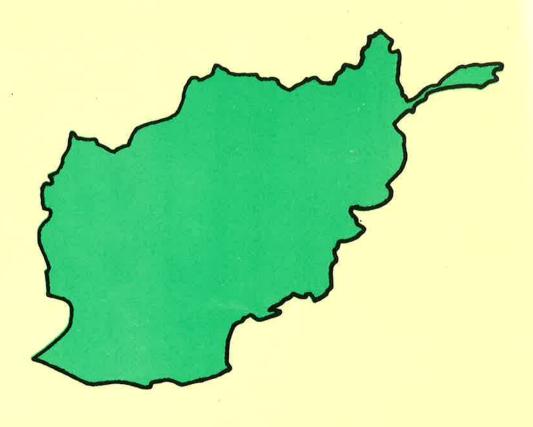
# The Agricultural Survey of Afghanistan



The Swedish Committee for Afghanistan

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# FIFTEENTH REPORT PART VI

Farming Systems of Nad Ali District Helmand Province

August, 1992

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# Farming Systems of Nad Ali, Helmand

# **Table of Contents**

	Page
Acknowledgements	
Summary	
Introduction and survey method	1
Chapter 1 - Background	3
1.1 Physical description	3
<ul> <li>1.2 Geography</li> <li>1.2.1 Climate, rainfall and soils</li> <li>1.2.2 Water resources</li> <li>1.2.3 Natural vegetation</li> <li>1.2.4 Major towns and bazaars</li> </ul>	5 5 5 5
<ul> <li>1.3 Demography</li> <li>1.3.1 Population</li> <li>1.3.2 Major ethnic groups</li> <li>1.3.3 Major movements of people</li> <li>1.3.4 Household size</li> </ul>	6 6 6 6
Chapter 2 - Farming systems	7
2.1 Description of farming systems 2.1.1 Land tenure	7 8
<ul><li>2.2 Farm size and farming systems</li><li>2.2.1 Farm size and household size</li><li>2.2.2 Farm size and oxen ownership</li><li>2.2.3 Farm size and cropping pattern</li></ul>	11 13 14 14
Chapter 3 - Crop Production	16
3.1 Management practices for major crops 3.1.1 Wheat 3.1.2 Poppy 3.1.3 Alfalfa 3.1.4 Cotton 3.1.5 Maize 3.1.6 Peanut 3.1.7 Water melon and melon 3.1.8 Other crops	16 18 18 18 20 20 20
3.2 Seed, fertiliser and crop protection 3.2.1 Seed 3.2.2 Fertiliser	21 21 22

3.2.3 Crop protection 3.2.3.1 Weeds 3.2.3.2 Diseases and pests 3.2.3.3 Agrochemicals	23 23 24 25
3.3 Farm power 3.3.1 Hired farm power cost	25 26
Chapter 4 - Labour	28
4.1 Major activities	29
4.2 Labour shortages	32
4.3 Hired labour costs	33
Chapter 5 - Livestock	34
Chapter 6 - Agricultural products	34
6.1 Subsistence requirements	34
6.2 Sales of agricultural products	35
6.3 Agricultural products prices	36
6.4 Livestock products	36
Chapter 7 - Budgets	36
7.1 Crop budgets (gross margins)	36
7.2 Farm budgets and household models	38
Annex A. Survey methods and questionnaire Annex B. Farming systems survey tables for Nad Ali Annex C. National survey data for the districts of Helmand Part one, 1987 Part two, 1989 Part three, 1990 Part four, miscellaneous data on hired labour Annex D. Hired labour costs	

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## Abbreviations, Weights and Measures

Agricultural Survey of Afghanistan
Swedish Committee for Afghanistan
Swedish International Development Agency
British Overseas Development Administration
Medical Corp International
Non-Governmental Organisation
Jerib
Seer

<sup>\*</sup> These rates are approximate and volatile.

# Acknowledgements

The Agricultural Survey of Afghanistan (ASA) based in Peshawar is one of the operational sections of the Agricultural Department of the Swedish Committee for Afghanistan (SCA). The ASA would like to thank the farmers, shuras and local authorities in Afghanistan who cooperated with the ASA enumerators and supervisors again in 1991.

Financial support for the ASA has been from many sources since its inception in 1986. The principal source is now the Government of Sweden through SIDA and the SCA.

The ASA and the SCA also wish to acknowledge the support of the Overseas Development Administration (ODA) of the British Government in the provision of consultancy support through Agrisystems (Overseas) Ltd.

This report was prepared by Assistant Professor Mohammad Omar Anwarzay.

## Summary

Due to the modern irrigation system and plentiful water supply the agricultural land of Nad Ali is cultivated intensively. Double cropping is common. Some land which is to be sown in Spring with cotton or peanut is left fallow over Winter after being ploughed in Autumn.

The Winter crops commonly grown are wheat, poppy and alfalfa. Summer crops are cotton, maize, peanut, melon, water melon, beans, and mungbeans which are grown after wheat, poppy or fallow. Poppy and peanut are important cash crops which have been newly introduced and occupy a significant place in crop rotation.

The majority (80%) of land is cultivated by sharecropper and the rest is planted by land owners.

The farmers interviewed in the survey area can be divided into three categories according to farm size. Small farmers who have less than 10 jeribs and medium farmers who have between 10 and 25 jeribs, each make up 40% of farmers. The big farmers with more than 25 jeribs make up the rest (20%) of the farmers. A household model, described in this report, has been based on the average farmer for each range.

The average small size farmer has a family of 9.5 persons, two oxen, one cow, one donkey and some sheep. They live below subsistence level and have to sell their labour. They farm their own land.

The average medium size farmer has a household of more than 13 persons, two oxen, one or two cows, 5 to 10 sheep and goats and one donkey. They produce enough for their household's subsistence. They farm their own land and also let some to sharecroppers.

The average big farmer has a household of more than 15 persons, more than 3 cows, more than 10 sheep and goats, no oxen and no donkey. All of them have one tractor, produce surplus products and sell them. They usually sharecrop their land to another.

Sharecropped land make up about 80% of the total and provides one-fifth of the output for the sharecropper and four-fifths for the landlord. The sharecropper provides only labour, and no inputs as in other parts of the country.

The main factors which distinguish Nad Ali from the other parts of Afghanistan are plentiful irrigation water, use of improved wheat seed, use of tractors and the application of high rates of fertiliser to all major crops. Other distinguishing characteristics are that it is prosperous with relatively large landholdings, but rather feudal-landlords are dependent on labour from sharecroppers who are effectively tied labourers.

The cropping system is intensive, together with high inputs and high outputs, and thus can be rather risky. If low crop yields or crop failure occur, then farmers' losses can be high. Weeds, diseases and pests are just such problems in this regard and are a starting point for aid agencies.

Strategies to reduce the attractiveness to farmers of poppy cultivation should focus on providing benefits to the smaller and poorer farmers who provide most of the labour through sharecropping. Strategies focussed only on increased yield benefit the landlord more than the sharecropper, who often receives only a fifth of the output. Livestock, on the other hand, are owned entirely by the farm family, sharecropper and landlord alike.

## Introduction

The principal objective of this report is to illustrate the main farming systems in Nad Ali by describing three representative farm households. Ninety-nine farm households were interviewed in detail and divided into three groups on the basis of area cultivated. The report also describes some of the social circumstances (land tenure and labour) that have direct relevance to the constraints and potential inherent in the farming system.

The household models<sup>1</sup> are intended to be used as an analytical tool for formulating a development strategy. Development or rehabilitation options can be judged in terms of their economic impact on the average farming household. This conforms with the approach of most development agencies investing in the rural sector of developing countries. In particular this approach allows the targeting of certain groups (if represented in the models) such as the rural poor and landless farmers.

The report is one of a set of seven covering areas within the following districts and provinces:

<u>District</u>	<u>Province</u>
<ol> <li>Sholgera</li> <li>Nejrab</li> <li>Metherlam</li> <li>Maidan Shar/Jalrez</li> <li>Qarabagh</li> <li>Nad Ali</li> <li>Arghandab</li> </ol>	Balkh Kapisa Laghman Wardak Ghazni Helmand Kandahar

#### Survey method

The farming system survey data is drawn primarily from a formal survey of 99 farmers in 25 villages carried out during 1991 by one of the ASA enumerators. An English copy of the questionnaire form used can be found in Annex A.

A small group of geographically contiguous villages was chosen. This had several advantages. Firstly, by surveying all of the villages in the chosen area the problem of selecting a representative example was by-passed. Secondly, by concentrating on a small area the farming system was relatively more uniform and therefore open to generalisations. Thirdly by remaining in a group of contiguous villages the enumerator was able to spend more time questioning farmers, and less time travelling.

The farmers households were divided into three groups, but this division was not arbitrary. The first step in establishing the groups was through the use of a computer program that chose farm size ranges to best illu-

<sup>1.</sup> A household model in this report refers to a table describing the principal transfers undertaken by the household (see chapter 7).

strate any difference in cropping patterns. The program also ensured that each group contained a reasonable proportion of the farmers interviewed.

The second step was to check that the resulting groups were sufficiently different to justify using them as the basis for the different household models that appear in chapter 7. This was achieved through debriefing interviews with the enumerator and running other variables such as oxen ownership and land tenure against these farm sizes ranges.

As a second part of the survey, the enumerator<sup>1</sup>, with four years of survey experience in Helmand combined with training in surveying and agronomy in Peshawar, collected more general agricultural information that was difficult to obtain through a formal questionnaire.

Through debriefing, the qualitative information collected by the enumerator has been incorporated in the report. The quality of the qualitative data was much higher than expected and has contributed greatly to a much better understanding of the data collected in the formal survey.

The ASA has collected information in the different districts of Helmand for the last five years. This information has been looked at in greater detail than in previous reports<sup>2</sup>, and is presented at the district level, not the provincial. This allows a more detailed analysis of the ASA data than in the past. Any agency interested in obtaining more detailed information, if it is available, should apply to:

The Director, Dr. Azam Gul,
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Agriculture Department of the Swedish Committee for Afghanistan,
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P.O. Box 689,
University Town,
PESHAWAR, PAKISTAN

Tel.0521- 42719/44286/42769 Tlx. 52365 SCA PK Fax. 0521-840519

<sup>1.</sup> Abdul Bari, a graduate of Helmand Agriculture High School, who has been serving as resident extensionist in the survey area.

<sup>2.</sup> See ASA, Sixth report, 1988 and 1989 Surveys, August 1990; and the Twelfth Report, 1990 Survey, November 1991.

# Chapter 1 - Background

## 1.1 Physical description

Helmand is a province in Southwestern Afghanistan which once was part of Kandahar and was subsequently called the province of Girishk. It has an area of 59,720 sq km, ranking first among Afghan provinces. Its population was estimated at 325,500. When this province was still called Girishk in 1960, the province capital was the present-day town of Girishk. After, the name of the province was changed to Helmand, its capital was Bust and a few years later it became Lashkargah. The Lashkargah area has a population of about 30,000 inhabitants. There are about 650 villages in this province. Helmand is bounded by the Afghan provinces of Nimruz in the west, Ghor in the north, Oruzgan in the northeast and Kandahar in the east. In the south, Helmand borders the State of Pakistan<sup>1</sup>.

The province is mainly flat and 700 to 800m elevation except in the north-east where hills rise to about 1000m.

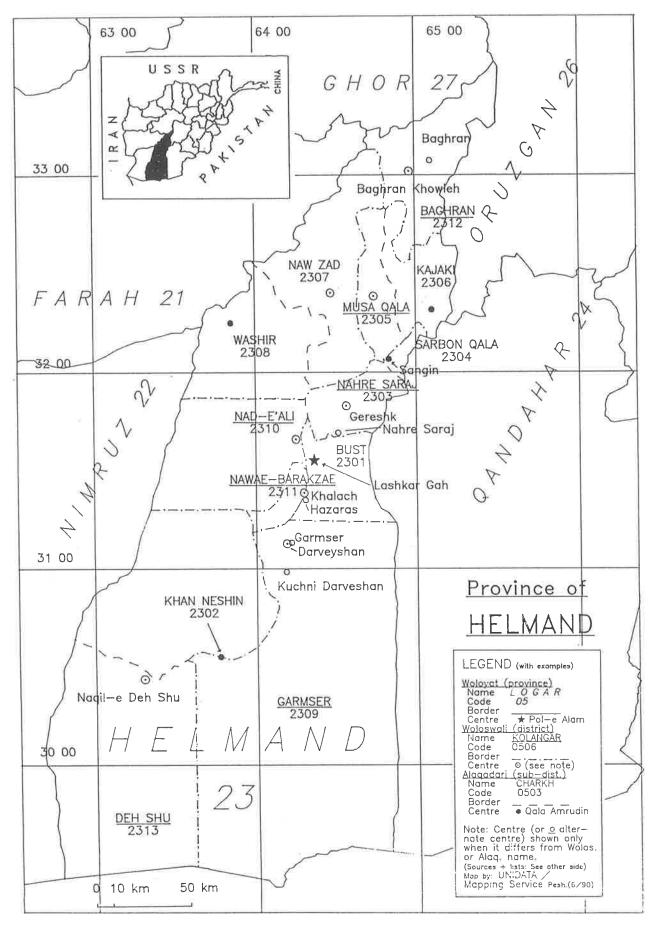
The area surveyed is part of the modern irrigation network installed in the Helmand valley from the late 1950s and completed in the early 1970s largely with American financial and technical assistance. Although the Nad Ali area actually extends into the non-irrigated area of semi-desert and seasonal swamps west of Lashkargah, the area surveyed is only the irrigated area.

There are two main types of irrigation system in the province: traditional  $karez^2$  irrigated farming in the hilly area in the north-east of the province, and the modern irrigated farming system in the centre and south of the province where the Helmand river is used to irrigate a rather narrow command area in the Helmand valley. A major off-take is the Boghrah Canal which irrigates two main areas, namely Nad Ali and Marja which are about 10km and 20km respectively east of the main Helmand valley. Nad Ali is thus entirely in the modern irrigated sector. The total area covered by vegetation (and therefore irrigation - the surrounding area is desert) as shown on satellite imagery in 1985 is about 16km by 8km (12,800 hectares).

Nad Ali is a district in west-central Helmand. To the north is Washer, to the south Khan Neshin and Nawa-i-Barakzai, to the west is Nimruz, and to the east Lashkargah and Gereshk.

<sup>1.</sup> Adamec, L.W. (editor), <u>Farah and Southwestern Afghanistan</u>, <u>Historical and Political Gazetteer of Afghanistan</u>, Vol. 2, Akademische Druck- u. Verlagsanstalt, Graz - Austria, 1973.

<sup>2.</sup> Subterranean canal in which a horizontal shaft from the surface is dug toward the ground-water supply (aquifer). The horizontal shaft serves as a conveyance channel and can sometimes continue for up to 30 or 50 km to the source of the ground-water supply. A vertical shaft is then dug directly down to the tunnel.



The survey area which is located in Nad Ali includes 24 villages. The biggest villages are Dahana-i-Sharqi and Dahana-i-Gharbi (each with about 1,000 farm families), Khushal Kalay (with about 600 farm families), Naqil Abad and Zarghoun Kalay (each with about 500 farm families), Chah-i-Mirza and Shin Kalay (each with about 400 families), Loy Bagh (with 300 families) and finally Group Shash (with 250 farm families). In all, there are nearly 5,000 families or about 65,000 people.

## 1.2 Geography

## 1.2.1 Climate, rainfall and soils

Helmand is a hot semi-desert province. Mean annual rainfall is less than 100 mm<sup>1</sup>. Frost rarely occures, allowing year-round cropping.

Helmand has saline and calcareous soil, especially in Marja, Garmser and Nawa where the salt problem is very serious.

#### 1.2.2 Water resources

The Helmand river flows from the north-east corner of the province to the south-west. On it there are three barrages; at Kajaki, Girishk, and Garmser which form the main part of the irrigation system. There are 360 karez in Zamindawar (Kajaki district) which date from Ahmad Shah Baba era and are collectively known as Ahmad Shahi Karez. There are also some karez in Nawzad, Mosa Qala and Washer. Besides this, there are some springs in Baghni Nawa (Mosa Qala district).

## 1.2.3 Natural vegetation<sup>2</sup>

The non-irrigated areas have Ghaz (Tamarix spp., Saxaul (Haloxylon spp.), Terkha or felon herb (Artemisia maritina), Spelani (Peganum harmala), Zozan (Alhagi camelorum), Tarboz-i-Abojehel (Citrullus colocynthus), wormwood and feathergrass and halophilous vegetation<sup>3</sup>. In the irrigated areas natural willow, poplar and oleander occur.

## 1.2.4 Major towns and bazaars

There are nine districts in Helmand including: Musa Qala, Gereshk (Nahre Saraj), Kajaki, Naw Zad, Garmser, Nad Ali, Nawa-i-Barakzai, Baghran and Deh Shu; and three sub-districts: Sarban Qala, Washir and Khan Neshin (see map #1). The provincial capital is Lashkargah (Bust).

<sup>1.</sup> National Atlas of Afghanistan. p. 18, GEOKART, Poland, 1984.

<sup>2.</sup> Hassanyar, S.A. et al. <u>Introducing the Natural Forests of Afghanistan</u>, Faculty of Agriculture, Kabul University, 1985.

<sup>3.</sup> National Atlas of Afghanistan. p. 19, GEOKART, Poland, 1984.

## 1.3 Demography

## 1.3.1 Population

In 1979, the Government census indicated a population of 485,975 for Helmand province, and 63,953 for Nad Ali district<sup>1</sup>.

## 1.3.2 Major ethnic groups

Tribally and linguistically, almost all of the people in the northern part of the province are Pashton and in the south there are about one per cent Hazaras. The project area is, however, largely occupied by Pashtons. The major Pashton tribes are: Barakzai, Alizai, Noorzai, Eshaqzai, Alekozai, Ghilzai, and Popalzai.

## 1.3.3 Major movements of people

Nad Ali, together with much of the modern irrigated area of the Helmand valley, was settled during the early 1960s almost entirely by Pashton of the Ghilzai tribe. Before this time the area was largely uninhabited and was occupied by nomadic people (known as *Kuchi*).

Refugees from Nad Ali district are mainly located in Baluchistan (Girdi Jangal, Chaghi, Punj Pai and Quetta in that order) and Iran (Zahidan).

#### 1.3.4 Household size

Average household size in 1990 was 13 persons of which six were less than 10 years old, two were between 10 and 20, four were between 20 and 50, and one was over 50 years old. Less than five per cent of households were less than seven persons. Table 1-1 below shows the distribution of household size in 1991 in the survey area.

Table 1-1: Distribution of people per household

No. of fmrs	percent	percentage of people in each rang							
quest i oned	<3	4–6	7–9	10–12	13–15	>16			
99	1	14	23	21	19	21			

<sup>1.</sup> Eighmy, T.H., <u>Afghanistan's population Inside and Out, Demographic Data for Reconstruction and Planning.</u> USAID, 1990.

# **Chapter 2 - Farming Systems**

## 2.1 Description of farming systems

Double cropping is a common practice in the survey area, i.e. the same land grows two crops in one year. For example wheat and poppy are sown in Autumn and harvested in May and June, after harvest, maize and cotton is sown in June and July on the same plot of land and harvested before Autumn planting.

There are few differences between the modern and traditional irrigated areas of Helmand as far as farming systems are concerned. In fact the main crops in both areas are irrigated wheat or opium poppy followed by maize or cotton. Differences in farming systems are based on farm size, as the farm models show. The specific difference is that the smallest farmers (represented by Model One, 5 jeribs) farm their own land, while larger farmers (represented by Models Two and Three, 17.5 jeribs and 28 jeribs respectively) sharecrop their land.

The main crops of the survey area are irrigated wheat, alfalfa, poppy, cotton, maize, and peanut which are planted by 98%, 53%, 52%, 43%, and 29% of farmers respectively (see table 2-1).

Table 2-1: Crops grown by the farmers

	% of fmrs				Average production
	growing	Avg. Area	Avg. Seed	Avg. Yield	per fmrs
Crops	сгор	(jerib)	(seer/jerib)	(seer/jerib)	(seer)
Irr. Wheat	98	10.8	5.6	81	882
Alfalfa	53	1.9	1.3	*	6
Poppy	53	1.6	0.3	3	7
Cotton	52	4.9	2.1	79	378
Maize	43	5.7	2.2	56	312
Pea Nut	29	4.0	1.3	84	337
Bean	7	7.1	1.6	34	240
Clover	7	2.1	0.7	(E)	15. <del>0</del> 5
Mung Bean	7	7.3	1.3	27	196
Vegetables			(kg/jerib)		
Water Melon	15	3.1	4.0	3	
Tomato	5	0.6	-	-	S <b>®</b> S
Okra	4	0.5	1.0		(-2.5)
Onion	2	1.5	10.7	353	::
Cucumber	1	1.0	1.0	; <b>*</b> :	:#0
Egg Plant	1	1.0	9*	: <del>-</del> :	*

Number of farmers questioned: 99

Poppy, which is planted by 53% of farmers has increased its acreage dramatically in the last few years and is a major cash crop.

Based on this survey 40% of farmers have fruit trees and 32% of them have grape vines, mainly for home consumption (see Table 2-2).

Table 2-2: Average number of fruit trees and vines

Crops	In product	ion	Not in prod		
	% of fmrs owning	Avg.	% of fmrs owning	Avg.	Avg. Value of products (Afs)
Fruit trees	22	70	18	41	67143
Vines	22	242	10	101	116000

Number of farmers questioned: 99

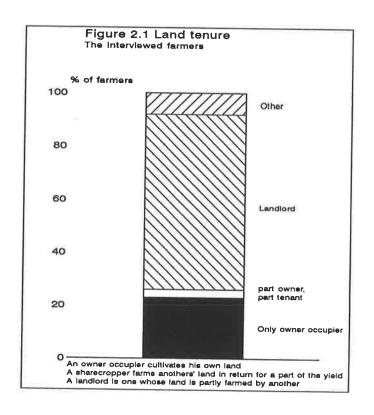
## 2.1.1 Land tenure

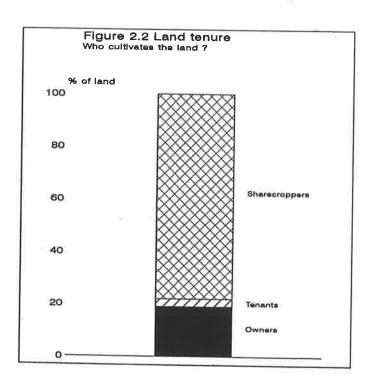
In the survey area larger landowners usually hire extra labour on a share-cropping basis. For example 68% of landowners sharecrop their land to another (see table 2-3).

Table 2-3: Percentage of farmers having Sown or Fallow land

( ) e i	·ib)	land	(jerib)			
Irriga	ted	Irrigated		Overall	Total	
% of fmrs			% of Avg. fmrs Land		average area/fmrs	
99	17	44	8	99	20	
4	19	- 1	1	4	19	
2	24	1	3	2	26	
68	20	30	8	68	23	
-	-	-	-	-	- 2	
2	18	-	-	2	18	
1	5	-	-	1	5	
33	9	12	8	33	12	
	% of fmrs  99 4 2 68 - 2 1	99 17 4 19 2 24 68 20 2 18 1 5	Irrigated   Irrigated	Irrigated   Irrigated	Irrigated   Irrigated   Overall   land   % of Avg. % of Avg. % of fmrs Land   fmrs Land   fmrs   fmrs	

Number of farmers questioned: 99





All agricultural land in Nad Ali is irrigated; there is no rain fed land. Average farm size is about 40 jeribs and most farmers (87% in 1990) leave almost half their land fallow so that the average cropped area is slightly more than 20 jeribs. The fallow period is usually during the Winter in order to have land prepared for Spring crops.

According to this survey nearly 30% of farm families are only owner occupiers who cultivate their own land and nearly 70% of them are landlords whose land is partly farmed by another (see figure 2-1). The remainder is farmed by tenants and others.

About 80% of the land is cultivated by sharecroppers, about 15% by owner-occupiers, and about 5% by tenants (see figure 2-2). The share-croppers and tenants themselves were not interviewed.

This breakdown of who cultivates the land should not be taken to mean that, of the cultivators themselves, the division is also 80:15:5. Nor should it be taken to mean that the division can simply be into these three categories. The facts, according to the survey, are as follows:

- a) Landowners usually provide all the inputs and farm power and the sharecropper receives one-fifth of the yield. However for poppy the sharecropper receives one-third of the yield because this crop needs more care and intensive work.
- b) Sharecropped land, which make up about 80% of the total land, provides one-fifth of the output for the sharecropper and four-fifths for the landlord. The sharecropper provides no inputs except labour. (This systems differs from that in many other parts of Afghanistan where the sharecropper takes one-third and the land-lord takes two-thirds, but they also split the cost of material inputs (seed and fertiliser) on the same basis. At Nad Ali the sharecropper is thus little more than a tied labourer, though he differs from the ordinary labourer in one respect; he runs the risk of receiving nothing if there is crop failure.
- c) The most important crop in terms of the proportion of farmers growing it and in terms of average area cropped is irrigated wheat. The average farmer grows about 15 jeribs. The most important crop in terms of profitability is poppy, which like wheat is grown as a winter crop. The main limiting factor for this crop is labour availability at harvest, and once this limit is reached, generally about one jerib on individual farms, then the rest of the land is devoted to wheat.
- d) Where irrigation water is not a limiting factor, irrigated wheat is followed by maize, the second most important crop. Where there is sufficient irrigation water about 85% of farmers grow the same area as under wheat.
- e) Occupying the land at the same time as maize is cotton. When irrigation water is not limiting it is the third most important crop, with 60% of farmers growing an average of 8 jeribs.
- f) Alfalfa (or more rarely clover) is grown by all farmers.

g) The survey shows that 99% of farmers own an average of 17 jeribs of cultivated irrigated land. But two-thirds of farmers let their land out to sharecroppers, and the amount of land they let out averages 20 jeribs. These figures show that it is the richer farmers who let their land to sharecroppers. A small number (5%) rent their land out (an average of 20 jeribs) without sharecropping. Only 29% of landowners farm their own land, and these are the ones who own rather less land than most - an average of 9 jeribs. All this shows that Nad Ali is a relatively rich area in land tenure terms.

# 2.2 Farm size and farming systems

The agricultural land of Nad Ali<sup>1</sup> which was distributed to the farmers by the Government has different parcel sizes due to the quality of land and different land reform systems.

To illustrate the different farming systems in Nad Ali the farm families of the survey area are divided in three main groups (see table 2-4).

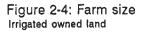
Nad Ali, probably because in Government land distributed area every farmer was given about 30 jeribs of land, has a lower proportion of farmers with holdings over 30 jeribs than any other district in the province. It also has a much lower proportion of farmers than the provincial average of farmers with holdings of less than 10 jeribs (though Garmser is the lowest in that respect). In short, Nad Ali has more uniform farm sizes than the rest of the province - as one would expect in Government distributed area. About a quarter are in the one to 10 jerib range, nearly half are in the 11 to 20 jerib range, and about a quarter are in the 21 to 30 jerib range. This compares with the provincial average where about 40% are below 10 jeribs, nearly a third are in the 11 to 20 jerib range, and nearly a third are over 20 jeribs.

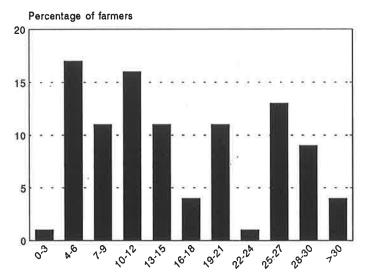
Figure 2-3 shows that 50% of farm families have less than 30 jeribs of land. For example, more than 20% of farmers have 5 to 8 jeribs, 13% of them have 25 to 28 jeribs, and only 3% of farmers have more than 40 jeribs of land (see figure 2-4).

<sup>1.</sup> In some areas of Helmand such as Marja, Nad Ali, Nawa and Garmser the agricultural land which was distributed by Government during the Zahir Shah and President Daud eras is called "form" (derived from the form on which the land title deed was written [Pashto "Forma"]). There are three kinds of form due to the quality of the land: the first class land is 20 jeribs /form, the second class land is between 25 and 27 jeribs/form and finally the third class land is between 30 and 35 jeribs /form. According to our enumerator, in King Mohd. Zahir Shah's era a form of land was more than 30 jeribs (which makes about 60% of the total distributed land by the Government), In President Mohd.Daud's era one form was between 10 and 20 jeribs (about 30% of the total distributed land by the Government) and finally, in the Communists' so called "Land Reform" era one form of land was between 6 and 10 jeribs due to the quality of the land (about 10% of the total distributed land by the Government).

% of land owned % of farmers

Figure 2-3: Distribution of land in Nad Ali





Farm size ranges (Jeribs)

<sup>\*</sup> i.e. 20% of the land is owned by 40% of the farmers.

Table 2-4: Crops and Farm size

	Sn	all		Me	edium		Large			
Farm size (jeribs): No. of fmrs in range: Av. no. of crop grown per fmr:	<1 39 3.	•		10-2 40 3.	)		>25 19 4.7			
	Crop	% fmrs	Av.	Сгор	% fmrs	Av. irbs	Crop	fmr	Av. s jrbs	
	Wheat Poppy Maize Alfalfa Cotton Peanut Melon Grape	33 21 21 10	4.8 0.8 1.6 0.5 1.2 0.5 0.5	Wheat Alfalfa Poppy Cotton Maize Peanut Grape Melon	63 55 53 43 23	10.8 1.1 1.6 2.3 2.6 1.1 17.9	Wheat Cotton Poppy Peanut Alfalfa Maize Grape Pomegra	100 84 58 58 53 37 16 16	22.1 5.3 1.8 2.5 1.6 3.8 65.9	
	Fruit Mung B Clover Bean Pomegra	10 8 5 5 3	9.0 0.2 0.1 0.1 1.5	Clover Fruit Bean Onion Mung B	8 5 3 3	0.2 4.1 0.5 0.0 0.1	Bean Mung B Clover Melon	16 16 11 11	1.4 2.0 0.2 0.2	

Number of farmers questioned: 99

## 2.2.1 Farm size and household size

On average, the larger farms have more people per family than the smaller farms. For example, small farmers with less than 10 jeribs have about 10 persons, the medium farmers with 10 to 25 jeribs have 13 persons, while the large farm family with more than 25 jeribs has 15 persons in a household (see table 2-5 and 2-6).

Table 2-5: Average no. in a household in relation to average farm size

Farm size (jeribs):	<10	10–25	>25
No. of people/family	9.5	13.3	15.2

Number of farmers questioned: 99

Table 2-6: Family size and farm size

No. of fmrs questioned			Fa	rm si	ize ran	nges (	jerik	)					
		<10 Family si			10–25 e ranges (no. of					>25 . of people)			
	<6	7–12	>12	<6	7–12	>12	<6	7–12	>12				
99	25	53	23	5	43	53	16	32	53				

Note: Figures in body of table are % of households interviewed

#### 2.2.2 Farm size and oxen ownership

When we compare oxen ownership with farm size we find that 93% of small farmers have no oxen while only 8% of them have two oxen. In the medium group, 98% have no oxen. None of the large farmers have any oxen (see table 2-7).

Table 2-7: Oxen ownership and farm size

			Farm	size	ran	ges (	jerib)		
		<10		1	0-2	5		>25	
No. of				No.	of	oxen			
fmrs questioned	0	1	2	0	1	2	0	1	2
99	93	-	8	98	-	3	100	-	-

#### 2.2.3 Farm size and cropping patterns

Crop rotation is largely based on irrigated winter wheat which is grown by almost all farmers. It may be followed by cotton, maize, peanut, melon or beans. The second most important crop, in terms of the proportion of farmers growing it, is poppy. This is usually followed by cotton, but may also be followed by maize or peanut. If cotton follows wheat then it is sown in May/June. If cotton follows poppy then it is sown in April. Almost all of the fields which are sown to wheat are followed by maize. Wheat and maize are grown on larger areas than all other crops.

Cotton is nearly always preceded by fallow because of its long growing season. There are two varieties of cotton which have different sowing times: one in April when it follows fallow; and the other after the wheat harvest in June.

Wheat or poppy follow maize. Watermelon follows wheat. Peanuts and "other" crops occupy the same place in the rotation and are treated here as one for the purposes of presentation. As farm size increases, the proportion of land under wheat and peanut also increases, while the proportion of poppy and maize decrease, as figure 2-5 shows.

Figure 2-5: NAD ALI CROPPING PATTERNS

**MODEL ONE, 5 JERIB FARM** 

	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct
Jeribs (cu	mulative)	)										
1	Wheat	•						Maize				
1.5(½j)	Alfal	fa										
2(½j)	Wheat							Maize				
3 .	Wheat							Maize	-			
4	Fallo	W					- Cot	ton-				
5	Poppy							Other				

## MODEL TWO, 17½ JERIB FARM

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Jeribs (cu	ımulative)	)										
1	Wheat							Maizo				
2												
3	Wheat							Maize				
4												
5	Wheat											
6	Wheat-											
7	Wheat-											
8	Wheat-							20,000,000				
9	Wheat-											
10	Wheat-											
11	Wheat-											
12	Wheat-											
13	Wheat-											
13½(½j)												
14(½j)	Poppy-											
15	Fallo											
15½(½j)	Poppy-					11 13 - 23 11 13		er				
16(%j)	2.7											
16(½j)	Fallow											
17%(%j)	Wheat-							Maize				

## MODEL THREE 28 JERIB FARM

	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct
Jeribs (cu	umulative	)										
1	Wheat							Maize				
1½(½j)												
2(½j)	Alfal	fa										
2½(½j)	Alfal	fa										
3(½j)	Wheat	C.S.						Maize				
4	Wheat											
5	Wheat											
6	Wheat							Maize				
7	Wheat											
8	Wheat											
9	Wheat											
10	Wheat	_						100000000000000000000000000000000000000				
11	Wheat-											
12	Wheat-											
13	Wheat-											
14	Wheat-											
15	Wheat:											
16	Wheat-											
17	Wheat-											
18	Wheat-							19 (\$100.00)				
19	Wheat-											
20	Wheat-											
21	Wheat-										100	
22	Fallo				- Cott	on-						
23												
24	Poppy-				- Cott	on-		., 0 : 1101				
25												
26	Poppy-											
27					- Cott	on	· cario					
28												

## **Chapter 3 - Crop Production**

#### 3.1 Management practices for major crops

#### 3.1.1 Wheat

Wheat is usually sown in November and December (see table 3-1). When the field is at proper moisture condition it is ploughed twice by *dufal* (mouldboard plough) and then by *nufal* (nine point cultivator). After this the farmers broadcast the seed (5 to 6 seers/jerib) and fertiliser (one and a half bags of urea and one bag of grey fertiliser/jerib). They then plough the land by *nufal* again and harrow (*mala*) it.

