



APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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Appendix Table 1 Scoring of Farmers' Knowledge/Understanding

no: Questions	Score for each goup
1. Purpose of Growing Fodder Trees	(2.28 for each)
a. Livestock feed	
b. Fuel wood	
c. Multipurpose	
d. Soil conservation	
e. Utilize waste land	
f. Increase crop yield	
g. Wind break for crops	
h. Protection from animals	
i. Staking and fence	
j. Free available	
k. Others	
2. Skills Regarding Fodder Trees	(4.17 for each)
a. Identification	
b. Growing season	
c. Harvesting technique	
d. Spacing	
e. Management	
f. Others	
3. Opinion in Relation to Livestock Feed	(3.58 for each)
a. Acts as feed supplement	
b. Increase milk yield	
c. Maintain livestock health	
d. Supply fodder during scarcity	
e. Makes feed palatable by mixing	
f. Save time for searching	
g. Others	
4. Awareness	(4.17 for each)
a. Price of feed	
b. Price of Product	
c. Source of feed/fodder	
d. Problem about the fodder scarcity	
e. Environment for fodders	
f. Agencies involved in programs	

Total = 100

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Appendix Table 2. Bio-Physical Characteristics of the Study Sites

Characteristics	Unit	Village Development Committee			
		M	F	R	K
*Location¹					
-East		Indrabati river	Methonkot	Anikot	Ganesthan
-West		Nayan Goan	Sarsa	Banepa	Sankhupati
-North		Gaire Goan	Patleket	Devitar	Panauti
-South		Jaishethok	Khanathok	Dhulikhel	Balthali
*Topographical					
-Total Area ¹	(ha)	957.9	540	507.2	232.5
-Distance from HQ	(km)	20	5	5	6.25
-Max. Altitude	(ft)	6000	-	4420	4600
*Climate and Soil					
-Av. temperature ²	(°C)	21.3	18.9	18.1	22.8
-Rainfall ²	(mm)	74.3	90.1	69.7	82.9
-Soil		Red	Red, black	Sandy	NA
-Climate		Warm	temperate	tem. cold	medium
*Socio-economic³					
-Total population (no.)		7243	3878	3695	3507
-Male population (no.)		3662	1941	1806	1723
-Female population (no.)		3581	1937	1889	1784
-Av. household size (no.)		6.2	6.1	6.3	6.0
-Av. land holding	(ha)	1.8	2.1	1.9	2.3
*Institutional Dev.					
-Schools	(no.)	9	3	2	3
-Local Market*	(type)	1,2,3,4,5	-	-	1,2,3,5
-Nursery	(yes/no)	Yes	Yes	No	No
-Farmers' Group Org. (group)		Buffalo	Goat	-	Cattle

* Note: 1 = Feed Shop; 2 = Drug Dipo; 3 = Milk Collecting Center; 4 = Hat Bazar; 5 = A. I Center

Sources: 1 PLBP/GTZ (1992)

2 Meteorological Station Kathmandu (1989-1991)

Appendix Table 3 Scientific Name of the Fodder Tree Species

S.no.	Local Name	Scientific Name
1.	<i>bakina</i>	<i>Melia azedirach</i>
2.	<i>budhar</i>	<i>Artocarpus lakoocha</i>
3.	<i>chiple</i>	<i>Machilus gamblei</i>
4.	<i>colliandra</i>	<i>Colliandra species</i>
5.	<i>dudhilo</i>	<i>Ficus nemoralis</i>
6.	<i>gayo</i>	-
7.	<i>gogan</i>	<i>Saurauia napaulensis</i>
8.	<i>hatipile</i>	-
9.	<i>ipil</i>	<i>Leucaena species</i>
10.	<i>khanayo</i>	<i>Ficus cunia</i>
11.	<i>hasreto</i>	<i>Ficus hispida</i>
12.	<i>kimbu</i>	<i>Morus alba</i>
13.	<i>koiralo</i>	<i>Bauhinia variegata</i>
14.	<i>kutmiro</i>	<i>Litsea polyantha</i>
15.	<i>laherepipal</i>	<i>Poplar species</i>
16.	<i>painyu</i>	<i>Prunus cerasoides</i>
17.	<i>tanki</i>	<i>Bauhinia purpurea</i>
18.	<i>timilo</i>	<i>Ficus auriculata</i>

