DERIVING FARMER INDICES TO DEER POPULATION LEVELS IN SOUTHEASTERN NEW YORK

BY

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FINAL REPORT

STATE: New York

PROJECT NUMBER: W-146-R-7

PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: I - Deriving Social Indices of Farmer Attitudes Toward Deer Management Levels

JOB NUMBER AND TITLE: I-6 - Deriving Farmer Indices to Deer Population Levels in Southeastern New York

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EXECUTIVE SUMMARY:

SOUTHEASTERN NEW YORK FARMER SURVEY OF DEER POPULATION AND DAMAGE

As one aspect of the New York State Department of Environmental Conservation's (DEC) effort to monitor and update data for their deer management program in the middle Hudson River Valley area of southeastern New York, farmers of 47 towns within the six counties of Albany, Columbia, Dutchess, Greene, Orange, and Ulster were surveyed to determine their attitudes toward deer and crop damage caused by deer. A 77 percent useable response (or 1312 codeable questionnaires) was experienced in the survey.

Hay, woodlands (not plantations), and corn occurred most frequently and occupied more total acreage than other crops on the farms surveyed. Corn, apples, and hay occupied the most acreage per farm growing each particular crop. Apples were the most prevalent fruit grown in the study area; 18 percent of the landowners grew apples to some extent and 13 percent used their land primarily to produce tree fruits.

Most farming households surveyed had sources of income other than farm crops or forest products; but 34 percent of the respondents reported that over 75 percent of their household income came from those activities.

Three out of five landowners did not hunt deer. Although three out of five landowners posted their land during deer hunting season, only 16 percent would not allow anyone to hunt on their property. One-quarter of the landowners who posted (14% of all landowners) did so with "Hunting by Permission Only" signs. A majority (58%)of landowners had experienced problems from hunters who damaged or littered their property; three-fourths of these people who experienced problems with hunters considered such problems "minor".

About one-quarter of the farmers reported crop damage by deer. Corn and tree fruit growers reported the highest incidences of damage (37% of each group). Corn growers experienced a mean of $1123 damage per grower with damage, while tree fruit growers experienced over three times this level--$3951 per grower with damage. Nearly as many respondents growing green vegetables (34%) reported deer damage; those with damage averaged $693 of damage. About one-quarter of the wheat growers (24%) experienced deer damage, averaging $593 per grower with damage. Only one out of nine respondents with forest plantations (11%)

experienced deer damage, but these people had the greatest estimated loss per grower with damage--$9693. Similar proportions of grape and small fruit growers reported deer damage (10 and 9%, respectively); the average losses per grower with such damage were $2055 and $1200, respectively. Even a substantial percentage of people growing hay (18%) reported damage, averaging $1063 per grower with damage.

Farmers whose primary land use was tree fruits reported an average of $2300 damage per grower (includes all growers and all damages for those growers), about four times that of the average dairyman, livestock producer, vegetable cash crop grower, or grain cash crop grower. Interestingly, when viewed from the standpoint of percentage of total crop value lost to deer, more tree fruit growers than any other type of farmer were in the lowest category of $\leq$ 10 percent. While total dollars of damage is relatively high for tree fruit vs. other types of farmers, the percentage of total crop value lost is relatively low.

Respondents were asked to describe and give their attitudes about deer damage. Almost half (49.7%) believed "none" was the best description, 27 percent described deer damage as "light", 12 percent described it as "moderate," while 8 and 4 percent described their deer damage as "substantial" and "severe", respectively. Two out of five farmers were not aware of damage, but others believed their damage to be "negligible" (27%), "tolerable" (18%), or "unreasonable" (14%). More specifically, farmers described damage of less than $500 as "light" and felt it was "negligible" to "tolerable". Damage of $500-$999 was most frequently described as "light" or "moderate," but considered to be "tolerable," although about 33 percent felt damage of that magnitude was "unreasonable." When damage estimates were $1000 or more, farmers tended to describe damage as "moderate," "substantial," or "severe" and the majority of farmers considered this amount of damage "unreasonable."

Farmers' descriptions of and attitudes about deer damage also were evaluated from the standpoint of estimated percentage of total crop value lost to deer. As farmers' descriptions of deer damage increased in severity, greater proportions of farmers reported losing in excess of 10 percent of their crop value to deer. Only about one out of 20 farmers who described their damage as "light" experienced greater than 10 percent crop loss, whereas 11 out of 20 with "severe" damage lost in excess of 10 percent of their total crop value. Few farmers who felt their damage was "negligible" or "tolerable" lost more than 10 percent of their total

crop value to deer (4 and 9% of farmers, respectively). However, nearly 40 percent of the farmers who felt their deer damage was "unreasonable" lost more than 10 percent of their total crop value to deer.

Overall, deer damage control measures such as shooting deer under a DEC-issued nuisance permit, chemical repellents, fences, and scare devices were used infrequently. However, notable proportions of people who were primarily tree fruit (57%) or small fruit (40%) growers used deer control measures other than shooting. By a wide margin, deer were cited most often by respondents as the wildlife species causing them the most crop damage.

Similar proportions of farmers believed that the number of deer in their area had increased (38%) or remained the same (37%) over the previous five years. Only 17 percent believed deer numbers had decreased. Two-thirds of the respondents believed deer had an aesthetic value and like having them around their farm, while about one-quarter believed they could enjoy a few deer but worry about crop damage. In fact, half of the farmers with damage reported that they worried about crop damage and 10 percent of those farmers with damage simply considered deer a nuisance they could do without. Sixty percent of tree fruit growers, more than any other type, either worried about crop damage or considered deer a nuisance.

Most farmers surveyed in the study area wanted the deer population in their town to remain the same (52%); 28 percent preferred to have populations decrease and 20 percent preferred an increase. A majority of farmers in 23 towns wanted the deer population to remain the same. In 28 towns, more farmers wanted a decrease than an increase; in two of these a majority wanted a decrease. Only one town had a majority of farmers who preferred an increase in deer.

Tree fruit producers were the only type of farmer where a majority of the group wanted the deer population to decrease. Overall, a majority of the farmers of all types who reported experiencing deer damage wanted the deer population to decrease.

Respondents were categorized as being full-time farmers (those with 76 to 100% of their household income from farming) and part-time farmers (those with 75% or less of their household income from farming) to examine the attitudes of each group about the future deer population trends desired. Part-time farmers generally wanted the deer population to remain the same. In 27 towns the majority of part-time farmers wanted the deer population to remain the same, in one town a majority wanted a decrease, in 17 others more farmers wanted a decrease than an increase (though they were not a majority), and in three towns

a majority wanted an increase.

A majority of full-time farmers in 24 towns wanted the deer population to remain the same. In only one town did a majority of full-time farmers want an increase in deer, but in 14 towns a majority wanted a decrease.

Farmers' attitudes about future deer population levels were compared to 1978-80 three-year-average buck take per square mile of habitat (BT/SM), in intervals of 1.00 BT/SM, on a town-by-town basis. Towns in this study area have generally prescribed range carrying capacity indices of 1.51 to 3.00 BT/SM. Part-time farmers preferred deer population levels up to 3.00 BT/SM. Full-time farmers generally accept deer populations under 3.00 BT/SM, but with 20 to 40 percent wanting a decrease. At levels >3.00 BT/SM, as many or more full-time farmers wanted a decrease in deer vs. want the population to remain the same.

This study area differed from those previously studied in central and western New York in that nearly one-fifth of the farmers were fruit growers and average acreages of fruit were much greater than in the other areas. This situation, in view of the potential impact of deer on fruit production, warrants a separate analysis of fruit (tree fruit and small fruit) growers' and other agriculturalists' (i.e., livestock [poultry, dairy, and other livestock] growers--because they were the only other group with a large enough representation for meaningful analysis) preferences for future deer population trends. This dichotomy of full-time farmers sheds considerable light on the differences in preferences of these two groups and clearly illustrates the difficulties, from a sociological perspective, in managing the deer resource in an area of heterogenous agricultural characteristics.

Full-time fruit growers (tree fruit, small fruit, and grape producers) showed little tolerance for deer; only at levels $\leq$ 1.00 BT/SM did the proportion of these people who wanted the deer population to remain the same exceed that wanting a decrease. At BT/SM levels greater than 1.00, the proportion of fruit growers preferring a decrease in deer ranged from 75 to 100 percent! Consequently, only the very lowest BT/SM interval could be considered acceptable to these agriculturalists.

Full-time livestock growers (including dairy, poultry, and other livestock producers, encompassing over 90% of the nonfruit producing full-time farmers) exhibited greater acceptance of deer in their preferences for future population trends. Although the proportion of these people wanting a decrease exceeded

that wanting an increase at BT/SM levels of >1.00, the proportion wanting a decrease did not top 20 percent until BT/SM levels were over 3.00 BT/SM. The proportion wanting the deer population to remain the same was a majority at levels of 4.00 BT/SM or less. While an optimum for these people is difficult to pinpoint, BT/SM levels below 3.00 seem to be generally acceptable.

The preceding analyses indicate that part-time farmers have a high tolerance of deer at the lowest population level and moderate tolerance at most other levels, as indicated by the future deer trends they prefer for their towns. Full-time farmers are less tolerant of deer than part-time farmers at all BT/SM levels. Among full-time farmers, those growing fruits are very different in their preferences for future deer trends compared to those with dairies and producing livestock. Fruit growers' lower tolerance is understandable in view of their much greater level of economic loss reported.

These findings imply that the management of deer in the study area will hinge on managers' decisions regarding treatment of fruit growers' concerns in the area. If deer damage to commercial fruit production could be mitigated via damage control assistance (e.g., fencing or repellents) or remuneration for actual damage incurred, a deer population commensurate with the preferences of other farming interests might be satisfactorily maintained. Without such compensatory action, the large fruit growing component of the agricultural activity in the study area suggests that deer populations need to be reduced in many towns. Not all towns in the study area have significant fruit acreage, so specific DMU quotas could be set to reflect the unique agricultural characteristics (i.e., fruit vs. other crops) of towns within a DMU.

Review of the crop damage estimates substantiates the belief that fruit producers in this area need special consideration by deer managers. Given the extent of fruit production in the area and the importance of full-time farmers' opinions, it would appear that deer managers are faced with the choice of maintaining deer populations well below the biological range carrying capacity in many towns or instituting a program to alleviate deer depredation problems before or after they occur.

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PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: I - Deriving Social Indices of Farmer Attitudes Toward Deer Management Levels

STUDY OBJECTIVE: To derive an index for managing deer population levels that considers both range carrying capacity and farmer attitudes.

JOB NUMBER AND TITLE: I-6- Deriving Farmer Indices to Deer Population Levels in Southeastern New York

JOB OBJECTIVE: To derive an index for managing deer population levels in Southeastern New York that considers both range carrying capacity and farmer attitudes.

JOB DURATION: 1 April 1980 - 31 July 1981

ABSTRACT

A mail questionnaire survey was conducted among a sample of farmers from 47 towns within the middle Hudson River Valley area of southeastern New York. These towns included portions of Albany, Columbia, Dutchess, Greene, Orange, and Ulster Counties. A useable return rate of 77 percent (or 1312 codeable questionnaires) was experienced. This study area was unique in having a significant component of fruit crops; 13 percent of the farmers used their land primarily to produce tree fruit. Crop damage was widespread and heavy, especially among fruit producers. While overall the farmers surveyed had positive attitudes about deer, those with damage, especially tree fruit producers, generally worried about deer depredations or simply considered deer to be a nuisance. Farmers' preferences for future deer population trends reflected this concern. When preferences were analyzed on a town-by-town basis according to the three-year-average buck take per square mile of habitat (BT/SM) in the town, part-time farmers were found to accept deer population levels up to 3.00 BT/SM. Most full-time farmers generally accept populations under 3.00 BT/SM, but not overwhelmingly (20 to 40 percent of these people wanted deer to decrease). At levels >3.00 BT/SM, as many or more full-time farmers wanted a decrease in deer vs. wanted the population to remain the same. Full-time fruit growers (tree fruit, small fruit, and grape producers) showed little tolerance for deer; only at the lowest level ($\leq$1.00 BT/SM) did more people want deer numbers to remain the same vs. decrease. At levels greater than 1.00 BT/SM, 75 to 100 percent of fruit growers in towns of each BT/SM interval wanted deer populations to decrease.

BACKGROUND:

The New York State Department of Environmental Conservation (DEC) is updating its deer population range carrying capacity indices (RCCI) on a town-by-town basis throughout much of the state. When establishing an RCCI for an area, both biological and human sociological factors are considered. The attitudes of rural landowners, especially farmers, are the key sociological factor in determining the RCCI in areas where agriculture (including woodlot and plantation management) is a predominant land use. Integrating farmers' and rural landowners' interests into a deer management program requires detailed information on their attitudes about deer, perceptions of amounts of deer damage, and related attitudes about that damage. While all farmers' and other rural landowners' attitudes are important, emphasis is placed on those who derive over 75 percent of their household income from farming and forest-related products. These "full-time" farmers become a key public because severe crop or tree depredation by deer would be relatively more critical to their livelihoods.

Three recent studies in the Lake Plains,[1] Western Central Plain,[2] and Eastern Central Plain[3] regions of New York examined the relationship between farmers' attitudes and deer population indices in towns within each region.[4] In the Lake Plains towns, the RCCI was 1.01 to 1.50 BT/SM (legal bucks taken per square mile of deer habitat), although many towns were actually under that level, and full-time farmers of that region generally desired higher deer population levels. In the Western Central Plain towns, the prescribed RCCI was 1.51 to 2.00 BT/SM, with three-fourths of the towns within or above this level, which was determined to be satisfactory to most full-time farmers. In the Eastern Central

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1 Brown, T. L., C. P. Dawson, and D. J. Decker. 1977. Deriving social indices of farmer attitudes toward deer management levels (Lake Plains). N.Y. Federal Aid in Wildlife Restoration Project W-146-R-2, Study I.

2 Brown, T. L., D. J. Decker, and D. L. Hustin. 1978. Deriving social indices of farmer attitudes toward deer management levels (Western Central Plain). N.Y. Federal Aid in Wildlife Restoration Project W-146-R-4, Study I.

3 Brown, T. L., D. J. Decker, and D. L. Hustin. 1979. Deriving social indices of farmer attitudes toward deer management levels (Eastern Central Plain). N.Y. Federal Aid in Wildlife Restoration Project W-146-R-5, Study I.

4 These studies have been summarized in:
Brown, T. L., D. J. Decker, and D. L. Hustin. 1980. Farmers' tolerance of white-tailed deer in central and western New York. Search: Agriculture No. 7, N.Y.S. Coll. of Ag. and Life Sci., Cornell Univ., Ithaca, N.Y. 16 p.

Plain towns, the prescribed RCCI was 1.51 to 2.00 BT/SM also, with 60 percent of the towns within or above this level, which was determined to be satisfactory to most full-time farmers. The higher RCCI for the Western and Eastern Central Plain regions as compared to the Lake Plains is partially a reflection of the markedly lower intensity of fruit and cash crop production found there. Dairy farms are more common in these Central Plain regions and more land is wooded. In the present study area, the Hudson River Valley portion of southeastern New York (Fig. 1), the RCCI varies between 1.51 to 2.00 BT/SM and 2.01 to 3.00 BT/SM. This region is predominantly in dairy farms, but a substantial proportion of the land is devoted to fruit and cash crop production.

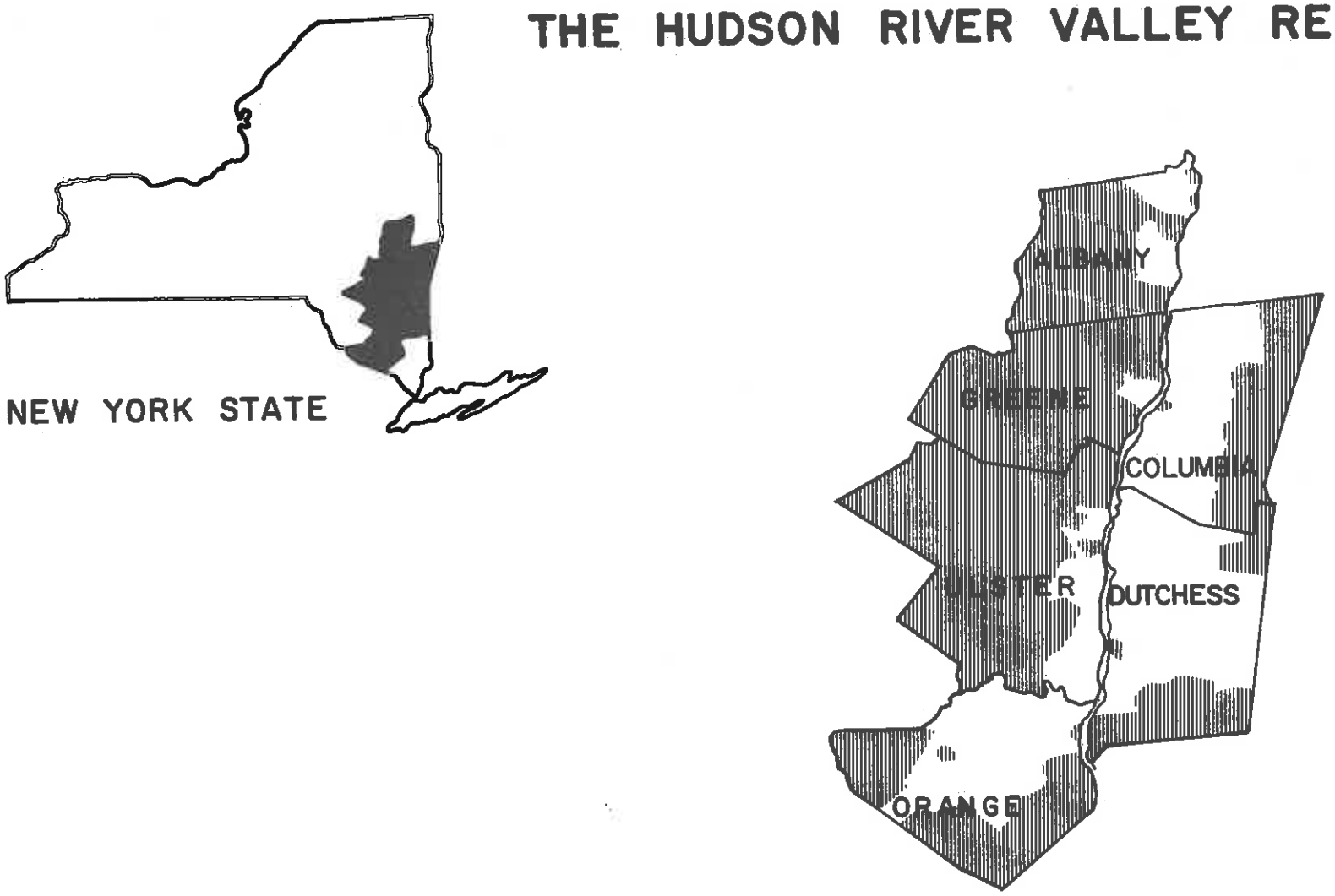

Figure 1. The Hudson River Valley Region, New York State

PROCEDURES:

The questionnaire used in this study (Appendix A) was a slight modification of that used in the three previous studies. Key questions remained the same to facilitate comparison of the four studies. Seven notable changes from earlier questionnaires were:

(1) changing "orchards" in question 1 to "tree fruits";
(2) adding a "small fruits" category to question 1;
(3) removing a question concerning "natural woods", which respondents occasionally included as "plantations" or "managed woodlands";
(4) removing a question concerning woods bordering the respondent's property;
(5) adding a question which solicits the primary use of the respondent's property;
(6) replacing "season of damage" in the amount of damage question with "percent of crop value lost" and "percent of total value lost"; and
(7) adding a question concerning posting with "Hunting by Permission Only" notices.

A systematic sample of farmers, excluding those holding less than 10 acres, was drawn from Agricultural Stabilization and Conservation Service (ASCS) mailing lists of 47 towns within the six counties (Albany, Columbia, Dutchess, Greene, Orange, and Ulster) of the Hudson River Valley.[5] Some landowners included in these lists were incorrectly sorted. Two who responded were in counties outside the study area; 57 were in towns outside the study area. If possible, 80 names were drawn for each individual town. In situations where this quota could not be met, a census was taken of all eligible names and addresses on the list (Appendix B). The total initial sample size was 1757.

The mailing chronology for the survey was as follows:

- 5 January 1981 - cover letter and questionnaire
- 16 January 1981 - reminder letter to nonrespondents
- 29 January 1981 - cover letter and questionnaire to nonrespondents
- 9 February 1981 - reminder letter to nonrespondents

Copies of the letters can be found in Appendix C.

The returned questionnaires were coded as they were received. A slightly modified version of the codebook from the 1979 study was used. The data were keypunched and stored on a magnetic computer tape.

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[5] The term "farmers," when used generally, includes both full- and part-time growers, as well as those managing woodlots/forest plantations. There were 48 towns within the study region as originally proposed, but one town (Kingston, Ulster County) had no eligible farmers (acreage criterion) within the sample frame (see Appendix B).

Using the Statistical Package for the Social Sciences (SPSS), the data were analyzed regionally (in aggregate) and by town to determine farmers' attitudes toward deer and deer population levels, amount and location of deer damage to crops, and the amount of this damage farmers considered acceptable in exchange for having an adequate deer population for recreational hunting and aesthetic enjoyment. Statistical procedures used in this analysis include chi-square (differences noted in tables by S for those that are statistically significant and N for those that are not) and step-wise multiple regression. Not all data were subjected to statistical scrutiny, but those that were are appropriately noted in the text.

Average BT/SM data from the three hunting seasons of 1978-80 were compared to farmer preferences for deer population changes, on a town-by-town basis. An optimum RCCI, in terms of BT/SM, was then determined by analyzing these data by simultaneously applying the following criteria:

(1) the proportion of farmers who wanted the deer population to remain the same should be as high as possible (preferably a majority), within limits imposed by criteria (2) and (3);

(2) the proportion of farmers who wanted the deer population to increase should be lower than that wanting it to remain the same, but higher than that wanting it to decrease; and

(3) the proportion of farmers who wanted the deer population to decrease should be as low as possible, within (1) and (2) above.

FINDINGS AND ANALYSIS:

Hudson River Valley Regional Analysis

Survey Response

An initial sample size of 1757 resulted in 57 nondeliverable (i.e., sold property, moved, or deceased) and 1312 codeable questionnaires, producing a 77.2 percent useable return from the adjusted sample of 1700. This response rate was similar to those experienced in three previous deer population and damage studies (Lake Plains, 80.5%; Western Central Plain, 79.0%; Eastern Central Plain, 78.2%).

Characteristics of Farms Surveyed

Hay, woodlands, and corn occurred most frequently and occupied more total acreage on the farms surveyed than other crops. Corn, apples, and hay occupied the most acreage per farm growing particular crops (73, 73, and 72 acres, respectively). Apples were the most prevalent fruit grown in the study area; 18 percent of the landowners grew apples (Table 1).

Table 1. CROPS OF THE HUDSON RIVER VALLEY REGION

Crop	Percent of Farms with this Crop	Average Number of Acres for Farms with This Crop	Average Number of Acres per Farmer Surveyed
Apple	17.7	72.7	12.8
Cherry	2.1	5.7	0.1
Peach	3.8	7.1	0.3
Other Tree Fruits	4.8	12.2	0.6
Small Fruits	3.2	10.9	0.3
TOTAL FRUIT	19.1	74.2[a]	14.2[a]
Grapes	4.7	10.2	0.5
Green Vegetables	12.3	14.2	1.7
Corn	49.7	73.2	36.3
Wheat	3.6	35.2	1.3
Hay	65.2	72.5	47.2
Other Farm Crops	12.6	40.1	5.1
Forest Plantations	13.6	33.2	4.5
Woodlands	59.3	64.1	37.9

[a] A nonnumeric response for any fruit will eliminate that case from this aggregate fruit mean.

The amount and distribution of crops and forest plantations-woodlands reported by landowners indicates that the study area generally has a good mix of food and cover for deer habitat. Forest plantations were present on 14 percent of the farms surveyed, at an average of 33 acres each. Woodlands were more common, existing upon 59 percent of the farms for an average of 64 acres per farm with woods.

Farmers may grow a variety of crops having differing value per acre, making it difficult to judge from crop acreage alone what the primary land use activity is on a farm. Recognizing this we asked farmers to indicate what they considered their primary land use. One-third of the respondents were dairy farmers. People who used their land primarily to produce livestock, tree fruits, and forest products (16, 13, and 10%, respectively) were also common. Few people used their land primarily to produce grain cash crops (8%), vegetable cash crops (4%), or hay (4%).

Many people owning land in the study area reported sources of household income other than farming or timber harvest. For about one-third (34%) of the respondents, farming (including timber harvest) contributed over 75 percent of their household income. About 14 percent derived from 26 to 75 percent of their household income from farming. A slight majority (52%) derived 25 percent or less of their household income from farming.

