Strengthening National Seed Production Capacity in Afghanistan
GCP/AFG/018/EC

ANALYSIS OF THE SEED MARKET IN AFGHANISTAN

Sam Kugbei
Senior Technical Adviser, GCP/AFG/018/EC

and

Shahabuddin Shahab
FAO Consultant

Food and Agriculture Organization of the United Nation

ISBN 978-92-5-105000-0

CONTENTS

		Page
ACKNOWLEGMENTS		iv
LIST OF TABLES		v
1.	SUMMARY AND INTRODUCTION	1
2.	OBJETIVES OF THE SURVEY	2
3.	SURVEY METHODS	2
4.	FARM SIZE AND CULTIVATED AREA FOR DIFFERENT CROPS	3
5.	FARMERS' SOURCES OF SEED AND PATTERN OF UTILIZATION	12
6.	FARMERS' VIEW ABOUT LOCAL AND IMPROVED VARIETIES	18
7.	SEED FROM FARMERS' OWN SOURCES	22
8.	CASH PURCHASE OF SEED IN THE LOCAL MARKETS	24
9.	CHARACTERISTICS OF SEED AVAILABLE IN THE LOCAL MARKET	32
10.	CHARACTERISTICS OF SEED FROM OTHER FARMERS AND SOURCES	34
11	SUPPLY OF SEED BY RELIEF AGENCIES	38
12.	WHY FRMERS DID NOT BUY SEED TO SOW?	39
13.	RELIABILITY OF SEED SUPPLY AND THE FREQUENCY OF PURCHASE	42
14.	FACTORS INFLUENCING FARMERS' SEED BUYING BEHAVIOUR	44
15.	CONCLUSIONS: Assessing the potential for seed marketing	53
16.	THOUGHTS FOR FUTURE DIRECTIONS	57
ANNEX 1. QUESTIONAIRE		59

Acknowledgements

The authors would like to thank everybody who contributed to this survey. Without everybody's enthusiasm it would not have been possible to undertake this unique study. Thanks particularly to all participating farmers who collaborated and took the time to answer several questions posed by the enumerators, ranging from the curious to the controversial, and thus enabled us to form an insight into their perceptions about seed demand and the ways in which they currently practice their seed activities.

Special thanks go to enumerators of the CoAR Survey Unit who put a considerable amount of time and effort into travelling across the country to interview farmers in their various communities and to FAO consultant, Mogens Lemonius, who assisted with data analysis and with the preparation of tables and graphs.

Finally, we are grateful to the European Union (through the GCP/AFG/018/EC seed project) and the German Government (through the GCP/AFG/025/GER) for funding this study, and thanks to the staff and colleagues of these projects for their cooperation.

LIST OF TABLES

1	Size of cultivated areas (ha)	3
2	Crops and areas cultivated	4
3.	The use of irrigation	5
4	Number of farmers growing different crops in provinces and districts	6
5	Total areas (ha) cultivated of different crops in provinces and districts	12
6	Quantities of seed (kg) acquired from different sourcesm, and planting rates (kg/ha)	13
7	Percentage distribution of seed acquisitions from different souves (crops and seed quantities)	13
8	Distribution of seed acquisitions from diffent souces (number and percentage of farmers)	14
9	Provinces, districts and seed sources (number of farmers)	15
10	Provinces, districts and seed sources (percentage of kg)	18
11	Farmers' use of local and improved varieties	19
12	Farmers' views on local varieties	20
13	Comparing local varieties with improved varieties	21
14	Farmers' knowledge of improved varieties	21
15	Buying seed for cash in the local market	25
16	Buying wheat seed for cash from the local market	27
17	Buying rice seed for cash from the local market	28
18	Buying mung bean seed for cash from the local market	28
19	Buying sesame seed for cash from the local market	29
20	Buying cotton seed for cash from the local market	29
21	Buying potato seed for cash from the local market	30
22	Buying tomato seed for cash from the local market	30
23	Farmers' assessment of the seed they got from other farmers	33
24	Farmers buying seed for cash from other sources	34
25	Seed and seed prices provided by other sources	35
26	Supply of seed from relief agencies	38
27	Farmers rating reasons for buying more quality seed	44
28	Buying more quality seed if the quality really was better	45
29	Buying more quality seed if it came with fertilizers	46
30	Buying more quality seed in case of lower prices	47
31	Buying more quality seed if credit was available	48
32	Buying more quality seed if there was a new variety	49
33	Buying more quality seed if there was good awareness about varieties and seed	50
34	Buying more quality if it came with good extension advice	51
35	Reviewing commercial seed sources	53
36	Comparative analysis of crop profitability	55

LIST OF PLATES

1	Wheat grown in Kunduz Province under rainfed conditions on the hillsides and in valley below	5
2	Irrigated wheat in Banghlan Province	7
3	Rice in Takhar Province	7
4	Harvested flax awaiting threshing in Takhar Province	8
5	Sesame in Kunduz Province	8
6	Cauliflower in Takhar Province	9
7	Okra in Balkh Province	9
8	Watermelon in Baghlan Province	10

9	Tomato in Balkh Province	10
10	Mung bean in Kunduz Province	11
11	Potato in Bamyan	11
12	Farmer sowing own saved tomato seed in Karoukh District, Herat Province	22
13	Open market stall in Jalalabad, Nangahar Province	24
14	Vegetable seed shop in Herat	24
15	Processed seed awaiting distribution by Aghan Seed Project in Mazar, Balkh Province	34
16	Processed seed awainting distribution by improved Seed Enterprise in Herat	34
17	Coordination of Afghan Relief (CoAR) distributing wheat seed in Chahe District, Balkh Province	37

LIST OF FIGURES

1	Percentage of farmers acquiring see from various sources, by province and on average	16
2	Percentage of seed acquired from various sources, by province	16
3	Percentage of farmers acquiring seed from different sources, by crops	17
4	Percentage of seed acquired from different sources, by crops	17
5	Farmers rating the quality of their own seed (total and different crops)	22
6	Number of years of multiplication after which farmers would replace their seed with clean seed because of deterioration of seed quality (crops and percentage of farmers)	23
7	Number of years of multiplication after which farmers would replace their seed with clean seed because of deterioration of seed quality (provinces and percentage of farmers)	23
8	Reasons for buying seed for cash in the local market	26
9	Rating the quality of seed of various crops bought in the local markets, percentage of farmers	31
10	Comparing seed in the local market with ordinary grain	32
11	Assessment of the reasons why farmers bought seed for cash from other sources (by crop – top; by province – below)	36
12	Farmers rating the quality of seed they bought for cast from other sources	37
13	Farmers rating reasons why they did not buy seed (by crop)	39
14	Farmers rating reasons why they did not buy seed (by province)	41
15	Farmers responding to availability of a reliable seed supplier in the community	41
16	Farmers responding to availability of a reliable seed supplier in the community	42
17	Farmers responding to the deterioration quality of their seed	42
18	Farmers responding to the deteriorating quality of their seed	43
19	Farmers rating reasons for buying more quality seed	44
20	Buying more quality seed if the quality really was better	45
21	Buying more quality seed if it came with feritilizers	46
22	Buying more quality seed in case of lower prices	47
23	Buying more quality seed if credit was available	48
24	Buying more quality seed if there was a new variety	49
25	Buying more quality seed if there was good awareness about varieties and seed	50
26	Buying more quality seed if it came with good extension advice	51
27	Portfolio of crops grown in different provinces	56

List of acronyms

AREU	Afghanistan Research and Evaluation Unit
COAR	Coordination of Afghanistan Relief
ISE	Improved Seed Enterprise
ISRA	Islamic Relief Agency
MC	Mercy crops
NGO	Non-Governmental Organization
QDS	Quality Declared Seed
VARA	Voluntary Association for the Rehabilitation of Afghanistan

Measures:
1 jerib = 0.2 ha;
1 Seer = 7.0 kg;
1 US$ = 49.6 Afghani (AFA)

1. SUMMARY AND INTRODUCTION

There is a lack of information in Afghanistan about the effective demand for seed of the major field crops. Without such information it is difficult to promote commercial seed production for the purpose of sale to farmers.

In order to generate relevant information about seed demand, the FAO/EC project Strengthening National Seed Production Capacity in Afghanistan (GCP/AFG/018/EC) organized a Survey in May-June 2004, which was carried out by the Coordination of Afghan Relief (CoAR) Survey Unit (formerly called the Afghan Survey Unit) to: (i) examine the seed buying behaviour of farming households with the view to estimate the potential demand for quality seed of major crops; (ii) investigate possibilities for market-oriented seed production; and (iii) examine the nature of prices and farmers' attitudes regarding variety choice and seed use, and explore ways to influence these to promote demand for quality seed.

The Survey was based on a random selection of 2 887 farming households who contributed to the completion of 3 508 questionnaires, with each questionnaire obtaining information for a particular crop. Since no record was kept of households who supplied information for more than one crop, this report treats each completed questionnaire as information from one farmer.

After orientation training and pre-testing of the questionnaire, the enumerators conducted the survey in 20 districts of 6 provinces. A total of 21 crops were encountered during the survey, which have been categorized in this analysis into 10 groups of crops. The total area grown by the surveyed farmers of these crops was 6 127 ha of which irrigated and rainfed wheat covered a little more than 50 percent of cultivated area. The average area cultivated by the farmers was small, amounting to 1.7 ha per farmer and ranging from 6.3 ha for rainfed wheat to 0.5 ha for potato and even smaller areas for some of the vegetables. The total amount of seed included under the Survey was 918.7 tons.

The results show that 48.8 percent of the seed used by the farmers came from their own production although almost half of the farmers considered the quality of their own seed as "poor". Similarly, 39.4 percent of the seed they used was bought against cash in the local markets with 44 percent of the farmers also considering the quality of such seed as "poor". The same "poor" quality was true of the 4.3 percent seed that they got from other farmers. The farmers also bought part of their seed from the Improved Seed Enterprise (ISE), Non Governmental Organizations (NGOs) and others (6 percent) and got seed from relief agencies, either free of charge or against credit (1.3 percent).

As regards the varieties used, several farmers were growing both local and improved varieties. A total of 1 224 farmers grew one to four local varieties, and most of them were satisfied with these varieties but many of them also thought improved varieties were better. A total of 2 627 farmers were growing one to three improved varieties while 881 farmers did not grow improved varieties and 65 percent of these farmers had not even heard about improved varieties at all. It was particularly the growers of potato, melon, oil crops and rainfed wheat who had not heard about improved varieties. On the whole, most farmers would have preferred to replace their seed/varieties every second or third year if they could find new quality seed to plant.

The Survey was not able to quantify to which extent farmers would pay about twice the grain price for quality seed. However, they responded to several questions in a manner which suggests that there is a lack of reliable suppliers of quality seed of many crops and that farmers would be willing to buy quality seed on a regular basis if they could find it. Assuming that all Afghan farmers now buying seed of dubious quality in the local markets and other sources were to buy a corresponding quantity of quality seed instead at twice the price of grain from reliable suppliers in their communities, this would mean a potential market for a little more than 70 000 tons of quality wheat

seed and 11 000 tons of quality rice seed. At present prices, the total value of this seed market is worth about US$ 30 million.

The Report provides detailed data relating to the above findings and other issues both on the basis of individual crops and provinces where the survey was conducted. In conclusion, the report assesses the potential of seed marketing in Afghanistan and provides thoughts for future directions.

2. OBJECTIVES OF THE SURVEY

The objectives of this study were to:

1. Examine the seed buying behaviour of farming households across the country with the view of estimating the potential market demand for quality seed[1] of the major crops;
2. Investigate the possibilities for market-oriented seed production in areas that demonstrate potential effective demand for seed; and
3. Examine the nature of prices and farmers' attitudes regarding variety choice and seed use, and explore ways to influence these to promote market demand for quality seed.

It was expected, that the Survey would provide answers to the following questions:

1. What are the key sources from which farmers obtain seed for major crops and what are the relative importance and merits of these sources?
2. What proportion of farmers' seed needs of major crops is met by cash purchases and how large could this get?
3. What are the likely key factors that will influence growth of the commercial seed market at the farm level?
4. What are potential seed buying farmers looking for when making the decision to buy seed of new varieties or replace seed they currently use?
5. What are the relative effects of price change on demand for seed of the major crops grown by farmers?
6. Would locating small-scale enterprises in communities influence farmers to buy more quality seed? What factors would enhance this process?
7. What diversified crop portfolio would be suitable for pilot enterprises in particular farming communities?

3. SURVEY METHODS

The Survey was based on a questionnaire with 57 questions, such that one questionnaire was completed by one household for one of the crops covered by the survey. Prior to the field interviews, the enumerators participated in an orientation training during which all scheduled questions were thoroughly reviewed and modifications made as necessary. The modified questionnaire was pre-tested and the final version translated into Dari alongside the English text. The Questionnaire is in Annex 1.

The questionnaire was then used to interview a random sample of 2 887 farming households which were selected from lists of households compiled by the Extension Department of the Ministry

[1] The Survey operates with two seed quality concepts: (i) Quality Declared Seed (QDS) which is a category of seed defined by FAO and meeting specific quality requirements which in Afghanistan includes i.a. min. 80 percent germination, 98 percent physical purity, and 98 percent varietal purity; and (ii) Quality Seed which includes QDS and other seed products of a better quality than grain. Quality Seed in this Survey is defined either by the sources (seed from the bazaar is not quality seed whereas seed from a contract grower or a project is Quality Seed) or by the price (unsubsidized Quality Seed costs about twice the grain price).

of Agriculture and Animal Husbandry. These farmers were identified in 1 318 villages or sub-villages[2], found in 20 districts of 6 provinces .

Since many of the surveyed households were interviewed for more than one crop, the Survey resulted in a total of 3 508 questionnaires being completed. As data from the questionnaires were transferred to computerized databases, it was not clear which farmers had been interviewed for more than one crop. Hence a more detailed analysis of this aspect of the survey was therefore not been possible.

To facilitate reading of this Report, the term “farmers” has been used throughout the analysis when, in fact, the correct term would have been “records” or “questionnaires”.

Farmers’ answers to questions 49-55 (see Annex 1) were such that a reliable analysis of price elasticity could not be made as was intended.

4. FARM SIZE AND CULTIVATED AREA FOR DIFFERENT CROPS

According to findings by the Afghanistan Research and Evaluation Unit (AREU), regional differences of land distribution are so strong that national farm size averages are meaningless in Afghanistan. While most of the rural population depends on arable agriculture, the amount of useable farmland is limited, comprising only 12 percent of the land area. Landlessness is therefore very common and a significant part of the population do not own farmland (the landless), or they own farms too small for survival (near-landless), yet together they provide a highly significant part of production, as sharecroppers, workers or tenants.

Table 1. Size of cultivated areas (ha)

Size of area cultivated, ha	Number of farmers	Percentage of farmers
<1.0	1 675	47.7
1.1-2.0	1 147	32.7
2.1-3.0	260	7.4
3.1-4.0	201	5.7
4.1-5.0	44	1.3
5.1-6.0	58	1.7
6.1-7.0	9	0.3
7.1-8.0	43	1.2
8.1-9.0	13	0.4
9.0-10.0	22	0.6
>10.0	36	1.0
Total:	3 508	100.0

Given the highly complicated land tenure arrangements in Afghanistan, farm size could best be measured in terms of cultivated area. On this basis, various reports state the average farm size as ranging between one to two hectares, taking into account the variability in landholding size and types both between and within provinces. About 80 percent of farming households have been shown to cultivate up to two hectares with nearly 50 percent less than 1 hectare per household.

[2] Village names in Afghanistan can be a somewhat complicated issue to deal with. This Survey covered 1 318 locations in the form of villages or sub-villages. However, examination of the village names reveal that the Survey includes only 257 different village names because the same village name occurs in many districts. For example, a village by the name of “Wazir Abad” is found in 15 of the districts participating in this Survey, “Wazir Abad Bala” is found 14 times, etc.

The results of this survey show that most of the farmers were growing only small areas of any of the crops as shown by the analysis in Table 1. The Survey covered 21 crops. Since some of these crops were grown by only few farmers, 10 crop groups were identified for the purpose of analysis and better overview. The number of farmers that grew the respective crops and the average areas cultivated are outlined in Table 2. The 1.7 hectares average cultivated area per farmer or household embodies a wide variation depending on crop, with the largest area per farmer for rainfed wheat and lowest for vegetables. Examples of major field crops are shown in Figures 1 to 11.

Table 2. Crops and areas cultivated

	Crop groups	Crops	Area Surveyed (ha)	Farmers Number	Average area cultivated (ha) per farmer
1	Wheat (irrigated)		2 577	961	2.7
2	Wheat (rainfed)		552	88	6.3
3	Rice		943	479	2.0
4	Pulses	Bean	48	47	1.0
		Chick Pea	171	97	1.8
		Mung Bean	227	177	1.3
	Pulses Total		446	321	1.4
5	Oil crops	Flax Seed	244	93	2.6
		Sesame	252	231	1.1
	Oil crops Total		495	324	1.5
6	Cotton	Cotton	498	382	1.3
7	Potato	Potato	158	291	0.5
8	Melon	Melon	317	243	1.3
		Water Melon	33	41	0.8
	Melon Total		350	284	1.2
9	Tomato	Tomato	34	126	0.3
10	Other vegetables	Cauliflower	1	2	0.3
		Cucumber	2	3	0.6
		Egg Plant	26	86	0.3
		Green Bean	3	13	0.2
		Luffa	1	2	0.6
		Okra	18	66	0.3
		Onion	23	74	0.3
		Pepper	2	4	0.4
		Spinach	1	2	0.7
Other vegetables Total			76	252	0.3
Total			6 127	3 508	1.7

For some crops, the enumerators checked whether the crops had been irrigated or not. However, only for wheat were the data such that wheat grown under irrigated and exclusively rainfed conditions could be identified and analyzed separately. An indication of the use of irrigation is shown in Table 3. Figure 1 shows wheat grown under rainfed conditions in Kunduz Province.

Plate 1. Wheat grown in Kunduz Province under rainfed conditions on the hillsides and in valley below.

Table 3. The use of irrigation

Crop groups	Irrigated	Irrigated and rainfed	Rainfed
Wheat (irrigated)	x		
Wheat (rainfed)			x
Rice	x		
Pulses	x		
Oil crops	x	x	
Cotton	x		
Potato	x		
Melon		x	
Tomato		x	
Other vegetables	x	x	

The distribution of farmers and areas against provinces and districts is in Tables 4 and 5.

Table 4. Number of farmers growing different crops in provinces and districts

Province	District	Wheat (irrigated)	Wheat (rainfed)	Rice	Pulses	Oil crops	Cotton	Potato	Melon	Tomato	Other vegetables	Total
Baghlan	Baghlan	32	17	51	30	40	31	31	32	3	3	270
	Doshi	52		58				11	37	3		161
	Puli Khumri	51		51	24	14	30	36	32	1	28	267
Baghlan Total		135	17	160	54	54	61	78	101	7	31	698
Balkh	Balkh	55			18	33	56		30	16	8	216
	Chemtal	50	4		31	41	30		39	2	2	199
	Dehdadi	49	1		33	34	33		27	6	13	196
	Shulgara	50	7	58	31	38						184
Balkh Total		204	12	58	113	146	119		96	24	23	795
Bamyan	Kamard	50						49				99
	Markaz-Bamyan	49						50				99
	Yakwolang	51						51				102
Bamyan Total		150						150				300
Herat	Gozara	49		50	3		30	33			18	183
	Ingel	57		4	1		4			12	40	118
	Kushk Robat		50		50					6	13	119
	Pushton Zarghun	46					30	30	2	13	27	148
Herat Total		152	50	54	54		64	63	2	31	98	568
Kunduz	Chahar Dara	52		50	32	39	37		36		5	251
	Khan Abad	48	3	51	32	43	30		13	18	34	272
	Markaz-Kunduz	60	6	54	36	42	39		27	10	5	279
Kunduz Total		160	9	155	100	124	106		76	28	44	802
Nangarhar	Kama	68		52			15		3	3	23	164
	Khogani	32					10		6	28	6	82
	Surkhrod	60					7			5	27	99
Nangarhar Total		160		52			32		9	36	56	345
Total		961	88	479	321	324	382	291	284	126	252	3 508

Plate 2. Irrigated Wheat in Banghlan Province

Plate 3. Rice in Takhar Province

Plate 4. Harvested Flax awaiting threshing in Takhar Province

Plate 5. Sesame in Kunduz Province

Plate 6. Cauliflower in Takhar Province

Plate 7. Okra in Balkh Province

Plate 8. Watermelon in Baghlan Province

Plate 9. Tomato in Balkh Province

Plate 10. Mung bean in Kunduz Province

Plate 11. Potato in Bamyan

Table 5. Total area (ha) cultivated of different crops in provinces and districts

Province	District	Wheat (irrigated)	Wheat (rainfed)	Rice	Pulses	Oil crops	Cotton	Potato	Melon	Tomato	Other vegetables	Total
Baghlan	Baghlan	128	132	138	23	36	48	17	18	1	1	541
	Doshi	56		93				3	78	1		229
	Puli Khumri	88		105	15	23	23	29	71	0	10	366
Baghlan Total		272	132	336	37	60	71	48	167	2	11	1 135
Balkh	Balkh	658			13	40	160		23	4	3	902
	Chemtal	110	17		26	35	33		32	1	0	254
	Dehdadi	164	12		42	29	32		26	2	6	312
	Shulgara	148	35	111	25	82						402
Balkh Total		1 080	64	111	106	187	225		81	7	9	1 869
Bamyan	Kamard	94						17				111
	Markaz-Bamyan	45						45				90
	Yakwolang	78						22				100
Bamyan Total		217						84				301
Herat	Gozara	97		35	2		18	11			7	169
	Ingel	98		4	2		2			3	13	121
	Kushk Robat Sangi		307		107					1	4	420
	Pushton Zarghun	131					20	14	2	4	8	178
Herat Total		326	307	39	111		40	25	2	8	31	888
Kunduz	Chahar Dara	123		79	81	61	70		45		1	461
	Khan Abad	158	32	168	43	144	33		15	3	5	601
	Markaz-Kunduz	177	17	156	67	44	49		34	4	1	548
Kunduz Total		458	48	403	192	249	152		95	7	8	1 611
Nangarhar	Kama	113		54			5		3	1	4	180
	Khogani	19					2		2	7	1	32
	Surkhrod	93					4			2	11	110
Nangarhar Total		225		54			11		6	11	17	322
Total		2 577	552	943	446	495	498	158	350	34	76	6 127

5. FARMERS' SOURCES OF SEED AND PATTERN OF UTILIZATION

One of the main reasons for this study is to find out the extent to which farmers are actually buying or wish to buy seed of different crops, so as to determine what kinds of seed systems could be envisaged for different parts of the country, which will involve particularly the private sector.