Table 3-1: Cropping dates

Crop	No. of fmrs giving data on crop	Planting month	Variability (1) (Standard deviation)	Va Harvesting month	riability (1) (Standard deviation)
Irr. Wheat	97	November/Dec.	0.5	June	0.3
Рорру	52	November	0.0	May	0.2
Cotton	50	April/June	0.9	November	0.4
Maize	43	June	0.6	October	0.3
Peanut	29	April	0.0	November	0.3
Clover	2	September	1.5	July	0.0
Melon/Water M.	. 15	April/June	1.2	July/September	0.8
Onion	1	October	0.0	June	0.0
Bean	7	June	1.4	October	0.3
Mung Bean	7	June	0.5	October	0.0

(1) The higher the variability (measured in standard deviations) the longer the period during which the activity may take place. For example the planting month for irrigated wheat has a standard deviation .5 months indicating that the activity also takes place in November and December.

Wheat is mainly harvested in June. The farming system survey shows that, 98% of farmers grow an average of nearly 11 jeribs of irrigated wheat. This is about two-thirds of the provincial average (16 jeribs) and is a reflection, as we shall see, of the relative prosperity of Nad Ali compared to other parts of the province. Yields are well above the provincial average of 53 seers/jerib at 81 seers (see table 2-1, table 3-2 and figure 3-1).

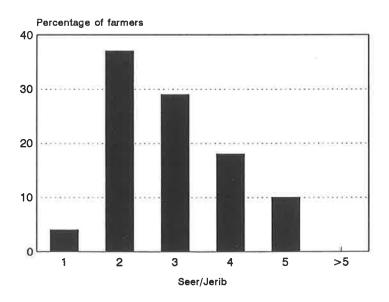
Table 3-2: Ratio of yields/seed sown (seers)

Crop name	No.fmrs giving data	ratio of yield/seed sown
Irrigated Wheat	97	15
Maize	43	26
Alfalfa	52	-
Grape	13	i i
Pea Nut	29	67

Number of farmers questioned: 99

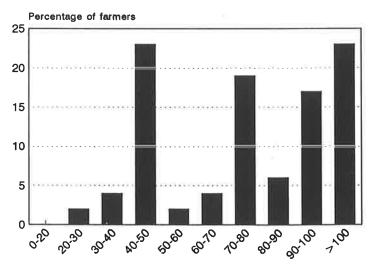
Figure 3-1: Wheat Yields

Figure 3-2: Poppy Yields



Seer/Jerib

Figure 3-3: Cotton Yields



#### 3.1.2 **Poppy**

Land preparation for poppy is the same as for wheat, except that the seed is broadcast <u>after</u> ploughing and harrowing the field. The seeding rate is 0.3 seers/jerib. As the poppy seed is small, farmers usually mix seed with soil and broadcast the mixture.

Poppy is usually sown in November on fertile land. Two or three top dressings with urea are common. It needs 3 to 4 Irrigations according to weather conditions. Cultivation is necessary at least three times during the early growing stages of the plant.

According to this survey, 48% of small farmers grow an average of 0.8 jeribs, 55% of medium farmers grow an average of 1.6 jeribs, and 58% of large farmers grow an average of 1.8 jeribs. Harvesting time is usually late May. The sap of the capsules are collected at least 3 times and the average yield is 3 seers/jerib (see table 2-1, table 2-4 and figure 3-2).

#### 3.1.3 Alfalfa

After land preparation and irrigation the seed is broadcast (1.3 seers/jerib). This crop occupies the field for 5 to 6 years. The farmers of this area usually broadcast farm manure in alfalfa early in the Spring. Grey fertiliser is usually applied after cutting (if it is necessary) during the growing season.

Based on this survey, 53% of farmers grow an average of just under 2 jeribs of alfalfa to support mainly cattle. Nearly 90% of farmers own an average of four cows or calves, as well as other livestock.

To summarise on winter crops; the average farmer will have nearly 11 jeribs of wheat, 1.6 jeribs of poppy and nearly 2 jeribs of alfalfa, a total of nearly 15 jeribs. The remaining 2 jeribs (the average farmer has 17 jeribs), are fallow. With the exception of some vegetables, the crops below are summer crops.

#### 3.1.4 Cotton

There are two methods of sowing cotton in the survey area: firstly, planting on soil ridges. This method is practised by 20% of farmers. The field is ploughed in Autumn and the soil ridges are made in April. The distance between two ridges is about 50 cm and between two plants about 20 to 25 cm. When the ridges have been made the field is irrigated. The farmers make holes on the top of the ridges, put 2 to 3 seeds in it and cover it with soil<sup>1</sup>.

<sup>1.</sup> Information is based on the observation of the enumerator.

Figure 3-4: Maize Yields

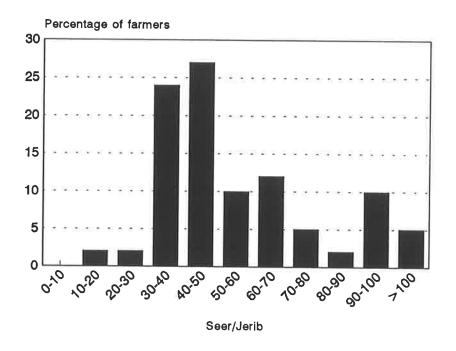
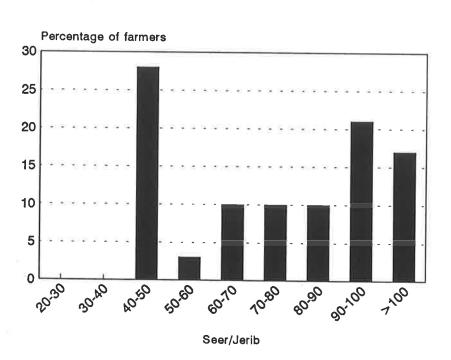


Figure 3-5: Pea Nut Yields



The second method of sowing cotton is by broadcasting the seeds. This is practised by 80% of farmers. This type of cotton grown in the district is sown in June after harvesting of wheat. This method of land preparation and sowing of cotton is the same as for wheat. The seeding rate is two seers/jerib. White fertiliser (urea) is usually applied after sowing.

According to this survey, 52% of farmers grow nearly 5 jeribs of cotton, yielding an average of nearly 80 seers (see table 2-1 and figure 3-3). The proportion growing cotton is much higher than the provincial average (7%) because of access to the Government ginnery at Lashkargah, though the average area grown by each farmer is somewhat less than the provincial average (7 jeribs), and the yield is the same. Cotton is usually harvested 2 to 3 times in the survey area.

#### 3.1.5 Maize

Maize is usually sown as a second crop after wheat or poppy in June. This is used as grain crop for human consumption (80%) and the rest (20%) is used as animal feed. Land preparation and sowing are the same as for wheat. The average seeding rate is 2.2 seers/jerib.

This survey shows that less than half the farmers (43%) grow maize but the average area (5.7 jeribs) is second only to wheat (see table 2-1 and figure 3-4).

#### 3.1.6 **Peanut**

The field is ploughed in late Autumn and left fallow until Spring. In April the farmers make soil ridges and then irrigate the field. When the field is in proper moisture condition the farmers make small holes on the top of the ridges with shovels and sow 2 to 3 seeds in each hole. The seeding rate is about 1.3 seers/jerib, and the distance between two ridges are 30 to 35 cm. Fertiliser application is not common on peanut.

Cultivation is usually done 2 to 3 times with shovels. Peanut is harvested in November.

According to this survey, peanut is grown by 29% of the farmers interviewed on an average area of 4 jeribs. It has become more popular in recent years as the cost of urea fertiliser has risen and yield of wheat has fallen. Average yield of peanut (84 s/j) is slightly higher than that of wheat (see table 2-1 and figure 3-5).

#### 3.1.7 Water melon and Melon

Falez (20% melon and 80% water melon) is also common in the survey area. There are two methods of growing falez: Firstly, the line sown crop which is mostly rain fed or on residual moisture after irrigated wheat (or poppy in June) and harvested in September. This method is practised by 80% of farmers. Secondly, there is a ditch or irrigated method in which the farmers make small ditches which are about two meters away from each other. This method is usually used for melon and is practised by

20% of farmers. The melon is sown in April and harvested in July<sup>1</sup>.

According to this survey, 15% of farmers grow an average of over 3 jeribs (see table 2-1).

#### 3.1.8 Other Crops

Other minor crops are bean and mung bean (grown by 7% of farmers on an average area of over than 7 jeribs), clover (7% of farmers on over 2 jeribs), and vegetables (see table 2-1).

## 3.2 Seed, fertiliser and crop protection

#### 3.2.1 Seed

According to our enumerator, no local wheat variety is sown by farmers in the survey area. About 95% of farmers use *Mexipak* (an old improved wheat seed) and about 6% of farmers use *Pir Sabak 85* which is distributed by SCA (to about 4% of the farmers in the survey area) and *MCI* (to 2% of the farmers) in the area. Only one per cent of farmers said that lack of improved wheat seed was a constraint on crop production in 1990.

A yield of about 130 to 160 seers/jerib for *Mexipak* and a yield of about 200 seers/jerib (i.e. four times the national average yield) for *Pir Sabak* 85 was reported in this area in 1991<sup>2</sup>.

Table 3-3 shows that 88% of farmer indicate the Government as their source of improved wheat seed which was before the war. After interviewing the enumerator, it was found that the seed was *Mexipak*, which was distributed by the Government about 20 years ago. Now farmers are using their own seed kept from one year to the next.

Table 3-3: Improved wheat seed

% of farmers	Last Year	Ever	before
Using	95		6
Not using	4		94
Not answering	1		0
% of fmrs using			
improved seed			
who would :-			
Use it again	27		50
Not use it again	72		33
Not answering	1		17
Source of improved s	seed		••
and % of fmrs using	the source		
1 SCA	4	Government	3
	rnment 88	Neighbour	1
3 Own	1	Pakistan	1
4 MCI	2	Iran	i

No. of farmers questioned: 99

<sup>1.</sup> The information is based on the observation of the enumerator.

<sup>2.</sup> The information is based on the observation of the enumerator.

#### 3.2.2 Fertiliser

Almost all farmers who grew irrigated wheat used fertiliser in 1991, and of those, nearly 80% used both white and grey 1.5 bags and three-quarters of a 50kg bag respectively per jerib (see table 3-4, 3-5 and figure 3-6). The price of grey fertiliser<sup>1</sup>, which apparently comes from Iran<sup>2</sup>, was As 13,800/36 kg bag in 1991 and urea was almost the same at Afs 13,500. We do not have reliable historical price data for fertiliser, but whatever the prices were in 1990, the use of fertiliser on wheat then was lower according to the survey - 1.3 bags of white/jerib and 0.4 bags of grey.

Significant amounts of fertiliser are applied to poppy, cotton and maize. Just over half the farmers growing poppy apply fertiliser, and of these nearly 60% use only white, and the other 40% use both types. Aid agencies which promote the supply of fertiliser or are thinking of doing so may be in a quandary when they see that, on a per jerib basis, as much fertiliser is applied to poppy as to wheat.

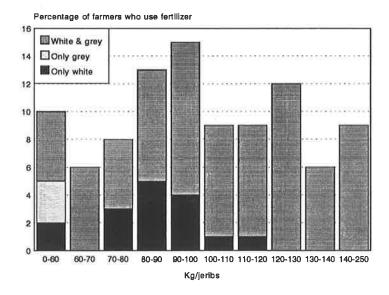


Figure 3-6: Rates of fertilizer use for irrigated wheat

<sup>1.</sup> The name of the Iranian grey fertiliser is not clear.

<sup>2.</sup> According to the enumerator.

Table 3-4: Percent of farmers using fertiliser

		Only Only		n l v	Grey	rey and White f			
			⊌h	ite fert.		y fert.		White	Grey
Crops	% of fmrs growing crop	% of fmrs not using fertiliser	% of fmrs		% of fmrs	Avg. Kg/jrb	% of fmrs	Avg. Kg/jrb	Avg. Kg/jrb
Irr. Wheat	98	2	16	86	3	36	79	73	35
Alfalfa	53	80	8	53	8	39	4	38	36
Рорру	53	48	28	77	2	59	21	67	
Cotton	52	52	23	83	5	51	20	69	38
Maize	43	64	30	65	2	51	4		32
Pea Nut	29	99	-	-	-	- 1	-	59 35	46
Melon	15	94	2	54	1	50	1	35	75
Clover	7	99		J4			3	23	10
Mung Bean	7	99	1	35	-	50 -	-	-	-
All crops		1	14	80	: 9:	:•:	85	70	36

Number of farmers questioned: 99

They may draw some comfort from two things. One is that the proportion of total fertiliser applied to poppy is small compared to wheat - about 1:16. The other is that Nad Ali is unusual in Afghanistan in applying so much fertiliser to poppy.

Farm size ranges (ionib)

Table 3-5: Fertiliser use and farm size (Both grey and white)

						u 1 m 3	126 1011	Acz (lei.	נטו			
No. of			<10				10-25				>25	
fmrs	_			Fertilis	ser	appl	ication	rates (k	(g/	jerib	)	
questioned	0	1-75	75-105	105-250	0	1-75	75-105	105-250	0	1-75	75-105	105-250
99		19	43	38	-	25	28	48	-	19	44	38
									_			

Note: Figures in body of table are % of fmrs in each farm size range

About the same amount of both types of fertiliser are applied to cotton as to wheat and poppy on a per jerib basis, and like poppy, by about half the farmers overall. Half of these farmers apply only white and half apply both types. Just over a third of maize farmers apply fertiliser, and as is common in the rest of the country, almost all of these apply only white. The maize crop utilises residual phosphate left over from the wheat crop.

## 3.2.3 Crop Protection

#### 3.2.3.1 Weeds

According to this survey 82% of farmers indicate weeds as a big problem in wheat, 79% in poppy, and 75% in peanut (see table 3-6).

Table 3-6: Crop problems

% of fmrs	Weeds	problem and intensity				
growing	(i)	Low	Medium	High		
98	75	-	18	82		
53	27	7	14	79		
52	65	6	27	67		
29	69	-	25	75		
7	14	100	-	-		
	98 53 52 29	growing crop (i)  98 75 53 27 52 65 29 69	growing crop (i) Low  98 75 - 53 27 7 52 65 6 29 69 -	growing crop (i) Low Medium  98 75 - 18 53 27 7 14 52 65 6 27 29 69 - 25		

Number of farmers questioned: 99

## 3.2.3.2 Diseases and Pests

There are many plant diseases and pests in the survey area. These are listed in table 3-7 below<sup>1</sup>.

Table 3-7: Diseases and pests problem

Crop	Pests	Diseases
Wheat	Army worm	Rust &loose smut
Cotton	Aphids, Cut worm, Mites, Spiny boll worm, Thrips, White fly and Termites	
Melon	Melon fly, Red beetle, and Aphids	Powdery mildew
Water melon	Melon fly, Mites and Aphids	
Pomegranate	Aphids	
Grapes	Oriental wasp	
Cabbage	Maggot	
Onion	Maggot	

<sup>(</sup>i) % of total growers who have some weeds problem

Information in this section is based on the observation of the enumerator and according to Jerry
 Rann, <u>Field Manual for Identification and Control of some of the Major Economic Pests in Afghanistan.</u>

## 3.2.3.3 Agrochemicals

Apart from crop protection chemicals provided under aid programmes<sup>1</sup>, farmers are able to buy 2,4-D for broad leaved weeds in wheat in the local bazaar. Difficulties in supply due to war have led to local shortage, the price has recently risen from Afs 3,000/kg in 1989 to Afs 10,000/kg in 1991.

## 3.3 Farm power

According to this survey, only 6% of farmers use oxen compared to 94% who use tractors (see table 3-8). Unusually for Afghanistan as a whole, there are no farmers who use both tractors and oxen. For those using only tractors, two-thirds hired them and the remaining third owned, shared or borrowed them (see table 3-9).

Just over one in ten farmers own one ox and the same proportion owns a pair. The remaining three-quarters do not own any oxen. Nearly one in ten farmers own their own tractor, and the same proportion use only their oxen on their own land. Two-thirds of farmers hired a tractor and half of them use no other source of farm power. Farm power shortage is the fourth most important problem faced by farmers after crop disease, irrigation water, and weeds, and is equal with fertiliser.

Table 3-8: Percent of farmers using Oxen or Tractor

			Only oxen		Only tractor					
Crops	% of fmrs growing crop	% of	Own, shared or borrowed  % of fmrs	Hired % of fmrs	% of	Own, shared or borrowed % of fmrs	Hired ————————————————————————————————————			
Irr. Wheat	98	6	83	17	92	37	66			
Alfalfa	53	1	100	-	8	38	63			
Рорру	53	2	100	.≅	51	36	66			
Cotton	52	1	100	-	49	49	55			
Maize	43	2	100	*	39	28	77			
Pea Nut	29	300	9 <b>2</b> 3	€	28	32	75			
Melon	15	-		( <u>~</u>	12	33	67			
Bean	7	•	•	-	6	83	17			
Clover	7	•	- 4	<b>7</b>	3	67	33			
Mung Bean	7	3.5	25	=	5	80	40			
Onion	2	27.0	(±)	*	1	100	-			
All crops		6	83	17	94	37	67			

Number of farmers questioned: 99

<sup>1.</sup> The SCA Department of Agriculture's programme provides zinc phosphide for rats, metasystox as an insecticide for fruit trees and vegetables, 2,4-D against broadleaved weeds in wheat, and Arelan and Graminon against weed grasses in wheat. For example, in early 1992, our plant protectionists used 400 kg 2,4-D and 80 liters Graminon against weeds in the survey area.

Table 3-9: Oxen and Tractor use per jerib

			Ox	(en							
		•		chared or crowed			shared or corrowed		Hired		
Crops	% of fmrs growing crop	% of fmrs	Avg. no. of jerib	Avg. no. of days/jrb	% of fmrs	Avg. no. of jerib	Avg. no. of hour/jrb	Avg. no. of jerib	Avg. no. of hour/jrb		
Irr. Wheat	98	6	5.8	1.1	92	13.6	1.1	10.3	1.2		
Alfalfa	53	1	2.0	1.0	8	2.5	0.9	2.2	1.1		
Рорру	53	2	1.5	1.5	51	3.4	1.1	2.3	1.2		
Cotton	52	1	3.0	1.3	49	5.2	1.1	4.5	1.2		
Maize	43	2	2.5	1.3	39	7.5	1.1	5.2	1.3		
Pea Nut	29	100		-	28	4.7	1.1	3.9	1.2		
Melon	15	*	*	-	12	3.5	1.3	3.5	1.1		
Bean	7	9		-	6	5.6	1.4	15.0	1.3		
Clover	7	*	2	_	3	3.0	0.9	4.0	1.0		
Mung Bean	7	2	~	-	5	6.3	1.3	3.0	1.4		
Onion	2	-	-	-	1	1.0	1.0	-	-		
All crops		6	8.4	1.1	94	25.1	1.2	18.0	1.2		

Number of farmers questioned: 99

## 3.3.1 Hired farm power cost

The average cost of hired oxen is 3,000 Afs/day<sup>1</sup> (see table 3-10) and the average cost of a hired tractor is from 8,000 to 10,000 Afs /jerib (see table 3-11). According to our enumerator, for threshing of wheat, the tractor owner receives between 10 and 12 % of the yield.

Threshing of wheat is usually performed during the night for two reasons: a) tractors are busy on other activities during the day and; b) the weather is too hot in the day.

The demand for hired tractors is very high in June (harvesting), July (threshing), November and December (land preparation for wheat and peanut) see figure 3-7. The farmers of the survey area usually make a contract with tractor owners, i.e. ploughing and threshing is done by the same tractor owner.

If 10 labourers are available, a tractor can thresh the wheat of 10 to 15 jeribs of land per night.

<sup>1.</sup> According to the enumerator, one pair of oxen can plough about one jerib of land per day, depending on soil conditions and distance of the land from the house. This is a general rule-of-thumb throughout Afghanistan.

Table 3-10: Average cost of hired oxen

			-		
н	íı	201	٠.	n۷	00

Crops	% of fmrs growing _crop	% of fmrs (i)	fmrs	no.	Avg. no. day/jrb	Avg. cost Afs/jrb	Avg. cost per fmrs
Irr. Wheat	98	6	17	2.0	1.0	3,000	6,000
Alfalfa	53	1	-	_	_	-	-,
Рорру	53	2	-	-	-	_	_
Cotton	52	1	-	-	_	_	_
Maize	43	2	-	-	_	-	
Pea Nut	29	-	-	-	_	-	
Melon	15	-	_	-		_	
Bean	7	-	_	_	-	-	_
Clover	7	-		-	-		_
Mung Bean	7	-	-	_	-	_	_
Onion	2	-	-	-	_	_	_
All crops		6	17	2.0	1.0	3,000	6,000

Number of farmers questioned: 99

Average Afs/day for oxen : 3,000

Table 3-11: Average cost of hired tractor

Hired Tractor

		_						
	% of fmrs growing		% of fmrs	Avg.	Avg.	Avg.	Standard	Avg.
Crops	сгор	(i)	(ii)	of jrb	hour/jrb	Afs/jrb	deviation	
Irr. Wheat	98	92	66	10.3	1.2	8,467	1,704	87,000
Alfalfa	ຸ 53	8	63	2.2	1.1	8,530	1,471	19,000
Рорру	53	51	66	2.3	1.2	8,990	2,321	20,000
Cotton	52	49	55	4.5	1.2	8,717	1,896	38,000
Maize	43	39	77	5.2	1.3	9,201	1,640	45,000
Pea Nut	29	28	75	3.9	1.2	9,378	2,338	36,000
Melon	15	12	67	3.5	1.1	8,156	2,073	27,000
Bean	7	6	17	15.0	1.3	9,333	-,	140,000
Clover	7	3	33	4.0	1.0	7,000	-	28,000
Mung Bean	7	5	40	3.0	1.4	10,688	1,313	31,000
Onion	2	1	*	*	-			
All crops		94	67	18.0	1.2	8,650	1,657	154,000

Number of farmers questioned: 99

Average Afs/hour for tractor: 7,326

<sup>(</sup>i) % of total farmers using tractor or oxen

<sup>(</sup>ii) The % of tractor/oxen users who use hired tractor/oxen

<sup>(</sup>i) % of total farmers using tractor or oxen

<sup>(</sup>ii) The % of tractor/oxen users who use hired tractor/oxen

Percentage

100

80

40

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Figure 3-7: Demand for hired tractor

Source: Enumerator estimate

## Chapter 4 - Labour

In Nad Ali, 60% of households have agricultural land and the rest (40%) are landless which is a cheap source of extra farm labour<sup>1</sup>.

In the survey area, farm families are the usual source of labour. For example, a small sized farmer with less than 10 jeribs has 1.5 permanent farm workers, a medium sized farmer with 10 to 25 jeribs has more than 2 farm workers and large farmers with more than 25 jeribs have 1.7 permanent farm workers (see table 4-1).

Table 4-1: Household composition and farm size

	rarm size (ranges in jeris	JS /	
< 10 39	10 - 25 40	> 25 19	
Aver	age No. of Persons per hous	sehold	
9.1	12.3	14.7	Overall 11.4
1.5	2.1	1.7	1.8
	39 Aver	< 10 10 - 25 39 40 Average No. of Persons per house 9.1 12.3	39 40 19  Average No. of Persons per household  9.1 12.3 14.7

<sup>1.</sup> According to our enumerator.

<sup>2.</sup> The figures for the number of adults seem high, but was derived from the answers to the direct question "How many adult members live permanently at home?"

Twenty-four per cent of small farmers and 28% of medium farmers claim they do not have enough labour, but the large farmer who share-crops his land to another has in most cases, enough labour (see table 4-2).

Table 4-2: Labour needs and farm size

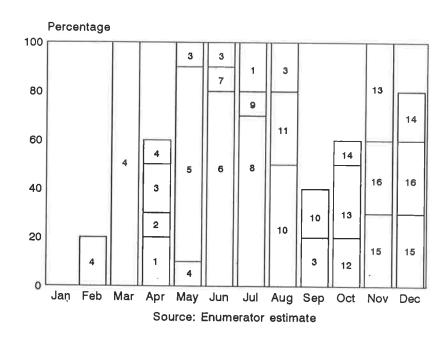
	Farm	size ranges (je	ribs)
	1 - 10	11 - 25	> 25
No. of fmrs:	39	40	19
Labour	P	ercent of farme	rs
Enough	15	12	11
Not enough	24	28	7

99 farmers questioned

## 4.1 Major activities

The major farming activities take place from April to November (see table 4-3, table 4-4 and table 4-5). In May, farmers are mainly busy on the poppy field. The months of June and July are mainly harvesting time, while November and December are the planting and harvesting season (see figure 4-1). Time consuming activities are poppy harvesting, weeding and harvesting of cotton with 33, 31 and 30 days per activity respectively (see table 4-5).

Figure 4-1: Nad Ali Farming Activities



- 1. Planting of melon and cotton
- 2. Farm manuring
- 3. Irrigation
- 4. Weeding of poppy
- 5. Harvesting of poppy
- 6. Wheat harvesting
- 7. Weeding of peanut
- 8. Wheat threshing

- 9. Planting of maize
- 10. Weeding of cotton and peanut
- 11. Thining of maize
- 12. Harvesting of maize
- 13. Harvesting of cotton
- 14. Ploughing
- 15. Planting of wheat
- 16. Planting of poppy

Table 4-3: Major farming activities

No. of farmers involved in activity by month

	Apr	May	Jun	Jul	Aug	Sep	0ct	Nov	Dec	Jan	Feb
Irrigation	45	50	15	10		76	-	-			
Weeding	39	28	10	2			- 10	- 2			•
Reaping of Wheat		- 1	75	- 2		1920	22	- 8			
Stacking of Wheat		1	72							•	•
Threshing of Wheat	92	_	23	41	1	•		•			•
Cleaning of Wheat	- 27	•	6	52	1	•	•				•
Making the plants to give Pop	- 4	51	-	72	130		•			•	
Collecting of Poppy	- 1	45	1	•	*	•	•			*	
Applying of Fertiliser	31	8	1	- 1				(*)	(*)		
Cultivation of Majze	٥,	0	- 4	32		•	•				
Threshing	•		9		-1,					*	100
Collecting of Apple	•	1		14		100				•	
Stacking	*		15	1					•		
	•	1	15	1		•		8.8	*		
Weeding of Peanut	•	1	4	1	(100)	.*					
Collecting of Wheat		2	3				- 2			•)	
Weeding of Cotton		1	2	1	•						
Cultivation of Cotton	1	•		2	1						
Collecting of Cotton							2	1			
Reaping of Poppy			2								- 5
Cleaning of Cotton				2		-	0.00	1.5	- 0	((*)	
Irrigation of Wheat	1	100				- 6	020		÷.		
Cultivation of Pulses			- 0	1	- 3			•	•	•	•
Irrigation of Cotton			•	1	*					•	

<sup>99</sup> farmers questioned

Table 4-4: Major activities for which hired labour is used

No. of farmers hiring labour

	Apr	May	Jun	Jul	Aug	Sep	0ct	Nov	Dec	Jan	Feb
Irrigation	3	1		٠.		72	-	20	87		
Weeding	12	2		á			8	- 54	(50	•	
Reaping of Wheat		1	59	- 0	- 5			(*)	)( <b>*</b> ))	•	
Stacking of Wheat	_		23	- 0			•		•		•
Threshing of Wheat			23	39	1		•				100
Cleaning of Wheat	•	•		1			•			•	
Making the plants to give Pop	i	47			0.00	•		•	•	•	
Collecting of Poppy	1	43				•	*		•	*:	1.00
Applying of Fertiliser		1		•				•		•:	
Cultivation of Maize	•	,		4						•	•
Threshing	•	:	1	1			•	-	-	*	(*)
Collecting of Apple	•	1	- (	13			•			*6	
Stacking		1	6	1	-	•					
	•	1	1	•	-					5.0	
Weeding of Peanut	•	•		1		-					
Collecting of Wheat		1	2	:(*:			100	- 3			
Weeding of Cotton	**		1						- 3	0.00	
Cultivation of Cotton			•								- 0
Collecting of Cotton					-		2	1	- 5		
Reaping of Poppy	1.0	1	-	9.0		-		10	*		
Irrigation of Wheat			- 3		18	- 2			*	•	
Cultivation of Pulses		- 2			÷	•			•	•	•
Irrigation of Cotton			·	•	·		•			390	

<sup>99</sup> farmers questioned

Table 4-5: Average no of days per activity

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total
Irrigation	3	3	3			0000			(*)	100	9
Weeding	14	10	7	-			-		1961		31
Reaping of Wheat			10								10
Stacking of Wheat			6								6
Threshing of Wheat	7.6			2		110	14				2
Cleaning of Wheat				12							12
Making the plants to give Pop		17									17
Collecting of Poppy		16									16
Applying of Fertiliser	2								10.00		2
Cultivation of Maize	50.00			3					0.00		3
Threshing				1					( a)		1
Collecting of Apple		- 2	8								8
Stacking			6						0.0		6
Weeding of Peanut		10	9		2						19
Collecting of Wheat			8								8
Weeding of Cotton			10				-				10
Cultivation of Cotton			0.20	1				2			1
Cleaning of Poppy		8									8
Collecting of Cotton							30				30
Reaping of Poppy			8								8
Cleaning of Cotton				11							11
Irrigation of Wheat	4		0.0	٠.							4
Cultivation of Pulses				2					(*)		2
Irrigation of Cotton	•	•		2	•						2
Total	23	64	74	41	•	•	30		<b>3.0</b>	•	

99 farmers questioned

## 4.2 Labour shortages

Extra labour is usually needed for harvesting of poppy, wheat and cotton. The larger cultivated areas require more labour (table 4-6).

Table 4-6: Labour needs related to the number of jeribs cultivated per worker

		No.	of j	eribs	per pe	ermane	nt wo	rker		
	1 -	2	3 -	4	5 -	6	7 -	8	>	8
No. of fmrs:	1	3	1!	5	2'	1	14	•	3	2
Labour	% fmrs	Av.			% fmrs					Av. jrbs
Enough	0			_	·	7		11	17	23
_	-	4	_		14			20	15	24

99 farmers questioned

Looking at table 4-7, we can see that 38% of small and 41% of medium farmers used hired labour. The percentage of large farmers who have more than 25 jeribs is about half that of the two other categories. This is because the large farmers have tractors and utilize sharecroppers.

Table 4-7: Hired labour and farm size

Farm	size	(ranges	in	ieribs)

	< 10	10 - 25	> 25	
Hired labour		Percent of households		Total
Not Used	2	0	1	
Used	38	41	18	97
98 farmers quest	tioned			100

Table 4-8 shows that 41% of farmers claim labour as insufficient for one to two months, mainly during harvest time.

Table 4-8: Hired labour and labour needs

% of fmrs claiming labour as:

Use of				
Hired labour	Sufficient	Not sufficient	No response	Total
Not used	0	2	1	3
For 1-2 months	26	41	0	68
For over 2 months	13	16	0	29
	_	· —	S <del>===</del>	-
Total	39	60	1	100

99 farmers questioned

## 4.3 Hired labour cost

As already mentioned, hired labour is usually used at harvest time. For reaping of wheat the labourer receives 45 to 50 kg wheat/jerib, while for harvesting of poppy the labourer receives between one-sixth and one-eighth of the yield. The daily wage is equivalent to about 1,500 Afs<sup>2</sup>.

This is a fixed amount, not a proportion of the actual yield, and is expressed here in kg. not seers because it is based on the Kandahar seer which equals 4.5 kg. Thus the labourer receives 10-12 Kandahar seers/jerib.

<sup>2.</sup> Information is based on the observation of the enumerator.

## Chapter 5 - Livestock<sup>1</sup>

Animal raising is a common occupation in the survey area. For example small farmers usually keep two oxen, one cow, 4 to 5 sheep, one donkey and 5 to 10 chickens. The medium sized farmers also have two oxen, one to two cows, 5 to 10 sheep, one donkey and some chickens. Large farmers usually don't have oxen or donkeys but keep more than 3 cows and more than 10 sheep and some goats.

The farmers of this area feed their animals alfalfa, clover and weeds and usually they graze their animals during the Spring. During the Winter they feed them straw (buhsa), cotton cake, and maize grain/flour. For example, during ploughing time oxen receive 4 to 6 kg of maize grain/flour and other times they feed one kg/cow/day or ox, 0.5 kg/donkey/day and 0.2 kg/sheep/day. Cotton cake is usually fed to the animals during the winter at night at the rate of 0.5 kg/cow or ox.

According to this survey, 53% of farmers grow alfalfa and 7% of them grow clover (see table 2-1) for livestock, mainly beef cattle for sale and cows for domestic milk production.

