1. Introduction

Lesotho has a predominantly agricultural dependent economy with a small industrial sector. The type of agriculture practiced is primarily subsistence with minimal commercial farming. The country is divided into ten administrative districts that cover four ecological zones. The lowland zone is most densely populated and intensively cultivated zone with relatively high rainfall. The foothill zone, as compared to lowland is less populated with less rainfall. The mountain zone is the largest zone of the country that is characterized by very cold winter with snow. Senqu River valley is the smallest zone which runs from east to west across the districts of Thaba Tseka, Qacha'snek, Quthing, Mohale's Hoek along the banks of Senqu River.

Agricultural Production Survey (APS) is an annual survey, which is undertaken by Bureau of Statistic (BOS). APS runs from the 1st of August of the current year to 31st July of the following year. APS concentrates on the production of both livestock and crops in the rural parts of the country. This report looks into agricultural events on crops and its production during 2008/2009 Agricultural year.

The 2008/2009 Crops Statistics report has covered information on area planted, harvested, production and yield for each of the following major crops: maize, wheat, sorghum, beans, peas and mixtures of crops such as maize and beans; maize and sorghum; sorghum and beans. Area failed under each crop and reasons for crop failure are also explained.

2. Sample Selection

Stratified multi-stage sampling scheme was adopted for the selection of the sample of APS for 2008/2009 Agricultural Year. Two or three enumeration areas which were delineated during 1996 population and housing census were combined to form a Primary Sampling Unit (PSU). A total of eighty PSU's were selected at the first stage in the rural areas of the country. A probability Proportional to Size (PPS) was used for the selection of PSU's where households were taken as a measure of size. Individual farming households constitute Secondary Sampling Units (SSU's) and systematic sampling technique was adopted for selection of SSU's. For the estimation of crop area ten fields for each of the main crops per PSU constitute a third stage sample. Systematic sampling technique was also adopted for selection of ten fields per PSU for crop cutting.

APS stratified farming households into:

- Households operating at least one field;
- Households raising at least one cow, five sheep and or five goats;
- Households operating both fields and livestock.

Households that do not meet any of the above requirements are not included in the survey. All fields owned by the selected households are measured including fields that are rented in by those selected households. Fields that are rented out by the selected households are not included. Likewise fields which are being share-cropped are counted on the owner's side.

3. Method of Data Collection

Physical measurement of the fields operated by selected farming households was done. All fields owned and operated by the household either planted or fallow were measured. Field measurement was done using measuring tape, a compass and wire pegs. Each enumerator was responsible for one PSU. Data on yield was collected from two sub-plots of 10 square meters each from selected field.

Yield sub-plot is located using random numbers sheet; the enumerator select a random number point 1 (P1) between 1 and the longest length of the field and the second number point 2 (P2) which is between 1 and the longest width of the field. A tape measure is used by enumerator to measure the number (P1) along the length of the field, and measure the second number (P2) along the width of the field. Then the first sub-plot is constructed. The same procedure is repeated to construct the second sub-plot.

For yield calculation, an average weight from the two sub-plots is taken for each field. Then the PSU average yield in each zone within the district is calculated. Finally, average district yield is obtained and multiplied by area harvested to get production. So the national production is the sum of all district production.

4. Summer Crops

4.1 Area Planted

This refers to area planted in hectares (ha) to pure stand crops such as maize, sorghum, wheat, beans, peas and mixture of crops such as maize and beans, maize and sorghum, sorghum and beans, beans and peas and other crop mixtures.

Table 1.1 shows area planted to five major summer crops in 2008/2009 Agricultural Year by district. The planted crops were maize, wheat, sorghum, beans and peas, and their area planted was estimated in such a way that they include mixture, for example maize is composed of pure stand maize and maize mixture such as maize and beans, maize and peas. Therefore, the same procedure applied to all other major crops.

In 2008/2009 Agricultural Year, the estimated total area planted to maize was 211,325 ha and this shows a decrease of 24 percent from the previous Agricultural Year whose area planted was 277,798 ha. However, area planted to wheat (26,080 ha) showed an increase of 31 percent from (17,901 ha) recorded in 2007/2008. Sorghum (43,969 ha) and beans (27,679 ha) have dropped by 35 percent and 41 percent from 67,658 ha and 47,266 ha respectively.