Source: Pandey, 1982

Appendix Table 4 Fodder Tree Species on Farm Land

Species	VDC F			VDC M			VDC K			VDC R			% to Total
	Pl	Ng	T	Pl	Ng	T	Pl	Ng	T	Pl	Ng	T	
Kimbu	104	0	104	5648	1	5649	30	2	32	-	12	12	26.3
Koiralo	62	19	81	164	350	514	-	-	-	-	22	22	2.8
Kutmiro	100	195	295	348	1622	1970	21	12	33	24	134	158	11.2
Khasreto	-	-	-	115	135	250	-	-	-	-	-	-	1.1
Ipil	63	0	63	10278	0	10278	11	-	11	4	2	6	47.0
Khanayo	22	43	65	53	102	155	-	20	20	1	26	27	1.2
Gogan	-	2	2	-	-	-	-	165	165	1	4	5	0.8
Hatipile	-	-	-	-	-	-	44	10	54	10	9	19	0.3
Tanki	10	0	10	115	29	144	5	60	65	-	2	2	1.0
Nivaro	0	3	3	-	9	9	4	17	21	-	47	47	0.4
Dudhilo	27	3	30	-	-	-	3	10	13	7	6	13	1.9
Painyu	46	23	69	30	-	30	36	107	143	35	135	170	1.9
Chiple	-	-	-	13	32	45	-	-	-	-	-	-	0.2
Bakaina	57	11	68	7	4	11	-	71	71	63	45	108	1.2
Colliandra	-	-	-	385	-	385	-	-	-	-	-	-	1.7
Budhar	73	0	73	139	2	141	-	-	-	-	-	-	1.3
Others	152	10	162	100	15	115	23	9	32	0	45	45	1.6
Total	716	309	1025	17395	2301	19696	178	482	660	145	489	634	100.0

Source: Survey, 1993.

Note:

Pl= Planted

N= Natural grown

T= Total (Pl+N)

Appendix Table 5. Calculation of Fodder

Calculations	
1. Demand ¹ (Referred from Agricultural Diary, 1993)	
1 Large Ruminant requires	= 12 kg fresh green fodder/day. = 12*365 = 4380 kg/ annum
1 Small Ruminant requires	= 4 kg = 4*365 = 1460 kg/ annum
1 Livestock Unit requires	= 1 Large Ruminant Requirement = 4380 kg/annum
Demand (Pandey, 1982)	
2. On an Average tree fodder contains 30% of moisture TDN (Total Digestive Nutrient) of fresh tree fodder = 23%	
1 Fodder tree produce average 70 kg of fresh matter/annum	= 80 kg from = calculation.
1 Large ruminant requires	= 4380/80 = 55 fodder trees **
1 Small ruminant requires	= 1460/80 = 18.2
1 Livestock unit requires	= 55 fodder trees/annum
3. Required ³ (Referred from Luetel, 1991)	
1 Livestock Unit requires	= 1.8 kg TDN day/LU/day = 1.8*365 = 657 kg/annum
1 Livestock Unit requires	= (657/0.23) = 2857 fodder/annum = 2857/70 = 40.8 fodder trees
4. Energy Calculation (Referred from Hopkins, 1983)	
Green Fodder (tree fodder+grass+forage) supply	2.5 MJ/kg fodder
Dry Roughage (Straw+Stover) supply	5.3 MJ/kg.
Energy Available:	
Green Fodder Supply quantity (kg)*2.5 +	+ Dry roughage quantity (kg)*5.3
Total Energy Available	= 36100 MJ
Energy required for maintenance	= 360*27* LU =30100 MJ
.. Energy Deficit/Surplus	= 36100-30100 =+6000 MJ.
5. Convesion unit for Dry Matter: (Adapted from Pandy, 1982)	
Crop Residues:	.85
Grass+forage :	.17
Tree fodder :	.30

