



Kurdistan Regional Government

Ministry of Planning

Kurdistan Region Statistics Office



Winter Crops Planted area Survey in Kurdistan Region
Area-yield-production-expenditure
2016-2017

Agricultural Statistics Department

May 2018

Kurdistan Regional Government
Ministry of Planning
Regional Statistics Office

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Area, yield, production, expenditure
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For more information please contact on:

Email: contact@krso.gov.krd

Website: www.krso.gov.krd

Tel: +964(0)662559170

Reference number: 62

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Preface

In the name of God

The role of agriculture in providing food and participating in manufacturing industry has always been of great importance to human and it has always been looked at as the most important infrastructure of the economy.

Thanks God that Kurdistan region is a very suitable place for agriculture due to its geographical location, water resource and fertile soil. Agricultural land area in Kurdistan region estimated at 6.6 million gonum. Five big rivers (Khabor River, Big confluence, Small confluence, Sirwan River, and Awa Spi River) supply 29.77 billion m³ water annually on average, in addition to 3662 springs and 68 soil dams which have capacity of storing 14 million m³ water. Beside all these factors, having a proper temperature and considerable precipitation compared to the rest of Iraq, agriculture could find its right place in Kurdistan region if it would be well planned.

Agriculture confronted many problems due to successive wars and economic restriction that our country faced. Erosion, inadequate irrigation project, lack of agricultural equipment and fertilizers, qualified seed supply, pesticides, as well as inappropriate policy that had been constantly imposed by previous regimes towards arable lands and villages as the source of agricultural products are the factors that had directly or indirectly fainted the agricultural sector. Therefore, rapid steps must be taken to implement a scientific plan to improve the agriculture and abilities in this field by rebuilding villages, and providing farmers with modern agricultural facilities to meet their needs.

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Work team

Survey supervisor committee

Mr. Serwan Mohammad. M, president of KRSO
Mr. Omar Taher. Aziz, financial and administration directorate/ KRSO
Mr. Saman Ezaddin. R, Erbil statistics directorate
Mr. Chiavan Abdolrazzag. S, Duhok statistics directorate
Mr. Mahmud Osman M, Sulaimani statistics directorate
Mr. Haidar Shamsollah J, Garmyan statistics directorate
Mr. Haidar Mahmud KH, Soran statistics office directorate
Mr. Araz Ibrahim H, Raparin statistics office directorate

Technical committee

Mr. Dlawar Jalil A, The head of agriculture and environment statistics department/ KRSO
Mr. Abdulbaset Abdulrahman H, statistics and public development directorate/ Ministry of agriculture and water resources
Mr. Tofiqh Hamad I, Erbil statistics directorate
Mr. Abdulsatar Jalal M, Erbil statistics directorate
Mr. Naser Mohammad M, Sulaimani statistics directorate
Mr. Rashid Ismail J, Duhok statistics directorate
Mr. Abobaker Ghader B, Raparin statistics directorate
Mr. Hamed Mahyaddin R, Garmyan statistics directorate
Mr. Peshawa Samad Y, Soran statistics directorate

Data entry program designer committee

Mr. Raqeeb Bahaddin M.
Miss. Nihayat Hashem K.
Mr. Mamand Hamad

Data analyzes

Mr. Dlawar Jalil A.
Mr. Halmat Naseh N.

Report preparing

Miss. Zainaba Ali H.
Miss. Chra Rzgar Sleman

Statistical report Standards

Suad Baker F.

Field team committee

It includes the enumerators from governorates' statistics directorates and administrations in Kurdistan region as well as all enumerators from agricultural offices.

Introduction

This survey aims to achieve new data and information on arable lands to be used in government planning to develop agriculture sector and meet the needs of this sector.

The winter crops (wheat, barley, chicken pea, lentil and vegetables) are important agricultural production that covers the most arable lands. Agricultural indicators show progress in winter crops products comparing to the last years in Kurdistan region. The share of national income from agriculture comprised 3.1% of the Kurdistan region's total income in 2013.

The aim of this survey is to show the level of the winter crops cultivated land in all villages across Kurdistan region and to estimate the products and expenditure of wheat, barley, chicken pea and lentil as well as the lands that have been attacked by pests, the fertilized lands, and the type of fertilizers.

In this report the results have been presented for all winter crops, cultivated area, products and expenditure at the level of governorates and districts.

Concepts and definitions

Yield: it refers to the amount of a specific agricultural product which is obtained from one donum at the end of harvest time. The yield is measured in kilogram at the level of each farmers cultivated land.

Product: it is the total weight of crops after harvesting and cleaning minus the portion for the farmer own use. Production is measured in ton (1000 Kg).

Planted area: it refers to the land area in which the farmer plants one or several kinds of crops. Planted area is measured in gonum that is equal to 2 500 m².

Available agriculture area: it refers to the land area which farmer possesses in a village borderline and includes any types of agriculture land like, rain fed land, uncultivated land, garden, and pasture.

Topography of the land: it is the natural feature of agricultural land surface in term of low and high level of land (plain, hilly, mountainous).

Fertilizer: it refers to a mineral substance or natural animal's wastes or manufactured compound which is added to soil in solid or solution form to provide nutrients to plants for growing. Nutrients like K₂O, O₅ and N₂P₂ comprise the main part of fertilizers which accounted for 5% at least. There are two basic kinds of fertilizers as follows:

- a) **Organic fertilizer:** it derived from animal of vegetables wastes. there are types of organic fertilizers and the most important are as follows:
 - Animal fertilizer: it is composed of animal solid or liquid wastes along with vegetable matter which is used in agricultural land and pastures.
 - Green fertilizer: it is the vegetable matters that added to soil to enhance the quality of soil and thus fed plants. It functions as animal fertilizer after being decomposed.
- b) **Chemical fertilizer:** this kind of fertilizer is made of two or more raw matters which are mostly phosphate and potassium. there is two kinds of chemical fertilizer as follows:
 - Simple fertilizer (urea): it is a kind of fertilizer that is rich in nitrogen as the only component of it.
 - Compound fertilizer (mixed fertilizer): it contains the most nutrients and known as complete fertilizer.

Pest: it refers to all destructives living organism that attacks agricultural products and can completely damage or cripple crops. Example of pests include: grasshopper, sunn, smut, and worm.

Seed poisoning: it refers to cleaning seed before planting with raxil. Raxil is a red chemical substance which is mixed with seeds to protect it from rotting and decomposition.

Weeds controlling: it refers to remove undesirable plants in order to increase the main plant productivity.

Cleaning cost: it refers to the cost which is spent to clean seeds from unwilling materials during cleaning process just after harvesting through special machines.

Rate difference: it is a measure of difference between two rates of indicators from different place or different period.

Manufacturing industry: it refers to all industries that lay on other materials- here, agricultural materials- to transfer them to other products like, leather and canned foods...etc.

Advantages

- to manifest all planted area in Kurdistan region
- to reveal unplanted area during the growing seasons
- to reveal the number of farmers who participated in planting winter crops
- to estimate the yield per gonum of planted area
- to estimate the production level of winter crops
- to estimate the expenditure of winter planted crops per donum
- to estimate the fertilized area and type of fertilizers
- to estimate the land areas that have been stricken by pests

Objectives

The aim of the survey is to provide data and information on agriculture sector to government and non-government organizations and who are directly or indirectly involved in this sector and also making comparison between recent and previous data to highlight the changes to be used in studding and research.

Methodology

Survey form

Form or questionnaire is one of the main tools that used in collecting data. Two kinds of form have been used in this survey, the form of cultivated area and the form of products estimation. The forms have been prepared in cooperation with ministry of agriculture and water resources.

Sample and frame

- **The target community:** it covers all farmers who planted their land during the growing season 2016-2017 in Kurdistan region.
- **Sample frame:** what makes this survey different from other surveys is the sample frame. Contrast to other surveys, for this survey that is a comprehensive survey, frame needs to be renewed as the planted area changes according to the new growing season.
- **Sample size:** sample method has been used for products estimation while for planted area (winter frame) all villages have been surveyed. Of the total 3,437 villages across Kurdistan region, 15% of them (522 villages) have been taken as sample for products estimation.
- **Sample designing:** to design the sample of this survey, it was relied on regular sampling.

Field work

It refers to all stages of data collection where enumerators directly collect data from field. Meeting technical and administrative needs, budget provision, and training have an important role to successfully implement the field work in any surveys.

Training

Training was done in two different stages. First, the training course was conducted for local supervisors on 5/7/2017. Then, another training course was conducted for enumerators by the trained supervisors on 10/7/2017.

The following subjects were covered during the courses:

- concepts and definition of terms,
- how to fill up the questionnaire,
- the units of measuring in different areas,
- How to deal with respondent.

Data collecting

Data collecting started on 12/7/2017 through directly visiting the reeves or village councils and the field work finished on 22/8/2017 after 35 working days.

Enumerators divided into 42 teams. Each team included 2 enumerators, one from statistics directorates in governorates and the other from agricultural offices, in addition to coordinators committees, local supervisors and central supervisors that were divided as follows:

- 7 teams and 1 local supervisor in Erbil,
- 10 teams and 1 local supervisor in Dohuk,
- 15 teams and 1 local supervisor in Sulaimani,
- 3 teams and 1 local supervisor sited in Garmyan administration,
- 3 teams and 1 local supervisor in Raparin administration,
- 4 teams and 1 local supervisor in Soran,
- 3 local supervisor were periodically supervising the field work,
- 11 verifiers from governorates and administrations along with 4 verifiers from KRSO were verifying the forms (questionnaires).

Data treatment

Data treatment consists of several activities that are needed to be done to prepare the forms for analyzing stage. These activities are as follows:

Data checking: in this state all forms would be checked in order to correct errors and set disorders to

Data entering: through the Csprow program, data entering was done in KRSO on 28/8/2017 and lasted until 5/10/2017.

Data cleaning: in this stage, any data that is inconsistent with the real situation as well as unanswered questions would be identified and then they would be solved or corrected through contacting farmers or field teams in order to achieve a desirable and acceptable data. Data would be ready for analyzing after passing data cleaning stage.

Data analyzing

After cleaning process and having a qualified data and through prepared **syntaxes** and **Stata** program, it would be analyzed and finally tabulated by Excel program.

Weighting

Weighting was done through the following two different ways:

First way: planted area was divided in groups by the size of the areas. To sample the cultivated area which included 15% of villages, it was relied on these groups and each groups had its own effect on the results by the weight it had.

Second way: to achieve a yield that reflects the real situation, the total products divided by the total area.

Data quality

Carrying out any survey it needs to pass several stages and each stage has an important role in providing better result and qualified data. The stages include: decision making, providing essentials, preparation for data collection, supervising and checking, data validating and making comparison with real situation in the field, and data presentation.

Data accuracy

Effort has been taken to reduce unwilling errors that may occur during sampling or during the field work. There are two kinds of errors as follows:

Statistical errors: These kinds of errors occur during sample selection. As the 2016-2017 frame survey was not done at its date time, it was not possible to use that data in selecting sample, there for it was relied on 2013 frame survey and this caused losing those areas which were selected in the sample. Also, sampling on the base of groups in order to make balance between samples was another problem, because in some districts, sampling was not possible due to small planted area.

Non-statistical errors: these errors occur during the survey performing stages that include questionnaire design process, data collection, misunderstanding of questions, and the effects of interviewing and making mistakes in recording information. Reducing these errors would results a more qualified data.

Sample list for winter planted area survey 2016-2017

#	Governorate	District	No. villages for wheat crop
1	Erbil	Khabat	11
2		Dashti Hawler	17
3		Rawanduz	9
4		Soran	24
5		Shaqhlawa	14
6		Choman	6
7		Koya	15
8		Mergasor	12
9		Erbil center	26
10	Sulaimani	Pshdar	26
11		Penjwen	3
12		Chamchamal	38
13		Darbandikhan	3
14		Dokan	27
15		Ranya	12
16		Saeed Sadegh	29
17		Sharbazher	1
18		Sharazor	18
19		Gharadagh	5
20		Mawat	1
21	Sulaimani center	33	
22	Halabjah	Halabjah center	20
23	Duhok	Akre	17
24		Amedi	3
25		Bardarash	28
26		Duhok center	2
27		Semel	33
28		Shekhan	29
29		Zakho	14
30	Garmyan	Kalar	9
31		Kfri	12
32		Khanaghin	25

Preliminary results

Rain-fed wheat

The planted area for rain fed wheat reported at 2,390,141 donums in Kurdistan region for growing season 2016-2017 with production estimated at 822,361 tons. Erbil governorate recorded the most rain-fed wheat cultivated area (31%), while the highest production (31%) has been recorded in Duhok governorate.

Planted area and production of rain-fed wheat in Kurdistan region's governorates is as follows:

Erbil governorate: planted area for rain-fed wheat was 736,539 donums with production estimated at 241,594 tons. The highest production rate (23%) has been reported in Koya district and the lowest rate (0.2%) in Rawanduz district.

Sulaimani governorate: planted area for rain-fed wheat was 653,177 donums with production estimated at 242,707 tons. The highest production rate (25%) has been reported in Chamchamal district and the lowest rate (0.2%) in Rawanduz district.

Duhok governorate: planted area for rain-fed wheat was 635,171 donums with production estimated at 254,188 tons. The highest production rate (25%) has been reported in Bardarash district and the lowest rate (1%) in Amedi district.

Halabjah governorate: planted area for rain fed wheat was 61,362 donums with production estimated at 31,066 tons.

Garmyan administration: planted area for rain-fed wheat was 303,892 donums with production estimated at 52,807 tons. The highest production rate (42%) has been reported in Khanaghin district and the lowest rate (25%) in Kfri district.