To plant the areas covered by the Survey, farmers acquired seed from the following sources:

- Own saved seed
- Seed from other farmers
- Seed bought with cash in the local markets
- Seed bought with cash from other sources
- Seed obtained free of charge from relief agencies
- Seed obtained with credit from relief agencies

The relative significance of the various seed sources is analysed in Tables 6-9. The tables also show that many farmers acquired seed from a combination of sources. This was particularly the

case for wheat and potato growers who to a large extent produced both their own seed and also bought from the local markets. It was less the case for other crops.

The figures also show that relief agencies were active in seed distribution particularly for wheat. This was probably because of the strategic importance of this crop and the greater number of farmers depending on it for food.

The proportion of seed from the various sources is analyzed in Table 7, which reveals that the farmers' own seed production and the local markets were by far the most important sources of seed. The analysis in terms of proportion of farmers (Table 8) also confirms the own source and local market as the most important sources for seed.

Table 6. Quantities of seed (kg) acquired from different sources and planting rates (kg/ha)

Crop groups	Area (ha)	Seed from		Against cash from		From relief agency		Total seed supply (kg)	Planting rates (kg/ha)
		own source (kg)	other farmer (kg)	local market (kg)	other source (kg)	free of charge (kg)	against credit (kg)		
Wheat (irrigated)	2 577	272 938	14 077	99 229	21 207	1 432	5 628	41 509	160.8
Wheat (rainfed)	552	24 542	546	14 147	1 127	98	2 961	43 421	78.7
Rice	943	66 350	1 850	40 117	15 848	28	119	124 311	131.9
Pulses	446	11 074	368	9 284	196	1 309		22 230	49.8
Oil crops	495	3 476		7 247	234			10 957	22.1
Cotton	498	5 593	686	22 461	1 474	42		30 256	60.7
Potato	158	62 419	22 295	169 607	14 868	42	749	269 980	1 712.0
Melon	350	1 970	9	195	133			2 307	6.6
Tomato	34	41	1	33	3			77	2.3
Other vegetables	76	289	10	228	153	6		687	9.1
Total	6 127	448 691	39 841	362 547	55 242	2 957	9 457	918 734	

Table 7. Percentage distribution of seed acquisitions from different sources (crops and seed quantities)

Crop groups	Seed from		Against cash from		From relief agency		Total %
	own source %	other farmer %	local market %	other source %	free of charge %	against credit %	
Wheat (irrigated)	65.8	3.4	23.9	5.1	0.3	1.4	100
Wheat (rainfed)	56.5	1.3	32.6	2.6	0.2	6.8	100
Rice	53.4	1.5	32.3	12.7	0.0	0.1	100
Pulses	49.8	1.7	41.8	0.9	5.9		100
Oil crops	31.7		66.1	2.1			100
Cotton	18.5	2.3	74.2	4.9	0.1		100
Potato	23.1	8.3	62.8	5.5	0.0	0.3	100
Melon	85.4	0.4	8.5	5.8			100
Tomato	53.2	0.7	42.5	3.6			100
Other vegetables	42.1	1.5	33.2	22.3	0.9		100
Total	48.8	4.3	39.5	6.0	0.3	1.0	100

Table 8. Distribution of seed acquisitions from different sources (number and percentage of farmers)

Crop groups	Total	Number and percentage of 3 508 farmers who acquired seed from					
		own source	other farmers	local market against cash	other source against cash	relief agency for free	relief agency against credit
Number of farmers:							
Wheat (irrigated)	961	695	122	340	124	25	71
Wheat (rainfed)	88	69	7	54	6	2	36
Rice	479	282	21	146	67	2	2
Pulses	321	153	6	184	4	35	
Oil crops	324	150		171	3		
Cotton	382	112	9	237	39	1	
Potato	291	165	82	242	78	1	3
Melon	284	235	2	33	16		
Tomato	126	65	3	56	5		
Other vegetables	252	92	9	122	33	7	
Total	3 508	2 018	261	1 585	375	73	112
Percentage of 3 508 farmers:							
Wheat (irrigated)	143	72.3	12.7	35.4	12.9	2.6	7.4
Wheat (rainfed)	198	78.4	8.0	61.4	6.8	2.3	40.9
Rice	109	58.9	4.4	30.5	14.0	0.4	0.4
Pulses	119	47.7	1.9	57.3	1.2	10.9	
Oil crops	100	46.3		52.8	0.9		
Cotton	104	29.3	2.4	62.0	10.2	0.3	
Potato	196	56.7	28.2	83.2	26.8	0.3	1.0
Melon	101	82.7	0.7	11.6	5.6		
Tomato	102	51.6	2.4	44.4	4.0		
Other vegetables	104	36.5	3.6	48.4	13.1	2.8	
Total	126	57.5	7.4	45.2	10.7	2.1	3.2

Table 9 analyzes the use of various seed sources by provinces and districts, and also shows the extent to which farmers are using more than one seed source. The use of multiple sources seemed more common in Bamyan and Herat Provinces than in others, suggesting that in these two provinces there are more seed sources available for farmers. This is likely because several NGOs are active in rural development and related seed activities in Bamyan, while in Herat there are many commercial outlets especially for imported vegetable seeds.

The use of various seed sources by provinces is further illustrated in Figure 12 which is based on percentage of farmers and Figure 13 which illustrates the distribution by proportion of seed acquired. Table 10 provides an analysis of seed sources by district. The pattern of seed acquisition again shows that while the use of own seed and procurement from the local market are important in all provinces, the traditional means of obtaining seed from other farmers are more common in Bamyan Province than elsewhere. Credit is also more common in Bamyan. However, examining in detail the seed quantities involved, the amount of seed obtained against credit seems relatively small (Figure 13), although many farmers in Bamyan seem to rely on this source.

Table 9. Provinces, districts and seed sources (number of farmers)

Province	District	Total number of farmers in Survey	Acquired seed from		Acquired seed against cash from		Acquired seed from relief agency		Total no of farmers acquiring seed	
			own source	other farmer	local market	other source	free of charge	against credit	Number	%
Baghlan	Baghlan	270	131	8	122	19	2	2	284	105
	Doshi	161	146	1	8	1		9	165	102
	Puli Khumri	267	85	3	130	51			269	101
Baghlan Total		698	362	12	260	71	2	11	718	103
Balkh	Balkh	216	103	2	114	3			222	103
	Chemtal	199	121	6	75		1		203	102
	Dehdadi	196	135	1	59	2			197	101
	Shulgara	184	123	12	45	6			186	101
Balkh Total		795	482	21	293	11	1		808	102
Bamyan	Kamard	99	92	37	69	48		39	285	288
	Markaz-Bamyan	99	67	63	69	18	4	1	222	224
	Yakwolang	102	83	50	80	14			227	223
Bamyan Total		300	242	150	218	80	4	40	734	245
Herat	Gozara	183	100	19	94	74	1		288	157
	Ingel	118	63	20	73	28			184	156
	Kushk Robat	119	87	11	83	8	36	35	260	218
	Pushton Zarghun	148	87	10	80	48			225	152
Herat Total		568	337	60	330	158	37	35	957	168
Kunduz	Chahar Dara	251	176	2	72	2	1	1	254	101
	Khan Abad	272	74	1	184	15	3	2	279	103
	Markaz-Kunduz	279	137		143	5	5	1	291	104
Kunduz Total		802	387	3	399	22	9	4	824	103
Nangarhar	Kama	164	114	5	18	32	3	3	175	107
	Khogani	82	25	5	48		6	1	85	104
	Surkhrod	99	69	5	19	1	11	18	123	124
Nangarhar Total		345	208	15	85	33	20	22	383	111
Total		3 508	2 018	261	1 585	375	73	112	4 424	126

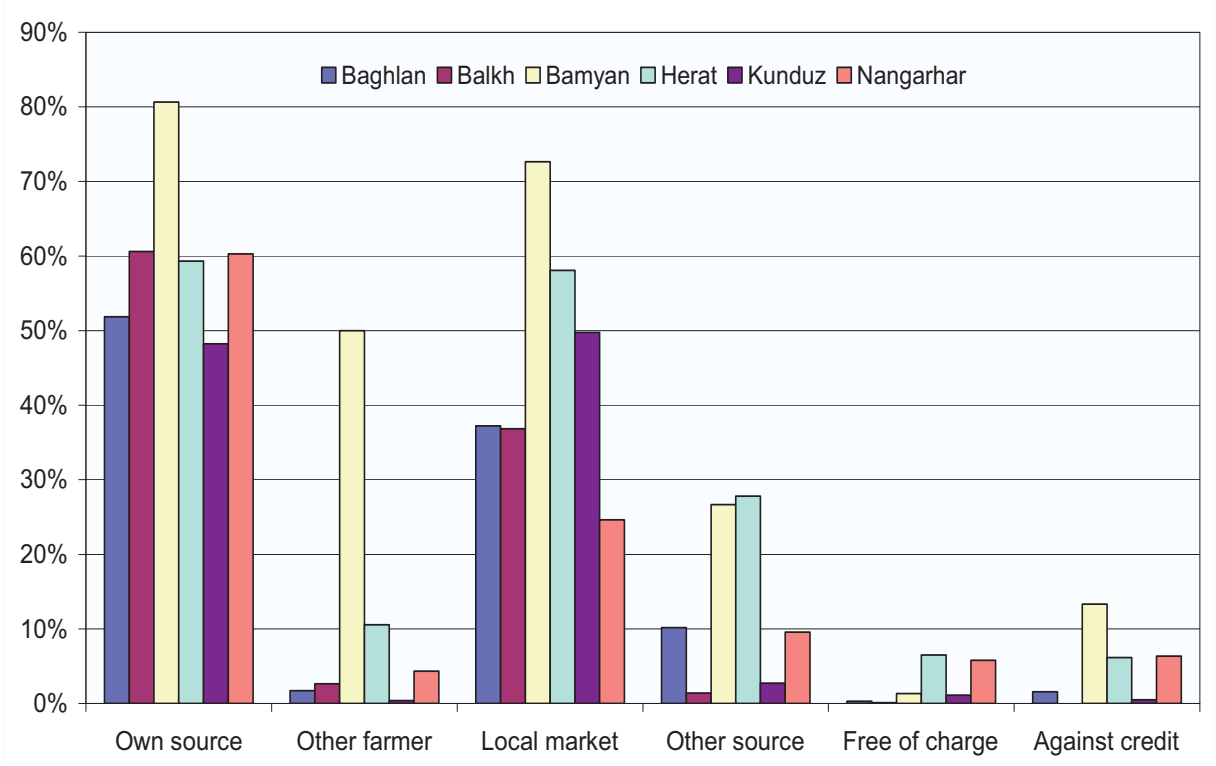

Figure 1. Percentage of farmers acquiring seed from various sources, by province and on average

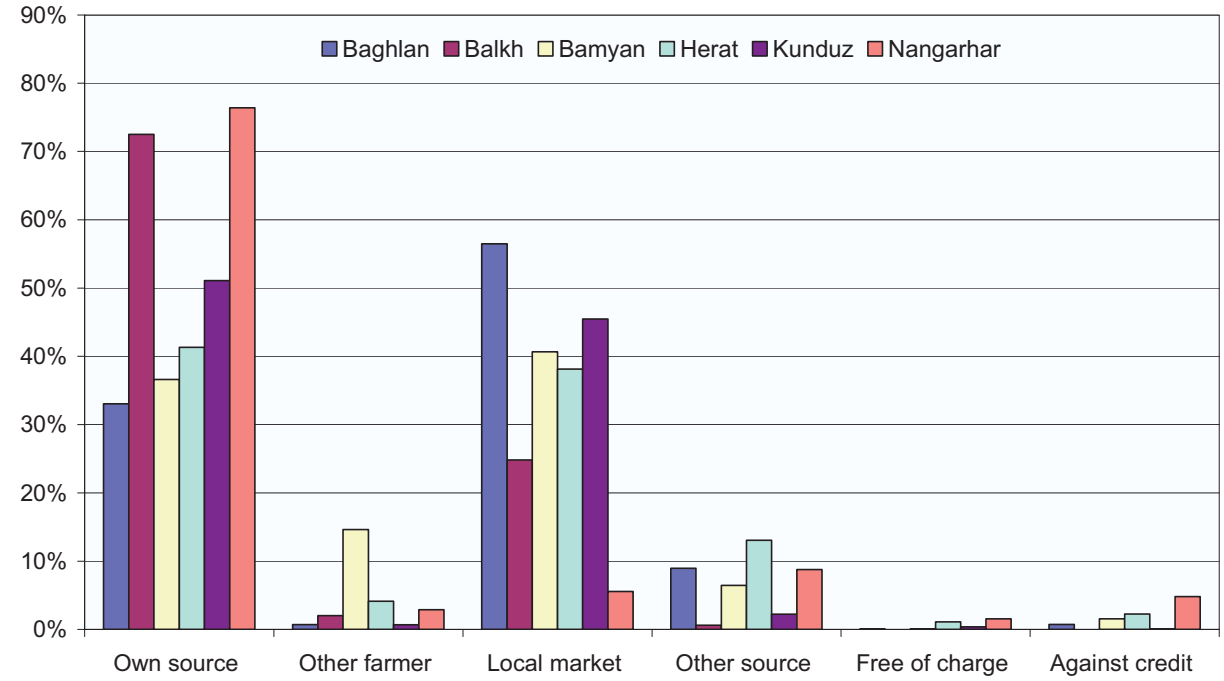

Figure 2. Percentage of seed acquired from various sources, by province

Analysis by crop (Figures 3 and 4) shows that rainfed wheat, pulses, oil crops, cotton and potato were most important in terms of seed purchased in the local market, while melon was least important. Farmers relied more on their own sources for melon, rice and irrigated wheat. One way of promoting commercial seed purchase of these crops may be the introduction of new high yielding varieties for wheat and rice. The taste preference for traditional melon varieties seems very strong and the existing local varieties would be difficult to replace by new varieties. In the case of melon, yield *per se* does not seem an important factor in influencing farmers' decision regarding variety choice.

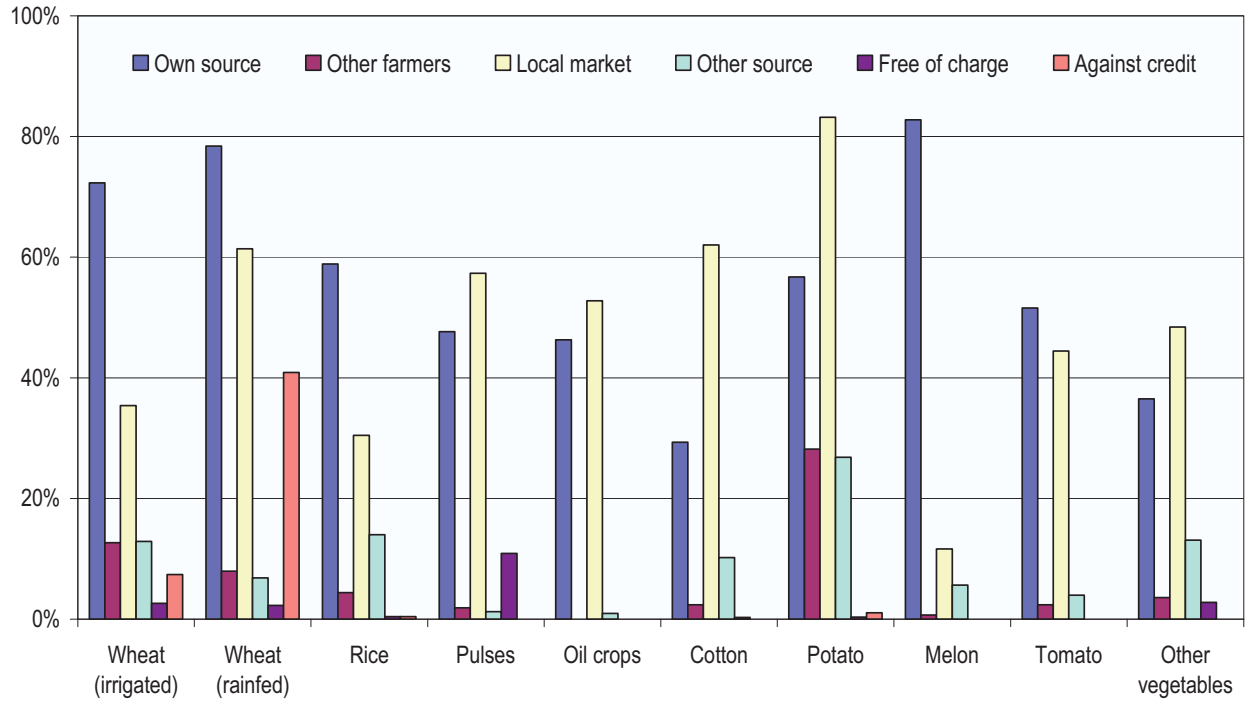

Figure 3. Percentage of farmers acquiring seed from different sources, by crops

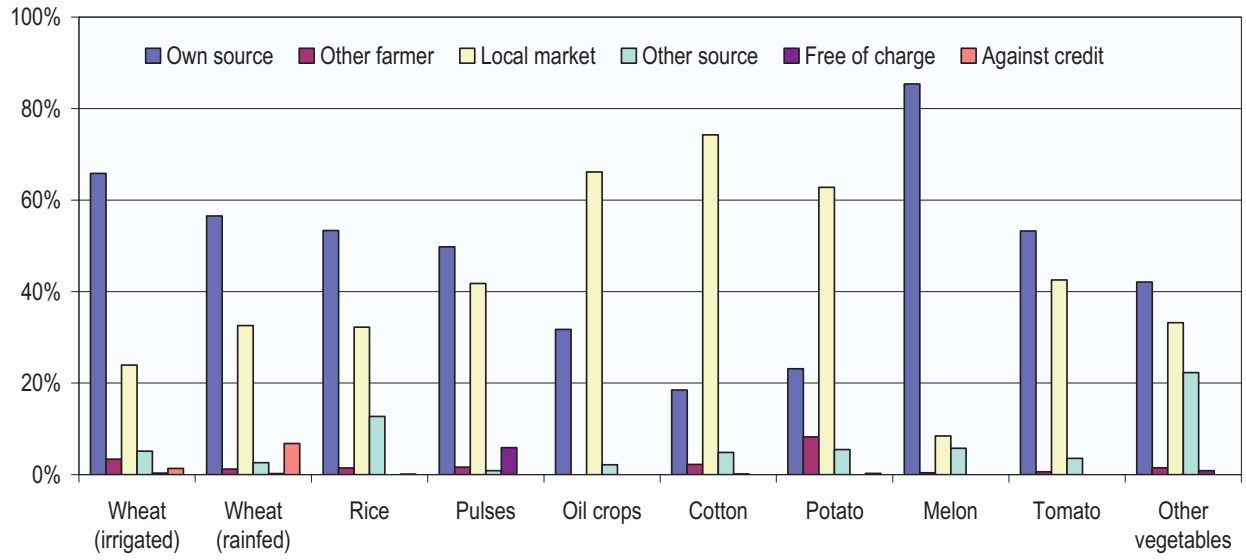

Figure 4. Percentage of seed acquired from different sources, by crops

Table 10. Provinces, districts and seed sources (percentage of kg)

Province	District	Farmers Number	Area (ha)	Total seed supply (kg)	Seed from		Against cash from		From relief agency		Total %
					own source	other farmer	local market	other source	free of charge	against credit	
Baghlan	Baghlan	270	540	78 057	13.2	0.6	21.2	3.2	0.0	0.1	38.3
	Doshi	161	229	28 792	12.4	0.1	0.9	0.0		0.6	14.1
	Puli Khumri	267	366	96 870	7.4	0.1	34.4	5.7			47.6
Baghlan Total		698	1 135	203 719	33.1	0.7	56.5	9.0	0.0	0.7	100.0
Balkh	Balkh	216	902	106 760	37.1	0.1	14.5	0.3			51.9
	Chemtal	199	254	25 430	6.7	0.4	5.2		0.0		12.4
	Dehdadi	196	312	28 641	11.9	0.1	2.0	0.0			13.9
	Shulgara	184	402	44 739	16.8	1.4	3.2	0.3			21.8
Balkh Total		795	1 869	205 569	72.5	2.0	24.8	0.6	0.0		100.0
Bamyan	Kamard	99	111	42 308	10.5	1.8	7.1	2.4		1.5	23.3
	Markaz-Bamyan	99	90	89 845	15.8	8.6	21.9	3.0	0.1	0.0	49.4
	Yakwolang	102	100	49 560	10.4	4.2	11.6	1.1			27.3
Bamyan Total		300	301	181 713	36.6	14.6	40.6	6.5	0.1	1.6	100.0
Herat	Gozara	183	169	37 551	10.6	1.3	12.3	5.0	0.0		29.3
	Ingel	118	121	19 221	7.1	0.9	5.3	1.7			15.0
	Kushk Robat	119	420	28 717	9.9	0.6	7.9	0.7	1.1	2.3	22.4
	Pushton Zarghun	148	178	42 703	13.8	1.4	12.6	5.5			33.3
Herat Total		568	888	128 193	41.3	4.1	38.1	13.0	1.1	2.3	100.0
Kunduz	Chahar Dara	251	461	43 896	21.1	0.3	6.4	0.1	0.0	0.0	28.0
	Khan Abad	272	601	56 099	11.5	0.4	22.3	1.4	0.0	0.0	35.8
	Markaz-Kunduz	279	548	56 855	18.4		16.7	0.7	0.3	0.0	36.2
Kunduz Total		802	1,611	156 850	51.1	0.7	45.5	2.2	0.4	0.1	100.0
Nangarhar	Kama	164	180	23 199	43.5	0.7	0.3	8.7	0.4	0.7	54.3
	Khogani	82	32	3 110	3.4	0.9	2.0		0.5	0.6	7.3
	Surkhrod	99	110	16 382	29.5	1.4	3.3	0.1	0.7	3.5	38.4
Nangarhar Total		345	322	42 691	76.4	2.9	5.6	8.8	1.6	4.8	100.0
Total		3 508	6 127	918 734	48.8	4.3	39.5	6.0	0.3	1.0	100.0

6. FARMERS' VIEWS ABOUT LOCAL AND IMPROVED VARIETIES

Several farmers were growing more than one variety. This characteristic is illustrated in Table 11.