Appendix Table 6 Mortality Rate of Fodder Tree Species on the Farm Land

Species	Village Development Committees														
	VDC F			VDC M			VDC K			VDC R			Total		
	PL	EX	MR	PL	EX	MR	PL	EX	MR	PL	EX	MR	PL	EX	MR
kimbu	143	104	27.3	6021	5649	6.2	6011	32	99.4	12	12	0	12187	5797	52.5
koiralo	148	81	45.3	658	514	21.8	-	-	-	22	22	0	828	617	25.5
kutmiro	307	295	3.9	2072	1970	4.9	77	33	57.1	161	158	1.9	2617	2456	6.2
khasreto	-	-	-	255	250	1.9	-	-	-	-	-	-	255	250	1.9
ipil	169	63	62.7	13004	10278	21.0	383	11	97.1	6	6	0	13562	10358	23.7
khanayo	107	65	39.2	157	155	1.2	20	20	0	27	27	0	311	267	14.2
gayo	2	2	0	-	-	-	165	165	0	8	5	37.5	175	170	37.5
hatipile	-	-	-	-	-	-	54	54	0	23	19	17.4	77	73	17.4
tanki	50	10	80.0	164	144	12.2	122	65	46.7	2	2	0	338	221	34.7
timilo	3	3	0	9	9	0	67	21	68.7	48	47	2.0	127	80	37.1
dudhilo	30	30	0	-	-	-	17	13	23.5	14	13	7.1	61	56	8.2
painyu	88	69	21.6	30	30	0	151	143	5.3	173	170	1.7	442	412	6.8
chiple	-	-	-	77	45	41.5	-	-	-	-	-	-	77	45	41.5
bakaina	80	68	15.0	31	11	64.5	73	71	2.7	108	108	-	292	258	11.8
colliandra	-	-	-	520	385	25.9	-	-	-	-	-	-	520	385	25.9
budhar	109	73	33.0	321	141	56.0	-	-	-	-	-	-	430	214	50.2
others	174	162	8.0	115	115	0	59	32	45.7	55	45	18.8	403	354	12.2

Total 140 1025 27.3 23434 19699 16.0 7199 660 91.0 659 634 4.0 32702 22018 32.7

Source: Survey, 1993.

Note: PL= Planted; EX= Existing; MR= Mortality Rate $[(PL-EX)/PL*100]$

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Appendix Table 7 Farmers Preference of Fodder Trees (N=169)

Species	Number of Farmers Ranking the Species in VDCs															
	VDC F=44				VDC K=28				VDC M=52				VDC R =45			
	1	2	3	Score	1	2	3	Score	1	2	3	Score	1	2	3	Score
koiralo	1	2	4	8.3	-	-	-	-	1	2	4	7	2	1	1	6.6
budhar	1	2	1	6.1	1	-	-	3.6	2	4	-	9	1	-	-	1.9
kutmiro	25	11	3	75.9	5	4	1	28.7	25	10	4	63.5	18	13	1	60.1
dudhilo	5	-	3	13.7	2	-	1	8.3	-	-	-	-	3	1	1	8.9
panyu	1	3	3	9.2	4	6	1	29.7	-	-	-	-	-	2	2	4.5
timilo	-	1	2	3	1	1	1	7.2	-	-	-	-	-	5	2	8.9
gogan	-	1	-	1.5	1	2	-	8.4	-	-	-	-	-	2	1	3.7
hatipile	-	-	-	-	1	2	1	9.6	-	-	-	-	8	1	2	20.8
ipil	1	3	3	9.2	-	1	-	2.4	13	8	2	36.6	6	-	1	14.0
kimbu	6	3	-	18.3	4	-	3	17.8	6	2	2	15.4	1	3	1	7.4
khanayo	2	8	2	18.2	2	-	-	7.1	-	-	-	-	-	2	6	7.4
laharepipal	1	-	-	2.3	-	1	-	2.4	-	-	-	-	-	-	-	-
bakaina	-	2	3	5.3	1	2	1	9.6	-	-	-	-	1	-	1	2.9
chiple	-	-	-	-	-	-	-	-	-	1	1	1.9	-	-	-	-
khasreto	-	-	-	-	-	-	-	-	5	4	5	18.0	-	1	-	1.5
tanki	-	-	-	-	-	-	-	2.4	2	2	5.8	5	3	1	16.3	-
others	-	-	3	2.3	-	-	-	-	-	-	-	-	-	-	-	-