The largest area planted to maize was observed in Mafeteng with 34,718 ha, followed by Leribe with 33,110 ha. Although these two districts have the largest area planted to maize, the figures have declined as compared to those of 2007/2008 Agricultural year. Thaba Tseka has the largest area planted to wheat, beans and peas as compared to all other districts.

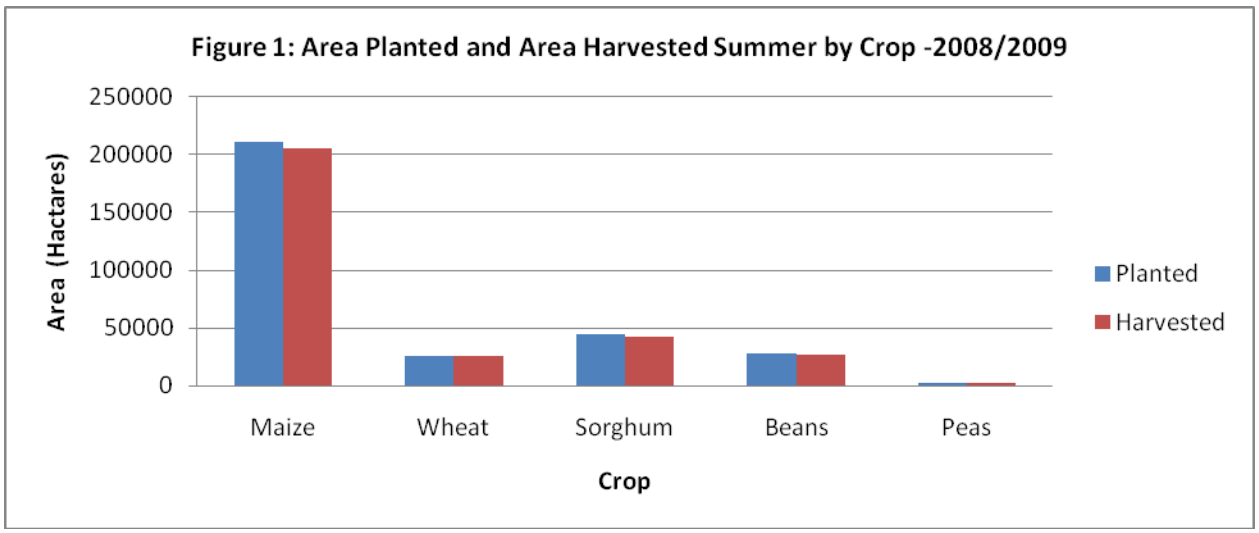
Table 1.1: Area Planted by Crop and District, Summer 2008/2009

District	Maize	Wheat	Sorghum	Beans	Peas
Botha Bothe	7,817	553	1,753	1,199	45
Leribe	33,110	351	5,036	3,600	118
Berea	31,350	0	11,345	4,285	7
Maseru	23,125	2,745	3,808	2,296	88
Mafeteng	34,718	0	5,245	1,783	11
Mohale's Hoek	24,678	2,732	4,052	3,397	128
Quthing	8,200	656	2,044	1,599	82
Qacha's Nek	8,859	3,270	487	1,221	20
Mokhotlong	9,931	6,589	410	1,901	1,020
Thaba Tseka	29,537	9,184	9,790	6,397	1,038
Lesotho	**211,325**	**26,080**	**43,969**	**27,679**	**2,556**

4.2 Area Harvested

The crops are harvested after reaching their maturity stage. Area harvested can also be defined as the difference between area planted and area failed for each crop.