Irrigated wheat

The irrigated wheat planted area reported at 286,945 donums in Kurdistan region for growing season 2016-2017 with production estimated at 197,120 tons. Erbil governorate recorded the highest cultivated area (79%) as well as the highest production (86%) of irrigated wheat among the other governorates in Kurdistan region according to the survey 2016-2017.

Planted area and production of irrigated wheat in Kurdistan region's governorates is as follows:

Erbil governorate: Erbil recorded 212,444 donums of planted area for irrigated wheat and a production estimated at 170,083 tons. Erbil center district recorded the highest production rate (62%) and the lowest rate has been recorded in Choman district (0.2%) comparing to other districts in Erbil governorate.

Sulaimani governorate: planted area for irrigated wheat was 3,690 donums with production estimated at 3,543 tons. The highest production rate (83%) has been reported in Ranya district and the lowest rate (0.3%) in Sharbazher district.

Duhok governorate: planted area for irrigated wheat reached 6,291 dunoms with production estimated at 5,268 tons. Shekhan district registered the highest rate (75%) and the lowest rate (9%) goes to Akre district comparing to other districts in Duhok governorate.

Halabjah governorate: planted area for irrigated wheat recorded 13 dunms in Halabjah governorate. Due to the small area cultivated with irrigated wheat, it has not been included in the sample and for this reason, the yield for irrigated wheat has not been recorded in the 2016-2017 winter planted area survey.

Garmyan administration: planted area for irrigated wheat recorded 46,508 donums and its production has been estimated at 18,227 tons. The highest rate (60%) has been recorded in Kfri district and the lowest rate (4%) in Kalar district.

Rain-fed barley

Land under rain-fed barley cultivation was 341,451 donums in Kurdistan region and the harvest estimated at 88,738 tons, based on 2016-2017 survey records. The largest cultivated area (45%) located in Sulaimani governorate and also the highest production rate (50%) has been recorded in this governorate comparing to other places in Kurdistan region.

Planted area and production of rain-fed barley in Kurdistan region's governorates is as follows:

Erbil governorate: rain-fed barley planted area was 79,605 donums and its production estimated at 24,206 tons, reported 2016-2017 survey. The production highest rate (37%) goes to Koya district and the lowest rate (0.5%) has been recorded in Rawanduz district.

Sulaimani governorate: rain-fed barley planted area was 152,154 donums and its production estimated at 44,657 tons. The production highest rate (66%) has been recorded in Chamchamal district and the lowest rate (0.2%) recorded in Mawat district.

Duhok governorate: rain-fed barley planted area was 14,681 donums and its production estimated at 5,639 tons. The production highest rate (57%) has been recorded in Bardarash district and the lowest rate (4%) recorded in Zakho district.

Halabjah governorate: rain-fed barley planted area recorded 1,611 donums and its production recorded an estimation of 629 tons.

Garmyan administration: rain-fed barley planted area was 93,401 donums and its production estimated at 13,607 tons. The production highest rate (45%) has been reported in Kfri district and the lowest rate (15%) reported in Rawanduz district, according to the results of 106-2017 survey.

Irrigated barley

Irrigated barley planted area recorded 6,637 donums in Kurdistan region and its production has been estimated at 2,204 tons. The largest planted area (51%) under irrigated barley production has been recorded in Garmyan administration, while the highest production rate (66%) has been recorded in Erbil governorate.

Chickpeas

Chickpeas planted area recorded 12,259 donums in Kurdistan region and its production has been estimated at 2,525 tons. The largest area (44%) under chickpeas cultivation has been recorded in Sulaimani governorat, while the highest production rate (38%) has been recorded in Duhok governorate.

Planted area and production of chickpeas in Kurdistan region's governorates is as follows:

Erbil governorate: the land under chickpeas cultivation was 2,787 donums in Erbil governorate and its production estimated at 451 tons.

Sulaimani governorate: the land under chickpeas cultivation was 5,357 donums in Erbil governorate and its production estimated at 485 tons.

Duhok governorate: the land under chickpeas cultivation was 2,579 donums in Erbil governorate and its production estimated at 958 tons.

Garmyan administration: the land under chickpeas cultivation was 282 donums in Erbil governorate and its production estimated at 69 tons.

Halabjah governorate: the land under chickpeas cultivation was 1,255 donums in Erbil governorate and its production estimated at 199 tons.

Lentils

Lentils planted area recorded 473 donums in Kurdistan region and its production estimated at 66 tons. The largest area (52%) under lentils cultivation as well as the highest production rate (54%) has been recorded in Duhok governorate.

Planted area and production of lentils in Kurdistan region's governorates is as follows:

Erbil governorate: the land under lentils cultivation was 107 donums in Erbil governorate and its production estimated at 17 tons.

Sulaimani governorate: the land under lentils cultivation was 113 donums in Erbil governorate and its production estimated at 13 tons.

Duhok governorate: the land under lentils cultivation was 284 donums in Erbil governorate and its production estimated at 36 tons.

Halabjah governorate: there was no lentils production in Halabjah according to the 2016-2017 winter planted area survey.

Garmyan administration: due to small planted area under lentils production in Garmyan, it has not been mentioned in the main results.

Fertilized land in Kurdistan region

The fertilized land for rain-fed wheat and irrigated wheat recorded 86% of the total land under wheat production in general.

The fertilized land for rain-fed barley recorded 59% of the total land under rain-fed barley production.

The fertilized land for irrigated barley recorded 65% of the total land under irrigated barley cultivation.

The pests struck agricultural land area in Kurdistan region, survey 2016-2017

Rain-fed wheat: about 42% of land area under rain-fed wheat has been recorded as pests stricken

Irrigated wheat: about 16% of the land area under irrigated wheat was stricken by pests.

Rain-fed barley: about 16% of land area under rain-fed barley was stricken by pests.

Irrigated barley: about 7% of irrigated barley cultivation was stricken by pests, according to the 2016-2017 survey.

The cost per donum planted area for rain-fed wheat production in Kurdistan region, survey 2016-2017

The average cost for planting one donum of wheat is about 121 thousand dinars in Kurdistan region. The highest cost rate has been recorded in Duhok governorate which is about 146 thousand dinars and the lowest rate is recorded in Garmyan which is about 61 thousand dinars.

The cost per donum planted area for barley production in Kurdistan region, survey 2016-2017

The average cost for planting one donum of barley is about 99 thousand dinars in Kurdistan region. The highest cost rate has been recorded in Halabjah governorate which is about 124 thousand dinars and the lowest rate is recorded in Garmyan which is about 51 thousand dinars per donum.

Table 1 : total planted area and available area for farmers who planted winter crops in growing season 2016-2017 at the level of governorates and Kurdistan region

Governorate	Available area (donum)	Planted area (donum)
Erbil	1,166,390	1,050,640
Sulaimani	1,100,431	818,402
Duhok	946,694	662,963
Halabjah	76,069	67,399
Garmyan administration	600,673	447,949
Kurdistan region	3,890,257	3,047,353

Table 2: number of villages and farmers for winter crops (wheat, barley, chickpeas, lentils, vegetables) in growing season 2016-2017 at the level of governorates and Kurdistan region

Governorate	total villages	villages that had winter crops	Percentage rate (%)	No. farmers
Erbil	1,423	827	58	20,169
Sulaimani	1,674	1,350	81	26,060
Duhok	1,442	803	56	11,458
Halabjah	122	108	89	3,257
Garmyan administration	409	349	85	7,760
Kurdistan region	5,070	3,437	68	68,704

Table 3: percentage of wheat planted area for growing season 2016-2017 at the level of governorates and Kurdistan region

Governorate	Rain-fed wheat area (Donum)	Percentage rate %	Irrigated wheat area (Donum)	Percentage rate %	Total wheat planted area (Donum)
Erbil	736,539	31	212,444	79	948,983
Sulaimani	653,177	27	3,690	1	656,867
Duhok	635,171	27	6,291	2	641,461
Halabjah	61,362	3	13	0	61,375
Garmyan administration	303,892	13	46,508	17	350,400
Kurdistan region	2,390,141	100	268,945	100	2,659,086

Table 4: percentage of barley planted area for growing season 2016-2017 at the level of governorates and Kurdistan region

Governorate	Rain-fed barley area (donum)	Percentage point (%)	irrigated barley area (donum)	Percentage point (%)	Total barley planted area (Donum)
Erbil	79,605	23	2,506	38	82,111
Sulaimani	152,154	45	599	9	152,753
Duhok	14,681	4	179	3	14,859
Halabjah	1,611	0.5	0	0	1,611
Garmyan administration	93,401	27	3,354	50	96,755
Kurdistan region	341,451	100	6,637	100	348,088

Table 5: planted and unplanted area in growing season 2016-2017 at the level of districts in Erbil governorate

District	No. villages	No. farmers	Planted area (donum)								Unplanted area (donum)
			Rain-fed wheat	Irrigated wheat	Rain-fed barley	Irrigated barley	chickpeas	lentils	vegetables	total	
Erbil center	83	4,214	137,072	124,509	9,711	823	10	-	12,373	284,498	1,035
Dashti Hawler	98	3,595	158,261	60,713	27,506	914	109	30	1,730	249,263	8,420
Soran	107	917	5,502	2,368	2,019	158	177	5	-	10,228	4,316
Shaqlawaw	165	3,464	143,639	3,925	6,602	20	1,372	21	567	156,146	14,282
Choman	82	747	12,335	1,135	1,864	239	91	1	290	15,953	3,555
Koya	128	3,848	171,286	511	27,811	290	793	42	1,601	202,334	21,435
Mergasor	80	898	15,174	4,690	536	5	67	-	1	20,471	4,557
Khabat	49	2,193	92,139	14,430	2,944	20	45	-	88	109,666	243
Rawanduz	35	293	1,132	163	613	38	124	8	4	2,082	121

Table 6: planted and unplanted area in growing season 2016-2017 at the level of districts in Sulaimani governorate

District	No. villages	No. farmers	Planted area (donum)								Un planted area (donum)
			Rain-fed wheat	Irrigated wheat	Rain-fed barley	Irrigated barley	chickpeas	lentils	vegetables	total	
Sulaimani center	175	4,014	94,296	122	10,012	53	528	6	215	105,232	20,507
Gharadagh	72	968	21,423	189	5,438	28	71	11	77	27,236	13,417
Sharazor	50	1,501	48,318	-	210	-	153	-	128	48,808	3,370
Saeed Sadeegh	65	2,563	61,310	6	622	30	577	-	170	62,715	855
Penjwen	128	1,163	4,101	36	7,421	8	293	-	29	11,886	5,433
Sharbazher	125	808	3,147	210	2,781	51	496	6	482	7,171	4,337
Mawat	50	255	1,671	124	613	53	61	-	160	2,682	1,378
Pshdar	145	3,149	45,081	276	12,984	102	224	1	14	58,680	2,371
Ranya	64	2,069	36,944	1,398	2,350	20	352	11	5	41,079	181
Dokan	143	2,875	93,612	175	3,209	55	1,736	20	1,418	100,224	8,291
Darbandikhan	34	687	25,637	-	2,677	45	489	9	2	28,859	7,726
Chamchamal	299	6,008	217,640	1,155	103,839	155	379	49	614	323,831	135,043

Table 7: planted and unplanted area in growing season 2016-2017 at the level of districts in Duhok governorate

District	No. villages	No. farmers	Planted area (donum)								Un planted area (donum)
			Rain-fed wheat	Irrigated wheat	Rain-fed barley	Irrigated barley	chickpeas	lentils	vegetables	total	
Duhok center	57	344	23,339	-	1,073	-	166	-	125	24,703	5,733
Semel	138	1,410	131,405	-	1,336	5	-	-	-	132,746	81,087
Zakho	107	409	74,277	592	589	-	158	-	-	75,616	48,366
Amedi	104	370	6,294	126	1,402	32	237	7	2	8,098	4,414
Shekhan	199	3,213	171,309	4,017	786	25	611	156	1,444	178,348	11,977
Akre	138	4,326	85,797	405	2,648	67	965	25	2,214	92,120	4,947
Bardarash	60	1,386	142,750	1,151	6,847	50	442	60	33	151,333	30,948

Table 8: planted and unplanted area in growing season 2016-2017 at the level of districts in Garmyan administration

District	No. villages	No. farmers	Planted area (donum)								Un planted area (gonum)
			Rain-fed wheat	Irrigated wheat	Rain-fed barley	Irrigated barley	chickpeas	lentils	vegetables	total	
Kalar	152	2,486	94,013	2,639	25,641	119	82	-	-	122,494	50,585
Kfri	64	2,607	125,540	30,022	58,483	3,224	12	-	401	217,682	54,729
Khanaghin	133	2,667	84,339	13,847	9,277	11	188	5	107	107,774	36,165

Table 9: planted and unplanted area in growing season 2016-2017 at the level of Halabjah governorate

District	No. villages	No. farmers	Planted area (donum)								Un planted area (donum)
			Rain-fed wheat	Irrigated wheat	Rain-fed barley	Irrigated barley	chickpeas	lentils	vegetables	total	
Halabjah center	108	3,257	61,362	13	1,611	0	1,255	0	3,158	67,399	1,208