Deer Hunting and Posting

Over one-half (60%) of the respondents did not hunt deer, 29 percent hunted deer in 1980, and 11 percent indicated that they had hunted deer, but did not do so in 1980. About 62 percent of the landowners posted their land against deer hunting during the 1980 deer hunting season. This posting rate is greater than that (42%) found generally among landowners throughout the state in 1972, but was similar to that reported in DEC Region 3, which was 60 percent in 1972.[6]

Although three out of five farmers had their property posted during deer hunting season, only 16 percent of the farmers in this study indicated they would not allow anyone to hunt. About 10 percent would at least allow family members to hunt and 50 percent would also allow friends or neighbors to hunt deer. Twenty-five percent indicated they would permit access to strangers who requested permission to hunt deer on their land. One-quarter of the landowners who posted (14% of all landowners) did so with "Hunting by Permission Only" signs.

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[6] Brown, T. L. and D. Q. Thompson. 1976. Changes in posting and landowner attitudes in New York State, 1963-1973. N.Y. Fish and Game J. 23(2): 101-137.

A majority (58%) of landowners reported that during the previous two-year period they had experienced some problems with hunters who damaged or littered their property. While 44 percent had minor problems, 14 percent had what they considered to be substantial problems attributed to hunters.

Posting and nonposting farmers were compared for whom they would allow to hunt and problems they had experienced from hunters. Of the farmers who posted their land, 15 percent reported they would not allow anyone to hunt deer on their property; a similar proportion of nonposting farmers totally restricted deer hunting. Posting and nonposting farmers differed significantly in their permissiveness in granting access to strangers to hunt deer; 19 percent of posting vs. 35 percent of nonposting landowners would allow strangers to hunt deer on their property (Table D-1).[7] More posting than nonposting farmers (65 vs. 46 percent) experienced problems from hunters during the 1979 and 1980 deer hunting seasons (Table D-2).

Crop Damage by Deer

Two points should be kept in mind when reviewing the crop damage data presented in this section: (1) the relative amount of deer damage and associated economic evaluation of that damage are farmers' estimates, they were not actually documented in the field by biologists; and (2) crop damage caused by birds, raccoons, rabbits, etc. may have been mistakenly attributed to deer. Although the damage assessment data may not be accurate measurements of actual crop damage caused by deer, it is important to remember that they do reflect farmers' perceptions of and attitudes about deer damage to their crops.

Overall, about 27 percent of the respondents indicated that their crops had suffered deer damage. However, not all of those with damage gave a numeric dollar value estimate on question 6 for each crop having damage. Thus, average or category estimates of dollar damage for a particular crop include only those respondents who gave an actual dollar estimate. For average or category estimates of total damage, only those who gave a numeric estimate for each group with damage are included.

Respondents growing corn and tree fruits had the greatest incidences of deer damage (37% of each group). Corn growers experienced a mean of $1123 of damage per grower with damage, while tree fruit growers experienced over three times this level of damage--$3951 per grower with damage. Nearly as many respondents growing green vegetables (34%) reported deer damage; those with

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[7] Tables preceded by a letter refer to tables in the appendix designated by that letter.

damage averaged $693 of damage. About 24 percent of the wheat growers experienced deer damage, averaging $593 per grower with damage. Only 11 percent of respondents with forest plantations experienced deer damage but these had the greatest estimated loss per grower with deer damage--$9693. Similar proportions of grape and small fruit growers reported deer damage (10 and 9%, respectively); the average losses per grower with damage due to deer were $2055 and $1200, respectively. Even a substantial percentage (18%) of those people growing hay reported damage, averaging $1063 per grower with damage (Table 2).

Table 2. FARMER ESTIMATES OF DEER DAMAGE TO FARM CROPS IN THE HUDSON RIVER VALLEY REGION OF NEW YORK

(Part A)

Crop	Number Growing Crop	Percent of Those with Crop Reporting Damage[a]	Mean Dollars of Damage for Those With Crop[b]	Mean Dollars of Damage for Those Reporting Damage[b]
Tree Fruits	226	37.2	$1,467.02[c]	$3,951.48[c]
Small Fruits	40	9.4	77.42	1,200.00
Grapes	59	10.0	205.50	2,055.00
Green Vegetables	154	33.6	216.83	692.64
Corn	620	37.3	391.31	1,122.57
Wheat	46	24.4	109.21	592.86
Hay	816	17.8	177.36	1,062.51
Forest Plantations	172	11.4	983.30	9,692.50
Woodlands	739	1.9	0.98	122.60
Other Farm Crops	160	7.5	[d]	[d]

(Part B)

Crop	CATEGORIES OF DAMAGE[b], FOR THOSE WITH CROP					
	$0	$1-$99	$100-$499	$500-$999	≥$1,000	N
	Percent					
Tree Fruits	62.8	5.4	7.8	4.2	19.8	167
Small Fruits	93.6	0.0	3.2	0.0	3.2	31
Grapes	90.0	2.0	2.0	0.0	6.0	50
Green Vegetables	68.7	11.3	8.7	3.5	7.8	115
Corn	65.1	2.2	15.9	5.9	10.9	459
Wheat	81.6	0.0	10.5	2.6	5.3	38
Hay	83.3	1.7	8.6	2.7	3.7	641
Forest Plantations	89.9	2.2	4.3	0.0	3.6	138
Woodlands	99.2	0.5	0.3	0.0	0.0	623
Other Farm Crops	92.4	0.0	3.0	2.3	2.3	133

[a] Includes those giving a nonnumeric damage estimate.

[b] Includes only those giving a numeric damage estimate.

[c] A nonnumeric response for any tree fruit damage will eliminate that case from this mean.

[d] Not given, since the mean is for an unknown number of crops.

Considering dollar categories of crop damage, the greatest percentages of tree fruit, small fruit, and grape growers with damage are in the highest damage category of ≥$1,000. For the other crop categories, damage was most frequently estimated at under $500 (Table 2).

Farmers whose primary land use was tree fruits reported an average of $2300 damage per grower (includes all growers and all damages for those growers), about four times that of the average dairyman, livestock producer, vegetable cash crop, or grain cash crop grower. This emphasizes the considerably greater magnitude of damage these agriculturalists are apparently experiencing. Interestingly, from the standpoint of percentage of total crop value lost to deer, a larger proportion of tree fruit growers (92.3%) than any other type of farmer were in the lowest category of 1 to 10 percent (Table 3). While the total dollars of damage is relatively high for tree fruit vs. other types of farmers, the percentage of total crop value lost is relatively low.

Table 3. ESTIMATED PERCENTAGE OF TOTAL CROP VALUE LOST TO DEER, BY PRIMARY LAND USE

Primary Land Use[a]	Percentage of Total Crop Value Lost to Deer						
	1%-10%	11%-20%	21%-30%	31%-40%	41%-50%	>50%	N
	Percent						
Dairy	84.0	10.7	0.8	0.8	1.5	2.3	131
Other Livestock	78.8	15.4	1.9	1.9	1.9	0.0	52
Tree Fruits	92.3	3.8	1.9	1.9	0.0	0.0	52
Vegetable Cash Crops	69.6	13.0	0.0	4.3	8.7	4.3	23
Grain Cash Crops	85.3	14.7	0.0	0.0	0.0	0.0	34
Forest Products	81.0	9.5	0.0	4.8	4.8	0.0	21
Currently inactive farmland	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Hay[b]							

[a] Primary land use is the major agricultural activity for the landowners.

[b] Sample size was too small for analysis.

Respondents were requested to indicate which one of the following terms best describes deer damage to their crops: none, light, moderate, substantial, or severe. Almost half (49.7%) believed "none" was the best description, while about one-quarter (27%) indicated that their crop loss due to deer was "light." Twelve percent of the respondents described the deer damage to their crops as "moderate," while responses of "substantial" or "severe" were indicated by few respondents (8 and 4%, respectively).

Farmers also were asked to indicate their attitude about deer damage. Forty-one percent indicated they were not aware of deer damage to their crops. Over one-quarter (27%) of the respondents believed their damage was "negligible;" 18 percent believed their damage was "tolerable," while 14 percent considered their damage "unreasonable."

Estimates of the damage reported by respondents were made for each description of and attitude expressed about deer damage (Tables 4 and 5). The means are for farmers who reported estimated dollars of damage (question 6), and are aggregate means for all crops. Both the descriptions of and attitudes about deer damage were compared with dollar estimates of total damage. Generally, farmers described damage of less than $500 as "light" and felt it was "negligible" to "tolerable." Damage of $500-$999 was most frequently described as "light" or "moderate," but considered to be "tolerable," although about 33 percent felt damage of that magnitude was "unreasonable." When damage estimates were $1000 or more, farmers tended to describe damage as "moderate," "substantial," or "severe" and the majority of farmers considered this amount of damage "unreasonable."

Farmers' descriptions of and attitudes about deer damage were assessed with respect to primary land use. Those farmers who primarily raised tree fruits gave the more severe descriptions. Twenty percent or more of the vegetable cash crop, livestock, and dairy producers reported moderate to severe deer damage (Table D-3). Tree fruit growers were least tolerant in their attitudes about deer damage; one-third of tree fruit growers compared to 20 percent or less of other types of farmers considered their damage to be "unreasonable" (Table D-4).

Table 4. FARMERS' DESCRIPTIONS OF CROP DAMAGE, CLASSIFIED BY AMOUNT OF DAMAGE SUFFERED

Estimated Amount ($) of Damage	DESCRIPTION OF DEER DAMAGE					N
	None	Light	Moderate	Substantial	Severe	
	Percent					
$1-$99	0.0	70.8	20.8	4.2	4.2	24
$100-$499	0.0	66.6	26.5	6.0	0.9	117
$500-$999	0.0	34.8	34.8	26.1	4.3	46
≥ $1,000	0.0	16.8	22.7	36.1	24.4	119
Mean Dollars of Damage for Those Reporting Damage	--	$647 (131)	$1577 (79)	$4205 (63)	$9584 (33)	

Table 5. FARMERS' ATTITUDES ABOUT CROP DAMAGE, CLASSIFIED BY AMOUNT OF DAMAGE SUFFERED

Estimated Amount ($) of Damage	ATTITUDE ABOUT DEER DAMAGE				N
	Not Aware of Damage	Negligible	Tolerable	Unreasonable	
	Percent				
$1-$99	0.0	45.8	37.5	16.7	24
$100-$499	0.9	34.8	47.8	16.5	115
$500-$999	0.0	15.2	52.2	32.6	46
≥ $1,000	0.8	8.5	25.4	65.3	118
Mean Dollars of Damage for Those Reporting Damage	$575 (2)	$426 (68)	$915 (118)	$5660 (115)	

Farmers' descriptions of and attitudes about deer damage also were evaluated from the standpoint of estimated percentage of total crop value lost to deer. As farmers' descriptions of deer damage increased in severity, greater proportions of farmers reported losing in excess of 10 percent of their crop value to deer (Table D-5). Only about one out of 20 farmers who described their damage as "light" experienced greater than 10 percent crop loss, whereas 11 out of 20 with "severe" damage lost in excess of 10 percent of their total crop value. Few farmers who felt their damage was "negligible" or "tolerable" lost more than 10 percent of their total crop value to deer (4 and 9% of farmers, respectively) (Table D-6). However, nearly 40 percent of the farmers who felt their deer damage was "unreasonable" lost more than 10 percent of their total crop value to deer.

Shooting deer that were damaging crops was rarely used for deer damage control. Eight percent of the farmers with damage applied to DEC for a permit to shoot nuisance deer in 1980. Chemical deer repellents were used by 15 percent of the farmers with damage; fences and scare devices were used by 7 and 10 percent of the farmers with damage, respectively; while "other methods" were used by 15 percent of those with damage (Table D-7).

Farmers were asked to report what types of wildlife other than deer had caused them notable crop damage over the previous year. Several species of birds and mammals were listed (Table D-8). Woodchucks and raccoons were reported by notable proportions of farmers, but deer led the list. When asked which species, including deer, caused them the most crop damage during the previous year, deer were cited most often (47%) by a wide margin over other wildlife. Similar proportions of farmers reported that woodchucks and raccoons (19 and 16%, respectively) caused them the most crop damage.

Farmers' Attitudes Toward Deer and Deer Population Trends

Farmers' perceptions of the current deer population level were investigated from two perspectives: (1) the largest number of deer they had seen at one time on their property during the previous year and (2) how the population had changed over a five-year period.

Respondents' estimates of the largest number of deer they had seen at one time on their property in the past 12 months were grouped in categories of five (Table D-9). The "1-5" category was indicated by 35 percent of the respondents;

the "6-10" category encompassed another 29 percent. Groups of more than ten deer were sighted by about 32 percent of the respondents. About 5 percent had not seen any deer on their property during the previous year.

Comparing the present deer population in the area around their land to that of 5 years earlier, 38 percent of the farmers believed that the number of deer had increased. A similar proportion (37%) believed that the number of deer had remained the same. The opinion that the deer population had decreased over the past five years was shared by 17 percent of the respondents. About 7 percent indicated they were not sure of the deer population trend over the five-year period.

After describing and assessing crop damages caused by deer and estimating recent deer population trends, farmers were asked to express their feelings about having deer in their neighborhood. Nearly two-thirds (64%) chose the most positive response option: "Deer have an aesthetic value; I enjoy having them around" (Table D-10). About one-quarter (24%) of the farmers believed they could enjoy a few deer, but worried about damage to their crops. Few farmers (5%) considered deer a nuisance and believed they could do without any deer. The remaining 8 percent of the farmers indicated they did not have any particular feelings about deer. A greater proportion of farmers who reported damage than of those who didn't (51 vs. 14%) worried about deer damage to their crops. Ten percent of the farmers with damage considered deer to be a nuisance they could do without. Among farmers with damage, only 6 percent of those who considered deer "aesthetically valuable" experienced more than a 10 percent crop loss from deer, whereas about 30 percent of those who "worry about crop damage" or who consider deer a "nuisance" reported more than 10 percent of their total crop value lost to deer (Table D-11).

Tree fruit farmers, moreso than any other type of farmer, worried about deer damage to their crops and considered deer a nuisance. Vegetable cash crop growers were the only other group where less than 50 percent of the farmers considered deer aesthetically valuable (Table D-12).

Following questions which obtained the preceding information, farmers were asked their preferences as to future deer population levels in the Hudson River Valley region. The question designed to obtain these suggestions (question 14, Appendix A) occupied a strategic position in the sequence of questions; it was deliberately positioned to follow others dealing with deer numbers, deer damage, and attitudes toward deer. By answering these questions beforehand, the

respondent considered both the negative and positve aspects of deer before suggesting future deer trends desired. A slight majority of farmers wanted the deer population to remain the same (52%); 28 percent preferred to have populations decrease; while 20 percent preferred an increase in the deer population (Table 6). (See the "Hudson River Valley Analysis by Towns" [page 32] for more details.)

Table 6. FUTURE DEER MANAGEMENT TRENDS DESIRED BY FARMERS IN THE HUDSON RIVER VALLEY REGION OF NEW YORK

Future Trend in Deer Numbers Desired by Farmers	Percent (n=1264)
Moderately Increase	13.0
Slightly Increase	6.6
Remain the Same	52.2
Slightly Decrease	12.4
Moderately Decrease	15.8

Variables Associated with Desired Deer Population Trends

Several cross-tabulations were made to compare farmer characteristics and attitudes with deer population trend desired. A summary of the information is presented in Table 7; more detailed information (i.e., using all five categories of future deer population trends desired) appears in Appendix Tables D-13 through D-23.

Type of Farm by Future Deer Trends: Tree fruit producers were least positive about increasing or maintaining current deer populations. This was the only type of farmer where a majority (53%) wanted the deer population to decrease. One-third of the people whose primary land use was vegetable cash crop production wanted a decrease in deer numbers, too. About one-fifth to one-fourth of grain cash crops, hay, forest products, dairy, and livestock growers wanted a decrease in the deer population, but 49 to 62 percent of these groups preferred the population to remain the same (Table D-13).

Damage by Future Deer Trends: A majority of farmers without damage wanted the deer population to remain the same while a majority of those with damage wanted the deer population to decrease (Table D-14). For farmers reporting dollar

Table 7. VARIABLES ASSOCIATED WITH DESIRED FUTURE DEER POPULATION TRENDS

Variables	FUTURE DEER POPULATION TREND DESIRED Increase	Same	Decrease	N
	Percent			
Damage Occurrence:				
Did not report damage	25.1	58.7	16.2	910
Reported damage	5.6	35.0	59.4	354
		$(\chi^2=244.67, 2df)^S$		
Damage Descriptions:				
None	30.4	62.6	7.0	616
Light	14.5	64.2	21.3	338
Moderate	7.2	30.3	62.5	152
Substantial	1.0	5.0	94.0	101
Severe	0.0	4.1	95.9	49
		$(\chi^2=585.69, 8df)^S$		
Attitude About Damage:				
Not aware of any damage	30.3	62.5	7.2	488
Neglibigle	22.1	57.9	20.0	330
Tolerable	7.7	57.7	34.6	234
Unreasonable	1.1	9.4	89.5	180
		$(\chi^2=485.31, 6df)^S$		
Deer Hunting Status:				
Nonhunter	14.6	55.5	29.9	747
Hunted deer in 1980	26.5	47.8	25.7	374
Hunted deer prior to 1980	29.0	44.2	26.8	138
		$(\chi^2=30.96, 4df)^S$		
Largest Group of Deer Seen on Property:				
0	30.9	61.8	7.3	55
1-5	27.7	60.3	12.0	433
6-10	19.7	53.2	27.1	351
11-15	9.6	60.5	29.9	167
16-20	14.1	30.6	55.3	85
21-25	17.6	26.5	55.9	34
26-30	6.1	33.3	60.6	33
≥ 31	2.5	21.3	76.3	80
		$(\chi^2=239.14, 14df)^S$		
5-Year Trend in Deer Population:				
More deer now than 5 years ago	9.7	37.9	52.4	483
About the same number now as 5 years ago	14.6	70.1	15.3	465
Fewer deer now than 5 years ago	52.5	41.2	6.3	221
Don't know	18.9	61.1	20.0	90
		$(\chi^2=372.19, 6df)^S$		
Attitude About Deer:				
Aesthetically valuable	29.5	63.3	7.2	792
Worry about crop damage	2.6	24.3	73.1	304
Nuisance	1.7	8.3	90.0	60
No particular feelings about deer	4.3	77.4	18.3	93
		$(\chi^2=629.50, 6df)^S$		

(cont'd).

Table 7. - continued
VARIABLES ASSOCIATED WITH DESIRED FUTURE DEER POPULATION TRENDS

Variables	FUTURE DEER POPULATION TREND DESIRED			N
	Increase	Same	Decrease	
	Percent			
Percent of Farmers' Household Income Contributed by Farm Products:				
0-25%	27.2	51.9	20.9	621
26-50%	12.3	56.2	31.5	73
51-75%	15.5	50.5	34.0	97
76-100%	11.4	51.9	36.7	422
		(χ^2=59.54, 6df)^S		
Primary Land Use:				
Dairy	14.5	62.0	23.5	358
Other Livestock	23.1	49.1	27.8	169
Tree Fruits	7.3	39.7	53.0	136
Vegetable Cash Crops	22.3	44.4	33.3	45
Grain Cash Crops	24.8	56.2	19.1	89
Forest Products	26.2	51.4	22.4	107
Currently Inactive Farmland	41.5	48.8	9.8	41
Hay	20.5	59.1	20.4	44

estimates of damage, the average damages for those wanting the population to remain the same or increase were about $650 or less, whereas average damages for those wanting slight or moderate decreases were about $1250 or $6000, respectively (Table D-15).

Of the farmers with damage, only about 3 percent of those who wanted the deer population in their area to increase or remain the same estimated losing more than 10 percent of their total crop value to deer. On the other hand, 20 to 40 percent of the people with damage who wanted a decrease in the deer population estimated they had lost in excess of 10 percent of their crop value to deer (Table D-16).

Three out of five farmers who described their damage as "light" wanted the deer population to remain the same; most others with light damage wanted a decrease. Among farmers with "moderate" damage, a majority wanted the deer population to decrease, while nearly all farmers with "substantial" or "severe" damage wanted a decrease (Table D-17).

A majority of farmers who felt they had "negligible" or "tolerable" damage wanted the deer population to remain the same. About nine out of ten farmers who felt they had "unreasonable" damage wanted the deer population to decrease; a majority (73%) wanted a moderate decrease (Table D-18).

Hunting by Future Deer Trends: A plurality of both hunting and nonhunting farmers wanted the deer population level to remain the same. Farmers who did not hunt deer were less inclined than hunting farmers to want an increase in the deer population. However, similar proportions of those who hunted vs. those who did not hunt wanted the deer population to decrease (Table D-19).

Deer Sightings by Future Deer Trends: A majority of farmers without any deer sightings on their property during the year prior to the survey wanted the deer population to remain the same (Table D-20). Similarly, among farmers who saw 15 or fewer deer in a group on their property, a majority wanted the population to remain the same. A majority of those sighting more than 15 deer in a group on their property wanted the deer population to decrease.

A majority of the farmers who believed fewer deer were present at the time of the survey than 5 years earlier wanted the deer population to increase (Table D-21). The majority of those who thought the deer population had remained stable over the past 5 years wanted the deer population to remain the same. Among farmers who believed that more deer were present than 5 years earlier, a majority wanted the population to decrease.

Attitudes about Deer by Future Deer Trends: Farmers who believed deer had an aesthetic value and liked having deer around their neighborhood (16% of whom reported damage) wanted the deer population to remain the same (D-22). Those respondents who indicated they enjoy a few deer but worry about damage (59% of whom reported damage) and those respondents who believed deer were a nuisance (60% of whom reported damage) wanted the deer population to decrease. Most respondents without particular feelings toward deer (13% of whom reported damage) wanted the deer population to remain the same.

Income from Farming by Future Deer Trends: While the majority of respondents desired the deer population to remain the same, respondents who rely most on farming for their family's income were less willing to risk crop loss from deer than other respondents. As the proportion of family income from farm products increased, the proportion of respondents desiring the deer population to decrease also increased. Among full-time farmers, 37 percent desired a decrease in the current deer population level (Table D-23).

Full-time Farmer[8] Profiles

Since full-time farmers are the key public of this analysis, a description and comparison of those wanting the deer population to increase, remain the same, or decrease are discussed below and summarized in Table 8. The "profiles" are intended as a succinct overview of these three attitudinal subgroups of full-time farmers. This should facilitate understanding the analyses and enhance the interpretation of data in subsequent sections of this report.

Full-time farmers who desired an increase in the deer population (11%) grew approximately the full-time farmers' average number of acres of small fruits, and green vegetables; they had more acres of corn, wheat, hay, other farm crops, and woodlands than average. They had no damage to any crop except tree fruits, for which their damage was low, hence they had less mean damage to all crops than farmers who wanted the deer population to remain the same or to decrease. Among farmers who wanted an increase in deer, 31 percent believed most of their crop damage was done by woodchucks; 21 percent by raccoons; and 7 percent by deer. One-third of these farmers reported no crop damage whatsoever.

Generally, the full-time farmers desiring an increase in the deer population: (a) believed that the deer population has either decreased (48%) or remained the same (27%) over the last 5 years; (b) hunted in 1980 (48%); (c) described their crop damage as nonexistent (75%); (d) at worst felt their crop damage was negligible (25%); and (e) thought that deer were aesthetically valuable (94%).

Full-time farmers who desired to have the deer population remain the same (52%), while growing approximately the average number of acres of each crop, had less acres of tree fruits and woodlands than the average. These farmers generally had some deer damage, but less than average. Nearly one-quarter (24%) of these farmers reported that most of their crop damage was caused by deer; 19 percent cited raccoons; and 14 percent cited woodchucks. One-quarter of these farmers had no damage.

Generally, those farmers who desired to have the deer population remain the same: (a) believed the same number of deer are present now as 5 years ago (51%); (b) do not hunt deer (57%); (c) described their crop damage as "none" (48%) or "light" (41%); (d) felt crop damage was nonexistent (39%), negligible (30%), or tolerable (29%); and (3) thought deer were aesthetically valuable (68%).

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[8] Full-time farmers are those farmers for whom farm products contribute over 75 percent of their household income.