A total of 1 224 farmers were growing local varieties (1 185 farmers were growing one variety, 27 were growing two varieties, seven were growing three varieties, and five were growing four varieties) and were asked about the opinion on these varieties. The result of this inquiry is in Tables 12 and 13.

On average, 84 of the farmers were satisfied with their local varieties. However, this varied between crops. Only 50 percent of the growers of irrigated wheat and 35 percent of the potato growers were satisfied with their local varieties, whereas many more growers of other crops were satisfied with local varieties of these crops.

Table 11. Farmers' use of local and improved varieties

Crop groups	All farmers in the Survey number	Number of farmers who grew this number of local and improved varieties				Number of farmers who grew this number of local varieties					Number of farmers who grew this number of improved varieties			
		1	2	3	4	0	1	2	3	4	0	1	2	3
Wheat (irrigated)	961	611	303	47		701	257	2	1		47	744	160	10
Wheat (rainfed)	88	35	40	13		35	53				12	51	25	
Rice	479	382	86	10	1	393	78	8			39	387	52	1
Pulses	321	284	37			204	117				105	192	24	
Oil crops	324	321	3			42	282				280	44		
Cotton	382	375	7			300	82				81	296	5	
Potato	291	219	71	1		268	23				3	236	51	1
Melon	284	253	18	8	5	37	219	17	6	5	246	37		1
Tomato	126	124	2			101	25				25	99	2	
Other vegetables	252	231	21			203	49				43	194	15	
Total number	3 508	2 835	588	79	6	2 284	1185	27	7	5	881	2 280	334	13
Total %	100	80.8	16.8	2.3	0.2	65.1	33.8	0.8	0.2	0.1	25.1	65.0	9.5	0.4

Responding to a question as to whether the farmers thought improved varieties were better than local ones 46 percent said "yes" and 53 percent said that they "didn't know" (Table 13). The lack of know-how concerning the potential of new varieties came in particular from growers of pulses, oil crops, melon, tomato and other vegetables.

In the case of pulses, oil crops and melon the reason for this may be that there are fewer improved varieties of these crops actually available. For vegetables, imported hybrid seed dominated the seed market and there were no field demonstrations of these vegetables which could help create awareness amongst the farmers about the relative performance of the varieties that were sold.

Table 11 shows that 881 farmers did not grow improved varieties. Further analysis of this figure is in Table 14 and reveals that 571 (65 percent) of these farmers had not heard about improved varieties, whereas 310 (35 percent) had heard about improved varieties but, nevertheless, did not grow them. It is in particular growers of potato, melon, oil crops and rainfed wheat who have not heard about improved varieties. The introduction of new varieties of these crops in order to raise demand for quality seed seems quite important.

Table 12. Farmers' views about local varieties

Crop groups	Number of farmers who grew local varieties	Number of local varieties they were growing	Were farmers satisfied with those local varieties? (number of farmers)		Were farmers satisfied with those local varieties? (% of farmers)	
			no	yes	no	yes
Wheat (irrigated)	257	1	130	127	51	49
	2	2		2	0	100
	1	3		1	0	100
Wheat (irrigated) Total	260		130	130	50	50
Wheat (rainfed)	53	1	11	42	21	79
Rice	78	1	7	71	9	91
	8	2	1	7	13	88
Rice Total	86		8	78	9	91
Pulses	117	1	20	97	17	83
Oil crops	282	1	8	274	3	97
Cotton	82	1	4	78	5	95
Potato	23	1	15	8	65	35
Melon	219	1		219	0	100
	17	2		17	0	100
	6	3		6	0	100
	5	4		5	0	100
Melon Total	247			247	0	100
Tomato	25	1	2	23	8	92
Other vegetables	49	1	3	46	6	94
Total	1 224	7	201	1 023	16	84

Table 13. Comparing local varieties with improved varieties

Crop groups	Number of farmers who grew local varieties	Number of local varieties they were growing	Did farmers think improved varieties were better? (number of farmers)			Did farmers think improved varieties were better? (% of farmers)		
			don't know	no	yes	don't know	no	yes
Wheat (irrigated)	257	1	18	3	236	7	1	92
	2	2			2	0	0	100
	1	3	1			100	0	0
Wheat (irrigated) Total	260		19	3	238	7	1	92
Wheat (rainfed)	53	1	10		43	19	0	81
Rice	78	1	8	7	63	10	9	81
	8	2		1	7	0	13	88
Rice Total	86		8	8	70	9	9	81
Pulses	117	1	70		47	60	0	40
Oil crops	282	1	207	1	74	73	0	26
Cotton	82	1	46		36	56	0	44
Potato	23	1	2		21	9	0	91
Melon	219	1	207		12	95	0	5
	17	2	17			100	0	0
	6	3	6			100	0	0
	5	4	5			100	0	0
Melon Total	247		235		12	95	0	5
Tomato	25	1	12	2	11	48	8	44
Other vegetables	49	1	34	1	14	69	2	29
Total	1 224		643	15	566	53	1	46

Table 14. Farmers' knowledge of improved varieties

Crop groups	Farmers who did not grow improved varieties (number)	Had not heard about improved varieties of the crop		Had heard about improved varieties of the crop	
		number	%	number	%
Wheat (irrigated)	47	7	15	40	85
Wheat (rainfed)	12	7	58	5	42
Rice	39	3	8	36	92
Pulses	105	52	50	53	50
Oil crops	280	200	71	80	29
Cotton	81	37	46	44	54
Potato	3	3	100		0
Melon	246	229	93	17	7
Tomato	25	9	36	16	64
Other vegetables	43	24	56	19	44
Total	881	571	65	310	35

7. SEED FROM FARMERS' OWN SOURCES

Farmers are generally known for saving their own seed of many crops. In situations where other sources of seed become available, it would be interesting to find out the views of farmers regarding the quality of their own seed in comparison with seed from other suppliers.

Plate 12 . Farmer sowing own saved tomato seed in Karoukh District, Herat Province

In this study, 2 018 farmers (57.5 percent) produced 449 tons of their own home-saved seed (Tables 8 and 10) and were asked about their opinion concerning the quality of this seed. Although it is not specifically clear from the questionnaire, it must be assumed that enumerators were thinking of the combined purity and germination capacity of the seed.

The farmers' views are illustrated in Figure 16 which shows that only 58 percent of the farmers considered the quality to be "very good" (7 percent) or "good" (51 percent), whereas 42 percent of the farmers considered the quality of their own seed to be "poor". The number of farmers who considered the quality of their own seed to be poor is higher in potato, cotton and various vegetables than it is in rice, pulses, oil crops, and melon. While seed of most vegetables may be difficult to produce and store by the farmers, disease may be particularly important in the case of potato tubers.

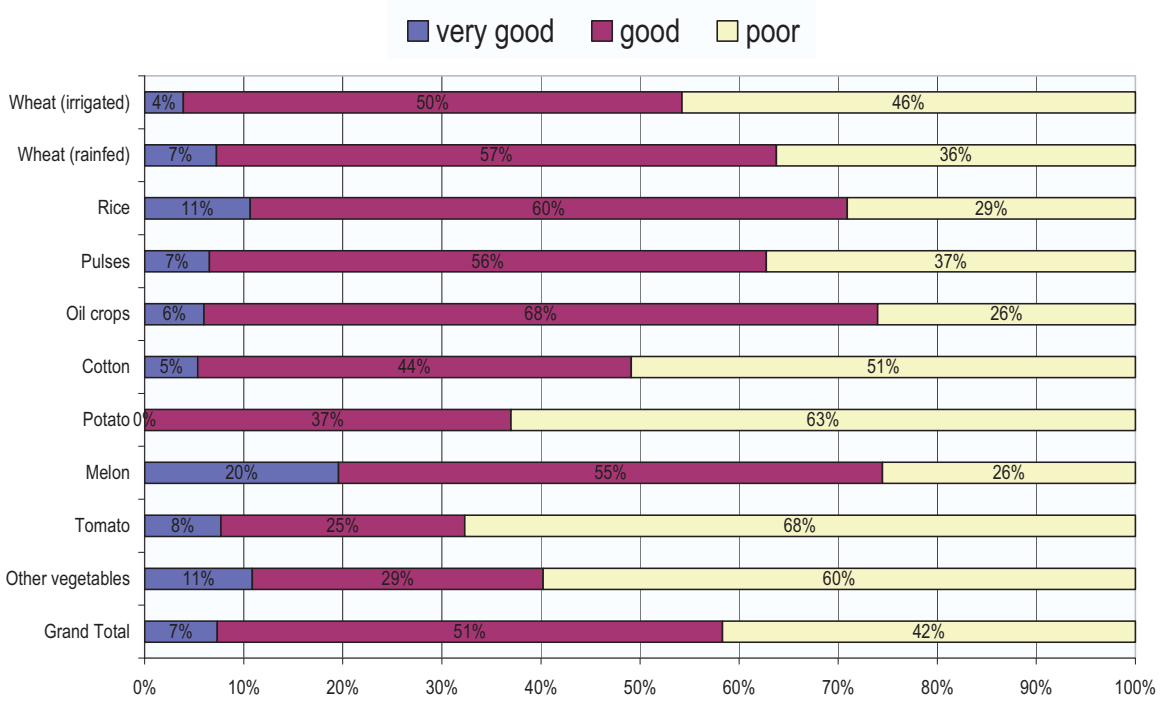

Figure 5. Farmers rating the quality of their own seed (total and different crops)

Farmers were then asked about the number of years of multiplication after which they would wish to replace their seed because of deteriorating quality, given that clean seed of a particular variety of crop can be obtained. The answers to that are illustrated in Figures 17 and 18, which show that a majority of farmers would prefer to replace their seed after two or three years for all crops. This result indicates a good potential for seed marketing.

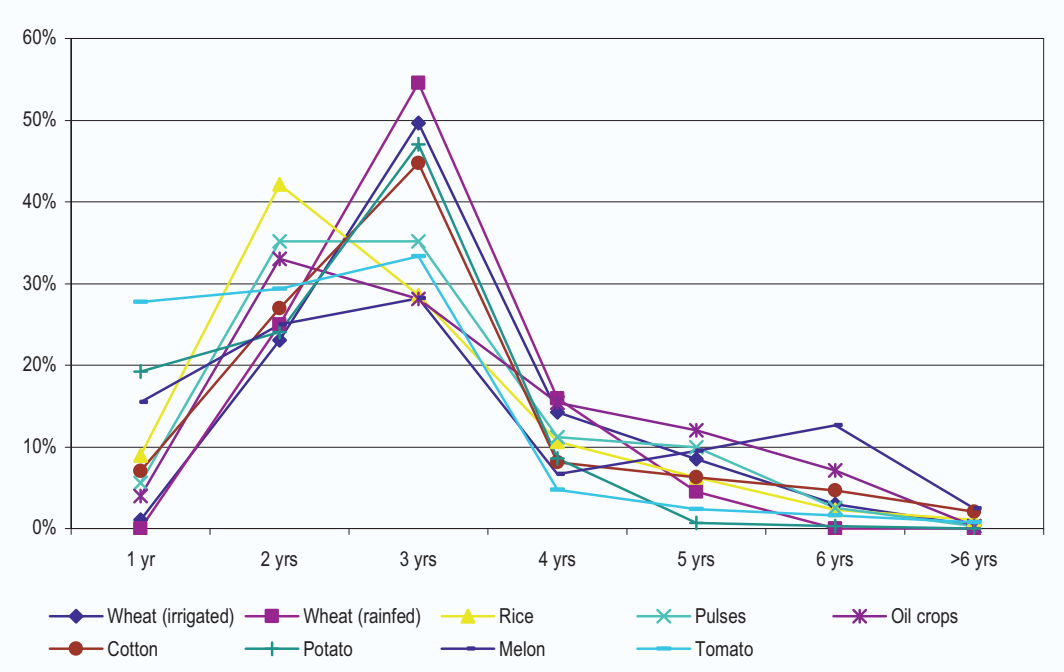

Figure 6. Number of years of multiplication after which farmers would replace their seed with clean seed because of deterioration of seed quality (crops and percentage of farmers)

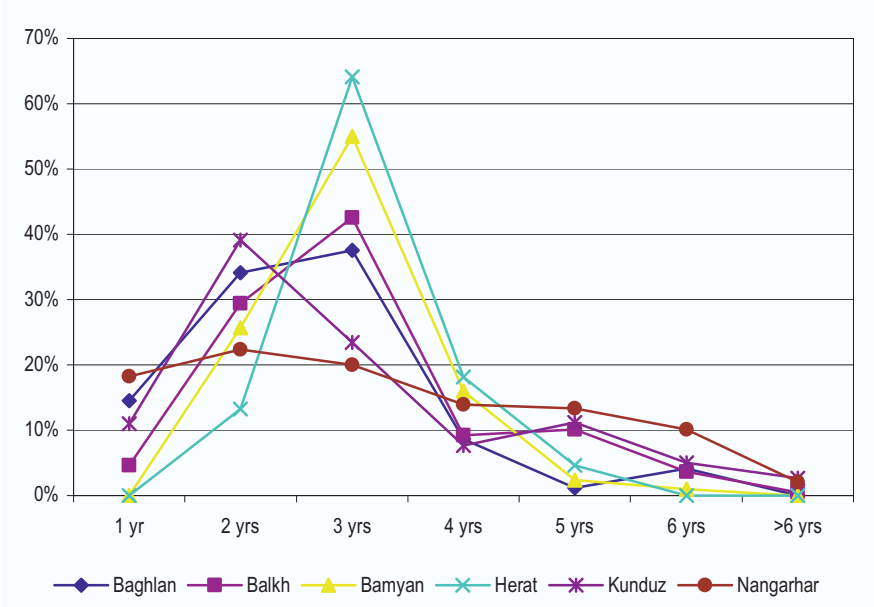

Figure 7. Number of years of multiplication after which farmers would replace their seed with clean seed because of deterioration of seed quality (provinces and percentage of farmers)

On crop basis, it appears that replenishment of seed is faster in potato, tomato and rice than it is in oil crops and melons, which is consistent with the finding that the farmers consider their own seed of particularly potato and vegetables as poor. Farmers' desire to replace rice seed faster may be linked with their desire for new varieties.

Analyzed by provinces (Figure 18), replenishment seemed to take more years in Nangarhar than in other provinces without this being immediately explained by the pattern of crop cultivation in the provinces.

8. CASH PURCHASE OF SEED IN THE LOCAL MARKETS

In assessing demand, it is important to determine whether farmers really use cash to buy seed and from which sources, and how the pattern of purchase vary with crops and provinces. How much money they spend to buy seed, their reasons for buying seed and the prices they pay are critical aspects of the demand analysis.

8.1. Expenditure of farmers in buying seed

Considering the local markets, the results showed that 1 585 farmers, or 45.2 percent of all farmers in the survey used cash in the local markets to buy a total of 363 tons seed of different crops. They bought seed for a little more than US$ 34 on average with wheat growers spending as much as US$ 43 each. A summary of the data is in Table 15, which provides details for all crops included in the survey.

Plate 13. Open market stall in Jalalabad, Nangahar Province

Plate 14 . Vegetable seed shop in Herat

For the more important crops, the Table shows that more than half of the farmers who grew potato, flax, cotton, chick pea, mung bean and several vegetables went to the local market to buy seed in comparison with less than half of the farmers who did that for sesame, tomato, wheat, rice and melon seed.

Table 15. Buying seed for cash in the local markets

Crops	All farmers in the survey number	Total area under survey crops (ha)	Total seed usage (kg)	Farmers buying seed from the local market and seed quantities acquired					
				Farmers number	Farmers %	Bought (kg)	Bought %	Paid (US$/kg)	US$ per farmer
Bean	47	48	2 109	31	66.0	1 104	52.4	0.39	13.90
Cauliflower	2	1	3	1	50.0	2	66.7	3.46	6.91
Chick Pea	97	171	10 196	56	57.7	3 927	38.5	0.30	20.72
Cotton	382	498	30 256	237	62.0	22 461	74.2	0.18	16.78
Cucumber	3	2	10	2	66.7	6	61.0	2.16	6.75
Egg Plant	86	26	20	55	64.0	12	60.3	8.93	1.91
Flax Seed	93	244	8 457	63	67.7	5 957	70.4	0.31	29.71
Green Bean	13	3	197		0.0		0.0		
Luffa	2	1	9	1	50.0	6	66.7	3.46	20.74
Melon	243	317	2,094	22	9.1	128	6.1	1.50	8.72
Mung Bean	177	227	9 926	97	54.8	4 253	42.8	0.31	13.75
Okra	66	18	248	27	40.9	98	39.3	0.37	1.33
Onion	74	23	169	33	44.6	77	45.3	1.53	3.54
Pepper	4	2	4	1	25.0	0	6.7	2.88	0.72
Potato	291	158	269 980	242	83.2	169 607	62.8	0.11	74.13
Rice	479	943	124 311	146	30.5	40 117	32.3	0.26	72.77
Sesame	231	252	2 500	108	46.8	1 290	51.6	0.13	1.57
Spinach	2	1	28	2	100.0	28	100.0	0.22	3.02
Tomato	126	34	77	56	44.4	33	42.5	5.22	3.03
Water Melon	41	33	212	11	26.8	68	31.8	1.59	9.75
Wheat	1 049	3 128	457 930	394	37.6	113 376	24.8	0.15	43.06
Grand Total	3 508	6 127	918 734	1 585	45.2	362 547	39.5	0.15	34.23

8.2. Reasons for buying seed in the local markets

The reasons why farmers bought seed in the local markets are analyzed in Figure 21, which shows that farmers were mostly interested in good germination and good physical appearance of the seed than they were in seed mixed with other varieties. Lack of own seed or other sources of seed were also not given so much importance. High germination was of particular interest to farmers growing rice, pulses, oil crops, cotton and melon.

Although farmers seemed not to attach much importance to admixture with other varieties, this factor is very important for uniform crop performance in the field and for product quality such as suitability for bread making. It is for these reasons why seed programmes pay a particular attention to varietal purity or admixture with other distinct varieties and hence prescribe minimum standards for seed purposes.

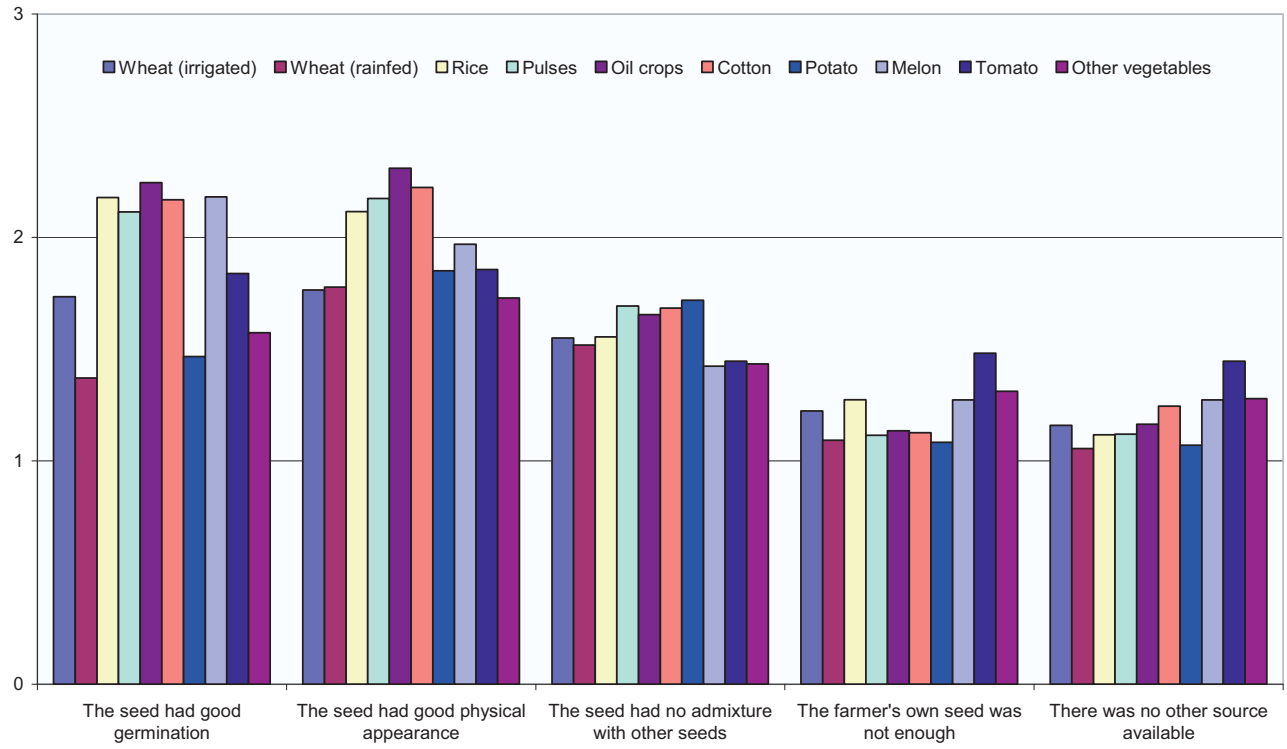

Figure 8. Reasons for buying seed for cash in the local market

Table 16. Buying wheat seed for cash from the local market

Province	District	All wheat farmers number	Total wheat area (ha)	Total wheat seed usage (kg)	Bought wheat seed against cash in the local market				
					Farmers number	Farmers (%)	Bought (kg)	Bought %	Paid (US$/kg)
Baghlan	Baghlan	49	260	26 558	14	28.6	7 378	27.8	0.14
	Doshi	52	56	10 087	2	3.8	245	2.4	0.13
	Puli Khumri	51	88	16 538	18	35.3	4 970	30.1	0.14
Baghlan Total		152	404	53 183	34	22.4	12,593	23.7	0.14
Balkh	Balkh	55	658	94 850	28	50.9	20 160	21.3	0.16
	Chemtal	54	127	21 823	21	38.9	8 516	39.0	0.15
	Dehdadi	50	176	24 325	6	12.0	1 925	7.9	0.18
	Shulgara	57	183	25 645	12	21.1	4 529	17.7	0.13
Balkh Total		216	1,144	166 643	67	31.0	35 130	21.1	0.15
Bamyan	Kamard	50	94	16 723	33	66.0	4 690	28.0	0.17
	Markaz-Bamyan	49	45	8 575	26	53.1	2 513	29.3	0.16
	Yakwolang	51	78	13 405	37	72.5	5 040	37.6	0.15
Bamyan Total		150	217	38 703	96	64.0	12 243	31.6	0.16
Herat	Gozara	49	97	17 472	25	51.0	4 263	24.4	0.15
	Ingel	57	98	18 564	33	57.9	6 545	35.3	0.14
	Kushk Robat	50	307	21 588	41	82.0	7 966	36.9	0.13
	Pushton Zarghun	46	131	22 407	28	60.9	7 791	34.8	0.13
Herat Total		202	633	80 031	127	62.9	26 565	33.2	0.14
Kunduz	Chahar Dara	52	123	21 959	5	9.6	2 086	9.5	0.15
	Khan Abad	51	190	30 541	32	62.7	15 589	51.0	0.15
	Markaz-Kunduz	66	193	28 812	19	28.8	7 147	24.8	0.14
Kunduz Total		169	506	81 312	56	33.1	24 822	30.5	0.15
Nangarhar	Kama	68	113	19 117		0.0		0.0	
	Khogani	32	19	2 895	8	25.0	665	23.0	0.22
	Surkhrod	60	93	16 048	6	10.0	1 358	8.5	0.21
Nangarhar Total		160	225	38 059	14	8.8	2 023	5.3	0.22
Total/Average		1 049	3 129	457 930	394	37.6	113 376	24.8	0.15

8.3. Prices farmers paid in the local market

The analysis in Tables 17-22 give an idea of the average price in US$ per kg of different crop seeds obtained in the local markets, with vegetable seed of highest value per kg followed by mung bean and rice.

