Jongkhar are dominant in the maize cultivation.

Paddy

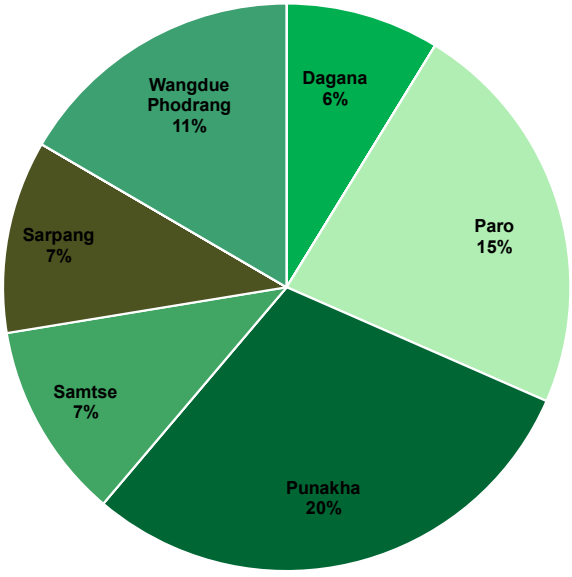
Among main cereal crops, paddy and maize are the commonly grown cereal crops in the country. A total of 40,745 MT (see Table 3.02) of irrigated paddy was harvested in 2022. This was 2 percent (664 MT) more than in 2021. A total of 304 MT (123 MT less than in 2021) of upland paddy (see Table 3.03) was harvested.

Punakha dzongkhag harvested 8,059 MT of irrigated paddy (1,549 MT more than in 2021) while Paro dzongkhag harvested 6,204 MT (1,030 MT more than in 2021) and Wangdue Phodrang harvested 4,515 MT (45 MT more than in 2021). Punakha (20 percent), Paro (15 percent) and Wangdue Phodrang (11 percent) dzongkhag accounted for the highest production of irrigated paddy in 2022 (see Figure 3.01). The production shares of the rest of dzongkhags which were less than 5 percent are not shown in the figure.

Table 3.0 1: Cereals production, by type, 2022

Dzongkhag	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Paddy (Irrigated)	23,571.86	22,319.76	40,744.68
Paddy (Upland)	423.64	362.91	304.44
Maize	21,919.71	18,429.31	25,981.09
Wheat	1,973.71	1,769.20	769.78
Barley	1,456.89	1,305.22	614.93
Millet	1,430.08	1,297.66	601.51
Buckwheat	3,069.89	2,595.32	1,133.11
Quinoa	38.87	35.78	18.33
Bhutan	**53,884.65**	**48,115.16**	**70,167.87**

Figure 3.0 1: Production share of irrigated paddy, by dzongkhag, 2022



Map 3.0 1: Share of cereals production, by dzongkhag and by crop type, 2022

Table 3.0 2: Irrigated paddy production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	109	72.75	71.63	107.21
Chhukha	975	678.79	589.85	878.67
Dagana	1,657	1,866.05	1,687.13	2,386.81
Gasa	103	104.84	101.57	139.50
Haa	82	69.32	54.04	67.77
Lhuentse	1,136	1,062.46	1,019.02	1,776.01
Monggar	1,125	568.58	532.89	590.25
Paro	1,848	2,284.41	2,281.31	6,204.35
Pema Gatshel	46	27.04	25.91	31.69
Punakha	2,124	3,612.58	3,528.69	8,059.45
Samdrup Jongkhar	840	1,233.89	1,146.79	1,909.06
Samtse	2,818	2,749.88	2,640.45	3,055.06
Sarpang	1,294	1,980.20	1,830.57	2,990.81
Thimphu	287	288.41	282.20	693.91
Trashigang	1,862	942.43	892.47	1,920.28
Trashi Yangtse	1,227	656.40	629.26	1,380.52
Trongsa	998	947.13	877.50	1,417.83
Tsirang	1,274	1,380.59	1,290.33	1,538.84
Wangdue Phodrang	1,564	2,425.67	2,278.68	4,515.47
Zhemgang	769	620.46	559.48	1,081.19
Bhutan	**22,138**	**23,571.86**	**22,319.76**	**40,744.68**

Harvested production of paddy is observed to decrease gradually for many reasons. With the increasing urbanization and rapid socio-economic development, increasing amount of prime paddy wetland are being lost. Furthermore, agricultural holders are taking up more economically viable, less labor and resources intensive crops over paddy cultivation on wetland.

Despite many interventions by the government in enhancing the paddy productivity, paddy growers in the country still face overwhelming challenges

eventually leading to the gradual decrease in harvest area. The acreage under paddy is also slowly diminishing due to other competing crops such as growing of vegetables and other cash crops on wetland. Furthermore, in terms of paddy growers it has decreased from 25,336 holders in 2021 to 23,327 holders in 2022, an equivalent down 8 percent than in 2021 (see Figure 3.03).

Figure 3.0 2: Production of paddy from 2018-2022

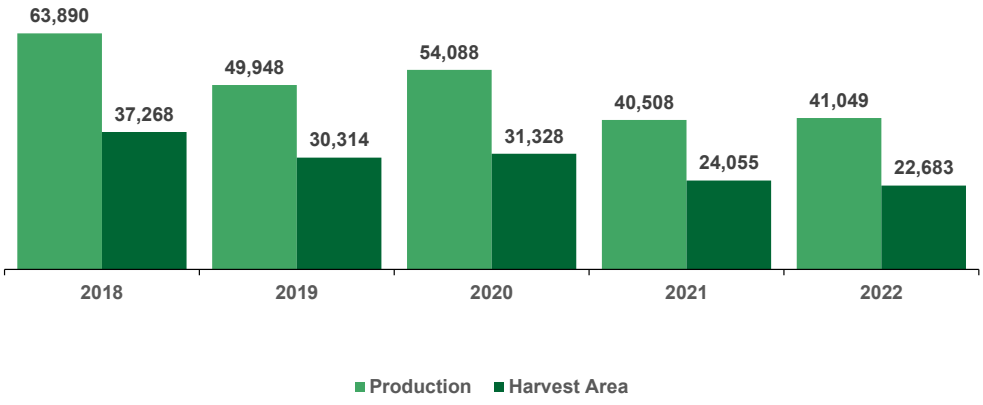


Figure 3.0 3: Paddy growers from 2018-2022

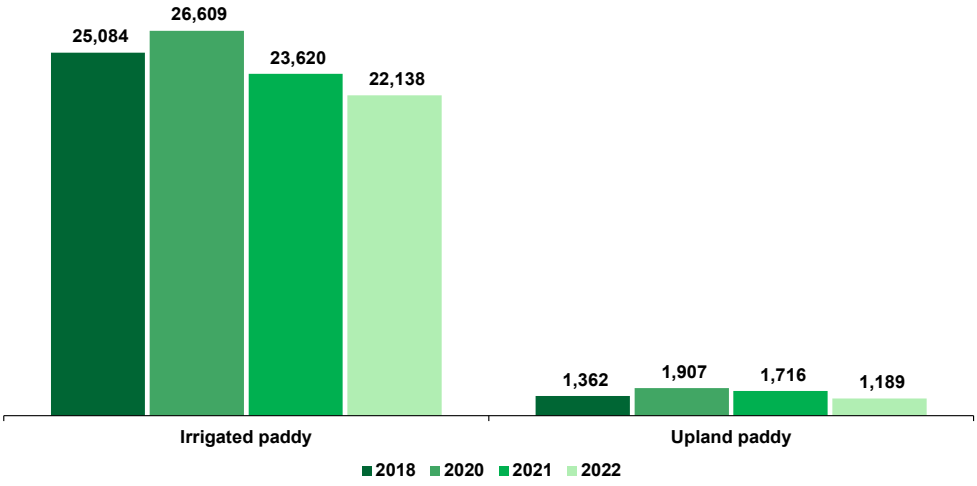


Table 3.0 3: Upland paddy production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	42	14.22	10.46	7.59
Dagana	66	27.92	23.48	16.24
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	151	52.05	43.34	49.11
Monggar	58	23.41	20.86	17.86
Paro	-	-	-	-
Pema Gatshel	5	1.32	1.14	1.40
Punakha	23	11.73	9.61	7.55
Samdrup Jongkhar	73	31.28	30.24	19.46
Samtse	72	47.27	44.81	36.37
Sarpang	15	12.82	10.88	8.07
Thimphu	-	-	-	-
Trashigang	187	42.61	37.65	33.17
Trashi Yangtse	312	75.91	68.43	68.02
Trongsa	14	9.11	5.69	3.67
Tsirang	29	17.58	16.08	13.06
Wangdue Phodrang	38	13.78	11.03	10.95
Zhemgang	104	42.63	29.22	11.94
Bhutan	**1,189**	**423.64**	**362.91**	**304.44**

Maize

Maize which is yet another mostly grown cereal crops in the country has harvested 25,918 MT in 2022 (see Table 3.04). This was 5,021 MT less than in 2021, the equivalent of a 16 percent decline, and 29,341 MT less than the 55,259 MT recorded in 2018. The major maize growing dzongkhags – Monggar harvested 5,133 MT (more 764 MT than in 2021), Pema Gatshel harvested 2,005 MT (less 2,200 MT than in 2021) and Trashigang harvested 3,678 MT (more 185 MT than in 2021) in 2022. Monggar (20 percent), Trashigang (14 percent) and Dagana (9 percent) dzongkhags accounted for the highest production of maize in 2022 (see Figure 3.04). Similar trend as in paddy is observed for maize growers. Maize growers decreased from 38,397 holders in 2021 to 37,707 holders in 2022, an equivalent down 2 percent than in 2021 (see Figure 3.05).

During the period of five years from 2018-2022 (see Figure 3.06), the harvest of maize has also fluctuated from 55,259 MT in 2018 to 25,981 MT in 2022. The climate change is already affecting our food supply. Paddy and maize crops are being reported to damage by wild animals such as elephants and wild boars.

Figure 3.04: Production share of maize, by dzongkhag, 2022

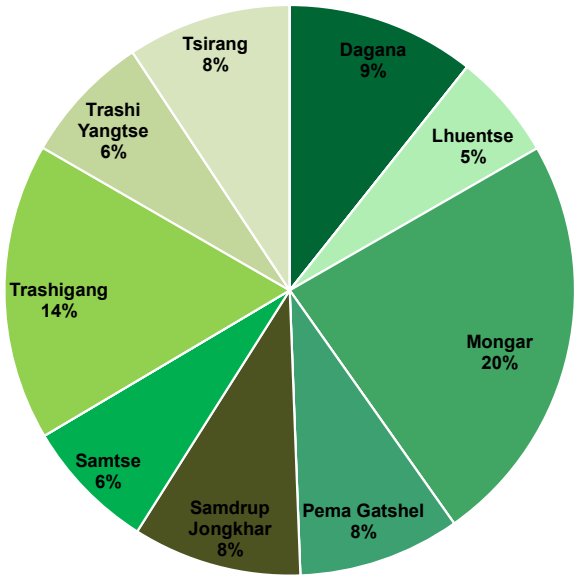


Figure 3.0 5: Maize growers from 2018-2022

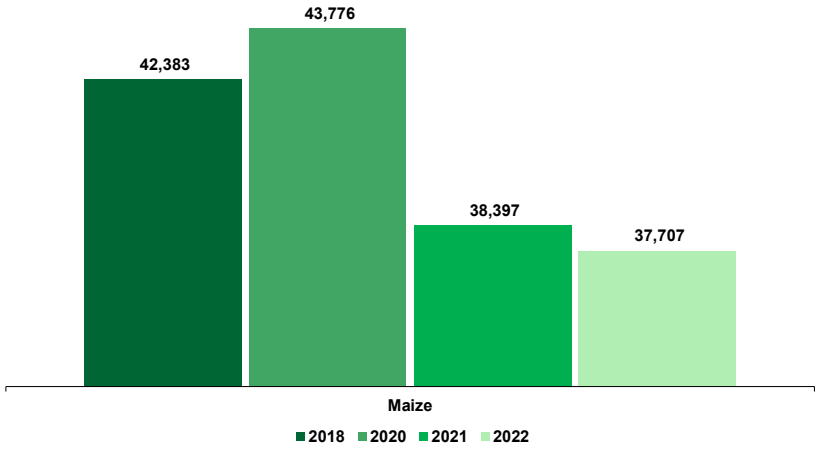
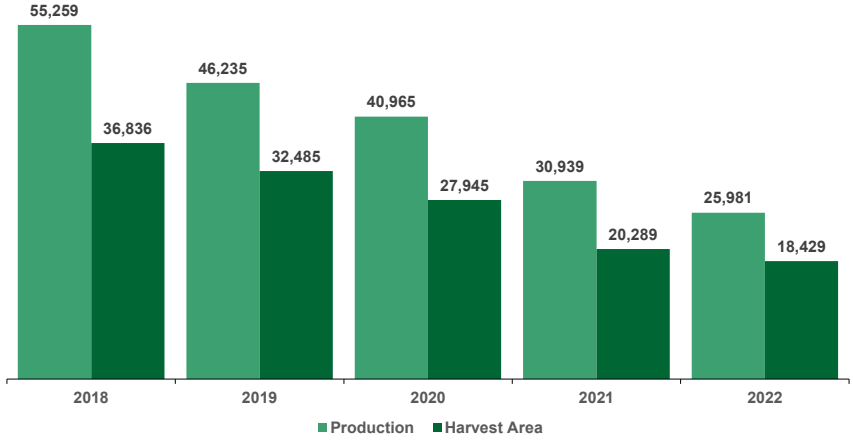


Figure 3.0 6: Production of maize from 2018-2022



In terms of area under paddy and maize cultivation, respectively 23,572 acres of paddy and 21,920 acres of maize was recorded in the 2022. In general, the harvest area for both paddy and maize were observed to drop significantly in 2022 by respectively 1,143 acres and 1,860 acres than in 2021.

Table 3.0 4: Maize production, by dzongkhag, 2022

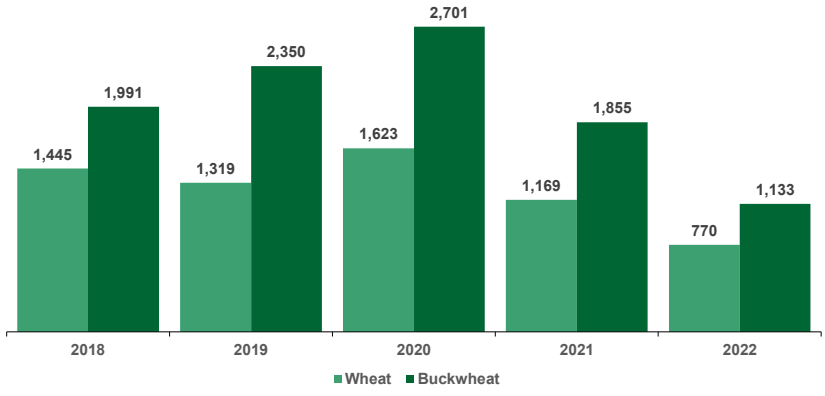
Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	15	1.24	0.94	0.94
Chhukha	2,601	1,126.86	972.16	1,049.64
Dagana	2,964	2,401.99	1,887.23	2,332.92
Gasa	14	1.60	1.45	2.30
Haa	324	121.78	78.77	99.44
Lhuentse	1,591	931.87	837.70	1,314.10
Monggar	4,709	4,628.45	4,077.86	5,133.02
Paro	100	18.31	17.21	12.73
Pema Gatshel	2,588	1,467.56	1,246.78	2,005.02
Punakha	363	134.48	117.60	164.36
Samdrup Jongkhar	2,705	1,693.08	1,433.58	2,089.86
Samtse	5,551	1,643.45	1,415.57	1,638.81
Sarpang	1,940	1,081.06	734.77	1,142.16
Thimphu	169	5.21	4.73	6.53
Trashigang	4,917	2,466.03	2,092.86	3,677.62
Trashi Yangtse	1,928	806.08	718.87	1,611.40
Trongsa	641	281.66	197.54	335.16
Tsirang	2,856	1,958.46	1,680.74	2,027.57
Wangdue Phodrang	238	86.60	61.54	108.96
Zhemgang	1,493	1,063.97	851.42	1,228.54
Bhutan	**37,707**	**21,919.71**	**18,429.31**	**25,981.09**

Wheat and Buckwheat

Wheat and buckwheat products such as keptang (flat bread), khuli (pancake), putta (noodles) and dengo (dough) have become common meals for many urban consumers in the country. Although there is an increasing changing dietary habit and more preference for wheat and buckwheat products recently by the urban consumers, the harvest of wheat and buckwheat have fallen in 2022.

A total of 770 MT of wheat (see Table 3.05) and 1,133 MT of buckwheat (see Table 3.06) were harvested. Harvested production of wheat fell by 399 MT while buckwheat fell by 722 MT than in 2021 (see Figure 3.07).

Figure 3.0 7: Wheat and buckwheat production from 2018-2022



Lower harvest of these cereals were reported in 2022 than in 2021. One reason for this could be the weather and the other was reduction in the cultivated or planted area for wheat (less 636 acres than in 2021) and buckwheat (less 1,331 acres than in 2021). In terms of growers, wheat and buckwheat growers have also fallen over the years (see Figure 3.08).

Figure 3.0 8: Wheat and buckwheat growers from 2018-2022

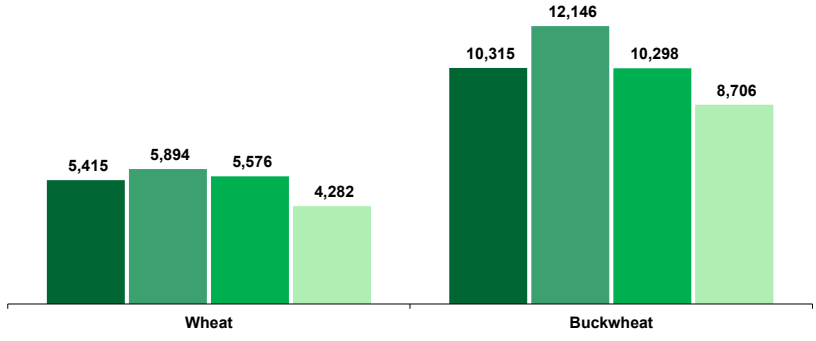


Table 3.0 5: Wheat production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	468	304.28	277.62	131.60
Chhukha	190	78.64	68.44	28.97
Dagana	82	30.92	26.99	9.47
Gasa	126	48.10	47.48	14.75
Haa	562	255.73	200.52	99.84
Lhuentse	27	4.63	4.17	2.29
Monggar	57	22.29	16.88	7.31
Paro	547	385.41	382.58	187.86
Pema Gatshel	26	7.50	4.65	2.48
Punakha	478	202.71	197.82	61.00
Samdrup Jongkhar	32	7.64	6.69	3.29
Samtse	234	46.77	42.79	19.47
Sarpang	11	7.78	7.20	2.23
Thimphu	98	61.72	54.09	26.12
Trashigang	89	21.21	19.21	9.15
Trashi Yangtse	27	4.41	4.31	2.78
Trongsa	317	119.04	95.39	41.77
Tsirang	39	10.25	9.61	2.90
Wangdue Phodrang	720	301.47	258.54	97.48
Zhemgang	152	53.22	44.24	19.05
Bhutan	**4,282**	**1,973.71**	**1,769.20**	**769.78**

Table 3.0 6: Buckwheat production, by dzongkhag, 2022

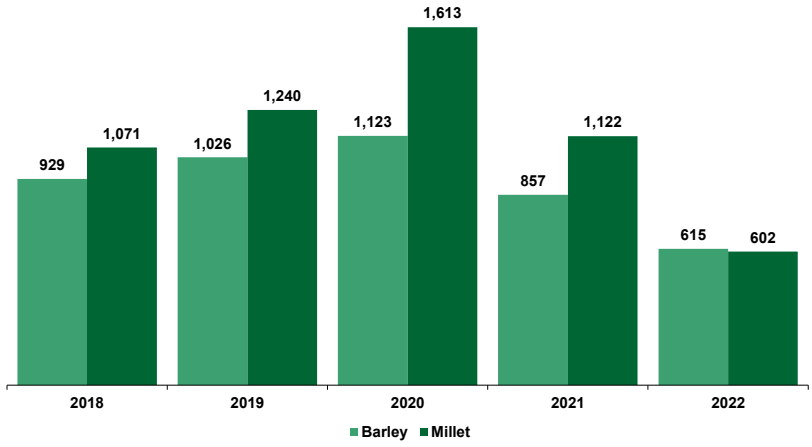
Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1,003	758.79	671.66	337.49
Chhukha	682	248.38	209.99	80.52
Dagana	392	149.81	134.76	50.28
Gasa	35	5.45	4.45	1.45
Haa	694	208.13	162.18	64.50
Lhuentse	23	4.34	3.27	1.76
Monggar	476	147.88	128.56	65.65
Paro	118	44.34	43.90	23.36
Pema Gatshel	534	76.65	68.29	27.92
Punakha	154	54.53	52.18	21.54
Samdrup Jongkhar	959	353.50	325.95	125.70
Samtse	548	71.10	64.56	26.21
Sarpang	237	42.97	34.68	11.88
Thimphu	8	0.92	0.38	0.13
Trashigang	762	201.12	175.87	76.00
Trashi Yangtse	55	6.20	5.58	2.22
Trongsa	478	209.76	160.38	63.67
Tsirang	281	44.53	39.46	14.28
Wangdue Phodrang	930	312.07	199.54	85.46
Zhemgang	337	129.45	109.71	53.11
Bhutan	**8,706**	**3,069.89**	**2,595.32**	**1,133.11**

Barley and Millet

The 2022 integrated census collected information on the harvest of other cereals such as that of barley and millet. Although these cereals are cultivated in small scale, yet these are important for food security.

A total of 615 MT of barley (see Table 3.07) and 602 MT (see Table 3.08) of millet were recorded in 2022. The harvested production of barley fell by 242 MT while millet fell by 520 MT than in 2021 (see Figure 3.09).

Figure 3.0 9: Barley and millet production from 2018-2022



There was also reduction in the harvested area of barley (less 300 acres than in 2021) and millet (less 975 acres than in 2021) like any other cereals in 2022. The number of barley growers fell by 321 households while millet growers fell by 3,403 households (see Figure 3.0 10).

Figure 3.0 10: Barley and millet growers from 2018-2022

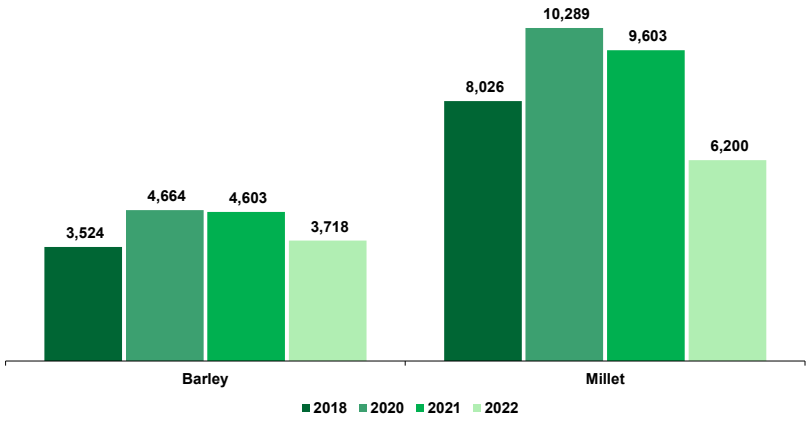


Table 3.0 7: Barley production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	468	251.94	226.80	120.49
Chhukha	190	39.71	35.89	16.59
Dagana	82	26.04	19.70	7.00
Gasa	126	117.58	116.08	50.11
Haa	562	32.06	24.84	10.99
Lhuentse	27	0.77	0.32	0.13
Monggar	57	345.61	307.26	150.60
Paro	547	68.22	67.72	42.47
Pema Gatshel	26	7.94	7.19	3.12
Punakha	478	19.63	19.63	7.10
Samdrup Jongkhar	32	31.14	29.54	10.54
Samtse	234	4.29	4.06	1.78
Sarpang	11	0.17	0.10	0.09
Thimphu	98	12.46	10.40	5.06
Trashigang	89	79.62	75.93	36.46
Trashi Yangtse	27	3.30	3.03	1.38
Trongsa	317	277.94	235.71	103.22
Tsirang	39	3.17	3.15	1.04
Wangdue Phodrang	720	129.44	112.70	45.33
Zhemgang	152	5.86	5.18	1.44
Bhutan	**4,282**	**1,456.89**	**1,305.22**	**614.93**

Quinoa

Quinoa, which is yet another new crop introduced by the Ministry of Agriculture and Forests in 2015 to enhance the food and nutritional security of the Bhutanese people has been picking its cultivation in the recent years. Table 3.09 shows the quinoa production by dzongkhag. A total of about 18 MT of quinoa was harvested in 2022, which is 19 MT less than in 2021. The area under quinoa cultivation reduced to 39 acres (less 62 acres than in 2021) in 2022. The number of quinoa growers sharply decreased in 2022 compared to 2021 from 698 growers to 331 growers in 2022 (see Figure 3.011).

Figure 3.0 11: Quinoa growers from 2018-2022

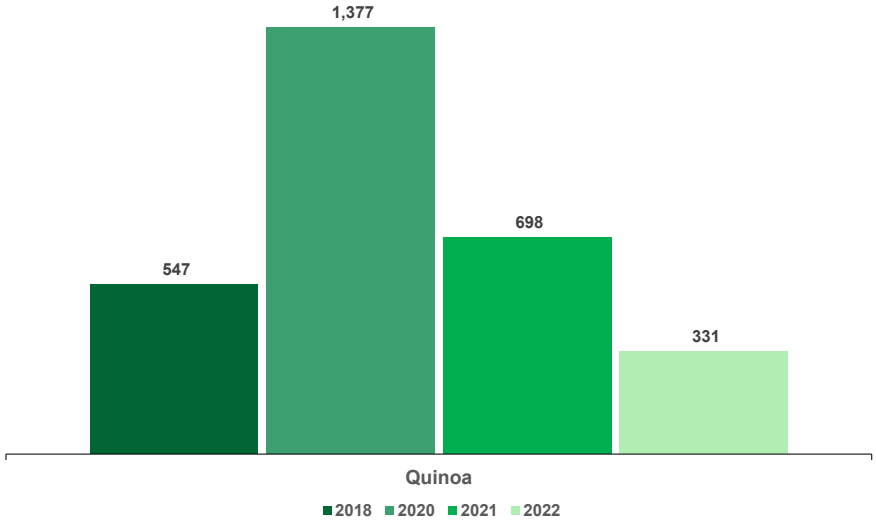


Table 3.0 8: Millet production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	2	1.50	1.50	0.43
Chhukha	5	0.72	0.72	0.36
Dagana	-	-	-	-
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	6	0.74	0.61	0.15
Monggar	47	4.93	4.49	1.59
Paro	-	-	-	-
Pema Gatshel	13	0.33	0.31	0.11
Punakha	-	-	-	-
Samdrup Jongkhar	3	0.21	0.21	0.05
Samtse	35	2.43	2.23	0.72
Sarpang	12	1.49	1.49	0.45
Thimphu	1	0.01	0.01	0.00
Trashigang	169	24.08	22.43	13.85
Trashi Yangtse	25	1.19	1.13	0.43
Trongsa	2	0.11	0.11	0.07
Tsirang	6	0.55	0.22	0.05
Wangdue Phodrang	-	-	-	-
Zhemgang	5	0.59	0.34	0.07
Bhutan	**331**	**38.87**	**35.78**	**18.33**

Table 3.0 9: Quinoa production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1	0.05	0.05	0.02
Chhukha	658	160.81	143.49	63.90
Dagana	488	136.52	120.94	49.61
Gasa	-	-	-	-
Haa	124	28.98	23.53	8.93
Lhuentse	209	48.11	46.08	25.71
Monggar	61	13.00	11.62	4.93
Paro	12	3.78	3.33	1.20
Pema Gatshel	382	69.11	62.31	26.78
Punakha	2	0.11	0.11	0.11
Samdrup Jongkhar	292	58.01	49.63	21.91
Samtse	1,792	329.12	308.45	129.47
Sarpang	522	164.54	131.79	56.39
Thimphu	2	0.29	0.14	0.07
Trashigang	300	32.03	29.82	13.59
Trashi Yangtse	456	174.06	170.84	116.40
Trongsa	95	16.22	13.81	5.49
Tsirang	523	127.57	119.76	51.02
Wangdue Phodrang	38	7.12	6.56	2.84
Zhemgang	243	60.67	55.39	23.16
Bhutan	**6,200**	**1,430.08**	**1,297.66**	**601.51**

Oilseeds and pulses

The oilseeds and pulses play an important role as they are rich in energy and protein, which are essential for human diet.

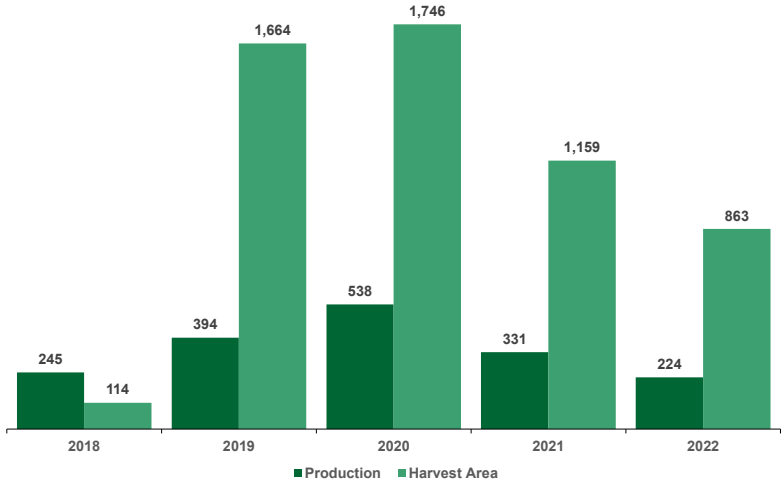
The predominant oilseeds crops grown in the country are mustard and soya bean. Pulses are dry edible seeds of leguminous plants. They are also called grain legumes mostly consumed in the form of seeds in whole, split, hulled split or flour. Pulses are considered nutritious and important sources of proteins. According to GPF 2020, growing of pulses decrease GhG gases and improves soil fertility. The main pulses grown in the country are rajma beans, mung beans and lentil.

However, differential production performances of these crops has become a cause of concern. Globally, the production of oilseeds has exhibited positive growth with the improvement in the farming techniques with hi-technology. For the case of Bhutan, the harvested production of oilseeds and pulses have been seeing unusual growth over the last few years.

In 2022, the harvest of main oilseeds and pulses was lower than in 2021, in part reflecting the decline in the area harvested. The overall decline was principally due to lower harvested production levels for mustard (110 MT less than in 2021), mung beans (161 MT less than in 2021), perilla (11 MT less than in 2021) and lentil (13 MT less than in 2021).

There was considerable reduction in the harvested area for many oilseeds and pulses. The downward trend both in harvested production and area (see Figure 3.012 in the case of mustard cultivation) for these crops may be due to the fact that there are not many consumers in the country. The acreage under oilseeds and pulses cultivation is slowly diminishing as it is not economically viable.

Figure 3.0 12: Production of mustard from 2018-2022



Furthermore, the Ministry of Agriculture and Livestock estimated higher cost of production for oilseeds and pulses in the country and consumers have access to cheap imports. For example, the cost of production for mustard was estimated at Nu.51 per kg. There are other observed reasons such as that of holders growing oilseeds and pulses as secondary crops. Table 3.010 shows the harvested production of oilseeds and pulses by type in 2022.

Table 3.0 10: Oilseeds and pulses production,by type, 2022

Type	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Mustard	990.13	863.09	223.56
Sunflower	3.68	3.34	1.72
Soya bean	186.85	159.22	57.67
Groundnut	192.70	172.14	113.37
Perilla	65.85	60.67	14.45
Adzuki Beans	63.17	55.27	16.64
Rajma beans	1,172.89	1,049.83	363.58
Mung beans	880.18	726.01	219.75
Lentil	8.75	6.57	2.07

Mustard, Rajma beans and Mung beans

Among oilseeds and pulses, mustard, rajma beans and mung beans are the commonly grown crops in the country. A total of 224 MT (see Table 3.011) of mustard was harvested in 2022. This was 107 MT less than in 2021.

Table 3.0 11: Mustard production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	90	35.50	27.51	5.71
Chhukha	292	73.49	67.28	17.34
Dagana	244	89.22	82.48	18.41
Gasa	52	7.07	6.80	1.82
Haa	166	52.78	46.68	9.92
Lhuentse	149	25.82	21.70	5.09
Monggar	36	9.71	8.34	2.59
Paro	180	80.77	79.92	36.55
Pema Gatshel	139	27.49	25.23	6.64
Punakha	91	19.03	18.06	3.17
Samdrup Jongkhar	117	36.32	32.70	7.57
Samtse	609	77.31	70.60	18.20
Sarpang	284	91.22	68.98	13.63
Thimphu	29	8.99	8.03	1.86
Trashigang	192	57.34	54.71	15.51
Trashi Yangtse	3	2.25	2.24	1.67
Trongsa	85	27.20	18.56	4.22
Tsirang	298	60.25	57.80	12.79
Wangdue Phodrang	398	117.23	87.01	21.12
Zhemgang	250	91.16	78.48	19.77
Bhutan	**3,704**	**990.13**	**863.09**	**223.56**

A total of 364 MT of rajma beans (see Table 3.012) was harvested. Paro dzongkhag harvested 37 MT of mustard (6 MT more than in 2021) while Wangdue Phodrang dzongkhag harvested 21 MT (20 MT less than in 2021). As for rajma beans, Dagana and Monggar dzongkhags, respectively harvested 108 MT and 82 MT in 2022.