The price of a pair of oxen is about 300,000 Afs, while one cow costs between 150,000 and 200,000 Afs. The price of a sheep is 100,000 Afs, goats (local) 30,000 to 40,000 Afs and Sestani goats costs 80,000 to 90,000 Afs. Donkeys are usually sold at 20,000 to 30,000 Afs, and finally, the price of a chicken is more than 2,000 Afs. An egg costs about 100 Afs.

## Chapter 6 - Agricultural products

## 6.1 Subsistence requirements

From the three categories of farmers in Nad Ali, small farmers with less than 10 jeribs have to do some off-farm work or sell their labour in order to achieve subsistence. The majority of medium sized farmers with 10 to 25 jeribs produce enough for their own consumption, whilst the large farmers with more than 25 jeribs of land produce more than enough for subsistence and usually sell agricultural surplus.

Twenty-six per cent of small farmers, 20% of medium farmers and 7% of large farmers claim they have insufficient wheat (see table 6-1) for subsistence purposes. This is probably as a result of the effect of poppy cultivation.

<sup>1.</sup> Information in this chapter is based on the observation of the enumerator.

Table 6-1: Wheat sufficiency and farm size

Farm s	176	ranges	1	leribs)

No. of fmrs:	< 10 39	11 - 25 40	> 25 19	
Wheat		Percent of farmers		Total
Enough	13	18	11	42
Not enough	26	20	7	54

99 farmers questioned

According to this survey, out of 99 interviewed farmers, 28 people had between 51 to 75 seers of wheat per person per year. Eleven per cent indicate that between 51 to 75 seers of wheat per person per year is not enough for subsistence, while 17% of farmers indicate that this amount is enough (see table 6-2). This amount of wheat is for own consumption and other basic needs such as clothing, oil, tea, sugar etc.

Table 6-2: Wheat sufficiency

Seers of	⊌heat per persor	n per year
1 - 50	51 - 75	> 75
33	28	35
P	ercent of farmer	's
8	11	22
24	17	11
	1 - 50 33 Pe	33 28 Percent of farmer 8 11

99 farmers questioned

## 6.2 Sales of agricultural products

The main crop products which are sold are wheat, raw opium, maize and cotton. Mung beans is an important cash crop grow by one in seven farmers, and where it is grown, is usually the third largest cropped area on the farm. Cotton is ginned locally in Lashkargah and is purchased by the parastatal cotton company.

According to this survey 18% of farmers sold an average 366 seers of wheat at 517 Afs/seer. Fifteen per cent sold 4 seers of opium at 312,191 Afs/seer, and 12% sold 262 seers of peanuts for more than 1,000 Afs/seer (see table 6-3).

Table 6-3: Agricultural products

Crops	% of fmrs sold product	Avg. of product sold (seer)	Avg. cost of product (Afs)	Avg. cost of product (Afs/seer)
Irrigated Wheat	18	366	188,889	517
Рорру	15	4	1,263,333	312,191
Pea Nut	12	262	273,750	1,046
Cotton	5	278	284,000	1,022
Maize	5	380	82,000	216
Water Melon	5	-	124,000	-
Bean	3	87	86,667	1,000
Mung Bean	2	65	350,000	5,385

Number of farmers questioned: 99

## 6.3 Agricultural products prices<sup>1</sup>

The prices of agricultural products were constantly fluctuating when the survey was in progress (June to September, 1991). For example, in June of 1991 the price of wheat was a little more than 500 Afs/seer, while in August of the same year (just one month later) it rose to 1,700 Afs/seer.

The reason for this dramatic increase in the price of wheat is the high demand of poppy growers as well as in other parts of the country for wheat because they do not grow enough wheat to meet either their own demand or local demand. They try to buy large quantities of wheat at the time of wheat harvest. As wheat supply becomes rapidly short the price for wheat goes up.

In Autumn of 1991 the price for maize was 1,250 Afs/seer, for poppy 5,500,000 Afs/seer, peanut 3,900 Afs/seer, cotton 2,000 Afs/seer and poppy seed *Khashkhash* was 900 Afs/seer which is a large change in comparison with the prices in table 6-3.

## 6.4 Livestock products

The main livestock products are ghee, wool, dried curt (Qurut), and furs or skins.

A cow can produce 20 to 35 kg of ghee during its lactation period valued at 1,500 Afs/kg and 14 kg dried curt valued at 700 Afs/kg. Sheep can produce 4 kg ghee valued at 2,000 Afs/kg, 4 to 5 kg dried curt and can produce 2 kg of wool/year valued at 350 Afs/kg<sup>2</sup>.

## Chapter 7 - Budgets

## 7.1 Crop budgets (gross margins)

The prices used to estimate the gross margins are the prices quoted by farmers. For example, the price of white fertiliser at 13,500 Afs per 50 kg bag is the price paid in the Autumn of 1990 and used on the crop harvested in 1991. The wheat price is for the harvest period of 1991. Prices now are very different.

The same crop gross margins are used for each of the three models, as the differences between the variable costs of different farm sizes was minimal.

<sup>1.</sup> Information is based on the obervation of the enumerator.

<sup>2.</sup> According to the enumerator.

Nad Ali HOUSEHOLD MODEL

**CROP GROSS MARGINS PER JERIB** 

		Wheat	_	Poppy	_	Maize		Cotton		1165165		3
Inputs	Rate	Afs'000	Rate	Rate Afs'000 Rate Afs'000	Rate	Afs 000	Rate	Rate Afs 000	Rate	Rate Afs'000	Rate	Utner Rate Afs'000
Seed, seers	4	5,280	0.50	10,000	M	2.640	7	c	*	•	8	C
White fert., kgs	73	20,250	75	20,250	23	6,210	37	000	* C	<b>a</b> c	3. B. k	20,250
Grey fert., kgs Hired oxen	38	10,488	38	10,488	17	4,692	17	4,692	0.00	0 0	38 7	10,488
Hired tractor	-	12,000	-	12,000	-	12,000	****	12,000	-	12,000	-	12,000
Total variable costs		48,018		52,738		25,542		26,682		12,004		48,018
Yield (seers/jerib) Income less direct costs Taxes in kind Gross margin	18	97,200 49,182 2,587 46,595	м	750,000 697,262 36,676 660,586	26	44,800 19,258 1,013 18,245		237,000 210,318 11,063	0	70,000 57,996 3,051 54,945	8 8	97,200 49,182 2,587 2,587

## 7.2 Farm Budgets and Household Models

During the war most of the assistance for agriculture has been geared towards increasing food production without reference to the distribution of the benefits amongst the different groups of society nor indeed with reference to whether the value of the increased production was greater than the cost of the project.

While describing the farming systems in Nad Ali the report has attempted to illustrate some of the differences between three groups of households with differing farm sizes. In this section much of the information relating to these different groups of farmers is summarised in three models.

The main purpose of the models is to provide a basic tool for interpreting the varying economic impact of different development strategies. For example, if a planner was attempting to decide between implementing a programme for an improved maize variety and one for an improved peanut variety it would be possible to quickly calculate which would be of greatest economic benefit given the price ratios and existing cropping patterns. It is also possible to use the models to estimate how a project's benefits are distributed between the smaller and larger farmers.

For example, a project distributing an equal amount of an improved seed variety for each household (i.e. without reference to farm size) would be gearing assistance towards smaller farmers for the simple reason that there are more smaller farmers than large ones. The same strategy though is not so efficient in terms of increasing total production as the smaller farmers, in comparison to the larger, are likely to use a greater proportion of their harvest for consumption rather than seed for the next year's crop.

It is also possible, with reference to the chapter 4 on labour, to ensure that any proposed changes, for example an attempted introduction or expansion of a cash crop, does not exacerbate the labour shortage of any particular month.

Reference to land tenure is also important in assessing a project's impact. If a sharecropper is receiving fertiliser or seed he himself is only going to benefit from between one quarter and one half of the incremental yield whereas an owner cultivator will receive the full benefit. Therefore, if a project is intending to concentrate on the poorest, who are often involved in sharecropping, it would clearly be more efficient to provide assistance resulting in a benefit to which the sharecropper has full rights.

Three models have been prepared based on the three ranges of farm sizes that have been the basis for much of the preceding text. Each of the three models has been based on a farmer who owns and cultivates all his land, as this category of farmer was predominant in each of the three farm size ranges. However it should be borne in mind that some of the smaller farmers sharecrop some of the land they cultivate and therefore only receive part of the yield. Again some of the farmers sharecrop their land as well as claim to cultivate it as some of the family members do contribute some labour towards its management. Therefore in some cases the larger landowners are not receiving the full yield that the large farmer model suggests they would.

The models have been simplified as much as possible to illustrate the relative income between the small, medium and large sized farmer and as a summary to the observations made in the previous chapters.

# FARM BUDGET ONE

	1	Total 6.10			TOTAL VALUE OF	SALES 1,184,370		TOTAL CASH FLOW	1,209,570					
		Fallow 1.30							737,250					
	Other crops	Other 1.00									Alfalfa	00 4		100
	Ö	Alfalfa 0.40	28,000 4,802 21,978		10 252 0	252,200					Cotton	37	2	3,000
		Total 1.70	81 762,000 63,599 661,665		Б.0	73 712,050			25,200		Maize	23 17 23	9	800
	sdo	Cotton 1.00	237,000 26,682 199,255		10 71 0	213,300			213,300		Voca	25 25 20 1	n	300,000
	Cash crops	Poppy 0.70	525,000 36,917 462,410		W 60	498,750			498,750		Amount/j	38 38	ō	1,200
	<u>δ</u>	Total 6.10	462 524,800 263,691 247,375		415 0	415 472,320			472,320		Unit	270 270 276	1,500 12,000 12,000	10 25 ers 208
	Food Grains	Maize 1.30	73 58,240 33,205 23,719		00 00 00	66 52,416			52,416		ATA	kg b kg	n day vation Itivation	actor, threshing eer, Afs Id size,seers ence/adult,seers ence/household,seers
ν <u>0</u> α	<b>u</b> -	Wheat 4.80	1.84 466,560 230,486 223,656		10 350 0	350			419,904	145 4,171	ంర	White fertiliser, kg Grey fertiliser, kg Seed, seers/jerib	Yield, seer Hired labour,man day Hire oxen,cultivation Hire tractor,cultivation	Hire tractor, threshing Value/seer, Afs Household size, seers Subsistence/adult, seers Subsistence/household, si
Farm size,jeribs: People in household: Adult equivalents:		Area, jeribs	Cropping intensity Production, seers Nominal value, '000Afs Variable costs,'000Afs Gross margins,'000Afs	HOUSEHOLD MODEL	Sharecroppers! share Post Harvest Losses, per cent Prod. after losses, seers Consumption & miller's share,seers	Sales, seers Value of sales,'000Afs	Prod.surplus/deficit, seers	Grain purchases, seers Cost of purchases,'000Afs	Cash flow,'000Afs	Return to labour No. persons working Days worked per man Return per man per day,Afs	PRICE	White Grey Grey Seed,	Tela Hired	Hire tr Value/s Value/s Ruuseho Subsist Subsist

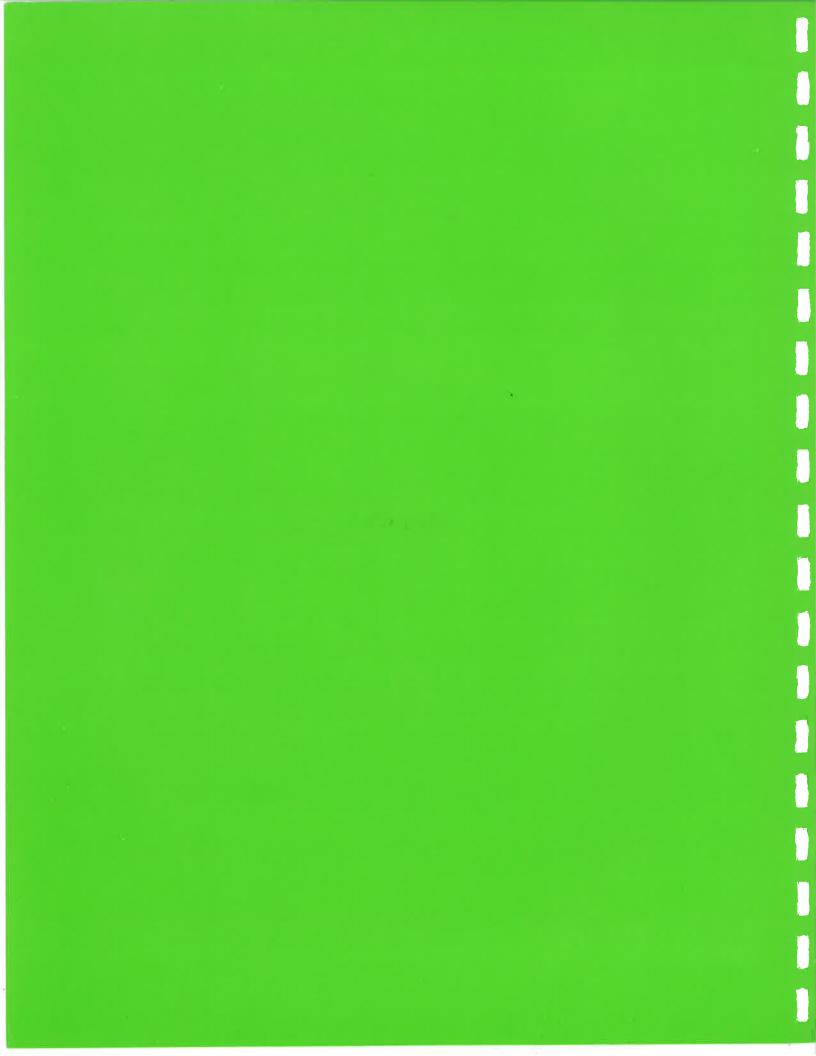
## FARM BUDGET TWO

	Total 6.10			A P C P	VALUE OF SALES	6,110,120	TOTAL	FLOW 4,354,818					
	Fallow 4.60							,556,980					
other cross	Other 3.50							3		41.641.64	Atracta 0 0 0 4	200	100
	Alfalfa 1.40	980 98,000 16,806 76,924		19,600 10 686	989					,	17 17 17	٤	3,000
	Total 5.70	2,428,200 2,428,200 2,104,550		485,640	138			597,240 1,778,490			723 17 17	8	800
o o s	Cotton 3.60	284 853,200 96,055 717,319		170,640		2		597,240			1.63 1.04	n	300,000
ns Cash crops	Poppy 2.10	1,575,000 110,750 1,387,231		315,000	4 181 250			1,181,250		Amount/j	75 75 75 76 77 75	<b>5</b> 0	1,200
	Total 18.40	1,380 1,557,920 784,637 732,609		311,584 966 244	707 828			797,838		Unit	270 270 276	12,000	
Food Grains	Maize 4.40	246 197, 120 112, 385 80, 278		39,424 10 172 0	_			137,984		ATA	r, kg t kg	n day P	rich persons it,seers sehold,see
17.50 14 11 266	Wheat 14.00	1,134 1,360,800 672,252 652,330		272,160 10 794 244	550			659,854	4 145 7,508	& OTHER DATA	fertiliser,kg fertiliser,kg seers/jerib	labour, man day oxen, crop	Miles (ser, Ass Value/seer, Ass Household size,persons Subsistence/adult,seers Subsistence/household,seers
Farm size,jeribs: People in household: Adult equivalents: Subsistence,seers:	Area, jeribs	Clopping intensity Production, seers Nominal value, 0000Afs Variable costs, 0000Afs Gross margins, 1000Afs	HOUSEHOLD MODEL	Sharecroppers' share,'000Afs Post Harvest losses, per cent Prods less PHL & sharecropper,seers Consumption & miller's share.seers	Sales, seers Value of sales 1000Afs	Prod.surplus/deficit, seers	Grain purchases, seers Cost of purchases,'000Afs	Cash flow,'000Afs	Return to labour No. persons working Days worked per man Return per man per day, Afs	PRICE	White Grey fa	Hired C	Value's Value's Househo Subsist Subsist

# FARM BUDGET THREE

	Total 0.00	TOTAL	VALUE OF SALES 3,425,340		TOTAL	,512,560				
	Fallow 4.10		Α,			,174,440 5				
Other crops	other 4.00					4		41.5.1.5.	700 200	100
0	Alfalfa 1.80 126,000 21,607 98,902	25,200 10 882 0	882 88,200						17 17 17 79	3,000
	Total 7.80 7.80 2,874,600 2,60,232 2,476,853	574,920 324 203	121			,087,220		3	Malze 23 17 56	800
sdo.	Cotton 5.80 458 1,374,600 154,756 1,155,681	274,920 10 321 0	321 962,220 2,087,220			962,220 2,087,220			404 404 104 104	300,000
Cash crops	Poppy 2.00 1,500,000 105,476 1,321,172	300,000	1,125,000			1,125,000		Amount/j	Wheat 75 38 38 4	1,200
<u>د</u>	28.40 28.40 2,540,400 1,269,312 1,204,229	508,080 1,537 367	1,170			131,712 1,338,120		Unit	270 270 276 276	12,000 12,000 14 25 ers 0
Food Grains	Maize 4.20 235 188,160 107,276 76,629	37,632 10 165	131,712					DATA	er,kg rib rib	Wired oxen, crop Natue/seer, Afs Household size,seers Subsistence/adult,seers Subsistence/household,seers
28.00 20 16 400	Wheat 24.20 1.50 1.50 2.352,20 1.860 1.162,036 1.0 1.127,600 7	470,448 10 1,372 367	1,206,408			1,206,408	4 145 9,504	E & OTHER DATA	White fertiliser, kg Grey fertiliser, kg Seed, seers/jerib Yield, seer Hired labour,man day	wired oxen, crop Wired tractor, crop Value/seer, Afs Household size,seers Subsistence/adult,seers Subsistence/household,s
Farm size,jeribs: People in household: Adult equivalents: Subsistence,seers:	Area, jeribs Cropping intensity Production, seers Nominal value, 1000Afs Variable costs, 1000Afs Gross margins, 1000Afs	HOUSEHOLD MODEL Sharecroppers' share,'000Afs Post Harvest Losses, per cent Prod Less PHL & sharecropper, seers Consumption & miller's share,seers	Sales, seers Value of sales,'000Afs	Prod.surplus/deficit, seers	Grain purchases, seers Cost of purchases,'000Afs	Cash flow,'000Afs	Return to labour No. persons working Days worked per man Return per man per day, Afs	PRICE	Seed Seed Seed	Ailre Value Value Subs Subs

ANNEXES



## ANNEX A — Survey Methods and Questionnaire

## Part one - Survey methods

The ASA's national surveys have been sample surveys. They are not censuses of agriculture. They are based on specific information that a farmer gives directly to the enumerator about his own, and no one else's, farming operations. This, we believe, is essential to quantitative data collection. If the respondent is asked questions about his village or district his answer in many cases is likely to be vague simply because the question is extremely difficult to answer with any degree of accuracy.

From experience we have also found that generalised agricultural information resulting from group interviews or from village elders is of poor quality when compared to that derived from individual farmers speaking about their own farms. This is not to say that this approach does not have its place when the topic is not agriculture. Indeed there are some topics that can only be addressed at a more general level.

To select a representative sample is as much an art as a science even in countries with developed statistical departments. There are however certain accepted methods of obtaining something akin to a representative sample. The most common approach is to draw up a list of whatever you are going to sample, randomly select a proportion and then go and question the selected sample.

The ASA, in the absence of anything approaching a list of farmers, of even a list of villages, has attempted to select a representative sample by another, accepted, approach. This is to purposively, not randomly, select those places and farmers who are to be questioned.

The weakness of a purposive approach is that the sample selected is subject to bias. For example, enumerators may only talk to larger farmers along main travel routes and miss the more peripheral, poorer and difficult to reach farmers.

Enumerators are trained to cover a wide spread of villages in their assigned districts, and to select a range of farmers in each village they visit. The 'representativeness' thus depends on the access that the enumerators have to the district and their diligence in covering large areas.

While it would be foolhardy to say that, without exception, the enumerators always work in accordance with their guidelines it is felt that this approach is the least risky avenue open to us for obtaining a representative sample.

A rough but practical approach is made to match the number of farmers questioned in a province to the total number of farmers in a province. Each enumerator is expected to interview a set number of farmers and more enumerators are assigned, in as far as we are able, to the more populous areas. The correlation between the proportion of farmers questioned in each province compared with the proportion of the total population in that province is high, i.e. we have questioned more farmers in areas of dense population than in sparsely populated areas. This issue is of importance to us from the point of view of common sense as we wish

to have most information from areas where most people live. However it is not of great importance, from a statistical viewpoint, as the results are usually presented at the provincial or district level, not the national level. Where a figure for the whole country has been quoted in a report we have often found that there is an insignificant difference when it is weighted to account for our bias towards some provinces (i.e. Logar) and when it is not.

To insure that the reader is not misled the results are presented at the district or provincial level with the number of farmers questioned. It is thus the responsibility of the reader to judge what degree of belief he is going to give to information derived from x number of farmers. In this context, it is useful to note the statisticians rule of thumb that a sample of less than thirty is unreliable.

Unfortunately, it is difficult to compare the results between the different surveys. This is because the enumerators found it extremely onerous to interview the same farmers each year. The difference between the results has to be large before its statistical significance can be inferred.

The most reliable time series of data we have is that collected at one time. Though this is subject to the weakness and bias of a respondents memory and goes against the rule of surveying theory, we have increasingly found these results confirmed.

In summary, the ASA's national surveys rest their reliability on enumerator training, good enumerator/farmer relations, common sense and the sheer number of farmer interviews, not on random sampling techniques, which the circumstances render impractical and risky when applied to the whole country.

## AGRICULTURAL SURVEY OF AFGHANISTAN FARMING SYSTEMS SURVEY VILLAGE FORM

Enumerator	Date	
Province	District	
	Number of families	Number of farming families
Main village name	_	
Lesser village name		
List the types of irrigation the village  1	uses in order of importance	
2		
3. (1. Canals, 2. Karez, 3. Diesel pump	s, 4. Other types of pumps, 5. None)	
How many shops are there in the vill	lage	
How long does it take to travel to the	e nearest bazaar (days or hours) by	(means of transport)
What is the name of the nearest baz	aar	
Number of tractors owned by people	in the village	
Number of farmers interviewed in the	e village	

Sharecropper

## AGRICULTURAL SURVEY OF AFGHANISTAN FARMING SYSTEMS SURVEY Enumerator Date **Province** District Village LAND Orchards, vineyards and vegetable gardens Number in Number not in Value of production production product (Afs) Fruit trees: Vines: Local measure jeribs Size of vegetable garden: Other land in jeribs SOWN **FALLOW** Irrigated Rainfed Irrigated Rainfed Total Land owned Land rented to another Land rented from another Land sharecropped to another Land sharecropped from another Land held as security on loan Land recoverable on repayment of loan Total land cultivated

Seed

What proportion of the crop does the sharecropper keep for himself

If the farmer sharecrops land who provides the following inputs:

by the household

Fertiliser (if any)

Farm power (Oxen/Tractor)

Landlord

## CROPS GROWN BY THE FARMER

List the crops grown by the farmer in order of importance

Crop			in je					in se	d sow ers	/n			Tota in se	l han ers	este/	d					
1																					
2					-																
3					÷										20						
4					_																
5					_										-						
6					_										•						
7					ē:				_						:						
List Vegetab	les gro	wn:																			
								No. o					Seed in kg	sow	n						
1	•											2			_						
2																					
3																					
On the follow	ving cal	enda	ar ma	rk the	e peri	od d	uring	y whic	h the	ese c	rops	are (	growr	1:							
Crop								Aug							Mar	Apr	Мау	/ Jun	Jul	Aug	ļ
1		œ	45	ä¥.	×			•	a					Caro.							
2			0					•												•	
3																				0.€	
4	ě							*													
5																					
6		ži.					8	•	•	5)	9.5	*		/ <b>*</b>	<b>(</b> ( )	:#C	•	*	•		
7.	8	25	7.5	*	mes -c-				•				•		*	•		83			٠
7 Vegetable					3.0	•				•		s	***		*0	*	<b>6</b>	<b>2</b> 0	Si .		0
1																					
	*0	(*).		•	7.		•			•		• :							2	90 A	vo
1 2	•	•	*	e E	v.	 	(*G		8) { 1	•	•	*! **	: * : •	er 11				*	Si .	<b>e</b> (	

Which Sum (State both	nmer crops follow the Winter crop a	which Winter o and the followir	crops on the same landing Summer crop)			
Winter crop		Su	mmer crop			
1						
2	•					
3						
	er crops follow when the Summer cro		rops on the same land wing Winter crop)			
Summer cr	ор	Wii	nter crop			
1	ē					
2		-				
3	ē.	-				
Are there a	ny annual crops th	nat you grow to	ogether on the same la	nd at the same time	(yes/no)	
If yes which	crops are these					
10 year.	e been any chang		s in the type of crops or	,	J	
	mer used fertiliser					
LIST DEIOW (I	he crops which the		ertilised:			
		White			Grey	
Crop	How many bags used	Size of of bags	No. of jeribs fertilised	How many bags used	Size of bags	No. of jeribs fertilised
1						
2					-	
3						
4			3		A	
5						
How many /	Afs did the farmer	pay for white f	ertiliser per bag	Afs	8	
	Afs did the farmer		_	Afs		

If the farmer would like to use more fertiliser what prevents him from using more

Farm Power										
Does the farmer own:										
	A pair traine	of d oxen			One o	xen		A tracto	or	
Yes/no		<del></del> 2:			8					
What means of land cu	ultivation	does the far	mer use:							
		Ox	en					Tractor		
	Own, s	shared rowed	Hired		_	Own, s	shared rowed		Hired	
Crop	Area used jeribs	Time spent days	Area used jeribs	Time spent days		Area used jeribs	Time spent hours		Area used jeribs	Time spent hours
1										
2							-			
3	-		2						. <del></del> //	/.
4			·—							-
5	-		:			() <u> </u>			·	
If the farmer used a hire	ed tracto	or how much	did he pay	(Afs per I	nour)					
If the farmer used hired	oxen h	ow much did	he pay (Afs	per day)	)					
Has the farmer's means	s of culti	vation chang	ed during th	ne last te	n years	(yes/no	)			
If the means have chan	ged:									
	When	did they char	nge (date to	nearest	year)					
	What n	neans did he	use before:							
	Why di	d the farmer	change:							
Does a shortage of farm	n power	cause the fa	rmer to dela	y the sov	wing of (	crops (y	es/no)			
Would the farmer like to	change	e his present	means of cu	ultivating	his land	d (yes/n	0)			
What would he like to cl	nange it	to	_							
Why does he not chang	je									
What are the farmer's re	asons f	or wanting to	change							

Seed		
Has the farmer used any improved wheat varie	eties in the last year (yes/no)	
Where did he obtain it from		
If it was available would the farmer use it again	(yes/no)	
What did he like about it	the farmer used any improved wheat varieties in the last year (yes/no)  ere did he obtain it from  was available would the farmer use it again (yes/no)  at did he like about it  at did he not like about it  the farmer ever used an improved seed variety in the past (yes/no)  ere did he obtain it from  was available would the farmer use it again (yes/no)  at did he like about it  at did he not like about it  at did he not like about it  sigh yields  ood daste  esistance to disease  ong straw  as the farmer have a weeds problem (yes/no)  and describe crops affected in order of importance  Is the problem  big, moderate or small  ——————————————————————————————————	
What did he not like about it		
Has the farmer ever used an improved seed va	ariety in the past (yes/no)	
Where did he obtain it from		
If it was available would the farmer use it again	(yes/no)	
What did he like about it		
What did he not like about it		
High yields     Good taste     Resistance to disease     Long straw	<ol><li>Good baking qualitie</li></ol>	es
Weeds		
Does the farmer have a weeds problem (yes/ne	0)	
If so, describe crops affected in order of import	tance	
Crop affected		
1		
2		
3		
Other Pests		
What other pests attack the farmers crops		
Crop affected	Name of pest	Is the problem
1		10
2		
3		

## SALES OF AGRICULTURAL PRODUCE Did the household produce enough wheat for its own needs during the last year (yes/no) Did the household sell any agricultural produce over the last year (yes/no) If so, list the types of produce sold **Produce** Amount of produce How many Afs did the household sold (seers) receive for this commodity 4. \_\_\_\_ Did the farmer sell more agricultural produce before the war (yes/no) If so, what are the reasons for him not selling as much now LABOUR AVAILABILITY

What is the total number of people in the household	
How many children between 7 and 15 years	
How many people between over 60 years	
How many adult members live permanently at home	
Do you have sufficient labour for your agricultural activities (yes/no)	
How many adult men work permanently on the farm	

## LABOUR REQUIREMENTS

Which	is y	our	busiest	month:
-------	------	-----	---------	--------

List the activities you carry out the	nis month in order of i	mportance		
	Number of peduring this m	eople involved in th onth	e activity	Number of days spent on this activity during
Activity	Household members	Sharecropper	Hired labour	this month
1	<del></del>			X
2	<u> </u>	10	-	¥
3				<del></del> 8
4		2	2	2
5	<del></del> :	·		
Which is your next (the second)	busiest month:			
List the activities you carry out the	nis month in order of i	mportance		
	Number of pe during this m	eople involved in th onth	ne activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1		:	·	
2	,	·		
3.		:		
4	2	Υ		-
5		3 <del></del> -	-	**************************************
Which is your next (the third) but	siest month:			
List the activities you carry out the	his month in order of i	mportance		
	Number of pe during this m	eople involved in th onth	ne activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1.	-	·——	-	
2			2	******************
3				9 <u></u>
4			8	: <del>1</del> 2:
5.				

Which is your next (the tenth) busiest month:

List the activities you carry out this month in order of importance

	Number of p	eople involved in t nonth	he activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1		-		
2	-			**************************************
3		2	//	
4				
5		-		<del></del> :
Which is your next (the eleventh)	businet menths	0 <del></del> 3:		
List the activities you carry out the	is month in order of i	mportance		
	Number of po	eople involved in the	ne activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1	190	-		
2				
3				
4				<del></del>
5		<del></del>		-
Which is your next (the twelfth) bu	reject month:	-	-	
List the activities you carry out this		mportance		
	Number of pe	ople involved in th	e activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1		) <u></u> ,		
2				
3				<del></del>
4			·	37
5	- I	X <del></del>	-	·

Which is your next (the seventh) busiest month:

List the activities you carry out this month in order of importance

	Number of pe	eople involved in th onth	e activity	Number of days
Activity	Household members	Sharecropper	Hired labour	activity during this month
1.	·		1 <del>0</del>	X <del>2</del>
2	9 <del></del> 9	ş <del></del>		V <del></del>
3	2	-	-	S <del></del>
4			-	
5	100000000000000000000000000000000000000	-		
Which is your next (the eight) but	siest month:			*
List the activities you carry out th	nis month in order of i	mportance		
	Number of pe during this m	eople involved in th onth	e activity	Number of days
Activity	Household members	Sharecropper	Hired labour	activity during this month
1		-	·	V
2		·		S <del></del>
3				:
4		:	8 <del></del>	
5	44.1	7		
Which is your next (the ninth) bu	isiest month:			2
List the activities you carry out th	nis month in order of i	mportance		
	Number of po during this m	eople involved in the	ne activity	Number of days spent on this
Activity	Household members	Sharecropper	Hired labour	activity during this month
1	1 81	2		
2	***************************************	7 <del></del>		
3		( <del>)</del>		
4		80		·
5				

## **ANNEX B - Farming System Survey Data**

	Page
Nadi-ali	
Distribution of irrigated cultivated area	1
Distribution of wheat yield	1
Rate of fertilizer use for irrigated wheat	1
Number of adults and farm size	2
Number of permanent workers and farm size	2

n.		

