

## RALF PROJECT SIX MONTHLY REPORT FORMAT

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**Date:** July – December 2006

**RALF Project Number:** 02-05

**Project Title:** Increased productivity and profitability of wheat based cropping system to reduce opium poppy in northern Afghanistan.

**Project Leader:** Mark. J. Henning

**Organisation:** JDA

**Collaborators:**

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**Start Date:** January 2005

**End Date:** January 2007

**Budget:** USD

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### Progress Report July – December 2006 from AKF Baghlan

#### Summary

During the reporting period, the activities have focused on research at farm sites mainly with the field as well as research on farmer's fields. Individual crops were tested according to plan. Some results were affected by the drought in the region, the trials were carried out as planned. Farmers have become increasingly interested in replicating models used and this is expected to continue during the next reporting period.

During the reporting period trials were conducted in the farmers field with Triticale, canola, Flax and Soybean. A total of about 424 trials on these crops were conducted in 8 districts in the Baghlan province. The PTD approach was followed and a total of 56 PTG groups disseminated the research process about 2000 more farmers. More new Farmers are interested in trying out experiments in the successful ones are aiming to grow new crops and varieties at large scales.

The main event during the reporting period was a second field forum held by the NRM team for 250 farmers from target districts, as well as AKF staff and staff from other organisations. The new planting system was introduced to farmers and discussions were held with them on the new method. A workshop on fodder crop production was also held for interested farmers and more farmers have continued as before.

**Table below shows the summary of experiments done at the research site during December)**

#### Summary of average yield harvested during 2006

S/N	Type of seed	Area (m2)	Yield (kg)	Average Yield Kg/Hectare	Maximum Yield/kg	Minimum Yield/kg	Variety No.	Select variety		
1	Canola	360	77.3	2145	26.5	24.5	3	3		
2	Triticale	2308	1260	5490	1300	914	7	7		
3	Flax	150	23.6	1573	5.05	2.25	6	5		
4	Soybean	1432	227.8	1590	504.7	256	8	5		
5	Peanut	1260	228	1810	96	21	4	0		
6	Millet	560	7	125	0	0	7	7		
7	Maize	810	236	2913	0	0	2	2		
8	Sesame	350	36	1030	0	0	85	27		
9	Sunflower*	560	21	0	0	0	112	32		
10	Sunflower	322	77	2391	0	0	1	1		

11	Sorghum	245	5	204	0	0	1	1		
12	Mung bean	940	126	630	0	0	2	0		
13	Safflower	1160	29	250	0	0	1	0		
14	Wheat	1698	21.3	2768	0	0	2	0		

**Comment [m1]:** When was this grown? This was grown in 04/04/2006.

\*The seed rate for sunflower was measured in two ways; a) through seed rate per gram b) through seed rate in number of seeds per gram. The results are hence shown in two separate rows, with row 9 presenting the findings through number of seeds per gram and row 10 presenting the seed rate per gram.

During the reporting period, AKF's enterprise team conducted further marketing assessment analyses of oil seed crops. Research was also completed on market connections and was carried out in markets of Pul-i-Khumri, and Mazar-e-Sharif. The results showed that many farmers are interested in selling local oil if it is available. An economic analysis for soybean and sunflower was also completed on the basis of the trial research.

## **Baghlan**

### **1. Research at the farm site**

#### **1.1 First crops**

Triticale, wheat, flax, canola, safflower, alfalfa, soy bean and peanut were grown in the farm during the reporting period. This section is an update on the crops grown before. The new crops grown are listed in the second crops section.

New sowing techniques that were tried for triticale, millet and wheat raised considerable interest among the farmers. The farmers were regularly exposed to the crops during sowing, various growth and harvest stages. Below are the details for each individual crop:

#### **a) Triticale**

As reported in last report 20 varieties of triticale harvested in May 2006 had shown promising results. Further scientific analysis was required. The data was sent to CIMMYT but we did not receive any results.

Triticale seeds have been distributed to interested farmers during Autumn 2006 with the farmers taking up the plant in the growing season of 2007. Progress on this will be evaluated in the next report (see section on research on farmer's field).

#### **b) Wheat**

As AKF-Baghlan does not own a zero tillage machine, the machine used for the research trial was from JDA in Mazar-e-Sharif. After the second crop planting in 2006, the machine was taken to Mazar-e-Sharif. The lack of machinery prevented further extension of activities.

Farmers who visited the farm during the sowing, growth and harvest stages were impressed with the progress and satisfied with the progress. Some farmers also showed interest in replicating the experiment on their own farms. However, it was too late for replication to take place in 2006 as the seeds were sown late in the year. When the farmers first visited the farm, most of the crops were at maturity and ready for harvesting. After the harvesting was complete, the hand harvested seeds needed to be transported to the farm hence the distribution time was longer. Furthermore, the team distributed the seeds only after the harvesting was complete. Replication of the experiment with interested farmers is expected during 2007.

#### **c) Flax**

The quantity and quality of milk production by dairy cow has increased with the use of flax. This is due to an increase in demand in the market as livestock owners have started purchasing the products from the bazaar and small oil processing companies.

**e) Safflower**

On request from JDA, AKF-Baghlan agreed to test safflower seeds in the research site. The seeds were provided to the research team by JDA in March 2006 and the seed was sown for the first time in April 2006 covering 1160m<sup>2</sup>. The seed showed good adaptation, however the yield at 29 kg was lower than the expected 200kg. Additionally there is currently no market demand for safflower, hence research was not done in 2007.

**f) Alfalfa**

Alfalfa is a valuable fodder crop which produces a high quality animal feed and for improving the health of animals which will ultimately lead to an increase in milk production. This crop was planted in a research plot which was 490 m<sup>2</sup>. The yield in 2006 was 4.5kg/1m<sup>2</sup> but the crop showed tolerance/resistance to rust in 2006. Therefore Alfalfa will not be grown on the research site in 2007.

Although Alfalfa did not grow during the reporting period, this seed has been procured and planted in Baghlan by JDA. The research results were not yet available for the previous progress report, but have been included here. Alfalfa does not need to be planted every year as once it is sown it can give multiple harvests and grow from its initial root from three to four years.

**g) Soybean**

Eight varieties of soybean were tested at the research trial in 2006, all of which produced an average yield of 1754kg/ha. Soybean showed good adaptation and vegetative growth on both rain-fed and irrigated plots. It also showed a high resistance against pests. The farmers observing soybean were happy and have distributed to interested farmers in early 2006 and harvested with a good yield. Although there is a market demand for soy, the farmers grow the plant for their own food needs. Soybean research was replicated in 2007.