Table 3.0 12: Rajma beans production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	4	0.43	0.43	0.19
Chhukha	220	34.92	32.90	13.98
Dagana	1,317	408.04	365.24	108.07
Gasa	-	-	-	-
Haa	37	4.79	4.25	1.38
Lhuentse	83	3.96	3.75	1.39
Monggar	717	248.93	221.01	82.16
Paro	8	1.90	1.90	0.90
Pema Gatshel	237	40.04	34.18	13.94
Punakha	7	0.95	0.95	0.46
Samdrup Jongkhar	531	127.27	112.69	48.77
Samtse	995	37.63	35.98	14.00
Sarpang	362	42.39	38.00	13.58
Thimphu	10	0.43	0.36	0.13
Trashigang	674	181.97	161.42	54.16
Trashi Yangtse	66	3.46	2.58	1.30
Trongsa	5	0.34	0.34	0.08
Tsirang	179	30.87	29.54	6.73
Wangdue Phodrang	-	-	-	-
Zhemgang	126	4.60	4.33	2.37
Bhutan	**5,578**	**1,172.89**	**1,049.83**	**363.58**

There were considerable contrasts among major mung bean (see Table 3.013) producing dzongkhags; there was also decline in the harvested production of mung bean for Dagana (down 2 MT than in 2021). The harvested production for Samtse and Tsirang dzongkhags were respectively, 34 MT and 28 MT in 2022. By contrast, Monggar (up 1 MT) and Zhemgang (up 1 MT) dzongkhags harvested slightly higher level of mung bean production.

Table 3.0 13: Mung beans production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	474	55.53	49.71	13.03
Dagana	560	335.23	285.12	84.77
Gasa	-	-	-	-
Haa	3	0.41	0.21	0.04
Lhuentse	19	0.55	0.42	0.25
Monggar	169	34.56	28.22	10.42
Paro	-	-	-	-
Pema Gatshel	261	20.34	16.89	6.64
Punakha	1	0.02	0.02	0.02
Samdrup Jongkhar	422	73.51	61.55	19.64
Samtse	1,672	123.95	109.91	34.38
Sarpang	439	113.51	63.66	15.39
Thimphu	4	0.03	0.03	0.02
Trashigang	68	9.51	9.02	3.84
Trashi Yangtse	33	2.58	2.28	0.68
Trongsa	1	0.06	0.06	0.00
Tsirang	461	103.50	92.59	28.15
Wangdue Phodrang	-	-	-	-
Zhemgang	118	6.92	6.35	2.48
Bhutan	**4,705**	**880.18**	**726.01**	**219.75**

Other Oilseeds and pulses

The harvest of other oilseeds and pulses included sunflower at 2 MT (less 1 MT than in 2021), soya bean at 58 MT (less 32 MT than in 2021), groundnut at 113 MT (more 65 MT than in 2021), perilla at 14 MT (less 12 MT than in 2021), adzuki beans dry at 17 MT and lentil at 2 MT (less 13 MT than in 2021). The harvested production of these oilseeds and pulses were not so significant. The details of other oilseeds and pulses production are provided in Annex Table A3.01 to Table A3.06.

Vegetables

Farmer grow more than one vegetable in Bhutan. Cabbage, cauliflower, chili, broccoli and beans are the most commercially viable vegetables grown in the country. This chapter presents different types of vegetables grown including area and production disaggregated by dzongkhag. Vegetables grown principally for animal feed are excluded based on the recommendations of the FAO.

Table 3.014 shows the vegetables and spices production by type in 2022. About 26,726 MT of vegetables were produced in 2022. The major vegetables grown in the country are cabbage, cauliflower, and chili. Paro, Wangdue Phodrang and Chhukha were the major vegetable producing dzongkhags in 2022. Map 3.02 shows the share of vegetables production by dzongkhag, and by crop type, 2022.

Cabbage and Cauliflower

Cabbage and cauliflower are commonly grown vegetables in the country. These vegetables are consumed mostly as curry and sometimes it is used as salad. The total harvest of cabbage was 3,206 MT (see Table 3.015) in 2022. This was 557 MT less than the production level in 2021.

Table 3.0 14: Vegetables and spices production, by type, 2022

Dzongkhag	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Asparagus	153.75	149.22	115.65
Broccoli	936.35	895.52	916.82
Cabbage	1,611.63	1,536.01	3,206.13
Cauliflower	955.22	914.81	1,196.16
Chili	3,673.41	3,414.76	5,557.39
Garlic leaves			114.09
Green leaves			1,505.25
Onion bulb	295.61	288.28	264.80
Spring/bunching onion	283.90	276.82	257.81
Eggplant	177.53	170.91	196.57
Tomato	182.91	171.70	205.63
Pumpkins, squash & gourds			4,528.13
Cucumber	422.22	411.71	1,125.67
Carrot	401.14	381.03	1,300.43
Radish	1,171.23	1,146.17	1,943.37
Turnip	848.33	815.07	2,348.95
Peas (green/fresh)	331.06	309.36	316.73
Beetroot	25.27	25.24	92.87
Beans (green/fresh)	1,715.79	1,594.89	1,533.29
Total vegetables	**13,185.35**	**12,501.50**	**26,725.74**
Ginger	2,099.57	1,974.85	3,710.59
Turmeric	143.35	139.08	144.69
Garlic	311.19	305.01	297.13
Cardamom	10,926.23	9,460.97	1,693.07
Coriander	149.15	146.82	113.92
Sichuan Pepper			24.23
Total spices	**13,629.49**	**12,026.73**	**5,983.63**

Map 3.0 2: Share of vegetables production by dzongkhag, and by crop type, 2022

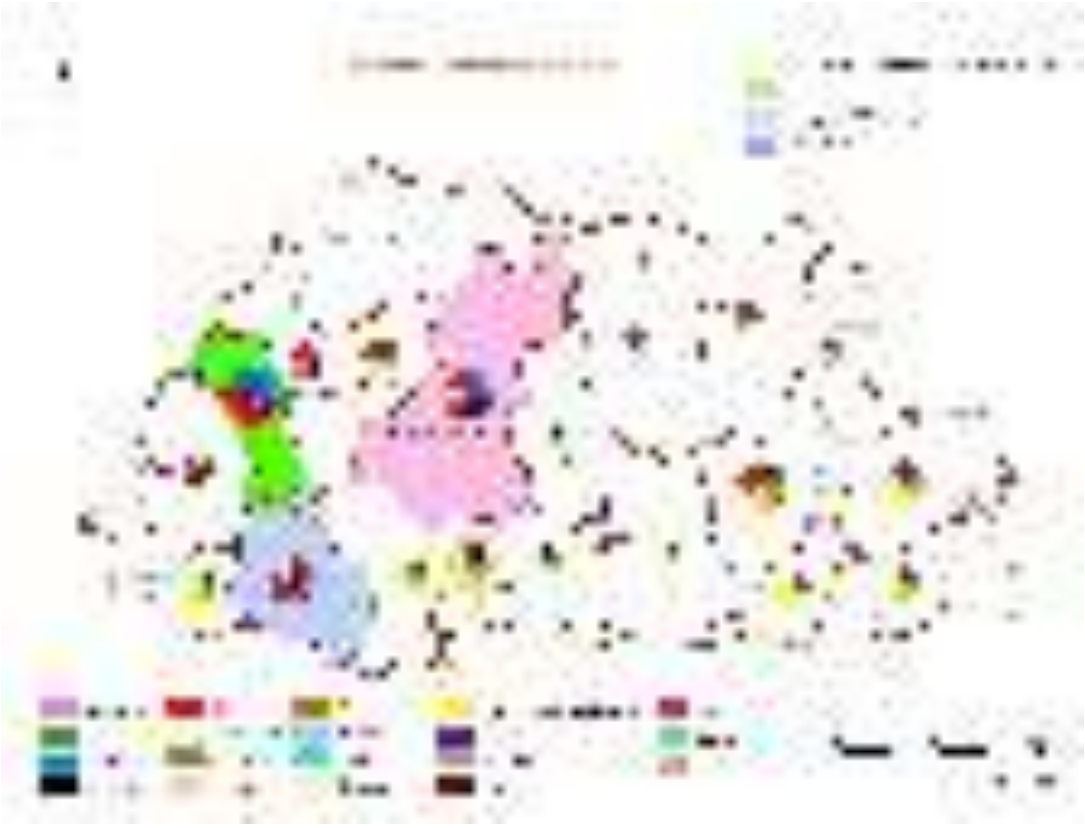


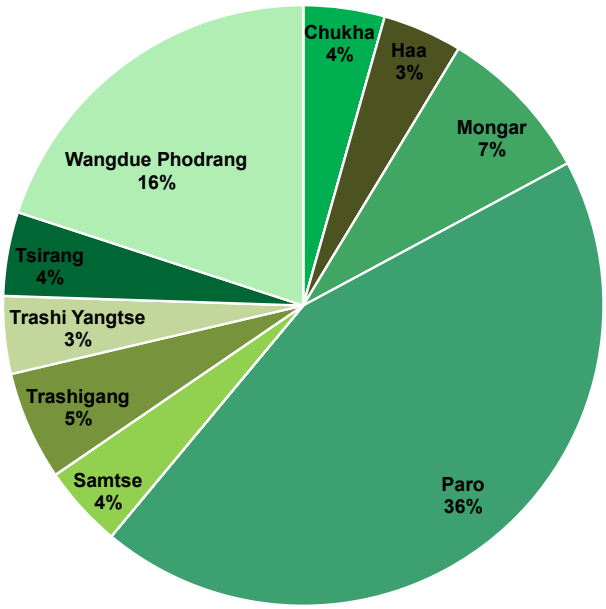
Table 3.0 15: Cabbage production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	904	13.38	13.31	32.76
Chhukha	1,483	83.88	80.53	113.66
Dagana	1,371	53.18	49.67	64.37
Gasa	217	4.79	4.11	7.16
Haa	501	53.53	47.10	111.02
Lhuentse	1,187	40.48	38.20	66.04
Monggar	3,183	151.22	148.25	220.05
Paro	894	377.48	363.54	1,138.50
Pema Gatshel	1,890	38.03	37.13	67.25
Punakha	483	21.61	20.97	33.20
Samdrup Jongkhar	1,670	70.34	69.03	74.50
Samtse	3,546	127.49	123.67	114.68
Sarpang	2,593	69.48	66.49	89.99
Thimphu	774	42.88	41.05	89.79
Trashigang	3,257	92.80	89.77	152.17
Trashi Yangtse	1,589	70.20	66.59	108.45
Trongsa	819	41.39	38.99	51.42
Tsirang	1,475	100.86	97.25	117.05
Wangdue Phodrang	1,041	123.86	106.98	518.07
Zhemgang	1,193	34.78	33.37	36.00
Bhutan	**30,070**	**1,611.63**	**1,536.01**	**3,206.13**

The overall fall in cabbage production in 2022 was due to the reduction in the harvest

area (292 acres less than in 2021). The yield per acre in 2022 was 2,087 kg, this was 763 kg less than in 2021. Paro dzongkhag which produced 903 MT of cabbage in 2021, harvested 1,139 MT in 2022 (more 236 MT than in 2021). The recorded yield per acre for Paro dzongkhag was 3,842 kg in 2021 while it got dropped to 3,129 kg per acre in 2022. This was 712 kg per acre less in 2022 compared to 2021. Similarly, Wangdue Phodrang dzongkhag harvested only 518 MT in 2022 (more 237 MT than in 2021) and the per acre yield increased from 3,608 kg in 2021 to 4,841 kg in 2022. Figure 3.013 shows the percentage share of cabbage production in 2022. Share of dzongkhags with less than 5 percent are not shown here.

Figure 3.0 13: Production share of cabbage by dzongkhag, 2022



Cauliflower also saw sharp decrease in the harvested production from 1,648 MT in 2021 to 1,196 MT (see Table 3.016) in 2022. This was about 452 MT less than in 2021. The overall yield per acre was 1,307 kg in 2022 (less 433 kg per acre than in 2021). Lhuentse and Trongsa dzongkhags saw highest per acre yield drop in 2022. Lhuentse dzongkhag harvested 2,360 kg (less 1,140 kg than in 2021) per acre in 2022 while Trongsa dzongkhag harvested 1,320 kg (less 2,080 kg than in 2021) per acre in 2022. However, the overall cabbage and cauliflower harvest in the country has remained rather stable between 2018 and 2022. The country harvested 4,035 MT of cabbage and 1,190 MT of cauliflower in 2018.

Table 3.0 16: Cauliflower production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	393	5.65	5.57	9.37
Chhukha	1,377	70.37	67.32	73.14
Dagana	1,168	64.96	62.42	93.19
Gasa	185	7.25	6.71	8.89
Haa	330	15.71	11.48	10.49
Lhuentse	841	19.10	17.91	25.69
Monggar	2,420	107.32	105.29	139.83
Paro	212	51.20	50.78	72.92
Pema Gatshel	1,397	20.53	20.13	29.21
Punakha	476	27.05	26.00	38.33
Samdrup Jongkhar	1,129	49.43	48.32	46.41
Samtse	2,882	98.58	95.16	79.85
Sarpang	1,867	56.30	54.05	70.86
Thimphu	633	57.86	56.24	115.14
Trashigang	1,905	47.24	45.72	62.01
Trashi Yangtse	785	27.99	26.23	36.71
Trongsa	657	32.42	31.02	39.56
Tsirang	1,456	138.02	134.05	174.19
Wangdue Phodrang	603	37.85	31.09	52.21
Zhemgang	846	20.40	19.33	18.18
Bhutan	**21,562**	**955.22**	**914.81**	**1,196.16**

Beans and Broccoli

Beans is one of the main vegetable crops grown in the country. The total harvest of beans was 1,533 MT (see see Table 3.017) in 2022. This was 563 MT less than the production level in 2021. The overall fall in beans production in 2022 was due to the reduction in the harvest area (16 acres less than in 2021). The yield per acre in 2022 was 961 kg, this was 339 kg less than in 2021. Haa dzongkhag which produced 31 MT of beans in 2021, harvested 15 MT in 2022. The recorded yield per acre for Haa dzongkhag was 1,624 kg in 2021 while it got dropped to 947 kg per acre in 2022. Similarly, Sarpang and Samtse dzongkhags, respectively harvested 77 MT and 120 MT (respectively less 172 MT and 86 MT than in 2021) in 2022.

Table 3.0 17: Beans production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	842	9.29	9.25	11.32
Chhukha	2,067	135.12	126.94	112.47
Dagana	2,136	116.39	105.03	71.48
Gasa	106	2.26	1.98	2.67
Haa	536	18.89	16.01	15.17
Lhuentse	1,521	41.69	38.90	49.54
Monggar	2,849	235.36	214.51	198.82
Paro	602	75.13	75.04	102.96
Pema Gatshel	2,244	62.81	56.39	56.27
Punakha	1,087	107.42	98.40	139.67
Samdrup Jongkhar	2,293	121.65	115.65	116.64
Samtse	4,150	168.69	161.11	119.92
Sarpang	2,641	89.55	83.02	76.89
Thimphu	950	25.89	24.58	30.92
Trashigang	2,834	78.99	74.84	83.58
Trashi Yangtse	1,609	54.61	49.23	54.47
Trongsa	709	24.88	23.98	32.82
Tsirang	2,332	264.04	245.59	184.54
Wangdue Phodrang	969	47.72	40.64	40.72
Zhemgang	1,248	35.42	33.78	32.44
Bhutan	**33,725**	**1,715.79**	**1,594.89**	**1,533.29**

Broccoli also saw decrease in the harvested production from 1,157 MT in 2021 to 917 MT (see Table 3.018) in 2022. This was about 240 MT less than in 2021. The overall yield per acre was 1,024 kg in 2022 (less 304 kg per acre than in 2021). Tsirang and Monggar dzongkhags which accounted higher production share of broccoli in 2022 saw drop in the harvested production. Tsirang dzongkhag harvested 76 MT (less 29 MT than in 2021) while Monggar dzongkhag harvested 129 MT (less 12 MT than in 2021) in 2022. At the national level, the broccoli yield per acre of land dropped from 1,328 kg in 2021 to 1,324 kg in 2022.

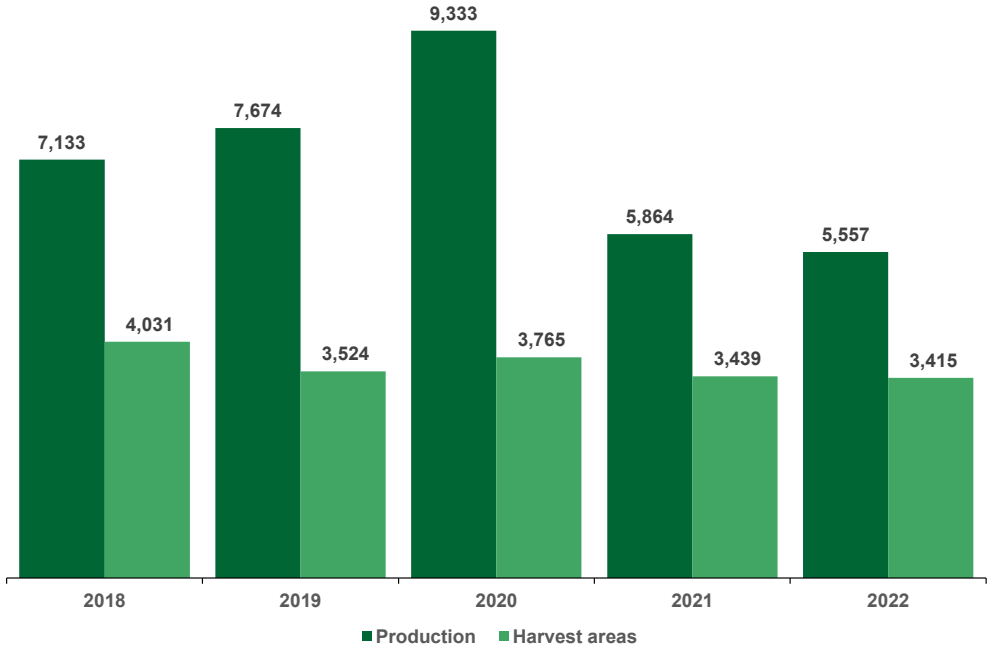
Table 3.0 18: Broccoli production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	553	7.31	7.25	10.93
Chhukha	1,479	69.45	67.06	62.87
Dagana	1,145	44.63	41.81	42.47
Gasa	260	9.62	9.36	8.91
Haa	213	9.57	7.56	6.67
Lhuentse	858	20.74	19.14	22.68
Monggar	2,701	122.52	119.18	129.33
Paro	277	27.58	27.07	30.04
Pema Gatshel	1,464	22.33	21.82	25.78
Punakha	714	56.68	53.98	64.63
Samdrup Jongkhar	1,481	61.87	60.85	53.15
Samtse	2,531	83.71	81.03	60.28
Sarpang	2,307	50.79	48.03	45.91
Thimphu	746	50.75	49.24	48.53
Trashigang	2,484	64.13	61.78	75.20
Trashi Yangtse	1,128	43.95	41.27	48.30
Trongsa	726	36.85	35.34	39.97
Tsirang	1,351	88.83	86.30	76.09
Wangdue Phodrang	677	39.99	33.96	44.34
Zhemgang	955	25.05	23.51	20.75
Bhutan	**24,050**	**936.35**	**895.52**	**916.82**

Chili

Chili is a commercial crop and one of the most important vegetables grown in almost all 20 dzongkhags in the country. The total harvest of chili was 5,557 MT (see Table 3.019) in 2022. This was 307 MT less than the production level in 2021. The overall fall in production in 2022 was due to the reduction in the harvest area (24 acres less than in 2021) and yield per acre. The yield per acre in 2022 was 1,627 kg, this was 78 kg less than in 2021. Most of the chili growing dzongkhags like Paro and Punakha harvested lower level of production in 2022 than in 2021. Punakha dzongkhag harvested 561 MT (148 MT less than in 2021) while Paro harvested 1,117 MT (118 MT more than in 2021) in 2022.

Figure 3.0 14: Production of chili from 2018-2022



The harvested production of chili in the country shows unusual trend (see Figure 3.014) between 2018 to 2022. A total of 7,133 MT of chili was harvested from 4,031 acres in 2018. In terms of harvest area, it has not changed much between 2018 to 2022 while the recorded yields per acre were variable. The yield per acre was 1,770 kg in 2018, 2,180 kg in 2019, 2,480 kg in 2020, 1,710 kg in 2021 and 1,627 kg in 2022. The interesting fact is that; the number of growers has increased from 42,081 households in 2021 to 44,954 households in 2022 (see Figure 3.015).

Figure 3.0 15: Chili growers from 2018-2022

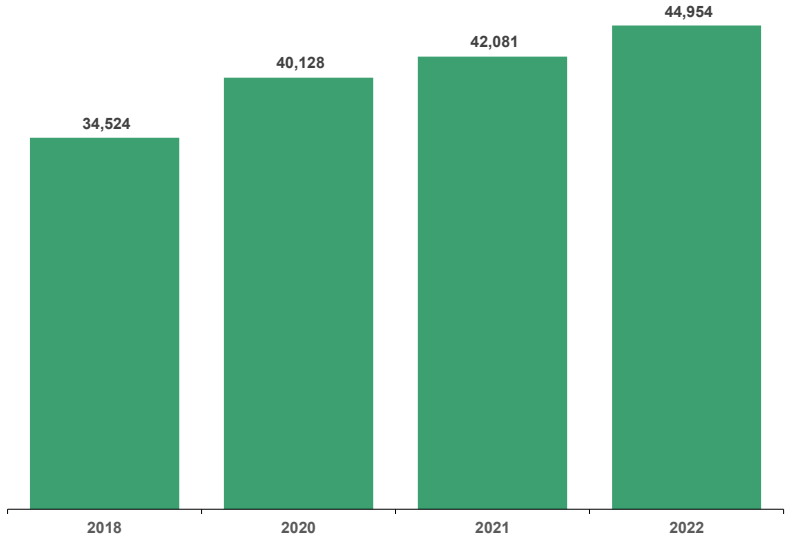


Table 3.0 19: Chili production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1,133	32.50	31.04	92.54
Chhukha	2,174	181.28	171.89	296.10
Dagana	2,934	141.95	134.21	146.11
Gasa	118	7.97	6.00	12.52
Haa	652	40.00	34.27	43.28
Lhuentse	2,098	242.03	219.71	355.09
Monggar	4,989	400.17	376.67	556.77
Paro	2,201	482.12	473.34	1,116.99
Pema Gatshel	2,787	95.45	92.50	110.21
Punakha	2,029	222.47	210.08	561.46
Samdrup Jongkhar	2,197	188.18	179.94	142.06
Samtse	3,507	114.08	107.59	89.43
Sarpang	2,776	130.63	117.22	108.62
Thimphu	1,206	153.57	149.12	347.41
Trashigang	4,568	308.65	284.80	442.15
Trashi Yangtse	2,456	220.23	182.90	304.65
Trongsa	1,180	108.38	98.86	137.11
Tsirang	2,478	233.60	225.50	235.67
Wangdue Phodrang	2,013	284.35	242.79	398.47
Zhemgang	1,458	85.80	76.34	60.76
Bhutan	**44,954**	**3,673.41**	**3,414.76**	**5,557.39**

Bulb onion and Tomato

Bulb onion and tomatoes have been recently identified by the Ministry of Agriculture and Livestock as mandatory vegetable crops in the country.

Bulb onion and tomatoes are not only used as vegetables, but often used as salad or production of pickles. There was lower harvested production of bulb onion (see Table 3.020) in 2022 compared to many other major vegetables.

A total of 265 MT (less 154 MT than in 2021) of bulb onion was harvested in the country. Major bulb onion producing dzongkhags also saw sharp decrease in the harvested production-Tsirang with 27 MT (less 38 MT than in 2021) and Dagana with 28 MT (less 82 MT than in 2021).

Both the yield per acre (1,008 kg in 2021 and 920 kg in 2022) and the harvested area for bulb onion decreased. For example, the harvested area decreased more than double from 415 acres in 2021 to 288 acres in 2022.

Table 3.0 20: Onion bulb production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	42	0.65	0.65	0.80
Chhukha	345	9.16	8.78	6.89
Dagana	1,044	29.06	28.07	27.56
Gasa	52	1.22	1.22	1.77
Haa	78	1.98	1.82	1.28
Lhuentse	970	13.76	13.41	13.75
Monggar	748	22.94	22.61	18.97
Paro	64	2.19	2.19	1.83
Pema Gatshel	661	10.59	10.21	11.80
Punakha	824	26.58	26.51	28.03
Samdrup Jongkhar	628	14.65	14.15	10.99
Samtse	1,047	23.46	23.12	16.21
Sarpang	833	15.07	14.07	12.79
Thimphu	491	10.94	10.93	9.15
Trashigang	875	17.79	17.33	17.75
Trashi Yangtse	683	22.00	21.56	21.35
Trongsa	477	9.25	9.22	10.51
Tsirang	785	31.40	31.00	27.01
Wangdue Phodrang	698	27.96	26.62	21.41
Zhemgang	221	4.99	4.85	4.98
Bhutan	**11,566**	**295.61**	**288.28**	**264.80**

Harvest of tomato, on the other hand was 206 MT (see Table 3.021) in 2022. This was 83 MT less and 57 acres less in terms of production and harvest area than in 2021. Samtse (less 27 MT than in 2021) and Dagana (less 24 MT than in 2021) dzongkhags received negative growth in the harvested production of tomatoes in 2022 while for many other dzongkhags, the growth was similar.

Table 3.0 21: Tomato production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	353	3.38	3.30	6.89
Chhukha	355	7.84	7.30	6.73
Dagana	1,060	15.12	13.89	17.94
Gasa	30	0.20	0.20	0.45
Haa	114	5.06	4.55	4.51
Lhuentse	360	4.15	3.97	4.68
Monggar	439	8.51	7.79	8.90
Paro	233	6.09	6.09	11.41
Pema Gatshel	562	5.12	5.08	6.20
Punakha	171	7.90	7.79	14.78
Samdrup Jongkhar	577	11.21	9.97	8.76
Samtse	1,399	28.12	26.64	21.96
Sarpang	1,371	25.02	24.20	31.23
Thimphu	624	13.86	13.65	20.13
Trashigang	470	5.60	5.46	5.31
Trashi Yangtse	267	4.30	3.98	4.66
Trongsa	184	3.70	3.35	5.56
Tsirang	474	17.48	15.61	15.91
Wangdue Phodrang	145	5.62	4.59	4.50
Zhemgang	243	4.65	4.30	5.13
Bhutan	**9,431**	**182.91**	**171.70**	**205.63**

Asparagus, Carrot and Radish

There were considerable contrasts among asparagus, carrot and radish producing dzongkhags. A total of 116 MT (less 62 MT than in 2021) of asparagus (see Table 3.022), 1,300 MT (more 426 MT than in 2021) of carrot (see Table 3.023) and 1,943 MT (less 633 MT than in 2021) of radish (see Table 3.024) in 2022. While the asparagus harvest for many dzongkhags have improved over the years, some dzongkhags are not. Paro and Thimphu accounted more than three-fourth of the total asparagus production in 2022.

Table 3.0 22: Asparagus production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	44	2.32	1.48	1.06
Chhukha	32	2.38	2.29	0.27
Dagana	39	0.84	0.78	0.34
Gasa	27	0.53	0.53	0.26
Haa	30	2.02	1.74	0.22
Lhuentse	124	2.23	2.11	0.78
Monggar	54	2.60	2.43	1.18
Paro	224	84.71	84.71	77.69
Pema Gatshel	68	0.55	0.55	0.44
Punakha	32	1.24	1.24	0.64
Samdrup Jongkhar	10	0.08	0.07	0.04
Samtse	9	0.14	0.14	0.07
Sarpang	4	0.06	0.06	0.03
Thimphu	274	21.68	20.70	11.42
Trashigang	339	17.66	17.04	14.30
Trashi Yangtse	143	4.04	3.99	2.63
Trongsa	65	2.21	2.20	2.29
Tsirang	20	1.63	1.63	0.08
Wangdue Phodrang	46	3.19	2.71	1.30
Zhemgang	86	3.68	2.86	0.63
Bhutan	**1,670**	**153.75**	**149.22**	**115.65**

About 1,300 MT (more 426 MT than in 2021) of carrot (see Table 3.023) were harvested from 381 acres in 2022. Haa and Chhukha dzongkhags accounted for the majority production of carrot in 2022, respectively with 777 MT and 223 MT. About 1,943 MT (less 633 MT than in 2021) of radish (see Table 3.024) were harvested from 1,171 acres in 2022. The per acre yield for carrot increased at 3,413 kg (up 1,418 kg than in 2021) while for raddish the yield fell at 1,696 kg (down 880 kg than in 2021). The detailed productions of other vegetables are provided in annex tables Table A3.07 to Table A3.015.

Table 3.0 23: Carrot production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	534	6.27	6.24	10.10
Chhukha	412	108.73	106.20	776.83
Dagana	326	4.93	4.51	4.36
Gasa	160	2.67	2.53	3.62
Haa	430	99.02	86.04	223.35
Lhuentse	434	7.40	7.10	8.47
Monggar	884	25.22	24.94	27.77
Paro	305	41.15	41.07	98.73
Pema Gatshel	301	4.28	4.24	5.49
Punakha	113	3.40	3.34	4.75
Samdrup Jongkhar	331	9.70	9.51	9.13
Samtse	515	9.35	9.14	7.38
Sarpang	445	5.73	5.48	5.29
Thimphu	514	23.52	22.52	54.61
Trashigang	836	13.25	13.11	15.46
Trashi Yangtse	476	11.50	10.72	11.72
Trongsa	344	7.51	7.38	10.86
Tsirang	135	4.43	4.25	4.65
Wangdue Phodrang	230	7.88	7.82	12.37
Zhemgang	241	5.20	4.90	5.50
Bhutan	**7,966**	**401.14**	**381.03**	**1,300.43**

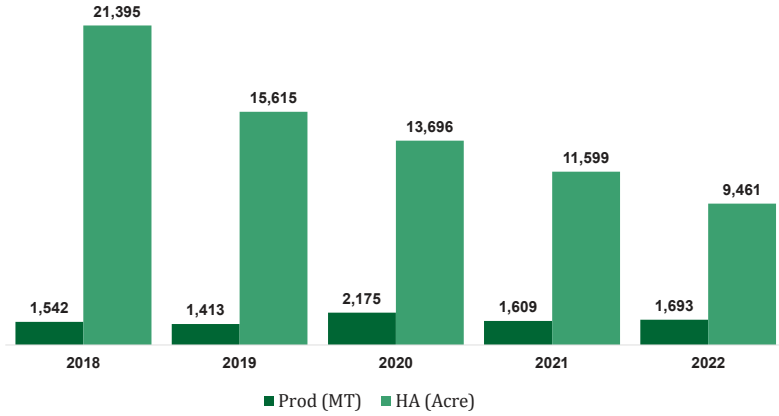
Table 3.0 24: Radish production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	643	12.28	11.87	23.14
Chhukha	1,114	51.88	50.02	74.19
Dagana	1,745	36.36	35.37	50.24
Gasa	419	15.47	15.31	25.38
Haa	497	47.00	44.14	63.80
Lhuentse	1,233	31.85	30.80	50.16
Monggar	3,634	156.78	155.52	225.83
Paro	311	27.76	27.76	83.40
Pema Gatshel	2,392	49.32	48.55	77.14
Punakha	648	29.10	28.89	84.04
Samdrup Jongkhar	1,894	99.62	97.99	123.84
Samtse	2,224	63.87	61.72	56.54
Sarpang	1,817	35.38	33.86	41.67
Thimphu	952	80.86	79.73	182.49
Trashigang	3,759	103.53	102.20	177.87
Trashi Yangtse	1,463	43.94	42.35	63.09
Trongsa	582	54.39	52.93	101.60
Tsirang	1,561	65.99	65.13	76.68
Wangdue Phodrang	1,158	125.47	122.51	315.90
Zhemgang	1,401	40.38	39.52	46.38
Bhutan	**29,447**	**1,171.23**	**1,146.17**	**1,943.37**

Cardamom

Among major spices grown in the country, cardamom and ginger are mostly grown as export commodities. Cardamom and ginger farming have become promising livelihood options for many farmers. Cardamom and ginger farming cultivation have now expanded to many dzongkhags. The harvest of cardamom in the country was 1,542 MT in 2018 while it was 1,693 MT in 2022. The harvest area over the years have decreased from 21,395 acres in 2018 to 9,461 acres in 2022 (see Figure 3.016).