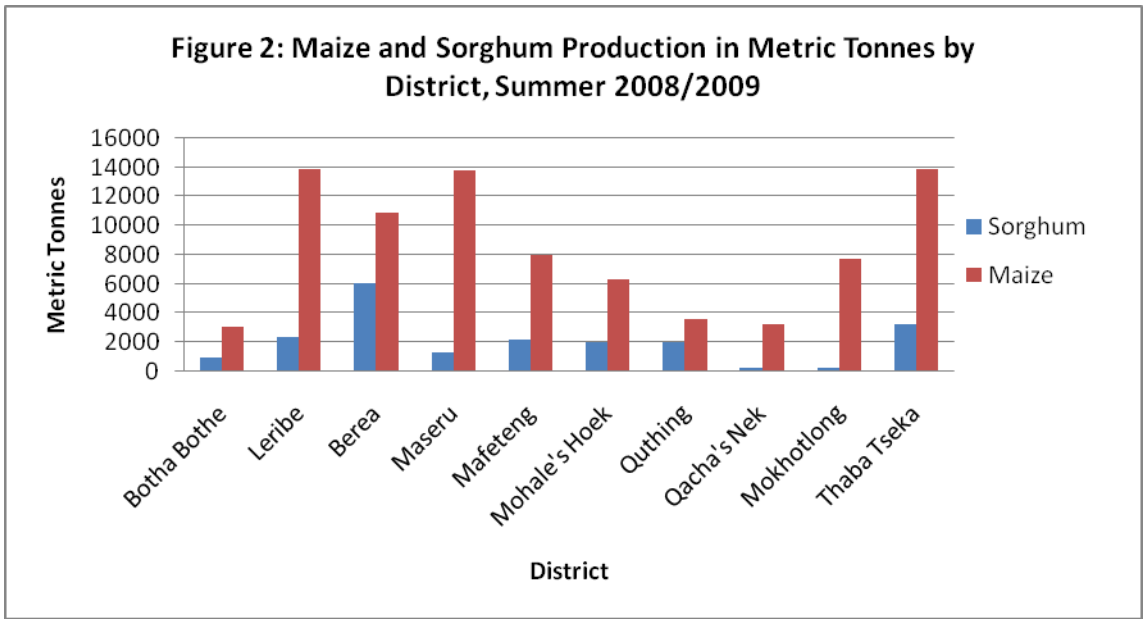
Figure 1 shows area planted and area harvested by crop in 2008/2009 Agricultural Year. Regardless of the natural anomalies experienced in 2008/2009 Agricultural Year, area planted to maize was 211,325 ha while area harvested was 205,378 ha, showing 3 percent crop failure. Area planted to sorghum was 43,969 ha while area harvested was 42,100 ha showing 4 percent crop failure.



4.3 Production

Production can be defined as the overall crop-output obtained from the harvested selected fields, thus area harvested multiplied by yield.

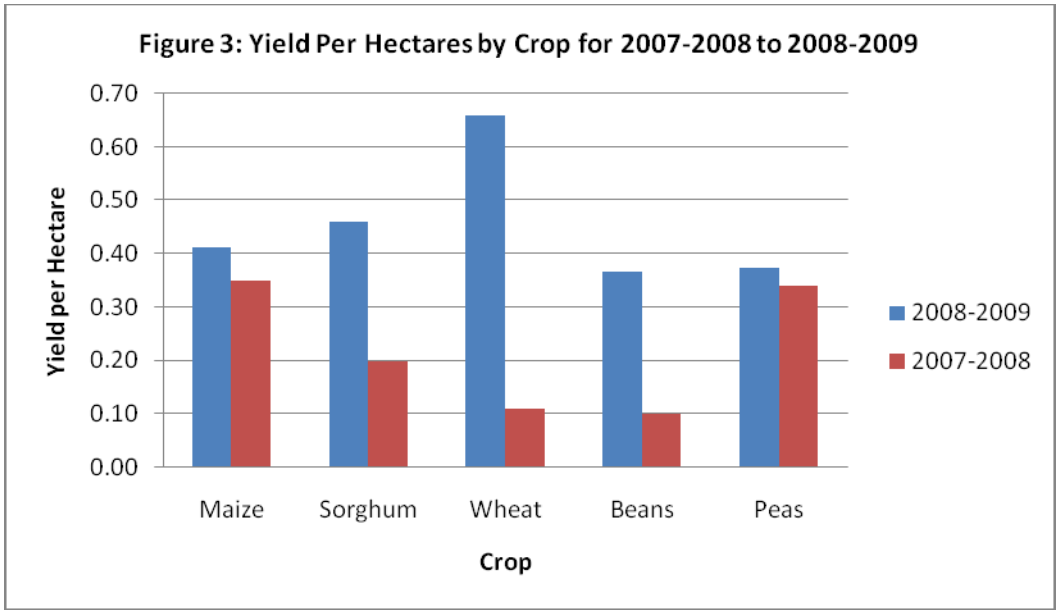
Annex Table A5 shows that the overall production of maize in 2008/2009 Agricultural Year was 85,593 metric tonnes (mt) showing a 19 percent increase from 2007/2008 production. Figure 2 shows maize and sorghum production by district in the Agricultural Year 2008/2009. Leribe observed the highest maize production in 2008/2009 with 13,924 mt, while Botha Bothe produced the lowest of 952 mt. In 2007/2008 Leribe produced 21,882 mt of maize, while in 2008/2009 it produced 13,924 mt showing a decrease of 36 percent. During these two Agricultural Years, Leribe was the highest in maize production.



