Items	Kasba	Oued Shili	Tozeur	Hazoua 3	Mansoura	Atilet	Oasis de Gabes	Limaoura 1 et2
Farm Land : (ha)	1.06	3.11	1.38	1.00	0.25	0.75	0.29	1.25
Gross Income : (D.)								
- Farm Income	8,923	16,281	10,419	5,510	2,043	5,326	2,250	8,591
- Off-farm Income	0	0	0	500	2,500	1,000	2,000	0
Sub-total	8,923	16,281	10,419	6,010	4,543	6,326	4,250	8,591
Number of Family :	5.33	5.47	5.27	5.27	5.65	6.17	5.48	5.48
Gross Outgoing : (D.)								
- Production Cost	1,238	1,853	1,351	845	326	1,251	356	1,591
- Living Expenses	3,059	3,140	3,024	3,770	3,244	3,542	3,145	3,145
Sub-total	4,997	4,993	4,375	4,615	3,570	54,693	3,501	4,736
Net Reserve: (D.)	4,626	11,288	6,044	1,395	973	1,633	749	3,855
Capacity to Pay : (D./year)								
- Repayment Amount	223	1,068	497	452	166	344	86	614
	4.8%	9.5%	8.2%	32.4%	17.1%	21.1%	11.5%	15.9%

Source : Farm economic survey by JICA Study team, 1995

The net reserve or capacity to pay of farmers would increase remarkably at D. 750 - 11,290 under the future with project condition. These increase in net reserve would enable farmers to repayment of construction cost of irrigation and drainage facilities.

K.4 INDIRECT BENEFITS AND SOCIO-ECONOMIC INPACTS

(1) Farmers Income

After implementation of the Project, income of farmers estimated at 39,600 households is expected to increase considerably as a direct result of the increase in crop production. Such increase in income would contribute to improving farmers; living standards. Moreover, it is expected that farmers' purchasing power would increase along with improvement of their living standards, and this increased purchasing power would benefit the development of the regional economy.

(2) Marketing of Agricultural Products and Farm Inputs

Future marketing in the Project area is likely expand as compared with the present condition. With anticipated higher crop production, more agricultural products could be marketed by the farmers and the proportion of sales would also increase relative to consumption. The merchants would have a larger turnover which could increase their incomes. Marketing functions would not only be influenced by agricultural outputs. It is estimated that when agricultural production develops as a result of the Project, the Project area would be a good market for farm supplies. The farmers need to operate with farm supplies such as tools, equipment and others. Both ends of marketing channels could, therefore, expect substantial beneficial impacts from the Project.

Table K.2.1.1 Economic Price Structure for Fertilizers, 2005
(Import Substitution Value, 1995 Constant Price)

Items	Operation	Unit	Year 2005 Price
A. Urea (46%)			
1. Bagged price, FOB West Europe/_a		US$/ton	137
2. Ocean freight and insurance /_b	+	US$/ton	50
3. CIF Tunis price	=	US$/ton	187
US$ = D. 0.944		D./ton	177
4. Port charge, handling and warehousing, etc./_b	+	D./ton	15
5. Transport and handling cost, Tunis - Site/_c	+	D./ton	50
6. Marketing and dealers' cost/_c	+	D./ton	20
7. Transport and handling cost, dealer - farmer/_d	+	D./ton	5
8. Farm gate price	=	D./ton	267
Adjusted to Ammonium Nitrate	33.5%	D./kg	0.194
B. TSP (Super 45)			
1. Bulk export price, FOB US Gulf ports/_a		US$/ton	115
2. Ocean freight and insurance /_b	+	US$/ton	70
3. CIF Tunis price	=	US$/ton	185
US$ = D. 0.944		D./ton	175
4. Port charge, handling and warehousing, etc./_b	+	D./ton	15
5. Transport and handling cost, Tunis - Site/_c	+	D./ton	50
6. Marketing and dealers' cost/_c	+	D./ton	20
7. Transport and handling cost, dealer - farmer/_d	+	D./ton	5
8. Farm gate price	=	D./ton	265
Adjusted to Super 45	45.0%	D./kg	0.265
C. Potassium Chloride (60%)			
1. Bulk export price, FOB Vancouver/_1		US$/ton	153
2. Ocean freight and insurance /_b	+	US$/ton	90
3. CIF Tunis price	=	US$/ton	243
US$ = D. 0.944		D./ton	229
4. Port charge, handling and warehousing, etc./_b	+	D./ton	15
5. Transport and handling cost, Tunis - Site/_c	+	D./ton	50
6. Marketing and dealers' cost/_c	+	D./ton	20
7. Transport and handling cost, dealer - farmer/_d	+	D./ton	5
8. Farm gate price	=	D./ton	319
Adjusted to Sulfate of Potash	52%	D./kg	0.276

Sources : /_a Based on World Bank Price Prospects for Major Primary Commodities, 1994-2005 (August, 1995)
/_b Compaghie Tunisinne de Navigation, Tunis
/_c Site ; Average at Gafsa, Tozeur, Kebili and Gabes, JICA Marketing Survey
/_d JICA Marketing Survey

Table K.2.1.2 Economic Price Structure for Agricultural Products and Farm Inputs

Items	Operation	Unit	1995 Price
A. Date Palm (Export parity price)			
1. FOB Tunis price /_a	=	D./ton	2,540
2. Quality difference (35% of FOB price) /_a	-	D./ton	890
3. Port charge, handling and warehousing, etc./_c	-	D./ton	50
4. Transport and handling cost, Tunis - Site/_d	-	D./ton	70
5. Marketing and dealers' cost (11%) /_a	-	D./ton	280
6. Transport and handling cost, dealer - farmer/_d	-	D./ton	70
7. Farm gate price (1-2-3-4-5-6)	=	D./ton	1,180
		D./kg	1.180
B. Olive (Export parity price)			
1. FOB Tunis price/_a	=	D./ton	2,150
2. Quality difference (50% of FOB price) /_a	-	D./ton	1,075
3. Port charge, handling and warehousing, etc./_c	-	D./ton	50
4. Transport and handling cost, Tunis - Site/_d	-	D./ton	70
5. Marketing and dealers' cost (11%) /_a	-	D./ton	280
6. Transport and handling cost, dealer - farmer/_d	-	D./ton	50
7. Farm gate price (1-2-3-4-5-6)	=	D./ton	625
		D./kg	0.625
C. Insecticides (Import substitution value)			
1. CIF Tunis price /_b	=	D./ton	17,600
2. Port charge, handling and warehousing, etc. /_c	+	D./ton	50
3. Packing/ bagging at STEC (5% of FOB price) /_b	+	D./ton	950
4. Transport and handling cost, Tunis - Site/_d	+	D./ton	70
5. Transport and handling cost, dealer - farmer/_d	+	D./ton	30
6. Farm gate price (1+2+3+4+5)	=	D./ton	18,700
		D./lit	18.700
D. Fungicides (Import subsitution value)			
1. CIF Tunis price /_b	=	D./ton	23,750
2. Port charge, handling and warehousing, etc./_c	+	D./ton	50
3. Packing/ bagging at STEC (5% of FOB price) /_b	+	D./ton	1,300
4. Transport and handling cost, Tunis - Site /_d	+	D./ton	70
5. Transport and handling cost, dealer - farmer /_d	+	D./ton	30
6. Farm gate price (1+2+3+4+5)	=	D./ton	25,200
		D./kg	25.200

Sources : /_a Groupment Interprofessional des Dattes, Office National se l'Huile (ONH), Tunis
/_b Societe Tunisienne d'Engrais Chimigues (STEC), Tinis
/_c Compaghie Tunisinne de Navigation, Tunis
/_d Site ; Average at Gafsa, Tozeur, Kebili and Gabes, JICA Marketing Survey

Table K.2.1.3 Economic Price Structure for Agricultural Products

Items	Operation							Unit : D./ kg
A. Fruits			Pomegranate		Apricot		Fig / others	
1. Wholesale Prices, Tunis /_a				0.342		0.587		0.458
2. Marketing Charges and Commissions /_a	5%	-	0.017	0.325	0.029	0.558	0.023	0.435
3. Carriage Charges /_a	1%	-	0.003	0.321	0.006	0.552	0.005	0.431
4. Municipal Taxes (SOTUMAG) /_a	2%	-	0.007	0.315	0.012	0.540	0.009	0.421
5. Delivery Service Charge	3%	-	0.010	0.304	0.018	0.522	0.014	0.408
6. Transportation Charge to Project Site	5%		0.017		0.029		0.023	
7. Farmgate Price (1-2-3-4-5-6)		-		0.287		0.493		0.385
8. Economic Price (6+4)				0.294		0.505		0.394
B. Vegetables			Carrot		Turnip		Onion	
1. Wholesale Prices, Tunis /_a				0.128		0.236		0.218
2. Marketing Charges and Commissions /_a	5%	-	0.006	0.122	0.012	0.224	0.011	0.207
3. Carriage Charges /_a	1%	-	0.001	0.120	0.002	0.222	0.002	0.205
4. Municipal Taxes (SOTUMAG) /_a	2%	-	0.003	0.118	0.005	0.217	0.004	0.201
5. Delivery Service Charge	3%	-	0.004	0.114	0.007	0.210	0.007	0.194
6. Special Tax (GIL) /_a	1%	-	0.001	0.113	0.002	0.208	0.002	0.192
7. Transportation Charge to Project Site /_b	3%		0.004		0.007		0.006	
8. Farmgate Price (1-2-3-4-5-6-7)		-		0.109		0.201		0.186
9. Economic Price (6+4+6)				0.113		0.208		0.192
C. Vegetables			Kidney Bean		Pepper		Tomato	
1. Wholesale Prices, Tunis /_a				0.435		1.026		0.364
2. Marketing Charges and Commissions /_a	5%	-	0.022	0.413	0.051	0.975	0.018	0.346
3. Carriage Charges /_a	1%	-	0.004	0.409	0.010	0.964	0.004	0.342
4. Municipal Taxes (SOTUMAG) /_a	2%	-	0.009	0.400	0.021	0.944	0.007	0.335
5. Delivery Service Charge	3%	-	0.013	0.387	0.031	0.913	0.011	0.324
6. Special Tax (GIL) /_a	1%	-	0.004	0.383	0.010	0.903	0.004	0.320
7. Transportation Charge to Project Site /_b	3%		0.012		0.029		0.010	
8. Farmgate Price (1-2-3-4-5-6-7)		-		0.370		0.874		0.310
9. Economic Price (6+4+6)				0.383		0.904		0.321
D. Fodder and Industrial Crops			Lucern		Henna			
1. Wholesale Prices, Tunis /_a				0.062		2.160		
2. Marketing Charges and Commissions /_a	5%	-	0.003	0.059	0.108	2.052		
3. Carriage Charges /_a	1%	-	0.001	0.058	0.022	2.030		
4. Municipal Taxes (SOTUMAG) /_a	2%	-	0.001	0.057	0.043	1.987		
5. Delivery Service Charge	3%	-	0.002	0.055	0.065	1.922		
6. Special Tax (GIL) /_a	1%	-	0.001	0.055	0.022	1.901		
7. Transportation Charge to Project Site /_b	3%		0.002		0.062			
8. Farmgate Price (1-2-3-4-5-6-7)		-		0.053		1.839		
9. Economic Price (6+4+6)				0.055		1.904		

Sources : /_a Societe Tunisienne des Gros (SOTUMAG), Tunis
/_b Site ; Average at Gafsa, Tozeur, Kebili and Gabes, JICA Marketing Survey

Table K.2.1.4 Financial and Economic Farm Gate Prices of Agricultural Products and Farm Inputs

Description	Unit	Agricultural Products: Financial Price (D.)	Agricultural Products: Economic Price (D.)
A. FARM PRODUCTS			
1. Arboriculture			
1.1 Date Palm	Kg	1.025	1.180
1.2 Olive	Kg	0.400	0.625
1.3 Pomegranate	Kg	0.287	0.294
1.4 Apricot	Kg	0.493	0.505
1.5 Fig	Kg	0.385	0.394
2. Vegetables			
2.1 Carrot	Kg	0.109	0.113
2.2 Turnip	Kg	0.201	0.208
2.3 Onion	Kg	0.186	0.192
2.4 Kidney Beans	Kg	0.370	0.383
2.5 Pepper	Kg	0.874	0.904
2.6 Tomato	Kg	0.310	0.321
3. Fodder Crops			
3.1 Lucern	Kg	0.053	0.055
4. Industrial Crops			
4.1 Henna	Kg	1.839	1.904

Sources : Arr. des Eudes et Statistiques Agricole, Division des Etudes et du Development Agricole, Gafsa, Tozeur, Kebili and Gabes CRDA
Farm Economic Survey by JICA Study Team, September 1995

Remarks : T.C.* ; Transportation cost from market to farm including handling charge and other costs.

Ref. : Tables K.2.1.1, K.2.1.2 and K.2.1.3

Description	Unit	Farm Inputs: Financial Price (D.)		Farm Inputs: Economic Price (D.)	
A. SEEDLING / SEED					
1. Arboriculture					
1.1 Date Palm	Seedling	1.500	=	1.500	
1.2 Olive	Seedling	2.000	=	2.000	
1.3 Pomegranate	Seedling	0.500	=	0.500	
1.4 Apricot	Seedling	0.800	=	0.800	
1.5 Fig	Seedling	0.500	=	0.500	
2. Vegetables	(Seed)				
2.1 Carrot	Kg	24.100	=	24.100	
2.2 Turnip	Kg	13.500	=	13.500	
2.3 Onion	Kg	59.000	=	59.000	
2.4 Kidney Beans	Kg	1.500	=	1.500	
2.5 Pepper	Kg	156.200	=	156.200	
2.6 Tomato	Kg	72.500	=	72.500	
3. Fodder Crops	(Seeds)				
3.1 Lucern	Kg	4.300	=	4.300	
4. Industrial Crops	(Seed)				
4.1 Henna	Kg	2.100	=	2.100	
B. FARM INPUTS					
1. Fertilizers		(per kg)		(per kg)	
1.1 FYM / Compose	ton	10.000		8.500	
1.2 Ammonite	50 kg	11.500	0.230	9.700	0.194
1.3 Super 45 (TSP)	50 kg	11.900	0.238	13.250	0.265
1.4 Sulfate de Potasse	50 kg	21.100	0.422	13.800	0.276
1.5 Nitrate de Potash	50 kg	44.000	0.880	26.100	0.522
2. Insecticides	lit	18.700	=	18.700	
3. Fungicides	kg	25.200	=	25.200	
4. Water Charge	m3	0.020	=	0.020	
5. Labor Charge		(x 0.85)			
2.1 Casual Worker	man-day	5.200		4.420	
2.2 Pollinisation (Date)	man-day	5.800		4.930	
2.3 Harvesting	man-day	6.800		5.780	

TABLE K.2.2.1 (1) Economic Crop Budget per Ha under Without and With Project Condition

- PALMIERS DATTIERS - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	1,200	3,500	4,600	5,800	5,800	5,800	26,700	1.180	31,506 (c)	134,366
Production Value	D.	0	0	0	0	1,416	4,130	5,428	6,844	6,844	6,844			(1,260)	(5,367)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	200	20	0	0	0	0	0	0	0	0	220	1.500	330	330
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	100	100	150	150	150	150	150	150	150	1,300	0.194	252	689
- Super 45 (TSP)	kg	50	75	75	100	100	100	100	100	100	100	900	0.265	239	636
- Potassium sulfate	kg	0	0	0	0	0	0	0	0	0	0	0	0.522	0	0
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	0	0	2	2	4	4	4	4	4	24.0	25.200	605	2,117
4) Water	m3	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	75,000	0.020	1,500	3,750
														3,413	8,283
														(137)	(351)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	10	2	0	0	0	0	0	0	0	0	12	4.420	53	53
3) Transplanting	man-day	10	2	0	0	0	0	0	0	0	0	12	4.420	53	53
4) Fertilizer application	man-day	10	5	5	10	5	5	10	5	5	10	70	4.420	309	751
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Cleaning of plant	man-day	0	3	5	10	10	12	12	15	15	15	97	4.420	429	1,423
7) Water management	man-day	30	30	30	30	30	30	30	30	30	30	300	4.420	1,326	3,315
8) Pollination	man-day	0	0	0	0	3	5	8	8	8	8	40	4.930	197	789
9) Harvesting	man-day	0	0	0	0	10	20	30	30	30	30	150	5.780	867	3,468
10) Post harvesting	man-day	0	0	0	0	5	7	10	10	10	10	52	4.420	230	893
Sub-total		110	77	70	80	93	109	130	128	128	133	1,058		4,901	12,513
												(106)		(196)	(501)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			416	1,065
														(17)	(43)
Total Production Cost	D.	1,052	607	563	724	756	898	1,056	1,002	1,002	1,070			8,230 (d)	22,361
														(349)	(894)
Net Return per Ha (c - d)	D.	-1,052	-607	-563	-724	660	3,232	4,372	5,842	5,842	5,774		Total (D./ha/year)	22,776	111,805
														(911)	(4,473)

- PALMIERS DATTIERS - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	1,300	4,000	5,300	6,600	6,600	6,600	30,400	1.180	35,872 (c)	152,692
Production Value	D.	0	0	0	0	1,534	4,720	6,254	7,788	7,788	7,788			(1,435)	(6,108)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	200	20	0	0	0	0	0	0	0	0	220	1.500	330	330
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	120	120	120	180	180	180	180	180	180	1,490	0.194	289	813
- Super 45 (TSP)	kg	50	90	90	120	120	120	120	120	120	120	1070	0.265	284	761
- Potassium sulfate	kg	0	45	45	60	60	60	60	60	60	60	510	0.522	266	736
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	0	0	2	2	4	4	4	4	4	24.0	25.200	605	2,117
4) Water	m3	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	117,000	0.020	2,340	5,850
														4,602	11,868
														(184)	(475)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	10	2	0	0	0	0	0	0	0	0	12	4.420	53	53
3) Transplanting	man-day	10	2	0	0	0	0	0	0	0	0	12	4.420	53	53
4) Fertilizer application	man-day	10	6	6	12	6	6	12	6	6	12	82	4.420	362	893
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Cleaning of plant	man-day	0	3	5	10	10	12	12	15	15	15	97	4.420	429	1,423
7) Water management	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
8) Pollination	man-day	0	0	0	0	3	5	8	8	8	8	40	4.930	197	789
9) Harvesting	man-day	0	0	0	0	10	25	45	45	45	45	215	5.780	1,243	5,144
10) Post harvesting	man-day	0	0	0	0	5	8	12	12	12	12	61	4.420	270	1,065
Sub-total		100	68	61	72	84	106	139	136	136	142	1,044		4,927	13,398
												(104)		(197)	(536)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			476	1,263
														(19)	(51)
Total Production Cost	D.	1,094	687	642	807	847	1,024	1,252	1,193	1,193	1,266			10,005 (d)	26,529
														(400)	(1,061)
Net Return per Ha (c - d)	D.	-1,094	-687	-642	-807	687	3,696	5,002	6,595	6,595	6,522		Total (D./ha/year)	25,867	126,163
														(1,035)	(5,047)

Source : Farm economy survey by JICA Team, 1995

TABLE K.2.2.1 (2) Economic Crop Budget per Ha under Without and With Project Condition

- OLIVE - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 year (a x b) (D.)	25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	1,200	3,700	4,900	6,100	6,400	6,100	28,100	0.625	17,563 (c)	74,750
Production Value	D.	0	0	0	0	750	2,313	3,063	3,813	3,813	3,813			(703)	(2,990)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	150	15	0	0	0	0	0	0	0	0	165	2.000	330	330
2) FYM/ Compost	ton	3	0	0	3	0	0	3	0	0	3	12	8.500	102	230
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	75	75	75	75	75	75	75	700	0.194	136	354
- Super 45 (TSP)	kg	50	50	75	75	75	75	75	75	75	75	700	0.265	186	484
- Potassium sulfate	kg	0	0	0	0	0	0	0	0	0	0	0	0.276	0	0
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	4	4	4	4	4	4	29	18.200	542	1,664
- Fungicides	kg	0	0	0	0	0	0	0	0	0	0	0	25.200	0	0
4) Water	m3	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	46,300	0.020	926	2,315
														2,222	5,376
														(89)	(215)
Labour Requirement															
1) Land preparation	man-day	50	30	20	20	20	20	20	20	20	20	240	4.420	1,061	1,061
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
4) Fertilizer application	man-day	10	7	7	10	7	7	10	7	7	10	82	4.420	362	893
5) Weeding	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
6) Trimming	man-day	0	3	5	10	15	15	15	15	15	15	108	5.780	624	1,925
7) Water management	man-day	30	30	30	30	30	30	30	30	30	30	300	4.420	1,326	3,315
8) Harvesting	man-day	0	0	0	0	5	10	15	15	15	15	75	4.420	332	1,326
9) Post harvesting	man-day	0	0	0	0	3	3	4	5	5	5	25	4.420	111	442
Sub-total		120	92	82	90	100	105	114	112	112	115	1,042		4,753	11,224
												(304)		(190)	(449)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			349	830
														(14)	(33)
Total Production Cost	D.	1,020	604	560	631	697	721	789	753	753	794			7,323 (d)	17,431
														(293)	(697)
Net Return per Ha (c - d)	D.	-1,020	-604	-560	-631	53	1,592	2,274	3,060	3,060	3,019		Total (D./ha/year)	10,240	57,319
														(410)	(2,293)

- OLIVE - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 year (a x b) (D.)	25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	1,400	4,100	5,400	6,800	6,800	6,800	31,300	0.625	19,563 (c)	83,313
Production Value	D.	0	0	0	0	875	2,563	3,375	4,250	4,250	4,250			(783)	(3,333)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	150	15	0	0	0	0	0	0	0	0	165	2.000	330	330
2) FYM/ Compost	ton	3	0	0	3	0	0	3	0	0	3	12	8.000	96	216
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.194	170	461
- Super 45 (TSP)	kg	50	50	75	100	100	100	100	100	100	100	875	0.265	232	629
- Potassium sulfate	kg	25	38	38	50	50	50	50	50	50	50	451	0.276	124	331
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	4	4	4	4	4	4	29	18.700	542	1,664
- Fungicides	kg	0	1	1	1	1	1	1	1	1	1	9	25.200	227	605
4) Water	m3	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	58,200	0.020	1,164	2,910
														2,885	7,147
														(115)	(286)
Labour Requirement															
1) Land preparation	man-day	50	30	20	20	20	20	20	20	20	20	240	4.420	1,061	1,061
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
4) Fertilizer application	man-day	10	8	8	10	8	8	12	8	8	12	92	4.420	407	1,025
5) Weeding	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
6) Trimming	man-day	0	3	5	10	15	15	15	15	15	15	108	5.780	624	1,925
7) Water management	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
8) Harvesting	man-day	0	0	0	0	5	12	16	18	18	18	87	4.420	385	1,578
9) Post harvesting	man-day	0	0	0	0	3	4	5	5	5	5	27	4.420	119	451
Sub-total		110	83	73	80	91	99	108	106	106	110	966		4,417	10,513
												(97)		(177)	(421)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			365	883
														(15)	(35)
Total Production Cost	D.	1,004	624	581	661	734	771	838	803	803	847			2,667 (d)	18,542
														(307)	(742)
Net Return per Ha (c - d)	D.	-1,004	-624	-581	-661	141	1,792	2,537	3,447	3,447	3,403		Total (D./ha/year)	11,896	69,270
														(476)	(2,593)