Table 10: wheat and barley planted area, rain-fed and irrigated for growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Wheat planted area (rain-fed, irrigated)		Wheat production (rain-fed, irrigated)		barley planted area (rain-fed, irrigated)		barley production (rain-fed, irrigated)	
	donum	Percentage point (%)	ton	Percentage point (%)	donum	Percentage point (%)	ton	Percentage point (%)
Erbil	948,983.0	36	411,676.2	40	82,110.5	24	25,654.4	28
Sulaimani	656,866.8	25	246,249.3	24	152,752.6	44	44,901.5	49
Duhok	641,461.3	24	259,456.0	25	14,859.0	4	5,718.9	6
Halabjah	61,375.0	2	31,066.3	3	1,611.0	0.5	628.9	1
Garmyan administration	350,400.3	13	71,033.2	7	96,754.5	28	14,038.4	15
Kurdistan region	2,659,086.4	100	1,019,481.1	100	348,087.6	100	90,942.1	100

Table 11: rain-fed wheat (area, yield, production) in growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Planted area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	736,539.0	328.0	241,593.6
Sulaimani	653,177.3	371.6	242,706.6
Duhok	635,170.8	400.2	254,188.2
Halabjah	61,362.0	506.3	31,066.3
Garmyan administration	303,892.0	173.8	52,806.6
Kurdistan region	2,390,141.1	344.1	822,361.3

Figure 1: production and rain-fed wheat planted area in growing season 2016-217 in Kurdistan region's governorates

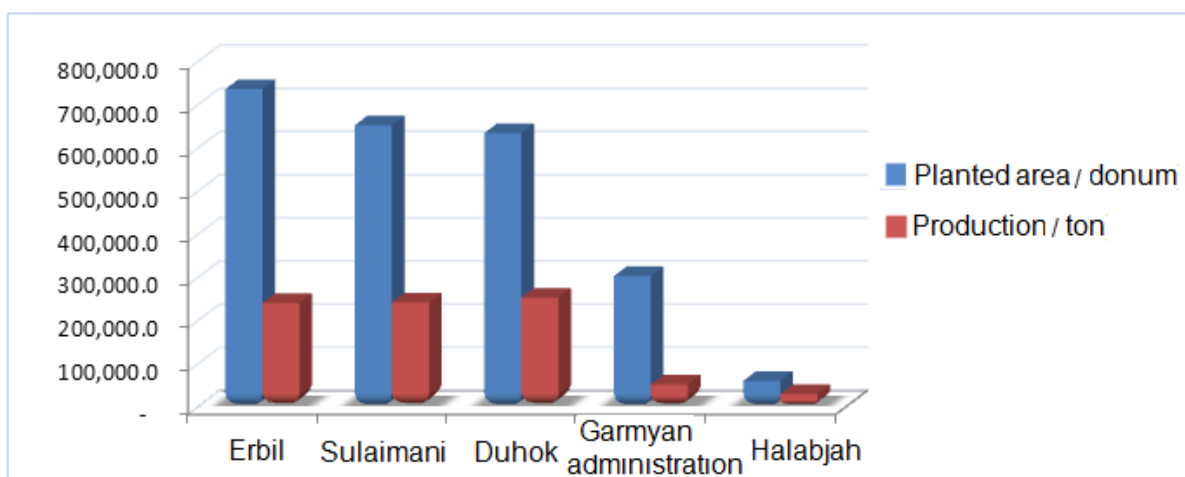


Table 12: irrigated wheat (area, yield, production) in growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Planted area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	212,444.0	800.6	170,082.7
Sulaimani	3,689.5	960.2	3,542.8
Duhok	6,290.5	837.4	5,267.8
Halabjah	13.0	-	-
Garmyan administration	46,508.3	391.9	18,226.6
Kurdistan region	268,945.3	732.9	197,119.8

Figure 2: production and irrigated wheat planted area in growing season 2016-217 in Kurdistan region's governorates

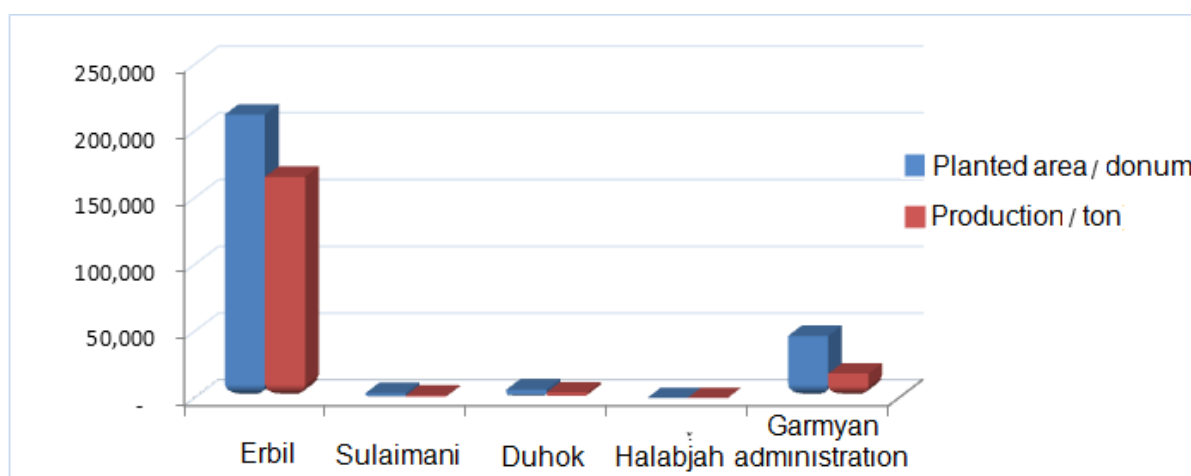


Table 13: rain-fed wheat (area, yield, production) in growing season 2016-2017 at the level of districts in Kurdistan region

Governorate	district	Planted area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	Erbil center	137,072.0	330.1	45,243.9
	Dashti Hawler	158,261.0	246.6	39,020.8
	Soran	5,502.0	350.4	1,927.9
	Shaghlawa	143,639.0	314.5	45,164.5
	Choman	12,334.5	269.8	3,327.5
	Koya	171,286.0	330.6	56,625.1
	Mergasor	15,173.5	298.6	4,530.2
	Khabat	92,139.0	493.6	45,484.2
	Rawanduz	1,132.0	238.0	269.4
Sulaimani	Sulaimani center	94,296.0	386.7	36,468.3
	Gharadagh	21,423.0	180.9	3,875.6
	Sharazor	48,317.5	604.3	29,200.4
	Saeed Sadeegh	61,310.0	563.9	34,572.7
	Penjwen	4,100.5	243.0	996.4
	Sharbazher	3,146.5	273.3	860.0
	Mawat	1,670.5	233.6	390.2
	Pshdar	45,080.5	427.6	19,275.3
	Ranya	36,944.0	593.9	21,940.1
	Dokan	93,611.8	315.8	29,560.9
	Darbandikhan	25,637.0	176.0	4,512.1
	Chamchamal	217,640.0	280.5	61,054.6
Duhok	Duhok center	23,339.0	237.3	5,539.1
	Semel	131,405.0	300.1	39,439.4
	Zakho	74,277.0	396.2	29,426.4
	Amedi	6,293.5	252.9	1,591.7
	Shekhan	171,309.0	473.2	81,066.5
	Akre	85,797.3	395.1	33,899.7
	Bardarash	142,750.0	442.9	63,225.3
Halabjah	Halabjah center	61,362.0	506.3	31,066.3
Garmyan administration	Kalar	94,013.0	183.7	17,270.7
	Kfri	125,540.0	104.8	13,158.6
	Khanaghin	84,339.0	265.3	22,377.2

Table 14: rain-fed barley (area, yield, production) in growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Planted area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	79,604.5	304.1	24,206
Sulaimani	152,153.6	293.5	44,657
Duhok	14,680.5	384.1	5,639
Halabjah	1,611	390.4	629
Garmyan administration	93,401.0	145.7	13,607
Kurdistan region	341,450.6	259.9	88,738

Figure 3: production and rain-fed planted area in growing season 2016-2017 in Kurdistan region's governorates

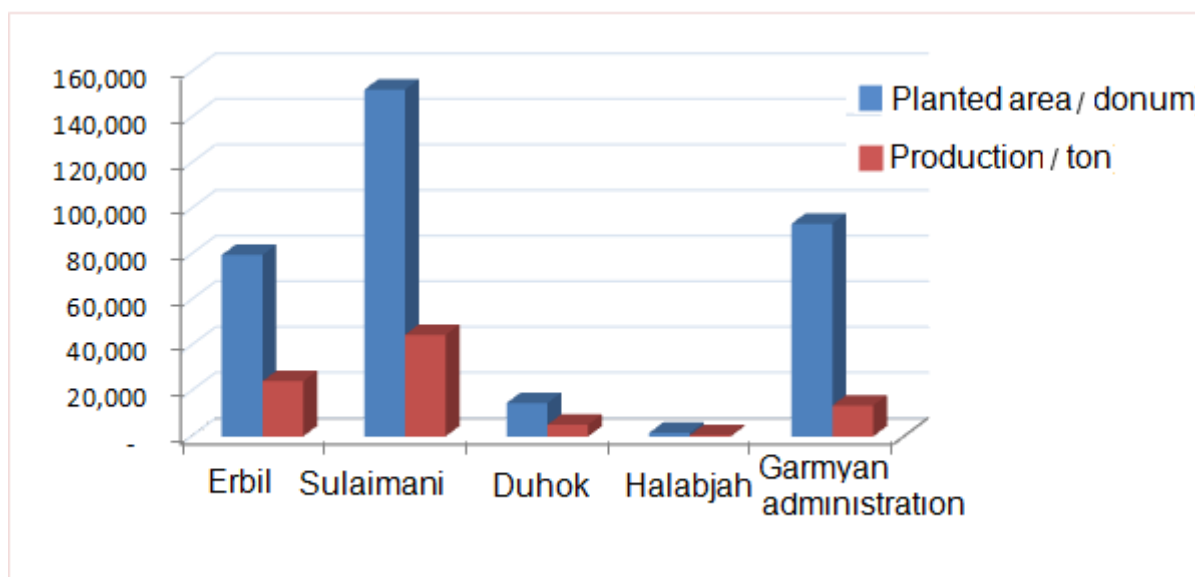


Table 15: irrigated barley (area, yield, production) in growing season 2016-2017 in Kurdistan region's governorates

Governorate	Planted area (donum)	Yield (Kg/ donum)	Production (ton)
Erbil	2,506.0	577.9	1,448
Sulaimani	599.0	408.0	244
Duhok	178.5	449.0	80
Halabjah	-	-	-
Garmyan administration	3,353.5	128.5	431
Kurdistan region	6,637	332.0	2,204

Figure 4: production and irrigated barley planted area for growing season 2016-2017 in Kurdistan region's governorates

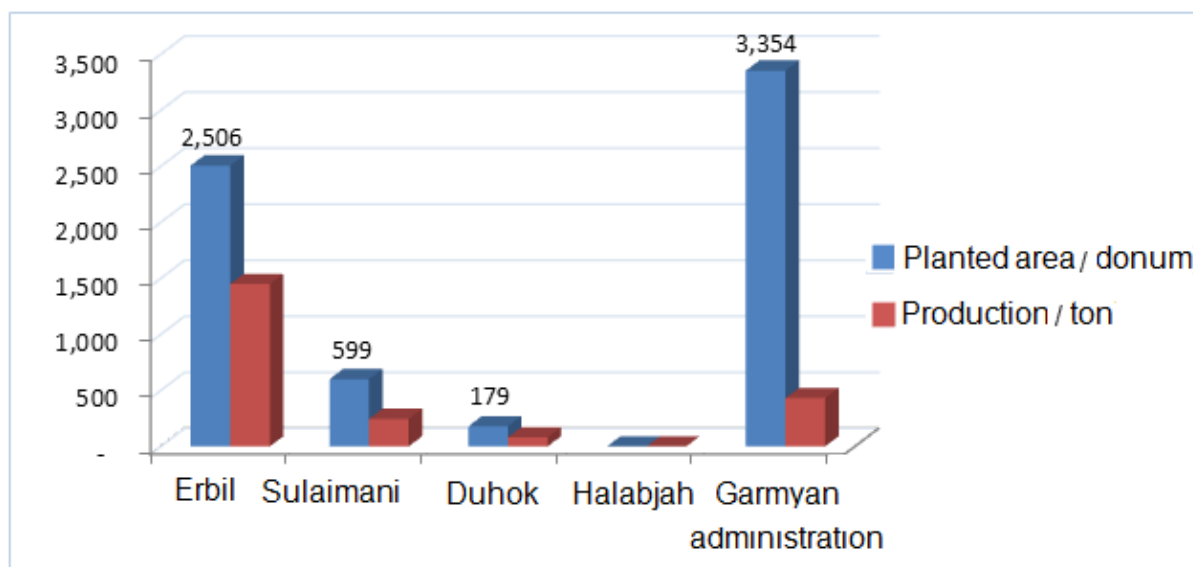


Table 16: rain-fed barley (area, yield, production) in growing season 2016-2017 at the level of districts in Kurdistan region

