



**APPENDICES**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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**Appendix Figure 1.** Layout of the field experiment  
(Randomized Complete Block Design)

N  
↑

9.0 m

3.5 m

1 C	12 D	23 B	34 K
2 G	13 A	24 I	35 G
3 J	14 C	25 D	36 E
4 E	15 H	26 G	37 I
5 A	16 J	27 C	38 A
6 D	17 I	28 F	39 J
7 H	18 K	29 H	40 B
9 B	19 F	30 E	41 F
9 I	20 B	31 K	42 D
10 K	21 G	32 A	43 H
11 F	22 E	33 J	44 C

Rep I          Rep II          Rep III          Rep IV

**Legend:**

- A Monocropped maize
- B Monocropped lablab without cutting
- C Intercropped lablab without cutting
- D Monocropped lablab cutting at 40 DAS, 30 cm
- E Monocropped lablab cutting at 40 DAS, 20 cm
- F Monocropped lablab cutting at 60 DAS, 30 cm
- G Monocropped lablab cutting at 60 DAS, 20 cm
- H Intercropped lablab cutting at 40 DAS, 30 cm
- I Intercropped lablab cutting at 40 DAS, 20 cm
- J Intercropped lablab cutting at 60 DAS, 30 cm
- K Intercropped lablab cutting at 60 DAS, 20 cm

**Appendix Table 1.** Immediate green fodder contribution of lablab ( $\text{Kg ha}^{-1}$ ) as influenced by cutting management

Cropping Systems	Cut (DAS)	Sev (cm)	Mean
Intercrop	C40,	S30	1467
		S20	1309
	C60,	S30	2475
		S20	2751
Grand mean			2000
LSD(0.05)			422.52

**Appendix Table 2.** Total dry matter production at final harvesting of maize ( $\text{Mg ha}^{-1}$ ) as influenced by cropping systems and cutting management

Cropping Systems	Cut (DAS)	Sev (cm)	Intercropped Maize	Intercropped Lablab	Total
Mono Maize	-	-	-	-	6.02
Intercrop MLC0	-	-	5.66	2.19	7.86
	C40,	S30	6.51	1.04	7.56
		S20	6.24	1.16	7.39
	C60,	S30	5.91	0.94	6.85
		S20	5.95	1.45	7.40
Grand mean			6.05	1.25	7.14
LSD			0.74	0.34	0.62

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**Appendix Table 3.** Dry matter of lablab (g plant<sup>-1</sup>) in different growth stages as influenced by cropping systems and cutting management

Cropping Systems	Cut (DAS)	Sev (cm)	V7 (30 DAS)	V12 (40 DAS)	V26 (60 DAS)	V36 (100 DAS)	V48 (130 DAS)
Sole LCO	-	-	1.83	11.66	19.55	59.83	273.1
	C40,	S30	-	-	19.09	51.45	223.8
		S20	-	-	22.05	51.98	215.4
	C60,	S30	-	-	-	54.98	175.8
		S20	-	-	-	53.95	198.0
	Intercrop MLC0	-	-	2.13	11.53	26.61	82.28
C40,		S30	-	-	19.63	39.05	242.0
		S20	-	-	17.88	43.48	216.3
C60,		S30	-	-	-	35.30	129.8
		S20	-	-	-	44.95	131.1
Grand mean				1.98	11.59	20.71	51.72
LSD (0.05)			-	-	3.60	12.40	41.9

**Appendix Table 4.** ANOVA of dry matter weight in maize

Source of variation	Days after sowing											
	30			40			60			100		
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	
REP (A)	3	5.70E-03	0.45	5.26E+02	0.80	3	1.20E+00	0.10	3	3.1E-01	0.25	
TRT (A)	1	7.80E-03	0.30	1.12E-01	0.45	3	6.20E-02	0.94	5	3.4E-01	0.20	
A * B	3	5.07E-03		1.57E-01		9	4.90E-01		15	2.0E-01		

\* ANOVA Analysis of variance; DF Degree of freedom; MS Mean Square; P Probability; TRT Treatment; REP Replication

**Appendix Table 5.** Total nitrogen (Kg N/ ha) in lablab shoot dry matter in different growth stages as influenced by cropping system and cutting management

Cropping Systems	Cut (DAS)	Sev (cm)	V7 (30 DAS)	V12 (40 DAS)	V26 (60 DAS)	V36 (100 DAS)	V48 (130 DAS)
Sole LC0	-	-	3.97	21.68	33.83	94.97	405.3
	C40,	S30	-	-	34.08	85.32	320.0
		S20	-	-	37.80	82.97	333.0
	C60,	S30	-	-	-	87.79	271.9
		S20	-	-	-	86.89	284.7
Intercrop MLO	-	-	2.34	10.48	21.25	63.11	288.6
	C40,	S30	-	-	17.02	31.93	184.9
		S20	-	-	15.63	34.07	148.3
	C60,	S30	-	-	-	29.28	99.4
		S20	-	-	-	36.14	93.7
Grand mean			3.15	16.08	26.60	63.23	242.9
LSD (0.05)			1.92	6.24	5.20	14.17	43.2

**Appendix Table 6.** ANOVA of cutting of lablab on grain yield and yield components of maize\*

Source of variation	DF	Grain yield		Yield components			
		MS	P	No. of kernels/cob		1000 grain wt(g)	
				MS	P	MS	P
REP (A)	3	3.5E-01	.04	2950	.01	195.09	0.43
CUT (B)	1	1.71	.00	1.2E+04	.00	4802.00	0.00
SEV (C)	1	2.5E-05	.98	105	.64	10.80	0.81
B * C	1	3.0E-03	.85	39.06	.77	12.96	0.80
A * B * C	9	8.4E-02	-	459.60	-	194.30	-

