

APPENDIX B: OPEN SPACE BENEFITS FROM DAIRY FARMLAND

Previous studies of the value of open space in other states indicate strong willingness to pay (WTP) for farmland preservation in urbanizing areas. Table B1 summarizes WTPs for various states.

Author and Issue	Area	Average WTP per acre/household/year (2007\$)	Aggregate WTP (2007\$)
<i>Cho et al. (2005)</i> Rural homeowners' WTP for land conservation easements	Macon County, North Carolina	\$0.23-\$0.25	–
<i>Johnston et al. (2001)</i> Preserve farmland from development	Suffolk County, New York	\$.05-\$0.20	\$1,631.52/acre/year
<i>Johnston et al. (2001)</i> Preserve farmland from development	Southold, New York	\$0.17	\$1,443.69/acre/year
<i>Beasley et al. (1998)</i> Preserve farmland from development	Alaska	\$.15-\$0.29	\$999.38/acre/year
<i>Rosenberger and Walsh, (1997)</i> Preserve western ranchland from development	Colorado	\$.10–\$.17	–
<i>Ready et al. (1997)</i> Prevent development of horse farm	Lexington, Kentucky	\$0.01	–
<i>Vieth et al. (1995)</i> Preserve farmland from development	Oahu, Hawaii	\$0.31	–
<i>Halstead, (1984)</i> Prevent farmland from development	Massachusetts	\$0.02-\$0.06	–

In this study, we proceed in three steps to estimate the open space benefits from dairy farmland in Connecticut:

Step 1: WTP Data from Surveys. The data used in this study came from WTP surveys carried out by Johnston *et al.* (2007, 2008) in six Connecticut towns. Table B2 summarizes the data:

Study & the issue	Town	Average WTP per Household Per/acre/year (2007\$)	Town-level WTP Per acre/year (2007 \$)
<i>Johnston et al.(2008)</i> Willingness to Pay for rural farmland preservation	Brooklyn, CT	\$0.171	\$463
	Pomfret, CT	\$0.281	\$422
	Thompson, CT	\$0.093	\$345
	Woodstock, CT	\$0.337	\$506
<i>Johnston et al.(2007)</i> Willingness to Pay for rural farmland preservation	Mansfield, CT	\$0.69	\$2,029
	Preston, CT	\$0.15	\$430

Step 2: WTP in 75 Connecticut Towns. Following Lopez et al. (1994), the data from Table B2 were used to estimate town-level WTP in 75 towns where dairy farms were located, using town-level open space, population and per capita income to extrapolate to the state level. The results are:

Town	Average WTP per household/acre/year	Town-level WTP per household acre/year (2007\$)	Town	Average WTP per household acre/year (2007\$)	Town-level WTP per household acre/year (2007 \$)
Ashford	0.19	323	New Milford	0.16	1,630
Bethany	0.28	510	Newtown	0.19	1,637
Bethlehem	0.27	349	North Branford	0.23	1,216
Bolton	0.27	551	North Canaan	0.22	314
Bozrah	0.26	241	North Stonington	0.18	341
Bridgewater	0.29	215	Norwich	0.17	2,757
Brooklyn	0.22	594	Old Lyme	0.24	742
Canaan	0.22	101	Oxford	0.27	914
Canterbury	0.20	358	Plainfield	0.17	983
Canton	0.23	844	Pomfret	0.20	304
Colchester	0.18	981	Preston	0.20	392
Columbia	0.25	491	Redding	0.25	740
Cornwall	0.19	120	Salem	0.24	342
Coventry	0.19	847	Salisbury	0.15	278
Durham	0.27	652	Sharon	0.17	217
East Haddam	0.16	557	Simsbury	0.21	1,798
East Windsor	0.21	885	Somers	0.27	845
Eastford	0.24	156	South Windsor	0.24	2,207
Ellington	0.19	1,037	Southbury	0.18	1,360
Enfield	0.19	3,258	Sprague	0.28	323
Farmington	0.22	2,129	Sterling	0.25	296
Franklin	0.27	193	Stonington	0.17	1,341
Goshen	0.21	235	Suffield	0.21	1,010
Granby	0.20	775	Thomaston	0.29	884
Griswold	0.18	801	Thompson	0.16	595
Hampton	0.26	188	Torrington	0.15	2,236
Hebron	0.21	672	Union	0.24	72
Kent	0.18	219	Voluntown	0.20	199
Lebanon	0.18	467	Wallingford	0.19	3,217
Ledyard	0.19	1,030	Warren	0.26	133
Lisbon	0.26	422	Washington	0.20	293
Litchfield	0.16	545	Watertown	0.20	1,708
Lyme	0.22	193	Willington	0.19	471
Mansfield	0.26	1,454	Windham	0.20	1,740
Middletown	0.16	3,163	Woodbridge	0.30	964
Monroe	0.25	1,649	Woodbury	0.19	722
Morris	0.26	251	Woodstock	0.17	488
New Hartford	0.21	499	Simple Average	0.22	849

Step 3: WTP at the State Level. This involved first estimating land in dairy at the county level by allocating total state dairy land to counties based on the number of dairy farms in each county based on a list of addresses of dairy farmers. WTP at the county level was obtained by multiplying the number of acres in dairy by the average county-level WTP per acre, that we compute by aggregating the estimates for each of the 75 towns and weighting them by population. The open space benefits from dairy lands add up to \$55 million for the state in 2007. The estimated state benefit from open space amounts to \$762.38 per acre in dairy (about \$0.15 per pound of milk).

County	Dairy Farms	Dairy Farm Acreage 2007 (est.)	Avg. WTP/acre/year/household	Avg. WTP/acre/Year	Amenity Benefit/year
Fairfield	3	1,099	\$0.228	\$1,342	\$1,475,260
Hartford	14	5,129	\$0.214	\$1,613	\$8,273,925
Litchfield	49	17,951	\$0.209	\$ 576	\$10,345,200
Middlesex	4	1,465	\$0.197	\$1,458	\$2,135,759
New Haven	12	4,396	\$0.243	\$1,363	\$5,993,490
New London	49	17,950	\$0.213	\$6,723	\$12,075,030
Tolland	24	8,792	\$0.226	\$ 716	\$6,291,050
Windham	42	15,386	\$0.205	\$ 544	\$8,429,811
Total:	197	72,168			\$55,019,529