Figure 3.0 16: Production of cardamom from 2018-2022



About 1,693 MT (see Table 3.025) of cardamom were harvested from 9,461 acres in 2022. This was 84 MT more than in 2021. Although, the climate change has been significantly impacting the traditional management practices of cardamom farming, yet we see a little increase in production as the cardamom is the main cash crop for many smallscale holders. The harvested production of cardamom has become uncertain due to persistent pests and diseases. Climate change and all these challenges have impacted the productivity and production of cardamom growers. The yield per acre was recorded at 179 kg in 2022, more 39 kg than in 2021. Major cardamom growing dzongkhags-Tsirang (less 54 MT than in 2021), Dagana (more 40 MT than in 2021) and Chhukha (less 21 MT than in 2021) recorded lower levels of production in 2022. The number of growers also decreased from 16,513 households in 2021 to 15,167 households in 2022 (see Figure 3.017).

Figure 3.0 17: Cardamom growers from 2018-2022

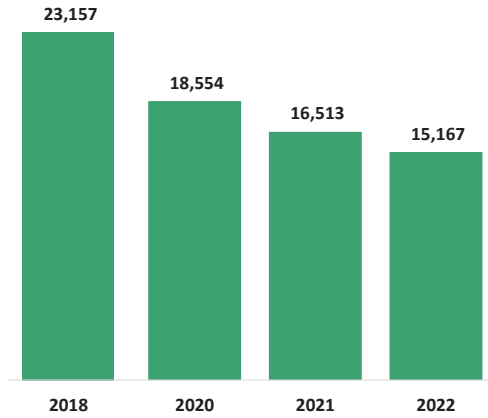


Table 3.0 25: Cardamom production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	1,006	1,243.75	964.16	203.91
Dagana	2,209	2,278.26	2,057.20	290.24
Gasa	-	-	-	-
Haa	322	511.28	250.43	54.53
Lhuentse	347	59.42	47.25	4.71
Monggar	1,113	313.94	304.09	42.03
Paro	20	36.70	33.10	7.48
Pema Gatshel	1,144	361.75	330.01	51.27
Punakha	54	8.19	7.94	0.99
Samdrup Jongkhar	710	362.13	342.53	41.50
Samtse	2,961	2,059.91	1,917.07	339.32
Sarpang	1,093	1,033.80	920.72	232.59
Thimphu	-	-	-	-
Trashigang	945	160.50	144.51	46.67
Trashi Yangtse	193	15.78	14.56	3.23
Trongsa	346	430.34	365.67	73.35
Tsirang	1,609	1,341.77	1,171.80	212.97
Wangdue Phodrang	105	25.85	20.38	2.98
Zhemgang	990	682.88	569.58	85.30
Bhutan	**15,167**	**10,926.23**	**9,460.97**	**1,693.07**

Ginger

Harvest of ginger was 3,711 MT (see Table 3.026) in 2022. This was 3,443 MT less than in 2021. A similar observation was noted for ginger farming in terms of the production levels for major producing dzongkhags. Samdrup Jongkhar harvested 952 MT (less 1,235 MT than in 2021), Samtse 539 MT (less 825 MT than in 2021) and Chhukha 738 MT (less 684 MT than in 2021) in 2022. The national yield per acre declined from 2,323 kg in 2021 to 1,879 kg in 2022. About 1,105-acre reduction in the harvested area was observed in 2022 compared to previous year. Figure 3.018 provides the trend in the production, harvest area and number of ginger growers from 2018 to 2022.

Figure 3.0 18: Production of ginger from 2018-2022

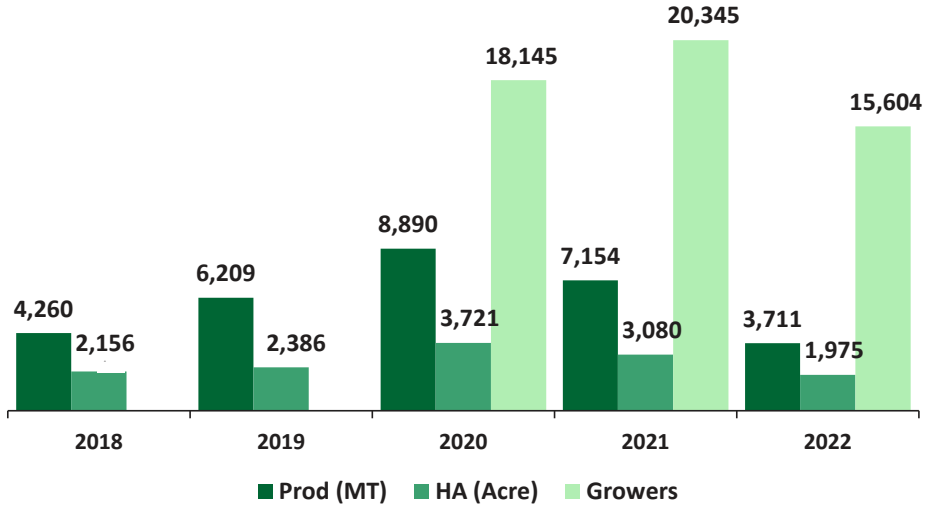


Table 3.0 26: Ginger production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1	0.04	0.04	0.07
Chhukha	1,178	333.14	318.36	735.74
Dagana	1,543	104.93	103.75	146.82
Gasa	6	0.05	0.05	0.04
Haa	88	6.41	2.91	3.43
Lhuentse	268	6.10	5.78	9.33
Monggar	1,629	65.68	64.81	75.52
Paro	2	0.51	0.51	0.26
Pema Gatshel	1,553	133.13	126.33	265.32
Punakha	68	1.38	1.38	1.06
Samdrup Jongkhar	1,640	477.87	439.00	952.43
Samtse	2,478	409.78	386.87	538.93
Sarpang	1,334	138.67	123.09	161.09
Thimphu	-	-	-	-
Trashigang	968	40.94	39.33	68.78
Trashi Yangtse	528	17.64	16.79	23.26
Trongsa	178	5.51	5.46	5.42
Tsirang	1,110	125.41	123.80	221.76
Wangdue Phodrang	158	7.41	6.69	6.06
Zhemgang	874	225.02	209.94	495.29
Bhutan	**15,604**	**2,099.57**	**1,974.85**	**3,710.59**

Sichuan pepper

The 2022 IALC collected information on the production of Sichuan pepper as the sale of Sichuan pepper or thingye fetches good price to farmers. The harvested production here refers to domesticated Sichuan pepper and do not include those collected as NWFP from the forests. The number of thingye growers have increased recently in many dzongkhags. The harvested production of Sichuan pepper was a little more than 24 MT (see Table 3.027) in 2022. Monggar dzongkhag harvested 5 MT while Trongsa and Trashi Yangtse, respectively harvested 4 MT each. The production of other spices in 2022 such as that of turmeric, garlic and coriander are provided in the Annex Table A3.016 to Table A3.018.

Table 3.0 27: Sichuan pepper production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Production (MT)
Bumthang	31	0.12
Chhukha	22	0.13
Dagana	144	1.13
Gasa	2	0.00
Haa	2	0.02
Lhuentse	189	0.89
Monggar	815	4.98
Paro	27	0.15
Pema Gatshel	371	3.61
Punakha	45	0.13
Samdrup Jongkhar	18	0.06
Samtse	37	0.21
Sarpang	12	0.04
Thimphu	126	0.88
Trashigang	619	2.40
Trashi Yangtse	420	4.17
Trongsa	273	3.96
Tsirang	113	0.81
Wangdue Phodrang	61	0.22
Zhemgang	55	0.35
Bhutan	**3,382**	**24.23**

Roots and Tubers

According to FAO, many plants are grown chiefly for their roots or underground stems. These plants are generally known as roots and tubers. Roots and tubers are among the food crops, that is grown mainly for human consumption. Roots and tubers are plants yielding starchy roots, tubers, rhizomes, corms and stems. FAO recommends that the denomination "roots and tubers" excludes crops that are cultivated mainly for feed (mangolds, swedes) or for processing into sugar (sugar beets), and those classified as "roots, bulb and tuberous vegetables" (onions, garlic and beets).

The main roots and tubers grown in Bhutan are potato, sweet potato, cassava, taro and ground apple. Roots and tubers crops are considered important due to its richness in carbohydrates. Some roots and tubers provide minerals and essential vitamins, and often used as supplement crops in many countries to compensate for protein deficiencies.

Roots and tubers (for example potato) crops in Bhutan still constitute an important and one of the components in our traditional diets. Urban consumers, over time, have developed more preference for roots and tubers crops such as potatoes and cassava. The roots and tubers crops as staple foods have become more important in urban areas.

Table 3.028 shows the harvested production of roots and tuber by type in 2022. A total of about 31,559 MT of roots and tuber were produced in 2022. This was 7,749 MT less than in 2021, an equivalent 20 percent decline. Map 3.03 presents the share of roots and tuber production by dzongkhag, and by crop type, 2022. Wangdue Phodrang, Paro and Chhukha dzongkhags were the dominant roots and tuber producer in 2022.

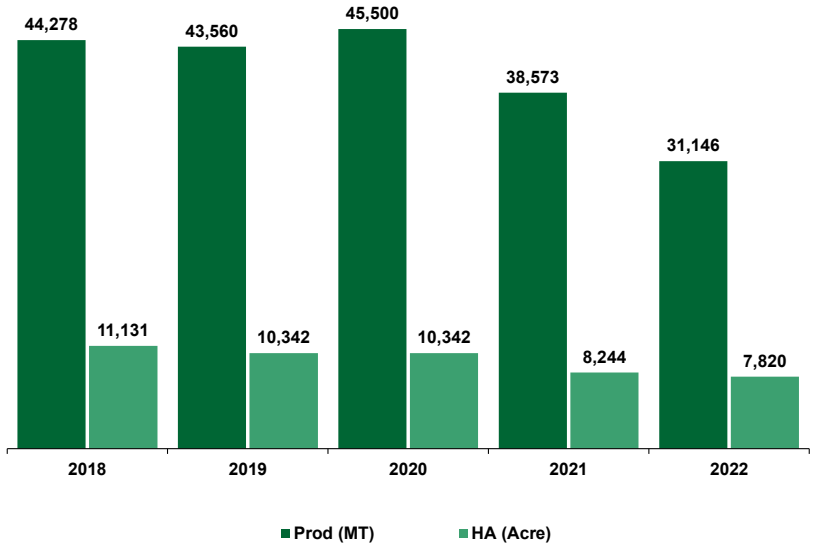
Table 3.0 28: Roots & tuber production, by type, 2022

Type	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Potato	8,331.47	7,819.53	31,145.61
Sweet Potato	41.42	36.57	27.89
Cassava	209.35	168.46	236.19
Taro	69.19	58.26	75.41
Ground apple	42.98	41.93	74.30

Potato

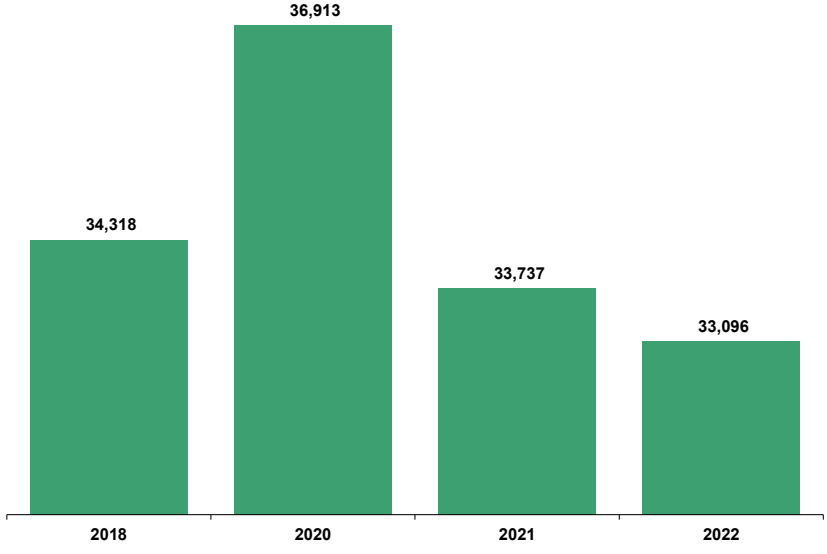
Among the roots and tuber, potato has been one of the highest cash crops exported to India and this generates a lot of revenue to the farming population. The country produced 31,146 MT (see Table 3.029) of potatoes in 2022, which was 7,427 MT less than in 2021 (a decrease of 19 percent). Most of the major potato producing dzongkhags had lower harvests in 2022: Wangdue Phodrang harvested 10,323 MT (less 583 MT than in 2021); Paro harvested 2,942 MT (less 1,428 MT than in 2021); and Monggar harvested 2,626 MT (less 1,126 MT than in 2021). During the period of five years from 2018-2022, the country has harvested potatoes from 44,278 MT from 11,131 acres in 2018 to 31,146 MT from 7,820 acres in 2022 (see Figure 3.019).

Figure 3.0 19: Production of potato from 2018-2022



The number of potato growers decreased to 33,096 (down 2 percent than in 2021) in 2022. Figure 3.020 shows the number of potato growers from 2018-2022.

Figure 3.0 20: Potato growers from 2018-2022



Map 3.0 3: Share of roots and tuber production, by dzongkhag, and by crop type, 2022

Table 3.0 29: Potato production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1,054	564.01	537.38	2,860.17
Chhukha	1,411	518.02	471.23	2,819.07
Dagana	1,411	138.42	128.19	185.91
Gasa	491	74.15	72.77	178.59
Haa	718	239.48	216.67	870.21
Lhuentse	1,689	209.72	195.19	417.93
Monggar	4,160	1,143.72	1,070.72	2,626.02
Paro	1,286	725.77	719.48	2,942.05
Pema Gatshel	2,051	273.49	255.37	654.34
Punakha	297	54.18	51.70	128.53
Samdrup Jongkhar	1,728	238.14	222.91	322.19
Samtse	3,141	273.37	255.40	359.23
Sarpang	1,905	137.49	124.88	169.97
Thimphu	1,056	317.49	306.84	1,518.56
Trashigang	4,360	983.80	877.16	2,643.74
Trashi Yangtse	1,684	368.19	343.32	1,454.00
Trongsa	723	137.82	127.44	454.36
Tsirang	1,497	144.19	135.72	189.54
Wangdue Phodrang	1,700	1,678.38	1,607.25	10,232.30
Zhemgang	734	111.66	99.94	118.90
Bhutan	**33,096**	**8,331.47**	**7,819.53**	**31,145.61**

Cassava

About 236 MT of cassava (see Table 3.030) was harvested in 2022. This was 153 MT less than in 2021. The per acre yield of cassava was recorded at 1,402 kg per acre in 2022, less 418 kg than in 2021. Major cassava producing dzongkhags- Chhukha (less 77 MT than in 2021) and Samtse (less 44 MT than in 2021) reported lower level of production in 2022.

Table 3.0 30: Cassava/Tapioca production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	374	52.48	43.49	58.17
Dagana	507	28.56	24.11	33.33
Gasa	-	-	-	-
Haa	11	1.04	0.33	0.79
Lhuentse	2	0.02	0.02	0.01
Monggar	67	2.52	1.86	2.38
Paro	1	0.05	0.01	0.03
Pema Gatshel	484	31.08	25.35	43.96
Punakha	3	0.13	0.13	0.13
Samdrup Jongkhar	336	11.08	7.26	10.90
Samtse	884	41.55	35.16	42.55
Sarpang	206	11.17	7.27	10.25
Thimphu	-	-	-	-
Trashigang	32	0.84	0.79	1.14
Trashi Yangtse	7	0.11	0.10	0.12
Trongsa	1	0.03	0.03	0.04
Tsirang	266	23.22	20.06	29.61
Wangdue Phodrang	12	0.39	0.33	0.23
Zhemgang	113	5.09	2.17	2.57
Bhutan	**3,306**	**209.35**	**168.46**	**236.19**

Other Roots and Tuber

The harvest of other roots and tuber included 28 MT of sweet potato (down 25 MT than in 2021), 75 MT of taro (down 72 MT than in 2021) and a little more than 74 MT of ground apple (down 72 MT than in 2021). Lower levels of harvested production were recorded in part due to significant reduction in the area cultivated. The detailed harvested production for these roots and tuber are provided in Annex Table A3.019 to Table A3.022.

Fruits

World Health Organization (WHO) and Food and Agriculture Organization (FAO) advocates Fruits and Vegetables (F&V) as major sources of fiber in the diet and increased dietary fiber intake significantly reduces low-density lipoprotein (LDL) cholesterol, triglyceride levels, systolic blood pressure and thereby prevent non-communicable diseases. Bhutan produces a wide range of fruits and some nuts.

About 38,086 MT of fruits were harvested in 2022, of which, 31,796 MT were major fruits (such as apple, mandarin and areca nut) and 69 MT were newly promoted fruits (such as watermelon, kiwi and dragon fruit). Table 3.031 shows the production of fruits by type in 2022.

There is a clear evidence that Paro, Thimphu, Haa and Bumthang are dominant apple producing dzongkhags while Samtse, Sarpang and Chhukha dzongkhags are dominant areca nut producing dzongkhags (see Map 3.04). Similarly, Map 3.04 shows clear indication of Dagana, Tsirang, Zhemgang, Pema Gatshel, Samdrup Jongkhar, Monggar, Trashigang, Trashi Yangtse and Lhuentse as dominant mandarin growing dzongkhags.

Table 3.0 31: Fruits production, by type, 2022

Type	Total Trees	Bearing Trees	Production (MT)
Apple	175,331	119,688	2,222.94
Pear	54,618	26,823	760.24
Peach	37,947	22,996	515.31
Plum	16,046	9,300	312.01
Apricot	4,948	1,738	35.06
Persimmon	13,929	3,970	94.69
Walnut	32,762	7,804	129.43
Lemons & lime	19,593	8,520	73.00
Areca nut	3,778,553	1,415,779	11,106.44
Mandarin	1,361,691	714,250	18,466.60
Hazelnut	446,221	40,969	13.20
Mango	96,665	30,932	481.97
Guava	50,690	38,722	515.02
Pomegranate	9,183	4,142	37.03
Avocado	123,548	11,387	135.83
Litchi	55,274	17,262	249.28
Jackfruit	6,787	3,177	248.34
Banana	551,918	180,534	2,139.16
Tree tomato	33,924	28,944	216.38
Dragon fruit	28,208	1,040	3.75
Kiwi			26.36
Papaya	11,070	7,791	121.53
Pineapple			97.76
Passionfruit			44.88
Watermelon*	46.07	6.75	39.32

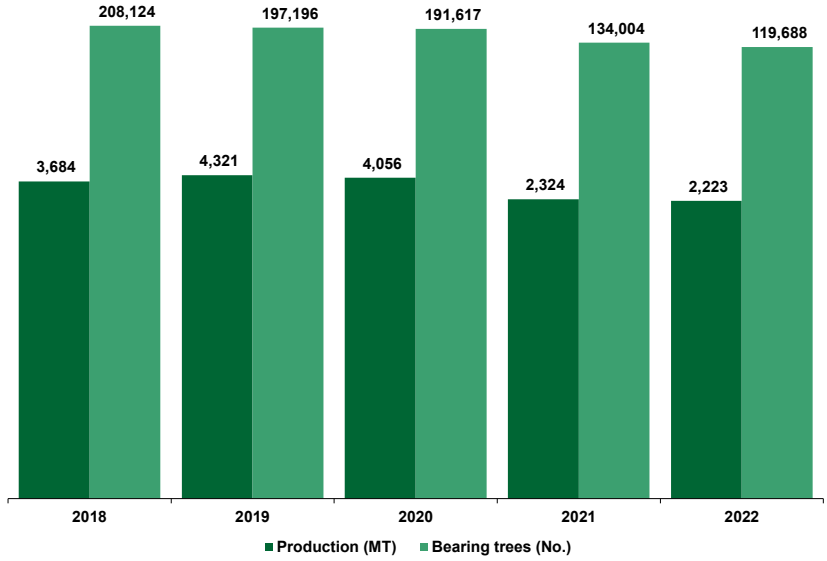
*Sown Area * Harvest Area

Apple

Apple, mandarin and areca nut are major cash crops among fruit crops grown in the country. Although different varieties of apple are grown in the country, the IALC did not collect information on the varieties.

About 2,223 MT of apple (see Table 3.032) were harvested in 2022. This was 101 MT less than in 2021 (see Figure 3.021). The per bearing tree yield of apple was recorded at 19 kg per tree in 2022, more 1 kg than in 2021. Major apple producing dzongkhags- Paro harvested 1,558 MT (more 47 MT than in 2021) and Thimphu harvested 465 MT (less 112 MT than in 2021) in 2022.

Figure 3.0 21: Production of apple from 2018-2022



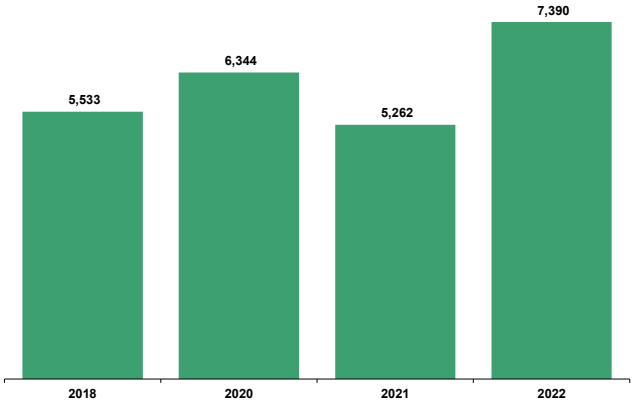
Map 3.0 4: Share of fruits production, by dzongkhag, and by crop type, 2022

Table 3.0 32: Apple production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Total Trees	Bearing Trees	Production (MT)
Bumthang	1,005	10,082	2,985	65.28
Chhukha	401	6,052	858	16.16
Dagana	71	301	38	0.07
Gasa	25	130	3	0.03
Haa	272	7,446	4,755	76.43
Lhuentse	276	1,568	292	2.43
Monggar	510	2,178	308	3.06
Paro	1,601	91,106	69,536	1,558.32
Pema Gatshel	145	760	348	5.40
Punakha	15	50	23	0.14
Samdrup Jongkhar	95	977	182	0.58
Samtse	6	9	-	-
Sarpang	5	11	-	-
Thimphu	851	46,488	37,444	465.15
Trashigang	478	1,556	405	4.28
Trashi Yangtse	437	2,972	1,985	19.73
Trongsa	68	165	67	1.41
Tsirang	147	755	63	0.48
Wangdue Phodrang	956	2,622	389	3.93
Zhemgang	26	103	7	0.06
Bhutan	**7,390**	**175,331**	**119,688**	**2,222.94**

In terms of the yield per bearing tree, Paro recorded at 22 kg (more 5 kg than in 2021) and Thimphu at 12 kg (less 8 kg than in 2021). The lower level of apple production in 2022 was due to reduction in bearing trees to 119,688 (less 14,316 trees than in 2021). Thimphu dzongkhag alone reported 9,231 reductions in the bearing trees, about two-third of the total reductions. The number of apple growers stand at 7,390 households in 2022 as compared to 5,262 households in 2021 (see Figure 3.022).

Figure 3.0 22: Apple growers from 2018-2022



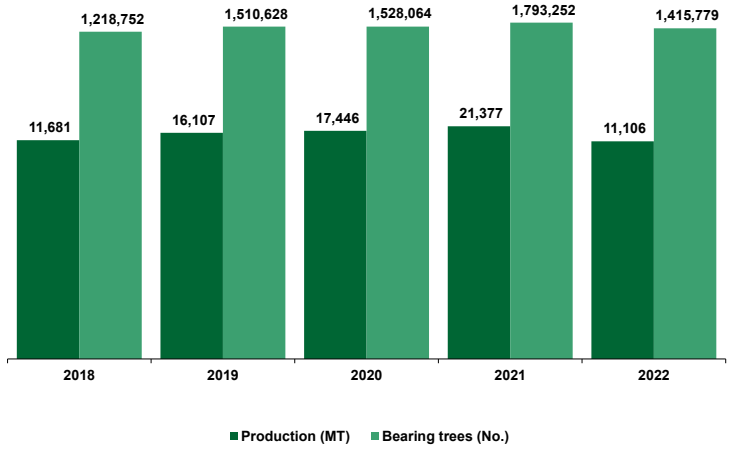
Areca nut

Bhutan exports areca nut to India during the peak season and equally if not more, imports from India during the lean season. Chewing doma pani is an integral part of our culture and enhancing the production to meet the domestic demand has become even more important.

About 11,106 MT of areca nut (see Table 3.033) were harvested in 2022. This was 10,271 MT less, equivalent 52 percent less than in 2021. The per bearing tree yield of areca nut was recorded at 8 kg per tree in 2022, less 4 kg than in 2021.

Major areca nut producing dzongkhags- Samtse harvested 3,630 MT (less 7,763 MT than in 2021), Sarpang harvested 4,853 MT (less 1,497 MT than in 2021) and Samdrup Jongkhar harvested 689 MT (less 916 MT than in 2021) in 2022. In terms of the yield per bearing tree, Samtse recorded at 8 kg (less 8 kg than in 2021), Sarpang at 8 kg (less 1 kg than in 2021) and Samdrup Jongkhar at 10 kg (less 6 kg than in 2021) in 2022.

Figure 3.0 23: Production of areca nut from 2018-2022



The lower level of areca nut production at the national level in 2022 was due to decrease in bearing number of trees (see Figure 3.023) to 1,415,779 (less 377,473 trees than in 2021). Samtse dzongkhag alone reported 292,563 decrease in the bearing trees, more than three-fourth of the total reduction in the bearing trees. Dagana and Sarpang dzongkhags reported, respectively 26,188 and 95,853 number of decrease in the bearing trees than 2021. The number of growers bearly increased from 11,355 households in 2021 to 11,357 households in 2022 (see Figure 3.024).

Figure 3.0 24: Areca nut growers from 2018-2022

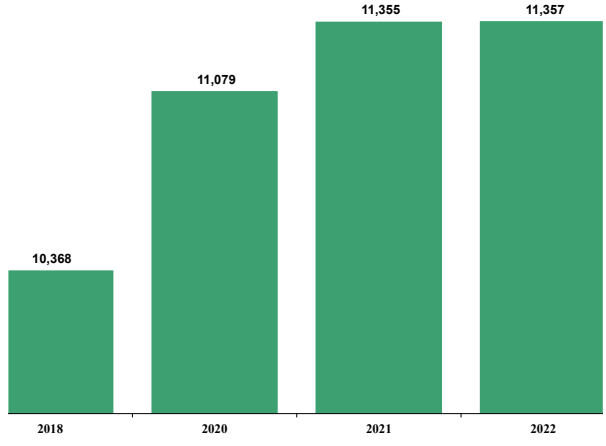


Table 3.0 33: Arecanut production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	897	324,476	104,166	565.70
Dagana	983	489,081	191,593	1,207.92
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	-	-	-	-
Monggar	69	4,947	728	7.36
Paro	-	-	-	-
Pema Gatshel	511	99,915	12,979	90.57
Punakha	-	-	-	-
Samdrup Jongkhar	1,341	253,328	66,257	688.74
Samtse	4,167	1,062,024	441,232	3,629.58
Sarpang	2,879	1,510,620	591,839	4,853.23
Thimphu	-	-	-	-
Trashigang	-	-	-	-
Trashi Yangtse	-	-	-	-
Trongsa	-	-	-	-
Tsirang	147	9,224	694	6.38
Wangdue Phodrang	-	-	-	-
Zhemgang	363	24,938	6,291	56.97
Bhutan	**11,357**	**3,778,553**	**1,415,779**	**11,106.44**

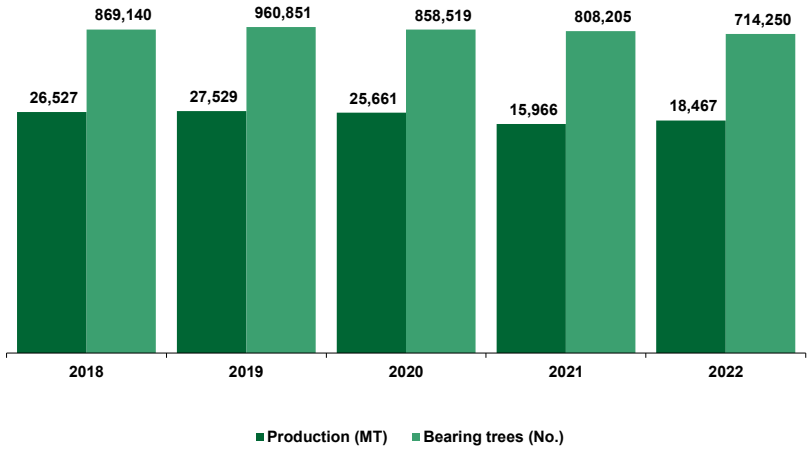
Mandarin

Mandarin is one of the country's largest fresh fruit exports to India and Bangladesh contributing to the economy by generating export revenue. Although the Ministry of Agriculture and Livestock has been providing necessary support to mandarin growers in terms of orchards management, diversification of varieties based on different agro-ecological zones and development of processing and nurseries, growers are still facing many constraints. For example, production of mandarin is experiencing decline due to climate change impacts, more so due to increased pest and disease outbreaks, drought and erratic rainfall, limited knowledge of farm management, etc.

About 18,467 MT of mandarin (see Table 3.034) were harvested in 2022. This was 2,500 MT more than in 2021. Figure 3.025 shows the trend in the production of mandarin from 2018 to 2022.

In terms of the per bearing tree yield of mandarin, it was recorded at 26 kg per tree in 2022, more 6 kg than in 2021. Major mandarin producing dzongkhags- Dagana harvested 3,487 MT (more 695 MT than in 2021), Samdrup Jongkhar harvested 2,638 MT (more 260 MT than in 2021) and Tsirang harvested 3,056 MT (more 908 MT than in 2021) in 2022.

Figure 3.0 25: Production of mandarin from 2018-2022



In terms of the yield per bearing tree, Dagana recorded at 27 kg (more 6 kg than in 2021), Samdrup Jongkhar at 28 kg (more 5 kg than in 2021) and Tsirang at 43 kg (more 14 kg than in 2021). The higher level of mandarin production in 2022 was due to high per bearing yield of 26 kg in 2022 (more 6 kg than in 2021). Furthermore, the number of mandarin growers increased in 2022 from 21,904 in 2021 to 23,817 households (see Figure 3.026).

Figure 3.0 26: Mandarin growers from 2018-2022

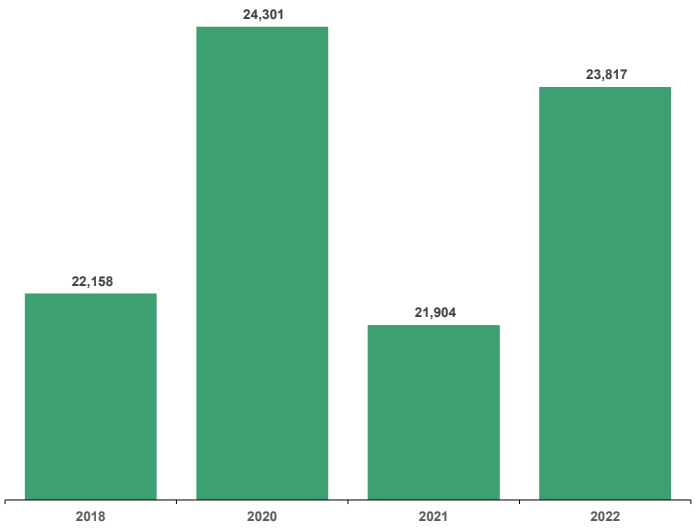


Table 3.0 34: Mandarin production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	1,203	56,424	27,192	283.54
Dagana	2,558	250,421	129,088	3,486.78
Gasa	17	36	23	0.35
Haa	110	6,771	3,139	12.88
Lhuentse	802	18,232	11,084	245.06
Monggar	2,887	97,766	42,082	1,321.02
Paro	8	63	10	0.19
Pema Gatshel	1,944	166,720	94,705	1,643.96
Punakha	1,229	14,672	10,039	228.24
Samdrup Jongkhar	1,707	203,622	94,402	2,638.00
Samtse	2,197	98,401	43,538	1,018.63
Sarpang	920	73,963	56,984	2,100.26
Thimphu	4	8	4	0.06
Trashigang	2,230	46,382	20,902	319.14
Trashi Yangtse	1,004	17,574	10,365	264.93
Trongsa	608	17,954	9,047	144.35
Tsirang	1,859	110,419	70,831	3,056.21
Wangdue Phodrang	1,000	11,245	5,860	100.20
Zhemgang	1,530	171,018	84,955	1,602.82
Bhutan	**23,817**	**1,361,691**	**714,250**	**18,466.60**

Watermelon, Dragon fruit and Kiwi

There has been increasing demand for seed and seedlings for newly introduced or promotional fruit crops in the country. Cultivation of watermelon, kiwi and dragon fruits are picking up and mass cultivations are happening in many dzongkhags. For example, commercial watermelon plantation and nursery already exist in few dzongkhags like Zhemgang, Samtse, Trashigang and Pema Gatshel.

About 94 MT of watermelon (see Table

3.035) were harvested in 2022. This was 62 MT less than in 2021. The per acre yield of watermelon was recorded at 2,397 kg in 2022, less 216 kg than in 2021. Major watermelon producing dzongkhags- Zhemgang harvested 48 MT (less 7 MT than in 2021), Samtse harvested 10 MT, Trashigang harvested 17 MT (less 4 MT than in 2021), Tsirang harvested 5 MT (less 2 MT than in 2021) and Monggar harvested 3 MT (less 4 MT than in 2021) in 2022.