Governorate	District	Planted area (donum)	Yield (Kg/ donum)	Production (ton)
Erbil	Erbil center	9,711.0	322.2	3,128.6
	Dashti Hawler	27,506.0	277.8	7,640.2
	Soran	2,018.5	351.5	709.6
	Shaghlawa	6,602.0	287.4	1,897.6
	Choman	1,863.5	328.7	612.5
	Koya	27,811.0	320.7	8,920.1
	Mergasor	535.5	373.2	199.9
	Khabat	2,944.0	328.4	966.8
	Rawanduz	613.0	213.6	131.0
Sulaimani	Sulaimani center	10,012.0	414.2	4,147.2
	Gharadagh	5,437.5	198.2	1,077.5
	Sharazor	210.0	-	-
	Saeed Sadigh	622.0	350.0	217.7
	Penjwen	7,420.5	233.8	1,734.5
	Sharbazher	2,780.5	334.0	928.7
	Mawat	613.0	153.0	93.8
	Pshdar	12,983.6	333.7	4,332.7
	Ranya	2,350.0	401.9	944.4
	Dokan	3,208.5	339.4	1,089.0
	Darbandikhan	2,677.0	248.5	665.2
Chamchamal	103,839.0	282.9	29,371.2	
Duhok	Duhok center	1,073.0	240.0	257.5
	Semel	1,336.0	-	-
	Zakho	589.0	352.0	207.3
	Amedi	1,401.5	215.0	301.3
	Shekhan	786.0	434.4	341.4
	Akre	2,648.0	406.5	1,076.4
	Bardarash	6,847.0	429.6	2,941.3
Halabjah	Halabjah center	1,611	390.4	628.9
Garmyan administration	Kalar	25,641.0	216.1	5,541.8
	Kfri	58,483.0	103.6	6,059.8
	Khanaghin	9,277.0	216.2	2,005.8

Table 17: chickpeas (area, yield, production) for growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Planted area (donum)	Yield (Kg/ donum)	Production (ton)
Erbil	2,787.0	162	451
Sulaimani	5,356.8	158.3	848
Duhok	2,578.5	371.4	958
Halabjah	1,255.0	159.0	199
Garmyan administration	281.5	244.6	69
Kurdistan region	12,258.8	206.0	2,525

Figure 5: production and chickpeas planted area in growing season 2016-2017 at the level of Kurdistan region's governorates

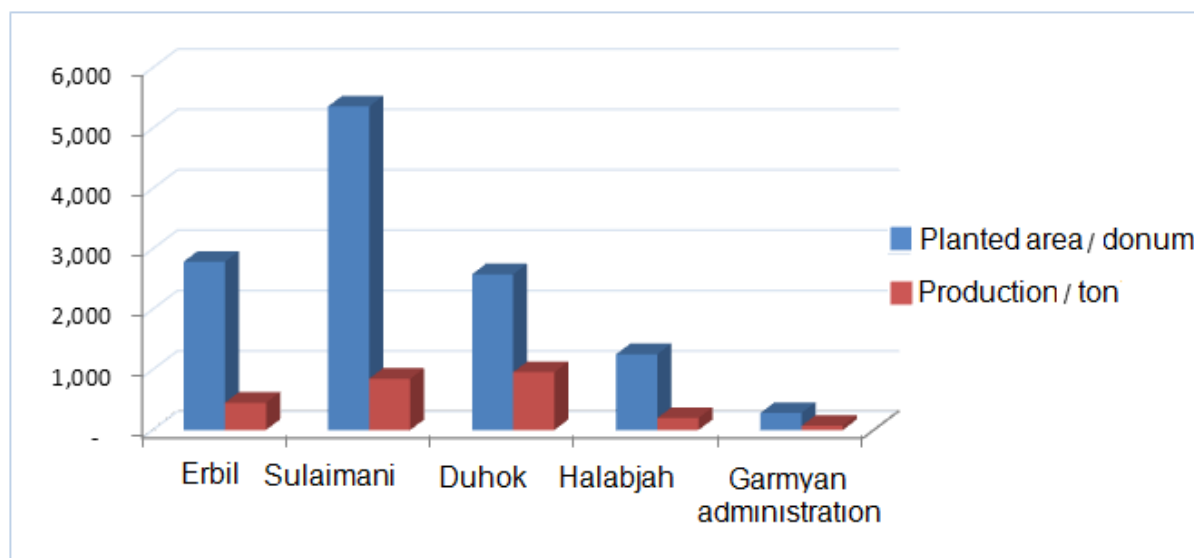


Table 18: chickpeas (area, yield, production) in growing season 2016-2017 at the level of districts in Kurdistan region

Governorate	District	Planted area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	Erbil center	10.0	-	-
	Dashti Hawler	109.0	320.0	34.9
	Soran	177.0	341.3	60.4
	Shaghlawa	1,372.0	137.6	188.8
	Choman	90.5	-	-
	Koya	793.0	151.3	120.0
	Mergasor	66.5	-	-
	Khabat	45.0	-	-
	Rawanduz	124.0	105.3	13.1
Sulaimani	Sulaimani center	528.0	115.0	60.7
	Gharadagh	70.5	85.0	6.0
	Sharazor	153.0	20.0	3.1
	Saeed Sadigh	577.0	248.0	143.1
	Penjwen	292.5	184.0	53.8
	Sharbazher	495.8	122.3	60.6
	Mawat	61.0	92.5	5.6
	Pshdar	223.5	615.0	137.5
	Ranya	351.5	-	-
	Dokan	1,736.0	115.4	200.4
	Darbandikhan	489.0	80.0	39.1
Chamchamal	379.0	218.2	82.7	
Duhok	Duhok center	166.0	144.0	23.9
	Semel	-	-	-
	Zakho	158.0	141.0	22.3
	Amedi	237.0	165.3	39.2
	Shekhan	611.0	222.7	136.1
	Akre	964.5	176.0	169.8
	Bardarash	442.0	108.5	48.0
Halabjah	Halabjah center	1,255.0	158.5	198.9
Garmyan administration	Kalar	82.0	247.0	20.3
	Kfri	11.5	40.0	0.5
	Khanaghin	188.0	256.0	48.1

Table 19: lentils (area, yield, production) for growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	Planted area (donum)	Yield (Kg/ donum)	Production (ton)
Erbil	107.0	158	16.9
Sulaimani	112.5	117	13.2
Duhok	248.0	143	35.5
Halabjah	-	-	-
Garmyan administration	5.0	-	-
Kurdistan region	472.5	138.7	65.5

Figure 6: production and lentils planted area in growing season 2016-2017 at the level of Kurdistan region's governorates

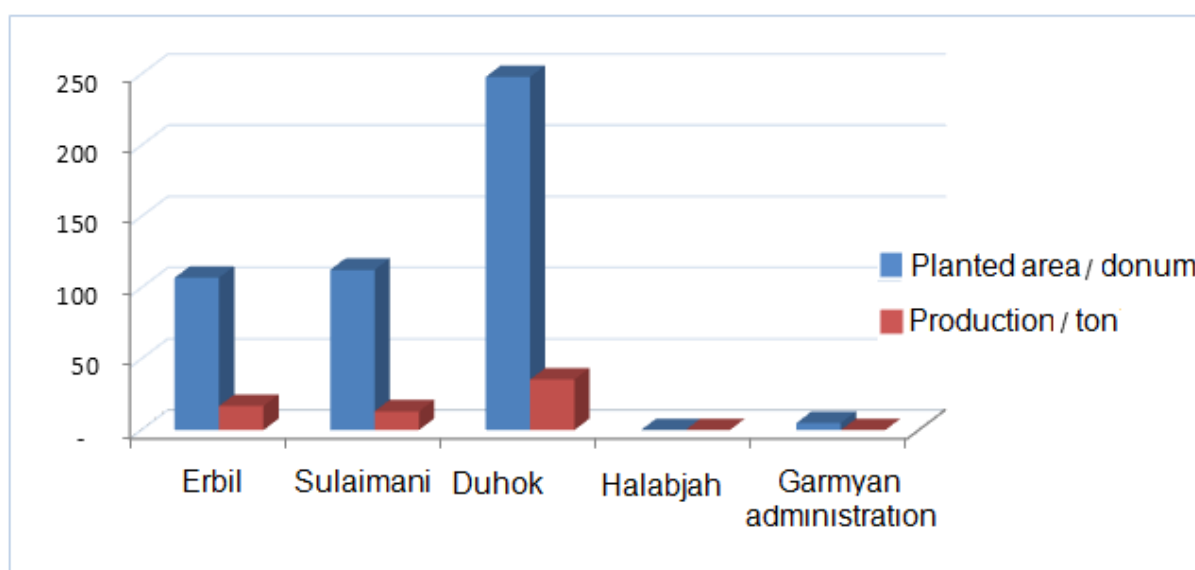


Table 20: rate difference for production and wheat planted area (rain-fed, irrigated) in Kurdistan region for growing seasons (2016-2017) and (2012-2013)

Growing season	Area (gonum)	Production (ton)
2012-2013	2,259,673	1,035,864
2016-2017	2,659,086	1,019,481
Rate difference	+18%	-2%

Table 21: rate difference for area, yield and production of rain-fed wheat in Kurdistan region and governorates for growing seasons (2016-2017) and (2012-2013)

Governorate	Growing season	Area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	2012-2013	537,474	486.4	261,443
	2016-2017	736,539	328.0	241,594
	Rate difference	+37%	-33%	-8%
Sulaimani	2012- 2013	551,791	484.2	267,178
	2016- 2017	653,177	371.6	242,707
	Rate difference	+18%	-23%	-9%
Duhok	2012-2013	701,787	485.9	341,007
	2016-2017	635,171	400.2	254,188
	Rate difference	-9%	-18%	-25%
Halabjah	2012- 2013	53,832	518.7	27,923
	2016- 2017	61,362	506.3	31,066
	Rate difference	+14%	-2%	+11%
Garmyan administration	2012- 2013	235,851	200.2	47,216
	2016- 2017	303,892	173.8	52,806.6
	Rate difference	+29%	-13%	12%
Kurdistan region	2012- 2013	2,080,735	435.1	944,767
	2016- 2017	2,390,141	344.1	822,361
	Rate difference	+15%	-21%	-13%

Table 22: rate difference for production and barley area (rain-fed, irrigated) in Kurdistan region for growing seasons (2016-2017) and (2012-2013)

Growing season	Area (gonum)	Production (ton)
2012- 2013	409,349	140,020
2016- 2017	348,088	90,942
Rate difference	-15%	-35%

Table23 : rate difference for area, yield and production of rain-fed barley in Kurdistan region and governorates for growing seasons (2016-2017) and (2012-2013)

Governorate	Growing season	Area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	2012-2013	122,240	432.3	52,846
	2016-2017	79,604.5	304.1	24,206
	Rate difference	-35%	-30%	-54%
Sulaimani	2012-2013	143,065	367.9	52,636
	2016-2017	152,154	293.5	44,657
	Rate difference	+6%	-20%	-15%
Duhok	2012-2013	51,988	395.3	20,552
	2016-2017	14,681	384.1	5,639
	Rate difference	-72%	-3%	-73%
Halabjah	2012-2013	2,385	458.7	1,094
	2016-2017	1,611	390.4	629
	Rate difference	-32%	-15%	-43%
Garmyan administration	2012-2013	69,514	207.0	14,390
	2016-2017	93,401	145.7	13,607
	Rate difference	34%	-30%	-5%
Kurdistan region	2012-2013	389,192	372.2	141,518
	2016-2017	341,451	259.9	88,738
	Rate difference	-12%	-30%	-38%

Table 24 : rate difference for area, yield and production of chickpeas in Kurdistan region and governorates for growing seasons (2016-2017) and (2012-2013)

Governorate	Growing season	Area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	2012-2013	5,266	101.4	662
	2016-2017	2,787	162.0	451
	Rate difference	-47%	+60%	-32%
Sulaimani	2012-2013	5,581	134.2	652
	2016-2017	5,357	158.0	848
	Rate difference	-4%	+18%	+30%
Duhok	2012-2013	17,907	119.2	1,991
	2016-2017	2,579	371.0	958
	Rate difference	-86%	+211%	-52%
Halabjah	2012-2013	818	182.5	149
	2016-2017	1,255	159.0	199
	Rate difference	+53%	-13%	+33%
Garman administration	2012-2013	1,127	8.7	26
	2016-2017	282	244.6	69
	Rate difference	-75%	+2704%	+163%
Kurdistan region Erbil	2012-2013	30,699	109.2	3,481
	2016-2017	12,259	206.0	2,525
	Rate difference	-60%	+89%	-27%

Table 25 : rate difference for area, yield and production of lentils in Kurdistan region and governorates for growing seasons (2016-2017) and (2012-2013)

Governorate	Growing season	Area (donum)	Yield (Kg/donum)	Production (ton)
Erbil	2012-2013	156.0	150.0	23.4
	2016-2017	107.0	158.0	17
	Rate difference	-31%	+5%	-27%
Sulaimani	2012-2013	178.0	110.8	14
	2016-2017	112.5	117.0	13
	Rate difference	-37%	+6%	-7%
Duhok	2012-2013	425	60.5	48.1
	2016-2017	248.0	143 .0	36
	Rate difference	-42%	+137%	-26%
Garmyan administration	2012-2013	1	-	-
	2016-2017	5.0	-	-
	Rate difference	400%	-	-
Kurdistan region	2012-2013	760.0	80.3	85.5
	2016-2017	473.0	138.7	66
	Rate difference	-38%	+73%	-23%

Table 26: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	plowing	seed	seeding	irrigation	fertilizer	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Erbil	22.8	17.2	5.7	0.0	24.2	3.7	6.2	3.7	16.6	11.4	6.1	6.7	124.4
Sulaimani	22.1	19.5	5.0	1.3	29.1	5.9	3.4	2.8	21.8	10.3	6.5	4.3	131.9
Duhok	22.9	21.1	9.6	1.0	30.3	2.2	11.6	4.2	17.2	7.1	12.9	6.0	146.1
Halabjah	13.6	29.5	11.4	10.0	22.1	2.6	7.9	7.3	21.7	4.7	5.5	4.6	140.9
Garmyan administration	16.0	12.6	3.4	0.3	6.8	0.9	1.3	0.0	11.2	3.0	2.6	2.3	60.5
Kurdistan region	19.5	20.0	7.0	2.5	22.5	3.1	6.1	3.6	17.7	7.3	6.7	4.8	120.8

Figure 7: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of governorates in Kurdistan region