Source : Farm economy survey by JICA Team, 1995

TABLE K.2.2.1 (3) Economic Crop Budget per Ha under Without and With Project Condition

- POMEGRANATE - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	2,000	6,100	8,100	10,100	10,100	10,100	46,500	0.294	13,671 (c)	58,212
Production Value	D.	0	0	0	0	588	1,793	2,381	2,969	2,969	2,969			(547)	(2,328)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	0.500	220	220
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.194	170	461
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.265	115	314
- Potassium sulfate	kg	50	50	75	100	100	100	100	100	100	100	875	0.276	242	656
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	2	4	4	4	4	4	4	4	31	25.200	781	2,293
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														3,226	8,230
														(129)	(329)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	10	7	7	10	7	7	10	7	7	10	82	4.420	362	893
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man-day	30	30	30	30	30	30	30	30	30	30	300	4.420	1,326	3,315
8) Harvesting	man-day	0	0	0	0	10	20	30	40	40	40	180	4.930	887	3,845
9) Post harvesting	man-day	0	0	0	0	3	6	8	10	10	10	47	4.420	208	871
Sub-total		105	77	77	80	90	103	118	127	127	130	1,029		4,680	11,891
												(103)		(187)	(476)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			395	1,006
														(16)	(40)
Total Production Cost	D.	901	585	603	757	764	830	949	952	952	1,010			8,301 (d)	21,127
														(332)	(845)
Net Return per Ha (c - d)	D.	-901	-585	-603	-757	-176	963	1,432	2,017	2,017	1,959		Total (D./ha/year)	5,370	37,085
														(215)	(1,483)

- POMEGRANATE - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	2,400	7,100	9,400	11,800	11,800	11,800	54,300	0.294	15,964 (c)	68,002
Production Value	D.	0	0	0	0	706	2,087	2,764	3,469	3,469	3,469			(639)	(2,720)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	0.500	220	220
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	100	125	125	125	125	125	125	125	1,075	0.194	209	572
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.265	166	464
- Potassium sulfate	kg	50	50	100	125	125	125	125	125	125	125	1,075	0.276	297	814
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	2	4	4	4	4	4	4	4	31	25.200	781	2,293
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														3,810	9,750
														(152)	(390)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	11	8	8	11	8	8	11	8	8	11	92	4.420	407	1,003
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
8) Harvesting	man-day	0	0	0	0	10	25	35	45	45	45	205	4.930	1,011	4,338
9) Post harvesting	man-day	0	0	0	0	3	7	9	12	12	12	55	4.420	243	1,039
Sub-total		96	68	63	71	81	100	115	125	125	128	972		4,441	11,558
												(97)		(178)	(462)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			413	1,065
														(17)	(43)
Total Production Cost	D.	905	589	624	780	788	884	1,003	1,010	1,010	1,009			8,663 (d)	22,373
														(347)	(895)
Net Return per Ha (c - d)	D.	-905	-589	-624	-780	-82	1,203	1,761	2,459	2,459	2,400		Total (D./ha/year)	7,301	45,629
														(292)	(1,825)

Source : Farm economy survey by JICA Team, 1995

TABLE K.2.2.1 (4) Economic Crop Budget per Ha under Without and With Project Condition

- APLICOT - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	2,500	7,600	10,000	12,600	12,600	12,600	57,900	0.505	29,240 (c)	124,685
Production Value	D.	0	0	0	0	1,263	3,838	5,050	6,363	6,363	6,363			(1,170)	(4,987)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	0.800	352	352
2) FYM/Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	75	150	150	150	150	150	150	150	1,225	0.194	238	674
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.265	115	314
- Potassium Sulfate	kg	50	50	75	100	100	100	100	100	100	100	875	0.276	242	656
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	2	4	4	4	4	4	4	4	31	25.200	781	2293
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														3,426	8,575
														(137)	(343)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	10	7	7	10	7	7	10	7	7	10	82	4.420	362	893
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man-day	30	30	30	30	30	30	30	30	30	30	300	4.420	1,326	3,315
8) Harvesting	man-day	0	0	0	0	10	30	50	60	60	60	270	4.930	1,331	5,768
9) Post harvesting	man-day	0	0	0	0	3	7	12	15	15	15	67	4.420	296	1,291
Sub-total		105	77	72	80	90	114	142	152	152	155	1,139		5,212	14,234
												(114)		(208)	(569)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			432	1,140
														(17)	(46)
Total Production Cost	D.	1,027	597	603	767	774	896	1,081	1,089	1,089	1,142			9,069 (d)	23,949
														(363)	(958)
Net Return per Ha (c - d)	D.	-1,027	-597	-603	-767	489	2,942	3,969	5,274	5,274	5,216		Total (D./ha/year)	20,170	100,735
														(807)	(4,029)

- APLICOT - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	2,800	8,400	11,200	14,000	14,000	14,000	64,400	0.505	32,522 (c)	138,572
Production Value	D.	0	0	0	0	1,414	4,242	5,656	7,070	7,070	7,070			(1,301)	(5,543)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	0.800	352	352
2) FYM/Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	150	180	180	180	180	180	180	180	1,510	0.194	293	817
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.265	166	464
- Potassium Sulfate	kg	50	50	100	125	125	125	125	125	125	125	1075	0.276	297	814
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	2	4	4	4	4	4	4	4	31	25.200	781	2293
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														4,026	10,126
														(161)	(405)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	11	8	8	11	8	8	11	8	8	11	92	4.420	407	1,003
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man-day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
8) Harvesting	man-day	0	0	0	0	10	30	50	70	70	70	300	4.930	1,479	5,656
9) Post harvesting	man-day	0	0	0	0	3	8	13	16	16	16	72	4.420	318	1,379
Sub-total		96	68	63	71	81	106	134	154	154	157	1,084		4,984	14,215
												(108)		(199)	(569)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			451	1,217
														(18)	(49)
Total Production Cost	D.	1,031	602	634	792	799	925	1,111	1,170	1,170	1,228			9,461 (d)	25,558
														(378)	(1,022)
Net Return per Ha (c - d)	D.	-1,031	-602	-634	-792	615	3,317	4,545	5,900	5,900	5,842		Total (D./ha/year)	23,061	113,014
														(922)	(4,521)

Source : Farm economy survey by JICA Team, 1995

TABLE K.2.2.1 (5) Economic Crop Budget per Ha under Without and With Project Condition

- FIG - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	850	2,500	3,400	4,300	4,300	4,300	19,650	0.394	7,742 (c)	33,155
Production Value	D.	0	0	0	0	335	985	1,340	1,694	1,694	1,694			(310)	(1,326)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	1.000	440	440
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.194	170	461
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.265	115	314
- Potassium Sulfate	kg	0	0	0	0	0	0	0	0	0	0	0	0.276	0	0
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	1	1	1	1	1	1	1	1	9	25.200	227	605
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														2,650	6,106
														(106)	(244)
Labour Requirement															
1) Land preparation	man-day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	10	7	7	10	7	7	10	7	7	10	82	4.420	362	893
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man-day	30	30	30	30	30	30	30	30	30	30	300	4.420	1,326	3,315
8 Harvesting	man-day	0	0	0	0	10	20	30	40	40	40	180	4.930	887	3,845
9 Post harvesting	man-day	0	0	0	0	3	6	8	10	10	10	47	4.420	208	871
Sub-total		105	77	77	80	90	103	118	127	127	130	1,029		4,680	11,891
												(103)		(187)	(476)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			738	1,217
														(30)	(49)
Total Production Cost	D.	1,096	591	555	648	655	721	841	843	843	902			8,068 (d)	19,215
														(323)	(769)
Net Return per Ha (c - d)	D.	-1,096	-591	-555	-648	-320	264	499	851	851	792		Total (D./ha/year)	-326	13,941
														-(13)	(557)

- FIG - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg	0	0	0	0	970	2,900	3,900	4,800	4,800	4,800	22,170	0.394	8,735 (c)	37,103
Production Value	D.	0	0	0	0	382	1,143	1,537	1,891	1,891	1,891			(349)	(1,484)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40	0	0	0	0	0	0	0	0	440	1.000	440	440
2) FYM/ Compost	ton	5	0	0	5	0	0	5	0	0	5	20	8.500	170	383
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	100	125	125	125	125	125	125	125	1,075	0.194	209	572
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.265	166	464
- Potassium Sulfate	kg	50	50	75	100	100	100	100	100	100	100	875	0.276	242	656
3) Agro-chemicals															
- Insecticides	lit	0	1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg	0	1	3	3	3	3	3	3	3	3	25	25.200	630	1764
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														3,824	9,282
														(153)	(371)
Labour Requirement															
1) Land preparation	man day	45	30	25	25	25	25	25	25	25	25	275	4.420	1,216	1,216
2) Transport of seedling	man-day	5	1	0	0	0	0	0	0	0	0	6	4.420	27	27
3) Transplanting	man-day	10	1	0	0	0	0	0	0	0	0	11	4.420	49	49
4) Fertilizer application	man-day	11	8	8	11	8	8	11	8	8	11	92	4.420	407	1,003
5) Weeding	man-day	5	5	5	5	5	5	5	5	5	5	50	4.420	221	553
6) Trimming	man-day	0	3	5	10	10	10	10	10	10	10	78	4.930	385	1,124
7) Water management	man day	20	20	20	20	20	20	20	20	20	20	200	4.420	884	2,210
8 Harvesting	man-day	0	0	0	0	10	25	35	45	45	45	205	4.930	1,011	4,338
9 Post harvesting	man-day	0	0	0	0	3	7	9	12	12	12	55	4.420	243	1,039
Sub-total		96	68	63	71	81	100	115	125	125	128	972		4,441	11,558
												(92)		(178)	(462)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			834	1,525
														(33)	(61)
Total Production Cost	D.	1,115	610	643	747	754	850	920	977	977	1,035			9,098 (d)	22,364
														(364)	(895)
Net Return per Ha (c - d)	D.	-1,115	-610	-643	-747	-372	293	567	914	914	856		Total (D./ha/year)	-363	14,739
														-(15)	(589)

Source : Farm economic survey by JICA Team, 1995

Table K.2.2.1 (6) Economic Crop Budget per Ha under Without and With Project Condition

Items	Unit	CARROT						TURNIP					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price	Quantity	Amount	Unit Price	Quantity	Amount	Unit Price	Quantity	Amount	Unit Price	Quantity	Amount
		(D.)		(D.)	(D.)		(D.)	(D.)		(D.)	(D.)		(D.)
GROSS INCOME													
Production	kg	0.113	20,500	2,317	0.113	23,100	2,610	0.208	20,000	4,160	0.208	22,500	4,680
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	24.100	5.0	121	24.100	5.0	121	13.500	8.0	108	13.500	8.0	108
2. FYM/ Compost	ton	8.500	2.5	21	8.500	3.0	26	8.500	2.5	21	8.500	3.0	26
3. Chemical Fertilizer													
- Ammonium Nitrate	kg	0.194	100	19	0.194	125	24	0.194	100	19	0.194	125	24
- Super 45 (TSP)	kg	0.265	100	27	0.265	125	33	0.265	125	33	0.265	150	40
- Potassium nitrate	kg	0.522	0	0	0.522	0	0	0.522	0	0	0.522	0	0
- Potassium sulfate	kg	0.276	50	14	0.276	50	14	0.276	0	0	0.276	50	14
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				376			420			370			414
Labor Requirement													
1. Land preparation	man-day	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221
2. Nursery/ sowing	man-day	4.420	0.0	0	4.420	0.0	0	4.420	0.0	0	4.420	0.0	0
3. Transplanting/ Sowing	man-day	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22
4. Fertilizer application	man-day	4.420	10.0	44	4.420	10.0	44	4.420	10.0	44	4.420	10.0	44
5. Plant protection	man-day	4.420	10.0	44	4.420	12.0	53	4.420	10.0	44	4.420	12.0	53
6. Hoeing / Weeding	man-day	4.420	30.0	133	4.420	30.0	133	4.420	30.0	133	4.420	30.0	133
7. Water management	man-day	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177
8. Harvesting	man-day	4.420	60.0	265	4.420	70.0	309	4.420	60.0	265	4.420	70.0	309
9. Post harvesting	man-day	4.420	15.0	66	4.420	20.0	88	4.420	15.0	66	4.420	20.0	88
Total			220.0	972		237.0	1,048		220.0	972		237.0	1,048
Miscellaneous													
5 % of above cost				67			73			67			73
Total Production Cost	D.			1,416			1,540			1,409			1,534
Net Return per Ha	D.			901			1,070			2,751			3,146

Items	Unit	ONION						KIDNEY BEAN					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price	Quantity	Amount	Unit Price	Quantity	Amount	Unit Price	Quantity	Amount	Unit Price	Quantity	Amount
		(D.)		(D.)	(D.)		(D.)	(D.)		(D.)	(D.)		(D.)
GROSS INCOME													
Production	(kg)	0.192	21,000	4,032	0.192	23,800	4,570	0.383	10,400	3,983	0.383	11,700	4,481
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	59.000	3.0	177	59.000	3	177	1.500	6.0	9	1.500	6	9
2. FYM/ Compost	ton	8.500	2.5	21	8.500	3.0	26	8.500	2.5	21	8.500	3.0	26
3. Chemical Fertilizer													
- Ammonium nitrate	kg	0.194	100	19	0.194	125	24	0.194	50	10	0.194	75	15
- Super 45 (TSP)	kg	0.265	100	27	0.265	125	33	0.265	125	33	0.265	150	40
- Potassium nitrate	kg	0.522	0	0	0.522	0	0	0.522	0	0	0.522	75	39
- Potassium sulfate	kg	0.276	50	14	0.276	40	11	0.276	50	14	0.276	0	0
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				432			476			261			344
Labor Requirement													
1. Land preparation	man-day	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221
2. Nursery	man-day	4.420	5.0	22	4.420	5.0	22	4.420	0.0	0	4.420	0.0	0
3. Transplanting/ Sowing	man-day	4.420	20.0	88	4.420	20.0	88	4.420	20.0	88	4.420	20.0	88
4. Fertilizer application	man-day	4.420	10.0	44	4.420	10.0	44	4.420	5.0	22	4.420	5.0	22
5. Plant protection	man-day	4.420	10.0	44	4.420	12.0	53	4.420	7.0	31	4.420	7.0	31
6. Hoeing / Weeding	man-day	4.420	30.0	133	4.420	30.0	133	4.420	15.0	66	4.420	15.0	66
7. Water management	man-day	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177
8. Harvesting	man-day	4.420	60.0	265	4.420	60.0	265	4.420	60.0	265	4.420	80.0	354
9. Post harvesting	man-day	4.420	15.0	66	4.420	20.0	88	4.420	10.0	44	4.420	12.0	53
Total			240.0	1,061		247.0	1,092		207.0	915		229.0	1,012
Miscellaneous													
5 % of above cost				75			78			59			68
Total Production Cost	D.			1,568			1,646			1,235			1,424
Net Return per Ha	D.			2,464			2,923			2,748			3,057

Source : Farm economic survey by JICA Team, 1995

Table K.2.2.1 (7) Economic Crop Budget per Ha under Without and With Project Condition

Items	Unit	PEPPER						TOMATO					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	kg	0.904	9,200	8,317	0.904	10,300	9,311	0.321	20,900	6,709	0.321	23,400	7,511
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	156.200	5.0	781	156.200	5.0	781	72.500	5.0	363	72.500	5.0	363
2. FYM/ Compost	ton	8.500	2.5	21	8.500	3.0	26	8.500	2.5	21	8.500	3.0	26
3. Chemical Fertilizer													
- Ammonium Nitrate	kg	0.194	100	19	0.194	125	24	0.194	100	19	0.194	125	24
- Super 45 (TSP)	kg	0.265	125	33	0.265	125	33	0.265	125	33	0.265	150	40
- Potassium nitrate	kg	0.522	0	0	0.522	0	0	0.522	0	0	0.522	0	0
- Potassium sulfate	kg	0.276	0	0	0.276	50	14	0.276	0	0	0.276	50	14
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				1,043			1,080			624			668
Labor Requirement													
1. Land preparation	man-day	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221	4.420	50.0	221
2. Nursery/ sowing	man-day	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22
3. Transplanting/ Sowing	man-day	4.420	15.0	66	4.420	15.0	66	4.420	15.0	66	4.420	15.0	66
4. Fertilizer application	man-day	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22	4.420	5.0	22
5. Plant protection	man-day	4.420	10.0	44	4.420	12.0	53	4.420	10.0	44	4.420	12.0	53
6. Hoeing / Weeding	man-day	4.420	30.0	133	4.420	30.0	133	4.420	30.0	133	4.420	30.0	133
7. Water management	man-day	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177
8. Harvesting	man-day	4.420	60.0	265	4.420	70.0	309	4.420	60.0	265	4.420	70.0	309
9. Post harvesting	man-day	4.420	15.0	66	4.420	18.0	80	4.420	15.0	66	4.420	18.0	80
Total			230.0	1,017		245.0	1,083		230.0	1,017		245.0	1,083
Miscellaneous 5 % of above cost				103			108			82			88
Total Production Cost	D.			2,163			2,271			1,723			1,839
Net Return per Ha	D.			6,154			7,040			4,986			5,673

Items	Unit	LUCERN						HENNA					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	(kg)	0.055	54,400	2,992	0.055	65,300	3,592	1.904	1,400	2,666	1.904	1,700	3,237
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	4.300	10.0	43	4.300	10	43	2.100	20.0	42	2.100	20	42
2. FYM/ Compost	ton	8.500	1.0	9	8.500	1.5	13	8.500	1.0	9	8.500	1.5	13
3. Chemical Fertilizer													
- Ammonium nitrate	kg	0.194	75	15	0.194	75	15	0.194	75	15	0.194	75	15
- Super 45 (TSP)	kg	0.265	125	33	0.265	150	40	0.265	125	33	0.265	150	40
- Potassium nitrate	kg	0.522	0	0	0.522	0	0	0.522	0	0	0.522	0	0
- Potassium sulfate	kg	0.276	0	0	0.276	50	14	0.276	0	0	0.276	50	14
4. Agro-chemicals													
- Insecticides	lit	18.700	0	0	18.700	0	0	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	0	0	25.200	0	0	25.200	4	101	25.200	4	101
5. Water	m3	0.020	7,500	150	0.020	11,700	234	0.020	7,500	150	0.020	11,700	234
Sub-total				249			344			386			481
Labor Requirement													
1. Land preparation	man-day	4.420	20.0	88	4.420	20.0	88	4.420	20.0	88	4.420	20.0	88
2. Nursery	man-day	4.420	0.0	0	4.420	0.0	0	4.420	0.0	0	4.420	0.0	0
3. Transplanting/ Sowing	man-day	4.420	2.0	9	4.420	2.0	9	4.420	20.0	88	4.420	20.0	88
4. Fertilizer application	man-day	4.420	5.0	22	4.420	5.0	22	4.420	2.0	9	4.420	5.0	22
5. Plant protection	man-day	4.420	0.0	0	4.420	0.0	0	4.420	7.0	31	4.420	7.0	31
6. Hoeing / Weeding	man-day	4.420	0.0	0	4.420	0.0	0	4.420	10.0	44	4.420	10.0	44
7. Water management	man-day	4.420	40.0	177	4.420	40.0	177	4.420	40.0	177	4.420	30.0	133
8. Harvesting	man-day	4.420	60.0	265	4.420	70.0	309	4.420	45.0	199	4.420	60.0	265
9. Post harvesting	man-day	4.420	15.0	66	4.420	18.0	80	4.420	15.0	66	4.420	18.0	80
Total			142.0	628		155.0	685		159.0	703		170.0	751
Miscellaneous 5 % of above cost				44			51			54			62
Total Production Cost	D.			921			1,081			1,144			1,294
Net Return per Ha	D.			2,071			2,511			1,522			1,943

Source : Farm economic survey by JICA Team, 1995

Table K.2.2.2 Incremental Economic Net Crop Production Value under Without and With Project Condition

(Unit : D./ha)

Description		Gross Income			Production Cost				Net Production Value
		Yield*	Unit Price	Amount	Farm Inputs	Labor Cost	Others	Total	
		(tons)	(D./kg)	(a)				(b)	(a - b)
1. Arboriculture									
1.1 Date Palm	Without Project	4.55	1.180	5,367	351	501	42	894	4,473
	With Project	5.18		6,108	475	536	50	1,061	5,047
	Increment	0.63		741				167	574
1.2 Olive	Without Project	4.78	0.625	2,990	215	449	33	697	2,293
	With Project	5.33		3,333	286	421	35	742	2,591
	Increment	0.55		343				45	298
1.3 Pomegranate	Without Project	7.90	0.294	2,328	329	476	40	845	1,483
	With Project	9.25		2,720	390	462	43	895	1,825
	Increment	1.35		392				50	342
1.4 Apricot	Without Project	9.88	0.505	4,987	343	569	46	958	4,029
	With Project	10.98		5,543	405	569	48	1,022	4,521
	Increment	1.10		556				64	492
1.5 Fig	Without Project	3.37	0.394	1,326	244	476	49	769	557
	With Project	3.77		1,484	371	462	62	895	589
	Increment	0.40		158				126	32
2. Vegetables									
2.1 Turnip* /Carrot	Without Project	20.00	0.208	4,160	370	972	67	1,409	2,751
	With Project	22.50		4,680	414	1,048	72	1,534	3,146
	Increment	2.50		520				125	395
2.2 Onion	Without Project	21.00	0.192	4,032	432	1,061	75	1,568	2,464
	With Project	23.80		4,570	476	1,092	79	1,647	2,923
	Increment	2.80		538				79	459
2.4 Kindey Beans	Without Project	10.40	0.383	3,983	261	915	59	1,235	2,748
	With Project	11.70		4,481	344	1,012	68	1,424	3,057
	Increment	1.30		498				189	309
2.5 Pepper	Without Project	9.20	0.904	8,317	1,013	1,017	103	2,163	6,154
	With Project	10.30		9,311	1,080	1,083	108	2,271	7,040
	Increment	1.10		994				108	886
2.6 Tomato	Without Project	20.90	0.321	6,709	624	1,017	82	1,723	4,986
	With Project	23.40		7,511	668	1,083	87	1,838	5,673
	Increment	2.50		803				115	688
3. Fodder Crops									
3.1 Lucern	Without Project	54.40	0.055	2,992	249	628	44	921	2,071
	With Project	65.30		3,592	344	685	52	1,081	2,511
	Increment	10.90		600				160	440
4. Industrial Crops									
4.1 Henna	Without Project	1.40	1.904	2,666	386	703	55	1,144	1,522
	With Project	1.70		3,237	481	751	62	1,294	1,943
	Increment	0.30		571				150	421

Remark : Figures of arboriculture crops are estimated average yield and annual cost of 25 years.
Ref. : Tables K.2.2.1 (1)to (7)

Table K.2.2.3 Economic Gross Production Value under Without and With Project Condition