\* ANOVA Analysis of variance; DF Degree of freedom; MS Mean Square; P Probability; REP Replication; CUT cutting days; SEV severity

**Appendix Table 7.** Number of root nodule of lablab/ plant (20 cm depth) in different growth stages as influenced by cropping systems and cutting management

Cropping Systems	Cut (DAS)	Sev (cm)	V7 (30 DAS)	V12 (40 DAS)	V26 (60 DAS)	V36 (100 DAS)	V48 (130 DAS)
Sole LC0	-	-	8.70	12.75	18.50	29.75	30.75
	C40,	S30	-	-	13.75	20.00	20.50
		S20	-	-	12.25	20.75	21.50
	C60,	S30	-	-	-	12.75	16.00
		S20	-	-	-	15.25	17.00
	Intercrop MLC0	-	-	6.50	15.00	17.50	28.50
C40,		S30	-	-	13.00	18.75	21.25
		S20	-	-	12.75	20.75	19.75
C60,		S30	-	-	-	11.25	15.00
		S20	-	-	-	8.25	17.50
Grand mean				7.6	13.87	14.62	19.00
LSD (0.05)			2.0	-	3.80	6.83	6.95

**Appendix Table 8.** The Relative Ureide Index (RU %) of lablab shoot in different growth stages as influenced by cropping systems and cutting management

Cropping systems	Cut (DAS)	Sev (cm)	V7 (30 DAS)	V12 (40 DAS)	V26 (60 DAS)	V36 (100 DAS)	V48 (130 DAS)
Sole L0	-	-	50	52	55	59	63
	C40,	S30	-	-	40	64	67
		S20	-	-	48	56	56
	C60,	S30	-	-	-	72	65
		S20	-	-	-	66	65
	Intercrop MLC0	-	-	57	60	59	62
C40,		S30	-	-	43	64	64
		S20	-	-	40	64	66
C60,		S30	-	-	-	46	60
		S20	-	-	-	49	65
Grand mean				53.5	56	47.5	60
LSD (0.05)			-	3.8	7.2	3.58	3.38

**Appendix Table 9.** Rate of net income and protein production of the various cropping systems

Cropping Systems	Cut (DAS)	Net income (Rs ha <sup>-1</sup> )	C. Protein (Mg ha <sup>-1</sup> )
Sole maize	-	13150	0.40
Sole LCO	-	11383	2.52
	C40,	7534	2.03
	C60,	4756	1.75
Intercrop MLC0	-	23762	1.81
	C40,	23800	1.03
	C60,	16826	0.63

Note: At present, \$ 1 = Rs 42.60

**Appendix Table 10.** Weight of dried weeds in gm sq. m<sup>-1</sup>

Cropping Systems	Cut (DAS)	Sev (cm)	Wt. of dried weeds (gm sq.m <sup>-1</sup> )
maize	-	-	396.50
Intercrop MLC0	-	-	57.61
	C40,	S30	164.50
		S20	160.00
	C60,	S30	145.00
		S20	363.30
Grand mean			214.43
LSD (0.05)			68.29

**Appendix Table 11.** Weeds identified in experimental field

*Echinochloa colonum* (L.) Link  
*Echinochloa crusgalli* (L.) P. Beauv. Var. *Crusgalli*  
*Synedrella nodiflora* (L.) Gaertn  
*Cleome rutidosperma* DC  
*Eleusine indica* (L.) Gaertn  
*Panicum repens* L.  
*Tridax procumbens* L.  
*Mimosa diplotricha* var. *diplotricha*  
*Ageratum conyzoides* L.  
*Corchorus aestuans* L.  
*Mimosa pudica* L. var. *hispida* Bren  
*Euphorbia hirta* L.  
*Physalis angulata* L.  
*Ludwigia hyssopifolia* (G. Don) Exell.

**Appendix Table 12.** Relative Ureide Index (%), and symbiotic dependence in lablab

N level	Growth stages		Symbiotic dependence
	R2	R6(%)	
N0	0.661	0.710	100
N3	0.315	0.154	
N9	0.078	0.101	
N12	0.087	0.096	0
LSD	0.158		

Source: Rerkasem and Rerkasem (1989)



**Appendix Table 13.** ANOVA of total dry matter production of maize and lablab in monoculture and intercrop

Source of variation	DF	Days after sowing (100)	
		MS	p
REP (A)	3	3.6E-01	0.14
TRT (B)	5	1.6	0.00
A * B	15	1.7E-01	

**Appendix Table 14.** ANOVA of Land Equivalent Ratio (LER) of dry matter at maize harvest (100 DAS)

Source of Variation	DF	LER of Maize		LER of Lablab		Total LER	
		MS	p	MS	P	MS	p
		REP (A)	3	1.4E-02	0.10	9.5E-02	0.00
TRT (B)	4	1.0E-02	0.19	1.0E-01	0.00	7.3E-02	0.00
A * B	12	5.8E-03		6.0E-03		5.3E-03	

**Appendix Table 15.** ANOVA of Area Time Equivalent Ratio (ATER) of biomass and protein

Source of variation	DF	ATER of biomass		ATER of protein	
		MS	P	MS	P
		REP (A)	3	1.29E-02	0.35
TRT (B)	4	9.77E-02	0.00	9.50E-02	0.00
A * B	12	1.09E-02		1.37E-02	

**Appendix Table 16.** ANOVA of Leaf Area Index (LAI) of maize

Source of variation	Days after sowing							
	DF	30		40		DF	100	
		MS	P	MS	P		MS	P
REP (A)	3	6.3E-03	0.77	6.7E-02	0.13	3	2.3E-01	0.05
TRT (B)	1	6.6E-03	0.56	1.01E-03	0.81	3	4.3E-02	0.59
A * B	3	1.6E-02		1.6E-02		9	6.4E-02	

