The Connecticut Agricultural Experiment Station, New Haven

The Distribution of People and Crops Across the Land of Connecticut

BY PAUL E. WAGGONER

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Summary

An appetite for fresh fruit and vegetables from nearby fields and a desire for a landscape mosaic including farms call forth the questions: "Are the crops distributed over the land of Connecticut in the same fashion as the people, and if they are not, is there prime farmland available to grow crops near all the people?" In 1986, the Federal program to buy dairy herds evokes the additional questions: "Will a decrease in dairying be followed by a great decrease in the use of cropland, and is much farmland permanently preserved?" Analysis of the census, land and crops of our eight counties provides the following answers.

- About 45% of the prime farmland and additional farmland of state-wide importance are in Hartford and Litchfield counties.

- Although the cropland equals the prime farmland in Windham county, prime exceeds cropland by 150 thousand acres in Connecticut, by 48 thousand in Hartford county, and by more than 20 thousand in Litchfield and New Haven counties.

- State-wide, 88% of the harvested acres are field corn and hay, largely for feeding dairy cows. Even a small relative change in dairying and its large use of crops would, of course, cause a large relative change in cropland available for other, smaller uses.

- Only 1 to 6 acres of farmland of all kinds are preserved for each 100 acres of harvested cropland in all counties but Tolland, where 9 are preserved, and Middlesex, where 13 are preserved.

- Three-fourths of the people, 8 of 10 dollars of the personal income and, accordingly, most of the demand for food are in Fairfield, New Haven and Hartford counties.

- The nearby demand indicated by population or personal income per acre of four horticultural crops far exceeds the state-wide average in Fairfield county, where, for example, there are 4 to 5 thousand people for each acre of vegetables or sweet corn. In addition, the population per acre exceeds twice the state average for vegetables in Litchfield, Middlesex and Windham counties and exceeds twice the state-wide average for berries in New Haven county.

The Distribution of People and Crops Across the Land of Connecticut

BY PAUL E. WAGGONER

Although Connecticut is a small state, the people of Greenwich are still far from an East Windsor strawberry field or a Stonington vineyard. The trip from Greenwich to East Windsor or to Stonington is an especial obstacle to those who wish to pick their own food. Thus the distribution of crops amongst our eight counties does affect demand and supply.

Thinking of fresh food nearby and the expansion of farming, both The Commission on Connecticut's Future and The Governor's Council on Agricultural Development asked where our prime and preserved farmland are, where our crops are grown and how far they are from the consumers. I answer with the following tables.

Data and Definitions

The acreages of land in farms, of cropland and of harvested cropland in the counties were reported in the 1982 Census of Agriculture. "Land in farms" is agricultural land used for crops, pasture or grazing and also includes woodland and wasteland that is part of the farmer's total operation. "Harvested cropland" includes land from which crops were harvested or hay was cut, and land in orchards, vineyards, nurseries and greenhouses. "Cropland" includes harvested cropland plus land used only for pasture that could have been used for crops without additional improvement, land in rotation pasture or government diversion programs, land used for soil improvement crops, land on which all crops failed, and idle cropland. The Census reports the acreage of a specific crop, say, potatoes, if it is considerable within a county.

The acreages of "Forest" land in the counties in 1984 were reported in "Connecticut Forest Product Processors" published by the Bureau of Forestry, Hartford CT, July 1985.

The acreages of prime and important farmland surveyed in 1978-82 were provided by Philip Morneault of the Soil Conservation Service (SCS). The SCS defines the two sorts of land as follows: "Prime" farmland includes those soils best suited to producing food, feed, fiber and forage crops, and the land is available for those uses. Prime farmland may be idle or used for crops, pasture, hay, or forest. It is not in urban use or under water. Additional farmland of state-wide importance, i.e. "Important", includes those soils, in addition to prime farmland soils, which are of state-wide importance for the production of food, feed, fiber, and forage crops. The soils are wetter, have steeper slopes, or are more droughty than prime farmland soils. Additional farmland of state-wide importance can produce high yields of crops economically when properly treated and managed. If conditions are favorable, some of this land may produce yields as high as prime farmland.