Table 1.1 Soybean yield at the AKF-Baghlan research farm

S/N	Type of Plant	Area/m <sup>2</sup>	Seed/gr	Planting Date	Harvest	Fertilizer		Yield in Kg				
						Urea/kg	DAP/kg					
1	Soybean ( 23G02 )	101	100	16/05/2006	03/09/2006	0	0	13.3				
2	Soybean ( 29G02 )	101	100	16/05/2006	03/09/2006	0	0	23.5				
3	Soybean ( Back 311)	600	2600	27/06/2006	3/10/2006	0	0	77				
4	Soybean (Back 381 )	105	100	8/5/2006	3/9/2006	0	0	26.5				
5	Soybean (Back311 )	105	100	8/5/2006	3/9/2006	0	0	14.8				
6	Soybean(88448G044)	105	100	8/5/2006	3/9/2006	0	0	17.5				
7	Soybean (25G02 )	105	100	8/5/2006	3/9/2006	0	0	19.9				
8	Soybean (25G01 )	105	100	8/5/2006	3/9/2006	0	0	16.8				
9	Soybean (8833G02 )	105	100	8/5/2006	3/9/2006	0	0	17.5				

**h) Peanut** - Peanut was first tested in 2005 and for the second time in 2006. However, due to low market demand, farmers are not growing this seed as well as the low market demand, this seed will not be re-tested in 2007.

Four varieties of peanut were sown on a 1263 m<sup>2</sup> trial plot in the spring of 2006, achieving a seed yield of 228kg. For details please see the below table. However, due to low market demand reseeded in 2007.

Table 1.2 Peanut yield results achieved at the AKF research trial plot in 2006

S/N	Varieties	area (m2)	Seed Rate/Gr	Planting Date	Harvest Date	Yield			
						Weight/kg	Gr/m2	Kg/erib	Kg/ha
1	ICGV ( 86564 )	155	450	6/4/2006	15/10/2006	21	135.48	271	1355

2	ICGV ( 96466 )	453	450	11/4/2006	16/10/2006	70	154,5	309	1545	
3	ICGV ( 87141 )	455	500	12/4/2006	17/10/2006	96	211	421	2109	
4	ICGV ( 88438 )	200	500	13/04/2006	18/10/2006	41	205	410	2050	
<b>Total</b>		<b>1263</b>	<b>1900</b>			<b>228</b>	<b>416</b>	<b>1411</b>	<b>7059</b>	

## 1.2 Second Crops

Following the harvest for wheat on one jerib of land, the second crops including sesame, su CV1, maize Cv6, soybean, mung bean and millet were planted in a full-tile and strip-tile systems of land as the first crops. The overall results of the second crop were good, although some (Millet) required longer vegetative time than initially predicted. In those cases, the process was in order to obtain an optimal yield. Please see summary of results of the second crops grown in table 1.2.1.

**Table 1.2.1. Summary results of second crops**

Type of plant	Area (m2)	Seed amount (Kg)	Planting date	Harvest date	Yield/Kg	Yield kg
Soy bean (1 V )	600	0.6	22/06/2006	30/10/2006	47.4	258 kg
Maize/ Corn (2 V)	532	0.8	22/06/2006	4/10/2006	124	466 kg
Sun flower (112 V)	882	0.5	20/06/2006	3/10/2006	163	370 kg
Sesame (85 V)	350	0.2	20/06/2006	3/10/2006	36.5	206 kg
Millet	350	0.35	20/05/2006	27/08/2006	3.15	18 kg
Mung bean (2 V)	2000	10	5/6/2006	17/08/2006	126	126 kg

### a) Soy bean

The soy bean trial was replicated for the second consecutive year at the AKF-Baghlán research team therefore was able to build on the previous experience and knowledge gained on cultivating the soy bean seeds were planted in rows and manually broadcasted. This year, a decision was made to plant seeds in rows. The crop performed well under the local conditions yielding a satisfactory 1:1 area of 600 m<sup>2</sup>.

**Table 1.2.2. Soy bean**

Type of seed	Area (m2)	Seed amount gram	Planting date	Harvest date	Yield /Kg	Yield kg/ jerib
Soy bean (1V)	600	600	22/06/2006	30/10/2006	77	258

### b) Maize / Corn

#### Maize CV1

Maize CV1 seeds were planted on 29/05/2006 in eight rows into an area 280m<sup>2</sup>. The total yield was 154kg. Please find details in table 1.2.3.

**Table 1.2.3**

S/N	Variety	Area/m2	Seed R/gr	Planted Date	Harvested Date	Yield/Kg	Growing period/days
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1	CV1	280	300	29/05/2006	10/9/2006	154	130
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#### Maize CV1

Maize of the CV1 was also planted in rows on 22/06/2006 into a 210m<sup>2</sup> plot of land at the research site. Despite the late planting the seed variety achieved a yield of 233.3g/m<sup>2</sup>. The results of the optimal yield results are achieved through long a long period of vegetative growth, hence ideally happen in early June. The Maize was harvested after 102 days when some ears were at the milking stage, which is why the yield was lower than expected. In order to increase production period of at least 130 to 140 days should be considered.

#### Maize CV6

Maize of the CV6 variety was planted and harvested on 322 m<sup>2</sup> at the same time as the CV1 (22/06/2006 one month later than above mentioned main trial!)

Similarly to the CV1 variety, CV6 also has a long vegetative period and would generate better results earlier. Though a favourable 326g/m<sup>2</sup> was harvested, the second trial will be sown earlier, in early June. Please find detailed information on both varieties in table 1.2.4.

Table 1.2.4. Yield performance of Maize CV1 and CV6

No	Variety	Area/m <sup>2</sup>	Gr/row seeded	Planted Date	Harvest date	Weight/kg	gr/m <sup>2</sup>	Kg/ib		
1	CV1	210	400	22/06/2006	04/10/2006	49	233,3	466		
2	CV 6	322	1000	20/06/2006	05/10/2006	105	326	652		

#### c) Sunflower

Sunflower is an oil crop containing 32% oil per seed. An experiment with 113 sunflower seeds was conducted at the research site and the harvested yield was 86,141kg/882m<sup>2</sup>. (Please see table 1.2.5 for details on the results)

Sunflower was tested for the first time this year with a good result. Out of the total 112 varieties tested, 11 have been selected for further testing and research in 2007. As number of seeds per variety is low, conclusive analysis in this species can only be done only after the harvest in 2007.