Description	Unit	Gafsa Governorate			Tozeur Governorate			Kebili Governorate			Gabes Governorate			Total		
		W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment
1. Arboriculture	(Unit Prices)															
1.1 Date Palm	1.180 D./kg															
- Planted Area	(ha)	812	812		5,036	5,036		6,566	6,566		3,113	3,113		15,527	15,527	
- Yield	(tons/ha)	7.24	8.30	1.06	5.70	6.44	0.74	5.52	6.21	0.69	5.79	6.60	0.81	5.72	6.47	0.75
- Production	(tons)	5,876.1	6,743.2	867.1	28,706.5	32,408.0	3,701.5	36,250.2	40,789.3	4,539.1	18,032.6	20,557.4	2,524.8	88,865.4	100,497.9	11,632.5
- Gross Production Value	(D. '000)	6,933.8	7,957.0	1,023.2	33,873.5	38,241.4	4,367.9	42,775.4	48,131.4	5,356.0	21,278.5	26,257.7	2,979.2	104,861.2	118,587.5	13,726.3
1.2 Olive	0.625 D./kg															
- Planted Area	(ha)	2,221	2,221		177	177		196	196		1,727	1,727		4,319	4,319	
- Yield	(tons/ha)	8.05	8.86	0.81	2.64	3.05	0.41	4.50	5.08	0.58	3.85	4.43	0.58	5.99	6.68	0.69
- Production	(tons)	17,875.0	19,673.5	1,798.5	467.6	540.7	73.1	872.4	985.1	112.7	6,647.9	7,650.1	1,002.2	25,862.9	28,849.4	2,986.5
- Gross Production Value	(D. '000)	11,171.9	12,295.9	1,124.0	292.3	338.0	45.7	545.3	616.3	70.5	4,155.0	4,782.3	627.1	16,165.7	18,032.5	1,866.8
1.3 Pomegranate	0.294 D./kg															
- Planted Area	(ha)	150	150		145	145		161	161		1,788	1,788		2,244	2,244	
- Yield	(tons/ha)	8.19	9.00	0.81	2.23	2.56	0.33	3.12	3.50	0.38	11.34	13.21	1.87	9.93	11.54	1.59
- Production	(tons)	1,228.9	1,350.7	121.8	323.0	371.7	48.7	501.8	563.7	61.9	20,281.9	23,619.5	3,337.6	22,335.6	25,905.6	3,570.0
- Gross Production Value	(D. '000)	361.7	397.1	35.9	95.0	109.1	13.9	147.7	165.8	18.6	5,965.7	6,944.1	981.4	6,569.1	7,616.1	1,049.8
1.4 Apricot	0.305 D./kg															
- Planted Area	(ha)	125	125		51	51		49	49		122	122		347	347	
- Yield	(tons/ha)	19.11	20.71	1.60	2.57	2.89	0.32	2.45	2.72	0.27	11.40	13.21	1.81	11.62	12.92	1.30
- Production	(tons)	2,388.7	2,589.3	200.6	131.3	147.6	16.3	120.1	133.5	13.4	1,390.7	1,611.5	220.8	4,030.8	4,481.9	451.1
- Gross Production Value	(D. '000)	1,206.4	1,307.6	101.2	66.3	74.4	7.9	60.8	67.8	7.0	702.1	814.0	111.9	2,035.8	2,263.8	228.0
1.5 Fig / Others	0.394 D./kg															
- Planted Area	(ha)	124	124		213	213		243	243		383	383		963	963	
- Yield	(tons/ha)	7.72	8.41	0.69	2.46	2.79	0.33	2.62	2.92	0.30	4.82	5.54	0.72	4.12	4.64	0.52
- Production	(tons)	957.5	1,043.6	85.9	524.5	593.6	69.1	637.8	708.9	71.1	1,846.7	2,121.1	274.4	3,966.5	4,467.0	500.5
- Gross Production Value	(D. '000)	377.1	411.0	33.9	206.6	234.2	27.6	250.9	279.3	28.4	727.8	835.7	107.9	1,562.4	1,760.2	197.8
Sub-total :		20,050.4	22,368.6	2,318.2	34,334.6	38,997.1	4,662.5	43,780.1	49,260.6	5,480.5	32,826.3	37,633.8	4,807.5	131,191.4	148,260.1	17,068.7
2. Vegetables																
2.1 Turnip / Carrot	0.208 D./kg															
- Planted Area	(ha)	166	166		125	125		457	457		392	392		1,140	1,140	
- Yield	(tons/ha)	29.64	32.67	3.03	12.87	14.54	1.67	13.17	14.75	1.58	27.40	31.40	4.00	20.43	23.06	2.63
- Production	(tons)	4,920.2	5,423.5	503.3	1,608.5	1,816.9	208.4	6,016.8	6,739.1	722.3	10,741.1	12,307.8	1,566.7	23,286.6	26,287.3	3,000.7
- Production Value	(D. '000)	1,023.5	1,128.0	104.5	334.7	377.7	43.3	1,251.4	1,401.9	150.5	2,233.7	2,560.2	326.5	4,842.8	5,467.8	625.0
2.2 Onion	0.192 D./kg															
- Planted Area	(ha)	166	166		123	123		541	541		408	408		1,238	1,238	
- Yield	(tons/ha)	26.51	29.26	2.75	14.32	16.14	1.82	14.54	16.42	1.88	28.84	33.06	4.22	20.84	23.60	2.76
- Production	(tons)	4,401.0	4,856.8	455.8	1,761.0	1,984.8	223.8	7,867.6	8,883.1	1,015.5	11,768.6	13,489.0	1,720.4	25,798.2	29,213.7	3,415.5
- Production Value	(D. '000)	844.8	932.4	87.6	338.2	381.0	42.8	1,510.7	1,704.7	194.0	2,259.7	2,590.2	330.5	4,953.4	5,608.3	654.9
2.3 Kindey Beans	0.383 D./kg															
- Planted Area	(ha)	167	167		58	58		263	263		64	64		552	552	
- Yield	(tons/ha)	14.62	16.18	1.56	6.68	7.54	0.86	6.80	7.64	0.84	16.38	18.70	2.32	10.27	11.50	1.23
- Production	(tons)	2,441.4	2,702.5	261.1	387.7	437.4	49.7	1,789.7	2,009.3	219.6	1,048.1	1,196.7	148.6	5,666.9	6,345.9	679.0
- Gross Production Value	(D. '000)	935.1	1,034.9	99.8	148.7	167.7	19.0	685.4	769.6	83.2	401.3	458.9	57.6	2,170.5	2,430.1	259.6
2.4 Pepper	0.904 D./kg															
- Planted Area	(ha)	319	319		168	168		558	558		413	413		1,458	1,458	
- Yield	(tons/ha)	10.04	11.00	0.96	6.68	7.54	0.86	6.81	7.63	0.82	14.48	14.30	-0.18	9.11	10.25	1.14
- Production	(tons)	3,203.4	3,509.7	306.3	1,122.0	1,266.2	144.2	3,797.6	4,257.8	460.2	5,153.9	5,906.5	752.6	13,276.9	14,940.2	1,663.3
- Production Value	(D. '000)	2,895.8	3,172.6	276.8	1,014.5	1,145.2	130.7	3,433.0	3,849.3	416.3	4,659.1	5,339.5	680.4	12,002.4	13,506.6	1,504.2
2.5 Tomato	0.321 D./kg															
- Planted Area	(ha)	223	223		96	96		248	248		208	208		775	775	
- Yield	(tons/ha)	29.58	32.42	2.84	14.31	16.13	1.82	16.60	18.60	2.00	19.20	22.00	2.80	20.76	23.20	2.43
- Production	(tons)	6,596.3	7,228.8	632.5	1,344.7	1,516.1	171.4	4,115.6	4,612.1	496.5	3,994.6	4,576.2	581.6	16,051.0	17,933.2	1,882.2
- Production Value	(D. '000)	2,117.5	2,320.5	203.0	431.5	486.8	55.3	1,321.0	1,480.0	159.0	1,282.3	1,469.4	187.1	5,152.3	5,756.7	604.4
Sub-total :		7,816.7	8,588.4	771.7	2,267.1	2,558.4	291.3	8,201.5	9,204.5	1,003.0	10,836.1	12,418.2	1,582.1	29,121.4	32,769.5	3,648.1
3. Fodder Crops																
3.1 Lucern	0.055 D./kg															
- Planted Area	(ha)	886	886		311	311		2,850	2,850		1,620	1,620		5,667	5,667	
- Yield	(tons/ha)	59.13	64.98	5.85	76.04	86.02	9.98	48.79	54.54	5.75	57.99	65.94	7.95	54.53	61.16	6.63
- Production	(tons)	52,385.4	57,570.1	5,184.7	23,648.6	26,751.6	3,103.0	139,050.6	155,446.8	16,396.2	93,940.7	106,815.7	12,875.0	309,025.1	346,584.0	37,558.9
- Gross Production Value	(D. '000)	2,881.2	3,166.4	285.1	1,300.6	1,471.3	170.7	7,648.1	8,549.7	901.6	5,166.8	5,873.1	708.7	16,996.8	19,060.9	2,064.1
4. Industrial Crops																
4.1 Henna	1.904 D./kg															
- Planted Area	(ha)										452	452		452	452	
- Yield	(tons/ha)										1.42	1.70	0.28	1.42	1.70	0.28
- Production	(tons)										640.3	768.4	128.1	640.3	768.4	128.1
- Gross Production Value	(D. '000)										1,219.0	1,463.0	244.0	1,219.0	1,463.0	244.0
Total Planted Area	(ha)	5,359	5,359		6,501	6,501		12,130	12,130		10,690	10,690		34,680	34,680	
Total Gross Prod. Value	(D. '000)	36,765.4	40,123.4	3,358.0	38,192.3	43,076.8	4,924.5	59,609.7	67,414.8	7,385.1	50,048.3	57,390.5	7,342.3	178,528.6	201,455.5	23,026.9

Remarks : W/O Project ; Without Project Condition Ref. : Tables K.2.2.1 and K.2.2.2

Table K.2.2.4 Economic Irrigation Benefit

Description	Unit	Gafsa Governorate			Tozeur Governorate			Kebili Governorate			Gabes Governorate			Total		
		W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment	W/O Project	With Project	Increment
1. Arboriculture (W/O P. Cost) (W/ P. Cost)																
1.1 Date Palm 894 D./ha 1,061 D./ha																
- Planted Area	(ha)	812	812		5,036	5,036		6,566	6,566		3,113	3,113		15,527	15,527	
- Gross Production Value	(D. ,'000)	6,933.8	7,957.0	1,023.2	33,873.5	38,241.4	4,367.9	42,775.4	48,131.4	5,356.0	21,278.5	24,257.7	2,979.2	104,861.2	118,587.5	13,726.5
- Production Cost	(D. ,'000)	725.9	861.5	135.6	4,502.2	5,343.3	841.1	5,870.0	6,955.5	1,085.5	2,783.0	3,303.2	520.2	13,881.1	16,463.5	2,582.4
- Net Income (Irrigation Benefit)	(D. ,'000)	6,207.9	7,095.5	887.6	29,371.3	32,898.1	3,526.8	36,905.4	41,175.9	4,270.5	18,495.5	20,954.5	2,459.0	90,980.1	102,124.0	11,143.9
1.2 Olive 697 D./ha 742 D./ha																
- Planted Area	(ha)	2,221	2,221		177	177		194	194		1,727	1,727		4,319	4,319	
- Gross Income	(D. ,'000)	11,171.9	12,295.9	1,124.0	292.8	338.0	45.2	545.8	616.3	70.5	4,155.2	4,782.3	627.1	16,165.7	18,032.5	1,866.8
- Production Cost	(D. ,'000)	1,548.0	1,648.0	100.0	123.4	131.3	7.9	135.2	143.5	8.3	1,203.7	1,281.4	77.7	3,010.3	3,204.2	193.9
- Net Income (Irrigation Benefit)	(D. ,'000)	9,623.9	10,647.9	1,024.0	169.4	206.7	37.3	410.6	472.8	62.2	2,951.5	3,500.9	549.4	13,155.4	14,828.3	1,672.9
1.3 Pomegranate 845 D./ha 895 D./ha																
- Planted Area	(ha)	150	150		145	145		161	161		1,788	1,788		2,244	2,244	
- Gross Production Value	(D. ,'000)	361.2	397.1	35.9	95.2	109.1	13.9	147.2	165.8	18.6	5,962.7	6,944.1	981.4	6,566.3	7,616.1	1,049.8
- Production Cost	(D. ,'000)	126.8	134.3	7.5	92.3	94.9	2.6	136.0	143.9	7.9	1,510.9	1,599.3	88.4	1,866.0	1,972.4	106.4
- Net Income (Irrigation Benefit)	(D. ,'000)	234.4	262.8	28.4	2.9	14.2	11.3	11.2	21.9	10.7	4,451.8	5,344.8	893.0	4,700.3	5,643.7	943.4
1.4 Apricot 958 D./ha 1,022 D./ha																
- Planted Area	(ha)	125	125		51	51		49	49		122	122		347	347	
- Gross Production Value	(D. ,'000)	1,206.4	1,307.6	101.2	66.5	74.4	7.9	60.8	67.8	7.0	702.1	814.0	111.9	2,035.8	2,263.8	228.0
- Production Cost	(D. ,'000)	119.8	127.8	8.0	48.9	52.6	3.7	46.9	49.8	2.9	116.9	124.9	8.0	332.5	355.1	22.6
- Net Income (Irrigation Benefit)	(D. ,'000)	1,086.6	1,179.8	93.2	17.6	21.8	4.2	13.9	18.0	4.1	585.2	689.1	103.9	1,703.3	1,908.7	205.4
1.5 Fig / Others 769 D./ha 895 D./ha																
- Planted Area	(ha)	124	124		213	213		243	243		383	383		963	963	
- Gross Production Value	(D. ,'000)	377.1	411.0	33.9	206.6	234.2	27.6	250.9	279.3	28.4	727.8	835.7	107.9	1,562.4	1,760.2	197.8
- Production Cost	(D. ,'000)	95.4	110.5	15.1	163.8	184.8	21.0	186.9	212.0	25.1	294.5	361.3	66.8	740.6	868.6	128.0
- Net Income (Irrigation Benefit)	(D. ,'000)	281.7	300.5	18.8	42.8	49.4	6.6	64.0	67.3	3.3	433.3	474.4	41.1	821.8	891.6	69.8
2. Vegetables																
2.1 Turnip / Carrot 1,409 D./ha 1,534 D./ha																
- Planted Area	(ha)	166	166		125	125		457	457		392	392		1,140	1,140	
- Gross Production Value	(D. ,'000)	1,023.5	1,128.0	104.5	334.2	377.7	43.5	1,251.4	1,401.9	150.5	2,233.7	2,560.2	326.5	4,842.8	5,467.8	625.0
- Production Cost	(D. ,'000)	233.9	254.6	20.7	176.1	190.8	14.7	643.9	697.8	53.9	552.3	600.8	48.5	1,606.2	1,744.0	137.8
- Net Income (Irrigation Benefit)	(D. ,'000)	789.6	873.4	83.8	158.1	186.9	28.8	607.5	704.1	96.6	1,681.4	1,959.4	278.0	3,236.6	3,723.8	487.2
2.2 Onion 1,569 D./ha 1,666 D./ha																
- Planted Area	(ha)	166	166		123	123		541	541		408	408		1,238	1,238	
- Gross Production Value	(D. ,'000)	844.8	932.4	87.6	338.2	381.0	42.8	1,510.7	1,704.7	194.0	2,259.7	2,590.2	330.5	4,953.4	5,608.3	654.9
- Production Cost	(D. ,'000)	260.3	273.2	12.9	192.9	203.0	10.1	848.3	888.3	40.0	639.7	672.3	32.6	1,941.2	2,036.8	95.6
- Net Income (Irrigation Benefit)	(D. ,'000)	584.5	659.2	74.7	145.3	178.0	32.7	662.4	816.4	154.0	1,620.0	1,917.9	297.9	3,012.2	3,571.5	559.3
2.3 Kidney Beans 1,235 D./ha 1,424 D./ha																
- Planted Area	(ha)	167	167		58	58		263	263		64	64		552	552	
- Gross Production Value	(D. ,'000)	935.1	1,034.9	99.8	148.7	167.7	19.0	685.4	768.6	83.2	401.3	458.9	57.6	2,170.5	2,430.1	259.6
- Production Cost	(D. ,'000)	206.1	237.8	31.7	71.6	81.9	10.3	324.8	373.0	48.2	79.0	91.3	12.3	681.5	784.0	102.5
- Net Income (Irrigation Benefit)	(D. ,'000)	729.0	797.1	68.1	77.1	85.8	8.7	360.6	395.6	35.0	322.3	367.6	45.3	1,489.0	1,646.1	157.1
2.4 Pepper 2,143 D./ha 2,271 D./ha																
- Planted Area	(ha)	319	319		168	168		558	558		413	413		1,458	1,458	
- Gross Production Value	(D. ,'000)	2,895.8	3,172.6	276.8	1,014.5	1,145.2	130.7	3,433.0	3,849.3	416.3	4,659.1	5,339.5	680.4	12,002.4	13,506.6	1,504.2
- Production Cost	(D. ,'000)	690.0	723.7	33.7	363.4	381.1	17.7	1,207.0	1,266.7	59.7	893.3	937.2	43.9	3,153.7	3,308.7	155.0
- Net Income (Irrigation Benefit)	(D. ,'000)	2,205.8	2,448.9	243.1	651.1	764.1	113.0	2,226.0	2,582.6	356.6	3,765.8	4,402.3	636.5	8,848.7	10,197.9	1,349.2
2.5 Tomato 1,723 D./ha 1,839 D./ha																
- Planted Area	(ha)	223	223		94	94		248	248		208	208		773	773	
- Gross Production Value	(D. ,'000)	2,117.5	2,320.5	203.0	431.5	486.8	55.3	1,321.0	1,480.0	159.0	1,282.3	1,469.4	187.1	5,152.3	5,756.7	604.4
- Production Cost	(D. ,'000)	384.2	410.0	25.8	162.0	172.3	10.3	427.3	454.9	27.6	358.4	381.5	23.1	1,331.9	1,418.7	86.8
- Net Income (Irrigation Benefit)	(D. ,'000)	1,733.3	1,910.5	177.2	269.5	314.5	45.0	893.7	1,025.1	131.4	923.9	1,087.9	164.0	3,820.4	4,338.0	517.6
3. Fodder Crops																
3.1 Lucern 921 D./ha 1,081 D./ha																
- Planted Area	(ha)	886	886		311	311		2,850	2,850		1,620	1,620		5,667	5,667	
- Gross Production Value	(D. ,'000)	2,881.3	3,166.4	285.1	1,300.6	1,471.3	170.7	7,648.1	8,549.7	901.6	5,166.8	5,875.5	708.7	16,996.8	19,062.9	2,066.1
- Production Cost	(D. ,'000)	816.0	957.7	141.7	286.4	335.6	49.2	2,624.8	3,062.1	437.3	1,492.0	1,751.0	259.0	5,219.2	6,106.4	887.2
- Net Income (Irrigation Benefit)	(D. ,'000)	2,065.3	2,208.7	143.4	1,014.2	1,135.7	121.5	5,023.3	5,487.6	464.3	3,674.8	4,124.5	449.7	11,777.6	12,956.5	1,178.9
4. Industrial Crops																
4.1 Henna 1,144 D./ha 1,296 D./ha																
- Planted Area	(ha)										452	452		452	452	
- Gross Production Value	(D. ,'000)										1,219.0	1,463.0	244.0	1,219.0	1,463.0	244.0
- Production Cost	(D. ,'000)										517.1	584.4	67.3	517.1	584.4	67.3
- Net Income (Irrigation Benefit)	(D. ,'000)										701.9	878.6	176.7	701.9	878.6	176.7
Total Planted Area	(ha)	5,359	5,359		6,501	6,501		12,130	12,130		10,690	10,690		34,680	34,680	
Total Gross Production Value	(D. ,'000)	30,748.4	34,123.4	3,375.0	38,102.3	43,026.8	4,924.5	59,629.7	67,014.8	7,385.1	30,048.2	37,390.5	7,342.3	178,528.6	201,555.5	23,026.9
Total Production Cost	(D. ,'000)	5,206.4	5,739.1	532.7	6,183.0	7,171.6	988.6	12,451.1	14,247.5	1,796.4	10,440.8	11,888.6	1,247.8	34,281.3	38,846.8	4,565.5
Total Irrigation Benefit	(D. '000)	25,542.0	28,384.3	2,842.3	31,919.3	35,855.2	3,935.9	47,178.6	52,767.3	5,588.7	19,607.4	25,501.9	6,094.5	144,247.3	162,708.7	18,461.4

Remark : W/O Project ; Without Project Condition Ref. : Tables K.2.2.1, K.2.2.2 and K.2.2.3

Table K.2.3.1 Construction Schedule by Oasis

(Unit : ha)

Code No.	Name of Oasis	Area (ha)	19 97	19 98	19 99	20 00	20 01	20 02
Gafsa Governorate								
GF - 1	Kasba	698		140	209	209	140	
GF - 2	Sud Ouest	703			143	210	210	140
GF - 3	El Gueitar	450			135	180	135	
GF - 4	Lalla	700			140	210	210	140
GF - 5	El Ksar	578				178	230	170
GF - 6	Oued Shili	56				56		
GF - 7	Thelja	65				65		
GF - 8	Segdoud	217				108	109	
	Sub-total (8)	3,467	0	140	627	1,216	1,034	450
Tozeur Governorate								
TZ - 1	Tozeur	929		185	186	186	186	186
TZ - 2	Kastilia	50		50				
TZ - 3	Oued El Koucha	62		62				
TZ - 4	Neflayette	72		72				
TZ - 5	Chemsa	90		90				
TZ - 6	Helba Est	75		75				
TZ - 7	Helba Ouest	50		50				
TZ - 8	Jhim 1	40		40				
TZ - 9	Jhim 2	167		83	84			
TZ - 10	Ibn Chabbat 3	325		162	163			
TZ - 11	Nefta	852			170	256	256	170
TZ - 12	Ghardgaya	40			40			
TZ - 13	Ibn Chabbat 1	240			120	120		
TZ - 14	Ibn Chabbat 2	272			136	136		
TZ - 15	Draa Sud	198			99	99		
TZ - 16	Hazoua 1	72			72			
TZ - 17	Hazoua 2	48			48			
TZ - 18	Hazoua 3	238			73	95	70	
TZ - 19	Oued Loghrissi	78			78			
TZ - 20	Tozrarit	48				48		
TZ - 21	Cedada	55				55		
TZ - 22	Dghoumes	104				52	52	
TZ - 23	Degache	822			164	247	247	164
TZ - 24	Chakmou	90				90		
TZ - 25	El Hamma	400				120	160	120
TZ - 26	Tamerza	80				80		
TZ - 27	Chebika	23				23		
TZ - 28	Foum El Khanga	48				48		
TZ - 29	Mides	29				29		
TZ - 30	Ain El Karma	25				25		
	Sub-total (30)	5,622	0	869	1,433	1,709	971	640
Kebili Governorate								
KB - 1	Bechri	162		81	81			
KB - 2	Bouabdallah	270		135	135			
KB - 3	Fatnassa	205		103	102			
KB - 4	El Gliaa	94		94				
KB - 5	Menchia	140		140				
KB - 6	Nagga	181		91	90			
KB - 7	Oum Somaa	162		81	81			
KB - 8	Oued Zira	176		88	88			
KB - 9	Ouled Touati	62		62				
KB - 10	Tenchig	54		54				
KB - 11	Zaouiet El Ancs	125		63	62			
KB - 12	Zaouiet El Harth	81		81				
KB - 13	Ziret Louhichi	86		86				
KB - 14	Chouchet Nagga	26		26				
KB - 15	Guataya	150		75	75			
KB - 16	Jedida	133		67	66			
KB - 17	Mansoura	86		86				
KB - 18	Rabia	162		81	81			
KB - 19	Telmine	240		120	120			
KB - 20	Tembib	118		59	59			
KB - 21	Tombar	127		64	63			
KB - 22	Limagues	57		57				
KB - 23	Mazraa Neji	66		66				
KB - 24	Oum El Farth 1 et 2	55		55				
KB - 25	Stiftini	82		82				
KB - 26	Saidane	30		30				
KB - 27	Barghouthia	52		52				
KB - 28	Bazma	146			73	73		
KB - 29	B'chelli	135			68	67		
KB - 30	Blidette	75			75			
KB - 31	Zarcine	70			70			
KB - 32	Jemna	112			56	56		
KB - 33	Mtouria	81			81			
KB - 34	Msaid	95			95			
KB - 35	Rahmat	85			85			
KB - 36	Ras El Ain	268			81	107	80	
KB - 37	Souk El Baiez	65			65			
KB - 38	Ben Zitoun 1 et 2	147			74	73		
KB - 39	Bourzine	94			94			