The acreages of farmland preserved on 20 March 1986 by the purchase of development rights by the State according to General Statute 22-26 were provided by Mary Goodhouse of the Connecticut Department of Agriculture. "PDR" is this land preserved for farming by the purchase of development rights.

Populations and income were found in the 1980 U.S. Census. From the number of households and mean income per household or purchasing power tabulated in the 1980 U.S. Census, the income per county was calculated by multiplication, and the income for the state was calculated by summing.

Hereafter, I refer to the counties by their

names and do not add "county". In the tables I abbreviate their names: Ffld for Fairfield, Htfd for Hartford, Ltfd for Litchfield, Mddx for Middlesex, NHvn for New Haven, NLon for New London, Tlld for Tolland, and Wndm for Windham.

The Land and Its Use

Within the 3125 thousand or about 3 million acres of Connecticut, 444 thousand is "Land in farms", Table 1. Only part of the land in farms is in crops: 225 thousand acres called "All crop" in the table, were cropland, and 171 thousand were harvested cropland or "Hvst". Pastures occupied 95 thousand acres. Fully 1783 of Connecticut's 3125 thousand acres are forest. Thus only a small fraction of Connecticut land is in farms, and a still smaller fraction grows crops that are harvested.

Among the eight counties, the distribution of the land, its use, its quality and its preservation are shown by the percentages in Table 1. Although Hartford and Litchfield encompass only about a third of the total area of the state, together they contain nearly half the prime and important farmland. Fairfield has 13% of the total land and 6% of the prime farmland but only 3% of the harvested cropland. Although nearly three-quarters of the preserved farmland, PDR, is in only three counties—Litchfield, Tolland and New London—some is preserved in every county.

For Connecticut and each county, the distribution of land and its use, quality and preservation are shown in Table 2. Within the 3 million acres of the state 57% is forest, only 14% is in farms, and only a

Table 1. The use and character of Connecticut land in thousands of acres and the distribution of each use and character among the counties in percentages of the Connecticut total.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
	Thsd A	<---------- Percent ---------->							
All	3125	13	15	19	8	12	14	8	11
Land in farms	444	4	15	23	5	7	19	10	17
Hvst	171	3	19	23	4	8	15	11	17
All crop	225	4	18	23	5	8	16	11	16
Pasture	95	6	12	28	5	6	20	10	13
Forest	1783	8	11	22	8	10	16	10	13
Prime	375	6	24	22	7	11	11	9	10
Important	189	8	24	21	7	12	14	5	11
PDR	7	2	6	25	14	6	21	24	2

Table 2. The percentage of the total area of each county of each land use, and quality and the percentage of the land preserved.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
Land in farms	14	4	14	18	10	8	19	17	22
Hvst	5	1	7	7	3	4	6	7	9
All crop	7	2	9	9	4	5	8	9	11
Pasture	3	1	2	4	2	2	5	4	4
Forest	57	38	42	67	63	46	66	68	72
Prime	12	6	19	14	11	11	10	13	11
Important	6	4	9	7	5	6	6	3	6
PDR	0.23	0.03	0.08	0.29	0.42	0.11	0.34	0.65	0.05

precious 12% is prime farmland. The reader must remember that some forests are on farms and some on prime farmland; also, some prime farmland is not on farms. Litchfield, New London, and especially Windham have large portions of their land encompassed in farms, but it is Hartford that has the largest portion of its land that is prime farmland. Although less than 1% of any county is preserved for agriculture, the portion is nearly 2/3% in Tolland and exceeds 1/3% in Middlesex and New London.

Although Connecticut farmers in this urban state might be expected to have sought out and cultivated every acre of prime farmland, the ratio "Crop/Prime" in Table 3 shows that cropland is only 60% as great as the prime farmland. In terms of acres, prime farmland exceeds cropland by a residual of 150 thousand acres, as seen in the difference "Pm-Im" at the bottom of Table 3. The ratio "Crop/(Pm+Im)" shows cropland is only 40% of prime plus important farmland. The ratio "Hvst/All crop" shows that 76% of the cropland is harvested, which is similar to the national percentage. Because the ratio "PDR/Hvst" is only 4% and some preserved farmland does not grow crops to harvest, less than 4% of our present harvested cropland is preserved.