About 46 acres of area was reported by the growers under watermelon cultivation. This was 21 acres less than in 2021. From the total, Zhemgang, Samtse and Trashigang accounted about three-fourth of the total area under watermelon cultivation in the country.

Table 3.0 35: Watermelon production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	9	0.06	0.06	0.17
Chhukha	6	0.08	0.05	0.20
Dagana	35	1.70	1.39	1.90
Gasa	10	0.06	0.06	0.10
Haa	1	0.03	0.03	0.01
Lhuentse	37	1.04	1.01	2.27
Monggar	48	2.18	1.75	2.67
Paro	18	0.32	0.32	0.61
Pema Gatshel	54	0.80	0.80	1.38
Punakha	14	0.42	0.41	1.35
Samdrup Jongkhar	4	0.23	0.03	0.04
Samtse	16	4.16	4.01	9.51
Sarpang	1	0.01	0.01	0.01
Thimphu	-	-	-	-
Trashigang	77	5.03	4.21	17.28
Trashi Yangtse	19	0.60	0.49	2.00
Trongsa	9	0.23	0.20	0.39
Tsirang	61	3.08	2.91	5.04
Wangdue Phodrang	9	1.18	1.15	1.16
Zhemgang	55	24.88	20.44	48.13
Bhutan	**483**	**46.07**	**39.32**	**94.23**

About 4 MT of dragon fruit (see Table 3.036) were harvested in 2022. This was an increase of 3 MT than in 2020. The per bearing tree yield of dragon fruit was recorded at 4 kg in 2022, 1 kg more than in 2021. Not many dzongkhags reported to grow dragon fruits in 2022. Of those reported, Wangdue Phodrang and Monggar dzongkhags accounted for the larger share of the production in 2022.

Table 3.0 36: Dragon fruit production, by dzongkhag, 2022

Dzongkhag	Number of Grower	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	231	1,234	3	0.01
Dagana	257	4,262	23	0.03
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	47	146	17	0.03
Monggar	322	1,763	214	0.93
Paro	6	24	-	-
Pema Gatshel	1,223	6,205	103	0.42
Punakha	89	311	10	0.01
Samdrup Jongkhar	705	2,776	116	0.26
Samtse	589	1,655	17	0.09
Sarpang	221	986	65	0.10
Thimphu	-	-	-	-
Trashigang	250	691	14	0.08
Trashi Yangtse	59	171	15	0.09
Trongsa	90	985	-	-
Tsirang	349	3,043	52	0.10
Wangdue Phodrang	135	1,444	391	1.60
Zhemgang	495	2,512	-	-
Bhutan	**5,068**	**28,208**	**1,040**	**3.75**

Country recorded 26 MT (see Table 3.037) of kiwi production in 2022. This was 25 MT less than in 2021. Tsirang, Dagana and Chhukha dzongkhags reported more than 50 percent of the total kiwi production in 2022. The detailed harvested productions of other fruit crops are provided in Annex Table A3.022 to Table A3.040.

Table 3.0 37: Kiwi production, by dzongkhag, 2022

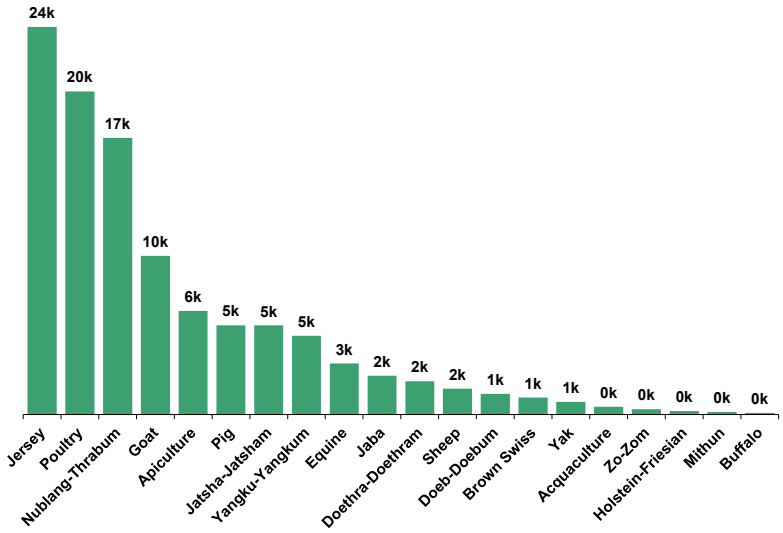
Dzongkhag	Number of Growers	Production (MT)
Bumthang	170	0.21
Chhukha	113	3.49
Dagana	419	4.36
Gasa	2	0.02
Haa	3	0.07
Lhuentse	109	0.42
Monggar	239	0.79
Paro	12	1.32
Pema Gatshel	250	0.35
Punakha	51	1.66
Samdrup Jongkhar	90	0.68
Samtse	34	0.31
Sarpang	67	1.62
Thimphu	24	0.35
Trashigang	419	1.46
Trashi Yangtse	40	0.37
Trongsa	22	0.01
Tsirang	408	8.10
Wangdue Phodrang	29	0.28
Zhemgang	33	0.50
Bhutan	**2,534**	**26.36**

CHAPTER 4: LIVESTOCK POPULATION

Introduction

The 2022 IALC gathered information on the livestock population and production in the country. This chapter presents livestock population statistics, including the number of animals, by breed and type, and herd structure on the reference day, and their dynamics during the reference period. The census collected detailed statistics on the number of animals, broken down by breed, age and sex. For herd dynamics, entries and exits of animals from the herd during the reference period were also recorded. Common items collected included the number of births (calf<1-year-old), the number of animal deaths, and the number of live animals lost or stolen during the reference period. In terms of livestock type, the majority of

Figure 4.0 1: Livestock holding, by type, 2022



Livestock holdings

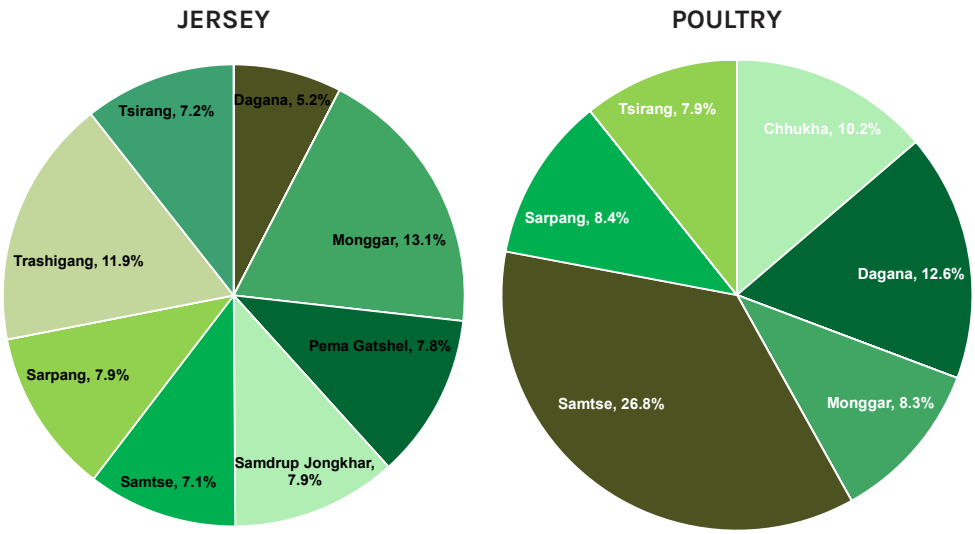
According to the results of the 2022 IALC, a total of 51,892 holders (see Table 4.01) were recorded, of which, 98 percent are household sector holders (50,839 households) and about 2 percent are non-household sector (1,053 holders). A majority of household sector are in Samtse (16 percent), Trashigang (9 percent) and Monggar (9 percent). Three dzongkhags - Monggar (9 percent), Thimphu (10 percent) and Wangdue Phodrang (11 percent) - accounted for the highest number of non-household sector holdings in the country. Furthermore, 18 number of non-household sector holdings (government farms) were recorded in the census.

holders raised Jersey cattle (24 thousand holders), followed by poultry (20 thousand holders) and Nublang-Thrabum (17 thousand holders). Figure 4.01 shows the livestock holders in 2022 by type of livestock. Across dzongkhags, Monggar (13.1 percent), Trashigang (11.9 percent) and Samdrup Jongkhar (7.9 percent) have the highest jersey holders compared to rest of the dzongkhags. As for poultry, Samtse (26.8 percent), Dagana (12.6 percent), and Chhukha (10.2 percent) dzongkhags have more poultry holders compared to other dzongkhags (see Figure 4.02).

Table 4.0 1: Livestock holders, by dzongkhag and type 2022

Dzongkhag	Household sector	Non-household sector	TOTAL
Bumthang	1,030	21	1,051
Chhukha	3,408	83	3,491
Dagana	3,766	90	3,856
Gasa	456	1	457
Haa	960	6	966
Lhuentse	1,540	21	1,561
Monggar	4,451	92	4,543
Paro	1,689	36	1,725
Pema Gatshel	2,154	21	2,175
Punakha	1,646	39	1,685
Samdrup Jongkhar	2,824	23	2,847
Samtse	8,056	51	8,107
Sarpang	3,388	73	3,461
Thimphu	680	105	785
Trashigang	4,808	54	4,862
Trashi Yangtse	1,722	60	1,782
Trongsa	1,079	46	1,125
Tsirang	3,148	84	3,232
Wangdue Phodrang	2,442	116	2,558
Zhemgang	1,592	31	1,623
Bhutan	**50,839**	**1,053**	**51,892**

Figure 4.0 2: Share of Jersey and poultry holders, by dzongkhag, 2022



Livestock herd structure

Livestock are an essential part of the farming system across Bhutan. A wide range of livestock (see Annex Tables A3.01-A3.21) are reared by holders, including both bovine and other livestock. Map 4.01 shows the bovine density map based on the census data, with bovine density estimated at 8 animals per square km in 2022. Samtse (29 animals per sq. km) had the highest density of bovine animals, followed by Trashigang (15 animals per sq. km) and Tsirang (19 animals per sq. km).

Table 4.02 summarizes livestock population in 2022, by dzongkhag. A total of 254,897 cattle (see Map 4.02) was recorded in the 2022 IALC, a decrease of 14 percent from 2021. Map 4.02 shows the cattle population by dzongkhag, and by breed type, 2022. Samtse, Trashigang and Monggar had the highest cattle in 2022.

Monggar, Samdrup Jongkhar, Pema Gatshel, Haa, Paro, Thimphu and Sarpang are dominant Jersey cattle holders while Wangdue Phodrang, Punakha, Dagana, Chhukha and Samtse are dominant Nublang-Thrabum cattle holders in the country. Figure 4.03 shows the average cattle population from 1989 to 2022. The cattle population on an average has been declining since 2006.

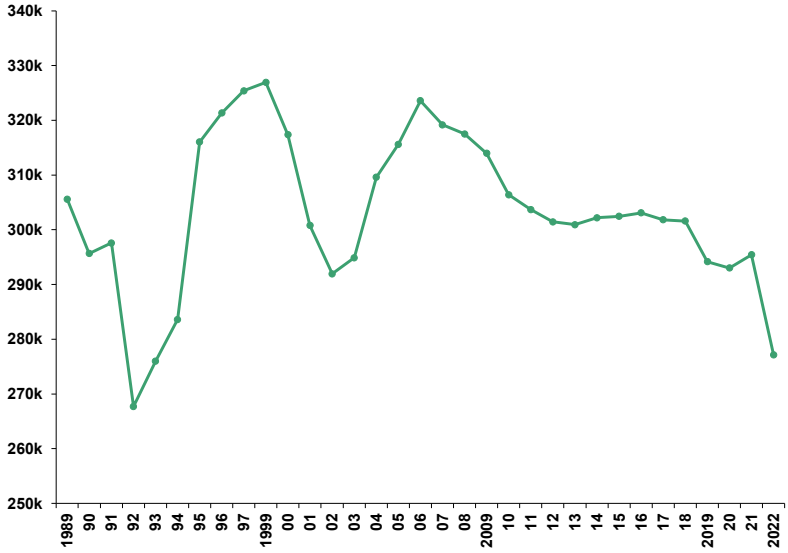
Map 4.0 1: Livestock holding, by type, 2022

Map 4.0 2: Cattle population, by dzongkhag and by breed type, 2022

Table 4.0 2: Livestock population, by dzongkhag and type 2022 (Number)

Dzongkhag	Bovine population					Other livestock population				
	Cattle	Mithun	Yak	Zo-Zom	Buffalo	Equine	Pig	Poultry	Sheep	Goat
Bumthang	8,855	-	2,784	-	-	525	-	8,035	125	20
Chhukha	16,153	2	-	-	-	128	3,637	143,245	699	7,151
Dagana	18,309	13	-	-	25	165	7,493	71,005	91	11,073
Gasa	588	1	5,097	-	-	2,553	-	564	54	4
Haa	5,646	1	2,295	-	-	480	53	10,281	-	48
Lhuentse	9,757	7	261	116	-	757	6	10,243	44	18
Monggar	23,045	17	-	-	-	289	78	32,618	2	44
Paro	8,315	2	2,403	-	-	1,361	387	25,028	-	24
Pema Gatshel	6,799	1	-	-	-	74	118	19,658	-	38
Punakha	8,363	5	-	-	-	283	36	11,022	6	121
Samdrup Jongkhar	12,910	25	8	79	-	97	591	30,188	90	1,307
Samtse	37,376	4	-	-	180	81	6,364	163,767	5,465	20,025
Sarpang	16,309	6	-	-	27	126	3,679	167,914	588	5,487
Thimphu	2,435	-	10,523	-	-	1,859	287	14,200	-	27
Trashigang	22,247	34	3,951	7,109	-	947	66	20,560	1,642	147
Trashi Yangtse	8,222	4	253	105	-	667	96	9,425	-	19
Trongsa	8,069	1	148	-	-	51	22	14,758	158	73
Tsirang	12,243	6	-	-	99	34	7,945	188,549	37	10,093
Wangdue Phodrang	19,768	11	2,518	26	-	355	716	15,495	770	250
Zhemgang	8,973	9	-	-	-	443	180	14,267	-	35
Govt. Farms	515	151	87	-	-	390	1,328	4,330	253	-
Bhutan	**254,897**	**300**	**30,328**	**7,435**	**331**	**11,665**	**33,082**	**975,152**	**10,024**	**56,004**

Figure 4.0 3: Average number of cattle, 1989 to 2022



Milch population

The distribution of improved and other milch population are shown in Table 4.03. The improved milch population, such as Jersey and Brown Swiss cattle breeds, increased in recent years (see Figure 4.05), while the milch population of local breeds decreased (see Figure 4.06). This seems to indicate that preference for improved livestock breeds have increased among small-scale livestock holders in the country.

Map 4.03 shows the geographic distribution of the bovine milch population, by breed, in 2022. Samtse, Chhukha, Dagana and Wangdue Phodrang are dominant Thrabum milching cattle holders while Thimphu and Gasa are dominant milching yak holders. The rest of the dzongkhags are dominant milching jersey holders. For example, Sarpang, Monggar, Pema Gatshel and Samdrup Jongkhar hold more than 50 percent of milching jersey compared to rest of the breed type.

Figure 4.0 4: Average number of improved milch population, 2006 to 2022

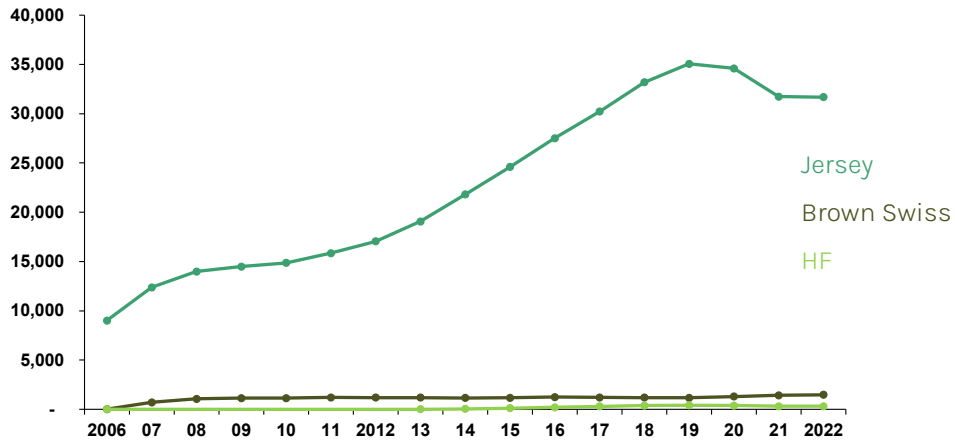
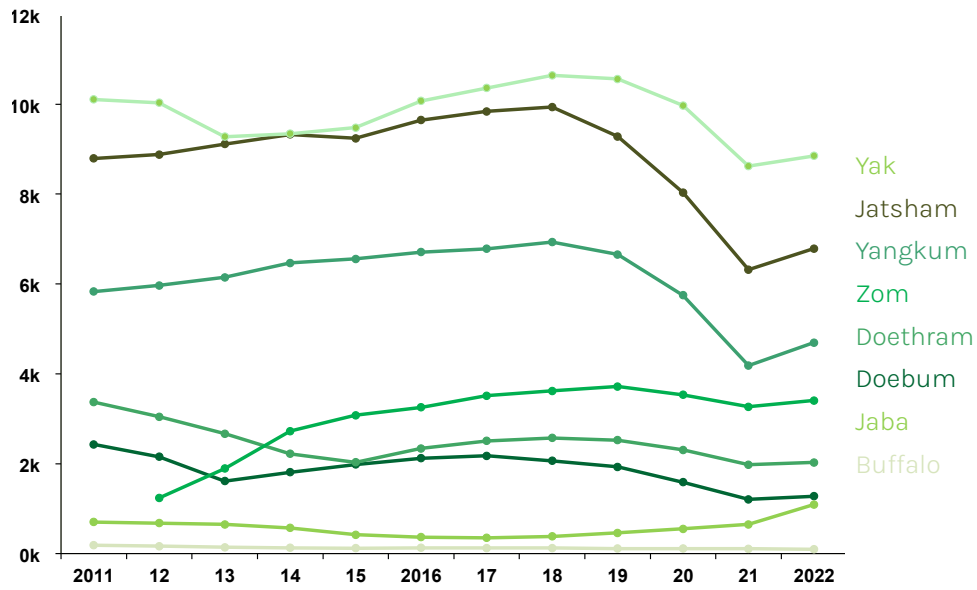


Figure 4.0 5: Average number of local milch population, 2006 to 2022



Map 4.0 3: Bovine milch population, by dzongkhag and by breed type, 2022

Table 4.0 3: Milch population, by dzongkhag, 2022

(Number)

Dzongkhag	Brown Swiss	Jersey	Holsten Friesian	Buffalo	Doeb-Doebum	Doethra-Doethrum	Jaba	Jatsha-Jatsham	Mithun	Nublang-Thrabum	Yak	Yangku-Yangkum	Zo-Zom
Bumthang	956	637	4	-	17	2	-	68	-	494	587	55	-
Chhukha	6	1,375	44	-	28	82	114	201	-	1,546	-	138	-
Dagana	3	1,204	1	5	77	39	57	129	-	1,868	-	90	-
Gasa	12	137	-	-	2	2	-	23	-	3	1,483	13	-
Haa	5	1,220	5	-	-	42	4	86	-	459	654	42	-
Lhuentse	65	905	5	-	111	326	21	342	-	90	93	424	28
Monggar	66	2,958	7	-	102	174	45	933	-	298	-	754	-
Paro	49	1,253	1	-	3	12	11	30	-	798	679	13	-
Pema Gatshel	5	1,601	25	-	17	28	29	26	-	17	-	49	-
Punakha	25	838	-	-	107	16	-	71	-	625	-	93	-
Samdrup Jongkhar	3	2,230	3	-	21	20	693	371	-	50	-	253	24
Samtse	252	2,181	18	37	4	2	276	123	-	4,733	-	72	-
Sarpang	3	2,350	10	9	38	44	697	278	-	583	-	119	-

Thimphu	88	400	3	-	-	-	-	2	-	221	2,140	1	-
Trashigang	3	2,376	66	-	54	61	77	1,980	-	591	1,346	774	3,184
Trashi Yangtse	6	862	1	-	61	620	26	181	-	94	65	144	36
Trongsa	131	745	24	-	14	15	-	192	-	499	20	152	-
Tsirang	4	1,917	12	24	3	1	-	112	-	684	-	13	-
Wangdue Phodrang	61	1,303	-	-	55	60	-	266	-	2,333	560	120	3
Zhemgang	-	806	7	-	128	126	22	568	-	75	-	486	-
Govt. Farms	11	37	-	-	-	-	-	-	32	69	12	-	-
Bhutan	**1,754**	**27,335**	**236**	**75**	**842**	**1,672**	**2,072**	**5,982**	**32**	**16,130**	**7,639**	**3,805**	**3,275**

Improved livestock breed profile

Table 4.04 presents the Brown Swiss population, by dzongkhag, in 2022. About 6,637 Brown Swiss cattle were recorded in the census, of which 56 percent were in Bumthang dzongkhag followed by Samtse with 16 percent. The census recorded 1,049 brown swiss holders in the country.

Table 4.0 4: Brown Swiss population, by dzongkhag, 2022 (Number)

Dzongkhag	No. of Holder	Calf <1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
		Male	Female								
Bumthang	382	557	600	597	956	335	90	69	480	-	3,684
Chhukha	3	1	5	1	6	-	-	-	-	-	13
Dagana	4	2	1	1	3	1	-	-	3	-	11
Gasa	8	5	6	2	12	-	1	2	4	-	32
Haa	4	4	2	2	5	3	1	-	1	-	18
Lhuentse	80	22	32	58	65	14	4	5	44	-	244
Monggar	67	29	28	54	66	12	11	4	16	-	220
Paro	39	21	21	47	49	9	5	2	26	-	180
Pema Gatshel	4	2	3	-	5	-	-	-	2	-	12
Punakha	21	10	12	48	25	-	4	1	2	-	102
Samdrup Jongkhar	2	-	3	-	3	-	-	2	2	-	10
Samtse	200	129	146	189	252	138	51	16	166	-	1,087
Sarpang	7	5	1	5	3	2	1	-	4	-	21
Thimphu	74	24	32	59	88	26	7	7	40	-	283
Trashigang	4	3	5	3	3	-	-	-	-	-	14
Trashi Yangtse	6	2	2	1	6	2	-	-	-	-	13
Trongsa	99	68	65	71	131	38	3	4	50	-	430
Tsirang	8	2	1	3	4	2	-	-	1	-	13
Wangdue Phodrang	35	29	29	31	61	31	2	1	31	-	215
Zhemgang	-	-	-	-	-	-	-	-	-	-	-
Govt. Farms	2	6	6	8	11	-	-	2	2	-	35
Bhutan	1,049	921	1,000	1,180	1,754	613	180	115	874	-	6,637

Table 4.05 presents the Jersey population in 2022 by dzongkhag. There were about 90,735 Jersey cattle in the country. The number of milching Jersey was 27,335 (30.1 percent) of the total recorded. The census did not collect individual Jersey breed as the holders were not able to identify whether or not its pure or cross Jersey. Across dzongkhags, Monggar (11.8 percent), Trashigang (9.8 percent) and Samtse (8.4 percent) had the highest number of Jersey cows. There were 23,761 Jersey holders in the country.

Table 4.0 5: Jersey population, by dzongkhag, 2022 (Number)

Dzongkhag	No. of Holder	Calf <1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bull-ock	Total
		Male	Female								
Bumthang	328	237	282	416	637	327	100	330	53	-	2,382
Chhukha	961	584	653	699	1,375	252	43	502	60	-	4,168
Dagana	1,226	574	580	738	1,204	256	53	638	44	-	4,087
Gasa	75	66	68	32	137	25	16	50	3	-	397
Haa	604	330	429	485	1,220	168	77	184	29	-	2,922
Lhuentse	723	357	449	654	905	234	59	367	62	-	3,087
Monggar	3,102	1,156	1,385	2,641	2,958	643	545	1,113	243	-	10,684
Paro	816	484	597	669	1,253	102	241	487	38	-	3,871
Pema Gatshel	1,864	562	804	1,348	1,601	213	224	889	41	-	5,682
Punakha	742	401	468	476	838	138	85	302	40	-	2,748
Samdrup Jongkhar	1,873	859	1,007	1,234	2,230	430	202	591	70	-	6,623
Samtse	1,696	1,081	1,121	1,246	2,181	704	145	1,032	76	-	7,586
Sarpang	1,868	1,138	1,286	1,149	2,350	381	81	965	71	-	7,421
Thimphu	248	113	185	202	400	62	61	104	25	-	1,152
Trashigang	2,819	778	1,060	1,968	2,376	835	322	838	186	-	8,363
Trashi Yangtse	862	400	414	559	862	187	162	481	68	-	3,133
Trongsa	505	295	381	510	745	254	46	343	51	-	2,625
Tsirang	1,716	881	954	943	1,917	228	49	988	37	-	5,997
Wangdue Phodrang	939	530	664	954	1,303	496	68	742	107	-	4,864
Zhemgang	791	318	347	506	806	297	49	360	118	-	2,801
Govt. Farms	3	4	28	33	37	14	2	9	15	-	142
Bhutan	23,761	11,148	13,162	17,462	27,335	6,246	2,630	11,315	1,437	-	90,735

The census recorded about 656 Holsten Friesian from 215 holders in the county in 2022 (see Table 4.06). Trashigang (23.5 percent), Chhukha (16.8) and Pema Gatshel (9.8 percent) had the highest number of Holsten Friesian. The number of milching Holsten Friesian is 236 (36.0 percent) of the total recorded.

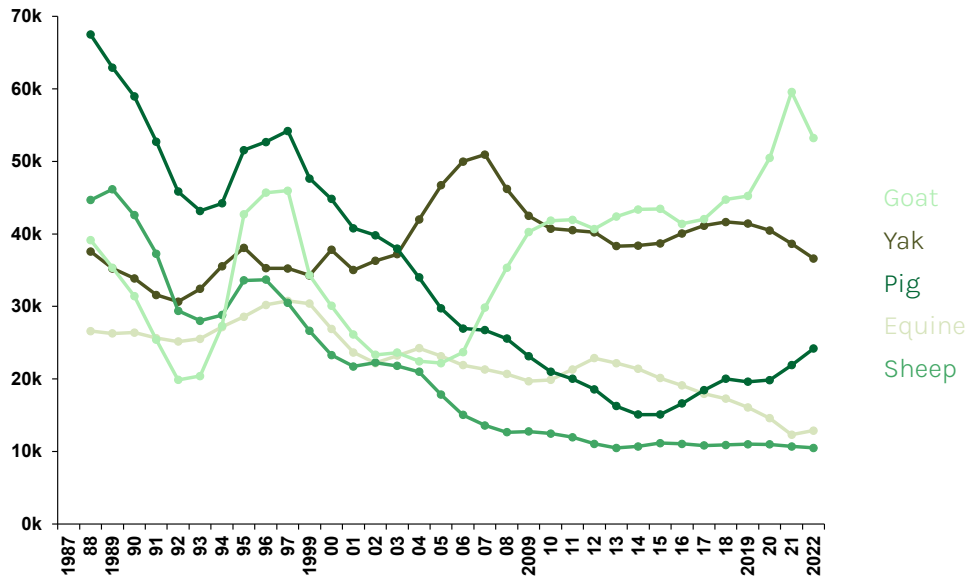
Table 4.0 6: Holsten Friesian population, by dzongkhag, 2022 (Number)

Dzongkhag	No. of Holder	Calf <1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bull-ock	Total
		Male	Female								
Bumthang	5	2	1	2	4	3	1	1	8	-	22
Chhukha	23	13	25	10	44	6	-	6	6	-	110
Dagana	1	1	-	-	1	-	-	-	-	-	2
Gasa	-	-	-	-	-	-	-	-	-	-	-
Haa	2	-	1	3	5	-	-	-	-	-	9
Lhuentse	6	-	1	7	5	2	-	-	-	-	15
Monggar	10	7	-	5	7	1	2	1	1	-	24
Paro	1	-	1	-	1	-	-	-	-	-	2
Pema Gatshel	22	6	16	10	25	2	-	2	3	-	64
Punakha	-	-	-	-	-	-	-	-	-	-	-
Samdrup Jongkhar	3	-	2	1	3	-	-	-	-	-	6
Samtse	15	8	7	4	18	1	-	-	2	-	40
Sarpang	7	4	6	3	10	-	-	-	2	-	25
Thimphu	3	1	-	1	3	-	1	-	-	-	6
Trashigang	58	8	28	33	66	5	3	3	8	-	154
Trashi Yangtse	2	-	1	1	1	-	-	-	-	-	3
Trongsa	24	10	9	13	24	22	2	-	24	-	104
Tsirang	27	8	4	24	12	-	1	-	3	-	52
Wangdue Phodrang	-	-	-	-	-	-	-	-	-	-	-
Zhemgang	6	1	4	3	7	1	-	1	1	-	18
Govt. Farms	-	-	-	-	-	-	-	-	-	-	-
Bhutan	**215**	**69**	**106**	**120**	**236**	**43**	**10**	**14**	**58**	**-**	**656**

Other livestock breed profile

The other livestock breed includes breeds commonly found in rural areas, such as mithun, jatsha-jatsham, yangku-yangkum, doeb-doebum, doethra-doethram, nublang-thrabum, jaba, buffalo, yak, zo-zom, equine, pig, poultry, sheep, goat, etc.

Figure 4.0 6: Average number of other livestock population from 1987 to 2022



The population of other livestock saw inconsistent growth over the past few decades (see Figure 4.06). For example, the pig population dropped between 1997 and 2014 then grew in recent years. Other livestock populations, such as that of yak, equine and sheep, have been dwindling in recent years.

The census recorded a total of 331 buffalo in 2022, down 14 percent from the previous year; 5,839 doeb-doebum, down 19.4 percent; 8,787 doethra-doethrum, down 37.6 percent compared to 2021; and 9,627 jaba. Furthermore, the census recorded 23,379 jatsha-jatsham; 347 mithun; 90,809 nublang-thrabum; 30,328 yak, up 64.6 percent; 18,428 yangku-yangkum, down 17.0 percent; and 7,435 zo-zom, down 33.4 percent compared to 2021. The details of these livestock, by dzongkhag and breed, are provided in Annex Tables A4.01 to A4.015.

Livestock herd dynamics

Understanding livestock herd dynamics has become important to keep track of entries and exits of animals from the herd for a given reference period. FAO's guidelines on methods for estimating livestock production and productivity recommend, as a minimum, to note the following statistics on livestock:

- Number of births.
- Number of other entries of animals: purchased, received as donation or otherwise acquired.
- Number of animals slaughtered on the farm (including those slaughtered elsewhere but on behalf of the agricultural holding).
- Number of other exits of animals: sold, given or otherwise disposed of.

The breakdown of other exits from the farm include the number of animals sold, of which the number of animals sold for slaughter; the number of animals otherwise disposed of, of which the number of animals disposed for slaughter; the number of dead animals, broken down by causes of death; and other exits, not previously mentioned (stolen or lost animals).

Calves less than 1-year-old

The 2022 IALC collected information on the number of calves less than 1 year of age, by type. Table 4.07 shows the summary of calves less than 1-year-old in 2022 for improved livestock breeds, by dzongkhag and type.

A total of 29,152 calves were recorded in 2022, of which 11.8 percent were from Bumthang, 9.9 percent from Samtse and 9.2 percent from Monggar. New born Jersey accounted for about 83.4 percent of the total calves born for improved livestock.

Table 4.0 7: Calves less than 1 year, by dzongkhag and improved livestock breed, 2022

(Number)

Dzongkhag	Brown Swiss	Holsten Friesian	Jersey	Total
Bumthang	1157	1757	519	3,433
Chhukha	6	11	1237	1,254
Dagana	3	4	1154	1,161
Gasa	11	17	134	162
Haa	6	8	759	773
Lhuentse	54	86	806	946
Monggar	57	85	2541	2,683
Paro	42	63	1081	1,186
Pema Gatshel	5	8	1366	1,379
Punakha	22	34	869	925
Samdrup Jongkhar	3	6	1866	1,875
Samtse	275	421	2202	2,898
Sarpang	6	7	2424	2,437
Thimphu	56	88	298	442
Trashigang	8	13	1838	1,859
Trashi Yangtse	4	6	814	824
Trongsa	133	198	676	1,007
Tsirang	3	4	1835	1,842
Wangdue Phodrang	58	87	1194	1,339
Zhemgang	0	0	665	665
Govt. Farms	12	18	32	62
Bhutan	**1921**	**2921**	**24310**	**29,152**

In terms of calves less than 1 year for other bovine livestock (see Table 4.08), a total of 40,237 were recorded in 2022. Nublang-Thrabum (42.6 percent), Yak (17.0 percent) and Jatsha-Jatsham (13.5 percent) accounted for the highest calves in 2022. Across dzongkhags, Samtse accounted for 14.5 percent, Trashigang for 11.8 percent and Wangdue Phodrang for 9.4 percent of the total calves born in 2022.