Source: Survey, 1993.

Note: 1, 2, 3 are the rank for each species

Score = Popularity Score (Adopted from Leutel, 1991).

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Appendix Table 8 Fodder Tree Preference by Matrix Ranking Technique

Fodder Tree in VDC M

Matrix Ranking in Increasing Order (1....8).

Fodder Criteria	Co	D	L	Lp	Bp	Fh	Ma	Al
1.Increase milk yield	2	3	6	5	1	7	8	4
2.Nutritious	6	4	8	3	1	5	7	2
3.High palatability	7	5	6	4	1	2	8	3
4.High bio-mass	2	1	4	8	3	5	7	6
5.Increase fat %	6	5	8	4	1	2	7	3
6.Compost	3	5	7	1	2	8	6	6
7.Fuel wood	2	1	3	8	6	5	4	7
Total Score	28	24	42	33	15	34	47	31

Source: PRA, VDCM (1993).

Fodder Tree Preference in VDCF

Matrix Ranking in Increasing Order (1....5).

Fodder Criteria	Lp	Bv	Fs	Al	Ti
1.Increase milk yield	5	2	4	3	1
2.High palatability	4	2	3	5	1
3.Nutritious	2	3	5	4	1
4.Digestible	5	3	2	4	1
5.Increase fat %	2	3	4	5	1
6.Fast growing	5	1	2	3	4
7.Like by livestock	5	3	3	5	1
8.Availability	5	5	5	5	5
9.High bio-mass	5	2	5	4	2
10.Fuel wood	3	5	4	2	3
11.Insect Susceptibility	3	2	5	4	1
12.Food	1	5	2	3	3
Total Score	45	36	44	47	24

Source: PRA, VDCF (1993)

*Note :

- 1.Lp:*Litsea polyantha*(Kutmiro) 7. Fs:*Ficus cunia*(Khanyu)
 2.Bv:*Bauhinia variegata*(Koiralo) 8. Al:*Artocarpus*sp. (Budhar)
 3.Ti:*Ficus roxburghii*(Nevaro) 9. Co:*Femzinia commuista*
 4.Bp:*Bauhinia porpurea*(Tanki) 10. D:*Desmodium species*(Vatmas)
 5.Fh:*Ficus hispida*(Khasreto) 11. L:*Luceana species*(Ipil-Ipil)
 6.Ma:*Morus alba*(Kimbu) 12. Lp:*Litsea polyantha*(Kutmiro)

Appendix Table 9 Comparison of Feed Supply per Livestock Unit by VDCs and Adopters and Non-adopters in the Research Sites

Types of Farmers in VDCs		Feed Items Supply/lu/Annum in kg.					TOTF
		CON	TF	FO	GR	ROU	
VDC F	Both	240.1	95.0	-	1431.0	982.5	2749.5
	Adopters	260.1	125.2	-	1398.5	1151.3	2935.5
	Non-adopters	221.6	67.2	-	1461.1	826.5	2577.2
VDC M	Both	300.7	939.5	140.4	1311.5	1430.0	4112.6
	Adopters	297.3	999.0	159.1	1465.4	1453.0	4215.6
	Non-adopters	321.4	574.6	26.0	1370.0	1288.0	3554.8
VDC K	Both	256.1	317.4	101.1	2209.4	1882.8	4067.3
	Adopters	222.8	82.8	14.3	2105.1	1313.0	3724.1
	Non-adopters	267.2	404.5	133.3	2387.0	1134.5	4194.6
VDC R	Both	251.0	310.3	-	1788.0	1386.0	3737.8
	Adopters	155.0	364.5	-	918.7	869.2	2922.0
	Non-adopters	274.3	297.0	-	1851.0	1514.0	3939.4
Total (Both)* (N=216)		262.3	422.2	57.0	1676.0	1241.0	3658.5
Adopters (N=90)		264.4	582.0	81.0	1433.1	1289.2	3650.0
Non-adopters (N=126)		260.2	274.4	34.2	1876.0	1197.0	3592.0

