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APPENDIX A

"Rainfall Infiltration of Soils Under Annual Versus Perennial Grasses in California" by M. J. Curtis, D. E. Rider, S. Lorenzato, R. E. O'Dell, A. Fristensky, and V. Claassen

Table A. Descriptions of Sites Used for Infiltration Comparisons of Annual–Perennial Grassland Pairs. Standard deviation of the cover values are shown in parentheses. Sample number (n) = 3 for each value.

Location[1]	**Site Notes**	**% Total Cover, Annual Plots**	**% Total Cover, Perennial Plots**
Auburn	Not grazed, located along a roadside	100.0 (0)	99.7 (0.6)
Black Butte	Not grazed since 1989; ripped to 60 cm and planted in perennials at that time	99.3 (0.8)	96.6 (1.2)
Davis Airport	Not grazed; research plots planted and established 2000	99.0 (0)	99.8 (0.3)
McLaughlin # 1	Not grazed since 1992	96.8 (3.4)	99.1 (1.5)
McLaughlin # 2	Not grazed since 1993	99.5 (0.7)	95.4 (4.4)
Redding	Not grazed; planted and revegetated after construction in 2002	98.6 (1.3)	99.8 (1.5)
Pacheco State Park	Not grazed since 1996	100.0 (0)	100.0 (0)

[1]Locations and elevations of the seven field sites in central and northern California.

Location	Latitude	Longitude	Elevation
1. Auburn	39^0 04' 57.64" N	121^0 11' 17.60" W	383 m (1257 ft)
2. Pacheco State Park	37^o 02' 54.78" N	121^o 11'46.41" W	419 m (1375 ft)
3. McLaughlin #1	38^o 50' 43.90" N	122^o 20' 56.99" W	461 m (1512 ft)
4. McLaughlin #2	38^o 50' 01.93" N	122^o 20' 27.80" W	461 m (1512 ft)
5. Redding	40^o 21' 15.73" N	122^o 16' 53.75" W	140 m (459 ft)
6. Black Butte	39^o 44' 43.62" N	122^o 23' 57.32" W	145 m (476 ft)
7. Davis Airport	38^o 32' 00.37" N	121^o 47' 09.14" W	19 m (65 ft)

Table B. Soil Infiltration (Saturated Hydraulic Conductivity, K_{sat}) and Penetrometer Readings of the Seven Paired Annual–Perennial Grass Sites

Location	K_{sat} (mm/hr) Annual Grasses	K_{sat} (mm/hr) Perennial Grasses	% Change in K_{sat} Infiltration, Perennial vs. Annual		Penetrometer Reading (kPa) (avg 0–30 cm) Annual Grasses	Penetrometer Reading (kPa) (avg 0–30 cm) Perennial Grasses	% change in kPa Resistance, Perennial vs. Annual Grasses
Auburn	149 (51)*	238 (1)*	+ 59.7		600	386	- 35.7
Black Butte	60 (9)	142 (11)	+ 137.6		1951	708	- 63.7
Davis Airport	119 (15)	159 (10)	+ 33.6		441	392	- 11.1
McLaughlin # 1	153 (27)	206 (18)	+ 34.6		599	367	- 38.7
McLaughlin # 2	120 (15)	205 (6)	+ 70.8		518	438	- 15.4
Redding	69 (5)	164 (4)	+ 137.7		457	172	- 62.4
Pacheco State Park	72 (6)	97 (11)	+ 34.7		1850	1187	- 35.8
Average Change			+ 72.6				- 37.6

* Values in parentheses are the standard error of the previous mean value.

Table C. Soil Surface and Subsurface Bulk Density of the Seven Paired Annual or Perennial Grass Sites

Location	Surface Bulk Density (0–10 cm) (g/cm^3) Annual Grasses	Surface Bulk Density (0–10 cm) (g/cm^3) Perennial Grasses	% Change Perennial Compared to Annual		Subsurface Bulk Density (20–30 cm) (g/cm^3) Annual Grasses	Subsurface Bulk Density (20–30 cm) (g/cm^3) Perennial Grasses	% Change Perennial Compared to Annual
Auburn	1.43	1.21	- 15.4		1.66	1.34	- 19.3
Black Butte	1.53	1.49	- 2.6		1.58	1.51	- 4.4
Davis Airport	1.82	1.38	- 4.4				
McLaughlin # 1	1.34	1.16	-13.3		1.43	1.24	- 13.3
McLaughlin # 2	1.29	1.40	+ 8.5		1.46	1.46	0.0
Redding	1.28	1.29	+ 0.8		1.25	1.14	- 8.8
Pacheco State Park	1.32	1.54	+ 16.7		1.64	1.55	- 5.5
Averages	1.43	1.35	- 4.2		1.50	1.37	- 8.5

Table D. Soil Clay Content and Texture for the Seven Paired Annual or Perennial Grass Sites

Location	% Clay* Annual Grass	% Clay* Perennial Grass	Soil Textural Class Annual Grass	Soil Textural Class Perennial Grass
Auburn	19	15	Sandy loam	Sandy loam
Black Butte	23	27	Loam	Clay loam
Davis Airport	27	27	Clay loam	Clay loam
McLaughlin # 1	29	27	Clay loam	Sandy clay loam
McLaughlin # 2	29	27	Sandy clay loam	Sandy clay loam
Redding	51	55	Clay	Clay
Pacheco State Park	19	19	Sandy loam	Sandy loam

*% Clay averaged for 0–30 cm depth.

Table E. Results of Statistics for Annual–Perennial Grassland Comparisons*

	K_{sat}	Bulk Density (0–10)	Bulk Density (20–30)	Penetrometer Resistance
Trend	A<P	A>P	A>P	A>P
% Difference	63%	6%	9%	64%
Significance (p=)	<0.0001	<0.0056	<0.0003	<0.0003

*Statistics were performed using a one-way generalized randomized complete block design model and multiple linear regression model with qualitative (block) and quantitative predictors (JMP "Fit Model").