Table 4.0 8: Calves aged less than 1 year, by dzongkhag and other bovine livestock, 2022

(Number)

Dzongkhag	Buffalo	Doeb-Doebum	Doethra-Doe-thrum	Jaba	Jatsha-Jatsh-am	Mithun	Nublang-Thrabum	Yak	Yangku-Yang-kum	Zo-Zom	Total
Bumthang	-	23	1	-	77	-	414	510	44	-	1,069
Chhukha	-	75	80	138	236	-	1,567	-	147	-	2,243
Dagana	4	84	47	74	178	-	2,179	-	95	-	2,661
Gasa	-	6	2	-	16	-	4	1,413	15	-	1,456
Haa	-	17	38	3	107	-	393	538	31	-	1,127
Lhuentse	-	233	332	17	396	-	96	55	413	34	1,576
Monggar	-	415	159	44	932	-	269	-	745	-	2,564
Paro	-	10	12	21	24	-	776	643	11	-	1,497
Pema Gatshel	-	26	31	35	70	-	12	-	40	-	214
Punakha	-	117	20	-	81	-	924	-	101	-	1,243
Samdrup Jongkhar	-	104	38	688	388	-	73	-	178	12	1,481
Samtse	35	73	2	290	127	-	5,165	-	123	-	5,815
Sarpang	9	145	48	739	143	-	698	-	193	-	1,975
Thimphu	-	1	-	-	2	-	201	2,135	1	-	2,340
Trashigang	-	256	77	71	1,231	-	544	856	527	1,200	4,762

Trashi Yangtse	-	83	630	19	178	-	98	47	115	31	1,201
Trongsa	-	98	13	-	185	-	438	26	185	-	945
Tsirang	22	12	3	-	155	-	661	-	21	-	874
Wangdue Phodrang	-	98	62	-	378	-	2,489	592	155	6	3,780
Zhemgang	-	223	95	34	526	-	50	-	378	-	1,306
Govt. Farms	-	-	-	-	-	20	74	14	-	-	108
Bhutan	**70**	**2,099**	**1,690**	**2,173**	**5,430**	**20**	**17,125**	**6,829**	**3,518**	**1,283**	**40,237**

Livestock deaths

The census also collected information on the number of animals exiting the herd through death due to any reasons.

Holders were asked to report the top three reasons for or causes of death of their animals. Among many potential reasons, the top three causes of bovine death in 2022 were death due to diseases, wildlife depredation (death due to tiger, bear, etc.) and accident. For other livestock, the top three reported reasons for death were death due to other reasons, death due to disease and death due to wildlife predation. Death due to other reasons for poultry, for example, included lack of feed, birds picking each other, birds slaughtered for meat, and birds being predated by domestic animals like dogs and cats.

Table 4.09 shows the summary of the actual number of bovine livestock death by dzongkhag in 2022. A total of 21,472 bovine livestock deaths were reported, of which, Wangdue Phodrang (17.4 percent), Trashigang (11.9 percent) and Samtse (9.4 percent) reported the highest numbers among the dzongkhags. Roughly 18,548 cattle death were reported, which is about 86 percent of total bovine deaths.

Table 4.0 9: Bovine livestock death, by dzongkhag, 2022

(Number)

Dzongkhag	Cattle	Mithun	Yak	Zo-Zom	Buffalo	Total
Bumthang	1,063	-	281	-	-	1,344
Chhukha	570	-	-	-	-	570
Dagana	995	-	-	-	-	995
Gasa	54	-	340	-	-	394
Haa	562	-	143	-	-	705
Lhuentse	629	-	15	2	-	646
Monggar	1,388	-	-	-	-	1,388
Paro	302	-	86	-	-	388
Pema Gatshel	485	-	-	-	-	485
Punakha	315	-	-	-	-	315
Samdrup Jongkhar	886	-	2	6	-	894
Samtse	2,008	-	-	-	7	2,015
Sarpang	812	-	-	-	2	814
Thimphu	273	-	646	-	-	919
Trashigang	1,858	-	468	221	-	2,547
Trashi Yangtse	780	-	30	6	-	816
Trongsa	1,072	-	15	-	-	1,087
Tsirang	319	-	-	-	-	319
Wangdue Phodrang	3,136	-	610	-	-	3,746
Zhemgang	1,029	-	-	-	-	1,029
Govt. Farms	12	10	34	-	-	56
Bhutan	**18,548**	**10**	**2,670**	**235**	**9**	**21,472**

Table 4.010 shows the number of other livestock deaths in 2022, by dzongkhag. The majority of other livestock deaths came from the poultry category, with 232,758 deaths. Of the total poultry deaths, five dzongkhags reported the highest deaths: Tsirang (22.5 percent), Sarpang (20.5 percent), Samtse (13.0 percent), Dagana (9.9 percent) and Chhukha (7.1 percent).

Table 4.0 10: Other livestock death, by dzongkhag, 2022

(Number)

Dzongkhag	Equine	Pig	Poultry	Sheep	Goat	Total
Bumthang	84	-	321	68	1	474
Chhukha	8	170	15,433	69	550	16,230
Dagana	20	726	21,710	16	2,068	24,540
Gasa	222	-	231	30	-	483
Haa	43	25	1,846	-	6	1,920
Lhuentse	77	-	2,325	33	3	2,438
Monggar	35	19	4,652	-	2	4,708
Paro	49	57	3,161	-	2	3,269
Pema Gatshel	6	48	4,897	-	6	4,957
Punakha	14	1	1,448	2	35	1,500
Samdrup Jongkhar	1	13	7,316	8	161	7,499
Samtse	6	606	28,505	735	4,132	33,984
Sarpang	26	240	44,870	57	741	45,934
Thimphu	165	62	4,073	-	2	4,302
Trashigang	46	11	7,621	157	10	7,845
Trashi Yangtse	69	12	2,365	-	1	2,447
Trongsa	10	10	4,016	35	41	4,112
Tsirang	4	813	49,127	3	730	50,677
Wangdue Phodrang	30	184	5,374	149	19	5,756
Zhemgang	86	61	5,909	-	15	6,071
Govt. Farms	5	125	3,474	8	-	3,612
Bhutan	**1,006**	**3,183**	**218,674**	**1,370**	**8,525**	**232,758**

CHAPTER 5: LIVESTOCK PRODUCTION

Introduction

This chapter presents the core livestock products produced in the country either from live or slaughtered and dead animals. Products from slaughtered and dead animals include meat, while products from live animals include milk, butter, cheese, chugo, eggs, honey and fibers, such as wool from sheep and yak.

While most of the holdings in the household sector are able to precisely report on their number of livestock, most do not keep records of their livestock production and are unable to precisely estimate their livestock production. Directly reporting on this production information was found to be difficult and challenging. For example, questions such as "What is the total milk production during the reference period?" was observed as difficult for holders to answer directly.

To estimate precisely for the milk production, the number of milch animals, an average milk in litre produced per day and the lactation period or the number of days milked were asked to the holders. As for the meat production, the census gathered information on the number of death of animals during the reference year whose meat were consumed or sold and the average carcass weight of animal. Furthermore, to account for meat production from the slaughtered animals, the number of sold/slaughtered animals for meat purpose during the reference year and their average carcass weight were asked to the holders.

Enumerators during the Training of Enumerators (ToE) were also trained to probe with a set of questions instead of simply asking questions that were there in the questionnaire. The interviewing techniques were demonstrated during the training so that enumerators could get a better sense and precise estimation of the production that occured.

Estimation of livestock production precisely is a global issue, so FAO recommends asking auxiliary questions to the respondent to enable quality estimation of production amounts. The 2022 IALC collected production data for the following groups of livestock products:

- Dairy production;
- Meat production; and
- Other livestock production.

Dairy production

Data on dairy production included the quantity of milk, butter, cheese and chugo produced during the reference period. Milk production refers to the total fresh milk produced, and covers milk production from all bovine livestock. The milk production was estimated by multiplying the number of milch animals

(inclusive of those milking animals as on the census day and those milked-dry during the refence year) with the average milk produced per animal per day and the number of lactating days of the animal.

The milk produced from other animals, such as goats and sheep, are not included although recommended by the FAO. According to their less significance to the total Bhutanese economy, the census ignored the milk production from goat and sheep.

Table 5.01 presents dairy production by dzongkhag and by government farms in 2022. In terms of the dairy production, the economy recorded about 42,255 MT (down 23 percent) of milk; about 1,508 MT (down 22 percent) of butter; about 2,382 MT (down 24 percent) of cheese; and about 130 MT (down 34 percent) of chugo compared to 2021. Map 5.01 shows the share of the dairy production by dzongkhag and by product type in 2022. Across dzongkhags, Trashigang produced the highest milk, butter and cheese in 2022.

Table 5.0 1: Dairy production, by dzongkhag and by type, 2022

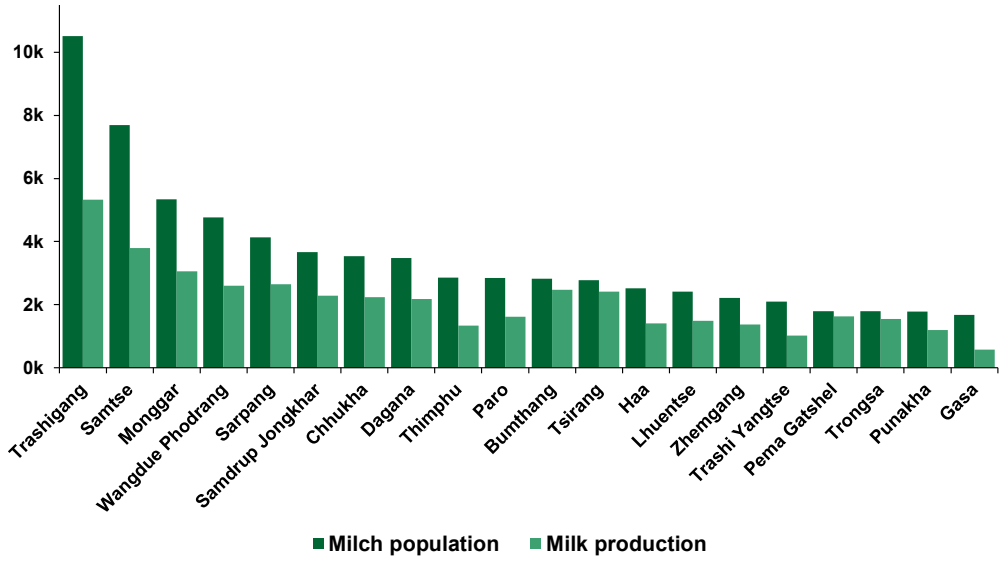
Dzongkhag	Milk (MT)	Butter (MT)	Cheese (MT)	Chugo (MT)
Bumthang	2,470.75	96.90	88.71	33.35
Chhukha	2,238.84	52.22	78.86	-
Dagana	2,176.79	78.65	89.58	-
Gasa	573.04	27.22	11.09	18.68
Haa	1,409.14	42.63	56.74	1.52
Lhuentse	1,488.99	69.91	125.13	0.90
Monggar	3,058.10	112.82	202.17	-
Paro	1,613.76	43.14	46.41	16.95
Pema Gatshel	1,623.55	62.87	104.86	-
Punakha	1,200.43	45.05	80.87	-
Samdrup Jongkhar	2,281.27	56.49	128.25	-
Samtse	3,799.16	98.72	125.74	-
Sarpang	2,649.11	88.88	143.06	-
Thimphu	1,332.69	55.02	24.88	48.65
Trashigang	5,332.64	232.20	341.22	-
Trashi Yangtse	1,020.06	44.31	83.15	0.73
Trongsa	1,544.03	55.45	125.77	0.10
Tsirang	2,406.84	64.89	207.13	-
Wangdue Phodrang	2,594.21	114.09	199.93	8.73
Zhemgang	1,371.08	66.16	118.18	-
Govt. Farms	70.46	0.47	0.51	0.02
Bhutan	**42,254.94**	**1,508.12**	**2,382.23**	**129.63**

Map 5.0 1: Dairy production, by dzongkhag and by product type, 2022

Milk production

Figure 5.01 shows milch population and milk production in 2022 by dzongkhag. According to the census, Trashigang (5,333 MT), Samtse (3,799 MT) and Monggar (3,058) recorded the highest milk production in the country in 2022. The share in milk production ranged from 1 percent of the national total in Gasa to 12.6 percent in Trashigang. Samtse and Monggar accounted for 9.0 percent and 7.2 percent, respectively, of the total milk production in the country.

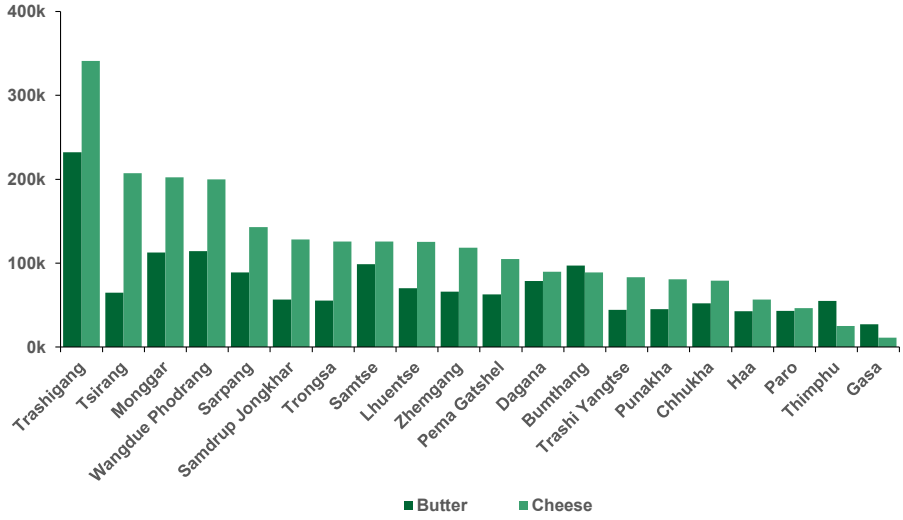
Figure 5.0 1: Milch population and milk production, by dzongkhag, 2022



Butter and Cheese production

Figure 5.02 shows that the highest butter and cheese production in 2022 were recorded in Trashigang (butter-15.4 percent; cheese-14.3 percent), Wangdue Phodrang (butter-7.6 percent; cheese-8.4 percent) and Monggar (butter-7.5 percent; cheese-8.5 percent).

Figure 5.0 2: Butter and cheese production, by dzongkhag, 2022



Meat production

According to the FAO, meat is defined as the flesh of animals (excluding fish) used for food. In production data, meat is normally reported inclusive of bones and exclusive of meat that is unfit for human consumption.

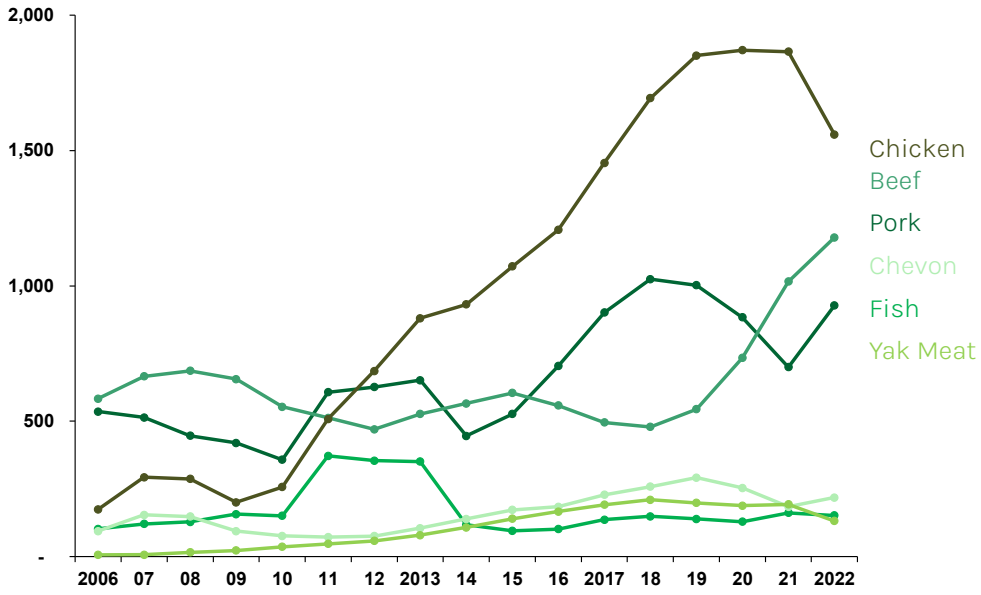
The total meat production in Bhutan was estimated by asking livestock holders about the number of livestock deaths (inclusive of slaughter), livestock diseases, and meat consumed/sold during the reference period. While obtaining information on the number of animals slaughtered on the farm or in other slaughtering points is difficult, the meat produced from slaughtered animals can be obtained directly. For example, some individual holders reported meat production from animals slaughtered for personal consumption during festivals like losar in the rural community.

The common items collected to estimate total meat production included the number of deaths, by category of livestock, and their causes of death. The meat production is obtained by multiplying the number of animal death whose meat were consumed or sold during the reference year with the average carcass weight per animal. An additional question was asked on the number of sold/slaughtered animal for meat purpose during the reference year and the average carcass weight per animal to estimate for meat production from slaughtered animals.

Furthermore, enumerators during the ToE were also trained to probe, if the household reported livestock death during the reference period, about carcass weight, age of the animal and whether or not the meat was consumed. The death of an animal could be due to many reasons, such as disease, wildlife predation, natural death due to old age, etc. Meat produced and unfit for human consumption due to disease was excluded in the census from estimating production statistics.

Figure 5.03 presents the 3-year moving average of meat production from 2006 to 2022, and shows an increasing trend in the production of beef and chicken in recent years. The production of other meats, such as that of pork, chevon, fish and yak meat, show a declining trend.

Figure 5.0 3: Average meat production, 2006 to 2022



Map 5.02 shows Bhutan's meat production at a glance in 2022, by type of product. The Map 5.01 shows clear representation of Chhukha and Samtse as dominant chicken producing dzongkhags while Tsirang and Dagana as dominant pork producing dzongkhags. Majority of eastern dzongkhags produced beef compared to other meat type.

Meat production increased in 2022 compared to 2021 in all categories except for mutton, chicken and fish. Mutton production decreased by almost 14 percent since 2020 and totaled about 19 MT in 2022. Fish production showed the largest decrease, of more than 81 percent, and stood at almost 37 MT in 2022. Table 5.02 presents detailed meat production in 2022 by dzongkhag.

Map 5.0 2: Meat production, by dzongkhag and by product type, 2022

Table 5.0 2: Meat production, by dzongkhag and by type, 2022

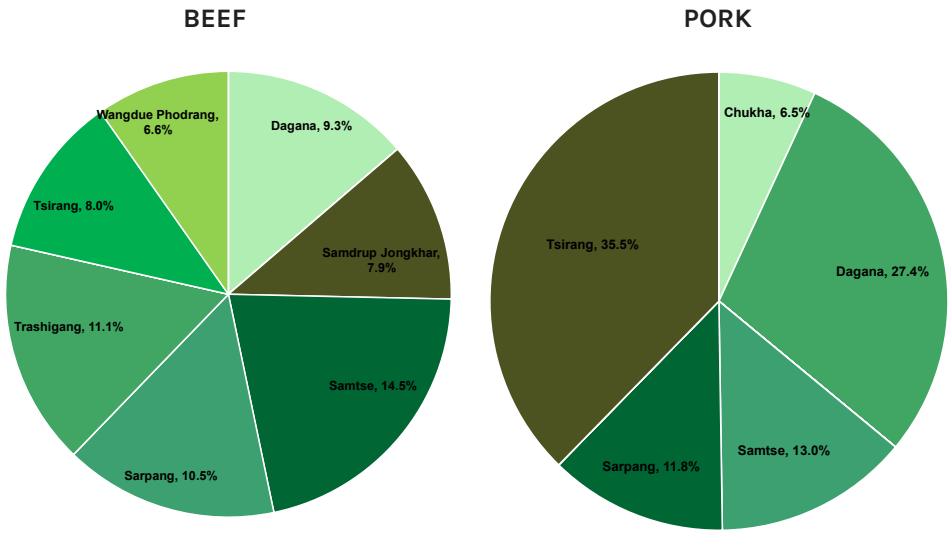
(MT)

Dzongkhag	Pork	Beef	Yak	Chevon	Mutton	Chicken	Fish
Bumthang	-	88.30	20.60	0.03	0.49	0.12	-
Chhukha	79.08	79.56	-	10.18	1.25	249.59	0.10
Dagana	334.55	169.76	-	40.69	0.18	108.40	3.28
Gasa	-	2.65	19.34	-	0.08	0.03	-
Haa	0.90	16.82	12.96	0.09	-	2.87	0.38
Lhuentse	-	74.37	-	0.05	0.13	1.06	-
Monggar	1.27	78.93	-	0.01	-	6.16	-
Paro	6.55	9.32	22.88	-	-	0.10	2.00
Pema Gatshel	1.94	31.85	-	-	-	8.99	-
Punakha	-	13.92	-	0.06	-	0.96	-
Samdrup Jongkhar	10.82	143.94	-	4.66	0.17	29.28	5.23
Samtse	158.34	264.52	-	60.04	13.79	197.80	4.55
Sarpang	144.45	191.86	-	14.16	1.11	137.81	6.76
Thimphu	22.80	8.10	36.28	0.02	-	1.12	-
Trashigang	1.35	201.77	58.02	0.16	0.42	3.72	-
Trashi Yangtse	0.63	61.15	-	0.04	-	1.80	-
Trongsa	1.87	56.75	0.57	0.31	0.56	2.37	-
Tsirang	433.02	145.05	-	42.71	0.05	206.17	3.13
Wangdue Phodrang	18.15	120.59	15.99	0.30	0.95	8.88	0.17
Zhemgang	4.88	62.16	-	0.21	-	7.42	4.02
Govt. Farms	11.24	0.83	-	-	-	18.91	6.92
Bhutan	**1,231.83**	**1,822.18**	**186.64**	**173.69**	**19.18**	**993.56**	**36.52**

Beef and Pork production

Figure 5.04 shows beef and pork production in 2022, by dzongkhag. Across dzongkhags, Samtse, Trashigang and Sarpang accounted for the highest production of beef, at 14.5 percent, 11.1 percent and 10.5 percent of the national total, respectively. For pork production, Tsirang, Dagana and Samtse accounted for the highest shares at 35.5 percent, 27.4 percent and 13.0 percent, respectively.

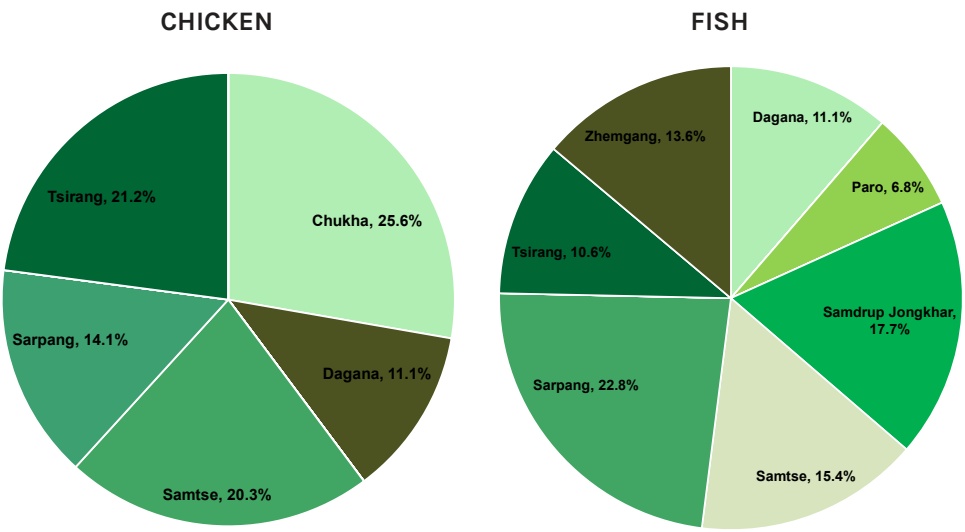
Figure 5.0 4: Share of beef and pork production, by dzongkhag, 2022



Chicken and Fish production

Chicken production saw largest annual decrease of 47 percent from about 1,866 MT in 2021 to 994 MT in 2022. Total fish production in 2022 was 37 MT, a largest decrease of 81 percent from 2021. Figure 5.05 shows the share of chicken and fish production by dzongkhag, with Chhukha (25.6 percent), Tsirang (21.2 percent), Samtse (20.3 percent), Sarpang (14.1 percent) and Dagana (11.1 percent) accounted for the highest chicken production in the country. Three dzongkhags - Sarpang, Samdrup Jongkhar and Samtse - collectively made up more than 50 percent of total fish production in the country.

Figure 5.0 5: Share of chicken and fish production, by dzongkhag, 2022



Aquaculture

A total of 467 holders reported the practice of aquaculture in 2022. According to FAO, aquaculture is considered as the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. The 2022 IALC, to bring clarity and common understanding, defined aquaculture as the rearing of fish in enclosed structures, such as ponds. To avoid confusion, capture fisheries from rivers were excluded. If a holder, with or without appropriate licenses, reared fish in a pond and if there was any harvest of fisheries from the ponds, these activiteis were considered as aquaculture. The majority of fish farmers resided in Tsirang (26.8 percent), Dagana (21.6 percent), Samtse (17.3 percent) and Sarpang (13.3 percent) dzongkhags.

Other livestock production

Other livestock production (see Table 5.03) such as eggs, honey and wool, were also collected in the census. Egg production covers all eggs produced during the reference period, regardless of poultry species. The egg production was estimated by multiplying the number of layer birds with the average laying days per bird. Data were also collected about local poultry (male and female), improved poultry-layer and broilers. The honey production was as reported by the holders as these are not so significant in numbers. The wool production was estimated for sheep and yak by multiplying the number of sheep/yak sheared for wool production during the reference year with the average wool produced per shearing.

Table 5.0 3: Other livestock production, by dzongkhag and by type, 2022

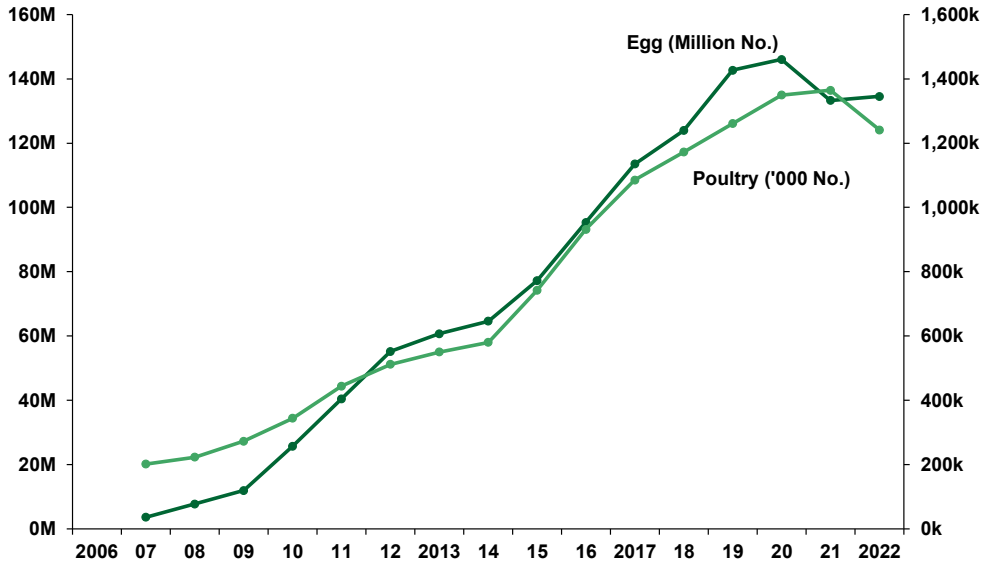
(MT unless specified)

Dzongkhag	Egg (Number)	Honey	Yak Wool	Sheep Wool
Bumthang	2,093,227	11.34	1.16	0.05
Chhukha	4,645,886	2.89	-	0.33
Dagana	3,152,604	4.04	-	0.05
Gasa	51,110	-	0.72	-
Haa	1,210,778	0.06	0.07	-
Lhuentse	1,117,383	-	0.01	0.04
Monggar	5,220,289	0.01	-	0.00
Paro	4,297,159	0.01	0.29	-
Pema Gatshel	4,425,602	0.04	-	-
Punakha	1,110,409	0.07	-	-
Samdrup Jongkhar	2,303,859	0.75	-	0.03
Samtse	15,027,853	9.38	-	5.56
Sarpang	22,241,363	3.64	-	0.27
Thimphu	2,658,244	0.01	5.18	-
Trashigang	3,668,885	0.01	1.15	1.24
Trashi Yangtse	838,873	-	-	-
Trongsa	3,719,496	0.05	0.06	0.17
Tsirang	18,393,557	4.78	-	0.03
Wangdue Phodrang	2,055,086	0.00	0.97	3.57
Zhemgang	1,775,847	0.07	-	-
Govt. Farms	1,037,300	0.12	-	0.25
Bhutan	**101,044,810**	**37.26**	**9.60**	**11.59**

Egg production

Egg production and the poultry population have generally seen an upward trend since 2007, though egg production fell in 2022 (see Figure 5.06). In 2022, total egg production was recorded at a little over 101 million eggs, a decrease of 24 percent compared to 2021.

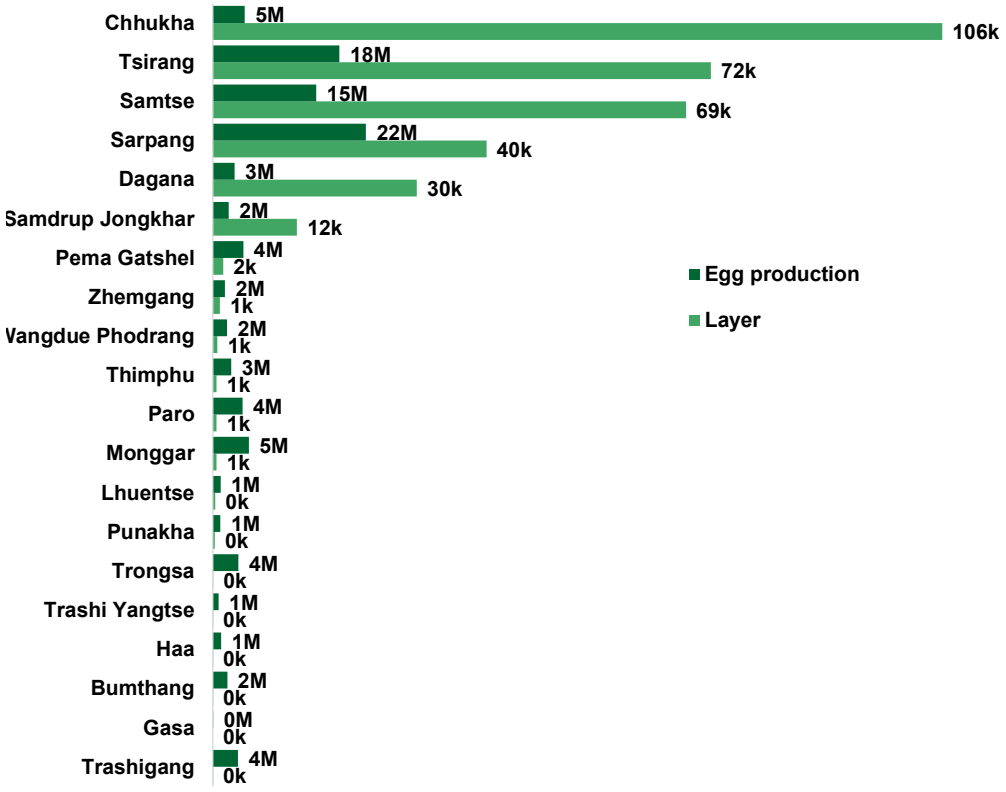
Figure 5.0 6: Average egg production from 2008 to 2022



Across dzongkhags, Sarpang alone accounted for the highest egg production with 22 million eggs, or 22.0 percent of the total, followed by Tsirang with 18.2 percent and Samtse with 14.9 percent (see Map 5.03). Figure 5.07 shows the improved poultry layer and egg production, by dzongkhag, in 2022. The number of improved poultry layers ranged from 1k in many dzongkhags to 106k in Chhukha.

Map 5.0 3: Egg production, by dzongkhag, 2022

Figure 5.0 7: Poultry layer and egg production, by dzongkhag, 2022



Apiculture

The census also collected information on the number of holders engaged in the rearing of bees, beehive type and the amount of honey produced. Table 5.04 shows the number of holders engaged in rearing of bees, by dzongkhag and type of beehive. The Census revealed that there were 6,342 bee holders in the country, and they were highly concentrated in Samtse (37.8 percent), Dagana (16.6 percent) and Tsirang (14.6 percent). A total of 21,275 beehives were recorded in 2022, about 62 percent of which were local and the rest were improved beehives.

About 37 MT of honey were produced in 2022, a decrease of 14 percent from the previous year. Bumthang (30.4 percent), Samtse (25.2 percent) and and Tsirang (12.8 percent) were recorded as the highest honey producing dzongkhags in the country.