Source: Survey, 1993.

Note: CON = Concentrate; TF = Tree Fodder; FO = Forage; GR = Grass
 ROU = Roughage ; TOTF = Total Feed; Both = Adopter+Non-adopter
 Roughage = (Rice straw+ Maize stover+ Millet stalk+ Husk)

Conversion Factor used man-load (ml) to kg as:

Tree fodder 1 ml = 30 kg

Forage + Green grass 1 ml = 20 kg

Roughage 1 ml = 30 kg

Appendix 10 Socio-Economic Characteristics of the Sampled hh.

Adopter (N=90) Non-Adopter (N=126)		Frequency distribution %					
Characters	Units	Mean	0	1	2	3	4
A. Personal							
Knowledge (score)		43.77		32.4	55.6	12.0	
Adopter		60.59		1.1	72.2	26.7	
Non Adopter		31.76		54.8	43.7	1.6	
Age (years)		45.39		13.9	73.6	12.5	
Adopter		42.17		22.2	67.8	10.0	
Non Adopter		47.70		7.9	77.8	14.3	
Education (level)		2.718		27.3	51.9	17.6	3.2
Adopter		3.067		20.0	57.8	17.8	4.4
Non Adopter		2.468		32.5	47.6	17.5	2.4
Higher Education		7.509		5.1	27.8	44.4	22.7
Adopter		7.833		5.6	24.4	42.2	27.8
Non Adopter		7.278		4.8	30.2	46.0	19.0
B. Economic							
Land holding (ha.)		0.98		63.0	27.3	9.7	
Adopter		1.169		53.3	33.3	13.3	
Non adopter		0.842		69.8	23.0	7.1	
Livestock (lu)		2.835		4.2	40.3	55.6	
Adopter		3.432			34.4	65.6	
Non Adopter		2.409		7.1	44.4	48.4	
Gross Income (Rs.000)		5.305		24.5	33.3	42.1	
Adopter		6.507		13.3	34.4	52.2	
Non Adopter		4.447		32.5	32.5	35.0	
NGfodder Trees (no.)		16.58		70.4	12.0	17.6	
Adopter		25.74		62.2	12.2	25.6	
Non Adopter		10.03		76.2	11.9	11.9	
C. Soci-Inst.							
Participation (score)		2.273	8.3	13.4	40.3	18.5	19.4
Adopter		2.967	3.3	5.6	21.1	31.1	38.9
Non Adopter		1.778	11.9	19.0	54.0	9.5	5.6
Family Size (no.)		7.028		17.6	66.7	15.7	
Adopter		7.022		16.7	65.6	17.8	
Non Adopter		7.032		18.3	67.5	14.3	
Extension (frequency)		3.176	53.2	10.6	6.9	10.6	18.5
Adopter		4.989	33.3	8.9	12.2	15.6	30.0
Non Adopter		1.881	67.5	11.9	3.2	7.1	10.3
Caste		1.986		6.0	26.4	27.8	39.8
Adopter		1.756		2.2	24.4	20.0	53.3
Non Adopter		2.151		8.7	27.8	33.3	30.2

Cont....Appendix 10.