**Appendix Table 17.** ANOVA of Leaf Area Index (LAI) of lablab

Source of variation	Growth stage												
	DF	V7		V12		DF	V26		DF	V36		V48	
		MS	P	MS	P		MS	P		MS	P	MS	P
REP(A)	3	1.7E-03	0.12	1.4E-01	0.45	3	2.7E-02	0.60	3	1.2E-01	0.40	1.2	0.16
TRT(B)	1	6.6E-03	0.02	7.1E-01	0.09	5	2.0	0.00	9	2.9	0.00	29.6	0.00
A * B	3	3.7E-04		1.2E-01		15	4.3E-02		27	1.2E-01		7.0E-01	

**Appendix Table 18.** ANOVA of Relative Ureide Index of lablab

Source of variation	Growth stage												
	DF	V7		V12		DF	V26		DF	V36		V48	
		MS	P	MS	P		MS	P		MS	P	MS	P
REP(A)	3	40.4	0.34	12.11	0.13	3	28.28	0.34	3	17.7	0.05	7.4	0.27
TRT(B)	1	96.1	0.14	129.12	0.00	5	247.78	0.00	9	250	0.00	37.1	0.00
A * B	3	24.7		2.9		15	23.38		27	6.1		5.4	

**Appendix Table 19.** ANOVA of nodule number of lablab per plant

Source of variation	Growth stage								
	V26			V36			V48		
	DF	MS	P	DF	MS	P	MS	P	
REP (A)	3	14.90	0.11	3	12.6	0.63	26.8	0.33	
TRT (A)	5	28.60	0.01	9	194.1	0.00	110.9	0.00	
A * B	15	6.36		27	22.1		22.9		

**Appendix Table 20.** ANOVA of Per Cent Crude Protein (CP) in lablab shoot dry matter

Source of variation	Growth stage													
	V7			V12			V26			V36			V48	
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	MS	P	
REP (A)	3	23.4	0.12	17.80	0.28	3	1.49	0.49	3	1.1	0.16	9.2E-01	0.51	
TRT (A)	1	6.0	0.36	3.2E-01	0.85	5	2.28	0.32	9	2.8	0.00	3.3	0.01	
A * B	3	5.2		8.61		15	1.78		27	6.4E-01		1.1		

**Appendix Table 21.** ANOVA of dry matter of lablab ( $\text{Mg ha}^{-1}$ )

Source of variation	Growth stage													
	V7			V12			V26			V36			V48	
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	MS	P	
REP (A)	1	5.10E-04	0.01	2.20E-01	0.00	5	3.40E-01	0.00	9	3.47E+00	0.00	56.8E+00	0.00	
TRT (A)	3	8.90E-04	0.00	8.40E-03	0.33	3	1.10E-01	0.00	3	6.30E-02	0.45	7.9E-01	0.47	
A * B	3	2.40E-05		4.90E-03		15	1.20E-02		27	7.10E-01		9.1E-01		

**Appendix Table 22.** ANOVA of cutting effect on dry weight of lablab \*

Source of variation	Growth stage							
	V26			V36			V48	
	DF	MS	P	DF	MS	P	MS	P
SYS (A)	1	1.42	0.00	1	91.83	0.51	292.46	0.00
CUT (B)	-	-	-	1	215.85	0.31	38.32	0.00
SEV (C)	1	1.31E-02	0.18	1	194.00	0.34	4E-03	0.94
REP (D)	3	5.84E-02	0.00	3	207.43	0.40	4.1E-01	0.62
A * B	-	-	-	1	203.87	0.32	1.57	0.14
A * C	1	4.20E-02	0.02	1	192.91	0.34	0.96	0.25
B * C	-	-	-	1	199.75	0.33	2.76	0.06
A * B * C	-	-	-	1	196.47	0.33	4.1E-01	0.45
A * B * C * D	-	-	-	21	204.86	-	6.9E-01	-
A * C * D	9	-	0.02	-	-	-	-	-

\* ANOVA Analysis of variance; DF Degree of freedom; MS Mean Square; P Probability; SYS; Cropping Systems; REP Replication; CUT cutting days; SEV severity

**Appendix Table 23.** ANOVA of grain yield and yield components of maize

Source of variation	Yield components						
	Grain yield			No. of kernels/cob		1000 grain wt(g)	
	DF	MS	P	MS	P	MS	P
REP (A)	3	2.7E-01	0.02	4498.6	0.00	559.8	0.03
TRT (A)	5	6.2E-01	0.00	5895.4	0.00	1808.6	0.00
A * B	15	6.8E-02	-	350.6	-	155.0	-

**Appendix Table 24.** ANOVA of cumulative nitrogen fixation on lablab

Source of variation	Growth stage												
	V7			V12			V26			V36		V48	
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	MS	P
REP (A)	3	2.60E-01	0.08	22.09	0.06	3	44.1	0.00	3	194.3	0.02	804.88	0.31
TRT (A)	1	1.40E-33	1.00	67.10	0.01	5	116.8	0.00	9	1657	0.00	3.2E+04	0.00
A * B	3	4.20E-02	3.02	15	6.9	27	53.3	643.66					