Table 1.2.5 Sunflower varieties and yield produced at the AKF research trial site in 2006

No	Accession	Number	Country of Origin	Plant Name (Variety)	No. of Seeds	Planting Date	Harvest Date		
1	Ames	1837	Bulgaria	Hemas	40	June 06	Sept 06		
2	Ames	1843	Romania	Record	40	June 06	Sept 06		
3	Ames	1844	Spain	Sepasol	40	June 06	Sept 06		
4	Ames	3221	Ukraine	L-2625-1(Ukraine)-	40	June 06	Sept 06		
5	Ames	3242	France	6SC UG L6	40	June 06	Sept 06		
6	Ames	3264	Germany	Oleisty Borovaskij	40	June 06	Sept 06		
7	Ames	3285	Uncertain	B4268	40	June 06	Sept 06		
8	Ames	3300	Germany	Fuksinka 10	40	June 06	Sept 06		
9	Ames	3301	Germany	Gigant S49	40	June 06	Sept 06		
10	Ames	3307	Germany	Kvuglik A-41	40	June 06	Sept 06		
11	Ames	3309	Poland	B-7422	40	June 06	Sept 06		
12	Ames	3314	Zimbabwe	Yawne	40	June 06	Sept 06		
13	Ames	3332	Germany	Advance	40	June 06	Sept 06		
14	Ames	3361	Former Soviet Union	VK-47	40	June 06	Sept 06		
15	Ames	3366	Romania	HS 61	40	June 06	Sept 06		
16	Ames	3391	Romania	ROMSUN V3355	40	June 06	Sept 06		
17	Ames	3426	Canada	371-3 S	40	June 06	Sept 06		
18	Ames	3430	Uncertain	VIR 107	40	June 06	Sept 06		
19	Ames	3454	Spain	Karlik	40	June 06	Sept 06		
20	Ames	4114	United State, Nor	Sundak	40	June 06	Sept 06		
21	Ames	7573	United State, Min	Arrowhead	40	June 06	Sept 06		
22	Ames	7574	Unknown	Mennonite	40	June 06	Sept 06		
23	Ames	10099	China, Jilin	Chang Ling	40	June 06	Sept 06		

24	Ames	10101	China. Jilin	Ames 10101	40	June 06	Sej		
25	Ames	15660	United States Cal	Sannace	40	June 06	Sej		
26	Ames	18900	Russian Federation	Step yak	40	June 06	Sej		
27	Ames	18904	Russian Federation	Zaria	40	June 06	Sej		
28	Ames	18911	Russian Federation	Skorospelyi	40	June 06	Sej		
29	Ames	20080	Bulgaria	Kosim	40	June 06	Sej		
30	Ames	21671	China Nei Mongol	Ames 21671	40	June 06	Sej		
31	PI	162454	Uruguay	SUNRISE	40	June 06	Sej		
32	PI	170417	Turkey	No.2770	40	June 06	Sej		
33	PI	170419	Turkey	No.3332	40	June 06	Sej		
34	PI	171655	Turkey	AYCICEGI	40	June 06	Sej		
35	PI	175723	Turkey	GONONDU	40	June 06	Sej		
36	PI	184048	Yugoslavia Serbia	NOVOSADSKI BR.4	40	June 06	Sej		
37	PI	195573	Ethiopia	No.9588	40	June 06	Sej		
38	PI	213175	United Kingdome	.	40	June 06	Sej		
39	PI	221441	Afghanistan	AFTAB-PARAST	40	June 06	Sej		
40	PI	221693	Indonesia. Java	No.2	40	June 06	Sej		
41	PI	232904	Hungary	LOVASZPATONAI	40	June 06	Sej		
42	PI	243074	Jordan	W.Y.1/7	40	June 06	Sej		
43	PI	251901	Former Soviet Union	JDANOVSKY6432.ND3	40	June 06	Sej		
44	PI	251990	Turkey	No.K1879	40	June 06	Sej		
45	PI	256334	Pakistan	.	40	June 06	Sej		
46	PI	263178	Tanzania, Tanga.		40	June 06	Sej		
47	PI	265099	Former Soviet Union	VNIIMK1646 4 MOT	40	June 06	Sej		
48	PI	265499	Colombia Cundinam	CINZA 42	40	June 06	Sej		
49	PI	287230	Former Soviet Union	ENISEJ	40	June 06	Sej		
50	PI	289626	France	No.5	40	June 06	Sej		
51	PI	291404	Hungary	SZARATOVSZKIJ RANN	40	June 06	Sej		
52	PI	296289	South Africa, Tran	JUPITER	40	June 06	Sej		
53	PI	307831	Brazil's Paulo	AJUAPEI	40	June 06	Sej		
54	PI	307934	Former Soviet Union	ARMAVIRSKY	40	June 06	Sej		
55	PI	307942	Former Soviet Union	VNIIMK 8883	40	June 06	Sej		
56	PI	323281	Pakistan	BLACK SAYAR	40	June 06	Sej		
57	PI	331176	Argentina	MANFREDI INTA (3-W	40	June 06	Sej		
58	PI	340784	Former Soviet Union	USSR MAYAK 166	40	June 06	Sej		
59	PI	340790	Former Soviet Union	USSR VNIIMK 8931	40	June 06	Sej		
60	PI	343798	Iran	TCHERNIANKA SELECT	40	June 06	Sej		
61	PI	343809	Iran	W-31	40	June 06	Sej		
62	PI	369358	United States	HAVASUPAI	40	June 06	Sej		
63	PI	369359	United States	HOPI	40	June 06	Sej		
64	PI	369360	United States	SENECA	40	June 06	Sej		
65	PI	371936	Ukraine	VOSHOD	40	June 06	Sej		
66	PI	372173	Former Soviet Union	PEREDOVIK304 USSR6	40	June 06	Sej		
67	PI	372258	Former Soviet Union	SMENA	40	June 06	Sej		
68	PI	372259	Former Soviet Union	VNIIMK 6540	40	June 06	Sej		
69	PI	377528	Kenya	DARK STRIPE	40	June 06	Sej		
70	PI	377530	Kenya	KENYA WHITE	40	June 06	Sej		
71	PI	378894	Argentina. Buenos	GUAYACAN IMTA	40	June 06	Sej		
72	PI	378895	Argentina. Buenos	IMPIRA INTA	40	June 06	Sej		
73	PI	380576	Argentina	ARGE PEHUEN	40	June 06	Sej		
74	PI	386096	Israel	HATZOR AYALA	40	June 06	Sej		
75	PI	386230	Kazakhstan	VIR 847	40	June 06	Sej		
76	PI	408726	France	RELAX HYBRID GERMP	40	June 06	Sej		
77	PI	424926	Former Soviet Union	KORTUS	40	June 06	Sej		
78	PI	430539	Former Soviet Union	CAKINSKIJ 321	40	June 06	Sej		
79	PI	430541	Former Soviet Union	PROGRESS	40	June 06	Sej		
80	PI	431516	Romania	Romsum N-2-2004	40	June 06	Sej		
81	PI	431529	Former Soviet Union	43-48 VK-32	40	June 06	Sej		
82	PI	431538	Yugoslavia	D-75-4	40	June 06	Sej		
83	PI	431542	Yugoslavia	D-75-10	40	June 06	Sej		
84	PI	431558	Yugoslavia	NS-B-16-63/1	40	June 06	Sej		
85	PI	432504	United State, Ati	Hopi dye	40	June 06	Sej		
86	PI	432512	United State Ati		40	June 06	Sej		
87	PI	432519	United States New		40	June 06	Sej		
88	PI	433377	Egypt Cairo	Giza	40	June 06	Sej		
89	PI	480472	Zambia	CCA82-2	40	June 06	Sej		
90	PI	483077	Former Soviet Union	Pervenets	40	June 06	Sej		
91	PI	487194	Italy	Egnazia	40	June 06	Sej		
92	PI	490281	Turkey	Ames 101	40	June 06	Sej		
93	PI	490324	Poland	Ames 2350	40	June 06	Sej		
94	PI	496263	China Liaoning	Damaya	40	June 06	Sej		
95	PI	496265	China Liaoning	Liao 2	40	June 06	Sej		