Table 8. CHARACTERISTICS OF FULL-TIME FARMERS WHO DESIRED VARIOUS FUTURE DEER POPULATION TRENDS

	GENERAL DEER POPULATION TREND DESIRED BY FULL-TIME FARMERS			
	Increase	Same	Decrease	Overall
Acreage of:	Mean Acres (number of farms)			
tree fruits	8.761 (46)	16.207 (208)	55.131 (153)	29.998 (407)
small fruits	0.130 (46)	0.971 (210)	0.543 (153)	0.716 (409)
grapes	0.217 (46)	0.701 (211)	1.020 (153)	0.766 (410)
green vegetables	4.826 (46)	4.787 (211)	1.561 (155)	3.578 (412)
corn	100.596 (47)	72.271 (203)	67.078 (154)	73.587 (404)
wheat	3.723 (47)	1.231 (212)	1.665 (155)	1.676 (414)
hay	95.170 (47)	79.073 (205)	64.763 (152)	75.562 (404)
forest plantations	0.766 (47)	3.538 (212)	3.297 (155)	3.133 (414)
woodlands	44.021 (47)	29.345 (209)	40.626 (155)	35.277 (411)
other farm crops	16.787 (47)	10.629 (210)	8.838 (154)	10.662 (411)
	Mean Dollars of Damage (number of farms)			
Estimated damage to:				
tree fruits	$2.08 (48)	$ 8.77 (210)	$1,612.14 (129)	$542.40 (387)
small fruits	0.00 (48)	0.00 (214)	0.00 (153)	0.00 (415)
grapes	0.00 (48)	0.00 (215)	58.82 (153)	21.63 (416)
green vegetables	0.00 (47)	2.51 (211)	63.82 (153)	24.95 (410)
corn	0.00 (41)	197.88 (163)	848.23 (135)	432.94 (339)
wheat	0.00 (48)	0.00 (213)	25.52 (155)	9.51 (416)
hay	0.00 (43)	64.09 (171)	755.96 (133)	321.33 (347)
forest plantations	0.00 (47)	0.02 (213)	0.00 (152)	0.01 (412)
woodlands	0.00 (45)	0.15 (196)	2.28 (146)	0.94 (387)
other farm crops	0.00 (45)	0.48 (208)	59.93 (151)	22.65 (404)

Table 8. (cont'd.) CHARACTERISTICS OF FULL-TIME FARMERS WHO DESIRED VARIOUS FUTURE DEER POPULATION TRENDS

	GENERAL DEER POPULATION TREND DESIRED BY FULL-TIME FARMERS			
	Increase	Same	Decrease	Overall
	Percent			
	(n=42)	(n=209)	(n=145)	(n=396)
Most damage caused by:				
deer	7.1	23.9	69.7	38.9
woodchucks	31.0	14.4	5.5	12.9
raccoons	21.4	18.7	9.7	15.7
blackbirds	2.4	2.9	2.1	2.5
birds (not specified)	4.8	6.7	0.0	4.0
mice-rats	2.4	2.9	6.2	4.0
no damage	31.0	25.4	5.5	18.7
	Percent			
	(n=48)	(n=218)	(n=155)	(n=421)
Past deer population trend:				
more now than 5 years ago	20.8	36.2	77.4	49.6
same now as 5 years ago	27.1	50.9	18.1	36.1
fewer now than 5 years ago	47.9	6.9	2.6	10.0
don't know	4.2	6.0	1.9	4.3
		(χ^2=151.60, 6df)S		
	Percent			
	(n=48)	(n=219)	(n=155)	(n=422)
Description of damage:				
none	75.0	48.0	4.5	35.1
light	20.8	40.6	23.2	32.0
moderate	4.2	10.0	24.5	14.7
substantial	0.0	0.5	29.7	11.1
severe	0.0	0.9	18.1	7.1
		(χ^2=218.18, 8df)S		
	Percent			
	(n=48)	(n=213)	(n=150)	(n=411)
Attitude about damage:				
not aware of any	66.7	39.0	4.0	29.4
negligible	25.0	29.6	22.0	26.3
tolerable	8.3	29.1	20.0	23.4
unreasonable	0.0	2.3	54.0	20.9
		(χ^2=196.07, 6df)S		
	Percent			
	(n=48)	(n=218)	(n=154)	(n=420)
Attitude towards deer:				
aesthetically valuable	93.7	68.3	7.8	49.1
worry about crop damage	4.2	17.9	68.9	35.0
nuisance	0.0	1.4	17.5	7.1
no particular feeling	2.1	12.4	5.8	8.8
		(χ^2=215.20, 6df)S		
	Percent			
	(n=48)	(n=219)	(n=155)	(n=422)
Hunting characteristics:				
do not hunt	35.4	57.0	58.0	55.0
hunted in 1980	47.9	32.0	31.0	33.4
hunted prior to 1980	16.7	11.0	11.0	11.6
		(χ^2=8.41, 4df)N		

Full-time farmers desiring a decrease in the deer population (37%) grew approximately the average number of acres of small fruits, grapes, wheat, other farm crops, forest plantations and woodlands; however, they grew less than the average number of acres of green vegetables, corn and hay, and far more than the average number of acres of tree fruits. These farmers also experienced greater mean dollars of damage for all crops except forest plantations. Seventy percent of these full-time farmers believed deer caused the most crop damage; raccoons were reported by 10 percent; and woodchucks by 6 percent.

Generally, those farmers who desired the deer population to decrease: (a) believed more deer are present now than 5 years ago (77%); (b) do not hunt deer (58%); (c) described their crop damage as "substantial" (30%) to "moderate" (25%) or "light" (23%); and (e) liked to have deer around their land, but worried about them damaging their crops (69%).

Correlation and Regression Analyses

Aggregate correlation and regression analyses were used to determine which factors most strongly "explained" respondents' attitudes within the Hudson River Valley region and to investigate the strength of those relationships. These analyses were achieved by using each of the 47 towns as a case and by using mean values of all variables for all towns. For interval-ratio data, this procedure is straightforward; for ordinal data and dummy variables, mean values provide indices at the town level, which become interval-ratio surrogates at the aggregate level.

The factor most highly correlated with the future deer population trend desired was the damage description index ($r = -0.761$). The second-most-highly correlated factor was the average percent of total crop value lost due to deer ($r = -0.617$). Moderate correlations were obtained between future deer population trend desired and several other variables, indicative of both damage incurred and attitudes about deer (Table 9).

While town preferences for the future deer population trend desired correlate moderately with several independent variables, the strongest variable (damage description index) explains only 57.9 percent of the variance in the dependent variable. To determine the degree that independent variables, acting together, explain the variance in the population trend desired, stepwise multiple regression was used. Because independent variables often have some degree of intercorrelation and can combine in different ways to explain similar

proportions of the total variance, several regressions were examined using different combinations of independent variables. Since two variables, the proportion who believe deer have aesthetic value and the proportion who believe deer are a nuisance, were derived from the same question, it was decided not to include both of these variables in the same model; the aesthetic value factor was used.

Table 9. SIMPLE CORRELATIONS BETWEEN DEER POPULATION TRENDS DESIRED BY TOWN AND SELECTED AGGREGATE INDEPENDENT VARIABLES

Independent Variable	Correlation Coefficient
Acres of apples	-0.280
Acres of cherries	-0.317
Acres of peaches	-0.317
Acres of other tree fruits	-0.314
Acres of small fruits	-0.218
Acres of grapes	-0.089
Acres of green vegetables	-0.289
Acres of corn	-0.202
Acres of wheat	-0.096
Acres of hay	-0.069
Acres of other farm crops	-0.036
Acres of forest plantations	-0.229
Acres of woodlands	-0.111
Largest number of deer seen at one time in past year	-0.519
Damage description index (question 5)	-0.761
Estimated dollar damage to apples	-0.221
Estimated dollar damage to cherries	-0.286
Estimated dollar damage to peaches	-0.119
Estimated dollar damage to other tree fruits	-0.128
Estimated dollar damage to small fruits	-0.072
Estimated dollar damage to grapes	-0.213
Estimated dollar damage to green vegetables	0.025
Estimated dollar damage to corn	-0.305
Estimated dollar damage to wheat	-0.245
Estimated dollar damage to hay	-0.383
Estimated dollar damage to other farm crops	-0.108
Estimated dollar damage to forest plantations	-0.223
Estimated dollar damage to woodlands	-0.202
Estimated total dollar damage	-0.472
Proportion who believe deer have aesthetic value	0.460
Proportion who believe deer are a nuisance	-0.463
Proportion who do not hunt	-0.003
Proportion who post their land	-0.026
Proportion who have substantial problems with hunters	-0.242
Proportion who live on their rural property	-0.417
Index of net income from farming	-0.221
1978-1980 Three-year-average buck take/mi^2 of deer range	-0.211

(cont'd).

Table 9. (cont'd). SIMPLE CORRELATIONS BETWEEN DEER POPULATION TRENDS DESIRED BY TOWN AND SELECTED AGGREGATE INDEPENDENT VARIABLES

Independent Variable	Correlation Coefficient
Proportion of apples lost	-0.375
Proportion of cherries lost	-0.239
Proportion of peaches lost	-0.239
Proportion of other tree fruits lost	-0.103
Proportion of small fruits lost	-0.148
Proportion of grapes lost	-0.128
Proportion of green vegetables lost	-0.094
Proportion of corn lost	-0.387
Proportion of wheat lost	-0.361
Proportion of hay lost	-0.439
Proportion of other farm crops lost	-0.142
Proportion of forest plantations lost	-0.163
Proportion of woodlands lost	0.007
Proportion of total crop value lost	-0.617

To be included in any model discussed, each independent variable had an F statistic significant at the 0.05 level. The model itself was required to have an F statistic significant at this level also.

The model explaining the greatest proportion of variance in the future deer population trend desired included the following independent variables in the order given: the damage description index, the proportion who live on their rural property, acres of woodlands, the proportion who do not hunt, the largest number of deer seen at one time in the past year, and acres of other tree fruits (Table 10). This model provides an r^2 of 0.798, an adjusted r^2 of 0.767 and a standard error of the estimate of 0.205 (in units where 1.0 signifies the desire for a moderate decrease in population levels; 2.0, a slight decrease; 3.0, leaving population levels the same; 4.0, a slight increase; 5.0 a moderate increase).

Table 10. BEST AGGREGATE PREDICTIVE MODEL OF DEER POPULATION TREND DESIRED IN THE HUDSON RIVER VALLEY REGION

Variable	B	Standard Error of B	F
Damage description index	-0.6224	0.1059	34.57
Proportion who live on their rural property	-0.0269	0.0050	33.01
Acres of woodlands	0.0048	0.0017	8.52
Proportion who do not hunt	-0.0051	0.0023	5.05
Largest number of deer seen at one time in past year	-0.0155	0.0074	4.44
Acres of other tree fruits	-0.0443	0.0214	4.27
Constant	(6.2879)		
Overall F = 25.73 df = (6, 39)	r^2 = .798		

A second model, which intentionally omits estimated dollar damage to each crop, estimated total dollar damage to crops, proportion of each crop lost, proportion of total crop value lost, and the damage description index, was tested to determine to what extent the future deer population trends desired could be explained by nondamage variables. This model included the proportion who live on their rural property, the largest number of deer seen at one time in the past year, acres of other tree fruits, acres of corn, the proportion who do not hunt, acres of green vegetables, acres of other farm crops and acres of small fruits (Table 11). This model provides an r^2 of 0.786, an adjusted r^2 of 0.739, and a standard error of the estimate of 0.217. It should be noted, however, that some of these variables were moderately to highly correlated with the damage description index excluded from the model (e.g., largest number of deer seen at one time in the past year, r = 0.647).

Table 11. BEST AGGREGATE PREDICTIVE MODEL OF DEER POPULATION TREND DESIRED IN THE HUDSON RIVER VALLEY REGION, EXCLUDING DAMAGE VARIABLES

Variable	B	Standard Error of B	F
Proportion who live on their rural property	-0.0380	0.0056	46.14
Largest number of deer seen at one time in past year	-0.0433	0.0061	50.68
Acres of other tree fruits	-0.0529	0.0249	4.49
Acres of corn	0.0063	0.0014	20.91
Proportion who do not hunt	-0.0103	0.0026	16.42
Acres of green vegetables	-0.0334	0.0083	16.18
Acres of other farm crops	0.0191	0.0069	7.76
Acres of small fruits	-0.0951	0.0439	4.68
Constant	(7.3154)		
Overall F = 16.95 df = (8, 37)	r^2 = .786		

To assess the relative importance of crop acreage variables, damage estimates (including dollar estimates, proportion estimates, and damage description index), and attitudinal variables regarding deer, hunting, posting, problems with hunters, farm residence and farm income, the proportion of total variance each category of independent variables explained in the absence of variables from other categories was investigated.

Remember that the first model, including independent variables from each category, had an adjusted r^2 of 0.767. The single variable of estimated total dollar damage produced an r^2 of 0.223. The "best" model including only crop damage variables produced an r^2 of 0.540 (adjusted r^2 of 0.530, standard error of the estimate of 0.291), by including the damage description index. The "best" model including only crop acreage variables produced an r^2 of 0.281 (adjusted r^2 of 0.230, standard error of the estimate of 0.373), by including acres of green vegetables, forest plantations, and apples. The "best" model including only attitudinal variables produced an r^2 of 0.518 (adjusted r^2 of 0.484, standard error of the estimate of 0.305), by including the proportion who live on their rural property, the largest number of deer seen at one time in the past year, and the proportion who believe deer have aesthetic value. The "best" model including variables readily available from secondary sources (crop acreage and BT/SM) produced an r^2 of 0.106 (adjusted r^2 of 0.086, standard error of the estimate of 0.406), by including only acres of green vegetables. Thus, the two categories of variables available from secondary sources were not strong predictors of attitudes toward future deer population trends desired.

Since full-time farmers (those respondents deriving more than 75 percent of their net income from farming or timber harvesting) comprise an important segment of the Hudson River Valley landowning population for deer management purposes, correlation and regression analyses were used again to determine which factors most strongly influenced full-time farmers' attitudes. These analyses, proceeding as before, used the means derived from full-time farmers of the towns as the cases.

The factor most influencing the future deer population trend desired by full-time farmers was the damage description index ($r = -0.792$), which had a moderate correlation with population trend desired. Estimated dollar damage to all crops ranked second ($r = -0.651$). Third ranked was the largest number of deer seen at one time in the past year ($r = -0.566$).

The correlation coefficients between future deer population trend desired by full-time farmers and the same variables as those considered for all respondents were compared (Table 12). Significant differences were present between the aggregate and full-time farmers' correlation coefficients for acres of forest plantations, estimated dollar damage to other farm crops, and proportion who live on their rural property.

Table 12. COMPARISONS OF FULL-TIME AND AGGREGATE FARMERS' CORRELATION COEFFICIENTS BETWEEN DEER POPULATION TRENDS DESIRED, BY TOWN, AND SELECTED INDEPENDENT VARIABLES

Independent Variable	r (full-time)	p (aggregate)	$Z_r - Z_p$	z
Acres of apples	-0.299	-0.280	-0.022	-0.144
Acres of cherries	-0.232	-0.317	0.098	0.643
Acres of peaches	-0.332	-0.317	-0.010	-0.066
Acres of other tree fruits	-0.195	-0.314	0.118	0.774
Acres of small fruits	-0.166	-0.218	0.052	0.341
Acres of grapes	-0.138	-0.089	-0.051	-0.334
Acres of green vegetables	-0.114	-0.289	0.189	1.239
Acres of corn	0.067	-0.202	0.273	1.790
Acres of wheat	-0.029	-0.096	0.070	0.459
Acres of hay	0.093	-0.069	0.160	1.049
Acres of other farm crops	0.063	-0.036	0.100	0.656
Acres of forest plantations	0.077	-0.229	0.314	2.059[a]
Acres of woodlands	-0.074	-0.111	0.040	0.262
Largest number of deer seen at one time in past year	-0.566	-0.519	-0.072	-0.472
Damage description index (question 5)	-0.792	-0.761	-0.075	-0.492
Estimated dollar damage to apples	-0.298	-0.221	-0.086	-0.564
Estimated dollar damage to cherries	-0.187	-0.286	0.107	0.702
Estimated dollar damage to peaches	-0.062	-0.119	0.061	0.400
Estimated dollar damage to other tree fruits	-0.117	-0.128	0.010	0.066
Estimated dollar damage to small fruits	0.000	-0.072	0.070	0.459
Estimated dollar damage to grapes	-0.108	-0.213	0.103	0.675
Estimated dollar damage to green vegetables	-0.150	0.025	-0.181	-1.187
Estimated dollar damage to corn	-0.372	-0.305	-0.067	-0.439
Estimated dollar damage to wheat	-0.451	-0.245	-0.230	-1.508
Estimated dollar damage to hay	-0.391	-0.382	-0.012	-0.079
Estimated dollar damage to other farm crops	-0.408	-0.108	-0.326	-2.138[a]
Estimated dollar damage to forest plantations	0.000	-0.223	0.224	1.469
Estimated dollar damage to woodlands	-0.048	-0.202	0.153	1.003
Estimated total dollar damage	-0.651	-0.472	-0.265	-1.738
Proportion who believe deer have aesthetic value	0.546	0.460	0.121	0.793
Proportion who believe deer are a nuisance	-0.527	-0.463	-0.093	-0.610

(cont'd).

Table 12. (cont'd). COMPARISONS OF FULL-TIME AND AGGREGATE FARMERS' CORRELATION COEFFICIENTS BETWEEN DEER POPULATION TRENDS DESIRED, BY TOWN, AND SELECTED INDEPENDENT VARIABLES

Independent Variables	r (full-time)	p (aggregate)	$Z_r - Z_p$	z
Proportion who do not hunt	-0.081	-0.003	-0.080	-0.525
Proportion who post their land	-0.013	-0.026	0.020	0.131
Proportion who have substantial problems with hunters	-0.108	-0.242	0.135	0.885
Proportion who live on their rural property	0.111	-0.417	0.558	3.659[a]
1978-1980 Three-year-average bucktake/mi^2 of deer range	-0.193	-0.211	0.021	0.1361
Proportion of apples lost	-0.447	-0.375	-0.097	-0.629
Proportion of cherries lost	-0.148	-0.239	0.094	0.616
Proportion of peaches lost	-0.186	-0.239	0.053	0.348
Proportion of other tree fruits lost	-0.137	-0.103	-0.041	-0.269
Proportion of small fruits lost	0.000	-0.148	0.151	0.990
Proportion of grapes lost	-0.146	-0.128	-0.020	-0.131
Proportion of green vegetables lost	-0.185	-0.094	-0.102	-0.661
Proportion of corn lost	-0.418	-0.387	-0.036	-0.236
Proportion of wheat lost	-0.530	-0.361	-0.213	-1.397
Proportion of hay lost	-0.445	-0.439	-0.013	-0.085
Proportion of other farm crops lost	-0.183	-0.142	-0.041	-0.269
Proportion of forest plantations lost	0.057	-0.163	0.221	1.449
Proportion of woodlands lost	0.000	0.007	-0.010	-0.066
Proportion of total crop value lost	-0.538	-0.617	0.121	0.784

[a] The difference of the correlation coefficient for full-time farmers and the correlation coefficient for the aggregate is significantly different at the 0.05 level. (See Snedecor, George W. and William G. Cochran, Statistical Methods, 6th Ed., Ames, Iowa: The Iowa State University Press, 1967, pp. 185-186.)

Stepwise multiple regression was used again to determine the extent to which independent variables jointly explain the variance in the future deer population trend desired by full-time farmers. To be included in any model discussed, each independent variable had an F statistic significant at the 0.05 level. The model itself was required to have an F statistic also significant at this level.

The model explaining the most variance in future deer population trend desired by full-time farmers included in this order: the damage description index, the proportion who do not hunt, acres of apples, proportion of wheat lost, acres of green vegetables, and acres of other farm crops. This model produced an r^2 of 0.868, an adjusted r^2 of 0.847, and a standard error of the estimate of 0.214 (Table 13).

Table 13. BEST PREDICTIVE MODEL OF DEER POPULATION TREND DESIRED BY FULL-TIME FARMERS IN THE HUDSON RIVER VALLEY REGION

Variable	B	Standard Error of B	F
Damage description index	-0.4597	0.0579	62.97
Proportion who do not hunt	-0.0073	0.0015	24.81
Acres of apples	-0.0032	0.0008	14.88
Proportion of wheat lost	-0.1266	0.0287	19.38
Acres of green vegetables	-0.0166	0.0044	14.18
Acres of other farm crops	0.0102	0.0035	8.53
Constant	(3.6118)		
Overall F = 40.63 df = (6, 37)		r^2 = 0.868	

A second model, omitting all damage-related variables, produced an r^2 of 0.595, adjusted r^2 of 0.553, and a standard error of the estimate of 0.365, by including the proportion who believe deer have aesthetic value, the largest number of deer seen at one time in the past year, acres of corn, and the proportion who post their land (Table 14).

Table 14. BEST PREDICTIVE MODEL OF DEER POPULATION TREND DESIRED BY FULL-TIME FARMERS IN THE HUDSON RIVER VALLEY REGION, EXCLUDING DAMAGE VARIABLES

Variable	B	Standard Error of B	F
Proportion who believe deer have aesthetic value	0.0093	0.0027	11.63
Largest number of deer seen at one time in the past year	-0.0278	0.0064	19.08
Acres of corn	0.0031	0.0012	6.51
Proportion who post their land	0.0040	0.0025	2.52
Constant	(2.0354)		
Overall F = 14.32 df = (4, 39)		r^2 = 0.595	

To assess the relative importance of different categories (e.g., damage estimate variables) of independent variables, models were created using only variables from single categories. This procedure was undertaken with respect to the categories of crop acreage variables, damage estimate variables (including dollar estimates, proportion estimates, and damage description index), and attitudinal variables.

Remember that the first model of future deer population trend desired by full-time farmers, including independent variables from each category, had an adjusted r^2 of 0.847. The single variable of estimated total dollar damage produced an r^2 of 0.424. The "best" model including only crop damage variables produced an r^2 of 0.651 (adjusted r^2 of 0.642, standard error of the estimate of 0.326) by including the damage description index. The "best" model including only crop acreage variables produced an r^2 of 0.106 (adjusted r^2 of 0.085, standard error of the estimate of 0.522) by including acres of peaches. The "best" model including only attitudinal variables produced an r^2 of 0.514 (adjusted r^2 of 0.490, standard error of the estimate of 0.390) by including the proportion who believe deer have aesthetic value and the largest number of deer seen at one time in the past year. The "best" model including variables easily acquired from secondary sources (crop acreage and buck take per square mile) produced an r^2 of 0.106 (adjusted r^2 of 0.085, standard error of the estimate of 0.522) by including acres of peaches. In this case, as well as in the previous where all respondents were considered, the crop acreage variables and the BT/SM alone did not give an adequate indication of attitudes about future deer trends.

Hudson River Valley Analysis by Towns

The aggregate data discussed in the previous section gave an important and useful overview of deer abundance and damage perceived by farmers, farmers' attitudes, and farm characteristics in the study area. However, the deer management system used by the Bureau of Wildlife requires input of some data by town. Two types of information will be presented for the 47 towns within the study area:[9]

(1) deer damage by types of crops, and

(2) changes in deer population desired by farmers in the towns of the Hudson River Valley region.

Due to the large number of towns, the volume of data generated in this type of analysis precludes the inclusion of lengthy discussion for each town. Tabular presentation of data appears in appendices; the text will summarize trends.

Crop Damage by Deer

The proportion of farms in a town growing a particular category of crop and average acreage per farm having one or more acres of each crop are given in Appendix E. Crops included in this analysis are tree fruits, small fruits, grapes, green vegetables, corn, wheat, hay, forest plantations, woodlands and "other" farm crops.

Farmers' estimates of deer damage to each of these crop categories (except "other" farm crops) were analyzed in terms of percent of those growing a crop who reported damage and mean dollars of damage based only on those reporting damage (Table 15). Again, remember that the damage values are estimates of damage that farmers perceived as being caused by deer; they are not evaluations based on actual field measurements made by a biologist or crop specialist.

Deer damage to tree fruits was reported in 26 towns, 19 of which had 50 percent or more of the responding growers report damage (Table E-1). Mean damage estimates for those reporting numeric damage estimates in the towns ranged to $50,000 (one numeric response in the Town of Ulster, Ulster County), and means of $100 or more occurred in 23 towns.

Small fruit damage was reported in three towns (Table E-2), two of which had 50 percent or more of the responding growers report damage. Mean damage estimates for those reporting damage in the two towns with numeric damage estimates were $400 and $2000.

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[9] There were 48 towns within the study region, but one town (Kingston, Ulster County) had no eligible farmers (acreage criterion) within the sample frame (see Appendix B).

Table 15. SUMMARY OF DAMAGE FREQUENCIES AND DOLLAR ESTIMATES FOR TOWNS, BY CROP[a]

Crop	# of Towns where crop is grown	% of Towns with crop having damage	# of Towns reporting damage	% of Towns in study area having damage	# of Towns where 50% or more growers had damage	Range in average dollars of damage for growers with damage in towns with damage	# of Towns where mean damage per grower with damage was $100 or more
Tree Fruits	38	68.4	26	55.3	19	$ 40-$50,000	23
Small Fruits	21	14.3	3	6.4	2	$400-$2000	2
Grapes	19	21.1	4	8.5	4	$ 75-$6000	3
Green Vegetables	42	57.1	24	51.1	15	$ 25-$4010	17
Corn	47	89.4	42	89.4	20	$ 50-$4968	37
Wheat	24	37.5	9	19.1	7	$100-$1500	7
Hay	47	72.3	34	72.3	2	$ 50-$4900	30
Forest Plantations	34	26.5	9	19.1	3	$ 50-$43,367	7
Woodlands	47	21.3	10	21.3	0	$ 30-$538	2
Other Farm Crops	37	21.6	8	17.0	2	b	b

[a] Summary of Appendix Tables E-1 to E-10.

[b] No dollars of damage given, since "other farm crops" represents an unknown number of crops.

Deer damage to grapes was reported in four towns, all of which had 50 percent or more of the responding growers report damage (Table E-3). Mean damage estimates for those reporting numeric damage estimates in the towns ranged to $6000 (one numeric response in Town of Amenia, Dutchess County) and means of $100 or more occurred in three towns.

Green vegetable damage was reported in 24 towns (Table E-4), 15 of which had 50 percent or more of the responding growers report damage. Mean damage estimates for those reporting damage ranged to over $4000 (one numeric response in the Town of Poughkeepsie, Dutchess County) and means of $100 or more occurred in 17 towns.