Code No.	Name of Oasis	Area (ha)	19 97	19 98	19 99	20 00	20 01	20 02
Kebili Governorate								
KB - 40	Gueliada	103			51	52		
KB - 41	Kelwamen	47			47			
KB - 42	Klibia	92			92			
KB - 43	Sidi Hamed	100			100			
KB - 44	Atilet	220			110	110		
KB - 45	Douz	280				140	140	
KB - 46	El Ghoula	75				75		
KB - 47	El Golaa	65				65		
KB - 48	Grad	111				56	55	
KB - 49	El H'say	90				90		
KB - 50	Nouiel	97				97		
KB - 51	Zaafrane	101				51	50	
KB - 52	Bouhamza	80				80		
KB - 53	Ksar Ghilane	100				50	50	
KB - 54	Sakkouma	80				80		
KB - 55	Tarfaya	77				77		
KB - 56	Dhomrana	45				45		
KB - 57	Smida	64				64		
KB - 58	Ghidma	80					80	
KB - 59	Sabria	60					60	
KB - 60	El Faouar 1	87					87	
KB - 61	El Faouar 2	80					80	
KB - 62	Bechni	100					100	
KB - 63	Dergine	72					72	
KB - 64	Matrouha	100					50	50
KB - 65	Regim Maatoug 1	104					52	52
KB - 66	Regim Maatoug 2	96					96	
KB - 67	Tarfayet Elma	52					52	
	Sub-total (67)	7,313	0	2,079	2,420	1,508	1,104	102
Gabes Governorate								
GB - 1	Ain Zrig	140		70	70			
GB - 2	Temouia 1	40		40				
GB - 3	Temouia 2	20		20				
GB - 4	Zrig Dakhlania	30		30				
GB - 5	Teboulbou	520		104	156	156	104	
GB - 6	Oasis de Gabes	734		146	147	147	147	147
GB - 7	Limaoua 1 et 2	148		148				
GB - 8	M'dou	40		40				
GB - 9	Chott El Ferik	31		31				
GB - 10	Bouchamma	143		72	71			
GB - 11	Mahjoub	374			187	187		
GB - 12	Salem	99			99			
GB - 13	Sboui	72			72			
GB - 14	Faycal	260			130	130		
GB - 15	M'ziraa Ghannouch	280			140	140		
GB - 16	Metouia	268			134	134		
GB - 17	Quedhref	263			132	131		
GB - 18	Aquinette	232			116	116		
GB - 19	Chenchou 1	57			57			
GB - 20	Chenchou 2	40			40			
GB - 21	Tekouri	32			32			
GB - 22	Hamma Oasis	400			80	120	120	80
GB - 23	Mziraa Hamma	80			80			
GB - 24	Bechima 1	280			140	140		
GB - 25	Bechima 2	290			145	145		
GB - 26	Khebayet	96			96			
GB - 27	Ben Ghilouf	180			90	90		
GB - 28	Ghib Dokhane	70			70			
GB - 29	Oued Nekhla	30			30			
GB - 30	Arram	163				82	81	
GB - 31	Mareth 1	100				50	50	
GB - 32	Mareth 2	180				54	72	54
GB - 33	Mareth 3	30				30		
GB - 34	Mareth 5	115				58	57	
GB - 35	Mareth 6	88				89		
GB - 36	Zarat 2	174				87	87	
GB - 37	Zerkine 1 et 3	116				58	58	
GB - 38	Zerkine 2	156				78	78	
GB - 39	Ayoune Zerkine	30				30		
GB - 40	Madssia	58				58		
GB - 41	Kettana 1	98				98		
GB - 42	Kettana 3	140				70	70	
GB - 43	Kettana 4	125				63	62	
GB - 44	Sidi Scilam	120				60	60	
GB - 45	Zrig Barrania	71				71	0	
GB - 46	Ghandri	30				30		
GB - 47	Laaradh 1	35				0	35	
GB - 48	Laaradh 3	55				0	55	
	Sub-total (48)	7,133	0	701	2,314	2,701	1,136	281
	Total (153)	**23,435**	**0**	**3,789**	**6,794**	**7,134**	**4,245**	**1,473**

Ref. : Annex-H, Table H.3.3.1 (1)

Table K.2.3.2 Disbursement Schedule of Project Cost

(Unit : D. ,000)

Code No.	Name of Oasis	Area	Project Cost	19 97	19 98	19 99	20 00	20 01	20 02
		(ha)	(D. ,000)						
Gafsa CRDA									
GF - 1	Kasba	698	1,266	64	241	361	361	241	
GF - 2	Sud Ouest	703	1,620		66	311	466	466	311
GF - 3	El Guettar	450	1,287		42	373	498	374	
GF - 4	Lalla	700	1,595		65	306	459	459	306
GF - 5	El Ksar	578	1,133			54	323	432	324
GF - 6	Oued Sbib	56	106			6	160		
GF - 7	Thelja	65	350			6	344		
GF - 8	Segdoud	217	853			20	417	416	
	Sub-total (8)	3,467	8,272	64	414	1,437	3,028	2,388	941
Tozeur CRDA									
TZ - 1	Tozeur	929	2,886	89	561	559	559	559	559
TZ - 2	Kastilia	50	138	5	133				
TZ - 3	Oued El Koucha	62	197	6	191				
TZ - 4	Nefftayette	72	205	7	198				
TZ - 5	Chemsa	90	261	8	253				
TZ - 6	Hefba Est	75	362	7	355				
TZ - 7	Hefba Ouest	50	114	5	109				
TZ - 8	Jhim 1	40	156	4	152				
TZ - 9	Jhim 2	162	667	17	325	325			
TZ - 10	Ibn Chabbat 3	325	1,590	31	779	780			
TZ - 11	Nefta	852	2,862		81	417	624	624	416
TZ - 12	Ghadgaya	40	163		4	159			
TZ - 13	Ibn Chabbat 1	240	700		23	339	338		
TZ - 14	Ibn Chabbat 2	272	1,211		26	593	592		
TZ - 15	Draa Sud	198	93		19	37	37		
TZ - 16	Hazoua 1	72	389		7	382			
TZ - 17	Hazoua 2	48	199		4	195			
TZ - 18	Hazoua 3	238	928		22	271	363	272	
TZ - 19	Oued Loghatsi	78	357		8	349			
TZ - 20	Tozrait	48	192			4	188		
TZ - 21	Ceilada	55	300			5	295		
TZ - 22	Dghoumes	104	438			9	215	214	
TZ - 23	Degache	822	2,718		77	527	793	793	528
TZ - 24	Chaknou	90	227			8	219		
TZ - 25	El Hamma	400	1,119			37	325	433	324
TZ - 26	Tameza	80	488			7	481		
TZ - 27	Chebika	23	91			2	89		
TZ - 28	Foum El Khanga	48	212			4	208		
TZ - 29	Midas	29	79			3	76		
TZ - 30	Ain El Karma	25	117			2	115		
	Sub-total (30)	5,622	18,759	379	3,327	5,014	5,517	2,895	1,827
Kebili CRDA									
KB - 1	Bechri	162	797	15	391	391			
KB - 2	Bouabdallah	220	1,027	25	501	501			
KB - 3	Fatnassa	205	628	19	305	304			
KB - 4	El Glaa	94	442	9	433				
KB - 5	Menchia	140	786	13	773				
KB - 6	Nagga	181	461	16	222	223			
KB - 7	Oum Somaa	162	832	15	411	411			
KB - 8	Oued Zira	176	567	17	275	275			
KB - 9	Ouled Touati	62	231	6	225				
KB - 10	Tenchig	54	219	5	214				
KB - 11	Zaouiet El Anes	125	278	11	133	134			
KB - 12	Zaouiet El Harth	81	329	8	321				
KB - 13	Zaret Louhichi	86	289	8	281				
KB - 14	Chouchet Nagga	26	88	2	86				
KB - 15	Ouataya	150	305	14	146	145			
KB - 16	Jedida	133	731	13	359	359			
KB - 17	Mansoura	86	494	8	486				
KB - 18	Raba	162	682	15	333	334			
KB - 19	Telmine	240	1,097	23	537	537			
KB - 20	Tenabib	118	349	11	169	169			
KB - 21	Tombar	127	593	11	290	290			
KB - 22	Limagues	57	198	5	193				
KB - 23	Mazraa Negâ	66	348	6	342				
KB - 24	Oum El Farth 1 et 2	55	29	5	24				
KB - 25	Stifimi	82	154	8	146				
KB - 26	Saidane	30	89	2	87				
KB - 27	Barghoutiba	52	129	4	125				
KB - 28	Bazma	146	473		15	229	229		
KB - 29	B'chelli	135	512		14	249	249		
KB - 30	Blidette	75	202		7	195			
KB - 31	Zarcine	70	184		7	177			
KB - 32	Jemna	112	116		11	53	52		
KB - 33	Mnourla	81	158		8	150			
KB - 34	Msaid	95	316		8	308			
KB - 35	Rahmat	85	299		8	291			
KB - 36	Ras El Ain	268	921		25	269	358	269	
KB - 37	Souk El Balez	65	193		6	187			
KB - 38	Ben Zineb 1 et 2	147	473		13	230	230		
KB - 39	Bourzine	94	279		9	270			

Code No.	Name of Oasis	Area	Project Cost	19 97	19 98	19 99	20 00	20 01	20 02
		(ha)	(D. ,000)						
Kebili CRDA									
KB - 40	Guellala	103	260		9	125	126		
KB - 41	Kefwamen	47	225		4	221			
KB - 42	Kibria	92	267		9	258			
KB - 43	Sidi Hamed	100	239		10	229			
KB - 44	Atilet	220	872		21	426	425		
KB - 45	Douz	280	778			26	376	376	
KB - 46	El Ghoufa	75	292			7	285		
KB - 47	El Gofaa	65	274			6	268		
KB - 48	Grad	111	712			10	351	351	
KB - 49	El H'say	90	135			8	127		
KB - 50	Noufel	97	271			9	262		
KB - 51	Zaafrane	101	128			10	59	59	
KB - 52	Bouhamra	80	290			7	283		
KB - 53	Ksar Ghilane	100	450			10	220	220	
KB - 54	Sakkouma	80	454			7	447		
KB - 55	Tarfaya	77	300			7	293		
KB - 56	Dhomrana	45	193			5	188		
KB - 57	Smida	64	206			6	200		
KB - 58	Ghidma	80	169				7	162	
KB - 59	Sabria	60	317				6	311	
KB - 60	El Faouar 1	87	309				8	301	
KB - 61	El Faouar 2	80	275				7	268	
KB - 62	Bechni	100	299				10	289	
KB - 63	Dergine	72	368				7	361	
KB - 64	Matrouha	100	401				9	196	195
KB - 65	Regim Maatoug 1	104	442				9	216	217
KB - 66	Regim Maatoug 2	96	294				9	285	
KB - 67	Tarfayet Elma	52	190				4	186	
	Sub-total (67)	7,213	25,761	294	8,042	8,058	5,104	3,850	413
Gabes CRDA									
GB - 1	Ain Zrig	140	283	13	135	135			
GB - 2	Temoula 1	40	104	4	100				
GB - 3	Temoula 2	20	112	2	110				
GB - 4	Zrig Dakhlania	30	122	2	120				
GB - 5	Teboulbou	520	2,152	49	421	631	631	420	
GB - 6	Oasis de Gabes	734	1,886	69	365	363	363	363	363
GB - 7	Limaoua 1 et 2	648	628	14	614				
GB - 8	M'dou	40	204	4	200				
GB - 9	Chott El Ferik	31	52	3	49				
GB - 10	Bouchamma	143	246	14	116	116			
GB - 11	Mahjoub	374	1,220		34	618	618		
GB - 12	Salem	99	379		10	369			
GB - 13	Sboul	72	337		7	330			
GB - 14	Fayoul	260	962		24	479	479		
GB - 15	M'zina Ghannouch	280	1,365		26	669	670		
GB - 16	Metouia	268	794		25	385	384		
GB - 17	Ouedhref	263	1,033		25	504	504		
GB - 18	Aouinette	232	748		23	363	362		
GB - 19	Chenchou 1	57	243		5	238			
GB - 20	Chenchou 2	40	190		4	186			
GB - 21	Tekouri	32	189		3	186			
GB - 22	Hamma Oasis	400	1,383		31	269	404	404	269
GB - 23	Mdraa Hamma	80	345		7	338			
GB - 24	Bechima 1	280	1,020		26	497	497		
GB - 25	Bechima 2	290	1,189		27	581	581		
GB - 26	Khebayet	96	192		9	183			
GB - 27	Ben Ghilouf	180	225		16	304	305		
GB - 28	Club Dokhane	20	166		7	159			
GB - 29	Oued Nekhla	30	65		2	63			
GB - 30	Arram	163	866			15	425	426	
GB - 31	Mareth 1	100	453			10	222	221	
GB - 32	Mareth 2	180	869			17	255	341	256
GB - 33	Mareth 3	30	133			2	131		
GB - 34	Mareth 5	115	824			10	407	407	
GB - 35	Mareth 6	88	299			8	291		
GB - 36	Zarat 2	174	850			16	417	417	
GB - 37	Zerkine 1 et 3	116	247			11	118	118	
GB - 38	Zerkine 2	156	630			15	308	307	
GB - 39	Ayoune Zerkine	30	90			2	88		
GB - 40	Madsela	58	221			5	216		
GB - 41	Kettana 1	98	429			9	420		
GB - 42	Kettana 3	140	583			13	285	285	
GB - 43	Kettana 4	125	482			11	235	236	
GB - 44	Sidi Sellam	120	339			11	164	164	
GB - 45	Zrig Barrania	71	218			7	211		
GB - 46	Ghandri	30	119			2	117		
GB - 47	Laarath 1	35	185				4	181	
GB - 48	Laarath 3	55	235				5	230	
	Sub-total (48)	7,133	25,976	174	2,547	7,930	9,917	4,520	888
	Total (153)	23,435	78,768	911	14,330	22,439	23,566	13,653	4,069

Ref.: K 2 3.1

Table K.2.3.3 Economic Project Cost, O/M Cost and Irrigation Benefit

Code No	Name of Oasis	Area	Project Cost Total	Project Cost per ha	O/M Cost Total	O/M Cost per ha	Irrigation Benefit Total	Irrigation Benefit per ha
		(ha)	(D.,000)	(D./ha)	(D.,000)	(D./ha)	(D.,000)	(D./ha)
Gafsa Governorate								
GF - 1	Kasba	698	1,268	1,817	14.5	21	420.5	602
GF - 2	Sud Ouest	703	1,630	2,304	17.3	25	640.8	912
GF - 3	El Guettar	450	1,287	2,860	13.1	29	461.4	1,025
GF - 4	Ladla	700	1,595	2,279	17.1	24	451.7	660
GF - 5	El Ksar	578	1,133	1,960	12.6	22	381.2	660
GF - 6	Oued Shili	56	166	2,964	1.7	30	52.7	941
GF - 7	Thelja	65	350	5,385	3.2	49	69.8	1,074
GF - 8	Segdoud	217	853	3,931	8.2	38	354.2	1,632
	Sub-total (8)	3,467	8,272	2,386	87.7	25	2,842.3	820
Tozeur Governorate								
TZ - 1	Tozeur	929	2,885	3,107	29.3	32	645.4	695
TZ - 2	Kastilia	50	138	2,760	1.5	30	32.0	640
TZ - 3	Oued El Koucha	62	197	3,177	2.0	32	33.2	535
TZ - 4	Neflayette	72	205	2,847	2.1	29	39.2	544
TZ - 5	Chemsa	90	261	2,900	2.7	30	37.5	417
TZ - 6	Helba Est	75	362	4,823	3.4	45	72.6	968
TZ - 7	Helba Ouest	50	114	2,280	1.3	26	25.9	518
TZ - 8	Jbim 1	40	156	3,900	1.5	38	55.8	1,395
TZ - 9	Jbim 2	167	667	3,994	6.5	39	121.3	726
TZ - 10	Ibn Chabbat 3	325	1,590	4,892	15.0	46	54.3	167
TZ - 11	Nefta	852	2,162	2,538	23.2	27	803.9	944
TZ - 12	Ghardgaya	40	163	4,075	1.6	40	33.3	833
TZ - 13	Ibn Chabbat 1	240	700	2,917	7.3	30	65.8	274
TZ - 14	Ibn Chabbat 2	272	1,211	4,452	11.6	43	73.2	269
TZ - 15	Draa Sud	198	93	470	2.1	11	12.3	62
TZ - 16	Hazoua 1	72	389	5,403	3.6	50	66.4	922
TZ - 17	Hazoua 2	48	199	4,146	1.9	40	61.8	1,288
TZ - 18	Hazoua 3	238	928	3,899	9.1	38	284.6	1,196
TZ - 19	Oued Loghrissi	78	357	4,577	3.4	44	57.7	740
TZ - 20	Tozrant	48	192	4,000	1.9	40	33.8	704
TZ - 21	Ceddda	55	300	5,455	2.8	51	56.8	1,033
TZ - 22	Dghoumes	104	438	4,212	4.2	40	85.8	825
TZ - 23	Degache	822	2,718	3,307	27.4	33	662.9	806
TZ - 24	Chakinou	90	227	2,522	2.4	27	55.4	616
TZ - 25	El Hamma	400	1,119	2,798	11.7	29	376.7	942
TZ - 26	Tamerza	80	488	6,100	4.5	56	51.5	644
TZ - 27	Chebika	23	91	3,957	0.9	39	6.7	291
TZ - 28	Foum El Khanga	48	212	4,417	2.0	42	13.0	271
TZ - 29	Midès	29	79	2,724	0.8	28	8.5	293
TZ - 30	Ain El Karma	25	117	4,680	1.1	44	8.6	344
	Sub-total (30)	5,622	18,759	3,337	189.0	34	3,935.9	700
Kebili Governorate								
KB - 1	Bechri	162	792	4,920	7.5	46	142.4	879
KB - 2	Bouabdallah	220	1,027	3,804	10.1	37	234.0	867
KB - 3	Faiaassa	205	628	3,063	6.5	32	94.4	460
KB - 4	El Ghaa	94	442	4,702	4.2	45	90.1	959
KB - 5	Mecchia	140	786	5,614	7.3	52	201.7	1,441
KB - 6	Nagga	181	461	2,547	5.0	28	126.8	701
KB - 7	Oum Somaa	162	837	5,167	7.9	49	195.9	1,209
KB - 8	Oued Zira	176	567	3,222	5.8	33	189.8	1,078
KB - 9	Ouled Touati	62	231	3,726	2.3	37	83.1	1,340
KB - 10	Tenchig	54	219	4,056	2.1	39	62.3	1,154
KB - 11	Zaoufet El Anes	125	278	2,224	3.1	25	93.0	744
KB - 12	Zaoufet El Harth	81	329	4,062	3.2	40	128.9	1,591
KB - 13	Ziret Loubichi	86	289	3,360	2.9	34	56.5	657
KB - 14	Chouchet Nagga	26	88	3,385	0.9	35	18.5	712
KB - 15	Guataya	150	305	2,033	3.5	23	131.8	879
KB - 16	Jedida	133	731	5,496	6.8	51	137.6	1,035
KB - 17	Mansoura	86	494	5,744	4.6	53	127.9	1,487
KB - 18	Rabta	162	682	4,210	6.6	41	149.6	923
KB - 19	Telmine	240	1,097	4,571	10.5	44	249.8	1,041
KB - 20	Tembib	118	349	2,958	3.6	31	62.8	532
KB - 21	Tembar	127	591	4,654	5.6	44	106.6	839
KB - 22	Umagues	52	198	3,474	2.0	35	41.3	725
KB - 23	Mazraa Neji	66	348	5,273	3.3	50	63.2	958
KB - 24	Oum El Fanh 1 et 2	55	79	1,436	1.0	18	28.2	513
KB - 25	Stiftini	82	154	1,878	1.8	22	27.2	332
KB - 26	Saidane	30	89	2,967	0.9	30	21.3	710
KB - 27	Barghouthia	52	129	2,481	1.4	27	47.4	912
KB - 28	Bazma	146	473	3,240	4.8	33	82.6	566
KB - 29	B'cheili	135	512	3,793	5.1	38	101.4	751
KB - 30	Blidette	75	202	2,693	2.2	29	76.7	1,023
KB - 31	Zarcine	70	184	2,629	2.0	29	79.4	1,134
KB - 32	Jemna	112	116	1,036	1.7	15	27.0	241
KB - 33	Mtouria	81	158	1,951	1.8	22	53.9	665
KB - 34	Msaid	95	316	3,326	3.2	34	112.2	1,181
KB - 35	Rahmat	85	299	3,518	3.0	35	55.5	653
KB - 36	Ras El Ain	268	921	3,437	9.3	35	164.5	614
KB - 37	Souk El Balez	65	193	2,969	2.0	31	46.6	717
KB - 38	Ben Zitoun 1 et 2	147	433	3,218	4.8	33	156.7	1,066
KB - 39	Bourzize	94	279	2,968	2.9	31	52.2	555
KB - 40	Gueliada	103	260	2,524	2.8	27	91.6	889
KB - 41	Kebanca	47	225	4,787	2.1	45	50.8	1,081
KB - 42	Khbia	92	263	2,902	2.8	30	39.0	424
KB - 43	Sidi Hamed	100	239	2,390	2.6	26	73.3	733
KB - 44	Atilet	220	872	3,964	8.5	39	169.6	771
KB - 45	Douz	280	778	2,779	8.2	29	186.0	664
KB - 46	El Ghoula	75	292	3,893	2.9	39	19.7	263
KB - 47	El Golaa	65	274	4,215	2.7	42	19.8	305
KB - 48	Grad	111	712	6,414	6.5	59	47.0	423
KB - 49	El Hsay	90	135	1,500	1.7	19	42.1	468
KB - 50	Nouiel	97	271	2,794	2.9	30	85.3	879
KB - 51	Zaafrane	101	128	1,267	1.7	17	7.4	73
KB - 52	Bouhamra	80	290	3,625	2.9	36	58.1	726
KB - 53	Ksar Ghilane	100	450	4,500	4.3	43	75.7	757
KB - 54	Sakkouma	80	454	5,675	4.2	53	31.0	388
KB - 55	Tarfaya	77	300	3,896	2.9	38	13.9	181
KB - 56	Dhomrana	45	193	4,289	1.9	42	30.3	673
KB - 57	Smida	64	206	3,219	2.1	33	40.7	636
KB - 58	Ghidma	80	169	2,113	1.9	24	55.7	696
KB - 59	Sabria	60	317	5,283	3.0	50	91.1	1,518
KB - 60	El Faouar 1	87	309	3,552	3.1	36	75.4	867
KB - 61	El Faouar 2	80	275	3,438	2.8	35	45.0	563
KB - 62	Bechni	100	299	2,990	3.1	31	68.5	685
KB - 63	Dergine	72	368	5,111	3.5	49	8.9	124
KB - 64	Matrouha	100	401	4,010	3.9	39	93.7	937
KB - 65	Regim Maatoug 1	104	442	4,250	4.3	41	62.9	605
KB - 66	Regim Maatoug 2	96	294	3,063	3.0	31	46.4	483
KB - 67	Tarfayet Elma	52	190	3,654	1.9	37	39.0	750
	Sub-total (67)	7,213	25,761	3,571	257.4	36	5,588.7	775
Gabes Governorate								
GB - 1	Ain Zrig	140	283	2,021	3.4	24	82.7	591
GB - 2	Temoula 1	40	104	2,600	1.1	28	16.7	418
GB - 3	Temoula 2	20	112	5,600	1.1	55	16.8	840
GB - 4	Zrig Dakhlania	30	122	4,067	1.2	40	18.4	613
GB - 5	Teboulbou	520	2,152	4,138	21.3	41	511.3	983
GB - 6	Oasis de Gabes	734	1,886	2,569	20.8	28	634.0	864
GB - 7	Limaoua 1 et 2	148	628	4,243	6.2	42	141.6	957
GB - 8	M'dou	40	204	5,100	1.9	48	36.5	913
GB - 9	Chott El Ferik	31	52	1,677	0.7	23	15.5	500
GB - 10	Bouchamma	143	246	1,720	3.1	22	83.0	580
GB - 11	Mahjoub	374	1,230	3,396	13.1	35	390.6	1,044
GB - 12	Salem	99	379	3,828	3.8	38	85.3	862
GB - 13	Sboui	72	337	4,681	3.3	46	83.1	1,154
GB - 14	Faycal	260	982	3,777	9.9	38	212.5	817
GB - 15	M'zira Ghannouch	280	1,365	4,875	13.1	47	254.1	908
GB - 16	Metoula	268	794	2,963	8.4	31	238.9	891
GB - 17	Ouedhref	263	1,033	3,928	10.3	39	431.8	1,642
GB - 18	Aouinette	232	748	3,224	7.8	34	145.7	628
GB - 19	Chenchou 1	57	243	4,263	2.4	42	46.8	821
GB - 20	Chenchou 2	40	190	4,750	1.8	45	31.8	795
GB - 21	Tekouri	32	189	5,906	1.8	56	45.4	1,419
GB - 22	Hamma Oasis	400	1,383	3,458	14.2	36	488.2	1,221
GB - 23	Mzirza Hamma	80	345	4,313	3.4	43	89.3	1,116
GB - 24	Bechima 1	280	1,020	3,643	10.4	37	137.6	491
GB - 25	Bechima 2	290	1,189	4,100	11.8	41	291.1	1,004
GB - 26	Khebayet	96	192	2,000	2.3	24	42.9	447
GB - 27	Ben Ghilouf	180	225	1,250	3.2	18	63.8	354
GB - 28	Glib Dokhane	70	166	2,371	1.9	27	24.7	353
GB - 29	Oued Nekhla	30	65	2,167	0.8	27	16.9	563
GB - 30	Arram	163	866	5,313	8.2	50	126.5	776
GB - 31	Mareth 1	100	453	4,530	4.4	44	77.3	773
GB - 32	Mareth 2	180	869	4,828	8.4	47	190.3	1,057
GB - 33	Mareth 3	30	133	4,433	1.3	43	18.4	613
GB - 34	Mareth 5	115	824	7,165	7.5	65	172.7	1,502
GB - 35	Mareth 6	88	299	3,398	3.1	35	82.2	934
GB - 36	Zarat 2	174	850	4,885	8.2	47	128.7	740
GB - 37	Zerkine 1 et 3	116	247	2,129	2.9	25	48.4	417
GB - 38	Zerkine 2	156	630	4,038	6.3	40	88.6	568
GB - 39	Ayoune Zerkine	30	90	3,000	1.0	33	17.6	587
GB - 40	Madyssia	58	221	3,810	2.2	38	9.3	160
GB - 41	Kettana 1	98	429	4,378	4.2	43	97.9	999
GB - 42	Kettana 3	140	583	4,164	5.8	41	95.1	679
GB - 43	Kettana 4	125	482	3,856	4.8	38	96.5	772
GB - 44	Sidi Selfam	120	339	2,825	3.2	31	95.0	792
GB - 45	Zrig Barrania	71	218	3,070	2.3	32	29.1	410
GB - 46	Ghandri	30	119	3,967	1.2	40	4.5	150
GB - 47	Laaradh 1	33	185	5,286	1.7	49	19.7	563
GB - 48	Laaradh 3	55	235	4,273	2.3	42	19.7	358
	Sub-total (48)	7,133	25,976	3,642	264.0	37	6,094.5	854
	Total (133)	23,435	78,768	3,361	798.1	34	18,461.4	788