96	PI	497247	Former Soviet Union	VIR 019	40	June 06	Sej		
97	PI	497250	Former Soviet Union	VIR 160	40	June 06	Sej		
98	PI	497937	Russian Federation	Start	40	June 06	Sej		
99	PI	497939	Russian Federation	VK-12	40	June 06	Sej		
100	PI	500688	Zambia		40	June 06	Sej		
101	PI	505839	Former Soviet Union	ODESSKIJ-113	40	June 06	Sej		
102	PI	507899	Hungary	3100402	40	June 06	Sej		
103	PI	507901	Hungary	3100404	40	June 06	Sej		
104	PI	531339	Hungary	BEKECSI "B"	40	June 06	Sej		
105	PI	531345	Czechoslovakia	CSEHSZLOVAKIAI "B"	40	June 06	Sej		
106	PI	531350	France	FRANCIA "EII	40	June 06	Sej		
107	PI	531351	India	G.EORGIA	40	June 06	Sej		
108	PI	535890	Poland	KRZYNOWLOSKI MIEJS	40	June 06	Sej		
109	PI	535894	Poland	WIELKOPOLSKI	40	June 06	Sej		
110	PI	600705	Spain Cordoba	CO-PB 68	40	June 06	Sej		
111	PI	600717	United States	Mandan # 1	40	June 06	Sej		
112	PI	600721	United States	Hidatsa # 2	40	June 06	Sej		

#### d) Sesame

A total of 85 varieties of sesame seeds were tested at the research site on a 350 m<sup>2</sup> plot. The seed yield of these varieties was produced in numbers, with an average of 25 seeds each. (Please see table details) For the remaining 7 varieties the seed rate was calculated in grams. (Please see table results). The yield harvested from 85 varieties all together was 36 kg and additionally the crop tolerance and resistance to rust.

Table 1.2.6 Achievements with a low quantity of seeds

No	Accession Numbers	Country of Origin	Seed Amount	Planting Date	Harvest Date	Yield /Gr	Res
1	PI 211088	Afghanistan	25 Seed	20-06-2006	4/10/2006	40	
2	PI 211627	Afghanistan	25 Seed	20-06-2006	4/10/2006	120	
3	PI 211628	Afghanistan	25 Seed	20-06-2006	4/10/2006	45	
4	PI 211630	Afghanistan	25 Seed	20-06-2006	4/10/2006	40	
5	PI 211746	Afghanistan	25 Seed	20-06-2006	4/10/2006	180	
6	PI 212622	Afghanistan	25 Seed	20-06-2006	4/10/2006	0	Not
7	PI 212623	Afghanistan	25 Seed	20-06-2006	4/10/2006	25	
8	PI 220403	Afghanistan	25 Seed	20-06-2006	4/10/2006	25	
9	PI 220404	Afghanistan	25 Seed	20-06-2006	4/10/2006	190	
10	PI 220544	Afghanistan	25 Seed	20-06-2006	4/10/2006	80	
11	PI 220684	Afghanistan	25 Seed	20-06-2006	4/10/2006	0	Not
12	PI 223532	Afghanistan	25 Seed	20-06-2006	04/10/2006	90	
13	PI 223815	Afghanistan	25 Seed	20-06-2006	04/10/2006	0	Not
14	PI 223816	Afghanistan	25 Seed	20-06-2006	04/10/2006	150	
15	PI 223817	Afghanistan	25 Seed	20-06-2006	04/10/2006	40	
16	PI 426213	Afghanistan	25 Seed	20-06-2006	04/10/2006	5	
17	PI 426214	Afghanistan	25 Seed	20-06-2006	04/10/2006	0	Not
18	PI 426215	Afghanistan	25 Seed	20-06-2006	04/10/2006	12	
19	PI 426216	Afghanistan	25 Seed	20-06-2006	04/10/2006	25	
20	PI 426217	Afghanistan	25 Seed	20-06-2006	04/10/2006	40	
21	PI 426218	Afghanistan	25 Seed	20-06-2006	04/10/2006	20	
22	PI 426219	Afghanistan	25 Seed	20-06-2006	04/10/2006	0	Not
23	PI 200427	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
24	PI 200428	Pakistan	25 Seed	20-06-2006	04/10/2006	1	
25	PI 200429	Pakistan	25 Seed	20-06-2006	04/10/2006	2	
26	PI 217540	Pakistan	25 Seed	20-06-2006	04/10/2006	40	
27	PI 250227	Pakistan	25 Seed	20-06-2006	04/10/2006	20	

28	PI 250228	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
29	PI 250229	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
30	PI 250399	Pakistan	25 Seed	20-06-2006	04/10/2006	40	
31	PI 250400	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
32	PI 250401	Pakistan	25 Seed	20-06-2006	04/10/2006	40	
33	PI 285211	Pakistan	25 Seed	20-06-2006	04/10/2006	100	
34	PI 299144	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
35	PI 299145	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
36	PI 292146	Pakistan	25 Seed	20-06-2006	04/10/2006	100	
37	PI 292147	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
38	PI 292148	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
39	PI 292149	Pakistan	25 Seed	20-06-2006	04/10/2006	90	
40	PI 323305	Pakistan	25 Seed	20-06-2006	04/10/2006	190	
41	PI 323306	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
42	PI 426931	Pakistan	25 Seed	20-06-2006	04/10/2006	5	
43	PI 426932	Pakistan	25 Seed	20-06-2006	04/10/2006	30	
44	PI 426933	Pakistan	25 Seed	20-06-2006	04/10/2006	10	
45	PI 426934	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
46	PI 426935	Pakistan	25 Seed	20-06-2006	04/10/2006	3	
47	PI 426936	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
48	PI 426937	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
49	PI 426938	Pakistan	25 Seed	20-06-2006	04/10/2006	3	
50	PI 426939	Pakistan	25 Seed	20-06-2006	04/10/2006	25	
51	PI 426941	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
52	PI 426942	Pakistan	25 Seed	20-06-2006	04/10/2006	15	
53	PI 426943	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
54	PI 426944	Pakistan	25 Seed	20-06-2006	04/10/2006	15	
55	PI 426945	Pakistan	25 Seed	20-06-2006	04/10/2006	2	
56	PI 426946	Pakistan	25 Seed	20-06-2006	04/10/2006	40	
57	PI 426947	Pakistan	25 Seed	20-06-2006	04/10/2006	2	
58	PI 426948	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
59	PI 426949	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
60	PI 426950	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
61	PI 426951	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
62	PI 426952	Pakistan	25 Seed	20-06-2006	04/10/2006	30	
63	PI 426953	Pakistan	25 Seed	20-06-2006	04/10/2006	5	
64	PI 426954	Pakistan	25 Seed	20-06-2006	04/10/2006	40	
65	PI 426955	Pakistan	25 Seed	20-06-2006	04/10/2006	18	
66	PI 426956	Pakistan	25 Seed	20-06-2006	04/10/2006	100	
67	PI 426957	Pakistan	25 Seed	20-06-2006	04/10/2006	20	
68	PI 426958	Pakistan	25 Seed	20-06-2006	04/10/2006	100	
69	PI 426959	Pakistan	25 Seed	20-06-2006	04/10/2006	90	
70	PI 426960	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
71	PI 426961	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
72	PI 426962	Pakistan	25 Seed	20-06-2006	04/10/2006	30	
73	PI 426963	Pakistan	25 Seed	20-06-2006	04/10/2006	35	
74	PI 426964	Pakistan	25 Seed	20-06-2006	04/10/2006	100	
75	PI 426965	Pakistan	25 Seed	20-06-2006	04/10/2006	0	Not
76	PI 426966	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
77	PI 426967	Pakistan	25 Seed	20-06-2006	04/10/2006	20	
78	PI 426968	Pakistan	25 Seed	20-06-2006	04/10/2006	50	
<b>Total</b>						<b>2838</b>	