Farming System Survey (1991)
Frequency distribution of irrigated cultivated area per farm

Province:

Helmand Nadi-ali

District:

Percentage	of	farmers	in	each	range	(areas	in	ieribs:	)
------------	----	---------	----	------	-------	--------	----	---------	---

Land	No. fmrs questioned	No. fmrs with irr					_	6 11-12	7 13-14	8 15-16	9 17-18	10 19-20	11 >20
Owned	99	98	-	4	14	8	13	6	5	7	3	9	30
Cultivated	99	33	3	9	36	15	9	6	-	9	-	3	9

## Farming System Survey (1991) Distribution of Wheat Yield

Province:

Helmand

	No. of farmers	Pe	rcentage	of farm	ers whos	e yield	(seer/je	rib) is	in these	ranges	
District	qestioned	0-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	>100
Nadi-ali	99	-	1	2	5	4	22	16	16	11	22

Farming System Survey (1991)
Rates of fertilizer use for irrigated wheat

Nadi Ali

Percentage of	fmrs using	fertilizer in the	following ran	nges (kg/jerihe)
i el cellede of	11111 2 421119	Tercicizer in the	a tollowing car	ndes (Kd/lerins)

No. of fmrs.										
using fert.	0-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-250
16	2		3	5	4	1	1			_
3	3		***		348	945		<u>a</u>	20	-
78	5	6	5	8	11	8	8		6	٥
97	10	6	8	13	15	9	9	12	6	9
	16 3 78	using fert. 0-60  16 2 3 3 78 5	16 2 - 3 3 3 - 78 5 6	16 2 - 3 3 3 78 78 5 6 5	16 2 - 3 5 3 3 - 3 - 3 78 5 6 5 8	using fert.     0-60     60-70     70-80     80-90     90-100       16     2     -     3     5     4       3     3     -     -     -       78     5     6     5     8     11	using fert.     0-60     60-70     70-80     80-90     90-100     100-110       16     2     -     3     5     4     1       3     3     -     -     -     -       78     5     6     5     8     11     8	using fert.     0-60     60-70     70-80     80-90     90-100     100-110     110-120       16     2     -     3     5     4     1     1       3     3     -     -     -     -       78     5     6     5     8     11     8     8	using fert.     0-60     60-70     70-80     80-90     90-100     100-110     110-120     120-130       16     2     -     3     5     4     1     1     -       3     3     -     -     -     -     -     -       78     5     6     5     8     11     8     8     12	using fert.     0-60     60-70     70-80     80-90     90-100     100-110     110-120     120-130     130-140       16     2     -     3     5     4     1     1     -     -       3     3     -     -     -     -     -     -     -       78     5     6     5     8     11     8     8     12     6

No. of farmer questioned

## Farming System Survey (1991) No. of Adults and farm size Province: Helmand

District:

Nadi-ali

Farm size (ranges in jeribs)	Farm	size	(ranges	in	ieribs)
------------------------------	------	------	---------	----	---------

	< 10 <b>39</b>				10 - 25 40				> 25 19		
				Adu	lts per	househ	old				
0	1- 5	6-11	>11	0	1- 5	6-11	>11	0	1- 5	6-11	>11
-	10	59	31	-	5	53	43	- 5	5	26	63

Farming System Survey (1991)
No. of Permanent workers and farm size
Province: Helmand

District:

Nadi-ali

Farm size (ranges in jeribs)

	< 1 39	-				- 25 40			;	25 19	
			Perm	anent	work	ers pe	r hous	seholo	i		
0	1	2–3	>3	Ò	1	2-3	>3	0	1	2–3	>3
_	40	46		13	28	45	15	32	11	42	16

### **ANNEX C- National Survey Data**

Part One 1987 National Survey Data	page
Yields, 1987, 1986, 1985, 1980, 1978 Bust Nahre Saraj Mosa Qala Nauzad Garmser Nadi-Ali Nawee-barakzae	1 1 2 2 3 3 4
1978	
Yields: Bust Nahre Saraj Mosa Qala Nauzad Garmser Nadi-Ali Nawee-barakzae	5 5 5 6 6 6 7
Fertiliser: Irrigated Wheat Rainfed Wheat Maize	8 8 9
Farm power	10
Constraints: Irrigated Wheat Rainfed Wheat Maize Barley Rice	11 11 12 12 13
1985	
Yields: Nahre Saraj Mosa Qala Nauzad Garmser Nadi-Ali Nawee-barakzae	14 14 14 15 15
Fertiliser: Irrigated Wheat Rainfed Wheat Maize	16 16 17

Farm power	18
Constraints: Irrigated Wheat Rainfed Wheat Maize Barley Rice	19 19 20 20 21
1987	
Yields: Nahre Saraj Mosa Qala Nauzad Garmser Nadi-Ali Nawee-barakzae	22 22 22 23 23 23
Fertiliser: Irrigated Wheat Rainfed Wheat Maize	24a 24a 24b
Farm power	25
Constraints: Irrigated Wheat Rainfed Wheat Maize Barley Rice	26 26 27 27 28

Yield 1987, 1986, 1985, 1980, 1978

District : Bust Province : Helmand

	Avg. area Avg. jerib yield	100.0
1978	Avg. are jerib	15.0
	% fmrs grow crop	100
	Avg. yield	5 <b>a</b> () ( <b>a</b>
1980	Avg. area Avg. jerib yield	31 37
	% fmrs grow crop	9 9
	Avg. yield	
1985	Avg. area jerib	, ,
	% fmrs grow crop	F 1.
	Avg. yield	40 / AC
1986	Avg. area Avg. p jerib yiel	
	X fmrs grow crop	
	Avg. yield	(#: #
1987	% fmrs Avg.area Avg. grow crop jerib yield	(10) (I
	X fmrs /	
	Crop	Irrigated Wheat Cotton

1 farmers questioned in Afghanistan

Yield 1987, 1986, 1985, 1980, 1978

District : Nahre Saraj Province : Helmand

70.0 Avg. area Avg. jerib yield 10.0 4.0 2.0 5.0 1978 grow crop % fmrs 5 5 5 5 Avg. yield 80.0 90.0 45.0 Avg. area 15.0 7.0 1.5 3.0 jerib 1980 grow crop % fmrs 5 5 5 5 Avg. yield 60.0 . 60.09 Avg. area jerib 6.0 5.0 1.0 2.0 1985 grow crop % fmrs 5 5 5 5 Avg. yield 90.0 70.0 1 1 Avg. area jerib 5.0 1986 grow crop % fmrs <u>6</u> 60 . Avg. yield 50.0 Avg. area jerib 7.0 1987 grow crop % fmrs Irrigated Wheat Alfalfa Cotton Maize Crop

1 farmers questioned in Afghanistan

Yield 1987, 1986, 1985, 1980, 1978

District : Mosa Qala Province : Helmand

X fmrs         Avg. area         A						1960			1985			1980			1978	
a yo 1.4 - 90 1.4 - 90 1.6 - 90 1.6 - 90 1.4 - 90 1.4 - 90 1.6 - 90 1.4 - 9		fmrs W crop	Avg. area jerib	: .	% fmrs grow crop	area rib	Avg. yield	% fmrs grow crop	Avg. area jerib		% fmrs grow crop	Avg. area jerib		% fmrs grow crop	Avg. area jerib	Avg. yield
d wheat 55 34.2 45.0 55 37.4 46.4 55 39.9 49.1 65 70.1 62.8 20 9.3 76.7 20 9.3 77.5 20 9.3 150.0 20 9.3 167.5 20 9.3 167.5 20 9.3 150.0 20 9.3 167.5	Alfalfa	06	1.4	,	06	1.4	•	06	1.6	•	8	1.4	•	\$2	1.3	'
20 9.3 76.7 20 9.3 77.5 20 9.3 150.0 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.5 20 9.3 167.7 20 9.3	Rainfed Wheat	22	34.2	45.0	55	37.4	7.97	55	39.9	49.1	65	70.1	62.8	92	90.6	65.8
.20 5.5 50.0 20 5.5 40.0 20 5.5 63.3 20 5.5 106.7  15 1.0 - 15 1.0 - 10 10.0 90.0 15 45.0 58.3  ted Wheat 5 9.0 50.0 5 8.0 60.0 5 10.0 90.0 15 45.0 58.3  ble 5 1.0 - 5 1.0 - 5 1.0 - 10 10.0  ble 5 3.0 120.0 5 3.0 10.0	Grape	20	9.3	76.7	20	9.3	77.5	20	9.3	150.0	20	9.3	167.5	20	9.3	173.0
ted Wheat 5 9.0 50.0 5 8.0 60.0 5 10.0 90.0 15 45.0 58.3 5 1.0 -	Almond	20	5.5	50.0	50	5.5	40.0	50	5.5	63.3	20	5.5	106.7	20	5.5	146.7
ted Wheat 5 9.0 50.0 5 8.0 60.0 5 10.0 90.0 15 45.0 58.3  1.0 - 5 1.0 - 5 1.0 - 10 1.3 - 10 - 10 1.3 - 10 - 10 1.3 - 10	Maize	15	1.0	1	15	1.0	•	•		•	10	1.5	١	20	1.5	٠
ble 5 1.0 5 1.0 - 5 1.0 - 10 1.3 - 1.0 - 5 3.0 100.0 - 10 1.3 - 1.0 - 10 180.0 - 1.3 - 1.0 - 10 180.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 - 1.3 - 1.0 -	Irrigated Wheat	Ŋ	0.6	50.0	ľ	8.0	0.09	ľ	10.0	0.06	15	45.0	58.3	15	51.7	65.0
le 5 1.0 - 5 1.0 = 5 1.0 - 10 1.3 - 5 5.0 1.0 - 10 1.3 - 5 5.0 120 0 5 5 5.0 120 0 5 5 5.0 120 0	Barley	7	1.3	•	•		•	'n	1.0	•	2	1.0	•	5	1.0	•
5 3.0 120.0 5 3.0 80.0 5 3.0 180.0 5 5 10.00.0	Vegetable	7	1.0	•	ľ	1.0	::0	7	1.0	1	10	1.3	1	10	1,3	•
	Apricot	2	3.0	120.0	ιΩ	3.0	80.0	S	3.0	180.0	ī	3.0	100.0	2	3.0	260.0

Vield 1987, 1986, 1985, 1980, 1978

District : Nauzad Province : Helmand

9	-	1987			1986			1985		•	1980		•	1978	
Crop	# fmrs grow crop	Avg. area jerib	Avg. yield	X fmrs / grow crop	Avg. area jerib	Avg. yield	% fmrs grow crop	Avg. area jerib	Avg. yield	grow crop	Avg. area jerib	Avg. yield	% fmrs grow crop	Avg. area jerib	Avg. yield
3 1 7 3 6	Ç	,		Ş			(			,				,	
Altalta	8	?:	٠	ò	7:1	•	70	7.1	•	9	7.		69	9.	•
Atmond	24	3.3	51.7	54	3,3	61.3	24	3.3	61.3	24	3,3	100.0	94	3.2	136.7
Maize	23	9.3	35.0	31	5.5	61.7	23	11.0	65.0	15	9.5	70.0	23	9.0	65.0
Grape	23	7.3	0.09	23	7.3	83,3	23	7.3	146.7	23	7.3	160.0	23	7.3	273.3
Rainfed Wheat	15	25.0	57.5	23	38.0	43.3	23	2.44	51.7	24	88.5	61.7	54	100.6	69.3
Apricot	5	3.0	•	5	3.0	٠	15	3.0	٠	15	3.0	9	15	3.0	•
Irrigated Wheat	80	0.9	40.0	œ	5.0	50.0	Ø	8.0	0.09	23	23.3	53.3	31	37.5	85.0

13 farmers questioned in Afghanistan

TIELG 1967, 1986, 1985, 1980, 1978

District : Garmser

		IYal			1986			1985			1980		·	1078	
	% fmrs	% fmrs Avg. area Avg.	Avg.	% fmrs	Avg. area		% fmre	Avn area	Ave	4 france	AA	ě			
×	ž	: :	-	1	1	אובות	arrae quin mule	guaf	yleld	grow crop	Jerib	yield	grow crop	jerib	yield
	ł	:	ì	ŧ											
Marze	83	4.5	54.0	83	6.8	45.0	83	7 4	5 X 7	228	} 4	10	3 £		31
Cotton	27	c 7	70 0	ίK	!,	2 03	25	; ¢		9;	3	Ţ	83	1.4	20
1111 P	3	?	3	= ·	0.01	45.0	74	5.8	30.0	20	7.3	50.0	20	11.3	U U7
											3000				ř

Yield 1987, 1986, 1985, 1980, 1978

District : Nadicali

	ì	vield		77.5	5.46	0 27	0.15	135.0
07.01		ierib		12.8	9.2	2 6	0 (	3.0
•		GLOW CLOD		3 !	86	8	3,1	5
		yield		04.0	82.2	•	1	9
1080	1.8	jerib		_ 4 5 c	8.5	1.3	10	¥
•	e a	grow crop		3.5	89	18	in	).
		yreld		1	15.1	41.3		•
1985		Jerib		ļ <del>-</del>	0.0	2.9	2	×
-		grow crop		17	òi	14	~	
	Ava	yreld		į.	3:	40.0	ä	,
1986	AVA DPDD	Jerio		1.3	1.	2.3	1.0	;
_	% fmrs	grow crop		89	1;	47	2	1
	Ava	100		ı	F 2 E	28.3	1	;
1987				1.3	2 7	2.5	1.0	*
•-	% fmrs			29	. 22	71	ы	
			\$ 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Alfalfa	Maiza	ב ממב :	Barley	

ספ יתווובו פ אתבפרו מובת ווו או מומווצרפון

Yield 1987, 1986, 1985, 1980, 1978

District : Nawae-barakzae Province : Helmand

		1987		•	1986			1985			1980			1978	
Crop	X fmrs Avg. area A grow crop jerib y	Avg. area jerib	Avg. yield	% fmrs grow crop	Avg. area jerib	Avg. yield	% fmrs grow crop	Avg. area jerib	Avg. yield	X fmrs grow crop	Avg. area /	Avg. yield	# fmrs grow crop	Avg. area jerib	Avg. yield
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ġ	9	22	S	9	0 47	ç	E 7 3	7 13	100	24.2	82.2	001	7 001	·
irrigated wheat	, o	20.0	20.9	2 6	20,1	2 .	ŝ	1.5		2 2	7 - 2	7 .	2 2		-
Altalta	2 ;	# I	(	0 !	. ;		2 1			, 6	- 6		ò		
Cotton	26	7.6	0.06	/9	2.E	48.5	9	7-0	24.0	201	8.22	8.7	301	1.02	
Maize	33	2.7	40.0	22	4.0	40.0	77	0.9	52.5	86	7.4	67.1	86	7.5	
Mung Bean	11	1.0	•	22	3.0	15.0	33	2.0	18.0	29	7.7	42.5	29	0.6	40.0
Bean	11	7.0	į.	1	7.0	•	•	•	٠	•	ı	(K	•	•	

9 farmers questioned in Afghanistan

### Yields 1978

### <u>Bust</u>

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	1	100	15.0	100	100
Cotton	1	100	13.0	100	80

<sup>1</sup> farmers questioned in Afghanistan

### Yields 1978

### Nahre Saraj

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	1	100	10.0	100	70
Maize	1	100	5.0	100	70
Cotton	1	100	4.0	100	100
Alfalfa	1	100	2.0	-	-

<sup>1</sup> farmers questioned in Afghanistan

### Yields 1978

### Mosa Qala

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa	17	85	1.3		
Rainfed Wheat	13	65	63.7	65	66
Maize	4	20	1.5	-	-
Grape	4	20	4.3	20	175
Almond	4	20	5.5	15	147
Irrigated Wheat	3	15	51.7	15	65
Vegetable	2	10	1.3	-	-
Barley	1	5	1.0	-	-
Apricot	1	5	3.0	5	260

<sup>20</sup> farmers questioned in Afghanistan

Yields 1978

### <u>Nauzad</u>

Сгор	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa	9	69	1.6	_	-
Rainfed Wheat	7	54	43.4	54	69
Almond	6	46	3.2	23	137
Irrigated Wheat	4	31	37.5	31	85
Maize	3	23	9.0	15	65
Grape	3	23	7.3	23	273
Apricot	2	15	3.0	-	-

<sup>13</sup> farmers questioned in Afghanistan

Yields 1978

### Garmser

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	12	100	23.8	100	91
Maize	10	83	6.8	75	82
Alfalfa	10	83	1.4	-	-
Cotton	9 -	75	8.3	75	97
Mung Bean	6	50	11.3	8	40

<sup>12</sup> farmers questioned in Afghanistan

Yields 1978

### <u>Nadi-ali</u>

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat		98			
Cotton		94			
Alfalfa		-			
Maize		77			
Bean		6	75		
Mung Bean		8	57		
Melon	2	3	3.0	3	135
Barley	2	3	1.0	-	-

<sup>66</sup> farmers questioned in Afghanistan

Yields 1978

### Nawae-barakzae

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	9	100	24.8	100	101
Cotton	9	100	28.1	100	96
Maize	8	89	7.5	78	67
Alfalfa	8	89	2.5	-	-
Mung Bean	6	67	9.0	22	40

<sup>9</sup> farmers questioned in Afghanistan

Strong Ferriliser No. 2 No. 2 No. 2 Bags No. 3 Bags No. 4 No. 2 Bags No. 4 Bags No. 4 Bags No. 4 Bags No. 5	No Fert. Only White Fert.	only 6	Only Grey Fert.	Grey & W	Grey & White Fert.	Yiel	Yield(Seers/Jerib)		No frms
Bust 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No. % Fmrs Fmrs	Mo. Fmrs		No. % Fmrs Fmrs	Bags apid/jb White Grey	No Only Fert White	Only Grey	White & Grey	yield
Bust 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									
No data No data 3 No data 4 12 66 66 66 66	·	Ø	*	1 100.0	2.0 1.0	30	*	100	•
No data No data 3 No data 4 12 12 66 66 12 12 12 12 12 12 12 12 12 12 12 12 12		<b>®</b>	*	1 100.0	2.0 1.0		ě	2	
No data 3 No data - 4 12 12 - 4 12 66 66 - 66 - 66									
3									
No data	100.0		•		*	92		ı	m
, , , , , , , , , , , , , , , , , , ,									
12 12	100.0	*	•	•		82		,	7
i srakzae 9	***		*		1.8 0.9	,		91	12
rakzae 9			*	66 100.0	1.6 0.9	•		86	%
		*	*	9 100.0	1.6 1.4			101	6
Total: 96 89 7 7.3		3	x	89 92.7	1.6 0.9	76		26	96

Fertiliser use 1978

Irrigated Wheat

Rainfed Wheat																			
Farmers questioned in Afghanistan No. fmrs No. fmrs	Afghanistan No. fmrs	No. fmrs	No Fert.	ert.	Onty	White Fert.	Fert.	Omly	Only Grey Fert.	Fert.		ey & wh	Grey & White Fert.		Υie	eld(Seer	Yield(Seers/Jerib)	(9	No frms
Province/District	growning crop (i)	given fertiliser data	No. Fmrs	Fmrs	No. Fmrs	Fars	Bags apld/jb	No. Fmrs	Fars	Bags apld/jb	No. Fmrs	Fars	Bags apld/jb White Grey		No On Fert Wh	Only C	Only Grey	White & Grey	yield
Helmand:																			
Bust																			
Nahre Saraj	No data																		
Reg																			
Sarbon Qala																			
Mosa Oala	13	()•	13	13 100.0	<b>(</b> (*	(0	×	ii e	×	×	:00	•	ì		%	( <b>*</b>	×	æ	13
Kajaki	No data																		
Nauzad	2		7	7 100.0	è	jū.	9	236	•	<b>∴</b>	18		•		69		¥	*	7
Total :	50	300	8	20 100.0		9	3		•	300		,		(0	29	i.	¥		50

Fertiliser use 1978

Fertiliser use 1978 Maize

	No. fmrs	No. fmrs No. fmrs	No. fmrs	No Fert.	ī.	Only	Only White Fert.	Fert.	8	Only Grey Fert.	Fert.	5	ey & Wh	Grey & White Fert.	.:		Yield(S	Yield(Seers/Jerib)	(qi	No fr
Province,	Province/District	growing crop (i)	given fertiliser data	No. Fmrs	Fars	No.	FE	8ags aptd/jb	No.	Firs	Bags apld/jb	No.	Fmrs	Bags apid/jb White Grey	old/jb Grey	Fert	only White	Only Grey	White & Grey	Z i g
Helmand:																				
	Bust	No data																		
	Nahre Saraj	-	***	o.	•	*	<b>(</b>	ě		*	20	-	100.0	2.0	0.1		•	1	2	
	Reg	No data																		
	Sarbon Qala	No data																		
	Mosa Qala	No data																		
	Kajaki	No data																		
	Nauzed	2	) <b>Y</b>	2	100.0	9	3		•	74	200	i.e	٠	•	•	65		10	•	
	Washare	No data																		
	Garmser	٥	0	1	•	•	٠	•	•	٠		0	100.0	60	6.0	'	•	,	80	
	Nadi-ali	32	27	ı	15.6	7	6.3	1.0	•	•	•	52	78.1	r.	8.0	8	12	٠	2	
	Nawae-barakzae	7	7	•	•	-	14.3	1.0	•	•		9	85.7	7.	6.0	,	3	•	8	
	Baghran	No data																		
	Deshu	No data																		
Total :		51	77	_	13.7	m	5.9	1.0	3	K	æ	41	80.4	1.5	8.0	99	70		78	
															1					

Farm power 1978

Percent using or owning the following resources

	Total	al	Tra(	Tractor		Oxen			-		No. of oxen owned	ten owned	
Province/District	fmr(i)	fmr(ii)	owned	hired	омпед	shared	hired	hand	Uther	1 oxen	2 oxen	3 oxen	4+ oxen
Helmand :			*:										
	-	17 <u>57</u>	ě	100	9		100	•	,	,	3	3	
Nahre Saraj	-	•	٠	9	9.0		3 '		•	•		6.3	€ 19
Reg	No dat	e e										•	•
Sarbon Qala	No dat	a											
Mosa Qala	20	20	10	30	40	ì	9	95	٠	į	35	u	ш
Kajaki	No dat	8									7	1	•
Nauzad	13	13	15	38	31	ŧ	ï	65	•	,	41	9	,
Washare	No data	0						1			ī		1
Garmser	12		52	52	20	•			į	•	C L	į	4.7
Nadi-ali	99	%	45	25	Ŋ	•	ľ	•		^	2 14	c	-
Nawae-barakzae	6	6	77	33	22		0		1 9		) <del>[</del>	<b>J</b>	
Baghran	No data	æ									=		,
Deshu	No data	CI CI		ā									
Total :	122	122	34	43	19		20	25	•	-	16	2	2
												100	

(i) Number of farmers questioned in Afghanistan(ii) Number of farmers given data on farmpower

Irrigated Wheat

Problems as percieved by farmers (weighted average percents)

Province/District	No. fmrs questioned in Afg.		Irrig Rain- water fall	Farm	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic	Crop chemic Labour	Flood	Crop	Animal	, c	Rats	Exte	4
Helmand:															- 1	Colsi	Uther
Bust Nahre Saraj Reg Sarbon Dala	No data	(0)(0)	F10(46)	100	κ κ <i>s</i>	* *	(% 2%	(6)((0))	#K #H	#1 W1	0 S	94 - OF	24.15	(4)(4)	0 0	#: #:	* *
Mosa Qala Kajaki	20 No data	86	33631	100		7		,	,		,		,		ij.		
Nauzad Washare	13 No data	œ	œ	16	ij	,	2	1	ı	,	,	63			ē.	<b>6</b> 5 - 6	
Garmser Nadi-ali	12 48	41	9 9	10	<u> 8</u>	23 °	5	4.	7	φ.	2	) «o	,	- 4	, «c	. F	K C
Nawae—barakzae Baghran Deshu	9 No data No data	3	9.	į.		00		<b>†</b> 1	xo ,	<b>7</b>	1 1	24	( )		) , ,	}m ·	
Total :	122	9	,	31		12		,		Į,							
		i)		5	6	2	7	2	2	4	-	23	•	•	N	œ	•

Constraints on crop production 1978

Rainfed Wheat

Hower finds and the fall power iliser effect Credit seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage diseas Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemic Labour damage disease Birds Mice and the seed chemical Birds Mice and t	Exte- nsion Other	#2 #2: 0 #355#05	ne j		
No. fmrs       No data       Farm Fert       Var       Improvement of the continuous of t		18111	:01 13		
No. fmrs  questioned Irrig Rain— Farm Fert— War Improv Crop in Afg. water fall power iliser effect Credit seed chemic Labour damage diseas labeled and a labeled label	Birds	5.3	۷.	e	
No. fmrs  questioned Irrig Rain— Farm Fert— War in Afg. water fall power iliser effect Credit seed chemic Labour damage  la No data No data No data 12 No data	Animal diseas	8.9	* .	5	
No. fmrs  questioned Irrig Rain— Farm Fert— War in Afg. water fall power iliser effect Credit seed  la No data No data No data 12 No data No data No data No data	Crop diseas	* *	56	8 # 1018	
Another Same Fert War Improving Rain Farm Fert War Improving Afg. water fall power iliser effect Credit seed seed to data No data 20 23 14 12 12 14 15 15 16 15 16 15 16 15 16 15 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16		8.8	ñ ii	and the	
All Modata  No. fmrs  questioned Irrig Rain—Farm Fert— War Improving Afg. water fall power iliser effect Credit seed  1	Labour	• •	ж. э	79-74-34	
Anothers and a line a l	Crop chemic	900)	5 ¥	* * *	
No. fmrs  Auestioned Irrig Rain- Farm Fert- War in Afg. water fall power iliser effect Credit  aj No data  No data  12  No data  13  No data	Improv	9.3	î x	<b></b>	
No. fmrs  questioned Irrig Rain— Farm Fertin Afg. water fall power iliser  a) No data  No data  No data  12  No data  12  No data  13  No data	Credit		ř.	16 16 G	à
No. fmrs  questioned Irrig Rain- Farm Fertin Afg. water fall power iliser  a) No data  No data  No data  12  No data  12  No data	War effect	X X	ű e	10000000	
Anough the state of the state o	Fert- iliser	8 9	6 %	(M)(c) (0)	
No. fmrs  No. fmrs  questioned Irrig in Afg. water  1		• (•)	14	2.2.3	00
No. fmrs  No. fmrs  questioned Irrig in Afg. water  1	Rain- fall	3/9	23	1 1 1	22
aj ila akzae	Irrig Water	9.9	* *	řír	•
ce/District  d: Bust Nahre Saraj Reg Sarbon Qala Mosa Qala Kajaki Nauzad Washare Garmser Nadi-ali Nawae-barakzae Baghnan	No. fmrs questioned in Afg.	No data	No data	12 66 66 9 9 No data No data	122
ovin	Province/District	Helmand: Bust Nahre Saraj Reg Sarbon Qala	Mosa Qala Kajaki Nauzad Washare	Garmser Nadi-ali Nawae-barakzae Baghran Deshu	Total :

aize

Problems as percieved by farmers (weighted average percents)

Province/District	No. fmrs questioned in Afg.	Irrig Water	Rain- fall	Farm power	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic Labour	Labour	Flood damage	Crop diseas	Animal diseas	Birds	Rats Mice	Exte- nsion	Other
								2									
Helmand:													į		,	,	,
	_	,			1	i	•	•	8	ì		•	,	•	ii.	ŭ.	i i
Nahre Saraj		((*))	(#C	,	ű.	į	į.		•	ř	ŧ	ě	È	12	•	Ü	•)]
Reg																	
Sarbon Qala																	
Mosa Qala		,	9	•	٠		i	•		×.	ř	,	í	is.	•10	•	
Kajaki												ļ				5	
Nauzad	13	33	٠			1	٠	٠	ř	ũ	ē	/0	Đ.	KI.	1	· ·	•
Washare							!	,							(0	12	
Garmser		10	•	54	•	37	15	<b>v</b> 1	ě	6	9)	۱ (		Eni	) e	2	
Nadi-ali		9	7	35	4	4	Ě	2	()	9	6	35	• 12	•88	- \	1	
Nawae-barakzae		6		54	7	18	Ē	9	0	ij	ı.	97	•	• 6	4		•
Baghran	No data																
Deshu	No data																
Total :	122	٥	м	30	ы	13	2	м	-	7	•	56	į.	i	2	2	3

### Constraints on crop production 1978

Barley

			No.	fmrs	•	•	1		:		1								
F 000	נטי	Animal	quest	questioned Irrig	Irrig te-		Farm vince/D	Fert- istrict	La L	in Afg.	Mate	Improv crop water fall power	power						
iliser	effect	Credit	seed	chemic	Labour		disea	damage diseas diseas Birds	Birds	Mice	Mice nsion Other	ther							١
Helmand																	()	9	
				_	·	×		(*)	ĸ	ĸ	E	E.	<b>e</b> ro					1	
	Nahre	Nahre Saraj	•	_	÷	je.	•		×		E	<b>6</b> 0	10	•					
	Red		No	data															
	Sarboi	n Qala	N <sub>o</sub>	No data											J.	3	9	1	
	Mosa	Qala	⊼	0	ŝ		٠	×	<u></u>	<b>x</b> :	60	r:	•	e:					
	Kajak	.,	N <sub>o</sub>	data											70	9	,	)	
	Nauzac	ס	∵'	3	ĩ		20	£	•	e.	•00		•	,	,		1		
	Washa	re	No	data										9	3	74	,		
	Garms	er	-	2	Ē	Ī.		£2	•0	K:		•00	. 0	• 0	1 3	( )			
	Nadi-ali	ali	\$	9	ĩ	ŗ	ĸ	£ï	er.	•);;;	•	•		( )	<b>6</b> 3	ra			
	Nawae	Vawae-barakzae		Φ.	ž	ž	•2:	œ	<b>•</b> :	•	•	·		,		ř.	1		
	Baghran	an		No data															
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Total			122	_	į	í	é		100			×		Œ		r		ij.	72
2			2																

Constraints on crop production 1978

	No. fmrs questioned	Irrig	Rain−	Farm	Fert-	Je Le		Young	i c		1		-				
Province/District	in Afg.	- 1	fall	power	iliser	iliser effect Credit	Credit	seed	chemic	chemic Labour damage	damage	diseas	Animat diseas Birds	Birds	Rats	Exte- nsion Other	Other
Helmand:																	
	-	•		22	9	0											
Nahre Saraj	<b>-</b>	Ř	٠		- 34	- 11	0.30	<b>(</b> E0	¥£	ŗ	х	¥	ě	i i	•		•
Reg	No data						00		)(	¥Š	r	·	•		i	.•	. •
Sarbon Qala	No data																
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Garmser	12	(( <b>1</b> )	0	i	,	•	,	ij									
Nadi-ali	%	( <b>•</b> )	1						e II			ij	¥.	٠	Ť	:•	
Nawae-barakzae	6	-1	- 10		¥			į			0	•	ě	ř	•	200	79
Baghran	No data					į.	ı	(		ı	ı.	0)	ě	Ě	•	×	:*
Deshu	No data																
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iotal :	122	Gr.	ě	gr.	•	ř.	ě	•	*					,	١,		

### Yields 1985

### <u>Nahre Saraj</u>

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	1	100	6.0	100	60
Maize	4.1	100	2.0	100	60
Cotton	1	100	5.0	100	60
Alfalfa	1	100	1.0	-	-

<sup>1</sup> farmers questioned in Afghanistan

### Yields 1985

### Mosa Qala

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa	18	90	1.6	-	. =
Rainfed Wheat	11	55	39.9	55	49
Grape	4	20	4.3	20	150
Almond	4	20	5.5	15	63
Irrigated Wheat	1	5	10.0	5	90
Vegetable	i	5	1.0	_	-
Barley	i	5	1.0	-	-
Apricot	i	5	3.0	5	180

<sup>20</sup> farmers questioned in Afghanistan

### Yields 1985

### Nauzad

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa Almond Maize Grape Rainfed Wheat Apricot	8 7 3 3 2	62 54 23 23 23 15	1.2 3.3 11.0 7.3 44.7 3.0	31 15 23 23	61 65 147 52
Irrigated Wheat	1	8	8.0	8	60

<sup>13</sup> farmers questioned in Afghanistan

### Yields 1985

### Garmser

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat Maize	11 10	92 83	13.3 7.4	83 75	56 57
Alfalfa Mung Bean Cotton	9 5 5	75 42 42	1.1 3.8 9.0	- 8 42	30 60

<sup>12</sup> farmers questioned in Afghanistan

### Yields 1985

### <u>Nadi-ali</u>

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	54	82	8.2	74	75
Alfalfa	45	68	1.1	-	-
Cotton	44	67	6.5	67	74
Maize	20	30	2.9	20	53
Mung Bean	15	23	2.8	12	48
Bean	9	14	2.9	6	41
Barley	ĺ	2	2.ó	-	41

<sup>66</sup> farmers questioned in Afghanistan

### Yields 1985

### Nawae-barakzae

Crop	No. fmrs growing crop	Percentage Who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat Alfalfa	8	89	31.3	78	51
Cotton	5	78 56	1.6 6.2	56	-
Maize	4	44	6.0	22	52 53
Mung Bean	3	33	2.0	<u>11</u>	18

<sup>9</sup> farmers questioned in Afghanistan

Serej No data Fertiliser No. % No data  Serej No data  ala No data  ala No data  No	Farmers questioned in Afghanistan No. fmrs		No. fmrs	No Fert.	rt.	Only	Only White Fert.	ert.	Only	Only Grey Fert.	ert.	-5	ey & Wh	Grey & White Fert.	,	Yie	Yield(Seers/Jerib)	s/Jerib		to frms
No data No dat	4	,	fertiliser data	No. Fmrs	Fmrs	No. Fmrs	Fars	Bags apld/jb	No. Fmrs	Fmrs	Bags apld/jb	No. Fars	×.Ē s¬Ē	Bags apld White G					<b>અ</b>	yield
No data Start		1																		
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No data No data  No data  No data  11	Sarbon Qala Mosa Qala	No data	,	-	100.0	•	ě	/ <b>a</b>	4	a	9	Ä	8	ij.		06			×	-
No data 11 - 4 36.4 1.0 5 648.1 1.5 0.8 58 73 - 55 72 72 848.1 1.5 0.8 58 73 - 55 72 72 848.1 1.5 0.8 58 73 - 57 72 72 72 72 72 72 72 72 72 72 72 72 72	Kajaki Nauzad	No data	•	-	100.0	٠		v	.0	κ	ĸ	Ė	*	•6		09	1		•0	-
akzae 8 3 16 29.6 12 22.2 1.0 26 48.1 1.5 0.8 58 73 - 72 72 72 75 75 75 75 75 75 75 75 75 75 75 75 75	Washare Garmser	No data	Ξ	•	9	4	36.4	1.0		,	1	7	63.6	1.9	1.1	,	45	•	22	10
53 23 30.3 17 22.4 1.0 36 47.4 1.5 0.8 59 65 - 65	ladi−ali lawae—barakzae	8 8	e E E	<b>5</b> ₽	29.6 62.5	12	22.2	0,1			1 1	38	48.1 37.5		0.8	58 54	万.		22	6 <del>7</del>
		92	53	23	30.3	17	22.4	1.0	30	5.0		38	4.74		8.0		9		59	69