Deer damage to corn was reported in 42 towns, 20 of which had 50 percent or more of the responding growers report damage (Table E-5). Mean damage estimates for those reporting numeric damage estimates in the towns ranged to nearly $5000 (average of nine growers in Town of Union Vale, Dutchess County) and means of $100 or more occurred in 37 towns.

Wheat damage was reported in nine towns (Table E-6), seven of which had 50 percent or more of the responding growers report damage. Mean damage estimates for those reporting damage ranged to $1500 (one numeric response in the Town of Union Vale, Dutchess County) and means of $100 or more occurred in seven towns.

Deer damage to hay was reported in 34 towns, two of which had 50 percent or more of the responding growers report damage (Table E-7). Mean damage estimates for those reporting numeric damage estimates in the towns ranged to $4900 (average of seven growers in Town of Amenia, Dutchess County) and means of $100 or more occurred in 30 towns.

Forest plantation damage was reported in nine towns (Table E-8), three of which had 50 percent or more of the responding growers report damage. Mean damage estimates for those reporting damage ranged to over $43,000 (average of three growers in Town of Rhinebeck, Dutchess County) and means of $100 or more occurred in seven towns.

Deer damage to woodlands was reported in ten towns, none of which had 50 percent or more of the responding growers report damage (Table E-9). Mean damage estimates for those reporting numeric damage estimates in the towns ranged from $30 to $538 and means of $100 or more occurred in two towns.

Future Deer Population Trends Desired by Farmers

Future deer population preferences of farmers can be found in Appendix F, and summarized in Table 16. In most towns the greatest proportion of all farmers (i.e., a plurality) contacted wanted the deer population to remain the same (Tables 16 and F-1; Fig. 2). A majority of farmers in 23 towns wanted the deer population to remain the same. In 28 towns, the proportion of farmers wanting a decrease in deer exceeded that wanting an increase; in two towns (Town of Livingston, Columbia County and Town of Union Vale, Dutchess County) a majority of all farmers wanted a decrease.

Part-time farmers generally wanted deer populations to remain the same (Tables 16 and F-2; Fig. 3). In 27 towns the majority of part-time farmers wanted the deer population to remain the same. In 18 towns the proportion of part-time farmers wanting a decrease in deer exceeded that wanting an increase; in one town (Town of Amenia, Dutchess County) a majority of part-time farmers wanted a decrease; and in three towns (Town of Wappinger, Dutchess County; Towns of Esopus and Rosendale, Ulster County) a majority of part-time farmers wanted an increase. Nine towns had no responding part-time farmers report wanting a decrease in deer.

A majority of full-time farmers in 24 towns wanted the deer population to remain the same (Tables 16 and F-3; Fig. 4). In only one town (Town of Colonie, Albany County) did a majority of full-time farmers want an increase in deer; in 14 towns a majority of full-time farmers wanted a decrease in deer. Five towns had no responding full-time farmers report wanting a decrease in deer.

Table 16. THREE-YEAR-AVERAGE BUCK TAKE PER SQUARE MILE OF DEER RANGE AND CHANGES IN DEER POPULATION TREND DESIRED BY ALL FARMERS, PART-TIME FARMERS, AND FULL-TIME FARMERS, BY TOWN

COUNTY / Town	1978-1980 3-Year Average BT/SM	Future Deer Population Trend Desired by ALL FARMERS				Future Deer Population Trend Desired by PART-TIME FARMERS				Future Deer Population Trend Desired by FULL-TIME FARMERS			
		Increase	Same	Decrease	N	Increase	Same	Decrease	N	Increase	Same	Decrease	N
		Percent				Percent				Percent			
ALBANY													
Bethlehem	19.67	18.6	51.2	30.2	(43)	18.9	48.7	32.4	(37)	16.7	66.6	16.7	(6)
Colonie	---	50.0	50.0	0.0	(14)	45.5	54.5	0.0	(11)	66.7	33.3	0.0	(3)
COLUMBIA													
Chatham	5.60	11.9	73.8	14.3	(42)	10.0	76.7	13.3	(30)	16.7	66.6	16.7	(12)
Claverack	10.06	18.6	34.9	46.5	(43)	27.3	40.9	31.8	(22)	9.5	28.6	61.9	(21)
Clermont	6.93	33.3	52.4	14.3	(21)	46.2	46.2	7.6	(13)	12.5	62.5	25.0	(8)
Gallatin	5.18	12.5	50.0	37.5	(16)	22.2	55.6	22.2	(9)	0.0	42.9	57.1	(7)
Germantown	7.56	28.6	42.8	28.6	(14)	36.4	45.4	18.2	(11)	0.0	33.3	66.7	(3)
Ghent	5.49	24.1	57.4	18.5	(54)	25.0	60.0	15.0	(40)	21.4	50.0	28.6	(14)
Greenport	6.42	0.0	55.6	44.4	(9)	0.0	66.7	33.3	(6)	0.0	33.3	66.7	(3)
Kinderhook	3.18	19.4	77.4	3.2	(31)	23.8	76.2	0.0	(21)	10.0	80.0	10.0	(10)
Livingston	4.82	9.7	25.8	64.5	(31)	30.0	50.0	20.0	(10)	0.0	14.3	85.7	(21)
Stockport	1.40	30.0	60.0	10.0	(10)	33.3	50.0	16.7	(6)	25.0	75.0	0.0	(4)
Stuyvesant	4.44	30.0	56.7	13.3	(30)	35.3	52.9	11.8	(17)	23.1	61.5	15.4	(13)
Taghkanic	7.72	15.8	57.9	26.3	(19)	23.1	53.8	23.1	(13)	0.0	66.7	33.3	(6)
DUTCHESS													
Amenia	3.77	10.7	39.3	50.0	(28)	6.7	40.0	53.3	(15)	15.4	38.5	46.1	(13)
Clinton	3.21	19.6	41.2	39.2	(51)	21.3	38.3	40.4	(47)	0.0	75.0	25.0	(4)
Dover	4.28	37.5	45.8	16.7	(24)	36.8	47.4	15.8	(19)	40.0	40.0	20.0	(5)
Hyde Park	1.81	22.2	44.5	33.3	(9)	22.2	44.5	33.3	(9)	--	--	--	(0)
LaGrange	3.16	15.4	48.7	35.9	(39)	17.9	46.4	35.7	(28)	9.1	54.5	36.4	(11)
Milan	3.72	21.7	47.9	30.4	(23)	23.8	47.6	28.6	(21)	0.0	50.0	50.0	(2)
Pine Plains	3.77	0.0	72.0	28.0	(25)	0.0	78.6	21.4	(14)	0.0	63.6	36.4	(11)
Pleasant Valley	2.03	19.4	66.7	13.9	(36)	23.3	63.4	13.3	(30)	0.0	83.3	16.7	(6)
Poughkeepsie	0.42	30.0	50.0	20.0	(10)	42.9	57.1	0.0	(7)	0.0	33.3	66.7	(3)
Red Hook	3.35	22.0	48.0	30.0	(50)	24.4	51.2	24.4	(41)	11.1	33.3	55.6	(9)
Rhinebeck	4.67	5.9	44.1	50.0	(34)	6.9	51.7	41.4	(29)	0.0	0.0	100.0	(5)
Stanford	4.79	22.5	50.0	27.5	(40)	25.9	51.9	22.2	(27)	15.4	46.1	38.5	(13)
Union Vale	8.35	23.5	20.6	55.9	(34)	30.8	26.9	42.3	(26)	0.0	0.0	100.0	(8)
Wappinger	0.75	50.0	50.0	0.0	(4)	66.7	33.3	0.0	(3)	0.0	100.0	0.0	(1)
Washington	6.21	14.3	49.2	36.5	(63)	14.5	49.1	36.4	(55)	12.5	50.0	37.5	(8)

(cont'd)

Table 16. (cont'd). THREE-YEAR-AVERAGE BUCK TAKE PER SQUARE MILE OF DEER RANGE AND CHANGES IN DEER POPULATION TREND DESIRED BY ALL FARMERS, PART-TIME FARMERS, AND FULL-TIME FARMERS, BY TOWN

COUNTY Town	1978-1980 3-Year Average BT/SM	Future Deer Population Trend Desired by ALL FARMERS				Future Deer Population Trend Desired by PART-TIME FARMERS				Future Deer Population Trend Desired by FULL-TIME FARMERS			
		Increase	Same	Decrease	N	Increase	Same	Decrease	N	Increase	Same	Decrease	N
		Percent				Percent				Percent			
GREENE													
Athens	3.64	0.0	77.8	22.2	(9)	0.0	83.3	16.7	(6)	0.0	66.7	33.3	(3)
ORANGE													
Blooming Grove	2.59	14.3	71.4	14.3	(7)	33.3	66.7	0.0	(3)	0.0	75.0	25.0	(4)
Chester	2.19	15.4	61.5	23.1	(13)	33.3	50.0	16.7	(6)	0.0	71.4	28.6	(7)
Crawford	2.44	20.0	62.5	17.5	(40)	25.0	54.2	20.8	(24)	12.5	75.0	12.5	(16)
Goshen	0.70	17.9	67.8	14.3	(28)	7.7	76.9	15.4	(13)	26.7	60.0	13.3	(15)
Hamptonburgh	1.00	15.8	57.9	26.3	(19)	14.3	57.1	28.6	(7)	16.7	58.3	25.0	(12)
Minisink	0.79	31.6	68.4	0.0	(19)	44.4	55.6	0.0	(9)	20.0	80.0	0.0	(10)
Montgomery	2.33	18.8	64.5	16.7	(48)	28.6	66.6	4.8	(21)	11.1	63.0	25.9	(27)
Newburgh	0.44	0.0	66.7	33.3	(3)	0.0	100.0	0.0	(1)	0.0	50.0	50.0	(2)
New Windsor	2.03	0.0	50.0	50.0	(8)	0.0	75.0	25.0	(4)	0.0	25.0	75.0	(4)
Wallkill	1.13	22.2	51.9	25.9	(27)	30.8	38.4	30.8	(13)	14.3	64.3	21.4	(14)
Wawayanda	0.56	26.1	65.2	8.7	(23)	33.3	58.4	8.3	(12)	18.2	72.7	9.1	(11)
ULSTER[a]													
Esopus	3.292	36.8	21.1	42.1	(19)	50.0	14.3	35.7	(15)	0.0	40.0	60.0	(5)
Lloyd	1.707	5.2	47.4	47.4	(19)	0.0	80.0	20.0	(10)	11.1	11.1	77.8	(9)
Marlborough	0.15	20.8	66.7	12.5	(48)	31.8	59.1	9.1	(22)	11.5	73.1	15.4	(26)
Plattekill	0.48	17.6	35.3	47.1	(17)	37.5	37.5	25.0	(8)	0.0	33.3	66.7	(9)
Rosendale	1.19	66.7	33.3	0.0	(3)	100.0	0.0	0.0	(2)	0.0	100.0	0.0	(1)
Ulster	1.53	14.2	42.9	42.9	(7)	50.0	50.0	0.0	(2)	0.0	40.0	60.0	(5)

[a] Town of Kingston, Ulster County, did not have any eligible farmers.

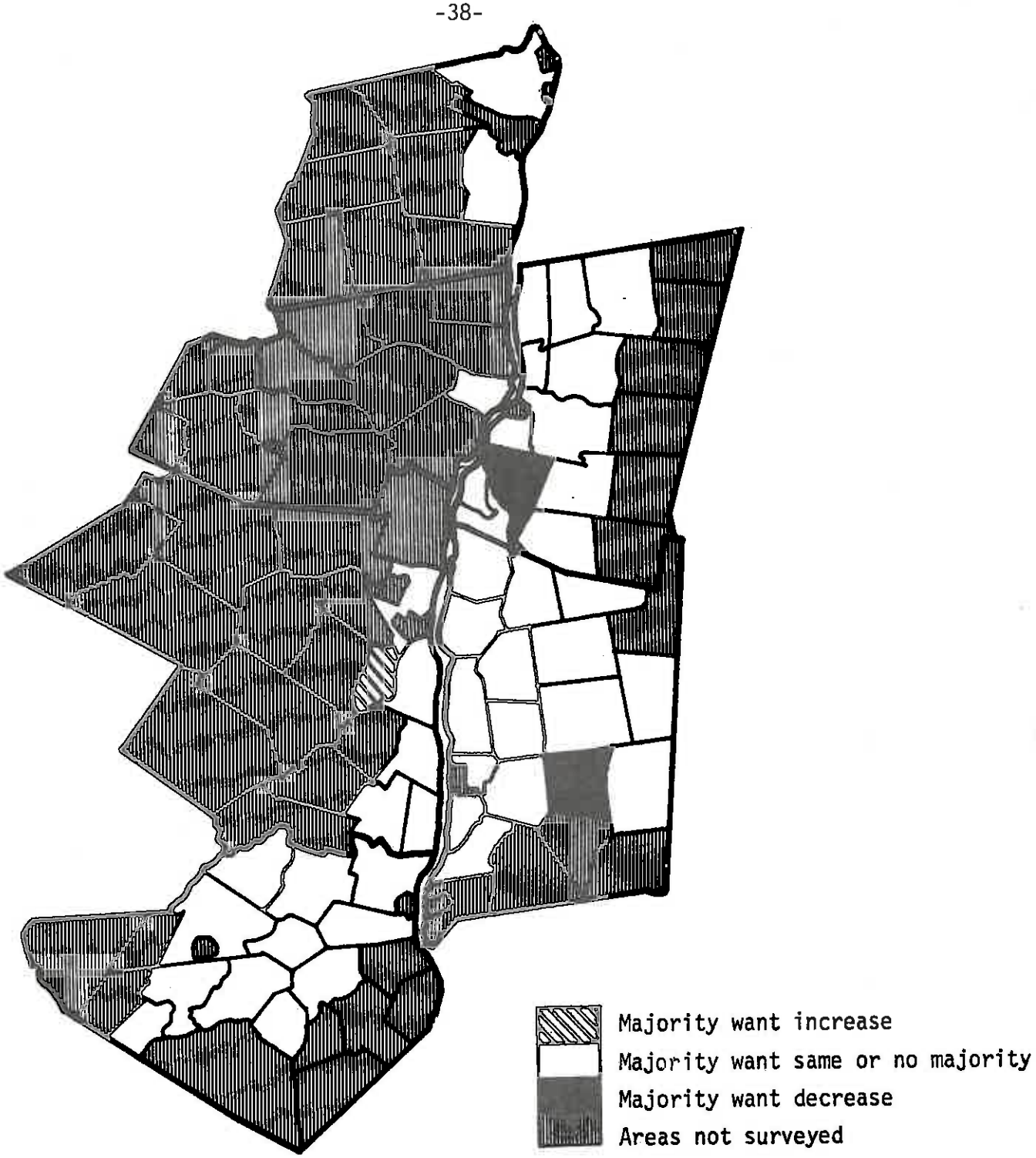

Figure 2. Attitudes of All Farmers Toward Future Deer Population Trends

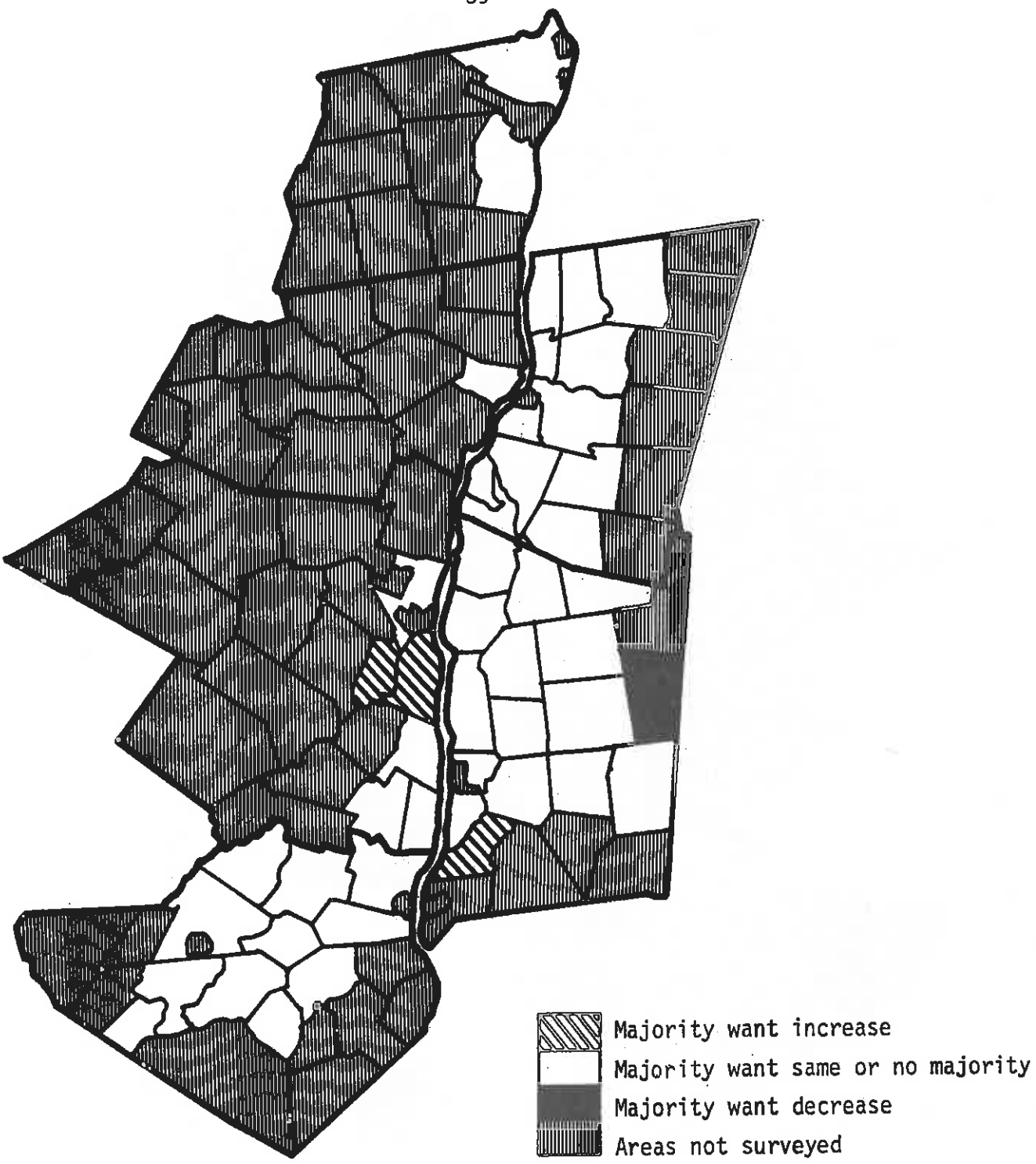

Figure 3. Attitudes of Part-time Farmers Toward Future Deer Population Trends

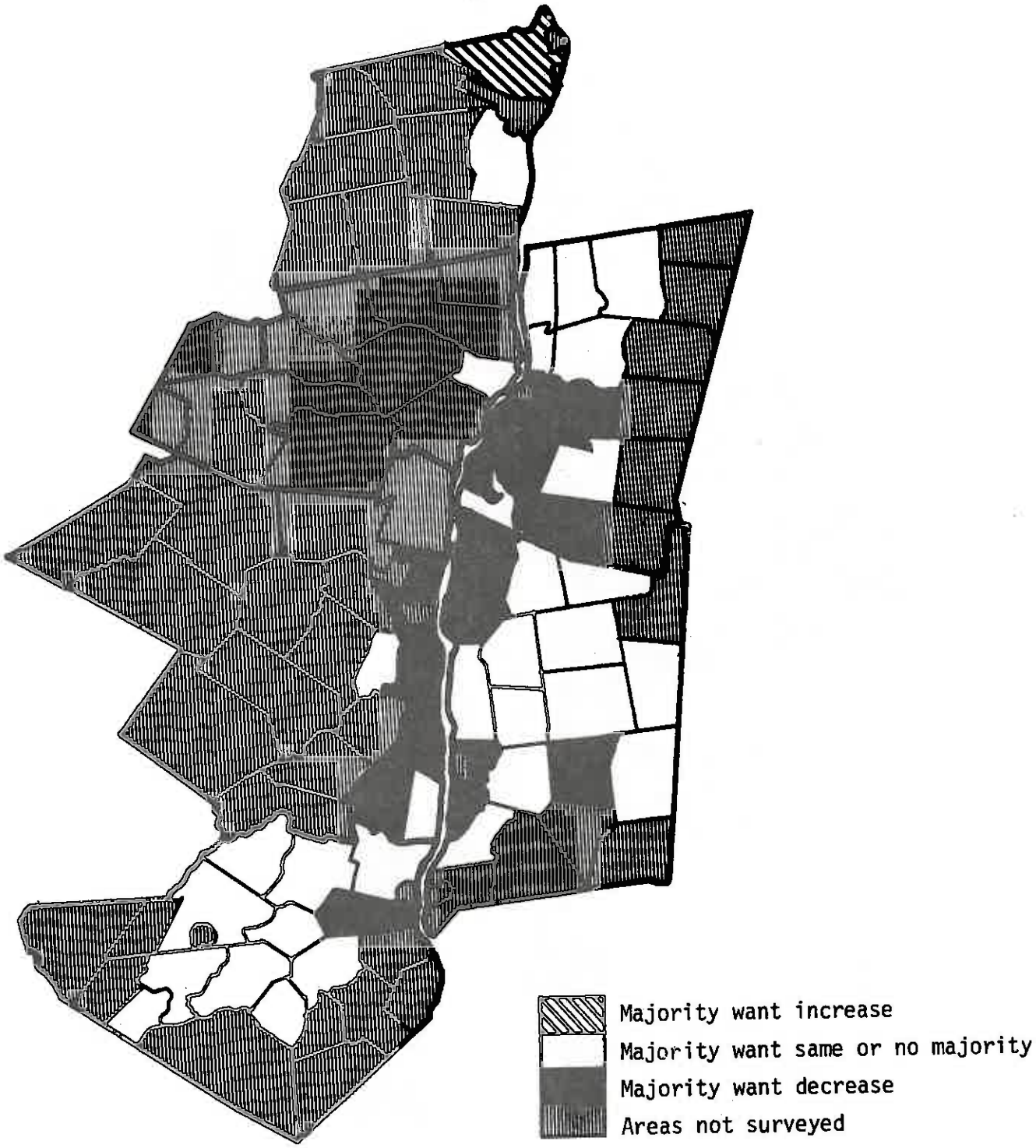

Figure 4. Attitudes of Full-time Farmers Toward Future Deer Population Trends

Analysis of the 1978-1980 Average Buck Take Index and Farmers' Preferences for Future Deer Population Trends

The DEC's yearly buck take per square mile (BT/SM) data for the three deer hunting seasons of 1978-1980 were averaged for each town.[10] This was done because we believe that farmers' attitudes relate more closely to impressions of average deer abundance (as indicated by the BT/SM data) in recent years than to the specific population of the single year prior to the survey. A three-year-average BT/SM also moderates the potential effects of anomalies (e.g., poor weather conditions) in any one hunting season's harvest of deer in a particular town. A wide range of BT/SM levels existed among towns in the study area.

Based on their three-year-average BT/SM, towns were grouped into categories of 1.00 BT/SM. For each BT/SM range created, the proportions of respondents wanting the deer population to increase, decrease or remain the same were calculated for all farmers, part-time farmers and full-time farmers. These data were plotted on graphs, using mid-points of each BT/SM range to help illustrate trends.

The criteria presented in the Procedures section (page 6) were used as a guide when analyzing these data to determine an optimum deer population index (i.e., an optimum BT/SM range to use as the Range Carrying Capacity Index [RCCI].)

For all farmers (Table G-1; Fig. 5), the criteria seem to be clearly met only at the lowest BT/SM interval, $\leq$ 1.00 BT/SM. The interval at 2.01 to 3.00 BT/SM results in the proportions of farmers wanting the deer population to increase or decrease being identical at 18 percent and the majority (64%) wanting the population to remain the same. Thus, this interval could be viewed as nearly meeting the criteria and perhaps being generally acceptable. At three-year-average BT/SM intervals above 3.00 BT/SM, the proportion of farmers wanting a decrease consistently exceeds 30 percent and that wanting the deer population to remain the same fluctuates between 45 and 50 percent.

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[10] Yearly BT/SM data were obtained from DEC's 1960-1979 Twenty Year Deer Book and the 1980 New York State Deer Take by Town and County (pers. com. - preliminary computer print-out).