Table 5.0 4: Beehives, by dzongkhag and by type, 2022

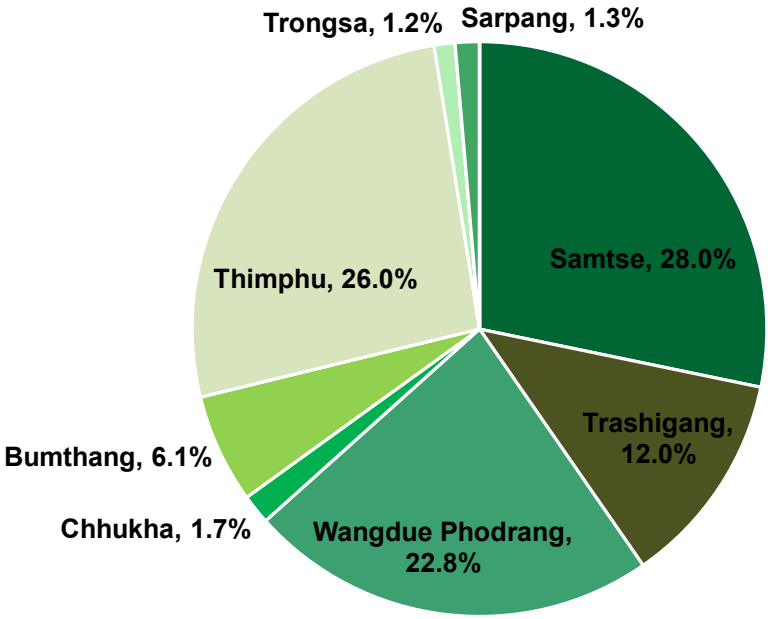
(Number)

Dzongkhag	Number of Holders	Beehives Type		
		Local	Improved	Total
Bumthang	40	82	1,025	1,147
Chhukha	675	1,473	59	2,207
Dagana	1,052	2,246	276	3,574
Gasa	-	-	-	-
Haa	16	32	-	48
Lhuentse	1	1	-	2
Monggar	2	2	-	4
Paro	5	7	-	12
Pema Gatshel	12	30	2	44
Punakha	10	29	-	39
Samdrup Jongkhar	236	450	7	693
Samtse	2,400	4,312	79	6,791
Sarpang	906	2,296	57	3,259
Thimphu	7	6	6	19
Trashigang	8	2	10	20
Trashi Yangtse	-	-	-	-
Trongsa	10	14	2	26
Tsirang	924	2,072	303	3,299
Wangdue Phodrang	2	3	3	8
Zhemgang	36	47	-	83
Bhutan	**6,342**	**13,104**	**1,829**	**21,275**

Wool production

Bhutan produced about 21.2 MT of wool in 2022, a sharp increase of 15 MT from the previous year. About 55 percent of the total wool produced were from sheep and remaining 45 percent were from Yak. In terms of production share, Samtse (28.0 percent), Thimphu (26.0 percent) and Wandue Phodrang (22.8 percent) accounted for the highest production of wool in the country, driven by their high number and share of the sheep population in Samtse and yak population in Thimphu and Wangdue Phodrang. Figure 5.08 shows the share of wool production by dzongkhag in 2022, excluding those dzongkhags that produced less than 1% of total wool production.

Figure 5.0 8: Share of wool production, by dzongkhag, 2022




Dumja (Local)

ANNEX TABLES

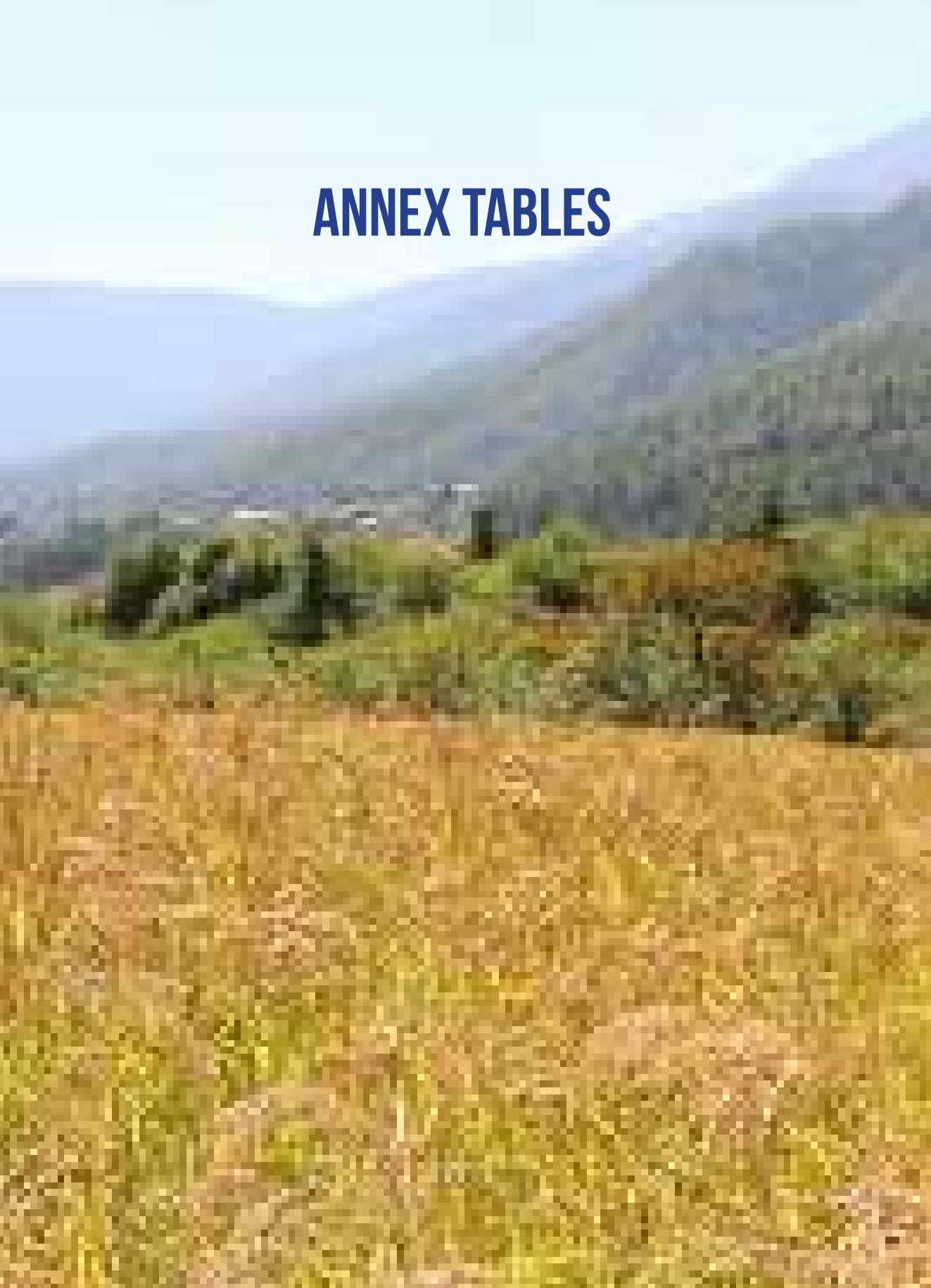


Table A3.0 1: Sunflower production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	4	1.36	1.36	0.90
Chhukha	-	-	-	-
Dagana	3	0.15	0.15	0.03
Gasa	3	0.08	0.06	0.03
Haa	1	0.20	-	-
Lhuentse	6	0.68	0.61	0.33
Monggar	-	-	-	-
Paro	-	-	-	-
Pema Gatshel	22	0.24	0.24	0.09
Punakha	2	0.12	0.12	0.03
Samdrup Jongkhar	1	0.10	0.07	0.01
Samtse	4	0.11	0.11	0.03
Sarpang	-	-	-	-
Thimphu	1	0.15	0.15	0.02
Trashigang	-	-	-	-
Trashi Yangtse	-	-	-	-
Trongsa	1	0.01	-	-
Tsirang	5	0.15	0.14	0.04
Wangdue Phodrang	1	0.20	0.20	0.20
Zhemgang	1	0.15	0.15	0.02
Bhutan	**55**	**3.68**	**3.34**	**1.72**

Table A3.0 2: Soya bean production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	2	0.07	0.07	0.03
Dagana	67	5.45	4.85	1.60
Gasa	-	-	-	-
Haa	3	0.13	0.13	0.03
Lhuentse	47	4.68	3.82	1.79
Monggar	35	3.65	3.03	1.09
Paro	-	-	-	-
Pema Gatshel	860	75.79	70.57	28.33
Punakha	30	2.47	2.46	1.53
Samdrup Jongkhar	72	14.26	13.08	4.37
Samtse	165	5.43	5.18	1.92
Sarpang	8	0.96	0.90	0.22
Thimphu	-	-	-	-
Trashigang	215	35.83	22.41	6.06
Trashi Yangtse	132	15.22	12.18	4.24
Trongsa	4	0.77	0.77	0.28
Tsirang	109	12.63	11.25	3.62
Wangdue Phodrang	4	0.89	0.89	0.37
Zhemgang	100	8.64	7.65	2.19
Bhutan	**1,853**	**186.85**	**159.22**	**57.67**

Table A3.0 3: Groundnut production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1	0.01	0.01	0.00
Chhukha	2	0.06	0.01	0.01
Dagana	30	1.41	0.96	0.40
Gasa	-	-	-	-
Haa	1	0.10	0.10	0.03
Lhuentse	226	13.35	12.07	7.82
Monggar	55	5.38	4.47	2.33
Paro	-	-	-	-
Pema Gatshel	266	19.94	17.29	7.75
Punakha	21	3.85	3.60	4.62
Samdrup Jongkhar	2	0.14	0.14	0.03
Samtse	6	0.33	0.33	0.09
Sarpang	-	-	-	-
Thimphu	-	-	-	-
Trashigang	739	86.27	77.08	57.16
Trashi Yangtse	425	51.53	47.87	30.14
Trongsa	1	0.30	0.29	0.06
Tsirang	45	1.68	1.48	0.76
Wangdue Phodrang	1	0.01	0.01	0.00
Zhemgang	37	8.35	6.44	2.19
Bhutan	**1,858**	**192.70**	**172.14**	**113.37**

Table A3.0 4: Perilla production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	7	1.49	0.53	0.07
Dagana	6	1.09	1.04	0.12
Gasa	9	0.49	0.49	0.31
Haa	-	-	-	-
Lhuentse	57	7.17	6.71	2.22
Monggar	4	0.56	0.36	0.19
Paro	-	-	-	-
Pema Gatshel	272	15.94	14.73	3.91
Punakha	17	1.50	1.50	0.37
Samdrup Jongkhar	100	13.85	13.05	2.69
Samtse	22	0.30	0.28	0.04
Sarpang	1	0.01	0.01	0.00
Thimphu	-	-	-	-
Trashigang	15	0.62	0.53	0.13
Trashi Yangtse	2	0.11	0.11	0.02
Trongsa	10	1.13	0.64	0.18
Tsirang	5	0.54	0.52	0.25
Wangdue Phodrang	15	2.00	1.99	0.54
Zhemgang	134	19.07	18.21	3.45
Bhutan	**676**	**65.85**	**60.67**	**14.45**

Table A3.0 5: Adzuki Beans production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	29	4.34	4.01	1.38
Dagana	9	2.09	1.57	0.42
Gasa	-	-	-	-
Haa	1	0.15	0.15	0.02
Lhuentse	3	1.32	0.71	0.08
Monggar	45	4.54	3.75	0.81
Paro	9	0.82	0.52	0.05
Pema Gatshel	4	1.02	1.00	1.11
Punakha	1	0.01	0.01	0.01
Samdrup Jongkhar	17	2.08	1.60	0.34
Samtse	14	1.00	0.90	0.41
Sarpang	117	12.72	11.65	4.42
Thimphu	6	0.38	0.38	0.16
Trashigang	31	2.72	0.97	0.16
Trashi Yangtse	2	0.04	0.04	0.02
Trongsa	-	-	-	-
Tsirang	102	24.90	24.19	5.79
Wangdue Phodrang	4	0.43	0.28	0.21
Zhemgang	44	4.62	3.54	1.26
Bhutan	**438**	**63.17**	**55.27**	**16.64**

Table A3.0 6: Lentil production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	2	0.13	0.13	0.04
Dagana	9	1.99	1.47	0.36
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	-	-	-	-
Monggar	4	0.93	0.78	0.12
Paro	-	-	-	-
Pema Gatshel	14	0.23	0.21	0.13
Punakha	-	-	-	-
Samdrup Jongkhar	24	2.13	1.81	0.66
Samtse	4	0.26	0.26	0.06
Sarpang	8	1.80	0.64	0.12
Thimphu	-	-	-	-
Trashigang	-	-	-	-
Trashi Yangtse	-	-	-	-
Trongsa	-	-	-	-
Tsirang	8	1.17	1.17	0.52
Wangdue Phodrang	-	-	-	-
Zhemgang	2	0.11	0.11	0.07
Bhutan	**75**	**8.75**	**6.57**	**2.07**

Table A3.0 7: Garlic leaves production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	8	0.10	0.10	0.10
Chhukha	107	2.23	2.22	1.89
Dagana	436	5.53	5.38	3.06
Gasa	4	0.15	0.15	0.09
Haa	39	0.97	0.97	0.69
Lhuentse	617	11.58	11.35	9.22
Monggar	1,854	32.78	32.66	26.29
Paro	14	0.17	0.17	0.09
Pema Gatshel	770	7.33	7.31	6.61
Punakha	17	0.43	0.43	0.90
Samdrup Jongkhar	363	11.78	11.76	11.32
Samtse	165	2.97	2.90	1.88
Sarpang	126	1.18	1.18	0.80
Thimphu	105	1.80	1.75	1.77
Trashigang	1,711	39.35	38.92	32.40
Trashi Yangtse	405	7.88	7.84	5.83
Trongsa	214	3.30	3.16	3.94
Tsirang	170	3.35	3.30	2.35
Wangdue Phodrang	65	2.99	2.97	3.71
Zhemgang	112	2.10	2.04	1.15
Bhutan	**7,302**	**137.95**	**136.53**	**114.09**

Table A3.0 8: Green leaves production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Production (MT)
Bumthang	885	24.34
Chhukha	2,212	157.01
Dagana	2,504	102.14
Gasa	382	12.51
Haa	695	19.74
Lhuentse	1,321	38.73
Monggar	3,511	136.27
Paro	543	11.14
Pema Gatshel	2,153	48.60
Punakha	1,027	71.78
Samdrup Jongkhar	1,844	77.13
Samtse	5,738	169.96
Sarpang	2,748	72.64
Thimphu	1,118	81.00
Trashigang	4,002	118.35
Trashi Yangtse	1,220	25.35
Trongsa	688	39.53
Tsirang	2,492	158.60
Wangdue Phodrang	1,403	86.86
Zhemgang	1,486	53.57
Bhutan	**37,972**	**1,505.25**

Table A3.0 9: Bunching onion production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	123	1.20	1.20	1.18
Chhukha	246	5.77	5.39	3.86
Dagana	827	12.71	12.18	8.31
Gasa	10	0.18	0.18	0.32
Haa	231	5.16	4.91	4.19
Lhuentse	1,140	23.19	22.70	21.08
Monggar	1,460	45.28	44.86	36.82
Paro	105	3.97	3.97	4.10
Pema Gatshel	918	14.53	14.46	12.62
Punakha	452	17.32	16.96	21.22
Samdrup Jongkhar	580	15.87	15.58	14.89
Samtse	646	11.77	11.50	9.62
Sarpang	524	6.47	6.25	4.53
Thimphu	497	13.82	13.75	12.73
Trashigang	1,879	43.44	41.65	44.27
Trashi Yangtse	816	18.37	17.80	17.48
Trongsa	480	10.20	10.09	10.99
Tsirang	417	8.64	8.58	6.64
Wangdue Phodrang	548	22.70	21.64	19.96
Zhemgang	150	3.35	3.18	3.01
Bhutan	**12,049**	**283.90**	**276.82**	**257.81**

Table A3.0 10: Eggplant production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	98	1.23	1.22	2.19
Chhukha	319	7.86	7.61	6.30
Dagana	505	6.55	6.30	6.39
Gasa	61	0.95	0.93	1.50
Haa	41	1.18	1.05	0.90
Lhuentse	1,170	19.00	18.07	23.33
Monggar	525	13.64	13.45	13.46
Paro	204	8.64	8.31	8.43
Pema Gatshel	575	6.00	5.93	6.94
Punakha	306	12.31	12.07	28.30
Samdrup Jongkhar	414	9.90	9.32	8.27
Samtse	457	8.62	8.43	6.72
Sarpang	515	6.32	6.14	6.65
Thimphu	374	9.50	9.49	10.56
Trashigang	732	11.54	11.42	13.08
Trashi Yangtse	843	19.30	18.48	22.18
Trongsa	348	8.51	8.38	8.32
Tsirang	276	9.06	8.63	7.56
Wangdue Phodrang	228	9.11	7.81	6.68
Zhemgang	466	8.34	7.88	8.82
Bhutan	**8,457**	**177.53**	**170.91**	**196.57**

Table A3.0 11: Pumpkin, squash & gourds production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Production (MT)
Bumthang	1,133	28.96
Chhukha	3,687	312.52
Dagana	4,474	465.01
Gasa	121	6.16
Haa	882	58.20
Lhuentse	2,210	81.80
Monggar	4,710	321.38
Paro	428	21.00
Pema Gatshel	4,239	582.12
Punakha	1,233	105.98
Samdrup Jongkhar	2,814	355.92
Samtse	8,894	601.21
Sarpang	3,021	155.97
Thimphu	1,496	56.92
Trashigang	4,132	263.97
Trashi Yangtse	1,993	89.22
Trongsa	1,460	124.36
Tsirang	4,537	704.04
Wangdue Phodrang	857	39.50
Zhemgang	1,970	153.90
Bhutan	**54,291**	**4,528.13**

Table A3.0 12: Cucumber production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	86	0.51	0.51	2.80
Chhukha	1,035	25.31	24.82	50.94
Dagana	1,784	29.75	26.85	80.60
Gasa	48	0.38	0.38	3.54
Haa	28	1.82	1.82	1.81
Lhuentse	1,041	13.52	13.09	48.47
Monggar	2,356	104.28	103.95	165.25
Paro	141	8.32	8.27	16.71
Pema Gatshel	1,658	13.66	13.19	69.69
Punakha	705	40.99	40.66	169.00
Samdrup Jongkhar	863	24.48	23.10	62.69
Samtse	2,117	34.22	32.89	66.65
Sarpang	747	8.78	8.68	23.01
Thimphu	258	3.05	3.03	7.16
Trashigang	2,383	38.24	37.42	128.18
Trashi Yangtse	691	15.78	15.36	32.69
Trongsa	391	5.87	5.80	15.86
Tsirang	1,373	25.49	25.34	93.57
Wangdue Phodrang	393	9.11	8.63	21.32
Zhemgang	804	18.65	17.91	65.73
Bhutan	**18,902**	**422.22**	**411.71**	**1,125.67**

Table A3.0 13: Turnip production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	531	64.23	55.56	212.76
Chhukha	342	40.94	39.27	257.01
Dagana	211	4.41	4.33	4.80
Gasa	261	9.65	9.65	19.16
Haa	557	156.45	140.56	383.71
Lhuentse	209	5.34	5.27	6.94
Monggar	210	9.96	9.96	12.67
Paro	275	53.71	53.69	250.45
Pema Gatshel	173	2.20	2.19	4.78
Punakha	296	9.05	8.96	21.75
Samdrup Jongkhar	157	2.27	2.02	2.66
Samtse	53	1.62	1.59	1.13
Sarpang	17	0.27	0.24	0.28
Thimphu	661	79.49	77.45	243.58
Trashigang	265	6.44	6.42	12.44
Trashi Yangtse	37	1.07	1.04	1.57
Trongsa	317	28.10	27.73	52.19
Tsirang	40	2.97	2.87	3.02
Wangdue Phodrang	648	361.52	357.71	848.28
Zhemgang	144	8.65	8.56	9.78
Bhutan	**5,404**	**848.33**	**815.07**	**2,348.95**

Table A3.0 14: Peas production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	397	3.44	3.37	4.18
Chhukha	245	37.28	35.90	36.74
Dagana	441	9.55	8.85	7.88
Gasa	21	0.25	0.25	0.45
Haa	156	9.97	8.95	6.73
Lhuentse	404	5.73	5.27	5.52
Monggar	1,047	50.91	47.77	51.09
Paro	164	43.52	43.20	55.69
Pema Gatshel	702	14.55	12.77	11.97
Punakha	200	28.61	24.43	24.35
Samdrup Jongkhar	462	22.69	21.71	22.29
Samtse	418	8.80	8.33	5.60
Sarpang	426	6.55	6.28	5.24
Thimphu	464	14.70	11.73	11.52
Trashigang	1,016	27.20	26.02	27.93
Trashi Yangtse	366	6.24	5.91	4.79
Trongsa	133	5.73	5.65	4.03
Tsirang	538	29.42	27.88	26.47
Wangdue Phodrang	72	2.90	2.42	2.32
Zhemgang	157	3.05	2.68	1.95
Bhutan	**7,829**	**331.06**	**309.36**	**316.73**

Table A3.0 15: Beetroot production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	2	0.27	0.27	0.30
Chhukha	58	13.78	13.78	70.87
Dagana	3	0.04	0.04	0.03
Gasa	-	-	-	-
Haa	1	0.10	0.10	0.13
Lhuentse	34	0.76	0.76	1.31
Monggar	18	0.59	0.59	0.48
Paro	24	5.12	5.12	13.72
Pema Gatshel	3	0.02	0.02	0.02
Punakha	6	0.18	0.18	0.42
Samdrup Jongkhar	8	0.08	0.07	0.12
Samtse	22	0.47	0.47	0.37
Sarpang	5	0.05	0.05	0.06
Thimphu	44	1.04	1.03	1.38
Trashigang	4	0.07	0.07	0.08
Trashi Yangtse	1	0.02	0.02	0.02
Trongsa	-	-	-	-
Tsirang	36	1.90	1.90	1.96
Wangdue Phodrang	8	0.80	0.80	1.62
Zhemgang	-	-	-	-
Bhutan	**277**	**25.27**	**25.24**	**92.87**

Table A3.0 16: Turmeric production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	1	0.01	0.01	0.01
Chhukha	96	6.07	4.74	6.07
Dagana	185	12.69	12.50	11.70
Gasa	-	-	-	-
Haa	7	0.16	0.15	0.02
Lhuentse	73	1.97	1.91	1.31
Monggar	169	8.70	8.59	6.33
Paro	-	-	-	-
Pema Gatshel	220	8.80	8.64	4.30
Punakha	1	0.01	0.01	0.00
Samdrup Jongkhar	166	12.98	12.82	14.66
Samtse	856	32.11	31.43	22.64
Sarpang	170	11.11	10.94	11.63
Thimphu	-	-	-	-
Trashigang	45	1.40	1.35	1.10
Trashi Yangtse	29	0.41	0.39	0.29
Trongsa	23	1.04	0.91	0.28
Tsirang	217	12.54	12.48	13.40
Wangdue Phodrang	8	0.08	0.08	0.05
Zhemgang	207	33.31	32.15	50.90
Bhutan	**2,473**	**143.35**	**139.08**	**144.69**

Table A3.0 17: Garlic production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	554	8.72	8.38	10.89
Chhukha	226	5.39	5.32	3.89
Dagana	780	11.71	11.63	9.83
Gasa	71	6.92	6.85	8.74
Haa	171	5.68	5.44	4.64
Lhuentse	796	18.35	17.99	18.96
Monggar	1,742	33.15	32.90	28.42
Paro	19	1.95	1.95	2.78
Pema Gatshel	1,070	13.52	13.38	12.11
Punakha	159	3.73	3.68	3.48
Samdrup Jongkhar	345	9.47	9.42	5.62
Samtse	789	16.78	16.68	10.94
Sarpang	304	3.69	3.58	2.74
Thimphu	244	8.24	8.18	7.11
Trashigang	3,125	94.72	91.64	98.36
Trashi Yangtse	687	17.29	17.15	14.67
Trongsa	187	2.86	2.79	3.63
Tsirang	491	10.07	9.89	7.33
Wangdue Phodrang	291	31.08	30.74	38.54
Zhemgang	274	7.88	7.47	4.46
Bhutan	**12,325**	**311.19**	**305.01**	**297.13**

Table A3.0 18: Coriander production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	64	0.57	0.56	0.29
Chhukha	229	3.17	3.09	1.89
Dagana	365	3.12	3.06	2.10
Gasa	93	0.89	0.86	1.08
Haa	52	0.87	0.85	0.34
Lhuentse	764	8.08	7.73	5.62
Monggar	1,677	23.03	22.97	17.02
Paro	37	0.65	0.65	0.47
Pema Gatshel	859	7.37	7.26	5.34
Punakha	235	7.38	7.33	4.56
Samdrup Jongkhar	296	5.00	4.97	5.06
Samtse	600	6.87	6.71	4.19
Sarpang	340	3.18	3.13	1.66
Thimphu	700	20.43	20.18	23.27
Trashigang	1,488	18.41	18.25	12.53
Trashi Yangtse	805	13.19	12.97	6.35
Trongsa	407	6.85	6.84	5.33
Tsirang	293	5.38	5.26	3.22
Wangdue Phodrang	278	10.97	10.54	11.80
Zhemgang	302	3.77	3.62	1.83
Bhutan	**9,884**	**149.15**	**146.82**	**113.92**

Table A3.0 19: Sweet potato production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	48	3.09	2.66	1.83
Dagana	143	4.77	4.54	3.14
Gasa	-	-	-	-
Haa	1	0.05	0.05	0.02
Lhuentse	35	0.54	0.53	0.59
Monggar	86	5.47	5.06	2.90
Paro	-	-	-	-
Pema Gatshel	199	4.30	3.96	2.98
Punakha	23	1.14	1.14	0.70
Samdrup Jongkhar	78	2.71	2.15	2.32
Samtse	77	2.51	2.10	1.42
Sarpang	64	1.72	1.46	1.05
Thimphu	-	-	-	-
Trashigang	56	1.42	1.33	1.25
Trashi Yangtse	16	0.38	0.36	0.23
Trongsa	27	1.23	0.62	0.56
Tsirang	91	7.07	6.82	5.29
Wangdue Phodrang	11	0.41	0.41	0.14
Zhemgang	108	4.64	3.41	3.49
Bhutan	**1,063**	**41.42**	**36.57**	**27.89**

Table A3.0 20: Taro/Yautia/Collocasia production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	-	-	-	-
Chhukha	146	7.12	5.24	6.30
Dagana	278	6.09	5.46	8.34
Gasa	-	-	-	-
Haa	9	0.09	0.06	0.09
Lhuentse	20	0.16	0.16	0.23
Monggar	94	4.60	4.38	8.30
Paro	-	-	-	-
Pema Gatshel	397	7.09	6.39	11.55
Punakha	-	-	-	-
Samdrup Jongkhar	139	3.51	2.30	2.46
Samtse	689	17.18	15.25	16.28
Sarpang	249	7.66	5.92	6.60
Thimphu	1	0.01	0.01	0.01
Trashigang	29	0.61	0.48	0.74
Trashi Yangtse	16	0.18	0.18	0.31
Trongsa	-	-	-	-
Tsirang	236	7.11	6.52	7.02
Wangdue Phodrang	-	-	-	-
Zhemgang	182	7.82	5.93	7.17
Bhutan	**2,485**	**69.19**	**58.26**	**75.41**

Table A3.0 22: Ground apple production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Sown Area (Acre)	Harvest Area (Acre)	Production (MT)
Bumthang	52	0.59	0.57	0.89
Chhukha	28	0.62	0.47	0.78
Dagana	124	1.38	1.38	3.35
Gasa	26	0.35	0.35	1.16
Haa	35	0.40	0.39	0.87
Lhuentse	390	4.24	4.20	8.02
Monggar	147	2.83	2.80	4.80
Paro	9	0.10	0.10	0.15
Pema Gatshel	391	4.00	3.96	6.42
Punakha	26	0.35	0.34	1.45
Samdrup Jongkhar	161	6.88	6.67	9.76
Samtse	90	2.26	2.26	2.51
Sarpang	58	0.75	0.67	1.08
Thimphu	81	0.90	0.89	1.48
Trashigang	291	5.32	5.32	9.87
Trashi Yangtse	127	1.60	1.57	2.79
Trongsa	278	4.08	4.03	7.70
Tsirang	96	2.31	2.23	4.93
Wangdue Phodrang	88	1.89	1.69	2.49
Zhemgang	81	2.17	2.09	3.82
Bhutan	**2,579**	**42.98**	**41.93**	**74.30**

Table A3.0 22: Pear production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	361	1,025	375	17.30
Chhukha	819	3,612	491	22.27
Dagana	1,023	2,055	1,286	72.17
Gasa	89	984	276	5.16
Haa	52	137	106	3.18
Lhuentse	1,056	4,269	1,924	41.42
Monggar	2,014	10,444	5,473	103.07
Paro	277	1,112	618	14.01
Pema Gatshel	726	4,183	1,337	29.84
Punakha	858	3,076	1,465	49.43
Samdrup Jongkhar	487	1,401	762	34.15
Samtse	534	777	567	17.74
Sarpang	400	727	425	16.06
Thimphu	510	1,623	738	21.40
Trashigang	2,145	8,684	5,448	116.49
Trashi Yangtse	835	4,159	2,541	50.30
Trongsa	352	859	422	14.26
Tsirang	889	1,852	1,465	103.76
Wangdue Phodrang	1,024	2,645	943	23.32
Zhemgang	300	994	161	4.91
Bhutan	**14,751**	**54,618**	**26,823**	**760.24**

Table A3.0 23: Peach production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	370	744	318	9.19
Chhukha	1,078	2,656	1,041	21.78
Dagana	1,071	2,191	1,332	30.42
Gasa	75	353	107	3.47
Haa	173	308	179	3.79
Lhuentse	1,089	2,894	1,900	40.08
Monggar	1,680	4,302	3,151	55.69
Paro	394	1,422	1,085	31.37
Pema Gatshel	1,158	2,999	1,769	35.21
Punakha	854	3,334	1,905	60.12
Samdrup Jongkhar	612	1,260	909	20.91
Samtse	921	1,295	1,060	16.21
Sarpang	427	616	471	8.14
Thimphu	514	1,457	885	19.78
Trashigang	1,724	3,561	2,255	45.20
Trashi Yangtse	673	1,514	1,129	27.07
Trongsa	471	1,182	650	17.48
Tsirang	930	2,112	1,651	42.60
Wangdue Phodrang	1,156	2,592	639	15.05
Zhemgang	469	1,155	560	11.77
Bhutan	**15,839**	**37,947**	**22,996**	**515.31**

Table A3.0 24: Plum production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	481	1,081	435	18.20
Chhukha	318	593	222	8.25
Dagana	808	1,521	1,004	28.89
Gasa	55	224	36	1.93
Haa	154	195	53	2.08
Lhuentse	719	1,358	809	21.01
Monggar	1,000	1,909	1,501	43.07
Paro	95	192	122	4.84
Pema Gatshel	647	1,489	538	18.30
Punakha	244	604	317	12.74
Samdrup Jongkhar	308	632	468	19.84
Samtse	288	419	317	4.50
Sarpang	265	380	263	6.43
Thimphu	217	427	288	13.53
Trashigang	884	1,381	983	35.60
Trashi Yangtse	378	608	421	14.65
Trongsa	280	535	332	9.09
Tsirang	570	1,070	898	39.01
Wangdue Phodrang	365	662	119	4.80
Zhemgang	330	766	174	5.26
Bhutan	**8,406**	**16,046**	**9,300**	**312.01**

Table A3.0 25: Apricot production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	194	217	8	0.17
Chhukha	130	230	41	0.74
Dagana	211	615	77	1.33
Gasa	-	-	-	-
Haa	142	157	13	0.55
Lhuentse	102	232	91	1.26
Monggar	99	198	51	0.75
Paro	99	254	186	6.51
Pema Gatshel	202	492	394	6.94
Punakha	43	109	59	1.05
Samdrup Jongkhar	65	311	85	1.84
Samtse	96	127	106	1.38
Sarpang	13	124	60	0.61
Thimphu	191	424	161	4.28
Trashigang	113	198	98	1.86
Trashi Yangtse	17	22	7	0.07
Trongsa	117	316	64	0.75
Tsirang	26	44	25	0.41
Wangdue Phodrang	246	545	151	2.72
Zhemgang	106	333	61	1.86
Bhutan	**2,212**	**4,948**	**1,738**	**35.06**

Table A3.0 26: Persimmon production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	9	31	-	-
Chhukha	377	1,465	44	0.90
Dagana	363	1,186	93	1.56
Gasa	33	102	4	0.05
Haa	5	6	5	0.14
Lhuentse	405	1,070	308	4.08
Monggar	802	2,576	628	10.55
Paro	198	286	128	5.82
Pema Gatshel	214	700	201	3.24
Punakha	588	1,429	894	29.34
Samdrup Jongkhar	116	302	80	1.24
Samtse	163	188	17	0.54
Sarpang	153	226	14	0.15
Thimphu	181	280	92	2.15
Trashigang	690	1,281	367	8.69
Trashi Yangtse	156	381	237	4.24
Trongsa	147	305	113	3.91
Tsirang	152	427	33	0.35
Wangdue Phodrang	620	1,285	632	16.84
Zhemgang	176	403	80	0.91
Bhutan	**5,548**	**13,929**	**3,970**	**94.69**

