## APPENDIX C

## AGRICULTURE

- C.1. LAND
- C.2. CROP
- C.3. LIVESTOCK
- C.4. AGRO-ECONOMY
- C.5. SURVEY OF RICE CULTIVATING
  - FARMERS AND SOME IMPROVEMENTS

APPENDIX C. I.

### LAND

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Table C.1.1Progress in Land Cultivation (1)

	· ·			(2)/(1)
	Year	Iran (1)	Mazandaran(2)	<u>x 100</u>
	· .	('000 ha)	('000 ha)	(%)
Total Cultivated Area	1971	16,154(100)	742 (100)	4.6
	1975	15,710(97)	791 (107)	5.0
	1982	14,846( 92)	887 (120)	6.0
Irrigated Area	1971	4,678(100)*	214 (100)*	4.6
	1975	5,982(128)	336 (157)	5.6
	1982	5,685(122)	300 (140)	5.3
Non-Irrigated Area	1971	10,904(100)*	476 (100)*	4.4
	1975	9,728(89)	455 ( 96)	4.7
	1982	9,160( 84)	587 (123)	6.4
	· · ·			
° Annual Crops & Grass	1971	8,697(100)	630 (100)	7.2
	1975	9,254(106)	708 (112)	7.7
	1982	9,227(106)	792 (126)	8.6
° Perennial Crops	1971	573(100)	51 (100)	8.9
	1975	653(114)	45 (88)	6.9
	1982	727(127)	39 (76)	5.4
<sup>°</sup> Fallow	1971	6,885(100)	61 (100)	0.9
	1975	5,802(84)	38 ( 62)	0.7

\* Excluding perennial crops

Source:

Agricultural Statistics, Iran Statistic Center MPB

58 (95)

1.2

1982 4,895 (71)

	Year	Iran (1) ('000 ha)	<u>Mazandaran(2)</u> ('000 ha)	$\frac{(2)/(1)}{\frac{x \ 100}{(%)}}$
Irrigated Area				
° Annual Crops & Grass	1971	2,850 (100)	202 (100)	7.8
	1975	3,477 (122)	308 (152)	8.9
	1982	3,465 (122)	268 (133)	7.7
° Perennial Crops	1971	N.A.* ( - )	N.A.*( - )	n an a' stair An an Am
	1975	530 ( - )	22 ( - )	4.2
	1982	638 ( - )	29 ( ~ )	4.5
° Fallow	1971	1,828 (100)	12 (100)	0.7
	1975	1,975 (108)	6 (50)	0.3
	1982	1,583 ( 82)	3 (25)	0.2
Non-Irrigated Area				
° Annual Crops & Grass	1971	5,847 (100)	427 (100)	7.3
	1975	5,777 ( 99)	399 (93)	6.9
	1982	5,759 (98)	525 (123)	9.1
° Perennial Crops	1971	N.A.* ( - )	N.A.*( - )	
	1975	123 ( - )	23 ( - )	18.7
	1982	89 ( - )	10 ( - )	11.2
° Fallow	1971	5,057 (100)	49 (100)	1.0
	1975	3,827 (76)	32 (65)	0.8
	1982	3,313 (66)	52 (106)	1.6
				and the second second

Table C.1.1 Progress in Land Cultivation (2)

\* Breakdown is not available

Source: Agricultural Statistics, Iran Statistic Center MPB

6.9.0 100-0 3.6 1.9 3.6 0.8 8.5 74.5 ы С 25.5 Total (100.0%) 72,610 860 26,850 3,750 3,690 105,220 2,020 78,380 1,940 5,830 7.830 8,700 Ha 74.8 0.7. 5. 2 66.0 <u>6</u>0 ŝ 25.2 100.0 و. و % Babol (32.5%)22,580 25,570 8,610 34,180 2,690 300 940 2,240 2,510 2,920 lla 70.4 74.5 °. ∾ 100.0 1.5 2.4 5.2 4 2.2 7.5 2.1 25.7 6,9 Amol 52,810 (67.5%)50,030 3,690 5,320 18,240 71,050 1,060 1,000 1,590 860 5,780 1,720 Ela I-la Present Land Use Ð (B) S E Ξ 0 Water Reservoir (P) Roads/Canals $\frac{1}{2}$ / Sub-total Sub-total Upland Crops Paddy Rice Sand Beach 'lotal Orchards Villages Forest Rivers

1/.... Roads/Canals was estimated at 10% of fields of paddy rice and upland crops.

Notc:

Table C.1.2 Present Land Use

Table C.1.3 Present Land Use by Sub-Area

	High Land     Middle Land       Amol     Amol       20-190     -10~20       1.1     0.4       11,950     15,540       11,40     (12.8)       8,710     9,910       8,710     9,910       8,710     9,910       8,710     9,910       8,710     9,910       8,710     9,910       8,710     9,910       10,750     (74.5)       8,710     9,910       10,750     (74.5)       8,710     9,910       10,10     (74.5)       10,10     (74.5)       10,20     (1.5)       1,980     1,550       1,980     1,550       1,980     1,550       1,240     1,550       1,240     1,550       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570       1,240     1,570	MOT	High	Middle	MO 1	44.50	112 227 2	70	Hich	11. 5 11	
Amol         Amol         Amol         Amol         Amol         Amol         Amol         Amol         Amol         Baboi         Baboi <th>Amol Amol Amol Amol 20.190 -10~20 -2 1.1 0.4 (11.4) (12.8) (25.0) (74.5) (12.8) (67.6) (74.5) (11.0) (74.5) (12.8) (2.6) (11.0) (57.6) (71.0) (74.5) (57.6) (71.0) (74.5) (57.6) (71.0) (74.5) (11.0) (12.6) (12.6) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (11.8) (10.2)</th> <th>Land</th>	Amol Amol Amol Amol 20.190 -10~20 -2 1.1 0.4 (11.4) (12.8) (25.0) (74.5) (12.8) (67.6) (74.5) (11.0) (74.5) (12.8) (2.6) (11.0) (57.6) (71.0) (74.5) (57.6) (71.0) (74.5) (57.6) (71.0) (74.5) (11.0) (12.6) (12.6) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (12.9) (11.8) (10.2)	Land	Land	Land	Land	Land	Land	Land	Land	Land	Land
20-190 $-10^{-20}$ $-2^{-10}$ $2^{-10}$ <	20~190 -10~20 -2 1.1 0.4 0 (11.4) (12.8) 0 8,710 9,910 1 (75.0) (74.5) 0 8,070 9,470 0 (67.6) (71.0) 0 350 260 1 (67.6) (11.0) 180 1 (10.4) (13.9) 1,580 1,570 1,580 1,570 1,50 1,50 1,50 1,50 1,50 1,50 1,50 1,5	Amol	Amol	Amol	Amol, Babol	Amol, Babol	Amol, Babol	Amol, Babol		• •	
1.1         0.4         0.2.0.3         1.1         0.4         0.1         1.1         0.2.0.5         0.1           1.1         0.4         0.2.0.3         1.1         0.4         0.1         1.1         0.2.0.5         0.1           11.930         13.540         14.600         6.530         6.530         6.530         6.530         5.50         7.50         7.7.2         7.7.2         7.7.2         7.7.4         7.7           3.710         9.910         10.230         4.530         5.60         1.7.3         7.7.2         7.7.4         7.7           3.700         9.470         9.650         4.720         5.430         5.530         15.500         17.23         77.23         77.23         77.23         77.4         77           3.700         9.470         9.650         4.720         5.430         5.530         15.30         17.23         17.43         17.23         17.23         17.23         17.23         17.23         17.23         17.23         17.23         17.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23         11.23 <t< td=""><td>1.1 0.4 0 (11.4) (12.8) 0 8,710 9,910 1 (75.0) (74.5) 0 8,070 9,470 0 (67.6) (71.0) 0 (57.6) (71.0) 0 (57.6) (11.0) 0 1,980 1,550 1 1,980 1,550 1 1,240 1,550 1 1,240 1,550 1 1,240 1,570 0 (10.4) (11.8) 0 1,240 1,570 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,550 0 1</td><td>-23~-10</td><td>20~190</td><td>-10~20</td><td>-23~-10</td><td>20~190</td><td></td><td>-23-10</td><td></td><td></td><td></td></t<>	1.1 0.4 0 (11.4) (12.8) 0 8,710 9,910 1 (75.0) (74.5) 0 8,070 9,470 0 (67.6) (71.0) 0 (57.6) (71.0) 0 (57.6) (11.0) 0 1,980 1,550 1 1,980 1,550 1 1,240 1,550 1 1,240 1,550 1 1,240 1,570 0 (10.4) (11.8) 0 1,240 1,570 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,250 0 1,550 0 1	-23~-10	20~190	-10~20	-23~-10	20~190		-23-10			
11.930       13.540       14.600       6.530       6.090       10,510       13.946       15.400       23.820       33.850       35.         (11.4)       (12.4)       (74.0)       (6.3)       (6.3)       (5.8)       (5.9)       (19.1)       (14.4)       (27.6)       (38.2)       (38.7)       (38.7)       (38.7)       (38.7)       (38.7)       (38.7)       (71.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (67.6)       (38.7)       (56.1)       (71.7)       (85.5)       (81.4)       (69.6)       (60.0)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.4)       (77.2)       (77.2)       (77.4)       (77.2)       (67.6)       (78.7)       (70.9)       (77.2)       (77	11,950       15,540         (11.4)       (12.8)         8,710       9,910         75.0)       (74.5)         8,070       9,470         8,070       9,470         8,070       9,470         8,070       9,470         8,070       9,470         71.0)       (1.0)         730       260         730       210         1,980       1,550         1,980       1,550         1,980       1,550         1,240       1,580         1,240       1,580         1,240       1,580         1,240       1,580         1,240       1,580         1,240       1,590         1,240       1,590         1,210       (11.8)         1,240       1,500         1,240       1,500         1,240       1,500         1,240       1,500         1,240       1,500         1,240       1,570         1,240       1,570         1,240       1,570         1,240       1,570         1,240       1,570         1,20	0.2~0.3	1.1	0.4	0.1	1.1	0.2~0.3	0.1			
8,710       9,910       10,230       4,950       5,660       4,390       8,580       15,300       10,640       22,240       50,370       25         (77.5.0)       (74.3)       (70.1)       (75.1)       (75.2)       (86.4)       (72.1)       (35.2)       (77.4)       (	8,710 9,910 1 (73.0) (74.5) 8,070 9,470 (67.6) (71.0) (57.6) (71.0) 7350 260 ( 2.8) ( 2.0) 1,980 1,550 1,980 1,550 (10.4) (11.8) 1,240 1,570 (10.4) (11.8) 1,240 1,570 (10.4) (10.2)	14,600 (14.0)	6,580 ( 6.3)	6,550 ( 6.3)	6,090 (5.8)	10,310 (9.9)	19,960 (1.01)	15,000 (14.4)	28,820 (27.6)	39,850 (38.2)	35,690 (34.2)
3,070 $9,470$ $9,650$ $4,720$ $5,430$ $5,990$ $8,990$ $9,000$ $21,140$ $23790$ $22$ $(67,6)$ $(71.0)$ $(66.1)$ $(71.7)$ $(82.5)$ $(81.4)$ $(69.0)$ $(73.5)$ $(72.2)$ $(6$ $350$ $260$ $140$ $70$ $1,250$ $1,410$ $470$ $1,590$ $1$ $(2.8)$ $(2.0)$ $(1.0)$ $(1.1)$ $(1.2)$ $(2.5)$ $(4.3)$ $(1.6)$ $(4.0)$ $(70)$ $1,520$ $1,410$ $470$ $1,520$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,500$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$ $1,200$	d       8,070       9,470         1d       (67.6)       (71.0)         350       260       260         310       1280       1.55         1,980       1,550       1.559         1,980       1,550       1.580         1,980       1,550       1.580         1,240       1,580       1.580         1,240       1,580       1.580         1,240       1,570       1.580         1,240       1,570       1.570         1,240       1,570       1.570         1,240       1,570       1.570         1,240       1,570       1.570         1,240       1,570       1.570         1,240       1,570       1.570         1,240       1,570       1.570	10,230 (70.1)	4,950 (75.2)	5,660 (86.4)	4,590 (72.1)	8,580 (83.2)	15,300 (76.7)	10,640	22,240 (77.2)	30,870 (77.4)	25,260 (70,8)
	ld 530 260 ( 2.8) ( 2.0) 310 180 ( 2.6) ( 1.5) 1,980 1,550 ( 16.6) ( 1.5) 1,980 1,580 ( 16.6) ( 1.5) 1,240 1,580 ( 10.4) ( 11.8) Pond ( -) ( 1.6) 1,240 1,570 ( 10.4) ( 10.2)	9,650 (66.1)	4,720 (71.7)	5,430 (82.9)	3,990 (65.5)	8,390 (81.4)	13,890 (69.6)	9,000 (60.0)	21,180 (73.5)	28,790 (72.2)	22,640 (62.4)
310180440160150260120160230590490 $(2.6)$ $(1.5)$ $(5.0)$ $(2.4)$ $(2.5)$ $(4.5)$ $(1.1)$ $(0.8)$ $(1.5)$ $(2.1)$ $(1.2)$ $1,980$ $1,550$ $2,730$ $1,620$ $800$ $1,290$ $1,650$ $5,510$ $5,040$ $5,250$ $6,160$ $(1.2)$ $(1.2)$ $(16.6)$ $(13.6)$ $(13.7)$ $(24.6)$ $(12.2)$ $(21.2)$ $(15.0)$ $(17.6)$ $(20.5)$ $(18.2)$ $(15.5)$ $(20.5)$ $(10.4)$ $(11.8)$ $(11.2)$ $(0.2)$ $(1.4)$ $(6.7)$ $(6.7)$ $(6.8)$ $(5.7)$ $(8.8)$ $(4.6)$ $(7.1)$ $(7.1)$ $(1.9)$ $(11.2)$ $(0.2)$ $(1.4)$ $(6.7)$ $(6.7)$ $(8.8)$ $(4.6)$ $(7.1)$ $(7.1)$ $(1.6)$ $(1.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(6.7)$ $(8.8)$ $(4.6)$ $(7.1)$ $(7.1)$ $(1.6)$ $(1.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(7.1)$ $(8.8)$ $(4.6)$ $(7.1)$ $(7.1)$ $(10.4)$ $(10.2)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(7.1)$ $(7.2)$ $(10.4)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.2)$ $(10.2)$ $(10.2)$ $(1.4)$ $(0.2)$ $(1.4)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.1)$ $(7.2)$ $(7.2)$ $(7.2)$ $(7.2)$ $(7.2)$ $(7$	310 180 ( 2.6) ( 1.5) 1,980 1,850 (16.6) (13.9) 1,240 1,580 (10.4) (11.8) Pond ( - ) ( 1.6) 1,240 1,570 ( 10.4) ( 10.2)	140 (1.0)	( 1.1)	80 (1.2)	140 (2.3)	70 (7.0)	1,250 ( 6.3)	1,410 (9.4)	470 ( 1.6)	1,590 (4.0)	1,690 (4.7)
1,9801,5502,7301,6208001,2901,6503,5105,0405,2506,160 $(16.6)$ $(13.9)$ $(13.9)$ $(13.7)$ $(24.6)$ $(12.2)$ $(21.2)$ $(16.0)$ $(17.6)$ $(20.3)$ $(18.2)$ $(15.5)$ $(16.5)$ $(10.4)$ $(11.8)$ $(11.2)$ $(0.2)$ $(1.4)$ $(6.7)$ $(0.8)$ $(5.7)$ $(8.3)$ $(4.6)$ $(7.1)$ $(7.1)$ $(10.4)$ $(11.8)$ $(11.2)$ $(0.2)$ $(1.4)$ $(6.7)$ $(0.8)$ $(5.7)$ $(8.3)$ $(4.6)$ $(7.1)$ $(7.1)$ $(-)$ $(1.6)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(-8)$ $(5.7)$ $(8.3)$ $(-1)$ $(1.5)$ $(-)$ $(1.6)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(-8)$ $(5.7)$ $(8.3)$ $(-1)$ $(5.6)$ $(-)$ $(1.6)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(-1)$ $(5.7)$ $(8.3)$ $(-1)$ $(5.6)$ $(-)$ $(1.6)$ $(1.4)$ $(0.2)$ $(1.4)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-)$ $(10.2)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-1)$ $(-10.4)$ $(10.2)$ $(-1)$	1,980       1,550         (16.6)       (13.9)         1,240       1,580         (10.4)       (11.8)         Pond       -       210         1,240       1,580         10.4)       (11.8)         10.4)       (10.2)         11.240       1,570         11.240       1,570         11.240       1,570	440 (3.0)	160 (2.4)	150 (2.3)	260 (4.3)	120 (1.1)	160 (0.8)	230 ( 1.5)	590 ( 2.1)	490 (1.2)	930 (2.6)
1,240 $1,580$ $1,640$ $10$ $90$ $410$ $80$ $1,150$ $1,530$ $2,820$ $(10.4)$ $(11.8)$ $(11.2)$ $(0.2)$ $(1.4)$ $(6.7)$ $(0.8)$ $(5.7)$ $(8.3)$ $(4.6)$ $(7.1)$ $(-)$ $210$ $640$ $10$ $90$ $410$ $ 1,150$ $1,320$ $1,450$ $(7.1)$ $(-)$ $(1.6)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(-)$ $(5.7)$ $(8.3)$ $(-)$ $(7.1)$ $(-)$ $(1.6)$ $(4.4)$ $(0.2)$ $(1.4)$ $(6.7)$ $(-)$ $(5.7)$ $(8.3)$ $(-)$ $(-)$ $(1.6)$ $(1.6)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(10.4)$ $(10.2)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(0.8)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(-)$ $(10.4)$ $(10.2)$ $(6.8)$ $(-)$ <td< td=""><td>Pond [,240 1,580 (10.4) (11.8) Pond [ - ] (1.6) 1,240 1,570 (10.4) (10.2)</td><td>2,730 (18.7)</td><td>1,620 (24.6)</td><td>800 (12.2)</td><td>1,290 (21.2)</td><td>1,650 (16.0)</td><td>3,510 (17.6)</td><td>3,040 (20.3)</td><td>5,250 (18.2)</td><td>6,160 (15.5)</td><td>7,060 (19.8)</td></td<>	Pond [,240 1,580 (10.4) (11.8) Pond [ - ] (1.6) 1,240 1,570 (10.4) (10.2)	2,730 (18.7)	1,620 (24.6)	800 (12.2)	1,290 (21.2)	1,650 (16.0)	3,510 (17.6)	3,040 (20.3)	5,250 (18.2)	6,160 (15.5)	7,060 (19.8)
<ul> <li>210 640 10 90 410 - 1,150 1,320 10 1,650 (5.5) (5.5) (5.6) (5.6) (-) (1.6) (4.4) (0.2) (1.4) (6.7) (-) (5.7) (8.3) (0) (5.6) (5.6) (1.240 1,570 1,000 - 80 - 1,370 1,370 (10.4) (10.2) (6.8) (-) (-) (-) (-) (-) (-) (-) (4.6) (5.5) (5.5) (10.4) (10.2) (6.8) (-) (-) (-) (-) (-) (-) (-) (-) (-) (-</li></ul>	( - ) 1,240 (10.4)	1,640 (11.2)	( 0.2)	90 (1.4)	410 ( 6.7)	80 (0.8)	1,150 ( 5.7)	1,320 (8.8)	1,530 (4.6)	2,820 ( 7.1)	3,370 (9.4)
1:240       1:370       1.000       -       -       1.370       1.370         (10.4)       (10.2)       (6.8)       (-       (       -       (       1.570         n       good       fair       poor       good       fair       (3.5)       (         n       good       fair       poor       good       fair       poor       (3.5)       (         n       good       fair       poor       good       fair       poor       (3.5)       (         n       good       fair       poor       good       fair       poor       (3.5)       (         '       good       fair       poor       good       fair-poor       poor       (3.5)       (         '       Excluded the area of the rivers (860 ha)       poor       poor<	1,240 (10.4)	640 (4.4)	10 ( 0.2)	(4.1.)	410 (6.7)		1,150 ( 5.7)	1,320 (8:8)	01 ) )	1,450 ( 3.6)	2,370 ( 6.6)
n good fair poor good good fair good fair-poor good fair poor good fair poor good fair-poor / Excluded the area of the rivers (800 ha)		1,000 ( 6.8)			· · ·	80 (0.8)	· • •		1,320 (4.6)	1,370 (3.5)	1,000 (2.8)
good fair poor good fair poor good fair-poor / Excluded the area of the rivers (860 ha) / Percent to the total gross area of 104,560 ha	Soug	rood	good	poos	fair	poog	fair-pool				·. ·
$1/$ Excluded the area of the rivers (86 $\frac{2}{2}$ / Percent to the total gross area of	good	poor	good	fair	rood	pood	fair-pool				
cent to the total gross area of	1/ Excluded the	10 C 10 C 10 C	ers (860				· · · ·				•
	zi rercent to the cotat		rea or l	14, 30U na	· · ·						

	(Unit: ha) Total	8,304.7(100) 8,103.8(100) 8,463.2(100)	4,753.6(100) 3,953.1(100) 5,151.0(100)	7,115.4(100) 14,021.9(100) 7,079.0(100) 66,945.6(100)	9,699.5(100) 76,645.1(100)
	Fallow & etc.	877.0(10.6) 57.0(0.7) 15.0(0.2)	4.0(0.1) 16.0(0.4) 2.0(0)	252.0(5.5) 25.1(0.2) 347.0(4.9) 1,593.1(2.4)	358.0( 3.7) 1,951.1( 2.5)
c <u>y - 1985) (1)</u>	Orchard	489.0(5.9) 381.0(4.7) 249.3(2.9)	95.9(2.0) 85.8(2.2) 97.0(1.9)	129.8(1.8) 405.1(2.9) 145.5(2.1) 2,078.4(5.1)	348.5(5.6) 2,426.9(3.2)
(Villago Survey	Upland	663.8(8.0) 341.4(4.2) 309.5(3.7)	126.0(2.7)34.0(0.9)170.0(3.3)	444.4(6.2) 218.0(1.6) 612.5(8.7) 2,919.6(4.4)	525.2(5.4) 3,444.8(4.5)
C.I.4 Land Use	Paddy	6,274.9(75.6) 7,324.4(90.4) 7,889.4(93.2)	4,527.7(95.2) 3,817.3(96.6) 4,882.0(94.8)	6,289.2(88.4) 13,575.7(95.4) 5,974.0(84.4) 60,354.6(90.2)	8,467.8(87.5) 68,822.4(89.8)
Table C.	No. of Villages	6 4 6 6 4 0 4 0 6 4 0 4 0 6 4 0 6 4 0 6 4 0 6 6 4 0 6 6 6 6	30 37 17	8 9 3 4 3 4	79 <u>485</u>
		Haraz Lott Bank High Land Middle Land Low Land Haraz Richt Bank		lligh Land Middle Land Low Land Sub-total	Not Available Total

Note: ( ) ... Percent to the total acreage by Sub-area

Source: Village Survey - 1985

Table C.1.4 Land Use (Village Survey - 1985)

3

- - -						(Unit: ha)
Sub-Area	No. of Villages	Paddy	Upland	Orchard	Fallow & etc.	Total
Haraz Loft Bank			· · · · · · · · · · · · · · · · · · ·			
High Land Middle Tand	64 7 7	6,274.9(10.4) 7 324 4(12 1)	663.8(22.7) 741.4(11.7)	489.0(23.5) 381 0/18 3)	877.0(55.0) 57.0(3.6)	8,304.7(12.4) 8,103.8(12.1)
Low Land	40	7,889.4(13.1)	309.5(10.6)	249.5(12.0)	15.0(0.9)	8,463.2(12.6)
llaraz Right Bank			· ·			
lligh Land	30	4,527.7(7.5)	126.0(4.3)	95.9(4.6)	4.0(0.3)	4,753.6(7.1)
Middle Land	37	3,817.3(6.3)	34.0(1.2)	85.8(4.1)	16.0(1.0)	3,953.1(5.9)
Low Land	17	4,882.0(8.1)	170.0(5.8)	97.0(4.7)	2.0(0.1)	<pre>(/-/ )0.1&lt;1&lt;</pre>
Kari Rud						
Hî gh Land	42	6,289.2(10.4)	444.4(15.2)	129.8( 6.2)	252.0(15.8)	7,115.4(10.6)
Middle Land	89	13,375.7(22.2)	218-0(7.5)	405.1(19.5)	23.1(1.5)	14,021.9(20.9)
Low Land	34	5,974.0(9.9)	612.5(21.0)	145.5(7.0)	347.0(21.8)	7,079.0(10.6)
Sub-total		60,354.6(100)	2,919.6(100)	2,078.4(100)	1,593.1(100)	66,945.6(100)
Not Available	62	8,467.8	525.2	348.5	358.0	9,699.5
Total	485	68,822.4	3,444.8	2,426.9	1,951.1	76,645.1
			•			

Source: Village Survey - 1985

Note: () ... Percent to the acreage of Sub-total

	Tal	Table C.1.5	Land Use Plan	Plan		· . ·	•
				•		•	
		Present (]	(ha)	Wit	With Project (ha)	1)	
•	Gross	Fallow	Net	Right of	of Ways	Net	
Sub-Area	Arca	$\frac{6}{1}$ etc.	Area(1)	Drainage (%) <u>2/</u>	<u>0n-Farm</u> (%) <u>3/</u>	Area(2)	(2) - (1) (h2)
llaraz Loft Bank							
High Land	8,070	1,360	6,710		350(4.3)	7,720	1,010
Middle Land	9,470	390	9,080	130(1.4)	410(4.5)	8,930	Δ 150
Low Land	9,650	340	9,310	210(2.2)	420(4.3)	9,020	Δ 290
<u>Haraz Right Bank</u>			·				
High Land	4,720	160	4,560	1	200(4.3)	4,520	△ 40
Middle Land	5,430	200	5,230	80(1.4)	250(4.3)	5,120	Δ110
Low Land	5,990	140	5,850	90(2.2)	170(4.5)	3,730	Δ 120
Kari Rud				·	. *		
lligh Land	8,390	- 600	7,790	ı	360(4.3)	8,030	240
Middle Land	13,890	500	15, 390	250(1.8)	600(4.5)	13,040	Δ 350
Low Land	9,000	800	8,200	260(2.9)	390(4.3)	8,350	150
Total							
lligh Land	21,180	2,120	19,060	1	010	20,270	1,210
Middle Land	28,790	1,090	27,700	460	l,240	27,090	A 610
Low Land	22,640	1,280	21,360	560	980	21,100	Δ 260
Total	72,610	4,490	68,120	1,020	5,130	68,460	540

Land use plan is limited only to paddy field. ./.... From Village Survey - 1985 ./.... Percentage of Right of Ways, from Survey in Sample Area.

Notes:

APPENDIX C. 2.

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Table C.2.1 Progress of Crop Production, Mazandaran Province

						110011100	
an a							
			Iran			Mazandaran	1
	Year	Area ('000 ha)	Yield (kg/ha)	Production ('000 ton)	Area ('000 ha)		Production ('000 ton)
Paddy	1971	344(100)	2,546(100)	877(100)	101(100)	2,814(100)	285 (100)
	1975	400(116)	2,558(100)	1,023(117)	139(138)	2,867(102)	398(140)
ing sin Sing sing sing sing sing sing sing sing s	1980	457(133)	N.A.( - )	1,114(127)	166(164)	N.A.( - )	527(185)
	1982	397(115)	2,766(109)	1,098(125)	169(167)	2,906(103)	491(172)
Wheat	1971	5,565(100)	649(100)	3,612(100)	207(100)	1,142(100)	236(100)
en e	1975	5,566(100)	784(121)	4,366(121)	212(102)	1,449(127)	307(130)
	1980	5,891(106)	N.A.( - )	N.A.( - )	432(209)	N.A.( - )	726(308)
	1982	5,059(91)	844(130)	4,270(118)	285(138)	1,350(118)	384(163)
Barley	1971	1,446(100)	589(100)	851(100)	92(100)	649(100)	60(100)
ana Tana	1975	1,439(100)	707(120)	1,019(120)	105 (114)	819(126)	86(143)
	1980	1,369(95)	N.A.( - )	1,201(141)	123(134)	N.A.( - )	106(177)
n agus an ann an Anna Anna Anna Anna Anna Anna	1982	1,831(127)	826(140)	1,512(177)	140(152)	668(103)	93(155)
Pulse	1971	210(100)	486(100)	102(100)	7(100)	1,033(100)	7(100)
	1975	327(156)	N.A.( - )	147(144)	2(29)	N.A.( - )	4(57)
	1980	207( 99)	N.A.( - )	227(223)	5(71)	N.A.( ~ )	9(129)
	1982	N.A.( - )	N.A.( - )	N.A.( - )	N.A( - )	N.A.( - )	N.A( - )
Sugar	1971	150(100) 2	25,222(100)	3,772(100)	1(100)	29,727(100)	26(100)
beet	1975	177(118) 2	25,272(100)	4,494(119)	-( - )	-( - )	-( - )
	1980	153(102)	N.A.( - )	3,694( 98)	-(-)	-( - )	-( - )
	1982	147( 98) 2		3,552(94)	-( - )	-( - )	-( - )
Cotton	1971	307(100)		466(100)	210(100)	1,628(100)	342(100)
	1975	282(92)	1,544(102)	436(94)	190( 90)	1,528(94)	291(-83)
	1980	N.A.( - )	N.A.( - )	N.A.( - )	N.A( - )	N.A.( - )	N.A( - )
	1982	180( 59)	1,520(100)	274( 59)	98(47)	1,770(109)	173(51)
	Contago da serie	1					

Source: Agricultural Statistics, Iran Statistic Center MPB

Table C.2.2 Crop Production Data, Mazandaran Province

		Cropping Are	s (1000 ha)			Production	1 ('000 ton)	
Crops	1971	1975	1980	1982	1971	1975	1980	1982
crops							an gereit.	101 5440 0
Paddy	101.3(29.4)	138.9(34.7)	165.7(36.3)	169.1(42.6)	285.1(32.5)	398.3(38.9)	526.9(47.3)	491.5(44.8)
Wheat	206.7( 3.7)	211.9( 3.8)	432.0( 7.3)	284.7( 5.6)	236.2( 6.5)	307.1( 7.0)	726.0(13.1)	384,3(9,0)
Barley	92.2( 6.4)	104.5( 7.3)	123.0( 9.0)	140.0( 7.6)	59.9( 7.0)	85.7(8.4)	106.0( 8.8)	93.5( 6.2)
Other cereals	3.9(10.2)		N.A.( - )	N.A.(-)	1.0( 2.5)		N.A.(-)	N.A.( - )
Pulses	7.2( 3.4)	2.0( 0.6)	5.2(2.5)	N.A.( - )	7.5(7.3)	3,9(2,6)	9.0(4.0)	
Sugar beet	0.9( 0.6)	N.A.( - )	N.A.(-)	N.A.( - )	25.9( 0.7)	N.A.( - )	N.A.(-)	N.A.( - )
Tobacco	4.3(23.0)	1.2( 9.3)	2.5(14.9)		3.4(21.8)	0.9( 8.9)	2,8(15.4)	N.A.( - )
Cotton	210.0(68.3)	190.1(67.4)	N.A.( - )	97.5(54.2)	341.8(73.3)			172.7(63.1)
Kenaf	2.1(96.4)	N.A.( - )	N.A.( - )	N.A.( - )	1.5(93.6)	the second se	N.A.(-)	N.A.( ~ )
Oil crops	28.7(37.7)	N.A.( - )	38.6(76.1)	N.A.( - )	17.3(31.9)	N.A.( - )	52,2(80.0)	N.A.( - )
Potato	1.4(6.0)	1.5( 3.7)	9.2(11.0)	10.6(12.4)	6.5(4.1)	8.8(3.2)	119.3(10.2)	99.3(11.8)
Onion	0.4(4.0)	1.0(6.8)	2.0( 4.9)	0.8( 3.0)	3.2( 2.9)	6.2 (2.8)	23.8( 3.7)	7.8( 1.4)
Tomato	0.3(2.1)	2.9(10.6)	N.A.( - )	N.A.( - )	2.2( 1.7)	18.5( 5.0)	N.A.( - )	N.A.( - )
Other					10 77 7 7)	N A ( )	N.A.(-)	N.A.( - )
vegetables	2.6(13.5)	N.A.(-)	N.A.(-)	N.A.(-)	15.3(-7.7)	the state of the second second		N.A.( - )
Cucurbits	7.7( 7.1)	N.A.( - )	N.A.( - )	N.A.( - )		N.A. ( - )		N.A.(-)
Alfalfa	1.3(0.5)	0 7( 0.2)	an an an Ar	N.A.( - )	5.5(0.7)	and the second second	N.A.( - )	N.A.(-)
Clover	0.2( 0.5)	2.6( 6.1)	5.8( 1.6)	N.A.( - )	0.9(0.4)	7.6(4.0)	-44.4( 1.8)	19 A 1
Other grass	2.2( 1.6)	N.A.( - )		N.A.(~)	8.3( 3.7)	N.A.(.~')		N.A.( - )
Other annual crops	1.6(7.4)	N.A.( - )	N.A.(-)	N.A.( - )	N.A.(-)	N.A.(-)	N.A.( - )	N.A.( - )
Orange	15.6(80.1)		N.A.(-)	N.A.( - )	63.9(76.1)	N.A.( - )	N.A.( - )	N.A.( - )
Other citrus	3.2(30.6)	19,1(37.0)	N.A.(-)	N.A.( - )	4.0(14.3)	N.A.( -' )	N.A.( - )	N.A.( - )
Apple	8.7(22.8)		N.A.(-)	N.A.( - )	19.2(21.1)	N.A.( - )	N.A.( - )	N A ( - )
Other Pomaceou		9.5(10.5)						
fruits	0.8(7,8)		N.A.( - )	N.A.( - )	1.1( 4.0)	N.A.( - )	N.A.( - )	N.A.( - )
Stone fruits	2.2( 4.3)	1.5( 3.1)	N.A.(-)	N.A.( - )	2.1(1.4)	N.A.(-)	N.A.( - )	N.A.( - )
Grape	0.3(0.2)	0.2(0.1)	N.A.(-)	N.A.( - )	0.9( 0.1)	1.3(0.2)	N.A.( - )	N.A.( - )
Fig & Pomegranate	5.2(15.2)	N.A.( - )	N.A.(-)	N.A.( - )	9,5(7)	N.A.( - )	N.A.( - )	N.A.( - )
Walnuts	0.6(7.0)		N.A.(-)	N.A.( - )	1.4(8.0)	영양 가 가 있는 것이 있는	N.A.(-)	N.A.(-)
Other fruits		•	N.A.( - )	N.A.(~)		N.A.(-)	N.A.( - )	N.A.(-)
	1.2(16.3)						N.A.(-)	N.A.( - )
Tea	2.7(13.5)	N.A.( - )	N.A.( - )	N.A.( - )	3.8(10.1)	N.A.( - )	вана (* )	n.v.( - )