Adopter (N=90)		Frequency distribution					
Non-Adopter (N=126)		%					
Characters	Units	Mean	0	1	2	3	4
D. Spatial (km.)							
Nursury (Dis.)		4.108		9.3	59.5	41.2	
Adopter		3.164		18.9	57.8	23.3	
Non Adopter		4.782		2.4	43.7	54.0	
Market		3.365		10.6	68.5	20.8	
Adopter		2.831		18.9	68.9	12.2	
Non Adopter		3.746		4.8	68.3	27.0	
Forest		2.759		36.1	46.8	17.1	
Adopter		2.577		42.2	43.3	14.4	
Non Adopter		2.889		31.7	49.2	19.0	
Note	:	0	1	2	3	4	
Knowledge	:		<34	34-66		>66	
Age	:		<30	30-60		>60	
Familysize	:		<5	5-9		>9	
Gross Income	:		<26000	26000-50000		>50000	
Caste	:		Brahmin	Chhettri		Vaisya	Sudra
Extension	:	Never	on call	Rare		Sometimes	Often
Education	:		Ill.	1-5		6-10	>10
Highest Education	:		Ill.	1-5		6-10	>10
Private Land Holding:			<1	1-2		>2	
Natural Grown Fodder:			<10	10-20		>20	
Trees							
Ruminants (lu)	:		<1	1-4		>4	
Nursury Distance	:		<2	2-4		>4	
Market Distance	:		<2	2-4		>4	
Forest Distance	:		<2	2-4		>4	

Source: Survey, 1993.

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Appendix Table 11 Evaluation of Farmers' Knowledge

Knowledge About	Average Knowledge Score in Different Groups of Farmers				
	Adopters (N=90)	Non-adp1 (N=79)	Non-adp2 (N=47)	Non-adop (N=126)	Total (N=216)
1. Purpose of growing	9.9	7.1	2.9	5.5	7.3
2. Skills	14.2	8.1	2.04	5.8	9.3
3. Value in Feed	17.2	12.4	5.1	9.6	12.8
4. Awareness of market price, agencies, Scourse etc.	19.3	12.1	8.5	10.7	14.3
Total Score	60.59	39.6	18.6	31.8	43.8

Source: Survey, 1993

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Appendix Table 12

MODEL COMMAND: DSTAT; RHS=Y,ONE,KNDS,EDU,SOCPAT,TGRINC,NUR,MARK,FORE,FDMRU,
LRU,FAMSIZE;OUTPUT=2\$

Descriptive Statistics - 216 observations used.

Variable	Mean	Std. Dev.	Skewness	Kurtosis	Minimum	Maximum
Y	.41667	.49415	.33728	1.1091	.0000	1.000
ONE	1.0000	.00000	.00000	.00000	1.000	1.000
KNDS	43.774	21.026	-.31130	2.2135	.0000	86.89
EDU	2.7176	3.7601	1.4073	3.4809	.0000	14.00
SOCPAT	2.2731	1.1672	-.12112	2.3608	.0000	4.000
TGRINC	53050.	39540.	2.0631	9.6623	3410.	.2722E+06
NUR	4.1076	1.9584	.38472	2.7048	.2500	10.00
MARK	3.3646	1.5213	.77952	4.5316	.2500	10.00
FORE	2.7588	1.9918	1.2030	3.9476	.4000	10.00
FDMRU	3073.2	5009.0	5.4113	41.912	83.69	.4969E+05
LRU	.35357	.26896	2.1881	10.486	.3125E-01	1.875
FAMSIZE	7.0278	3.0983	1.3374	5.6944	2.000	22.00