A separate table is required as seed rate for the following species is measured in Grams

Table 1.2.7 : Yield achieved with seven varieties of sesame (seed rate measured in gram)

No	Association number	Origin	Seed/Gr	Planting Date	Harvest Date	Yield/g
1	198157	Iraq	25	20-06-2006	4/10/2006	4000
2	200427	Pakistan	25	20-06-2006	4/10/2006	2600
3	200428	Pakistan	25	20-06-2006	4/10/2006	2500
4	202424	India	5	20-06-2006	4/10/2006	550
5	211088	Afghanistan	50	20-06-2006	4/10/2006	7900
6	220544	Afghanistan	50	20-06-2006	4/10/2006	7750
7	black	Afghanistan	50	20-06-2006	4/10/2006	7900
<b>Total</b>						<b>33200</b>

### e) Millet

Millet has adapted well to the climatic and soil conditions in northern Afghanistan, especially where results have been positive. March is the ideal month for sowing millet, which can be harvested four times a year and is an ideal fodder crop. Seven varieties of millet planted in rows on the plot yielded good results, as detailed in the below table.

**Table 1.2.8**

S/N	Type of seed	Area (m <sup>2</sup> )	Seed Rate/ Gram	Yield (kg)	No. of Varieties	Yield /ha	Selected varieties	Growth period
1	Millet	560	664	7	7	125	7	6 months

### f) Zero tillage planting

A total of 8 kg of mung bean seed was using the zero tillage method planted on a trial plot covered by farmers. Farmers participated in the planting activities, familiarising themselves with the new technology. A tractor with was imported from Nepal and used for this particular planting. An analysis of whether farmers are able to purchase 2-wheel tractors in order to use this kind of planting method is yet to be made. The crop yielded a high 49 kg of mung beans, please find the relevant details in table 1.2.9.

**Table 1.2.9**

No	Type of plant	Area/m <sup>2</sup>	Seed Rate/ Kg	Planting date	Harvest date	Yield/Kg	Yield/ Jerib/kg	Growth period
1	Local Mung bean	748	4	05/06/2006	17/09/2006	77	206	
2	Zerati	950	6	05/06/2006	11/08/2006	49	103	

## 2. Research at Farmers' field

During the reporting period trials were conducted in the farmers field with triticale, canola, flax and soybean. A total of about 424 trials on these crops were conducted in 8 districts in about 6 districts. A farmer approach was followed and a total of 56 PTG groups disseminated the research processes and 2000 more farmers. More new Farmers are interested in trying out experiments in their successful ones are aiming to grow new crops and varieties at large scales.

Throughout the reporting period, the research process at farmer's fields was intensified. AKI visited each participating village at least once a month to observe the growth of plants, hold discussions with 15-20 farmers, villagers and village shuras.

A summary of the research results and A comparison between the crops and the respective yield and yield achieved on the farms is provided in the **table 2.1** .

**Table 2.1 Comparison of improved seeds with farmers' local seeds**

S/N	Improved Seed (correct)	Yield kg/ha	Local Seed	Yield kg/ha	Difference in %
1	Triticale	4650	Wheat	2625	177%
2	Triticale	4650	Barley	1750	265%
3	Canola	2070	Pea sum	1400	147%
4	Flax	1708	Flax	900	189%
5	Soybean	2523	Pea	1750	144%
6	Maize	582.6	Local Maize	470	123%

#### a) Triticale

In March 2006, 71 farmers in 23 villages planted 300 kg of triticale seed into 300 m<sup>2</sup> of farm. Despite the fact that the farmers were not familiar with this seed, the yield achieved in Baghlan Qadem and Pul-e-Khumri was excellent. The farmers were very satisfied and have interest for grow this seed in the following years. The crop was also grown on rainfed land Sarbagh and Dahna-e-Ghori where it produced average results. However, in Doshi it did not grow due to water intake was washed out due to an increase in the water levels and the lack of an intake water shortage.

Each farmer growing Triticale used only one variety. Please see **table 2.2** for further details.

**Table 2.2 Triticale harvest of yield in 2006**

S/N	Province	District	No. of Villages	No. of Farmers	Seed Amount	Variety	Fertilizer		Maximum Yield
							Urea/kg	DAP/kg	
1	Baghlan	Dana-e-Ghori	3	18	56	18	144	72	70
2	Samangan	Khuram wa sarbagh	4	12	28	12	96	48	89
3	Baghlan	Baghlana 1+2	13	16	47	16	128	64	148
4	Baghlan	PLK	5	16	37	16	128	64	133
5	Baghlan	Doshi	1	9	27	9	72	36	0
<b>Total</b>			<b>26</b>	<b>71</b>	<b>195</b>	<b>78</b>	<b>568</b>	<b>284</b>	<b>440</b>

Key findings during field observations and discussions with the community farmers revealed that

- Good growth is observed in all villages, except in some villages of Doshi and Dahna due to water shortages due to missing rains and drought.
- Given the growth results, triticale is expected to achieve higher productivity than wheat.
- Because of the high stem, triticale will produce more straw and fodder.

#### b) Canola seeds

In March 2006, a total of 32 farmers in 6 villages have planted 660 gm of Canola seed into 700 m<sup>2</sup> of this, which were obtained during this reporting period, were negative in Dahna-e-Ghori and Sarbagh districts as growth did not occur due to drought. However, the yield in Khinjan which was sown on irrigated land was excellent and the farmers were keen to replicate this crop in 2007. Please see **table 2.3** for further details.