( ) Percentage to total area of each crop in Iran. Source: Agricultural Statistics, Iran Statistic Center MPB

		Amol	and the second		Babol	
Year	Area	Yield	Production	Area	Yield	Production
	(ha)	(t/ha)	(t)	(ha)	(t/ha)	(t)
Paddy	hen ong anti- s	· · · · ·			-	· · · ·
1981	47,000	5.4	253,000	54,000	4.2	226,800
1982	48,000	5.4	259,200	55,000	4.4	244,255
1983	50,000	5.4	270,000	58,500	4.8	282,028
1984	52,000	6.2	320,000	60,000	5.9	356,760
1985	55,000	6.2	338,690	56,881	6.4	363,005
Average	50,400	5.7	288,180	56,880	5.2	294,570
Wheat		1			·	
1980	3,000	2.0	6,000	6,305	3.0	18,915
1981	3,500	2.0	7,000	7,361	2.5	18,402
1982	3,500	2.0	7,000	4,070	3.6	14,448
1983	3,000	2.0	6,000	5,200	4.0	20,800
1984	2,700	2.5	6,750	4,400	2.9	12,760
Average	3,140	2.1	6,550	5,467	3.1	17,065
Barley						
1980	350	1.5	525	625	1.0	625
1981	400	1.8	720	500	1.3	625
1982	400	1.8	720	600	1.2	720
1983	450	1.8	810	600	1.3	750
1984	500	2.0	1,000	550	2.0	1,100
lverage	420	1.8	755	575	1.3	764
laize &	Sorghum			-		
1980	-	- No data -		45	4.0	180
1981		- do -		50	4.0	200
1982	e se la	- do		60	4.0	240
1983		- do -		70	4.0	280
1984		- do -		80	4.0	320
verage				61	4.0	244
	- 11	· .				
Soybean 1980	720	2.0	1,440	3,000	0,9	2 700
1980	750	2.0	1,500	500	1.1	2,700 550
1982	920	2.0				
1982	700	2.0	1,840	1,300	0.9	1,170
1983	640	2.0	1,400 1,260	1,900 1,200	1.6 1.5	3,040 1,800
werage	744	2.0	1,488	1,580	1.2	1,852

Table C.2.3. Crop Production Data, Amol and Babol Sahrestan (1)

	•	·			والمراجع والمراجع	
		Amo1			Babol	
Year	Area	Yield	Production	Area	Yield	Production
lear	(ha)	$\frac{1101a}{(t/ha)}$	(t)	(ha)	(t/ha)	(t)
Broad Bea	an 350	2.0	700	1,000	3.0	3,000
1980	350	2.0	700	.960	3.0	2,880
1981 1982	400	2.0	800	900	3.0	2,700
1982	400	2.0	800	400	3.0	1,200
1983	400	2.0	800	250	3.0	750
Average	380	2.0	760	702	3.0	2,106
						e di serie d
Potato	1. A.	e e e	1			
1980	200	10.0	2,000	30	8.0	240
1981	200	10.0	2,000	30	8.0	240
1982	200	10.0	2,000	30	8.0	240
1983	250	10.0	2,500	45	6.0	270
1984	250	10.0	2,500	45	6.0	270
Average	220	10.0	2,200	36	7.0	252
Tomato					1	
1980	350	10.0	3,500	800	15.0	12,000
1980	400	10.0	4,000	1,000	15.0	15,000
1981	400	10.0	4,000	1,050	15.0	15,750
1983	400	10.0	4,000	1,100	15.0	16,500
1985	450	10.0	4,500	900	15.0	13,500
Average	400	10.0	4,000	970	15.0	14,550
			·	r.		
Onion 1980	20	12.0	240	230	12.0	2,760
1980	20	12.0	240	230	12.0	2,760
1982	20	12.0	240	250	12.0	3,000
1982	20	12.0	240	120	12.0	1,440
1985	30	10.7	320	100	12.0	1,200
Average	22	11.6	256	186	12.0	2,232
Garlic	· · ·					
1980	50	5.0	250	45	8.0	360
1981	50	5.0	250	40	8.0	320
1982	100	5.0	500	45	8.0	360
1983	100	5.0	500	45	8.0	360
1984	100	5.0	500	40	8.0	320
Average	80	5.0	400	43	8.0	344

## Table C.2.3Crop Production Data,<br/>Amol and Babol Shahrestan (2)

•	
Table C.2.3	Crop Production Data,
	Amol and Babol Shahrestan (3)

and the second second	a i presidente					· · ·
		Amo1			Babol	· · · · · · · · · · · · · · · · · · ·
Year	Area	Yield	Production	Area	Yield	Production
	(ha)	(t/ha)	(t)	(ha)	(t/ha)	(t)
Cucumber						
1980	300	12.0	3,600	2,000	10.0	20,000
1981	350	12.0	4,200	2,000	10.0	20,000
1982	400	12.0	4,800	1,800	10.0	18,000
1983	400	12.0	4,800	1,500	10.0	15,000
1984	450	12.0	5,400	1,800	10.0	18,000
Average	380	12.0	4,560	1,820	10.0	18,200
Spinach						Erick A
1980	350	6.0	2,100	40	4.0	160
1981	350	6.0	2,100	30	4.0	120
1982	400	6.0	2,400	25	4.0	100
1983	400	6.0	2,400	28	4.0	112
1983	400	6,0	2,400	30	4.0	120
1904		1. A.	-			. i .
Average	380	6.0	2,280	32	8.0	122
Lettuce						
1980	350	12.0	4,200	250	20.0	5,000
1981	400	12.0	4,800	250	20.0	5,000
1982	400	12.0	4,800	250	20.0	5,000
1983	400	12.0	4,800	250	20.0	5,000
1984	400	12.0	4,800	250	20.0	5,000
Average	390	12.0	4,680	250	20.0	5,000
Clover						
1980	350	15.0	5,250	60	12.0	720
1981	400	15.0	6,000	63	12.0	756
1982	400	15.0	6,000	1,000	12.0	12,000
1983	1,000	15.0	15,000	3,327	55.0	182,985
1984	2,000	20.0	40,000	6,111	55.0	336,105
Average	830	17.4	14,450	2,112	50.4	106,513
116-16-		· .				
Alfalfa	200	15 0	4 500	600	14.0	8,400
1980	300	15.0	4,500		14.0	2,800
1981	350	15.0	5,250	200		
1982	400	15.0	6,000	150	14.0	2,100
1983	400	15.0	6,000	100	14.0	1,400
1984	450	15.4	6,950	80	14.0	1,120
Average	380	15.1	5,740	226	14.0	3,164

Table C.2.3	Crop Production Data,
	Amol and Babol Shahrestan (4)

		Amol			Babol	
Year	Area	Yield	Production	Area	Yield	Production
• .	(ha)	(t/ha)	(t)	(ha)	(t/ha)	(t)
Green Ba	rley			а а а		
1980	200	15.0	3,000	160	30.0	4,800
1981	250	15.0	3,750	200	30.0	6,000
1982	300	15.0	4,500	250	30.0	7,500
1983	300	15.0	4,500	250	30.0	7,500
1984	300	15.0	4,500	280	30.0	8,400
Average	270	15.0	4,050	228	30.0	6,840
Cotton						
1980	· ·	-	·	450	8.0	3,600
1981		-	· <b>_</b> · · ·	400	10.0	4,000
1982				400	12.0	4,800
1983	-	· -	-	350	13.0	4,550
1984	-	- ` `		320	14.3	4,560
Average	-	_		384	11.2	4,302
Orange &	Tangerin	ie				
1980	1,400	10.0	14,000	2,678	12.8	34,300
1981	1,400	10.0	14,000	2,600	19.8	51,500
1982	1,400	10.0	14,000	4,000	22.0	88,000
1983	1,500	10.0	15,000	4,550	15.5	70,700
1984	1,600	10.0	16,000	5,300	14.7	78,000
Average	1,460	10.0	14,600	3,826	16.9	64,500

Source: Activities of Agricultural Development - Mazandaran Province, Amol Agriculture Office, Babol Rural Service Center

		Area (ha)	Yield
Crops	1983	1984	(ton/ha)
Paddy	67,919.0	68,122.0	6 - 7
Wheat & Barley	654.5	671.5	2 - 3
Pulses	414.0	315.5	2 - 3
Cotton	12.5	11.5	1 - 2
Onion	78.0	77.7	7 - 8
Garlic	122.8	123,6	3 - 4
Cucumber	577.8	569.4	11 - 13
Tomato	80.5	78.2	8 - 10
Eggplant	18.2	20.0	6 - 7
Melon	230.5	256.5	12 - 14
Pumpkin	110.0	110.0	6 - 8
Lettuce	65.9	78.8	12 - 14
Spinach	32.4	40.4	10 - 12
Radish	62.6	79.1	10 - 12
Other leaf vegetables	880.1	911.4	13 - 15
Fresh broad bean	819.9	958.6	3 - 4
Pumpkin (seed)	62.5	56.5	0.3 - 0.5
Parsley	1.0	-	6 - 8
Clover	864.9	1,379.6	20 - 30
Foxtail millet	59.0	70.0	2 - 3

## Table C.2.4Crop Production Data, the Project Area

Source: Village Survey - 1985

•	An	101	Ba	ibo1		al <sup>*/</sup>
Variety	1983	1984	1983	1984	1983	1984
Tarom		14,032.1 (31.3)			29,302.1 (43.1)	
Amo 1-3	10,593.8 (23.7)	22,327.6 (49.8)	7,726.5 (39.9)	12,308.5 (63.3)	19,725.3 (29.1)	36,808.0 (54.0)
Amo 1-2		1,529.6 (3.4)			4,582.6 (6.7)	-
Others	8,834.8 (19.8)	6,927.1 (15.5)	4,667.5 (24.1)	3,444.0 (17.7)	14,308.8 (21.1)	10,946.0 (16.1)
Total	<u>44,722.9</u> (100)	$\frac{44,816.4}{(100)}$	$\frac{19,381.5}{(100)}$	$\frac{19,440.5}{(100)}$	$\frac{67,918.8}{(100)}$	<u>68,122.2</u> (100)

## Table C.2.5 Cropping Area, Paddy in the Project Area (1)

Note:

\*/

..... inclusive of Areas of "not-available" (see Appendix F Village Survey - 1985) Table C.2.5 Cropping Area, Paddy in the Project Area (2)

In-ArcasTarronAmol-3Amol-3Amol-3Left BankLeft Bank19831984198319841983ah Land2,607(42)1,240(20)1,705(28)3,532(57) $421(7)$ ah Land5,449(72)2,674(35)1,288(17)4,225(56) $242(5)$ ah Land5,875(79)4,762(64)342(5)1,690(23) $405(5)$ ah Land870(20)485(11)2,230(52)5,069(72) $640(15)$ ah Land1,654(40)750(18)1,284(32)2,708(67) $162(4)$ ah Land1,654(40)750(18)1,284(32)2,708(67) $162(4)$ ah Land1,654(40)750(18)1,284(32)2,708(67) $162(4)$ ah Land859(14)429(7)5,055(50) $4,275(69)$ $486(8)$ ah Land859(14)1,401(11)6,610(52)9,992(78) $916(7)$ ah Land5,047(24)1,401(11)6,610(52) $9,992(78)$ $916(7)$ ah Land2,645(45)2,301(39)309(5) $1,234(21)$ $378(6)$ ah Land25,893(44) $16,599(28)$ $17,136(29)$ $916(7)$ ah Land25,893(44) $16,599(28)$ $17,136(29)$ $3,075(61)$ $804(9)$ ah Land25,893(44) $16,599(28)$ $17,136(29)$ $5,275(61)$ $804(9)$ ah Land25,893(43) $16,97(20)$ $2,589(30)$ $5,275(61)$ $804(9)$ ah Land $3,005(23)$ $1,2,05(29)$ $5,275(61)$ $804(9)$ ah Land $29,20$	T(170m)T(170m)Amol-3Amol-2Totalt198519841983198319831984t198519841983198319831983tbank2,607(42)1,240(20)1,705(28)3,553(57)421(7)229(4)6,198(100)6,Land5,875(79)4,762(64)342(5)1,705(55)157(2)7,407(100)7,ud5,875(79)4,762(64)342(5)1,690(25)40(15)356(8)4,250(100)4,nd870(20)485(11)2,230(52)5,008(72)640(15)356(8)4,250(100)4,nd1,634(40)750(18)1,284(32)2,008(67)102(2)4,917(100)4,nd1,534(40)750(18)1,284(32)2,008(67)102(2)4,917(100)4,nd859(14)429(7)315(6)810(17)129(5)102(2)4,917(100)6,nd3,047(24)1,401(11)6,610(52)9,992(78)916(7)258(2)12,759(100)12,nd3,047(24)16,599(28)17,156(29)31,536(51)316(7)258(2)12,759(100)59,nd3,409(59)16,599(28)17,156(29)31,535(55)316(7)2592(100)59,25,895(44)16,599(28)17,156(29)31,535(53)3779(6)169(53)5922(100)59,25,895(44)16,599(28)17,156(29)31,535(53)3,779(6)1,767(3)59,271(100)59, <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>(Unit: ha)</th>									(Unit: ha)
reas19831984198319841983t Bank2,607(42)1,240(20)1,705(28)3,532(57)421(7)and5,449(72)2,674(35)1,288(17)4,225(56)242(3)Land5,873(79)4,762(64)342(5)1,690(23)405(5)bit Bank870(20)485(11)2,230(52)5,069(72)640(15)and1,654(40)750(18)1,284(32)2,708(67)162(4)and1,654(40)750(18)1,284(32)2,708(67)162(4)and2,910(59)2,560(52)315(6)8,10(17)129(5)and859(14)429(7)3,055(50)4,275(69)486(8)and859(14)1,001(11)6,610(52)9,992(78)916(7)and2,910(59)1,697(20)309(5)1,234(21)378(6)and2,645(45)2,301(39)309(5)1,234(21)378(6)abile3,047(24)1,697(20)2,589(30)5,275(61)804(9)abile3,409(39)1,697(20)2,589(30)5,275(61)804(9)abile3,409(39)1,697(20)2,589(30)5,275(61)804(9)	recas19831984198319841983t Bank2,607(42)1,240(20)1,705(28)3,532(57)421(7)Land5,449(72)2,674(35)1,288(17)4,225(56)242(5)Land5,449(72)2,674(35)1,288(17)4,225(56)242(5)Land5,873(79)4,762(64)342(5)1,690(25)240(15)Int Bank870(20)485(11)2,230(52)5,069(72)640(15)and1,634(40)750(18)1,284(32)2,708(67)162(4)Iand1,634(40)750(18)1,284(32)2,708(67)162(4)and2,910(59)2,560(52)315(6)810(17)129(5)and859(14)429(7)5,055(50)4,275(69)486(8)I.and2,910(59)2,560(52)315(6)4,275(69)486(8)and859(14)429(7)5,055(50)4,275(69)916(7)and2,645(45)2,301(39)309(5)1,234(21)378(6)able2,409(39)1,697(20)2,589(30)5,275(61) $804(9)$ able3,409(39)1,697(20)2,589(30)5,275(61) $804(9)$ able29,302(43)18,296(27)19,725(29)36,808(54) $4,583(7)$			mo	And	01-3	Amo 1	-2		
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Land 5,449(72) 2,674(35) 1,288(17) 4,225(56) 242(3) nd 5,873(79) 4,762(64) 342(5) 1,690(23) 405(5) and 870(20) 483(11) 2,250(52) 5,069(72) 640(15) Land 1,654(40) 750(18) 1,284(32) 2,708(67) 162(4) nd 2,910(59) 2,560(52) 315(6) 810(17) 129(5) and 859(14) 429(7) 3,055(50) 4,275(69) 486(8) Land 2,947(24) 1,401(11) 6,610(52) 9,992(78) 916(7) nd 2,645(45) 2,301(39) 309(5) 1,234(21) 378(6) able 3,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9) 29,302(43) 18,296(27) 19,725(29) 36,808(54) 4,583(7)	Land 5,449 (72) 2,674 (35) 1,288 (17) 4,225 (56) 242 (5) ht Bank 5,873 (79) 4,762 (64) 342 (5) 1,690 (23) 405 (5) and 1,634 (40) 750 (18) 1,284 (32) 2,708 (67) 162 (4) 1,634 (40) 750 (18) 1,284 (32) 2,708 (67) 162 (4) 1,634 (40) 2,910 (59) 2,560 (52) 315 (6) 810 (17) 129 (5) and 859 (14) 429 (7) 3,055 (50) 4,275 (69) 486 (8) 1and 3,047 (24) 1,401 (11) 6,610 (52) 9,992 (78) 916 (7) able 3,409 (39) 1,697 (20) 2,589 (30) 5,275 (61) 804 (9) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 18,296 (27) 19,725 (29) 36,808 (54) 4,583 (7) 29,302 (43) 19,725 (29) 26,808 (54) 4,583 (7) 29,302 (43) 19,725 (29) 26,808 (54) 4,583 (7) 29,302 (43) 19,725 (29) 26,808 (54) 4,583 (7)	h Land	2,607(42)	1,240(20)	1,705(28)	3,532(57)	421(7)	229(4)	6,198(100)	6,194(100)
nd $5, 875(79)$ $4, 762(64)$ $342(5)$ $1, 690(25)$ $405(5)$ ntBank $870(20)$ $485(11)$ $2, 230(52)$ $5, 069(72)$ $640(15)$ and $1, 654(40)$ $750(18)$ $1, 284(32)$ $2, 708(67)$ $162(4)$ $1, 654(40)$ $750(18)$ $1, 284(32)$ $2, 708(67)$ $162(4)$ $1, 654(40)$ $750(18)$ $1, 284(32)$ $2, 708(67)$ $162(4)$ $1, 654(40)$ $2, 560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $3, 055(50)$ $4, 275(69)$ $486(8)$ $1, and$ $3, 047(24)$ $1, 401(11)$ $6, 610(52)$ $9, 992(78)$ $916(7)$ $1, and$ $2, 645(45)$ $2, 301(39)$ $309(5)$ $1, 234(21)$ $378(6)$ $25, 895(44)$ $16, 599(28)$ $17, 136(29)$ $31, 535(53)$ $3.779(6)$ $ah$ lc $5, 275(61)$ $804(9)$ $29, 409(39)$ $1, 697(20)$ $2, 589(30)$ $5, 275(61)$ $804(9)$ $29, 302(43)$ $18, 296(27)$ $19, 725(29)$ $36, 808(54)$ $4, 583(7)$	nd5,875(79)4,762(64) $342(5)$ $1,690(25)$ $405(5)$ ntBank $870(20)$ $485(11)$ $2.250(52)$ $5,069(72)$ $640(15)$ and $1,654(40)$ $750(18)$ $1,284(32)$ $2,708(67)$ $162(4)$ land $1,654(40)$ $750(18)$ $1,284(32)$ $2,708(67)$ $162(4)$ land $2,910(59)$ $2,560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $3,055(50)$ $4,275(69)$ $486(8)$ land $3,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ nd $2,645(45)$ $2,301(59)$ $309(5)$ $1,234(21)$ $378(6)$ able $25,895(44)$ $16,599(28)$ $17,136(29)$ $31,535(53)$ $3.779(6)$ able $3,409(39)$ $1,697(20)$ $2,589(30)$ $5,275(61)$ $804(9)$ $29,502(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	d'le Land	5,449(72)	2,674(35)	1,288(17)	4,225(56)	242 (3)	164(2)	7,575(100)	7,586(100)
ht Bank $870(20)$ $485(11)$ $2.250(52)$ $5,069(72)$ $640(15)$ Land $1,654(40)$ $750(18)$ $1,284(32)$ $2,708(67)$ $162(4)$ Land $2,910(59)$ $2,560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ land $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ and $2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)$ able $2,645(45)$ $2,301(39)$ $209(5)$ $1,234(21)$ $378(6)$ $25,895(44)$ $16,599(28)$ $17,136(29)$ $31,535(53)$ $5,779(6)$ $29,302(43)$ $1,697(20)$ $2,589(30)$ $5,275(61)$ $804(9)$	ht Bank $870(20)$ $485(11)$ $2.250(52)$ $5,069(72)$ $640(15)$ Land $1,654(40)$ $750(18)$ $1,284(32)$ $2,708(67)$ $162(4)$ Land $2,910(59)$ $2,560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ and $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ $1,and$ $2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)$ $25,895(44)$ $16,599(28)$ $17,136(29)$ $31,535(53)$ $5,779(6)$ $ahle$ $5,409(39)$ $1,697(20)$ $2,589(30)$ $5,275(61)$ $804(9)$ $29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	r . Land	5,873(79)	4,762(64)	342 (5)	1,690(25)	405 (5)	157(2)	7,407(100)	/,455(100)
and $870(20)$ $483(11)$ $2.230(52)$ $5.069(72)$ $640(15)$ Land $1,654(40)$ $750(18)$ $1,284(32)$ $2.708(67)$ $162(4)$ $162(4)$ and $2.910(59)$ $2.560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $3.055(50)$ $4.275(69)$ $486(8)$ Land $3.047(24)$ $1,401(11)$ $6,610(52)$ $9.992(78)$ $916(7)$ and $2.645(45)$ $2.301(39)$ $309(5)$ $1.234(21)$ $378(6)$ able $3.409(39)$ $1,697(20)$ $2,589(30)$ $5.275(61)$ $804(9)$	and $870(20)$ $483(11)$ $2.230(52)$ $5.069(72)$ $640(15)$ Land $1,654(40)$ $750(18)$ $1,284(32)$ $2.708(67)$ $162(4)$ 162(4) $162(4)and 2.910(59) 2.560(52) 315(6) 810(17) 129(5)129(5)and 859(14) 429(7) 3.055(50) 4.275(69) 486(8)1.and$ $3.047(24)$ $1,401(11)$ $6,610(52)$ $9.992(78)$ $916(7)1.and$ $2.645(45)$ $2.301(39)$ $309(5)$ $1.234(21)$ $378(6)25,893(44)$ $16.599(28)$ $17,136(29)$ $31,533(53)$ $5.779(6)ab1e$ $3,409(39)$ $1,697(20)$ $2.589(30)$ $5.275(61)$ $804(9)$	Right Bank		•		· · · · · · · · · · · · · · · · · · ·				:
Land 1, $634(40)$ 750(18) 1, $284(32)$ 2, $708(67)$ 162(4) and 2,910(59) 2, $560(52)$ 315(6) $810(17)$ 129(5) and $859(14)$ $429(7)$ 5, $055(50)$ $4, 275(69)$ $486(8)$ Land $3, 047(24)$ 1, $401(11)$ 6, $610(52)$ 9, $992(78)$ 916(7) and 2, $645(45)$ 2, $301(39)$ $309(5)$ 1, $234(21)$ 378(6) able $3, 409(39)$ 1, $697(20)$ 2, $589(50)$ 5, $275(61)$ $804(9)$	Land 1, $634(40)$ 750(18) 1, $284(32)$ 2, $708(67)$ 162(4) and 2,910(59) 2, $560(52)$ 315(6) $810(17)$ 129(5) and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ Land $5,047(24)$ 1, $401(11)$ 6, $610(52)$ 9,992(78) 916(7) 2,645(45) 2, $301(39)$ $309(5)$ 1, $234(21)$ 378(6) able $5,409(39)$ 1, $697(20)$ 2, $589(50)$ 5, $275(61)$ $804(9)$	h Land	870 (20)	483(11)	2,230(52)	5,069(72)	640(15)	356 (8)	4,250(100)	4,269(100)
and $2,910(59)$ $2,560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ Land $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ 2,645(45) $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)able 25,893(44) 16,599(28) 17,136(29) 31,535(53) 5,779(6)able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)$	and $2,910(59)$ $2,560(52)$ $315(6)$ $810(17)$ $129(5)$ and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ 1,and $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)able 25,893(44) 16,599(28) 17,136(29) 31,535(53) 5,779(6)able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)$	dle Land	1,634(40)	750(18)	1,284(32)	2,708(67)	162(4)	63(2)	4,070(100)	4,069(100)
and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ Land $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ 1,25,645(45) $2,501(39)$ $309(5)$ $1,234(21)$ $378(6)25,895(44)$ $16,599(28)$ $17,156(29)$ $31,535(53)$ $5,779(6)able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)$	and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ Land $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ 2,645(45) $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)25,895(44)$ $16,599(28)$ $17,156(29)$ $31,535(55)$ $5,779(6)able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)$	Land	2,910(59)	*	315(6)	810(17)	129(5)	102(2)	4,917(100)	4,891(100)
and $859(14)$ $429(7)$ $3,055(50)$ $4,275(69)$ $486(8)$ Land $3,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ 1,234(21) $378(6)able 2,645(45) 2,301(39) 309(5) 1,234(21) 378(6)25,895(44) 16,599(28) 17,136(29) \overline{31,535(53)} \overline{5,779(6)}able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	and $859(14)$ $429(7)$ $5,055(50)$ $4,275(69)$ $486(8)$ Land $5,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ 1,234(21) $578(6)able 2,645(45) 2,301(39) 309(5) 1,234(21) 378(6)25,895(44) 16,599(28) 17,136(29) \overline{31,535(53)} \overline{5,779(6)}able 5,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)29,302(43) 18,296(27) 19,725(29) \overline{36,808(54)} 4,585(7)$	Ind								
Land $3,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ ad $2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)$ 25,895(44) $16,599(28)$ $17,156(29)$ $31,535(53)$ $5,779(6)able 3,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	Land $3,047(24)$ $1,401(11)$ $6,610(52)$ $9,992(78)$ $916(7)$ nd $2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)$ 25,895(44) $16,599(28)$ $17,156(29)$ $31,535(53)$ $5,779(6)able 3,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,585(7)$	h Land	859(14)	429(7)	3,055 (50)	4,273(69)	486(8)	270(4)	6,129(100)	6,175(100)
nd $2,645(45)$ $2,301(59)$ $309(5)$ $1,234(21)$ $378(6)$ 25,893(44) $16,599(28)$ $17,136(29)$ $31,535(53)$ $5,779(6)able 3,409(39) 1,697(20) 2,589(30) 5,275(61) 804(9)29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	nd $2,645(45)$ $2,301(39)$ $309(5)$ $1,234(21)$ $378(6)$ 25,895(44) $16,599(28)$ $17,156(29)$ $31,535(53)$ $5,779(6)3,409(39)$ $1,697(20)$ $2,589(30)$ $5,275(61)$ $804(9)29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,583(7)$	dle Land	3,047(24)	1,401(11)	6,610(52)	9,992(78)	916(7)	258(2)	12,759(100)	12,868(100)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	25,895(44) $16,599(28)$ $17,136(29)$ $31,535(53)$ $5,779(6)$ $3,409(39)$ $1,697(20)$ $2,589(30)$ $5,275(61)$ $804(9)$ $29,302(43)$ $18,296(27)$ $19,725(29)$ $36,808(54)$ $4,585(7)$	Land	2,645(45)	2,301(39)		1,234(21)	378(6)	169 (3)	5,927(100)	5.,945(100)
3,409(39)       1,697(20)       2,589(30)       5,275(61)       804(9)         29,302(43)       18,296(27)       19,725(29)       36,808(54)       4,583(7)	3,409(39)       1,697(20)       2,589(30)       5,275(61)       804(9)         29,302(43)       18,296(27)       19,725(29)       36,808(54)       4,583(7)	tal	25,893(44)	^	•	31,535(53)	3,779(6)	1,767(3)	59,232(100)	59,449(100)
,296(27) 19,725(29) 36,808(54) 4,583(7)	,296(27) 19,725(29) 36,808(54) 4,583(7)	ai lable	3,409(39)			5,275(61)	804(9)	306 (4).	8,687(100)	8,673(100)
			29,302(43)		19,725(29)	36,808(54)		2,073(3)	67,919(100)	68,122(100)

Note: ( ) ... Percent to the total cropping area by Sub-Areas

Source: Village Survey - 1985

Table C.2.6 Cropping Area, Secondary Crops

(Unit: ha)

		Secondary Crops (1983)	ops (1983)	•		Secondary Crops (1984)		(p11 - 110)
Sub-Areas	Clover	Others	Total	Paddy	Clover	Others	Total	Paddy
llaraz Loft Bank		:						
High Land	281.5(4.5)	281.5(4.5) 308.5(5.0)	590.0(9.5)	6,198	421.5(6.8)	350.0(5.7)	771.5(12.5)	6,194
Middle Land	6.0(0.1)	6.0(0.1)	12.0(0.2)	7,575	7.0(0.1) 6.0(0.1)	6.0(0.1)	13.0( 0.2)	7,586
Low Land	3.0(0)	4.0(0.1)	7.0(0.1)	7,407	10.0(0.1)	1.0(0)	(1.0)0.11	7,453
Haraz Right Bank					· · · ·	•		•
High Land	66.5(1.6)	66.5(1.6) 36.0(0.8)	102.5(2.4)		119.2(2.8)	47.0(1.1)	166.2( 3.9)	4,269
Middle Land	I.4(0)		1.4(0)		5.4(0.1)		5.4(0.1)	4,069
Low Land	( - ) -	$\left(1-\frac{1}{2}\right) = 1$	( - ) -	4,917	$\left( \begin{array}{c} - \end{array} \right)$	(-)		4,891
Kari Rud	-						· · ·	
lligh Land	116.5(1.9)	71.8(1.2)	188.5(3.1)		231-5(3.7)	145.8(2.4)	377.3( 6.1)	6,175
Middlc Land	226.0(1.8) 302.5(2.3)	302.5(2.3)	528.5(4.1)	استشر	357.0(2.8)	357.0(2.8) 322.0(2.5)	679.0(5.3) 12,868	12,868
Low Land	( - ) -	(-)	( - ) -	5,927	$\left( \left( \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \end{array} \right) = \left( \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	( - )-	( - )-	5,945
Sub-total	700.9(1.2) 728.8(1.2)		1,429.7(2.4)	59,232 1	,151.6(1.9)	871.8(1.5) 2	1,429.7(2.4) $59,232$ $1,151.6(1.9)$ $871.8(1.5)$ $2,023.4(3.4)$	59,449
Not Available	147.5(1.7)	68.3(0.8)	215.8(2.5)	8,687	203.0(2.3)	203.0(2.3) 87.5(1.0)	290.5(0.3)	8,673
<u>Total</u>	848.4(1.2)	797.1(1.2)	1,645.5(2.4)	67,919 1	,354.6(2.0)	959.3(1.4) 2	848.4(1.2)  797.1(1.2)  1,645.5(2.4)  67,919  1,354.6(2.0)  959.5(1.4)  2,315.9(-5.4)  68,122  1000000000000000000000000000000000	68,122
Note: ( )	Note: ( ) Percent to	to the crop	the cropping area of paddy by sub-areas	paddy by	sub-areas			
Source: Village Survey -	lage Survey	- 1985						
	)					· · · · · · · · · · · · · · · · · · ·		-

Table C.2.7 Yield Components of Amol-3 in the Project Area

Contraction of the local division of the loc	
State of the local division of the local div	
and the second se	
	• •
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Yield

2/ Weight of

•		1.1			Vumber of	Number of Percentage		16	Veight OF	<b>NT TT 1</b>		Physical		Fortilizer	1.01
	Number of	Number of Number of Number	Number of	Number of	spikelets	of		1,000-	spikelets	Weight of 1,000 spikelets Weight of Weight of	Weight of		j. De	Amount	
Villades	panicles	hills ner m²	panicles	spikelets	per	ripened		grains	per	spikelets	spikelets	irri -	1.	Urea DAP	DAP
	(1)	(2)		(4)	(2)	(9)		(8)	(6)	(10)= (9)×(2)	(11)	X44101	4 D		kg/ha)
Marzon Kola	20.4	(1) (1)	188.0	4,277.5	208.7	60.0°°	61.3g	25.98	5.02	563.38	563.3%8	Good	Good	695	525
Tejenjar	19.8	11.8	252.7	4,254.0	212.7	61.1	60.4	25.2	3.0	702.6	702.6	E .	=	160	660
Hend Kola	18.3	9.1	165.6	5,449.5	191.6	84.6	68.6	221	5.8	631.0	631.0	:	z	580	580
Man amad-Abad	15.3	16.7	255.8	2,412.5	155.6	5 5 6	42 1	31.9	2.7	694.5	694 S	=	=	. <b>1</b> ·	1
Kabood Kola	12.4	13.6	196.1	2,436.0	174.0	71.8	45.0	24.6		602.0	602.0	Bad	Bad	575	500
Atad moon	15.5	14.6	194.0	2,140.0	158.5	61.6	54.1	25.8	2.5	489.9	489.9	:	=	170	170
Garicard	15.8	10.9	171.7	2,989.0	186.8	76.9	57.6	25.1	5.6	618.0	618.0	:	. 2	125	125
Shir Mahalleh	17.7	13.2	253.6	2,961.5	174.2	68.8	50.0	24.5	5.	686.9	686.9	2 2 ≢ 2 2	Poor	100	

 Selected by salt water of specific gravity 1.05
 Inclusive of 14% moisture
 Average number of panicles of 150 hills by villages Note:

(4)-(9) ... Average number of the representative 2 hills out of 150 hills by villages.