Fertiliser use 1985 Irrigated Wheat

Rainfed Wheat																		
Farmers questioned in Afghanistan No. fmrs No. fmrs	Afghanistan No. fmrs	No. fmrs	No Fert.	irt.	Only	White Fert.	Fert.	Onl.)	Only Grey Fert.	Fert.	ē	ey & Wh	Grey & White Fert.		Yield(Se	Yield(Seers/Jerib)	ib)	No frms
Province/District	growing crop (i)	given fertiliser data	No. Fmrs	Fars	No. Fars	Fars	Bags aptd/jb	No. Fmrs	%E	Bags apld/jb	No.	Fars	Bags apid/jb White Grey	No Fert	Only White	Only Grey	White & Grey	yield data
. Dear																		
Nahre Saraj	No data																	
Reg																		
Mosa Gala		*	Ξ	11 100.0	×	×		•		ŝ	Ē	Ē		67	×	ĸ	**	11
Kajaki	No data													i				ı
pezneN		0	M	100.0	340	( <b>6</b> )	•10	• ;	,	•	ì	ŧ	•	25		•	,	M
Washare	No data																	
Total :	14	×	14	14 100.0	e	¥0	•	•	10	•	e	Ť.	100	20	((*))	900	o <b>*</b> 0	14

(i) Number of farmers given data for crop(1), crop(2) and crop(3)

Fertiliser use 1985

Fertiliser use 1985

Farmers questioned in Afghanistan No. fmr	fghanistan No. fmrs	No. fmrs	No Fert.	irt.	Only	White Fert.	Fert.	ont)	Only Grey Fert.	Fert.	<u>5</u>	ey & W	Grey & White Fert.		•	Yield(Seers/Jerib)	ers/Jer	(q)	No frms
Province/District	crop (i)	fertiliser data	No. Fmrs	Fmrs	No. Fmrs	Fmrs	Bags apld/jb	No. Fmrs	Fmrs	Bags apld/jb	No. Fmrs	Fmrs	Bags apld/jb White Grey	ld/jb Grey	No Fert	Only White	Only Grey	White & Grey	yield
Helmand:									97										
Bust Mahre Sarai	No data		•	100 0	•	٠		9			٠				09	,	,		•
Reg	No data		2												3				10
Sarbon Qala	No data																		
Mosa Qala	No data																		
Kajaki	No data 2		2	100.0	•	•	,	*		*		٠	•	•	9		•		2
Washare	No data		l																l
Garmser	0	7	2	22.2	١	1		٠			7	77.8	1.9	-:	45		1	9	٥
Nadi-ali	14	_	13	92.9	-	7.1	0.1	×	•	×		3	•	3	48	9	•	•	13
Nawae-barakzae	M	-	~1	2.99	-	33.3	1.0	*	*	œ.	٤	ě	*	ě	52	22	•		~
Baghran	No data																		
Deshu	No data																		
Total :	62	٥	20	20 69.0	2	6.9	1.0	x	x		7	24.1	1.9	1.1	48	58	×	09	27

(i) Number of farmers given data for crop(1), crop(2) and crop(3)

Farm power 1985

Percent using or owning the following resources

	Total	=	Tractor	tor		Oxen		å	140		No. of o	No. of oxen owned	
Province/District	fmr(i)	fmr(ii)	pauno	hired	owned	shared	hired	hand	means	1 oxen	2 oxen	3 oxen	uaxo +5
lol mond													
	-			,	•	<u> </u>	٠	9	31	31	•		
Nahre Saraj	-	-		100		9	Ä	Ť	9.	×	*	ě	•
Reg	No data	_											
Sarbon Gala	No data	_											
Mosa Qala	20	20	Ŋ	\$2	30	•	•	8		•	20		2
Kajaki	No data	9											
Nauzad	13	13	ı	31	∞			35			0	1	•
Washare	No data	-											
Garmser	12	Ξ	<b>€</b>	36	45	6		1			45		0
Nadi-ali	8	22	42	22	7	•	Ŋ	1	ı	4	4	•	•
Nawae barakzae	6	ø	20	20	•	•	100	•	,	•	•	•	1
Baghran	No data												
Deshu	No data	•											
Total :	122	108	30	77	13		м	62	36	2	11	( <u>1</u> )	2

(i) Number of farmers questioned in Afghanistan (ii) Number of farmers given data on farmpower

Irrigated Wheat

Problems as percieved by farmers (weighted average percents)

Province/District	questioned in Afg.	Irrig	Rain- fall	Fагш ромег	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic	Crop chemic Labour	Flood damage	Crop diseas	Animal diseas	Birds	Rats Mice	Exte- nsion Other	Other
																	Ì
Helmand:																	
	•		í	1		,	•	•	,	į	8	Ü	9				
Nahre Saraj	_	16	0.040	54	12	87	į			,			. 0	•	0.00	•	·
Reg	No data				ļ	)					ĺ					ei.	•
Sarbon Qala	No data																28
Mosa Qala	20	16	,	57		87	•	12	٠	)	į	1	3				
Kajaki	No data			i		)		1		į	Ó		į	i		•	į.
Nauzad	13	•	54		1	87		,	•	į	•	14	á	ţ			
Washare	No data					1					ĝ	2		y.	•	•	•
Garmser	12	19	•	7	0	27	М	7	•	7	į	`	,				
Nadi-ali	%	7		٥	7	51	·	-	•	r j		t٧	į į	<b>1</b> (			
Nawae-barakzae		53		ω	7	67	- 1	- W	- ,	7	( )	o u		V I		-	•
Baghran	No data					:		١		٢		1	i.	1	•		
Deshu	No data																
Det																	
Total :	122	21	•	٥	7	20		2	٠	-	ř.	2	£	2	ı		

## Constraints on crop production 1985

Rainfed Wheat

Province/District	No. fmrs questioned in Afg.	Irrig	Rain- fall	Fагш ромег	Fert- r iliser e	War effect Credit	Credit	Improv	Crop chemic	Crop Flood chemic Labour damage		Crop diseas	Animal diseas Birds	Birds	Rats	Exte- nsion Other	Other
Welmand:							9										
Bust		<b>(</b>	ě	ij	3		,,	,	,	,	,	,	į	á			
Nahre Saraj	<b>-</b>	•	×		301	20	80 <b>9</b>		í		C X	E 1	<b>( )</b>			•	•
Reg	No data											i.	Œ		Č.	i	•
Sarbon Qala	No data																
Mosa Qala	20	ì	23	9	(9)	50	М	,	19		•	u	,	u	٠	-	ì
Kajaki	No data		i i	)	à	)	1					n	Œ	n	<del>j</del>	0	
Nauzad	13	į	54	∞	:*	20	•	•	174	310	0	7	,	,	)	,	
Washare	No data		;	•		ì						ŧ	(C	g	ě	0	ı
Garmser		ī	,	ı	ж	,		,	9	89	ii e		,		1		
Nadi-ali			,	,	1	,	3	,	S. ):•		839	E5.0	(21 <u>)</u>	0	ġ.	•	•
Nawae-barakzae		,	,	1	1	,	•	,		000	82.04	250	610	0 4	0	,	
Baghran													m	ij	0	•	
Deshu	No data																
Total :	122	E	23	9	ı	52	м	. Ar		-	•	2	4	м	-	9	Ĩ.

Maize

Problems as percieved by farmers (weighted average percents)

Province/District	No. fmrs questioned in Afg.	Irrig Water	Rain- fa{l	Farm	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic	Crop chemic Labour	Flood damage	Crop diseas	Animal diseas	Birds	Rats Mice	Exte- nsion Other	Other
Helmand:	,																
Bust	_		ï			•	ě	E.	ĸ.	<u>1</u>	i)	ij		ŧ,	1/4/2	Ç1	RC)
Nahre Saraj	_	12	ï	54	16	84	•	ě	¥3	¥.	¥1 60 00	ē		ij.		r	(6)
Reg	No data																
Sarbon Qala	No data																
Mosa Qala	20	•	e e	•	•	•	•	ę	lie:	7			•	•	٠	*	(0):
Kajaki	No data																
Nauzad	13	19	ę	21	٠	51	٠	•	٠	•	,	0	,	•	ū	19	
Washare	No data																
Garmser	12	19	ı	ω	S	20	ø	-	-	ř	•	4		÷	į.	-	2
Nadi-ali	%	16	ja i	<b>1</b>	17	51	M	7	1	•				•		æ	e e
Nawae-barakzae	0	56	•	9	٥	23	•			•		9		•	•	A	94
Baghran	No data																
Deshu	No data																
Total :	122	18		10	11	51	4	-	G.	*	ř	м	×	(4	*	*	e

## Constraints on crop production 1985

Barley

Province/District	questioned in Afg.	Irrig Water	Rain- fall	Fагш ромег	Fert- iliser e	War effect	. War r effect Credit	Improv seed	Crop chemic	Crop chemic Labour	Flood damage	Crop diseas	Animal diseas	l s Birds A	Rats Mice	Exte- nsion Other	Other
Helmand:																	
	-	Sec	٠	·	ē	ŧ	•	٠		9	j	8	9	10			
Nahre Saraj		ı	ų.	٠	i	٠					٠	•	,				•
Reg													į	,	•		
Sarbon Qala	No data																
Mosa Qala		i i	,	į	٠	,	į	•	,	,	į	ÿ	,	37			
Kajaki													ı	ı.			
Nauzad		,	,	<b>(</b>	•	٠	٠	٠			,	ì		0			
Washare														0		,	
Garmser		1	1	Ų	(	•	1	٠	,		į	į	,	,			
Nadi-ali		1	1	٠	ě	,		4	,	,	1					ı	
Nawae-barakzae			٠	•	ě	,		•	•	,		ő i		( )	,	ı	,
Baghran	No data												•	0			,
Deshu																(2	
Total :	122		6	ŝ	ě	·		i	,	,		55-77	15•00		6		1.

Yields 1987

### Nahre Saraj

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat Cotton Alfalfa	1 1 1	100 100 100	7.0 4.0 1.0	100 100	50 80 -

<sup>1</sup> farmers questioned in Afghanistan

Yields 1987

### Mosa Qala

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa	18	90	1.4	8.50	7
Rainfed Wheat	11	55	34.2	50	45
Grape		20	4.3	15	77
Almond	Ž	20	5.5	10	50
Maize	3	15	1.0	-	-
Irrigated Wheat	1	5	9.0	5	50
Vegetable	i	5	1.0	-	-
Barley	i	Ś	1.0	•	-
Apricot	i	5	3.0	5	120

<sup>20</sup> farmers questioned in Afghanistan

### Yields 1987

### Nauzad

Crop	No. fmrs growing crop	Percentage Who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Alfalfa Almond Maize Grape Rainfed Wheat Apricot Irrigated Wheat	9 7 3 3 2 2 1	69 54 23 23 15 15	1.3 3.3 9.3 7.3 25.0 3.0 6.0	23 8 23 15 - 8	52 35 60 58 -

<sup>13</sup> farmers questioned in Afghanistan

### Yields 1987

### Garmser

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	10	83	10.8	83	54
Maize	10	83	4.5	42	54
Alfalfa	9	75	1.4	-	- 1
Cotton	5	42	4.2	8	70
Mung Bean	4	33	6.0	8	25

<sup>12</sup> farmers questioned in Afghanistan

### Yields 1987

### <u>Nadi-eli</u>

Сгор	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat Alfalfa Cotton Maize Bean Mung Bean Melon Barley	52 44 42 22 14 13 2	79 67 64 33 21 20 3	7.6 1.3 5.5 2.6 2.3 2.9 2.0	79 - 3 6 5 3	68 - 80 53 38 43 85

<sup>66</sup> farmers questioned in Afghanistan

Yields 1987

### Nawae-barakzae

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	8	89	30.0	89	37
Alfalfa	7	78	1.4	-	
Cotton	5	56	9.7	11	90
Maize	3	33	2.7	11	
Mung Bean	1	11	1.0	7	40
Bean	1	11	7.0	926	2

<sup>9</sup> farmers questioned in Afghanistan

Fertiliser use 1987

Irrigated Wheat

rarmers questioned in Aignanistan No. fmrs	No. fmrs	No. fmrs	No Fert.	řt.	Only	Only White Fert.	Fert.	8	Only Grey Fert.	Fert.	Ū	rey & W	Grey & White Fert.			Yield(Se	Yield(Seers/Jerib)	ib)	No frms
Province/District	CT.00	fertiliser data	No.	Fars	No. Fmrs	Fars	Bags apld/jb	Fars	Fmrs	Bags apld/jb	No.	%.E	Bags apld/jb White Grey	Grey	Fert	Only White	Only	White & Grey	yield data
Netward:																			
		•	31	ж		100.0	1.0	8	()	3	3	98	138	2.0	9	20	ě	((•	-
Sarbon Qala Mosa Qala		•	-	100.0	n <b>e</b> n	1	(*)	•	( <u>*</u> )	1140	3500	{( <b>a</b> )}	,		20	1	•	•	-
Kajaki Nauzad	No data	×	-	100.0	×	•		*	3	¥	•	•	•	•	07	٠	٠	1	-
Washere Germser Nadi-ali Nawae-barekza	No data 10 52 zae 8	οñ4	-04	10.0	N.0 i	20.0	0.1.		1.1.1	10 Th 10	37.4	70.0	6.r.o.	1.00.0	0408 340 340 340 340 340 340 340 340 340 340	0.88 -		22.58	52 8
Total :	73	57	16	21.9	٥	12.3	1.0	, Ą(	ij		84	65.8	1.5	6.0	12	29	Ð	65	K

Fertiliser use 1987

Rainfed Wheat

Farmers questioned in	Afghanistan		;	·						,					:	;		;
NO. TELS	No. THIS	No. TMFS	No Fert.	ert.	Ouly	White Fert.	Fert.	5	Only Grey Fert.	Fert.	5	ey & Uh	Grey & White Fert.		Yield(	Yield(Seers/Jerib)	r1b)	No trms
Province/District	crop (i)	fertiliser data	No. Fmrs	X Fmrs	No. Fmrs	Fmrs	Bags apid/jb	No. Fmrs	Fars	Bags apld/jb	No. Fmrs	Fmrs	Bags apld/jb White Grey	b No 'Y Fert	only t White	Only Grey	White & Grey	yield data
Helmond :																		
	No data																	
Nahre Saraj																		
Reg																		
Mosa Gala			=======================================	11 100.0	×	í	9	ě	•	ï	*	×	:X	7		3	3	10
Kajaki Nauzad Washare	No data 2 No data	•	2	100.0	•	É	Ñ	•))	•	ĸ	¥5	6	•		- 28	9)	<b>1</b> 0	2
10+01	7,		4	17 100 0		,	ž		3						27			5
. 1810	2		2	2														7

Fertiliser use 1987 Maize

STET TOTAL		No. fmrs	No Fert.	irt.	Only	Only White Fert.	Fert.	6	Only Grey Fert.	Fert.	5	rey & Wh	Grey & White Fert.		<u>~</u>	ield(Se	Yield(Seers/Jerib)	ib)	No frms
Province/District	Crop (i)	fertiliser data	No.	₩.E.	No. Fmrs	Fars	Bags aptd/jb	No. Fars	Files S	Bags apld/jb	No. Fmrs	Fars	Bags apld/jb White Grey		Fert	Only Frite	Only	White & Grey	yield data
Helmand:																			
Bust	No data																		
Nahre Saraj	No data																		
Reg	No data																		
Sarbon Qala	No data																		
Mosa Qala	No data																		
Kajaki	No data																		
Nauzad	7		2	100.0	•			٧	×	٠	•	•		1	18	,	•	,	
Washare	No data														!				•
Garmser	0	7	2	22.2	-	11.1	0.5	16	3	•	9	2.99	60	1.1	20		,	28	Ľ
Nadi-al;	14	9	7	28.6	-	7.1	1.0	٧	*		0	2.79	0.1	8	07	•		14	١ ٧
Newae-barakzae	~	_	_	50.0			•	¥			•	50.0		5.0	? 1	,	,	700	-
Baghran Deshu	No data No data																	2	•
Total :	27	18	٥	33.3	2	7.4	0.8	×	*		16	59.3	1.3	0.9	33	•	*	16	11
																		1000	24000

(i) Number of farmers given data for crop(1), crop(2) and crop(3)

Farm power 1987

Percent using or owning the following resources

	Tota	al	Trac	Tractor		0xen					No. of o	No. of oxen owned	
Province/District	fmr(i)	fmr(ii)	owned	hired	owned	shared	hired	hand	Other	1 oxen	2 oxen	3 oxen	4+ oxen
Kelmand:													
	-	1)	100	,	,	,	į						
Nahre Saraj	-	***	80 <b>%</b>	100	9 10		( )	. ,	c 3	X 10	4.1	•	0
Reg	No data	ro.					li.	0	É	,		ř	*
Sarbon Qala	No dat	а											
Mosa Qala	50	20	NO.	22	30	•	,	ò	1		Ľ		
Kajaki	No data			3	2		i i	2			Q	,	٠
Nauzad	13	13	æ	23	¢	10		00			c		
Washare	No data			1	)		0	3,6	V	r	Ö	2	9
Garmser	12		30	30	40	()•	,	ı		•	10		
Nadi-ali	99	52	33	67	2 4	000.	C	ı	i	21	ر ا	•	•
Nawae-barakzae	6	0	205	200	r i	000	J 10	1	E.	7	4	œ.	•
Baghran	No data			)				1			,	×	9
Deshu	No data	е											
44	422	100											
וסופו :	771	104	54	65	13			30	*	2	11	ĸ	

(i) Number of farmers questioned in Afghanistan (ii) Number of farmers given data on farmpower

Irrigated Wheat

Problems as percieved by farmers (weighted average percents)

her	1			i.	9		*		30		×	ĸ			Ĭ.	er.
Exte- nsion Other			í				·				KO:	-	go.			
Rats E				•			<b>(</b> )		•		ě	0	10			
Birds M				ı			¥.	į	54		į,	-	·			
Animal diseas E		1	r				e:		10	ď	7		•		(0	
Crop diseas			E .	ic:			4	;	9	١	) I	۰ ۸	0		5	
Flood damage			() II	E			•		c		1				*	
Crop Flood chemic Labour damage		()	020				ı			7		- c	V		•	
Crop chemic		93	1,110					8)		9	í <del>T</del>	- 1	E.		-	
Improv		:	þ			ţ	7	71	ľ	u	יי	JИ	`		3	
Credit		3.0	,			)		0	()	۲	) e-					
War effect Credit			87	)		87	Ç	87	2	87	2.5	200	2		50	
Fert- iliser			12			١				٥		) Q	)		9	
Irrig Rain- Farm Water fall power			54			76	i	,		7	10	0			<u>ئ</u>	
Rain- fall		E	•0			,		12	!	•	1					
Irrig Water			16			16	)	,		22	22	23			21	
No. fmrs questioned in Afg.		_	-	No data	No data	20	No data	13	No data	12	%	٥	No data	No data	122	
Province/District	Hetmend:	Bust	Nahre Saraj	Reg	Sarbon Qala	Mosa Qala	Kajaki	Nauzad	Washare	Garmser	Nadi-ali	Nawae-barakzae	Baghran	Deshu	Total :	

## Constraints on crop production 1987

Rainfed Wheat

Province/District	questioned in Afg.	Irrig	Rain- fall	Farm power	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic	Labour	Crop Flood chemic Labour damage	Crop diseas	Anima( diseas	Birds	Rats Mice	Exte- nsion Other	0ther
101																	
metr and																	
Bust	_	ē	•	19	10	Ÿ.	•	4	,	;•	139	50					
Nahre Saraj	_	19		(( <b>*</b> )	٠,	٠			,		9 69	0.33	033	PCI	a))	E.	ř.
Reg	No data											,	(1)	•00	60-	•	8
Sarbon Qala	No data																
Mosa Qala	50	22	54	٧.	()	7	0	,		ſ		H					
Kajaki	No data			)		5	J	G.	r	7		ç	1	2	_	9	ě
Nauzad	13	×	22	;	(0)	7.	,	,	,			,					
Washare	No data					3			r	n		4		ŀ		9	1
Garmser	12	×	10		19		,	١	,		i						
Nadi-a( i	99	Œ	•	ä	104		10		( )	ı	0 0						
Nawae-barakzae	٥	×	×	O.	н	220	01.0	0 (	Ğ.)	,	6.7				1		
Baghran	No data								Ċ	•			,	٠	•		
Deshu	No data																
Total :	122		23	7	à	52	2	·	***	м		м	3	m	7	9	

Maize

Problems as percieved by farmers (weighted average percents)

Province/District	No. tmrs questioned in Afg.	Irrig water	ig Rain− Fa er fall po	Farm	Fert- iliser	War effect Credit	Credit	lmprov seed	Crop	Crop chemic Labour	Flood damage	Crop diseas	Animal diseas	Birds	Rats	Exte- nsion Other	Other
Helmand :																	
	<b></b> -	٠		9	Œ.	g	(*)	Ř		*	*	•	è	ř	٠	×	¥0
Nahre Saraj		•	•	<u>()</u>	į	į	•	į.	*	*	ě		ŷ	•	ř	·:	r
Seg.	No data					0											
Sarbon Qala	No data																
Mosa Qala	2	,	į		ï	•	*	•	*		ř	1	٠	٠	ř	*:	200
Kajaki	No data																
Nauzad	13	54	ě	17	ě	29	į	٠	•	ĵ.	Ĩ		ij	ĵ.	ï	•	¥7
Washare	No data															2	
Garmser		19	1	œ	9	20	ø	()	-	¥.	į	9	Ē	<b>9</b> 0	•	-	<b>A</b> IP
Nadi-ali		20		S	ø	53	7	2	ì	-	Ü	Ŋ	•))		ij	~	•
Nawae-barakzae		54		16	9	48	·	ŧ	ij	9	•)		ří:	į.	Ċ	•0	٠
Baghran	No data																
Deshu																	
Total :	122	20	1)	œ	7	52	5	-	9		•	7	(*)	•	•	2	٠

### Constraints on crop production 1987

Barley

Province/District	No. fmrs questioned in Afg.	Irrig Water	Rain- Farm fall power	Farm power	Fert- iliser	War effect	War effect Credit	Improv	Crop chemic	Crop chemic Labour	Flood	Crop diseas	Animal diseas	Birds	Rats Mice	Exte- nsion Other	Other
·							-										
	-	•	ì	٠	•	٠	*	*	•	*	ŧ	10	<u>18</u>	•))	•	<b>6</b> 21	<b>(</b> ()
Nahre Saraj		¥	ï	<u>F</u>	Ē	į	ě	•		ť	9	•	6	ŧ	1	E	œ
Reg																	
Sarbon Qala																	
Mosa Qala		9	į	ř	ŗ	ï	1	¥.	¥.	¥,	ě.		6	•	٠	•0	٠
Kajaki																	
Nauzad		Ë	Ē	£	6	ij	•))	Ü			Ü		١	٠		ı	,
Washare	No data																
Garmser		ě.	Ē	e.	Ü	•	E.	ı			•	0	ı	ı		ı	
Nadi-ali			i i	ij	6	i,		٠		,		1	•	į	•	ı	
Nawae-barakzae		ı,	i.	ı		٠	٠	٠	٠		•	9	ű	٠		ı	x
Baghran	No data																
Deshu																	
Total :	122	9	3.		9		9		i i	) <u>*</u>	3.	į.	100	ĕ	*	ж	

Constraints on crop production 1987 Rice

percents
average p
(weighted
/ farmers
percieved by
Problems as

Jer	I		111											ĺ
Exte- nsion Other			- (T)			, • • () )				. •		*		
Exte nsio		•	•			,					×	х		
Rats Mice		٠	•			•		٠		•	ì	ì		
Birds		3	4			•		Ĭ		ř	ě	•		
Animat diseas			×			1		į		ij.	e)	ě		
Crop Animal diseas diseas Birds		30	Œ.			r:		•			í.	•		
		*	×			i.		C		e g	,	į		
Labour		ĸ	16				50	00	15	100				1
Improv Crop Flood seed chemic Labour damage		É	1.		3.9		(0	,	10	1 ()	k 3			
Improv		((•))	( <b>1</b> )		1:0		1		•			,		
		9019	,				•			,	١ ١	ı		
Fert War iliser effect Credit		99-7	,		×		×		,	,				
Fert- iliser		î							,					
Farm		¥ 7	•		*		٠		•					э
Rain- fall			Č		ŧ		ij			(0)				
Irrig			ı		Ü		ŕ		•	ì				
No. fmrs questioned in Afg.	,		No data	No data	50	No data	<u></u>	No data	12	%	0	No data	No data	122
Province/District	Helmand:	Nahre Sarai	Reg	Sarbon Qala	Mosa Qala	Kajaki	Nauzad	Washare	Garmser	Nadi-al i	Nawae-barakzae	Baghran	Deshu	: 1
PTO	Hel													Total

### **ANNEX C - National Survey Data**

### Part Two - 1989 National Survey Data

### Helmand

The data is organised by district. For each district there are the following tables:

Household size

Farm size

Tenure and farm size

Yields

Fertiliser and farm power

Constrains on crop production

Livestock

Livestock

Oxen, sheep and goats, cows and calves

Livestock

Horses, donkeys and camels

The districts covered by the survey in this province are:

District	No. of farmers interviewed	Pages
Bust	22	1-9
Reg	28	10-18
Sarbon Qala	24	19-27
Mosa Qala	21	28-36
Kajaki	19	37-45
Nauzad	34	46-54
Nadi-ali	67	55-63
Nawae-barakza	29	64-72
Baghran	26	73-81

· · · · ·

### Household size 1989

Average number of people, adults, youths, young children and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7—15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Bust	22	17	9	3	5	2.2

### Distribution of people per household

	Number of	·		Pe	rcentage o	of people	in each r	ange		
District	people questioned	0 - 3	2 4 – 6	3 7 – 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Bust	22	0	9	18	5	32	0	14	9	14

Farm size 1989

	farm av.ibs	31.3	2 22	48.5 5.5
overall	rainfed (ii) av.jbs % fmrs	0	0	0
	ed (i) % fmrs	100	1	100
	irrigated (i) av.jbs % fmrs	31.3	22.3	48.5 ~ 100
fmrs with both irrigated and rainfed	irrig rain av.jbs av.jbs % fmrs	0	0	0
irri				
fmrs with rainfed land only	av.jbs % fmrs	0	0	0
iith ited nly	% fmrs	100	4	100
fmrs with irrigated land only	av.jbs % fmrs	31.3 100	22.3	48.5
	number fmrs questioned	22	22	22
	District	Cropped Bust	Uncropped Bust	Total Bust

(i) Average area irrigated for all those farmers who have some irrigated land(ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

			Per	centage of	farmers in	Percentage of farmers in each range (areas in jeribs)	e (areas	in jeribs)			
District	1–10	11–20	21–30	31–40	41–50 51–60		61–70	71–80 81–90 9	81–90	91-100 >100	>100
Bust	27	23	6	14	6	5	6	0	0	0	25

## Tenure and farm size 1989

Land under cultivation

S	percent	25	e Ď
owner occupiers & tenants			
OWNER	av. jerib per farm	225.0	
piers ppers	percent farmers	0	
owner occupiers & sharecroppers	av. jerib per farm		,
only tenants	percent farmers	0	
on	av. jerib per farm		
/ oppers	percent	0	have some irrigated land we some rainfed land
only	av. jerib per farm		o have some ir have some rair
cupiers	percent	95	se farmers who
only owner occupiers	av. jerib per farm	40.1	d for all tho for all those
	number fmrs questioned	22	(i) Average area irrigated for all those farmers who have some irrigated (ii) Average area rainfed for all those farmers who have some rainfed land
	District	Bust	(i) Averag (ii) Averag

Land under cultivation and uncultivated

owner occupiers & tenants	percent	5
owner occ & tena	av. jerib per farm	200.0
owner occupiers & sharecroppers	percent	0
owner or & share	av. jerib per farm	
only tenants	percent	0
on	av. jerib per farm	
ppers	percent farmers	0
only sharecroppers	av. jerib per farm	
cupiers	percent farmers	95
only owner occupiers	av. jerib per farm	23.3
	number fmrs questioned	22
	District	Bust

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

## Yields 1989

Bust

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	22	100	17	100	93
Maize	21	95	17	0	0
Melon	17	77	8	o o	n n
Alfalfa	14	64	2	-0	n
Cotton	10	45	14	Õ	ñ
Grape	4	18	3	Õ	ñ
Pomegranate	4	18	3	ŏ	ŏ

<sup>22</sup> farmers questioned

## Frequency distribution of cereal yields

Percentage o	f	farmers	in	each	range	(seers/	jeribs)
--------------	---	---------	----	------	-------	---------	---------

Сгор	1–19	20-39	40-59	60-79	80-99	100–120	>120
Irrigated Wh	0	5	14	14	23	9	36

(i) Number of farmers given data for crop(1), crop(2) and crop(3)

## Fertiliser use 1989

	Yield (Seers/Jerib)	Only Only White & White Grey	26 0 06
		No Fert	33
		ied/jb Grey	8.0
	Grey & White Fert.	Bags applied/jb White Grey	20 91 1.6 0.8
	irey & Wh	No. % Fmrs Fmrs	16
	J	No. Fmrs	20
	.(iv)	Bags pld/jb	0.0
	Only Grey Fert.(iv)	No. % Bags Fmrs Fmrs apld/jb	0
	only G	No. Fmrs	0
	r.Cifi)	% Bags Fmrs apld/jb	1.6
	Only White Fert.(iii)	Fmrs &	2
	Only 14	No. Fmrs	
	ert.	Fars	S
	No Fert.	No. Fars	-
	S D	رنن (نن	22
	No. Fmrs Growing	Crop	22
Bust			Irrigated Wh

Note:

(i) The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

## Farm power 1989

Percent using or owning the following resources

	4+ oxen	25
	3 oxen	10
	2 oxen	14
	1 oxen	2
c	owned	27
Oxen	hired	0
Tractor	hired	\$
Total	(i) fmrs (ii)	22
	strict fmrs	st 22
	2	B

(i) Total numbers of farmers questioned(ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

strict	Irrig Water	Rain- fall	Farm	fert- iliser	War effect	Improv seed	Crop protec	Labour	Flood	Insect	Crop disea	Animal disea	Birds	Rats	Exten− sion	Others
	7	0	15	19	31	11	0	2	22	0	7	0	7	2	0	2

Problems as percieved by farmers 1988 (1989 Survey)

Others	2
Exten- sion	0
Rats	2
Birds	3
Animal disea	0
Crop disea	7
Insect	0
Flood damage	22
Labour	-
Crop protec	
Improv	12
War effect	31
Fert- iliser	19
Farm power	15
Rain- fall	0
Irrig Water	7
District	Bust

Average numbers of animals per family

	200	1.7
donkevs	3	59
sts	% owning av. no %	
camels	% owning	0
Sas	% owning av. no %	
horses	% owning	0
goats	% owning av. no	10.8
sheep & goats	% owning	89
S	av. no	2.6
calves	% owning	E
<b>10</b>	av. no	1.9
COMS	% owning av. r	22
-	owning av. no	2.3
oxeu	% owning	27
number of farmers	questioned	22
	District	Bust

## Distribution of oxen ownership

	number of		Percentage	e of farmer	s owning	the following	the number	of oxen:	
District	farmers questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Bust	22	73	5	14	5	5	0	0	0

## Distribution of sheep and goat ownership

	number of	P	ercentage of	farmers	owning the	following the	number of	sheep & goat	s:
District	farmers questioned	none	0 - 25	26 - 50	51 – 75	76 – 100	101 – 125	126 - 150	>150
Bust	22	32	64	0	0	5	0	0	0

## Distribution of cow ownership

	number of		Percentag	ge of farmer	s owning t	he following	the number	of cows:	
District	farmers questioned	none	1 cow	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Bust	22	27	27	41	0	0	0	5	0

## Distribution of calf ownership

	number of		Percenta	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	farmers questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Bust	22	27	18	27	14	5	5	0	5

## Distribution of horse ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	the number	r of horses	3:
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Bust	22	100	0	0	0	0	0	0	0

## Distribution of donkey ownership

	number of farmers		Percentag	e of farmer	s owning th	e following	the number	of donkey	s:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Bust	22	41	32	18	5	5	0	0	0

## Distribution of camel ownership

	number of farmers		Percentag	ge of farme	rs owning th	he following	the number	of camels	:
District	questioned	none	1 camel	2 camets	3 camels	4 camels	5 camels	6 camels	>6 camels
Bust	22	100	0	0	0	0	0	0	0

## Household size 1989

Average number of people, adults, youths, young children and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7—15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Reg	28	14	7	3	5	2.6

## Distribution of people per household

	Number of	(4		Pe	rcentage o	of people	in each r	ange		
District	people questioned	0 - 3	2 4 – 6	3 7 – 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Reg	28	0	18	14	25	11	11	0	4	18

Farm size 1989

	farm av. ibs	14.6	, <u>†</u>		
overall	rainfed (ii) av.jbs % fmrs	0	. 0	( , <b>c</b>	•
	ed (i) % fmrs	100	97	100	
	irrigated (i) av.jbs % fmrs	14.6	11.5	20.0	
fmrs with both irrigated and rainfed	irrig raîn av.jbs av.jbs % fmrs	0	0	0	pus
fmrs with rainfed irr land only	% fmrs	0	0	0	(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land
rith nted	av.jbs % fmrs	100	95	100	hose farme se farmers
fmrs with irrigated land only	av.jbs	14.6	11.5	20.0	for all to or all tho
	number fmrs questioned	28	28	28	(i) Average area irrigated for all those farmers who have(ii) Average area rainfed for all those farmers who have
	District	Cropped	Uncropped Reg	Total Reg	(i) Average (ii) Average

Frequency distribution of irrigated cropped land

	ļ		Lec	יכורפאר כי	Significan	reiceileage of familiers in each range (areas in jeribs)	e (areas	in jeribs)			
District	1–10	11–20	21–30	31-40 41-50	41–50	51-60 61-70	61–70	71-80	81–90	0 91–100 >	>100
6a	39	36	14	4	7	0	0	0	0	0	0

## Tenure and farm size 1989

		only owner occupiers	upiers	only	only sharecroppers	only	y nts	owner occupiers & sharecroppers	upiers oppers	OWNer %	owner occupiers & tenants	iers
istrict	number fmrs questioned	av. jerib percent per farm farmers	percent	av. jerib percent per farm farmers	percent	av. jerib percent per farm farmers	percent farmers	av. jerib percent per farm farmers	percent farmers	av. jer per far	av. jerib percent per farm farmers	percent
Red	28	20.4	%		0		0		0			0