Table 17. Buying rice seed for cash from the local market

Province	District	All rice farmers number	Total rice area (ha)	Total rice seed usage (kg)	Bought rice seed against cash in the local market				
					Farmers number	Farmers %	Bought (kg)	Bought %	Paid (US$/kg)
Baghlan	Baghlan	51	138	17 416	10	19.6	3 381	19.4	0.24
	Doshi	58	93	13 440		0.0		0.0	
	Puli Khumri	51	105	17 346	15	29.4	3 325	19.2	0.24
Baghlan Total		160	336	48 202	25	15.6	6 706	13.9	0.24
Balkh	Shulgara	58	111	15 470	5	8.6	630	4.1	0.37
Balkh Total		58	111	15 470	5	8.6	630	4.1	0.37
Herat	Gozara	50	35	3 115	18	36.0	749	24.0	0.30
	Ingel	4	4	319	1	25.0	35	11.0	0.40
Herat Total		54	39	3 434	19	35.2	784	22.8	0.31
Kunduz	Chahar Dara	50	79	13 461	17	34.0	4 228	31.4	0.27
	Khan Abad	51	168	18 085	36	70.6	12 327	68.2	0.26
	Markaz-Kunduz	54	156	22 043	43	79.6	15 386	69.8	0.25
Kunduz Total		155	403	53 589	96	61.9	31 941	59.6	0.26
Nangarhar	Kama	52	54	3 617	1	1.9	56	1.5	0.29
Nangarhar Total		52	54	3 617	1	1.9	56	1.5	0.29
Total/Average		479	943	124 311	146	30.5	40 117	32.3	0.26

Table 18. Buying mung bean seed for cash from the local market

Province	District	All mung bean farmers number	Total mung bean area (ha)	Total mung bean seed usage (kg)	Bought mung bean seed against cash in the local market				
					Farmers number	Farmers %	Bought (kg)	Bought %	Paid (US$/kg)
Baghlan	Baghlan	9	10	455	3	33.3	182	40.0	0.29
	Puli Khumri	15	11	623	11	73.3	413	66.3	0.34
Baghlan Total		24	21	1 078	14	58.3	595	55.2	0.33
Balkh	Balkh	18	13	812	13	72.2	511	62.9	0.30
	Chemtal	30	25	1 250	16	53.3	676	54.1	0.33
	Dehdadi	16	11	378	6	37.5	175	46.3	0.40
	Shulgara	27	22	1 050	14	51.9	431	41.0	0.30
Balkh Total		91	71	3 490	49	53.8	1 792	51.4	0.32
Kunduz	Chahar Dara	30	80	3 220	9	30.0	518	16.1	0.27
	Khan Abad	16	21	756	16	100.0	756	100.0	0.32
	Markaz-Kunduz	16	35	1 383	9	56.3	592	42.8	0.28
Kunduz Total		62	136	5 359	34	54.8	1 866	34.8	0.30
Total/Average		177	227	9 926	97	54.8	4 253	42.8	0.31

Table 19. Buying sesame seed for cash from the local market

Province	District	All sesame farmers number	Total sesame area (ha)	Total sesame seed usage (kg)	Bought sesame seed against cash in the local market				
					Farmers number	Farmers %	Bought (kg)	Bought %	Paid (US$/kg)
Baghlan	Baghlan	35	25	136	18	51.4	71	52.2	0.12
	Puli Khumri	7	7	77	4	57.1	32	41.6	0.11
Baghlan Total		42	32	213	22	52.4	103	48.4	0.12
Balkh	Balkh	32	38	580	15	46.9	345	59.5	0.16
	Chemtal	41	35	293	17	41.5	125	42.7	0.13
	Dehdadi	33	27	277	19	57.6	161	58.1	0.14
	Shulgara	13	11	189	5	38.5	131	69.5	0.18
Balkh Total		119	112	1 339	56	47.1	762	56.9	0.14
Kunduz	Chahar Dara	32	52	476	7	21.9	90	18.9	0.10
	Khan Abad	10	27	163	9	90.0	135	82.8	0.09
	Markaz-Kunduz	28	29	310	14	50.0	200	64.5	0.14
Kunduz Total		70	108	949	30	42.9	425	44.8	0.12
Total/Average		231	252	2 500	108	46.8	1 290	51.6	0.13

Table 20. Buying cotton seed for cash from the local market

Province	District	All cotton farmers number	Total cotton area (ha)	Total cotton seed usage (kg)	Bought cotton seed against cash in the local market				
					Farmers number	Farmers (%)	Bought (kg)	Bought (%)	Paid (US$/kg)
Baghlan	Baghlan	31	48	3 626	23	74.2	2 828	78.0	0.20
	Puli Khumri	30	23	1 631	25	83.3	1 449	88.8	0.18
Baghlan Total		61	71	5 257	48	78.7	4 277	81.4	0.19
Balkh	Balkh	56	160	10 283	47	83.9	8 624	83.9	0.17
	Chemtal	30	33	1 911	20	66.7	1 362	71.2	0.17
	Dehdadi	33	32	1 659	15	45.5	1 099	66.2	0.23
Balkh Total		119	225	13 853	82	68.9	11 085	80.0	0.18
Herat	Gozara	30	18	1 274	6	20.0	168	13.2	0.20
	Ingel	4	2	123	1	25.0	42	34.3	0.37
	Pushton Zarghun	30	20	1 239	9	30.0	357	28.8	0.16
Herat Total		64	40	2 636	16	25.0	567	21.5	0.19
Kunduz	Chahar Dara	37	70	3 945	26	70.3	3 063	77.6	0.15
	Khan Abad	30	33	1 507	26	86.7	1 391	92.3	0.18
	Markaz-Kunduz	39	49	2 391	27	69.2	1 894	79.2	0.15
Kunduz Total		106	152	7 842	79	74.5	6 347	80.9	0.16
Nangarhar	Kama	15	5	249	4	26.7	49	19.7	0.20
	Khogani	10	2	168	8	80.0	137	81.3	0.20
	Surkhrod	7	4	252		0.0		0.0	
Nangarhar Total		32	11	669	12	37.5	186	27.7	0.20
Total/Average		382	498	30 256	237	62.0	22 461	74.2	0.18

Table 21. Buying potato seed for cash from the local market

Province	District	All potato farmers number	Total potato area (ha)	Total potato seed usage (kg)	Bought potato seed against cash in the local market				
					Farmers number	Farmers (%)	Bought (kg)	Bough %)	Paid (US$/kg)
Baghlan	Baghlan	31	17	28 620	31	100.0	28 620	100.0	0.14
	Doshi	11	3	4 536	6	54.5	1 638	36.1	0.12
	Puli Khumri	36	29	59 227	36	100.0	59 220	100.0	0.13
Baghlan Total		78	48	92 383	73	93.6	89 478	96.9	0.13
Bamyan	Kamard	49	17	25 585	36	73.5	8 148	31.8	0.09
	Markaz-Bamyan	50	45	81 270	43	86.0	37 366	46.0	0.10
	Yakwolang	51	22	36 155	43	84.3	16 100	44.5	0.06
Bamyan Total		150	84	143 010	122	81.3	61 614	43.1	0.08
Herat	Gozara	33	11	15 547	27	81.8	10 465	67.3	0.12
	Pushton Zarghun	30	14	19 040	20	66.7	8 050	42.3	0.11
Herat Total		63	25	34 587	47	74.6	18 515	53.5	0.12
Total/Average		291	158	269 980	242	83.2	169 607	62.8	0.11

Table 22. Buying tomato seed for cash from the local market

Province	District	All tomato farmers number)	Total tomato area (ha)	Total tomato seed usage (kg)	Bought tomato seed against cash in the local market				
					Farmers number	Farmers (%)	Bought (kg)	Bought (%)	Paid (US$/kg)
Baghlan	Baghlan	3	0.6	1.5	1	33.3	0.5	33.3	2.30
	Doshi	3	0.6	2.5		0.0		0.0	
	Puli Khumri	1	0.4	0.5	1	100.0	0.3	50.0	0.86
Baghlan Total		7	1.6	4.5	2	28.6	0.8	16.7	1.58
Balkh	Balkh	16	4.4	6.0	2	12.5	1.0	16.7	1.44
	Chemtal	2	0.7	1.5		0.0		0.0	
	Dehdadi	6	2.0	2.9	1	16.7	1.5	51.7	1.44
Balkh Total		24	7.1	10.4	3	12.5	2.5	24.0	1.44
Herat	Ingel	12	2.8	1.6	7	58.3	0.9	53.1	11.73
	Kushk Robat	6	1.4	0.7	4	66.7	0.5	72.2	10.44
	Pushton Zarghun	13	3.6	1.8	10	76.9	1.4	73.4	9.50
Herat Total		31	7.8	4.2	21	67.7	2.7	65.4	10.42
Kunduz	Khan Abad	18	3.2	13.0	2	11.1	0.5	3.8	2.59
	Markaz-Kunduz	10	3.6	8.0	1	10.0	0.3	3.1	1.15
Kunduz Total		28	6.8	21.0	3	10.7	0.8	3.6	2.11
Nangarhar	Kama	3	0.7	2.3	2	66.7	1.3	55.6	1.48
	Khogani	28	7.4	27.8	21	75.0	20.0	72.1	2.48
	Surkhrod	5	2.4	6.5	4	80.0	4.6	70.8	1.08
Nangarhar Total		36	10.5	36.5	27	75.0	25.9	70.8	2.20
Total/Average		126	33.8	76.6	56	44.4	32.6	42.5	5.22

9. CHARACTERISTICS OF SEED AVAILABLE IN THE LOCAL MARKET

Out of 1 585 farmers who bought seed in the local market, 44 percent of them responded that the quality was poor when they were asked to rate the quality of seed they bought (Figure 22). The farmers were particularly critical in respect of melon, tomato and cotton seed.

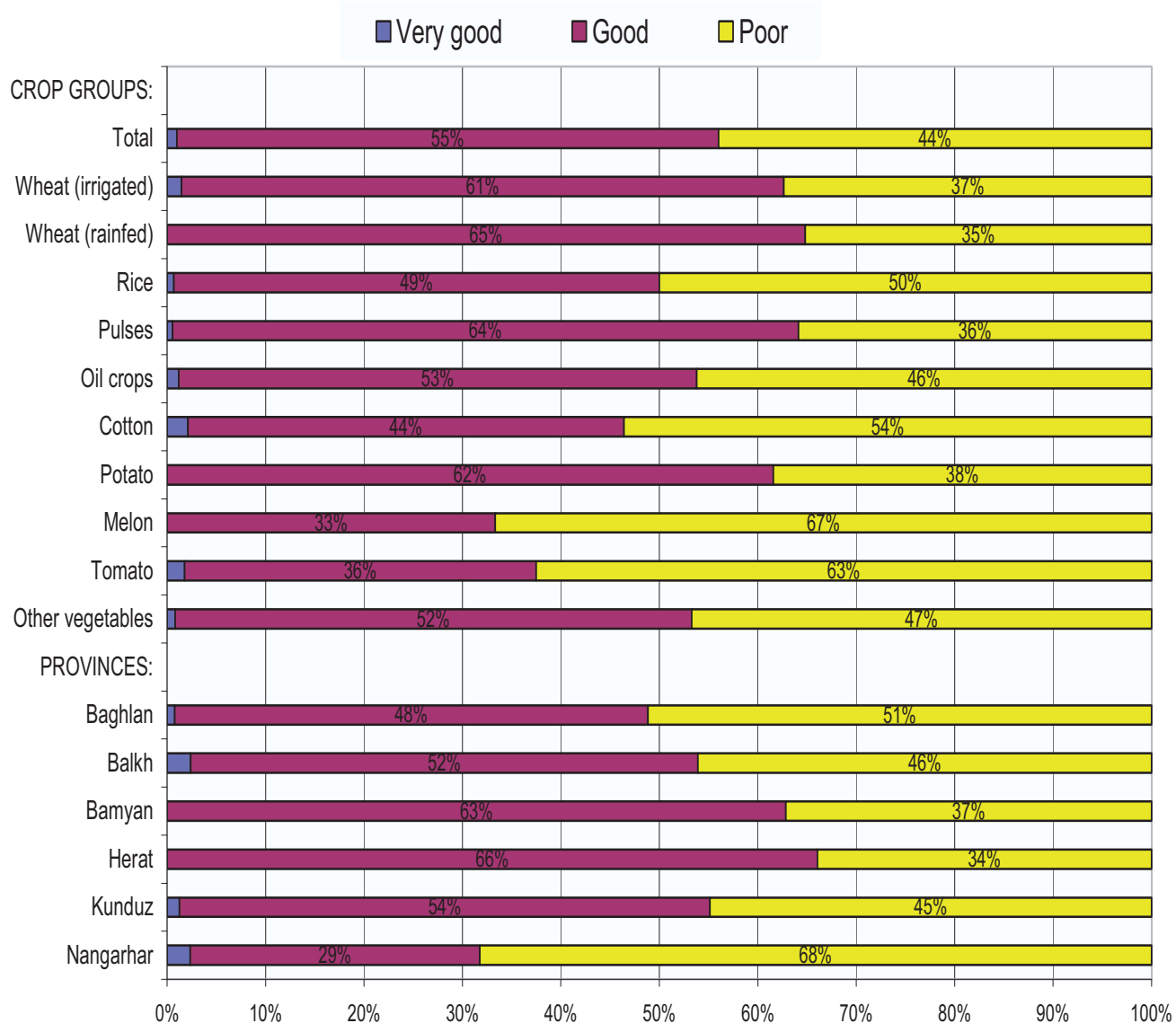

Figure 9. Rating the quality of seed of various crops bought in the local markets, percentage of farmers

When the farmers were asked how they would compare seed available in the local markets with ordinary grain, an inauspicious 63.9 percent said that the quality of seed was worse than that of ordinary grain. Data for all seed covered by the survey and for each of the 10 groups of crops are in Figure 23. A closer examination of the survey data in Figure 22 shows that in Bamyan and Herat provinces almost all 1 595 farmers indicated that the quality of seed available in the local market was worse than ordinary grain.

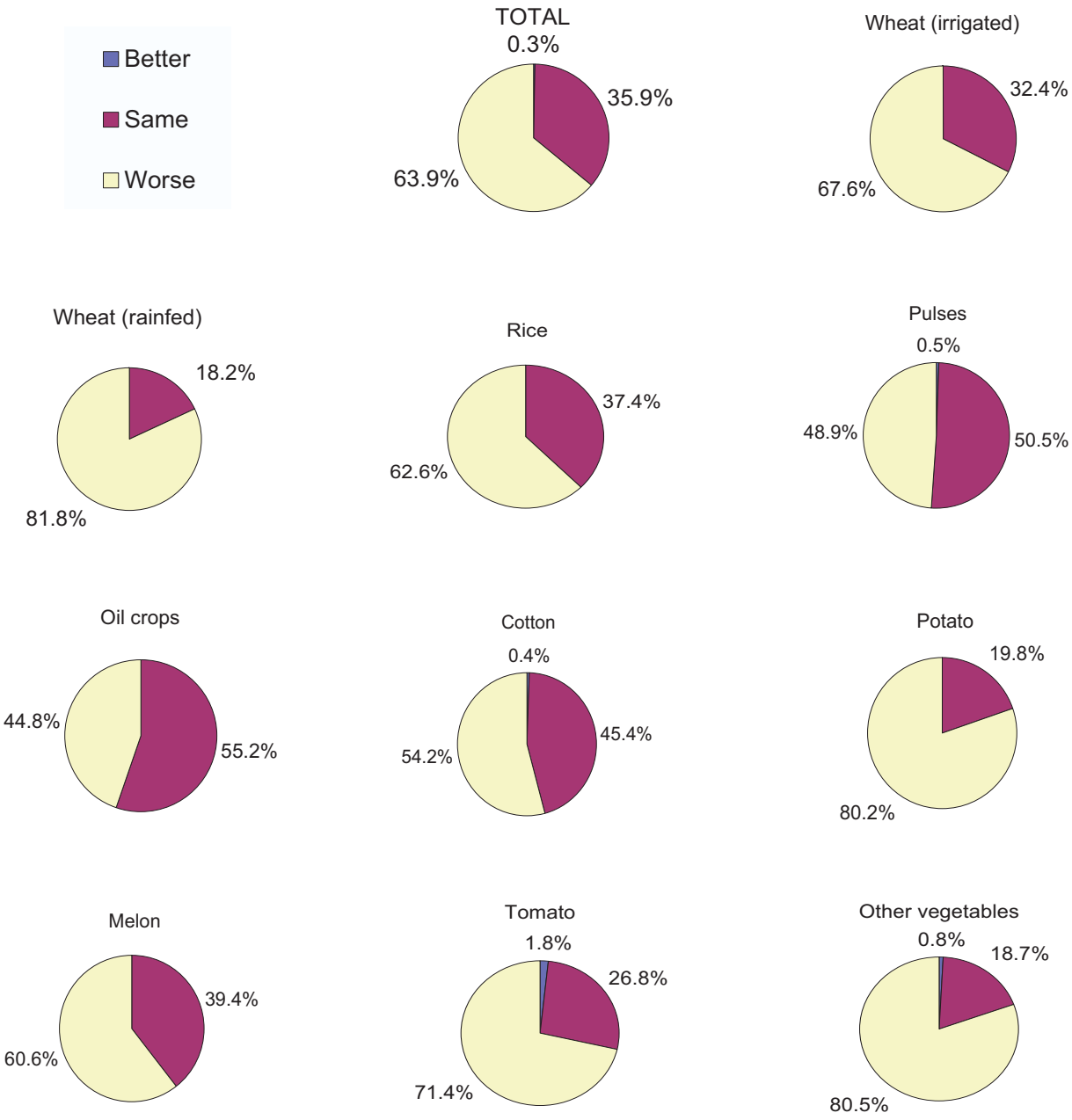

Figure 10. Comparing seed in the local market with ordinary grain

10. CHARACTERISTICS OF SEED FROM OTHER FARMERS AND SOURCES

10.1 Seed from other farmers

As regards seed obtained from other households, 261 of the farmers in this survey acquired a total of 39 841 kg of seed from other farmers. The analysis of this activity is in Table 23.

Seed was acquired from other farmers largely for wheat, rice and potato. The figures indicate that farmers were not impressed with the quality of seed they get from their neighbours. On average, 71.3 percent of the farmers considered such seed to be of poor quality. They were in particular unhappy with the seed of wheat, potato, pulses and various vegetables.

The figures are probably suggesting, that farmers will only go to other farmers for seed if they do not have enough seed from their own source, and there are no other sources of seed available. This may particularly be the case for those crops with relatively large cultivated areas or higher seed rates such as wheat, rice and potato. For these crops, those farmers without enough own seed go to their neighbours to obtain additional seed, since they require larger quantities of seed per unit area.

