

Table A.1 Crop growth under fertilizer treatment and crop treatment

Treatment	Crop dry matter yield (Mg ha ⁻¹)				Crop N %			
	2014		2015		2014		2015	
	28 June	24 Sep	10 July	14 Sep	28 June	24 Sep	10 July	14 Sep
Control	5.24a	1.14a	3.72b	0.99c	1.90a	2.75a	1.69a	2.44a
Organic	5.57a	1.07a	2.97c	1.94b	1.62b	2.45b	1.86a	2.21a
Synthetic	5.70a	1.38a	4.47a	3.16a	1.66b	2.47b	1.95a	2.11a
SEM	0.28	0.11	0.20	0.14	0.07	0.06	0.16	0.19
Mixture	6.50a	1.86a	5.43a	2.53a	1.76b	2.74b	1.86a	2.15a
Red clover	5.53b	1.26b	3.09b	1.49c	2.24a	3.18a	2.10a	2.60a
Timothy	4.49c	0.46c	2.64b	2.07b	1.18c	1.74c	1.54a	2.01a
SEM	0.28	0.11	0.20	0.14	0.07	0.06	0.16	0.18

Treatment	Crop N Yield (kg ha ⁻¹)				Crop C:N Ratio			
	2014		2015		2014		2015	
	28 June	24 Sep	10 July	14 Sep	28 June	24 Sep	10 July	14 Sep
Control	105a	35a	66a	23c	25.91a	16.81b	28.18a	17.23a
Organic	89a	27a	55a	40b	27.90a	19.84a	25.02a	21.15a
Synthetic	95a	35a	84a	62a	27.72a	18.66a	23.53a	19.99a
SEM	6.27	3.11	6.53	3.35	0.94	0.91	2.76	1.31
Mixture	113a	50a	100a	50a	25.18b	15.99b	23.77a	20.00a
Red clover	122a	39b	65b	38b	19.54c	13.37b	22.02a	16.10b
Timothy	54b	7c	40c	37b	36.81a	25.95a	30.94a	22.25a
SEM	6.27	3.11	6.53	3.35	0.94	0.91	2.76	1.31

Treatment	Crop C %				Crop C Yield (kg ha ⁻¹)			
	June 2014	Sep 2014	July 2015	Sep 2015	June 2014	Sep 2014	July 2015	Sep 2015
	Control	42.72a	43.38a	43.24a	38.82a	2250a	493a	1591b
Organic	43.12a	42.92a	42.51a	42.26a	2322a	440b	1260c	810b
Synthetic	43.20a	43.11a	42.30a	39.61a	2465a	594a	1896a	1251a
SEM	0.42	0.11	0.45	1.03	120	48	90	58
Red clover	43.37a	43.27a	42.30a	40.66a	2272b	519b	1309b	581c
Mixture	42.63a	42.74b	42.28a	39.44a	2820a	808a	2299a	1022a
Timothy	43.05a	43.40a	43.46a	40.59a	1945b	200c	1139b	835b
SEM	0.42	0.11	0.45	1.03	120	48	90	58

Tests of Between-Subjects effects									
Treatment	df					Significance level			
FT	2	ns	ns	ns	ns	ns	*	**	***
CT	2	ns	**	ns	ns	***	***	***	***
FT×CT	4	ns	ns	ns	ns	ns	ns	**	**

Tests of Within-Subjects effects (sphericity assumed)									
Source	df					Significance level			
Time	3	***				***			
Time×FT	6	ns				***			
Time×CT	6	ns				***			
Time×FT×CT	12	ns				ns			

SEM = standard error of the means; FT = fertilizer treatment; CT = crop treatment; df = degrees of freedom; ns = not significant; * when $p < 0.05$, ** when $p < 0.01$, *** when $p < 0.001$; Time = sampling time points; Different letters in a column indicate significant differences from fertilizer and crop treatment.