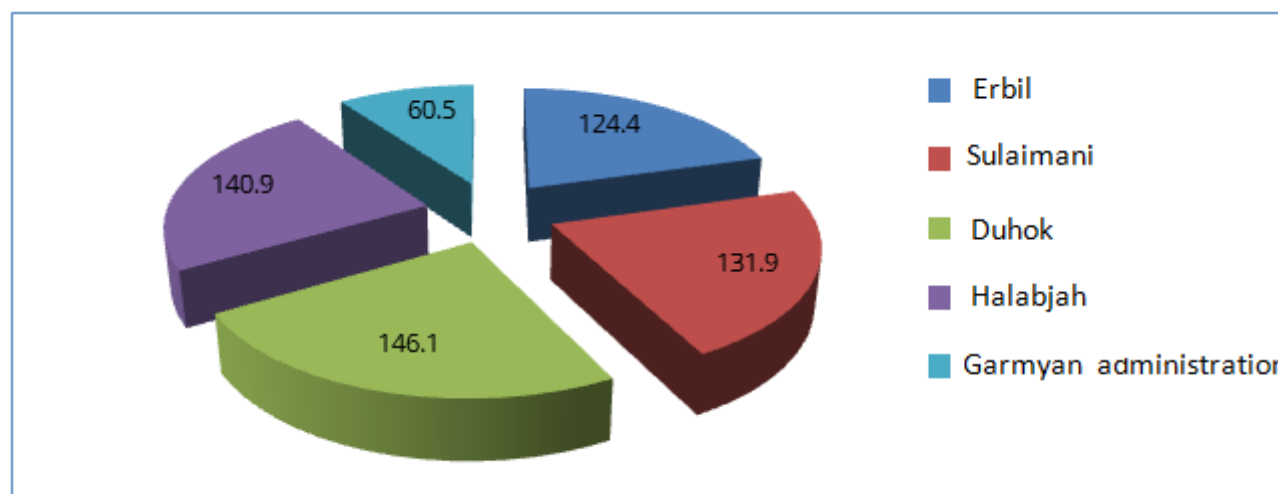


Table 27: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of Kurdistan region and governorates

Governorate	plowing	seed	seeding	irrigation	fertilizer	seed sterilizing	weed control	pests	harvesting	grain cleaning	transportation	other	Total cost
Erbil	21.7	14.6	4.5	1.1	17.6	1.8	5.8	0.6	14.4	10.6	4.1	4.6	101.4
Sulaimani	19.2	18.6	5.5	0.5	21.9	1.0	2.4	1.3	21.2	10.0	4.7	4.3	110.5
Duhok	13.7	18.4	6.8	0.0	20.4	1.2	2.9	1.2	26.8	4.0	10.0	3.6	109.0
Halabjah	12.5	26.5	12.3	0.0	17.3	0.0	7.3	6.7	29.5	0.0	6.8	5.0	123.8
Garmyan administration	11.5	12.9	3.2	0.0	6.1	0.5	0.8	0.3	10.0	0.8	2.0	2.4	50.7
Kurdistan region	15.7	18.2	6.4	0.3	16.7	0.9	3.9	2.0	20.4	5.1	5.5	4.0	99.1

Figure 8: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of governorates in Kurdistan region

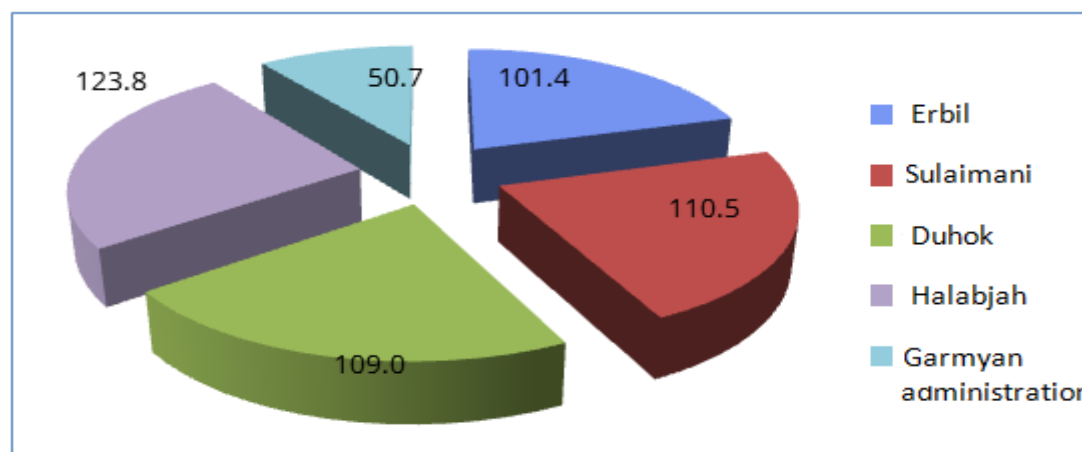


Table 28: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of Kurdistan region and governorates

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	Transportation	other	Total cost
Erbil center	15.6	19.6	0.0	0.0	33.1	32.6	1.1	6.2	2.0	14.1	1.0	4.6	6.9	103.8
Dashti Hawler	13.5	16.8	0.0	0.0	23.9	22.5	1.0	3.3	0.0	12.0	0.0	2.8	1.0	73.1
Soran	31.7	14.6	23.9	0.0	19.6	37.9	20.5	22.9	20.0	23.4	29.9	23.3	14.5	262.6
Shaqława	19.8	15.9	4.6	0.0	50.0	22.5	1.4	6.7	8.0	12.7	1.2	2.4	4.0	99.3
Choman	30.0	18.0	7.7	0.0	17.0	14.3	2.0	2.5	0.0	22.0	14.3	2.7	15.7	129.2
Koya	23.1	16.8	3.5	0.0	-	27.0	1.5	4.3	1.6	6.2	2.7	3.5	2.2	92.3
Mergasor	21.6	16.1	8.5	0.0	-	13.0	2.0	5.1	1.0	26.2	23.3	7.2	9.5	133.5
Khabat	17.0	21.1	0.0	0.0	-	38.1	2.3	1.6	1.0	17.5	2.5	4.3	0.0	105.4
Rawanduz	32.5	15.8	3.4	0.0	9.0	10.1	1.5	3.5	0.0	15.6	27.3	4.2	6.3	120.2
Total cost	22.8	17.2	5.7	0.0	-	24.2	3.7	6.2	3.7	16.6	11.4	6.1	6.7	124.4

Figure 9: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of Erbil governorates in Kurdistan region

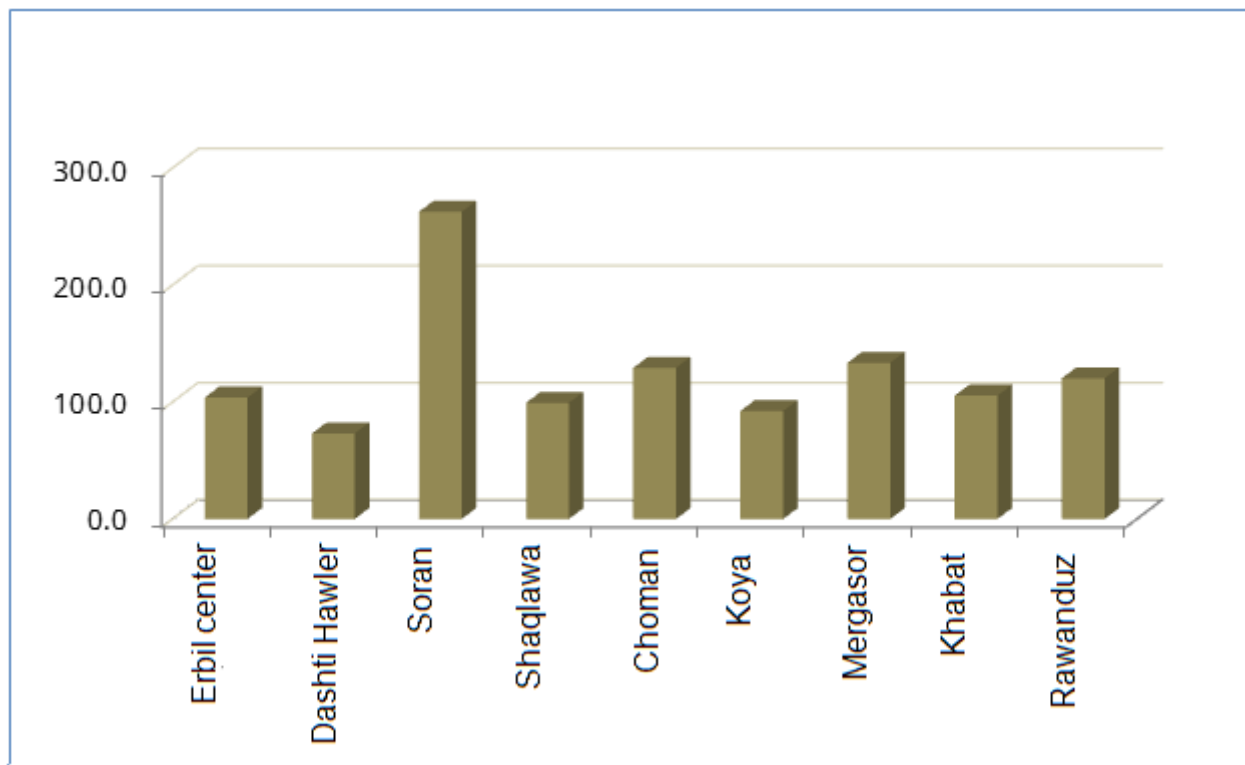


Table 29: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Erbil governorate in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Erbil center	16.3	16.7	0.0	10.0	37.5	22.3	1.1	3.1	2.1	13.9	1.0	1.4	1.0	88.8
Dashti Hawler	13.1	13.0	3.0	0.0	27.4	19.5	1.0	2.6	0.0	10.7	0.0	1.8	1.9	66.6
Soran	24.5	14.3	8.4	0.0	30.0	19.6	7.1	28.3	0.0	23.4	28.1	8.1	6.6	168.5
Shaqława	21.2	14.2	4.6	0.0	-	21.3	1.6	7.1	0.0	9.2	1.7	3.5	0.0	84.2
Choman	30.0	17.3	5.7	0.0	15.5	16.7	2.0	3.0	0.0	16.3	16.0	3.3	10.7	121.0
Koya	23.0	14.6	4.1	0.0	-	23.2	1.3	4.4	2.0	6.2	2.0	3.4	2.3	86.4
Mergasor	21.8	14.3	9.8	0.0	-	10.4	1.0	2.7	0.0	21.9	22.0	8.4	12.5	124.8
Khabat	13.4	11.4	0.0	0.0	-	17.8	1.0	1.0	1.0	11.4	0.0	3.0	0.0	60.0
Rawanduz	32.0	16.0	5.0	0.0	15.0	8.0	0.0	0.0	0.0	16.4	24.6	3.6	6.4	112.0
Total cost	21.7	14.6	4.5	1.1	-	17.6	1.8	5.8	0.6	14.4	10.6	4.1	4.6	101.4

Figure 10: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Erbil governorates in Kurdistan region