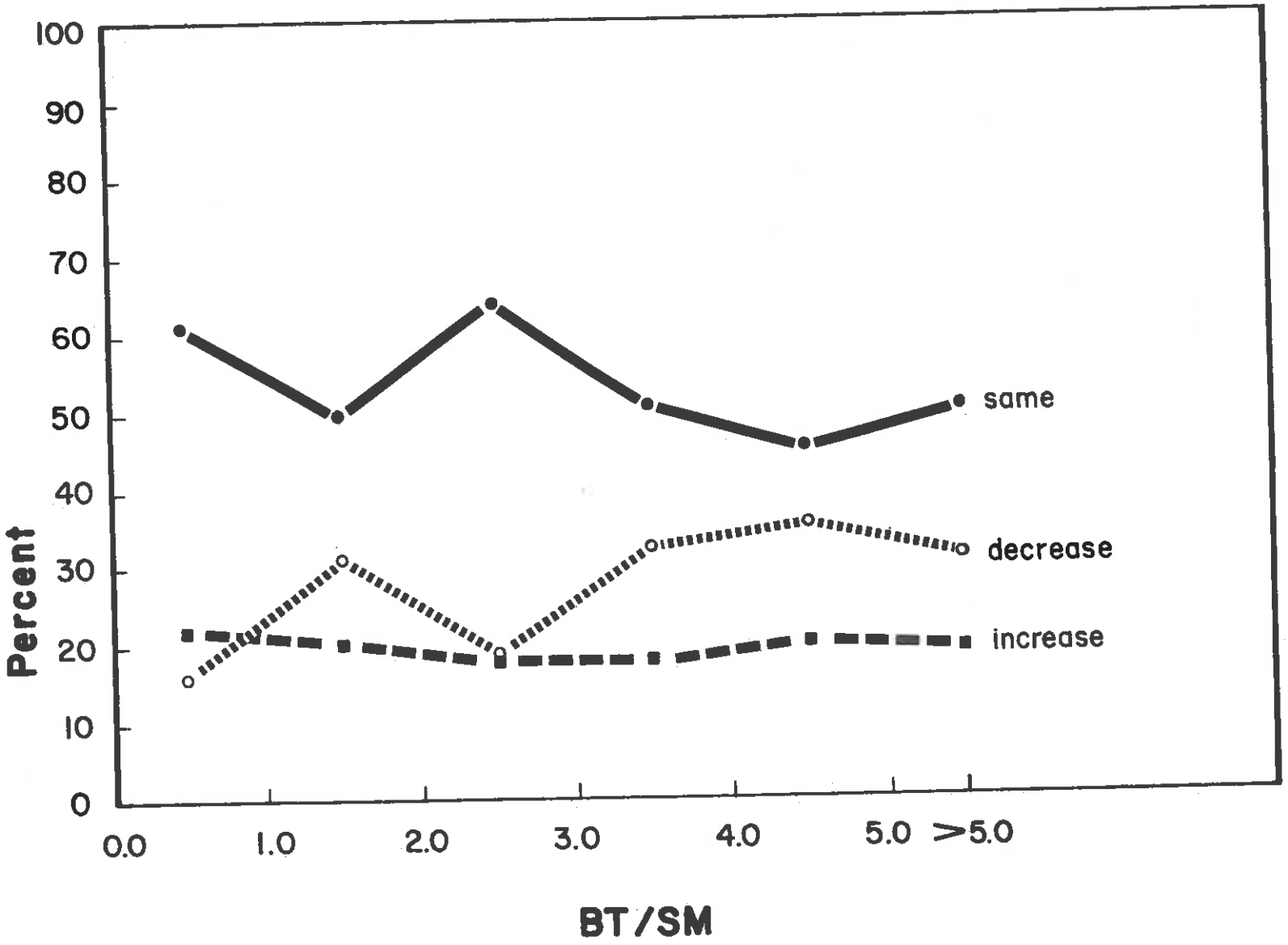


Figure 5. Proportions of Farmers Desiring Various Deer Population Trends in Their Towns, by 1978-1980 Three-Year-Average BT/SM in Their Towns

Part-time farmers were favorable toward maintaining deer populations at levels up to 3.00 BT/SM (Table G-2; Fig. 6). At BT/SM intervals above 3.00 BT/SM, the proportion of part-time farmers wanting the deer population in their towns to decrease equalled or exceeded that wanting an increase, and the proportion wanting the population to remain the same hovered around 50 percent. At BT/SM intervals below 3.00 BT/SM, the proportions of part-time farmers wanting the deer population in their towns to increase ranged between 30 and 25 percent, always greater than the proportion wanting a decrease, and the proportions wanting the population to remain the same varied between 61 and 48 percent.

A plurality of full-time farmers generally accepted deer population levels under 3.00 BT/SM (Table G-3; Fig. 7). However, at levels > 3.00 BT/SM as many or more full-time farmers want a decrease in the deer population vs. want the population to remain the same. At all BT/SM intervals more full-time farmers want a decrease than want an increase. Thus, criterion 2 cannot be met at any level and selection of an appropriate BT/SM interval becomes a matter of judging the maximum level of dissatisfaction (i.e., maximum percent wanting a decrease) that deer managers are willing to accept.

This study area differed from those previously studied (see Brown, Decker, and Hustin, 1980) in that nearly one-fifth of the farmers were fruit growers and average acreages of fruit were much greater than in the other areas. This situation, in view of the potential impact of deer on fruit production, warrants a separate analysis of fruit (tree fruit, small fruit, and grape) growers' and other agriculturalists' (i.e., livestock [poultry, dairy, and other livestock] growers--because they were the only other group with a large enough representation for meaningful analysis) preferences for future deer population trends. This dichotomy of full-time farmers sheds considerable light on the differences in preferences of these two groups and clearly illustrates the difficulties, from a sociological perspective, in managing the deer resource in an area of heterogenous agricultural characteristics.

Full-time fruit growers (tree fruit, small fruit, and grape producers) showed little tolerance for deer (Table G-4; Fig. 8). Only at levels $\leq$ 1.00 BT/SM did the proportion of these people who wanted the deer population to remain the same exceed that wanting a decrease. At BT/SM levels greater than 1.00, the proportion of fruit growers preferring a decrease in deer ranged from 75 to 100 percent! Consequently, only the very lowest BT/SM interval could be considered acceptable to these growers.

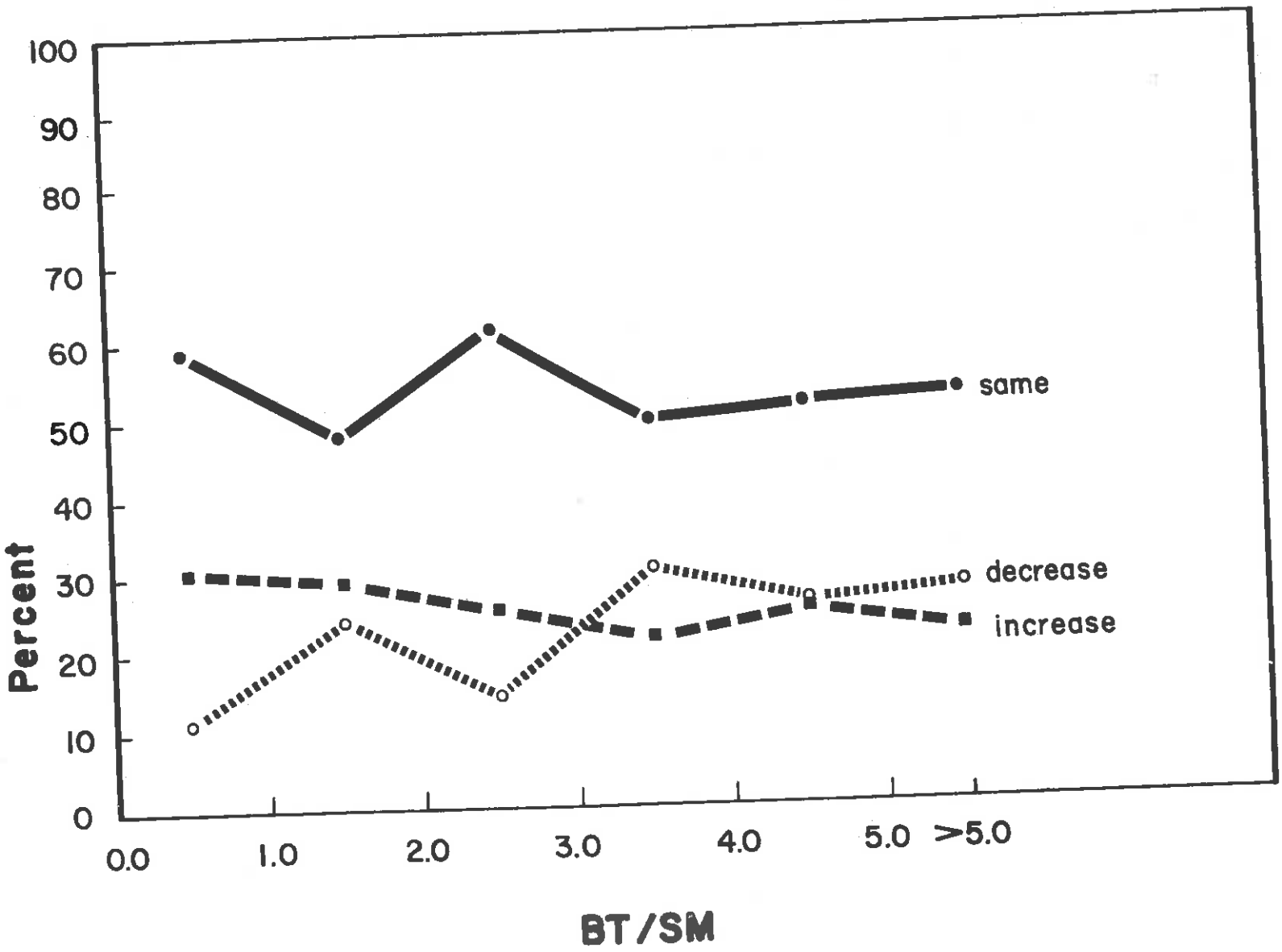


Figure 6. Proportions of Part-time Farmers Desiring Various Deer Population Trends in Their Towns, by 1978-1980 Three-Year-Average BT/SM in Their Towns.

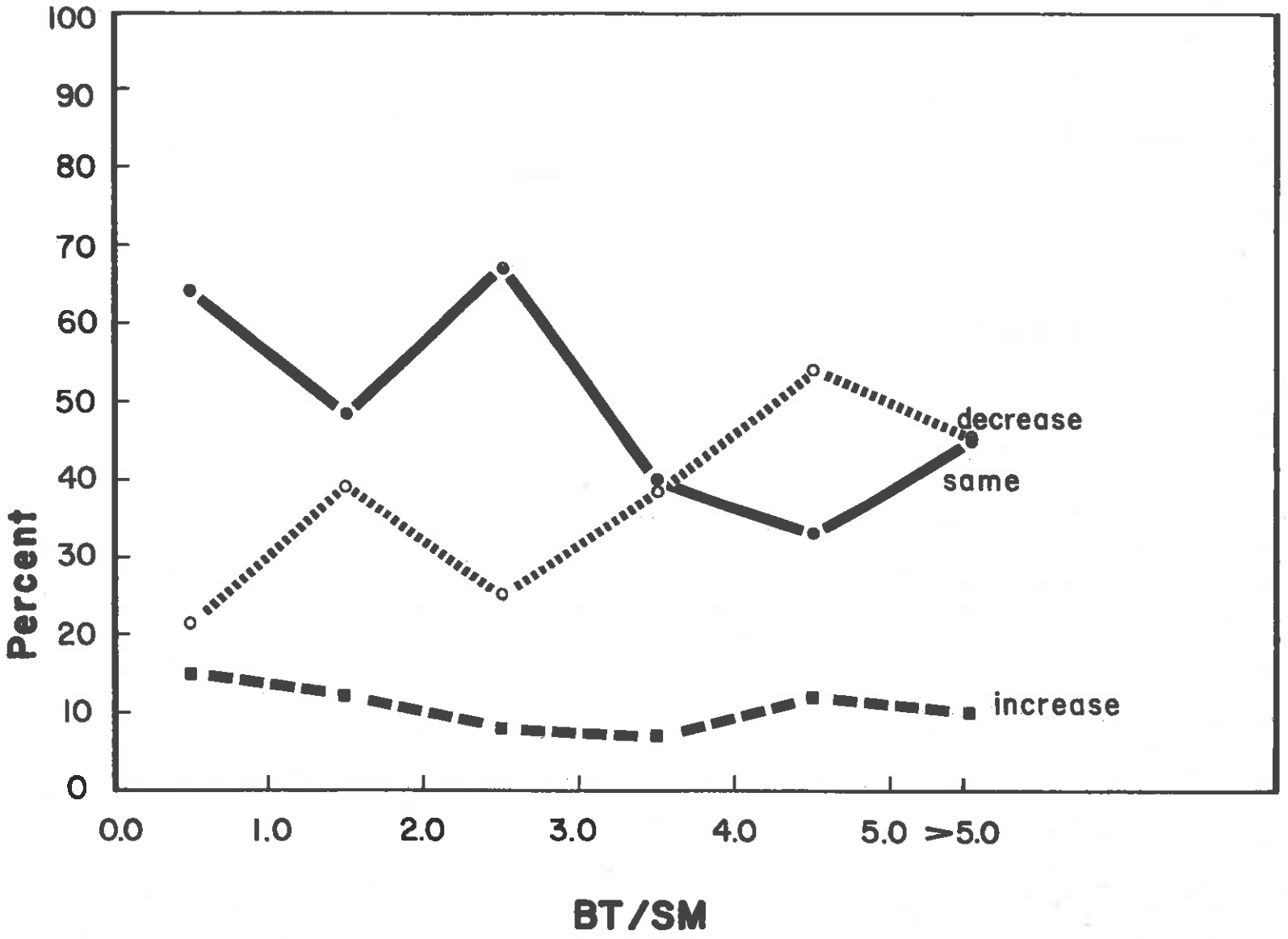


Figure 7. Proportions of Full-time Farmers Desiring Various Deer Population Trends in Their Towns, by 1978-1980 Three-Year-Average BT/SM in Their Towns

Full-time livestock growers (dairy, poultry, and other livestock producers--encompassing over 90% of the nonfruit producing full-time farmers) exhibited greater acceptance of deer in their preferences for future population trends (Table G-4; Fig. 8). Although the proportion of these people wanting a decrease exceeded that wanting an increase at BT/SM levels >1.00, the proportion wanting a decrease did not top 20 percent until BT/SM levels were over 3.00 BT/SM. The proportion wanting the deer population to remain the same was a majority at levels of 4.00 BT/SM or less. While an optimum for these people is difficult to pinpoint, BT/SM levels below 3.00 seem to be generally acceptable.

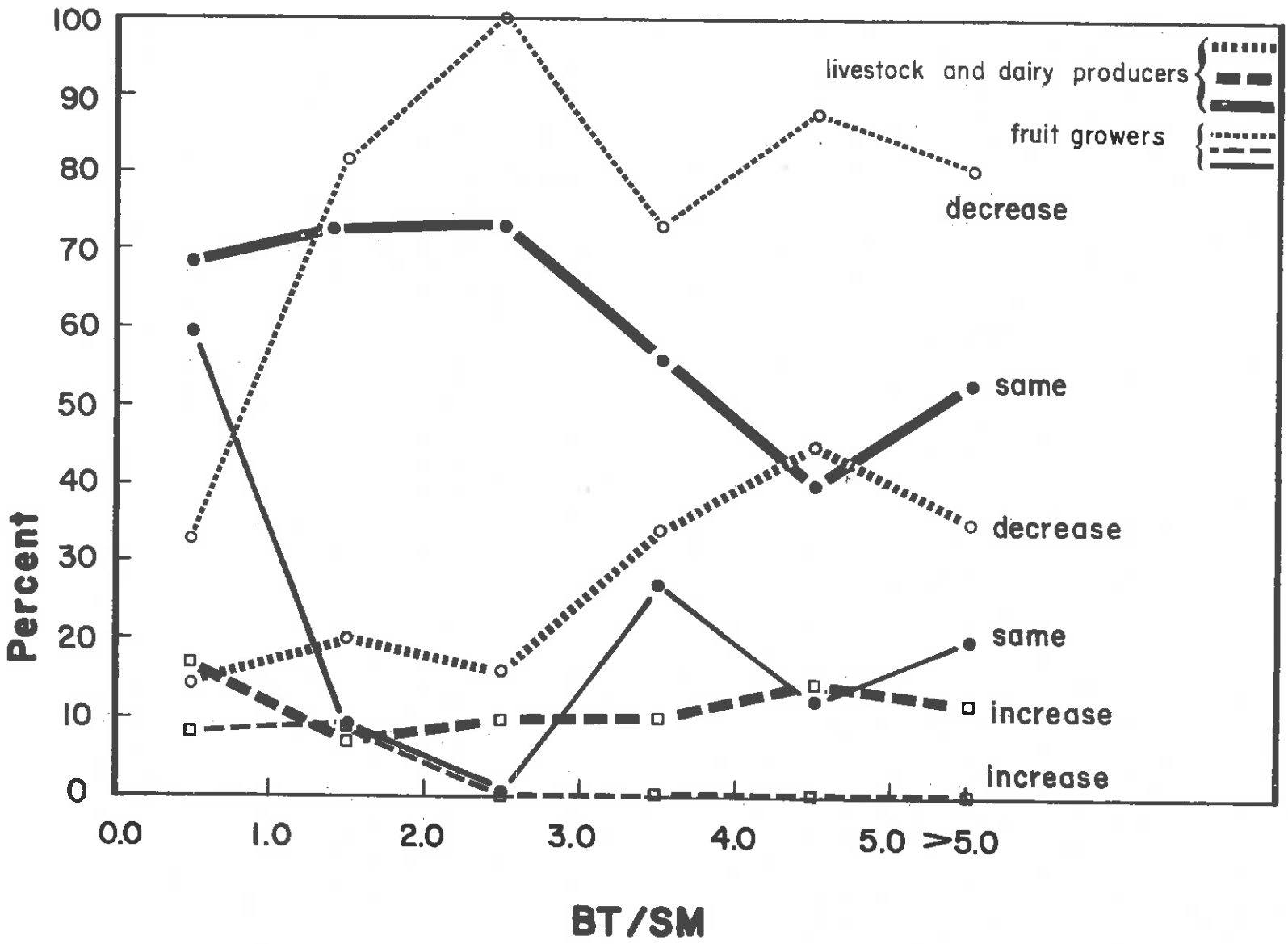


Figure 8. Comparison of Full-time Fruit Growers' vs. Livestock and Dairy Producers' Preferences for Future Deer Population Trends in Their Towns, by 1978-1980 Three-Year-Average BT/SM in Their Towns

DISCUSSION AND IMPLICATIONS:

The preceding analyses indicate that part-time farmers have a high tolerance of deer at the lowest population level and moderate tolerance at most other levels, as indicated by the future deer trends they prefer for their towns. Full-time farmers are less tolerant of deer than part-time farmers at all BT/SM levels. Among full-time farmers, those growing fruits are very different in their preferences for future deer trends compared to those with dairies and producing livestock. Fruit growers' lower tolerance is understandable in view of their much greater level of economic loss reported.

These findings imply that the management of deer in the study area will hinge on managers' decisions regarding treatment of fruit growers' concerns in the area. If deer damage to commercial fruit production could be mitigated via damage control assistance (e.g., fencing or repellents) or remuneration for actual damage incurred, a deer population commensurate with the preferences of other farming interests might be satisfactorily maintained. Without such compensatory action, the large fruit growing component of the agricultural activity in the study area suggests that deer populations need to be reduced in many towns. Not all towns in the study area have significant fruit acreage (see Appendix E), so specific DMU quotas could be set to reflect the unique agricultural characteristics (i.e., fruit vs. other crops) of towns within a DMU.

Currently, 25 towns in the study area have a three-year-average BT/SM above, ten towns have a BT/SM within, and 13 towns have a BT/SM below the 1.51-3.00 BT/SM RCCI levels generally prescribed for the area (Figure 9). Most of the towns with excessive deer population index (BT/SM) levels are in the northeastern part of the study area (east of the Hudson River), while most towns with low BT/SM levels are in the southwestern portion. Nine of the 15 towns where a majority of the full-time farmers wanted a decrease in future deer populations (refer to Figure 4) were towns having a three-year-average BT/SM above the prescribed RCCI level for the town. This suggests that deer managers' goals for deer population management in those towns, though not yet achieved, are generally in accordance with farmers' preferences.

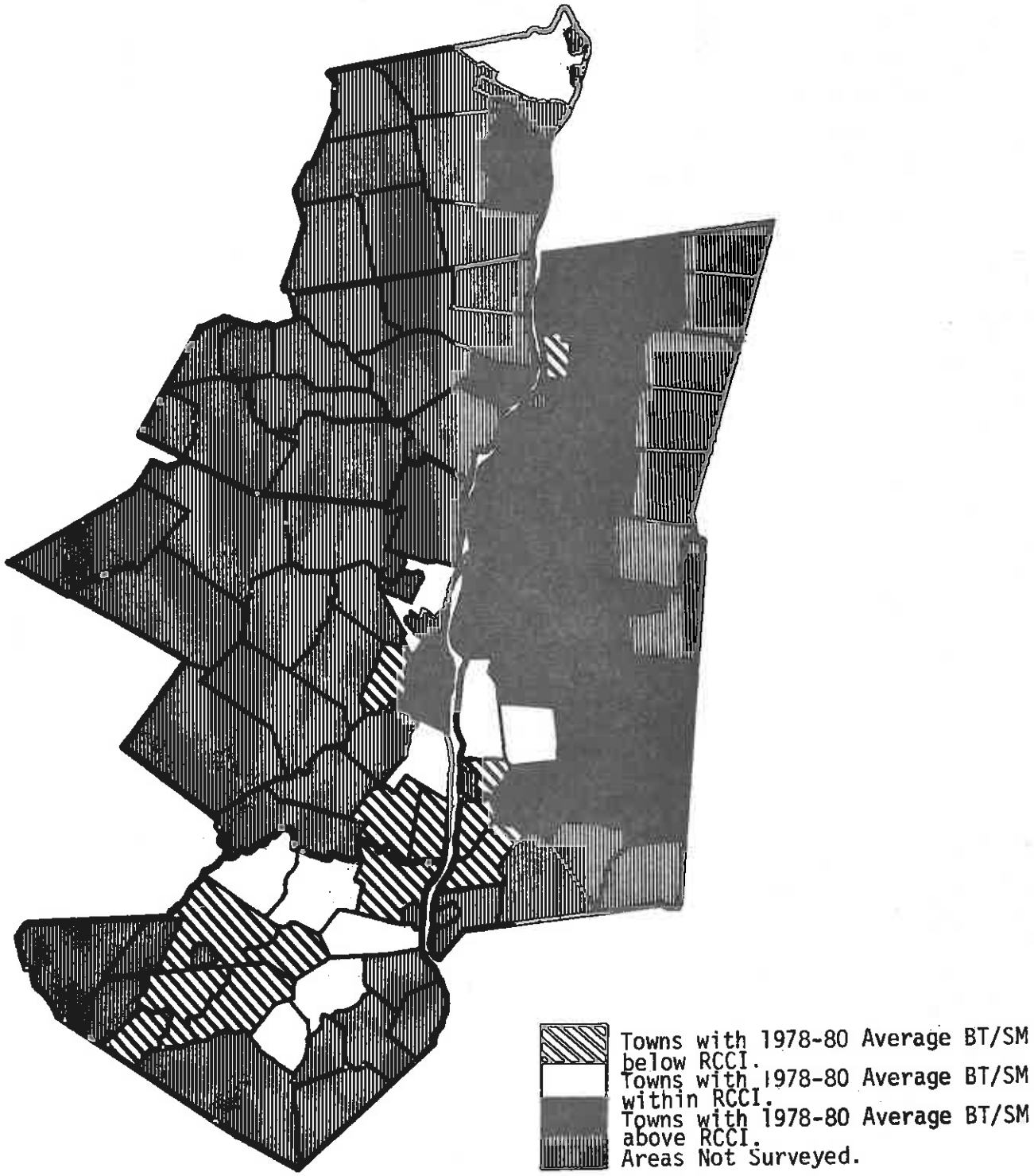
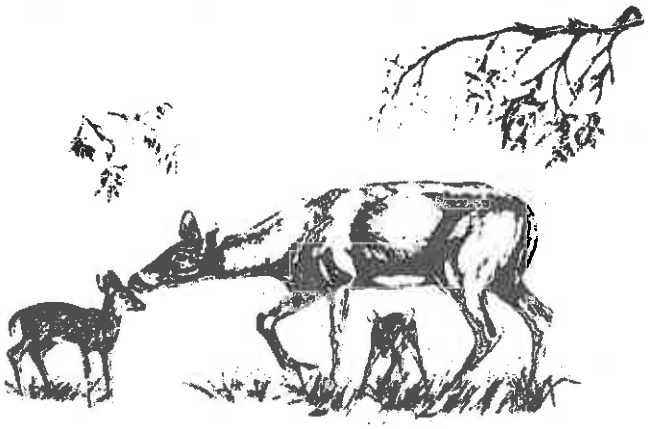


Figure 9. Hudson River Valley Towns with 1978-1980 Three-Year-Average BT/SM Below, Within, or Above DEC's Currently Prescribed RCCI (1.51-3.00 BT/SM).

Review of the crop damage estimates substantiates the belief that fruit producers in this area need special consideration by deer managers. Given the extent of fruit production in the area and the importance of full-time farmers' opinions, it would appear that deer managers are faced with the choice of maintaining deer populations well below the biological range carrying capacity in many towns or instituting a program to alleviate deer depredation problems before or after they occur.