Table A3.0 27: Walnut production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	599	1,538	573	7.11
Chhukha	494	2,275	193	3.02
Dagana	393	2,001	204	2.94
Gasa	64	270	4	0.07
Haa	46	134	71	1.36
Lhuentse	588	1,522	543	11.26
Monggar	844	1,918	822	14.45
Paro	301	831	444	8.82
Pema Gatshel	461	1,398	331	7.63
Punakha	441	1,217	481	5.22
Samdrup Jongkhar	297	1,453	168	2.55
Samtse	220	339	7	0.09
Sarpang	268	604	23	0.36
Thimphu	394	1,270	698	8.73
Trashigang	1,354	3,550	1,573	26.31
Trashi Yangtse	502	1,281	669	11.87
Trongsa	425	2,073	250	5.66
Tsirang	279	805	62	0.49
Wangdue Phodrang	812	2,466	253	3.87
Zhemgang	454	5,817	435	7.63
Bhutan	**9,236**	**32,762**	**7,804**	**129.43**

Table A3.0 28: Lemons & Lime production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	326	2,606	605	4.78
Dagana	784	3,091	1,292	11.20
Gasa	13	31	13	0.01
Haa	8	25	7	0.04
Lhuentse	28	48	28	0.39
Monggar	159	342	231	3.28
Paro	4	6	4	0.01
Pema Gatshel	465	1,515	766	6.12
Punakha	185	451	291	2.29
Samdrup Jongkhar	439	1,176	712	7.86
Samtse	1,014	5,264	2,372	18.88
Sarpang	444	1,929	854	8.21
Thimphu	-	-	-	-
Trashigang	70	135	98	0.94
Trashi Yangtse	24	41	27	0.78
Trongsa	24	41	17	0.20
Tsirang	460	1,984	745	4.59
Wangdue Phodrang	69	212	124	0.97
Zhemgang	197	696	334	2.47
Bhutan	**4,713**	**19,593**	**8,520**	**73.00**

Table A3.0 29: Hazelnut production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	104	6,799	692	0.21
Chhukha	81	5,262	413	0.07
Dagana	144	29,794	296	0.22
Gasa	13	2,973	995	1.11
Haa	26	1,625	115	0.02
Lhuentse	190	30,475	7,814	2.65
Monggar	330	50,115	9,859	2.58
Paro	23	2,751	90	0.01
Pema Gatshel	209	44,961	386	0.14
Punakha	101	6,966	370	0.56
Samdrup Jongkhar	271	108,308	634	0.09
Samtse	5	10	1	0.01
Sarpang	5	9	-	-
Thimphu	13	532	64	0.02
Trashigang	368	98,329	12,494	2.25
Trashi Yangtse	98	10,387	4,385	2.66
Trongsa	87	9,537	396	0.19
Tsirang	139	22,131	67	0.07
Wangdue Phodrang	124	8,677	1,797	0.36
Zhemgang	45	6,580	101	-
Bhutan	**2,376**	**446,221**	**40,969**	**13.20**

Table A3.0 30: Mango production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	898	3,366	801	13.72
Dagana	1,881	16,250	4,731	73.39
Gasa	-	-	-	-
Haa	17	152	3	0.01
Lhuentse	119	648	305	8.20
Monggar	955	7,805	3,378	70.58
Paro	1	1	-	-
Pema Gatshel	1,792	16,977	6,675	70.94
Punakha	431	1,290	566	13.78
Samdrup Jongkhar	1,794	11,170	2,670	28.00
Samtse	2,205	6,439	1,626	30.48
Sarpang	1,604	5,867	2,547	35.24
Thimphu	1	1	-	-
Trashigang	936	5,090	1,693	24.75
Trashi Yangtse	360	1,592	964	16.96
Trongsa	211	1,151	201	4.44
Tsirang	1,289	8,352	2,444	45.42
Wangdue Phodrang	192	1,325	261	8.17
Zhemgang	1,001	9,189	2,067	37.89
Bhutan	**15,687**	**96,665**	**30,932**	**481.97**

Table A3.0 31: Guava production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	841	2,149	1,496	15.72
Dagana	1,791	6,271	5,069	59.89
Gasa	-	-	-	-
Haa	72	293	131	1.39
Lhuentse	269	747	602	11.29
Monggar	936	3,643	2,905	37.38
Paro	1	1	1	0.02
Pema Gatshel	1,255	5,788	3,907	51.00
Punakha	543	4,372	3,141	61.36
Samdrup Jongkhar	1,227	3,306	2,419	30.69
Samtse	2,782	5,521	4,370	51.56
Sarpang	1,200	3,078	2,347	24.93
Thimphu	-	-	-	-
Trashigang	535	1,451	1,116	14.39
Trashi Yangtse	316	810	704	12.31
Trongsa	343	2,997	2,305	18.14
Tsirang	1,567	6,609	5,423	87.27
Wangdue Phodrang	380	1,240	970	13.45
Zhemgang	700	2,414	1,816	24.25
Bhutan	**14,758**	**50,690**	**38,722**	**515.02**

Table A3.0 32: Pomegranate production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	53	129	25	0.13
Dagana	644	1,906	787	5.26
Gasa	-	-	-	-
Haa	3	6	1	0.00
Lhuentse	118	284	222	3.84
Monggar	281	589	397	3.64
Paro	45	78	37	0.55
Pema Gatshel	528	1,363	343	2.98
Punakha	263	576	348	4.35
Samdrup Jongkhar	328	732	326	2.13
Samtse	208	315	107	0.55
Sarpang	78	149	38	0.16
Thimphu	4	6	4	0.07
Trashigang	268	512	254	2.69
Trashi Yangtse	174	288	187	2.32
Trongsa	88	181	69	0.78
Tsirang	485	1,436	764	5.41
Wangdue Phodrang	238	527	208	2.05
Zhemgang	55	106	25	0.13
Bhutan	**3,861**	**9,183**	**4,142**	**37.03**

Table A3.0 33: Avocado production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	606	3,341	164	1.50
Dagana	1,972	16,227	923	9.45
Gasa	1	3	-	-
Haa	36	321	32	0.28
Lhuentse	427	1,481	227	3.57
Monggar	2,058	16,031	2,794	27.24
Paro	6	12	-	-
Pema Gatshel	2,140	23,106	1,742	19.55
Punakha	705	3,695	625	7.42
Samdrup Jongkhar	1,570	9,243	737	6.87
Samtse	1,279	3,285	331	4.19
Sarpang	918	4,242	228	2.15
Thimphu	5	10	3	0.03
Trashigang	1,235	5,248	694	6.94
Trashi Yangtse	169	526	73	1.85
Trongsa	310	2,006	118	2.03
Tsirang	1,766	17,533	1,595	25.81
Wangdue Phodrang	463	3,562	167	3.32
Zhemgang	1,190	13,676	934	13.65
Bhutan	**16,856**	**123,548**	**11,387**	**135.83**

Table A3.0 34: Litchi production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	655	3,407	909	11.36
Dagana	1,032	6,585	1,887	24.42
Gasa	-	-	-	-
Haa	1	5	-	-
Lhuentse	24	40	-	-
Monggar	191	707	263	3.12
Paro	-	-	-	-
Pema Gatshel	1,359	9,059	1,687	16.02
Punakha	12	20	1	0.10
Samdrup Jongkhar	1,369	13,077	1,579	19.97
Samtse	2,215	5,912	2,754	50.40
Sarpang	1,787	9,764	6,534	102.64
Thimphu	-	-	-	-
Trashigang	73	140	14	0.14
Trashi Yangtse	21	40	2	0.01
Trongsa	53	115	41	1.31
Tsirang	445	2,081	574	7.60
Wangdue Phodrang	29	82	17	0.25
Zhemgang	701	4,240	1,000	11.94
Bhutan	**9,967**	**55,274**	**17,262**	**249.28**

Table A3.0 35: Jackfruit production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	251	431	192	14.14
Dagana	513	1,089	415	30.19
Gasa	-	-	-	-
Haa	1	5	5	0.05
Lhuentse	5	7	1	0.11
Monggar	125	200	94	9.52
Paro	-	-	-	-
Pema Gatshel	709	1,792	740	51.64
Punakha	29	41	15	1.14
Samdrup Jongkhar	509	967	364	28.28
Samtse	597	920	593	33.52
Sarpang	315	457	299	22.30
Thimphu	-	-	-	-
Trashigang	12	17	9	1.34
Trashi Yangtse	13	20	15	0.64
Trongsa	30	56	20	1.94
Tsirang	170	295	129	11.03
Wangdue Phodrang	15	26	12	0.79
Zhemgang	254	464	274	41.74
Bhutan	**3,548**	**6,787**	**3,177**	**248.34**

Table A3.0 36: Banana production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	1,559	29,321	9,407	116.83
Dagana	2,590	101,448	35,583	334.50
Gasa	-	-	-	-
Haa	166	4,567	2,169	9.53
Lhuentse	411	5,634	1,906	26.54
Monggar	1,402	37,393	10,302	95.13
Paro	13	249	59	0.81
Pema Gatshel	1,550	37,371	12,775	179.21
Punakha	510	4,821	1,675	12.65
Samdrup Jongkhar	1,642	27,290	6,614	87.01
Samtse	5,097	78,919	25,739	379.01
Sarpang	2,567	62,113	22,255	275.63
Thimphu	-	-	-	-
Trashigang	914	19,788	3,277	31.71
Trashi Yangtse	554	6,613	3,001	32.86
Trongsa	314	5,530	3,202	18.25
Tsirang	2,147	98,086	31,255	424.93
Wangdue Phodrang	361	4,889	1,893	19.72
Zhemgang	1,010	27,886	9,422	94.87
Bhutan	**22,807**	**551,918**	**180,534**	**2,139.16**

Table A3.0 37: Tree tomato production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	310	800	714	8.41
Dagana	1,186	3,779	3,019	21.77
Gasa	14	26	21	0.13
Haa	22	208	198	1.21
Lhuentse	984	2,644	2,357	22.95
Monggar	1,555	4,120	3,666	33.33
Paro	6	12	11	0.11
Pema Gatshel	995	2,326	1,974	13.91
Punakha	697	2,365	1,930	13.10
Samdrup Jongkhar	299	645	497	4.79
Samtse	617	1,205	975	5.53
Sarpang	459	2,719	2,486	13.99
Thimphu	-	-	-	-
Trashigang	946	1,710	1,545	15.42
Trashi Yangtse	395	766	680	5.65
Trongsa	380	1,404	1,145	6.39
Tsirang	1,178	6,472	5,329	31.90
Wangdue Phodrang	373	1,144	990	7.39
Zhemgang	525	1,579	1,407	10.42
Bhutan	**10,941**	**33,924**	**28,944**	**216.38**

Table A3.0 38: Papaya production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Total Trees	Bearing Trees	Production (MT)
Bumthang	-	-	-	-
Chhukha	76	177	90	1.20
Dagana	642	2,238	1,472	18.92
Gasa	-	-	-	-
Haa	-	-	-	-
Lhuentse	13	21	16	0.20
Monggar	228	572	442	7.36
Paro	-	-	-	-
Pema Gatshel	367	1,130	640	11.62
Punakha	89	189	111	1.36
Samdrup Jongkhar	357	874	637	11.51
Samtse	293	640	426	6.38
Sarpang	554	1,490	1,226	15.85
Thimphu	-	-	-	-
Trashigang	115	214	164	2.96
Trashi Yangtse	76	196	168	2.98
Trongsa	66	282	193	1.35
Tsirang	611	2,617	1,944	34.36
Wangdue Phodrang	49	168	91	1.61
Zhemgang	78	262	171	3.87
Bhutan	**3,614**	**11,070**	**7,791**	**121.53**

Table A3.0 39: Pineapple production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Production (MT)
Bumthang	-	-
Chhukha	154	3.14
Dagana	441	18.15
Gasa	-	-
Haa	3	0.02
Lhuentse	1	0.01
Monggar	256	12.13
Paro	-	-
Pema Gatshel	879	32.17
Punakha	4	0.29
Samdrup Jongkhar	430	8.44
Samtse	488	7.41
Sarpang	429	6.95
Thimphu	-	-
Trashigang	54	1.41
Trashi Yangtse	15	0.35
Trongsa	6	0.05
Tsirang	132	1.61
Wangdue Phodrang	3	-
Zhemgang	117	5.64
Bhutan	**3,412**	**97.76**

Table A3.0 40: Passionfruit production, by dzongkhag, 2022

Dzongkhag	Number of Growers	Production (MT)
Bumthang	-	-
Chhukha	100	2.49
Dagana	229	4.45
Gasa	-	-
Haa	29	0.66
Lhuentse	122	1.43
Monggar	319	6.27
Paro	4	0.20
Pema Gatshel	315	5.83
Punakha	95	1.21
Samdrup Jongkhar	182	2.40
Samtse	334	4.35
Sarpang	141	2.21
Thimphu	1	-
Trashigang	82	1.02
Trashi Yangtse	31	0.23
Trongsa	94	1.71
Tsirang	327	6.21
Wangdue Phodrang	34	0.30
Zhemgang	173	3.92
Bhutan	**2,612**	**44.88**

Table A4.0 1: Buffalo population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	-	-	-	-	-	-	-	-	-	-
Chhukha	-	-	-	-	-	-	-	-	-	-
Dagana	2	2	2	5	4	2	-	8	-	25
Gasa	-	-	-	-	-	-	-	-	-	-
Haa	-	-	-	-	-	-	-	-	-	-
Lhuentse	-	-	-	-	-	-	-	-	-	-
Monggar	-	-	-	-	-	-	-	-	-	-
Paro	-	-	-	-	-	-	-	-	-	-
Pema Gatshel	-	-	-	-	-	-	-	-	-	-
Punakha	-	-	-	-	-	-	-	-	-	-
Samdrup Jongkhar	-	-	-	-	-	-	-	-	-	-
Samtse	19	16	24	37	18	1	-	48	17	180
Sarpang	5	4	3	9	3	1	-	2	-	27
Thimphu	-	-	-	-	-	-	-	-	-	-
Trashigang	-	-	-	-	-	-	-	-	-	-
Trashi Yangtse	-	-	-	-	-	-	-	-	-	-
Trongsa	-	-	-	-	-	-	-	-	-	-
Tsirang	8	14	25	24	14	3	-	11	-	99
Wangdue Phodrang	-	-	-	-	-	-	-	-	-	-
Zhemgang	-	-	-	-	-	-	-	-	-	-
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**34**	**36**	**54**	**75**	**39**	**7**	**-**	**69**	**17**	**331**

Table A4.0 2: Doeb-Doebum population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	15	8	29	17	26	4	-	16	1	116
Chhukha	64	11	21	28	1	-	-	15	7	147
Dagana	48	36	66	77	28	2	-	118	74	449
Gasa	5	1	-	2	-	3	-	-	-	11
Haa	17	-	2	-	-	-	-	1	1	21
Lhuentse	179	54	160	111	35	21	-	131	9	700
Monggar	337	78	201	102	60	35	-	114	27	954
Paro	6	4	16	3	-	-	-	3	-	32
Pema Gatshel	20	6	23	17	6	8	-	16	5	101
Punakha	50	67	84	107	38	4	-	181	119	650
Samdrup Jongkhar	85	19	22	21	8	4	-	38	25	222
Samtse	63	10	14	4	5	1	-	7	-	104
Sarpang	99	46	42	38	7	1	-	30	11	274
Thimphu	1	-	-	-	-	-	-	-	-	1
Trashigang	221	35	122	54	21	32	-	100	39	624
Trashi Yangtse	51	32	54	61	15	18	-	33	9	273
Trongsa	93	5	11	14	20	3	-	16	8	170
Tsirang	11	1	3	3	3	-	-	1	-	22
Wangdue Phodrang	62	36	52	55	30	6	-	42	14	297
Zhemgang	175	48	96	128	52	14	-	99	59	671
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**1,602**	**497**	**1,018**	**842**	**355**	**156**	**-**	**961**	**408**	**5,839**

Table A4.0 3: Doethra-Doethrum population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	1	-	2	2	1	-	-	6	4	16
Chhukha	41	39	90	82	15	17	-	106	42	432
Dagana	31	16	42	39	2	3	-	116	70	319
Gasa	1	1	-	2	-	-	-	-	-	4
Haa	19	19	13	42	37	3	-	28	14	175
Lhuentse	149	183	418	326	314	57	-	329	60	1,836
Monggar	85	74	352	174	35	107	-	206	69	1,102
Paro	6	6	9	12	1	3	-	4	2	43
Pema Gatshel	11	20	25	28	8	20	-	35	13	160
Punakha	10	10	8	16	8	9	-	30	16	107
Samdrup Jongkhar	12	26	28	20	3	3	-	31	20	143
Samtse	2	-	-	2	-	-	-	2	-	6
Sarpang	24	24	23	44	6	4	-	27	4	156
Thimphu	-	-	-	-	-	-	-	-	-	-
Trashigang	31	46	141	61	53	47	-	94	8	481
Trashi Yangtse	282	348	643	620	139	308	-	511	66	2,917
Trongsa	7	6	19	15	7	-	-	14	9	77
Tsirang	2	1	-	1	2	-	-	1	-	7
Wangdue Phodrang	30	32	78	60	38	11	-	76	23	348
Zhemgang	45	50	81	126	41	18	-	67	30	458
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**789**	**901**	**1,972**	**1,672**	**710**	**610**	**-**	**1,683**	**450**	**8,787**

Table A4.0 4: Jaba population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	-	-	-	-	-	-	-	-	-	-
Chhukha	62	76	107	114	55	2	-	138	100	654
Dagana	40	34	97	57	20	4	-	199	4	455
Gasa	-	-	-	-	-	-	-	-	-	-
Haa	2	1	2	4	2	3	-	4	4	22
Lhuentse	6	11	37	21	3	13	-	13	2	106
Monggar	22	22	54	45	9	37	-	31	10	230
Paro	9	12	11	11	5	8	-	23	9	88
Pema Gatshel	15	20	44	29	5	27	-	16	3	159
Punakha	-	-	-	-	-	-	-	-	-	-
Samdrup Jongkhar	346	342	389	693	145	37	-	533	320	2,805
Samtse	133	157	185	276	16	27	-	495	258	1,547
Sarpang	368	371	416	697	109	88	-	575	340	2,964
Thimphu	-	-	-	-	-	-	-	-	-	-
Trashigang	35	36	64	77	20	71	-	48	12	363
Trashi Yangtse	14	5	11	26	20	16	-	16	3	111
Trongsa	-	-	-	-	-	-	-	-	-	-
Tsirang	-	-	-	-	-	-	-	-	-	-
Wangdue Phodrang	-	-	-	-	-	-	-	-	-	-
Zhemgang	17	17	28	22	6	-	-	20	13	123
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**1,069**	**1,104**	**1,445**	**2,072**	**415**	**333**	**-**	**2,111**	**1,078**	**9,627**

Table A4.0 5: Jatsha-Jatsham population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	38	33	44	68	36	3	-	30	6	258
Chhukha	90	111	125	201	82	25	-	181	70	885
Dagana	68	70	108	129	39	8	-	140	67	629
Gasa	10	9	7	23	5	8	-	15	12	89
Haa	43	35	72	86	19	26	-	43	21	345
Lhuentse	154	147	249	342	150	50	-	210	57	1,359
Monggar	325	344	588	933	336	242	-	880	578	4,226
Paro	13	13	11	30	13	3	-	55	37	175
Pema Gatshel	12	14	56	26	8	17	-	86	36	255
Punakha	49	47	34	71	21	10	-	141	91	464
Samdrup Jongkhar	158	234	154	371	156	60	-	375	233	1,741
Samtse	63	41	86	123	45	19	-	94	9	480
Sarpang	81	91	52	278	76	6	-	85	46	715
Thimphu	-	1	1	2	1	-	-	13	4	22
Trashigang	310	443	788	1,980	332	205	-	1,057	615	5,730
Trashi Yangtse	57	88	90	181	49	46	-	137	43	691
Trongsa	90	82	103	192	102	9	-	232	133	943
Tsirang	48	48	107	112	6	12	-	262	246	841
Wangdue Phodrang	112	160	218	266	156	17	-	220	94	1,243
Zhemgang	185	211	315	568	210	84	-	414	301	2,288
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**1,906**	**2,222**	**3,208**	**5,982**	**1,842**	**850**	**-**	**4,670**	**2,699**	**23,379**

Table A4.0 6: Mithun population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	-	-	-	-	-	-	-	-	-	-
Chhukha	-	-	-	-	-	-	-	2	-	2
Dagana	-	-	-	-	-	-	-	13	-	13
Gasa	-	-	-	-	-	-	-	1	-	1
Haa	-	-	-	-	-	-	-	1	-	1
Lhuentse	-	-	-	-	-	-	-	7	-	7
Monggar	-	-	-	-	-	-	-	17	-	17
Paro	-	-	-	-	-	-	-	2	-	2
Pema Gatshel	-	-	-	-	-	-	-	1	-	1
Punakha	-	-	-	-	-	-	-	5	-	5
Samdrup Jongkhar	-	-	-	-	-	-	-	25	-	25
Samtse	-	-	-	-	-	-	-	4	-	4
Sarpang	-	-	-	-	-	-	-	6	-	6
Thimphu	-	-	-	-	-	-	-	-	-	-
Trashigang	-	-	-	-	-	-	-	34	-	34
Trashi Yangtse	-	-	-	-	-	-	-	4	-	4
Trongsa	-	-	-	-	-	-	-	1	-	1
Tsirang	-	-	-	-	-	-	-	6	-	6
Wangdue Phodrang	-	-	-	-	-	-	-	11	-	11
Zhemgang	-	-	-	-	-	-	-	9	-	9
Govt. Farms	17	3	48	32	37	-	7	7	-	151
Bhutan	**17**	**3**	**48**	**32**	**37**	**-**	**7**	**156**	**-**	**300**

Table A4.0 7: Nublang-Thrabum population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	193	221	355	494	208	92	46	424	137	2,170
Chhukha	720	847	1,917	1,546	449	298	100	2,146	1,052	9,075
Dagana	1,127	1,052	1,638	1,868	626	122	80	3,220	2,157	11,890
Gasa	1	3	-	3	-	-	1	3	-	11
Haa	192	201	327	459	168	31	47	331	258	2,014
Lhuentse	44	52	96	90	44	11	12	75	14	438
Monggar	137	132	380	298	85	122	32	240	68	1,494
Paro	369	407	876	798	130	318	18	684	233	3,833
Pema Gatshel	1	11	20	17	1	6	-	12	5	73
Punakha	593	331	773	625	161	273	33	738	274	3,801
Samdrup Jongkhar	29	44	51	50	35	9	7	40	15	280
Samtse	2,654	2,511	4,188	4,733	1,222	632	407	6,477	3,323	26,147
Sarpang	363	335	542	583	265	37	16	1,128	675	3,944
Thimphu	106	95	215	221	46	62	5	171	48	969
Trashigang	250	294	947	591	345	235	66	578	114	3,420
Trashi Yangtse	50	48	84	94	50	35	7	101	8	477
Trongsa	203	235	482	499	320	81	31	671	316	2,838
Tsirang	310	351	639	684	165	52	17	1,686	1,302	5,206
Wangdue Phodrang	1,182	1,307	2,233	2,333	1,622	294	93	2,530	493	12,087
Zhemgang	29	21	41	75	72	7	6	38	15	304
Govt. Farms	31	43	92	69	41	1	12	49	-	338
Bhutan	**8,584**	**8,541**	**15,896**	**16,130**	**6,055**	**2,718**	**1,036**	**21,342**	**10,507**	**90,809**

Table A4.0 8: Yak population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	278	232	347	587	363	38	49	790	100	2,784
Chhukha	-	-	-	-	-	-	-	-	-	-
Dagana	-	-	-	-	-	-	-	-	-	-
Gasa	767	646	421	1,483	456	328	69	607	320	5,097
Haa	259	279	325	654	231	80	113	349	5	2,295
Lhuentse	27	28	27	93	36	26	7	17	-	261
Monggar	-	-	-	-	-	-	-	-	-	-
Paro	337	306	282	679	26	157	60	545	11	2,403
Pema Gatshel	-	-	-	-	-	-	-	-	-	-
Punakha	-	-	-	-	-	-	-	-	-	-
Samdrup Jongkhar	-	-	-	-	-	-	1	4	3	8
Samtse	-	-	-	-	-	-	-	-	-	-
Sarpang	-	-	-	-	-	-	-	-	-	-
Thimphu	1,125	1,010	1,086	2,140	1,149	151	245	2,521	1,096	10,523
Trashigang	405	451	268	1,346	87	166	201	908	119	3,951
Trashi Yangtse	17	30	60	65	28	15	7	30	1	253
Trongsa	15	11	26	20	6	-	1	35	34	148
Tsirang	-	-	-	-	-	-	-	-	-	-
Wangdue Phodrang	311	281	349	560	292	14	31	680	-	2,518
Zhemgang	-	-	-	-	-	-	-	-	-	-
Govt. Farms	7	7	7	12	4	32	6	12	-	87
Bhutan	**3,548**	**3,281**	**3,198**	**7,639**	**2,678**	**1,007**	**790**	**6,498**	**1,689**	**30,328**

Table A4.0 9: Yangku-Yangkum population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	15	29	43	55	17	4	38	-	6	207
Chhukha	64	83	147	138	51	21	115	-	50	669
Dagana	48	47	70	90	40	1	110	-	61	467
Gasa	5	10	6	13	-	4	6	-	-	44
Haa	17	14	14	42	8	14	9	-	2	120
Lhuentse	179	234	523	424	211	51	318	-	32	1,972
Monggar	337	408	1,052	754	309	278	703	-	270	4,111
Paro	6	5	16	13	1	2	33	-	15	91
Pema Gatshel	20	20	76	49	6	42	65	-	15	293
Punakha	50	51	82	93	34	11	104	-	66	491
Samdrup Jongkhar	85	93	178	253	69	28	232	-	142	1,080
Samtse	63	60	59	72	36	4	72	-	13	379
Sarpang	99	94	141	119	58	2	179	-	97	789
Thimphu	1	-	-	1	-	-	-	-	-	2
Trashigang	221	306	757	774	215	173	527	-	125	3,098
Trashi Yangtse	51	64	135	144	48	45	100	-	17	604
Trongsa	93	92	159	152	75	12	235	-	64	882
Tsirang	11	10	18	13	8	1	28	-	16	105
Wangdue Phodrang	62	93	126	120	105	12	151	-	45	714
Zhemgang	175	203	395	486	180	52	493	-	326	2,310
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**1,602**	**1,916**	**3,997**	**3,805**	**1,471**	**757**	**3,518**	**-**	**1,362**	**18,428**

Table A4.0 10: Zo-Zom population, by dzongkhag, 2022

(Number)

Dzongkhag	Calf<1 year old		Heifer	Milch	Dry	Infertile/ Sterile	Breeding Bull	Bull	Bullock	Total
	Male	Female								
Bumthang	-	-	-	-	-	-	-	-	-	-
Chhukha	-	-	-	-	-	-	-	-	-	-
Dagana	-	-	-	-	-	-	-	-	-	-
Gasa	-	-	-	-	-	-	-	-	-	-
Haa	-	-	-	-	-	-	-	-	-	-
Lhuentse	23	11	6	28	33	8	-	7	-	116
Monggar	-	-	-	-	-	-	-	-	-	-
Paro	-	-	-	-	-	-	-	-	-	-
Pema Gatshel	-	-	-	-	-	-	-	-	-	-
Punakha	-	-	-	-	-	-	-	-	-	-
Samdrup Jongkhar	6	6	8	24	6	1	-	14	14	79
Samtse	-	-	-	-	-	-	-	-	-	-
Sarpang	-	-	-	-	-	-	-	-	-	-
Thimphu	-	-	-	-	-	-	-	-	-	-
Trashigang	433	767	443	3,184	144	183	-	1,628	327	7,109
Trashi Yangtse	8	23	14	36	5	4	-	15	-	105
Trongsa	-	-	-	-	-	-	-	-	-	-
Tsirang	-	-	-	-	-	-	-	-	-	-
Wangdue Phodrang	6	-	-	3	11	-	-	6	-	26
Zhemgang	-	-	-	-	-	-	-	-	-	-
Govt. Farms	-	-	-	-	-	-	-	-	-	-
Bhutan	**476**	**807**	**471**	**3,275**	**199**	**196**	**-**	**1,670**	**341**	**7,435**

Table A4.0 11: Equine population, by dzongkhag, 2022

(Number)

Dzongkhag	Local		Improved		Donkey	Mule	Total
	Male	Female	Male	Female			
Bumthang	279	208	-	-	4	34	525
Chhukha	48	35	6	4	-	35	128
Dagana	76	74	3	-	3	9	165
Gasa	477	412	355	44	1	1,264	2,553
Haa	205	151	31	9	-	84	480
Lhuentse	281	304	5	6	1	160	757
Monggar	100	130	5	2	1	51	289
Paro	531	308	26	23	4	469	1,361
Pema Gatshel	16	37	3	2	2	14	74
Punakha	93	118	27	40	-	5	283
Samdrup Jongkhar	41	29	-	1	4	22	97
Samtse	47	20	-	-	-	14	81
Sarpang	65	56	1	-	1	3	126
Thimphu	732	454	2	3	-	668	1,859
Trashigang	544	330	2	3	7	61	947
Trashi Yangtse	344	220	8	4	2	89	667
Trongsa	24	14	2	-	1	10	51
Tsirang	16	18	-	-	-	-	34
Wangdue Phodrang	170	123	21	12	1	28	355
Zhemgang	131	165	-	2	1	144	443
Govt. Farms	145	130	11	37	28	39	390
Bhutan	**4,365**	**3,336**	**508**	**192**	**61**	**3,203**	**11,665**

Table A4.0 12: Pig population, by dzongkhag, 2022

(Number)

Dzongkhag	Local		Improved		Total
	Male	Female	Male	Female	
Bumthang	-	-	-	-	-
Chhukha	764	647	1,070	1,156	3,637
Dagana	985	893	2,773	2,842	7,493
Gasa	-	-	-	-	-
Haa	13	21	7	12	53
Lhuentse	2	-	1	3	6
Monggar	-	-	55	23	78
Paro	45	48	175	119	387
Pema Gatshel	11	9	43	55	118
Punakha	3	5	20	8	36
Samdrup Jongkhar	12	7	249	323	591
Samtse	1,802	1,584	1,495	1,483	6,364
Sarpang	186	134	1,673	1,686	3,679
Thimphu	-	3	123	161	287
Trashigang	-	-	25	41	66
Trashi Yangtse	11	15	43	27	96
Trongsa	-	-	15	7	22
Tsirang	496	493	3,297	3,659	7,945
Wangdue Phodrang	103	175	200	238	716
Zhemgang	13	5	73	89	180
Govt. Farms	41	70	373	844	1,328
Bhutan	**4,487**	**4,109**	**11,710**	**12,776**	**33,082**

Table A4.0 13: Poultry population, by dzongkhag, 2022

(Number)

Dzongkhag	Local		Improved		Total
	Male	Female	Broiler	Layer	
Bumthang	22	125	2	7,886	8,035
Chhukha	5,015	7,036	105,898	25,296	143,245
Dagana	8,891	11,475	29,646	20,993	71,005
Gasa	15	59	-	490	564
Haa	246	1,256	2	8,777	10,281
Lhuentse	578	2,110	360	7,195	10,243
Monggar	769	1,879	525	29,445	32,618
Paro	64	878	548	23,538	25,028
Pema Gatshel	210	656	1,506	17,286	19,658
Punakha	278	768	300	9,676	11,022
Samdrup Jongkhar	1,324	2,212	12,231	14,421	30,188
Samtse	11,330	16,921	68,686	66,830	163,767
Sarpang	4,199	6,662	39,733	117,320	167,914
Thimphu	75	248	556	13,321	14,200
Trashigang	372	897	1	19,290	20,560
Trashi Yangtse	104	299	19	9,003	9,425
Trongsa	164	400	59	14,135	14,758
Tsirang	5,030	6,942	72,318	104,259	188,549
Wangdue Phodrang	521	1,808	678	12,488	15,495
Zhemgang	776	2,461	1,025	10,005	14,267
Govt. Farms	156	671	3,503	-	4,330
Bhutan	**40,139**	**65,763**	**337,596**	**531,654**	**975,152**

Table A4.0 14: Sheep population, by dzongkhag, 2022

(Number)

Dzongkhag	Local		Improved		Total
	Male	Female	Male	Female	
Bumthang	49	20	29	27	125
Chhukha	272	427	-	-	699
Dagana	29	59	1	2	91
Gasa	-	-	14	40	54
Haa	-	-	-	-	-
Lhuentse	21	17	2	4	44
Monggar	1	1	-	-	2
Paro	-	-	-	-	-
Pema Gatshel	-	-	-	-	-
Punakha	1	5	-	-	6
Samdrup Jongkhar	37	53	-	-	90
Samtse	1,724	3,741	-	-	5,465
Sarpang	218	370	-	-	588
Thimphu	-	-	-	-	-
Trashigang	484	1,001	55	102	1,642
Trashi Yangtse	-	-	-	-	-
Trongsa	66	92	-	-	158
Tsirang	16	21	-	-	37
Wangdue Phodrang	301	426	15	28	770
Zhemgang	-	-	-	-	-
Govt. Farms	68	104	40	41	253
Bhutan	**3,287**	**6,337**	**156**	**244**	**10,024**