CORRELATION MATRIX

	1-Y	2-ONE	3-KNDS	4-EDU	5-SOCPAT
1-Y	1.0000000				
2-ONE	.0000000	1.0000000			
3-KNDS	.6776459	.0000000	1.0000000		
4-EDU	.0786430	.0000000	.0843098	1.0000000	
5-SOCPAT	.5033533	.0000000	.5298840	.1840502	1.0000000
	1-Y	2-ONE	3-KNDS	4-EDU	5-SOCPAT
6-TGRINC	.2574541	.0000000	.3317732	.2030085	.3246545
7-NUR	-.4082336	.0000000	-.3145678	.0150431	-.2510051
8-MARK	-.2973623	.0000000	-.3000632	.0605667	-.1598141
9-FORE	-.0774611	.0000000	-.1512410	-.0220552	-.0379521
10-FDMRU	-.1716154	.0000000	-.0566902	-.0741479	-.1738198
	6-TGRINC	7-NUR	8-MARK	9-FORE	10-FDMRU
6-TGRINC	1.0000000				
7-NUR	-.0509392	1.0000000			
8-MARK	-.2017744	.5578594	1.0000000		
9-FORE	-.0401501	.1229479	.0600860	1.0000000	
10-FDMRU	.0057510	.2066115	-.0763155	-.0303455	1.0000000
	1-Y	2-ONE	3-KNDS	4-EDU	5-SOCPAT
11-LRU	.0534152	.0000000	.0459682	.0460442	-.0266363
12-FAMSIZE	-.0015190	.0000000	.0509888	-.1670074	.0056093
	6-TGRINC	7-NUR	8-MARK	9-FORE	10-FDMRU
11-LRU	.2034810	-.0395104	-.1040855	-.0191552	.2078092
12-FAMSIZE	.4221307	.1024169	-.0621057	.0325204	-.0132858
	11-LRU	12-FAMSIZE			
11-LRU	1.0000000				
12-FAMSIZE	.1217265	1.0000000			

Appendix Table 13

MODEL COMMAND: LOGIT; LHS=Y;RHS=ONE,KNDS,EDU,SOCPAT,TGRINC,NUR,MARK,FORE,FD
MRU,LRU,FAMSIZE;OUTPUT=5\$

2 OUTCOMES ARE:
Y=00 Y=01

COEFFICIENTS FOR OUTCOME Y=00 ARE NORMALIZED TO ZERO

***** OUTCOME = Y=01

Variable	Coefficient	Std. Error	T-ratio (Sig.Lvl)	Mean of X	Std.Dev.of X
ONE	-.760540E-01	.1235	-.616 (.53803)	1.0000	.00000
KNDS	.123260E-01	.1413E-02	8.721 (.00000)	43.774	21.026
EDU	-.139740E-02	.6795E-02	-.206 (.83706)	2.7176	3.7601
SOCPAT	.672763E-01	.2517E-01	2.673 (.00751)	2.2731	1.1672
TGRINC	.361371E-06	.7647E-06	.473 (.63650)	53050.	39540.
NUR	-.431800E-01	.1596E-01	-2.705 (.00682)	4.1076	1.9584
MARK	-.616490E-02	.1993E-01	-.309 (.75705)	3.3646	1.5213
FORE	.749415E-02	.1208E-01	.621 (.53485)	2.7588	1.9918
FDMRU	-.885307E-05	.5155E-05	-1.717 (.08593)	3073.2	5009.0
LRU	.786237E-01	.9245E-01	.850 (.39507)	.35357	.26896
FAMSIZE	-.545007E-02	.8964E-02	-.608 (.54317)	7.0278	3.0983

Method=NEWTON; Maximum iterations = 25
 Convergence criteria: Gradient = .1000000E-03
 Function = .1000000E-05
 Parameters= .1000000E-04
 Starting values: -.7605E-01 .1233E-01 -.1397E-02 .6728E-01 .3614E-06
 -.4318E-01 -.6165E-02 .7494E-02 -.8853E-05 .7862E-01
 -.5450E-02
 Log-Likelihood..... -67.281
 Restricted (Slopes=0) Log-L. -146.71
 Chi-Squared (10)..... 158.85
 Significance Level..... .32173E-13