APPENDIX A

DEER POPULATION AND DAMAGE SURVEY



DEER POPULATION AND DAMAGE SURVEY

Research conducted by the
Department of Natural Resources
in the State College of
Agriculture and Life Sciences
Cornell University

This study is concerned with the effects of deer on your farm or woodland, and the number of deer you would like to have in the area in which your property is located. Landowners are being surveyed in sections of Albany, Columbia, Dutchess, Greene, Orange and Ulster Counties. Data will be analyzed on a town by town basis. The code number on the back of the questionnaire indicates the location of your land in _____ County.

Would the household head please complete this survey at your earliest convenience, seal it (postage has been provided), and drop it in the nearest mailbox? Your responses will remain confidential and will never be associated with your name.

THANK YOU FOR YOUR COOPERATION.

DEER POPULATION AND DAMAGE SURVEY

First, please describe your land:

1. Please indicate how many acres of your land were in the following crops in 1980:

Crop	Acres	Crop	Acres
Tree fruits:		Wheat	
Apple		Hay	
Cherry		Other farm crops	
Peach		Forest Plantations	
Other		Woodlands (other than plantations)	
Small fruits		Other (specify):	
Grapes			
Green Vegetables			
Corn			

2. Please indicate what you consider to be the **primary use** of your agricultural or forest land. (Check **one.**)

_____ poultry _____ vegetable cash crops

_____ dairy _____ grain cash crops

_____ other livestock _____ nursery stock

_____ tree fruits _____ forest products

_____ small fruits _____ other (specify: _____

_____ grapes _____).

How many deer are in your locality?:

3. What is the largest number of deer you or your family have seen **on your land** at any **one** time **in the past 12 months?**

number of deer _____

4. Over the past **five** years, what trend have you seen in the deer population in the area of your land?

_____ more deer now than five years ago

_____ fewer deer now than five years ago

_____ about the same number of deer now as five years ago

_____ don't know

Please describe any deer damage you incurred within the past 12 months:

5. How would you describe the amount of deer damage to your crops or woodlands within the past 12 months?

_____ None _____ Substantial damage

_____ Light damage _____ Severe damage

_____ Moderate damage

6. Please indicate below all crops **(including orchards, vineyards, plantations and timber)** damaged by deer within the past 12 months and give us your best guess as to the dollar value of any loss incurred. If you don't know the exact amount, feel free to give an approximation. Please indicate also your estimate of the percent of crop value damaged.

Crop Damaged	Estimated Amount of Damage	Percent of Crop Value Lost
_____	$ _____	_____ %
_____	$ _____	_____ %
_____	$ _____	_____ %

7. What percent of the total value of all your crops listed in question number 1 was lost to deer?

_____ %

8. How do you feel about the amount of damage your land received from deer in the past 12 months?

_____ not aware of any damage

_____ negligible damage

_____ the amount of damage was tolerable in exchange for having deer around

_____ the amount of damage was unreasonable

Deer damage control measures:

9. If you experienced damage from deer in the past year, did you apply to the Department of Environmental Conservation for a special nuisance permit to shoot the animals?

_____ YES _____ NO

_____ Did not have deer damage

10a. Other than shooting deer, have you ever taken any steps to control deer damage to your crops?

_____ YES _____ NO (Please go to Question 11.)

If "YES," what did you do and how much did you spend for materials and labor?

Control	**Cost ($)**
_____ Chemical repellents	_____
_____ Build or maintain deer fences:	
maintenance	_____
construction	_____
_____ Devices to scare deer	_____
_____ Other (specify: _____)	_____

b. Which of these methods have you used **in the past 12 months?**

Control	**Check (✓) if you have used in past 12 months**
Chemical repellents	_____
Fence construction	_____
Fence maintenance	_____
Devices to scare deer	_____
Other	_____

11. Did you have any notable crop damage caused by wildlife other than deer during the past 12 months?

_____ YES _____ NO

If "YES," please list those wildlife species: _____

_____

_____

12. Which wildlife species, including deer, caused you the **most crop damage** during the past 12 months? (Please list only **one** wildlife species.)

_____

How do you feel about the current deer population in your area?:

13. Generally, how do you feel about having deer in your neighborhood? (Check one.)

_____ Deer have an aesthetic value; I enjoy having them around.

_____ I could enjoy a few deer, but I worry about them damaging my crops.

_____ I generally regard deer as a nuisance; I could get along without any deer.

_____ No particular feelings about deer.

14. The Department of Environmental Conservation is updating its management plan for deer population levels in your town. Please indicate below whether you would like them to increase, decrease, or leave deer populations in your town at their current level: (Check one.)

_____ moderately increase deer populations

_____ slightly increase deer populations

_____ leave deer populations similar to present levels

_____ slightly decrease deer populations

_____ moderately decrease deer populations

In what other ways are you affected by deer?:

15. Do you hunt deer?

_____ Yes, I hunted deer in 1980.

_____ Yes, but not in 1980.

_____ No, I don't hunt deer.

16. Within the past two years, have you had problems with hunters littering or damaging your property, fences, etc. during deer hunting season?

_____ No problems

_____ Only minor problems

_____ Yes, hunters have done substantial damage

17. Was your property posted during deer hunting season in 1980?

_____ YES _____ NO

If "YES," did you post with "Hunting by Permission Only" notices?

_____ YES _____ NO

18. Which of the following groups would you usually allow to hunt deer on your property? (Check all that apply):

_____ No one

_____ Your family

_____ Friends and Neighbors

_____ Strangers who ask

To interpret your answers to previous questions better, we need some background information on how much you depend upon your rural property for a living. The following information you provide will be kept strictly confidential, and will not be associated with your name.

19. Do you live on your farm or rural property?

_____ YES _____ NO

20. Approximately what **percent** of your household's **net income** was derived from the sale of agricultural or timber products from your land in 1980?

_____ less than 10 percent

_____ 10-25 percent

_____ 26-50 percent

_____ 51-75 percent

_____ 76-100 percent

21. Please indicate the Town or Township in which your farm or rural property is located:

Town of _____

Please use this space for any additional comments you wish to make:

TO RETURN THIS QUESTIONNAIRE, simply seal it and deposit it in any mailbox. The postage has been provided.

Thank you for your cooperation.

№ 3993

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 878 ITHACA, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

CORNELL UNIVERSITY
Natural Resources, D. Decker
P. O. Box D H
Ithaca, New York 14853

APPENDIX B: SAMPLING PROCEDURE FOR HUDSON RIVER VALLEY FARMER STUDY

The list following this discussion details for each Town the number of farms on the ASCS mailing lists, the number of farms which are less than ten acres in size, the number of names selected from eligible farm holders, the adjusted sample size, the number of codeable responses and the codeable response rate.

The Towns with at least 80 farms were systematically sampled by a sampling proportion designed to approximate 80 farms per Town and random choice assured exactly 80 farms per Town. Towns with too few farms to sample in the above manner were censused.

Screening for duplicates was done at the time of sampling on a Town basis. Most duplicates could not be replaced, since the Town involved was censused. More duplicates may exist as a person may own two farms in two different Towns.

TABLE B-1. COUNTIES AND TOWNS WITHIN THE HUDSON RIVER VALLEY STUDY AREA, WITH RESPONSE RATE BY TOWN

County Town	Number of Names on ASCS List	Number of Ineligible Landowners	Original Sample Size	Adjusted Sample Size[a]	Number of Codeable Responses	Percent Codeable Responses[b]
Albany						
Bethlehem	71	5	66	65	56	86.2
Colonie	44	2	42	37	22	59.5
Columbia						
Chatham	57	0	57	56	49	87.5
Claverack	64	0	64	62	48	77.4
Clermont	26	0	26	26	18	69.2
Gallatin	20	0	20	20	16	80.0
Germantown	40	0	40	37	20	54.1
Ghent	81	0	80	80	59	73.8
Greenport	8	0	8	8	5	62.5
Kinderhook	54	0	54	53	34	64.2
Livingston	43	0	43	42	30	71.4
Stockport	12	0	12	12	9	75.0
Stuyvesant	44	1	43	42	32	76.2
Taghkanic	26	0	26	26	19	73.1
Dutchess						
Amenia	39	0	39	38	29	76.3
Clinton	39	2	37	35	25	71.4
Dover	45	3	42	40	29	72.5
Hyde Park	46	2	44	42	30	71.4
LaGrange	34	2	32	32	27	84.4
Milan	13	0	13	13	10	76.9
Pine Plains	40	0	40	37	33	89.2
Pleasant Valley	60	1	59	58	46	79.3
Poughkeepsie	23	3	20	18	15	83.3
Red Hook	89	7	80	78	60	76.9
Rhinebeck	51	2	49	49	40	81.6
Stanford	71	3	68	65	44	67.7
Union Vale	45	1	44	42	36	85.7
Wappinger	5	0	5	4	4	100.0
Washington	72	1	71	70	60	85.7
Greene						
Athens	11	0	11	11	11	100.0

TABLE B-1. (cont'd) COUNTIES AND TOWNS WITHIN THE HUDSON RIVER VALLEY STUDY AREA, WITH RESPONSE RATE BY TOWN

County Town	Number of Names on ASCS List	Number of Ineligible Landowners	Original Sample Size	Adjusted Sample Size[a]	Number of Codeable Responses	Percent Codeable Responses[b]
Orange						
Blooming Grove	11	0	11	10	6	60.0
Chester	15	0	15	14	13	92.9
Crawford	56	1	55	55	44	80.0
Goshen	58	0	58	54	36	66.7
Hamptonburgh	24	0	24	22	16	72.7
Minisink	31	0	31	30	22	73.3
Montgomery	64	1	63	60	50	83.3
Newburgh	4	0	4	3	3	100.0
New Windsor	7	0	7	7	6	85.7
Wallkill	52	0	52	51	45	88.2
Wawayanda	29	0	29	29	26	89.7
Ulster						
Esopus	21	0	21	21	19	90.5
Kingston	0	0	0	0	0	---
Lloyd	43	1	42	39	26	66.7
Marlborough	73	2	71	69	52	75.4
Plattekill	20	0	20	19	13	68.4
Rosendale	7	0	7	7	6	85.7
Ulster	12	0	12	12	9	75.0
TOTAL[c]	1800	40	1757	1700	1314	77.2

[a]Removes duplicate names, deceased addressees, nondeliverable addressees, property owners who moved, and those who sold their land. (3 were removed due to being outside the study area.)

[b]Percent codeable = Number of codeable responses ÷ Adjusted sample size.

[c]Total includes 4 returned questionnaires which had their code numbers obliterated and therefore could not be assigned to their appropriate Town.

APPENDIX C: COVER AND FOLLOW-UP LETTERS

New York State College of Agriculture and Life Sciences
a Statutory College of the State University
Cornell University

Department of Natural Resources
Fernow Hall, Ithaca, N. Y. 14853

Fishery Science
Forest Science
Wildlife Science
Natural Resources
Outdoor Recreation
Environmental Conservation

January 5, 1981

Dear Farmer or Rural Landowner:

The New York State Department of Environmental Conservation is currently evaluating deer population levels in agricultural areas of the Hudson River area of southeastern New York State. Their goal is to maintain the deer population in balance with the carrying capacity of the range, within limits that do not cause unreasonable damage to farm crops or forest regeneration. The only way for D.E.C. to know how well they are accomplishing this goal is by contacting farmers and other rural landowners like yourself.

D.E.C. has asked Cornell University to conduct a survey to determine the amount of deer damage your land has received, how you feel about deer, and whether you would like deer population levels adjusted in the town where your land is located. By answering the enclosed questionnaire, you can make your views known. If public attitudes in your area together with other data indicate that the deer population is either too large or too small, D.E.C. can adjust hunting regulations to modify the deer population accordingly.

To assess the views of farmers and other landowners in your town accurately, we need the responses of everyone receiving this questionnaire. Since we can't contact all landowners in your town, it is important that all those in the sample cooperate. We would like your reply even if you have very little cropland, or if you are satisfied with the number of deer in your area. All information you provide will be kept confidential, and will not be associated with your name.

Your promptness in filling out and returning the questionnaire (postage is provided) will be greatly appreciated. Thank you for your cooperation.

Sincerely yours,

Dan Decker

Daniel J. Decker
Research Associate
Natural Resources

DJD:p
Enclosure

New York State College of Agriculture and Life Sciences
a Statutory College of the State University
Cornell University

Department of Natural Resources
Fernow Hall, Ithaca, N. Y. 14853

Fishery Science
Forest Science
Wildlife Science
Natural Resources
Outdoor Recreation
Environmental Conservation

January 16, 1981

Dear Farmer or Rural Landowner:

About a week ago we sent you a questionnaire concerning deer population levels and deer damage in your area. You may have already returned your questionnaire, and if so we would like to thank you. If you have not yet had an opportunity to complete your questionnaire, we would appreciate it if you would take a few minutes now to fill it out so that we can process all replies as soon as possible.

Since we want the survey results to be accurate not only at the county level, but also at the township level, it is very important that we receive your completed questionnaire. Your response will provide valuable assistance to efforts by the New York State Department of Environmental Conservation to keep deer populations sufficiently high for esthetic enjoyment and hunting, yet low enough to prevent unreasonable damage to crops, orchards, and forest regeneration.

Thank you very much for your help.

Sincerely yours,

Daniel J. Decker
Research Associate
Natural Resources

DJD:p

New York State College of Agriculture and Life Sciences
a Statutory College of the State University
Cornell University

Department of Natural Resources
Fernow Hall, Ithaca, N. Y. 14853

Fishery Science
Forest Science
Wildlife Science
Natural Resources
Outdoor Recreation
Environmental Conservation

January 29, 1981

Dear Farmer or Rural Landowner:

About four weeks ago we sent you a questionnaire concerning deer populations and damage in your area. To date we have not received your reply.

Since we are trying to determine landowner attitudes about deer populations on a township basis, your reply is very important to the success of the study in your town. Please take a few minutes now to complete the questionnaire. Another copy is enclosed in case the first one has been mislaid.

Your assistance will help the New York State Department of Environmental Conservation manage for deer populations in balance with the carrying capacity of their range, within limits that do not cause unreasonable damage to farm crops, orchards and forest regeneration.

All information you provide is kept confidential; it is computer processed, and is not associated with your name.

Thank you for your help.

Sincerely yours,

Dan Decker

Daniel J. Decker
Research Associate
Natural Resources

DJD:p
Enclosure

New York State College of Agriculture and Life Sciences
a Statutory College of the State University
Cornell University

Department of Natural Resources
Fernow Hall, Ithaca, N. Y. 14853

Fishery Science
Forest Science
Wildlife Science
Natural Resources
Resource Policy
and Planning

February 9, 1981

Dear Farmer or Rural Landowner:

We still have not received your questionnaire concerning the deer population and damage in your area. We will soon be processing the survey data by computer and would very much like your completed questionnaire to be included.

Please understand that even if you have only a few acres of land or no problems with deer damage, we need this information to make an accurate assessment of the deer situation in your town. By completing and returning your questionnaire you will help the Department of Environmental Conservation establish deer populations sufficiently large for aesthetic enjoyment and hunting, yet not so large as to cause unreasonable damage to crops, orchards, or forest regeneration.

Please take a few minutes now to complete the questionnaire. Your cooperation will be greatly appreciated.

Sincerely yours,

Dan Decker

Daniel J. Decker
Research Associate
Natural Resources

DJD:p

APPENDIX D: SUPPLEMENTAL AGGREGATE DATA

LIST OF TABLES

LIST OF TABLES
(Continued)

TABLE D-1. COMPARISON OF POSTING AND NONPOSTING FARMERS IN RELATION TO WHOM THEY ALLOW TO HUNT

Posting Status	No One	Family	Friends and Neighbors	Strangers Who Ask (and friends, neighbors and family)	N
	Percent				
Not Posted	15.7	7.5	41.9	34.9	478
Posted	15.5	10.9	54.7	18.9	783
TOTAL	15.5	9.6	49.9	25.0	1261

(χ^2 = 43.96, 3 df)S

TABLE D-2. COMPARISON OF POSTING AND NONPOSTING FARMERS IN RELATION TO PROBLEMS EXPERIENCED WITH HUNTERS

Posting Status	Problems with Hunters			N
	None	Minor	Substantial	
	Percent			
Not Posted	53.8	36.4	9.8	478
Posted	35.4	47.7	16.9	792
TOTAL	42.3	43.4	14.3	1270

(χ^2 = 43.20, 2 df)S

Table D-3. FARMERS' DESCRIPTIONS OF CROP DAMAGE, CLASSIFIED BY PRIMARY LAND USE

Primary Land Use[a]	Description of Deer Damage					N
	None	Light	Moderate	Substantial	Severe	
	Percent					
Dairy	46.4	32.6	10.5	7.2	3.3	362
Other Livestock	54.0	19.3	15.3	9.1	2.3	176
Tree Fruits	32.6	24.8	15.6	17.0	9.9	141
Vegetable Cash Crops	37.8	31.1	13.3	11.1	6.7	45
Grain Cash Crops	39.8	43.2	9.1	4.5	3.4	88
Forest Products	63.6	19.1	11.8	4.5	0.9	110
Currently Inactive Farmland	88.4	9.3	0.0	2.3	0.0	43
Hay	51.1	35.6	11.1	2.2	0.0	45

[a] Several other categories of land use were given by respondents, but they were represented by less than 20 people in each instance. The categories listed in the table encompass 94% of the respondents who reported a primary land use.

Table D-4. FARMERS' ATTITUDES ABOUT CROP DAMAGE, CLASSIFIED BY PRIMARY LAND USE

Primary Land Use[a]	Attitude Toward Deer Damage				N
	Not Aware of Damage	Negligible	Tolerable	Unreasonable	
	Percent				
Dairy	36.5	30.3	22.7	10.5	353
Other Livestock	41.3	27.3	15.1	16.3	172
Tree Fruits	28.6	19.5	18.0	33.8	133
Vegetable Cash Crops	37.8	20.0	22.2	20.0	45
Grain Cash Crops	31.8	37.5	20.5	10.2	88
Forest Products	48.1	23.1	23.1	5.6	108
Currently Inactive Farmland	70.7	24.4	2.4	2.4	41
Hay	48.9	31.1	13.3	6.7	45

[a] Several other categories of land use were given by respondents, but they were represented by less than 20 people in each instance. The categories listed in the table encompass 94% of the respondents who reported a primary land use.

Table D-5 . ESTIMATED PERCENTAGE OF TOTAL CROP VALUE LOST TO DEER FOR FARMERS IN EACH DEER DAMAGE DESCRIPTION GROUP, FOR THOSE WITH DAMAGE

Deer Damage Description	Percentage of Total Crop Value Lost to Deer						
	1%-10%	11%-20%	21%-30%	31%-40%	41%-50%	>50%	N
	Percent						
None	66.7	33.3	0.0	0.0	0.0	0.0	3
Light	96.5	1.5	0.0	0.5	1.0	0.5	197
Moderate	83.0	12.0	3.0	1.0	0.0	1.0	100
Substantial	59.6	20.9	7.5	6.0	6.0	0.0	67
Severe	44.4	25.0	11.1	0.0	5.6	13.9	36
TOTAL	82.1	9.7	3.0	1.5	2.0	1.7	403

(χ^2 = 122.65, 20 df)S

Table D-6 . ESTIMATED PERCENTAGE OF TOTAL CROP VALUE LOST TO DEER FOR FARMERS IN EACH ATTITUDE TOWARD DEER DAMAGE GROUP, FOR THOSE WITH DAMAGE

Attitude Toward Deer Damage	Percentage of Total Crop Value Lost to Deer						
	1%-10%	11%-20%	21%-30%	31%-40%	41%-50%	> 50%	N
	Percent						
Not Aware of Any	75.0	0.0	0.0	0.0	0.0	25.0	4
Negligible	95.7	2.6	0.0	0.9	0.9	0.0	116
Tolerable	91.2	4.8	2.0	0.7	0.7	0.7	147
Unreasonable	62.7	19.8	6.3	3.2	4.0	4.0	126
TOTAL	83.2	8.9	2.8	1.5	2.0	1.5	393

(χ^2 = 69.89, 15 df)S

TABLE D-7. DEER DAMAGE CONTROL METHODS

Control Method	All Farmers	Farmers With Damage[a]	Farmers Without Damage
	Percent Using Control Method		
DEC permit to shoot deer[b]	3.4	8.2	1.5
Chemical repellents	8.0	15.0	5.2
Fences	4.2	7.4	2.9
Devices to scare deer	4.8	9.9	2.6
Other Methods	7.5	14.7	4.5

[a] Includes anyone indicating deer damage.

[b] Does not necessarily mean farmers actually shot deer, only that they applied for a permit to do so.

Table D-8. OTHER WILDLIFE DAMAGE

Species	Percent Reporting Damage by Species	Percent of Those with Damage Reporting Most Damage Caused by Species[a]
	(n=1257)	(n=796)
Deer	b	47.3
Woodchucks	17.6	18.8
Raccoons	19.6	15.7
Mice-rats	4.7	4.4
Birds (not specified)	3.6	3.1
Blackbirds	3.3	2.5
Rabbits	5.2	2.3
Insects	1.3	1.3
Crows	1.4	1.0
Grackles	1.3	0.8
Moles	0.8	0.6
Squirrels-chipmunks	1.3	0.5
Pigeons-doves	0.6	0.4
Waterfowl	0.3	0.3
Skunks	0.4	0.3
Wild dogs	0.2	0.3
Foxes	0.6	0.1
Coyotes	0.1	0.1
Muskrats	0.6	0.1
Wild turkeys	0.2	0.1
Pheasants	0.2	0.0

[a]Missing responses = 100. No damage or no species indicated responses = 415. Both omitted from n.

[b]The incidence of other wildlife reported as causing crop damage should be compared to the incidence of deer damage reported by respondents - 27.4% (n = 1312).

Table D-9. LARGEST NUMBER OF DEER FARMERS SAW AT ONE TIME ON THEIR PROPERTY IN THE 12 MONTHS PRIOR TO THE SURVEY

Number of Deer Seen at One Time	Percent of Farmers (n=1278)
0	4.9
1-5	35.0
6-10	28.6
11-15	13.2
16-20	6.7
21-25	2.7
26-30	2.6
≥ 31	6.3

Table D-10. FARMERS' ATTITUDES ABOUT DEER

Attitude	All Farmers (n=1281)	Farmers With Damage[a] (n=358)	Farmers Without Damage (n=923)
	Percent		
Aesthetically valuable	63.5	35.2	74.6
Worry about crop damage	24.0	50.9	13.5
Deer are nuisance	4.8	10.3	2.7
No particular feelings about deer	7.7	3.6	9.2

$(\chi^2 = 254.04, 3\ df)S$

[a]Includes anyone indicating deer damage.

Table D-11. ESTIMATED PERCENTAGE OF TOTAL CROP VALUE LOST TO DEER FOR FARMERS IN EACH ATTITUDE TOWARD DEER GROUP, FOR THOSE WITH DAMAGE

Attitude Toward Deer	Percentage of Total Crop Value Lost to Deer						
	1%-10%	11%-20%	21%-30%	31%-40%	41%-50%	> 50%	N
	Percent						
Aesthetically valuable	94.1	2.9	0.0	0.6	1.2	1.2	173
Worry about crop damage	72.9	14.4	5.0	2.2	3.3	2.2	181
Deer are nuisance	67.6	21.6	8.1	0.0	0.0	2.7	37
No particular feelings about deer	90.9	0.0	0.0	9.1	0.0	0.0	11
TOTAL	82.1	9.7	3.0	1.5	2.0	1.7	402

(χ^2 = 46.48, 15 df)S

Table 12. FARMERS' ATTITUDES ABOUT DEER, CLASSIFIED BY PRIMARY LAND USE

Primary Land Use	Aesthetically Valuable	Worry About Damage	Nuisance	No Particular Feelings About Deer	N
	Percent				
Dairy	64.1	22.8	4.2	8.9	359
Other Livestock	68.2	23.7	2.3	5.8	173
Tree Fruits	27.9	47.8	12.5	11.8	136
Vegetable Cash Crops	46.7	35.6	6.7	11.1	45
Grain Cash Crops	76.1	14.8	4.5	4.5	88
Forest Products	83.5	14.7	1.8	0.0	109
Currently Inactive Farmland	88.1	2.4	0.0	9.5	42
Hay	71.1	13.3	2.2	13.3	45

Table D-13. FUTURE DEER POPULATION TRENDS DESIRED BY FARMERS IN COMMON PRIMARY LAND USE CATEGORIES

Primary Land Use	Future Deer Population Trend Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
Dairy	8.9	5.6	62.0	10.9	12.6	358
Other Livestock	16.0	7.1	49.1	11.8	16.0	169
Tree Fruits	4.4	2.9	39.7	18.4	34.6	136
Vegetable Cash Crops	15.6	6.7	44.4	11.1	22.2	45
Grain Cash Crops	16.9	7.9	56.2	12.4	6.7	89
Forest Products	23.4	2.8	51.4	12.1	10.3	107
Currently Inactive Farmland	31.7	9.8	48.8	4.9	4.9	41
Hay	18.2	2.3	59.1	15.9	4.5	44

Table D-14. FUTURE DEER POPULATION TRENDS DESIRED BY FARMERS WITH AND WITHOUT DAMAGE

Damage Category	Future Deer Population Trend Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
Did not report damage	16.4	8.7	58.8	7.6	8.6	910
Reported damage	4.2	1.4	35.0	24.9	34.5	354
TOTAL	13.0	6.6	52.1	12.4	15.8	1264

$(\chi^2 = 246.02, 4\ df)S$

[a]Includes anyone indicating deer damage.