Ref.: Annex H Tables H.2.2.2 and H.2.3.1, Tables K.2.2.4 and K.2.3.2

Table K.2.4.1 Economic Cost and Benefit Stream for 4 Governorates

- Gafsa Governorate, 8 Oases - (Unit: D., '000)

No	Year	Project Cost (a)	O/M Cost (b)	Total (c)	Irrigation Benefit (d)	Balance (c - d)
1	1997	64.0	0.0	64.0	0.0	-64.0
2	1998	414.0	0.0	414.0	0.0	-414.0
3	1999	1,437.0	3.5	1,440.5	23.0	-1,417.5
4	2000	3,028.0	19.4	3,047.4	148.7	-2,898.7
5	2001	2,388.0	50.2	2,438.2	473.9	-1,964.3
6	2002	941.0	76.3	1,017.3	968.5	-48.8
7	2003		87.7	87.7	1,537.0	1,449.3
8	2004		87.7	87.7	2,082.5	1,994.8
9	2005		87.7	87.7	2,525.2	2,437.5
10	2006		87.7	87.7	2,768.5	2,680.8
11	2007		87.7	87.7	2,842.3	2,754.6
12	2008		87.7	87.7	2,842.3	2,754.6
13	2009		87.7	87.7	2,842.3	2,754.6
14	2010		87.7	87.7	2,842.3	2,754.6
15	2011		87.7	87.7	2,842.3	2,754.6
16	2012		87.7	87.7	2,842.3	2,754.6
17	2013		87.7	87.7	2,842.3	2,754.6
18	2014		87.7	87.7	2,842.3	2,754.6
19	2015		87.7	87.7	2,842.3	2,754.6
20	2016		87.7	87.7	2,842.3	2,754.6
21	2017		87.7	87.7	2,842.3	2,754.6
22	2018		87.7	87.7	2,842.3	2,754.6
23	2019		87.7	87.7	2,842.3	2,754.6
24	2020		87.7	87.7	2,842.3	2,754.6
25	2021		87.7	87.7	2,842.3	2,754.6

		NPV	Cost	Benefit	B - C
Project Area :	3,467 ha				
Project Cost :	8,272 x ,000 D.	10% =	6,066	13,193	7,127
	2,386 D./ha	7.5% =	6,783	18,015	11,232
		5% =	7,648	25,177	17,529

Sensitivity data:

Item	(%)	Cost Up (%)	Benefit Down (%) -10	0	20	B/C
Cost	0	-10	26.0%	24.0%	19.9%	2.17
Up		-5	24.9%	23.0%	19.0%	2.66
Benefit	0	0	23.9%	22.0%	18.1%	3.29
Down		5	22.9%	21.1%	17.3%	
		10	22.0%	20.3%	16.6%	
EIRR	22.0%	20	20.5%	18.8%	15.2%	

- Tozeur Governorate, 30 Oases - (Unit: D., '000)

No	Year	Project Cost (a)	O/M Cost (b)	Total (c)	Irrigation Benefit (d)	Balance (c - d)
1	1997	179.0	0.0	179.0	0.0	-179.0
2	1998	3,327.0	0.0	3,327.0	0.0	-3,327.0
3	1999	5,014.0	29.2	5,043.2	121.7	-4,921.5
4	2000	5,517.0	77.4	5,594.4	444.0	-5,150.4
5	2001	2,895.0	134.8	3,029.8	1,005.6	-2,024.2
6	2002	1,827.0	167.5	1,994.5	1,703.2	-291.3
7	2003		189.0	189.0	2,490.4	2,301.4
8	2004		189.0	189.0	3,155.9	2,966.9
9	2005		189.0	189.0	3,620.7	3,431.7
10	2006		189.0	189.0	3,846.3	3,657.3
11	2007		189.0	189.0	3,935.9	3,746.9
12	2008		189.0	189.0	3,935.9	3,746.9
13	2009		189.0	189.0	3,935.9	3,746.9
14	2010		189.0	189.0	3,935.9	3,746.9
15	2011		189.0	189.0	3,935.9	3,746.9
16	2012		189.0	189.0	3,935.9	3,746.9
17	2013		189.0	189.0	3,935.9	3,746.9
18	2014		189.0	189.0	3,935.9	3,746.9
19	2015		189.0	189.0	3,935.9	3,746.9
20	2016		189.0	189.0	3,935.9	3,746.9
21	2017		189.0	189.0	3,935.9	3,746.9
22	2018		189.0	189.0	3,935.9	3,746.9
23	2019		189.0	189.0	3,935.9	3,746.9
24	2020		189.0	189.0	3,935.9	3,746.9
25	2021		189.0	189.0	3,935.9	3,746.9

		NPV	Cost	Benefit	B - C
Project Area :	5,622 ha				
Project Cost :	18,759 x ,000 D.	10% =	14,422	19,291	4,869
	3,337 D./ha	7.5% =	15,917	26,117	10,200
		5% =	17,714	36,211	18,497

Sensitivity data:

Item	(%)	Cost Up (%)	Benefit Down (%) -10	0	20	B/C
Cost	0	-10	16.9%	15.5%	12.3%	1.34
Up		-5	16.1%	14.7%	11.5%	1.64
Benefit	0	0	15.3%	13.9%	10.9%	2.04
Down		5	14.6%	13.2%	10.2%	
		10	13.9%	12.6%	9.7%	
EIRR	13.9%	20	12.7%	11.4%	8.6%	

- Kebili Governorate, 67 Oases - (Unit: D., '000)

No	Year	Project Cost (a)	O/M Cost (b)	Total (c)	Irrigation Benefit (d)	Balance (c - d)
1	1997	294.0	0.0	294.0	0.0	-294.0
2	1998	8,042.0	74.2	8,116.2	0.0	-8,116.2
3	1999	8,058.0	160.5	8,218.5	322.2	-7,896.3
4	2000	5,104.0	214.4	5,318.4	1,019.3	-4,299.1
5	2001	3,850.0	253.8	4,103.8	1,950.2	-2,153.6
6	2002	413.0	257.4	670.4	3,052.1	2,381.7
7	2003		257.4	257.4	4,169.9	3,912.5
8	2004		257.4	257.4	4,965.4	4,708.0
9	2005		257.4	257.4	5,386.0	5,128.6
10	2006		257.4	257.4	5,572.9	5,315.5
11	2007		257.4	257.4	5,588.7	5,331.3
12	2008		257.4	257.4	5,588.7	5,331.3
13	2009		257.4	257.4	5,588.7	5,331.3
14	2010		257.4	257.4	5,588.7	5,331.3
15	2011		257.4	257.4	5,588.7	5,331.3
16	2012		257.4	257.4	5,588.7	5,331.3
17	2013		257.4	257.4	5,588.7	5,331.3
18	2014		257.4	257.4	5,588.7	5,331.3
19	2015		257.4	257.4	5,588.7	5,331.3
20	2016		257.4	257.4	5,588.7	5,331.3
21	2017		257.4	257.4	5,588.7	5,331.3
22	2018		257.4	257.4	5,588.7	5,331.3
23	2019		257.4	257.4	5,588.7	5,331.3
24	2020		257.4	257.4	5,588.7	5,331.3
25	2021		257.4	257.4	5,588.7	5,331.3

		NPV	Cost	Benefit	B - C
Project Area :	7,213 ha				
Project Cost :	25,761 x ,000 D.	10% =	20,924	29,150	8,226
	3,571 D./ha	7.5% =	22,849	39,105	16,256
		5% =	25,151	53,752	28,599

Sensitivity data:

Item	(%)	Cost Up (%)	Benefit Down (%) -10	0	20	B/C
Cost	0	-10	17.6%	16.1%	12.8%	1.39
Up		-5	16.7%	15.3%	12.1%	1.71
Benefit	0	0	15.9%	14.5%	11.4%	2.14
Down		5	15.2%	13.8%	10.8%	
		10	14.5%	13.1%	10.2%	
EIRR	14.5%	20	13.3%	11.9%	9.1%	

- Gabes Governorate, 48 Oases - (Unit: D., '000)

No	Year	Project Cost (a)	O/M Cost (b)	Total (c)	Irrigation Benefit (d)	Balance (c - d)
1	1997	174.0	0.0	174.0	0.0	-174.0
2	1998	2,547.0	0.0	2,547.0	0.0	-2,547.0
3	1999	7,930.0	25.9	7,955.9	119.8	-7,836.1
4	2000	9,917.0	111.6	10,028.6	635.0	-9,393.6
5	2001	4,520.0	211.6	4,731.6	1,611.8	-3,119.8
6	2002	888.0	253.6	1,141.6	2,782.6	1,641.0
7	2003		264.0	264.0	4,001.5	3,737.5
8	2004		264.0	264.0	5,100.7	4,836.7
9	2005		264.0	264.0	5,804.3	5,540.3
10	2006		264.0	264.0	6,046.5	5,782.5
11	2007		264.0	264.0	6,094.5	5,830.5
12	2008		264.0	264.0	6,094.5	5,830.5
13	2009		264.0	264.0	6,094.5	5,830.5
14	2010		264.0	264.0	6,094.5	5,830.5
15	2011		264.0	264.0	6,094.5	5,830.5
16	2012		264.0	264.0	6,094.5	5,830.5
17	2013		264.0	264.0	6,094.5	5,830.5
18	2014		264.0	264.0	6,094.5	5,830.5
19	2015		264.0	264.0	6,094.5	5,830.5
20	2016		264.0	264.0	6,094.5	5,830.5
21	2017		264.0	264.0	6,094.5	5,830.5
22	2018		264.0	264.0	6,094.5	5,830.5
23	2019		264.0	264.0	6,094.5	5,830.5
24	2020		264.0	264.0	6,094.5	5,830.5
25	2021		264.0	264.0	6,094.5	5,830.5

		NPV	Cost	Benefit	B - C
Project Area :	7,133 ha				
Project Cost :	25,976 x ,000 D.	10% =	19,919	30,193	10,274
	3,642 D./ha	7.5% =	22,019	40,833	18,814
		5% =	24,539	56,550	32,011

Sensitivity data:

Item	(%)	Cost Up (%)	Benefit Down (%) -10	0	20	B/C
Cost	0	-10	19.2%	17.6%	14.1%	1.52
Up		-5	18.2%	16.7%	13.3%	1.85
Benefit	0	0	17.4%	15.9%	12.6%	2.30
Down		5	16.6%	15.1%	11.9%	
		10	15.9%	14.4%	11.3%	
EIRR	15.9%	20	14.6%	13.2%	10.1%	

Table K.2.4.2 Economic Cost and Benefit Stream

- All Project, 153 Oases - (Unit: D., '000)

No	Year	Project Cost	O/M Cost	Total	Irrigation Benefit	Balance
		(a)	(b)	(a + b = c)	(d)	(c - d)
1	1997	711.0	0.0	711.0	0.0	-711.0
2	1998	14,330.0	0.0	14,330.0	0.0	-14,330.0
3	1999	22,439.0	129.0	22,568.0	597.0	-21,971.0
4	2000	23,566.0	360.4	23,926.4	2,264.4	-21,662.0
5	2001	13,653.0	603.4	14,256.4	5,055.8	-9,200.6
6	2002	4,069.0	747.9	4,816.9	8,516.0	3,699.1
7	2003		798.1	798.1	12,208.2	11,410.1
8	2004		798.1	798.1	15,303.5	14,505.4
9	2005		798.1	798.1	17,328.4	16,530.3
10	2006		798.1	798.1	18,229.3	17,431.2
11	2007		798.1	798.1	18,461.4	17,663.3
12	2008		798.1	798.1	18,461.4	17,663.3
13	2009		798.1	798.1	18,461.4	17,663.3
14	2010		798.1	798.1	18,461.4	17,663.3
15	2011		798.1	798.1	18,461.4	17,663.3
16	2012		798.1	798.1	18,461.4	17,663.3
17	2013		798.1	798.1	18,461.4	17,663.3
18	2014		798.1	798.1	18,461.4	17,663.3
19	2015		798.1	798.1	18,461.4	17,663.3
20	2016		798.1	798.1	18,461.4	17,663.3
21	2017		798.1	798.1	18,461.4	17,663.3
22	2018		798.1	798.1	18,461.4	17,663.3
23	2019		798.1	798.1	18,461.4	17,663.3
24	2020		798.1	798.1	18,461.4	17,663.3
25	2021		798.1	798.1	18,461.4	17,663.3

Project Area : 23,435 ha

Project Cost : 78,768 x ,000 D.

3,361 D./ha

	NPV	Cost	Benefit	B - C
	10% =	61,127	91,860	30,733
	7.5% =	67,346	124,106	56,760
	5% =	74,816	171,730	96,914

Sensitivity data:

Item	(%)
Cost Up	0
Benefit Down	0
EIRR	15.7%

Cost Up (%)	Benefit Down (%) -10	0	20	B/C
-10	18.9%	17.3%	13.9%	1.50
-5	18.0%	16.5%	13.1%	1.84
0	17.1%	15.7%	12.4%	2.30
5	16.4%	14.9%	11.8%	
10	15.7%	14.2%	11.2%	
20	14.4%	13.0%	10.0%	