**Appendix Table 25.** ANOVA of cutting of lablab on nitrogen fixation as influenced by cropping systems

Source of variation	Growth stage							
	V26			V36			V48	
	DF	MS	P	DF	MS	P	MS	P
SYS (A)	1	466.78	0.00	1	1.1E+04	0.00	1.7E+05	0.00
CUT (B)	-	-	-	1	492.90	0.00	1.4E+04	0.00
SEV (C)	1	3.64	0.42	1	6.50	0.63	1271.1	0.15
REP (D)	3	23.20	0.03	3	238.10	0.00	666.1	0.36
A * B	-	-	-	1	93.30	0.07	6537.1	0.00
A * C	1	15.92	0.11	1	201.10	0.01	28.0	0.82
B * C	-	-	-	1	16.10	0.45	1951.7	0.08
A * B * C	-	-	-	1	23.40	0.36	10.9	0.89
A * B * C * D	-	-	-	21	27.40	-	592.7	-
A * C * D	9	5.28						

**Appendix Table 26.** ANOVA of dry matter of lablab (g plant<sup>-1</sup>)

Source of variation	Growth stage												
	V7			V12			V26			V36		V48	
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	MS	P
REP (A)	3	5.50E-01	0.69	11.30	0.28	3	67.3	0.00	3	53.7	0.52	127.20	0.92
TRT (B)	1	1.70E-01	0.71	3.12	0.94	5	39.8	0.00	9	692.8	0.00	1.9E+04	0.00
A * B	3	1.00E+00		5.50		15	5.7		27	73.4		834.10	

**Appendix Table 27.** ANOVA of cutting effect in dry matter of lablab (g plant<sup>-1</sup>) as influenced by cropping systems

Source of variation	Growth stage							
	V26			V36			V48	
	DF	MS	P	DF	MS	P	MS	P
SYS (A)	1	12.90	0.13	1	1228.80	0.00	4387.50	0.00
CUT (B)	-	-	-	1	5.20	0.70	3.4E+04	0.00
SEV (C)	1	1.56	0.58	1	92.10	0.11	55.38	0.69
REP (D)	3	40.20	0.00	3	169.80	0.01	325.9	0.45
A * B	-	-	-	1	30.20	0.36	8708.7	0.00
A * C	1	22.50	0.00	1	106.20	0.09	730.6	0.16
B * C	-	-	-	1	6.80	0.66	1657.4	0.04
A * B * C	-	-	-	1	22.90	0.66	6.2	0.89
A * B * C * D	-	-	-	21	34.90	-	359.4	-
A * C * D	9	4.88						

**Appendix Table 28.** ANOVA of total nitrogen (kg ha<sup>-1</sup>) in lablab

Source of variation	Growth stage													
	V7			V12			V26			V36			V48	
	DF	MS	P	MS	P	DF	MS	P	DF	MS	P	MS	P	
REP (A)	3	1.2	0.67	26.03	0.17	3	83.0	0.00	3	179.01	1.87	1971.90	0.10	
TRT (B)	1	5.3	0.22	250.70	0.01	15	379.4	0.00	9	3006.00	0.00	4.4E+04	0.00	
A * B	3	2.3		7.60		15	12.23		27	95.48		888.90		

**Appendix Table 29.** ANOVA of proportion of N<sub>2</sub> being devived from fixation (P fix %) at different harvest

Source of variation	Growth stage													
	DF	V7		V12		DF	V26		DF	V36		V48		
		MS	P	MS	P		MS	P		MS	P	MS	P	
REP (A)	3	114.35	0.34	34.21	0.13	3	74.06	0.00	3	32.48	0.13	22.48	0.92	
TRT (B)	1	271.91	0.14	364.50	0.00	5	712.00	0.00	1	610.39	0.00	103.93	0.00	
A * B	3	63.75		8.10		15	58.11		3	16.34		14.16		

**Appendix Table 30.** ANOVA of cutting effect in total nitrogen ( $\text{kg ha}^{-1}$ ) as influenced by cropping systems

Source of variation	Growth stage							
	DF	V26		DF	V36		V48	
		MS	P		MS	P	MS	P
SYS (A)	1	538.00	0.00	1	1.8E+04	0.00	2.3E+05	0.00
CUT (B)	-	-	-	1	80.13	0.46	2.78	0.00
SEV (C)	1	5.40	0.42	1	81.02	0.46	130.17	0.69
REP (D)	3	47.50	0.01	3	391.28	0.07	1166.90	0.25
A * B	-	-	-	1	66.29	0.50	941.78	0.29
A * C	1	26.20	0.09	1	472.30	0.08	2302.80	0.10
B * C	-	-	-	1	75.83	0.47	473.80	0.45
A * B * C	-	-	-	1	236.53	0.21	492.82	0.44
A * B * C * D	-	-	-	21	145.60	-	802.37	-
A * C * D	9	7.50	0.09					

**Appendix Table 31.** ANOVA of cutting effect on proportion of  $\text{N}_2$  being derived from fixation ( P fix %) as influenced by cropping systems

Source of variation	Growth stage							
	DF	V26		DF	V36		V48	
		MS	P		MS	P	MS	P
SYS (A)	1	11.22	0.51	1	1408.30	0.00	1.96	0.69
CUT (B)	-	-	-	1	449.18	0.00	7.38	0.45
SEV (C)	1	12.25	0.49	1	51.84	0.08	20.14	0.21
REP (D)	3	128.61	0.02	3	28.55	0.17	22.87	0.17
A * B	-	-	-	1	3098.60	0.00	190.17	0.00
A * C	1	170.30	0.02	1	303.75	0.00	434.17	0.00
B * C	-	-	-	1	87.61	0.02	181.02	0.00
A * B * C	-	-	-	1	2.72	0.68	79.22	0.02
A * B * C * D	-	-	-	21	15.88	-	12.55	-
A * C * D	9	23.90	-					