Table 23. Farmers' assessment of the seed they got from other farmers

	Number of farmers who got seed from other farmers	Quantity of seed they got (kg)	This is how farmers rated the quality of seed from other farmers			
			Number of farmers who said the seed was:		% of farmers who said the seed was:	
			good	poor	good	poor
Crop groups						
Wheat (irrigated)	122	14 077	32	90	26.2	73.8
Wheat (rainfed)	7	546	4	3	57.1	42.9
Rice	21	1 850	13	8	61.9	38.1
Pulses	6	368	2	4	33.3	66.7
Oil crops						
Cotton	9	686	5	4	55.6	44.4
Potato	82	22 295	17	65	20.7	79.3
Melon	2	9	1	1	50.0	50.0
Tomato	3	1		3	0.0	100.0
Other vegetables	9	10	1	8	11.1	88.9
Total	261	39 841	75	186	28.7	71.3

10.2 Seed from other sources

Besides own sources, the local market and other farmers, there are other sources the farmers obtained seed from including individual growers, ISE and NGO implementing partners.

A total of 375 farmers bought 55 242 kg of seed for cash from these other sources. A summary of this is in Table 24, which also reveals that that an average of US$26.31 was spent per farmer to buy seed from those sources. Most of the farmers bought from growers but also the ISE and

various NGO Implementing Partners[3] supplied seed. The ISE and the NGOs most probably sold QDS wheat under programmes developed in collaboration with FAO.

Plate 15. Processed seed awaiting distribution by Aghan Seed Project in Mazar, Balkh Province

Plate 16. Processed seed awaiting distribution by Improved Seed Enterprise in Herat

Table 24. Farmers buying seed for cash from other sources

Source of seed	Farmers		Quantity		Value		Average amount US$ per	
	Number	%	kg	%	US$	%	kg	Farmer
Grower	237	63.2	41 170	74.5	8 190	83.0	0.20	34.55
ISE	49	13.1	5 572	10.1	822	8.3	0.15	16.77
NGO	65	17.3	7 480	13.5	668	6.8	0.09	10.28
Other sources (traders)	24	6.4	1 020	1.8	187	1.9	0.18	7.79
Total	375	100.0	55 242	100.0	9 866	100.0	0.18	26.31

Table 25 shows which crops these various other sources supplied seed of and what the prices were. The average price of US$ 0.15 or less per kg wheat seed shows that ISE and the NGOs may have sold QDS to farmers at subsidized prices (the same organizations charged US$ 0.35 to other agencies at that time).

While prices charged for crop seeds were almost the same as those farmers had to pay in the local markets, prices for potato and tomato seed from other sources seemed significantly lower than in the local markets. For tomato seed, it is most likely that generally more expensive imported hybrid seed was sold in the local markets while other sources or suppliers sold either locally produced seed of open pollinated varieties at cheaper prices or hybrids at subsidized prices.

Farmers were asked to rate various reasons for buying seed from other sources. The answers to that from the 375 farmers are illustrated in Figure 26 on basis of crops and provinces. Figure 27 shows how farmers rated the quality of the seed they got from other sources.

Most farmers did not rate any of the reasons for buying seed particularly high although some attention was paid to the appearance and purity of seeds of oil crops. Farmers were also not

[3] There are three NGOs that are implementing partners of the FAO Seed Project namely Mercy Corps (MC), Islamic Relief Agency (ISRA) and the Voluntary Association for Rehabilitation of Afghanistan (VARA). These produce QDS using contract growers under the technical guidance of the seed project.

impressed by the quality they got. Since most of this seed came from other farmers the results here are consistent with the earlier statement from 261 farmers who got seed from other farmers and of which 71.3 percent found that the seed was of poor quality (Table 23).

Table 25. Seed and seed prices provided by other sources

Crop groups	Source of seed	Amount purchased (kg)	Average price paid (US$/kg)	Total (US$
Wheat (irrigated)	Grower	12 688	0.16	1 997
	ISE	5 257	0.15	773
	NGO	3 010	0.14	428
	Other source	252	0.29	73
Wheat (irrigated) Total		21 207	0.15	3 270
Wheat (rainfed)	Grower	1 029	0.14	143
	NGO	98	0.13	13
Wheat (rainfed) Total		1 127	0.14	156
Rice	Grower	15 453	0.26	3 997
	NGO	396	0.23	93
Rice Total		15 848	0.26	4 090
Pulses	Grower	168	0.24	40
	NGO	28	0.20	6
Pulses Total		196	0.23	46
Oil crops	Grower	164	0.20	33
	ISE	70	0.23	16
Oil crops Total		234	0.21	49
Cotton	Grower	462	0.18	83
	ISE	245	0.13	33
	Other source	767	0.15	114
Cotton Total		1 474	0.16	229
Potato	Grower	10 920	0.11	1 181
	NGO	3 948	0.03	129
Potato Total		14 868	0.06	1 310
Melon	Grower	133	1.55	205
Tomato	Grower	3	3.60	10
Other vegetables	Grower	152	3.29	499
	Other source	2	0.37	1
Other vegetables Total		153	3.20	500
Total		55 242		9 866

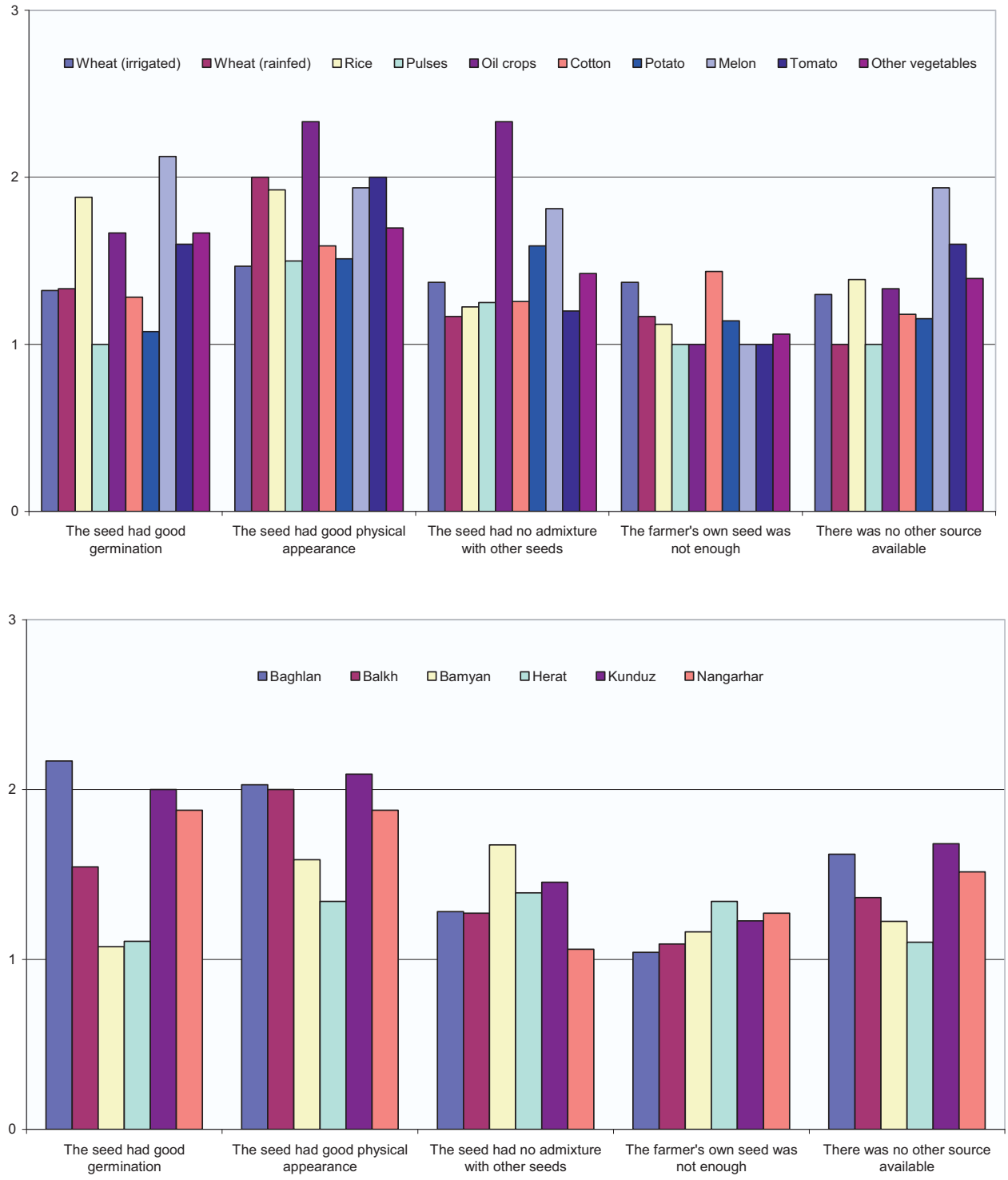

Figure 11. Assessment of the reasons why farmers bought seed for cash from other sources (by crop-top; by province – below)
(1 = not important, 2 = important, 3 = most important)

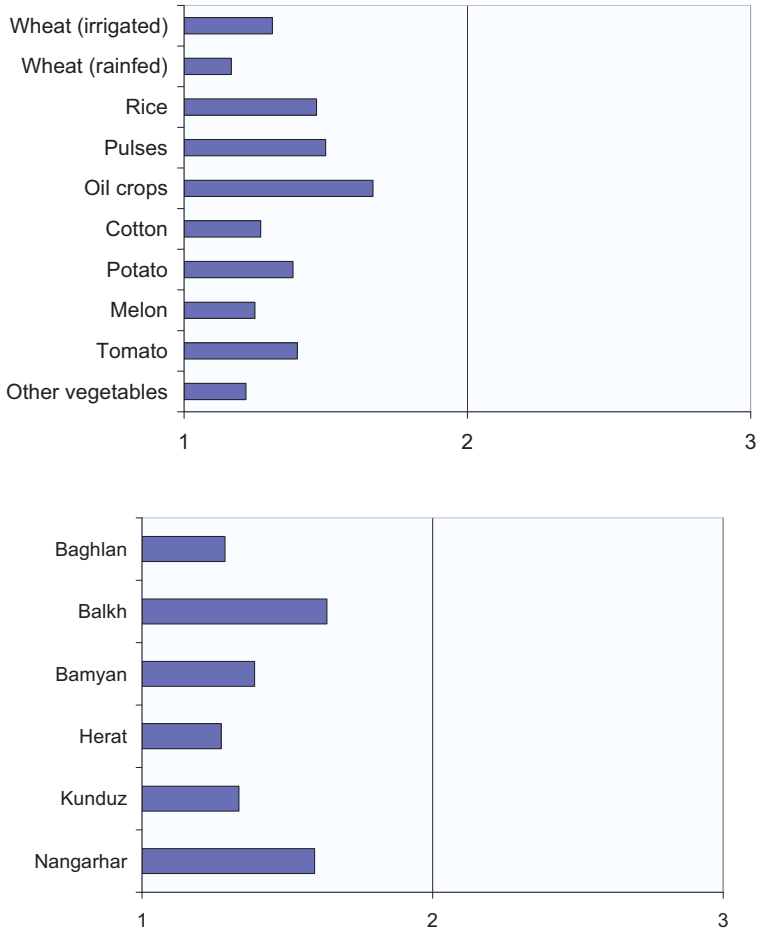

Figure 12. Farmers rating the quality of seed they bought for cash from other sources
(1 = poor, 2 = good, 3 = very good)

11. SUPPLY OF SEED BY RELIEF AGENCIES

Plate 17. Coordination of Afghan Relief (CoAR) distributing wheat seed in Chahe District, Balkh Province

Relief agencies, mainly NGOs, distribute significant amounts of seed in their communities. This part of the Survey was to assess what crops, the amount of relief seed distributed, and the terms on which this was done. Relief agencies supplied only 1.3 percent of the total amount of seed covered by this Survey, mainly of wheat and pulses. Most of this seed was provided against credit and a smaller part was given to the farmers free of charge. It should be noted, that the seed market is less distorted by credit than by free distribution of seed, especially in years when large quantities of seed are involved.

Details of the supply of relief seed is shown against crops and provinces in Table 26.

Table 26. Supply of seed from relief agencies

	Free seed		Seed against credit	
	Number of farmers	kg	Number of farmers	kg
Crop groups:				
Wheat (irrigated)	25	1 432	71	5 628
Wheat (rainfed)	2	98	36	2 961
Rice	2	28	2	119
Pulses	35	1 309		
Cotton	1	42		
Potato	1	42	3	749
Other vegetables	7	6		
Total	73	2 957	112	9 457
Provinces:				
Baghlan	2	98	11	1,519
Balkh	1	21		
Bamyan	4	175	40	2 821
Herat	37	1 400	35	2 912
Kunduz	9	596	4	154
Nangarhar	20	667	22	2 051
Total	73	2 957	112	9 457

12. WHY FARMERS DID NOT BUY SEED TO SOW?

The survey did not clarify to which extent and/or how much farmers paid for seed from other farmers. But farmers in the survey were asked the question whether they had bought seed to sow from various other sources. A total of 1 665 farmers had not bought any seed to sow and were asked to rank the following reasons for not doing so:

- Own saved seed was enough
- The farmer had no money to buy seed
- There was no seed available for sale

The farmers were asked to rank these reasons from 1 (= not important) to 3 (= most important). However, survey data show that they did not rank the reasons but rated them. A farmer would therefore, for example, give two reasons each a “3” and the third reason a “1”, rather than give one reason a “3”, the next reason a “2”, and the third reason a “1”. The result of the exercise is illustrated in Figure 30 which clearly shows that very many of the farmers that did not buy seed rated the lack of money and non availability of seed each with a score of “3”. A total of 62 farmers indicated a number of other reasons but did not rate them as important; 26 of them got seed from another farmer and 34 got seed from a relief agency (free of charge or against credit).

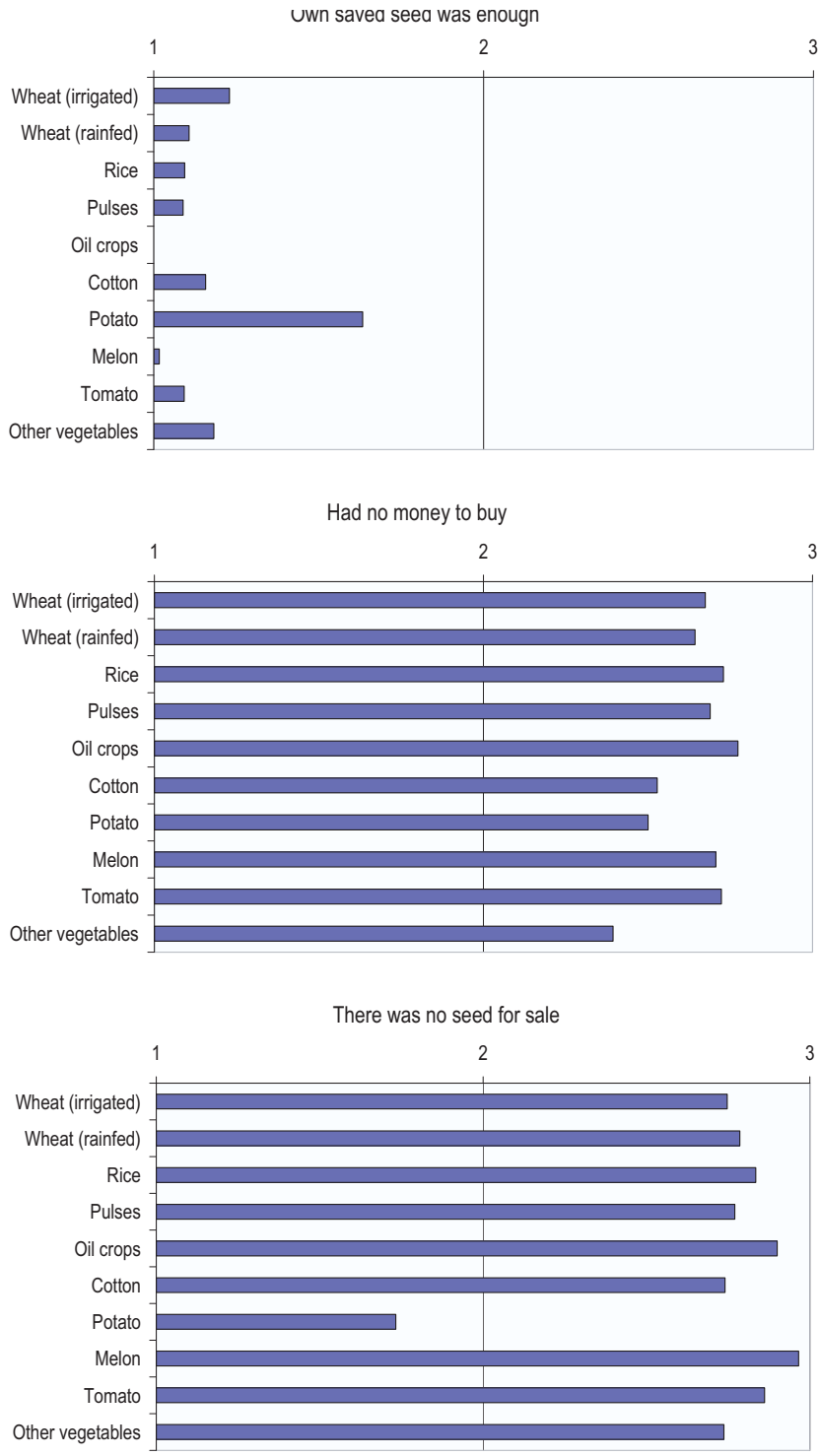

Figure 13. Farmers rating reasons why they did not buy seed (by crop)
(1 = not important, 2 = somewhat important, 3 = most important)

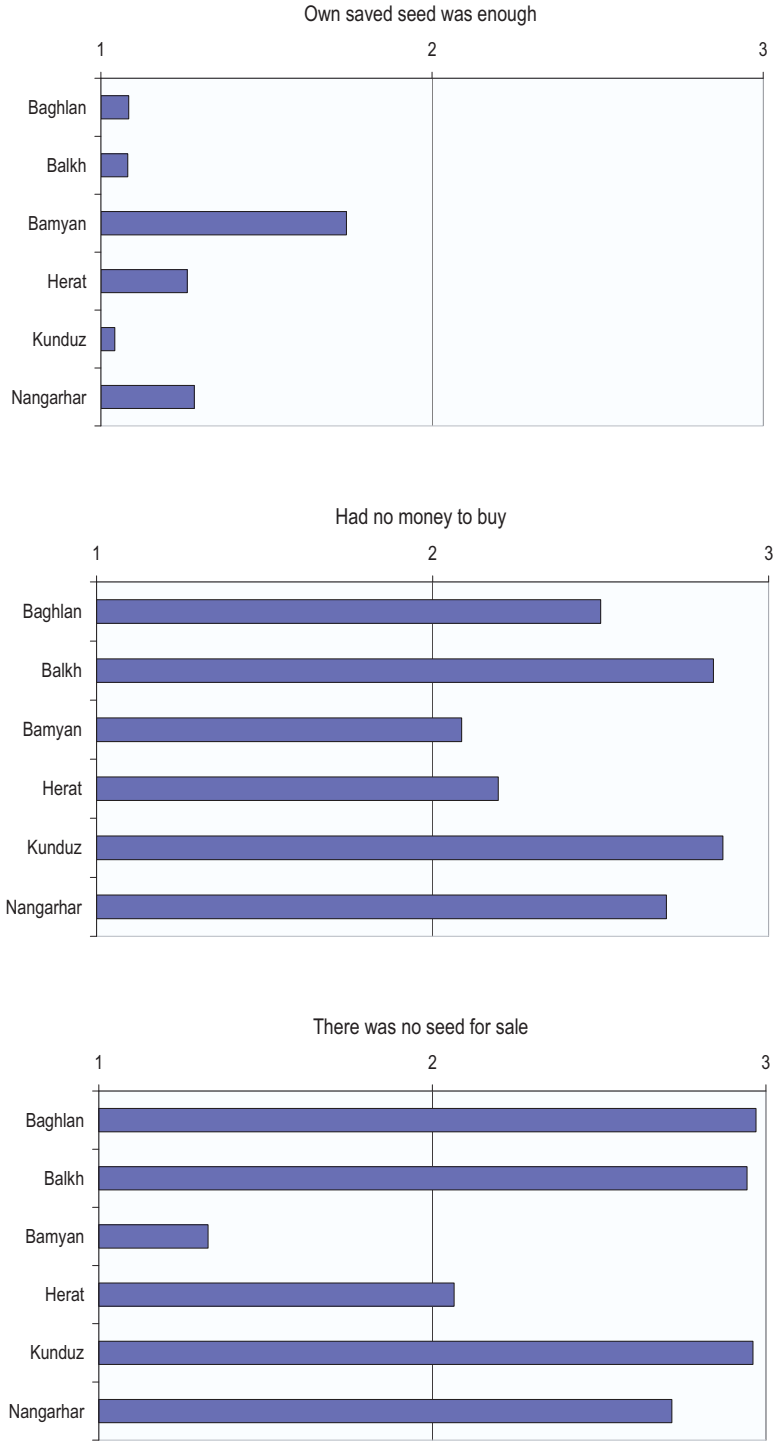

Figure 14. Farmers rating reasons why they did not buy seed (by province)
(1 = not important, 2 = somewhat important, 3 = most important)

13. RELIABILITY OF SEED SUPPLY AND THE FREQUENCY OF PURCHASE

It is important for seed producers and dealers to know the frequency of seed purchase of different crops by farmers and how their enterprises could influence this pattern in favour of their seed businesses. The more often farmers can buy seed from a supplier either because of good quality or trustworthiness, the better is the business potential for that supplier. For crops such as wheat, it may be expected that farmers buying new quality seed will continue to multiply this seed for some years before renewing it. For other crops such as vegetables, the expected rate of seed renewal would be faster.

All 3 508 farmers in the survey were asked the following question: “If you have a reliable supplier in your community that sells seed at reasonable price, how often will you go there to buy seed of a new variety of this crop?”

The responses are illustrated in Figure 15. The survey data showed that more than half (51.8 percent) of all the farmers would go every year to buy seed of a new variety. However, from the Figure it can be seen that the interest in early seed replacement to introduce a new variety varies with crops. Almost 65 percent of potato growers, 55 percent of the rice growers and almost half of the wheat growers would go to the seed supplier each year.