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land under cultivation and uncultivated

owner occupiers & tenants	percent farmers	0
owner c	av. jerib per farm	
cupiers roppers	percent farmers	0
owner occupiers & sharecroppers	av. jerib per farm	
only tenants	percent farmers	0
onl	av. jerib per farm	
ppers	percent farmers	0
only sharecroppers	av. jerib per farm	
cupiers	percent	96
only owner occupiers	av. jerib per farm	14.9
	number fmrs questioned	8 28
	District	Reg

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

## Yields 1989

Reg

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	28	100	10	100	78
Maize	27	96	10	0	70
Alfalfa	21	75	2	0	U
Melon	8	29	£	Ü	Ü
Mung Bean	4	14	5	U	0
Fruit	3	11	1	Ų	0
Grape	1	12	1	Ü	0
Pomegranate	4	4	3	0	0
- onegranate		4	4	0	0

<sup>28</sup> farmers questioned

Frequency distribution of cereal yields

	Percentage	of	farmers	in	each	range	(seers/jeribs)
--	------------	----	---------	----	------	-------	----------------

_						•
1–19	20-39	40–59	60-79	80-99	100-120	>120
0	7	11	36	21	18	7
	1–19	1–19 20–39 0 7	1–19 20–39 40–59 0 7 11	0 7 44	0 7 44 5	0 7 44 50 80-99 100-120

## Fertiliser use 1989

Reg	No. Fi	IIITS	No Fert.	ŗ.	Only W	Only White Fert. (iii	t.(iii)	Only 6	Only Grey Fert.(iv)	(iv)		Grey & W	Grey & White Fert.			Yield (Seers/Jerib)	ers/Jer	<u>a</u>
	Gron	ing									7.7							
	ū	Crop	No.	34	₩.	>4	8898	No.	æ	Bags	No.	36	Bags applied	d/jb	2		Only	hite &
	ŝ	(ii)	Fmrs	s fmrs	Fmrs	Fmrs	eptd/jb	Fmrs	Fmrs apid/jb	d[/bld	Fmrs	Fmrs	White Grey	Grey	Fert	White	Grey	Grey
Irrigated Wh	88	28	-	4	4	15	1.3	0	0	0.0	<sub>2</sub>	82	1.1	0.5	20	12	0	2

(ii) The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

## Farm power 1989

Percent using or owning the following resources

District         fmrs (1) fmrs (1)         hired         hired         owned         1 oxen         2 oxen           Reg         28         28         64         7         29         0         29		Tc	Total	Tractor	Oxen	ç				
Reg 28 28 64 7 29 0 29	District	fmrs (1)	fmrs (11)	hired		owned	1 oxen	2 oxen	3 oxen	4+ oxen
	Reg	28	28	25	7	53	0	&	0	0

(i) Total numbers of farmers questioned (ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

à	1 1
Others	S
Exten- sion	2
Rats	4
Birds	2
Animal	0
Crop disea	4
Insect	-
Flood damage	-
Labour	0
Crop protec	11
Improv	15
War effect	2
Fert- iliser	30
Fагт ромег	21
Rain- fall	0
Irrig Water	2
District	Reg

Problems as percieved by farmers 1988 (1989 Survey)

Others	2
Exten- sion	2
Rats	m
Birds	2
Animal disea	0
Crop disea	4
Insect	-
Flood damage	
Labour	0
Crop protec	80
Improv	15
War effect	80
Fert- War iliser effect	28
Fагш ромег	22
Rain- fall	0
Irrig Water	
District	Reg

Ivestock

Average numbers of animals per family

Ş	av. no	1.7
donkeys	% owning	89
co.	BV. 70	
camels	% owning	0
S	av. no	
horses	% owning	0
goats	av. no	7.0
sheep & goats	% owning	94
Ş	av. no	1.7
calves	% owning	89
40	av. no	1.5
COMS	% owning	93
c	owning av. no	2.0
oxen	% owning	59
number of	- 8-	28
	District	Reg

## Distribution of oxen ownership

	number of farmers	e1.1	Percentage	of farmers	owning	the following	the number	of oxen:	
District	questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Reg	28	71	0	29	0	0	0	0	0

## Distribution of sheep and goat ownership

	number of farmers	P	ercentage of	farmers	owning the	following the	number of	sheep & goat	s:
District	questioned	none	0 - 25	26 - 50	51 - 75	76 - 100	101 – 125	126 - 150	>150
Reg	28	54	46	0	0	0	0	0	0

## Distribution of cow ownership

	number of farmers		Percentag	e of farmer	s owning t	he following	the number	of cows:	
District	questioned	none	1 сож	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Reg	28	7	54	29	11	0	0	0	0

## Distribution of calf ownership

	number of farmers		Percenta	age of farm	ers owning	the following	ng the number	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Reg	28	11	36	43	11	0	0	0	0

## Distribution of horse ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	the number	of horses	:
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Reg	28	100	0	0	0	0	0	0	0

## Distribution of donkey ownership

	number of farmers		Percentag	ge of farmer	rs owning th	ne following	the number	of donkeys	:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Reg	28	11	50	21	11	7	0	0	0
Reg		11		21	11	7	0 donkeys		0 donkeys

## Distribution of camel ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	the number	of camels	: -
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Reg	28	100	0	0	0	0	0	0	0

## Household size 1989

Average number of people, adults, youths, young chrildren and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7–15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Sarbon Qala	23	18	10	4	5	3.4

## Distribution of people per household

	Number of			Pe	rcentage o	of people	in each r	ange		
District	people questioned	1 0 – 3	2 4 – 6	3 7 - 9	10 - 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Sarbon Qala	23	0	0	5	50	0	5	10	10	20

Farm size 1989

fmrs With fmrs With both rainfed irrigated and rainfed overall	irrig rain irrigated (i) rain farm farm av.jbs % fmrs av.jbs % fmrs av.jbs % fmrs av.jbs % fmrs av.jbs	0 14.3 100 0 14.3	0 38.8 39 0 38.8	0 29.5 100 0 29.5
fmrs With rainfed			39 0	
fmrs with irrigated	number fmrs av.jbs % fmrs	23 14.3 100	23 38.8 3	23 29.5 100
	numbe District quest	Cropped Sarbon Qala 2	Uncropped Sarbon Qala 2	Total Sarbon Qala 2

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

9	
eribs	
je	
드	
(areas	
range	
each	
ij	
farmers	
oŧ	
Percentage	

District	1-10	11–20	21–30	31-40	41–50	51–60	61–70	71–80	81–90	81–90 91–100	×100
Sarbon Qala	39	35	6	13	7	0	0	0	0	0	0

## Tenure and farm size 1989

Land under cultivation

piers Its	percent	0
owner occupiers & tenants	av. jerib per farm	
upiers	percent	0
owner occupiers & sharecroppers	av. jerib per farm	
y nts	percent	7
only	av. jerib per farm	13.0
ppers	percent	0
only sharecroppers	av. jerib per farm	
upiers	percent	96
only owner occupiers	av. jerib per farm	14.4
	number fmrs questioned	23
	District	Sarbon Qala

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land both under cultivation and uncultivated

owner occupiers & tenants	ib percent n farmers	0
owner & 1	av. jerib per farm	
upiers oppers	percent farmers	0
owner occupiers & sharecroppers	av. jerib per farm	
ts	percent	7
only	av. jerib per farm	13.0
ppers	percent farmers	0
only	av. jerib per farm	
upiers	percent	96
only owner occupiers	av. jerib per farm	30.2
	number fmrs questioned	23
	District	Sarbon Qala

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

## Yields 1989

### Sarbon Qala

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	23	100	11	87	82
Maize	23	10 <b>0</b>	10	0	0
Alfalfa	7	30	2	0	0
Fruit	7	30	3	0	0
Pomegranate	5	22	4	0	0
Melon	4	17	6	9	290
Grape	1	4	2	0	0
Clover	1	4	3	0	0

<sup>23</sup> farmers questioned

## Frequency distribution of cereal yields

Percentage	of	farmers	in	each	range	(seers/jeribs)
relicellage	VΙ	101111111111111111111111111111111111111		cacii	I diliye	[26612] [61 1D2]

Crop	1–19	20–39	40–59	60–79	80-99	100–120	>120
Irrigated Wh	0	13	4	13	13	22	13

## Fertiliser use 1989

6	hite &	104
ers/Jeri	Only White &	5
Yield (Seers/Jerib)	Only	55
	No	0
	ied/jb Grey	9.0
Grey & White Fert.	Bags applied/jb White Grey	1.4
Grey & W	Fars	16
	No. Fmrs	21
:.(iv)	Bags ptd/jb	0.0
Only Grey Fert.(iv)	% Bags Fmrs apld/jb	0
Only	No. Fars	0
t.(iii)	% Bags Fmrs apld/jb	1.4
Only White Fert.(iii)	Fars	٥
Only W	No. Fmrs	2
ert.	Fars	0
No Fert.	No. Fmrs	0
s a	Gij	23
No. Fmrs Growing	Ci) Crop	ន
Sarbon Wat		Irrigated Wh

The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

Farm power 1989

Percent using or owning the following resources

	4+ oxen	
	3 oxen	o
	2 oxen	22
	1 oxen	22
Oxen	paumo	43
ô	hired	7
Tractor	hired	52
Total	fmrs (ii)	23
	fmrs (i)	23
	District	Sarbon Qala

(i) Total numbers of farmers questioned(ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers

arbon Qala 11 0 22 20 1 17 9 0 7 3 2	District Irr Wat	Irrig Water	Rain− fall	Farm	Fert- iliser	War effect	Improv seed	Crop protec	Labour	Flood	Insect	Crop disea	Animal disea	Birds	Rats	Exten- sion	Others
	n Qala	=	0	22	20	-	17	٥	0	7	3	2	0	***	0	3	ы

Problems as percieved by farmers in 1988 (1989 Survey)

District	Irrig Water	Rain- fall	Farm	Fert- Wiliser	War effect	Improv seed	Crop protec	Labour	Flood damage	Insect	Crop disea	Animal disea	Birds	Rats	Exten- sion	Others
Sarbon Qala	13	0	18	19	6	15	٥	-	15	ы	-	0	2	0	2	7

Average numbers of animals per family

ys	av. no	1.9
donkeys	% owning	19
s)	av. no	
camels	X owning	0
sa	av. no	1.0
horses	% owning	17
goats	av. no	7.4
sheep & goats	% owning	82
ş	av. no	1.8
calves	% owning	82
	av. no	1.6
COMS	% owning	96
-	owning av. no	1.5
oxen	% owning	43
number of	uestioned	23
c	District	Sarbon Gala

## Distribution of oxen ownership

	number of farmers		Percentage	of farme	ers owning	the following	the number	of oxen:	
District	questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Sarbon Qala	23	57	22	22	0	0	0	0	0

## Distribution of sheep and goat ownership

District	number of farmers questioned	— none	Percentage of 0 - 25	farmers 26 - 50				sheep & goat	
Sarbon Qala	23	22	74	4_	0	0	0	0	0

## Distribution of cow ownership

	number of farmers		Percentage	of	farmers	owning	the	following	the number	of cows:	
District	questioned	none	1 сом	2	cows	3 cows		4 cows	5 cows	6 cows	>6 cows
Sarbon Qala	23	4	39		52	4		0	0	0	0

## Distribution of calf ownership

	number of farmers	·	Percent	age of farm	ers owning	the following	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Sarbon Qala	23	22	35	30	9	0	4	0	0

## Distribution of horse ownership

	number of farmers		Percentag	ge of farme	rs owning t	he following	the number	of horses	3:
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Sarbon Qala	23	83	17	0	0	0	0	0	0

## Distribution of donkey ownership

	number of farmers		Percentag	ge of farmer	s owning th	ne following	the number	of donkeys	:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Sarbon Qal	a 23	39	13	43	4	0	0	0	0

## Distribution of camel ownership

	number of farmers	-	Percenta	ge of farme	rs owning t	he following	the number	r of camels	:
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Sarbon Qala	23	100	0	0	0	0	0	0	0

## Household size 1989

Average number of people, adults, youths, young children and farm workers per household

District	Number of people questioned	Av. no. of persons per household	Av. no. of adults per household	Av. no. 7-15 yrs per household	Av. no. below 7 yrs per household	Av. no. of farm workers per household
Mosa Qala	21	11	7	3	2	2.5

## Distribution of people per household

	Markon of			Pe	rcentage c	of people	in each r	ange		
District	Number of people questioned	0 - 3	2 4 – 6	3 7 – 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Mosa Qala	21 /	0	14	38	19	5	10	14	0	0

Farm size 1989

		fmrs irrig	fmrs with irrigated land only	fmrs with rainfed land only	£_ <del></del>	fmrs irrigat	fmrs with both irrigated and rainfed	h infed			overal!		ij
District	number fmrs questioned	av.jbs	av.jbs % fmrs	av. jbs	% fmrs	irrig av.jbs	irrig rain av.jbs av.jbs % fmrs	% fmrs	irriga av.jbs	irrigated (i) av.jbs % fmrs	rainfed (ii) av.jbs % fm	rainfed (ii) av.jbs % fmrs	farm av.jbs
Cropped Mosa Qala	21	14.6	100		0			0	14.6	100		0	14.6
Uncropped Mosa Qala	21	4.3	%		0	5.0	15.0	20	4.3	8	15.0	ľ	5.1
Totai Mosa Qala	21	18.0 95	95		0	30.0	30.0 15.0	2	18.5	100	15.0	70	19.2

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

ieribs)
ij
(areas
range
each
2.
farmers
ð
Percentage

District	1-10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90	91–100 >100	×100
Mosa Qala	33	43	14	10	0	0	0	0	0	0	0

## Tenure and farm size 1989

Land under cultivation

		only owner occupiers	upiers	only	only sharecroppers	only tenants	y nts	Owner occupiers & sharecroppers	upiers oppers	owner occupiers & tenants	upiers nts
District	number fmrs questioned	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib percent per farm farmers	percent
Mosa Qala	21	18.0	88	0.6	5	35.5	10	,	0		0
(i) Averag	(i) Average area irrigated for all those farmers who have some irrigated lend (ii) Average area rainfed for all those farmers who have some rainfed land	for all those	e farmers wh farmers who	no have some in have some rain	nave some irrigated land						ČŠ

Land under cultivation and uncultivated

		only owner occupiers	upiers	only	ppers	only	y nts	owner occupiers & sharecroppers	upiers oppers	owner occupiers & tenants	upiers ints
District	number fmrs questioned	av. jerib per farm	percent	av. jerib per farm	percent farmers	av. jerib per farm	percent farmers	av. jerib per farm	percent farmers	av. jerib per farm	percent farmers
Mosa Qala	21	13.2	98	8.0	15	30.5	10		0		0

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

## Yields 1989

### Mosa Qala

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	21	100	11	100	101
Maize	21	100	10	0	101
Alfalfa	12	57	2	Ô	0
Grape	8	38	3	19	95
Tobacco	7	33	2	10	
Mung Bean	6	29	2	10	80
Almond	3	14	2	14	, O
Fruit	2	10	2	0	48 0

<sup>21</sup> farmers questioned

## Frequency distribution of cereal yields

Percentage of farmers in	each rang	ne (seers/ieribs)
--------------------------	-----------	-------------------

Crop	1–19	20-39	40–59	60–79	80–99	100–120	>120
Irrigated Wh	0	0	0	14	33	43	10

## Fertiliser use 1989

Mosa Qata	;		;		•													
	No. Fmrs Growing	φp	No Fert.	ļ.	Only Whit	hite Fer	te Fert.(iii)	Only	Only Grey Fert.(iv)	t.(iv)		Grey & W	Grey & White Fert.			Yield (Seers/Jerib)	eers/Jer	ib)
	Ci)	ci:)	No. Fmrs	F S S S	No. Fmrs	Fars	Bags apld/jb	No.	Fars	% Bags Fmrs apid/jb	No. Fmrs	Fars	Bags applied/jb	ied/jb Grey	Fert	only White	Only	White & Grey
5	21	12	0	0	0	0	0.0	٥	0	0.0	2	5	0	7 0	6	c	6	1 5
	60	4	0	0	-	K)	2.0	0	0	0.0	m	ĸ	0.7	0.5	. 0	12,0	0	<u>8</u> &

(ii) The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

Farm power 1989

Percent using or owning the following resources

	2 oxen 3 oxen 4+ oxen	43 0 0
	1 oxen	33
Oxen	owned	92
ő	hired	5
Tractor	hired	62
rotal	fmrs (ii)	21
	fmrs (i) f	21
	District	Mosa Qala

(i) Total numbers of farmers questioned
(ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

Others	0
Exten- sion	7
Rats	0
Birds	-
Animal disea	0
Crop disea	м
Insect	-
Flood damage	0
Labour	0
Crop protec	12
Improv	59
War effect	0
Fert- iliser	16
Farm	13
Rain- fall	0
[rrig Water	14
District	Mose Qala

Problems as percieved by farmers 1988 (1989 Survey)

Others	
_	0
Exten- sion	4
Rats	0
Birds	2
Animal disea	0
Crop disea	2
Insect	-
Flood damage	0
Labour	-
Crop protec	13
Improv	32
War effect	0
Fert- iliser	19
Farm power	10
Rain- fall	0
Irrig Water	15
District	Mosa Qata

## Ivestock

Average numbers of animals per family

77	8V. no	1.9
donkeys	% owning	95
Ø	av. no	
camels	% owning	0
s,	av. no	1.0
horses	% owning	10
goats	av. no	14.0
sheep & goats	% owning	98
Ş	av. no	2.5
calves	% owning	100
110	av. no	1.9
COMS	% owning	95
	owning av. no	1.6
oxen	% owning	92
number of	questioned	21
	District	Mosa Qala

## Distribution of oxen ownership

	number of farmers		Percentage	of f	armers own	ing th	e following	the num	ber of oxen:	
istrict	questioned	none	1 oxen	2 ox	en 3 d	xen	4 oxen	5 oxen	6 oxen	>6 oxen
losa Qala	21	24	33	43	3	0	0	0	0	0

## Distribution of sheep and goat ownership

	number of farmers	P	ercentage of	farmers	owning the	following the	number of	sheep & goats:		
District	questioned	none	0 - 25	26 - 50	51 - 75	76 - 100	101 - 125	126 - 150	>150	
Mosa Qala	21	14	76	10	0	0	0	0	0	

## Distribution of cow ownership

	number of		Percentage	of	farmers	owning	the	the following		number	of cows:	
District	questioned	none	1 сон	2 (	COWS	3 cows		4 cows	5	COWS	6 cows	>6 cows
Mosa Qala	21	5	29		52,	14		0		0	0	0

## Distribution of calf ownership

	number of farmers questioned	Percentage of farmers owning the following the number of calves:									
District		none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves		
Mosa Qala	21	0	29	52	14	0	0	0	5		

## Distribution of horse ownership

	number of farmers		Percentag	ge of farme	rs owning t	he following	the number	r of horses	3:
	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Mosa Qala	21	90	10	0	0	0	0	0	0

## Distribution of donkey ownership

	number of farmers questioned		Percentage of farmers owning the following the number of donkeys:								
District		none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys		
Mosa Qala	21	5	29	48	19	0	0	0	0		

## Distribution of camel ownership

District	number of farmers		Percentage of farmers owning the following the number of camels:								
	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels		
Mosa Qala	21	100	0	0	0	0	0	0	0		

## Household size 1989

Average number of people, adults, youths, young children and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7–15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Kajaki 	19	13	8	2	4	2.4

## Distribution of people per household

District	Number of		Percentage of people in each range								
	people questioned	0 - 3	2 4 – 6	3 7 – 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24	
Kajaki	19	0	6	25	25	31	0	13	0	0	

		fmrs with irrigated	with sted	fmrs With rainfed	fmrs with both irrigated and rainfed	,	9.	overall	
District	number fmrs questioned	av.jbs	av.jbs % fmrs	av.jbs % fmrs	irrig rain av.jbs av.jbs % fmrs	irriga: av.jbs	irrigated (i) av.jbs % fmrs	rainfed (ii) av.jbs % fmrs	farm av.jbs
Cropped Kajaki	19	11.9 100	100	0	0	11.9	100	0	11.9
Jncropped Kajaki	19	15.6 74	7.4	0	0	15.6 74	74	0	15.6
Total Kajaki	19	23.5	100	0	0	. 23.5	100	0	23.5

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

			Perc	centage or	rarmers	Percentage of Tarmers in each range (areas in Jeribs)	ge (areas	in Jeribs)			
District	1-10	11–20	21–30 31–40	31–40	41–50	51-60 61-70	61–70	71–80	81–90	91–100 >100	>100
Kajaki	37	58	2	0	0	0	0	0	0	0	0

## Tenure and farm size 1989

Land under cultivation

		only owner occupiers	upiers	only sharecroppers	ppers	only tenants	y nts	owner occupiers & sharecroppers	upiers oppers	owner occupiers & tenants	upiers nts
District	number fmrs questioned	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib per farm	percent	av. jerib per farm	percent
Kajaki	19	24.6	%		0	17.7	16		0		0
(i) Averag	(i) Average area irrigated for all those farmers who	for all thos	e farmers wh		have some irrigated land						

(ii) Average area rainfed for all those farmers who have some rainfed land

Land under cultivation and uncultivated

upiers nts	percent	0
owner occupiers & tenants	av. jerib per farm	
cupiers	percent farmers	0
owner occupiers & sharecroppers	av. jerib per farm	
y nts	percent	16
only tenants	av. jerib per farm	9.7
pers	percent	0
only sharecroppers	av. jerib per farm	
upiers	percent farmers	84
only owner occupiers	av. jerib per farm	12.4
	number fmrs questioned	19
	District	Kajaki

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

### Yields 1989

### Kajaki

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	19	100	10	100	82
Maize	17	89	7	Û	0
Fruit	8	42	2	ň	0
Alfalfa	7	37	2	ñ	0
Grape	2	11	4	5	250
Almond	2	11	3	ź	53
Mung Bean	ĩ	5	š	0	23
Pomegranate	1	5	í	ő	0

<sup>19</sup> farmers questioned

### Frequency distribution of cereal yields

	-	Percenta	ge of farm	ers in eac	h range (s	eers/jeribs	;)
Crop	1–19	20–39	40–59	60-79	80–99	100–120	>120
Irrigated Wh	0	5	21	32	5	11	21

Average numbers of animals per family

donkeys	v. no % owning av. no	84 1.6
camels	% owning av	0
horses	% owning av. no	0
sheep & goats	owning av. no	89 10.6
calves	% owning av. no	95 1.1
COMS	% owning av. no	100 1.3
oxen	% owning av. no	58 1.5
number of farmers	questioned	19
	District	Kajaki

### Distribution of oxen ownership

	number of farmers	-	Percentage	of farmers	owning	the following	the number	r of oxen:	
District	questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Kajaki	19	42	26	32	0	. 0	0	0	0

### Distribution of sheep and goat ownership

	number of farmers	I	Percentage of	farmers	owning the	following the	number of	sheep & goat	s:
District	questioned	none	0 - 25	26 - 50	51 - 75	76 - 100	101 - 125	126 - 150	>150
Kajaki	19	11	84	5	0	0	0	0	0

### Distribution of cow ownership

	number of farmers		Percenta	ge of farme	rs owning t	the following	g the numbe	r of cows:	
District	questioned	none	1 сон	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Kajaki	19	0	79	16	5	0	0	0	0

### Distribution of calf ownership

	number of farmers	a	Percenta	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Kajaki	19	5	84	11	0	0	0	0	0

### Distribution of horse ownership

	number of farmers	2.5	Percentag	ge of farme	rs owning t	he following	the number	r of horses	<b>:</b>
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Kajaki	19	100	0	0	0	0	0	0	0

### Distribution of donkey ownership

	number of farmers	-	Percentag	e of farmer	s owning th	e following	the number	of donkeys	<b>:</b>
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Kajaki	19	16	42	37	5	0	0	0	0

### Distribution of camel ownership

	number of farmers		Percentag	ge of farme	ns owning t	he followin	g the numbe	r of camels	:
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Kajaki	19	100	0	0	0	0	0	0	0

### Household size 1989

Average number of people, adults, youths, young chrildren and farm workers per household

District	Number of people questioned	Av. no. of persons per household	Av. no. of adults per household	Av. no. 7—15 yrs per household	Av. no. below 7 yrs per household	Av. no. of farm workers per household
Nauzad	34	17	10	3	4	4.0

Distribution of people per household

	Number of			Pe	rcentage o	of people	in each r	ange		
District	people questioned	0 - 3	2 4 – 6	3 7 - 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Nauzad	34	3	9	18	12	21	9	3	6	18

### Fertiliser use 1989

Kajaki         No. Fmrs         No Fert.         Only White Fert.(ii)         Only Grey Fert.(iv)         Grey & White Fert.         Yield (Seers/Jerib)           Growing Crowing Crowing (i) (ii) Fmrs Fmrs Fmrs Fmrs Fmrs Fmrs Fmrs Fmrs		erib)	White	Ë		
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Grey & White Fert.		Seers/Ju	only		٥	250
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Grey & White Fert.   Growing   Crop   No.		Yield (	only	White	%	>
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fret.(iv)   Grey Fret.   Grey Fret.(iv)   Grey Fre			2	Fert	00	0
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fret.(iv)   Grey Fret.   Grey Fret.(iv)   Grey Fre			ied/jb	Grey	4.0	0.0
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fert.(iv)   Grey Fret.(iv)   Grey Fret.   Grey Fret.(iv)   Grey Fre		ite Fert.	Bags appl	MILE	0.0	2
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Grey Fert.(iv)   Growing   Crop   No.		Grey & Whi	34 g		92	
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Growing   Crop   No.			No.		<b>≅</b> 0	
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Growing   Crop   No.		.(iv)	Bags old/ib		0.0 3.3	
No. Fmrs   No Fert.   Only White Fert.(iii)   Only Growing   Crop   No.		rey Fert	Fars		0 ق	
No. Fmrs   No Fert.   Only Wh Growing   No.     No.     No.     No.     Crop   No.     No.     No.     Crop   No.     No.     No.     No.     No.     No.     No.     No.		only 6			o <del>-</del> -	
No. Fmrs   No Fert.   Only Wh Growing   No.     No.     No.     No.     Crop   No.     No.     No.     Crop   No.     No.     Emrs		CHI).	Bags pld/jb		0.0	
ki No. Fmrs No Fert. Growing No. % (i) (ii) Fmrs Fmrs gated Wh 19 19 0 0 e 2 1 0 0		ite Fert	Fins a	-	0	
(i) (ii) Fare agreed Wh 19 19 0		Onty Wh	No. Fmrs	-	- 0	
(i) (ii) Fare agreed Wh 19 19 0		j.	Fars &	6	00	
Ki No. Gro Gro (i)		No Fe	No. Fmrs	0	0	
Ki No. Gro Gro (i)		rs ng	عَن عَني	19	-	
Kajaki Irrigated Wh Grape		No. Fin Growi	i)	19	2	
	Kajaki			Irrigated Wh	Grape	Notos

Only White & Grey Grey

87

Note:
(i) The number of farmers who stated they grew crop.
(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.
(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.
(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

Farm power 1989

Percent using or owning the following resources

	4+ oxeu	0
	3 oxen	0
	2 oxen	32
	1 oxen	58
Oxen	hired owned	11 58
Tractor	hired	37
Total	fmrs (i) fmrs (ii)	61 61
	District	Adjaki

(i) Total numbers of farmers questioned(ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

istrict	Irrig	Rain- fall	Farm	Fert- iliser	War effect	Improv	Crop protec	Labour	Flood	Insect	Crop disea	Animal disea	Birds	Rats	Exten- sion	Others
 ©:	53	0	27	14	0	12	œ	0	0	2	2	0	-	0	2	-
																ľ

Problems as percieved by farmers 1988 (1989 Survey)

s Exten- Others	1 0
Rats	0
Birds	·
Animal disea	0
Crop disea	м
Insect	2
Flood	0
Lebour	0
Crop protec	2
Improv seed	6
War effect	15
Fert- iliser	12
Farm	20
Rain- fall	0
Irrig	33
District	Kajaki

Farm size 1989

		fmrs irrig Land	fmrs with irrigated land only	fmrs with rainfed	it S	fmri	fmrs with both irrigated and rainfed	ih iinfed			overall		9
District	number fmrs questioned	av.jbs	av.jbs % fmrs	av.jbs	av.jbs % fmrs	irrig rain av.jbs av.jk	irrig rain av.jbs av.jbs % fmrs	% fmrs	irriga av.jbs	irrigated (i) av.jbs % fmrs	rainfed (ii) av.jbs % fmrs	d (ii) % fmrs	farm av.ibs
Cropped Nauzad	34	25.5	26	0.09	m			0	25.5 97	26	60.09	ы	26.5
Uncropped Nauzad	34	53.7	85	0.04	м	37.0	37.0 300.0	m	53.2	88	170.0	•	7 69
Total Nauzad	34	74.2	%	100.0	M	0.09	60.0 300.0 3	m	73.8 97	26	200.0		7 28

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

	ļ		Peri	centage of	farmers i	Percentage of farmers in each range (areas in jeribs)	e (areas	in jeribs)			
District	1–10	11–20	21–30	1-40	41–50	0 51-60 61-70 71-80 81-90	61–70	71–80	81–90	91–100	×100
Nauzad	54	41	15	٥	0	m	0	0	23	0	3

Tenure and farm size 1989

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Lan

upiers nts	percent	0
owner occupiers & tenants	av. jerib per farm	
upiers oppers	percent farmers	0
owner occupiers & sharecroppers	av. jerib percent per farm farmers	
rts	percent farmers	ы
only tenants	av. jerib per farm	7.0
pers	percent farmers	0
only sharecroppers	av. jerib per farm	
only owner occupiers	percent farmers	26
only owner occ	av. jerib per farm	27.1
	number fmrs questioned	34
	District	Nauzad

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land both under cultivation and uncultivated

		only owner occupiers	upiers	only sharecroppers	ppers	onl	only tenants	owner occupiers & sharecroppers	upiers oppers	owner occupiers & tenants	upiers nts
District	number fmrs questioned	av. jerib per farm	percent	av. jerib per farm	percent farmers	av. jerib per farm	percent farmers	av. jerib per farm	percent	av. jerib per farm	percent farmers
٦	34	85.5	26		0	15.0	ĸ		0		0

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

### Yields 1989

### Nauzad

Crop	No. fmrs growing crop	percentage who grew crop	average  area  eribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	33	97	12	94	39
Almond	15	44	9	44	36
Maize	9	26	10	Ö	0
Fruit	9	26	3	3	8
Alfalfa	6	18	1	Ō	ō
Pomegranate	4	12	2	0	ñ
Melon	3	9	6	6	116
Apricot	2	6	2	3	60
Rainfed Wheat	1	3	30	3	7
Mung Bean	1	3	6	Ō	'n
Sesame	1	3	20	Õ	Ô
Apple	1	3	1	0	ő

<sup>34</sup> farmers questioned

### Frequency distribution of cereal yields

Сгор	1–19	20–39	40–59	60-79	80–99	100–120	>120
Irrigated Wh	15	33	30	12	3	0	6

### Fertiliser use 1989

<b>(</b> 9	hite & Grey	26
eers/Jerī	Only White & Grey Grey	0
Yield (Seers/Jerib)	Only White	34
	No Fert	33
	ied/jb Grey	0.2
Grey & White Fert.	Bags applied/jb White Grey	0.3 0.2
Grey & W	Fars B	45
	No. Fmrs	15
Civ)	Bags pld/jb	0.0
Only Grey Fert.(iv)	% Bags Fmrs apld/jb	0
Only (	No. Fmrs	0
t.(iii)	% Bags Fmrs apid/jb	0.2
Only White Fert.(iii)	Fmrs	30
Only H	No. Fmrs	<b>Q</b>
rt.	Fars	54
No Fert.	No. Fmrs	∞
. S. C.	o Cii)	33
No. Fmrs	Crop (i)	33
Nauzad		Irrigated Wh

Note:
(i) The number of farmers who stated they grew crop.
(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.
(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.
(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

Farm power 1989

Percent using or owning the following resources

	4+ oxen	0
	3 oxen	0
	2 oxen	35
	1 oxen	12
c	омиed	25
Oxen	hired	6
Tractor	hired	38
Total	fmrs (i) fmrs (ii)	34 34
	District	Nauzad

(i) Total numbers of farmers questioned
(ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers in 1989

District	Irrig Water	Rain- fall	Farm	Fert- iliser	War effect	Improv seed	Crop protec	Labour	Flood	Insect	Crop	Animal disea	Birds	Rats	Exten	Others
Nation	72	c	1,5	:											5	
7070	2	7	71	9	-	5	4	0	2	M	M	0	50	0	^	

Problems as percieved by farmers in 1988 (1989 Survey)

Others	0
Exten- sion	-
Rats	0
Birds	5
Animal disea	0
Crop disea	м
Insect	4
Flood Insect damage	-
Labour	0
Crop protec	4
Improv	14
War effect	-
Fert- iliser	15
Farm	12
Rain- fall	2
Irrig R Water 1	37
District	Nauzad

Livestock

Average numbers of animals per family

av. no donkeys % owning 8 % owning av. no camels 12 % owning av. no 1.7 horses 0 % owning av. no 43.3 sheep & goats 88 av. no calves % owning 8 av. no 1.7 COMS X owning 91 av. no oxen X owning 47 number of farmers questioned 34 District Nauzad

### Distribution of oxen ownership

	number of farmers		Percentage	of	farmers	owning	the	following	the	number	of oxen:	
District	questioned	none	1 oxen	2	oxen	3 oxen		4 oxen	5 c	xen	6 oxen	>6 oxen
Nauzad	34	53	12		35	0		0		0	0	0