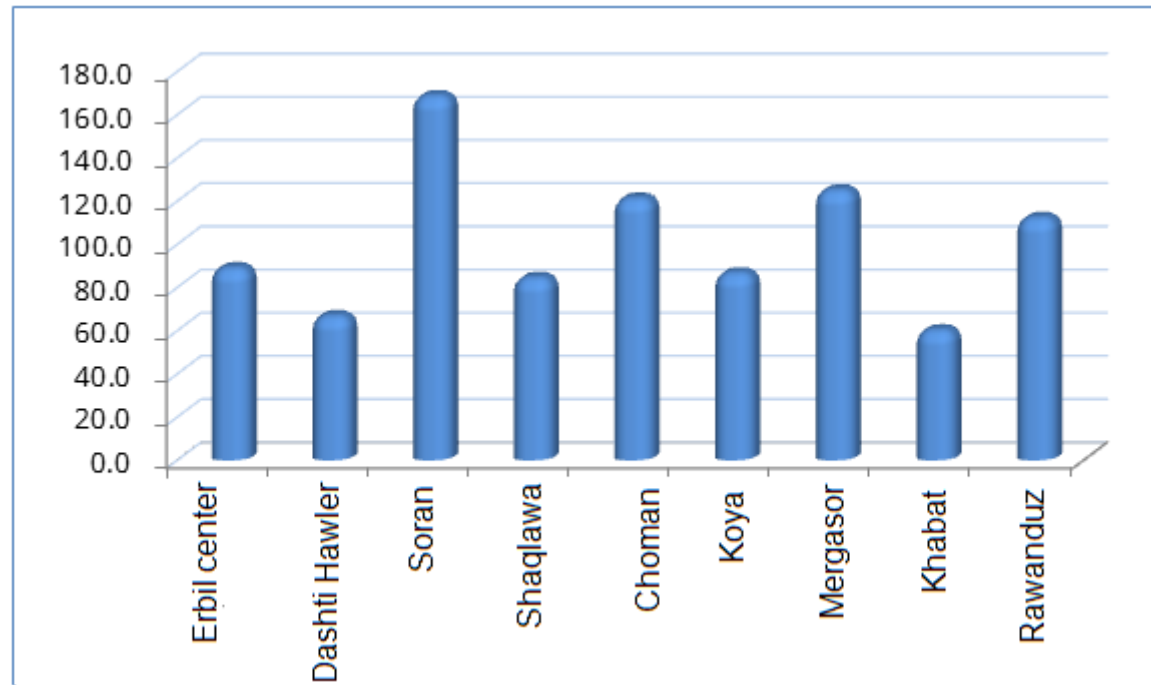


Table 30: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Sulaimani governorate in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Sulaimani center	23.1	23.3	4.6	0.0	-	28.7	1.3	4.4	4.6	17.4	5.4	6.2	4.7	123.7
Gharadagh	23.7	13.8	4.2	0.0	-	24.6	1.5	4.1	6.3	24.6	12.0	7.0	4.7	126.5
Sharazor	23.7	23.6	3.8	11.0	-	39.9	53.0	4.3	5.4	22.0	0.0	6.0	5.4	197.9
Saeed Sadeegh	23.3	20.8	4.8	1.0	-	45.9	1.3	3.0	2.9	22.5	2.5	10.6	4.0	142.4
Penjwen	25.0	21.0	5.5	0.0	-	20.5	1.4	4.3	3.3	33.3	17.3	4.3	6.2	142.1
Sharbazher	25.0	15.0	5.0	0.0	-	0.0	0.0	0.0	0.0	20.0	0.0	10.0	0.0	75.0
Mawat	21.7	18.7	7.7	0.0	20.0	19.7	5.0	3.0	0.0	24.3	20.0	7.0	11.0	138.0
Pshdar	25.8	22.7	8.8	1.0	5.0	42.6	1.7	2.9	1.8	33.9	40.0	10.6	2.7	194.4
Ranya	22.4	23.9	4.6	0.0	7.0	50.4	1.6	4.0	3.0	20.7	16.3	5.2	3.8	155.9
Dokan	15.0	16.4	4.0	2.0	-	25.1	1.4	2.7	2.0	13.0	2.8	2.5	1.6	88.4
Darbandikhan	15.3	15.5	1.8	0.0	-	30.4	1.3	2.0	0.0	8.7	1.5	1.5	1.7	79.7
Chamchamal	20.6	19.5	5.7	0.0	-	21.1	1.3	6.6	4.0	20.8	6.2	7.1	6.4	119.5
Total cost	22.1	19.5	5.0	1.3	-	29.1	5.9	3.4	2.8	21.8	10.3	6.5	4.3	131.9

Figure 11: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Sulaimani governorates in Kurdistan region

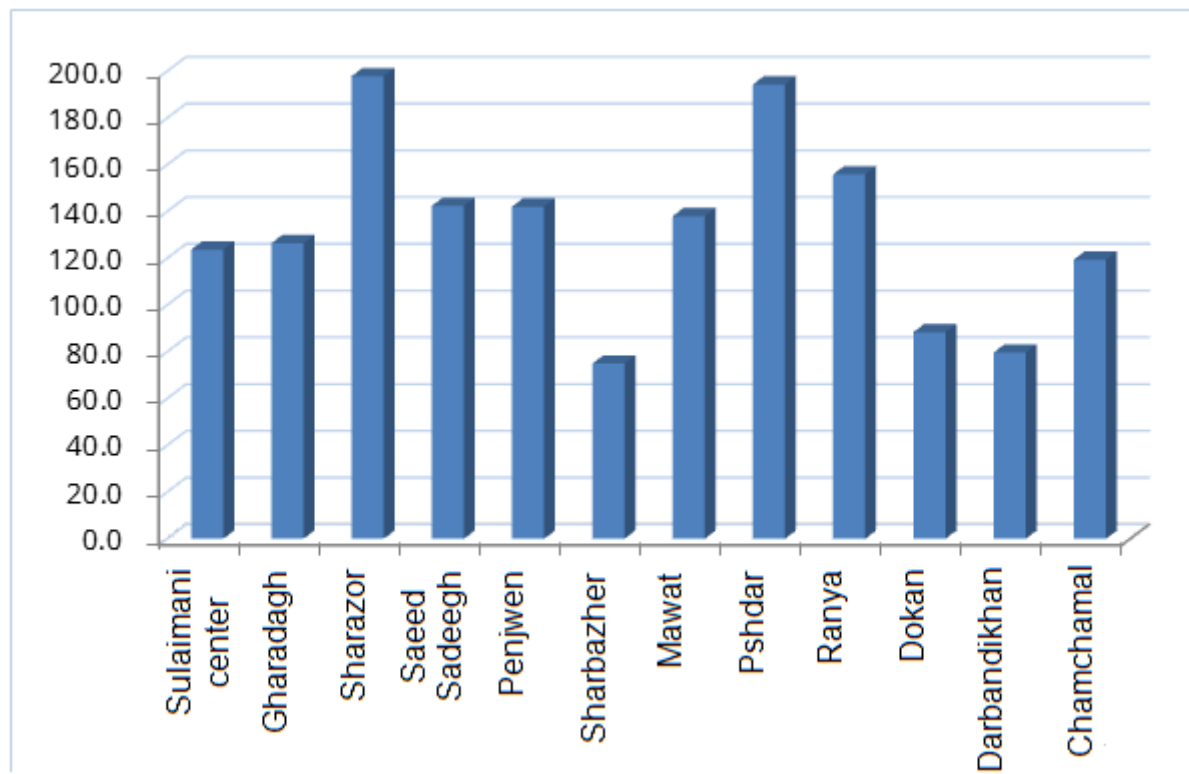


Table 31: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Sulaimani governorate in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	Grain cleaning	transportation	other	Total cost
Sulaimani center	18.5	21.5	5.5	0.0	-	20.4	1.0	5.0	5.3	20.3	0.0	3.8	4.8	106.1
Gharadagh	20.2	15.0	4.2	0.0	-	19.4	1.5	2.0	0.0	15.0	0.0	6.7	6.0	89.9
Sharazor	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saeed Sadeegh	25.0	22.0	5.0	0.0	-	25.0	0.0	0.0	0.0	25.0	0.0	5.0	4.0	111.0
Penjwen	25.8	26.3	6.6	1.0	-	28.8	0.0	4.6	3.0	22.4	15.0	6.0	6.3	145.8
Sharbazher	25.0	25.8	9.0	0.0	-	18.6	0.0	0.0	0.0	50.0	23.8	7.0	5.0	164.2
Mawat	23.5	20.3	9.0	0.0	18.3	17.2	3.0	0.0	0.0	28.8	24.0	6.7	10.3	142.8
Pshdar	23.5	18.7	8.8	5.0	-	45.8	1.7	2.1	1.0	28.4	28.8	8.0	1.9	173.5
Ranya	22.8	19.3	6.7	0.0	-	42.2	1.0	4.2	1.0	20.7	0.0	2.7	5.0	125.5
Dokan	15.1	17.8	3.0	0.0	-	17.6	1.3	2.2	0.0	16.7	20.0	2.6	1.4	97.6
Darbandikhan	11.0	17.0	2.0	0.0	-	14.0	1.0	3.0	0.0	5.8	1.0	1.8	1.8	58.3
Chamchamal	20.4	19.5	6.3	0.0	-	13.7	1.2	5.5	5.0	21.1	7.2	5.9	5.4	111.0
Total cost	19.2	18.6	5.5	0.5	-	21.9	1.0	2.4	1.3	21.2	10.0	4.7	4.3	110.5

Figure 12: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Sulaimani governorates in Kurdistan region

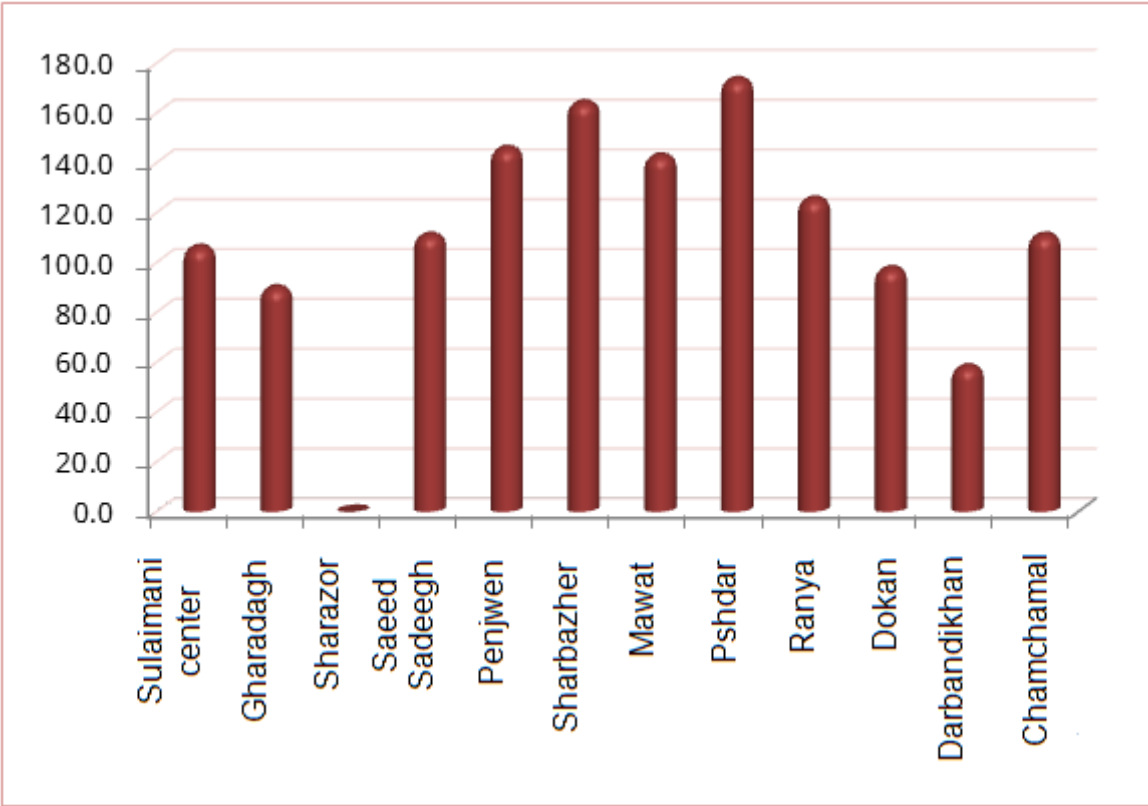


Table 32: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Duhok governorate in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Duhok center	35.0	22.5	11.8	0.0	-	23.3	0.0	6.0	10.3	10.5	0.0	0.0	5.3	124.5
Semel	18.8	24.0	10.0	0.0	-	40.7	2.1	2.8	2.6	14.0	8.8	19.5	2.6	145.8
Zakho	23.0	22.4	8.8	0.0	60.0	23.9	2.6	4.9	3.6	11.8	3.0	14.1	9.1	127.2
Amedi	35.5	14.0	11.5	0.0	-	23.3	7.0	45.0	2.0	43.8	25.0	17.3	3.5	227.8
Shekhan	12.3	18.1	9.1	7.0	13.0	43.0	1.5	5.5	2.3	14.2	8.3	18.5	14.5	154.4
Akre	16.6	25.1	8.9	0.0	-	32.6	1.3	10.8	1.5	16.0	3.1	19.3	5.4	140.3
Bardarash	19.2	21.7	7.3	0.0	-	25.1	1.2	6.0	7.2	10.1	1.4	1.6	1.9	102.6
Total cost	22.9	21.1	9.6	1.0	-	30.3	2.2	11.6	4.2	17.2	7.1	12.9	6.0	146.1

Figure 13: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Duhok governorates in Kurdistan region

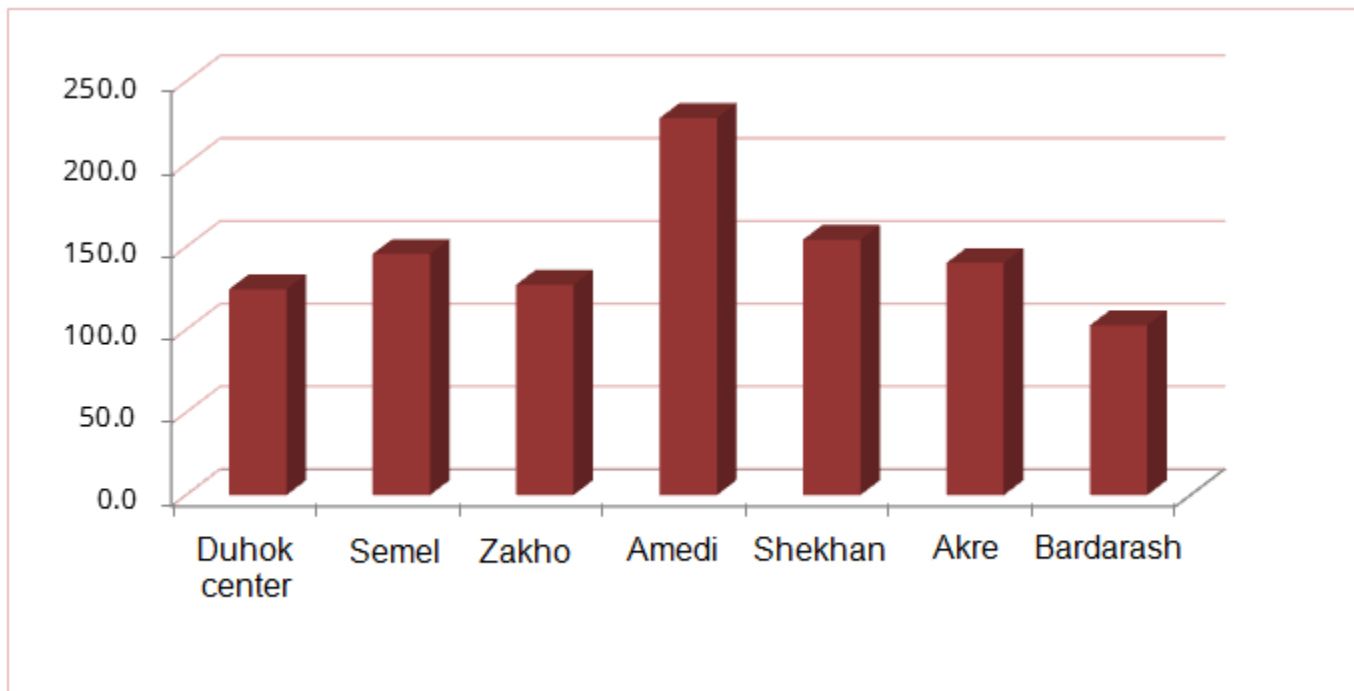


Table 33: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Duhok governorate in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Duhok center	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semel	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zakho	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amedi	9.0	23.5	3.0	0.0	-	15.0	1.0	1.0	0.0	55.0	0.0	11.5	3.0	122.0
Shekhan	17.3	13.0	9.3	0.0	-	27.7	1.7	3.0	2.0	12.0	0.0	11.0	0.0	97.0
Akre	14.8	18.7	8.0	0.0	-	18.6	1.0	4.8	1.6	13.3	12.0	7.6	7.8	108.1
Bardarash	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total cost	13.7	18.4	6.8	0.0	-	20.4	1.2	2.9	1.2	26.8	4.0	10.0	3.6	109.0