There is also some variation between provinces, with 70 percent of the farmers in Bamyan wanting to buy a new variety each year most likely of potato while 65 percent in Baghlan 65 percent would like to do the same, probably for cotton, vegetables and rice.

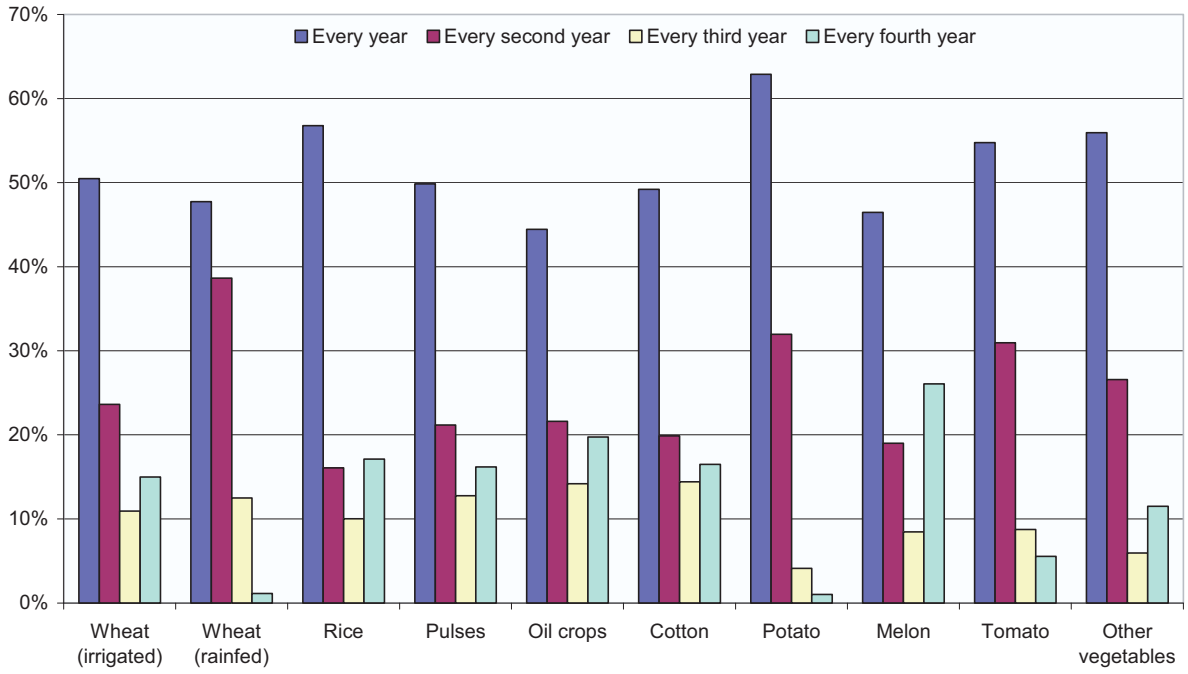

Figure 15. Farmers responding to availability of a reliable seed supplier in the community

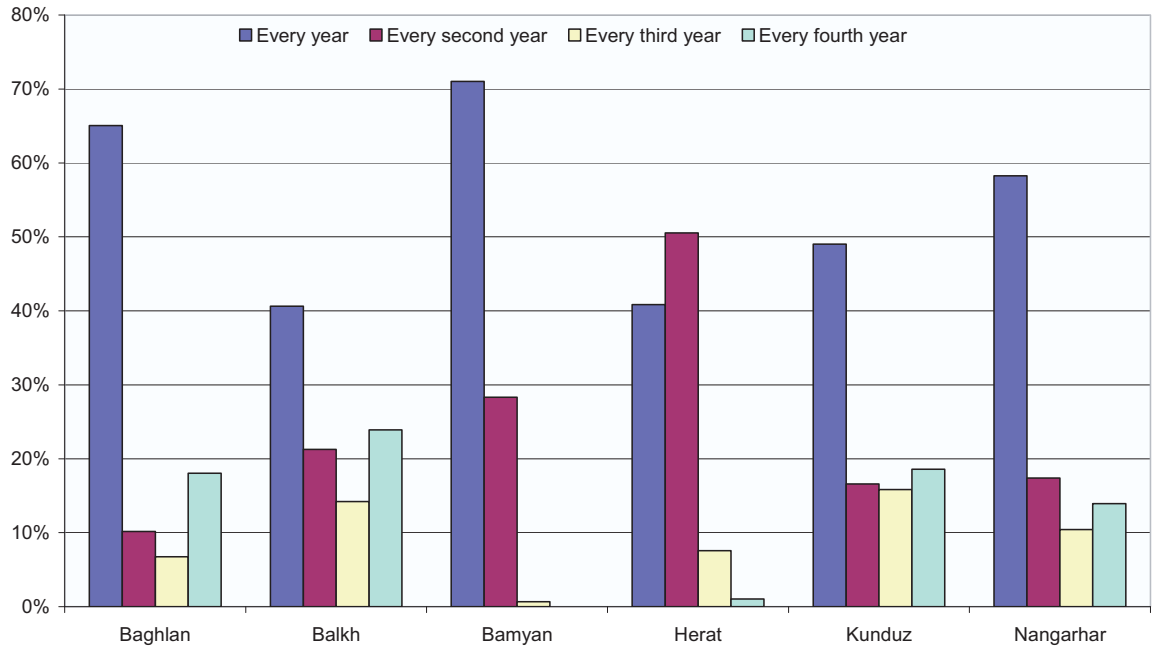

Figure 16. Farmers responding to availability of a reliable seed supplier in the community

The next question to the farmers was: "If you obtain clean seed of a variety of this crop from this supplier, after how many years of multiplication will you go there to replace the seed because of its deteriorating quality?" While the first question dealt clearly with the issue of a new variety, it is assumed that enumerators have presented the second question as an issue of the combined analytical and genetic quality of the seed. The farmers answers are analyzed in Figure 17. The average replacement rate of 2-3 years seems to be the case and is consistent with the results in Figures 17 and 18. Yearly purchase is most favoured for tomato and other vegetable seeds.

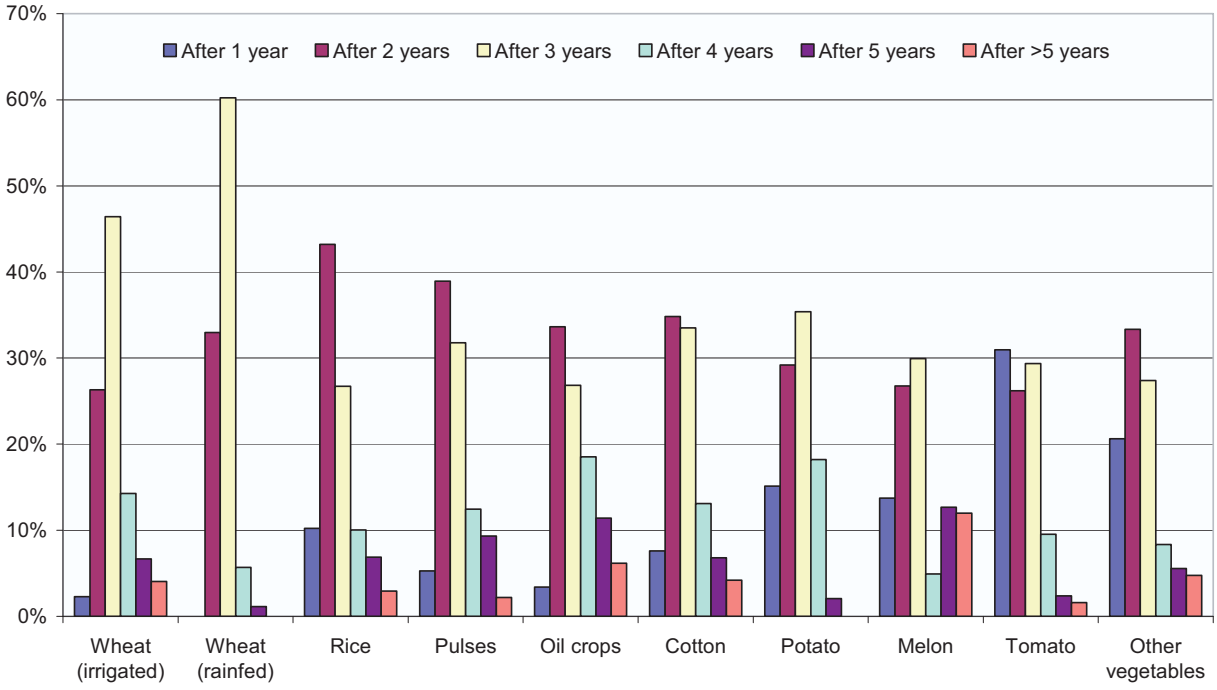

Figure 17. Farmers responding to the deteriorating quality of their seed

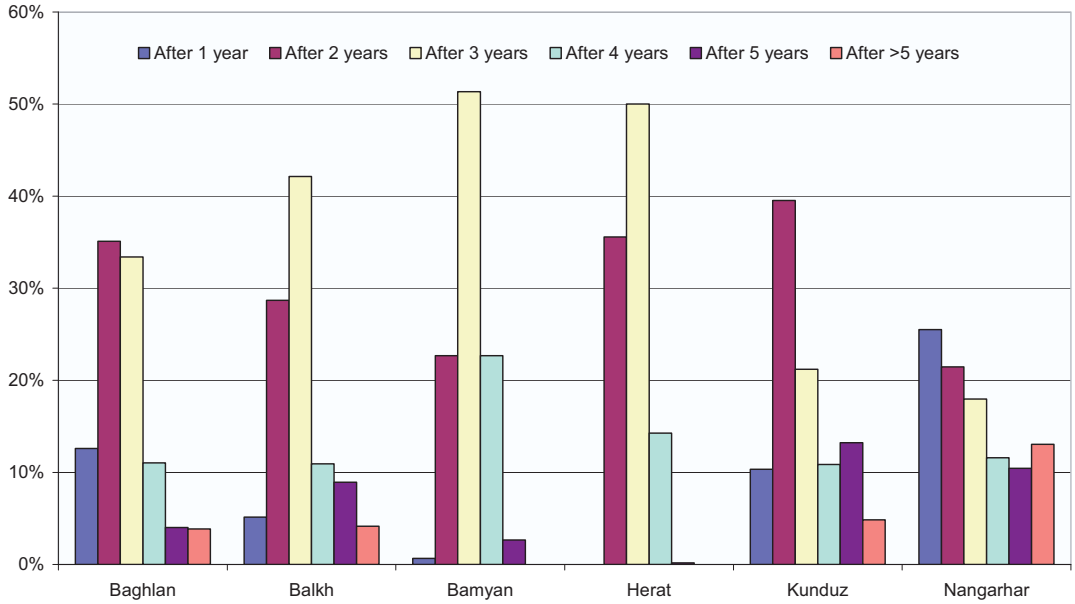

Figure 18. Farmers responding to the deteriorating quality of their seed

14. FACTORS INFLUENCING FARMERS' SEED BUYING BEHAVIOUR

Presented with seven different factors which might influence their seed purchase behaviour, the farmers were asked: "Which factors will motivate you to buy more quality seed of this crop?" The factors suggested to the farmers were as follows (listed in the order they were introduced by the enumerators):

- Lower price
- Better seed quality
- New variety
- Good extension advice
- The farmer's awareness of the importance of good varieties and seed quality
- Accompanying fertilizer
- Credit

For each of the above factors, the farmers were asked to allocated a score as follows:

1 = Not important
2 = Somewhat important; and
3 = Most important.

The result of this exercise is summarized in Table 27. The "factors" have now been ordered in line with the farmers' responses. The results are further illustrated in Figure 19.

Table 27 and Figure 19 clearly indicate that almost all farmers considered access to better seed quality as being most important and that they were willing to buy more quality seed. The second most important feature of seed supply seemed to be seed supplied with fertilizers and only as the third most important factor does price of seed enter the picture, closely followed by access to credit. It is important to note that farmers seemed to perceive better seed quality in terms of what the seed looks like (pure, uniform, healthy etc.) whereas the issue of a new (which would imply a "better") variety is given less attention.

It is very much possible that the question of farmer's awareness has not been clearly understood across the Survey and that it was difficult for farmers to assess the importance of good extension advice since such advice is rarely available.

Table 27. Farmers rating reasons for buying more quality seed

	Farmers rated various reasons for buying more quality seed as follows:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Better seed quality	14	0.4	124	3.5	3 370	96.1	3 508	100
Seed with fertilizers	245	7.0	686	19.6	2 577	73.5	3 508	100
Lower price	178	5.1	1 237	35.3	2 093	59.7	3 508	100
Credit	581	16.6	1 106	31.5	1 821	51.9	3 508	100
New variety	259	7.4	2 005	57.2	1 244	35.5	3 508	100
Farmer's awareness	1 687	48.1	1 570	44.8	251	7.2	3 508	100
Good extension advice	1 522	43.4	1 853	52.8	133	3.8	3 508	100

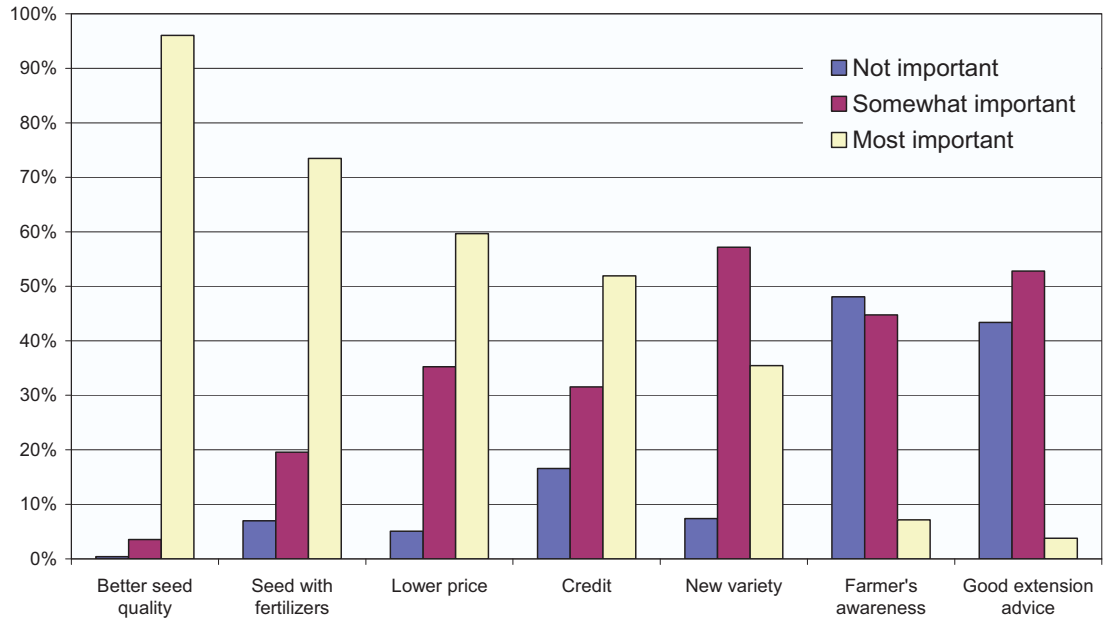

Figure 19. Farmers rating reasons for buying more quality seed

However, the farmers' responses seem to suggest rather clearly that there is an unexploited market for quality seed and that marketing would be further supported if the seed comes with fertilizers and is supplied against credit. There is still a need to examine whether this market can support prices that would provide sufficient profit for seed companies.

It is also obvious that the farmers are not assisted with good extension and that more needs to be done to spread the message about improved varieties.

To further analyze the above issues the farmers' responses to each of the seven reasons are analyzed against crop groups and provinces in Tables 28 – 34 and Figures 20 – 26.

Table 28. Buying more quality seed if the quality really was better

	Farmers said that if they would buy more quality seed then a better seed quality would be:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	6	0.6	46	4.8	909	94.6	961	100
Wheat (rainfed)			2	2.3	86	97.7	88	100
Rice	1	0.2	27	5.6	451	94.2	479	100
Pulses	2	0.6	10	3.1	309	96.3	321	100
Oil crops			11	3.4	313	96.6	324	100
Cotton	1	0.3	13	3.4	368	96.3	382	100
Potato	1	0.3	3	1.0	287	98.6	291	100
Melon	2	0.7	2	0.7	280	98.6	284	100
Tomato	1	0.8	2	1.6	123	97.6	126	100
Other vegetables			8	3.2	244	96.8	252	100
Total	14	0.4	124	3.5	3 370	96.1	3 508	100
Provinces:								
Baghlan			8	1.1	690	98.9	698	100
Balkh	4	0.5	4	0.5	787	99.0	795	100
Bamyan	1	0.3	3	1.0	296	98.7	300	100
Herat	4	0.7	14	2.5	550	96.8	568	100
Kunduz	4	0.5	74	9.2	724	90.3	802	100
Nangarhar	1	0.3	21	6.1	323	93.6	345	100
Total	14	0.4	124	3.5	3 370	96.1	3 508	100

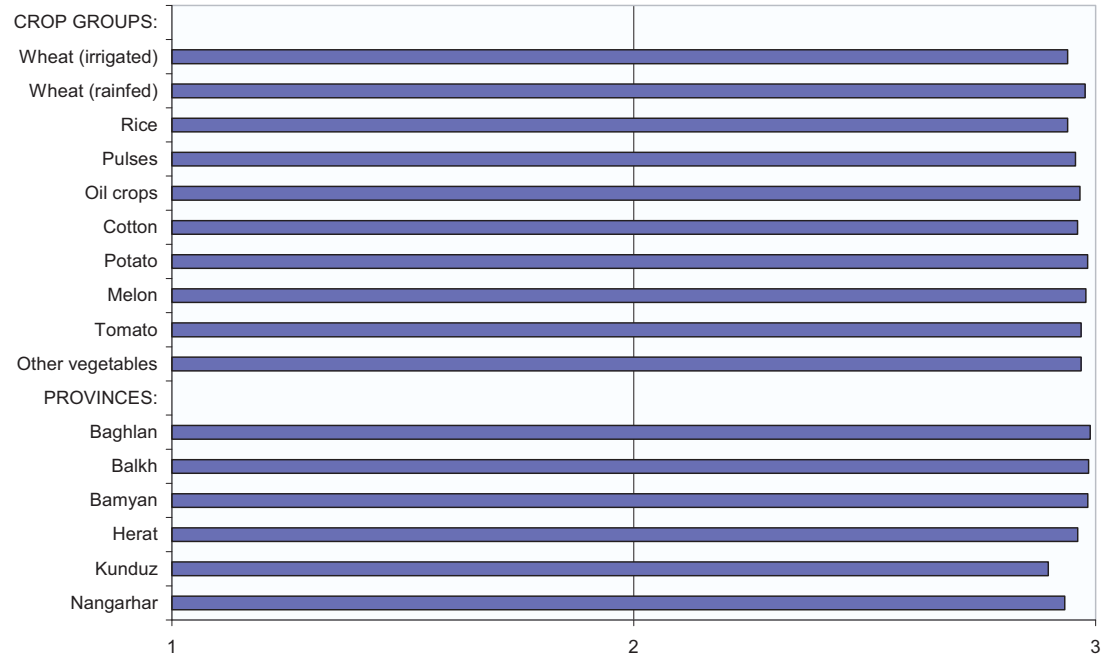

Figure 20. Buying more quality seed if the quality really was better

Table 29. Buying more quality seed if it came with fertilizers

	Farmers said that if they would buy more quality seed then delivery of the seed together with fertilizers would be:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	27	2.8	95	9.9	839	87.3	961	100
Wheat (rainfed)	9	10.2	25	28.4	54	61.4	88	100
Rice	5	1.0	50	10.4	424	88.5	479	100
Pulses	26	8.1	99	30.8	196	61.1	321	100
Oil crops	90	27.8	154	47.5	80	24.7	324	100
Cotton	17	4.5	59	15.4	306	80.1	382	100
Potato	1	0.3	17	5.8	273	93.8	291	100
Melon	27	9.5	112	39.4	145	51.1	284	100
Tomato	23	18.3	29	23.0	74	58.7	126	100
Other vegetables	20	7.9	46	18.3	186	73.8	252	100
Total	245	7.0	686	19.6	2 577	73.5	3 508	100
Provinces:								
Baghlan	16	2.3	121	17.3	561	80.4	698	100
Balkh	60	7.5	260	32.7	475	59.7	795	100
Bamyan	1	0.3	11	3.7	288	96.0	300	100
Herat	12	2.1	57	10.0	499	87.9	568	100
Kunduz	102	12.7	193	24.1	507	63.2	802	100
Nangarhar	54	15.7	44	12.8	247	71.6	345	100
Total	245	7.0	686	19.6	2 577	73.5	3 508	100