Table A. 2 Soil NO₃-N and NH₄-N under fertilizer treatment and crop treatment

Treatment		Soil NO ₃ -N (mg kg ⁻¹)						
		First Period		Second Period		Third Period		
		2014		2014		2015		
		23 May	06 June	28 June	16 Aug.	22 Sep.	08 July	24 Sep.
Control		0.59b	0.37b	1.17a	3.15b	0.99a	2.55c	0.85b
Organic		1.20ab	1.55ab	1.80a	4.51b	1.51a	3.75b	1.65a
Synthetic		0.98a	1.30a	2.51a	6.84a	2.17a	11.30a	4.08a
	SEM	0.16	0.23	0.31	0.33	0.45	0.60	0.30
Fallow		2.03a	2.88a	4.42a	12.51a	4.48a	13.48a	5.54a
Mixture		0.53bc	0.39bc	0.76c	1.40c	0.59b	3.10c	0.83c
Red clover		0.73b	0.77b	1.46b	4.15b	0.76b	5.24b	1.89b
Timothy		0.40c	0.26c	0.67c	1.27c	0.40b	1.64c	0.51d
	SEM	0.19	0.26	0.35	0.38	0.52	0.70	0.35
Treatment		Soil NH ₄ -N (mg kg ⁻¹)						
		First Period		Second Period		Third Period		
		2014		2014		2015		
		23 May	06 June	28 June	16 Aug.	22 Sep.	08 July	24 Sep.
Control		2.05a	1.82a	2.51a	3.96b	2.68a	3.47b	3.25a
Organic		3.48a	2.82a	2.73a	4.35b	2.68a	5.27b	3.90a
Synthetic		3.41a	3.96a	2.72a	9.01a	2.52a	11.92a	3.63a
	SEM	0.41	0.44	0.26	0.60	0.31	0.83	0.23
Fallow		4.15a	4.42a	1.77b	7.34a	2.42a	7.90ab	3.28a
Mixture		2.78a	2.61a	2.98a	5.37ab	2.67a	8.13a	3.82a
Red clover		3.16a	2.93a	2.99a	6.54a	3.16a	7.54a	4.18a
Timothy		1.84a	1.50b	2.87a	4.15b	2.25a	3.99b	3.35a
	SEM	0.47	0.50	0.29	0.70	0.36	0.95	0.27

SEM = standard error of the means; Different letters in a column indicate significant differences from fertilizer and crop treatment.

Table A. 3 Soil moisture under fertilizer treatment and crop treatment

Treatment	Soil moisture (%)							
	2014					2015		
	23 May	06 June	28 June	16 Aug.	22 Sep.	08 July	24 Sep.	
Control	2.54a	13.92a	19.77a	13.22a	17.41a	14.91a	22.56a	
Organic	2.78a	15.91a	20.64a	13.76a	18.49a	17.06a	23.75a	
Synthetic	2.58a	15.82a	21.32a	14.18a	18.08a	16.29a	23.08a	
SEM	0.15	0.25	0.33	0.15	0.29	0.40	0.24	
Fallow	2.71a	15.70a	21.18a	12.95b	16.70b	16.64a	22.76a	
Mixture	2.46a	15.37a	20.37a	14.20a	18.48a	15.35a	22.82a	
Red clover	2.79a	14.57a	19.81a	13.95a	18.09a	16.13a	23.68a	
Timothy	2.59a	15.23a	20.95a	13.79a	18.71a	16.24a	23.26a	
SEM	0.17	0.29	0.38	0.18	0.34	0.46	0.27	
Tests of Between-Subjects effects								
Treatment	df	Significance level						
FT	2	ns	ns	ns	ns	ns	ns	ns
CT	3	ns	ns	ns	***	***	ns	ns
FT×CT	6	ns	ns	ns	ns	ns	ns	ns
Tests of Within-Subjects effects (sphericity assumed)								
Source	df	Significance level						
Time	6	***						
Time×FT	12	ns						
Time×CT	18	ns						
Time×FT×CT	36	ns						

SEM = standard error of the means; FT = fertilizer treatment; CT = crop treatment; df = degrees of freedom; ns = not significant; * when $p < 0.05$, ** when $p < 0.01$, *** when $p < 0.001$; Time = sampling time points; Different letters in a column indicate significant differences.

Table A.4 Soil DNA content under fertilizer treatment and crop treatment

Treatment	Soil DNA content ($\mu\text{g g}^{-1}$)							
	2014					2015		
	23 May	6 June	28 June	16 Aug.	22 Sep.	8 July	24 Sep.	
Control	-	-	3.56a	-	5.66a	10.14a	7.08a	
Organic	-	-	3.90a	-	6.28a	11.66a	9.14a	
Synthetic	-	-	3.68a	-	6.60a	9.76a	5.96a	
SEM	-	-	0.21	-	0.41	0.80	0.55	
Fallow	-	-	3.45a	-	5.05b	10.28a	6.00a	
Mixture	-	-	3.87a	-	6.93a	10.25a	7.38a	
Red clover	-	-	3.77a	-	6.18ab	11.65a	8.53a	
Timothy	-	-	3.78a	-	6.55ab	9.91a	7.66a	
SEM	-	-	0.24	-	0.48	0.92	0.64	
Tests of Between-Subjects effects								
Treatment	df	Significance level						
FT	2	-	-	ns	-	ns	ns	0.056
CT	3	-	-	ns	-	0.052	ns	0.065
FT×CT	6	-	-	ns	-	ns	ns	ns
Tests of Within-Subjects effects (sphericity assumed)								
Source	df	Significance level						
Time	6	***						
Time×FT	12	0.053						
Time×CT	18	ns						
Time×FT×CT	36	ns						

SEM = standard error of the means; FT = fertilizer treatment; CT = crop treatment; df = degrees of freedom; ns = not significant; * when $p < 0.05$, ** when $p < 0.01$, *** when $p < 0.001$; Time = sampling time points; Different letters in a column indicate significant differences from fertilizer and crop treatment.