**Appendix Table 32.** ANOVA of cutting effect on %CP of lablab as influenced by cropping systems

Source of variation	Growth stage							
	V26			V36			V48	
	DF	MS	P	DF	MS	P	MS	P
SYS (A)	1	1.2E-01	0.83	1	1.9E-01	0.61	1.8E-01	0.72
CUT (B)	-	-	-	1	6.57	0.00	6.68	0.04
SEV (C)	1	9.0E-01	0.57	1	3.10	0.05	6.5E-01	0.51
REP (D)	3	4.3E-01	0.92	3	6.4E-01	0.48	1.05	0.56
A * B	-	-	-	1	1.75	0.63	3.59	0.13
A * C	1	7.2E-01	0.61	1	3.87	0.03	1.1E-02	0.93
B * C	-	-	-	1	3.3E-02	0.83	1.3E-02	0.92
A * B * C	-	-	-	1	4.15	0.02	18.37	0.00
A * B * C * D	-	-	-	21	7.59	-	1.50	-
A * C * D	9	2.70	-					

**Appendix Table 33.** ANOVA of effect of cutting on CP content (Mg ha<sup>-1</sup>) of lablab at final harvest

Source of variation	At final harvest (130 DAS)		
	DF	MS	P
SYS (A)	1	8.95	.00
CUT (B)	1	9.2E-01	.00
SEV (C)	1	1.6E-03	.82
REP (D)	3	3.3E-02	.39
A * B	1	3.0E-02	.34
A * C	1	4.2E-02	.26
B * C	1	2.5E-02	.38
A * B * C	1	4.8E-02	.23
A * B * C * D	21	3.2E-02	-

**Appendix table 34.** ANOVA of immediate green fodder contribution of lablab

Source of variation	Immediate contribution		
	DF	MS	P
REP (A)	3	5.8E+05	.00
TRT (B)	3	2.0E+06	.00
A * B	9	6.9E+04	

**Appendix table 35.** ANOVA of weed dry matter after maize harvest (g/sq m)

Source of variation	DF	MS	P
REP (A)	3	1465.9	.55
TRT (B)	5	5.2E+04	.00
A * B	15	2053.6	

**Appendix table 36.** ANOVA of Crude Protein (CP) content in lablab (Mg ha<sup>-1</sup>)

Source of variation	Quantity of protein		
	DF	MS	p
REP (A)	9	5.7E-02	.21
TRT (B)	3	1.68	.00
A * B	27	3.6E-02	

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Appendix Table 37. Dry matter accumulation in maize (Mg ha<sup>-1</sup>)

TRT/REP	Growth stages (DAS)															
	30				40				60				100			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Maize	0.32	0.16	0.18	0.37	1.63	0.87	1.26	1.22	4.13	4.53	3.79	4.33	6.15	6.11	6.11	5.72
Intercrop																
ML CO	0.21	0.20	0.18	0.19	1.51	1.92	1.11	1.39	3.73	5.79	3.33	3.99	5.63	5.58	6.06	5.37
ML C40, S30									4.26	5.46	3.19	4.73	5.88	7.43	6.23	6.51
ML C40, S20									3.86	4.66	5.33	3.86	5.64	6.14	6.71	6.48
ML C60, S30													5.78	5.65	6.07	6.14
ML C60, S20													5.65	7.01	5.64	5.51

Appendix Table 38. Green matter accumulation in maize (Mg ha<sup>-1</sup>)

TRT/REP	Growth stages (DAS)															
	30				40				60				100			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Maize	1.85	0.85	1.04	1.67	7.91	4.79	7.28	5.85	10.60	11.50	7.19	10.2	12.6	12.6	12.7	12.1
Intercrop																
ML CO	1.14	1.21	1.27	1.16	9.10	8.59	6.65	7.56	9.30	9.86	7.99	10.2	12.1	12.0	12.5	11.8
ML C40, S30									9.99	10.30	8.13	11.4	12.3	13.7	12.7	12.9
ML C40, S20									9.90	10.90	11.30	8.9	12.0	12.4	13.1	12.8
ML C60, S30													12.2	12.5	12.5	12.6
ML C60, S20													12.1	12.4	12.1	11.9

Appendix Table 39. Dry matter weight of lablab (Mg ha<sup>-1</sup>)

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	0.08	0.08	0.11	0.12	0.63	0.63	0.59	0.71	0.73	1.26	0.86	1.33	3.39	3.99	3.33	3.19	15.65	16.31	12.79	13.51
L C40, S30									0.81	0.97	1.07	1.23	3.05	2.31	2.82	2.81	10.87	12.05	12.18	12.65
L C40, S20									1.02	1.24	1.12	1.33	2.51	2.37	3.32	2.90	11.89	12.50	9.22	12.36
L C60, S30													2.78	2.68	3.13	3.15	9.35	9.45	9.47	9.24
L C60, S20													3.14	2.43	3.10	2.85	10.28	11.37	11.61	8.99
ML CO	0.05	0.07	0.08	0.11	0.21	0.44	0.24	0.34	0.59	0.78	0.71	0.76	2.00	2.47	2.22	2.09	11.83	10.5	10.07	9.59
ML C40, S30									0.30	0.57	0.62	0.61	0.92	1.14	1.01	1.10	5.81	7.39	6.70	5.92
ML C40, S20									0.42	0.43	0.52	0.54	1.20	1.14	1.26	1.04	5.49	5.38	6.41	5.80
ML C60, S30													1.06	0.82	1.07	0.82	3.19	3.98	3.70	3.58
ML C60, S20													1.13	1.69	1.52	1.46	3.51	3.13	3.95	3.40

Appendix Table 40. Dry weight of lablab (g plant<sup>-1</sup>)