Variable	Coefficient	Std. Error	T-ratio (Sig.Lvl)	Mean of X	Std.Dev.of X
ONE	-4.85812	1.315	-3.693 (.00022)	1.0000	.00000
KNDS	.117973	.2004E-01	5.886 (.00000)	43.774	21.026
EDU	-.441270E-01	.5863E-01	-.753 (.45166)	2.7176	3.7601
SOCPAT	.496409	.2476	2.005 (.04502)	2.2731	1.1672
TGRINC	-.234478E-05	.7662E-05	-.306 (.75958)	53050.	39540.
NUR	-.212861	.1422	-1.497 (.13429)	4.1076	1.9584
MARK	-.283536	.1772	-1.600 (.10953)	3.3646	1.5213
FORE	-.492199E-01	.1170	-.421 (.67388)	2.7588	1.9918
FDMRU	-.148324E-03	.9860E-04	-1.504 (.13249)	3073.2	5009.0
LRU	.796191	.9889	.805 (.42073)	.35357	.26896
FAMSIZE	-.112783E-01	.7639E-01	-.148 (.88263)	7.0278	3.0983

Frequencies of actual vs. predicted outcomes
 Predicted outcome has the highest probability.

		Predicted	
Actual	TOTAL	0	1
TOTAL	216	128	88
0	126	111	15
1	90	17	73

Appendix Table 14 Calculation of Probability and Marginal Probability of Adoption

Variables	Cof (β)	Mean (X)	$X\beta$	$\Sigma X\beta$	dpi	dpi/dxi
One	-4.85812	1	-4.85821	-1.0276	0.2635	-0.94292
Edu	-0.04412	2.717	-0.11991			-0.00856
Knds	0.11797	43.774	5.16415			0.022897
Socpat	0.49640	2.273	1.12838			0.096348
Tgrinc	-2.3448E-06	53050	-0.12439			-4.55E-07
Lru	0.79619	0.353	0.28151			0.154534
Fdmru	-0.00148	3073.2	-0.45583			-2.88E-05
Nur	-0.21286	4.1076	-0.87434			0.041315
Mark	-0.28354	3.3646	-0.95398			0.055032
Fore	-0.04922	2.7588	-0.13578			0.099553
Famsize	-0.01128	7.0278	-0.07926			0.022189

Formulae: $\text{dpi/dxi} = \beta k \exp(-\beta'Xi) / ((1 + \exp(-\beta'Xi))^2)$
 $Pi = \exp(\beta'Xi) / (1 + \exp(\beta'Xi))$
 $= 0.263550$

Maddal (1983); Pindyck and Rubinfeld (1981)

Appendix 14 contd.....

Probability (Pi) of Adoption of Fodder Tree at Different Level of Knowledge Nursery Distances and Fodder Dry Matter Supply

Knowledge	Score	Pi	Fdmru (kg)				Nursery Distance (km)				
			1000	2000	3073*	5000	0.5	3	4.1*	5	10
	0	0.002042	0.00277	0.00239	0.00204	0.00153	0.00439	0.00258	0.00204	0.00168	0.00058
	10	0.006613	0.00897	0.00774	0.00661	0.00497	0.01414	0.00835	0.00661	0.00547	0.00189
	20	0.021200	0.02861	0.02476	0.02120	0.01601	0.04460	0.02668	0.02120	0.01759	0.00614
	30	0.065831	0.08745	0.07632	0.06583	0.05029	0.13185	0.81901	0.06583	0.05507	0.01970
	40	0.186533	0.23770	0.21187	0.18651	0.14696	0.33072	0.22494	0.18651	0.15938	0.06139
	50	0.427245	0.50360	0.46657	0.42724	0.35918	0.61652	0.48567	0.42724	0.38153	0.17546
	60	0.708194	0.76748	0.73997	0.70819	0.64584	0.83950	0.75443	0.70819	0.66745	0.40911
	70	0.887590	0.91481	0.90252	0.88759	0.85576	0.94450	0.90905	0.88759	0.86719	0.69255
	80	0.962532	0.97217	0.96786	0.96253	0.95074	0.98225	0.97016	0.96253	0.95504	0.87993
	90	0.986177	0.99127	0.98989	0.98817	0.98432	0.99447	0.99063	0.98817	0.98573	0.95974
	100	0.996336	0.99730	0.99687	0.99633	0.99512	0.99829	0.99710	0.99633	0.99573	0.98727

Note* = at mean

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