Source: Yield Survey by JICA Team in 1985

Table C.2.8. Data of Yield, Paddy

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·		Yield on/ha)		4.5	6.5	4.4	M	v	y u s u	•	
	5	Yield (ton/ha)	2	4	· \C	t - 1	4	<b>بر</b>	o ve	5	· .
larestan	1985 Cultivation	Portion (%)	52.5	19.5	5	10	ň	v X	с с г	100	
Babol Sharestan		(ton/ha)	- - - - - - -			ta -					
	Cultivation	rorrion (%)		•		- No data					
	CSU LICEN	(ton/ha)	8.1	4.8	7.3	4.5	5.4	6.5	1		
Shahrestan .	Cultivation Portion	(%)	33	41	œ	ω	2	e		100	
Amo 1	Yteld	(ton/ha)	6.12	4.32	4.77	4.35	4.51	4.48	6.51		
1007	Cultivation Portion	(%)	52	22	8.4	9 9	5.8	3-8	2	100	RTSC of Babol
•	Variety		1. Amo1-3	2. Tarom	3. Gerdeh & Champa	. Rashti	5. Shastak Malek Abkenari & Binam	6. Mesbah	Amo1-2	Total	Source: A0 of Amol. ARTSC of Bahol

Table C.2.9 Earming Practice of Paddy in the Project Area

•			•	
		H	Sep. -Oct.	Aug. -Scp.
- 		m	May -Jul.	-op-
d-1/		M	Apr. -Jun.	-op-
Working Period <sup>1/</sup>		:L.	Apr. -Jun.	Apr. -May
Workin		F	Apr. -May	-op-
- 1 - 1 - - 1 - 1			Mar. Apr. Apr. -May -May -May	· · · ·
			Mar. -May	-op-
		z	Mar. -Apr.	-op-
(	cals	Diasion	63	4 60
Input Material (kg/ha)	Chemicals	Ronstar L/ha	а. Б	00 04
Matcri	с1 УМ	DAP	243	
Input	Forti- lizor	Urca	259	144
•.		Scod	54 4	ی ا
2000 1200 1000 1000	•		$\frac{\text{Amol}-5}{(20)2/}$	Tarom (18)

Each input amount is average of the amount applied by sample farmers. Notes:

Sources: Farm Economic Survey, Village Survey - 1985

l Working	
ltura.	
Frequency of Agricu	
Table C.2.10	

NOX	÷
requercy or Agricultural	Arca
H Fa	_≤
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כלמנו	the
4	ц.
·	

Remarks

	Insecticide Application		1 (5)	2 (10)	17 (85)	20 (100)			5 (28)	13 (72)	18 (100)	
armers	Weeding		4 ( 20)	9 (45)	7 (35)	20 (100)	• • •	6 (33)	9 (50)	3 (17)	18 (100)	
Number of Farmers	Fertilizing		11 ( 55)	6 ( 30)	3 (15)	20 (100)		13 (72)	5 (28)	* . • . • .	18 (100)	
	Plowing in winter			[ 2( 32)]		[[20(100)]]	·		[ (62 )/]		[18(100)]	
	Work Frequency		<b>r</b> ⊶4	0	3 2	Total		1	6	ю 5	Total	
		<u>Ano 1 - 3</u>			·		Tarom		 		•	

Note: ( )....Percent to the total number of the sample farmers Source: Farm Economic Survey Farm Economic Survey

				÷.		•																						
	Incrementa1	Production (2) - (1)	(ton)	13,331	Δ4,670	18,001	10,022	4,44U	3,950	12	•	13,076	51	9,59		2,28	∆6 <b>,</b> 825	9,11		38,692	△18,013	56,705	10,022	4,440	I,620	3,950	12	
Project (1)	ect	Production (2)	(ton)	57,607	6,401	51,206	12,640	4,/40	3,950	2,130		*	7,40	, 22	·	67,305	7,48	82	• .	1,54	ŝ	0,25	2,64	$\sim t$	$\sim$	3,950	$\sim$	
and without P	With Prof	Yield	(ton/ha)		4.2	8.4		200	2.6	20			4.2	•			4.2				4.2			90 90	20	25	9	
with		60 C	(ha)	7,620	1,524	6,096	762	001 10	158	355		8,814	,76	,05		•	1,781	-1 -		,33	5,06	,26	762	ഗ	16	158	ŝ	-
p Production	ct	Production (1)	(ton)	44,276	11,071	33,205	2,618	000		2,118		53,557	ŵ.	ດົ		02	÷.	0,71		2,8	39,299	ີ ເ		300	200	I	2,118	
2.11. Crop	hout Project	Yield	(ton/ha)		4 2	٠		000	) I	9			9 <b>.</b> 0	•			9 <b>.</b> 0	•			4.0	7.7		30	20	1	Q	
Table C.	μžμ	Cropping Area	(ha)	6,589	2,636	3,953	373		) i	353		8,926	3,570	5,356		9,170	3,668	5,502		24,685	9,874	14,811	373	10	10	I.	353	
	Haraz Left Bank	Crops and a second	Hich Land	Paddy	Local Variety	Improved Variety	Winter Vegetables	Le c Luce So i nach	Radish	Broad Bean	Middle Land	Faddy	Local Variety	Improved Variety	Low Land	Paddy	Local Variety	Improved Variety	Total	Paddy	Local Variety	Improved Variety	Winter Vegetables	Lettuce	Spinach	Radish	Broad Bean	

Table C.2.11. Crop Production with and without Project (2)

t Incremental	oduction (2)				⊲		10,604 10,310				294 0		$\nabla$	33,953 11,124		27,837 5,086		• <b>-</b> 7							1,620 1,620		
With Project	Yield	(ton/ha)			٠	8.4		30	20	25	6		4.2	8.4			4.2	8.4			4.2	8.4		30	20	25	9
	Cropping Area	(ha)		4,461	892	3,569	446	158	81	158	49	л. О53	1.011	4,042		3,682	736	2,946		13,196	2,639	10,557	446	158	81	158	49
ect t	Production (1)	(ton)	, 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1 , 1	30,093	7,522	22,571	294		ł	ŀ	294	7.0 847	8,018	22,829		22,751	•	16,835		83,691	21,456	62,235	294	ł	<b>I</b> • . •	.1	294
Without Project		(ton/ha)			•	8.4		1	I	I	9		6°8	7.4			6 <b>°</b> E	7.4			4.0	7.7		1	1	1	ę
Wit	Cropping Area	(ha)		•	1,791	,68	49	1	ł	I	49	171 A	2,056	3,085		3,792	1,517	2,275		13,411	5,364	8,047	49		1	ł	49
Haraz Right Bank	Crops		High Land	Paddy	Local Variety	Improved Variety	Winter Vegetables	Lettuce	Spinach	Radish	Broad Bean	Middle Land	rauny Incal Variety	Improved Variety	Low Land	Paddy	Local Variety	Improved Variety	TO to 1	Paddy	Local Variety	Improved Variety	Winter Vegetables	Lettuce	Spinach	Radish	Broad Bean

			•		•		· · ·																			
	Incremental	Production $(2) - (1)$	(ton)	8,513	14,708	15,755	7,410	2,420	5,925	0		18,325	△9,723	2α,048 Α	o (		13,842	∆5,679	19,521		40,680	∆ 21,597	1/7,20	10/°CT	014° 0	1,440 1,00 1,00
coject (3)	ect	Production (2)	(ton)	59,921	53.264	17,643	7,710	2,620	6,425	888		97,297	10,811	80,480 1 836	1,836		62,303	6,922	55,381	.*	5	5.	195,131	J \ 1	/ TU	4 2 4 2 F
without Pr	With Proje	Yield	(ton/ha)		4 00 1 -1		30	20	25	9	÷		4°5	ð.4	Ŷ			4.2	8.4	-		4•7	x 4	. C	000	5 V C
with and		Cropping Area	<u> </u>	7,926	1,30J 6,34l	793	257	131	257	148		12,870	2,574	306	306		8,241	1,648	6,593		29,037	5,80/	23,230	L, UYY 257	107	101 057
Crop Production with and without Project (3)		LO LO	(ton)	51,408	38,556	1,888	300	200	500	88 88 88		78,972	20,534	J0,430 1 830	1,830		48,461	12,601	35,860		178,841	45,98/	132,854	5,/10	000	2005
	Without Projec	1 01	(ton/na)		• • • • • •	• •	30	20	25	9		•	ი. ი	÷./	9			с. С	7.4		-	- - -	1.1	000	D C n c	0 م م
Table C.2.11.	Witl		(na)	7,650	4,590	188	10	10	20	148		13,162	5,265	1,041 205	305		8,077	3,231	4,846		28,889	11,556	1/,333	4 4 7 7		
· · · · · · · · · · · · · · · · · · ·	<u>Kari Bank</u>	Crops	High Land	Paddy	LOCAL VALLELY Improved Variety	Winter Vegetables	Lettuce	Spinach	Radish	Broad Bean	Middle Land	Paddy	Local Variety	umproved variety Winter Vecetables	Broad Bean	Low Land	Paddy	54	Improved Variety	Total	Paddy	Local Variety	Improved Variety	WINTET VEGETADIES	Lettuce	opinacn Badish

Characteristics	Amo1-3	Tarom
growing period	late (140 days)	early (120 days)
plant type	erect	medium
colum height	118 - 120 cm	160 - 170 cm
tillering capacity	large	medium
lodging resistance	strong	weak
photoperiodic sensitivity	neutral	neutral
number of grains per panicle	155	96
length of panicle	23.5 cm	22.6 cm
weight of panicle	3.1g	1.23g
weight of 1,000 grains (unhulled)	25.8g	22.4g
shape of kernel	5.03	
disease resistance	blast R sheath blight M.S	blast S
insect resistance	stem borer M.S leaf hopper M.S	stem borer M.S leaf hopper M.S

Table C.2.12. Characteristics of Rice Varieties

Source: Amol Rice Research Station

		% ot 7	produc-	tive +flor	85.0		· · ·				87.0		·			86.0				86.0	-
of Rice	Taron		Average of	panicles	15.6						16.5	- - -				16.0				16.0	
Percentage of Productive Tiller of Typical Varieties of Rice			Average of	max. tillers	18.4	-		·			19. N	•		·		18.5				18.7	
Ler of Typi					80.0	77.0	72.0	64.0	88.0	76.2	70.0	73.0	86.0	76.0	76.3	77.8	94.5	14.3	75.2	78.1	-
luctive Til	Amo 1-3			(a)	15.3	17.2	16.9	15.6	18.4	16.7	0 61	19.0	18.0	17.0	18.3	15.8	19.2	TOT	20.8 18.0		-
tage of Proc			•		19.2	22.2	23.6	24.3	21.0	Ave. 22.1	6.70	26.0	21.0	22.4	Ave. 24.2	20.3	20.3	20.2	Ave. 22.1		
3. Percen				(J)	80.0	81.0	87.0	81.0	87.0	83.4	84.0	84.0	70.0		79.3	84.0	81.0		82.6	81.8	C + c + c +
Table C.2.1	Amo1-2			(a)	16.9	17.0	19.7	18.6	20.1	18.5	22.0	16.0	17.1		18.4	17.6	19.7		18.4		
T				(γ)	21.0	21.1	22.6	23.0	23.1	Ave. 22.2	26.2	0.91	24.5		Ave. 23.2	20.8	24.3		Ave. 22.6		
			•	1 COV			1983	•				1984	 		*		1 7 0 C		~	Ave.	

Source: Amol Rice Research Station

(A) ... Number of tillers per hill at maximum tillering stage
(B) ... Number of panicles per hill at ripening stage
(C) ... Percentage of productive tiller Note :

Table C.2.14. Researches at the Rasht and Amol Rice Research Stations

Research Fields	Intention of Research	Subject	Researchers Rasht	S Amol
Breeding	breeding of new, high yield, good quality and disease resistance variety.	(1) collection of parents for crossing. (2) crossing and $F_1$ , $F_2$ pedigree system. (3) yield trials (small and large scales).	2 (breeder) (1	2 (breeder)
Agronomy	best technics for pro- ducing high yield of rice in paddy.	<ol> <li>(1) date of sowing and rate of sowing.</li> <li>(2) transplanting rate.</li> <li>(3) water consumption and water stress.</li> <li>(4) fertilizer application for cultivating new varieties.</li> </ol>	2 (agronomist) (ag	2 (agronomist)
Pest and Disease	<ul> <li>(1) best way for disease and insect control.</li> <li>(2) biological control for stem borow.</li> </ul>	<ol> <li>time of insecticides application.</li> <li>selection of disease resistance variety to blast.</li> <li>selection of insect resistance variety to stem borow.</li> <li>date of sowing in relation to the appli- cation of insecticides.</li> <li>biological control to stem borow.</li> </ol>	c (ento	l (entomologist)
Mechanization	mechanization of transplanting and harvesting of rice	<ol> <li>trials of rice transplanter for paddy</li> <li>tows, 4 rows, 6 rows)</li> <li>test of harvestors in several types</li> <li>study of adaptable method to mechani- zation in rice cultivation.</li> </ol>	I (mechanist)	
<pre>* Following rese (1) soil ferti (2) Pest and d (3) rice breed Note: Source</pre>	arches are proceeding jo lity and rice growing: isease in rice plant: ing: jointed with the l Amol Rice Research Stat	jointly with other organizations; jointed with the SWRL. jointed with the PPDRL. IRRL ation		

				•h%+u§	5 0010			110]0				
Crops	Jan 1 I	Feb	Mar LL S	Apr 1 I	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Paddy (Amo1-3)			8	Ť				H				
Paddy (Tarom)			74.				······			(Ratool	ng )	
Wheat										(111000)		
Barley			G.H		H							
Berseem			P									
Cucumber		-	r-<									
		e e			<b>``</b>		λ					
Tomato			, , , , , , , , , , , , , , , , , , ,	//	<b></b>		/	<b>&gt;</b>				
Eggplant		4									<b></b>	
Broad bean				G.H	$\leq$							
Spinach & Radish									×.		(	
Lettuce												
											` <b>^</b>	
Onion												
Garlic												
T	t: Tra	wing anspla	nting	L					L		L,	L
H G.H	l: Ha l: Ha	rvesti	ng ng as	green								
	en e	•		н н 1								

### Figure C.2.1 Cropping Calendar in the Project Area

	Period	
ltems	J, F, M, A, M, J, J, A, S, O, N, D	Remarks
Nursery Preparation		Seed Selection with Salt Solution (a Few Farmers) Seed Soaking (1-2 days) in Canal Seed Amount: 50 - 60 kg/ha Fertilizer : Urea 10-20 g/m <sup>2</sup> , 10-20g/m <sup>2</sup>
Plowing	1 - 2 times	by Tiller with Plow About 40% of farmers plow in <del>*/</del> winter.
Harrowing & Levelling	2 - 4 times	by Tiller with Harrow and Cargo Rotary and/or Land Leveller
Transplant <del>.</del> ing		Random Planting 5-7 Seedlings per Hill by Hand Planting Distance: 25 - 30 cm
Fertilizer Application	1 - 3 times	Tarom: Urea 144 kg/ha, Dap 141 kg/ha <sup>*/</sup> Amol-3: "259 ", "243 " More than 60% of farmers supply only basal fertilizer.
Weeding	2 - 3 times	Tarom: Ronstar 3.8 l/ha */ Amol-3: " 3.3 l/ha
Insecticide Application	2 - 3 times	Tarom: Diasinon 43 kg/ha */ Amol-3: "63 kg/ha
Harvesting	Tarom Amol-3	by Hand with Sickles Stubble Hight: 30 - 40 cm
Threshing	Tarom Anol-3	by Threshing Machine with Tiller's Engine or Large-Scale Combine (a Few Fields in Nigh Land)

# Figure C.2.2 Present Farming Practice (Paddy) in the Project Area

\*/ the Result of Farm Economic Survey

Source: Farm Economic Survey, Village Survey - 1985

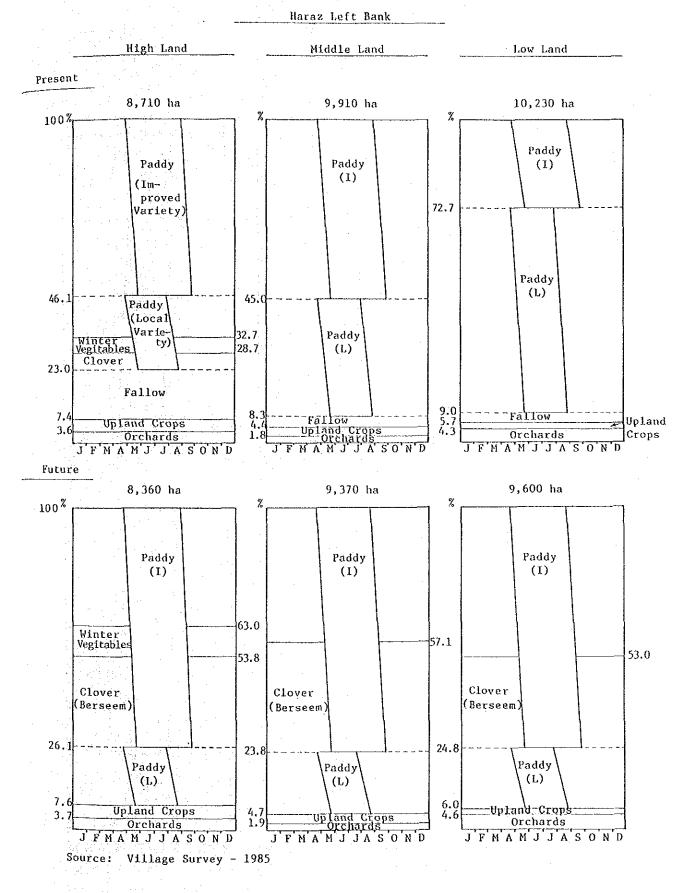


Figure C.2.3 Present and Future Cropping Pattern (1)

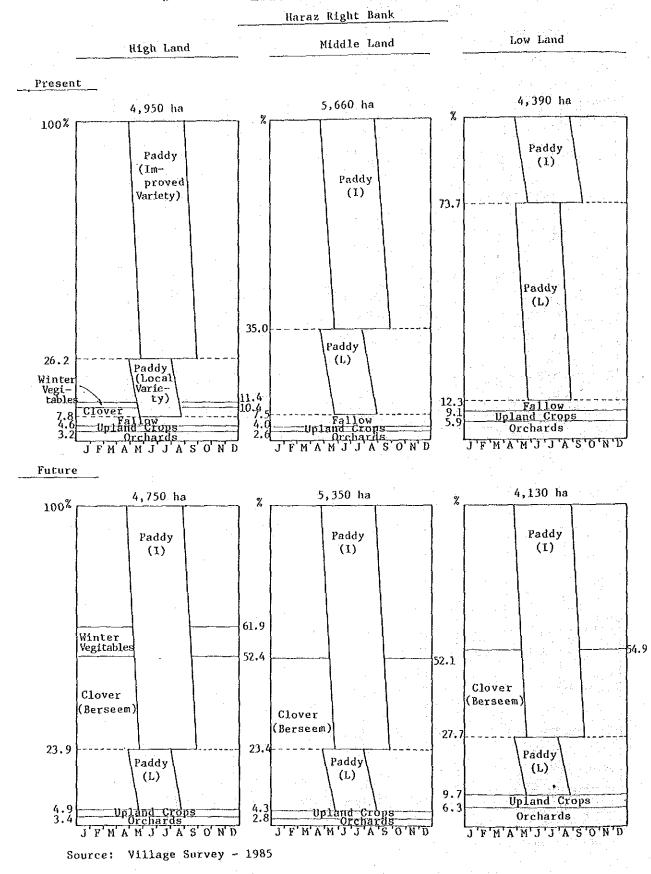
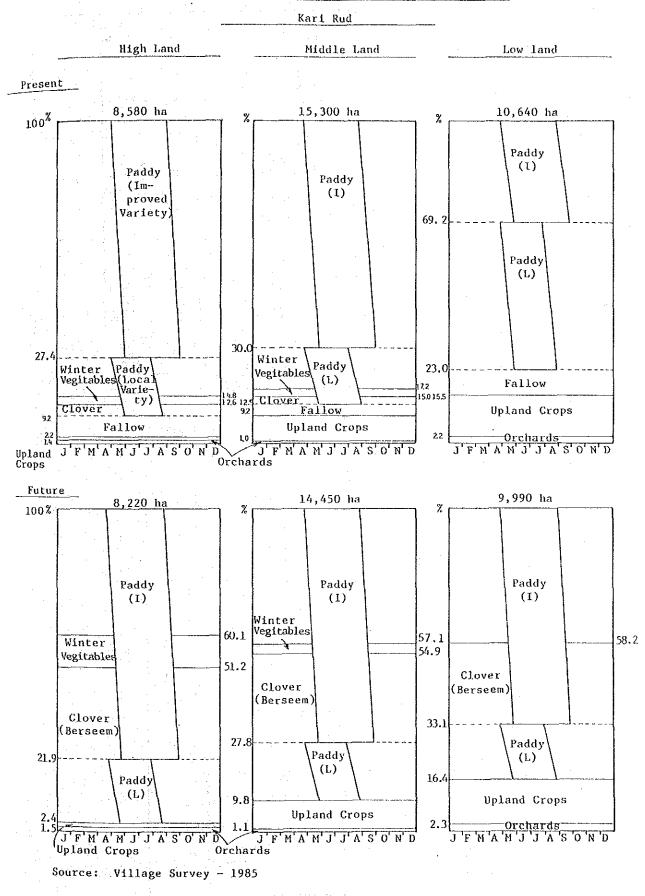


Figure C.2.3 Present and Future Cropping Pattern (2)



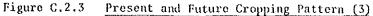
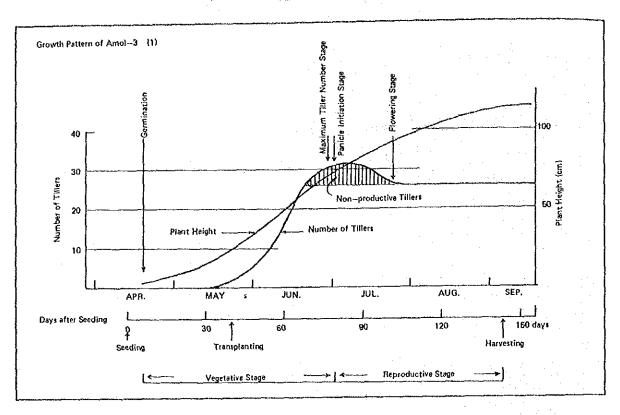
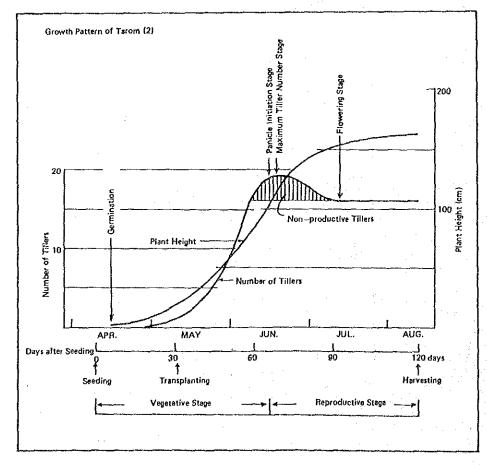
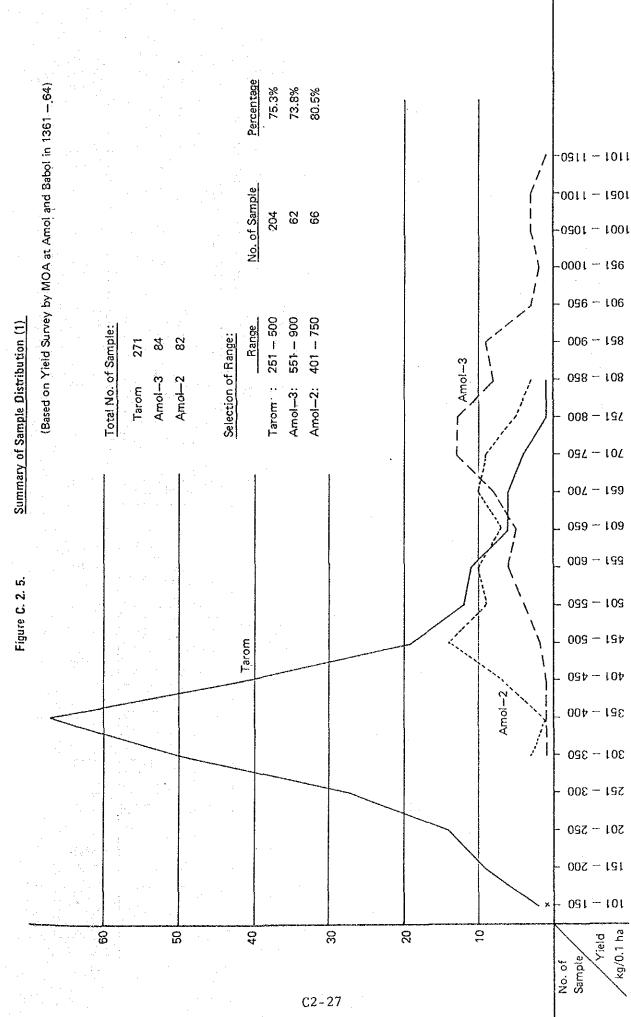
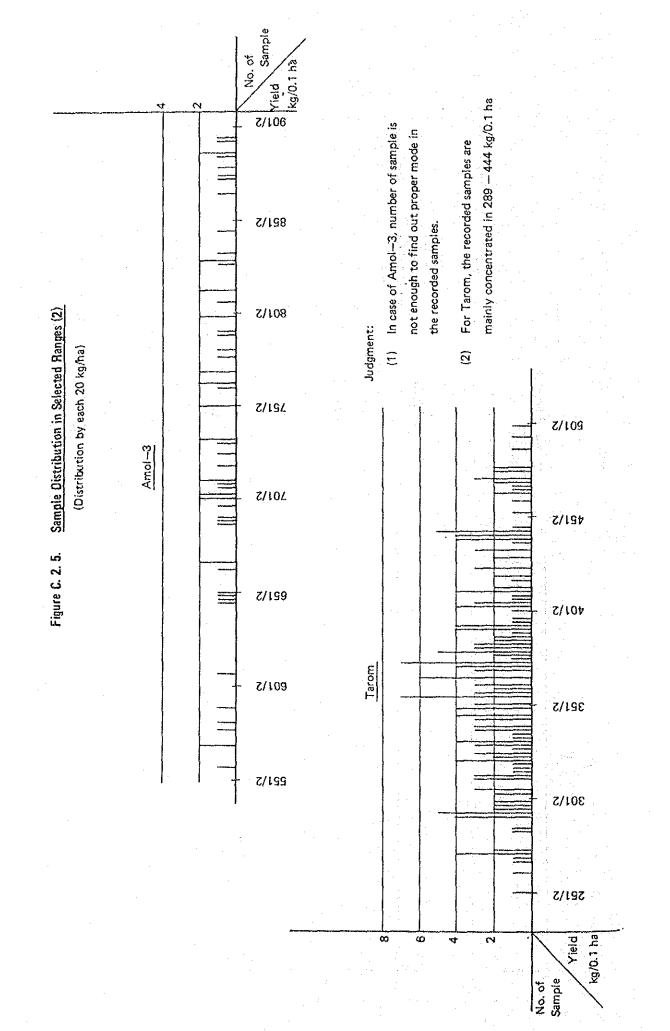


Figure C. 2. 4. Growth Pattern

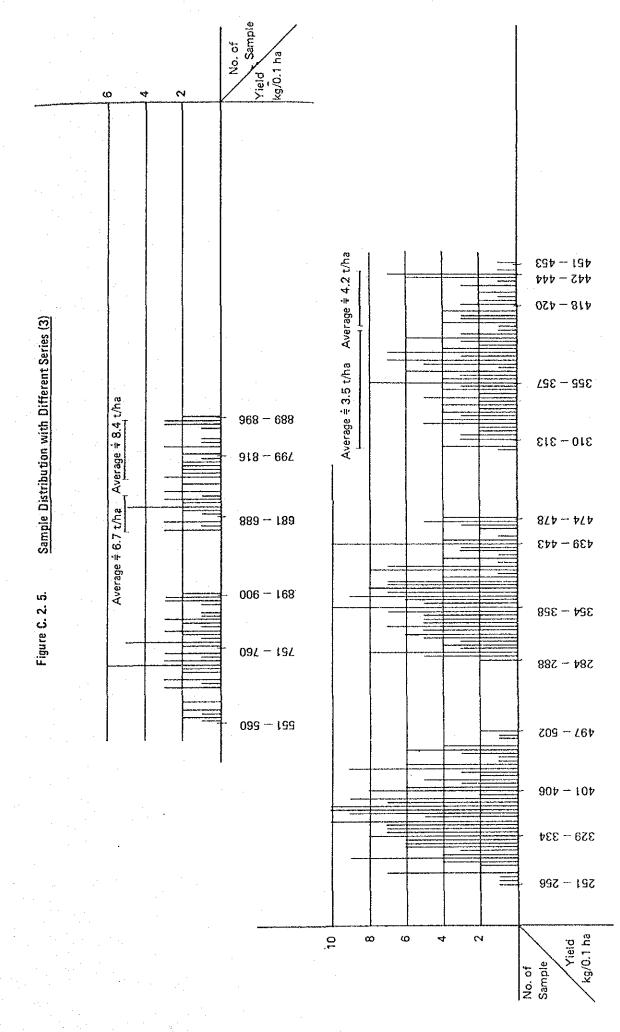








C2~28





C

# APPENDIX C. 3.

## LIVESTOCK

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		(Unit: head)
	1980	1982
Cows	3,599,000	5,102,000
Sheep	30,962,000	34,605,000
Goats	17,358,000	18,663,000
Camels	NA	105,000
Horses	NA	255,000
Donkeys	NA	2,028,000
Poultry	NA	NA
Source:	Statistical	Center of Iran

#### Table C.3.1. Number of Livestock in Iran

#### Table C.3.2. Meat Production in Iran

		· · · · · · · · · · · · · · · · · · ·	(Ur	nit: tons)
	1980	1981	1982	1983
Beef	50,323	44,889	54,774	80,893
Sheep Meat	108,024	90,438	92,535	117,615
Goat Meat	17,229	16,018	21,230	24,099
	Courses St	entictical Co	ntor of Tra	ń

Source: Statistical Center of Iran

Table C.3.3. Number of Slaughtered Livestock in Iran

			(Unit: head)
	1980	1981	1982
Cows	536,000	484,000	525,000
Buffaloes	23,000	22,000	27,000
Sheep	5,863,000	4,778,000	4,800,000
Goats	1,189,000	1,152,000	1,531,000
Came1s	21,000	23,000	27,000
		1 0	T M A A

Source: Statistical Center of Iran

Table C.3.4. Number of Livestock in Mazandaran

(Unit: head, birds)

13,085 4,600 11,030 53,000 164,708 50,227 NA NA MA NA NA NA NA Babol Shahrestan 1984 7,740 19,000 20,000 800 11,030 520,000 131,250 158,000 NA NA NA 1982 NA NA 53 9,000 4,000 20,000 24,260 112,000 200,000 NA NA NA NA ΝA NA 1984 Amol Shahrestan 4,120 36,800 305,000 30,000 5,000 1,200 123,000 117,520 NA NA NA NA ΜA 1982 1,256 66,138 30,639 I,661,300 227,830 563,836 133,407 NA NA NA NA NA NA 1984 Mazandaran 17,000 6,000 4,300 43,000 1,367,900 72,140 164,910 101,000 12,540 2,590,000 616,800 NA . MA 1982 Modern Bee Hive Local Bee Hive Local Chicken Hybrid Cow Local Cow Pure Cow Buffaloe Goose Turkey Donkey Sheep Goat Horse

Source: The Bulletin of Livestock and Pasture Planning Committee, Amol Agricultural Office

Table C.3.5. Results of Village Survey

				Pro	Project Area	· ·			•
							ÅVer	וחו	44
	Amol		Babol		Total		Animal	al per Farm	Ē
	No. of Farms	No. of	No. of Farms	No. of	No. of Farms	No. of			Project
Animals	with Animals	Animals	with Animals	Animals	with Animals	Animals	Amol	Babol	Area
Milk Cow	3,215	6,825	1,636	2,814	4,851	9,639	2.1	1.7	2.0
(pure, hybrid)							-	•	
Milk Cow (local)	19,347	48,086	10,904	22,281	30,251	70,367	2.5	2.1	2.3
Cattle for Meat	4,281	5,634	3,764	5,046	8,045	10,680		1.3	ۍ <b>.</b> ۲
Sheep	846	67,557	348	21,149	1,194	88,706	79.9	60.8	74.3
Goat	906	5,503	115	386	1,021	5,889	6.1	3.4	5.8
Chicken (local)	31,528	255,391	17,281	140,199	48,809	395,590	8.1	8.1	8.1
Chicken	units		units	Ŋ	units	"			
(industrial)	105 1	1,250,500	9	120,100	111	1,370,600	11,909.5 20,016.7 12,347.7	0,016.7 1	2,347.7
Duck	27,174	228,688	14,640	124,052	41,814	352,740	8.4	8.5	8.4
Goose	15,964	57,440	8,752	28,237	24,716	85,677	3.6	3.2	3.5
Turkey	1,942	7,245	661	4,243	2,603	11,488	3.7	6.4	4.4
Bee	119 <sup>boxes</sup>	<sup>5</sup> 3,328	14	150	133	3,478	28.0	10.7	26.2

Source: Village Survey - 1985.