Table K.2.4.3 Economic Evaluation (EIRR, B/C,and B-C) for 153 Oases

Code No	Name of Oasis	Area	Project Cost	Irrigation Benefit	Evaluation EIRR	B/C	B-C
		(ha)	(D. ,000)	(D. ,000)		(7.5%)	(7.5%)
Gafsa Governorate							
GF - 1	Kasba	698	1,268	420.5	21.2%	2.58	1,762
GF - 2	Sud Ouest	703	1,620	640.8	24.6%	3.04	2,672
GF - 3	El Guettar	450	1,287	461.4	23.0%	2.81	1,937
GF - 4	Lalla	700	1,595	461.7	18.8%	2.22	1,577
GF - 5	El Ksar	578	1,133	381.2	21.5%	2.54	1,368
GF - 6	Oued Shili	56	166	52.7	20.8%	2.48	205
GF - 7	Thelja	65	350	69.8	13.7%	1.61	171
GF - 8	Segdoud	217	853	354.2	26.0%	3.23	1,515
	Sub-total (8)	3,467	8,272	2,842.3	22.0%	2.66	11,232
Tozeur Governorate							
TZ - 1	Tozeur	929	2,886	645.4	14.9%	1.74	1,803
TZ - 2	Kastilia	50	138	32.0	15.7%	1.88	117
TZ - 3	Oued El Kouche	62	197	33.2	11.4%	1.37	71
TZ - 4	Nefflayette	72	205	39.2	13.0%	1.56	110
TZ - 5	Chebika	90	261	33.5	9.3%	1.17	43
TZ - 6	Helba Est	75	362	72.6	13.8%	1.65	224
TZ - 7	Helba Ouest	50	114	25.9	15.4%	1.83	92
TZ - 8	Jhim 1	40	156	55.8	23.2%	2.93	289
TZ - 9	Jhim 2	167	667	121.3	12.3%	1.47	293
TZ - 10	Ibn Chabbat 3	325	1,590	54.3	xxx *	0.28	-1,058
TZ - 11	Nefta	852	2,162	803.9	23.4%	2.85	3,244
TZ - 12	Ghardgaya	40	163	33.3	13.9%	1.64	93
TZ - 13	Ibn Chabbat 1	240	700	65.8	4.5% *	0.77	-137
TZ - 14	Ibn Chabbat 2	272	1,211	73.2	4.5% *	0.78	-141
TZ - 15	Draa Sud	198	93	12.3	6.5% *	0.92	-7
TZ - 16	Hazoua 1	72	389	66.4	11.5%	1.38	130
TZ - 17	Hazoua 2	48	199	61.8	20.6%	2.50	265
TZ - 18	Hazoua 3	238	928	284.6	20.2%	2.41	1,086
TZ - 19	Oued Loghrissi	78	357	57.7	10.7%	1.30	96
TZ - 20	Tozrarit	48	192	33.8	11.6%	1.38	61
TZ - 21	Cedada	55	300	56.8	12.7%	1.50	122
TZ - 22	Dghoumes	104	438	85.8	13.0%	1.52	183
TZ - 23	Degache	822	2,718	662.9	16.2%	1.89	1,935
TZ - 24	Chakmou	90	227	55.4	16.3%	1.90	171
TZ - 25	El Hamma	400	1,119	376.7	21.6%	2.56	1,351
TZ - 26	Tamerza	80	488	51.5	5.4% *	0.83	-66
TZ - 27	Chebika	23	91	6.7	1.5% *	0.58	-32
TZ - 28	Foum El Khanga	48	212	13.0	-0.3% *	0.48	-90
TZ - 29	Mides	29	79	8.5	5.5% *	0.84	-10
TZ - 30	Ain El Karma	25	117	8.6	1.5% *	0.58	-40
	Sub-total (30)	5,622	18,759	3,935.9	13.9%	1.64	10,200
Kebili Governorate							
KB - 1	Bechri	162	797	132.4	12.1%	1.45	334
KB - 2	Bouabdallah	270	1,027	234.0	15.5%	1.85	804
KB - 3	Fatnassa	205	628	94.4	9.8%	1.21	124
KB - 4	El Gliaa	94	442	90.1	14.0%	1.67	285
KB - 5	Menchia	140	786	201.7	17.5%	2.11	834
KB - 6	Nagga	181	461	126.8	18.4%	2.21	520
KB - 7	Oum Somaa	162	837	195.9	16.0%	1.91	698
KB - 8	Oued Zira	176	567	189.8	21.8%	2.70	896
KB - 9	Ouled Touati	62	231	83.1	23.3%	2.94	431
KB - 10	Tenchig	54	219	62.3	19.1%	2.33	280
KB - 11	Zaouiet El Anes	125	278	93.0	21.7%	2.67	437
KB - 12	Zaouiet El Harth	81	329	128.9	25.0%	3.21	697
KB - 13	Zaret Louhichi	86	289	56.5	13.4%	1.60	166
KB - 14	Chouchet Nagga	26	88	18.5	14.4%	1.71	61
KB - 15	Guataya	150	305	131.8	26.6%	3.44	701
KB - 16	Jedida	133	731	137.6	12.9%	1.53	360
KB - 17	Mansoura	86	494	127.9	17.6%	2.13	533
KB - 18	Rabta	162	682	149.6	15.0%	1.78	492
KB - 19	Telmine	240	1,097	249.8	15.5%	1.85	861
KB - 20	Tembib	118	349	62.8	12.1%	1.45	146
KB - 21	Tombar	127	591	106.6	12.3%	1.47	255
KB - 22	Limagues	57	198	41.3	14.3%	1.70	134
KB - 23	Mazraa Neji	66	348	63.2	12.4%	1.49	164
KB - 24	Oum El Farh 1 et 2	55	79	28.2	22.8%	2.84	143
KB - 25	Stifimi	82	154	27.2	11.8%	1.42	63
KB - 26	Saidane	30	89	21.3	16.3%	1.95	82
KB - 27	Barghouthia	52	129	47.4	23.6%	2.98	247
KB - 28	Bazma	146	473	82.6	11.6%	1.38	156
KB - 29	B'chelli	135	512	101.4	13.3%	1.57	252
KB - 30	Bhdette	75	202	76.7	24.2%	3.02	367
KB - 31	Zaroine	70	184	79.4	26.8%	3.43	402
KB - 32	Jemna	112	116	27.0	15.1%	1.75	79
KB - 33	Mtouria	81	158	53.9	22.0%	2.69	242
KB - 34	Msaid	95	316	112.2	23.0%	2.84	520
KB - 35	Rahmat	85	299	55.5	12.5%	1.49	130
KB - 36	Ras El Ain	268	921	164.5	11.8%	1.40	305
KB - 37	Souk El Baiez	65	193	46.6	16.3%	1.93	160
KB - 38	Ben Zitoun 1 et 2	147	473	156.7	21.6%	2.62	662
KB - 39	Bourzine	94	279	52.2	12.6%	1.49	123
KB - 40	Gueliada	103	260	91.6	22.6%	2.77	399
KB - 41	Kelwanen	47	225	50.8	15.4%	1.82	164
KB - 42	Klibia	92	267	39.0	9.3%	1.16	39
KB - 43	Sidi Hamed	100	239	73.3	20.2%	2.44	309
KB - 44	Atilet	220	872	169.6	13.1%	1.55	409
KB - 45	Douz	280	778	186.0	15.9%	1.84	527
KB - 46	El Ghoula	75	292	19.7	0.6% *	0.53	-114
KB - 47	El Golaa	65	274	19.8	1.3% *	0.57	-98
KB - 48	Grad	111	712	47.0	0.3% *	0.52	-273
KB - 49	El H'say	90	135	42.1	20.2%	2.38	159
KB - 50	Nouiel	97	271	85.3	20.6%	2.45	328
KB - 51	Zaafrane	101	128	7.4	-1.8% *	0.43	-60
KB - 52	Bouhamza	80	290	58.1	13.4%	1.57	137
KB - 53	Ksar Ghilane	100	450	75.7	10.9%	1.31	111
KB - 54	Sakkouma	80	454	31.0	0.8% *	0.54	-172
KB - 55	Tarfaya	77	300	13.9	-3.0% *	0.36	-157
KB - 56	Dhomrana	45	193	30.3	10.1%	1.23	37
KB - 57	Smida	64	206	40.7	13.2%	1.55	91
KB - 58	Ghidma	80	169	55.7	21.3%	2.49	197
KB - 59	Sabria	60	317	91.1	19.0%	2.21	294
KB - 60	El Faouar 1	87	309	75.4	16.2%	1.87	207
KB - 61	El Faouar 2	80	275	45.0	10.4%	1.25	53
KB - 62	Bechri	100	299	68.5	15.2%	1.75	173
KB - 63	Dergine	72	368	8.9	xxx *	0.19	-229
KB - 64	Matrouha	100	401	93.7	15.5%	1.77	229
KB - 65	Regim Maatoug 1	104	412	62.9	8.5%	1.08	26
KB - 66	Regim Maatoug 2	96	294	46.4	9.9%	1.21	47
KB - 67	Tarfayet Elma	52	190	39.0	13.6%	1.57	84
	Sub-total (67)	7,213	25,761	5,588.7	14.5%	1.71	16,256
Gabes Governorate							
GB - 1	Ain Zrig	140	283	82.7	19.2%	2.31	352
GB - 2	Temouia 1	40	104	16.7	10.7%	1.30	31
GB - 3	Temouia 2	20	112	16.8	9.9%	1.23	25
GB - 4	Zrig Oukhlania	30	122	18.4	10.0%	1.24	28
GB - 5	Teboulbou	520	2,152	511.3	16.0%	1.88	1,641
GB - 6	Oasis de Gabes	734	1,886	634.0	21.4%	2.60	2,552
GB - 7	Limaoua 1 et 2	148	628	141.6	15.4%	1.85	509
GB - 8	M'dou	40	204	36.5	12.2%	1.47	92
GB - 9	Chott El Ferik	31	52	15.5	19.5%	2.35	70
GB - 10	Bouchamma	143	246	83.0	21.6%	2.66	388
GB - 11	Mahjoub	374	1,270	390.6	20.2%	2.43	1,569
GB - 12	Salem	99	379	85.3	15.3%	1.80	272
GB - 13	Sboui	72	337	83.1	16.7%	1.98	298
GB - 14	Faycal	260	982	212.5	14.6%	1.71	604
GB - 15	M'ziraa Ghannouch	280	1,365	254.1	12.5%	1.48	564
GB - 16	Metouia	268	794	238.9	19.8%	2.37	943
GB - 17	Ouedhref	263	1,033	431.8	26.2%	3.32	2,058
GB - 18	Aouinette	232	748	145.1	13.0%	1.54	347
GB - 19	Chenchou 1	57	243	46.8	13.0%	1.55	118
GB - 20	Chenchou 2	40	190	31.8	11.2%	1.35	59
GB - 21	Tekouri	32	189	45.4	16.3%	1.94	157
GB - 22	Hamma Oasis	400	1,383	488.2	22.6%	2.73	1,920
GB - 23	Mziraa Hamma	80	345	89.3	17.5%	2.08	331
GB - 24	Bechima 1	280	1,020	137.6	8.3%	1.07	59
GB - 25	Bechima 2	290	1,189	291.1	16.5%	1.93	964
GB - 26	Khebayet	96	192	42.9	15.0%	1.76	132
GB - 27	Ben Ghilouf	180	225	63.8	18.3%	2.15	233
GB - 28	Ghib Dokhane	70	166	24.7	9.5%	1.18	26
GB - 29	Oued Nekhla	30	65	16.9	17.3%	2.04	62
GB - 30	Arram	163	866	126.5	9.1%	1.14	96
GB - 31	Mareth 1	100	453	77.3	11.1%	1.33	118
GB - 32	Mareth 2	180	869	190.3	14.4%	1.67	450
GB - 33	Mareth 3	30	133	18.4	8.5%	1.09	10
GB - 34	Mareth 5	115	824	172.7	14.1%	1.64	418
GB - 35	Mareth 6	88	299	82.2	18.3%	2.15	286
GB - 36	Zarat 2	174	850	128.7	9.5%	1.18	121
GB - 37	Zerkine 1 et 3	116	247	48.4	12.8%	1.49	99
GB - 38	Zerkine 2	156	630	88.6	8.6%	1.09	45
GB - 39	Ayoune Zerkine	30	90	17.6	13.0%	1.52	39
GB - 40	Madssia	58	221	9.3	xxx *	0.33	-122
GB - 41	Kettana 1	98	429	92.9	15.2%	1.83	289
GB - 42	Kettana 3	140	583	95.1	10.5%	1.27	124
GB - 43	Kettana 4	125	482	96.5	13.3%	1.56	214
GB - 44	Sidi Sellam	120	339	95.0	18.5%	2.15	315
GB - 45	Zrig Barrania	71	218	29.1	8.0%	1.04	8
GB - 46	Ghandri	30	119	4.5	xxx *	0.30	-69
GB - 47	Laaradh 1	35	185	19.7	5.2% *	0.82	-25
GB - 48	Laaradh 3	55	235	19.7	2.4% *	0.64	-64
	Sub-total (48)	7,133	25,976	6,094.5	15.9%	1.85	18,814
	Total (153)	23,435	78,768	18,461.4	15.2%	1.84	56,760

Ref. : K 2 3 3, K 2.4 1 and K 2 4 2

TABLE K.3.1.1 (1) Financial Crop Budget per Ha under Without and With Project Condition

- PALMIERS DATTIERS - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	25 years (D.)
GROSS INCOME															
Production	kg					1,200	3,500	4,600	5,800	5,800	5,800	26,700	1.025	27,368 (c)	116,543
Production Value	D.					1,230	3,588	4,715	5,945	5,945	5,945			(1,095)	(4,662)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	200	20									220	1,500	330	330
2) FYM/ Compost	ton	5			5			5			5	20	10,000	200	450
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	100	100	150	150	150	150	150	150	150	1,300	0.230	299	817
- Super 45 (TSP)	kg	50	75	75	100	100	100	100	100	100	100	900	0.238	214	571
- Potassium sulfate	kg												0.422		
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18,700	318	879
- Fungicides	kg				2	2	4	4	4	4	4	24.0	25,200	605	2,117
4) Water	m3	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	75,000	0.020	1,500	3,750
														3,466	8,913
														(139)	(357)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Cleaning of plant	man-day														
7) Water management	man-day														
8) Pollination	man-day					3	5	8	8	8	8	40	5,800	232	928
9) Harvesting	man-day					10	20	25	30	30	30	145	6,800	986	4,046
10) Post harvesting	man-day														
Sub-total						13	25	33	38	38	38	185		1,218	4,974
												(19)		(49)	(199)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			234	694
														(9)	(28)
Total Production Cost	D.	550	252	240	363	401	537	644	627	627	629			4,918 (d)	14,582
														(197)	(583)
Net Return per Ha (c - d)	D.	-550	-252	-240	-363	829	3,051	4,071	5,318	5,318	5,266		Total (D./ha/year)	22,449	101,961
														(898)	(4,079)

- PALMIERS DATTIERS - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	25 years (D.)
GROSS INCOME															
Production	kg					1,300	4,000	5,300	6,600	6,600	6,600	30,400	1.025	31,160 (c)	132,635
Production Value	D.					1,333	4,100	5,433	6,765	6,765	6,765			(1,246)	(5,305)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	200	20									220	1,500	330	330
2) FYM/ Compost	ton	5			5			5			5	20	10,000	200	450
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	120	120	120	180	180	180	180	180	180	1,490	0.230	343	964
- Super 45 (TSP)	kg	50	90	90	120	120	120	120	120	120	120	1070	0.238	255	683
- Potassium sulfate	kg		45	45	60	60	60	60	60	60	60	510	0.422	215	595
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18,700	318	879
- Fungicides	kg				2	2	4	4	4	4	4	24.0	25,200	605	2,117
4) Water	m3	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	11,700	117,000	0.020	2,340	5,850
														4,605	11,867
														(184)	(475)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Cleaning of plant	man-day														
7) Water management	man-day														
8) Pollination	man-day					3	5	8	8	8	8	40	5,800	232	928
9) Harvesting	man-day					10	25	40	45	45	45	210	6,800	1,428	6,018
10) Post harvesting	man-day														
Sub-total						13	30	48	53	53	53	250		1,660	6,946
												(25)		(66)	(278)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			313	941
														(13)	(38)
Total Production Cost	D.	638	368	356	476	528	700	878	861	861	913			6,579 (d)	19,754
														(263)	(790)
Net Return per Ha (c - d)	D.	-638	-368	-356	-476	805	3,400	4,555	5,904	5,904	5,852		Total (D./ha/year)	24,581	112,881
														(983)	(4,515)

Source : Farm economy survey by JICA Team, 1995

TABLE K.3.1.1 (2) Financial Crop Budget per Ha under Without and With Project Condition

- OLIVE - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 year (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					1,200	3,700	4,900	6,100	6,100	6,100	28,100	0.400	11,240 (c)	47,840
Production Value	D.					480	1,480	1,960	2,440	2,440	2,440			(450)	(1,914)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	150	15									165	2.000	330	330
2) FYM/ Compost	ton	3			3			3			3	12	10.000	120	270
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	75	75	75	75	75	75	75	700	0.230	161	420
- Super 45 (TSP)	kg	50	50	75	75	75	75	75	75	75	75	700	0.238	167	434
- Potassium sulfate	kg												0.422		
3) Agro-chemicals															
- Insecticides	lit		1	2	2	4	4	4	4	4	4	29	18.700	542	1,664
- Fungicides	kg												25.200		
4) Water	m3	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	4,630	46,300	0.020	926	2,315
														2,246	5,433
														(90)	(217)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	15	15	15	15	15	15	108	5.800	626	1,931
7) Water management	man-day														
8) Harvesting	man-day					5	10	12	15	15	15	72	6.800	490	2,020
9) Post harvesting	man-day														
Sub-total			3	5	10	20	25	27	30	30	30	180		1,116	3,951
												(18)		(45)	(158)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			168	469
														(7)	(19)
Total Production Cost	D.	468	191	204	266	340	375	421	411	411	443			3,530 (d)	9,854
														(141)	(394)
Net Return per Ha (c - d)	D.	-468	-191	-204	-266	140	1,105	1,539	2,029	2,029	1,997		Total (D./ha/year)	2,710	37,956
														(108)	(1,520)

- OLIVE - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 year (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					1,400	4,100	5,400	6,800	6,800	6,800	31,300	0.400	12,520 (c)	53,320
Production Value	D.					560	1,640	2,160	2,720	2,720	2,720			(501)	(2,133)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	150	15									165	2.000	330	330
2) FYM/ Compost	ton	3			3			3			3	12	10.000	120	270
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.230	201	546
- Super 45 (TSP)	kg	50	50	75	100	100	100	100	100	100	100	875	0.238	208	565
- Potassium sulfate	kg	25	38	38	50	50	50	50	50	50	50	451	0.422	190	507
3) Agro-chemicals															
- Insecticides	lit		1	2	2	4	4	4	4	4	4	29	18.700	542	1,664
- Fungicides	kg		1	1	1	1	1	1	1	1	1	9	25.200	227	605
4) Water	m3	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	58,200	0.020	1,164	2,910
														2,983	2,397
														(119)	(296)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	15	15	15	15	15	15	108	5.800	626	1,931
7) Water management	man-day														
8) Harvesting	man-day					5	12	16	18	18	18	87	6.800	592	2,428
9) Post harvesting	man-day														
Sub-total			3	5	10	20	27	31	33	33	33	195		1,218	4,359
												(20)		(49)	(174)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			230	588
														(8)	(24)
Total Production Cost	D.	504	259	272	352	426	476	536	518	518	550			4,411 (d)	12,344
														(176)	(494)
Net Return per Ha (c - d)	D.	-504	-259	-272	-352	134	1,164	1,624	2,202	2,202	2,170		Total (D./ha/year)	8,109	40,976
														(324)	(1,639)

Source : Farm economy survey by JICA Team, 1995

TABLE K.3.1.1 (3) Financial Crop Budget per Ha under Without and With Project Condition

- POMEGRANATE - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					2,000	6,100	8,100	10,100	10,100	10,100	46,500	0.287	13,336 (c)	56,826
Production Value	D.					574	1,751	2,325	2,899	2,899	2,899			(534)	(2,273)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	0.500	220	220
2) FYM/ Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.230	201	546
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.238	104	282
- Potassium sulfate	kg	50	50	75	100	100	100	100	100	100	100	875	0.422	369	1,002
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	2	4	4	4	4	4	4	4	31	25.200	781	2,293
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														3,403	8,698
														(136)	(348)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8) Harvesting	man-day					10	20	30	40	40	40	180	6.800	1,224	5,304
9) Post harvesting	man-day														
Sub-total			3	5	10	20	30	40	50	50	50	258		1,676	6,626
												(26)		(67)	(265)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			254	766
														(10)	(31)
Total Production Cost	D.	430	253	310	467	485	551	681	700	700	752			5,334 (d)	16,090
														(213)	(644)
Net Return per Ha (c - d)	D.	-430	-253	-310	-467	89	1,194	1,644	2,199	2,199	2,147		Total (D./ha/year)	8,012	40,736
														(320)	(1,629)

- POMEGRANATE - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					2,400	7,100	9,400	11,800	11,800	11,800	54,300	0.287	15,584 (c)	66,383
Production Value	D.					689	2,038	2,698	3,387	3,387	3,387			(623)	(2,655)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	0.500	220	220
2) FYM/ Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium nitrate	kg	50	50	100	125	125	125	125	125	125	125	1,075	0.230	247	679
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.238	149	417
- Potassium sulfate	kg	50	50	100	125	125	125	125	125	125	125	1,075	0.422	454	1,245
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	2	4	4	4	4	4	4	4	31	25.200	781	2,293
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														4,019	10,307
														(161)	(412)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8) Harvesting	man-day					10	25	35	45	45	45	205	6.800	1,394	5,984
9) Post harvesting	man-day														
Sub-total			3	5	10	20	35	45	55	55	55	283		1,846	7,306
												(28)		(74)	(292)
Miscellaneous (5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			293	881
														(12)	(35)
Total Production Cost	D.	476	299	377	536	555	662	786	805	805	851			6,158 (d)	18,494
														(246)	(740)
Net Return per Ha (c - d)	D.	-476	-299	-377	-536	134	1,376	1,912	2,582	2,582	2,530		Total (D./ha/year)	9,426	47,889
														(377)	(1,915)

Source : Farm economy survey by JICA Team, 1995

TABLE K.3.1.1 (4) Financial Crop Budget per Ha under Without and With Project Condition

- APLICOT - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					2,500	7,600	10,000	12,600	12,600	12,600	57,900	0.493	28,545 (c)	121,222
Production Value	D.					1,233	3,747	4,930	6,212	6,212	6,212			(1,142)	(4,869)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	0.800	352	352
2) FYM/Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	75	150	150	150	150	150	150	150	1,225	0.230	282	799
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.238	104	282
- Potassium Sulfate	kg	50	50	75	100	100	100	100	100	100	100	875	0.422	369	1,002
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	2	4	4	4	4	4	4	4	31	25.200	781	2293
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														3,616	9,083
														(145)	(363)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8) Harvesting	man-day					10	30	50	60	60	60	270	6.800	1,836	7,956
9) Post harvesting	man-day														
Sub-total			3	5	10	20	40	60	70	70	70	348		2,288	9,278
												(35)		(92)	(371)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			295	918
														(12)	(37)
Total Production Cost	D.	556	265	310	479	497	640	836	854	854	907			6,199 (d)	19,279
														(248)	(771)
Net Return per Ha (c - d)	D.	-556	-265	-310	-479	736	3,107	4,094	5,358	5,358	5,305		Total (D./ha/year)	22,345	102,443
														(894)	(4,098)

- APLICOT - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					2,800	8,400	11,200	14,000	14,000	14,000	64,400	0.493	31,749 (c)	135,279
Production Value	D.					1,380	4,141	5,522	6,902	6,902	6,902			(1,270)	(5,411)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	0.800	352	352
2) FYM/Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	150	180	180	180	180	180	180	180	1,510	0.230	347	968
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.238	149	417
- Potassium Sulfate	kg	50	50	100	125	125	125	125	125	125	125	1095	0.422	454	1,245
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	2	4	4	4	4	4	4	4	31	25.200	781	2293
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														4,251	10,729
														(170)	(429)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8) Harvesting	man-day					10	30	50	70	70	70	300	6.800	2,040	9,180
9) Post harvesting	man-day														
Sub-total			3	5	10	20	40	60	80	80	80	378		2,492	10,502
												(38)		(100)	(420)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			332	1,062
														(13)	(42)
Total Production Cost	D.	602	312	389	549	568	711	906	997	997	1,049			7,080 (d)	22,293
														(283)	(892)
Net Return per Ha (c - d)	D.	-602	-312	-389	-549	812	3,430	4,616	5,905	5,905	5,853		Total (D./ha/year)	24,669	112,986
														(987)	(4,519)

Source : Farm economy survey by JICA Team, 1995

TABLE K3.1.1 (5) Financial Crop Budget per Ha under Without and With Project Condition

- FIG - Without Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					850	2,500	3,400	4,300	4,300	4,300	19,650	0.385	7,565 (c)	32,398
Production Value	D.					327	963	1,309	1,656	1,656	1,656			(303)	(1,296)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	1.000	440	440
2) FYM/ Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	75	100	100	100	100	100	100	100	875	0.230	201	546
- Super 45 (TSP)	kg	25	25	35	50	50	50	50	50	50	50	435	0.238	104	282
- Potassium Sulfate	kg												0.422		
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	1	1	1	1	1	1	1	1	9	25.200	227	605
4) Water	m3	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	6,050	60,500	0.020	1,210	3,025
														2,699	6,221
														(108)	(249)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8 Harvesting	man-day					10	20	30	40	40	40	180	6.800	1,224	5,304
9 Post harvesting	man-day														
Sub-total			3	5	10	20	30	40	50	50	50	258		1,676	6,626
												(26)		(67)	(265)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			443	966
														(18)	(39)
Total Production Cost	D.	618	252	250	343	362	433	557	576	576	628			4,819 (d)	13,829
														(193)	(553)
Net Return per Ha (c - d)	D.	-618	-252	-250	-343	-35	530	752	1,080	1,080	1,028		Total (D./ha/year)	2,746	18,578
														(110)	(743)

- FIG - With Project Condition

Items	Unit	Year 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total (10 years) (a)	Unit Price (b) (D.)	Amount 10 years (a x b) (D.)	Amount 25 years (D.)
GROSS INCOME															
Production	kg					970	2,900	3,900	4,800	4,800	4,800	22,170	0.385	8,535 (c)	36,255
Production Value	D.					373	1,117	1,502	1,848	1,848	1,848			(341)	(1,450)
PRODUCTION COST															
Farm Inputs															
1) Seeds	seedling	400	40									440	1.000	440	440
2) FYM/ Compost	ton	5			5			5			5	20	10.000	200	450
3) Chemical Fertilizers															
- Ammonium Nitrate	kg	50	50	100	125	125	125	125	125	25	125	975	0.230	224	656
- Super 45 (TSP)	kg	25	25	50	75	75	75	75	75	75	75	625	0.238	149	417
- Potassium Sulfate	kg												0.422		
3) Agro-chemicals															
- Insecticides	lit		1	2	2	2	2	2	2	2	2	17	18.700	318	879
- Fungicides	kg		1	3	3	3	3	3	3	3	3	25	25.200	630	1764
4) Water	m3	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250	82,500	0.020	1,650	4,125
														2,611	8,730
														(144)	(349)
Labour Requirement															
1) Land preparation	man-day														
2) Transport of seedling	man-day														
3) Transplanting	man-day														
4) Fertilizer application	man-day														
5) Weeding	man-day														
6) Trimming	man-day		3	5	10	10	10	10	10	10	10	78	5.800	452	1,322
7) Water management	man-day														
8 Harvesting	man-day					10	25	35	45	45	45	205	6.800	1,394	5,984
9 Post harvesting	man-day														
Sub-total			3	5	10	20	35	45	55	55	55	283		1,846	7,306
												(28)		(74)	(292)
Miscellaneous															
(5 % of above production cost)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%			553	1,256
														(22)	(50)
Total Production Cost	D.	664	298	359	454	473	580	704	823	699	776			6,010 (d)	17,292
														(240)	(692)
Net Return per Ha (c - d)	D.	-664	-298	-359	-454	-100	537	798	1,125	1,149	1,072		Total (D./ha/year)	2,525	18,963
														(101)	(758)

Source : Farm economic survey by JICA Team, 1995

Table K.3.1.1 (6) Financial Crop Budget per Ha under Without and With Project Condition