**Table 2.3: Results of canola crop**

S/N	No. of Farmers	Province	District	No. of Villages	Seed/ Kg	Yield/ Kg	Remarks
1	16	Baghlan	Dahna-e-Ghori	3	156	20	Drought prevented vegetation

2	6	Baghlan	Khinjan	2	39	476	Grew well on irrigated
3	10	Samangan	Khuram wa Sarbagh	1	66	27	Drought prevented vegetation
<b>Total</b>				<b>6</b>	<b>261</b>	<b>520</b>	

#### c) Flax

Flax seed was distributed to 3 farmers in Dahan-e-Ghori and Doshi and planted in rain fed land to the drought in 2006, the plants did not grow and results for this seed could not be obtained.

#### d) Millet

A total of 68 farmers in 19 villages planted 200grams of millet seed in June 2006. The farmers for fodder purposes and achieved good results as some farmers harvested three to four rounds. 2.4 for further details.

**Table 2.4 Results of millet crop**

Province	District	Number of villages	Beneficiaries	Seed amount (kg)	
Baghlan	Andarab	2	7	1.4	
	Khinjan	3	8	1.6	
	Doshi	2	9	1.8	
	Baghlan(includes two areas in Baghlan)	3	12	2.4	
	PLK	4	16	3.2	
	Dahna-e-Ghori	1	4	0.8	
Samangan	Khuram wa Sarbagh	4	12	2.4	
<b>TOTAL</b>		<b>19</b>	<b>68</b>	<b>13.6</b>	

#### d) Maize

40 farmers in 20 villages planted 500gr of maize seed in June 2006. Harvesting data of maize table 2.5

**Table 2.5 Results from Maize crop**

Province	District	Type of plant	Area/m <sup>2</sup>	Seed Rate Amount (kg)	Beneficiaries	Yield	
Baghlan	Andarab	1	710	2.5	5		
	Khinjan	2	710	2.5	5		
	Doshi	2	710	2.5	5		
	Baghlan	3	1000	3.5	7		
	PLK	2	1100	4	8	24	
	Dahna-e-Ghori	2	710	2.5	5		
Samangan	Khuram wa Sarbagh	2	710	2.5	5	12	
<b>TOTAL</b>		<b>14</b>	<b>5650</b>	<b>20</b>	<b>40</b>	<b>1</b>	

#### e) Soybean

In June 2006, 210 farmers in 20 villages planted 1.4 kg of soybean seed. The plots showed growth at the time of monitoring and when plants were at the flowering stage farmers showed

replication. It is anticipated that there will be an increase in farmers willing to take part in gro 2007. In addition to this, the fodder team held discussions in target areas on fodder produc hopefully initiate more dialogue and ideas amongst the farmers on finding more profitable seed cropping systems in target areas.

Details of the yield harvested in 2006 can be found in **table 2.6**.

**Table 2.6**

S/N	No of farmers	Province	district	Village	Varieties	Seed/kg	Yield/
1	20	Samangan	Khuram wa Sarbagh	10	25GO1	28	310kg
2	40	Baghlan	Doshi	3	N379	56	270kg
3	22		Khinjan	2	N88448G064	30	260kg
4	48		PLK	2	N 419-	67	345kg
4	60		Baghlan land 2	11	25GO2	84	340kg
6	20		Dahna-e ghuri	3	N29G01	28	260kg
Total	210				21		288

### Silage making

During the reporting period, silage making was demonstrated to farmers Baghlan and Pul-I-K done as a PTD exercise and between 40 and 50 farmers participated in each session and are n silage themselves. Details are provided in Table 2.7.

**Table 2.7 Details of farmers participating in PTD sessions on silage making.**

S/N	Beneficiary	District	Village	Size of well/cm			Making Date
				Length	Width	Depth	
1	Mohammad Ashim	Pul-i-Khumri	Hussain khel	150	90	80	5/9/2006
2	Abdul Qaum		Gharaow shakh	200	100	100	6/9/2006
3	Hussain		Gharaow shakh	220	100	100	7/9/2006
4	Abdul rahim		Gharaow shakh	220	100	100	8/9/2006
5	Abdul ghafar		Gharaow shakh	230	130	110	11/9/2006
7	Said Akbar		Akakhel	320	200	100	27/09/2006
6	Abdulwohab		Baghlan 2	Sari shakh	190	130	100
8	M. Nasim	Baghlan2	Guldaraiha	300	120	100	28/09/2006
9	Dr.Haidar	Baghlan1	Sarak 5	270	124	100	29/09/2006

### Exchange visit/field forum

A total of 40 farmers from Baghlan, Badakhshan, govt and university staff of Baghlan provinc AKF-Badakhshan participated in a 3-day workshop in September at the Baghlan research purpose of the workshop was to demonstrate planting methods and to inform the participant planting time and seed varieties of different crops such as soy bean, corn, flax, triticale, pea sorghum seeds. Technical recommendations on urea and fertilizer application were also made.

A second field forum was organized in coordination with JDA on July 24<sup>th</sup> on the AKF-Ba site in Pul-i-Khumri, exposing farmers to the zero tillage planting system and planting w tractor. Farmers from 9 districts of Baghlan, other NGO staff members, local represent Department of Agriculture, Baghlan Agriculture University, NGO staff, AKF's livestock and

participated in the event. The field forum focused on learning how to use the zero tillage machine. Participants took part in the planting process by operating the tractor. In addition during the field day, participants shared their knowledge of old and new machinery and technology and held discussions on the results of the research trials in the previous field day. During the field forum, objectives of the research trials were also discussed with the farmers. The farmers showed keen interest in the oil crops such as soy bean, sesame, sunflower and other oil crops such as sorghum and maize, which had been planted during the second season.

### **Workshops**

On 20<sup>th</sup> August 2006, the AKF-Baghlan fodder team held a two-day workshop on fodder crop production. Participants included the livestock and fodder extension team as well as 15 para veterinarians. The workshop served as a good forum for knowledge exchange and learning as the participants engaged in a wide range of important technical issues. Lessons learned were drawn from individual field experiences and shared with the participants. At the end of the workshop, two participants also visited the research station to see new crop varieties and assess vegetative growth of the improved seeds.

In early December 2006, the fodder team also participated in a program SWOT workshop which discussed the problems faced and lessons learned during 2006. Also new opportunities for 2007 were discussed.

### **Monitoring**

The Baghlan fodder team and the extension staff regularly monitored the farmers' plots and the results were reported as needed. The monitoring results thus far show that the farmers have benefited from improved fodder crop management systems and techniques. However, the full impact can not be seen yet, hence this will be an on-going process continuing in 2007. The fodder and extension team are interested in farmers by taking them through new ideas and processes step by step. This approach will attract the interest of new farmers through the activities of the existing one. PTD approaches were used in the reporting period in silage making and will also be used in activities in 2007. The farmers showed interest in the research program after seeing the results of improved seeds and are increasing the area under improved seed varieties in their own farms.