Usually 3 to 5 rotation have been carried out in the industrial poultry farm. Note:

Table C,3.6.	Number of	Slaughtered	Livestock	in Amol	and Babol

(Unit:	head	1)

	19	81	. 1	1982 1983				
	Amo1	Babol	Amo1	Babol	Amo1	Babol		
Cows	9,641	16,244	8,862	14,998	11,467	19,511		
Buffaloes	0	86	. 0	221	0	87		
Sheep	51,129	32,528	58,270	39,560	75,825	60,034		
Goats	23,844	15,962	30,233	18,531	37,240	21,935		

Table C.3.7. Meat and Dairy Products Production (Mazandaran)

			(Unit:	tons)
	1980	1981	1982	1983
Beef	6,343	6,303	7,047	8,661
Sheep Meat	6,999	6,244	7,321	9,233
Goats Meat	2,400	1,909	2,066	2,203
Fresh Milk	1,336	854	749	1,606
Mast	1,319	2,368	2,857	2,691
Dough	400	151	NA	NA
Karehe	78	152	345	514
Note:	Mast - Vochur	Vonaha		

Mast = Yoghurt, Karehe = Butter, Dough Note: = Drinking Yoghurt

Source: Mazandaran Statistical Center

Table C.3.8. Number of Cattle Inseminated Artificially

						(Uni	t: head	1)
M	azandar	an	Amo1	Shahre	stan	Babo	1 Shahre	estan
1982	1983	1984	1982	1983	1984	1982	1983	1984
1,589	2,527	4,282	335	357	487	336	600	843

### Table C.3.9. Farm-gate Price

tau.	Le 0.3.	9.	rarm-	gate Price
		•••		 
Fresh Milk	(ria	1s/l	(g)	70 - 100
Yoghurt	(	. H	• )	80 - 100
Butter	(	11	, <b>)</b>	1,200 - 1,500
Chicken	( <sup>1</sup>	11	)	215
Goose	(ria	1s/l	oird)	2,500 - 3,000
Duck	·	11	)	1,200 - 1,500
Turkey	(	11	)	4,000 - 4,500
Wool	(ria	ls/1	(g)	140
Egg	(	Et -	)	155
Concentrate	. <b>(</b>	.11	)	32 - 35
Barley Grain	. (	11	)	42
Maize Grain	с. С.	11	)	28
Rice Bran	· : (	**	)	32 - 35
Cotton Seed Ca	ike(	"	)	52.5

			Pure Cow	Hybrid Cow	Local Cow
Adult Cow (ria	ls/hea	d)	300,000-450,000	200,000-250,000	100,000-150,000
Heifer (	11	)	300,000-400,000	150,000-200,000	80,000-100,000
Bull Calf (	. <mark>11</mark> 	)	225,000-250,000	150,000-180,000	70,000- 80,000

C.3.1 Organization Chart of Animal Husbandry Office and Veterinary Office Figure

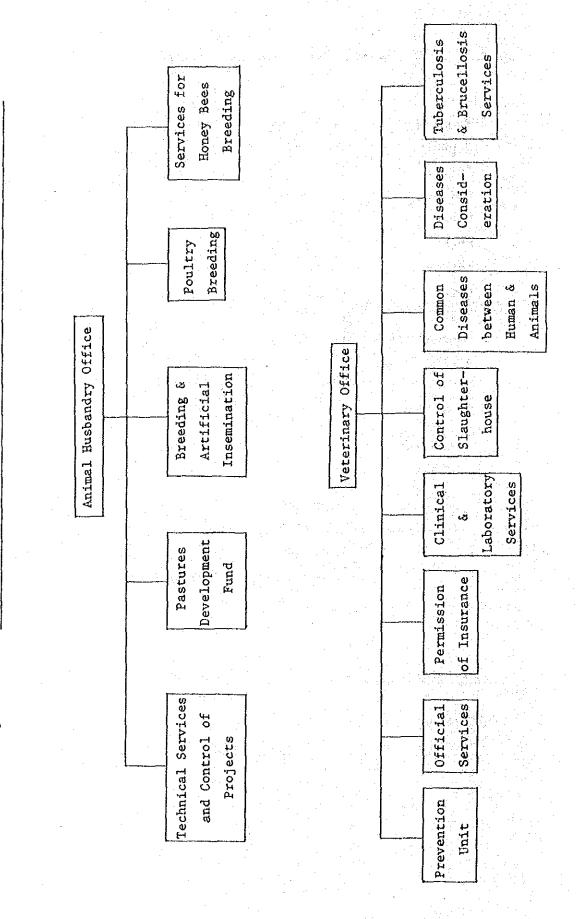
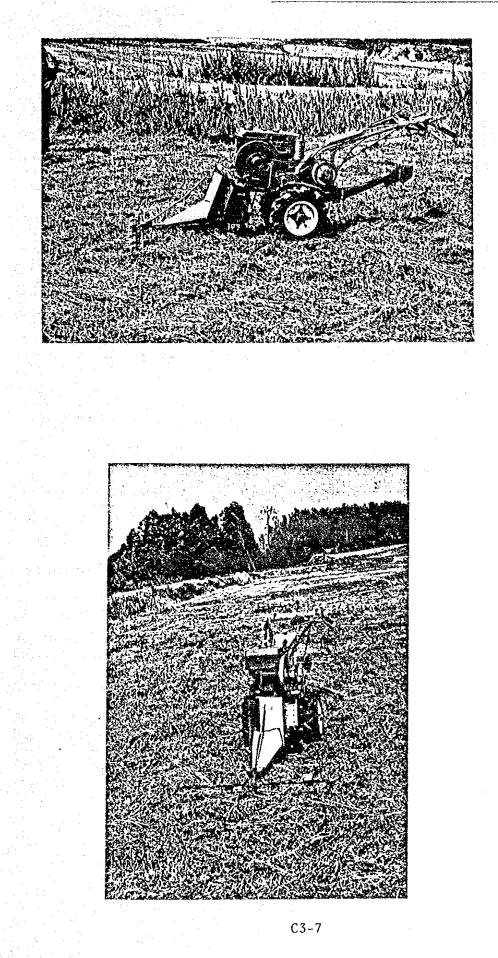


Figure C.3.2 Recipro-Mower for Power Tiller



Items	Specification
Туре	Front mounting type Recipro Mower
Applicable model	
Time for mounting	15 (min.)
Dimensions (Reaper only)	
Overall length	700 (m/m)
Overall width	1,070(m/m)
Overall height	500 (m/m)
Weight	57 (kg) (necessary to balance weight 25 kg)
Efficiency	20 - 40 (min./10a)
Applicable crops	Alfalfa and others
Applicable height of crops	up to 900 (m/m)
Reaping Unit	
Type of reaping	Recipro type
Applicable reaping width	1,000 (m/m)
Width of reaping tine	76 (m/m) (3 inch)
Type of reaping clutch	Dog clutch
Crank shaft r.p.m.	665 (r.p.m.)
Reaping tine speed	1.86 (m/s)
Height of reaping	30 - 80(m/m)
Working speed	0.9 (m/s) (Used F-1 speed step only)

Table C.3.10. Specifications of Recipro-Mower

#### Table C.3.11. Present Feed and Feeding .....

			с., ст. с., с., с., с., с., с., с., с., с., с.	
(1)	Local Cow			
(1)	hour com	· · · · · · · · · · · · · · · · · · ·	н 1. т. н.	
		Daily Ration	(kg/day/	head)
	Adult (above 3 years)	Spring & Summer		& Winte
	Grazing in forest & pasture	4	· · ·	2
	Stubble grazing in paddy field		· · · · · ·	4
: 	Other forages	3		3
	Wheat straw	0.5		
	Rice straw	1		.2
11	Berseem clover	نتيه		3
	Rice bran	0.2		0.3
•	Cotton seed cake	0.1	· · ·	0.1
	Soybean sheath etc.	1		1
			· .	
	Heifer (1-3 years)			. •
	Grazing in forest & pasture	2		1.5
· · ·	Stubble grazing in paddy field	L		
		2		3 2
	Other forages Rice straw	0.5		1
	Berseem clover	0.0	· .	2
2.14		0.5		0.5
· · · ·	Soybean sheath etc.	. 0.5		0.0
a di tang Manga	Calf (less than 1 year)			
	Grazing in forest & pasture	1	1	1
	Stubble grazing in paddy field		· · ·	1.5
2	Other forages	1		1
	Soybean sheath etc.	0.5		0.5
	Berseem clover	-		1
				•
(2)	Hybrid Cow			
	Adult (above 3 years)			
				2
•	Stubble grazing in paddy field	-		Z 1
	Soybean sheath	1		2 2
	Other forages	4		2
	Alfalfa (fresh)	3		1 /.
	Rice straw	Ζ		4 1
· .	Barley grain	3		1 3
	Wheat straw		,	3 0.5
	Cotton seed cake	0.5		8
	Berseem clover	2	÷	2
·	Rice bran	2		2
	Maize	3	4 N N	2

C3--9

		(kg/day/head)
Heifer (1-3 year)	Spring & Summer	Autumn & Winte
Stubble grazing in paddy field	-	1.5
Soybean sheath	0.8	0.8
Other forages	3	1
Rice straw	2	3
Wheat straw	1.5	Ĩ.5
Berseem clover	·	4
Alfalfa (fresh)	1	1
Artaria (flesh)		
Calf (less than 1 year)		
Stubble grazing in paddy field	· · · · · · · · · · · · · · · · · · ·	1
Soybean sheath	0.5	0.5
Other forages	2	-
Rice straw	0.1	1
Wheat straw	0.5	0.5
Berseem clover	-	2
Alfalfa (fresh)	0.5	0.5
3) Pure Cow		
Adult (above 3 years)		
		3
Rice straw	6	5
Wheat straw	6	10
Berseem clover	3	3
Rice bran	2,5	2.5
Maize	5	4.•3
Other forages	1	· —
Cotton seed cake	1	. <b>.</b>
Barley grain Alfalfa (fresh)	4	2
<u>Heifer (1 – 3 years)</u>		
Rice Straw	-	2
Wheat straw	4	3
Berseem clover		
Rice bran	$\sum_{i=1}^{n}$ (i.e., $i \in \mathbb{N}$ )	$= \frac{1}{2} \sum_{i=1}^{n} $
Maize	~	and the second sec
Other forages	3	
Cotton seed cake	- 0 r	
Barley grain Alfalfa (fresh)	0.5	0.5
Calf (less than 1 year)		and the second secon
		2
Rice straw	the second se	<u>~</u>
Rice straw Wheat straw	1 .	· /
Wheat straw	1	Asserting the <b>A</b>
Wheat straw Berseem clover	1	ατογγαρίας το το <b>2</b> του το το το το το το <b>3</b> το το το το το τ
Wheat straw Berseem clover Other forages	1	2 3 0 5
Wheat straw Berseem clover Other forages Alfalfa (fresh)	1.5	2 3 0.5
Wheat straw Berseem clover Other forages Alfalfa (fresh)		2 3 0.5

(1) Local Cow

•

	Daily Ration (kg/day/head)						
		Spring & Summer			utumn & I		
Adult		DCP	TDN		DCP	TDN	
Rice straw	1	0.01	0.37	1	0.01	0.37	
Wheat straw	-	-	·	_	-	-	
Berseem (fresh)		·		20	0.68	2,48	
Berseem (hay)	5.	0.43	2.48		·	-	
Rice bran	0.2	0.02	0.16	0.1	0.01	0.08	
Cotton seed cake	0.2	0.08	0.16	0.1	0.04	0.08	
Green barley	-	. ••••	·	0.5	0.01	0.08	
	· .	0.54	3.17		0.75	3.09	
					<u></u>		
	÷.,						
Heifer		DCP	TDN	· . •	DCP	TDN	
Rice straw	0.5		0.19	0.5		0.19	
Wheat straw		<b></b>	-		-	-	
Berseem (fresh)	-		•	15	0.51	1.86	
Berseem (hay)	4	0.34	1.98	-	-		
Maize (leaf & stalk)	-	-			***	-	
Rice bran	0.1	0.01	0.08	-	<del>-</del> '	-	
Green barley	-		-	0.5	0.01	0.07	
		0.35	2,25		0.52	2.12	
					· · · · · · · · · · · · · · · · · · ·		
Calf		DCP	TDN		DCP	TDN	
Berseem (fresh)	_	· —	-	5	0.17	0,62	
Berseem (hay)	3.5	0.30	1.74	2	0.17	0.99	
						1 61	
		0.30	1.74		0.34	1.61	
(2) Hybrid Cow		·					
Adult		DCP	TDN		DCP	TDN	
Rice straw	2.5	0.03	0.92	1	0.01	0.37	
Wheat straw	1	-	0.34	1	~	0.34	
Berseem (fresh)	· —			35	1.19	4.34	
Berseem (hay)	- 8	0.68	3.97			-	
Maize (leaf & stalk)			~~	8	0.06	0.75	
Rice bran	0.7	0.07	0.56	0.5	0.05	0.40	
Cotton seed cake	0.7	0.26	0.56	0.1	0.04	0.08	
Green barley			_	1	0.02	0.15	

#### - Continued -

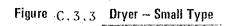
1.04 6.35

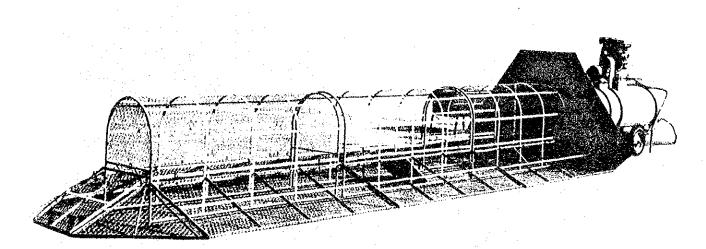
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		c	pring &	Lly Ration Summer		tumn & T	Vinter
	Heifer		DCP	TDN		DCP	TDN
	and the second design of the s	, r		0.56	1.0	0.01	0.37
	Rice straw	1.5	0.02	0.50	20	0.68	2.48
	Berseem (fresh)		0.34	1.98	20	0.00	240
	Berseem (hay)	4		and the second se	0.5	0.05	0.40
	Rice bran	1.0		0.80		0.05	0.40
	Cotton seed cake	0.5	0.18	0.40	0.3		0.15
	Green barley	<b>ры</b> .			1	0.02	
•			0.64	3.74		0.87	3.64
	Calf	÷.,	DCP	TDN		DCP	TDN
	Berseem (fresh)	-			7	0.24	0.87
	Berseem (hay)	4.5	0.38	2.23	2	0.17	0.99
	Green barley		-	••• .	2	0.05	0.29
			0.38	2.23		0.46	2.15
			· .				
)	Pure Cow		· · · · · · · ·			· · ·	
,	Adult		DCP	TDN		DCP	TDN
	Rice straw	- 3	0.03	1.11	2	0.02	0.74
	Wheat straw	1		0.34	ī	<b></b>	0.34
	Berseem (fresh)	. <b>L</b>		0.54	40	1.36	4,96
		10	0.85	4.96			
	Berseem (hay)	10	0.00	4.90	10	0.07	0.94
	Maize (leaf & stalk)	1.0	0.10	0.80	0.5	0.05	0.40
	Rice bran				0.5	0.20	0.40
	Cotton seed cake	1.0	0.40	0.80	1	0.02	0.15
	Green barley	-	**		I .	0.02	0.1.
			1.38	8.01		1.72	7.9
			12				
	Heifer		DCP	TDN		DCP	TD
	Rice straw	1.5	0.02	0.56	1.0	0.01	0.3
	Berseem (fresh)	<del>.</del>	<del>.</del>		25	0.85	3.10
	Berseem (hay)	5	0.43	2.48	~		•
	Rice bran	1.0	0.10	0.80	0.5	0.05	0.40
	Cotton seed cakes	0.5	0.18	0.40	0.3	0.11	0.24
	Green barley		-	-	1.0	0.02	0.1
			0.73	4.24		1.04	4.20
					10 J. 1	na da se	
	Calf		DCP	TDN	e Alexandre Alexandre	DCP	TDI
	Berseem (fresh)		· -	-	6	0.20	0.74
	Berseem (hay)	5	0.43	2.48	3.5		1.74
			0.43	2.48		0.50	2.48

Note: DCP - Digestible Crude Protein TDN - Total Digestible Nutrients

These figures are example, therefore some feeds can be converted into others.





engine generator	
handle- burner	
stand— wheel—	

	Length (mm)	1,470
Body	Width (mm)	830
ουυγ	Height (mm)	970
	Weight (kg)	115
······································	Туре	Axial Flow Type
and the first of the	Diameter of Outlet (mm)	580
Wind Blower	Rotation (rpm)	1,800
	Capacity (m <sup>3</sup> /min)	120 (20 mm Aq)
	Power Requirement	1.5 Kw motor or 3.5 PS engine
	Туре	Automatic Gun Type
Durner	Maximum (lit./h)	15
Burner	Heat Efficiency (Kcal/h)	120,000
	Fuel	Kerosene
· · · · · ·	Length (mm)	5,400
	Width (mm)	615
	Height (mm)	860

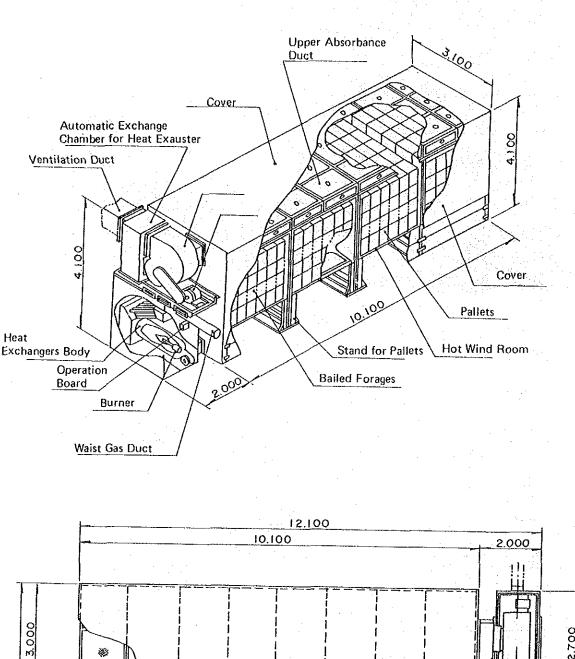


Figure C. 3. 4. Dryer - Large Scale Type

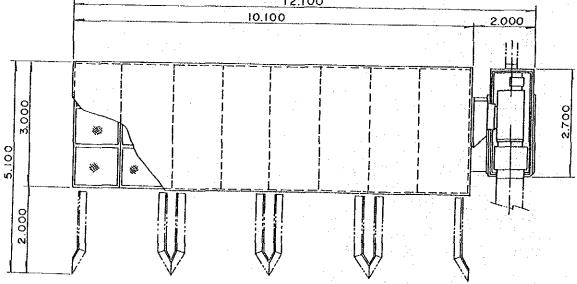


Table C.3.13. Estimation of Net Income (With and Without Project)

- 1. Local Cow
  - (1) Without Project

Gross Income	Unit	<u>Yield/unit</u> (kg)	Production (kg)	(rls/kg)	Income (rls)
Milk - Local Cow Meat - Culled Cow - Heifer - Bull Calf	1 0.09 0.09 0.18	250 250 175 75	250.0 22.5 15.8 13.5	85* 365* 385* 385*	21,250 8,213 6,083 5,198
Total					40,744

Note: \* marks mean a unit price per live body weight.

Gross income from local cow		40,744 rls
Feeding cost	local cow	13,292
	heifer	4,340
	bull calf	375
Miscellaneous cost		1,807
Net income from local cow		20,930

Calving rate 50%

Net milk production per lactation period 500 kg Mortality rate 7%

(2) With Project

<u>Gross Income</u>	<u>Unit</u>	Yield/unit (kg)	Production (kg)	Price (rls/kg)	Income (rls)
Milk - Local Cow Meat - Culled Cow - Heifer - Bull Calf	1 0.12 0.13 0.25	420 250 175 75	420.0 30.0 22.8 18.8	85 365* 385* 385	35,700 10,950 8,778 7,238
Total					62,666

Note: \* mark means a unit price per live body weight.

- Continued -

Gross income from	local cow	62,666 rls
Feeding cost	local cow	24,917
· .	heifer	15,305
	bull calf	2,754
Miscellaneous cost	4,300	
Net income from lo	15,390	

Calving rate 60%

Net milk	produc	tion	per	lact	ation	i per	riod	700	kg	
Mortality	rate	5%	•	•	· · ·	· ·		1. 	i je s	1

- 2. Hybrid Cow
  - (1) Without Project

<u>Gross Income</u>	<u>Unit</u>	Yield/unit (kg)	Production (kg)	n <u>Price</u> (rls/kg	) <u>Income</u> ) (rls)
Milk - Hybrid Cow	1	1,400	1,400.0	85,	119,000
Meat - Culled Cow	0.09	450	40.5	375	15,188
- Heifer	0.16	240	38.4	435 <sup>^</sup>	16,704
- Bull Calf	0.33	200	66.0	435	28,710
Total				• •	179,602

Note: \* mark means a unit price per live body weight.

Gross income from	179,602 r1s	
Feeding cost	hybrid cow	80,013
	heifer	14,724
	bull calf	1,855
Miscellaneous cos	9,660	
Net income from hybrid cow		73,350

Calving rate 70% Net milk production per lactation period 2,000 kg Mortality rate 7%

- Continued -

#### With Project · (2)

Gross Income

	Unit	Yield/unit (kg)	Production (kg)	rls/kg) Income (rls)
Milk - Hybrid Cow Meat - Culled Cow - Heifer - Bull Calf		1,875 450 240 200	1,875.0 63.0 43.2 72.0	85, 159,375 375, 23,625 435, 18,792 435 31,320
Total				233,112

Note: \* mark means a unit price per live body weight.

Gross income from hybrid cow		233,112 rls
Feeding cost	hybrid cow	66,618
	heifer	38,502
	bull calf	4,910
Miscellaneous cost	11,002	
Net income from hybrid cow		112,080

Calving rate 75%

Net milk production per lactation period 2,500 kg Mortality rate 5%

- 3. Pure Cow
  - (1) Without Project

Gross	Ing	zóm	e		
				Unit	<u>Yi</u>
	1				

	<u>Unit</u>	Yield/unit (kg)	Production (kg)	Price (rls/kg)	Income (rls)
Milk - Pure Cow Meat - Culled Cow - Heifer - Bull Calf Total	0.10 0.19 0.38	3,200 550 380 250	3,200.0 55.0 72.2 95.0	85 395 480 480	272,000 21,725 34,656 45,600 373,981

Note: \* mark means a unit price per live body weight.

#### - Continued -

Gross income from pu	re cow	373,981 rls
Feeding cost	pure cow	103,913
	heifer	37,936
	bull calf	3,040
Miscellaneous cost		14,492
Net income from pure	COW	214,600

Calving rate 80% Net milk production per lactation period 4,000 kg Mortality rate 5%

(2) With Project

Gross Income	Unit	<u>Yield/unit</u> (kg)	Production (kg)		Income (rls)
Milk - Pure Cow	1	3,655	3,655.0	85*	310,675
Meat - Culled Cow	0,14	550	77.0		
- Heifer	0,20	380	76.0	480	36,480
- Bull Calf	0.40	250	100.0	480	48,000
Total			1		425,570

Note: \* mark means a unit price per live body weight.

		and the second
Gross income from	pure cow	425,570 rls
Feeding cost	pure cow	86,820
	heifer	42,231
•	bull calf	5,733
Miscellaneous cost	13,486	
Net income from put	re cow	277,300

Calving rate 85%

Net milk product	ion per	lactation	period	4,300 kg	
Mortality rate	5%				

- Continued -

4. Sheep

Gross Income

	<u>Unit</u> <u>N</u>	o. of Units	Unit Price (rls)	Income (rls)
Lamb	head	0.5	8,000	4,000
Wool	kg	1.5	140	210
Culled sheep	head	0.2	15,000	3,000
Total				7,210

Gross income from sheep		7,210 rls
Feeding cost	ewe	1,976
	yearling	1,934
	lamb	535
Miscellaneous cost		445
Net income from sheep		2,320

Table C.3.14. Projected Number of Productive Cows

Ratio of

Ratio of	. * 	· · · ·			~ •			0 2						
Second		Case 1			Case 2		Case 3							
Crop	Local	Hybrid	Pure	Loca1	Hybrid	Pure	Local	Hybrid	Pure					
20%	16,300	13,000	3,300	8,800	14,800	6,000	20,200	10,100	3,500					
30	24,400	19,500	5,000	13,300	22,200	8,900	30,400	15,200	5,100					
40	32,600	26,000	6,600	17,800	29,600	11,900	40,600	20,300	6,800					
50	40,700	32,600	8,200	22,200	37,000	14,900	50,700	25,300	8,600					
60	48,900	39,100	9,900	26,600	44,400	17,900	60,900	30,400	10,200					
70	57,100	45,600	11,500	31,100	51,900	20,800	71,100	35,500	11,900					

(Unit: head)

Table C.3.15. Estimation of Projected Production of Cows (With Project)

rials)	Total	,412	3,584	,784	. 999	7,172	,371									•									·	
					1	- A		•							•	rls	als			1	*			۰.	+ 44	
million 3	Pure	970	1,414	1,885	2,38	2.82	3,299	• •							· :	1	on rí	350		00		rials			Lue te of	5 5
(Unit: Case	Hybrid	1,132	I,703	2,275	2,835	3,407	3,978						Project)		NPC	50,250 head x @20,930	1,052 million rials	head x @73,350	204	head x @214,600	145	million		i N N	Net Production Value based on the results of	10001
	Local	310	467	624	780	937	1,094						1			50,250	11	2,776 h	۲۵ ۳	675 hea	<b>,</b> ⊶1 ∦	1,401		:	Net Fro based on	
:	Total	3,456	5,159	1.0	1	1.1	•		cow unit				of Cows (Without			r Is			• •		- -			1.1	NPV: actimated	
e 2	Pure	1,663	2,467	3,299	4,131	4,963	5,767		female.			•	Production of	· · ·	PC	c @19,814	million rls	@106,252		@159,381					d	
Case	Hybrid	1,658	2,488	3,317	4,146	4,976	5,816	:t)	rials/adult				1		<b>P</b>	pes	966	6 head x	= 295	head x @]	= 108				Production Cost Project Ares an	נ ל
	Local	135	204	273	341	409	478	th Project)		112,080	, 300		of Present			50,250	••	2,776		675 1	-					Sur
	Total	2,622	3,946	5,245	6,552	7,852	9,176	Value (with			- - -		Estimation	•.	•	),744 rls	million rials	,602		1					lue 3 vears in	m Econom:
e L	Pure	915	1,386	1,830	2,273	2,745	3,188	Production V	Local Co	Hybrid Cow	Fure Cow			•	GPV	nead x @40,	7 millio	G179		@373,981						the Far
Case	Hybrid	1,457	2,185	2,914	3,653	4,382	5,110	Net Prod	•				Table C.3.16.	· ·		50,520 hea	= 2,047	,776 head x	= 499	5 head x	= 252			ن ب ب	GPV: Gross Froduction Value Number of rows more than 3 v	Village Survey and the Farm Economic
	Local	250	375	501	626	725	878	Note:					<b>F</b> -1					2		675					GPV: Gros Number of	illage Su
Intensity of	Second Crop	20%	30	07	50	60	70						•			Local Cow		Hybrid Cow		Pure Cow		Total			Note: G	Δ

Table C.3.17. Estimation of NPV of Sheep and Goats

Without Project

Sheep 88,706 Goats 5,889 Total 94,595 - based on the Village Survey Among of the above, 70% is estimated as adults 94,595 x 0.7 = 66,220 head

Net Production Value 66,220 head x 2,320 rls = 154 million rials

With Project

Sheep and Goats 68,200 head

Amount of the above, 70% is estimated as adults 68,200 head x 0.7 = 47,740 head

Net Production Value 47,740 head x 2,320 rls = 111 million rials

Table C.3.18. Incremental Benefit from Animal Husbandry

(Unit; million rias1)

Crop Intensity	Case-1	Case-2	Case-3
20%	1,178	2,012	968
30	2,502	3,715	2,140
40	3,801	5,445	3,340
50	5,108	7,174	4,555
60	6,408	8,904	5,728
70	7,732	10,617	6,927

Note: Incremental benefit in each crop intensity is calculated as a difference of Net Production Value between present and future.

> Additionally, as sheep and goats will be removed to the mountainous area in the future to avoid competition with cows in natural grazing, net production value will be decreased with reduction of number of head in the future in the Project Area.

# APPENDIX C. 4.

# AGRO-ECONOMY

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#### List of Number of Sample Farm Economic Survey (by interview)

Table C.4.1

Shahrestan	Location	Number of Sample Farm
I. Amol	High Land	8
	Middle Land	5
	Low Land	7
Total		20
	· •.	· ·
II Babol	High Land	-
	Middle Land	6
	Low Land	4
Total		10
anala an an an an		
Total of S	Sample Farm	30

Note: The above survey was conducted at the second field survey of Master Plan Study from September 1985 to November 1985.

Table C.4.2 Number of Farm Households by Family Size

(Unit: households, persons)

.

Average Family Sizo		6.9	9.0	9.3	8.3		•	8,2	9.3	8.6	8.4
Total Farms		<b>00</b>	۰ د	4	20		1 - 1 2 <b>1</b> 2	9	4	0	30
Total Persons		55	4S	65	165		4	49	37	86	251
0ver 11	·	. 1	~	7	4			1	•••		ر ا
0			1	,			. <b>x</b>	~	L.	~	30
പ		<b>,</b>	· <b>-</b> -	б	r.		1	ı	1		ыj
Family Size		г	1	μ,	2		ł	ы		74	5
201		<b>1</b>	1	ŧ			ł	1	2	2	50
ami o		0	2	<b>~~4</b>	S		` <b>I</b>	<b>,-1</b>	ŀ	-	<u>ن</u>
μ μ		1	1	F	~		ł	j	1	ı ]	
4		-	· 1	ı	~		· 1	Т	ļ		~
below 3		1	ı	I	<b>1</b>		•	. <b>!</b>			• •
Shahrestan	I. Amol	I-1 lligh Land	1-2 Middle Land	1-3 Low Land	Total	II. Babol	2-1 Iligh Land	2-2 Middle Land	2-3 Low Land	Total	Total of Sample Farm

C4~2

## Table C.4.3

#### Number of Population by Age and Sex

(Unit: persons)

						Age					
Shalirestan	Items	helow 9	10 <u>-14</u>	15 -19	20 - 29	30 - 39	40 -49	50 - 59	60 -69	0ver 70	Total
I. Аяю)											
1-1. High Land	Male	4	- 5	9	7	-	4	3	~	-	32
	Female	7	5	- '	2	4	2	3	~	-	23
	Total	11	. 10	9	_9	4	_6	<u>_6</u>	-	· -	<u>55</u>
1-2 Middle Land	Male	4	5	8	1.	2	2	1	2	+	25
	Female	8	2	1	l	3	ł	3	1	-	20
	Total	12		_9	2	5	_3	4	3	-	<u>45</u>
1-3 Low Land	Male	- 5	4	10	5	2	2	3	1	1	33
	Female	8	4	8	4	z	2	3	1	-	32
	Total	13	8	18	9	4	_4	6	_2	<u>_1</u>	<u>65</u>
Total	Male	13	14	27	13	4	8	7	3	1	90
	Feinale	23	11	9	7	9	5	9	2	-	75
	Total	36	25	36	<u>20</u>	13	13	<u>16</u>	5	1	165
ll. Rohal											
2-2 Middle Land	Male	3	8	6	5	-	4	1	1	2	30
	Female	2	4	5		3	2	, ł.	1	1	19
	Total	5	12	11	5	3	_6	_2	2	<u>3</u> .	49
2-3 Low Land	Male	4	5	2	3	i	1	2	-	-	18
	Female	1	4	7	1	2	· -	2	1	1	19
	Total	5	9	9	4	3	1	4	1	1	37
Total	Male	7	13	8	8	1	5	- 3	1	2	48
	Female	3	8	12	ı	5	2	3	2	2	38
	Total	10	21	<u>20</u>	9	_6_	_7_	6	3	_4_	<u>86</u>
					-					-	
Total of Sample Farm	Male	20	27	35	21	5	13	10	4	3	138
	Female	.26	19	21	8	14	7	12	4	2	113
	Total	46	<u>46</u>	<u>56</u>	29	<u>19</u>	20	<u>22</u>	_8_	5	251

		e Esta esta esta esta esta esta esta esta e	(Unit:	persons)
Items	Farmer		Member Female	Total
Working days		· · · · ·		
1. Own Farm Occupation			۰ ۱۹۹۰ - ۲۰۱۹ ۱۹۹۰ - ۲۰۱۹ ۱۹۹۰ - ۲۰۱۹	
Under 30 days	-	17	12	29
30 ~ 50		6	2	8
50 - 100	. 3	12	8	23
100 - 150	-	3	9	12
150 - 200	9	9	2	20
200 - 250	17	7	-	24
Over 250	. 1		-	1
Total	30	54	33	117
2. Other Farm Occupation			•	
Under 50			~	-
50 - 100	~ .	- -	. <del></del>	- 2 - 2
100 - 150	1	· · · ·	_ `.`	1
Over 150	-	· _		
Total	1			1
3. Non-Farm Occupation				
Under 30		-	1	
30 - 50	. •. 7			
50 - 100	1	1	-	2
100 - 150	2	_	- 	2
150 - 200	4	. <u> </u>	- 11 - 11 11 - 11	4
200 - 300	*		· · · ·	
Over 300	· - ·	2	· <u>1</u>	2
Total	7	3	1	11

Table C.4.4 Working State of Family Member

Ĺ.