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	1.59	1.5	2.0	2.25	10.50	11.81	11.00	13.31	13.6	23.6	16.1	24.9	63.5	74.8	62.4	38.6	293.4	305.8	239.8	255.3
L C40, S30									15.1	18.1	20.0	23.0	57.1	43.3	52.8	52.6	203.8	225.9	228.3	237.1
L C40, S20									19.1	23.2	21.0	24.9	47.0	44.4	62.2	54.3	222.9	234.3	172.8	231.7
L C60, S30													52.1	50.2	58.6	59.0	175.3	177.1	177.5	173.2
L C60, S20													58.8	45.5	58.1	53.4	192.7	213.1	217.6	168.5
ML CO	2.21	2.7	3.2	0.41	7.87	16.50	9.00	12.75	22.1	29.2	26.6	28.5	75.0	92.6	83.2	78.3	443.6	293.7	377.6	359.6
ML C40, S30									11.2	21.3	23.2	22.8	34.5	42.7	37.8	41.2	217.8	277.1	251.2	222.0
ML C40, S20									15.7	16.1	19.5	20.2	45.0	42.7	37.2	49.0	205.8	201.7	240.3	217.5
ML C60, S30													39.7	30.7	40.1	30.7	119.6	126.7	138.7	134.2
ML C60, S20													42.3	25.8	57.0	54.7	131.6	117.3	148.1	127.5

Appendix Table 41. Green matter weight of lablab (Mg ha<sup>-1</sup>)

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	0.47	0.71	0.71	0.61	2.69	4.63	3.29	2.99	4.66	5.99	6.26	7.11	13.5	15.1	14.3	13.6	64.05	65.11	62.92	61.11
L C40, S30									3.78	5.78	5.09	6.28	12.5	10.9	11.8	13.7	46.07	42.70	48.37	49.75
L C40, S20									6.02	7.97	6.86	7.42	11.9	14.1	13.4	13.3	48.56	51.78	45.34	51.95
L C60, S30													11.6	12.6	12.5	10.8	39.67	41.26	37.68	35.61
L C60, S20													12.3	11.6	15.6	11.9	36.79	39.53	42.45	36.76
ML CO	0.36	0.34	0.51	0.61	1.12	2.47	2.13	2.28	3.46	3.99	3.73	3.66	10.0	10.6	9.1	10.0	46.77	46.5	40.74	47.43
ML C40, S30									1.46	2.80	2.73	2.52	3.6	4.5	4.3	4.5	25.51	32.33	31.48	22.16
ML C40, S20									1.95	2.2	2.15	2.94	5.4	4.3	5.0	4.8	22.58	23.75	29.47	25.38
ML C60, S30													3.4	3.3	4.0	4.2	17.79	16.23	16.07	18.25
ML C60, S20													4.1	4.1	5.3	4.1	17.05	15.37	16.99	16.07

Appendix Table 42. Leaf Area Index (LAI) of maize

TRT/REP	Growth stages (DAS)											
	30				40				60			
	1	2	3	4	1	2	3	4	1	2	3	4
Maize	0.63	0.39	0.52	0.60	2.38	2.38	2.02	2.39	1.84	1.90	1.24	1.09
Intercrop												
ML CO	0.53	0.54	0.52	0.32	2.63	2.24	2.10	2.29	1.90	1.64	1.44	1.33
ML C40, S30									1.64	2.16	1.26	1.99
ML C40, S20									1.85	1.63	1.39	1.64
ML C60, S30												
ML C60, S20												

Appendix Table 43. Plant height of maize (cm)

TRT/REP	Growth stages (DAS)											
	30				40				60			
	1	2	3	4	1	2	3	4	1	2	3	4
Maize	25	22	25	25	57	57	60	56	135	130	125	150
Intercrop												
ML CO	25	29	20	28	68	80	74	84	135	150	125	140
ML C40, S30									120	135	130	150
ML C40, S20									130	120	132	140
ML C60, S30												
ML C60, S20												

Appendix Table 44. Leaf Area Index (LAI) of lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	0.21	0.19	0.20	0.26	2.15	2.92	1.74	2.29	2.18	2.09	2.00	2.17	2.63	2.76	2.55	3.39	11.36	11.6	10.16	13.02
L C40, S30									0.33	0.98	0.65	0.81	2.41	1.76	1.98	1.57	8.44	6.87	7.90	8.49
L C40, S20									1.08	1.09	1.07	0.96	1.82	1.88	1.99	1.63	7.47	7.78	6.22	8.69
L C60, S30													1.03	1.24	1.30	1.23	5.89	6.41	5.39	4.96
L C60, S20													1.24	1.65	1.31	1.66	6.13	5.66	5.70	4.57
ML CO	0.3	0.26	0.23	0.3	1.45	1.76	1.78	1.72	2.72	2.21	1.96	2.12	3.99	3.39	3.79	4.06	14.03	12.36	12.63	12.90
ML C40, S30									0.44	0.86	0.51	0.70	0.83	0.94	1.29	1.79	7.49	8.35	8.03	7.16
ML C40, S20									0.93	1.12	1.19	1.02	1.02	2.19	1.27	2.36	7.38	6.76	8.50	8.70
ML C60, S30													1.45	1.12	1.01	0.92	6.56	4.81	3.99	4.93
ML C60, S20													1.10	0.81	1.66	1.39	6.34	4.16	4.36	4.45

Appendix Table 45. Plant height of lablab (cm)