Though sorghum is another staple food, in all the ten districts its production is far less than that of maize. In 2008/2009, Berea recorded the highest sorghum production with 6,047 mt.

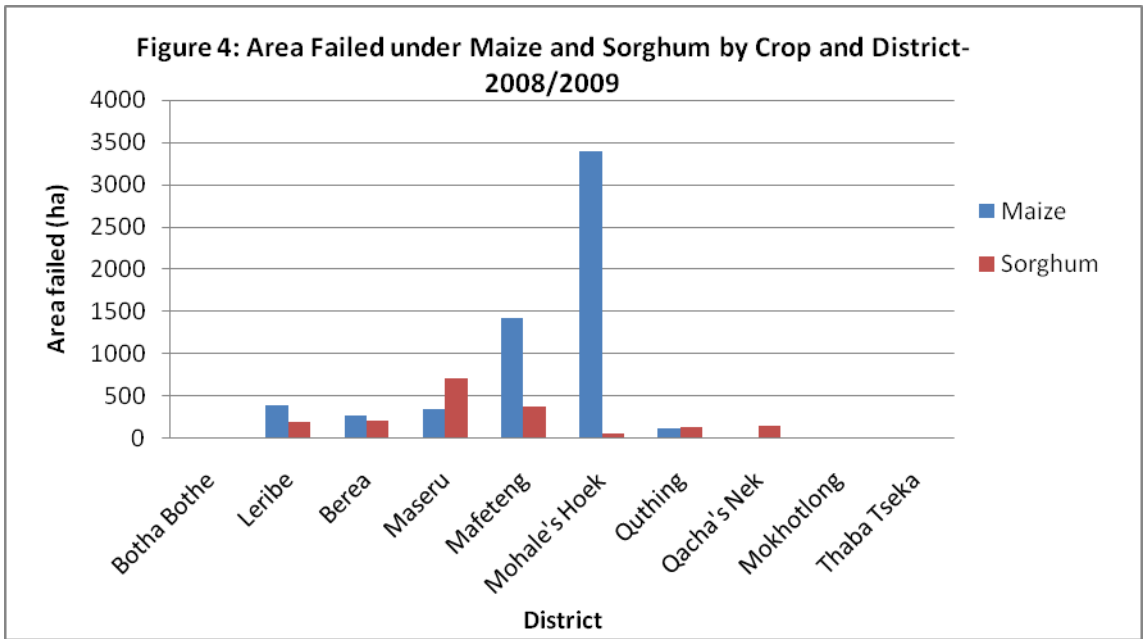
4.4 Yield per Hectares

Figure 3 shows yield per hectare by major crop, in summer 2007/2008 and 2008/2009 Agricultural Years. Yield is defined as production per area harvested. Yield varies for various crops and zones, and this may be caused by among other factors distribution and frequency of rainfall throughout the country. Wheat had the highest yield of 0.66 as compared to all other crops in 2008/2009. Although in 2008/2009 area planted to maize, wheat and beans was smaller than area for the previous Agricultural Year, these crops seemed to have greater yield in 2008/2009, this may be due to good rains and early planting.