Table C.4.5 <u>Agricultural Gross Returns (1)</u>

	ultural rns	Others	RIS	612,000		•	•		•	ŀ	126,000	1,500,000	۱	600,000	ŧ	ı	480,000		600,000	870,000	420,000	•	1
· ·	<ul> <li>Non-agricultural Returns</li> </ul>	Leased Fee	RIS	<b>1</b>	465,100	ŧ	I	•	F	ł	•	•		I	ı	•	Ł	745,800	6,050,000		ī	ŀ	ı
	•	Others (Lents Fee)	RIS	•	•		. <b>.</b>	•	ł	•	F		ł	<b>1</b>	ı	'	58,500	ı	1	166,000	1	ı	1
· · · ·	ΠS	Animal Husbandry	RIS	412,000	247,500	155,000	305,600	60,000	185,000	253,500	35,000	1,026,500	777,500	2,069,000	557,000	ı	\$	89,500	179,000	٢	83,900	500,500	27.800
	Agricultural Gross Return	Orchard	RIS	•	<b>t</b>	90,000	•••	700,000	91,000	ı	ŀ	ł.	1	1	1	265,200	ı	100,000	700,000	29,100	ł	20,000	
	ricultural	Vegetables	Rls	360,000	1	•	100,000	•	30,000	J	•	1 1	•	80,000	1	ч	,	'	•	•		•	
	Ag	Paddy	. Ris	2,992,660	6,293,800	1,731,500	744,900	4,409,000	2,412,000	2,124,000	788,360	5,211,150	5,491,400	1,478,000	2,085,500	1,454,600	507,000	2,074,200	1	1,758,000	1,359,800	1,908,000	000 000 0
		Total	RIS	5,764,700	6,541,500	1,976,500	1,150,500	5,169,000	2,716,000	2,377,500	823,360	4,237,600	4,268,900	3,627,000	2,642,500	1,719,600	565,500	2,265.700	879,000	1,955,100	1,445,700	2,428,500	007 010 C
	Jays Worked	of on-farm Occupation	day	720(648) <sup>*3</sup>	575(353)	450 (405)	520 (502)	720(645)	450(414)	690(477)	190(190)	525(429)	500(264)	240(228)	450(387)	450(414)	520(482)	310(284)	60(48)	540(486)	450(427)	490 (400)	1
	Land		54	3.0(2.7) <sup>2</sup>	7.7(7.0)	2.9(2.5)	1.2(0.6)	7.0(6.0)	2.7(2.3)	3.2(3.0)	1.0(1.0)	4.1(3.8)	4.0(4.0)	20.7(2.0)	3.2(3.0)	1.7(1.5)	0.8(0.8)	2.5(2.4)	1.0( - )	2.0(2.0)	1.3(1.3)	3.2(2.5)	
м 		Land Owned Area	5 4.	3 0(2.7) <sup>1</sup>	8.7(8.0)	2.9(2.5)	1.2(0.6)	7.0(6.0)	2.7(2.3)	3.2(3.0)	1.0(1.0)	4.1(3.8)	4.0(4.0)	2.5(2.0)	3.2(3.0)	1.7(1.5)	0.5(0.3)	5.5(5.4)	9.5(8.5)	1.5(1.5)	1.3(1.5)	3.2(2.5)	
• •	Famíly	Compo- sition	person	10	9	ŝ	S	c,	Ŷ	ŝ	ę	11	ç	¢	4	Ģ	σ,	σ,	13	10	12	9	•
an-Amol	·.	Farmer Age		40	46	49	51	49	57	44	28	34	47	54	58	60	58	40	63	51	40	30	ţ
Shahrestan-Amol		Farmer No.		1	2	19	4	Ŋ,	9	7.	ω	თ	10	11	12	13	14	15	- 16	17	18	19	
														C4	-5								

Note: 1. \*1, \*2 ( ) ...... Paddy area 2. \*3 ( ) ...... Converted days by labor unit

ନ୍ତ	
Returns	
Gross	
<u>Agricultural</u>	
Table C.4.5	

F

Shahrestan-Babol

							5			. *	
Non-agricultural Returns	Others Rls	20,000	50,000		•	1 1	ŧ	1 1 1 1	480,000	200,000	800,000
Non-agr Ret	Leased Fee F1S		•	585,000	۲. ۲.	1	3	1 <b>4</b>	•		•
	Ochers (Lents Fee) Rls	•	629,850	•		•		1	528,800	982,800	
SC	Animal Husbandry Ris	75,700	74,700	20,000	163,750	509,500	572,500	57,000	97,200	165,500	235,000
Gross Retur	Orchard R1S	I	280,000	196,000	<b>1</b> .	<b>I</b>		•	н <u>г</u>	•	
Agricultural Gross Returns	Vegetables R1s	1 - - -	•	•	<b>1</b> 	•	(Wheat) 212,000		3	•	
Ag	Paddy RIS	1,112,000	1,829,350	978,400	1,115,000	3,546,000	3,472,000	1,348,300	1.520.000	1,678,500	11,569,500
	Total Ris	1,187,700	2,813,900	1,194,400	1,278,800	5,855,500	4,056,500	1,405,300	2,446,000	2,826,800	12,102,500
Days Worked	of Own-farm Occupation day	460 (369)	858 (645)	260 (245)	390 (336)	250 (235)	580 (568)	550 (282)	420 (393)	530 (493)	600 (573)
	Operat- ed Area	1.5	3.4 (3.0)	1.8 (1.5)	2.0 (2.0)	5.5 (5.5)	6.0 (4.0)	1.5 (1.5)	2.0 (2.0)	2.6 (2.6)	8.2 (8.0)
	Land Owned Area hu	1.5	2.1 (1.7)	3.3 (3.0)	-0.0 -0.0	5.5 (3.5)	6:0 (4.0)	1.5 (1.5)	0.5 (0.5)	1.2	8.2 (8.0)
Family	Compo- sition person	<b>60</b>	8	iv)	10	4	IS	•	<u>8</u> 2	10	<b>%</b>
	Farmer Age age	40 7	65	55	in T	52	61	40	38	40	47
	Farmer No.	1	P1 .	13	<del>.</del>	ώ.	Q	~	ŝ	G	0

Tab	lc	С.	4	.6	

Agricultural Management Costs

nnmer No	Rice	Vegetable	Orchard	Livestock	Total
	Rls	Rls	R1s	R1s	R
A1	570,982	98,500	-		669,50
A2	3,424,183	. · · · ·	-	34 ,680	3,458,90
A 3	143,278	-	35,500	43,260	222,00
Ац	139,311	107,400	· · . –	163,000	409,70
A5	1,444,449	-	44,390	-	1,488,80
A6	355,378	61,200	-	17,210	435,8(
A7	361,037		-	35,400	396,40
A8	123,297	· · · ·	→	-	123,30
A9	883,049	-	·. –	287,770	1,170,80
A10	903,659	_	-	190,340	1,094,00
A1 1	413,463	48,200	-	530,060	991,70
A12	533,208	-	-	33,120	566,30
A13	305,334	-	9,000		314,3
A14	167,840			-	167,8
A1 5	198,442		41,420	20,200	260,1
A16		. –	59,980	28,770	88,8
A17	288,274	· •	. –	. –	288,3
A18	115,873	<b>-</b> .	-	20,200	136,1
A19	468,307	· · · -		172,850	641,2
A20	197,392	. –	· _	· _	197,4
н 1.					
B1	236,075		-	28,340	264,4
B2	1,055,528	-	35,500	17,540	1,108,6
B3	252,933	· · · · ·	18,000		270,9
B4	355,987	-	· _	60,630	416,6
BS	720,026			51,860	771,9
Be	340,990	21,860	· . ~	103,720	466,6
B7	101,160	· · · ·		-	101,2
Bø	949,793	·	. <b></b>	31,830	981,6
B9	1,188,974	· · · · ·		30,400	1,219,4
B10	783,813	:		28,970	812,8

Table C.4.7 Household Expenditures - 1

Sharestan Amol

		1													2	ferry . armal	
Farmer No.	Land er Owned Area	Family Compo- sition person	Sub Tota	Food Eggs Meat Dairy I Products	Taste	Housing	Fuel Light Water C	C CLOTHING	Person- al and Medical Care	Transpor- tation and com- munication	Recrea- tion	Educa- tion	Tax	Others	family Consumption	Total	
1	3.0	10	1,174,200	871,200	42,000	300,000	72,000	240,000	60,000	254,000	30,000	270,000	r 	• • •	419,000	2,841,000	
64	8.8 8	ە	632,400	476,400	48,000	0 168,400	12:,000-	120,000	12,000	198,000	1	60,000	150,000	51,600	992,800	2,294,800	
ŀΛ	2.9	80	492,000	432,000	126,000	60,000	20,000	150 000	150,000	50,000	ł	20,000	ı	, r	493,000	1,561,000	
4	1.2	w	345,000	300,000	35,000	F.	10,000	000'03	10,000	20,000	ı	10,000	ı	1	500,600	1,010,600	
ŝ	7.0	6	363,000	284,000	90,000	0 160,000	30,000	180,000	20,000	35,000	4	30,000	•	•	445,000	1,448,000	
6	2.7	Ŷ	258,000	93,000	12,000	1	22,000	150,000	10,000	10,000	30,000	ı	1	ı	\$11,500	1,005,500	
5	5.2	w	518,000	480,000	200,000	•	15,000	20,000	15,000	50,000	20,000	25,000	•	ı	515,500	1,356,500	÷.,
es .	1.0	<b>9</b>	162,000	110,000	102,000	80,000	5,000	50,000	15,000	•	20,000	•	ı	ı	149,000	583,000	
סי. י	4.2	11	426,000	291,000	38,000	140,000 18,000	18,000	530,000	10,000	60,000	•	240,000	• • • •	(religon) 60,000	1,178,900	2,500,900	
10	4.2	Q.	422,000	318,000	720,000	300,000	15,000	200,000	20,000	100,000	<b>1</b>	120,000	-20,000	I	817,500	2,066,500	
I	2.5 (29.7)	•	533,000	280,000	210,000	210,000 - 11	15,000	80,000	10,000	54,000	100,000	40,000	•	1	765 ,000	1,607,000	
1	ст. М.	4	572,000	315,000	40,000	16,000 16,000	16,000	100,000	10,000	20,000	60,000	10,000	•	•	511,000	1,155,000	
13	1.7	¢	416,000	359,000	58,000	•	000 5	100,000 150,000	150,000	30,000	• • •	50,000		ı	399,200	1,212,200	
14	0.5	ି ମ ଚ	000,06	65,000	20,000	ч <b>і</b> ,	000'6	50,000	20,000	30,000	20,000	20,000	•	•	351,000	610,000	
IS	5.5 (2.5)	a	297,000	282,000	20,000	33,000 10,000	10,000	200,000	20,000	150,000	300,000	30,000	•	1 12	547,500	1,707,500	
16	9.5 (1.0)	13	645,000	430,000	70,000	t	20,000	250,000 100,000	100,000	300,000 300,000	300,000	100 000	•		1,159,000	2 ,944 ,000	·
17	(2.0)	თ	235,000	190,000	50,000	• • • •	5,000	150,000 100,000	100,000	100,000	20,000	4 	•		505,100	1,145,100	- N
82	1.5	12	270,000	185,000	79,000	1	10,000	180,000 150,000	150,000	50,000		10,000			508,900	1,257,900	÷.,
19	3.2	6	270,000		60,000		15,000	100,000	80,000	50,000	30,000	20,000	4	1	960,500	1,585,500	
20	2-0	2	246,000	160,000	39m999	9 500,000 10,000	-	100,000	50,000	50,000	20,000	20,000		1	567,800	1,575,800	
										-						•	
	Note: *1	*1.	. (1) Winte	(1) Winter season tenancy		30ha, (2)	Long pe	sriod ten	ancy fro	20ha, (2) Long period tenancy from Government without rent 6.7 ha	it without	t rent 6.7	ha.	•	•	•	
		₽ ₽	· ( ) Land	( ) Land operated area													

(Unit: Rls)

Fuel         Person-         Franspor-           Light         al and tation         Recreat         Educat         Family           Ilight         Nedical and comm         Recreat         Educat         Educat         Family           150,000         12,000         170,000         170,000         170,000         263,700         263,700           30,000         18,000         170,000         170,000         20,000         26,000         263,700           30,000         18,000         170,000         170,000         20,000         20,000         26,700         265,700           20,000         18,000         100,000         20,000         30,000         20,000         26,000         26,000         26,000         26,000         26,000         265,000         260,000 <t< th=""><th>Shahrestan Bähol</th><th>abol</th><th></th><th></th><th>•</th><th>-</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Ð</th><th>(imit Rle)</th></t<>	Shahrestan Bähol	abol			•	-										Ð	(imit Rle)
150,000       12,000       240,000       12,000       12,000       25,000       -       265,700       1         30,000       18,000       150,000       170,000       20,000       25,000       -       -       482,700       1         -       45,000       100,000       50,000       30,000       10,000       -       299,600       1         -       20,000       100,000       20,000       30,000       -       -       2565,800       1         -       25,000       10,000       20,000       20,000       -       -       -       2565,800       1         -       25,000       20,000       10,000       20,000       20,000       -       -       -       2565,800       1         -       25,000       20,000       20,000       20,000       -       -       1,167,500       1         50,000       20,000       20,000       20,000       20,000       -       -       1,167,500       1         50,000       20,000       20,000       20,000       20,000       -       -       1,057,500       1         500,000       10,000       20,000       20,000       -       - <th>ni ly Food mo- Bairy Tas Products Tas</th> <th>ni ly Food mo- Bairy Tas Products Tas</th> <th>Food Eggs Meat Dâtry Suh Toral Products Tas</th> <th>od Eggs Meat Dairy Products Tas</th> <th>e E</th> <th>¢.</th> <th>Housino</th> <th></th> <th></th> <th>- </th> <th>franspor- tation and com-</th> <th></th> <th>Educa- tion</th> <th>Тах</th> <th>Oth ers</th> <th>ια Family Consumption</th> <th>Total</th>	ni ly Food mo- Bairy Tas Products Tas	ni ly Food mo- Bairy Tas Products Tas	Food Eggs Meat Dâtry Suh Toral Products Tas	od Eggs Meat Dairy Products Tas	e E	¢.	Housino			- 	franspor- tation and com-		Educa- tion	Тах	Oth ers	ια Family Consumption	Total
150,000       12,000       12,000       12,000       12,000       26,000       25,000       25,000       26,000       14,22,700       1         30,000       18,000       150,000       170,000       50,000       30,000       25,000       -       422,700       1         -       45,000       100,000       50,000       30,000       30,000       -       -       255,000       1         -       25,000       10,000       20,000       50,000       -       40,000       -       1,167,500       1         -       25,000       20,000       10,000       20,000       50,000       -       -       1,167,500       1         -       25,000       20,000       20,000       50,000       20,000       -       -       1,167,500       1         -       25,000       20,000       20,000       50,000       20,000       -       -       1,167,500       1         -       -       10,000       20,000       50,000       20,000       -       -       1,052,500       1         -       -       10,000       20,000       20,000       -       -       1,052,500       1         -<	person	person				a 1											
30,000       18,000       150,000       170,000       50,000       200,000       20,000       295,600       1         -       45,000       100,000       60,000       50,000       30,000       10,000       -       295,600       1         -       26,000       10,000       50,000       20,000       -       -       295,600       1         -       25,000       10,000       20,000       20,000       -       -       -       268,800       1         -       25,000       10,000       50,000       50,000       50,000       1,167,500       1         50,000       20,000       50,000       50,000       50,000       20,000       1,052,500       1         50,000       20,000       50,000       50,000       50,000       50,000       -       -       1,167,500       1         50,000       20,000       50,000       50,000       50,000       -       -       1,167,500       1         50,000       20,000       50,000       50,000       50,000       -       -       -       545,000       1         500,000       10,000       50,000       20,000       20,000       - <td< td=""><td>1.5 8 367,560 355,560 36,000</td><td>367,560</td><td></td><td>355,560 36,000</td><td>36,000</td><td>-</td><td>150,000</td><td>12,000</td><td>240,000</td><td>000'06</td><td></td><td>•</td><td>36,000</td><td></td><td>•</td><td>265,700</td><td>1,207,300</td></td<>	1.5 8 367,560 355,560 36,000	367,560		355,560 36,000	36,000	-	150,000	12,000	240,000	000'06		•	36,000		•	265,700	1,207,300
- 45,000 100,000       60,000       50,000       30,000       10,000       295,600         - 20,000 100,000       20,000       20,000       20,000       -       -       -       565,800         - 25,000 250,000       10,000       50,000       20,000       -       40,400       -       -       1,167,500         50,000 25,000       300,000       10,000       50,000       50,000       20,000       -       -       1,167,500         50,000 25,000 300,000       10,000       20,000       50,000       20,000       -       -       1,167,500         50,000 25,000 300,000       10,000       20,000       20,000       20,000       -       -       -       1,67,500         50,000 30,000       10,000       20,000       20,000       20,000       -       -       -       1,67,500         500,000       10,000       20,000       20,000       20,000       -       -       1,057,500         180,000       10,000       20,000       20,000       -       -       -       555,200         180,000       8,000       10,000       20,000       20,000       -       -       -       555,200         180,000 <td< td=""><td>3.5 8 481,400 361,000 165,000</td><td>481,400 361,000 165,</td><td>361,000 165,</td><td>361,000 165,</td><td>165,000</td><td></td><td>30,000</td><td>18,000</td><td>150,000</td><td>170,000</td><td></td><td>200,000</td><td>25,000</td><td>1 1 1</td><td>ŧ</td><td>482,700</td><td>1,722,100</td></td<>	3.5 8 481,400 361,000 165,000	481,400 361,000 165,	361,000 165,	361,000 165,	165,000		30,000	18,000	150,000	170,000		200,000	25,000	1 1 1	ŧ	482,700	1,722,100
-       20,000       20,000       20,000       20,000       -       -       -       -       565,800         -       25,000       25,000       10,000       50,000       50,000       -       -       1,167,500         50,000       25,000       300,000       20,000       50,000       20,000       20,000       -       1,052,500         50,000       20,000       50,000       30,000       20,000       20,000       -       -       1,052,500         50,000       80,000       50,000       50,000       20,000       20,000       -       -       -       1,052,500         500,000       10,000       50,000       50,000       20,000       20,000       -       -       -       1,052,500         500,000       10,000       20,000       20,000       20,000       -       -       -       545,000         180,000       190,000       20,000       20,000       -       -       -       -       585,500         180,000       8,000       100,000       20,000       20,000       -       -       -       585,500         180,000       8,000       50,000       20,000       20,000	5.3 5 495,000 425,000 140,000	425,000 140,	425,000 140,	425,000 140,	140,000		. 1	45,000	100,000	.000*09	50,000	30,000	10,000	•	1	299,600	1,227,600
10,000       50,000       -       40,000       -       1,167,500         20,000       50,000       20,000       50,000       -       1,032,500         50,000       50,000       20,000       -       -       1,032,500         50,000       50,000       20,000       -       -       545,000         20,000       50,000       20,000       -       -       545,000         20,000       50,000       20,000       -       -       545,000         20,000       50,000       20,000       -       -       555,200         50,000       100,000       20,000       -       -       585,500         50,000       50,000       20,000       -       -       745,400	2.0 10 177,000 130,000 30,000	177,000 130,000 30,	130,000 30,	30,	30,000			20,000	100,000	20,000	20,000	. <b>E</b>	1		4	368,800	735,800
20,000       50,000       20,000       50,000       50,000       50,000         50,000       50,000       20,000       20,000       -       -       545,000         20,000       50,000       20,000       -       -       545,000         20,000       50,000       20,000       -       -       545,000         20,000       150,000       20,000       -       -       555,200         50,000       100,000       20,000       -       -       745,400         50,000       50,000       20,000       -       -       745,400	5.5 7 245,000 215,000 30,000	215,000 30,	215,000 30,	30	30,000		t .	25,000	250,000	10,000	50,000	•	40,000	1	ł	1,167,500	1,817,500
\$0,000         \$0,000         \$0,000         \$0,000         \$0,000         \$15,000         \$245,000         \$1,000         \$1,000         \$20,000         \$1,000         \$20,000         \$1,000         \$20,000         \$1,000         \$20,000	6.0 IS 115,000 60,000 25,000	115,000 60,000 25,	60,000 25,	52,	25,000		50,000	25,000	300,000	20,000	20,000	20,000	30,000	1	. <b>1</b>	1,032,500	1,667,500
20,000 - 150,000 20,000 655,200 50,000 100,000 20,000 585,500 50,000 50,000 20,000 745,400	1.5 7 328,000 259,000 12,000	259,000 12,	259,000 12,	ĥ	12,000		• •	6,000	80,000	50,000	30,000	50,000	20,000	<b>1</b>	1	345,000	921,000
8,000 180,000 50,000 100,000 20,000 20,000 585,500 25,000 160,000 50,000 50,000 200,000 20,000 745,400	0.5 8 258,000 210,000 15,000 (2.0)	258,000 210,000 15,	210,000 15	15			300,000	10,000	150,000	20,000	ï	150,000	20,000	ŀ	<b>4</b> .	6.55,200	1,558,200
50,000 50,000 200,000 20,000 745,400	1.2 10 200,000 135,000 60,000 (2.6)	200,000 135,000 60,	135,000 60,	135,000 60,			180,000		180,000	50,000	100,000	20,000	20,000	i	ı	585,500	1,405,500
	8.3 8 329,000 250,000 50,000	329,000 250,000 50,	250,000 50,	250,000 50,	50.		•	25,000	160,000	50,000	50,000	200,000	20,000	·	ı	745,400	1,629,400

Table C.4.7 Household Expenditures (2)

Table C.4.8 Farmhouse Economy - 1

Shahrestan-Amol

his		Farmer No.	Land Owned Area	Land Oper- ared Area		Farmhouse Income	Agri cultural Income	Agricultural Gross Returns	Agricultural Management Costs	Debt Not-Farm Interests Income etc.	Debt nterests etc.	Tax	Disposable Income	Household Expenditures	Farmhouse Economic Surplus
3.0(2.7)       3.0(12.7)       10       3.707,200       3.744,700       669,500       612,000       2.327,000       5.357,200       2.944,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.754,500       1.956,500       2.156,000       2.00       2.924,500       1.754,500       1.754,500       1.975,500       2.924,500       1.754,500       1.901,501,000       1.255,000       2.00,000       2.3580,200       1.448,500       1.941,100       1.961,100       1.956,500       1.910,5100       1.				ha	person					RIS	1	RIS	RIS		· ·
8.7(5.0)       7.7(7.0)       5       5.545,500       5,51,500       5,51,500       5,51,500       5,51,500       5,51,600       1,54,500       1,48,500       1,00       2,35,500       1,44,500       1,00       1,54,560       1,54,500       1,54,500		-1	5.0(2.7)	3.0(2.7)*1		3,707,200	3,095,200	5,764,700	669,500		320,000	4. :	3,387,200	2,841,000	546,200
2.9(2.5)       2.9(2.5)       8       1.754,500       1.96,500       223,000       -       -       -       740,800       1.00.600       -         1.2(0.6)       1.2(0.6)       5       740,800       1.150,500       405,700       -       -       -       740,800       1.005,500       1.48,000       1.41,42,000       1.48,000       1.48,000		(4	8,7(8.0)	7.7(7.0)	ġ		3,082,400	6,541,300	3,458,900	465,100	1	150,000	5,395,500	2,294,800	1,100,700
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		in.	2.9(2.5)	2.9(2.5)	. 60		1,754,500	1.976,500	222,000	· •		•	1,754,500	1,561,000	193,50
7.0(6.0)       7.0(6.0)       9       5.680,200       5,680,200       5,680,200       5,680,200       5,680,200       1,485,500       1,445,000       1,445,000       1,445,000       1,445,000       1,445,000       1,445,000       1,355,500       1,961,100       1,555,500       1,961,100       1,555,500       1,961,100       1,555,500       1,961,100       1,555,500       1,961,100       1,555,500       1,961,100       1,556,500       2,555,500       1,961,100       1,556,500       2,555,500       1,961,100       1,556,500       2,555,500       1,961,100       1,556,500       2,555,500       1,961,100       1,556,500       2,506,500       1,170,500       1,170,500       1,170,500       1,170,500       1,170,500       1,171,500       1,171,500       1,171,500       2,555,500       1,253,500       1,265,500       1,405,500		4	1.2(0.6)	1.2(0.6)	'n	740,800	740,800	1,150,500 °	409,700	• •	•	1 - 	740,800		-269,80
2.7(2.5)       2.7(2.5)       6       2.282,200       1,001       0       1,981,100       1,585,500       1,081,100       1,585,500       1,001       0       1,981,100       1,585,500       2,500       1,170       2,500       2,500       2,500       2,500       2,500       2,500       2,000       2,114,900       2,517,900       2,174,900       2,174,900       2,174,900       2,174,900       2,174,900       2,174,900       2,124,900       2,124,900       2,144,900       1,155,000 <td></td> <td>S</td> <td>7.0(6.0)</td> <td>7.0(6.0)</td> <td>o,</td> <td></td> <td>3,680,200</td> <td>5,169,000</td> <td>1,458,800</td> <td>•</td> <td>300,000</td> <td>1 </td> <td>3,380,200</td> <td>1,448,000</td> <td>1,952,20</td>		S	7.0(6.0)	7.0(6.0)	o,		3,680,200	5,169,000	1,458,800	•	300,000	1 	3,380,200	1,448,000	1,952,20
3.2 (3.0)       3.2 (3.0)       8       1,981,100       1,381,100       2,377,500       396,400       -       -       -       1,981,100       1,356,500       255,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       250,000       2,066,500       1,07,000       1,010,000       1,040,000       1,040,000       1,040,000       1,000,000       1,000,		Ŷ	2.7(2.5)	2.7(2.3)	÷	2,282,200	2,282,200	2,716,000	433,800	<b>1</b> .	•	'	2,282,200	1,003,500	1,278,70
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		4	5,2(3.0)	3.2(3.0)	60		1,981,100	2,377,500	396,400		•	•	1,981,100	1,356,500	624,60
4.1(3.8)       4.1(3.8)       11       4,566,800       5,506,800       4,237,600       1,170,800       -       -       6,566,800       2,506,800       2,066,500       1,094,000       -       -       5,000       3,124,900       2,066,500       1,607,000       1,607,600       1,607,600       1,212,200       1,212,200       1,212,200       1,212,200       1,212,200       1,217,400       1,707,500       1,405,500       5,560,900       5,560,900       6,569,900       2,747,400       1,707,500       1,954,800       1,465,200       1,465,200       1,405,200       1,465,200       1,4177,400       1,707,500       1,555,50<	CA	ŝ	1:0(1.0)	1.0(1.0)	Q		700,100	825,360	123,300	126,000	40,000	1	786,100	585,000	203,10
4.0(4.0)       6 5,174,900       5,174,900       4,268,900       1,094,000       -       -       50,000       5,124,900       2,066,500       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,07,000       1,155,000       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       2,076,200       1,405,300       1,405,300       1,155,000       1,212,200         1.7(1.5)       1.7(1.5)       6       1,405,300       1,405,300       1,715,600       314,300       -       -       1,405,300       1,212,200         0.3(0.5)       9       2,77,700       397,700       556,00       1,715,800       1,212,800       -       -       -       1,405,300       1,707,500       1,707,500       1,707,500       1,707,500       1,707,500       1,445,700       2,544,000       2,544,000       2,544,000       2,544,000       1,445,700       1,445,700       1,445,700       1,445,700       1,445,700       1,445,700       1,467,300       1,257,600 <t< td=""><td>1</td><td>σ<sub>1</sub></td><td>4.1(3.8)</td><td>4.1(5.8)</td><td>11</td><td>4,566,800</td><td>3,066,800</td><td>4,237,600</td><td></td><td>1,500,000</td><td>•</td><td>•</td><td>4,566,800</td><td>2,500,900</td><td>2,065,90</td></t<>	1	σ <sub>1</sub>	4.1(3.8)	4.1(5.8)	11	4,566,800	3,066,800	4,237,600		1,500,000	•	•	4,566,800	2,500,900	2,065,90
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0.	10	4.0(4.0)	4.0(4.0)			5,174,900	4,268,900	1,094,000	• • • •	1	50,000	3,124,900	2,066,500	1,058,40
3.2 (5.0) 5.2 (5.0) 4 2,076,200 2,042,500 566,300 - 50,000 - 2,026,200 1,155,000 1.7 (1.5) 1.7 (1.5) 6 1,405,300 1,405,300 1,719,600 314,300 1,405,300 1,212,200 0.5 (0.5) 9 877,700 597,700 555,500 167,800 480,000 148,000 - 729,700 610,000 5.5 (5.4) 2.5 (2.4) 9 2,747,400 2,005,600 2,265,700 260,100 745,800 - 2,747,400 1,707,500 1, 5.5 (5.4) 2.5 (2.4) 9 2,747,400 2,005,600 2,265,700 260,100 745,800 - 2,747,400 1,707,500 1, 5.5 (5.1) 1.0 (- ) 13 7,440,200 790,200 88,800 6,650,000 - 1,954,000 4,7000 0,000 9.5 (8:5) 1.0 (- ) 13 7,440,200 790,200 1,955,100 288,500 870,000 600,000 - 1,727,600 1,145,100 1.5 (1.5) 2.0 (2.0) 10 2,554,800 1,555,100 1,945,700 1,56,100 420,000 - 1,727,600 1,145,100 1.3 (1.3) 1.5 (1.5) 12 1,727,600 1,507,600 1,445,700 1,54,100 - 300,000 - 1,727,600 1,555,500 2.0 (2.0) 2.0 (2.0) 12 1,835,200 1,535,200 2,030,00 197,400 - 0 - 1,835,200 1,535,500 2.0 (2.0) 2.0 (2.0) 12 1,835,200 1,555,200 2,030,00 0 - 1,835,200 1,535,500 1.3 (1.5) 2.0 (2.0) 12 1,835,200 1,555,200 2,030,00 0 - 0 - 1,835,200 1,535,500 2.0 (2.0) 2.0 (1,000 0,000 0,000 0,000 0,000 1,555,500 2.0 (1.97,400 0,575,500 1,555,200 2,030,000 1,97,400 - 0 - 1,835,200 1,535,500 2.0 (2.0) 1.2 1,835,200 1,555,200 2,030,000 1,97,400 - 0 - 1,835,200 1,535,500 2.0 (2.0) 1.0 (-) 1.0 (-) 1.55,500 2,030,000 1,97,400 - 0 - 1,835,200 1,575,500 1,575,500 2.0 (2.0) 1.0 (-) 1.0 (-) - 0 - 1,835,200 1,575,500 2,035,600 1,97,400 - 0 - 1,835,200 1,575,500 1,5		11		20.7(2.0)	r		2,635,500	3,627,000	004'1.66	600,000	•	E.	5,235,300	1 I.	1,628,30
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		12	3.2(3.0)	3.2(3.0)	4		2,076,200	2,642,500	566,300	•	50,000	•	2,026,200	1,155,000	871,20
$\begin{array}{llllllllllllllllllllllllllllllllllll$	.*	13	1.7(1.5)	1.7(1.5)	· ·	1,405,300	1,405,300	1,719,600	314,300	1	•	•	1,405,300	1.1	193,1(
<pre>5.5(5.4) 2.5(2.4) 9 2.747,400 2.003,600 2.563,700 260,100 745,800 - 2.747,400 1.707,500 1, 9.5(8.5) 1.0(-) 13 7,440,200 790,200 879,000 88,800 6,650,000 - 7,440,200 2,944,000 4, 1.5(1.5) 2.0(2.0) 10 2,534,800 1,664,800 1,955,100 288,500 870,000 - 1,934,800 1,145,100 1.3(1.3) 1.5(1.5) 12 1,727,600 1,307,600 1,445,700 156,100 420,000 - 1,727,600 1,257,900 3.2(2.5) 9 1,787,500 1,787,500 1,787,500 5,428,500 641,200 - 300,000 - 1,487,300 1,585,500 2.0(2.0) 2.0(2.0) 12 1,835,200 1,787,500 2,0500 197,400 1,835,200 1,575,500 Note: *1 () Paddy area.</pre>		14	0.3(0.3)	0.8(0.5)	сл		397,700	565,500	167,800	480,000	148,000		729,700	610,000	119,71
9.5(8.5) 1.0(-) 13 7,440,200 790,200 879,000 88,800 6,550,000 - 7,440,200 2,944,000 4, 1.5(1.5) 2.0(2.0) 10 2.534,800 1,664,800 1,955,100 288,500 870,000 600,000 - 1,934,600 1,145,100 1.3(1.3) 1.5(1.5) 12 1,727,600 1,307,600 1,445,700 156,100 420,000 - 1,727,600 1,257,900 3.2(2.5) 5.2(2.5) 9 1,787,500 1,787,500 2,428,500 641,200 - 300,000 - 1,487,500 1,585,500 2.0(2.0) 2.0(2.0) 12 1,855,200 1,855,200 2,050, 197,400 1,835,200 1,575,600 1,575,600 Note: *1 ( ) Paddy area.		15	5.5(5.4)	2.5(2.4)		2,747,400	2,003,600	2,265,700	260,100	745,800		•	2,747,400		1,039,90
2.0(2.0) 10 2,534,800 1,664,800 1,953,100 288,500 870,000 600,000 - 1,934,800 1,145,100 1.3(1.5) 12 1,727,600 1,307,600 1,445,700 136,100 420,000 - 1,727,600 1,257,900 5.2(2.5) 9 1,787,500 1,787,300 2,428,500 641,200 - 300,000 - 1,487,300 1,585,500 2.0(2.0) 12 1,835,200 1,855,200 2,030,600 197,400 - 1,833,200 1,575,800 2.0(2.0) 12 1,835,200 1,855,200 2,030,600 197,400 - 1,833,200 1,575,800 2.0(1.0) 12 1,835,200 1,855,200 2,030,600 197,400 - 1,833,200 1,575,800		16	9.5(8.5)	1.0( - )			790,200	879,000		650,000	•	1	7,440,200	- E -	4,496,2
1.5(1.5) 12 1,727,600 1,307,600 1,443,700 156,100 420,000 - 1,727,600 1,285,500 5.2(2.5) 9 1,787,500 1,787,500 2,428,500 641,200 - 300,000 - 1,487,500 1,585,500 2.0(2.0) 12 1,833,200 1,835,200 2,030,600 197,400 1,833,200 1,575,600 1.575,800 1,833,200 1,575,800 1,575,800 1,833,200 1,575,800		17	1.5(1.5)	2.0(2.0)	01	2,534,800	1,664,800	1,955,100	288,300	870,000	600,000	•	1,934,800		789,70
5.2(2.5) 9 1,787,500 1,787,500 2,428,500 641,200 - 300,000 - 1,487,500 1,585,500 2.0(2.0) 12 1,835,200 1,535,200 2,050,600 197,400 1,835,200 1,575,500 2.0(2.0) Paddy area.	. :	18	1.3(1.3)	1.5(1.3)	12	1,727,600	1,307,600	1,443,700	136,100	420,000			1,727,600		469 .7
2.0(2.0) 1.2 1.835,200 1.835,200 2.030,600 197,400 1.835,200 1.375,800 ** *1.() ************************************		19	3.2 (2.5)	5.2(2.5)	Ċ)	1,787,300	1,787,300	2,428,500	641,200		300,000	1	1,487,300		-98,2
Note: •1.(1)		20	2.0(2.0)	2.0(2.0)	21	1,833,200	1,833,200	2,030,600	197,400	•	•	•	1,833,200		459,4
Note: 1.(.)				· · · ·		•								•	
	· .		Note:	1 C )	Pac	ldv area					· · ·		•		
					5			· · · ·							
		•		• •			<i>.</i>		•						