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	16	20	21	20	109	105	112	128	150	160	130	130	153	190	170	203	305	280	305	310
L C40, S30									45	70	70	60	270	230	220	210	340	295	280	250
L C40, S20									80	80	58	52	150	180	181	209	340	292	250	405
L C60, S30													240	156	152	116	275	270	270	290
L C60, S20													139	151	120	175	230	250	170	270
ML CO	20	22	18	21	110	120	150	165	190	175	170	170	238	300	240	250	320	330	325	345
ML C40, S30									45	80	90	60	203	181	175	215	350	370	355	340
ML C40, S20									80	90	90	52	176	221	180	250	310	290	270	335
ML C60, S30													125	130	90	75	250	210	215	260
ML C60, S20													130	146	180	178	280	230	300	300

Appendix Table 46. Grain yield and yield components of maize

TRT/REP	Growth stages (DAS)											
	Av. no. of kernel/cob				1000 grain wt (14% m)				Grain yield (Mg ha <sup>-1</sup> )			
	1	2	3	4	1	2	3	4	1	2	3	4
Maize	320	358	299	380	201.1	159.5	185.1	169.1	3.16	3.21	3.15	3.18
Intercrop												
ML C0	316	322	282	340	180.7	144.8	159.1	154.5	2.84	2.91	2.71	2.90
ML C40, S30	371	387	396	466	203.0	231.1	205.8	202.9	3.19	4.65	3.50	3.82
ML C40, S20	403	398	419	433	218.7	216.9	204.6	216.4	3.44	4.36	3.48	4.00
ML C60, S30	348	360	314	385	199.7	160.1	178.1	173.5	3.17	3.22	3.03	3.23
ML C60, S20	334	376	311	394	200.6	160.6	177.3	176.3	3.15	3.23	2.99	3.18

Appendix Table 47. LER and ATER of dry matter and crude protein (CP)

TRT/REP	Growth stages (DAS)											
	LER of dry matter				ATER of dry matter				ATER of CP			
	1	2	3	4	1	2	3	4	1	2	3	4
ML C0	1.49	1.52	1.65	1.14	1.46	1.34	1.54	1.43	1.48	1.32	1.52	1.44
ML C40, S30	1.22	1.49	1.31	1.66	1.27	1.54	1.33	1.34	1.24	1.56	1.45	1.38
ML C40, S20	1.26	1.28	1.37	1.63	1.16	1.20	1.53	1.34	1.01	1.17	1.51	1.32
ML C60, S30	1.24	1.12	1.31	1.46	1.06	1.06	1.15	1.21	1.04	1.05	1.11	1.21
ML C60, S20	1.24	1.31	1.37	1.66	1.04	1.15	1.04	1.11	1.06	1.20	1.08	1.19

Appendix Table 48. Total shoot nitrogen (Kg ha<sup>-1</sup>) of lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	3.2	2.6	4.8	5.2	22.2	21.2	15.6	27.6	25.4	39.7	27.9	42.3	96.5	115.0	102.0	65.2	427.1	461.5	358.0	374.2
L C40, S30									31.2	30.3	33.0	41.8	94.4	70.6	87.2	88.9	311.9	350.5	289.7	327.5
L C40, S20									32.5	39.2	38.5	41.0	77.7	72.4	99.1	82.5	354.2	372.3	268.1	337.3
L C60, S30													86.1	81.9	93.4	89.6	278.6	281.4	275.4	252.1
L C60, S20													97.2	72.5	92.6	85.1	280.5	313.6	322.6	221.9
ML C0	2.0	2.9	3.8	0.5	7.2	12.8	8.4	13.4	18.8	22.1	21.2	22.9	56.9	69.6	65.6	60.1	331.2	286.6	274.8	261.7
ML C40, S30									10.1	19.5	20.2	18.3	27.2	36.0	31.5	32.8	158.5	220.1	194.9	165.7
ML C40, S20									12.5	14.4	17.5	18.1	32.9	31.6	37.6	34.0	111.4	152.2	179.4	150.2
ML C60, S30													32.3	23.9	34.6	26.1	92.8	92.2	102.4	110.2
ML C60, S20													34.9	20.5	45.4	43.6	95.8	86.3	109.7	83.9

**Appendix Table 49.** Number of root nodules of lablab per plant

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	10	8	9	8	13	12	17	9	16	20	21	17	30	34	30	25	36	31	26	30
L C40, S30									14	18	13	10	15	17	20	28	16	17	21	28
L C40, S20									14	12	15	8	20	18	23	18	32	18	16	20
L C60, S30													8	11	14	18	11	19	16	20
L C60, S20													20	16	10	15	21	13	15	19
ML CO	6	6	8	6	14	15	16	15	19	22	12	17	32	27	31	24	30	25	30	32
ML C40, S30									12	14	12	14	20	20	13	22	26	18	20	21
ML C40, S20									13	14	13	11	27	13	22	21	24	25	12	18
ML C60, S30													19	5	7	14	13	10	21	16
ML C60, S20													7	15	5	6	21	21	18	10

**Appendix Table 50.** % RU (Relative Ureide) in lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	52.09	39.68	55.37	53.46	52.53	47.67	53.95	55.39	54.5	54.4	55.0	55.3	58.8	56.8	57.0	62.2	63.6	60.7	61.4	66.2
L C40, S30									41.5	38.3	39.8	40.2	61.7	64.2	67.5	61.3	68.3	67.3	64.5	65.8
L C40, S20									53.6	44.9	52.9	39.4	56.6	51.7	57.6	58.7	56.5	55.1	55.7	58.6
L C60, S30													71.6	68.3	74.9	74.2	63.1	64.6	64.7	68.7
L C60, S20													67.1	63.3	66.7	65.9	67.8	62.4	60.7	67.7
ML CO	62.51	54.82	57.00	54.00	61.36	57.91	62.41	60.00	62.0	47.2	62.0	63.0	60.8	59.1	64.4	65.0	62.3	69.8	64.4	63.6
ML C40, S30									46.3	47.2	38.6	39.3	62.9	61.9	64.5	64.5	61.9	64.0	64.9	63.3
ML C40, S20									43.1	44.0	38.4	34.6	63.9	67.3	63.8	61.0	65.4	62.8	67.3	68.2
ML C60, S30													40.2	47.1	49.3	46.2	58.7	59.8	61.7	60.5
ML C60, S20													50.4	48.1	52.2	47.2	63.8	61.6	67.6	65.1