### Distribution of sheep and goat ownership

	number of farmers		Percentage of	farmers	owning the	following the	number of	sheep & goat	s:
District	questioned	none	0 - 25	26 - 50	51 - 75		101 - 125	126 - 150	>150
Nauzad	34	32	53	6	0	0	0	0	9

### Distribution of cow ownership

	number of farmers		Percentage	of farmers	owning	the following	the number	of cows:	
District	questioned	none	1 сон	2 cows	3 соыѕ	4 cows	5 cows	6 cows	>6 cows
Nauzad	34	9	56	24	3	6	0	0	3

### Distribution of calf ownership

	number of farmers	-	Percenta	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Nauzad	34	12	53	21	6	0	3	3	3

### Distribution of horse ownership

	number of farmers		Percentag	ge of farme	rs owning t	he followin	g the number	r of horses	:
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Nauzad	34	91	3	6	0	0	0	0	0

### Distribution of donkey ownership

	number of farmers	N	Percentag	e of farmer	s owning th	e following	the number	of donkeys	:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Nauzad	34	12	47	29	6	3	0	3	0

### Distribution of camel ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	g the numbe	r of camels	::
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Nauzad	34	88	6	3	0	0	0	0	3

### Household size 1989

Average number of people, adults, youths, young children and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7–15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Nadi-ali	67	17	8	4	5	2.4

### Distribution of people per household

	Number of			Pe	rcentage d	of people	in each r	ange		
District	people questioned	0 - 3	2 4 – 6	3 7 – 9	4 10 - 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Nadi-ali	67	0	8	12	22	18	5	8	8	20

Farm size 1989

		fmrs with irrigated	aith sted	fmrs with rainfed	it.	fmrs irrigat	fmrs with both irrigated and rainfed	h infed			overall	
	rumbor fmrs	rand o	wit y	land or	 	inria	rain	8	irrinated (i)	(5)	rainfed (ii)	farm
District	questioned	ev.jbs	av.jbs % fmrs	av.jbs	av.jbs % fmrs	av. jbs		% fmrs	av.jbs	av.jbs % fmrs	av.jbs % fmrs	-
Cropped Nadi-ali	29	26.0	100		0			0	26.0	100	0	26.0
Uncropped Nadi-ali	29	17.3	87		0			0	17.3	87	0	17.3
Total Nadi-ali	29	41.0	100		0			0	41.0 100	100	0	41.0

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

			rerc	entage or	Percentage of Tarmers in each range (areas in Jerios)	n each rang	de (Breds	in Jerius)			
District	1-10	11–20	11–20 21–30	31–40	41–50	51–60	61–70	71–80	81–90	91–100 >100	>100
Nadi-ali	10	21	36	19	4	-	м	-	-	0	-

## Tenure and farm size 1989

Land under cultivation

upiers nts	percent farmers	6
owner occupiers & tenants	av. jerib per farm	49.7
upiers oppers	percent	0
owner occupiers & sharecroppers	av. jerib per farm	
y nts	percent	6
only tenants	av. jerib per farm	54.8
only	percent	0
only sharecro	av. jerib per farm	
upiers	percent	82
only owner occupiers	av. jerib per farm	38.5
	number fmrs questioned	29
	District	Nadi-ali

<sup>(</sup>i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land under cultivation and uncultivated

tenants  av. jerib percent	only tenan cent av. jerib mers per farm	oppers tenan tenan percent av. jerib farmers per farm	sharecroppers tenan av. jerib per farm farmers per farm	cupiers sharecroppers tenan tenan tenan av. jerib percent av. jerib percent av. jerib farmers per farm	owner occupiers sharecroppers tenan sav. jerib percent av. jerib percent av. jerib per farm farmers per farm
ter ter av. jerib ber farm	cent av. jer	oppers av. jer farmers per farm	sharecroppers  av. jerib percent av. jer	cupiers sharecroppers sharecroppers bercent av. jerib percent av. jer farmers per farm	owner occupiers sharecroppers  av. jerib percent av. jerib percent av. jer ber farmers per farm
	ppers percent farmers	only sharecroppers av. jerib percent per farm farmers	only sharecropk av. jerib per farm	only sharecropp are av. jerib ers per farm	owner occupiers sharecropp av. jerib percent av. jerib per farm farmers per farm

<sup>(</sup>i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

### Yields 1989

### Nadi-ali

Сгор	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	66	99	15	97	64
Maize	57	85	14	0	04
Alfalfa	42	63	2	0	0
Cotton	40	60	8	0	U
Melon	24	36	7	0	Ü
Bean	12	18	,	U	0
Mung Bean	10	15	0	Ü	0
Grape	7		٥	0	0
Pomegranate	, E	10	5	0	0
Clover	2	(	3	0	0
	3	4	8	1	1
Carrot	1	1	1	0	ó

<sup>67</sup> farmers questioned

### Frequency distribution of cereal yields

rercentage of farmers	in	each	range	(seers/	jeribs:	)
-----------------------	----	------	-------	---------	---------	---

Сгор	1–19	20–39	40–59	60-79	80-99	100-120	>120
Irrigated Wh	3	12	29	27	15	8	5

Fertiliser use 1989

	Yield (Seers/Jerib)	Only White & Grey Grey	
	Yield (S	Only White	75
		No Fert	=
		ied/jb Grey	0.3
	ite Fert.	Bags applied/jb White Grey	71 0.5
	Grey & White Fert.	No. % Fmrs Fmrs	17
		No. Fars	25
	Only Grey Fert.(iv)	Bags ptd/jb	0.0
	irey Fert	% Bags Fmrs apid/jb	0
	Only	No. Fars	0
		Bags ptd/jb	1.3
	Only White Fert.(iii)	% Bags Fmrs apid/jb	27
	Only Wh	No. Fars	18
	ert.	Fars	2
	No Fert.	No. Fmrs	•
	S D	Crop (ii)	8
	No. Fmrs Growing	÷ ÷	%
Nadi-ali			Irrigated Wh

The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

Farm power 1989

Percent using or owning the following resources

	Total	Tractor	Oxen					
mrs (i) fm	fmrs (ii)	hired	hired	peumo	1 oxen	2 oxen	3 oxen	4+ oxen
2	29	29	0	6	0	7		0

(i) Total numbers of farmers questioned (ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

Others	2
Exten- sion	0
Rats	м
Birds	2
Animal disea	0
Crop	2
Insect	0
Flood	-
Labour	2
Crop protec	5
Improv	=
War effect	м
Fert- iliser	18
Farm	17
Rain- fall	0
Irrig Water	28
District	Nadi-ali

Problems as percieved by farmers 1988 (1989 Survey)

Others	2
Exten- sion	0
Rats	ъ
Birds	2
Animal disea	0
Crop disea	2
Insect	0
Flood	-
Labour	2
Crop protec	4
Improv	12
War effect	м
Fert- iliser	18
Farm	18
Rain− fạll	0
lrrig Water	27
District	Nadi-ali

Average numbers of animals per family

	number of	oxen	ć	COMS	ø	calves	S	sheep & goats	goats	horses	S	camels	vs	donkeys	ø
District	questioned	% owning av. no	av. no	% owning	av. no	% owning	av. no	% owning	av. no	% owning	8V. NO	% owning	av. no	% owning	av. no
-ali	29	6	2.2	16	2.0	%	2.9	25	9.9	0		0		55	1.7

### Distribution of oxen ownership

	number of farmers		Percentage	of farmers	owning	the following	the number	of oxen:	
District	questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Nadi-ali	67	91	0	7	1	0	0	0	0

### Distribution of sheep and goat ownership

	number of farmers		Percentage of	farmers	owning the	following the	number of	sheep & goat	cs:
District	questioned	none	0 - 25	26 - 50	51 - 75	76 - 100	101 – 125	126 - 150	>150
Nadi-ali	67	25	72	3	0	0	0	0	0

### Distribution of cow ownership

	number of farmers		Percentage	of farme	rs owning	the following	the number	of cows:	
District	questioned	none	1 cow	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Nadi-ali	67	9	37	31	10	7	3	0	1

### Distribution of calf ownership

	number of farmers		Percenta	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Nadi-ali	67	16	19	34	9	10	1	3	6

### Distribution of horse ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	the number	of horses	::
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Nadi-ali	67	100	0	0	0	0	0	0	0

### Distribution of donkey ownership

	number of farmers	-	Percentag	e of farmer	s owning th	ne following	the number	of donkey	s:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Nadi-ali	67	45	30	15	7	3	0	0	0

### Distribution of camel ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	g the number	of camels	<b>:</b> :
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Nadi-ali	67	100	0	0	0	0	0	0	0

### Household size 1989

Average number of people, adults, youths, young chrildren and farm workers per household

District	Number of people questioned	Av. no. of persons per household	Av. no. of adults per household	Av. no. 7-15 yrs per household	Av. no. below 7 yrs per household	Av. no. of farm workers per household
Nawae barakza	29	16	7	3	6	2.2

Distribution of people per household

				Pe	rcentage o	of people	in each r	ange		
District	Number of people questioned	0 - 3	2 4 – 6	3 7 – 9	10 - 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Nawae barakza	29	0	0	24	28	17	3	10	0	17

Farm size 1989

		fmrs with	with sted	fmrs with rainfed	<b>\$</b> _	fmrs with both irrigated and rainfed			- Lector	
	4	land c	only	land only	ıly					
District	questioned	av.jbs	av.jbs % fmrs	av.jbs % fmrs	% fmrs	av.jbs av.jbs % fmrs	av.jbs % fmrs	% fmrs	av.jbs % fmrs	av.jbs
Cropped Nawae-barakz	59	22.2	100		0	0	22.2 100	100	0	22.2
Uncropped Nawae-barakz	59	32.8	26		0	o	32.8	26	0	32.8
Total Nawae-barakz	59	53.9 100	100		0	0	53.9 100	100	0	53.9

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

	,			,							
District	1–10	11–20	11–20 21–30	31–40	41–50	51–60	61–70	71–80	81–90	91-100 >100	>100
Nawae-barakz	2	38	24	17	7	m	m	0	. 0	0	0

## Tenure and farm size 1989

Land under cultivation

		only owner occupiers	upiers	only sharecroppers	ppers	only tenants	y nts	owner occupiers & sharecroppers	upiers oppers	Owner oc	owner occupiers & tenants
<b>5 4</b> 1	number fmrs questioned	av. jerib percent per farm farmers	percent farmers	av. jerib per farm	percent	av. jerib percent per farm farmers	percent	av. jerib percent per farm farmers	percent	av. jerib per farm	percent
	59	52.2	8		0	67.5	7		0	70.0	-

<sup>(</sup>i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land under cultivation and uncultivated

rib percent	percent av. jerib	av. jerib percent av. jerib	av. jerib percent av. jerib	av. ierib percent av ierib
g.	farmers	per farm farmers	per farm farmers	per farm farmers per farm farmers
25.0	0 2	0	20.6 90 0 2	0 06

<sup>(</sup>i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

### Yields 1989

### Nawae-barakza

Сгор	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	29	100	19	100	38
Maize	20	69	8	0	0
Alfalfa	13	45	2	Ô	ñ
Grape	7	24	3	Ď	ň
Cotton	4	14	8	Ô	ň
Mung Bean	4	14	11	ñ	ñ
Pomegranate	4	14	2	ñ	n
Melon	1	3	4	ŏ	ő

<sup>29</sup> farmers questioned

### Frequency distribution of cereal yields

Percentage	of	farmers	in	each	range	[coore/	ieribel	
reletitage	<b>U</b> I	I al lile i S	111	eacn	1 ange	(Seers/	Terins i	

Crop	1-19	20-39	40-59	60-79	80–99	100–120	>120
Irrigated Wh	14	34	28	14	7	0	3

### Fertiliser use 1989

lawse-bara																		
	No. Fmrs Growing	incs	No F	No Fert.	Only W	Only White Fert.(iii)	t.Ciii)	only	Only Grey Fert.(iv)	t.(iv)		Srey & W	Grey & White Fert.			Yield (Seers/Jerib)	eers/Jer	(qi
	3	3.0	No. Fmrs	F S	No. Fmrs	Fars	X Bags Fmrs apld/jb	No. Fmrs	No. % Bags Fmrs Fmrs apid/jb	Bags aptd/jb	No. X Fmrs Fmrs	Fmrs	Bags applied/jb	lied/jb Grey	No	Only White	Only White & Grey Grey	Mite & Grey
rrigated Wh	&	&		м	13	45	7.0	0	0	0.0	15	52	8.0	7.0	13	45	0	1.3

(i) The number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

## Farm power 1989

Percent using or owning the following resources

	4+ oxen	0
	3 oxen	0
	2 oxen	7
	1 oxen	0
	омпед	7
Oxen	hired	0
Tractor	hired	22
Tota!	fars (ii)	59
Τ	fmrs (i)	29
	District	Nawae-barakz -

(i) Total numbers of farmers questioned (ii) Numbers of farmers answering questions on farm power

# Constraints on crop production

Problems as percieved by farmers 1989

န	1
Others	-
Exten- sion	0
Rats	м
Birds	м
Animal disea	0
Crop disea	0
Insect	0
Flood	0
Labour	м
Crop protec	2
Improv	10
War effect	28
Fert- iliser	13
Farm	13
Rain- fall	0
Irrig Water	ន
District	Nawae-barakz

Problems as percieved by farmers 1988 (1989 Survey)

Others	*-
Exten- sion	0
Rats	m
Birds	2
Animal disea	0
Crop disea	0
Insect	0
Flood	0
Labour	м
Crop protec	2
Improv	10
War effect	28
Fert- iliser	14
Farm	13
Rain- falt	0
Irrig Water	23
District	Nawae-barakz

Average numbers of animals per family

	number of	oxen	اُ	COMB		calves	9	sheep & goats	goats	horses	90	camels	60	donkeys	ço S
District	questioned	% owning av. no	av. no	% owning	av. no	% owning	BV. 70	% owning	av. no	% owning	8V. NO	% owning	BV. NO	% ouning	8V. no
Newae-berakz	. 29	2	2.0	8	1.5	69	1.9	55	9.4	0	E.	0		41	1.2

### Distribution of oxen ownership

	number of farmers		Percentag	e of far	mers owning th	ne following	g the number	of oxen:	
District	questioned	none	1 oxen	2 oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen
Nawae bara	kz 29	93	0	7	0	0	0	0	0

### Distribution of sheep and goat ownership

	number of farmers		Percentage of	farmers	owning the	following the	number of	sheep & goat	is:
District	questioned	none	0 - 25	26 - 50	51 - 75	76 - 100	101 – 125	126 - 150	>150
Nawae-bara	kz 29	45	55	0	0	0	0	0	0

### Distribution of cow ownership

	number of farmers		Percentage	of far	mers owning	the following	the number	of cows:	
District	questioned	none	1 cow	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Nawae-bara	kz 29	34	38	24	0	3	0	0	0

### Distribution of calf ownership

	number of farmers		Percent	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Nawae-bara	kz 29	31	24	28	17	0	0	0	0

### Distribution of horse ownership

	number of		Percentag	ge of farme	rs owning t	he following	the number	r of horses	:
District	farmers questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Nawae-bara	ıkz 29	100	0	0	0	0	0	0	0

### Distribution of donkey ownership

	number of		Percentag	e of farmer	s owning th	ne following	the number	of donkeys	3:
District	farmers questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Nawae-bara	akz 29	59	34	7	0	0	0	0	0

### Distribution of camel ownership

	number of		Percenta	ge of farme	rs owning t	he following	g the number	r of camels	3:
District	farmers questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Nawae-bara	kz 29	100	0	0	0	0	0	0	0

### Household size 1989

Average number of people, adults, youths, young chrildren and farm workers per household

District	Number of	Av. no. of	Av. no. of	Av. no.	Av. no.	Av. no. of
	people	persons per	adults per	7–15 yrs per	below 7 yrs	farm workers
	questioned	household	household	household	per household	per household
Baghran	26	12	7	2	3	2.9

### Distribution of people per household

	Number of			Pe	rcentage o	f people	in each r	ange		
District	people questioned	1 0 – 3	2 4 – 6	3 7 – 9	4 10 – 12	5 13 – 15	6 16 – 18	7 19 – 21	8 22 – 24	9 >24
Baghran	26	4	8	27	27	4	15	8	4	4

Farm size 1989

	farm av.jbs	9.0	10.8	16.5
overall	rainfed (ii) av.jbs % fmrs	0	0	0
	irrigated (i) av.jbs % fmrs	100	69	100
	irrigat av.jbs	0.6	10.8	16.5
fmrs with both irrigated and rainfed	irrig rain av.jbs av.jbs % fmrs	Ō	0	0
fmrs with rainfed land only	av.jbs % fmrs	0	0	0
fmrs with irrigated land only	av.jbs % fmrs	100	69 8.	.5 100
Ť;i		9.0	10.8	16.5
	number fmrs questioned	92	56	56
	District	Cropped Baghran	Uncropped Baghran	Total Baghran

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Frequency distribution of irrigated cropped land

			-			cicciicage of faillets III each Lange (affeas In Jelius)	מע לפו בפא	r Jei ins j			
District	1-10	11-20	21–30	31-40	(1–50	51-60	61–70	71–80	81-90	81-90 91-100 >100	×100
Baghran	22	15	4	80	0	0	0	0	0	0	0

## Tenure and farm size 1989

Land under cultivation

upiers nts	percent	0
owner occupiers & tenants	av. jerib per farm	
upiers oppers	percent	0
OWNEr occupiers & sharecroppers	av. jerib per farm	
y nts	percent	0
only tenants	av. jerib per farm	
ppers	percent	4
only sharecroppers	av. jeríb per farm	15.0
only owner occupiers	percent farmers	96
only owner occ	av. jerib per farm	8.8
	number fmrs questioned	56
	Province	Baghran

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Land both under cultivation and uncultivated

ers S	percent	0
owner occupiers & tenants	av. jerib p per farm f	
owner occupiers & sharecroppers	percent	0
owner o	av. jerib per farm	
only tenants	percent	0
on	av. jerib per farm	
ppers	percent	4
only sharecroppers	av. jerib per farm	27.0
cupiers	percent farmers	96
only owner occupiers	av. jerib per farm	16.0
	number fmrs questioned	56
	Province	Baghran

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

### Yields 1989

### Baghran

Crop	No. fmrs growing crop	percentage who grew crop	average area jeribs	percentage of fmrs giving yield data	average yield seers/jerib
Irrigated Wheat	26	100	8	100	43
Maize	23	88	4	0	0
Fruit	10	38	2	0	0
Alfalfa	1	4	1	0	0
Pomegranate	1	4	2	0	0
Apricot	1	4	1	0	0
Almond	1	4	5	4	19

<sup>26</sup> farmers questioned

### Frequency distribution of cereal yields

Percentage	of	farmers	in	each	range	(seers/	jeribs)
------------	----	---------	----	------	-------	---------	---------

Сгор	1-19	20–39	40–59	60–79	80-99	100–120	>120
Irrigated Wheat	0	46	19	27	4	0	0

## Fertiliser use 1989

(9	Mite & Grey	52
eers/Jeri	Only White & Grey Grey	0
Yield (Seers/Jerib)	Only White	39
	No Fert	22
	lied/jb Grey	0.3
Grey & White Fert.	Bags applied/jb White Grey	58 0.7 0.3
Grey & W	Fars	58
	No. Fmrs	5
.civ)	Bags ptd/jb	0.0
Only Grey Fert.(iv)	% Bags Fmrs apid/jb	0
Only (	No. Fmrs	0
t.(iii)	% Bags Fmrs apid/jb	7.0
Only White Fert.(iii)	% Fmrs	31
only 4	No. Fmrs	æ
ert.	Fars	12
No Fert.	No. Fmrs	ы
SJ.	Crop (i) (ii)	56
No. Fmrs Growing	Ci)	92
Baghran		Irrigated Wh

for the number of farmers who stated they grew crop.

(ii) The number of farmers who stated they grew crop and gave information on crop area. This column provides base for calculations.

(iii) Urea (46% N) is commonly known as white fertiliser in Afghanistan.

(iv) DAP (18% N and 46% P) is commonly known as grey fertiliser in Afghanistan.

### Farm power 1989

Percent using or owning the following resources

	Total	al	Tractor	Oxen	_				
istrict	fmrs (i) 1	fmrs (ii)	hired	hired	омпед	1 oxen	2 oxen	3 oxen	4+ oxen
ıran	56	26	0	19	88	20	38	0	0

(i) Total numbers of farmers questioned

# Constraints on crop production

Problems as percieved by farmers in 1989

en- Others n	0
Exten- sion	2
Rats	0
Birds	0
Animal disea	0
Crop disea	-
Insect	w
Flood damage	
Labour	0
Crop protec	:
Improv seed	12
War effect	0
Fert- iliser	20
Farm	20
Rain- fall	-
Irrig	27
District	Baghran

Problems as percieved by farmers in 1988 (1989 Survey)

	Others	0
	Exten- sion	0
	Rats	0
	Birds	0
	Animal Birds disea	0
	Crop disea	-
	Insect	25
	Flood damage	
	Labour	0
(#)	Crop protec	10
	Improv seed	12
	War effect	0
	Fert- iliser	22
	Farm ромег	19
	Rain- fall	-
	Irrig Water	56
	District	Baghran

### Livestock

Average numbers of animals per family

	20	1.4
donkevs	2 outing	59
ŧ <b>a</b>	av. no	1.0
camels	% owning	0
çı	8V. 70	1.0
horses	% owning	89
goats	av. no	14.4
sheep &	% owning	69
c/s	аv. ло	1.4
calves	% owning	65
	av. no	1.3
COMS	% owning	11
	av. no	1.4
охел	% owning	88
number of farmers	questioned	56
	District	Baghran

### Livestock 1989

### Distribution of oxen ownership

	number of		Percentage	of	farmers	owning	the following	the number	of oxen:	
farmers District questioned	none	1 oxen	2	oxen	3 oxen	4 oxen	5 oxen	6 oxen	>6 oxen	
Baghran	26	12	50		38	0	0	0	0	0

### Distribution of sheep and goat ownership

	number of farmers		Percentage of	farmers	owning the	following the	number of	sheep & goat	s:
District	questioned,	none	0 - 25	26 - 50	51 - 75	76 - 100	101 - 125	126 - 150	>150
Baghran	26	31	62	4	4	0	0	0	0

### Distribution of cow ownership

	number of farmers		Percentage	of farmer	s owning	the following	the numbe	r of cows:	
District	questioned	none	1 сон	2 cows	3 cows	4 cows	5 cows	6 cows	>6 cows
Baghran	26	23	58	19	0	0	0	0	0

### Distribution of calf ownership

	number of farmers		Percenta	age of farm	ers owning	the followi	ng the numb	er of calve	es:
District	questioned	none	1 calf	2 calves	3 calves	4 calves	5 calves	6 calves	>6 calves
Baghran	26	35	46	15	4	0	0	0	0

### Livestock 1989

### Distribution of horse ownership

	number of farmers		Percenta	ge of farme	rs owning t	he following	the number	r of horses	:
District	questioned	none	1 horse	2 horses	3 horses	4 horses	5 horses	6 horses	>6 horses
Baghran	26	92	8	0	0	0	0	0	0

### Distribution of donkey ownership

	number of farmers	14	Percentag	e of farmer	s owning th	e following	the number	of donkeys	:
District	questioned	none	1 donkey	2 donkeys	3 donkeys	4 donkeys	5 donkeys	6 donkeys	>6 donkeys
Baghran	26	35	46	15	4	0	0	0	0

### Distribution of camel ownership

	number of farmers		Percentag	ge of farme	rs owning t	he following	the number	of camels	:
District	questioned	none	1 camel	2 camels	3 camels	4 camels	5 camels	6 camels	>6 camels
Baghran	26	92	8	0	0	0	0	0	0

### ANNEX C - National Survey Data

### Part Three - 1990 National Survey Data

		Page
Helmand Yields		
	Irrigated Wheat Maize	Ĩ
	Barley	1 2
Farm s		
	Average area arable land Average area of irrigated & rainfed	3
	land under cultivation Distribution of total cultivated area	4
	Distribution of irrigated cultivated area	5 6
Fertilis		
	Irrigated Wheat Maize	7
	Barley	8 9
Farm p		
	Use of tractor and oxen	10
	Use of a combination of types of farm power	11
Livesto		
	Average number of animals Distribution of:	12
	Oxen Sheep and Goats	13
	Cows	14 15
	Donkeys	16
	Horses	17
	Camels	18
Constra	ains	19
For Na	di-ali Only	
	Crops and yields	20
	Fertiliser use by crop	21
	Correlation coefficient	00
	fertiliser use against yields cultivated area against yields	22 23

¥

Yields 1990

### Irrigated Wheat

Province	e/District	No. of farmers questioned	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Helmand	:						
	Bust	26	26	100	14.9	100	48
	Nahre Saraj	No data					
	Reg	40	40	100	17.2	100	54
	Sarbon Qala	49	45	92	13.6	92	66
	Mosa Qala	No data					
	Kajaki	1	1	100	18.0	100	59
	Nauzad	42	37	88	7.6	86	45
	Washare	No data					
	Garmser	21	21	100	29.2	100	52
	Nadi-ali	48	48	100	17.2	100	49
	Nawae barakzae	No data					-
	Baghran	No data					
	Deshu	No data				181	
Total :		227	218	96	15.7	96	53

### Yields 1990

### Maize

Provinc	e/District	No. of farmers questioned	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
<u>Helmand</u>	:						
	Bust	26	8	31	6.3	31	37
	Nahre Saraj	No data					
	Reg	40	37	93	16.1	90	64
	Sarbon Qala	49	45	92	12.6	82	61
	Mosa Qala	No data					•
	Kajaki	1	1	100	10.0	100	53
	Nauzad	42	20	48	5.3	26	55
	Washare	No data					
	Garmser	21	5	24	15.4	24	39
	Nadi-ali	48	6	13	9.0	13	35
	Nawae-barakzae	No data					
	Baghran	No data					
	Deshu	No data			X		
Total :		227	122	54	11.9	47	59

### Yields 1990

### Barley

Province	e/District	No. of farmers questioned	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Helmand				2.			
пестаю	Bust	26	-	7 <b>=</b> 1	¥	120	말
	Nahre Saraj	No data					
	Reg	40 .	-	S=3	•	-	~
	Sarbon Qala	49	2	4	3.0	-	5
	Mosa Qala	No data					
	Kajaki	1	*	-	-	-	-
	Nauzad	42	1	2	1.0	2	40
	Washare	No data					
	Garmser	21	-		-	-	2
	Nadi-ali	48	-	8.50	-	9#0	*
	Nawae-barakzae	No data					
	Baghran	No data					
	Deshu	No data					
Total :		227	3	1	2.3	570	40

Farm size 1990

Average areas of arable, cultivated and abandoned land

Province	e/District	No. fmrs questioned	Avg. total arable area per fmr	Avg. arable cultivated area per fmr	Avg. abandoned area per fmr with abandoned land	% fmrs with abandoned land
-						
<u>Helmand</u>	:					
	Bust	26	26.3	18.4	13.7	58
	Nahre Saraj	No data				
	Reg	40	26.1	22.0	12.7	33
	Sarbon Qala	49	25.4	19.8	25.0	22
	Mosa Qala	No data				
	Kajaki "	. 1	40.0	20.0	20.0	100
	Nauzad	42	24.2	11.9	16.7	74
	Washare	No data				
	Garmser	21	93.5	49.4	66.1	67
	Nadi-ali	48	30.6	20.3	13.4	77
	Nawae-barakzae	No data	0			• •
	Baghran	No data				
	Deshu	No data				
Total :		227	32.9	21.4	21.3	54

Farm size 1990

Average areas of irrigated and rainfed land, under cultivation

		fmrs with irrigated	fmrs with irrigated	fmrs with rainfed	with fed only	fmrs irrigat	fmrs With both irrigated and rainfed	ith ainfed		0	overall		
	No émes	2	( auto	2	6115								
Province/District	questioned	av.jbs	% fmrs	av.jbs	av.jbs % fmrs	av.jbs	av.jbs	% fmrs	av.jbs	ırrıgated(ı) av.jbs % fmrs		rainfed(11) av.jbs % fmrs	tarm av.jbs
-													
net sto	ì	;	;										
Bust	56	18.4	100	٠	٠	i.	62 62	ij	18.4	100	í	*	18.4
Nahre Saraj	No data												
Reg	40	22.0	100	*	•	¥		•	22.0	100	:1	()6	22.0
Sarbon Qala	67	19.8	100	10	•	17	r	٠	19.8	100	: 9	2 34	10.8
Mosa Qala	No data												2
Kajaki	_	2 -	100	9	3			•	20.0	100	7.	•	20.0
Nauzad	42	11.9	100	*		•	٠	3	11.9	100	- 6	- 10	1.0
Washare	No data												
Garmser	21	7.67	100	į.	1	1361	٠	v	7.67	100	ř	×	7.67
Nadi-ali	48	20.3	100	ĵį	•	9	9	(4	20.3	100	٠	n,	20.3
Nawae-barakzae	e No data												
Baghran	No data												
Deshu	No data												
Total :	227	21.4	100		1	•	(1)	*	21.4	100	•	•	21.4

(i) Average area irrigated for all those farmers who have some irrigated land (ii) Average area rainfed for all those farmers who have some rainfed land

Farm size 1990

Frequency distribution of Total cultivated area per farm

				Perce	entage of	f farmers	Percentage of farmers in each range (areas in jerib)	range	(areas in	Jerib)		
Province/District	No. fmrs questioned	1-0-10	2 11–20 ;	3-1-3(	4 71-40	5	6 51–60	7 61–70	8 71–80	9 81-90	10 91–100	11,001,
Helmand:												
Bust	56	20	27	œ	œ	1	1	1	00	,	9	
Mahre Saraj	No data								)	Ġ.	(	(
Reg	07	07	23	13	Ø	Ŋ	<b>«</b>	M	ı	۲		
Sarbon Qala	67	39	54	16	10	7	- 1	· <b>v</b> o	1	1	G 9	K (
Mosa Qala	No data							•			(	1
Kajaki	-	I	100	I	1	ì	1	1	9)		)	
Nauzad	42	62	62	2	2	)	^	9	3 1	0	0 10	É (
Washare	No data				5					ı	ř.	Ú
Garmser	21	19	33	14	1	7.	1	L.	5	)		117
Nadi-ali	87	27	7,7	23	2	1	~	۱ د	2 1	i. ()	( )	į c
Nawae-barakzae	e No data				ı		1			in the	i)	J
Baghran	No data											
Deshu	No data											
Total :	227	07	30	13	'n	2	2	2	2	-	ā	2

Farm size 1990

Frequency distribution of Irrigated cultivated area per farm

		19		Perce	entage of	farmers	in each	range	Percentage of farmers in each range (areas in jerib)	Jerib)		
Province/District	No. fmrs questioned	- 01-0	2 11–20	3 21–30	31–40	5 41–50	6 51-60	7 61–70	8 71–80	9 81–90	10 91–100	11 ^100
Welmand:												in the second
Bust	56	20	27	æ	æ	1	1	ı	60	1	1	1
Nahre Saraj	No data											
Reg	40	40	23	13	ထ	2	ø	M	ı	M	ı	1
Sarbon Qala	67	39	54	16	10	7	ł	9	ı	ı	ı	1
Mosa Qala	No data											
Kajaki	-	ı	100	1	1	1	1	ı	1	ı	t	F
Nauzad	75	62	53	2	7	3	7	ij	()	2	1	4
Washare	No data											
Garmser	21	19	33	14	Ł	Ŋ	ı	5	10	ı	ı	14
Nadi-ali	87	27	77	23	7	1	2	ı	ı	1	ı	2
Nawae-barakzae												
Baghran	No data											
Deshu	No data											
Total :	227	40	30	13	2	2	2	2	2	-	)	2

Fertiliser use 1990

Irrigated Wheat

	No. fmrs	No. fants given	No Fert.	ert.	on f	Only White Fert.	Fert.	ક	Only Grey Fert.	Fert.	9	ey & Wh	Grey & White Fert.			Yield(Seers/Jerib)	ers/Jer	(qi
Province/District	growing		No. Fmrs	Fars	No. Fars	Fars	Bags aptd/jb	No.	× Ē	Bags apld/jb	No. Fmrs	× ₽	Bags apld/jb White Grey	ld/jb Grey	No	Only White	Only	White & Grey
Hetmend:																		
Bust	92	56	ĸ	*	10	38.5	1.3	٠	ž	•	16	61.5	1.0	7 0	٠	5	٠	87
Nahre Saraj	No data										?		:	•		3		2
Reg	07	07	ii:	•	9	15.0	1.1	*	•	¥	34	85.0	1.0	7.0	1	7,	Ž	Y.
Sarbon Gala	45	45	•	•	2	4.4	0.8	•	٠	•	27	95.6	0	7 0	,	27		2 2
Mosa Qala	No data										•		;			ř		õ
Kajaki	<b>-</b> -	-	•	•	•	•		•	٠		-	100.0	2	0.0	•		•	0
Nauzad	37	37	∞	21.6	9	27.0	9.6	-	2.7	1	- 62	9 87	2		77	07	\$	, y
Washare	No data										?		3	;		?	3	7
Garmser	21	21	100	100	12	57.1	0.5	٠	٠	٠	۰	0 67	5.0	1	•	20	,	2
Nadi-ali	84	84	•	*	17	35.4	1.4	(	() <b>!</b>		. F	7	, r	. 7	٠	3 5		3 2
Nawae-barakzae	No data										,		2			}		4
Baghran	No data																	
Deshu	No deta																	
Total :	218	218	∞	3.7	57	26.1	6.0	-	0.5	1.	152	7.69	6.0	0.3	57	38	\$	12