Items	Unit	CARROT						TURNIP					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	kg	0.109	20,500	2,235	0.109	23,100	2,518	0.201	20,000	4,020	0.201	22,500	4,523
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	24.100	5.0	121	24.100	5.0	121	13.500	8.0	108	13.500	8.0	108
2. FYM/ Compost	ton	10.000	2.5	25	10.000	3.0	30	10.000	2.5	25	10.000	3.0	30
3. Chemical Fertilizer													
- Ammonium Nitrate	kg	0.230	100	23	0.230	125	29	0.230	100	23	0.230	125	29
- Super 45 (TSP)	kg	0.238	100	24	0.238	125	30	0.238	125	30	0.238	150	36
- Potassium nitrate	kg	0.880			0.880			0.880			0.880		
- Potassium sulfate	kg	0.422	50	21	0.422	50	21	0.422			0.422	50	21
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				381			425			374			419
Labor Requirement													
1. Land preparation	man-day												
2. Nursery/ sowing	man-day												
3. Transplanting/ Sowing	man-day												
4. Fertilizer application	man-day												
5. Plant protection	man-day												
6. Hoeing / Weeding	man-day												
7. Water management	man-day												
8. Harvesting	man-day	5.800	60.0	348	5.800	70.0	406	5.800	60.0	348	5.800	70.0	406
9. Post harvesting	man-day												
Total			60.0	348		70.0	406		60.0	348		70.0	406
Miscellaneous													
5 % of above cost				36			42			36			41
Total Production Cost	D.			765			873			758			866
Net Return per Ha	D.			1,470			1,645			3,262			3,657

Items	Unit	ONION						KIDNEY BEAN					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	(kg)	0.186	21,000	3,906	0.186	23,800	4,427	0.370	10,400	3,848	0.370	11,700	4,329
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	59.000	3.0	177	59.000	3	177	1.500	6.0	9	1.500	6	9
2. FYM/ Compost	ton	10.000	2.5	25	10.000	3.0	30	10.000	2.5	25	10.000	3.0	30
3. Chemical Fertilizer													
- Ammonium nitrate	kg	0.230	100	23	0.230	125	29	0.230	50	12	0.230	75	17
- Super 45 (TSP)	kg	0.238	100	24	0.238	125	30	0.238	125	30	0.238	150	36
- Potassium nitrate	kg	0.880			0.880			0.880			0.880	75	66
- Potassium sulfate	kg	0.422	50	21	0.422	40	17	0.422	50	21	0.422		
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				437			482			263			374
Labor Requirement													
1. Land preparation	man-day												
2. Nursery	man-day												
3. Transplanting/ Sowing	man-day												
4. Fertilizer application	man-day												
5. Plant protection	man-day												
6. Hoeing / Weeding	man-day												
7. Water management	man-day												
8. Harvesting	man-day	5.800	60.0	348	5.800	60.0	348	5.800	60.0	348	5.800	80.0	464
9. Post harvesting	man-day												
Total			60.0	348		60.0	348		60.0	348		80.0	464
Miscellaneous													
5 % of above cost				39			41			31			42
Total Production Cost	D.			824			871			642			880
Net Return per Ha	D.			3,082			3,556			3,206			3,449

Source : Farm economic survey by JICA Team, 1995

Table K.3.1.1 (7) Financial Crop Budget per Ha under Without and With Project Condition

Items	Unit	PEPPER						TOMATO					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	kg	0.874	9,200	8,041	0.874	10,300	9,002	0.310	20,900	6,479	0.310	23,400	7,254
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	156.200	5.0	781	156.200	5.0	781	72.500	5.0	363	72.500	5.0	363
2. FYM/ Compost	ton	10.000	2.5	25	10.000	3.0	30	10.000	2.5	25	10.000	3.0	30
3. Chemical Fertilizer													
- Ammonium Nitrate	kg	0.230	100	23	0.230	125	29	0.230	100	23	0.230	125	29
- Super 45 (TSP)	kg	0.238	125	30	0.238	125	30	0.238	125	30	0.238	150	36
- Potassium nitrate	kg	0.880			0.880			0.880			0.880		
- Potassium sulfate	kg	0.422			0.422	50	21	0.422			0.422	50	21
4. Agro-chemicals													
- Insecticides	lit	18.700	2	37	18.700	2	37	18.700	2	37	18.700	2	37
- Fungicides	kg	25.200	4	101	25.200	4	101	25.200	4	101	25.200	4	101
5. Water	m3	0.020	2,500	50	0.020	3,900	78	0.020	2,500	50	0.020	3,900	78
Sub-total				1,047			1,086			628			673
Labor Requirement													
1. Land preparation	man-day												
2. Nursery/ sowing	man-day												
3. Transplanting/ Sowing	man-day												
4. Fertilizer application	man-day												
5. Plant protection	man-day												
6. Hoeing / Weeding	man-day												
7. Water management	man-day												
8. Harvesting	man-day	5.800	60.0	348	5.800	70.0	406	5.800	60.0	348	5.800	70.0	406
9. Post harvesting	man-day												
Total			60.0	348		70.0	406		60.0	348		70.0	406
Miscellaneous													
5 % of above cost				70			75			49			54
Total Production Cost	D.			1,465			1,566			1,025			1,133
Net Return per Ha	D.			6,576			7,436			5,454			6,121

Items	Unit	LUCERN						HENNA					
		Without Project Condition			With Project Condition			Without Project Condition			With Project Condition		
		Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)	Unit Price (D.)	Quantity	Amount (D.)
GROSS INCOME													
Production	(kg)	0.053	54,400	2,883	0.053	65,300	3,461	1.839	1,400	2,575	1.839	1,700	3,126
PRODUCTION COST													
Farm Inputs													
1. Seeds	kg	4.300	10.0	43	4.300	10	43	2.100	20.0	42	2.100	20	42
2. FYM/ Compost	ton	10.000	1.0	10	10.000	1.5	15	10.000	1.0	10	10.000	1.5	15
3. Chemical Fertilizer													
- Ammonium nitrate	kg	0.230	75	17	0.230	75	17	0.230	75	17	0.230	75	17
- Super 45 (TSP)	kg	0.238	125	30	0.238	150	36	0.238	125	30	0.238	150	36
- Potassium nitrate	kg	0.880			0.880			0.880			0.880		
- Potassium sulfate	kg	0.422			0.422	50	21	0.422			0.422	50	21
4. Agro-chemicals													
- Insecticides	lit	18.700			18.700			18.700	2	37	18.700	2	37
- Fungicides	kg	25.200			25.200			25.200	4	101	25.200	4	101
5. Water	m3	0.020	7,500	150	0.020	11,700	234	0.020	7,500	150	0.020	11,700	234
Sub-total				250			345			387			492
Labor Requirement													
1. Land preparation	man-day												
2. Nursery	man-day												
3. Transplanting/ Sowing	man-day												
4. Fertilizer application	man-day												
5. Plant protection	man-day												
6. Hoeing / Weeding	man-day												
7. Water management	man-day												
8. Harvesting	man-day	5.800	60.0	348	5.800	70.0	406	5.800	45.0	261	5.800	60.0	348
9. Post harvesting	man-day												
Total			60.0	348		70.0	406		45.0	261		60.0	348
Miscellaneous													
5 % of above cost				30			38			32			42
Total Production Cost	D.			628			788			681			872
Net Return per Ha	D.			2,255			2,672			1,894			2,255

Source : Farm economic survey by JICA Team, 1995

Table K.3.1.2 Incremental Financial Net Production Value per Ha

(Unit : D./ha)

Description		Gross Income			Production Cost				Net Return
		Yield*	Unit Price	Amount	Farm Inputs	Labor Cost	Others	Total	
		(tons)	(D./kg)	(a)				(b)	(a - b)
1. Arboriculture									
1.1 Date Palm	Without Project	4.55	1.025	4,662	357	199	27	583	4,079
	With Project	5.18		5,305	475	278	37	790	4,515
	Increment	0.63		643				207	436
1.2 Olive	Without Project	4.78	0.400	1,914	217	158	19	394	1,520
	With Project	5.33		2,133	296	174	24	494	1,639
	Increment	0.55		219				100	119
1.3 Pomegranate	Without Project	7.90	0.287	2,273	348	265	31	644	1,629
	With Project	9.25		2,655	412	292	36	740	1,915
	Increment	1.35		382				96	286
1.4 Apricot	Without Project	9.88	0.493	4,869	363	371	37	771	4,098
	With Project	10.98		5,411	429	420	43	892	4,519
	Increment	1.10		542				121	421
1.5 Fig	Without Project	3.37	0.385	1,296	249	265	39	553	743
	With Project	3.77		1,450	349	292	51	692	758
	Increment	0.40		154				139	15
2. Vegetables									
2.1 Turnip* /Carrot	Without Project	20.00	0.201	4,020	374	348	36	758	3,262
	With Project	22.50		4,523	419	406	41	866	3,657
	Increment	2.50		503				108	395
2.2 Onion	Without Project	21.00	0.186	3,906	437	348	39	824	3,082
	With Project	23.80		4,427	482	348	41	871	3,556
	Increment	2.80		521				47	474
2.4 Kindey Beans	Without Project	10.40	0.370	3,848	263	348	31	642	3,206
	With Project	11.70		4,329	374	464	42	880	3,449
	Increment	1.30		481				238	243
2.5 Pepper	Without Project	9.20	0.874	8,041	1,047	348	70	1,465	6,576
	With Project	10.30		9,002	1,086	406	34	1,526	7,476
	Increment	1.10		961				61	900
2.6 Tomato	Without Project	20.90	0.310	6,479	628	348	49	1,025	5,454
	With Project	23.40		7,254	673	406	54	1,133	6,121
	Increment	2.50		775				108	667
3. Fodder Crops									
3.1 Lucern	Without Project	54.40	0.053	2,883	250	348	30	628	2,255
	With Project	65.30		3,461	345	406	38	789	2,672
	Increment	10.90		578				161	417
4. Industrial Crops									
4.1 Henna	Without Project	1.40	1.839	2,575	387	261	32	680	1,895
	With Project	1.70		3,126	482	348	41	871	2,255
	Increment	0.30		552				191	361

Remark : Figures of arboriculture crops are estimated average yield and annual cost of 25 years.
Ref. : Tables K.3.1.1 (1) to (7)

Table K.3.1.3 Future Planted Area for Typical Farm in Oasis

Description	Kasba Oasis / Gafsa				Oued Shili Oasis / Gafsa				Tozeur Oasis / Tozeur				Hazoua 3 Oasis / Tozeur			
	Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size	
	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio
A. Farm Land	698 ha		1.06 ha per farmer		56 ha		3.11 ha per farmer		929 ha		1.38 ha per farmer		238 ha		1.00 ha per farmer	
B. Planted Area	1,126 ha	161%	1.71 ha	161%	42 ha	75%	2.33 ha	75%	1,119 ha	120%	1.66 ha	120%	253 ha	106%	1.06 ha	106%
Arboriculture	(698)	(100%)	(1.06)	(100%)	(32)	(57%)	(1.78)	(57%)	(929)	(100%)	(1.38)	(100%)	(238)	(100%)	(1.00)	(100%)
- Date palm	73	10%	0.11	10%	32	57%	1.78	57%	868	93%	1.29	93%	216	91%	0.91	91%
- Olive	520	74%	0.79	74%					16	2%	0.02	2%	2	1%	0.01	1%
- Pomegranate	14	2%	0.02	2%					16	2%	0.02	2%	9	4%	0.04	4%
- Apricot	70	10%	0.11	10%					4	0%	0.01	0%	3	1%	0.01	1%
- Fig* and others	21	3%	0.03	3%					25	3%	0.04	3%	8	3%	0.03	3%
Fodder crops																
- Lucern	165	24%	0.25	24%	7	13%	0.39	13%	70	8%	0.10	8%	5	2%	0.02	2%
Winter vegetables	(146)	(21%)	(0.22)	(21%)	(3)	(5%)	(0.17)	(5%)	(65)	(7%)	(0.10)	(7%)	(6)	(3%)	(0.03)	(3%)
- Turnip* / Carrot	50	7%	0.08	7%					25	3%	0.04	3%	3	1%	0.01	1%
- Onion	50	7%	0.08	7%	1	2%	0.06	2%	30	3%	0.04	3%	2	1%	0.01	1%
- Kidney Beans	46	7%	0.07	7%	2	4%	0.11	4%	10	1%	0.01	1%	1	0%	0.00	0%
Summer vegetables	(117)	(17%)	(0.18)	(17%)					(55)	(6%)	(0.08)	(6%)	(4)	(2%)	(0.02)	(2%)
- Pepper	67	10%	0.10	10%					35	4%	0.05	4%	3	1%	0.01	1%
- Tomato	50	7%	0.08	7%					20	2%	0.03	2%	1	0%	0.00	0%
Industrial crops																
- Henna* / Tobacco																
C. Cropping Intensity	1.61		1.61		0.75		0.75		1.20		1.20		1.06		1.06	
Farm area utilization	1.45		1.45		0.75		0.75		1.15		1.15		1.05		1.05	

Description	Mansoura Oasis / Kebili				Atilet Oasis / Kebili				Oasis de Gabes / Gabes				Limaoura 1 et 2 Oasis / Gabes			
	Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size		Total Oasis Area		Land Holding Size	
	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio	Planted Area	Ratio
A. Command Area	86 ha		0.25 ha per farmer		220 ha		0.75 ha per farmer		734 ha		0.29 ha per farmer		148 ha		1.25 ha per farmer	
B. Planted Area	138 ha	160%	0.40 ha	160%	408 ha	185%	1.39 ha	185%	1,110 ha	151%	0.44 ha	151%	233 ha	157%	1.97 ha	157%
Arboriculture	(86)	(100%)	(0.25)	(100%)	(220)	(100%)	(0.75)	(100%)	(734)	(100%)	(0.29)	(100%)	(148)	(100%)	(1.25)	(100%)
- Date palm	79	92%	0.23	92%	198	90%	0.68	90%	485	66%	0.19	66%	1	1%	0.01	1%
- Olive	4	5%	0.01	5%					3	0%	0.00	0%	19	13%	0.16	13%
- Pomegranate					7	3%	0.02	3%	236	32%	0.09	32%	61	41%	0.52	41%
- Apricot					2	1%	0.01	1%	3	0%	0.00	0%	7	5%	0.06	5%
- Fig* and others	3	3%	0.01	3%	13	6%	0.04	6%	7	1%	0.00	1%	60	41%	0.51	41%
Fodder crops																
- Lucern	37	43%	0.11	43%	64	29%	0.22	29%	125	17%	0.05	17%	23	16%	0.19	16%
Winter vegetables	(7)	(9%)	(0.02)	(9%)	(109)	(50%)	(0.37)	(50%)	(28)	(4%)	(0.01)	(4%)	(32)	(22%)	(0.27)	(22%)
- Turnip* / Carrot	3	3%	0.01	3%	40	18%	0.14	18%	16	2%	0.01	2%	16	11%	0.14	11%
- Onion	3	3%	0.01	3%	40	18%	0.14	18%	10	1%	0.00	1%	14	9%	0.12	9%
- Kidney Beans	1	2%	0.00	2%	29	13%	0.10	13%	2	0%	0.00	0%	2	1%	0.02	1%
Summer vegetables	(8)	(9%)	(0.02)	(9%)	(15)	(7%)	(0.05)	(7%)	(23)	(3%)	(0.01)	(3%)	(24)	(16%)	(0.20)	(16%)
- Pepper	5	6%	0.01	6%	10	5%	0.03	5%	15	2%	0.01	2%	16	11%	0.14	11%
- Tomato	3	3%	0.01	3%	5	2%	0.02	2%	8	1%	0.00	1%	8	5%	0.07	5%
Industrial crops																
- Henna* / Tobacco									200	27%	0.08	27%	6	4%	0.05	4%
C. Cropping Intensity	1.60		1.60		1.85		1.85		1.51		1.51		1.57		1.57	
Farm area utilization	1.52		1.52		1.79		1.79		1.48		1.48		1.41		1.41	

Table K.3.1.4 (1) Typical Farm Budget under Without and With Project Condition

Description	Kasba Oasis / Gafsa											Oued Sidi Oasis / Gafsa										
	Without Project Condition					With Project Condition					Incremental Amount (B - A)	Without Project Condition					With Project Condition					Incremental Amount (B - A)
	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)
A. FARM LAND	1.06					1.06						3.11					3.11					
B. GROSS INCOME																						
Farm Income																						
Arboriculture :	1.06					1.06						1.78					1.78					
- Date	0.11	7.8	0.86	1.025	879	0.11	8.4	0.92	1.025	947	68	1.78	6.5	11.57	1.025	11.859	1.78	8.0	14.24	1.025	14.596	2,737
- Olive	0.79	8.2	6.48	0.400	2,591	0.79	8.8	6.95	0.400	2,781	190				0.400					0.400		
- Pomegranate	0.02	8.3	0.17	0.287	48	0.02	9.0	0.18	0.287	52	4				0.287					0.287		
- Apricots	0.11	19.5	2.15	0.493	1,057	0.11	21.0	2.31	0.493	1,139	82				0.493					0.493		
- Fig* / Other Fruits	0.03	8.1	0.24	0.385	94	0.03	8.7	0.26	0.385	100	6				0.385					0.385		
Fodder Crops																						
- Lucern	0.25	60.4	15.10	0.053	800	0.25	65.5	16.38	0.053	868	68	0.39	45.1	17.59	0.053	932	0.39	49.7	19.38	0.053	1,027	95
Winter Season Vegetables																						
- Turnip* / Carrot	0.08	30.2	2.42	0.201	486	0.08	32.8	2.62	0.201	527	41				0.201					0.201		
- Onion	0.08	27.2	2.18	0.186	405	0.08	29.5	2.36	0.186	439	34	0.06	20.0	1.20	0.186	223	0.06	22.1	1.33	0.186	247	24
- Kidney beans	0.07	15.1	0.98	0.370	363	0.07	16.4	1.07	0.370	394	31	0.10	10.0	1.00	0.370	370	0.10	11.1	1.11	0.370	411	41
Summer Season Vegetables																						
- Pepper	0.10	10.1	0.96	0.874	839	0.10	11.0	1.05	0.874	913	74				0.874					0.874		
- Tomato	0.08	30.2	2.27	0.310	702	0.08	32.8	2.46	0.310	763	61				0.310					0.310		
Industrial Crops																						
- Henna* / Tobacco				1.839					1.839						1.839					1.839		
Sub-total	1.71 ha	161%	(Cropping Intensity)		8,264 (a)	1.71 ha	161%	(Cropping Intensity)		8,923 (a)	659	2.33 ha	75%	(Cropping Intensity)		13,384 (a)	2.33 ha	75%	(Cropping Intensity		16,281 (a)	2,897
Off-farm Income					(b)					(b)						(b)					(b)	
Total Gross Income				(a + b) =	8,264 (c)				(a + b) =	8,923 (c)	659				(a + b) =	13,384 (c)				(a + b) =	16,281 (c)	2,897
C. GROSS OUTGOING				Unit Production Cost (D./ha)					Unit Production Cost (D./ha)						Unit Production Cost (D./ha)					Unit Production Cost (D./ha)		
Production Cost																						
Arboriculture :	1.06					1.06						1.78					1.78					
- Date	0.11			583	64	0.11			790	87	23	1.78			583	1,038	1.78			790	1,406	368
- Olive	0.79			394	311	0.79			494	390	79				394					494		
- Pomegranate	0.02			644	13	0.02			740	15	2				644					740		
- Apricots	0.11			771	85	0.11			892	98	13				771					892		
- Fig* / Other Fruits	0.03			553	17	0.03			692	21	4				553					692		
Fodder Crops																						
- Lucern	0.25			628	157	0.25			788	197	40	0.39			628	245	0.39			788	307	62
Winter Season Vegetables																						
- Turnip* / Carrot	0.08			758	61	0.08			866	69	8				758					866		
- Onion	0.08			824	66	0.08			871	70	4	0.06			824	49	0.06			871	52	3
- Kidney beans	0.07			642	42	0.07			880	57	15	0.10			642	64	0.10			880	88	24
Summer Season Vegetables																						
- Pepper	0.10			1,465	139	0.10			1,566	149	10				1,465					1,566		
- Tomato	0.08			1,025	77	0.08			1,133	85	8				1,025					1,133		
Industrial Crops																						
- Henna / Tobacco				681					872						681					872		
Subtotal	1.71 ha				1,032 (d)	1.71 ha				1,238 (d)	206	2.33 ha				1,396 (d)	2.33 ha				1,853 (d)	457
Living Expenses**	One person per year (D.)		5.33 persons/family***			One person per year (D.)		5.33 persons/family***				One person per year (D.)		5.47 persons/family***			One person per year (D.)		5.47 persons/family***			
- Food	261	45.5%			1,392	261	45.5%			1,392		261	45.5%			1,428	261	45.5%			1,428	
- Housing	104	18.1%			554	104	18.1%			554		104	18.1%			568	104	18.1%			568	
- Clothing	69	12.1%			369	69	12.1%			369		69	12.1%			379	69	12.1%			379	
- Hygienes	43	7.5%			230	43	7.5%			230		43	7.5%			236	43	7.5%			236	
- Transportation / Communication	36	6.3%			193	36	6.3%			193		36	6.3%			199	36	6.3%			199	
- Education / Culture	44	7.6%			233	44	7.6%			233		44	7.6%			239	44	7.6%			239	
- Others	17	2.9%			88	17	2.9%			88		17	2.9%			91	17	2.9%			91	
Sub-total	574	100.0%			3,059 (e)	574	100.0%			3,059 (e)		574	100.0%			3,140 (e)	574	100.0%			3,140 (e)	
Total Gross Outgoing				(d + e) =	4,091 (f)				(d + e) =	4,297 (f)	206				(d + e) =	4,536 (f)				(d + e) =	4,993 (f)	457
D. NET RESERVE				(c - f) =	4,173				(c - f) =	4,626	453				(c - f) =	8,848				(c - f) =	11,288	2,440

Sources.: Enquete National sur le Budget Consommation des Menages, 1990
Farm economic survey by JICA Study team, 1995

Remarks : (*) ; These crops are calculated as representative crops for each season.
(**) ; Consumption by person per year are estimated based on south region farmers.
(***) ; Average family size are estimated based on average of Delegation of each Oasis area.