Table A4.0 15: Goat population, by dzongkhag, 2022

(Number)

Dzongkhag	Local		Improved		Total
	Male	Female	Male	Female	
Bumthang	5	12	-	3	20
Chhukha	3,452	3,676	10	13	7,151
Dagana	5,062	5,832	94	85	11,073
Gasa	2	2	-	-	4
Haa	18	30	-	-	48
Lhuentse	4	11	3	-	18
Monggar	18	26	-	-	44
Paro	14	7	1	2	24
Pema Gatshel	16	18	1	3	38
Punakha	37	34	10	40	121
Samdrup Jongkhar	594	711	1	1	1,307
Samtse	8,687	11,211	66	61	20,025
Sarpang	2,443	2,754	132	158	5,487
Thimphu	14	13	-	-	27
Trashigang	80	64	1	2	147
Trashi Yangtse	16	3	-	-	19
Trongsa	36	32	4	1	73
Tsirang	4,766	4,423	473	431	10,093
Wangdue Phodrang	86	139	11	14	250
Zhemgang	7	20	3	5	35
Govt. Farms	-	-	-	-	-
Bhutan	**25,357**	**29,018**	**810**	**819**	**56,004**

VERSION A

དཔལ་ལྡན་འབྲུག་གྱི་གཞུང་།
རྒྱལ་ཡོངས་རྩིས་དཔྱད་བཀོད་འཛིན།

National Statistics Bureau
Royal Government of Bhutan

INTEGRATED AGRICULTURE AND LIVESTOCK CENSUS OF BHUTAN, 2022

All the information collected will remain confidential		
MODULE A: HOUSEHOLD IDENTIFICATION		
A1	Dzongkhag	Prefilled
A2	Gewog	Prefilled
A3	Chiwog	Prefilled
A4	Select Holder Type	1] Permanent (regular households) (>>A6-A13) [2]Temporary (DANTAK/PWD Roadside workers) (>>A10-A13) [3] Government (FARMS/Research Centres/SoE) (>>A5,A10-A13) [4] MPU (>>A5, A10-A13>>MPU1-MPU3) [5] Schools/Institutions (>>A5,A10-A13) [6] Groups (Youth/farmers) (>>A5,A10-A13) [7] Cooperatives (>>A5,A10-A13) [8] Tshethar Tshogpa (>>A5,A10-A13>>T1) [9] Others (>>A5,A10-A13)
A5	Name of the Holder Type	
A6	Name of the Household Head	
A7	Village	
A8	House Number	
A9	Thram Number	
A10	Name of the respondent	
A11	Contact number of the Re-spondent	
A12	Tap to record GPS	
A13	Tap to record Date of the Interview	

MODULE B: HOUSEHOLD MEMBERS DEMOGRAPHY

Member	Write down the names of all persons who normally work on farm in this household and living together for at least 6 months. Exclude those school going children. _____ _____		
D1	What is the gender?		
	[1] Male	[2] Female	
D2	What is the relationship to the head of the household?		
	[1] Head	[10] Grand-mother	[19] Uncle
	[2] Spouse	[11] Grand-son	[20] Aunt
	[3] Son	[12] Grand-daughter	[21] Niece
	[4] Daughter	[13] Father-in-law	[22] Nephew
	[5] Father	[14] Mother-in-law	[23] Adopted son
	[6] Mother	[15] Brother-in-law	[24] Adopted daughter
	[7] Brother	[16] Sister-in-law	-
	[8] Sister	[17] Son-in-law	-
	[9] Grand-father	[18] Daughter-in-law	[96] Other (Specify)
D2o	Please specify other relationship		
D3	How old is <Name>?		
D4	What is the present marital status of <Name>?		
	[1] Never married		
	[2] Living together		
	[3] Married		
	[4] Divorced		
	[5] Separated		
	[6] Widow/widower		
ED11	What is the highest grade/level completed by <Name>?		
	[1] Pre primary	[14] Class 12	
	[2] Class 1	[15] Certificates	
	[3] Class 2	[16] Diploma	

	[4] Class 3	[17] Bachelor's Degree	
	[5] Class 4	[18] Post Graduate Diploma	
	[6] Class 5	[19] Master's Degree/ MPhil	
	[7] Class 6	[20] PhD	
	[8] Class 7	[21] ECCD/Day care/ NFE	
	[9] Class 8	[22] No education	
	[10] Class 9		
	[11] Class 10		
	[12] Class 11		

MODULE C: CROP PRODUCTION		
BC1	Did your household grow any [CEREAL] in 2022 in this gewog?	
	[1] Yes	
	[2] No (>>B3)	
B2.1	What CEREAL did you grow? Please select all that apply	
	[1] Paddy Irrigated (Chuzing/Dhan)	
	[2] Paddy Upland (Kam Bja/Pang bara/Sukha Dhan)	
	[3] Maize (Geza/Aashum/Makai)	
	[4] Wheat (Ka/Bong/Gaon)	
	[5] Barley (Na/Femong/Jaon)	
	[6] Millet (Memja/Kongpu/Kodo/Yangra)	
	[7] Sweet Buckwheat (Garey/Guntsong/Methay Phaphaar)	
	[8] Bitter Buckwheat (Bjo/Khala/Tethay Phapar)	
	[9] Quinoa (Moo/Azhi Haechum)	
B2.2.1	Area sown of [CEREAL NAME] in DECIMAL	
B2.3.1	Area lost of [CEREAL NAME] in DECIMAL	
B2.4	Quantity of [CEREAL NAME] produced in KG	
B3	Did your household grow any [CEREAL] in 2022 in another gewog?	
	[1] Yes	
	[2] No (>>B11)	
B4	Which Dzongkhag?	
B5	Which Gewog?	
B6	Which Chiwog?	
B6.1	What CEREAL did you grow? Please select all that apply	
	[1] Paddy Irrigated (Chuzing/Dhan)	
	[2] Paddy Upland (Kam Bja/Pang bara/Sukha Dhan)	
	[3] Maize (Geza/Aashum/Makai)	
	[4] Wheat (Ka/Bong/Gaon)	
	[5] Barley (Na/Femong/Jaon)	
	[6] Millet (Memja/Kongpu/Kodo/Yangra)	
	[7] Sweet Buckwheat (Garey/Guntsong/Methay Phaphaar)	

	[8] Bitter Buckwheat (Bjo/Khala/Tethay Phapar)
	[9] Quinoa (Moo/Azhi Haechum)
B6.2.1	Area sown of [CEREAL NAME] in DECIMAL
B6.3.1	Area lost of [CEREAL NAME] in DECIMAL
B6.4	Quantity of [CEREAL NAME] produced in KG
B11	Did your household grow any [OILSEEDS] in 2022 in this gewog?
	[1] Yes
	[2] No (>>B13)
B12.1	What OILSEEDS did you grow? Please select all that apply
	[1] Mustard (Pyka/Memba/Yungka/Tori)
	[2] Sunflower (Nima meto/Gham phul)
	[3] Soybean (Senm/Laybee/Bhatamas)
	[4] Groundnut (Badam)
	[5] Perilla (Naam/Silam/Zhimtse)
B12.2.1	Area sown of [OILSEEDS NAME] in DECIMAL
B12.3.1	Area lost of [OILSEEDS NAME] in DECIMAL
B12.4	Quantity of [OILSEEDS NAME] produced in KG
B13	Did your household grow any [PULSES] in 2022 in this gewog?
	[1] Yes
	[2] No (>>B15)
B14.1	What PULSES did you grow in 2022? Please select all that apply
	[1] Rajma beans (Mashaam)
	[2] Mung beans (Gakpu/Shakpu/Kalo dhaal)
	[3] Lentil (Mussori dhaal)
	[4] Adzuki Beans (Japanese beans)
B14.2.1	Area sown of [PULSES NAME] in DECIMAL
B14.3.1	Area lost of [PULSES NAME] in DECIMAL
B14.4	Quantity of [PULSES NAME] produced in KG
B15	Did your household grow any [VEGETABLES] in 2022 in this gewog?
	[1] Yes
	[2] No (>>B17)

B16.1	What VEGETABLES did you grow? Please select all that apply	
	[1] Asparagus (Ngyakhagchu)	[14] Green leaves (Hoentsey/ Sag/Spinach/Paitse)
	[2] Beans (Semchum)	[15] Peas Green/fresh (Mator/ Bray changma/Baesem)
	[3] Brinjal (Dolom/Bando/ Baigun)	[16] Pumpkin (Kakur/Brum-sha/Pharshee)
	[4] Broccoli	[17] Radish (Laphu/Mula/Mu-lay)
	[5] Bulb Onion (Gop/Pyaz/ Gogpa)	[18] Squash (Baekha/Escus)
	[6] Bunching Onion/spring onion (Dong Gop dama)	[19] Tomato (Lambenda)
	[7] Cabbages (Banda Kopi)	[20] Turnip (Ungdho/Donai)
	[8] Carrot (Laphu Maap/Gajar)	[21] Beetroot (Nungmar)
	[9] Cauliflower (Metokopi/ Phool kopi)	
	[10] Chili small (Jetsi ema)	
	[11] Chili (Others)	
	[12] Slippery Gourd (Olachoto/ Kairu)	
	[13] Gourd (Others-Khatem/ Lauka/Kairu Khalu)	
B16.2.1	Area sown of [VEGETABLES NAME] in DECIMAL	
B16.3.1	Area lost of [VEGETABLES NAME] in DECIMAL	
B16.4	Quantity of [VEGETABLES NAME] produced in KG	
B17	Did your household grow any [SPICES] in 2022 in this gewog?	
	[1] Yes	
	[2] No (>>B18.6)	
B18.1	What [SPICES] did you grow? Please select all that apply	
	[1] Cardamom (Alanchi)	[5] Garlic leaves (Chagop dama/Lasun pata/Lamshaba)
	[2] Ginger (Saga/Aduwa)	[6] Coriander (Yuse/Daneya)
	[3] Turmeric (Yongka/Haldi)	[7] Sichuan Pepper (Timbur/ Thingey/Ghee)

	[4] Garlic bulb (Chagop/Lamk-ho/Lasun)		
B18.2.1	Area sown of [SPICES NAME] in DECIMAL		
B18.3.1	Area lost of [SPICES NAME] in DECIMAL		
B18.4	Quantity of [SPICES NAME] produced in KG		
B18.6	Did your household grow any [CARDAMOM/GINGER] in 2022 in another gewog?		
	[1] Yes		
	[2] No (>>B19)		
B18.7	Which Dzongkhag?		
B18.8	Which Gewog?		
B18.9	Which Chiwog?		
B18.9a	What [SPICES (Cardamom or Ginger)] did you grow? Please select all that apply		
	[1] Cardamom (Alanchi)		
	[2] Ginger (Saga/Aduwa)		
B18.10	Area sown of [CARDAMOM/GINGER] in DECIMAL		
B18.12	Area lost of [CARDAMOM/GINGER] in DECIMAL		
B18.15	Quantity of [CARDAMOM/GINGER] produced in KG		
B19	Did your household grow any [ROOTS AND TUBER] in 2022 in this gewog?		
	[1] Yes		
	[2] No (>>B21.5.3)		
B20	What [ROOTS AND TUBER] did you grow? Please select all that apply		
	[1] Potato (Kaeva/Pasong/Alu)		
	[2] Sweet Potato (Kaeva-Ngarm/Yengorong/Sakar khanda)		
	[3] Cassava_Tapioca (Deyshe-Kaeva/Shingjoktang/Semal tarul)		
	[4] Taro_Yautia_Collocasia (Dhoe/Bozong/Piralu)		
	[5] Ground apple		
B21.2.1	Area sown of [ROOTS AND TUBER NAME] in DECIMAL		
B21.3.1	Area lost of [ROOTS AND TUBER NAME] in DECIMAL		
B21.4	Quantity of [ROOTS AND TUBER NAME] produced in KG		

B21.5.3	Did your household grow any [POTATO] in 2022 in another gewog?	
	[1] Yes	
	[2] No (>>B21)	
B21.5.4	Which Dzongkhag?	
B21.5.5	Which Gewog?	
B21.5.6	Which Chiwog?	
B21.5.7	Area sown of [POTATO] in DECIMAL	
B21.5.9	Area lost of [POTATO] in DECIMAL	
B21.5.12	Quantity of [POTATO] produced in KG	
B21	Did your household have any [FRUITS] trees in 2022 in this gewog?	
	[1] Yes	
	[2] No (>>B23)	
B22.1	What [FRUITS] trees did you have? Please select all that apply	
	[1] Apple	[19] Persimmon (Aunday)
	[2] Apricot (Kham chungku)	[20] Pineapple (Jana congtse/ Anaras)
	[3] Arecanut (Doma/Guwae/ Guwa)	[21] Plum (Choolee/Say-choorpu/ Arubagara)
	[4] Avacado (Zhungge Gule/ Baruwa)	[22] Pomegranate (Sindu/Thalem)
	[5] Banana (Ngala/Lai say/ Kayla)	[23] Tree tomato (Ruk tomato/ Shing lambenda)
	[6] Dragon fruit (Gewaringpa)	[24] Walnut (Tago/Khey say/ Okhar)
	[7] Guava (Bebsaue/Ambak)	[25] Almond
	[8] Hazelnut (Hazay)	[26] Strawberry
	[9] Jackfruit (Dramsay/Dremleng/Katar)	[27] Chestnut
	[10] Kiwi (Zhempaykotong)	[28] Pecannut
	[11] Lemons and Limes (Kapoor zaymo/Nimbu)	[29] Cherry

	[12] Litchi	[30] Watermelon (Apa guto/ Kharay muza) (>>B22.6-B22.8)
	[13] Mandarin/Orange (Tshelu/ Soontala)	[31] Cucumber (Goenchu/Mang-pung/Kakra) (>>B22.6-B22.8)
	[14] Mango (Amchukoli/Am say/Amp)	
	[15] Papaya (Modhufala/Mewa)	
	[16] Passion Fruit (Jaga chup/Zargong/Garanda)	
	[17] Peach (Kham/lengsey/Aru)	
	[18] Pear (Lee/Lee tong/Naspati)	
B22.2	Total number of [FRUIT NAME] trees	
B22.3	Bearing number of [FRUIT NAME] trees	
B22.5	Quantity of [FRUIT NAME] produced in KG	
B22.6	Area sown of [Watermelon/Cucumber] in DECIMAL	
B22.7	Area lost of [Watermelon/Cucumber] in DECIMAL	
B22.8	Quantity of [Watermelon/Cucumber] produced in KG	
B23	Did your household have any [FRUITS-Apple/Arecanut/Manda-rin] trees in 2022 in another gewog?	
	[1] Yes	
	[2] No (>>C1)	
B24	Which Dzongkhag?	
B25	Which Gewog?	
B26	Which Chiwog?	
B26.1	What [FRUITS] trees did you have? Please select all that apply	
	[1] Apple	
	[2] Arecanut (Doma/Guwae/Guwa)	
	[3] Mandarin (Tshelu/Soontala)	
B26.2	Total number of [FRUIT NAME] trees	
B26.3	Bearing number of [FRUIT NAME] trees	
B26.5	Quantity of [FRUIT NAME] produced in KG	

MODULE D: LIVESTOCK PRODUCTION		
C1	Did you rear any [CATTLE] during the reference year	
	[1] Yes	
	[2] No (>>PM1)	
C2	What CATTLE did you rear? Please select all that apply	
	[1] Jersey	
	[2] Brown Swiss	
	[3] Holstein-Friesian	
	[4] Jatsha-Jatsham	
	[5] Yangku-Yangkum	
	[6] Doeb-Doebum	
	[7] Doethra-Doethram	
	[8] Nublang-Thrabum	
	[9] Jaba	
C3	Total number of [Milking] <Cattle Name> as on 31 December 2022	
C4	Total no. of days milked	
C5	Average Milk produced in a day in Ltr.	
C7	Total number of [Dry-those milked during the reference year but dry now as on 31 December 2022]	
C7a	Total number of [Dry-those milked during the reference year but dead or sold]	
C8	Total no. of days milked	
C9	Average Milk produced in a day in Ltr.	
C15	Total number of [Male Calf less than 1 year] as on 31 December 2022	
C16	Total number of [Female Calf less than 1 year] as on 31 December 2022	
C17	Total number of [Heifer-Yarbu/Korali/Batham] as on 31 December 2022	
C18	Total number of infertile cow [Sterile-old] as on 31 December 2022	
C19	Total number of [Bull-all types] as on 31 December 2022	

C20	Total number of [Breeding Bull-Phalang/Bew Goru/Phatoka] as on 31 December 2022		
C21	Total number of [Bullock] as on 31 December 2022		
C22	Total number of [Death] during the reference year		
C23	What were the main causes of death?		
	[1] Disease		
	[2] Wildlife Predation (death due to Tiger, bear, etc.)		
	[3] Natural Death (e.g. due to old age)		
	[4] Accident		
	[5] Others		
C24	Total number of [Death animal] consumed or sold of the total death declared		
C25	Average carcass weight in KG		
C27	Total number of [Cattle name] sold/slaughtered for meat purpose during the reference year		
C28	Average carcass weight per cattle in KG		
C12	Total Milk processed in Ltr. during the reference year from all cattle		
C13	Total Butter produced in KG during the reference year from all cattle		
C14	Total Cheese produced in KG during the reference year from all cattle		
PM1	Did you rear any [MITHUN-Bamay/Bamen/Mencha/Men-chamin] during the reference year		
	[1] Yes		
	[2] No (>>Y1)		
PM2	Total number of [Milking Mithun] as on 31 December 2022		
PM3	Total no. of days milked		
PM4	Average Milk produced in a day in Ltr.		
PM6	Total number of [Dry-those milked during the reference year but dry now as on 31 December 2022]		
PM6a	Total number of [Dry-those milked during the reference year but dead or sold]		
PM7	Total no. of days milked		

PM8	Average Milk produced in a day in Ltr.
PM11	Total [MILK] processed in Ltr. during the reference year
PM12	Total [BUTTER] produced in KG during the reference year
PM13	Total [CHEESE] produced in KG during the reference year
PM14	Total number of [Male Calf less than 1 year] as on 31 December 2022
PM15	Total number of [Female Calf less than 1 year] as on 31 December 2022
PM16	Total number of [Heifer-Yarbu/Korali/Batham] as on 31 December 2022
PM17	Total number of infertile mithun [Sterile-old] as on 31 December 2022
PM18	Total number of [Bull-all types] as on 31 December 2022
PM19	Total number of [Breeding Bull-Phalang/Bew Goru/Phatoka] as on 31 December 2022
PM20	Total number of [Death] during the reference year
PM21	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
PM22	Total number of [Death animal] that were consumed or sold
PM23	Average carcass weight in KG
PM25	Total number of [Cattle name] sold/slaughtered for meat purpose during the reference year
PM26	Average carcass weight per cattle in KG
PM29	Did you rear any [MITHUN breeding bull-Bamay/Mencha] during the reference year (Permanent holders only)
	[1] Yes
	[2] No (>>Y1)
PM30	Total number of [Breeding Bull-Phalang/Bew Goru/Phatoka]

Y1	Did you rear any [YAK] during the reference year
	[1] Yes
	[2] No (>>Z1)
Y2	Total number of [Milking Yak] as on 31 December 2022
Y3	Total no. of days milked
Y4	Average Milk produced in a day in Ltr.
Y6	Total number of [Dry-those milked during the reference year but dry now as on 31 December 2022]
Y6a	Total number of [Dry-those milked during the reference year but dead or sold]
Y7	Total no. of days milked
Y8	Average Milk produced in a day in Ltr.
Y11	Total [MILK] processed in Ltr. during the reference year
Y12	Total [BUTTER] produced in KG during the reference year
Y14	Total [CHUGO] produced in KG during the reference year
Y14a	Total [ZETEY] produced in KG during the reference year
Y14b	Total [PHELU] produced in KG during the reference year
Y15	Total number of [Male Calf less than 1 year] as on 31 December 2022
Y16	Total number of [Female Calf less than 1 year] as on 31 December 2022
Y17	Total number of [Heifer-Yarbu/Korali/Batham] as on 31 December 2022
Y18	Total number of infertile yak [Sterile-old] as on 31 December 2022
Y19	Total number of [Bull-all types] as on 31 December 2022
Y20	Total number of [Breeding Bull-Phalang/Bew Goru/Phatoka] as on 31 December 2022
Y21	Total number of [Bullock] as on 31 December 2022
Y22	Total number of [Death] during the reference year
Y23	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)

	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
Y24	Total number of [Death animal] consumed or sold
Y25	Average carcass weight in KG per Yak
Y27	Total number of [Yak] sold/slaughtered for meat purpose during the reference year
Y28	Average carcass weight in KG per Yak
Y31	Total number of [Yak sheared for fibre wool production] during the reference year in KG
Y32	Average fibre wool produced per shearing per Yak in KG
Z1	Did you rear any [ZO-ZOM] during the reference year
	[1] Yes
	[2] No (>>B1)
Z2	Total number of [Milking Zom] as on 31 December 2022
Z3	Total no. of days milked
Z4	Average Milk produced in a day in Ltr.
Z6	Total number of [Dry-those milked during the reference year but dry now as on 31 December 2022]
Z6a	Total number of [Dry-those milked during the reference year but dead or sold]
Z7	Total no. of days milked
Z8	Average Milk produced in a day in Ltr.
Z11	Total [MILK] processed in Ltr. during the reference year
Z12	Total [BUTTER] produced in KG during the reference year
Z13	Total [CHEESE] produced in KG during the reference year
Z14	Total number of [Male Calf less than 1 year] as on 31 December 2022
Z15	Total number of [Female Calf less than 1 year] as on 31 December 2022
Z16	Total number of [Heifer-Yarbu/Korali/Batham] as on 31 December 2022

Z17	Total number of infertile zom [Sterile-old] as on 31 December 2022
Z18	Total number of [Bull-all types] as on 31 December 2022
Z19	Total number of [Bullock] as on 31 December 2022
Z20	Total number of [Death] during the reference year
Z21	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
Z22	Total number of [Death Zo-Zom] consumed or sold during the reference year
Z23	Average carcass weight per Zo-Zom in KG
Z25	Total number of [Cattle name] sold/slaughtered for meat purpose during the reference year
Z26	Average carcass weight per Zo-Zom in KG
B1	Did you rear any [BUFFALO] during the reference year
	[1] Yes
	[2] No (>>E1)
B2	Total number of [Milking buffalo] as on 31 December 2022
B3	Total no. of days milked
B4	Average Milk produced in a day in Ltr.
B6	Total number of [Dry-those milked during the reference year but dry now as on 31 December 2022]
B6a	Total number of [Dry-those milked during the reference year but dead or sold]
B7	Total no. of days milked
B8	Average Milk produced in a day in Ltr.
B11	Total [MILK] processed in Ltr. during the reference year
B12	Total [BUTTER] produced in KG during the reference year
B13	Total [CHEESE] produced in KG during the reference year

B14	Total number of [Male Calf less than 1 year] as on 31 December 2022
B15	Total number of [Female Calf less than 1 year] as on 31 December 2022
B16	Total number of [Heifer-Yarbu/Korali/Batham] as on 31 December 2022
B17	Total number of [Dry-Sterile] as on 31 December 2022
B18	Total number of [Bull-all types] as on 31 December 2022
B19	Total number of [Bullock] as on 31 December 2022
B20	Total number of [Death] during the reference year
B21	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
B22	Total number of [Death animal] consumed or sold
B23	Average carcass weight in KG
B25	Total number of [Buffalo] sold/slaughtered for meat purpose during the reference year
B26	Average carcass weight per cattle in KG
E1	Did you rear any [EQUINE-horse/mule/donkey] during the reference year?
	[1] Yes
	[2] No (>>P1)
E2	What EQUINE did you rear? Please select all that apply
	[1] Horse
	[2] Mule
	[3] Donkey
E3	Total number of [LOCAL MALE] as on 31 December 2022
E4	Total number of [LOCAL FEMALE] as on 31 December 2022
E5	Total number of [IMPROVED MALE] as on 31 December 2022

E6	Total number of [IMPROVED FEMALE] as on 31 December 2022
E7	Total number of [MULE-Drey/Khachar] as on 31 December 2022
E8	Total number of [DONKEY-Bongku/Gadha] as on 31 December 2022
E9	Total number of [Death] during the reference year
P1	Did you rear any [PIG] during the reference year?
	[1] Yes
	[2] No (>>PO1)
P6	What was the reason for rearing [PIG] during the reference year? Please select all that applies
	[1] Breeding (Piglet production)
	[2] Fattening (Meat production)
P1.2	What [PIG TYPE] did you rear during the reference year?
	[1] Local Pig [Yue Phap]
	[2] Improved Pig [Zhung Phab/Ja Phab]
P2	Total number of [LOCAL MALE PIG] as on 31 December 2022
P3	Total number of [LOCAL FEMALE PIG] as on 31 December 2022
P7	Total number of [Death of LOCAL PIG] during the reference year
P8	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
P9	Average carcass weight per pig in KG
P15	Total number of [LOCAL PIG] sold/slaughtered for meat purpose during the reference year
P16	Average carcass weight per pig in KG
P4	Total number of [IMPROVED MALE PIG] as on 31 December 2022

P5	Total number of [IMPROVED FEMALE PIG] as on 31 December 2022		
P11	Total number of [Death of IMPROVED PIG] during the reference year		
P12	What were the main causes of death?		
	[1] Disease		
	[2] Wildlife Predation (death due to Tiger, bear, etc.)		
	[3] Natural Death (e.g. due to old age)		
	[4] Accident		
	[5] Others		
P13	Average carcass weight per pig in KG		
P18	Total number of [IMPROVED PIG] sold/slaughtered for meat purpose during the reference year		
P19	Average carcass weight in KG		
PO1	Did you rear any [POULTRY] during the reference year?		
	[1] Yes		
	[2] No (>>S1)		
PO2	What [POULTRY Type] did you rear? Please select all that apply		
	[1] Local poultry		
	[2] Improved poultry		
PO3	Total number of [LOCAL MALE] poultry as on 31 December 2022		
PO4	Total number of [LOCAL FEMALE] poultry as on 31 December 2022		
PO5	Total number of [LOCAL LAYER] poultry		
PO6	Average laying days (No. of days layed)		
PO9	Total number of [IMPROVED LAYER] poultry		
PO10	Average laying days (No. of days laid)		
PO13	Total number of [Death of LOCAL POULTRY] during the reference year		
PO14	What were the main causes of death?		
	[1] Disease		

	[2] Wildlife Predation (death due to Tiger, bear, etc.)			
	[3] Natural Death (e.g. due to old age)			
	[4] Accident			
	[5] Others			
P015	Average carcass weight per bird in KG			
P017	Total number of [LOCAL-spent birds] sold/slaughtered for meat purpose during the reference year			
P018	Average carcass weight per bird in KG			
P020	Total number of [Death of LAYERS] during the reference year			
P021	What were the main causes of death?			
	[1] Disease			
	[2] Wildlife Predation (death due to Tiger, bear, etc.)			
	[3] Natural Death (e.g. due to old age)			
	[4] Accident			
	[5] Others			
P022	Average carcass weight per bird in KG			
P024	Total number of [LAYER-spent birds] sold/slaughtered for meat purpose during the reference year			
P025	Average carcass weight per bird in KG			
P08	Total number of [BROILER] poultry			
P027	Total number of [Death of BROILERS] during the reference year			
P028	What were the main causes of death?			
	[1] Disease			
	[2] Wildlife Predation (death due to Tiger, bear, etc.)			
	[3] Natural Death (e.g. due to old age)			
	[4] Accident			
	[5] Others			
P029	Average carcass weight per bird in KG			
P031	Total number of [BROILER] sold/slaughtered for meat purpose during the reference year			
P032	Average carcass weight per bird in KG			

S1	Did you rear any [SHEEP] during the reference year?
	[1] Yes
	[2] No (>>G1)
S2	What SHEEP type did you rear? Please select all that apply
	[1] Local
	[2] Improved
S3	Total number of [LOCAL MALE SHEEP] as on 31 December 2022
S4	Total number of [LOCAL FEMALE SHEEP] as on 31 December 2022
S5	Total number of [Death of LOCAL SHEEP] during the reference year
S6	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
S7	Average carcass weight per sheep in KG
S9	Total number of [LOCAL SHEEP] sold/slaughtered for meat purpose during the reference year
S10	Average carcass weight per sheep in KG
S12	Total number of [IMPROVED MALE SHEEP] as on 31 December 2022
S13	Total number of [IMPROVED FEMALE SHEEP] as on 31 December 2022
S14	Total number of [Death of IMPROVED SHEEP] during the reference year
S15	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others

S16	Average carcass weight per sheep in KG
S18	Total number of [IMPROVED SHEEP] sold/slaughtered for meat purpose during the reference year
S19	Average carcass weight per sheep in KG
S22	Total number of [Sheep sheared for wool production] during the reference year in KG
S23	Average wool produced per shearing per Sheep in KG
G1	Did you rear any [GOAT] during the reference year?
	[1] Yes
	[2] No (>>H1)
G2	What GOAT type did you rear? Please select all that apply
	[1] Local
	[2] Improved
G3	Total number of [LOCAL MALE GOAT] as on 31 December 2022
G4	Total number of [LOCAL FEMALE GOAT] as on 31 December 2022
G5	Total number of [Death of LOCAL GOAT] during the reference year
G6	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
G7	Average carcass weight per goat in KG
G9	Total number of [LOCAL GOAT] sold/slaughtered for meat purpose during the reference year
G10	Average carcass weight per goat in KG
G12	Total number of [IMPROVED MALE GOAT] as on 31 December 2022
G13	Total number of [IMPROVED FEMALE GOAT] as on 31 December 2022
G14	Total number of [Death of IMPROVED GOAT] during the reference year

G15	What were the main causes of death?
	[1] Disease
	[2] Wildlife Predation (death due to Tiger, bear, etc.)
	[3] Natural Death (e.g. due to old age)
	[4] Accident
	[5] Others
G16	Average carcass weight per improved goat in KG
G18	Total number of [IMPROVED GOAT] sold/slaughtered for meat purpose during the reference year
G19	Average carcass weight per improved goat in KG
H1	Did you practice [APICULTURE] during the reference year?
	[1] Yes
	[2] No (>>F1)
H2	What [TYPE OF BEEHIVES] did you have? Please select all that apply
	[1] Local bee
	[2] Improved bee
H3	Total number of [LOCAL BEEHIVES] during the reference year
H4	Total [HONEY] produced in KG from local beehives
H5	Total number of [IMPROVED BEEHIVES] during the reference year
H6	Total [HONEY] produced in KG from improved beehives
F1	Did you practice [AQUACULTURE] during the reference year?
	[1] Yes
	[2] No (>>END)
F2	Total number of [FISH POND] as on 31 December 2022
F3	Total area covered by the [FISH POND] in square metres
F4	What [FISH] did you have? Please select all that apply
	[1] Comp. Carp
	[2] Grass Carp
	[3] Rohu
	[4] Cattla

	[5] Brown Trout
	[6] Rainbow Trout
	[7] Snow Trout
	[8] Mrigal
	[9] Silver Carp
	[10] Sturgeon
	[11] Others
F5	Total number of [FINGERLINGS] received during the reference year
F6	Total [FISH] harvested in KG during the reference year
F7	Total number of [FISH] in the pond as on 31 December 2022
MPU1	Total [MILK] processed in Ltr. in your MPU during the reference year
MPU2	Total [BUTTER] produced in KG in your MPU during the reference year
MPU3	Total [CHEESE] produced in KG in your MPU during the reference year
T1	What [Livestock Type] did you have? Please select all that apply
	[1] Jersey
	[2] Brown Swiss
	[3] Holstein-Friesian
	[4] Jatsha-Jatsham
	[5] Yangku-Yangkum
	[6] Doeb-Doebum
	[7] Doethra-Doethram
	[8] Nublang-Thrabum
	[9] Jaba
	[10] Yak
	[11] Zo-Zom
	[12] Pig
	[12] Sheep
	[14] Goat

T1.1	Total number as on 31 December 2022	
T1.3	Total number of [Death] during the reference year	
T1.4	What were the main causes of death? [1] Disease [2] Wildlife Predation (death due to Tiger, bear, etc.) [3] Natural Death (e.g. due to old age) [4] Accident [5] Others	
T1.5	Total number of [Death-whose meat was consumed] during the reference year	
T1.6	Average carcass weight in KG	
BIO1	Did you have [BIOGAS] during the reference year? [1] Yes [2] No (>>IP1)	
BIO2	Is it still functional? [1] Yes [2] No	
BIO3	Year of Establishment	
IP1	Did you have [Area under improved pasture-Zhungtse] during the reference year? [1] Yes [2] No (>>IP3)	
IP2	Total area in Decimal under improved pasture	
IP3	Did you have [Area under fodder plantation] during the reference year? [1] Yes	

	[2] No (>>IP5)	
IP4	Total area in Decimal under fodder plantation	
IP5	Did you have [Fodder trees] during the reference year?	
	[1] Yes	
	[2] No (>>IP7)	
IP6	Total no. of fodder trees	
IP7	Did you have [Functional silo pit for fodder conservation] during the reference year?	
	[1] Yes	
	[2] No (>>END)	
IP8	Total no. of functional silo pits	
END	Tap to record End Time	