Table D-15. ESTIMATED DOLLARS OF DAMAGE FOR FARMERS IN EACH FUTURE DEER POPULATION TREND GROUP, FOR THOSE WITH DAMAGE

Future Deer Population Trend Desired	Damage				Average Dollars of Damage for Those with Damage	N
	$1-$99	$100-$499	$500-$999	≥ $1000		
	Percent					
Moderately Increase	30.0	60.0	10.0	0.0	$ 166.10	10
Slightly Increase	0.0	60.0	20.0	20.0	500.00	5
Remain the Same	12.4	59.1	15.2	13.3	654.19	105
Slightly Decrease	3.7	30.9	23.5	41.9	1254.68	81
Moderately Decrease	3.9	19.4	8.7	68.0	5977.56	103
TOTAL	7.6	38.2	15.1	39.1	$2599.23	304

$(\chi^2 = 89.20, 12\ df)S$

Table D-16. ESTIMATED PERCENTAGE OF TOTAL CROP VALUE LOST TO DEER FOR FARMERS IN EACH FUTURE DEER POPULATION TREND GROUP, FOR THOSE WITH DAMAGE

Future Deer Population Trend Desired	Percentage of Total Crop Value Lost to Deer						
	1%-10%	11%-20%	21%-30%	31%-40%	41%-50%	> 50%	N
	Percent						
Moderately Increase	95.8	4.2	0.0	0.0	0.0	0.0	24
Slightly Increase	100.0	0.0	0.0	0.0	0.0	0.0	14
Remain the Same	95.6	2.5	0.0	0.0	1.3	0.6	157
Slightly Decrease	78.5	10.2	3.4	3.4	3.4	1.1	88
Moderately Decrease	62.0	21.2	7.6	2.5	2.5	4.2	118
TOTAL	82.1	9.7	3.0	1.5	2.0	1.7	401

$(\chi^2 = 65.66, 20 \text{ df})S$

Table D-17. COMPARISON OF FARMERS' DEER DAMAGE DESCRIPTIONS AND FUTURE DEER POPULATION TRENDS DESIRED

Descriptions of Damage	Future Deer Population Trend Desired					
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	N
	Percent					
None	20.5	9.9	62.6	3.9	3.1	616
Light	9.5	5.0	64.2	16.9	4.4	338
Moderate	3.9	3.3	30.3	30.3	32.2	152
Substantial	0.0	1.0	5.0	25.7	68.3	101
Severe	0.0	0.0	4.1	8.2	87.7	49

$(\chi^2 = 737.62, 16 \text{ df})S$

Table D-18. COMPARISON OF FARMERS' ATTITUDES ABOUT DEER DAMAGE AND FUTURE DEER POPULATION TRENDS DESIRED

Attitude About Deer Damage	Future Deer Population Trend Desired					
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	N
	Percent					
Not Aware of Any Damage	20.1	10.2	62.5	4.1	3.1	488
Negligible	15.8	6.4	57.8	12.4	7.6	330
Tolerable (in exchange for deer's presence)	3.8	3.8	57.8	26.5	8.1	234
Unreasonable	0.0	1.1	9.4	16.1	73.4	180

(χ^2 = 681.45, 12 df)S

Table D-19. FUTURE DEER POPULATION TRENDS DESIRED BY FARMERS WHO HUNTED DEER VS. THOSE WHO DID NOT HUNT DEER

Deer Hunting Status	Future Deer Population Trend Desired					
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	N
	Percent					
Nonhunter	9.9	4.7	55.6	12.0	17.8	747
Hunted Deer in 1980	17.6	8.8	47.9	13.4	12.3	374
Hunted Deer Prior to 1980	17.4	11.6	44.2	11.6	15.2	138

(χ^2 = 35.64, 8 df)S

Table D-20. COMPARISON OF LARGEST NUMBER OF DEER SEEN ON FARM AT ONE TIME AND FUTURE DEER POPULATION TRENDS DESIRED

Number of Deer Seen At One Time	Future Deer Population Trend Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
0	25.5	5.5	61.7	1.8	5.5	55
1-5	19.6	8.1	60.3	6.0	6.0	433
6-10	10.8	8.8	53.3	16.8	10.3	351
11-15	6.6	3.0	60.4	12.0	18.0	167
16-20	8.2	5.9	30.6	17.6	37.7	85
21-25	11.8	5.9	26.5	32.3	23.5	34
26-30	3.0	3.0	33.3	24.2	36.5	33
$\geq$ 31	2.5	0.0	21.3	16.3	59.9	80

$(\chi^2 = 304.30, 28 \text{ df})S$

Table D-21. COMPARISON OF FIVE-YEAR TREND ESTIMATE AND FUTURE DEER POPULATION TRENDS DESIRED

Five-year Trend Estimate	Future Deer Population Trend Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
More deer now than five years ago	6.4	3.3	37.9	19.9	32.5	483
About the same number of deer now as five years ago	8.6	6.0	70.2	10.3	4.9	465
Fewer deer now than five years ago	35.7	16.7	41.2	2.3	4.1	221
Don't know	15.6	3.3	61.1	8.9	11.1	90

$(\chi^2 = 391.73, 12 \text{ df})S$

Table D-22. COMPARISON OF FARMERS' ATTITUDES ABOUT DEER AND FUTURE DEER POPULATION TRENDS DESIRED

Attitude	Future Deer Population Trends Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
Aesthetically valuable	19.9	9.6	63.3	5.3	1.9	792
Worry about crop damage	0.7	2.0	24.3	32.9	40.1	304
Deer are nuisance	0.0	1.7	8.3	8.3	81.7	60
No particular feelings about deer	4.3	0.0	77.4	7.5	10.8	93

(χ^2 = 721.60, 12 df)S

Table D-23. COMPARISON OF FARMERS' HOUSEHOLD INCOMES FROM FARM AND FUTURE DEER POPULATION TRENDS DESIRED

Percent of Farmers Income Contributed by Farm Products	Future Deer Population Trend Desired					N
	Moderately Increase	Slightly Increase	Remain the Same	Slightly Decrease	Moderately Decrease	
	Percent					
0-25%	18.7	8.5	51.9	11.0	10.0	621
26-50%	8.2	4.1	56.2	13.7	17.8	73
51-75%	11.3	4.1	50.5	12.4	21.6	97
76-100%	6.6	4.7	51.9	14.7	22.0	422

(χ^2 = 66.17, 12 df)S

APPENDIX E: CROP FREQUENCY AND DAMAGE DATA, BY TOWN

EXPLANATION OF APPENDIX E

Heading on Tables	Explanation
All Farms - Number of Farms	Number of People responding, by town
All Farms - [Percent with Crop [Percent with Woods	Percent of respondents who indicated growing a crop or having woods (i.e. indicated at least one acre of crop or woods or indicated a nonnumeric acreage response or indicated damage to a crop).
For Farms with Crop - Mean Acres	Tree Fruit: Fruit acreage is the sum of the acreage of apples, peaches, cherries, and other tree fruit. As a program-created variable, the only useable responses are those which indicated numeric acreage for each fruit. "Mean acres" is the title for the average acres of fruit of those growing fruit and giving a numeric acreage response. Others: The average acres of crop or woods of those landowners growing the crop or having woods and giving a numeric acreage response.
For Farms with Crop - Mean Damage	The average dollars of crop damage for those growing the crop and giving a numeric damage response.
For Farms with Crop - Percent with Damage	Percent of respondents who grew the crop and indicated damage to the crop (either by a numeric dollars or damage response or by a nonnumeric damage response).
For Farms with Damage - Mean Damage	The average dollars of damage for respondents who indicated damage to the crop and responded with numeric dollars of damage.

APPENDIX E: CROP FREQUENCY AND DAMAGE DATA, BY TOWN

LIST OF TABLES

Table E-1. TREE FRUITS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	44	6.8	2	$ 0	0.0	---
Colonie	18	5.6	1	0	0.0	---
Columbia						
Chatham	43	11.6	16	3019	75.0	$4026
Claverack	44	18.2	163	3650	100.0	3650
Clermont	22	40.9	53	28	28.6	100
Gallatin	16	6.3	60	0	0.0	---
Germantown	14	50.0	23	625	50.0	1250
Ghent	55	9.1	15	0	0.0	---
Greenport	9	44.4	85	1833	100.0	1833
Kinderhook	32	28.1	54	0	0.0	---
Livingston	31	45.2	149	4255	60.0	7091
Stockport	10	10.0	40	50	100.0	50
Stuyvesant	30	10.0	11	333	33.3	1000
Taghkanic	19	5.3	74	100	100.0	100
Dutchess						
Amenia	30	3.3	2	n.g.	n.g.	n.g.
Clinton	51	9.8	3	338	75.0	450
Dover	24	12.5	4	17	33.3	50
Hyde Park	9	0.0	---	---	---	---
LaGrange	39	15.4	58	0	0.0	---
Milan	23	0.0	---	---	---	---
Pine Plains	25	0.0	---	---	---	---
Pleasant Valley	38	7.9	45	100	100.0	100
Poughkeepsie	10	30.0	143	650	100.0	650
Red Hook	51	33.3	68	4960	50.0	9920
Rhinebeck	36	5.6	7	n.g.	n.g.	n.g.
Stanford	41	7.3	4	0	0.0	---
Union Vale	35	5.7	2	0	0.0	---
Wappinger	4	25.0	25	40	100.0	40
Washington	63	9.5	4	400	20.0	2000
Greene						
Athens	10	30.0	53	500	50.0	1000
Orange						
Blooming Grove	7	14.3	23	4000	100.0	4000
Chester	13	0.0	---	---	---	---
Crawford	43	7.0	3	33	33.3	100
Goshen	30	0.0	---	---	---	---

Table E-1 (cont'd). TREE FRUITS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Hamptonburgh	19	0.0	---	---	---	---
Minisink	19	5.3	1	$ 0	0.0	---
Montgomery	49	6.1	64	8333	66.7	$12500
Newburgh	3	0.0	---	---	---	---
New Windsor	8	12.5	120	1000	100.0	1000
Wallkill	27	7.4	3	0	0.0	---
Wawayanda	24	0.0	---	---	---	---
Ulster						
Esopus	19	52.6	31	3340	60.0	5567
Lloyd	19	89.5	133	683	58.3	1171
Marlborough	51	86.3	90	96	10.3	940
Plattekill	18	72.2	185	184	40.0	460
Rosendale	3	0.0	---	---	---	---
Ulster	8	25.0	175	50000	100.0	50000

n.g. - not given, all respondents refused this information.

Table E-2. SMALL FRUITS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	42	0.0	---	---	---	---
Colonie	15	0.0	---	---	---	---
Columbia						
Chatham	42	4.8	9	n.g.	n.g.	n.g.
Claverack	41	12.2	39	$ 0	25.0	n.g.
Clermont	21	0.0	---	---	---	---
Gallatin	16	0.0	---	---	---	---
Germantown	14	7.1	2	0	0.0	---
Ghent	51	0.0	---	---	---	---
Greenport	8	0.0	---	---	---	---
Kinderhook	32	6.3	3	0	0.0	---
Livingston	28	3.6	2	0	0.0	---
Stockport	9	0.0	---	---	---	---
Stuyvesant	29	0.0	---	---	---	---
Taghkanic	18	5.6	2	0	0.0	---
Dutchess						
Amenia	29	0.0	---	---	---	---
Clinton	47	4.3	3	1000	50.0	$2000
Dover	24	0.0	---	---	---	---
Hyde Park	9	0.0	---	---	---	---
LaGrange	39	2.6	7	n.g.	n.g.	n.g.
Milan	23	0.0	---	---	---	---
Pine Plains	25	4.0	n.g.	n.g.	n.g.	n.g.
Pleasant Valley	37	2.7	2	0	0.0	---
Poughkeepsie	10	0.0	---	---	---	---
Red Hook	50	2.0	55	0	0.0	---
Rhinebeck	35	0.0	---	---	---	---
Stanford	41	0.0	---	---	---	---
Union Vale	34	2.9	1	0	0.0	---
Wappinger	3	0.0	---	---	---	---
Washington	60	1.7	20	n.g.	n.g.	n.g.
Greene						
Athens	10	10.0	1	0	0.0	---
Orange						
Blooming Grove	6	0.0	---	---	---	---
Chester	13	0.0	---	---	---	---
Crawford	40	5.0	8	0	0.0	---
Goshen	30	0.0	---	---	---	---
Hamptonburgh	19	5.3	10	0	0.0	---
Minisink	19	5.3	5	0	0.0	---

E-2 (cont'd). SMALL FRUITS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	0.0	---	---	---	---
Newburgh	3	0.0	---	---	---	---
New Windsor	7	14.3	8	$ 0	0.0	---
Wallkill	26	0.0	---	---	---	---
Wawayanda	23	0.0	---	---	---	---
Ulster						
Esopus	19	5.3	1	400	100.0	$ 400
Lloyd	19	26.3	4	0	0.0	---
Marlborough	49	12.2	2	0	0.0	---
Plattekill	18	0.0	---	---	---	---
Rosendale	3	0.0	---	---	---	---
Ulster	8	0.0	---	---	---	---

n.g. - not given, all respondents refused this information.

E-3. GRAPES FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	42	0.0	---	---	---	---
Colonie	15	0.0	---	---	---	---
Columbia						
Chatham	42	0.0	---	---	---	---
Claverack	41	4.9	18	$ 0	0.0	---
Clermont	21	28.6	13	0	0.0	---
Gallatin	16	25.0	4	800	50.0	$1600
Germantown	13	30.8	5	0	0.0	---
Ghent	51	3.9	1	0	0.0	---
Greenport	8	0.0	---	---	---	---
Kinderhook	32	0.0	---	---	---	---
Livingston	29	24.1	14	0	0.0	---
Stockport	10	0.0	---	---	---	---
Stuyvesant	29	0.0	---	---	---	---
Taghkanic	18	0.0	---	---	---	---
Dutchess						
Amenia	29	3.4	14	6000	100.0	6000
Clinton	47	4.3	1	500	50.0	1000
Dover	24	4.2	1	0	0.0	---
Hyde Park	9	0.0	---	---	---	---
LaGrange	39	0.0	---	---	---	---
Milan	23	0.0	---	---	---	---
Pine Plains	25	4.0	n.g.	n.g.	n.g.	n.g.
Pleasant Valley	37	2.7	20	n.g.	n.g.	n.g.
Poughkeepsie	10	0.0	---	---	---	---
Red Hook	50	4.0	32	0	0.0	---
Rhinebeck	36	0.0	---	---	---	---
Stanford	41	2.4	1	n.g.	n.g.	n.g.
Union Vale	34	0.0	---	---	---	---
Wappinger	3	0.0	---	---	---	---
Washington	60	5.0	2	38	50.0	75
Greene						
Athens	10	0.0	---	---	---	---
Orange						
Blooming Grove	6	0.0	---	---	---	---
Chester	13	0.0	---	---	---	---
Crawford	40	0.0	---	---	---	---
Goshen	30	0.0	---	---	---	---
Hamptonburgh	19	0.0	---	---	---	---
Minisink	19	5.3	1	0	0.0	---

E-3. (cont'd) GRAPES FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	0.0	---	---	---	---
Newburgh	3	0.0	---	---	---	---
New Windsor	7	0.0	---	---	---	---
Wallkill	26	3.8	1	$ 0	0.0	---
Wawayanda	23	0.0	---	---	---	---
Ulster						
Esopus	19	5.3	9	0	0.0	---
Lloyd	19	10.5	3	0	0.0	---
Marlborough	49	32.7	9	0	0.0	---
Plattekill	18	0.0	---	---	---	---
Rosendale	3	0.0	---	---	---	---
Ulster	8	0.0	---	---	---	---

n.g.- not given, all respondents refused this information.

E-4. GREEN VEGETABLES FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	34.9	7	$ 95	50.0	$ 210
Colonie	15	33.3	18	0	0.0	---
Columbia						
Chatham	42	7.1	1	8	33.3	25
Claverack	41	7.3	11	25	50.0	50
Clermont	21	19.0	19	167	33.3	500
Gallatin	16	12.5	55	500	50.0	1000
Germantown	14	21.4	2	0	0.0	---
Ghent	52	7.7	2	0	0.0	---
Greenport	8	12.5	10	n.g.	n.g.	n.g.
Kinderhook	32	15.6	3	6	20.0	30
Livingston	28	25.0	92	503	50.0	1005
Stockport	10	10.0	14	0	0.0	---
Stuyvesant	29	6.9	2	0	0.0	---
Taghkanic	18	16.7	1	75	50.0	150
Dutchess						
Amenia	29	0.0	---	---	---	---
Clinton	47	19.1	2	78	50.0	156
Dover	24	16.7	7	1083	100.0	1083
Hyde Park	9	0.0	---	---	---	---
LaGrange	38	15.8	6	n.g.	20.0	n.g.
Milan	23	8.7	3	30	100.0	30
Pine Plains	25	4.0	n.g.	n.g.	n.g.	n.g.
Pleasant Valley	36	5.6	1	n.g.	n.g.	n.g.
Poughkeepsie	10	10.0	8	4100	100.0	4100
Red Hook	49	12.2	10	250	25.0	1000
Rhinebeck	35	8.6	18	3000	100.0	3000
Stanford	41	2.4	1	n.g.	n.g.	n.g.
Union Vale	33	15.2	1	220	40.0	550
Wappinger	3	33.3	4	350	100.0	350
Washington	59	13.6	1	0	0.0	---
Greene						
Athens	10	10.0	4	750	100.0	750
Orange						
Blooming Grove	6	16.7	4	0	0.0	---
Chester	13	0.0	---	---	---	---
Crawford	39	5.1	2	0	0.0	---
Goshen	30	13.3	5	0	0.0	---
Hamptonburgh	19	21.1	55	n.g.	33.3	n.g.
Minisink	19	5.3	6	100	100.0	100

E-4. (cont'd) GREEN VEGETABLES FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	11.4	41	$ 625	25.0	$ 2500
Newburgh	3	33.3	100	n.g.	n.g.	n.g.
New Windsor	7	0.0	---	---	---	---
Wallkill	26	11.5	3	0	0.0	---
Wawayanda	23	4.3	15	0	0.0	---
Ulster						
Esopus	19	15.8	2	0	0.0	---
Lloyd	19	5.3	1	300	100.0	300
Marlborough	49	8.2	5	0	0.0	---
Plattekill	18	22.2	5	17	33.3	50
Rosendale	3	0.0	---	---	---	---
Ulster	8	25.0	20	100	100.0	100

n.g. - not given, all respondents refused this information.

E-5. CORN FREQUENCY AND DAMAGE DATA, BY TOWN.

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	48.8	80	$ 232	23.5	$ 988
Colonie	15	46.7	19	0	0.0	---
Columbia						
Chatham	42	45.2	74	93	35.7	271
Claverack	41	56.1	83	52	31.6	240
Clermont	21	71.4	84	115	35.7	375
Gallatin	16	62.5	61	400	66.7	640
Germantown	14	35.7	23	75	25.0	300
Ghent	50	62.0	89	192	36.0	576
Greenport	7	42.9	89	1280	100.0	965
Kinderhook	31	71.0	117	137	15.0	1300
Livingston	28	60.7	150	450	66.7	622
Stockport	9	66.7	61	n.g.	25.0	n.g.
Stuyvesant	29	72.4	94	125	22.2	417
Taghkanic	18	38.9	89	4050	83.3	4860
Dutchess						
Amenia	29	79.3	124	1694	55.6	3050
Clinton	47	29.8	28	158	50.0	317
Dover	24	58.3	67	17	20.0	150
Hyde Park	9	22.2	10	25	50.0	50
LaGrange	39	59.0	61	79	50.0	242
Milan	23	39.1	15	44	50.0	103
Pine Plains	25	76.0	69	61	30.8	244
Pleasant Valley	37	32.4	45	294	25.0	817
Poughkeepsie	10	10.0	60	n.g.	100.0	n.g.
Red Hook	50	52.0	49	197	42.1	469
Rhinebeck	36	25.0	119	1260	60.0	2100
Stanford	40	57.5	54	600	56.3	1067
Union Vale	33	39.4	79	3831	66.7	4968
Wappinger	3	66.7	28	25	50.0	50
Washington	59	45.8	56	805	75.0	1073
Greene						
Athens	10	50.0	41	250	33.3	750
Orange						
Blooming Grove	6	33.3	60	0	0.0	---
Chester	13	69.2	97	83	11.1	750
Crawford	37	64.9	51	237	37.5	633
Goshen	30	50.0	76	292	25.0	1167
Hamptonburgh	17	82.4	69	289	50.0	650

E-5. (cont'd) CORN FREQUENCY AND DAMAGE DATA, BY TOWN.

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Minisink	17	58.8	76	n.g.	10.0	n.g.
Montgomery	44	81.8	72	$ 209	30.8	$ 747
Newburgh	3	33.3	30	n.g.	n.g.	n.g.
New Windsor	7	57.1	40	425	50.0	850
Wallkill	25	60.0	32	45	18.2	250
Wawayanda	22	81.8	42	44	17.6	350
Ulster						
Esopus	19	15.8	34	1000	100.0	1000
Lloyd	19	5.3	15	200	100.0	200
Marlborough	49	6.1	3	0	0.0	---
Plattekill	18	5.6	25	0	0.0	---
Rosendale	3	33.3	40	200	100.0	200
Ulster	8	62.5	246	50	25.0	200

n.g. - not given, all respondents refused this information

E-6. WHEAT FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	9.3	31	$ 0	0.0	---
Colonie	15	6.7	10	0	0.0	---
Columbia						
Chatham	42	0.0	---	---	---	---
Claverack	42	11.9	31	n.g.	20.0	n.g.
Clermont	21	4.8	25	0	0.0	---
Gallatin	16	12.5	7	75	50.0	$ 150
Germantown	14	0.0	---	---	---	---
Ghent	54	3.7	54	0	0.0	---
Greenport	8	0.0	---	---	---	---
Kinderhook	32	6.3	37	0	0.0	---
Livingston	29	3.4	10	100	100.0	100
Stockport	10	10.0	5	n.g.	n.g.	n.g.
Stuyvesant	29	0.0	---	---	---	---
Taghkanic	18	5.6	10	0	0.0	---
Dutchess						
Amenia	29	0.0	---	---	---	---
Clinton	47	0.0	---	---	---	---
Dover	24	0.0	---	---	---	---
Hyde Park	9	0.0	---	---	---	---
LaGrange	39	7.7	32	800	100.0	800
Milan	23	4.3	8	n.g.	100.0	n.g.
Pine Plains	25	4.0	100	0	0.0	---
Pleasant Valley	37	0.0	---	---	---	---
Poughkeepsie	10	0.0	---	---	---	---
Red Hook	51	5.9	37	0	0.0	---
Rhinebeck	36	2.8	20	400	100.0	400
Stanford	41	7.3	175	0	0.0	---
Union Vale	34	8.8	17	500	33.3	1500
Wappinger	3	0.0	---	---	---	---
Washington	59	3.4	14	500	50.0	1000
Greene						
Athens	10	0.0	---	---	---	---
Orange						
Blooming Grove	6	0.0	---	---	---	---
Chester	13	0.0	---	---	---	---
Crawford	40	2.5	20	0	0.0	---
Goshen	30	3.3	20	0	0.0	---
Hamptonburgh	19	10.5	9	0	0.0	---
Minisink	19	5.3	35	0	0.0	---

E-6. (cont'd) WHEAT FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	4.5	13	$ 0	0.0	---
Newburgh	3	0.0	---	---	---	---
New Windsor	7	14.3	20	200	100.0	$ 200
Wallkill	26	0.0	---	---	---	---
Wawayanda	23	0.0	---	---	---	---
Ulster						
Esopus	19	0.0	---	---	---	---
Lloyd	19	0.0	---	---	---	---
Marlborough	49	0.0	---	---	---	---
Plattekill	18	0.0	---	---	---	---
Rosendale	3	0.0	---	---	---	---
Ulster	8	0.0	---	---	---	---

n.g. - not given, all respondents refused this information.