Fertillser use 1990

0
9
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9

	:	No. fmrs	No Fert.	Ŧ.	Only	Only White Fert.	Fert.	5	Only Grey Fert.	ert.	ē	ey & Wh	Grey & White Fert.			Yield(Seers/Jerib)	ers/Jer	ib)
	No. Tmrs given growing fertilis	No. tmrs given growing fertiliser	. 6	34	No.	×	Bags	No.	36	Bags	ĕ	*	Bags aptd/jb	d(/bl	<b>№</b>	Only	Only	White &
Province/District	crop	data	Fmrs	Fmrs	Fmrs	FMITS	apld/jb	Fmrs	Fmrs	apld/jb	Fmrs	Fmrs	White	Grey	Fert	White	Grey	Grey
:																		
Hetmand :																ļ		
Bust	œ	ထ			60	100.0	1.0	ŧ	•	ě	٠	٠	×	•		3/	•	•
Nahre Saraj	No data																	
Reg	37	36	•	2.8	34	7.76	8.0	•	٠	*	-	2.8	0.8	7.0	40	\$	٠	82
Sarbon Qala	45	04	•	2.5	30	0.5	8.0	•	•	•	6	22.5	0.8	0.3	33	63	٠	82
Mosa Qala	No data																	
Kajaki	-	-	•	٠	-	100.0	0.5	•	٠	•		•		•	•	23	1	
Nauzad	50	=	_	9.1	æ	72.7	8.0	ě	٠		7	18.2	7.0	0.5	43	9	Ü	22
Washare	No data																	
Garmser	72	2	~	40.0	7	0.04	0.5	Ü	٠	٠	-	20.0	0.5	0.2	27	67	ř	23
Nadi-ali	9	9	•	•	9	100.0	8"0 .	<b>3</b> .	ũ	<b>(</b> )	•	•	•	•	9	32	Ĭ	Œ.
Nawae-barakzae	No data																	
Baghran	No data																	
Deshu	No data																	
Total :	122	107	150	4.7	8	83.2	8.0		*		15	13 12.2	0.8	0.3	32	9	T.	76

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Barley

	No. fmrs	No. fmrs	No Fert.	j.	Only	Only White Fert.	Fert.	ક	Only Grey Fert.	Fert.	ē	ey & W	Grey & White Fert.		Yield	Yield(Seers/Jerib)	erib)
Province/District	growing		No. Fmrs	× Fmrs	No. Fmrs	Fmrs	Bags apld/jb	No. Fmrs	≯ Ē	Bags apld/jb	No. Fmrs	≫ E	Bags apld/jb White Grey	jb No ey Fert	Only t White	only e Grey	White &
Helmand:	-																
Bust	No data																
Nahre Saraj	No data																
Reg	No data																
Sarbon Qala	2	74	89	ī	•	٠		٠		,	,		,	9	5		
Mosa Qata	No data													î.		•	•
Kajaki	No data																
Neuzad	-	•	-	100.0	ê	(1)	*	•	٠	,	: •	•	î	7	07		
Washare	No data															<b>K</b> O	
Garmser	No data																
Nadi-ali	No data									4							
Nawae-barakzae	No data																
Baghran	No data					7											
Deshu	No data																
Total :	м	7	-	1 100.0	3.	8	100					1	)				
												1:	i i	ŕ			٠

Farm power 1990

Percent using or owning the following resources

		Total	al		Tractor			ð	Oxen		i		No. of o	No. of oxen owned	
Province/District	strict	fmr(i)	fmr(i) fmr(ii)	paumo	hired	роггомер	owned	shared	hired	borrowed	means	1 oxen	2 oxen	3 oxen	4+ oxen
															Ì
Hetmord:															
BU	Bust	92	56	Ø	75	*	23	19	7	7	19	19	23	×	٠
Na	Vahre Saraj	No data	D										ł		
Re	Reg	40	07	30	55	M	10	М	•	a	30	18	10	•	115
Sa	Sarbon Qala	67	67	18	51		20	12	œ		22	14	22	٠	1.9
Mo	Mosa Qala	No data	a										}		
Ka	Kajaki	-	_			3	•	100		(1)	100	100	٠	•	,
N.	Nauzad	75	75	12	84	***	7	12	53	3.	81	17	2	ı	111
Wa	Washare	No dat	æ												
Ga	Garmser	21		53	62		2		10	ı	14		5		*
Ą	Nadi-sli	84	25	17	62	4	15	7		ı	19	4	15	4	t
Na	Nawae-barakzae	No data	en en												
eg eg	Baghran	No data	en en												
De	Deshu	No data	63												
Total :		227	226	19	53	-	13	٥	80		41	13	13	*	

(i) Total number of farmers questioned(ii) Number of farmers answering on farm power

Farm power 1990

Percent of farmers using only the following individual or combination of methods for field caltivations

					Only	Only one method	þ			**				Combin	Combination of methods	methods				
	7	Total		Tractor			Oxea	8			Hîre	Mired Tractor with	or wit	_			Other with	it		
							5	;					:	, t	Н					
Province/District	fmr(i)	fmr(i) fmr(ii) owned hired borrowed	омиес	d hired	borrowed		shared !	owned shared hired borrowed		means	oxen oxen oxen oxen	oxen oxen	red bor		owned hired owned tractor tractor oxen	hired owned shared hired borrowed tractor oxen oxen oxen	owen	shared hirek oxen oxen	hired to	orrowed
																				İ
Helmand:																				
Bust	56	92	7	27	*	23	10	7	7	,					3	,				
Wahre Saraj	No data	ıta				ì	S.	ř	Ė	ř	·)	6			4	12	ŧ	٠	٠	ř.
Reg	07	70	15	45	M	7.	M		10						ļ					
Sarbon Gala	67	67	2	9	•	٠ ٧	) (C	7	0) (						£ ;	9	'n		•	10
Mosa Qela	No data	ta				•	)	•	Š	V	*	7		¥01	9	22	œ	,	2	<b>(*</b>
Kajaki	-	-	Ĭ		٠	1				9	9	9								
Nauzad	75	75	S	2		2		7	1.9	100	į į					• !	ı	100		
Washare	No data	ta				ı		-		87		•))			<b>ا</b>	42	,	10	7	٠
Garmser	21	21	19	25		,	•	10	ë:•		ш				;					
Nadi-ati	87	25	Ξ	51	2	13	^	2 1		61 9	, ,		¥2 - 2		2 ,	<u>ν</u>			ē	٠
Nawae-barakzae	No data	ta					1					v			٥	0	2	£	٠	ě
Baghran	No data	ta																		
Deshu	No data	ta																		
T-4-1			9													d				
: 18101	227	526	00	31	**	œ	10	4	TV.	7%	-	***		Ť	10	19	м	8	7	,

(i) Total number of farmers questioned(ii) Number of farmers answering on farm power

Livestock 1990
Average numbers of animals per family

	4	Oxen	-	COMS & Calves	alves	Sheep & Goats	Goats	Horses	S	Camels	S	Donkeys	şys
Province/District	questioned	% owning	avg.no	% owning	avg.no	% owning	avg.no	% owning	avg.no	% owning	avg.no	% owning	avg.no
Welmand:													
Bust	92	75	1.5	14	3.0	2	8.1	00	1.0	•	•	12	1.2
Nahre Saraj	No data												
Reg	07	28	1.4	93	3.7	65	8.0	Ø	1.0	٠	•	63	2.1
Sarbon Qala	67	37	1.6	100	4.4	69	14.6	16	1.1	8	•	7	1.9
Mosa Cala	No data												
Kajaki	-	100	1.0	100	2.0	100	2.0	•	•		•	100	2.0
Nauzad	75	19	1.1	83	2.5	62	13.0	*	•	2	1.0	\$	1.3
Washare	No data												
Garmser	21	5	2.0	81	3.1	18	11.3		•	10	3.0	25	1.4
Nadi-ali	84	19	8.1	88	4.0	65	9.9	10	1.0		ţ	95	1.5
Nawae-barakzae	No data												
Baghran	No data												
Deshu	No data												
Total :	227	52	1.5	68	3.6	89	10.3	80	1:	-	2.0	62	1.6

Livestock 1990

Distribution of Oxen ownership

	No. of	Percel	ntage of 1	Percentage of farmers owning the following number of Oxen:	ng the foll	owing numbe	er of Oxen:		
Province/District	questioned	None	None 1 0xen	2 Oxen	3 Oxen	4 Oxen	5 Oxen	6 Oxen	>6 0xen
Helmand:									
Bust	56	58	19	23	×	•	•	: 10	•
Nahre saraj	No data								
Reg	07	2	18	10	r	,	Ĭ	•	<b>(</b>
Sarbon qala	67	63	14	22	l Nº	•	ŧ	•	j.
Mosa qala	No data								
Kajaki	-	٠	100	ď	×	•	(6	0	•
Nauzad	75	81	17	2	ĸ	•	j	×	ě
Washare	No data				1.5				
Garmser	21	95	•	2	5)	h	•	- (0.0)	٠
Nadî-al i	87	81	7	15	¥	Ā	9	14	
Nawae-barakzae	No data								
Baghran	No data								
Deshu	No data								
Total :	227	72	13	13	ū	E;		*	

Livestock 1990

Distribution of sheep and goat ownership

	0 d	Perc	entage o	of farmers	owning th	ie follo⊌in	g number of	Percentage of farmers owning the following number of sheep and goats	ats:
Province/District	questioned	None	1 - 25	26 – 50	51 - 75	76 - 100	101 – 125	None 1 - 25 26 - 50 51 - 75 76 - 100 101 - 125 126 - 150 > 150	> 150
2									
Helmand:									
Bust	56	23	1	٠	100	( <b>e</b> )	•		•
Nahre Saraj	No data								
Reg	07	35	63	M	٠		•	*	31
Sarbon Qala	67	31	61	7	2	4	1	ě	*
Mosa Qala	No data								
Kajaki	-	•	100	•	3	66	•		•
Nauzad	75	38	09	÷	ě	×	A	9	2
Washare	No data								I
Garmser	21	19	92		2	2561	(1)	ij	x
Nadi-ali	87	35	9	×	•	ä	19	•	500
Nawae-barakzae	ae No data								
Baghran	No data								
Deshu	No data								
Total :	227	32	65	-	-	-			

Livestock 1990

Distribution of Cows and Calves ownership

		No. of	Perce	ntage of	farmers own	ing the foll	Percentage of farmers owning the following number of Cows and Calves:	of COWS	and Calves:	
Province	Province/District	questioned	None	None 1 Cow	2 COWS	3 COWS	4 COWS	5 COWS	6 Cows	>6 COWS
Helmand	••									
	Bust	92	23	15	31	15	4	34	60	7
	Nahre Saraj	No data							Ĩ	
	Reg	40	æ	М	35	13	20	10		13
	Sarbon Qala	67	•	2	33	12	20	14	4	17
	Mosa Qala	No data								:
	Kajaki	-		•	100	ı	,	•		*
	Nauzad	75	17	2	20	17	7	5	•	•
	Washare	No data								
	Garmser	21	19	10	33	10	10	2	14	•
	Nadi-ali	87	13	7	31	19	ø	13	2	13
	Nawae-barakzae	No data							I	!
	Baghran	No data								
	Deshu	No data								
Total :		227	Ξ	2	36	15	12	٥	4	60

Livestock 1990

Distribution of Donkeys ownership

	No. of	Perce	ntage of fa	Percentage of farmers owning the following number of Donkeys:	g the folio	owing number	of Donkeys	::	
Province/District	questioned	None	1 Donkey	None 1 Donkey 2 Donkeys 3 Donkeys 4 Donkeys 5 Donkeys 6 Donkeys >6 Donkeys	3 Donkeys	4 Donkeys	5 Donkeys	6 Donkeys	>6 Donkeys
Melmand:									
Bust	56	22	62	12	ì	3	×	¥	
Nahre saraj	No data								
Reg	04	38	33	28				•	٣
Sarbon qala	67	56	27	35	4	4		٠	2
Mosa qala	No data								
Kajaki	-	٠	•	100		•		ě	٠
Nauzad	75	36	20	12	•	•	2	<b>9</b> 50	•
Washare	No data								
Garmser	21	84	33	19	,	•		*	í
Nadi-ali	84	24	52	17	7	9		×	
Nawae-barakzae	No data								
Baghran	No data								
Deshu	No data								
Total :	227	38	36	22	2	÷	9 <b>0</b> 0	(9)	-

Livestock 1990

Distribution of Horses ownership

	No. of	Perce	ntage of	Percentage of farmers owning the following number of Horses:	ng the follo	owing number	r of Horses		
Province/District	questioned	None	None 1 Horse	2 Horses	3 Horses	4 Horses	5 Horses	2 Horses 3 Horses 4 Horses 5 Horses 6 Horses	>6 Horses
Retwend:									
Bust	92	85	∞	ř	ŧ	٠	į		×
Nahre saraj	No data						já		
Reg	40	93	Ø		81	Ş.		; <b>!</b> )	•
Sarbon qala	67	8	14	2	ĸ	٠	,	9.	Ü
Mosa qala	No data								
Kajaki	<u>_</u>	100	٠	•	(( <b>4</b> ))	1	ı	6	•
Nauzad	75	100	•	•	a	<b>%</b>		ij	r)
Washare	No data								
Garmser	21	100	,	•	•	0	6	1:	•
Nadi-ali	48	8	9	F	( <b>1</b> )	9	٠	(( <b>1</b> ))	•
Nawae-barakzae	No data								
Baghran	No data								
Deshu	No data								
Total :	227	8	2		١.	,			•
•	į	1	_		į:	Ĺ	i	ı	

Livestock 1990

Distribution of Camels ownership

	No. of	Perce	ntage of	farmers ownir	ng the foll	Percentage of farmers owning the following number of Camels:	of Camels:		
Province/District	questioned	None	None 1 Camel	2 Camels	3 Camels	2 Camels 3 Camels 4 Camels 5 Camels 6 Camels >6 Camels	5 Camels	6 Camels	>6 Camels
Helmand:									
Bust	58	100	E.		·	i	ex.		-
Nahre saraj	No data							()	<b>i</b> lf
Reg	70	100	•	<b>3</b>		,	٠	į	ı
Sarbon qala	67	100	•	x			1 10		1 1
Mosa qala	No data							Ñ	1
Kajaki	-	100	•	3	•	,		ű	9
Nauzad	75	86	2	ij		•		,	
Washare	No data								į
Garmser	21	95	٠	ij	ī	,	3	ş	ı
Nadî-ali	84	100	9	9	i (•)	,	,	•	•
Nawae-barakzae	No data								1
Baghran	No data								
Deshu	No data								
Total :	227	8		×		•		1167	

Constraints on crop production 1990

Problems as percieved by farmers (weighted average percents)

Province/District	No. tmrs questioned		Irrig Rain- Farm Water fall power	Farm	Fert- iliser		War effect Credit	Improv	Insect Weeds		Crop chemic	Crop Flood chemic Labour damage		Crop diseas	Animal diseas Birds		Rats	Exte- nsion Other	Other
Helmand:																			
Bust	56	34	) <b>.</b>	2	6	7	7			8			,	,	į.				
Nahre Saraj	No data									Ġ	<del>-</del> 02		_	-	m	٠		M	
Reg	07	-	•	4	7	٠	,	,		ķ			,						
Sarbon Qala	67	9	((*)	ľ			-	9	יי	3 :		٠	Ζ.	26	ě	ĩ	-	9	-
Mosa Qala	No data						3		v	=	•11	65	4	25	-	į.	4	<b>∞</b>	10
Kajaki	-	٠	(a)	•	27	ì	•	,	1										
Nauzad	75	15	90	4	i	7.		ָ בַ	, 5				<b>1</b>	22		17.	18	,	
Washare	No data				•			2	2	,	4		14	22	£	£	M	M	10
Garmser	21		į	=	10	,	^	1,		,									
Nadī—a{i	84	20		12	00		J <del>-</del>	<u>*</u> •	01 3	<b>3</b>		٠	•	36	-	m	-	-	9
Nawae-barakzae	No data				)		tă:	-	ì	71	-	į.	-	-	-		,	T)	1
Baghran	No data																		
Deshu	No data																		
1																			
: letel	227	8	<b>(</b> )	7	7	**	~	4	2	4	-	ř	-	82	5	140	2	4	1

### Yields 1990

Nadi-ali

Crop	No. fmrs growing crop	Percentage who grew crop	Average area jeribs	Percentage of fmrs giving yield data	Average yield seer/jerib
Irrigated Wheat	48	100	17.2	100	49
Alfalfa	14	29	2.1	-	-
Grape	7	15	1.4	-	-
Maize	6	13	9.0	13	35
Cotton	6	13	9.5	10	37
Melon	3	6	5.3	-	2
Vegetable	1	2	1.0	-	*
Fruit	1	2	2.0	-	*
Apricot	1	2	1.0	-	ž

<sup>48</sup> farmers questioned

Fertillser use 1990

Nadi-ali

	No. fare	No. fmrs	No	No Fert.	Pol	Only White Fert.	Fert.	P	Only Grey Fert.	Fert.	5	ey & ⊌h	Grey & White Fert.			Yield(Seers/Jerib)	ers/Jer	(qi
Crop	growing	growing fertiliser crop data	No. Fmrs	¥ E	No. Fmrs	Fmrs	Bags aptd/jb	No. Fmrs	Fars	Bags apld/jb	No.	FINS	Bags apld/jb White Grey	pld/jb Grey	No Fert	Only White	Only	White & Grey
Irrigated Wheat	84	87	'	.	1	35.4	1.4				34	9.79	1.3	7.0	9	13		2
Alfalfa	14	10	-	10.0	9	0.09	1.1	-	10.0	2.0	2	20.0	0	8	•	, ,	,	γ.
Maize	9	9	•	•	9	100.0	0.8	1	¥	*		•				35		
Cotton	9	9	1	16.7	2	33.3	1.9	•	٠	,	M	50.0	1.1	9.0		3 8		7.1
Grape	7	2	•	20.0	•	•		4	80.0	1.2	'		. '		•	ì '	6 8	·
Melon	M	M	2	2.99	-	33.3	0.1	•		•	100	:(*)		,		•	•	
Vegetable	-	-	•	•	-	100.0	2.0	•	9		•		٠		•	) (	( (	
Fruit	_	-	-	100.0	•	٠		٠	•	¥	194	.00	æ	٠		,	•	,
Apricot	-	-	-	100.0	•	•	•	•		ř	×	) <b>X</b>		٠	•	3 18	1	1

Correlation coefficient of fertiliser against yield

Irrigated Wheat 1990

Helmand province

District	Average yield seers/jerib	Fertiliser applied bags/jerib	Correlation coeficient all seeds	Correlation coeficient improved seeds	Correlation coeficient unimproved seeds	Total all seeds	Total improved seeds	Total unimproved seeds
Bust	48.2	1.4	0.54	0.54	,	8	×	-
Nahre Saraj		1	•	•	ě	<b>'</b>	) '	٠ ،
Reg	53.7	1.4	0.43	0.42	•	40	39	-
Sarbon Qala	66.1	1.3	0.43	0.43		45	57	-
Mosa Qala	•		.a					
Kajaki	59.0	0.5	,	•		-		,
Nauzad	45.3	0.7	0.55	0.72	0.36	62	æ	21
Washare	4		e	•	10			•
Garmser	52.2	9.0	0.23	-0.24	0.37	21	4	17
Nadi-ali	48.5	1.6	0.27	0.26	•	48	25	-
Nawae-barakzae	100	1.5	•	9	Ē	•	1	
Baghran	•	34		٠	•))	,	1	•
Deshu	ě	•	•	ì	()	•		•

Correlation coefficient of cultivated area against yield

Irrigated Wheat 1990

Helmand province

Total unimproved seeds	,		×	,		8 1			28	•	17	_ `	_		,	
Total improved un seeds	, c	Q		39	77	;	, ,	_	Ø		7	,	<b>,</b>			
Total all seeds	20	07	,	40	57	<u>.</u>	٠ -	- ;	36	•	21		9	•		,
Correlation coeficient unimproved seeds		0 9	Ñ	<b>3</b>	•	,	ŭ la		ç;. ∩	٠	-0.22				ю.	
Correlation coeficient improved seeds	97 U			-0.24	-0.13	0.0	1.	7	7	ē	0.21	5			6.00	æ
Correlation coeficient all seeds	-0.45			97.7	-0.12	100	ě	0 0	0.69	•	-0.11	-0.05	10		٠	*
Average area jerib	14.9		17 ب	7.11	13.6	r	18.0	7.6	2		32.3	17.2	3			•)
Average yield seers/jerib	48.2	٠	2 2 2		66.1	•	59.0	45.3	,		52.2	48.5	×		•0	•
District	Bust	Nahre Saraj	Rea		Sarbon Wala	Mosa Qala	Kajaki	Nauzad	Washare		carmser	Nadi-ali	Nawae-barakzae	Bachcan		Deshu

*		
		*
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		1.5

### **ANNEX C - National Survey Data**

### Part Four - Miscellaneous Data on hired labour and farmpower

	Page
Helmand	
Use of hired tractor	1
Use of hired oxen	1
Use of hired labour	2
Use of hired tractor for Irrigated Wheat	3
Use of hired oxen for Irrigated Wheat	3
Use of hired labour for Irrigated Wheat	4
All districts	
Use of hired labour for Irrigated Wheat	5
Nad-Ali	
Use of hired tractor	6
Use of hired oxen	6
Use of hired labour	7
Use of hired tractor for Irrigated Wheat	8
Use of hired oxen for Irrigated Wheat	8
Use of hired labour for Irrigated Wheat	9

	9
	· · · · · · · · · · · · · · · · · · ·

### Farm power 1989

### Use of hired tractors

Province : Helmand

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation	12	0.67	1.17	1.00	1.17	1.18	1.37	1.10	0.83	1.22	0.98
Planting	(*)	1.06	1.15	0.80	1.00	0.90	0.93	0.89	0.71	0.59	0.57
Treshing	3.00	0.42	1.11	0.69	0.94	0.66	1.04	0.52	0.79	0.37	0.42
Total hours	-	1.78	2.36	2.43	2.43	2.20	2,38	2.23	2.38	2.17	1.82
No. farmers	*	3	17	6	14	18	5	12	3	3	55

Total no. fmrs questioned: 270

### Use of hired oxen

Province : Helmand

### Average no of days hired oxen used per jerib of land

Activities	0–2	2–4	46	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation	3 <del>4</del> 8	-	0.60	1,000	-	-	1943		123		0.33
Planting	:50	1.10	1.37	:50	-	0.80	(5)	1.13		( <b>*</b> )	0.33
Treshing		1.00	0.50	-	0.58	0.30	•	1.33	-		0.05
Total days	( <del>=</del> );	1.30	1.30	( <del>*</del> )(	0.58	1.10	3#3	2.47	(#)	(4)	0.72
No. farmers	**	5	4	*	2	1	3	1		<u></u>	1

### Use of hired labour

Province : Helmand

Percent of farmers	using hired	labour on the	following	ranges of	land (jerib)
--------------------	-------------	---------------	-----------	-----------	--------------

Activities	02	2-4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
All year		-	_	-	_	3.45	-	4.17	25.00	12.50	6.48
Planting	-	-	-	•	-	3.45	-	-	-	-	3.70
Weeding		-	-	-	-	-	5.88	-	12.50	-	5.56
Harvest		-	3.85	5.56	5.26	24.14	35.29	12.50	50.00	25.00	40.74
Anytime		-	3.85	5.56	5.26	31.03	41.18	20.83	87.50	37.50	47.22
No. fmrs in range	: <b>:</b> :::	13	26	18	19	29	17	24	8	8	108

Total no. fmrs questioned: 270

### Use of hired labour

Province : Helmand

Average no of days hired labour used per jerib of land

Activities	0–2	2–4	4-6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
No. days	-	-	3.00	6.00	2.22	3.61	3.34	6.02	4.55	1.04	3.05
No. farmers	-	8	1	1	1	9	7	5	7	3	51

### Farm power 1989

### Use of hired tractors for Irrigated Wheat

Province : Helmand

Average hours hired tractor used per jerib of lar	Average	hours hired	tractor	used per	jerib of	land
---	---------	-------------	---------	----------	----------	------

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation	1.00	1.00	1.00	0.98	0.95	1.00	0.99	0.99	1.00	1.00	0.95
Planting	0.50	0.90	0.74	0.76	0.73	0.61	0.66	0.53	0.49	0.82	0.54
Treshing	0.50	1.11	1.35	1.16	0.78	0.73	0.98	0.63	0.53	0.61	0.59
Total hours	2.00	1.95	2.58	2.62	1.99	2.06	2.17	1.95	2.02	1.77	1.96
No. farmers	1	13	17	11	14	21	12	15	5	3	21

Total no. fmrs questioned: 270

### Use of hired oxen for Irrigated Wheat

Province : Helmand

Average no of days hired oxen used per jerib of land

0–2	2–4	4–6	6–8	8–10	10–12	12–14	14-16	16–18	18–20	>=20
2	1.00	-	9	_			5 <b>5</b> 0	-	-	_
-	1.00	1.13	2	1.00	- 2	2.1	1.21		-	-
*	1.22	-	*	0.44			1.43	<b>54</b> 3	-	-
22	1.33	1.13	9	0.94	÷	9	2.64	÷.		
=	8	2	*	2	*	*	1			
		- 1.00 - 1.00 - 1.22 - 1.33	- 1.00 - - 1.00 1.13 - 1.22 - - 1.33 1.13	- 1.00 - 1.00 1.13 - - 1.22	- 1.00	- 1.00	- 1.00	- 1.00 1.21 - 1.00 1.13 - 1.00 1.21 - 1.22 0.44 1.43 - 1.33 1.13 - 0.94 2.64	- 1.00 1.21 - 1.22 - 0.44 - 1.43 - 1.33 1.13 - 0.94 2.64 -	- 1.00

### Use of hired labour for Irrigated Wheat

Province : Helmand

Percent of farmers	using hired	labour on t	he following	ranges of	land (jerib)
--------------------	-------------	-------------	--------------	-----------	--------------

Activities	02	2–4	4–6	6-8	8–10	1012	1214	14–16	16–18	1820	>=20
All year	š	-	-	_	4.76	-	15.79	3.03	_	14.29	11.76
Planting	2	-	-	-	-	-	-	-	-	14.29	5.88
Weeding	*	-	-	-	-	-	-	-	-	-	-
Harvest	-	4.00	10.81	8.70	9.52	29.27	15.79	39.39	44.44	28.57	39.22
Anytime	-	4.00	10.81	8.70	19.05	29.27	36.84	42.42	44-44	28.57	54.90
No. fmrs in range	2	25	37	23	21	41	19	33	9	7	51

Total no. fmrs questioned: 270

### Use of hired labour for Irrigated Wheat

Province : Helmand

Average no of days hired labour used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	1820	>=20
No. days		4.00	5.91	2.62	8.76	2.86	6.82	2.63	2.50	22.11	3.84
No. farmers	-	1	4	2	4	12	7	14	4	2	28

Farm power 1989

Hired labour use for Irrigated Wheat

	Number of farmers	No. fmrs	% using	Average	AV. no.	Percent of	Percent of fmrs using hired labour for:	g hired lab	our for:
Province/District	questioned	crop	Labour	expend	used/year	all year	planting	weeding	harvest
Helmand:									
Bust	22	22	41	46111	84		٠		80
Nahre Saraj	No data								ì
Reg	28	28	36	14000	30	10	1	,	06
Sarbon Qala	54	54	17	109763	285	20	52	,	22
Mosa Qala	21	21	58	75000	186	29	•		1 2
Kajaki	19	19	2	2500	ø	,	,	•	100
Nauzad	34	33	21	123214	359	57	14	•	22
Washare	No data								i
Garmser .	No data								
Nadi-ali	29	99	77	22479	36	¥	М	1	100
Nawae-barakzae	56	58	38	23227	33	٥	, ,		2
Baghran	56	92	4	00009	300	10i	100		; '
Deshu	No data								
Total :	270	268	59	42006	26	15	2	•0	81

### Farm power 1989

### Use of hired tractors

District : Nadi-ali Province : Helmand

Average hours hired tractor used per jerib of land

Activition											
Activities	0–2	2-4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation		_	1.33	1.00	1.24	1.50	1.00	1.06	_	1.50	0.98
Planting	-	-	0.80	0.58	0.59	0.70	0.50	0.53	-	0.72	0.48
Treshing	-	-	0.87	0.58	0.95	0.58	0.58	0.53	•	0.33	0.44
Total hours	:=:	0.00	3.07	2.17	2.78	2.78	2.08	2.13	-	2.53	1.90
No. farmers		(3)	3	2	2	4	1	3	-	2	28

Total no. fmrs questioned: 67

### Use of hired oxen

District : Nadi-ali Province : Helmand

Average no of days hired oxen used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation		¥	2	-		*			•		
Planting	*	*	*	77	7.5	7.	- 5	-		*	•
Treshing	ē	5	€	•	*	-		2	2	<u>=</u> :	-
Total days	¥	-	-	. *	=	Ħ	5.	*:	=	*:	1.75
No. farmers	ā	-	3	2	2	¥3	2	2	¥	×	×

### Use of hired labour

District : Nadi-ali Province : Helmand

Percent of farmers using hired labour on the following ranges of land (jerib)

Activities	0–2	2–4	4–6	6-8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
			15								
All year	-	-	-	-	-	•	-	-		-	-
Planting	-	-	-	-	-	-	-	-	-	-	2.17
Weeding	-	-	-	-	-	-	-	-		_	6.52
Harvest	-	•	-	-	-	60.00	100.0	40.00	-	-	54.35
Anytime	<u>-</u>	-	-	-	-	60.00	100.0	40.00	7.0	-	54.35
No. fmrs in range	-	2	3	2	2	5	2	5	5 <del>10</del>	2	46

Total no. fmrs questioned: 67

### Use of hired labour

District : Nadi-ali Province : Helmand

Average no of days hired labour used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
No. days	846	F <b>a</b> 2	<b>(%</b> )		•	2.50	2.71	2.23		: <b>:</b>	1.17
No. farmers	3	100	-	:•:	183	3	2	2	( <del>*)</del>	( <b>a</b> ):	25

### Farm power 1989

### Use of hired tractors for Irrigated Wheat

District : Nadi-ali Province : Helmand

Average hours hired tractor used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
Land preparation	-	1.00	1.00	1.00	0.97	1.00	0.98	0.99	1.00	1.00	0.85
Planting	-	0.67	0.40	0.46	0.50	0.48	0.48	0.41	0.49	0.47	0.44
Treshing	-	1.00	1.25	0.82	0.73	0.75	0.71	0.74	0.64	0.63	0.68
Total hours	-	3.17	2.65	2.29	2.20	2.23	2.16	2.14	2.14	2.11	1.96
No. farmers	-	2	4	2	4	8	5	7	4	1	7

Total no. fmrs questioned: 67

### Use of hired oxen for Irrigated Wheat

District : Nadi-ali Province : Helmand

Average no of days hired oxen used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	1820	>=20
				0							
Land preparation	*	51	Ħ	P5	5:	2		7.	<u>=</u>	≅:	s •
Planting	7	-	Ŧ	-	*	•			*	-	-
Treshing	2	2	2	₽	2	=	20	-	2	~	#
Total days	8	#.	-		₹:	7	*	5.	=		
No. farmers	8	2	2	<b>=</b>	=		2:	-	2	÷	2

### Use of hired labour for Irrigated Wheat

District : Nadi-ali Province : Helmand

Percent of farm	rs using hired	labour on	the following	ranges of	land (jerib)
-----------------	----------------	-----------	---------------	-----------	--------------

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
All year	:4	12	si	=	4	_	-	_	_	-	_
Planting	-	*	· ·	-	144	-	-	-	-	-	7.69
Weeding	-	-	ī	at the		-		36	340	9	9
Harvest	-	-	40.00	50.00		36.36	28.57	58.33	66.67		69.23
Anytime	-	-	40.00	50.00	2	36.36	28.57	58.33	66.67	3	69.23
No. fmrs in range	-	2	5	2	6	11	7	12	6	2	13

Total no. fmrs questioned: 67

### Use of hired labour for Irrigated Wheat

District : Nadi-ali Province : Helmand

Average no of days hired labour used per jerib of land

Activities	0–2	2–4	4–6	6–8	8–10	10–12	12–14	14–16	16–18	18–20	>=20
No. days	-	۳	4.88	2.38	3. <del>5</del> ;	3.43	1.82	1.80	2.50		1.43
No. farmers	-	**	2	1	1,45	4	2	7	4	•	9

### **ANNEX D - Hired Labour Costs**

### 1989

In 1989 the ASA collected details on daily labour rates paid by farmers hiring labour for their farming operations. Although the data is now out of date, it does illustrate the large general differences between labour rates for the whole country. The north-eastern provinces who hire the most labour also have the highest labour rates. Typically the rates which are paid range between 700 and 900 Afs per day. The next highest rates are found in the south-eastern provinces of Kandahar, Helmand and Paktika ranging between 400 and 800 Afs per day. The labour rates in other areas generally range between 400 and 600 Afs per day.

There is also a seasonal element to the labour rates. In some provinces the rates for the wheat harvest are higher than for the maize harvest. Presumably this is due to a slacker demand during the Summer crop harvesting season.

The exchange rate in Kabul was 450 Afs per US dollar (USD). This gives a rate of 1.3 USD for a days work during harvest.

### 1990

In harvest time of 1990, labour rates were about 1,200 Afs per day.

The exchange rate in Kabul in August 1990 was about 650 Afs per USD. In 1990 one days labour at harvest time would therefore cost 2 USD.

### 1991

In 1991 harvest time the cost of labour was in the range of 2,000 Afs per day in the north-west of Afghanistan, and around 1,200 Afs in the southern regions.

The 1991 August Kabul exchange rate between Afs and US dollars was approximately 1,000 Afs per USD. One days labour would therefore cost the hirer about 2 USD.