### **3. Market assessments**

Prices for the canola, soybean and other crops have been monitored periodically and all crops have shown an upward trend during the reporting period. Research has been carried out to identify connections and players in markets of Mazar-e-Sharif and Pul-i-Khumri with results indicating that local players are interested in selling local oil if it is available. Potential entrepreneurs have shown interest in extracting oil if enough raw materials are available at reasonable prices. However, further research regarding the potential production of canola and soybean will remain to be seen in 2007.

Since the results of farm field research for canola was mixed and for Soybean the result was good, farmers have shown interest to try it in 2007 therefore piloting will be started as soon as few farmers are ready to grow seed crops.

The Enterprise Development Programme (EDP) conducted market surveys to assess the market for canola, safflower, sesame, sunflower, linseed, and peanuts in Kabul, Mazar-e-Sharif and Herat Market, making the following key observations:

- Vegetable oil is one of the most heavily imported commodities traded in Afghanistan. The national demand for vegetable oil is around 268,000 mt, domestic production is only around 80,000 mt. The import accounts for around 180,500 mt (Source: CRS, FY05 Bellmon Analysis, 01/02/2005).
- All above mentioned oils are available in the markets, mostly imported from countries like Malaysia and Pakistan. The prices for all oils are almost identical, with an average price of around 1.50 US dollar per litre.

- In order to understand the economy of oil crops, calculations were made from the proceeds received from the NRM research station. The information on oil content was collected from the Internet. The economy for each oil crop is presented in the table below.

Crop	Yield kg/ha	Oil Content	Rate/Kg	Amount	Press Cake	Rate/Kg	
			AFN	AFN		AFN	
Soybean	2,000	14%	50	14,000	86%	10	
Canola	1,700	35%	50	29,750	65%	10	
Groundnuts	1,500	42%	50	31,500	58%	10	
Sunflower	740	32%	50	11,840	68%	10	
Sesame	500	50%	50	12,500	50%	10	
Linseed	335	42%	50	7,035	58%	10	

This analysis shows that canola, soybean and groundnuts seem to be the most economical seeds.

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*Provide a concise report on achievements for each activity against the logical framework (attached). See logical framework below.*

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#### **Management Issues**

*Provide an update on issues arising during the reporting period (e.g. personnel changes, financial issues etc.) which have influenced progress in project implementation.*

Our field staff has good experience in setting up experiment but analytical skills need to be further developed. In addition a back up support from research institutions is required in analysing the data sent back the feedback – this has not happened – due to this we have not been able to reach scientific conclusions are based on farmers observations and limited analytical skills of our staff .

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#### **Research Process**

*Comment on participation and involvement of collaborators, target institutions and farmers and reporting process (where appropriate).*

The PTD approach has helped in a large number of farmers acting as experimenters and learn about new crops and new varieties. This has created a high demand for trying out new varieties both on experimental and commercial scale. But AKF will continue to follow up a crop until results are confirmed many times on an experimental basis and market feasibilities and conditions established.

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#### **Planned Modifications to Project Implementation** (if any)

*Give details of any planned modifications to activities, outputs, logical framework, work plan been made during the reporting period, with agreement of Programme Coordinator. The recommendations for remedial actions and improvements to the project logical framework reviewed findings. If the project work plan and milestones have been modified significantly, attach revised work plan.*

There have been no modifications to the work plan.

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#### **Other Comments:**

No comments.

## **Outlook 2007**

The AKF team will benefit of the no cost extension of the Project to achieve the following mai

- **Sustaining Research through supporting it's take over by Provincial MAI**

In Badkhsan (Baharak) the AKF has reconstructed the research infrastructure of Dashte Fa researchers have been trained for implementing crops research. The AKF will provide furth technical support until the MAI can self-sustain this important local activity.

In Baghlan the AKF research site has been shifted to the Government infrastructure and furthe will be supported and monitored by AKF.

- **Involvement of farmers**

Participatory technology development is linking farmers and farmers representatives of c groups (can be cooperatives) directly with research. The AKF will further strengthen this activity and state a model for effective crops development avoiding the set up of an exper extension system.

- **Marketing and value addition**

While industrial local vegetal oil production requires technology and marketing investmen taken up at national level, and The AKF will mainly pilot and support cottage industry for c quality niche marketing (including organic at a later stage). Improved cottage oil production will be a concrete option for income generation by households that could be tempted to grow p

- Over all strategic conclusions will be taken by the project team towards the end of the

**ACHIEVEMENTS AGAINST LOGICAL FRAMEWORK (ICARDA03) AKF reporting period July – December 2006**

Describe progress of research towards achievement of outputs and activities given in the project logical framework using the form below. Note any milestones completed. Note any modifications to original work plan, if milestones not achieved.

Project Outputs and Activities	OVIs (from logical framework)	Achievements During Reporting Period ( January-December 2006) and Comments	Planned Achievements During Period (give dates)
<p><b>Output 1</b> – Established market pathways and business plans for new crops and value added products.</p>	<p>Compiled market information of potential crops and added value products.</p> <p>Market connections between market players research for at least three crops and three added value products.</p> <p>Business relationships around local sale and export of promoted crops and added value products.</p> <p>Assessed competitiveness of targeted products.</p>	<p>See the last report for compiled market information Prices for the canola, soybean and other crops are being monitored periodically and all commodity prices has shown up ward trend during the year 2006</p> <p>Research on market connections between market players carried out in PLK and Mazar-e-Sharif. Market players are interest in selling local oil of soybean, Safflower, and linseed if available. Farmers response on three crops will come on 2007</p> <p>On the basis of Research results targeted products are competitive</p>	<p>Business relation around local sale be promoted for the value addec more supply than local demand</p>

<p><b>Activity 1.1</b> - Gather market information, both locally and regionally, on promising new crops and value added products.</p>	<p>Identified market opportunities.</p>	<p>The information collected last year has been updated. The price and demand of all vegetable oil crops has shown upward trend .</p>	
<p><b>Activity 1.2</b> – Analyze market information for profitability for farmers and opportunities for value addition at local level</p>	<p>At least 5 potentially profitable alternative crops/value added products identified</p> <p>Comparative economic viability of alternative crops/added value products against current crops.</p> <p>Identified opportunities for value addition.</p>	<p>Please see last report.</p> <p>Please see the last report</p> <p>Please see the last report</p> <p>Please see the last report</p>	
<p><b>Activity 1.3</b> – Participatory discussions with entrepreneurs about business potential of new crops and added value products.</p>	<p>Established parameters for successful business formation around at least 5 products.</p>	<p>Trial results for canola and soybean compiled and results discussed with potential entrepreneurs</p> <p>Potential entrepreneurs have shown interest to extract oil and market it provided enough supply of raw material is available at reasonable prices</p>	