Figure 14: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Duhok governorates in Kurdistan region

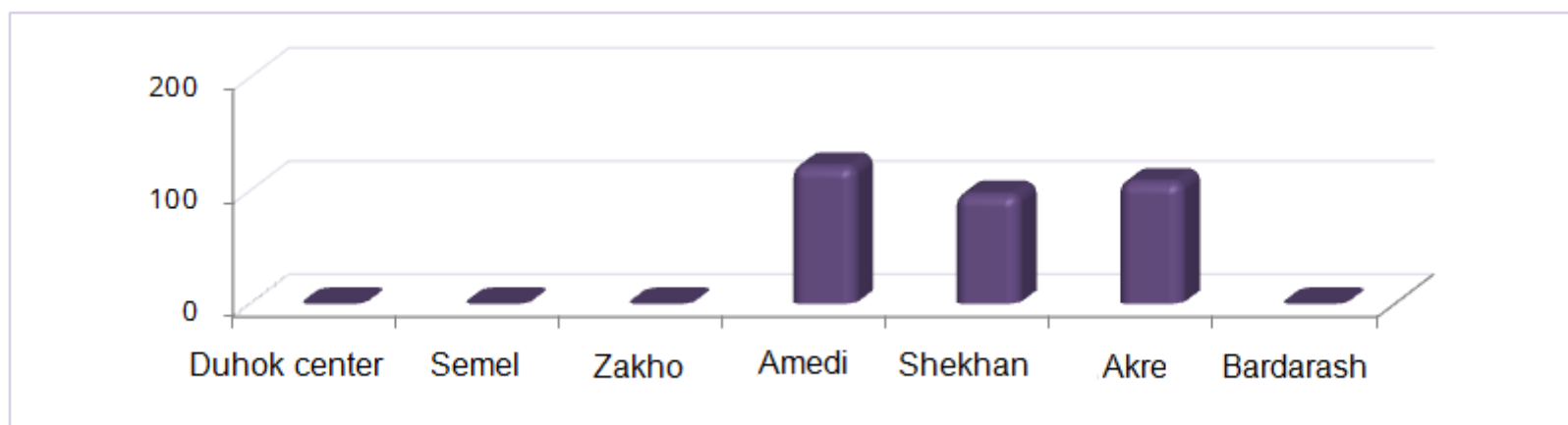


Table 34: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Garmyan administration in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Kalar	11.9	11.9	1.9	0.0	2.0	11.2	1.0	2.8	0.0	10.8	1.5	2.2	1.9	57.1
Kfri	9.8	10.1	3.8	0.0	6.0	0.0	0.0	0.0	0.0	8.1	7.5	1.4	1.4	42.1
Khanaghin	26.2	15.8	4.5	1.0	4.0	9.3	1.7	1.0	0.0	14.8	0.0	4.3	3.6	82.2
Total cost	16.0	12.6	3.4	0.3	4.0	6.8	0.9	1.3	0.0	11.2	3.0	2.6	2.3	60.5

Figure 15: the average cost per donum (1000 IQD) for rain-fed wheat for growing season 2016-2017 at the level of districts in Garmyan administration in Kurdistan region

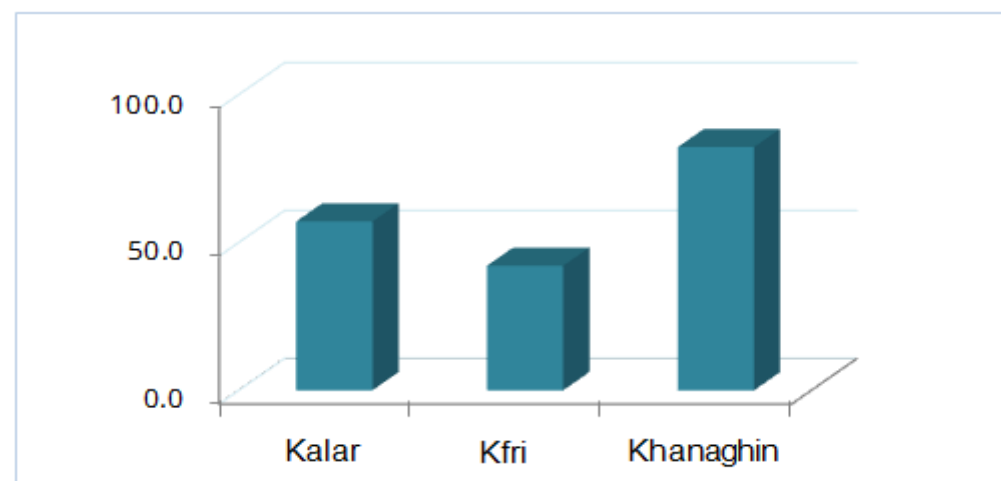


Table 35: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Garmyan administration in Kurdistan region

District	plowing	seed	seeding	irrigation	Irrigation (irrigated wheat)	fertilizing	Seed sterilizing	Weed control	pests	harvesting	seed cleaning	transportation	other	Total cost
Kalar	9.1	14.2	1.9	0.0	-	8.1	0.0	1.5	0.0	9.4	0.0	1.8	1.9	48.0
Kfri	9.9	10.1	4.1	0.0	2.0	0.0	0.0	0.0	0.0	9.1	1.5	2.1	2.7	39.6
Khanaghin	15.4	14.6	3.5	0.0	-	10.2	1.6	1.0	1.0	11.5	1.0	2.1	2.7	64.5
Total cost	11.5	12.9	3.2	0.0	-	6.1	0.5	0.8	0.3	10.0	0.8	2.0	2.4	50.7

Figure 16: the average cost per donum (1000 IQD) for rain-fed barley for growing season 2016-2017 at the level of districts in Garmyan administration in Kurdistan region

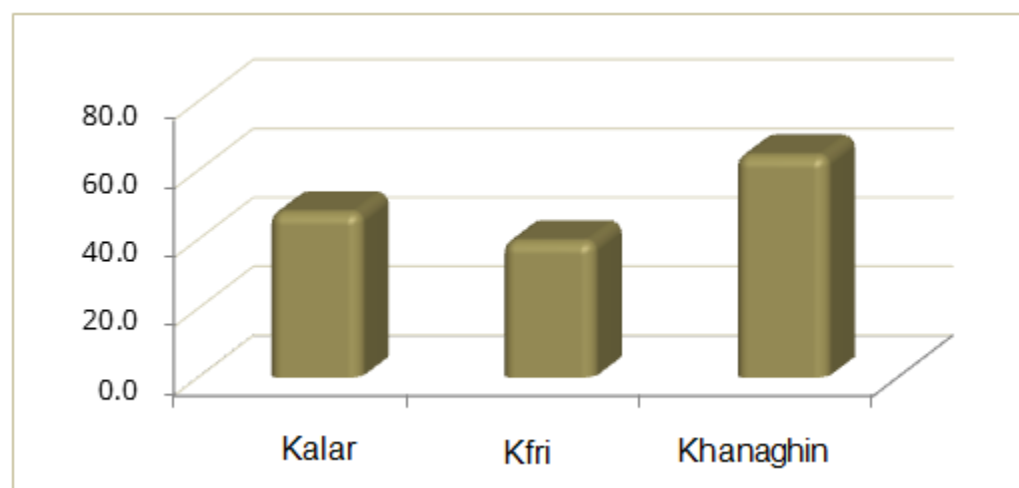


Table 36: rate difference for the total cost for Wheat product at the level of Kurdistan region and governorates for growing season 2016-2017 and 2012-2013

Governorate	Growing season	Production cost
Erbil	2012-2013	141.6
	2016-2017	124.4
	rate difference	-12%
Sulaimani	2012-2013	166.0
	2016-2017	131.9
	Rate difference	-21%
Duhok	2012-2013	116.0
	2016-2017	146.1
	Rate difference	+26%
Halabjah	2012-2013	219.0
	2016-2017	140.9
	Rate difference	-36%
Garmyan administration	2012-2013	66.9
	2016-2017	60.5
	Rate difference	-10%
Kurdistan region	2012-2013	123.6
	2016-2017	120.8
	Rate difference	-2.3%

Table 37: rate difference for the total cost for barley product at the level of Kurdistan region and governorates for growing season 2016-2017 and 2012-2013

Governorate	Growing season	Production cost
Erbil	2012-2013	123.5
	2016-2017	101.4
	Rate difference	-18%
Sulaimani	2012-2013	156.6
	2016-2017	110.5
	Rate difference	-29%
Duhok	2012-2013	116.8
	2016-2017	109.0
	Rate difference	-7%
Halabjah	2012-2013	146.8
	2016-2017	123.8
	Rate difference	-16%
Garman administration	2012-2013	70.7
	2016-2017	50.7
	Rate difference	-28%
Kurdistan region	2012-2013	116.7
	2016-2017	99.1
	Rate difference	-15%

Table 38: the fertilized land area for rain-fed wheat at the level of Kurdistan region and governorates for the growing season 2016-2017

Governorate	Planted area (donum)	percentage point of fertilized land
Erbil	736,539	98
Sulaimani	653,177	93
Duhok	635,171	87
Halabjah	61,362	100
Garmyan administration	303,892	36
Kurdistan region	2,390,141	86

Table 39: percentage points of fertilized land for rain-fed wheat by the type of fertilizers at the level of governorates in Kurdistan region for the growing season 2016-2017

Governorate	kind of fertilizer	percentage points of fertilized
Erbil	urea	78
	mixed	92
	organic	0
	other	0
	Urea+ mixed	71
Sulaimani	urea	89
	mixed	91
	organic	0
	other	2
	Urea+ mixed	81
Duhok	urea	89
	mixed	45
	organic	2
	Urea+ mixed	34
Halabjah	urea	84
	mixed	90
	Urea+ mixed	74
Kurdistan region	urea	84
	mixed	34
	organic	2
	Urea+ mixed	18

Table 40: percentage points of the fertilized land area for irrigated wheat at the level of Kurdistan region and governorates for the growing season 2016-2017

governorate	Planted area (donum)	Percentage points of the fertilized land area (%)
Erbil	212,444	100
Sulaimani	3,690	100
Duhok	6,291	73
Halabjah	13	0
Garmyan administration	46,508	23
Kurdistan region	268,945	86

Table 41: percentage points of fertilized land for irrigated wheat by the kind of fertilizer at the level of governorates in Kurdistan region for the growing season 2016-2017

Governorate	Planted area (donum)	Percentage points of the fertilized land area (%)
Erbil	urea	78
	mixed	88
	organic	9
	other	1
	Urea+ mixed	65
Sulaimani	urea	95
	mixed	89
	organic	0
	other	29
	Urea+ mixed	84
Duhok	urea	98
	mixed	76
	organic	2
	Urea+ mixed	76
Garmyan administration	urea	99
	mixed	6
	organic	0
	other	5

Table 42: percentage points of the fertilized land area for rain-fed barley at the level of Kurdistan region and governorates for the growing season 2016-2017

Governorate	Planted area (donum)	percentage points of the fertilized land area %
Erbil	79,605	97
Sulaimani	152,154	58
Duhok	14,681	77
Halabjah	1,577	97
Garmyan administration	93,401	26
Kurdistan region	341,417	59

Table 43: percentage points of fertilized land for rain-fed barley by the kind of fertilizers at the level of governorates in Kurdistan region for the growing season 2016-2017

Governorate	Planted area (donum)	Percentage points of the fertilized land area (%)
Erbil	urea	54
	mixed	92
	organic	1
	other	0
	Urea+ mixed	47
Sulaimani	urea	82
	mixed	73
	organic	3
	other	1
	Urea+ mixed	56
Duhok	urea	35
	mixed	69
	organic	1
	Urea+ mixed	5
Halabjah	urea	64
	mixed	100
	Urea+ mixed	64
Garman administration	urea	84
	mixed	32
	organic	15
	Urea+ mixed	20

Table 44: percentage points of fertilized land for rain-fed wheat by the kind of fertilizers at the level of governorates in Kurdistan region for the growing season 2016-2017

Governorate	Planted area (donum)	Percentage points (%)
Erbil	736,539	12
Sulaimani	653,177	61
Duhok	635,171	50
Halabjah	61,362	37
Garmyan administration	303,892	4
Kurdistan region	2,390,141	42

Table 45: percentage point of pests that struck rain-fed wheat production by the kind of pests in Kurdistan region for the growing season 2016-2017