**Appendix Table 51.** Proportion of N being derived from fixation (P fix %) in lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	72.0	51.2	77.5	74.3	72.7	64.6	75.1	77.5	76.1	76.0	77.0	77.5	83.3	80.1	80.3	89.0	91.5	86.5	87.6	95.8
L C40, S30									54.2	48.9	51.4	52.2	88.2	92.4	98.0	87.5	99.4	97.6	93.0	95.0
L C40, S20									72.5	60.0	56.6	50.7	79.7	71.4	81.3	83.2	79.4	77.1	78.1	82.9
L C60, S30													100.0	99.3	100.0	100.0	90.6	93.1	93.2	99.9
L C60, S20													97.3	90.8	96.6	95.2	98.5	89.3	86.5	98.2
ML CO	89.5	76.6	80.3	75.2	87.6	81.8	89.3	85.3	88.7	63.8	88.8	90.5	86.6	83.8	92.8	93.7	89.2	100.0	92.7	91.4
ML C40, S30									62.3	63.8	49.3	50.7	90.3	88.6	92.9	92.9	88.6	92.1	93.5	90.9
ML C40, S20									56.9	58.4	49.0	42.7	92.0	97.6	91.7	87.0	94.4	90.1	97.6	99.1
ML C60, S30													52.0	63.6	67.3	62.1	83.1	85.0	88.2	86.1
ML C60, S20													69.2	65.3	72.2	63.8	91.7	88.1	98.1	94.0

Appendix Table 52. Cumulative nitrogen fixation (Kg ha<sup>-1</sup>) in lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	0.1	0.1	0.7	0.8	13.8	10.8	8.9	17.8	16.2	23.9	18.3	29.2	72.9	82.8	77.2	48.3	362.0	371.3	291.7	333.9
L C40, S30									19.8	16.0	19.9	26.3	64.8	44.5	60.5	59.3	268.9	310.6	254.0	277.0
L C40, S20									21.4	22.1	23.9	26.4	56.2	44.0	65.8	54.2	276.3	266.8	200.5	266.0
L C60, S30													72.6	63.3	74.4	71.4	256.0	255.4	250.3	233.8
L C60, S20													78.5	51.2	74.5	66.2	258.1	268.5	285.1	198.6
ML CO	0.4	0.0	0.3	0.9	5.0	7.8	4.2	11.3	15.2	14.5	15.5	19.6	48.7	49.6	55.9	53.8	289.8	249.1	250.1	240.6
ML C40, S30									7.1	12.7	12.3	14.6	20.2	25.3	20.4	25.0	137.7	191.7	172.7	147.2
ML C40, S20									8.8	8.9	14.0	10.8	24.0	22.3	28.1	21.1	97.1	135.5	162.4	129.2
ML C60, S30													24.7	16.7	29.7	18.6	65.6	67.5	82.4	80.9
ML C60, S20													28.1	20.5	35.2	35.7	77.1	71.0	90.0	67.5

Appendix Table 53. % CP (Crude Protein) in lablab

TRT/REP	Growth stages (DAS)																			
	30				40				60				100				130			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LCO	23.7	20.4	28.3	27.4	24.8	21.0	16.7	24.3	21.9	19.7	20.4	19.9	17.8	18.0	19.3	19.8	17.0	17.7	17.5	17.2
L C40, S30									24.1	19.5	19.3	21.3	19.3	19.1	19.3	19.8	17.9	18.1	14.8	16.1
L C40, S20									20.0	19.8	21.5	19.3	19.3	19.1	18.7	17.8	18.5	18.5	18.1	17.0
L C60, S30													20.4	20.0	22.6	20.2	18.8	17.7	18.8	19.0
L C60, S20													19.3	18.7	18.6	18.7	17.0	17.2	17.3	15.4
ML CO	21.7	25.6	28.5	30.9	21.5	18.2	21.9	24.8	20.0	17.7	18.6	18.9	17.8	17.6	18.4	18.0	17.5	17.0	17.0	17.0
ML C40, S30									21.0	21.5	20.4	18.9	18.4	19.8	19.5	18.7	17.0	18.5	18.1	17.5
ML C40, S20									18.6	21.0	21.0	21.0	17.1	17.3	18.7	20.4	12.6	17.7	17.5	16.1
ML C60, S30													19.1	18.2	20.2	20.0	18.1	17.0	17.2	19.2
ML C60, S20													19.8	21.1	20.1	20.0	18.1	19.9	19.4	18.8

Appendix Table 54. CP (Crude Protein) yield of lablab at 130 DAS (Mg ha<sup>-1</sup>)

TRT/REP	1	2	3	4
LCO	2.66	2.89	2.23	2.33
L C40, S30	1.95	2.18	1.81	2.04
L C40, S20	2.21	2.32	1.67	2.10
L C60, S30	1.75	1.67	1.78	1.75
L C60, S20	1.75	1.96	2.01	1.38
ML CO	2.07	1.79	1.71	1.67
ML C40, S30	0.99	1.37	1.21	1.03
ML C40, S20	0.69	0.95	1.12	0.95
ML C60, S30	0.57	0.57	0.63	0.68
ML C60, S20	0.63	.62	0.76	0.63



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