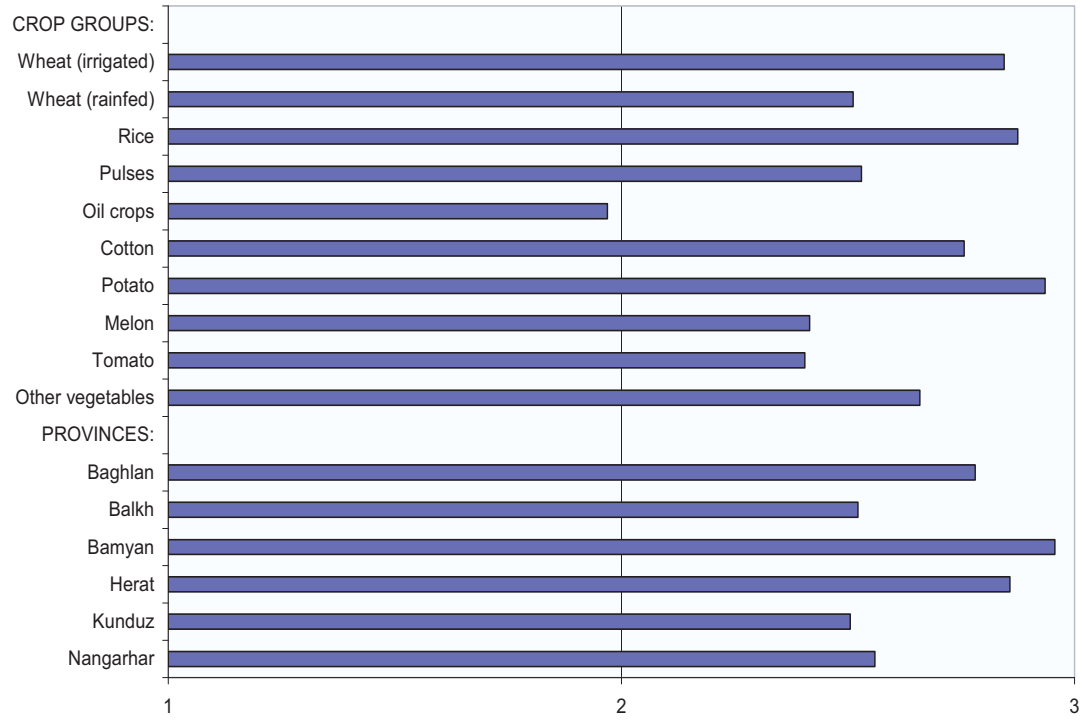

Figure 21. Buying more quality seed if it came with fertilizers

Table 30. Buying more quality seed in case of lower prices

	Farmers said about a lower price that it was:							
	Most important		Somewhat important		Not important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	40	4.2	333	34.7	588	61.2	961	100
Wheat (rainfed)		0.0	43	48.9	45	51.1	88	100
Rice	12	2.5	142	29.6	325	67.8	479	100
Pulses	6	1.9	103	32.1	212	66.0	321	100
Oil crops	29	9.0	104	32.1	191	59.0	324	100
Cotton	19	5.0	150	39.3	213	55.8	382	100
Potato	7	2.4	127	43.6	157	54.0	291	100
Melon	33	11.6	111	39.1	140	49.3	284	100
Tomato	9	7.1	40	31.7	77	61.1	126	100
Other vegetables	23	9.1	84	33.3	145	57.5	252	100
Total	178	5.1	1 237	35.3	2 093	59.7	3 508	100
Provinces:								
Baghlan	22	3.2	235	33.7	441	63.2	698	100
Balkh	47	5.9	285	35.8	463	58.2	795	100
Bamyan	13	4.3	139	46.3	148	49.3	300	100
Herat	5	0.9	348	61.3	215	37.9	568	100
Kunduz	64	8.0	188	23.4	550	68.6	802	100
Nangarhar	27	7.8	42	12.2	276	80.0	345	100
Total	178	5.1	1 237	35.3	2 093	59.7	3 508	100

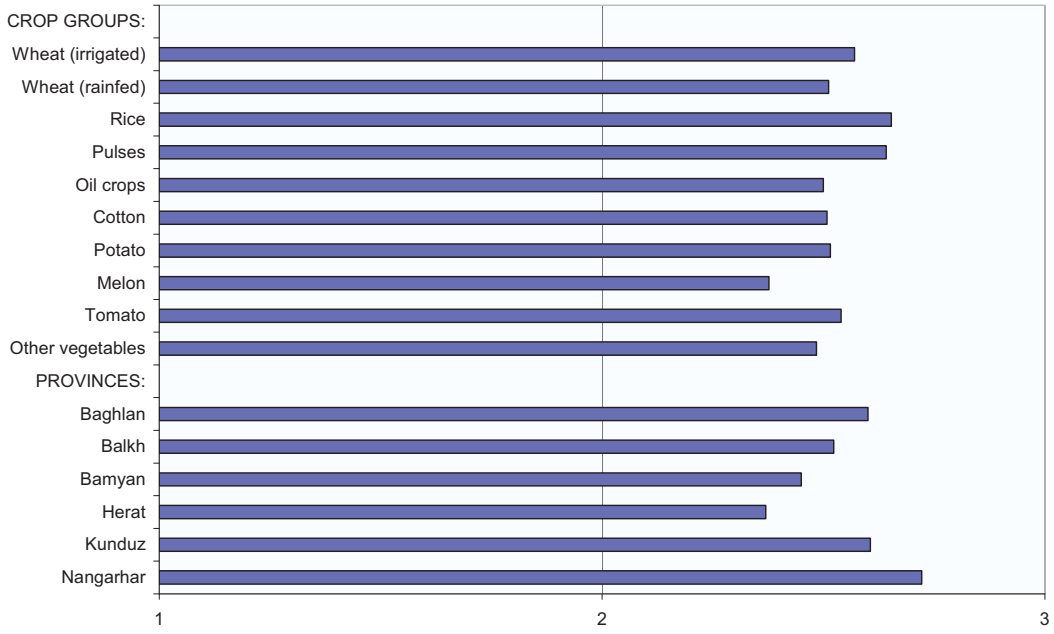

Figure 22. Buying more quality seed in case of lower prices

Table 31. Buying more quality seed if credit was available

	Farmers said that if they would buy more quality seed then provision of credit would be:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	124	12.9	258	26.8	579	60.2	961	100
Wheat (rainfed)	4	4.5	28	31.8	56	63.6	88	100
Rice	60	12.5	130	27.1	289	60.3	479	100
Pulses	57	17.8	96	29.9	168	52.3	321	100
Oil crops	93	28.7	131	40.4	100	30.9	324	100
Cotton	66	17.3	107	28.0	209	54.7	382	100
Potato	11	3.8	97	33.3	183	62.9	291	100
Melon	96	33.8	116	40.8	72	25.4	284	100
Tomato	30	23.8	52	41.3	44	34.9	126	100
Other vegetables	40	15.9	91	36.1	121	48.0	252	100
Total	581	16.6	1106	31.5	1 821	51.9	3 508	100
Provinces:								
Baghlan	132	18.9	201	28.8	365	52.3	698	100
Balkh	195	24.5	298	37.5	302	38.0	795	100
Bamyan	12	4.0	77	25.7	211	70.3	300	100
Herat	28	4.9	210	37.0	330	58.1	568	100
Kunduz	122	15.2	223	27.8	457	57.0	802	100
Nangarhar	92	26.7	97	28.1	156	45.2	345	100
Total	581	16.6	1 106	31.5	1 821	51.9	3 508	100

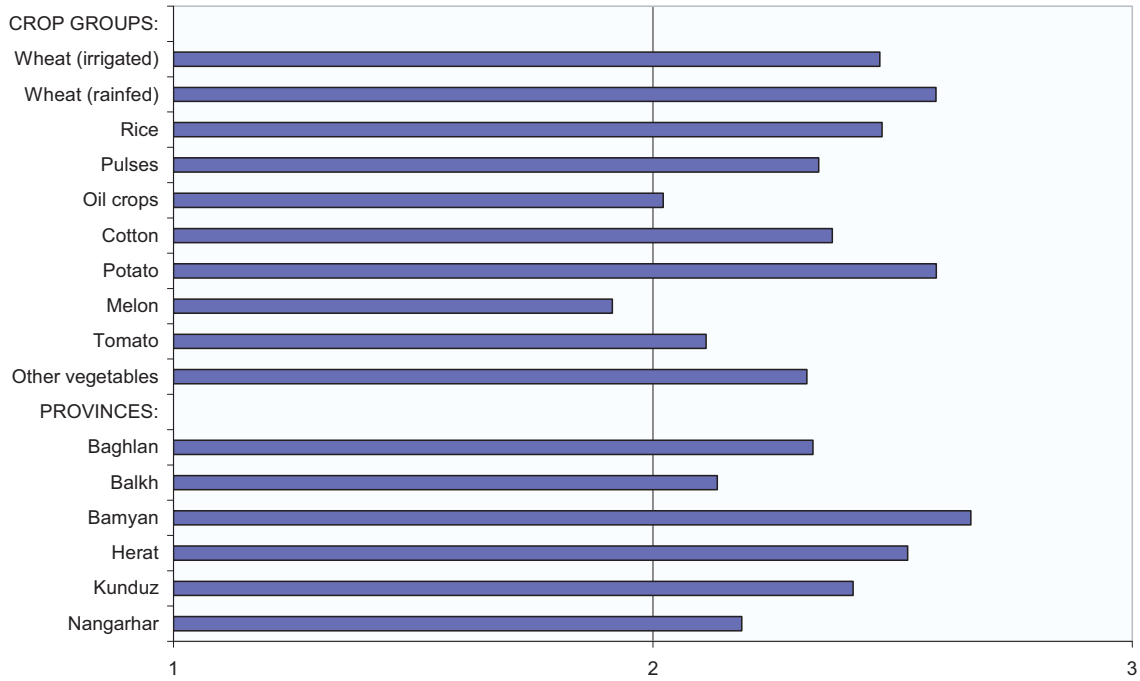

Figure 23. Buying more quality seed if credit was available

Table 32. Buying more quality seed if there was a new variety

	Farmers said that if they would buy more quality seed then a new variety would be:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	90	9.4	549	57.1	322	33.5	961	100
Wheat (rainfed)	3	3.4	57	64.8	28	31.8	88	100
Rice	30	6.3	293	61.2	156	32.6	479	100
Pulses	8	2.5	202	62.9	111	34.6	321	100
Oil crops	15	4.6	193	59.6	116	35.8	324	100
Cotton	19	5.0	217	56.8	146	38.2	382	100
Potato	21	7.2	149	51.2	121	41.6	291	100
Melon	19	6.7	153	53.9	112	39.4	284	100
Tomato	26	20.6	61	48.4	39	31.0	126	100
Other vegetables	28	11.1	131	52.0	93	36.9	252	100
Total	259	7.4	2 005	57.2	1 244	35.5	3 508	100
Provinces:								
Baghlan	4	0.6	454	65.0	240	34.4	698	100
Balkh	14	1.8	434	54.6	347	43.6	795	100
Bamyan	39	13.0	124	41.3	137	45.7	300	100
Herat	38	6.7	308	54.2	222	39.1	568	100
Kunduz	68	8.5	487	60.7	247	30.8	802	100
Nangarhar	96	27.8	198	57.4	51	14.8	345	100
Total	259	7.4	2 005	57.2	1 244	35.5	3 508	100

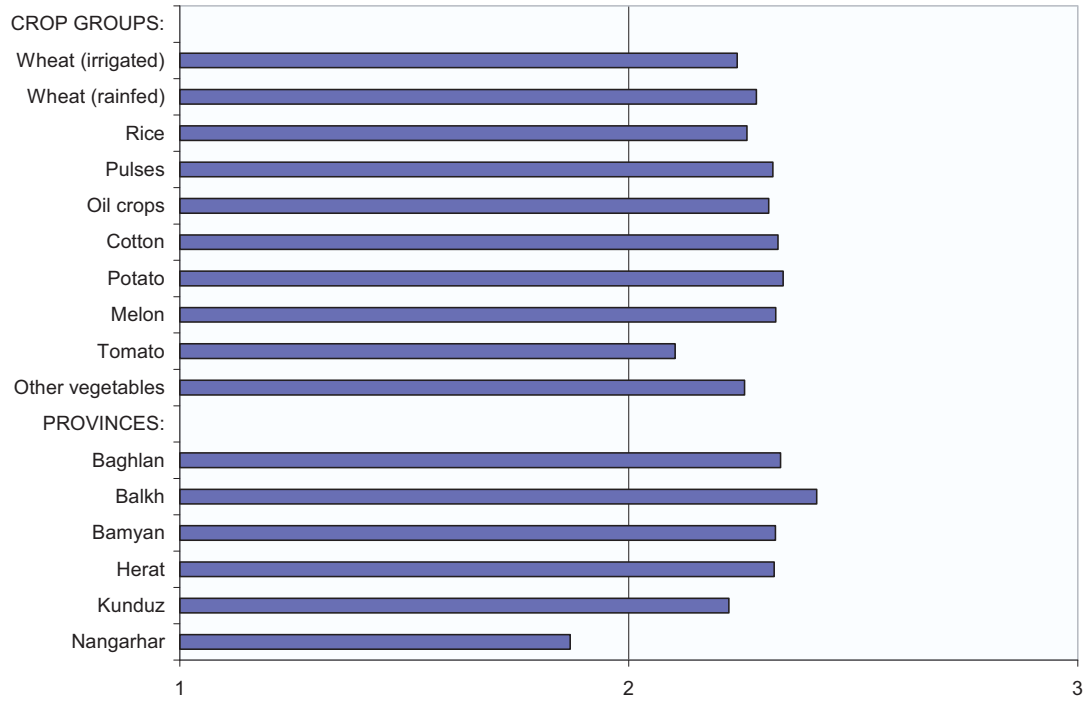

Figure 24. Buying more quality seed if there was a new variety

Table 33. Buying more quality seed if there was good awareness about varieties and seed

	Farmers said that that fact that they were more aware of seed and varieties would have the following importance for them:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	458	47.7	431	44.8	72	7.5	961	100
Wheat (rainfed)	48	54.5	31	35.2	9	10.2	88	100
Rice	231	48.2	201	42.0	47	9.8	479	100
Pulses	165	51.4	130	40.5	26	8.1	321	100
Oil crops	189	58.3	114	35.2	21	6.5	324	100
Cotton	205	53.7	157	41.1	20	5.2	382	100
Potato	106	36.4	171	58.8	14	4.8	291	100
Melon	143	50.4	121	42.6	20	7.0	284	100
Tomato	57	45.2	58	46.0	11	8.7	126	100
Other vegetables	85	33.7	156	61.9	11	4.4	252	100
Total	1 687	48.1	1 570	44.8	251	7.2	3 508	100
Provinces:								
Baghlan	265	38.0	368	52.7	65	9.3	698	100
Balkh	386	48.6	289	36.4	120	15.1	795	100
Bamyan	111	37.0	183	61.0	6	2.0	300	100
Herat	233	41.0	302	53.2	33	5.8	568	100
Kunduz	475	59.2	305	38.0	22	2.7	802	100
Nangarhar	217	62.9	123	35.7	5	1.4	345	100
Total	1 687	48.1	1 570	44.8	251	7.2	3 508	100

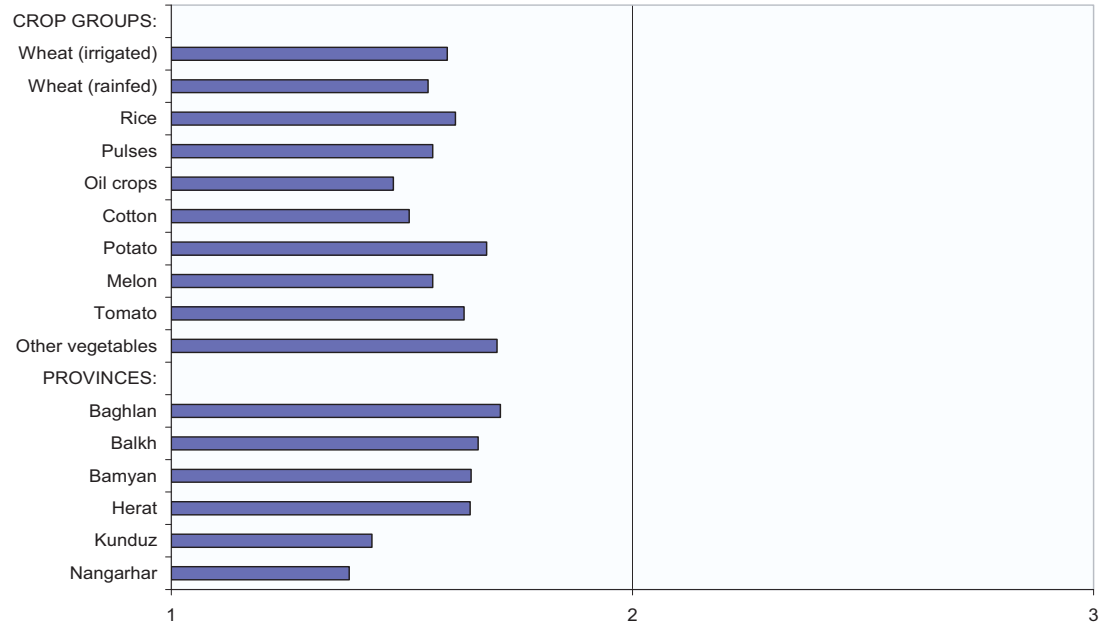

Figure 25. Buying more quality seed if there was good awareness about varieties and seed

Table 34. Buying more quality seed if it came with good extension advice

	Farmers said that if they would buy more quality seed then good extension advice would be:							
	Not important		Somewhat important		Most important		Total	
	Number	%	Number	%	Number	%	Number	%
Crop groups:								
Wheat (irrigated)	412	42.9	524	54.5	25	2.6	961	100
Wheat (rainfed)	49	55.7	38	43.2	1	1.1	88	100
Rice	200	41.8	260	54.3	19	4.0	479	100
Pulses	161	50.2	147	45.8	13	4.0	321	100
Oil crops	164	50.6	149	46.0	11	3.4	324	100
Cotton	159	41.6	204	53.4	19	5.0	382	100
Potato	107	36.8	166	57.0	18	6.2	291	100
Melon	142	50.0	134	47.2	8	2.8	284	100
Tomato	51	40.5	65	51.6	10	7.9	126	100
Other vegetables	77	30.6	166	65.9	9	3.6	252	100
Total	1 522	43.4	1 853	52.8	133	3.8	3 508	100
Provinces:								
Baghlan	262	37.5	433	62.0	3	0.4	698	100
Balkh	379	47.7	391	49.2	25	3.1	795	100
Bamyan	110	36.7	175	58.3	15	5.0	300	100
Herat	223	39.3	312	54.9	33	5.8	568	100
Kunduz	381	47.5	370	46.1	51	6.4	802	100
Nangarhar	167	48.4	172	49.9	6	1.7	345	100
Total	1 522	43.4	1 853	52.8	133	3.8	3 508	100

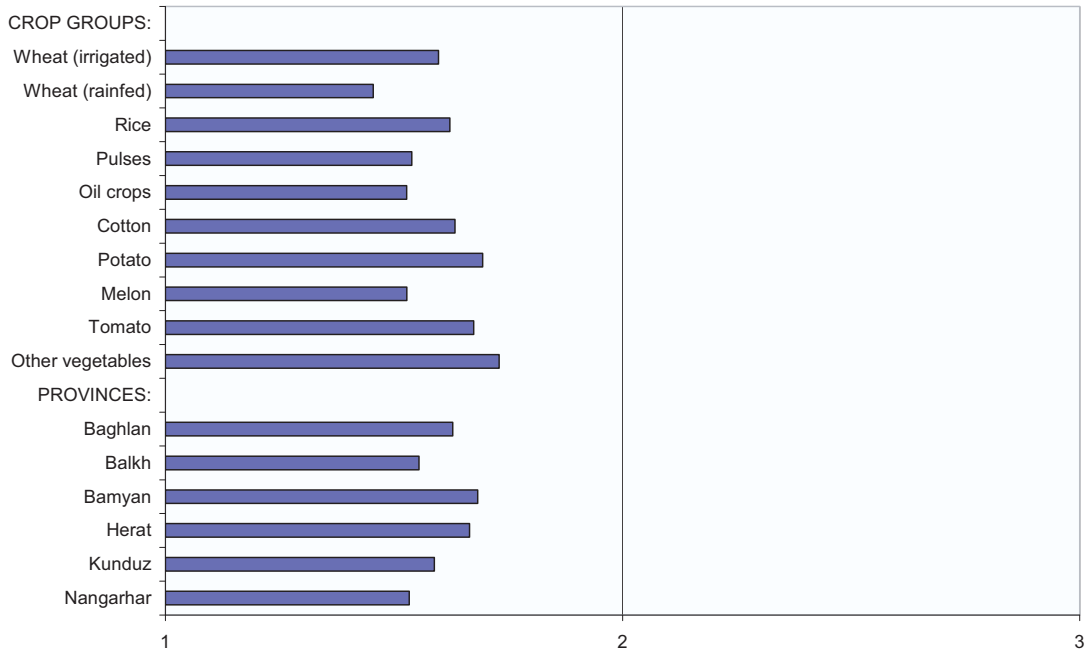

Figure 26. Buying more quality seed if it came with good extension advice

15. CONCLUSIONS: Assessing the potential for seed marketing

Using the survey results as a basis, several issues have been discussed in this report that relate to the nature of delivery and utilization of crop seeds in Afghanistan. This is with the view of providing more information on the marketing process, while attempting to answer some of the critical questions that are often asked in relation to the effective demand for seed of the major field crops grown in the country. Conclusions reached in this regard relate largely to factors that would influence the marketing of seed on an increasing scale as the national seed industry develops.

15.1 Size and value of the seed market

There are not many good data available in Afghanistan on the total area of various crops, except for wheat and rice. However, in September 2004, a FAO/WFP Crop and Food Supply Assessment Mission estimated that there were 969 000 ha under irrigated wheat, 787 000 ha under rainfed wheat, and 185 000 ha under rice. Assuming quality seed were available from commercial sources and that farmers would use cash to buy 49 kg, 33 kg and 59 kg seed for sowing a hectare respectively of these crops (Table 36), this would create a total market or demand for about 73 000 tons of quality wheat seed and 11 000 tons of quality rice seed. At 2004 prices, the total value of this seed market would be worth about US$ 25 million.

15.2 Farmers' willingness to buy seed

The overall survey results show that 1 595 farmers bought seed in the local markets, 375 farmers bought seed from other sources, and 112 farmers obtained seed against credit from various relief agencies. Taking into account that there is some overlapping between these 3 groups, analysis of the survey data still shows that a total of 1 888 farmers, or 53.8 percent of all farmers surveyed committed funds to obtain seed from various sources. This is a substantial proportion of the farmers surveyed in a situation of weak extension or market promotion. This suggests that awareness creation and promotional activities would result in more farmers becoming convinced about quality seed, which would translate into their willingness to buy it.

15.3 Prices paid by farmers

The seed buying farmers altogether acquired 46.5 percent of their requirements in the local markets and from other commercial sources (Table 35). In general, the prices they paid for this seed were by and large the same as they would pay for ordinary grain.