<b>085,</b> 589, 304, 464,	FamilyFamilyAgriculturalAgriculturalInebtFarmhouseLandLandOper-Compo-FarmhouseAgriculturalGrossManagementNot-FarmInterestsDisposableHouseholdEconomicmedAreasitionIncomeIncomeRouterRouterRouterSurplusmedAreaatingAreasitionIncomeExpendituresSurplusnahapersonRlsRlsRlsRlsRlsRlsRls5(1.5)1.5(1.5)8943:300925:3001.187.700264.40020.000943.3001.207.300-264.000	2,815,900 1,108,600 - 100,000 - 1,605,500	923,500 1,194,400 270,900 585,000 100,000 - 1,408,500 1,227,600	862,200 1,278,800 416,600 862,200 735,800	3,083,600 3,855,500 771,900 5,083,600 1,817,500	3,589,900 4,050,500 466,600 5,589,900 1,667,500	1,504,100 1,405,500 101,200 1,504,100 921,000	1,464,400 2,446,000 981,600 480,000 880,000 - 1,064,400 1,558,200	1,607,400 2,826,800 1,219,400 200,000 1,807,400 1,405,500	
3,855,500 4,056,500 1,405,300 2,446,000 2,826,800 1,				+16,600 -	006'122	tób,600		480,000		
	2,815,900 1, 1,194,400	1,194,400 1,778,800	00% 876 1		5,855,500	4,056,500	1,405,500	2,446,000	2,826,800	
5,083,600 5,589,900 1,304,100 1,944,400 1,807,400 12,089,700	3.4(3.0) 8 1.8(1.5) 5 2.07 0) 10	÷ .	• •	or (o.a) a.a	3.5(3.5) 7	6.0(4.0) 15	1.5(1.5) 7	2.0(2.0) 8	2.6(2.6) 10	,
3.5(3.5) 7 6.0(4.0) 15 1.5(1.5) 7 2.0(2.0) 8 2.6(2.6) 10 8.2(8.0) 8	2 2.1(1.7) 5 3.3(5.0) 4 2.0(2.0)	3 3.3(3.0) 4 2.0(2.0)	4 2.0(2.0)		\$ 3.5(3.5)	6 6.0(4.0)	7 1.5(1.5)	8 0.5(0.5)	9 1.2(1.2)	

Table C.4.8 Farmhouse Economy - 2

htertan Bahr

Table C.4.9 Production Costs (1)

Rice Variety Amol-3 Shahrestan-Amol

Rls)		Produc- tion Cost/ha			·							· · ·	•		*2 477,645
(Uhit:		Total	1,530,031	5,832,265	419,778	431,403	1,019,849 2,464,298	573,617	487,900 1,370,949	938, 344	411,582	645,869 l,111,169	291,351	390,336	2 13,565,112
		Sub Total	959,049	741,458	276,500	292,092	1,019,849	250,320	487,900	461,215	206,200	645,869	216,298	325 ,500	¥ 14 (1
	pport	Ferti- lizer	ı	E	1	1	•	I .	ł	• , <sup>1</sup>	e nj	•	- - 1	•	
	Self-support	Labor	60 937,989	49,400 692,058	6,500 270,000	3,400 288,692	39,000 980,849	60 240,960	00 455 000	18,000 445,215	6,000 200,200	465,300 19,500 626,369	5,900 214,398	3,900 321,600	
		ce ce c	21,060	49,4				7 9,360	9 54,500	9 18,0		2,91 0			
		Others Sub Total	570,982	3,090,805	145,278	139,511	68,783 1,444,449	123,297	883,049	477,129	205,382	465,30	73,053	64,836	
		Others S	27,190	252,800 147,181	6,823	6,634	68,783	5,824	42,050	22,720	9,780	22,157	5,479	3.,087	
		Rice Mill	125,120	252,800	34,400	31,200	184,000	. 32,800	137,280	93,600	27,200	70,400	27,200	24,000	
-		Rental	ı	) <sup>1</sup>	1	١	· F .		4		. <b>.</b>	8	<b>1</b>	<b>i</b>	
	nses	red	220,000	306,360 2,267,550	69,600		800,000	<b>i</b>	560,000	310,000	110,150	215,325	\$	3	
	Expenses	Agri- machine	145,000	306,360	15,040	76,000	221,200	46,280	74,000	27,000	52,000	73,710	14,616	10,120	
		Fee Lease	i	1		1 -	1	•	•	* <b>*</b> .	1. T. 1. 1. 1.	•	13,224	1	
		Kater Manage- ment	11,160	o00's	2,900	9,780	59,588	590 10,505	1,140	600	904 12,640	20,863	7,312 1	8,636	
		Fuel Light Power	2,918	4,523	1,027	547	2,438 59,588		1,480 1,140	1,776	· .	10,500 50,117 2,228 20,863	398 8	255	
		Pesti- cide Herbi- cide	21,144	73,613	10,548	6,750	85, 340	15,798	37,699	19,133	9,348	50,117	3,774	16,115	
		Ferti- lizer	18,450 21,144	29,778 73,613	2,940 10,548	8,400 6,750	23,100 85,340	10,500 15,798	29,400 37,699	6,300 19,133	5,360	10,500	3,150 3,774	2,625 16,115	;
Shahrestan-Amol		Land Loca- tion Seed	3.0 High - (2.7) Land(K) *2	7.7 High (7.0) Land(K) mol3 6.3)	2.9 High - (2.5) Land(H.L) 613 1.0)	1.2 High - (0.6) Land(H.L)	7.0 High - (6.0) Land(H.L)	1.0 High - (1.0) Land(H.R)	4.2 Mid (5.8) Land(H.R)	10 4.0 Mid - (4.0) Land(H.R) (Amols 2.0)	29.7 High (2.0) Land(H.L) Amol3 0.7)	A12 5.2 High - (5.0) Land(k)	Als 5.5 Middle - (5.4) Land (3.0 leased) (Amol3 0.7)	A18 1.5 Low - (1.5) Land(H.L) (Amola 0.6)	4 ha
ahres		Land Oper- Area ha	3.0 (2.7)	7.7 Hi (7.0) La (Amola 6.3)	2.9 Hi (2.5) La (Amol3 1.0)	1.2 (0.6)	7.0 (6.0)	1.0 (1.0)	<b>4.</b> 2 (5.8)	4.0 (4.0) ol3 2.	All 29.7 High (2.0) Land (Amol3 0.7)	5.2 (5.0)	15 5.5 Midd (5.4) Land (3.0 leased) (Amols 0.7)	8 1.5 Lo (1.3) La (Amola 0.6)	(Amo1)*3 28.4
		Farm- er No	A1	A2 (Am	A3 (Am	A4	AS	A8	6¥	A10 (Am	All (Am	A12	A15 (3. (Am	A18 (Am	(Amo I)
		·					•		1.0						• •

Note: \*1; () ... Paddy area \*2; () ... K; Kari Rud, H.L; Maruz River Left Bank, H.R Haraz River Right Bunk. \*3; exclude tenancy furmers

										·	
·											
	(st	Produc- tion Cost/ha								578,407	50, 855
	(Umit: RIS)	Total Total	560,459	384,658	611,202	988,405	18 <b>5</b> ,568	937,038	815,210	975,276 5	17,538,388 450,
		Sub Total	524,384	1,329,130 2,384,658	358,269	632,418	138,921	748,064 1,957,038	1,029,397 1,813,210	101	17
	oort		ы		1	ι i	i i	1 <sup>7</sup>	1,00		
	Self-support	Fer Labor lis	15,984	,303,130	16,569	20,718	54,421	23, 364	38,197		
		L, Seed	10,400 5.	26,000 1	11,700 5	11,700 62	4,500 134,421	24,700 72	51,200 95		
			236,075 10,400 315,984	055,528	252,935 11,700 346,569	555,987 11,700 620,718	49,647	188,974	785,815 51,200 998,197		
		Others Sub Total	11,242	20,270 1,055,528 26,000 1,503,150	12,044	16,952	2,364	<b>J4,227 1,188,974 24,700 725,364</b>	37,324		
	Costs (2)	Rice Mill Ot	46,000 1		37,600 1	5,800 1			1		
	Production C	Rental	. प	93,000 629,850 75,520	4		6,240 24,000	- 889,200 56,000	ı		
		Hi <i>r</i> ed Labor	100,000	93,000 6	000,72	194,000	ı	ł	551,700		
. •	Table C.4.9 Expenses	Agrí- machine	30,600	76,700	56,000	93,500	6,000	36,550	57,130		
	ី ឧ ភ	Fee Lease		6,250	•	r	1	129,675	I		
		Fuel Water Líght Manage- Power ment	725 18,525	11,100	811,91 19 691 19	4,000	2,150	19,880 10,958 17,784 129,675	1,166 18,080		
				0 14,518		9 3,926	0 328	0 10,958			
-		Pesti- Cide Ferti- Herbi- lizer cide	0 23,735	- 17,850 110,870 14,518 11,100	0 19,983	0 30,459	5 6,990		15,125 105,288		
		Ferti- Seed lizer	- s,250		- 10,500	- 7,350	- 1,575	14,700	н ·		<b>(</b>
	e Variety Amol-5 Shahrestan-Babol	Land Loca- tion	ha 1.5 Middle (1.5) Land(K)	5.4 Middle (5.0) Land(K)	3.0 Middle (3.0) Land(K) 5 leased) ol3 1.5)	Middle Land(K)	1.5 Low (1.5) Land(K) mol3 0.5)	2.6 Middle (2.6) Land(K) 4 rented) 013 2.6)	8.2 Middle (8.0) Land(K) ol3 5.5)	5 12	Amola (Amol + Babol) <u>38.9 ha</u>
- - -	Rice Variety Shahrestan	Are		· · · ·	Ţ.	2.0 (2.0)	E S	55	B10 8.2 Mi (8.0) La (Amol3 5.5)	(Bobal) <u>10</u> .	013 (Amo. 38.
	Ric	Far er No	្តដ	83	ព	۲ ۵	f* m	ம் ம	ല	(Br	ш. Ч

<u>(</u>
Costs
<b>Production</b>
Table C.4.9

Rice Variety-Tarom

Stathrestam-Amon         Expenses           Ind         Pesti- action         Farti- cide         Fuel         Mater         Expenses           No         ared         Loca- land(x)         Farti- cide         Fuel         Mater         Expenses           T7         High         1,113         S,306         S34         1,000         -         34,040         251,950           7.7         High         -         1,113         S,306         534         1,000         -         34,040         251,950           7.7         High         -         1,113         S,306         534         1,000         -         34,040         251,950           7.7         High         -         1,113         S,306         534         1,000         -         34,040         251,950           2.2.3         Land(H.L)         6,500         28,233         950         21,280         50,600         162,000           7.3.1         Land(H.L)         5,200         15,133         1,868         600         -         27,000         310,000           7.3.0         Land(H.L)         5,200         15,133         1,868         600         -         27,000         310,000	(Unit: Ris)	Self-support	Rice Rental Mill Others Sub Total Seed L	- 20,560 15,875 333,378 12,000 251,950 - 263,950 597,328	00 - 57;600 16,923 355,578 20,640 492,084 - 512,724 868,102	00 - 46,400 17,192 361,037 36,000 492,521 - 528,521 889,558	00 - 46,400 20,313 426,564 30,000 493,090 - 503,090 929,654	00 - 27,200 9,909 208,081 IS,000 I32,350 - 147,550 555,451	75 - 9,600 3,234 67,908 12,000 105,481 - 115,481 183,589	00 - 36,000 14,540 305,334 15,000 413,779 - 428,779 754,113	- 81,240 15,200 7,992 167,840 12,500 155,875 - 166,575 534,215	00 - 24,184 5,971 125,389 12,000 369,586 - 381,586 506,975	00 - 40,800 15,727 288,274 24,000 471,985 - 495,985 784,259	13,600 2,430 51,037 8,400 309,756 - 318,156 369,195	00 - 41,600 22,500 468,507 36,000 480,332 - 516,332 984,639	00 - 44,000 9,400 197,392 22,800 748,808 - 771,608 969,001
			Pesti- cide Fuel Mater Herbi- Light Manage- Fee Agr cide Power ment Lease mac	1,115 8,306 534 1,000 -	1,469 12,690 -	950 21,282 28,080	1,868 600 -	1	6,569 316 3,202 -	780 17,542 -	190 1,000 -	691 12,406 26,520	701 22,080 26,520	··· . 1 ··	. ł	•

C4-14

	(SIX :1100)	Produc- tion I Total Cost/ha		495,450 1,215,476	937,000 1,277,990	1 276,167	3 1,555,386
	lf-support	Ferti- or lizer Sub Total		1	1	,654 - 224,654	,593 - 383,593
	Self	ub Total Seed Labor		720,026 43,750 451,700	340,990 55,000 882,000	57,515 15,000 209,654	949,793 24,000 559,593
oduction Costs (4)		Rice Mill Others Sub Total		77,600 34,087	80,000 16,238	6,240 16,000 2,455	663,000 4,400 13,657
Table C.4.9	Expenses	Agri- Hired machine Labor Renta		109,300 442,500 -		12,000 - 6,	8,000 74,000 663
Тар		Fee	· ·	·	I.	552 4,300 -	4,200 13,983 1,152 1,808 165,593
		Land Pesti- cide Fuel Water Loca- Ferri-Herbi- Light Manage- tion Seed lizer cide Power ment L	· · · · ·	- 7,550 18,485 7,700 22,800	- 8,400 45,384 1,468 51,200	- 2,625 7,345	- 4,200 13,983 1,
Rice Variety-Tarom Shahrestan-Babol	.	Land Oper-Land Farm- ated Loca- er No Area tion See		B5 3.5 Low - (3.5) Land(K)	B6 4.0 Low - (4.0) Land(K)	<pre>B7 1.5 Low - (1.5) Land(K) (Tarom 1.0)</pre>	B8 2.0 Low - (2.0) Land(K)
		τι φ		·		C4 -	

(Babol) 7.5 ha

Tarom (Amol + Babol) <u>26.5 ha</u>

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10.665,107 402,457

2.493.466 532.462

Table C.4.10 Farmhouse Economy by Farm Size - 1

Shahrestan-Anol

-	ria entro Econom Surplu	415 110 700	002 ETT	000 000	202,200	001 201					1 778 700	1 030 000	789,700	459 400		752,200	
•	llousehold Expenditures	00.019	000 019	009 010 T	282 000	1.212.200	1 257 900	4,063,700	1.015.600	1 561 000	003 200 1	1.707.500	1,145,100	1.373.800	6 790 GUG	1.358,200	
	Dispessble Income Rie		729.700	740 800	786.100	1.405.300	1.727.600	4.659.800	1.164.000	1 754 500	2.282.200	2,747,400	1,934,800	1,833,200	10.552.100	2 110 400	
	Tax Rls	4	·	,	ı	1	1		. 1			2 1	· ``	1		<b>ا</b> ،	
	Debt Inter- ests etc. RIS	148,000	148,000		40,000		1	40,000	10,000	1	. <b>.</b>	8	600,000	ł	600,000	120,000	
ome	Total R1s	877,700	877,700	740,800	826,100	1,405,300	1.727,600	4,699,800	1,175,000	1,754,500	2,282,200	2,747,400	2,534,800	1,855,200	11,152,100	2.230.400	
Farmhouse Income	Non-farm Income Ris	480,000	480.000	,	126,000	1	420,000	546,000	136,500	1	1	745,800	870,000	•	1,615,800 1	522,800	
Farr	Agricultural Income RIS	397,700	397,700	740,800	700,100	1,405,300	1,307,600	4,153,800	1,038,500	1,754,500	2,282,200	2,003,600	1,664,800	1,833,200	9,538,500 1	1,907,700	· · · · · · · · · · · · · · · · · · ·
	Family Com- position person	თ	σ	Ŋ	ç	9	21	56	-	<b>60</b>	¢.	6	10	11	45	6	· . '
	Land Oper- ated Area ha	0.8(0.8)	0.8(0.8)	1.2(0.6)	1.0(1.0)	1.7(1.5)	1.3(1.5)	5.2(4.4)	1.5(1.1)	2.9(2.5)	2.7(2.3)	2.5(2.4)	2.0(2.0)	2.0(2.0)	12.1(11.2)	<u>2.4(2.2)</u>	'addy area
	E O	0.3(0.3)	, <u>0.3(0.3)</u> *1	1.2(0.6)	1.0(1.0)	1.7(1.5)	1.3(1.3)	5.2(4.4)	<u>1.3(1.1)</u>	2.9(2.5)	2.7(2.3)	5.5(5.4)	1.5(1.5)	2.0(2.0)	14.6(13.7) 1	2.9(2.7)	*1 ( ) Paddy area
E C C C C C C C C C C C C C C C C C C C		l under 14 Total and Ano	one farm ?	1-2	60	13	18	Total numbers of farm 4	Ave/ one farm	2-3 3	vo	15	17	20	Total numbers of farm 5 1	Ave/ one farm	Note

·				·			51											
	Farmhouse Economic	stra snitune	546,200	624,600	871,200	-98,200	2,065,900	1,058,400	5,068,100	844,700	1,100,700	1,952,200	1,628,500	4,496,200	9,157.400	2,289,500		
	Household Exnerditines	RIS	2,841,000	1,356,500	1,155,000	1.585,500	2,500,900	2,066,500	11,505,400	1,917,600	2,294,800	1,448,000	1,607,000	2,944,000	8,293,800	2,075,500		
	Disposable Tarome	In come R1s	3,387,200	1,981,100	2,026,200	1,487,300	4,566,800	5,124,900	16,573,500	2,762,300	5,395,500	3,380,200	3,235,500	7,440,200	150,000 17,451,200	4.562.800		
· ·	t F	RIS	ı	1	1	ı	ı	50,000	50,000	8,300	150,000	ı	ı	f	150,000	37,500		
Size (2)		RIS RIC.	320,000	F	50,000	300,000	•	ŀ	670,000	111,700	<b>I</b>	300,000	ı	ł	300,000	75.000		
Farmhouse Economy by Farm Size		RIS	5,707,200	1,981,100	2,076,200	1,787,300	4,566,800	3,174,900	17,295,500	2,882,300	5,545,500	3,680,200	5,235,300	7,440,200	7,715,100 17,901.200	4.475,500		
mhouse Econ	Non-farm Troome	Ris	612,000	1	٠	•	1.500,000	t	2,112,000 17,295,500	352,000	465,100	ł	600,000	6,650,000	7,715,100	1.928,300		
Table C.4.10 Far	Agricultural Income	RIS	3,095,200	1,981,100	2,076,200	1,787,300	3,066,800	5,174,900	15,181,500	2,550,300	5,082,400	3,680,200	2,635,300	790,200	10,188,100	2.547,000		
Table	Family Com- nocition	person	10	60	4	თ	11	ę.	48	.00	¢	o,	1	15	35	σ		
		ated Area ha	3.0(2.7)	3.2(5.0)	3.2(5.0)	3.2(2.5)	4.1(5.8)	4.0(4.0)	20.7(19.0)	3.5(3.2)	7.7(7.0)	7.0(6.0)	20.7(2.0)	1.0( - )	36.4(15.0)	9.1(5,8)		
1	Land .	Uwned Area ha	5.0(2:7)	5.2(5.0)	3.2(3.0)	5.2(2.5)	4.1(5.8)	4.0(4.0)	20.7(19.0)	5.5(5.2)	8.7(8.0)	7.0(6.0)	2.5(2.0)	9.5(8.5)	27.7(24.5)	6.9(6.1)		
hahrestan-Amo	arm Farmer	NO	۲. ۱	2	12	19	6	10		Ave/ one farm	17 17	over 5	11	16	Total numbers of farm 4	Ave/ one_farm		
Shahrestan-Amol	Land Land Oper-	Uwhed Azea ated Area ha	÷ .	5.2(5.0)	3.2(3:0)	3.2(2.5)	4.1(3.8)	4.0(4.0)	Total numbers of farm 6 20.7(19.0)	farm <u>5.5(5.2)</u>	2 8.7(8.0)	7.0(6.0)	2.5(2.0)	9.5(8.5)	ers 27.7(24.5)	farm 6.9(6.1)		

Table C.4.10 Farmhouse Economy by Farm Size (2)

·

Table C.4.10 Farmhouse Economy by Farm Size (3)

Shahrestan Babol

Farm Far Size N ha	Farmer La No. Owned	Land <u>Owned Area</u> ha	land Oper- ated Area ha	Family Com- position person	Farmi Agricultural Income Rls	Farmhouse Income ral Non-farm e Income RIS RIS	Total RIS	Bebt Inter- ests etc. RIS	Tax Ris	Disposable Income RIS	Household Expenditures RIS	Farmhouse Economíc Surplus RIS
1-2	1 1.5(	1.5(1.5)	1.5(1.5)	ø	925,300	20,000	945,300		•	943,320	1,207,300	-264,000
	3 3.3(	3.3(3.0)	.1.8(1.5)	Ŋ	923,500	585,000 1,	1,508,500	100,000	ı	1,408,500	1,227,600	180.900
	7 1.5(	1.5(1.5)	1.5(1.5)	- 4	1,304,100	, E H	1,304,100	ŀ	ı	1,304,100	921,000	383,100
Total numbers of farm 3		6.3(6.0)	4.8(4.5)	20	3,150,900	605,000 3,	3,755,900	100,000		3,655,900	3,355,900	300.000
Ave /	Ave/ one farm 2.1(2.0)	(2.0)	1.6(1.5)	7	1,050,300	201,700 1	1,252,000	35,300		1,218,600	1,118,600	100,000
2-3	4 2.0(	2.0(2.0)	2.0(2.0)	01	862,200	,	862,200	•	ı	862,200	735,800	126,400
•	8 0.5(	0.5(0.5)	2.0(2.0)	S	1,464,400	480,000 1,	1,944,400	880,000	1	1,064,400	1,558,200	-495,800
-	9 1.2(	1.2(1.2)	2.6(2.6)	10	1,607,400	200,000 1,	1,807,400		1	1,807,400	1,405,500	405,900
• .	3 3.7(	3.7(3.7)	6.6(6.6)	38	3,934,000	680,000 4,	4,614,000	880,000		3,734,000	5,697,500	36,500
Ave/ one fi	Ave/ one farm 1.2(1.2)	1.2)	2.2(2.2)	თ	1,511,500	226,700 1,	1,538,000	: 293,500	e r	1,244,700	1,232,500	12,200
2-12 13-12	2 2.1(1.7)	1.7)	5.4(5.0)	ŝ	1,705,300		1,705,300	100,000	<b>)</b>	1,605,300	1,722,100	-116,800
	5 5.5(3.5)	3.5)	3.5(3.5)	2	3,085,600	้ทั	3,083,600	ı	r	3,085,600	1,817,500	1,266,100
Total numbers of farm 2	bers 2 5.6(5.2)	5.2)	6.9(6.5)	15	4,788,900	ر م	4,788,900	100,000	1	4,688,900	3,539,600	1,149.300
Ave/ one 1	Ave/ one farm 2.8(2.6)	2.6)	5.5(5.3)	<b>0</b>	2,394,500	4) •	2,394,500	<u>50,000</u>	•	2,544,500	1,769,800	574,700
5 and 6		4.0)	6.0(4.0)	1.5	5,589,900	، ۲	3,589,900	•	i i	3,589,900	1,667,500	1,922,400
over 10	0 8.2(8.0)	8.0)	8.2(8.0)	<b>có</b>	11,289,700	800,000 12,	12,089,700	•	ł	12,089,700	1,629,400	10,460,500
Total numbers of farm 2		12.0)	14.2(12.0) 14.2(12.0)	33	14,879,600	800,000 15,679,600	,679,600	1	1	15,679,600	3,296,900	12,382,700
Ave/ one:	Ave/ one farm 7.1(6.0) 7.1(6.0)	6.0)	7.1(6.0)	3	7,439,800	400,000 7,	7,839,800	י		7,839,800	1,648,500	6,191,300

Farmhouse Economic Surplus RIS	119.700	596,100	300,000	896,100	128.000		3,761,200	36,500	3,797,700	474 800		5,068,100	1,149,500	6.217,400	777.200		9,157,400	2,954,900	12,112,300	2 422 400	
Household Expenditures Rls	610,000 (67,800)	4,065,700	5,355,900	7,419,600	1.059.900	( 151,400)	6,790,900	5,697,500	10,488,400	1 311 000	( 143,700)	11,505,400	5,539,600	IS,045,000	1,880,600	( 238,800)	8,295,800	635,000	8,928,800	1,785,800	( 178,600)
Dísposable Income RI¢	729 700	4,659,800	5,655,900	8,315,700	1.187.900	( 169,700)	10,552,100	5,734,000	14,286,100	1 785 800	( 198,400)	16.573,500	4,688,900	21,262,400	2.657.800	( 337,500)	17,451,200	3,589,900	21,041,100	4.208.200	( 420,800)
Tax RIs	•	•	,		•	· ·.	1	<b>1</b>	ı	1		50,000	1	50,000	6.200		150,000	•	150,000	30,000	
Debt Inter- ests etc. RIS	148.000	40.,000	100,000	140,000	20.000		600,000	880,000	1,480,000	185.000		670,000	100,000	770,000	96,300		300,000	I	300,000	60,000	
Total R1s	( <u>97, 700</u> )	4,699,800	3,755,900	8,455,700	1.207.900	( 172,600)	11,152,100	4,614,000	15,766,100	1.970.700	( 219,000)	17,293,500	4,788,900	22,052,400	2.760.500	( 350,500)	17,901,200	3,589,900	21,491,100	4,298,200	( 429,800)
Farmhouse Income ral Non-farm e Income R1s R1s	480,000	\$46,000	605,000	1,151,000	164,400		1,615,800	680,000	2,295,800	286.700		2,112,000	,	2,112,000	264,000		7,713,100		7,713,100	1,542,600	
Farm Ágri cultural Ín come RIS	<u>397,700</u> (44,200)	4,153,800	3,150,900	7,304,700	1.045.500	( 149,100)	9,538,300	5,934,000	15,472,300	1.684.000	( 187,100)	15,181,500	4,788,900	19,970,400	2.496,300	.( 317,000)	10,188,100	3,589,900	15,778,000	2,755,600	(275,600)
Family Com- position person	<u>م</u>	29.	20	49	7	•	45	80	73	<u>о</u> ,		48	15	63	S		55	15	50	10	1
Land Oper-	0.8(0.8)	5.2(4.4)	4.8(4.5)	10.0(8.9)	1.4(1.3)	·	12.1(11.2)	6.6(6.6)	18.7(17.8)	2.5(2.2)		20.7(19.0)	6.9(6.5)	27.6(25.5)	3.5(3.2)		36.4(15.0)	6.0(4.0)	42.4(19.0)	8,5(3,8)	
Area Farm No: Owned Area ha	Ave/one farm Ave/one farm	5.2(4.4)	6.3(6.0)	11.5(10.4)	Ave/ <u>one farm 1.6(1.5)</u>	Ę	5 14.6(15.7)	5.7(5.7)	18.3(17.4)	Ave/ one farm 2.3(2.2)	¢	20.7(19.0)	5.6(5.2)	26.3(24.2)	5.3(5.0)	u	27.7(24.5)	6.0(4.0)	33.7(28.5)	6.7(5.7)	5
Project Area. Farm Farm Size No.	<pre>1 under 1 0.5(0.3) Total and Ave/one farm Ave/one berso</pre>	1-2	ю	Total 7	Ave/ one farm	Ave/one person	2-3 5	ę	Total 8	Ave/ one farm	Ave/one person	3-5 6	(1	Total 8	Ave/ one farm	Ave/one person	5 and 4	over 1	Total 5	Ave/ one farm	Ave/one person
ውዝ ኲ.ላዝ	<b>-</b>	ст.					£31				~	.,		•		-	1.1	-	-		

Table C.4.10 Farmhouse Economy by Farm Size (4)

C4~19

Table C.4.11 Labor Requirement per Hectare (1)