4.5 Area under Crop Failure

Crop failure is a situation where a crop does not reach its maturity stage. Figure 4 shows area failed under maize and sorghum for the Agricultural Year 2008/2009. Mohale's Hoek recorded the largest area failed under maize with 3,394 ha followed by Mafeteng with 1,424 ha, while sorghum had the largest area failed in Maseru with 718 ha. Botha Bothe, Mokhotlong and Thaba Tseka experienced no area failed under both maize and sorghum.



The main reasons for crop failure are frost, hail, flood, drought, pest, weeds and animals. Drought and other reasons such as late planting have contributed to both maize and sorghum failure, and this is shown in Annex Table A8.

5 Winter Crops

5.1 Area Planted

Table 1.2 shows area planted to major winter crops; wheat, peas, and barley in 2008/2009 Agricultural Year by district. Due to the cold weather in the mountains, winter crops are mainly planted in lowlands and foothills of the country. The total area planted to wheat has increased by 12 percent from 6,602 ha in 2007/2008 to 7,510 ha in the current year. The area planted to peas has increased from 2,935 ha (2007/2008) to 9,061 ha (2008/2009) showing an increase of 68 percent, while that of barley has declined by 1 percent from 2,301 ha (2007/2008) to 2,273 ha (2008/2009).

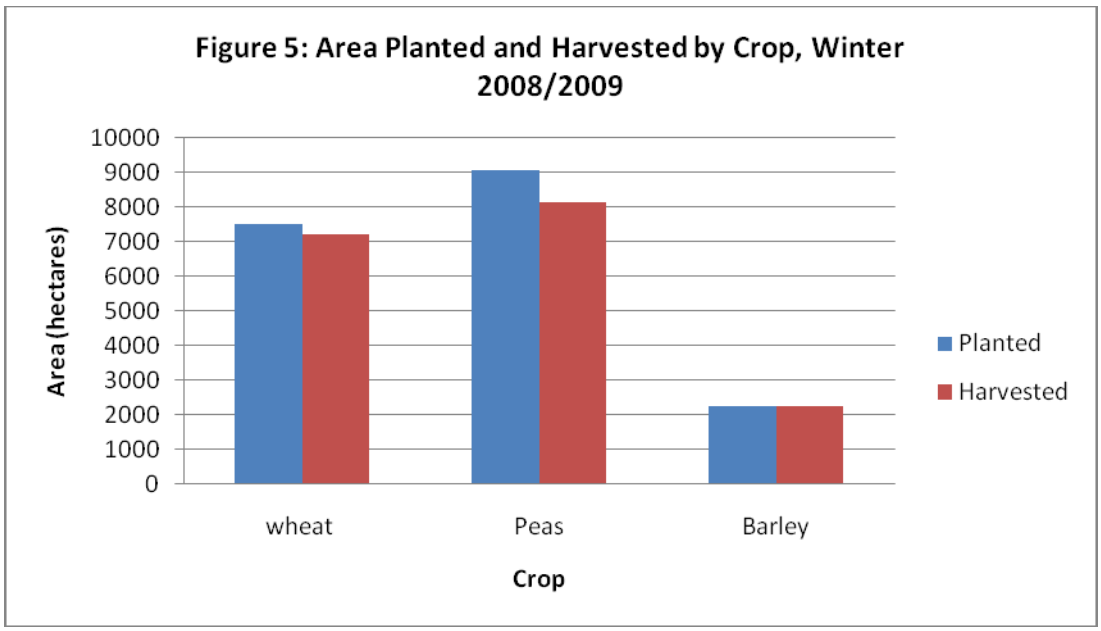
Mafeteng out-numbered all the districts in area planted to wheat 2,845 ha and barley 2,005 ha, while Mohale's Hoek has the largest area planted to peas (4,178 ha).