Governorate	type of pests	Percentage points (%)
Erbil	grasshopper	37
	sun	24
	Other	73
Sulaimani	grasshopper	1
	sun	81
	smut	20
	Other	2
Duhok	sun	82
	Other	30
Halabjah	grasshopper	61
	sun	76
	smut	18
Kurdistan region	grasshopper	3
	sun	79
	smut	6
	Other	24

Table 46 : percentage points of pests- struck planted area for irrigated wheat at the level of Kurdistan region and governorates for the growing season 2016-2017

Governorate	Planted area (donum)	Percentage points (%)
Erbil	212,444	18
Sulaimani	3,690	13
Duhok	6,291	29
Halabjah	13	0
Garmyan administration	46,508	4
Kurdistan region	268,945	16

Table 47: percentage point of pests that struck irrigated wheat production by the kind of pests in Kurdistan region and governorates for growing season 2016-2017

Governorate	type of pests	Percentage points (%)
Erbil	grasshopper	10
	sun	3
	Other	96
Sulaimani	grasshopper	100
	sun	100
	Other	100
Duhok	sun	45
	Other	100
Garmyan administration	sun	5
	Other	95
Kurdistan region	grasshopper	10
	sun	6
	Other	96

Table 48: percentage points of pests- struck planted area for rain-fed barley at the level of Kurdistan region and governorates for the growing season 2016-2017

Governorate	Planted area (donum)	Percentage points (%)
Erbil	79,605	2
Sulaimani	152,154	38
Duhok	14,681	44
Halabjah	1,577	53
Garmyan administration	93,401	1
Kurdistan region	341,417	16

Table 49: percentage point of pests that struck rain-fed barley production by the kind of pests in Kurdistan region and governorates for the growing season 2016-2017

Governorate	type of pests	Percentage points (%)
Erbil	Other	93
Sulaimani	sun	39
	smut	69
	Other	9
Duhok	sun	11
	smut	7
	Other	90
Halabjah	sun	100
Garmyan administration	sun	40
	Other	60
Kurdistan region	sun	30
	smut	48
	Other	35

Figure 17: rate of raining for the growing season 2016-2017 in Erbil governorate in Kurdistan region

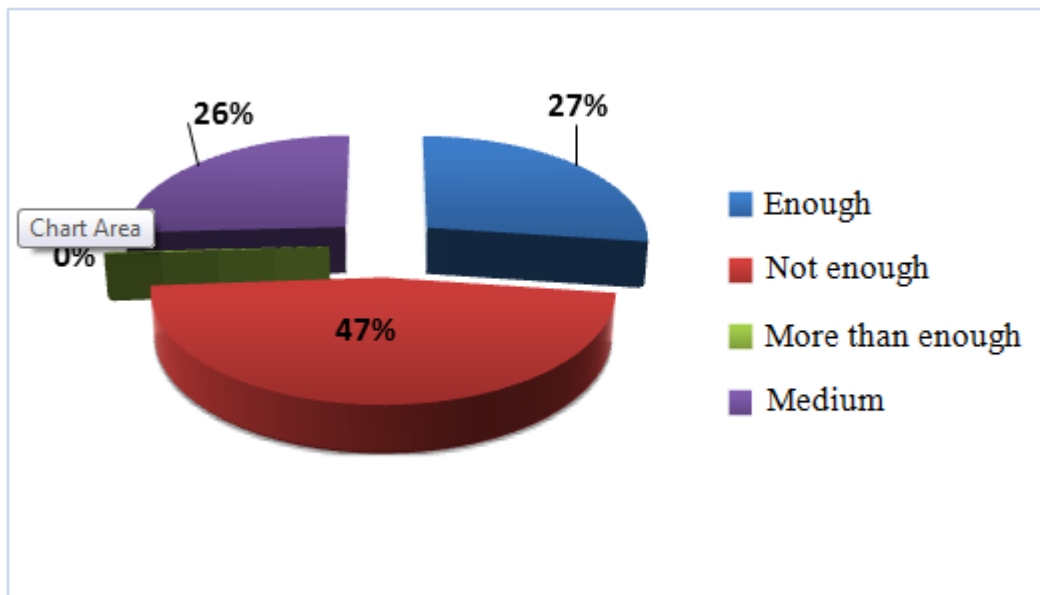


Figure 18: rate of raining for the growing season 2016-2017 in Sulaimani governorate in Kurdistan region

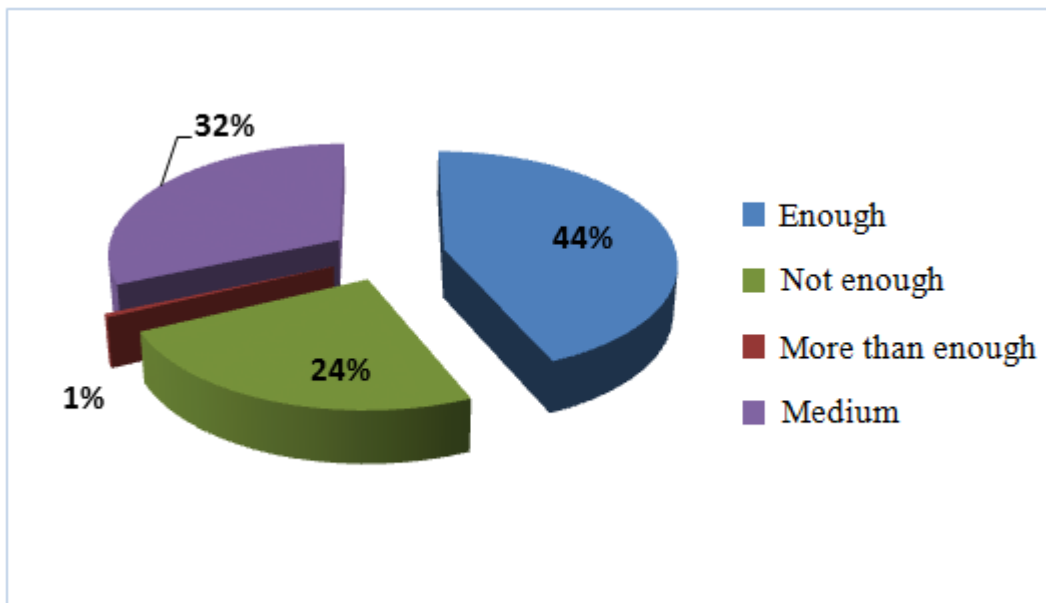


Figure 19: rate of raining for the growing season 2016-2017 in Duhok governorate in Kurdistan region

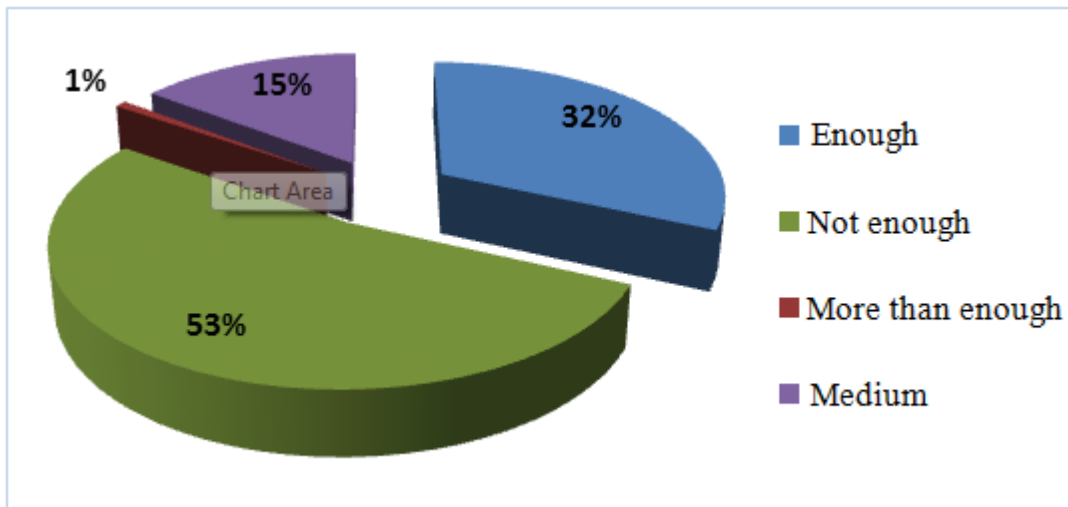


Figure 20: rate of raining for the growing season 2016-2017 in Garmyan administration in Kurdistan region

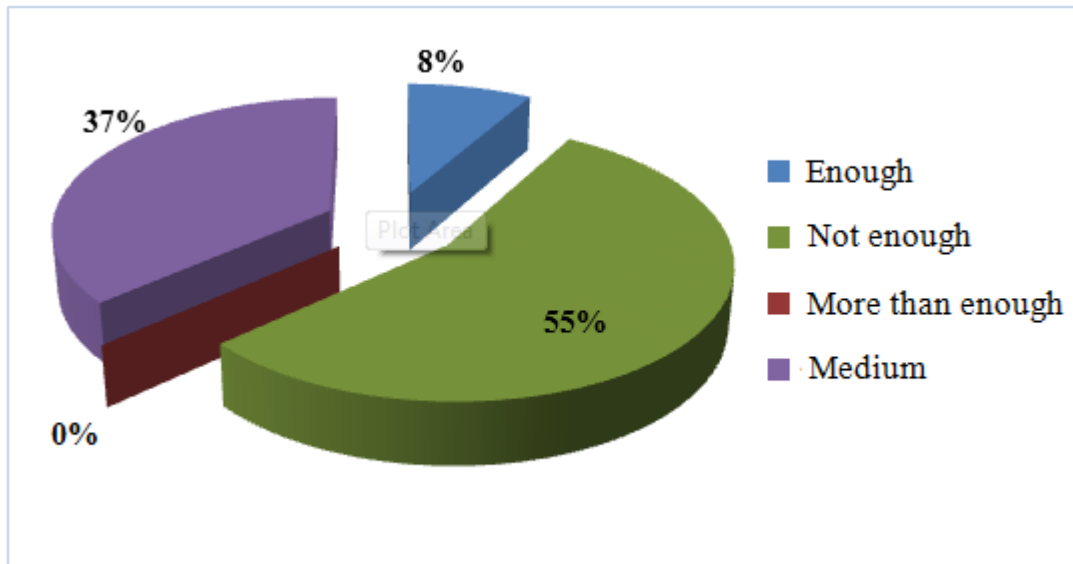
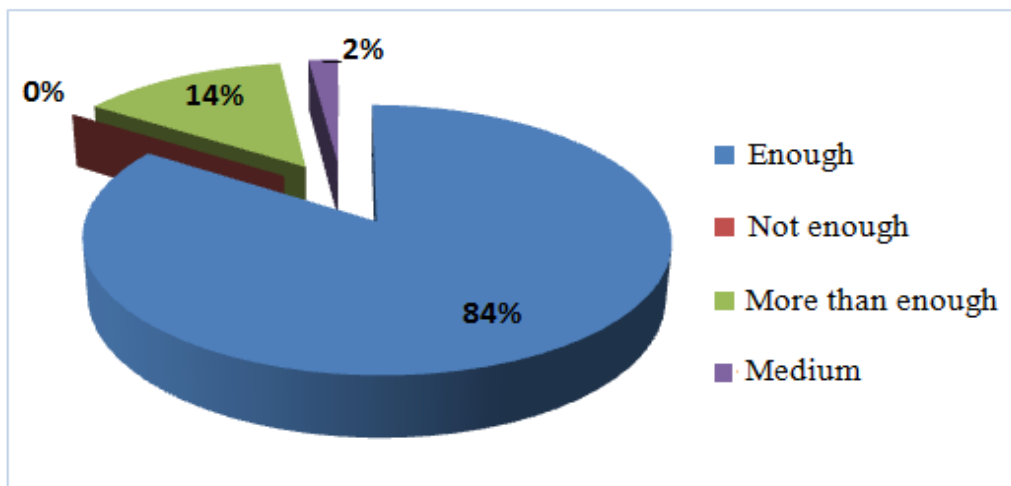


Figure 21: rate of raining for growing season 2016-2017 in Halabjah government in Kurdistan region



Questionnaire

				Mobile phone							respondent's name	Transferred .3	evacuated .2	occupied .1	Village state
Unplanted area	planted area	summer crops area	Total planted area	winter crop planted area/ donum						Total available area/donum	Famer's las name	Number			
				Vegetables	lentil	chickpeas	Imigate barley	Rain.fed barley	Imigated wheat				Rain.fed wheat		
															1
															2
															3
															4
															5
															6
															7
															8
															9
															10
			the num ber of the field team	Signature						name of the statistical enumerator			the name of the local supervisor		

Date: / /2017

signature.....

agricultural enumerator's name.....



estimation form for winter crops production and cost for growing season 2016-2017 Page 2

		Team number				Form number	
Code	Name		#	Code	Name		#
			cluster				Governorate
			Village				District
							Sub-district
3. Mountainous			2. Hilly		1. Flat		Land topography
							The available land /donum -6
Winter vegetable		lentils	Chickpeas	Rain-fed barley		Rain-fed wheat	Planted area (donum) -7
				Irrigated wheat		Irrigated wheat	
		lentils	Chickpeas	Rain-fed barley		Rain-fed wheat	yield estimation per donum/ Kg -8
				Irrigated wheat		Irrigated wheat	
				2. No	1. Yes ↓		has the land been stuk by pasts? -9
4.othe 3.smut 2. sunn . grasshoppe							kind of pasts -10
4. more than enough 3. more than enough 2.not enough 1.enough							rain was -11
3. bad 2. acceptable 1. good							How was the production for this season? -12



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