-11	Shahrestan Amol	an Amol													õ	Operarion	5											
1			Days Worked		p	a cino ( d		Harrowing		rans-		eedine	]	-ilizin	ł	ravine		Warer Management	}	Harvestine		Threshing	Tran	Transport		<b>€</b>	otal	1
~ }	No.	ared Area	occupation		- X 4	1		5	[ ]			ax.	Ì È.	8 H		<u>ال</u>	1 1	=				Ξ	u.		Family	V Hi red T	d Total	1 Machane
	-	3.0	720 (666) *2	12 (*)	,	269 (136)•3	ı	136 ( 42)	±⊂ •	ي [-]	89 230		- 44	4	- 40	, ,	, 28	,	271 (-)	88	149 (25)	۰	37 (19)	ŀ	1,425 (1,367)	, 178 (178)	1.603 (1,545)	ы Б
	ei	7.7 (7.0)	375 (363)	=Ĵ	23	69 (34)	69	1	69 2 (34) {	23 12	120 1	10 86		5	6	18	32	•	93 (22)	300	48	36	(01)	01	295 (285)	5 783 5) (783)	1,078 (1,068)	કછે
	m	2.9	450 (405)	2 2 2 2	•	348 (1	(174) (	144 (-)	יי יי	s 	96 216 (-)	ŝ	<u>ن</u> ہے۔ ا	۔ تي	- []3	, 	ې ئ چ	، ~	-) 510	210	120 (30)	L	10	- (ot)	1,244 (1,179)	1 306 3) (306)	1,550	0 S) (214)
	খ	1.2 (0.6)	320 (302)	9 - - -		320 (160)	•	¢.)	77 N	250 (-)	- <u>S</u>	005 (- )	ن ت -	را د	₽Ĵ		, z (-)		69 99 1	' -	100	(20)	40	ŀ	1 830 (1 753)	9 () (9	1,830	्रच्
	ა	7.0 (6.0)	720 (645)	18 (13 (2)	•	76 (56)	56 . (	18 (-)		72 S	(1 06 )		, ,	۰°.	- - - 33		, 36 (-)	• •	() 150 150	200	96 96	•	3 (2)	ı Ç	587 ( 547)	7 346 7) (546)	$\sim$	933 893)
	vo t	(all Tarom)	(ш)																			·						
	~ \$\$	1.0)	190 190	24 -)	. •	132 (96)	,	ч()	ч. ,	120	30	108 (-)	- ب	۔ م	ч.) ч.)	· ~ ~	د 1 20	,	8	021 (	144 (24)	•	( 2) ( 2)	ι	780 ( 780)	0 120	ب ب	006 006
	o,	4,1	525 (429)	) 2 (	•	109 (54)	,	) 23 (	,	- 34 -	134 (-) (-) (-)	-)	ن ،	े <u>न</u> ्द	, 29 ( 5)	, 	: <b>-</b> [		ن م ا	) [-)		77	(9 (9)	. • <sup>*</sup>	462 .( 421)		~	816 775)
	10	4.0	300 (264)	) 	1		125 (		18	- - -		6 (- )	- 86 - 86		91 ) - )	`. `	, (-)		ရှိ ရှိ	225 (		75	5.	. <b>.</b>	746 ( 631)	6 727 1) (727)	7 1,473 7) (1,408)	73 )
4-20	11	29.7 (2.0)	240 (228)	÷.		312 (156)	'	8 6	ب ہ 19	48 -) 12	120 9 . (		н ) 96	2 2	ج ج	, ,	- 150		૾ૢૢ૽૽ૼૺ	120	06 06	06 (	ر ع)	' -	840 (813)	0 456 3) (456)	6 1,296 6) (1,269)	96 69)
	 21	3.2 (3.0)	450 (387)	-) 54 54		266 (430)		(- - -	- H U -	120	84 31 (	313 ()	× _ ,	علا	- - -	4 (4	8 	-	(°?	ші (		. 37		· ·	1,091	(L 232 (7) (232)	2 1,525 2) (1,279)	79)
	13	(all Tarom) [all Tarom]	oa) Omj	· ·																. '	:		÷		. ·			
	15	2.5 (2.4)	310 (284)	8 2		98 (98)	'	-) {-}	н т	(-)	61 UT	261 (-)	. – –	- 12	- 27	ر	- 133		343 (-)		80	40 (20)	) (2)		1,081 (1,031)	<u>ب</u>	50 1,131 50) (1,081)	31
	16	(Lessee)	 	÷	۰.														· ' .							·		
	18	(all Taron) 1.5 (1.5)	on) 430 (427)	23 23	•	64 (64)		58 (-)	N.V.	2 39 ( - )		258 (~)	ः <b>न</b> ्द ।	<u>4</u> î	8.	мſ	19		865 298	•	110 (37)		12 [12]	· · · ·	1,530	ب	- 1,530 -) (1,530)	នន្ត
· · ·	19 20	(all Tarom) (all Tarom)											'' :		· · ·					- - -			-					
	Average	Аverage (1) 5,030 (4,580) (2) (Мах.)exclude (2) (Мах.)exclude	xclude		<u>ы</u> ы	182 (107) 177 (105)	21	8 54 (38 (38 (38) (38) (38) (38) (38) (38) (	20°0	91. 28 (1) 28 (1)	77 18 19 10	184 2 (-) 163 2 (-)	53 53 53	ัฐ • ๊ <u>ต</u> •	1 24 2 24 (1)	4 (2 4 7	2		218 218 218 218 218 218	127 127 127	66 [12] [23] [23]	34	13 (6) (6) (6)		6 6 6 8	995 298 939 (298) 919 293 868) (295		$\begin{array}{c} 1.295\\ (1.237)\\ 1.212\\ (1.161) \end{array}$

\*2....( ) Days converted by labor unit \*3....Operated hours of Machines \*4....F; Fumily, H; Mired Note: "1...( ) paddy area

	. 1	our).	.	ine	ļ		1.							_		رەك	, <sup>1</sup>	- ac	-
		(Unit: hour)		Machine		183	870 (733)*1	681	984 *1 (900)			មាត		774 (623)	61	476 exclude	exclude pump	153 (exclude) pump	150
• .	~ .	Ĵ		Total		920 814)	1 572	1,125 (1,078)	1 694 (1 574)			1,296 (1,144)		(9#6 166	900 887)	1,248 (1,157)	1,143 (1,065)	1,274	1,187
			Tors	Hiz		187 (187) (	125 (125) (	264 (264) (	486 (486) (			· -		01 ).(01)	308 (308) (	861 (198)	161	1	255 (255) /
-		·		Family		733 627) (	1,594 (1,357) (	864 814) (	1,208 (1,088) (			1,296 (1,144) (		981 936) (	592 579) (	1,050 959) (	952 874) (		932
	· ·		t	1 	! 	ني. د اد	-5 -		-5			15 1		ر ب	, ,	-J -	ال ،		~`
		· . ·	1.005	L L		11 (8)	33 (17)	64 (24)	8 (5)			( 2)		( 2) <sup>.</sup>	( 2)	19 (8)	]3 ( 6)	15	13
				u L	   .	•	1		 (18)		·	- (54)		8 (1 ) )	. 2)	-	ı	13	18
			Threshine	ц.		133 (30)	120 (30)	120 (24)	60			288		<b>x</b> 0	55 (4)	112 (19)	98 (22)	104 (27)	66
	·.		sting	x		120	80	144	180			ŧ		2 (1)	157	98	120	116	124
i.			Harvesting	14		147	240	96 -	14 (-			360 (-)		210	-)	204 (-)	175 ( - )	213 ( -)	188
		•	Water Manayenent	x			•	,	۰.			ı		•	•	۲	ı	• [	'
(3		i on	W Man a	ч		•	100 (733)	ç(- 9	120 (900)			66 (-)		104 (623)	78 (-)	90 (376)	70 (376)	8 <sup>-</sup>	72
per Hectare		Oneration	Saravine	=		1	ŝ	•	ı			ł		•	ł	ĩ	7		"
oer He				1		<u>د (</u>	۹ <b>(</b> -	<del>6</del>	4 			- <del>-</del> 7		30 (- )	(-)	24 (-)	24 (-)	24	24
			Ferci lizino	×	1		'		·			'		'	•	'	'	- 1	-
equire			Ferr	i.		<u> </u>	<b>"</b> ]	-) 54 (-	57 - 1 - 1			* î _		8 7 7	si.)	÷.	₹ - -		<u>ع</u> ر
Labor Requirement		÷	ecdine	=			י ק <b>ר</b>	י. קרי				י הר		, 	-) 68	0 (-	- ) 14		8 20
			×	ľ		7 120	40 619	2~	₩U			SÇ.			53 72	66 <u>2</u> 9(	56 25	2.1	61 69
Table C.4.11	·		Trans- planting	=	   	.3 67 0)	136 (_).₄	80 120 (-)	180 180 (-)			106 (-)		120 (-)	72 5	135 (-) 6	132 5 (-)	_	9 601
Table			1			- 253 (120)	20	"_ '	۳. ۱			20		д.) ,	ר : פר	цо •	ц. ,		9 9
			Harrowing	u	[   	16 (8)	54	- 3	18 (-)			÷.)		8	30 (-)	26 (_1)	23 (2)	33	34
				t L		•	1	•	126			'		,	,	ŝ	1		13
	- - 		Plowine	لت		33 (17)	164 (82)	128 (40)	126 (63)			87 (87)		- 146 (146)	107 (53)	113 (70)	126 (79)	157 (93)	158
	•		p: Bu	=	•   		•	•	•			•			ş	,	·	•	-
•			Seed			8 (+	16 (8)	54	36 (-)			48 (-)		23 (-)	د آء ا	25 (2)	22 ( 1)	24 ()	21
			Davs Worked of Own farm	occupation	days	460 (385)	858 (696)	260 (248)	390 (336)	от)	on)	330 (282)	. (uo	530 (493)	600 (573)	3,428 (3,013)	ude	2) 8,458 (7,593)	ude
т Х. т.	- Ano 13	lode		Area	eq.	1.5	3.0	1.8	2.0	(all Tarom)	(all Taron)	1.5 <sup>.</sup> (1.5)	(all Tarom)	2.6 (2.6)	8.2 (8.0)		exc] ه	1+Babo	m)exc1
	Rice Variety Amol3	Shahrestan Babol	Farmer Land Coer-	No. ated	1	- -	19 19	r M	4	5 (2	6 (z	۲ 2	с) 8	9 4 E	10 (8 (8	Average (1)	(2) Maximum) exclude	Total (Amol+Babol) Average (1)	( <sup>Atinia</sup> mum) exclude
									· .	:				4-2					

Note: \*1....( ) Operated hours of Pump

(Unit: hour)

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Table C.4.11 Labor Requirement per Hectare (3)

Rice Variety Taron

1	12	1					6			79	c	74	86	88	\$	<b>a</b> 1	112
	Machine		150	117	. 66	561 (	240	172	130		0.120	· · ·		1			1
	Total		1,083 (1,065)	996: (954)	845 (676)	1,403	1,451	1,561 (1,419)	1,250	984 (- 754)	1,202 ( 982)	1,059	, 1, 407, (1, 407)	1.086 (1994)	1,300	1,205	1, 167
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			86	•	(16)		129	•	16 (16)	(30)	40 (20)	(24)	· ·	•	۹.	51	1
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land Mor-	ated Area	ha	7.7	2.7	3.2 (3.0)	4.0	29.7 (2.0)	3.2 (3.0)	1.7	0.8 (0.8)	2.5 (2.4)	5.0) (5.0)	1.3 (1.3)	3. 2 (2, 5)	2.0 (2.0)	۶J	<pre>(2) Maximum) exclude Minimum) exclude</pre>
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Rice	Shahr	Farmen No.	Ś	¢	<b>г</b> .	30	Ave (1)	(2)	Ave			
	Rice Variety Taron		Days Morked Seed Harrowing Trans- Days Morked Seed Harrowing Trans- - of Qun farm bedding Plowing Leveling Planting Keeding Fertilizing Spraving Monagement Harvesting Threshing Transpo cocupation F H F H F H F H F H F H F H F H F H F	Days Worked Seed Harrowing Trans- Operation Kater Bedding Plowing Levelling Harrowing Trans- occupation F H F H F H F H F H F H F H F H F H F	Days Worked       Seed       Harrowing       Trans-       Operation       Operation         bys Worked       Seed       Harrowing       Trans-       Operation       Mater         - of Oun farm       bedding       Plowing       Levelling       Planting       Mater         - of Oun farm       bedding       Plowing       Levelling       Planting       Mater         - of Oun farm       bedding       Plowing       Levelling       Planting       Mater         - of Oun farm       bedding       Plowing       Levelling       Planting       Mater         - of Oun farm         - occupation         - 101       - 82       - 17       120       - 54       - occupation       - occupation       - occupation         - 550       56       - 60       - 12       - 240       - 54       - occupation       - occupation       - occupation         - 0000       (-)       - 000       - occupation       - occupation       - occupation       - ococupation       - occupation       -	Days Worked by's Worked comparison     Seed F     Harrowing F     Trans- Harrowing     Operation       Days Worked comparison     Seed F     Harrowing     Trans- F     Operation     Operation       - of Our farm advs     bedding F     Plowing     Levelling     Plunting     Meeding     Fertilizing     Spraving     Monagement       - of Our farm days     - of Our farm F     - of Our farm F     - of Our farm     - of Our farm     Nator     Nator       - of Our farm days     - of Our farm F     - of Our farm       - occumpation     - 101     - 82     - 17     120     - 54     7     7     - 00     - 00       - (235)     (-)     (101)     - (-)     (-)     - 0     - 0     - 0     - 0     - 0     - 0       - (335)     (-)     (00)     (-)     - 0	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

#### Table C.4.12 Production Cost per hectare - 1

#### Rice Variety-Tarom

	· .			
ltem	Quantity	Fec (R1s)	<u>Total (RIs)</u>	Note
Repairing the canals	3 person	2,500	7,500	
Plowing	livi ce	15,000	30,000	
Land leveling	<b>.</b>		15,000	
Delimitation and land pre- paring	4 person	2,500	10,000	
Seed	6D kg	150	9,000	
Seed bedding	4 person	2,500	10,000	
Care and arranging the water in seed-bed	ene aonth		10,000	
Take out the seeding	2 person	2,500	5,000	
Transfer from seed-bed to main field	4 person	2,500	10,000	
Transplanting	15 person	2,000	30,000	
Spraying and pesticide and herbicide		-	17,500	
Fertilizer and fertilizing			50,000	
Catting the grass around the field	2 person	2,500	5,000	
Weeding (twice)	16 person	2,000	32,000	
Water management	. –	-	25,000	
Harvesting and collecting	24 person	3,000	72,000	
Transport to corner of farm or storage	3 person	2,500	7,500	
Threshing	7 person	3,000	21,000	
Thresher rent	-	· · ·	14,000	
Transport to ricemill factory	-	-	10,000	
Drying and ricemilling	÷.,	~	15,000	
Sub Total		· ·	370,500	
Others (10%)			37,050	
Total	• •	·	407,550	

Note: 1. Sources ... Rice Planning Committe

2. Date ..... 1363 Rice production year

#### Table C.4.12 Production Cost per hectare - 2

ltem	Quantity	Fee (Ris)	Total (Rls)	Note
Repairing the canals	3 person	2,500	7,500	
Plowing	twice	15,000	30,000	
Land leveling		· . <del>.</del> .	15,000	
Delimitation and land pre- paring	4 person	2,500	10,000	
Seed	60 kg	150	9,000	
Seed hedding	4 person	2,500	10,000	
Care and arranging the water in seed-bed	one month	<b>.</b>	10,000	
Take out the seeding	2 person	2,500	5,000	
Transfer from seed-bed to main field	4 person	2,500	10,000	
Transplanting	15 person	2,000	30,000	
Spraying and pesticide and herbicide	-	-	17,500	
Fertilizer and fertilizing	-	-	50,000	
Catting the grass around the field and plot	2 person	2,500	5,000	
Weeding (twice)	16 person	2,000	32,000	
Water management	-	-	25,000	
Harvesting and collecting	30 person	3,000	90,000	
Transport to farm or storage the corner	4 person	2,500	10,000	
Threshing	9 person	3,000	27,000	
Thresher rent		-	14,000	
Transport to ricemill factory	-	-	10,000	
Drying and ricemilling	~	-	15,000	
<u>Sub Total</u>			416,000	
Others (10%)	i.		41,600	
Total			457,600	

Note: 1. Source ... Rice Planning Committee 2. Date ..... 1363 Rice production year

#### Table C.4.13 Farmer's Intention for Land Condition Improvement - 1

Shahrest an Anol

Land Condition Farmers Intention for Land Improvement Own-farm Occupation Condi-Land Days Worked Farm-lot tion Animal: Vegeland Operated of Ownfarm Irri- Water Shortage Drainfatter funed Inundation Distribu- Area of Distance on Farm Irri- Drain-Land con- Gather Hus- Fruits table 0 Area Occupation gation Frequency age Frequency tion No. Each-lot from House loat gation age solidation Each-lot Farm Roads bandry Cropping Cropping Others No. Area ha ha Max.-Min. Max,-Min, No. P \* 3 0. 720 (No<sup>\*5</sup>/length Width,Pavement 3.0 Yes Once in 13 0,5-0.04 500-0 Bad 0 0 х 0 3.0 0 ĩ (648)\*2 (2.7)\*1 (2.7)\*1 every years 375 ... No.P 7.7 35 1,000-700 0.5-0.1 х 8.7 - 20 х 0 0 2 (333)(width) (7,0)(8.0)450 . x х 2.9 12 0.2~0.05 300 - 100 Not Bad 0 х o х 0 х 2.9 3 (396) (2.5) (2.5) . 11 320 2,000-1,500 0 0 x 1.2 1.2 4 0.3-0.1 х х a x (width) (287) (0,6) (0.6) (without (hired labor 720 11 х 28 300 - 20 o 0 0.7-0.1 Good х . X 7.0 7.0 х 5 (624) (6.0) (6.0) (without (hired labor 44 0 0 450 550-500 х 2.7 2.7 15 0.3-0.05 Bad х X 6 (414) (2.3) (2.3) X - 64 3.2 3.2 690 51 0.1-0.01 1,000-200 Not Bad x 7 (3.0)(3.0) (477) 0 190 11 ... 5 0.33-0.05 800-500 Good х х х х 1.0 1.0 8 (1.0) (190) (1.0) 0 0 х х 15 Q x Once in 1.000-300 4.1 4.1 \$25 Yes Yes 0.4-0.1 Not Bad 0 0 0 9 (width,pavement) (393) 2 - 3 years (3,8) (3.8) lot Plot x х 0 0 0.2-0.07 1.000-500 10 4.0 4.0 300 No.P No.P 31 (4) 0 0 0 (width, pavement)  $\{4, 0\}$ (4,0) (252) pieces o (without hired labor 240 ... 20 (4) 0.15-0.03 600-500 0 2.5 29.7 ... 11 (width 3 m) (228) (2.0) (2.0) х 0 х 0 34 0.3-0.02 2,000-1,000 Good n 0 12 3.2 450 3.2  $\{3,0\}$ (387) (3.0)х 0 х х х Once in 0.6-0.45 2,000-1,800 Х ... -3 13 1.7 1.7 450 Yes X every years (80d 10<sup>cm</sup>,15<sup>ha</sup>) \*4 (1.5)(1.5)(414) 0 х х Once in 0.3-0.1 4,000-3,000 Not Bad 0 0 х 14 0.3 0.8 520 . ... . 5 0 0 Yes Once in (width) (0.3) (320) every years (0.8)every years Transplanting (80<sup>d</sup>, 60<sup>cm</sup>) o(I work in my land myself Х 0 20 0.3-0.05 1,000-700 х σ х х 15 No.P 5.5 2.5 3.10 No.P (width) (5.4) (284)  $\{2,1\}$ x Х 0 0 0 х х 16 95 Once in 170 0.3-0.02 2.000-200 0 1.0 Yes Once in Yes (width) every years (60d,50cm,65ha) (8.5) ( -) every years Transplanting υ x х 0 o 17 0.2-0.06 1,000-800 0 1.5 2.0 11 н Once in 40 540 No./length (1.5) (2.0) (486) every years Width (90d,20cm,2ha) х х ò 0 0 0 x 18 1.3 11 0.15-0.05 150 o Once in 1.3 н 430 (width) (1.3) every years (1.3)(427) (90d, 10cm, 1ha) 0 2 х 0 0 Bad 0 0 0 19 3.2 13 (5) 0.6-0.05 1,000-500 3.2 490 11 .... Once in (No./length) (2.5) every years (60d,20cm,0.5ha) (2.5) (400) х ó х 0 20 Not Bad 0 0 0 0.35-0.15 1,000-800 2.0 14 10 Once in 0.5 450 (width) (2.0) (2.0) (441) every years (60d,20cm,2ha)

Note: \*1( ) ..... Paddy area \*2( ) ..... Days converted by labor unit

\*3 .... no problem \*4 .... days \*5 .... numbers

#### Farmors Intention for Utilize Surplus Labor Force

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	Non	- Farm De	ounation		Farmare lute	ntion for	4mu2	
Other	ROIT	-farm_Oco Working			Farmers Inte	attion for a	Post	uetn
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x	x	x	x	x	0	0	0	
	~	~	~	••	(Clover, Vegetables)	-	•	
						-		
x	х	х	x	x	o (Clover)	0	x	
					(diotex)			
х	х	х	х	x	0	0	x	
					(Clover,Vegetables)			
x	x	х	x	x	· 0	0	x	
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						-		
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x	x	х	х	х	Officer-labor requir	°C- 0	х	
					(cropping is easy			
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<sup>ny</sup> ) <sup>x</sup>	~				(cropping )			
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^	A				(Clover)			

## Table C.4.13 Farmer's Intention for Land Condition Improvement - 1

					_				Fa	rmers Inte	ention for U	tilize S	urplus L	abor For	<u>ce</u>					•	
						~ · · ·	*		Ω-n_far	m Occupat	ion		Non		cupation		Farmers In	tention for	Agri-prod Post	ucting Pro	omotion Scheme Strengthening
		Condi -		armers	Intention 1	for land	Improvement	Animal		Vege-		Other Farm			Regular		Introduce of	Seed Mul-	Harvest	Farm	of Agricultural
a of h-lot	Distance From House	tion on Farm Loat	Irri- gation	Dralii- a age	- Land con- solidation	Gather <u>Each-lo</u>	t Farm Roads	llus -	Fruits	table Cropping	Others		Day La- bourer	from House	Employ- ment	Others		tiplication	ment	zation	Research
ha	ħ							•	÷	· · ·		<b>.</b>	а. с. <b>х</b>	×	x	x	0	o	o	O	0
Min. -0.04	MaxMin 500-0	Bad	Q	•	O	0	(No <sup>*5</sup> /length (Width,Pavement	)	X	. 0	×	^		Ŷ	x	x	(Clover,Vegetables) o	0	x	0	× .
-0.1	1,000-700		p	x	ø	0	o (width)	0	• <b>X</b>	X	x	*				x	(Clover) o	o	X	0	x
0.05	300 - 100	Not Bad	. <b>K</b>	x	o	. 0	<b>x</b>	x	x	0	X	X.			, ,	x	(Clover,Vegetables) o	. 0	x	o	x
3-0-1	2,000-1,500	11	X	x	0	x	o (width)	0	0	x	×	X	x		Î.		x	O	. x	. 0	0
7-0.1	300-20	Good	x	x	x	0	<b>x</b>	X	×	Ó	o (without hired la	abor) <sup>x</sup>	x	x	X	<b>X</b> . 1	x	. o	x	o	x
3-0.05	550-500	Bad	X	x	0	• 0	•	x	· <b>X</b>	0	o (without hired la	<sub>abor</sub> ) ×	X	x	x	x	(not Fence) o (Clover-labor req o (ment is small an	vire- o	x	O	x
1-0.01	1,000-200	Not Bad	x	x	0	0	Q	o	× .	x	x	X	X	<b>x</b>	<b>X</b>	x	Cropping is easy	nire- o	x	0	x
3-0.05	800-500	Good	<b>X</b>	x	0	. 0	x	x	, <b>x</b>	x	. 0	x	x	X	x	X	{ment is small an cropping is easy o Clover,	Id	Ū	Ō	0
4-0.1	1,000-300	Not Bad	¢	o	o	0	o (width,pavement	0	x	x	x	x	x	x	. <b>X</b>	<b>X</b>	Animal nusbandr	3			
	. •					. 0	0	0	2 <b>x</b>	x	x	x	x	, <b>x</b>	<b>x</b>	x	o (Clover, (Animal nusband)	y) 0	0	O .	0
2-0.07	1,000-500	H.	0	0	0	-	(width, pavement	;) `	0	x	o without	. 1					o Clover, (Animal nusbandr	) <sup>0</sup>	o	o	o
5-0.03	600-500		х	O	0		(width 3 m)	0	×	0	thired line x	abor' x	x	x	x	x	o (Barley,Clover)	x	0	0	x
3-0,02	2,000-1,000	) Good	X	х	0	U	x		ч.  х	x	×	x	×	x	x	x	o (Clover,Vegetables	, x	<b>X</b>	0	<b>x</b> .
6-0.45	2,000-1,80	) "	0	x	x	x	X			· · ·		·	•				0		0	Q	x
.3-0.1	4,000-3,00	0 Not Bad	. c	. 0	0	. 0	o (width)	. 0	x	x	x	x	x	x	x	. <b>x</b>	(Clover, Vegetables	)			
					-	0	0	X	<b>X</b>	×	o I work i		x	x	x	x	o (Clover time of cropping	) 0	o	0	х
	1,000-700	11	)	; x	Ū.	ů	(width) o	x	x	x	land mys	x x	x	x	x	x	o (Clover,Vegetables	o )	O	х	x
.3-0.02	2,000-200	£7	C	, 0	0		(width)										0	o	x	0	х
2-0.06	1,000-800				o	0	o (No./length) (Width	. o	<b>X</b>	х	×	<b>x</b>	х	~			(Clover)				·
<u>د</u>		11		0 0	0	. 0	0	, 0	x	x	×	x	x	<u>,</u> <b>x</b>	x	X	o (Clover,Vegetables	) )	x	0	x
15-0.05	150	Ţ.		0 0	-		(width)						x	x	x	x	0	0	o	o	x
.6-0,05	1,000-500	Bad		0 0	0	o	o (No./Length (Width	0 )	×	х		• •					(Clover)			0	X
ar o 10	1 000 000	Not Ba	d	<b>o</b> 0	. 0	c	, 0	, .	n x	x	<b>x</b>	×	<b>x</b>	x	x	X	0 (Clover)	×	0	Ū	~
55-0.15	1,000-800	not ba	-				(width)				·				- 1 · .						

Farmers Intention for Utilize Surplus Labor Force

Scheme		
hening f Itural arch	Agricultural Extension Service	Management Land Location
	o	Salar-Rud Tule- Rud, High Land
	o	Katal Kash, Seid- Rud, High Land
τ.	x	Shah-Rud, High Land
¢	x	Shch-bad Haraz, High Land
) .	0	Lokoni, High Land
x	x	Shah-Rud, Middle Land
x	x	Shah-Rud, Low Land
x	x	Haraz River, High Land
0	O	Zan-O-Mard, Middle Land
0	Ð	Zan-O-Mard, Middle Land
0	0	Shele-Vat, High Lænd
x	х	Sand Rud, High Land
<b>x</b>	х	Kachab-Rud Low Land
x	<b>x</b>	Keykavous-ou Low Land
x	o	llardz 2.4 ha Middle Land
x	x	Spring 8.5 ha (Semi-deep 4.0) Middle Land
x	υ	Taje-Rud, Low Land
x	0	Ali Rud, Low Land
x	x	Ali Rud; Low Land
x	×	Zungeh Rud, Low Land

ANN NACHARY CO.

Farmer's Intention for Land Condition Improvement - 2 Table C.4.13

Shahrestan Babol

								and the second second second			1	المراجعة المحاد		•		1				· · · · · · · · · · · · · · · · · · ·			1.1.0. 1.00	vi i uice			
				· ·		Water	··-··-	Land Con	ndition		· · · · · · · · · · · · · · · · · · ·	Condi-		Farmers	Intentio	m for Land	Improvement		Ovn-fa	rm Occupat	ion		Non		cupation		Farmers Inten
Li Farmer Ox No. A	ned O		Nanagement Land Location	Days Worked of Own-farm Occupation day	a Irriga tion	Shortage	Drain-	<ul> <li>Inundation</li> </ul>	Farm-lot Distribu- tion No.	Area of Each-lot hu	from Hous	tion on Fari				- Gather on Each-lot	Farm Roads		Fruits <u>Croppin</u>		Others	Other Farm Occu- pation		from	Regular Employ-		Introduce of Seed
1(40) 1 (1	.5 .5)	1.5 (1.5)	Kar-Rud Middle Land	460 (369)	No.P	-	No. P	-		( Not He	aring )		0	• • • • • •	0	( <sup>Not</sup> (Hearing	g) 0	x	x	x	x	x	o	x	x	x	o (Clover,Vegetable)
2(62) 2 (1		3.4 (3.0)	Chulch-Rud Middle Land	858 (645)	Yes		Ħ		30	Max. Min 0,2-0,07	. Max. Min 300-100		O	0	O	0	x	x	x	x	x	x	x	x	x	x	x ( <sup>marshy-there are</sup> ) no livestock
3(55) 3 (3		1.8 (1.5)	Kari-Rud Middle Land	260 (245)	No: P		Yes	Once in 6 months (180 days)			500 - 100	ì	O	0	0	0	x	0	x	x	o (cultivate all (owned area	x )	x	x	x	x	o o
4(43) 2 (2	.0 .0)	2.0 (2.0)	Julli-Rud O. Semi-deep Wells 1. Middle Land	3 390 7 (336)	B	-	łt	Once in every ycars (90 days)	8	0.4-0.2	1,000-40	n	<b>X</b> .	Ø	O	0	<b>x</b>	<b>X</b>	x	. <b>x</b>	o ( <sup>without</sup> ) hired labor )	x	x	x	x	x	x
5 3 (3		3.5 (3.5)	Khan-Rud 1. Semi-deep Wells 2.0 Low Land		н.	-	¥Ť	Once in every years (90 days)	7	0.9-0.4	2,000-1,51	00 Bad	<b>x</b>	0	0	• •	0	x	x	x	o (without hired labor )	x	x	x	x	x	х (
		6.0 (4.0)	Khan-Rud Low Land	580 (568)		-	н.	Once in every years (90days,5cm,4ha)	12	0.5-0.1	1,500-500	Not Bad	i x	o	Q	x (	o Number, Widtl	0	x	x	x	x	x	x	x	x	o (Clover)
7 1 (1		1.5 (1.5)	Patengwas Low Land	380 (282)	Yes	-	31	Once in every yea (60 <sup>days</sup> ,20 <sup>cm</sup> ,1.5h	rs 3 <sup>18</sup> }	0.6-0.3	500	11	o	Q	x	0	o Number, Width	o ;)	x	0	x	x	x	x	x	x	o (price) o (Vegetable,Clover)
8 Q (D	.5 .5) (	2.0 (2.0)	Valik Rud ) 1.5 Nonger Semi-deep wells 0.5 Low Land	420 (393) 5		-	"	Once in every years 60days,20cm,2ha (80days,20cm,2ha)	11	1.5-0.1	1,000-700	11	O	0	x	O	o (Width)	0	x	x	x	x	x	0	x	x	o x (Clover)
	.2 .2)		Semi-deep wells 1.2 River pumps 1.4 Middle Land		No.P	-	No.P		30	1.5-0.05	1,000-20	Bad	x	x	o	x	o (No./Length (Width	<b>x</b>	x	x	o	x	x	x	x	x	o (Clover)
	.2 .0)	8.2 (8.0)	Ka-Rud 6 Charsin Rud 2 Middle Land	600 (573)	*1	-	31		33	0.9-0.05	7,000-3,00	)0 н 1	x	x	. 0	0	o (Width)	0	x	x	x	x	x	x	x	x	o (Clover)

#### Farmers Intention for Utilize Surplus Labor Force

#### Table C.4.13 Farmer's Intention for Land Condition Improvement - 2

Farmers Intention for Utilize Surplus Labor Force

											· · · · · · · ·	·····									·			e graf gel			
Land Con	dition			Condi -		larmers	s Inte	ention	for La	nd Improvement	<u> </u>	Own-fai	rm Occi	ipat i	01			Non	-farm Oc	cupation		Farmers In	itention fo	or Agri-Di	roduction	Promotion Sche	
indation	Farm-lot Distribu- tion No.	Area of Each-loi hu	Distance from House	tion on Farm	irriga- tion	Drain- age	Land soli	l con- dation	Gathe Each-	er Lot Farm Roads	Animal Husbandry	Fruits Cropping	Vege tabl g Cropp		Others		Other Farm Occu- E pation b	)av La-	Working away from	Regular Employ-		Introduce of S Second Crops ti	eed Mul-	Post Harvest	Farm	Strengthening	Agni ou la
-		( Not Ilea	ring )		0	0		0	( <sup>Not</sup>	ing) o	. <b>X</b>	X	x	: 	x			0	x	×	x	o (Clover,Vegetable	0	0	0	0	0
-	30	Max. Min. 0.2-0.07	Max. Min. 300-100	Good	o	0		0	0	× ×	x	x	. x	• .	×	-	x	x	×	x	X	x (marshy-there are (no livestock	x	x	x	×	Q
n 6 months I days)			500-100	'n.	<b>O</b> 	0		0	0	. <b>X</b> .	0	x	x		o cultivate al owned area	<sup>11</sup> )	x	x	. <b>X</b>	. <b>X</b>	<b>x</b>	0	0	x	0	. <b>x</b>	x
n every (90 days)	8	0.4-0.2	1,000-40	n	x	0		0	. 0	× X	×	x	<b>X</b>	ß	o without hired labor	)	X	x	<b>X</b>	<b>x</b> ,	x	x	D .	x	<b>O</b> ,	x	o
n every (90 days)	7	0.9-0.4	2,000-1,500	) Bad	x	<b>0</b>		<b>O</b>	<b>0</b> 	Ø	x	x	x	ç	o without hired labor	)	<b>X</b>	x	<b>X</b>	x	<b>X</b>	<b>X</b>	ð	o	0	x	x
every ,5°m,4ha)	12	0.5-0.1	1,500-500	Not Bad	x	0	•	0	. <b>x</b>	o (Number, Width	)	x	x		x	· . . ·	<b>X</b>	x	x	x	x	o (Clover)	0	x	x	x	x
every year ,20 <sup>cm</sup> ,1.5ha	rs 3 <sup>a</sup> )	0.6-0.3	500	11	0	0		x	0	o (Number, Width	0 )	x	0		×		x	x	x	x	x	o (price) (Vegetable,Clover)	0 )	0	o	x	x
e every ; 20cm, 2ha ; 20cm, 2ha)	11	1.5-0.1	1,000-700	.,	o	o	• :	x	o	o (Width)	<b>0</b> 	x	<b>x</b>		×	· ·	x	x	0	<b>x</b>	<b>X</b>	o (Clover)	<b>X</b>	x	O	x	x
-	30	1,5-0.05	1,000-20	Bad	×	x	C	D	<b>x</b>	o (No./Léngth) Width	x	x	x	• •	o		x	x	X	x	x	o (Clover)	0	0	o	x	x
-	33	0.9-0.05	7,000-3,000	**	x	x		ວ່	, <b>0</b> ,	o (Width)	o	x	x		x	··· .	x	x	` <b>x</b> .	x	x	o (Clover)	0	0	0	x	x