The ratio of cropland to prime in Table 3 indicates most counties have land to expand farming. Windham is the only county where cropland equals the acreage of prime farmland, indicating that farmers in that county are cultivating a large portion of the soils best suited to producing crops. On the other hand, the ratio of cropland to prime is particularly small in Fairfield, indicating a large portion of the prime in that county is idle or in forest. In absolute terms of acres, the largest excess of prime over cropland, by far, is in Hartford. The acreage of preserved farmland is far less than 10% of the harvested cropland in all counties except Middlesex and Tolland.

The Crops

The acreage of several crops within the state and counties is shown in Table 4, and then the portion of the harvested cropland within the state and within each county that grows each crop is shown

Table 3. The relations among crop (Crop), harvested crop (Hvst), prime (Pm), important (Im) and preserved (PDR) acreages within the counties.

Ratios as %:	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
Crop/Prime	60	39	46	62	40	43	81	72	99
Crop/(Pm+Im)	40	24	31	42	27	28	51	57	64
Hvst/All crop	76	63	78	75	72	77	74	80	79
PDR/Hvst	4	2	1	4	13	3	6	9	1
Residual thsd A:		**Ffld**	**Htfd**	**Ltfd**	**Mddx**	**NHvn**	**NLon**	**Tlld**	**Wndm**
Pm-Crop	150	14	48	31	16	24	8	9	0
Pm+Im-Crop	339	28	93	70	28	48	34	18	20

Table 4. The acreage of Connecticut crops by counties.

Crops, A:	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
Vegetables	4287	186	2387	104	65	1168	226	93	57
Swt Corn	3957	156	2181	459	103	611	271	81	97
Orchards	5361	473	1489	444	443	1055	629	170	659
Berries	696	40	370	36	19	72	66	56	37
Potatoes	1785	2	824	9	0	6	10	927	0
Corn silage	53959	779	5376	9724	1345	3375	10144	9208	14006
Corn grain	6017	13	1245	1812	63	174	291	1677	742
Hay	90659	3768	11527	27229	5168	7609	14740	7010	13608
Nursery	6263	189	4546	104	0	209	337	90	0
Tobacco	2198		2198						

in Table 5. In Table 5, one quickly sees that the lion's share of the harvested cropland grows hay and field corn. Clearly, a relatively small change of, say 10%, in the growing of these feed crops for dairying would increase by fully two-thirds the cropland available for other crops. Substantial acreages of vegetables, sweet corn and nursery crops grow in Hartford and vegetable and sweet corn in New Haven. In Fairfield and New Haven, orchards approach a tenth of the harvested acres. The valuable and famous tobacco of Hartford county occupies only 7% of its harvested acres.

The People and Their Personal Incomes

Since my purpose is relating demand for food to its production, I begin by showing the consumers and their personal incomes in Table 6.

Of the 3 million people living in Connecticut, 816 thousand or 26%, for example, live in Fairfield. The 3 million comprise about 1 million households with personal incomes per household averaging 18 to 30 thousand dollars in the counties and totalling 26 billion dollars for the state. Eight in 10 dollars of personal income is in only three counties: Fairfield, Hartford and New Haven.

The relation of demand to supply is suggested by the population per acre in Table 7. The 1 in the first line and column of data expresses the familiar fact that we are about 3 million people on 3 million acres or 1 person per acre. On the other hand, there are 18 people for each acre of harvested cropland and fully 4508 people for each acre of berries.

The people and acres are not, of course, evenly

Table 5. Percentage of harvested acres in various crops within Connecticut and within the counties.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
Veg + Swt corn	5	6	14	1	2	13	2	1	1
Orchards	3	9	5	1	6	8	2	1	2
Potatoes	1	0	3	0	0	0	0	5	
Field corn	35	14	21	30	19	25	40	57	52
Hay	53	68	36	70	68	55	57	37	48
Nursery	4	3	14	0	0	1	1	0	0
Tobacco	1	0	7	0	0	0	0	0	0

Table 6. The people of the Connecticut counties and their personal income.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
People	3137340	815740	811720	159600	130030	766650	242210	117660	93730
People, %	100	26	26	5	4	24	8	4	3
Hshlds	1093678	280597	289658	55667	45922	271542	81814	36269	32209
$/Hshld		29699	23034	22750	22314	21073	20592	23078	18191
Income Mln$	26127	8333	6672	1266	1025	5722	1685	837	586
Income, %	100	32	26	5	4	22	6	3	3