The survey could not quantify how much more quality seed farmers would buy at various price levels although it is known from other surveys that quality seed costs around twice the price for ordinary grain. The data obtained by this survey were not sufficient to firmly reconfirm this crop by crop. However, the fact that farmers were less concerned with the seed price than with seed quality and the possibility of acquiring seed together with fertilizers (Figure 33) shows the potential for successful commercialization of these inputs although credit was also considered important.

15.4 Quality considerations in buying seed

Although farmers would be selective when they look for seed in the local markets and sources taking into account good germination and physical appearance as most important (see Figure 9), many farmers also made the point that they bought seed from these sources because they did not have enough seed of their own production and there were no other source of seed to find. At the same time, the farmers were also very critical of the quality of the seed they bought especially in the local markets (Figure 22). Up to 44 percent of all farmers found the quality of such seed to be "poor", with more criticism in the case of rice, cotton, melon and tomato, and less in the cases of wheat and pulses. Farmers in Nangahar and Baghlan were particularly critical probably for

vegetable and potato seed respectively. However, the survey has provided convincing information, which suggests that it is possible to develop a commercial market for quality seed in Afghanistan.

Table 35. Reviewing commercial seed sources

Crop groups	Planting rates (kg/ha)	Percentage of seed from			kg/ha seed from		
		own source %	Purchase against cash or credit % (1)	other sources % (2)	own source	Purchase against cash or credit (1)	other sources (2)
Wheat (irrigated)	161	65.8	30.4	3.7	106	49	6
Wheat (rainfed)	79	56.5	42.0	1.5	45	33	1
Rice	132	53.4	45.1	1.5	70	59	2
Pulses	50	49.8	42.6	7.5	25	21	4
Oil crops	22	31.7	68.3		7	15	
Cotton	61	18.5	79.1	2.4	11	48	1
Potato	1 712	23.1	68.6	8.3	396	1 175	142
Melon	7	85.4	14.2	0.4	6	1	0
Tomato	2	53.2	46.1	0.7	1	1	0
Other vegetables	9	42.1	55.5	2.4	4	5	0
Grand Total		48.8	46.5	4.7			

(1) Purchase against cash from the local market or from other source, or obtained from relief agency against credit; (2) obtained from other farmer or free of charge from relief agency

15.5 Variety considerations

A total of 1 224 of the farmers surveyed grew local varieties with 84 percent of them expressing their satisfaction with those varieties (Table 12), Over half (54 percent) of the farmers were not even aware if improved varieties would be better or thought that such varieties were indeed better (Table 13). Up to 881 farmers, mostly growers of pulses, oil crops and melon, were not using improved varieties (Table 14) and 65 percent of them said that they had not heard about improved varieties. Demonstration of improved varieties and awareness creation about their potential attributes should therefore be important preoccupations of the seed industry if farmers are to be convinced to buy seed of such varieties.

15.6 Indicators of market potential for seed

Indicators pointing towards the potential for seed marketing include the following:

- More than half of the farmers seem already to spend money on buying seed especially of crops such as cotton, oil crops, potato, tomato and pulses. Up to 1 585 farmers in the survey bought seed against cash in the local markets and spent on average US$ 34 each (among those were 394 wheat farmers who bought for US$ 43 each, see Table 16), and 375 farmers buying seed against cash from other sources spent more than 26 US$/farmer (Table 24).
- Of the 2 018 farmers who were using their own seed, 41 percent of them rated the quality of such seed as “poor” and a majority of them would like to replace their seed after two or three years (Figures 17 and 18). This high replacement rates of once in years (50 percent) or one in three years (33 percent) are indicative of a good market potential for seed of new varieties.
- Of those 261 farmers who obtained seed from other farmers, 71.3 percent said that the quality of that seed was “poor” (Table 23). It may therefore be assumed that these farmers are only approaching other farmers for seed because they could not find seed elsewhere. This is a

significant portion of the market that could be attracted to alternative suppliers if such suppliers were to assure better quality.

- A total of 1 665 farmers did not buy any seed and gave two important reasons for this: they had no money to buy seed for, and there was no seed for sale – Figures 14 and 15. It is likely that those farmers who did not buy seed because of non availability would appreciate if suppliers were located in their communities.
- Of the 44 percent farmers who complained about quality of the seed they got in the local markets, only 0.3 percent said that the seed was better than ordinary grain, while 35.9 said the quality was the same, while 63.9 percent said that quality of such seed was worse than that of ordinary grain (Figure 23). This rather strong statement suggests that farmers were comparing the seed in the local markets with their own grain and thus reinforcing the assumption that they only went to the markets to buy seed because they had no other source. Any alternative source providing good seed quality may attract a large proportion of the unexplored market.
- The survey data suggest that more than half (51.8 percent) of the 3 508 farmers interviewed would go every year to buy seed of a new variety. The interest in variety replacement varies with crops. Almost 95 percent of potato growers would go to the seed supplier within one or two years. More than 85 percent of the wheat and tomato growers would do the same. There is also some variation between provinces. Almost 100 percent of the farmers in Bamyan would buy a new variety within one to two years likely of potato while a little over 90 of those in Herat would do the same likely of vegetable seed, particularly that of tomato.

The above bullet points all indicate that there is a potential for commercial seed marketing in Afghanistan. Using results obtained, a comparative analysis of crop profitability is presented in Table 36. The survey in general has shown that development of new and improved varieties and a stronger emphasis on seed extension and promotion should be given attention.

Using analysis in the above table with information on crop portfolio based on farmers' willingness to buy seed, it will be possible to determine which crop combinations will be most efficient in particular provinces. As illustrated in Figure 41, Herat demonstrates the highest market potential for seed of most crop combinations, with potato and cotton being most profitable. Enterprises in Herat will therefore have a wider choice of crop combinations than elsewhere. Enterprises is Baghlan would do well in marketing wheat seed in addition to either potato or cotton seed, while those in Bamyan would focus on wheat and potato. Enterprises in Kunduz would grow wheat and rice, or cotton. Those in Nangahar would do best in vegetables.

Table 36. Comparative analysis of crop profitability

Crop	Percentage of farmers that use of own seed (Table 7)	Percentage of farmers who bought seed cash (Table 8)	Percentage of farmers already heard of improved varieties (Table 14)	Percentage of farmers already used improved varieties (Table 11)	Percentage of farmers who thought improved varieties were better (Table 13)	Percenge of farmers who thought own seed was of poor quality (Figure 5)	Average seed replacement rate (years)	Potenti al for comme r-cializati on	Method of comnmer-cialization
Irrigated wheat	65.8	48.3	85	95.1	92	46	3.2	+++	Availability
Rainfed wheat	56.5	68.2	42	86.4	81	36	3	+++	Promotion
Rice	53.4	44.5	92	91.9	81	29	2.7	++++	Availability
Pulses	49.8	58.5	50	67.3	40	37	2.9	+++	New varieties & Promotion
Oil crops	31.7	53.7	29	13.6	26	26	3.2	++	New varieties & Promotion
Cotton	18.5	72.2	54	78.8	44	51	3	+++++	Promotion
Potato	23.1	110	0	99	91	63	2.5	+++++	New varieties & Promotion
Melon	85.4	17.2	7	13.4	5	26	3.2	+	New varieties & Promotion
Tomato	53.2	48.4	64	80.2	44	68	2.3	++++	Promotion
Other vegetables	42.1	61.5	44	82.9	29	60	2.8	++++	Promotion

+ (lowest), +++++ (highest) potential

55

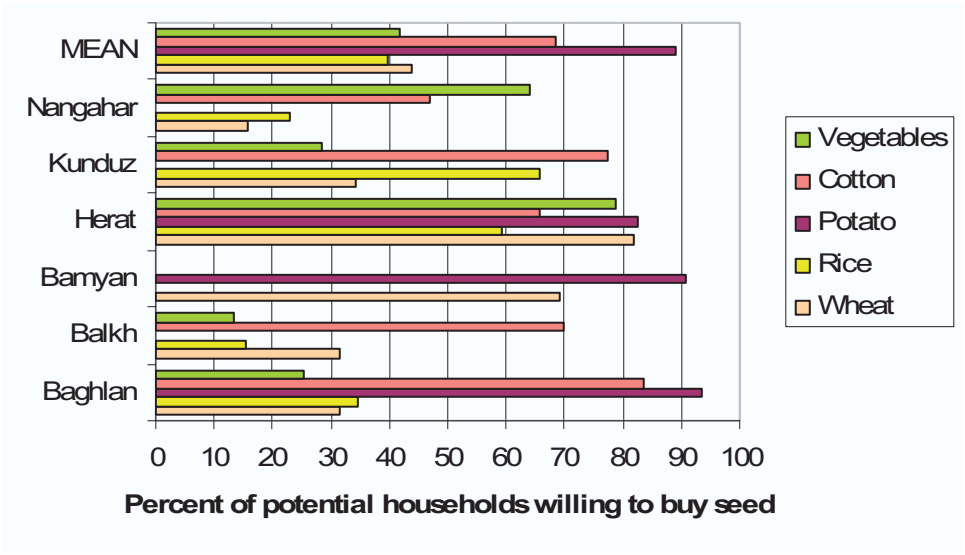

Figure 27. Portfolio of crops grown in different provinces

16. THOUGHTS FOR FUTURE DIRECTIONS

The following are key thoughts arising from this study, which could be considered in the development of any future action plans or seed marketing strategies for Afghanistan.

1. A number of farmers have complained that they are not buying seed because of non availability. It would be important to establish supply points in farming communities that would bring seed within easier reach of the farmers. Such suppliers should purely be business entities, which would focus on selling quality seed at cost-effective prices and on a sustainable basis.
2. The main potential customers for quality seed are both those farmers who currently save their own seed and those who purchase 'seed' in the local markets. The challenge for seed suppliers will be to attract these potential customers to buy quality seed instead. This will require considerable promotional efforts such that the buyers become convinced that they are buying seed of far better quality from trustworthy and reliable suppliers, and at prices that give good value for money. Those farmers buying seed in the local markets will be easier to target and attract by locating supply points in the market bazaars. On the other hand, farmers saving their own seed will be more difficult potential customers and attracting them to quality seed will require a lot of extension effort, effective communication and longer-term relationships of trust.
3. Wheat is a leading food crop in Afghanistan and shall remain the basic crop for any seed enterprise. However, depending on the agro-ecological zones, there are other more profitable crops that could be grown in addition to wheat and many farmers are already buying seed of such crops. These include rice, potato, pulses, oil seeds and various kinds of vegetables. Crop diversification is therefore an option any seed enterprise should consider as a means of maximizing returns from seed sales.
4. The sale of seed must be combined with that of other agri-inputs especially fertilizers. Apart from the advantage of farmers getting all their input requirements from one source, the quality of other inputs could be better guaranteed while the farmers would benefit from some centralized extension advice.

5. The release of new varieties will not be important only for wheat but for other main crops grown in Afghanistan. There are those crops such as oil crops and melon where the use or knowledge about new varieties are very limited.
6. There is need for awareness creation and promotion of new varieties and quality seed, since information is generally lacking in farming communities. This is not so much of normal extension, but more about new products, techniques and knowledge related to improved farming.
7. Seed quality shall remain the overriding factor when farmers make the decision to buy or not buy seed. It seems that cheaper pricing will only play a part if quality is assured in the first place. Seed suppliers would have to operate as cost effective as possible so at to compete on price while offering the best quality seed possible.

Annex 1. Questionnaire

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Market Demand Assessment for Quality Seed of Major Crops

In Afghanistan

معلو م نمو د ن تقا ضا برای تخم خوب نباتات عمده در افغا نستان

(Farm Household Questionnaire –May 2004)

Crop: **اسم نبا ت** **----------**

Date of interview تاریخ سروی	**----/-----/2004**	**Questionnaire ID** نمبر سوال نامه		**Name of Enumerator** اسم سرویر	
Village قریه				**Name of interviewee** اسم دهقان	
Province ولایت				**District** ولسوا لی	

01	**Total area cultivated of this crop** **به چند جریب زمین این نبات کشت کرده اید**	**Jerib** **جریب**	
02	**Seed rate** **اندازه تخم در یک جریب**	**Seer/jerib** **سیر/جریب**	
03	**Total varieties (local & improved) of this crop cultivated** **مجموعآ چند ورایتی این نبات را کشت نموده اید (اصلاح شده و محلی)**	**تعداد Number**	
04	**How many local varieties of this crop do you cultivate?** **چند ورایتی محلی کشت می کنید.**	**تعداد Number**	
05	**Are you satisfied with these local varieties?** **1.1** *آ یا شما از این ورایتی محلی رضایت دارید؟*	**بلی Yes=1** **نخیر No=0**	
06	**Have you heard about improved varieties of this crop?** **در باره ورایتی های اصلاح شده این نبات چیزی را شنیده اید؟ شماآیا**	**بلی Yes=1** **نخیر No=0**	
07	**How many improved varieties of this crop do you grow?** *1.1.1* **چند ورایتی ا صلا ح شده این نبات را کشت می کنید؟**	**Number** **تعداد**	
08	**Do you think improved varieties of this crop are better than the local ones?** **آیا شما فکر میکنید که ورایتی های اصلاح شده این نبات نسبت به ورایتی های محلی بهتر است؟**	**بلی Yes=1** **نخیر No=0**	
09	**How much seed of this crop did you use from your own source?** **چه مقدار تخم این نبات را از منبع شخصی کشت نموده اید؟**	**Seer** **سیر**	
10	**How do you rate the quality of seed from your own source? Rank as 1=very good, 2=good , 3=poor** **کیفت تخم خود را چه قسم ارزیابی میکنید؟ از 1-3 درجه بندی کنید**	**1=very good,** **بسیار خوب** **2=good خوب** **3=poor خراب**	
11	**If you obtain clean seed of a particular variety of this crop, after how many years of multiplication will you replace the seed because of its deteriorating quality?** **اگر شما تخم خوب این نبات به دست اورید چند سال بعد به نسبت خراب شدن کیفیت , ان را تبدیل خواهید کرد؟**	**Number of years** **تعداد سال**	
12	**How much seed of this crop did you get from other farmers?** **چه مقدار تخم این نبات از دیگر دهاقین بدست اورده اید؟**	**Seer** **سیر**	

13	**How do you rate the quality of seed from other farmers? Rank as : 1=very good, 2=good, 3=poor** **کیفیت تخم که از دیگر دهاقین بدست اورده اید چه قسم ارزیابی می کنید؟**		**1=very good,** بسیار خوب **2=good ,** خوب **3=poor**خراب	
14	**Did you buy any seed of this crop to sow?** ***آیاکدام تخم این نبات را برای کشت خریده اید؟***		**Yes=1**بلی **No=0**نخیر	
15	**If no, why?** اگر نی چرا؟ **Rank your reasons as follows** برای دلیل تان درجه بدهید **1=Most important** بسیار مهم **2=Somewhat important** کم مهم **3=Not important** مهم نیست	**Own saved seed was enough** تخم شخصی ام کافی بود	**Ranking1 to 3** درجه از 1-3	
16		**No money to buy seed** برای خریداری تخم پول نبود	**Ranking1 to 3** درجه از 1-3	
17		**No seed available for sale** *تخم برای خریدن پیدا نمی شد*	**Ranking1 to 3** درجه از 1-3	
18		**Other (specify)** وغیره واضح کنید_____	**Ranking1 to 3** درجه از 1-3	
19	**If yes, how much seed of this crop did you buy in cash from local market?** **اگر بلی, از بازار محلی چه مقدار تخم این نبات را خریداری نموده اید ؟**		**Seer** سیر	
20	**What price did you pay for the seed from the local market?** **قیمت یک سیر چند افغانی بود؟**		**Afs/seer** افغانی/سیر	
21	**Why did you buy seed from the local market?** **چرا تخم را ازبازارمحلی خریداری نمودید ؟ از 1-3 درجه بدرهید** **1=Most important** بسیار مهم **2=Somewhat important** کم مهم **3=Not important** مهم نیست	**Good germination** **جوانه زدن خوب دارد**	**Ranking 1 to 3** درجه از 1-3	
22		**Good physical appearance** **شکل ظاهری خوب دارد**	**Ranking 1 to 3** درجه از 1-3	
23		**No admixture with other seeds, etc.** **به تخم های دیگر مخلوط نیست**	**Ranking 1 to 3** درجه از 1-3	
24		**Own saved seed not enough** **تخم شخصی ام کافی نبود**	**Ranking1 to 3** درجه از 1-3	
25		**No other source available** **منبع دیگر وجود ندارد**	**Ranking 1 to 3** درجه از 1-3	
26		**Other (specify) _____** **وغیره واضح سازید**	**Ranking 1 to 3** درجه از 1-3	
27	**How do you rate the quality of seed you bought in local market?** **از 1-3 درجه بدهد** **کیفیت این تخم را که در مارکیت محلی خریداری نموده اید چه قسم ارزیابی می کنید؟**		**1=very good,** بسیار خوب **2=good ,** خوب **3=poor** خراب	
28	**How do you compare seed in the local market with ordinary grain?** **تخم بازار محلی را با دانه های عادی چه قسم مقایسه میکنید؟**		**1=Better**خوب **2=Same** یکسان **3=Worse** خراب	
29	**How much quality seed did you buy in cash from other source?** **چه مقدار تخم از دیگر منابع خریداری نموده اید؟**		**Seer** سیر	
30	**From which source did you buy the seed?** **از کدام منبع خریداری نمودید؟**		**1=NGO**موسسه **2=ISE**دولت **3=Grower** زا رع **4=Other_** وغیره	
31	**What price did you pay for the quality seed from other source?** **قیمت یک سیر چند افغانی بود؟**		**Afs/seer** افغانی/سیر	

32	Why did you buy quality seed from other source? چرا از دیگر منابع تخم خریداری نمودید؟ دلیل تان درجه بدهد 1= بسیار مهم 2= کم مهم 3= مهم نیست	Good germination جوانه زدن خوب دارد	Ranking 1 to 3 درجه از 1-3	
33	Rank your reasons as follows: 1=Most important 2=Somewhat important 3=Not important	Good physical appearance شکل ظاهری خوب دارد	Ranking 1 to 3 درجه از 1-3	
34		No admixture with other seeds, etc. به تخم ها دیگر مخلوط نیست	Ranking 1 to 3 درجه از 1-3	
35		Own saved seed not enough تخم شخصی کافی نبود	Ranking 1 to 3 درجه از 1-3	
36		No other source available منبع دیگر وجود ندارد	Ranking 1 to 3 درجه از 1-3	
37		Other (specify) وغیره واضح سازید _____	Ranking 1 to 3 درجه از 1-3	
38	How do you rate the quality of seed you bought from the other source? کیفیت تخم را که از دیگر منبع خریداری نموده اید چه قسم ارزیابی می کنید؟		1=very good, بسیار خوب 2=good, خوب 3=poor خراب	
39	If you have a reliable supplier in your community that sells seed at reasonable price, how often will you go there to buy seed of a new variety of this crop? اگر در جامعه شما عرضه کننده تخم این نبات موجود باشد و تخم را به قیمت مناسب بفر وشد چقدر مدت شما خواهید توانست که از انها تخم ورایتی جدید را خریداری نما ئید؟		1=every year هر سال 2 =every 2 yrs دو سا ل 3=every 3 yrs سه سا ل 4=every 4 yrs چار سا ل	
40	If you obtain clean seed of a variety of this crop from this supplier, after how many years of multiplication will you go there to replace the seed because of its deteriorating quality? اگر شما تخم پاک این نبات ازاین عرضه کننده به دست اورید چند سال بعد نسبت خراب شدن کیفیت، آنرا تبدیل خواهید کرد؟		Number of years تعداد سال ها	
41	Which factors will motivate you to buy more quality seed of this crop? Rank your reasons as follows: 1=Most important 2=Somewhat important 3=Not important کدام عوامل شما را تشویق خواهد کرد که ورایتی دیگر این نبات را خریداری کنید؟ از 1-3 درجه بدهید 1=بسیار مهم 2= کم مهم و 3= مهم نیست	Lower price قیمت کم	Ranking 1 to 3 درجه از 1-3	
42		Better seed quality ورایتی به کیفت خوب	Ranking 1 to 3 درجه از 1-3	
43		New variety ورایتی جدید	Ranking 1 to 3 درجه از 1-3	
44		Good extension advice مشوره ها خوب ترویجی	Ranking 1 to 3 درجه از 1-3	
45		Good awareness about Variety/seed اگاهی خوب در باره تخم	Ranking 1 to 3 درجه از 1-3	
46		Accompanying fertilizer همرا با کودکیماوی	Ranking 1 to 3 درجه از 1-3	
47		Credit به قرض	Ranking 1 to 3 درجه از 1-3	
48		Others _____ وغیره	Ranking 1 to 3 درجه از 1-3	
49	How many more seers of quality seed would you buy	Price falls by ¼ کم شدن قیمت تخم به اندازه 1/4	Seer سیر	
50		Price falls by ½ کم شدن قیمت تخم به اندازه 1/2	Seer سیر	

51	if the price of quality seed changed by the following margins? (use price in Q-31 as basis) چه مقدار تخم دیگر خریداری خواهید نمود اگر قیمت تخم به اندازه پائین تغیر بخورد؟ (قیمت سوال 31 را معیار قرار بدهید)	Price falls by ¾ کم شدن قیمت تخم به اندازه 3/4	Seer سیر	
52		Price rises by ¼ زیاد شدن قیمت تخم به اندازه 1/4	Seer سیر	
53		Price rises by ½ زیاد شدن قیمت به اندازه 1/2	Seer سیر	
54		Price rises by ¾ زیاد شدن قیمت تخم به اندازه 3/4	Seer سیر	
55		Price doubles دو چند شدن قیمت	Seer سیر	
56	How much free seed did you receive from relief agency last year?سال گذ شته ا ز موسسات کمک دهنده چه مقدار تخم مفت به دست اورد ه ا ید؟		Seer سیر	
57	How much seed did you receive from relief agency on credit last year? سا ل گذشته از موسسات کمک دهنده چه مقدار تخم به قرض به دست اور ده ا ید؟		Seer سیر	