(Unit: hours/ha) Mar: Total	24 ( -)	177 (20)	45 ( 8)	181 (73)	218 (18)	18 (1)	26 ()	80 ( - )	308 (116)	116 (22)	14 (1)	1,207 (261)	
Mar∶h Mar∶		88 (10)	1	i	1	I	i.	I	i	ł	Ε.	88 (10)	
(t Feb:		1	) )	ı	1	I	, <b>1</b>		ı	ŧ	1	ł .	
Jan		<b>)</b>	1 1 .	۲	•	١	1	١	١	ŧ	١	ι	
Dec		E	1	· 1	I .	ı	I	1	ł.	<b>1</b>	I	1	
Rice (1)		,T	ł	ł		t	I	ł	ł	ł	ι.	1	nit.
		ť	Í.	I	T.	i	I	í	I	3	I	1	abor u ours.
y Mont ont) Son		4	E .	in a start	ı	ŀ	I	<b>S</b> (-)	308 (116)	116 (22)	14	446 (139)	l by loor's ho
Present by M		i ta sa N	••• •	ł	E	I	( <del>-</del> )	]6 -)	I	<b>F</b>	ł	23 (-)	iverte od laho
<u>equirc</u>		E	<b>I</b>	<b>і</b> .	- 109 <sub>-</sub> (9)	ł	<del>(</del> و	-) 10	ł	I	ı	131 (9)	tre con e hire
Labor Requirement by Month (Present)		f	Р,	<b>I</b> 5	109 (9)	. 1	7 (-)	16	1	.1	i	152 (9)	's hours a figures an
4	-	44 (5)	42 (8)	181 (73)	, <b>1</b>	<b>18</b> (1)	(5) (5)	16	I	I	3	310 (89)	or's l s figu
Table C.4.1	(-) 24	45 (5)	<b>F</b> .	. I <sup>*</sup>	Ţ, C	Ĩ	l	-) x	ı	I	ŧ	77 (5)	Family labor's hours are converted by labor un Parenthesis figures are hired labor's hours.
Table Variety Amol+5	Seed bodding	P lowing	llarrowing G Levelling	Transplanting	Wccding	Fortilizing	Shiyaying	Water Management	llarvosting	Threshing	Transport	Total	Note: 1. Famí 2. Pare

Source: Farm Economic Survey

			(With Project)	(Wit	(With Project)	ect)							:
Variety Amol-3											<u> </u>		hours/ha)
	Apr.	May	Jun.	Jul.	Aug.	Scp.	oct.	Nov.	000.	Jan.	Feb.	Mar.	Total
Seed bedding	I	I.	I.	1	i	1	1	i	I	t.	1	١	<b>!</b>
Plowing	45 (5)	44 (5)	I	1.	t	۱.	ł	i	ı	ι	• •	88 (10)	177 (20)
llarrowing & Levelling	1	45 (8)	ł	i	١	ı	ł	I	I	ł	1	<u>,</u>	45 (8)
Transplanting	· 1	37 <sup>(</sup> -)	i	ı	<b>1</b>	ł	ı	I	, E	t	i	ı	37 ()
Weeding	I	ı	601 (6)	109 (9)	ł	i	I	Ι.	ŧ.	ł.	1	1	218 (18)
Fertilizing	ŧ	18 (T)	ı	<b>I</b> .	١	ł	1	1	ı	l	* <b>1</b>	ъ́	18 (1)
Spraying	1	(2) (2)	~ ()	( و	► ()	t	Ļ	, I	ı	ł	i	1	26 (_2)
Water Management	8 (- )	16 16	16	9[-]	16	∞ () )	1	i I	t	1	L L	1	80
llarvesting	in de la composition de la composition de la composition de la com	n n Na	T	.1	1	107	T	1	1.	ju L	į	3	, 107
Threshing		• <b>1</b>	1	<b>1</b>	ר ייני ייני	î U	ı	· 1	<b>I</b> 	t	. 1	1.	
Transport	1 1	le i Le contra		ł	1	14 (1)	<b>i</b> .	• <b>1</b>	<b>I</b>	l	1	<b>.</b>	14 (1)
Total	53 (5)	166 (16)	132 (9)	131 (9)	- 33	129 (1)	1	<b>1</b> .	i i	t d	 ! .	88 (10)	722 ( 50)

			•													
	(init: bours/ha)	(with /straining	Total	30 (2)	122 (11)	41 (7)	167 (45)	155 (17)	13 (1)	19 (2)	06 06	295	101 (16)	7 (1)	1,040 (216)	
	init.	• • • • •	Mar	ani Ani Ani	61 (6)	· 1	<b>I</b>	· 1	F	ł	I	F.	ł	l	61 (6)	
	5	2	Feb.	f	t .	ł	J.	1	i	ı	ı	1	ł	1	1	
			Jan.	I	1	L	ł	ł	I.	ı	t	I	I	<b>I</b>	1	
			Dcc.	1	1	1	<b>ا</b>	ł	ı	ı	I	I	t	t	t	
c (3)			Nov	1	1	ı	1	ļ	ı	ı	3	I	ı	i	I.	t
- Ricc			Oct.	I	1	1	I	t	ı	ı	I	J	ı	ı	I.	abor unit ours.
Month	ect)		Scp	. i	ι	L.	1	I	1	ı	I	i. K	1	I	I	تكر اسم
Labor Requirement by Month	(With Project)		Aug	1 1 1	3	ı.	1	· . : 1	ı	ı	12	295 (114)	101 (16)	7 (1)	415 (131)	converted by hired lahor's
squircn	ŢM)	•	Jul.	national Sectors Tin∎ination Sectors	. <b>I</b> .	т	I		1	<del>.</del> و	22 (-)	t	1	ł	28 (-)	പ്പ
abor Ro		- - -	Jun. Jı	unt ∎du		J	1	77 (8)	1	(-)	22 (-)	ı	ι,	ı	106 (8)	ours are res are
	- - 		May	j.	30 (2)	41 (7)	167 (45)	78 (9)	13 (1)	6 (2)	22 (-)	1	ł	ŧ	357 (66)	Family labor's hours Parenthesis figures a
Table C.4.14	: به به به		<u>Apr.</u>	30 (2)	31	ì	۰ ۱	١	١	ţ	12	ŧ	ŧ	ι	73 (5)	ly lab nthesi
Table	- - -	• •	•													
		Variety Tarom		Seed bedding	Plowing	llarrowing 6 Levelling	Transplanting	Weeding	Fertilizing	Spraying	Water Management	llarvesting	Threshing	Transport	Total	Note: 1.

Source: Farm Economic Survey

Labor Requirement by Month - Rice (4)	(Without Droider)
Table C.4.14	

Variety Tarom		·		5	INOUITM	Log Corr	(1)				C	Unit: ]	(Unit: hours/ha);
	Apr.	May	Jun.	Jul.	Aug.	Scp.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
Seed bedding	3	1	١	1	3	1	f .	1	ı	1	ł	1	<b>I</b>
	·												
Plowing	(3)	30 (2)	1	1	1	ł	ł	1	ì		I	(6) (6)	122 (11)
llarrowing & Levelling	3	41 (7)	۱.	ł	)	١.	ł	1	ì	ı	ı	i	41 (7)
Transplanting	1	37	3	1	1	ł	1	ı	ì	ŀ	ı	I.	37 ( -)
Weeding	١	78 (9)	77 (8)	1	1	ł	ı	ı	ı	ı	1 .	- 1	155 (17)
Fertilizing	3	13 (1)	•	1	1	<b>)</b> :	1	1	ł	<b>I</b>	1	1	13 ( 1)
Spraying	Y	9	► (1)	( و ر	1	1	ł	1.	1	с <b>.</b>	1	I	19 (2)
Water Management	12	53 1 33	22	23 (-)	£ (-)	3	ı	1	1	1	<sup>1</sup> I	1	06 (- 06 )
Harvesting	i		١	2		<b>}</b>	ו :	: 	.1		<b>1</b>	. <b>1</b> 	î Ç 7
Threshing	1	1	1	<b>)</b>	) (-) (-)	1	1	1	<b>)</b>	4	· 1	ı	(-)
Transport	)	1	ł	ı	٣Э		<b>1</b>	<b>i</b>	1.1 1.1 1.1		.1	ļ	L (1
Total	43 (3)	227 (21)	106 (8)	28 (-)	126	• •	• • •	1	1 ( 21	I	ſ	61 (6)	591 (39)
Note: 1. Fa 2. Pa	.1. Family labor' 2. Parenthesis f		s hours a Tigures ar	are con re hire	are converted by are hired labor's	PH ,14	labor unit hours.	بر بر			· · ·	• .	

Farm Economic Survey

Source:

446,270 6,126,070 4,807,545 1,318,525 3,415,994 (32.5) ([ 0.1) 247,477 151.0 90.3 3,665,471 Total 52,741 593,529 446,270 393,529 52,741 (1.3)1.3) 11.0 11.0<sup>.</sup> Mar. 2,263,806 4,057 653,177 649,120 705,918 1,557,888 55.8 (17.4) (1.0) 16.1 Scp. 669,405 665,348 117,655 117,653 1 117,653 117,653 Aug. ĵ . Ŧ. 5.0 2.9 (0.1) 624,778 16.4 1.0) 624,778 16.4 665,348 40,570 40,570 Jul. ([.]]) (1 1)44,627 669,405 16.5 16.5 624,778 624,778 44,627 Jun. 762,716 389,472 .1,574,116 845,856 81,140 1,123,789 38.8 (11.1) 20.8 (2.0) 450,527 May 24,342 365;130 24,342 267,762 243,420 9 (0 0 0 (0.0) 0°9 Apr. Family Labor man-days) Family Labor Hired Labor Requirement Requirement llired Labor At present Project Labor Labor With Variety Amol-3 thousand thousand [man-day] man-day) hectare Project Present Per With 01 (10

Ξ

Farm Labor Balance in Project Area - Rice

Table C.4.15

Note: 1. Family labor's hours are converted by labor unit. 2. Parenthesis Figures are hired labor's hours.

569,187 361,073

121,710

Fumily Labor

1,071,048

701,861 908,768

1,391,551

2,462,599

1,610,629

730,260

121,710

Requirement Hired Labor

Labor

(1) - (2)(10

thousand

man-day)

Source: Farm Economic Survey

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Table C.4.15 Farm Labor Balance in Project Area - Rice (2)

Varicty Tarom

					-					
		Apr.	May	Jun.	Jul.	Aug.	Scp.	Mar.	Total	
Per hectare	At present	9.1° (0.6)	44.5 (8.3)	13.3 (1.0)	3.5	52.0 (16.3)	1	7.6 (0.8)	130.0 (27.0)	
(man-day)	With project	5.4 (0.4)	28.4 (2.6)	13.3 (1.0)	3.5 ( - )	15.8 (0.1)	1	7.6 (0.8)	74.0 (4.9)	
Present (10	Labor Requirement	245,700	1,201,500	359,100	94,500	1,404,000	1 	205,200	3,510,000	
thousand man-day)	hired Labor	16,200	224,100	27,000	<b>I</b> 	440,100	ı	21,600	729,000	· · ·
	Family Labor	229,500	977,400	332,100	94,500	963,900		183,600	2,781,000	
With Project	Labor Requirement	145,800	766,800	359,100	94,500	426,600	<ul> <li>1</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> <li>1</li> </ul>	205,200	1,998,000	
(10 thousand	10 thousand Hired Labor	10,800	70,200	27,000	I	2,700	E .	21,600	132,300	
man-day	Family Labor	135,000	696,600	532,100	94,500	423,900	ł	183,600	1,865,700	
(1) - (2) (10)	<pre>(1) - (2) Labor (10 Requirement</pre>	006*66	434,700	<b>1</b>		977,400			1,512,000	-
thousand man-day	Hired Labor	5,400	153,900		ł	437,400	1	<b>1</b>	596,700	
	Family Labor	94,500	280,800	1		540,000	t,		915,300	
	Note: 1. Family la 2. Parenthes	Family labor's Parenthesis fig	bor's hours are converted by labor is figures are hired labor's hours	hours are converted by labor unit ures are hired labor's hours.	d by labo or's hour	r unit.				

Source: Farm Economic Survey

Apr.         May         Jun.         Jul.         Jul.         Mar.         Total           cssent         Labor         635,172         2,775,616         1,028,505         759,848         1,521,655         2,265,806         651,470         9,656,070           Ilired Labor         40,542         674,427         71,627         40,570         440,160         74,541         2,047,525           Family Labor         594,650         2,101,189         956,878         719,278         1,081,555         1,557,888         577,129         7,588,545           ith         Labor         594,650         2,101,189         956,878         719,278         1,081,555         1,557,888         577,129         7,588,545           ith         Labor         594,650         2,101,189         956,878         719,278         1,081,555         1,557,888         577,129         7,588,545           ith         Labor         594,650         1,011,189         956,878         719,278         5,44,255         651,470         5,661,471           rojoct         Requirement         415,562         1,610,656         1,028,505         759,888         544,255         651,470         5,661,471           rojoct         Requirement         35,4	Varicty	Anol-3 + Tarom		:			(Unit: 10 7	(Unit: 10 Thousand man-days)
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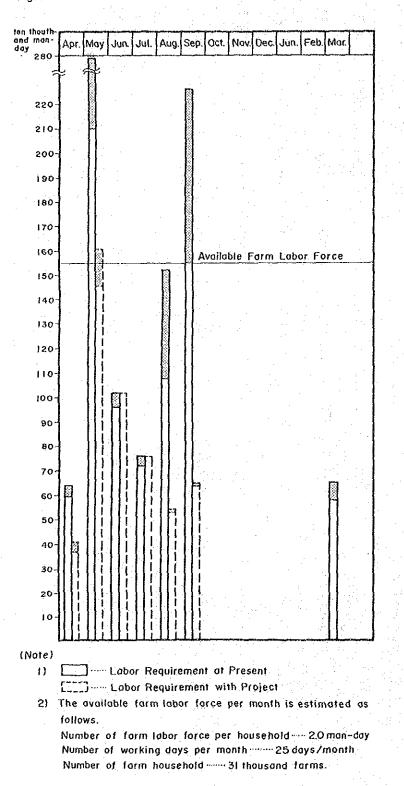


Figure C.4.1 Farm Labor Balance in the Project Area - Rice Only

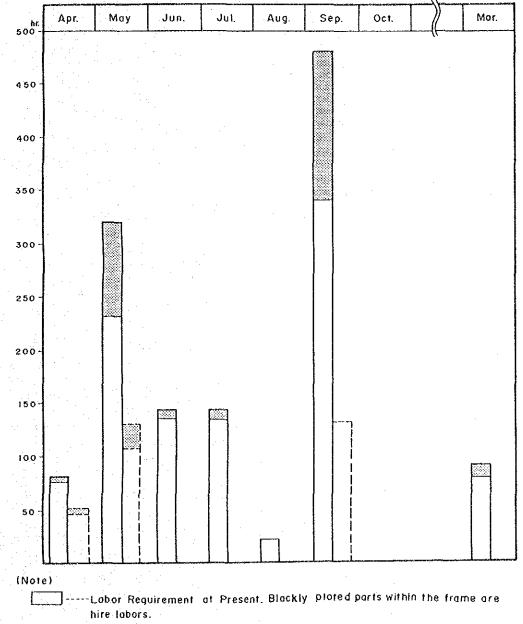


Figure C.4.2 Farm Labor Balance, with the Small Mechanization System in Rice Production (per hectare)

[\_\_] Labor Requirement with the Small Mechanization System.

# APPENDIX C. 5.

# SURVEY OF RICE CULTIVATING FARMERS AND SOME IMPROVEMENTS

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C.5. Survey of Rice Cultivating Farmers and Some Improvements

C.5.1. General

June through July, 1986, interview surveys on rice cultivating farmers were carried out on present rice cultivation with each 15 farm households selected among those in the high, middle, and low lands, respectively. This section discusses the actual status of rice cultivation in the Project Area and several points to be improved according to the survey results and the data/information collected through the field works.

C.5.2. Raising Seedlings (ref. to Table C.5.7.)

(1) Selection and Pretreatment of Seeds

The seed selection has been made mainly by winnowing or with water, and the selection by specific gravity is applied by very few farmers in using manure solution. Seed soaking is generally practised by putting seed-packed bags into flowing water for five to seven days.

(2) Seed Disinfection

As far as this survey, no farmers practise the seed disinfection at present. As mentioned later, however, the agri-chemical survey has revealed that there are some farmers employing "Linden", which is applied mainly to disinfection of seeds. Consequently, some farmers in the Project Area to carry out the seed disinfection in this sense.

CS-1

(3) Nursery Bed (ref. to Table C.5.7.)

Rice nursery is practised by lowland nursery with flat seed beds.

Although some farmers in the middle and low lands employ the raised seed beds; such farmers are minority and rather exception to the whole farmers in the Project Area.

According to the data, there have been some vinyl-sheet covered protected nursery used in the high land; however, the survey has not been able to clarify the actual status of the protected nursery due to off-season for nursery.

The nursery acreage to one hectare of paddy field is about 180 to 300 m<sup>2</sup>, and the acreage is prone to be larger in the low land. Such nursery acreage to paddy fields for transplanting has much fluctuation by farmers and the survey has found that the total Project Area, 83 m<sup>2</sup> is the minimum, while 500 m<sup>2</sup> is the maximum.

(4) Season and Quantity for Seeding

The seeding season lasts for about one month, late March through late April. More than half of the farmers in the Project Area have practised to seed in the beginning of April. And the farmers who practise to seed in the end of March are found more in the low land than in the others, while the farmers who practise to seed in the end of April are found more in the high land. It is clear that the staggering in seeding has resulted from difference in local atomspheric temperature by areas as well as in varieties to be cultivated.

More than half of the total farmers have seeded by 170 gr to 330 gr (in dry paddy) per square meter, although some difference exists by farmers. (ref. to Table C.5.7.) The seeding ratio more

C5-2

than 250 gr seems too dense for seeding per square meter in taking germination percentage by 90 percent. Such dense seeding, however, will be allowable for a nursery period around 35 days, while healthy seedling raise will become considerably difficult if a nursery period exceeds 35 days.

(5) Some Improvements on Seedling Raise

a) Encouragement of practising seed disinfection.

b) Employment of raised seed beds, for easy water management.

c) Encouragement of sowing with reasonable density by less than 100 gr per square meter.

 d) Promotion of providing protection nursery in the high land for preventing seedlings from low temperature.

Practice of thorough weed control so as not to bring weeds into paddy fields through transplanting (Control of barnyard millet)

C.5.3. Preparation of Paddy Fields for Transplanting

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(1) Plowing

e)

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Usually, plowing works by two to four times are required for transplanting. The first plowing is mostly carried out at the end of January and the second/third, etc. will be followed at every 30 to 40 days interval.

Ordinarily, tillers are used for plowing, whereas some large scale farmers employ large-size tractors in the high and middle lands. Plowing depth is commonly 20 cm to 25 cm. Frequent plowings will bring advantages to paddy cropping, and farmers know well about this fact.

#### (2) Levelling and Puddling

The tillers equiped with wheels are usually employed for land levelling and puddling. Generally, the farmers carry out rough puddling and final puddling in consecutive works a day before or on due day of transplanting, although some farmers do three or four days before transplanting. For final puddling, some farmers have prepared home-made simple levelers, which are equipped with their tillers at the backside for successful and smooth levelling works.

(3) Fertilization Basal Dressing (ref. to Table C.5.9.)

Basal dressing is carried out three to seven days before final puddling, and only urea (N - 46%) and diammonium phosphate (DAP) (N - 18%,  $P_2O_5$  - 46%) are applied.

Amount of basal fertilizers is largely different by farmers, and such difference is observed quite remarkably in the high land in particular. This will be because the agricultural infrastructures of farm land have been promoted at farmers' level and the second crops to paddy cropping have been positively introduced in the high land. Among the farmers interviewed, the heaviest fertilizer doser is found in the high land. The said farmer has dosed about 550 kg each of urea and diammonium phosphate for basal dressing per hectare. On the contrary, the lightest doser is found in the lowland, giving 75 kg of urea and 50 kg of diammonium phosphate per hectare, respectively. These extremely heavy and light fertilizer dosing are deemed exceptional. And the average amount of dosing by three areas is 330 kg/ha in the high, 212 kg/ha in the middle and 143 kg/ha in the low land with urea, while 276 kg/ha in the high, 149 kg/ha in the middle and 140 kg/ha in the low land with diammonium phosphate, respectively.

On the other hand, the Soil and Water Research Institute in Sari has recommended the amount of fertilizers applied in the western Mazandaran by 100 kg/ha of urea and 100 kg/ha of diammonium phosphate for local varieties, and 200 kg/ha and 100 kg/ha for improved varieties.

In comparison of the actual average amount dosed in the three areas with the amount recommended by the Research Institute, most of the farmers in the Project Area, excepting for some in the middle and low lands, are prone to practise excessive fertilization, and especially, almost of all farmers in the high land have dosed fertilizers 1.5 to 2.5 times as much as those recommended.

In other respect, when comparison is made by areas, the high, middle and low lands, a certain clear tendency is observed in amount of fertilization. In detailing, the amount dosed is heaviest in the high land, that in the middle land follows, and least in the low land. In other words, the amount dosed decreases as elevation changes from high to low in the land. It is rather difficult to presume the reason why such a tendency is observed in the amount of fertilization. This may, however, result from the heavy amount of urea dosed and the rice cultivation under the flowing irrigation in the Project Area.

Generally speaking, in a certain area with same homogeneous condition in soils and climate, an excessive fertilization will cause some troubles in paddy growth to adversely affect the yield. In the current survey, only one example of such troubles is found in the middle land, and in the high land, contrarily, there are several farmers found in even saying the more fertilization, the more yield.

Furthermore, in the middle and low lands, difference in fertilization amount between that dosed actually and that recommended by the Research Institute in Sari is not so large as the difference in the case of the high land, and it may be expected to have an yield increase in years when the weather conditions are favourable. (4) Some Improvements on Preparation of Paddy Fields

First of all, the existing standard of fertilization should be restudied to revise by areas or irrigation commands, and the thorough guidance of this revision to the farmers will raise the technical level for safety increase of rice yield in the Project Area.

Further studies, however, are required to ensure the healthy growth of rice plants and to improve pest resistance and ripening ratio in consideration of application of potassic fertilizer which has not been dosed in the Area.

C.5.4. Transplanting (ref. to Table C.5.8)

(1) Seedling Age

For transplanting, the seedlings with age of 6.0 to 6.5 (nursery period of 35 day through 40 days) are used suitable for early maturing varieties, while those with age of 7.0 to 8.0 (45 days through 50 days) for late maturing varieties. There are some farmers found who transplant the over-matured seedlings with age more than 8.0.

(2) Transplanting

The random transplanting is most commonly practised as a whole, although the individual transplanters keep their own space and intervals between seedlings to make transplanting in good balance by individual rules. Under the condition that the transplanters have their own thumb rules for planting works, there have been some thinly planted areas found between different transplanters. And additional transplanting is necessary for supplementing the thinly planted areas. A skillful transplanter can cover about 0.1 ha per day. (3) Transplanting Ratio and Number of Seedlings per Hill

The transplanting ratio in the Area can not be clearly estimated due to practice of random transplanting. The farmers in the Area, however, plant 12 to 15 hills per square meter on an average, and the number of seedlings per hill ranges from three to seven on an average; three to four for high tillering improved varieties like Amol-3 and four to seven for low tillering local varieties like Tarom.

(4) Some Improvements on Transplanting

a) Transplanting with seedlings in suitable age for planting.

- b) Encouragement of regular transplanting for keeping plant growth in uniform and easy management of farming, although the random transplanting can not always be wrong definitely.
- c) Improvement of the current transplanting for increase in the ratio, in taking into account the study results by the Amol Rice Research Station, and thorough restudies on higher transplanting ratio which is directly related with yield increase from the viewpoint free from traditional way of transplanting.

C.5.5. Rice Varieties (ref. to Table C.5.15.)

(1) Rice Varieties Cultivated in the Area

The survey has carried out the study on the rice varieties grown currently in the Project Area, and the results are shown in Table C.5.15. The said table indicates that besides Amol-3 as the representative improved variety and Tarom as the representative local variety, two other improved varieties and eight other local varieties are grown in the Project Area. Characteristically, many farmers in the high and middle lands have grown in considerably wide fields the variety of Harza, which has not been recommended yet by authorities concerned with some yet-unconfirmed specific features, although recognized as superior variety. This fact seems to show clearly that most of the farmers have a will to do their best for yield increase.

In the other respect, the study of the distribution of cropping areas of Amol-3 and Tarom by three respective areas suggests the different tendency in contrast. Briefly, for Amol-3 cropping, all the farmers in the high land grow Amol-3, a slightly over 60 percent of the total farmers in the middle land, and only about 23 percent in the low land.

Quite contrarily, the cropping area of Tarom and the number of cropping farmers are largest in the low land and show the declining tendency as the land elevation goes higher. And almost of all the farmers in the low land totally agree in saying as follows.

"We can fully understand that Amol-3 is the high yielding variety which is easier in growing than other varieties. Since Amol-3, however, has a longer growth period, irrigation water supply from the upper stream has been reduced in amount in the latter half of the growth period, and successful cropping of Amol-3 has become difficult.

Due to the fact, we have grown Tarom which can be harvested early August through middle August. Fortunately, Tarom is quite high in its palatability and in market reputation at high price. So, we do not need to grow Amol-3 which has the yield almost two times as much as Tarom so as to manage home economy in good balance."

C5-8

Therefore, it can be said that the farmers' deep thought has enabled to draw the area-wise cropping maps of Amol-3 and Tarom.

For further reference, the cropping acreages of other local varieties than Tarom and the number of the related farmers can not be neglected and the cropping of such local varieties is found considerably in the high and middle areas in particular. This tendency, though undeniable as traditional practices, would have resulted from due consideration for integrated interest expected from multi-farming and farming with side-job.

(2) Some Improvements on Selection of Rice Varieties

a)

**b**)

The farmers should have thorough knowledge on characteristic features and cropping techniques of the improved varieties before their introduction, although interested in high yielding varieties.

Since a considerable number of the local farmers have grown other local varieties than Tarom, these varieties should not be neglected as the old varieties. Contrarily, the useful guideline for cultivation should be prepared and the adequate guidance should be given to the farmers for making best use of the special quality of the varieties. This is specially recommended for those farmers in the high and middle lands where many local varieties other than Tarom are grown.

C5-9

#### C.5.6. Paddy Field Management

(1) Water Management

The rice cultivation in the Area is carried out generally under the flowing irrigation which has to keep incessant water supply and drainage. Consequently, the many farmers control the ponding and draining of water for depth control as each growing stage and agri-chemical application by controlling the notches and outlets. And successful water management has not been practised yet in the Area under the existing irrigation method. Since most of the farmers show much interest in deep ponding, they are interesting in irrigation than drainage. The flowing irrigation has some defects as well as advantages.

The advantages are that oxygen  $(0_2)$  in soils can be incessantly supplied and richly maintained by the dissolved oxygen in the water, and this method can prevent occurrence of such harmful materials to paddy roots as sulfates, and furthermore, can curb the soil temperature rise in the summer season to keep paddy roots healthy. Therefore, this irrigation method can favourably work or healthy growth of paddy plants with the aforesaid synergy effect to ensure yield increase.

According to the test result by the Amol Rice Research Station, there is no effect of mid-summer drainage observed and it can be said that this comes from the flowing irrigation.

Naturally, however, there are many defects with flowing irrigation as well. First of all, the irrigation water is prone to be wasted; in other words, irrigation is always practised even in the period of paddy growth which does not need much water. Especially, shallow water should be kept in those period after the rooting stage, before the maximum tillering stage and at the young panicle developing stage, when deep flooding over paddy fields should be avoided and contrarily intermittent irrigation is required. Secondly, there are some doubts on this method in view of fertilization effects. Particularly, the farmers in the Project Area use urea for nitrogen fertilizer; however, urea takes a considerably long time in soil adsorption and ammonification and it is expected that the fertilizer will be washed away for such a time. This is because urea application is possibly avoided in the pluvious areas or those with high groundwater table. Therefore, it is assumed that the reason why excessive fertilization in the high land has rarely resulted in remarkable troubles with paddy growth.

Thirdly, there are some kinds of agri-chemicals and weed killers which are affected, to different extent, in their efficacy by water conditions over the fields such as drained up, flooding, or flowing. Especially, many of weed killers are quite sensitive to water conditions over the fields. Consequently, such water-sensitive chemicals will be limited in their application as well as efficacy.

(2) Top-dressing (ref. to Table C.5.10. to 13)

Most of the farmers have practised top-dressing with urea. Those farmers who apply diammonium phosphate account for slightly less than 30 percent of the total.

The dosing amount in top-dressing is heaviest in the high land with the similar tendency to the basal fertilization. The average amount applied by surveyed farmers is 186kg/ha for urea and 172 kg/ha for diammonium phosphate in the high land, 150 kg/ha and 72.5 kg/ha in the middle land, and 148 kg/ha and 115 kg/ha in the low land, respectively. The heaviest fertilizer doser has applied 500 kg/ha for urea and 300 kg/ha for diammonium phosphate. These figures, however, may be quoted on the wrong data/information judging from too excessiveness as top-dressing. As for frequency of top-dressing, more than half of the farmers in the Area, have practised one top-dressing for one cropping, while those who have made two top-dressings account for 20 to 30 percent. A few farmers who have carried out three top-dressing for one cropping are found in the high land.

More than 60 percent of the surveyed farmers practise top-dressing within 20 days after transplanting, and few farmers do later than the aforesaid time.

Top-dressing is one of the important works in the paddy cropping, but will give some adverse effects to the plants if dosing is made improperly in time and amount. In general, top-dressing is specified into top-dressing and ear-manuring by its dosing time. The former is practised in the vegetative stage in expecting the good efficacy for increase in vegetative growth, especially largely increase in tillering. Therefore, top-dressing should be made in the early stage of tillering (immediately after plant rooting), although depending upon the amount of basal fertilizers dosed. The latter, ear-manuring, should be made in the reproductive stage so as to ensure good ripening and to help grain thickening.

The study in these views suggests that the farmers in the Project Area have practised top-dressing mainly for encouraging the vegetative growth of paddy plants. The top-dressing for such purpose should be made definitely within 20 days after transplanting. And there may be some adverse effects given on the differentiation of ears, if delayed top-dressing is made to the above recommended period.

In this respect, it should be noted that there are some farmers in the Project Area who have practised top-dressing about 40 days after transplanting (10% in the high land, 16% in the middle and 6% in the low), and such delayed top-dressing will surely give adverse effect on paddy plants, although different in fertilizer amount dosed by varieties. In other respect, diammonium is used in top-dressing, but there may be a problem in such practice, if the farmers give it for supplemental supply of phospheric acid to the crop. Because, even though phospheric acid is supplementally supplied, the growing paddy plants will not take it into themselves. And it is recommended that diammonium phosphate should be dosed as basal fertilizer with sufficient amount for one crop.

(3) Weeds and Weed Control

The weeds found in the paddy fields of the Project Area are as few as eight in their kinds, including a kind of weed growing only on the ridges and extending its stems into the paddy fields. These eight kinds of weeds are shown in Table C.5.16.

The most popular weed in the Area is Panicum Crus-Galli L, which can be found in many paddy fields. And judging from the fact that some of this kind are found together with paddy plants in their hills, they may be transplanted by mistake together with paddy seedlings from nursery beds.

Among the weeds found in the Project Area, there are found remarkably some marsh-loving perennial weeds like Sagittaria Trifolia, Alisma Plantago-aquatica, and Scirpus Juncoides. Wide distribution of these weeds suggests that many paddy fields are under considerably wet conditions throughout the year due to rainfall in winter and irrigation in summer.

Weed control in the Area have been carried out with herbicides and by man-power as well. The herbicides are sprayed over the paddy fields immediately after puddling so as to curb germination of weeds and Ronstar is used commonly as efficacious chemical in the early stage of weed growth, although Saturn is used in the low land. These weed killers work efficaciously to perennial weeds in their young seedling stages, but it should be noted that efficacy of these chemicals will be reduced, if the fields are drained - the water is flow in and out of the fields, or the field surface is exposed within three to four days after spraying.

Actually in the Project Area, man-power weeding has been practised two or three times even after spraying herbicides, and the farmers have to throw hired labour into weeding works in addition to family labour. This fact suggests that flowing irrigation would weaken the efficacy of the herbicides.

(4) Disease and Insect Damage and Their Control

The major diseases which the farmers primarily pointed out is rice blast, and there were some farmers to add brown spot disease and stripe disease to it.

The rice blast can be specified into leafblast, blast on neck of spike, unhulled rice blast, and rachis branch blast, among which leaf blast and blast on neck of spike commonly bring damages most seriously, and the Project Area is not an exception.

The farmers surveyed have first taken up Hinozan and Benlate as fungicides, particularly Hinozan.

Hinozan, having Ethyl Diphenyl Dithio Phosphate (EDDP) as main component, is an organic phosphorus compound which can be used both for preventive spraying before disease occurrence and curb spraying after occurrence, and furthermore, can be used for sesame leaf blight and sheath blight besides rice blast.

Benlate, used for disinfection of seeds and nursery beds, is efficacious for damping-off disease as preventive chemicals, besides rice blast.

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