Table 7. The people per acre.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
All land	1.0	2.0	1.7	0.3	0.5	2.0	0.6	0.4	0.3
Hvst	18	148	25	4	17	55	9	6	3
PDR	446	6827	2045	92	129	1838	164	68	546
Vegetables	732	4386	340	1535	2000	656	1072	1265	1644
Swt Corn	793	5229	372	348	1262	1255	894	1453	966
Orchards	585	1725	545	359	294	727	385	692	142
Berries	4508	20394	2194	4433	6844	10648	3670	2101	2533

Table 8. Personal income in thousand dollars per acre.

	Ct	Ffld	Htfd	Ltfd	Mddx	NHvn	NLon	Tlld	Wndm
All land	8	21	14	2	4	15	4	3	2
Hvst	153	1513	208	33	136	410	65	44	21
PDR	3714	69748	16809	734	1013	13716	1143	487	3414
Vegetables	6094	44803	2795	12177	15765	4899	7454	9001	10279
Swt corn	6603	53420	3059	2759	9949	9365	6217	10335	6040
Orchards	4874	17618	4481	2852	2313	5424	2678	4924	889
Berries	37539	208336	18032	35178	53932	79475	25526	14949	15836

distributed among the counties. Although Hartford is second in population, the people per acre of the four crops of Table 7 are fewer than the state-wide average. This paradox is caused by the large area of prime farmland and cropland in the Connecticut Valley. That is, Hartford has nearly a quarter of the Connecticut population but about half several horticultural crops, and thus, has fewer people per acre of several crops than most counties. New Haven and, especially, Fairfield stand out in their high population per acre of harvested crop.

Because income per household varies nearly two-thirds from the lowest to the highest among the counties, the pattern of dollars per acre in Table 8 is somewhat different from the pattern of people per acre. The nearby demand shown by dollars of personal income rather than population increases the preeminence of Fairfield, raises Tolland somewhat in the order of the counties and lowers New Haven and New London. Still, the indications of demand and supply are generally the same: The ratios of people or dollars per acre suggest lively demand for nearby crops in several cases.

The ratio of people to harvested cropland in Fairfield is fully 8 times as great as the state-wide average. The personal income per acre in Fairfield exceeds 7 times the state-wide average for vegetables, 8 times for sweet corn, 3 times for orchards, and 5 times for berries. Although many vegetables are grown in New Haven, the income per acre of sweet corn, orchards and berries exceeds the state-wide average. Continuing to use the state-wide average as a standard, one sees high income per acre for vegetables, sweet corn and berries in Middlesex; for vegetables in New London; for vegetables and sweet corn in Tolland; and even in agricultural Windham and Litchfield, many people and dollars per acre of vegetables.

Before a conclusion in the form of answers to the questions posed in the first paragraph of this Bulletin, a few words must be written about subjects that do not bear directly upon the questions but are relevant to the expansion of farming. To a farmer the most important of these related subjects is earning a living, which depends upon costs as well as upon the demand of nearby population and the supply of nearby crops. Other subjects are the difficulty of farming small tracts and getting farm supplies, equipment, and labor in an urban region. Still another subject is the portion of the population that wants fresh food from nearby fields. Although these subjects affect the expansion of farming, the questions posed at the beginning can be answered by the Tables of this Bulletin.

Conclusions

In Connecticut, crops are not distributed over the land in the same fashion as the people, and prime farmland is available to grow fresh food near more people. Because 88% of the cropland is now used to grow feed for cows, a decrease in dairying seems certain to be followed by a great decrease in the use of cropland unless other crops are introduced or expanded. In the meantime, only a few acres of farmland of all kinds are preserved for each acre of cropland now harvested.

The Connecticut Agricultural Experiment Station, founded in 1875, is the first experiment station in America. It is chartered by the General Assembly to make scientific inquiries and experiments regarding plants and their pests, insects, soil and water, and to perform analyses for State agencies. The laboratories of the Station are in New Haven and Windsor; its Lockwood Farm is in Hamden. Single copies of bulletins are available free upon request to Publications; Box 1106; New Haven, Connecticut 06504.

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