E-7. HAY FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	69.8	55	$ 0	0.0	---
Colonie	15	53.3	70	0	0.0	---
Columbia						
Chatham	42	76.2	97	206	25.0	$ 823
Claverack	43	62.8	85	236	26.1	903
Clermont	21	66.7	35	0	0.0	---
Gallatin	16	81.3	61	363	37.5	967
Germantown	14	28.6	55	0	0.0	---
Ghent	53	71.7	99	15	8.6	255
Greenport	7	28.6	143	2880	100.0	2880
Kinderhook	32	71.6	69	0	0.0	---
Livingston	28	64.3	78	96	15.4	625
Stockport	10	70.0	61	0	0.0	---
Stuyvesant	29	72.4	93	58	10.0	575
Taghkanic	18	61.1	117	650	40.0	1625
Dutchess						
Amenia	29	75.9	118	2018	41.2	4900
Clinton	47	48.9	33	72	26.3	274
Dover	24	66.7	77	58	16.7	350
Hyde Park	9	33.3	43	23	33.3	70
LaGrange	39	64.1	63	98	27.8	418
Milan	23	78.3	47	50	26.7	233
Pine Plains	24	79.2	66	36	16.7	217
Pleasant Valley	36	66.7	67	82	22.2	467
Poughkeepsie	10	50.0	35	n.g.	20.0	n.g.
Red Hook	50	44.0	70	0	0.0	---
Rhinebeck	34	61.8	56	179	21.4	833
Stanford	40	70.0	88	228	38.9	538
Union Vale	34	73.5	84	883	27.8	3180
Wappinger	3	66.7	81	50	50.0	100
Washington	59	72.9	80	268	25.0	1072
Greene						
Athens	10	70.0	56	20	20.0	100
Orange						
Blooming Grove	6	100.0	88	0	0.0	---
Chester	13	92.3	100	18	9.1	200
Crawford	38	81.6	69	42	21.7	195
Goshen	30	93.3	81	21	8.3	250
Hamptonburgh	17	88.2	96	58	16.7	350
Minisink	17	94.1	66	7	12.5	100

E-7. (cont'd) HAY FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	81.8	69	$ 66	25.9	$ 330
Newburgh	3	33.3	150	0	0.0	---
New Windsor	7	85.7	51	8	16.7	50
Wallkill	26	80.8	57	617	20.0	3083
Wawayanda	22	86.4	52	0	0.0	---
Ulster						
Esopus	19	47.4	39	n.g.	14.3	n.g.
Lloyd	19	10.5	5	0	0.0	---
Marlborough	49	8.2	46	0	0.0	---
Plattekill	18	38.9	36	17	16.7	100
Rosendale	3	33.3	6	0	0.0	---
Ulster	8	62.5	32	40	20.0	200

n.g. - not given, all respondents refused this information.

E-8. FOREST PLANTATIONS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	14.0	7	$ 0	0.0	---
Colonie	15	6.7	6	0	0.0	---
Columbia						
Chatham	42	23.8	26	13	25.0	$ 53
Claverack	42	19.0	9	0	0.0	---
Clermont	21	19.0	3	0	0.0	---
Gallatin	16	12.5	8	0	0.0	---
Germantown	14	14.3	3	0	0.0	---
Ghent	54	18.5	19	0	0.0	---
Greenport	8	0.0	---	---	---	---
Kinderhook	32	12.5	15	0	0.0	---
Livingston	29	6.9	8	0	0.0	---
Stockport	10	0.0	---	---	---	---
Stuyvesant	29	13.8	36	0	0.0	---
Taghkanic	18	44.4	20	0	0.0	---
Dutchess						
Amenia	29	17.2	21	67	33.3	200
Clinton	46	30.4	37	77	7.7	1000
Dover	24	4.2	10	n.g.	n.g.	n.g.
Hyde Park	9	11.1	5	0	0.0	---
LaGrange	38	15.8	10	33	50.0	100
Milan	23	30.4	27	80	50.0	200
Pine Plains	25	20.0	70	0	0.0	---
Pleasant Valley	37	10.8	18	0	0.0	---
Poughkeepsie	10	0.0	---	---	---	---
Red Hook	50	18.0	80	167	16.7	1000
Rhinebeck	36	16.7	51	21683	50.0	43367
Stanford	41	22.0	45	0	0.0	---
Union Vale	34	17.6	55	13	25.0	50
Wappinger	3	0.0	---	---	---	---
Washington	58	24.1	51	274	20.0	1030
Greene						
Athens	10	0.0	---	---	---	---
Orange						
Blooming Grove	6	0.0	---	---	---	---
Chester	13	0.0	---	---	---	---
Crawford	40	7.5	3	0	0.0	---
Goshen	30	3.3	30	n.g.	n.g.	n.g.
Hamptonburgh	19	0.0	---	---	---	---
Minisink	19	0.0	---	---	---	---

E-8. (cont'd) FOREST PLANTATIONS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	44	2.3	10	n.g.	n.g.	n.g.
Newburgh	3	33.3	5	$ 0	0.0	---
New Windsor	7	0.0	---	---	---	---
Wallkill	26	3.8	500	0	0.0	---
Wawayanda	23	0.0	---	---	---	---
Ulster						
Esopus	19	5.3	2	0	0.0	---
Lloyd	19	5.3	5	n.g.	n.g.	n.g.
Marlborough	49	4.1	38	0	0.0	---
Plattekill	18	0.0	---	---	---	---
Rosendale	3	0.0	---	---	---	---
Ulster	8	12.5	21	0	0.0	---

n.g. - not given, all respondents refused this information.

E-9. WOODLANDS FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	FOR FARMS WITH CROP Mean Acres	FOR FARMS WITH CROP Mean $ Damage	FOR FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Albany						
Bethlehem	43	65.1	23	$ 0	0.0	---
Colonie	15	40.0	28	0	0.0	---
Columbia						
Chatham	42	78.6	54	1	7.4	$ 30
Claverack	42	54.8	58	n.g.	5.6	n.g.
Clermont	21	71.4	42	0	0.0	---
Gallatin	16	62.5	44	0	0.0	---
Germantown	13	61.5	46	0	0.0	---
Ghent	51	72.5	68	n.g.	2.9	n.g.
Greenport	7	57.1	123	0	0.0	---
Kinderhook	32	53.1	87	0	0.0	---
Livingston	28	53.6	59	0	0.0	---
Stockport	9	66.7	78	0	0.0	---
Stuyvesant	29	55.2	105	0	0.0	---
Taghkanic	18	61.1	118	0	0.0	---
Dutchess						
Amenia	29	62.1	69	0	0.0	---
Clinton	45	66.7	31	n.g.	3.6	n.g.
Dover	23	69.6	110	0	0.0	---
Hyde Park	7	71.4	56	15	20.0	75
LaGrange	39	69.4	36	n.g.	4.8	n.g.
Milan	23	69.6	58	n.g.	7.7	n.g.
Pine Plains	25	56.0	83	28	8.3	333
Pleasant Valley	36	55.6	51	n.g.	6.7	n.g.
Poughkeepsie	10	60.0	33	0	0.0	---
Red Hook	50	52.0	77	0	0.0	---
Rhinebeck	35	60.0	44	0	0.0	---
Stanford	40	72.5	103	0	0.0	---
Union Vale	33	72.7	85	3	4.5	538
Wappinger	3	66.7	145	0	0.0	---
Washington	58	53.4	116	0	0.0	---
Greene						
Athens	10	70.0	32	0	0.0	---
Orange						
Blooming Grove	6	83.3	33	0	0.0	---
Chester	13	46.2	34	0	0.0	---
Crawford	39	59.0	34	0	0.0	---
Goshen	30	43.3	65	0	0.0	---
Hamptonburgh	18	44.4	28	0	0.0	---
Minisink	18	55.6	58	0	0.0	---

E-9. (cont'd) WOODLANDS FREQUENCY AND DAMAGE DATA, BY TOWN.

County Town	ALL FARMS Number of Farms	ALL FARMS Percent with Crop	ALL FARMS WITH CROP Mean Acres	ALL FARMS WITH CROP Mean $ Damage	ALL FARMS WITH CROP Percent with Damage	FOR FARMS WITH DAMAGE Mean $ Damage
Montgomery	42	52.4	39	$ 0	0.0	---
Newburgh	3	66.7	24	0	0.0	---
New Windsor	7	57.1	64	0	0.0	---
Wallkill	25	48.0	37	0	0.0	---
Wawayanda	23	56.5	42	0	0.0	---
Ulster						
Esopus	19	52.6	63	0	0.0	---
Lloyd	19	52.6	68	0	0.0	---
Marlborough	49	38.8	37	0	0.0	---
Plattekill	18	61.1	98	0	0.0	---
Rosendale	3	33.3	30	0	0.0	---
Ulster	8	62.5	144	0	0.0	---

n.g. - not given, all respondents refused this information

E-10. "OTHER FARM CROP" FREQUENCY AND DAMAGE DATA, BY TOWN

County Town	ALL FARMS		FOR FARMS WITH CROP
	Number of Farms	Percent with Crop	Percent with Damage
Albany			
Bethlehem	43	18.6	0.0
Colonie	15	13.3	0.0
Columbia			
Chatham	42	9.5	0.0
Claverack	43	23.3	0.0
Clermont	21	0.0	---
Gallatin	16	25.0	50.0
Germantown	14	0.0	---
Ghent	54	18.5	0.0
Greenport	8	0.0	---
Kinderhook	32	21.9	0.0
Livingston	28	10.7	0.0
Stockport	10	10.0	0.0
Stuyvesant	29	27.6	0.0
Taghkanic	18	22.2	33.3
Dutchess			
Amenia	29	13.8	0.0
Clinton	47	10.6	0.0
Dover	24	16.7	25.0
Hyde Park	9	0.0	---
LaGrange	39	15.4	0.0
Milan	23	13.0	0.0
Pine Plains	25	8.0	0.0
Pleasant Valley	37	8.1	0.0
Poughkeepsie	9	11.1	0.0
Red Hook	51	9.8	0.0
Rhinebeck	36	5.6	0.0
Stanford	41	17.1	16.7
Union Vale	34	14.7	25.0
Wappinger	3	33.3	0.0
Washington	59	10.2	0.0
Greene			
Athens	10	10.0	n.g.
Orange			
Blooming Grove	6	0.0	---
Chester	13	7.7	0.0
Crawford	40	15.0	0.0
Goshen	30	13.3	66.7
Hamptonburgh	19	10.5	0.0
Minisink	18	5.6	0.0

E-10. (cont'd) "OTHER FARM CROP" FREQUENCY AND DAMAGE DATA, BY TOWN

County / Town	ALL FARMS		FOR FARMS WITH CROP
	Number of Farms	Percent with Crop	Percent with Damage
Montgomery	43	16.3	0.0
Newburgh	3	33.3	0.0
New Windsor	7	42.9	33.3
Wallkill	26	15.4	33.3
Wawayanda	23	8.7	0.0
Ulster			
Esopus	19	0.0	---
Lloyd	19	0.0	---
Marlborough	49	0.0	---
Plattekill	18	5.6	0.0
Rosendale	3	0.0	---
Ulster	8	0.0	---

n.g. - not given, all respondents refused this information

APPENDIX F: CHANGES IN DEER POPULATION DESIRED BY FARMERS, BY TOWN

LIST OF TABLES

F-1. CHANGES IN DEER POPULATION DESIRED BY ALL FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
	Percent					
Albany						
Bethlehem	16.3	2.3	51.1	14.0	16.3	43
Colonie	35.7	14.3	50.0	0.0	0.0	14
Columbia						
Chatham	4.8	7.1	73.9	7.1	7.1	42
Claverack	4.7	14.0	34.7	14.0	32.6	43
Clermont	14.3	19.0	52.4	9.5	4.8	21
Gallatin	6.3	6.3	49.9	12.5	25.0	16
Germantown	28.6	0.0	42.9	21.4	7.1	14
Ghent	16.7	7.4	57.3	9.3	9.3	54
Greenport	0.0	0.0	55.6	11.1	33.3	9
Kinderhook	12.9	6.5	77.4	0.0	3.2	31
Livingston	6.5	3.2	25.8	29.0	35.5	31
Stockport	20.0	10.0	60.0	0.0	10.0	10
Stuyvesant	13.3	16.7	56.7	13.3	0.0	30
Taghkanic	10.5	5.3	57.9	10.5	15.8	19
Dutchess						
Amenia	10.7	0.0	39.3	21.4	28.6	28
Clinton	11.8	7.8	41.2	23.5	15.7	51
Dover	33.3	4.2	45.9	8.3	8.3	24
Hyde Park	11.1	11.1	44.5	33.3	0.0	9
LaGrange	10.3	5.1	48.7	7.7	28.2	39
Milan	21.7	0.0	47.9	21.7	8.7	23
Pine Plains	0.0	0.0	72.0	8.0	20.0	25
Pleasant Valley	8.3	11.1	66.7	8.3	5.6	36
Poughkeepsie	10.0	20.0	50.0	10.0	10.0	10
Red Hook	14.0	8.0	48.0	6.0	24.0	50
Rhinebeck	5.9	0.0	44.1	20.6	29.4	34
Stanford	10.0	12.5	50.0	15.0	12.5	40
Union Vale	20.6	2.9	20.6	8.8	47.1	34
Wappinger	25.0	25.0	50.0	0.0	0.0	4
Washington	11.1	3.2	49.2	15.9	20.6	63
Greene						
Athens	0.0	0.0	77.8	0.0	22.2	9
Orange						
Blooming Grove	14.3	0.0	71.4	0.0	14.3	7
Chester	15.4	0.0	61.5	23.1	0.0	13
Crawford	7.5	12.5	62.5	7.5	10.0	40
Goshen	17.9	0.0	67.8	3.6	10.7	28
Hamptonburgh	15.8	0.0	57.8	21.1	5.3	19

F-1. (cont'd) CHANGES IN DEER POPULATION DESIRED BY ALL FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
	Percent					
Minisink	15.8	15.8	68.4	0.0	0.0	19
Montgomery	14.6	4.2	64.6	8.3	8.3	48
Newburgh	0.0	0.0	66.7	0.0	33.3	3
New Windsor	0.0	0.0	50.0	50.0	0.0	8
Wallkill	18.5	3.7	51.9	11.1	14.8	27
Wawayanda	17.4	8.7	65.2	8.7	0.0	23
Ulster						
Esopus	26.3	10.5	21.1	0.0	42.1	19
Lloyd	5.3	0.0	47.4	36.8	10.5	19
Marlborough	10.4	10.4	66.6	6.3	6.3	48
Plattekill	17.6	0.0	35.4	23.5	23.5	17
Rosendale	66.7	0.0	33.3	0.0	0.0	3
Ulster	0.0	14.3	42.8	14.3	28.6	7

F-2. CHANGES IN DEER POPULATION DESIRED BY PART-TIME FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
	Percent					
Albany						
Bethlehem	16.2	2.7	48.7	16.2	16.2	37
Colonie	36.4	9.1	54.5	0.0	0.0	11
Columbia						
Chatham	6.7	3.3	76.7	10.0	3.3	30
Claverack	9.1	18.2	40.9	9.1	22.7	22
Clermont	23.1	23.1	46.1	7.7	0.0	13
Gallatin	11.1	11.1	55.6	11.1	11.1	9
Germantown	36.4	0.0	45.4	9.1	9.1	11
Ghent	17.5	7.5	60.0	12.5	2.5	40
Greenport	0.0	0.0	66.7	0.0	33.3	6
Kinderhook	14.3	9.5	76.2	0.0	0.0	21
Livingston	20.0	10.0	50.0	20.0	0.0	10
Stockport	16.7	16.7	49.9	0.0	16.7	6
Stuyvesant	17.6	17.6	53.0	11.8	0.0	17
Taghkanic	15.4	7.7	53.8	15.4	7.7	13
Dutchess						
Amenia	6.7	0.0	39.9	26.7	26.7	15
Clinton	12.8	8.5	38.3	25.5	14.9	47
Dover	31.6	5.3	47.3	10.5	5.3	19
Hyde Park	11.1	11.1	44.5	33.3	0.0	9
LaGrange	14.3	3.6	46.4	7.1	28.6	28
Milan	23.8	0.0	47.7	19.0	9.5	21
Pine Plains	0.0	0.0	78.6	7.1	14.3	14
Pleasant Valley	10.0	13.3	63.3	6.7	6.7	30
Poughkeepsie	14.3	28.6	57.1	0.0	0.0	7
Red Hook	17.1	7.3	51.2	2.4	22.0	41
Rhinebeck	6.9	0.0	51.8	17.2	24.1	29
Stanford	14.8	11.1	51.9	11.1	11.1	27
Union Vale	26.9	3.8	26.9	11.5	30.9	26
Wappinger	33.3	33.4	33.3	0.0	0.0	3
Washington	10.9	3.6	49.1	18.2	18.2	55
Greene						
Athens	0.0	0.0	83.3	0.0	16.7	6
Orange						
Blooming Grove	33.3	0.0	66.7	0.0	0.0	3
Chester	33.3	0.0	50.0	16.7	0.0	6

F-2. (cont'd) CHANGES IN DEER POPULATION DESIRED BY PART-TIME FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
			Percent			
Crawford	8.3	16.7	54.2	8.3	12.5	24
Goshen	7.7	0.0	76.9	0.0	15.4	13
Hamptonburgh	14.3	0.0	57.1	28.6	0.0	7
Minisink	11.1	33.3	55.6	0.0	0.0	9
Montgomery	23.8	4.8	66.6	4.8	0.0	21
Newburgh	0.0	0.0	100.0	0.0	0.0	1
New Windsor	0.0	0.0	75.0	25.0	0.0	4
Wallkill	23.1	7.7	38.4	15.4	15.4	13
Wawayanda	33.3	0.0	58.4	8.3	0.0	12
Ulster						
Esopus	35.7	14.3	14.3	0.0	35.7	14
Lloyd	0.0	0.0	80.0	10.0	10.0	10
Marlborough	13.6	18.2	59.2	4.5	4.5	22
Plattekill	37.5	0.0	37.5	0.0	25.0	8
Rosendale	100.0	0.0	0.0	0.0	0.0	2
Ulster	0.0	50.0	50.0	0.0	0.0	2

F-3. CHANGES IN DEER POPULATION DESIRED BY FULL-TIME FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
	Percent					
Albany						
Bethlehem	16.7	0.0	66.6	0.0	16.7	6
Colonie	33.3	33.4	33.3	0.0	0.0	3
Columbia						
Chatham	0.0	16.7	66.6	0.0	16.7	12
Claverack	0.0	9.5	28.6	19.0	42.9	21
Clermont	0.0	12.5	62.5	12.5	12.5	8
Gallatin	0.0	0.0	42.9	14.2	42.9	7
Germantown	0.0	0.0	33.3	66.7	0.0	3
Ghent	14.3	7.1	50.0	0.0	28.6	14
Greenport	0.0	0.0	33.3	33.4	33.3	3
Kinderhook	10.0	0.0	80.0	0.0	10.0	10
Livingston	0.0	0.0	14.3	33.3	52.4	21
Stockport	25.0	0.0	75.0	0.0	0.0	4
Stuyvesant	7.7	15.4	61.5	15.4	0.0	13
Taghkanic	0.0	0.0	66.7	0.0	33.3	6
Dutchess						
Amenia	15.4	0.0	38.4	15.4	30.8	13
Clinton	0.0	0.0	75.0	0.0	25.0	4
Dover	40.0	0.0	40.0	0.0	20.0	5
Hyde Park	---	---	---	---	---	0
LaGrange	0.0	9.1	54.5	9.1	27.3	11
Milan	0.0	0.0	50.0	50.0	0.0	2
Pine Plains	0.0	0.0	63.6	9.1	27.3	11
Pleasant Valley	0.0	0.0	83.3	16.7	0.0	6
Poughkeepsie	0.0	0.0	33.3	33.4	33.3	3
Red Hook	0.0	11.1	33.4	22.2	33.3	9
Rhinebeck	0.0	0.0	0.0	40.0	60.0	5
Stanford	0.0	15.4	46.1	23.1	15.4	13
Union Vale	0.0	0.0	0.0	0.0	100.0	8
Wappinger	0.0	0.0	100.0	0.0	0.0	1
Washington	12.5	0.0	50.0	0.0	37.5	8
Greene						
Athens	0.0	0.0	66.7	0.0	33.3	3
Orange						
Blooming Grove	0.0	0.0	75.0	0.0	25.0	4
Chester	0.0	0.0	71.4	28.6	0.0	7

F-3. (cont'd) CHANGES IN DEER POPULATION DESIRED BY FULL-TIME FARMERS, BY TOWN

County Town	Moderate Increase	Slight Increase	Remain the Same	Slight Decrease	Moderate Decrease	Total N
	Percent					
Crawford	6.3	6.3	74.8	6.3	6.3	16
Goshen	26.7	0.0	59.9	6.7	6.7	15
Hamptonburgh	16.7	0.0	58.3	16.7	8.3	12
Minisink	20.0	0.0	80.0	0.0	0.0	10
Montgomery	7.4	3.7	63.0	11.1	14.8	27
Newburgh	0.0	0.0	50.0	0.0	50.0	2
New Windsor	0.0	0.0	25.0	75.0	0.0	4
Wallkill	14.3	0.0	64.3	7.1	14.3	14
Wawayanda	0.0	18.2	72.7	9.1	0.0	11
Ulster						
Esopus	0.0	0.0	40.0	0.0	60.0	5
Lloyd	11.1	0.0	11.1	66.7	11.1	9
Marlborough	7.7	3.8	73.1	7.7	7.7	26
Plattekill	0.0	0.0	33.3	44.5	22.2	9
Rosendale	0.0	0.0	100.0	0.0	0.0	1
Ulster	0.0	0.0	40.0	20.0	40.0	5

APPENDIX G: DEER POPULATION TRENDS DESIRED, BY BT/SM

LIST OF TABLES

Table G-1. PROPORTION OF ALL FARMERS DESIRING VARIOUS DEER POPULATION TRENDS, BY THREE-YEAR-AVERAGE (1978-1980) BUCK TAKE PER SQUARE MILE (BT/SM) IN THEIR TOWNS

Three-Year-Average (1978-1980) BT/SM Experienced in Respondents' Towns	General Deer Population Trend Desired			Number of:	
	Increase	Same	Decrease	Towns[a]	Farmers
	Percent			(n=46)	(n=1190)
0.01-1.00	22.2	61.4	16.4	9	171
1.01-2.00	20.0	49.3	30.7	6	75
2.01-3.00	17.8	63.8	18.4	6	152
3.01-4.00	17.5	50.5	32.0	9	275
4.01-5.00	20.1	44.7	35.2	5	159
>5.00	18.7	49.7	31.6	11	358

[a] The Town of Kingston, Ulster County, had no farmers on the ASCS mailing list and the Town of Colonie, Albany County had no BT/SM data, therefore the number of towns in this analysis is 46.

G-2. PROPORTION OF PART-TIME FARMERS DESIRING VARIOUS DEER POPULATION TRENDS, BY THREE-YEAR-AVERAGE (1978-1980) BUCK TAKE PER SQUARE MILE (BT/SM) IN THEIR TOWNS

Three-Year-Average (1978-1980) BT/SM Experienced in Respondents' Towns	General Deer Population Trend Desired			Number of:	
	Increase	Same	Decrease	Towns[a]	Farmers
	Percent			(n=46)	(n=783)
0.01-1.00	30.5	58.5	11.0	9	82
1.01-2.00	28.6	47.6	23.8	6	42
2.01-3.00	25.0	61.4	13.6	6	88
3.01-4.00	20.8	49.2	30.0	9	207
4.01-5.00	24.5	51.0	24.5	5	102
>5.00	21.8	51.5	26.7	11	262

[a] The Town of Kingston, Ulster County, had no farmers on the ASCS mailing list and the Town of Colonie, Albany County, had no BT/SM data, therefore the number of towns in this analysis is 46.

G-3. PROPORTION OF FULL-TIME FARMERS DESIRING VARIOUS DEER POPULATION TRENDS, BY THREE-YEAR-AVERAGE (1978-1980) BUCK TAKE PER SQUARE MILE (BT/SM) IN THEIR TOWNS

Three-Year-Average (1978-1980) BT/SM Experienced in Respondents' Towns	General Deer Population Trend Desired			Number of:	
	Increase	Same	Decrease	Towns[a]	Farmers
	Percent			(n=46)	(n=407)
0.01-1.00	14.6	64.1	21.3	9	89
1.01-2.00	12.1	48.5	39.4	6	33
2.01-3.00	7.8	67.2	25.0	6	64
3.01-4.00	7.4	39.7	38.2	9	68
4.01-5.00	12.3	33.3	54.4	5	57
>5.00	10.4	44.8	44.8	11	96

[a] The Town of Kingston, Ulster County, had no farmers on the ASCS mailing list and the Town of Colonie, Albany County, had no BT/SM data, therefore the number of towns in this analysis is 46.

G-4. COMPARISON OF FULL-TIME FRUIT GROWERS' VS. LIVESTOCK GROWERS' PREFERENCES FOR FUTURE DEER POPULATION TRENDS, BY THREE-YEAR-AVERAGE (1978-1980) BUCK TAKE PER SQUARE MILE (BT/SM) IN THEIR TOWNS

Three-Year-Average (1978-1980) BT/SM Experienced in Respondents' Towns	General Deer Population Trend Desired			Number of:	
	Increase	Same	Decrease	Towns[a]	Farmers
	Percent				
Fruit Growers				(n=46)	(n=85)
0.01-1.00	8.1	59.5	32.4	9	37
1.01-2.00	9.1	9.1	81.8	6	11
2.01-3.00	0.0	0.0	100.0	6	3
3.01-4.00	0.0	27.3	72.7	9	11
4.01-5.00	0.0	12.5	87.5	5	8
>5.00	0.0	20.0	80.0	11	15
Livestock Growers				(n=46)	(n=247)
0.01-1.00	17.0	68.4	14.6	9	41
1.01-2.00	6.7	73.3	20.0	6	15
2.01-3.00	10.2	73.5	16.3	6	49
3.01-4.00	9.8	56.1	34.1	9	41
4.01-5.00	14.3	40.0	45.7	5	35
>5.00	12.1	53.3	34.8	11	66

[a] The Town of Kingston, Ulster County, had no farmers on the ASCS mailing list and the Town of Colonie, Albany County, had no BT/SM data, therefore the number of towns in this analysis is 46.