Ref. : Tables E.3.10.1, K.3.1.1 and K.3.1.2

Table K.3.1.4 (2) Typical Farm Budget under Without and With Project Condition

Description	Tozeur Oasis / Tozeur										Hazoua 3 Oasis / Tozeur									
	Without Project Condition					With Project Condition					Incremental	Without Project Condition					With Project Condition					Incremental
	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	Amount (B - A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	Amount (B - A) (D.)
A. FARM LAND	1.38					1.38						1.00					1.00					
B. GROSS INCOME																						
Farm Income																						
Arboriculture :	1.38					1.38						1.00					1.00					
- Date	1.29	6.2	8.00	1.025	8,198	1.29	6.9	8.90	1.025	9,124	926	0.91	4.3	3.913	1.025	4,011	0.91	5.5	5.01	1.025	5,130	1,119
- Olive	0.02	2.9	0.06	0.400	23	0.02	3.2	0.06	0.400	26	3	0.01	1.9	0.019	0.400	8	0.01	3.1	0.03	0.400	12	4
- Pomegranate	0.02	2.2	0.04	0.287	13	0.02	2.5	0.05	0.287	14	1	0.04	2.2	0.088	0.287	25	0.04	3.4	0.14	0.287	39	14
- Apricots	0.01	2.5	0.03	0.493	12	0.01	2.8	0.03	0.493	14	2	0.01	2.5	0.025	0.493	12	0.01	3.7	0.04	0.493	18	6
- Fig* / Other Fruits	0.04	2.4	0.10	0.385	37	0.04	2.7	0.11	0.385	42	5	0.03	2.4	0.072	0.385	28	0.03	3.6	0.11	0.385	42	14
Fodder Crops																						
- Lucern	0.10	76.6	7.66	0.053	406	0.10	86.1	8.61	0.053	456	50	0.02	76.6	1.532	0.053	81	0.02	87.0	1.74	0.053	92	11
Winter Season Vegetables																						
- Turnip* / Carrot	0.04	12.9	0.52	0.201	104	0.04	14.5	0.58	0.201	117	13	0.01	12.9	0.129	0.201	26	0.01	14.7	0.15	0.201	30	4
- Onion	0.04	14.4	0.58	0.186	107	0.04	16.1	0.64	0.186	120	13	0.01	14.4	0.144	0.186	27	0.01	16.3	0.16	0.186	30	3
- Kidney beans	0.01	6.7	0.07	0.370	25	0.01	7.5	0.08	0.370	28	3				0.370					0.370		
Summer Season Vegetables																						
- Pepper	0.05	6.7	0.34	0.874	293	0.05	7.5	0.38	0.874	328	35	0.01	6.7	0.067	0.874	59	0.01	7.6	0.08	0.874	66	7
- Tomato	0.03	14.4	0.43	0.310	134	0.03	16.1	0.48	0.310	150	16	0.01	14.4	0.144	0.310	45	0.01	16.3	0.16	0.310	51	6
Industrial Crops																						
- Henna* / Tobacco				1.839					1.839						1.839					1.839		
Sub-total	1.66 ha	120%	(Cropping Intensity)		9,352 (a)	1.66 ha	156%	(Cropping Intensity)		10,419 (a)	1,067	1.06 ha	106%	(Cropping Intensity)		4,322 (a)	1.06 h	106%	(Cropping Intensity		5,510 (a)	1,188
Off-farm Income					(b)					(b)						500 (b)					500 (b)	
Total Gross Income				(a + b) =	9,352 (c)				(a + b) =	10,419 (c)	1,067				(a + b) =	4,822 (c)				(a + b) =	6,010 (c)	1,188
C. GROSS OUTGOING				Unit Production Cost (D./ha)					Unit Production Cost (D./ha)						Unit Production Cost (D./ha)					Unit Production Cost (D./ha)		
Production Cost																						
Arboriculture :	1.38					1.38						1.00					1.00					
- Date	1.29			583	752	1.29			790	1,019	267	0.91			583	531	0.91			790	719	188
- Olive	0.02			394	8	0.02			494	10	2	0.01			394	4	0.01			494	5	1
- Pomegranate	0.02			644	13	0.02			740	15	2	0.04			644	26	0.04			740	30	4
- Apricots	0.01			771	8	0.01			892	9	1	0.01			771	8	0.01			892	9	1
- Fig* / Other Fruits	0.04			553	22	0.04			692	28	6	0.03			553	17	0.03			692	21	4
Fodder Crops																						
- Lucern	0.10			628	63	0.10			788	79	16	0.02			628	13	0.02			788	16	3
Winter Season Vegetables																						
- Turnip* / Carrot	0.04			758	30	0.04			866	35	5	0.01			758	8	0.01			866	9	1
- Onion	0.04			824	33	0.04			871	35	2	0.01			824	8	0.01			871	9	1
- Kidney beans	0.01			642	6	0.01			880	9	3				642					880		
Summer Season Vegetables																						
- Pepper	0.05			1,465	73	0.05			1,566	78	5	0.01			1,465	15	0.01			1,566	16	1
- Tomato	0.03			1,025	31	0.03			1,133	34	3	0.01			1,025	10	0.01			1,133	11	1
Industrial Crops																						
- Henna / Tobacco				681					872						681					872		
Sub-total	1.65 ha				1,039 (d)	1.65 ha				1,351 (d)	312	1.06 ha				540 (d)	1.06 ha				845 (d)	205
Living Expenses**	One person per year (D.)			5.27 persons/family***		One person per year (D.)			5.27 persons/family***			One person per year (D.)			6.57 persons/family***		One person per year (D.)			6.57 persons/family***		
- Food	261	45.5%			1,376	261	45.5%			1,376		261	45.5%			1,715	261	45.5%			1,715	
- Housing	104	18.1%			548	104	18.1%			548		104	18.1%			683	104	18.1%			683	
- Clothing	69	12.1%			365	69	12.1%			365		69	12.1%			455	69	12.1%			455	
- Hygienes	43	7.5%			227	43	7.5%			227		43	7.5%			283	43	7.5%			283	
- Transportation / Communication	36	6.3%			191	36	6.3%			191		36	6.3%			238	36	6.3%			238	
- Education / Culture	44	7.6%			230	44	7.6%			230		44	7.6%			287	44	7.6%			287	
- Others	17	2.9%			87	17	2.9%			87		17	2.9%			109	17	2.9%			109	
Sub-total	574	100.0%			3,024 (e)	574	100.0%			3,024 (e)		574	100.0%			3,770 (e)	574	100.0%			3,770 (e)	
Total Gross Outgoing				(d + e) =	4,063 (f)				(d + e) =	4,375 (f)	312				(d + e) =	4,410 (f)				(d + e) =	4,615 (f)	205
D. NET RESERVE				(c - f) =	5,289				(c - f) =	6,044	755				(c - f) =	412				(c - f) =	1,395	983

Sources : Enquete National sur le Budget Consommation des Menages, 1990
Farm economic survey by JICA Study team, 1995

Remarks ; (*) ; These crops are calculated as representative crops for each season.
(**) ; Consumption by person per year are estimated based on south region farmers.
(***) ; Average family size are estimated based on average of Delegation of each Oasis area.

Ref. : Tables E.3.10.1, K.3.1.1 and K.3.1.2

Table K.3.1.4 (3) Typical Farm Budget under Without and With Project Condition

Description	Mansoura Oasis / Kebili										Atiet Oasis / Kebili									
	Without Project Condition					With Project Condition					Incremental Amount (B - A)	Without Project Condition					With Project Condition					Incremental Amount (B - A)
	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)	Cropped Area	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)
A. FARM LAND	0.25					0.25						0.75					0.75					
B. GROSS INCOME																						
Farm Income:																						
Arboriculture :	0.25					0.25						0.75					0.75					
- Date	0.23	5.2	1.20	1.025	1,226	0.23	6.4	1.47	1.025	1,509	283	0.68	4.0	2.720	1.025	2,788	0.68	4.6	3.13	1.025	3,206	418
- Olive	0.01	4.2	0.04	0.400	17	0.01	5.1	0.05	0.400	20	3				0.400					0.400		
- Pomegranate				0.287					0.287			0.02	3.0	0.060	0.287	17	0.02	3.5	0.07	0.287	20	3
- Apricots				0.493					0.493			0.01	2.4	0.024	0.493	12	0.01	2.8	0.03	0.493	14	2
- Fig* / Other Fruits	0.01	2.4	0.02	0.385	9	0.01	2.9	0.03	0.385	11	2	0.04	2.6	0.104	0.385	40	0.04	3.0	0.12	0.385	46	6
Fodder Crops																						
- Lucern	0.11	44.4	4.88	0.053	259	0.11	54.6	6.01	0.053	318	59	0.22	47.5	10.450	0.053	554	0.22	55.2	12.14	0.053	644	90
Winter Season Vegetables																						
- Turnip* / Carrot	0.01	12.0	0.12	0.201	24	0.01	14.7	0.15	0.201	30	6	0.14	12.8	1.792	0.201	360	0.14	14.9	2.09	0.201	419	59
- Onion	0.01	13.3	0.13	0.186	25	0.01	16.4	0.16	0.186	31	6	0.14	14.3	2.002	0.186	372	0.14	16.6	2.32	0.186	432	60
- Kidney beans				0.370					0.370			0.10	6.7	0.670	0.370	248	0.10	7.7	0.77	0.370	285	37
Summer Season Vegetables																						
- Pepper	0.01	6.2	0.06	0.874	54	0.01	7.6	0.08	0.874	66	12	0.03	6.7	0.201	0.874	176	0.03	7.7	0.23	0.874	202	26
- Tomato	0.01	15.1	0.15	0.310	47	0.01	18.6	0.19	0.310	58	11	0.01	16.2	0.162	0.310	50	0.01	18.8	0.19	0.310	58	8
Industrial Crops																						
- Henna* / Tobacco				1.839					1.839						1.839					1.839		
Sub-total	0.40 ha	160%	(Cropping Intensity)		1,661 (a)	0.40 ha	160%	(Cropping Intensity)		2,043 (a)	382	1.39 ha	185%	(Cropping Intensity)		4,617 (a)	1.39 ha	139%	(Cropping Intensity		5,326 (a)	709
Off-farm Income					2,500 (b)					2,500 (b)						1,000 (b)					1,000 (b)	
Total Gross Income				(a + b) =	4,161 (c)				(a + b) =	4,543 (c)	382				(a + b) =	5,617 (c)				(a + b) =	6,326 (c)	709
C. GROSS OUTGOING				Unit Production Cost (D./ha)					Unit Production Cost (D./ha)						Unit Production Cost (D./ha)					Unit Production Cost (D./ha)		
Production Cost																						
Arboriculture :	0.25					0.25						0.75					0.75					
- Date	0.23			583	134	0.23			790	182	48	0.68			583	396	0.68			790	537	141
- Olive	0.01			394	4	0.01			494	5	1				394					494		
- Pomegranate				644					740			0.02			644	13	0.02			740	15	2
- Apricots				771					892			0.01			771	8	0.01			892	9	1
- Fig* / Other Fruits	0.01			553	6	0.01			692	7	1	0.04			553	22	0.04			692	28	6
Fodder Crops																						
- Lucern	0.11			628	69	0.11			788	87	18	0.22			628	138	0.22			788	173	35
Winter Season Vegetables																						
- Turnip* / Carrot	0.01			758	8	0.01			866	9	1	0.14			758	106	0.14			866	121	15
- Onion	0.01			824	8	0.01			871	9	1	0.14			824	115	0.14			871	122	7
- Kidney beans				642					880			0.10			642	64	0.10			880	88	24
Summer Season Vegetables																						
- Pepper	0.01			1,465	15	0.01			1,566	16	1	0.03			1,465	44	0.03			1,566	47	3
- Tomato	0.01			1,025	10	0.01			1,133	11	1	0.01			1,025	10	0.01			1,133	11	1
Industrial Crops																						
- Henna / Tobacco				681					872						681					872		
Sub-total	0.40 ha				254 (d)	0.40 ha				326 (d)	72	1.39 ha				916 (d)	1.39 ha				1,151 (d)	235
Living Expenses**	One person per year (D.)			5.65 persons/family***		One person per year (D.)			5.65 persons/family***			One person per year (D.)			6.17 persons/family***		One person per year (D.)			6.17 persons/family***		
- Food	261	45.5%			1,475	261	45.5%			1,475		261	45.5%			1,611	261	45.5%			1,611	
- Housing	104	18.1%			587	104	18.1%			587		104	18.1%			641	104	18.1%			641	
- Clothing	69	12.1%			392	69	12.1%			392		69	12.1%			428	69	12.1%			428	
- Hygienes	43	7.5%			244	43	7.5%			244		43	7.5%			266	43	7.5%			266	
- Transportation / Communication	36	6.3%			205	36	6.3%			205		36	6.3%			224	36	6.3%			224	
- Education / Culture	44	7.6%			247	44	7.6%			247		44	7.6%			270	44	7.6%			270	
- Others	17	2.9%			94	17	2.9%			94		17	2.9%			102	17	2.9%			102	
Sub-total	574	100.0%			3,244 (e)	574	100.0%			3,244 (e)		574	100.0%			3,542 (e)	574	100.0%			3,542 (e)	
Total Gross Outgoing				(d + e) =	3,498 (f)				(d + e) =	3,570 (f)	72				(d + e) =	4,458 (f)				(d + e) =	4,693 (f)	235
D. NET RESERVE				(c - f) =	663				(c - f) =	973	310				(c - f) =	1,159				(c - f) =	1,633	474

Sources : Enquete National sur le Budget Consommation des Menages, 1990
Farm economic survey by JICA Study team, 1995

Remarks : (*) ; These crops are calculated as representative crops for each season.
(**) ; Consumption by person per year are estimated based on south region farmers.
(***) ; Average family size are estimated based on average of Delegation of each Oasis area.

Ref. : Tables E.3.10.1, K.3.1.1 and K.3.1.2

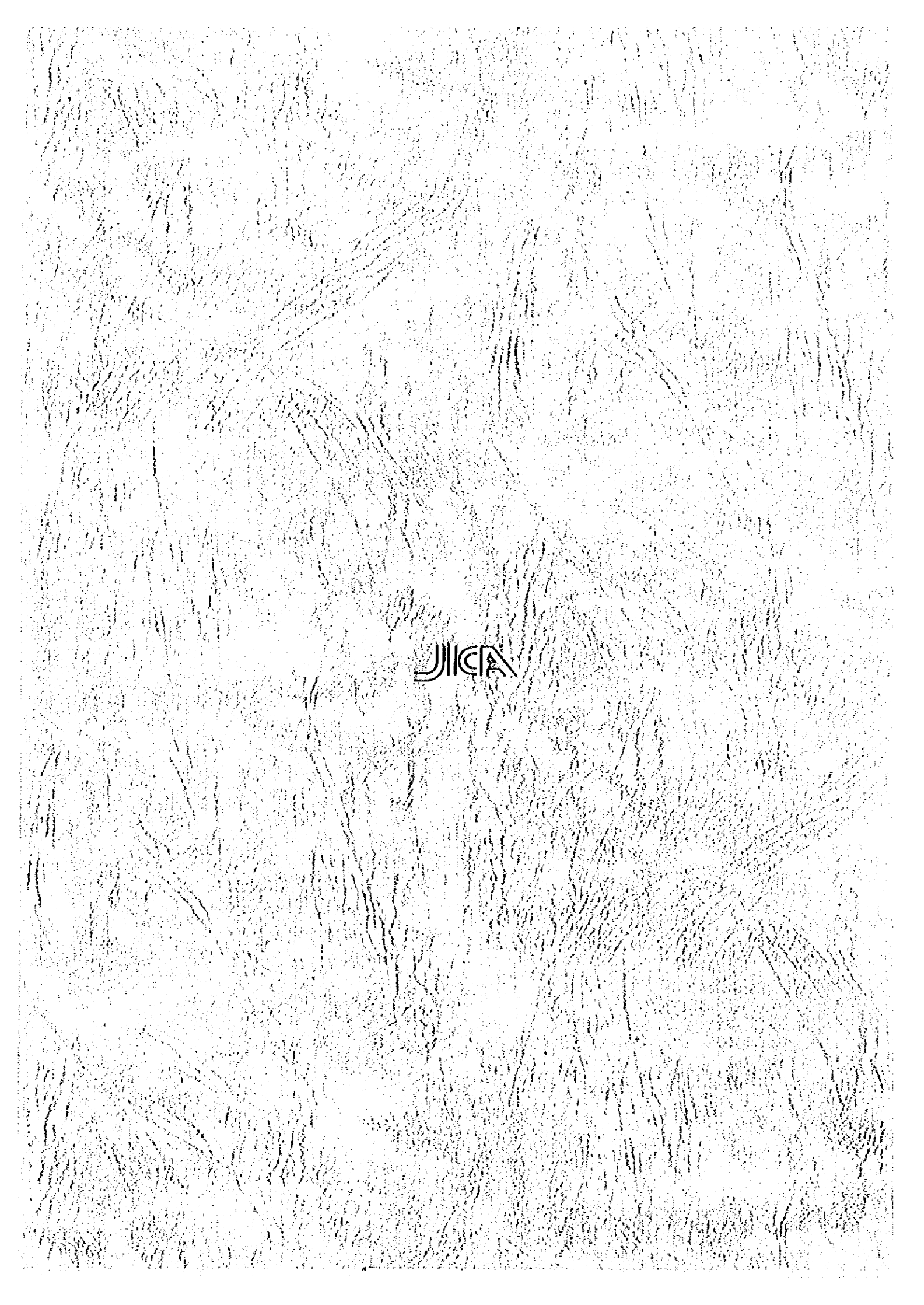
Table K.3.1.4 (4) Typical Farm Budget under Without and With Project Condition

Description	Oasis de Gabes / Gabes										Limaour 1 et 2 Oasis / Kebili									
	Without Project Condition					With Project Condition					Incremental Amount (B - A)	Without Project Condition					With Project Condition					Incremental Amount (B - A)
	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)	Cropped Area	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (A) (D.)	Cropped Area (ha)	Yield (ton/ha)	Production (tons)	Unit Price (D./kg)	Amount (B) (D.)	(D.)
A. FARM LAND	0.29					0.29						1.25					1.25					
B. GROSS INCOME																						
Farm Income																						
Arboriculture :	0.29					0.29						1.25					1.25					
- Date	0.19	5.8	1.10	1.025	1,130	0.19	6.6	1.25	1.025	1,285	155	0.01	5.7	0.057	1.025	58	0.01	6.7	0.07	1.025	69	11
- Olive				0.400								0.16	3.8	0.608	0.400	243	0.16	4.5	0.72	0.400	288	45
- Pomegranate	0.09	11.6	1.04	0.287	300	0.09	13.2	1.19	0.287	341	41	0.52	11.3	5.876	0.287	1,686	0.52	13.4	6.97	0.287	2,000	314
- Apricots				0.493								0.06	11.3	0.678	0.493	334	0.06	13.4	0.80	0.493	396	62
- Fig* / Other Fruits	0.01	4.8	0.05	0.385	18	0.01	5.5	0.06	0.385	21	3	0.50	4.7	2.350	0.385	905	0.50	5.6	2.80	0.385	1,078	173
Fodder Crops																						
- Lucern	0.05	59.0	2.77	0.053	147	0.05	66.1	3.11	0.053	165	18	0.19	56.7	10.773	0.053	571	0.19	66.8	12.69	0.053	673	102
Winter Season Vegetables																						
- Turnip* / Carrot	0.01	27.5	0.28	0.201	55	0.01	31.4	0.31	0.201	63	8	0.14	26.9	3.766	0.201	757	0.14	31.7	4.44	0.201	892	135
- Onion				0.186								0.12	28.3	3.396	0.186	632	0.12	33.4	4.01	0.186	745	113
- Kidney beans				0.370								0.02	16.1	0.322	0.370	119	0.02	18.9	0.38	0.370	140	21
Summer Season Vegetables																						
- Pepper	0.01	12.5	0.13	0.874	109	0.01	14.3	0.14	0.874	125	16	0.14	12.3	1.722	0.874	1,505	0.14	14.5	2.03	0.874	1,774	269
- Tomato				0.310								0.06	18.9	1.040	0.310	322	0.06	22.3	1.23	0.310	380	58
Industrial Crops																						
- Henna* / Tobacco	0.08	1.4	0.11	1.839	206	0.08	1.70	0.14	1.839	250	44	0.05	1.4	0.070	1.839	129	0.05	1.70	0.09	1.839	156	28
Sub-total	0.44 ha	151%	(Cropping Intensity)		1,955 (a)	0.44 ha	151%	(Cropping Intensity)		2,250 (a)	285	1.97 ha	157%	(Cropping Intensity)		7,261 (a)	1.97 ha	157%	(Cropping Intensity		8,591 (a)	1,331
Off-farm Income					2,000 (b)					2,000 (b)						(b)					(b)	
Total Gross Income				(a + b) =	3,965 (c)				(a + b) =	4,250 (c)	785				(a + b) =	7,261 (c)				(a + b) =	8,591 (c)	1,331
C. GROSS OUTGOING				Unit Production Cost (D./ha)					Unit Production Cost (D./ha)						Unit Production Cost (D./ha)					Unit Production Cost (D./ha)		
Production Cost																						
Arboriculture :	0.29					0.29						1.25					1.25					
- Date	0.19			583	111	0.19			790	150	39	0.01			583	6	0.01			790	8	2
- Olive				394								0.16			394	63	0.16			494	79	16
- Pomegranate	0.09			644	58	0.09			740	67	9	0.52			644	335	0.52			740	385	50
- Apricots				771								0.06			771	46	0.06			892	54	8
- Fig* / Other Fruits	0.01			553	6	0.01			692	7	1	0.50			553	277	0.50			692	346	69
Fodder Crops																						
- Lucern	0.05			628	30	0.05			788	37	7	0.19			628	119	0.19			788	150	31
Winter Season Vegetables																						
- Turnip* / Carrot	0.01			758	8	0.01			866	9	1	0.14			758	106	0.14			866	121	15
- Onion				824								0.12			824	99	0.12			871	105	6
- Kidney beans				642								0.02			642	13	0.02			880	18	5
Summer Season Vegetables																						
- Pepper	0.01			1,465	15	0.01			1,566	16	1	0.14			1,465	205	0.14			1,566	219	14
- Tomato				1,025								0.06			1,025	56	0.06			1,133	62	6
Industrial Crops																						
- Henna / Tobacco	0.08			681	54	0.08			872	70	16	0.05			681	34	0.05			872	44	10
Sub-total	0.44 ha				282 (d)	0.44 ha				356 (d)	74	1.97 ha				1,359 (d)	1.97 ha				1,591 (d)	232
Living Expenses**	One person per year (D.)			5.48 persons/family***		One person per year (D.)			5.48 persons/family***			One person per year (D.)			5.48 persons/family***		One person per year (D.)			5.48 persons/family***		
- Food	261	45.5%		1,431		261	45.5%		1,431			261	45.5%		1,431		261	45.5%		1,431		
- Housing	104	18.1%		569		104	18.1%		569			104	18.1%		569		104	18.1%		569		
- Clothing	69	12.1%		380		69	12.1%		380			69	12.1%		380		69	12.1%		380		
- Hygienics	43	7.5%		236		43	7.5%		236			43	7.5%		236		43	7.5%		236		
- Transportation / Communication	36	6.3%		199		36	6.3%		199			36	6.3%		199		36	6.3%		199		
- Education / Culture	44	7.6%		239		44	7.6%		239			44	7.6%		239		44	7.6%		239		
- Others	17	2.9%		91		17	2.9%		91			17	2.9%		91		17	2.9%		91		
Sub-total	574	100.0%		3,145 (e)		574	100.0%		3,145 (e)			574	100.0%		3,145 (e)		574	100.0%		3,145 (e)		
Total Gross Outgoing				(d + e) =	3,427 (f)				(d + e) =	3,501 (f)	74				(d + e) =	4,504 (f)				(d + e) =	4,736 (f)	232
D. NET RESERVE				(c - f) =	538				(c - f) =	749	711				(c - f) =	2,757				(c - f) =	3,855	1,099

Sources : Enquete National sur le Budget Consommation des Menages, 1990
Farm economic survey by JICA Study team, 1995

Remarks : (*) ; These crops are calculated as representative crops for each season.
(**) ; Consumption by person per year are estimated based on south region farmers.
(***) ; Average family size are estimated based on average of Delegation of each Oasis area.

Ref. : Tables E.3.10.1, K.3.1.1 and K.3.1.2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