Table 1.2: Area Planted by Crop and District, Winter 2008/2009

District	Wheat	Peas	Barley
Botha Bothe	604	531	0
Leribe	1,153	140	0
Berea	1674	757	70
Maseru	355	675	122
Mafeteng	2,845	2,780	2,005
Mohale's Hoek	879	4,178	76
Quthing	0	0	0
Qacha's Nek	0	0	0
Mokhotlong	0	0	0
Thaba Tseka	0	0	0
Lesotho	**7,510**	**9,061**	**2,273**

5.2 Area Harvested

Winter crops were not grown in the mountains due to extremely cold weather and snow fall during winter. Area planted and area harvested in 2008/2009 Agricultural Year is shown in Figure 5. Total area planted to wheat was 7,510 ha while area harvested was 7,226 ha, and this only leaves 3.78 percent as area failed. Annex Table A4 shows that Mafeteng had the largest area harvested to wheat with 2,845 ha followed by Berea with 1,674 ha while Mohale's Hoek had the largest area harvested to peas with 3,482 ha.



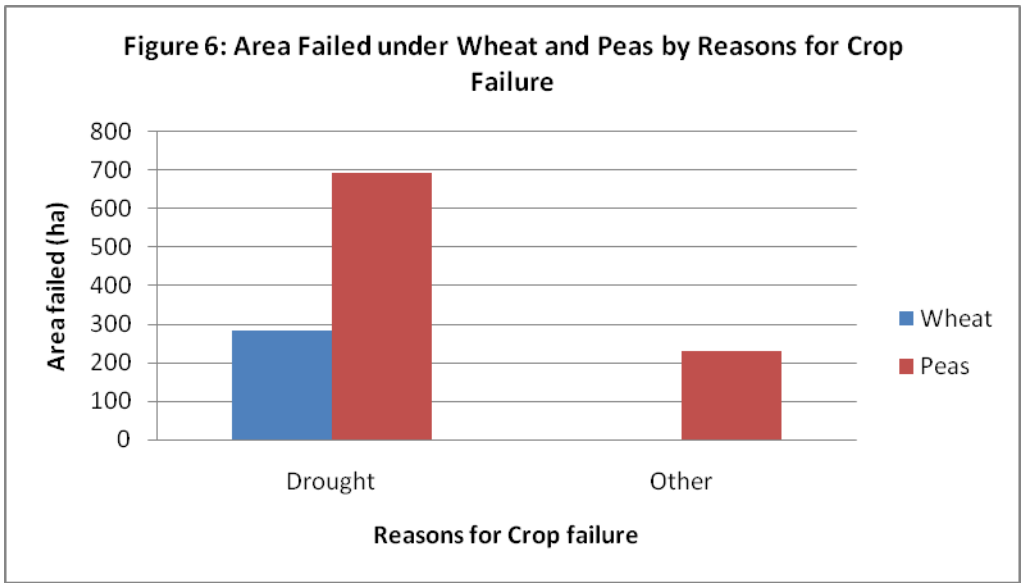
NOTE: In the case of winter crops, there was no analysis for production and yield since a small percentage of farmers engage in farming due to cold weather that distorts the sample size.

5.3 Area under Crop Failure

Table 1.3 shows crop failure by crop type, district and zone for Agricultural Year 2008/2009. The largest area failed under wheat was experienced in the lowlands of Botha Bothe with 163 ha, while Mohale's Hoek recorded 121 ha. Peas were mostly affected in the lowlands of Mohale's Hoek with 649 ha. The rest of the districts were not affected by failure.

Table 1.3: Area Failed in Winter by Crop Type, District and Zone 2008/2009

District	Zone	Wheat	Peas
Botha Bothe	Lowlands	163	230
Mohale's Hoek	Lowlands	0	649
	Foothills	121	46
Lesotho		**284**	**925**

5.4 Reasons for Crop Failure under Wheat and Peas

As mentioned earlier, wheat and peas are major crops that are grown in the lowlands of the country during winter season. Figure 6 shows area failed under wheat and peas by reason for crop failure. Drought, as with summer crops has mostly caused the failure of winter crops, especially peas. 695 ha of peas failed as a result of drought while 284 ha of wheat failed due to the same reason.