<p><b>Output 2</b> – Farmers familiarized with new high value crops; their management and integration into their traditional cropping system.</p>	<p>Interest of farmers in applied research trials.</p> <p>Farmers experiment (on-farm plots) with proposed crops and management techniques..</p>	<p>Through exposure of results to research farm, large number of research trials in the farmers field and dissemination and learning through PTD approaches a large numbers of farmers are interested in trying out new crops both on an experimental basis and some even on commercial scale.</p> <p>The seeds of triticale, canola, maize, millet and soy bean crops were distributed to interested farmers in 8 target districts. Fodder and extension teams were regularly monitoring the farmers’ plots and was facilitating on technical issues. all PTD groups of farmers had taken in village exposure in order to observe their neighbouring plots for exchanging of experiences and lessons learnt form their own farm practices with new valued crops during different growth stages</p>	<p>A new research trail is selected Baghlan agriculture faculty. The tested for further experiments university students</p> <p>The Baghlan team has plans for di varieties (tested last year in th farmers field stored different distribution to interested farmer by</p>
<p><b>Activity 2.1</b> – Participatory discussions with farmers about their interests in new crops and cropping systems</p>	<p>Farmers’ contribution guide new venture identification and applied research.</p> <p>Knowledge about farmer’s preparedness for adoption of new interventions.</p>	<p>While conducting field trials at farmers’ field PTD approaches were used. In Baghlan 424 trials in farmers field were conduced and 56 PTD groups extended the information about new crops to about 2000 other farmers. Farmers interest in new crops is growing and some are interested in growing these crops at commercial scale. In addition farmers attended field days in the research farm and observed and learnt about experiments on new crops there.</p> <p>Over 150 farmers, government extension workers and students of agriculture attended a field day in Baghlan where they were exposed to new high-value crops.</p>	<p>Farmers will have exchange visits demonstration plots during various</p>

<p><b>Activity 2.2</b> – Applied research of identified crops using low external input sustainable agriculture methodologies.</p>	<p>Wheat varieties tested for potential rotation with new crops.</p> <p>On-station trials in each province, trialing at least 5 new crops and at least 10 new varieties/new crop using sustainable methodologies in years 1 and 2 (equal to at least 50 variety entries/year).</p>	<p>6 new crops were tested at the AKF research plot in BAGH; Most of planted crops shown good results in terms of vegetative growth and high yield produced. Farmers were impatiently asking the high value crops to grow in their own trials. Most of the seeds were distributed to interested beneficiaries. Farmers had observed their farms during different growing stages</p> <p>In addition 424 trials were conducted in the farmers’ field on Triticale, Canola, Millet, soybean and Maize. Farmers were observing and discussing on growth and output were showing high willingness to further experiment.</p>	<p>Analysis with farmers conducted result was great in most of the Baghlan. Farmers are continuo extending more trials in their area on selected crops would be done in</p>
<p><b>Activity 2.3</b> – Exposure of farmers to new crops and low external input sustainable agriculture methodologies.</p>	<p>Farmers choose options at field days for their own on-farm experiments.</p>	<p>In July and September farmer field days were organised on the research farm where farmers were exposed to new crops and new techniques; they were pleased with the results of the trial crops and seed was distributed to them for harvesting on their land.</p>	<p>Two more field days will be cond research farm of Baghlan agricultu 2007.</p> <p>Information on new crops and t also be disseminated among t students of Baghlan agriculture fa</p>
<p><b>Activity 2.4</b> – PTD of new crops and low external input sustainable agriculture methodologies</p>	<p>On-farm trials in 3 locations/province trialling at least 5 new crops and a minimum of 5 new varieties tested/new crop in each location using sustainable methodologies in years 1 and 2 (equal to at least 25 entries/year).</p>	<p>Farmers internalised and learnt from the field trials through PTD groups. Information on 424 field trials was disseminated through 56 PTD groups. The Baghlan fodder team plus extension staff was regularly monitoring the farmers’ plots and were giving advice on all important issues to farmers</p>	<p>The seed from the new crops will t interested farmer for on farm trails demonstration plots in spring 2007</p>

<p><b>Activity 2.5</b> – Extend knowledge of best management practices/lessons learned from applied research and PTD.</p>	<p>Experience on new crops and technologies shared and evaluated by farmers and researchers.</p> <p>Resources produced by farmers and project staff combining applied and farmer led research (PTD).</p> <p>Resources shared with other interested stakeholders.</p>	<p>PTD approaches were used in which farmers shared their experience with each other and evaluated the trials in the field and in the farms. More rigorous analysis is required before these outputs are shared with external researchers</p> <p>As mentioned above PTD approaches were used.</p>	<p>Documentation of research process finding would be done and shared with stakeholders.</p>
<p><b>Output 3</b> – Build capacity of Afghan research, development and extension staff in topics relevant to the expected project outcomes.</p>	<p>Five government staff/province are trained in accordance with project objectives.</p> <p>In each province, at least two staff (government, NGO) in each target regions trained and positioned in follow-up of project activities.</p>	<p>Government and university staff have participated in the research process and are always part of field days and visit the research farm regularly</p> <p>Govt and university staff and farmers from Badakshan and Baglan attended a field day in September. A similar field day focussing on zero tillage planting system was attended by govt, university staff and farmers from 9 districts of Baghlan and Kunduz</p>	<p>A research workshop will be held on valued crops’ managements, irrigation, weeding, including planting up to well as PTD approaches for id government staff, students of agriculture extension team and Para veterinarians</p>

<p><b>Activity 3.1</b> – Training opportunities, relevant to project, offered to government and NGO staff.</p>	<p>Two training events/year (on-station and/or on-farm) relevant to project objectives offered at different levels.</p> <p>Training evaluation is reflected in production of manuals and fact sheets.</p>	<p>In June 2006, 10 AKF staff and four representatives from the Agriculture Department, including 3 research staff and the Director of Extension, participated in a project workshop on Conservation Agriculture held in Pul-e-Khumri. Importantly, the team was able to understand and visualise the concept of zero tillage and the practice of using a two-wheel tractor to sow the second season man bean crop into the remains of the harvested wheat crop. The Department of Agriculture staffs is very interested to adopt this technology on their own research plots that are currently being developed.</p> <p>The Baghlan fodder team organized a work shop on 20/08/2006. 20 participants were attending this workshop including live stock and fodder extension team as well as 15 Para veterinarians and government representatives. Facilitation was based on how to grow fodder crops; thereafter a mutual learning environment was expanded between all participants where a useful discussion raised among technical staff, extension workers and Para veterinarians based on exchange of experiences and field’s lessons learnt. Facilitation was going on for 2 days where after all went to the research trail and observed the new variety of crops as well as vegetative growth of the improved seeds. Furthermore a useful explanation was given through the fodder team to all participants.</p>	<p>Training evaluations and report: available following the field days : 2006.</p>
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