

APPENDIX

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SCHEDULE FACSIMILE.....	216
SOME SAMPLING USES OF DATA FROM THE CENSUS OF AGRICULTURE, by <i>Irvin Holmes</i>	220

Facsimile of schedule is shown for one region only since the items covered in this report were standard for all regions.



CONFIDENTIAL CENSUS REPORT.—Your report is required by Act of Congress. This Act also makes it unlawful for the Bureau to disclose any facts, including population, resources, and business activities. Your

DEPARTMENT OF COMMERCE—BUREAU OF THE CENSUS
WASHINGTON
SIXTEENTH CENSUS OF THE UNITED STATES: 1940
FARM AND RANCH SCHEDULE
(Including Special Agricultural Operations)

Inventory Items, April 1, 1940 Production Items, Calendar Year 1939

I.—FARM OPERATOR, APRIL 1, 1940

1. Name of person
2. Address
3. Age
4. Color or race: [Place a check (✓) in proper block]
5. Do you reside on this farm?

II.—FARM TENURE, APRIL 1, 1940

6. If you rent any farm land from others or manage any farm land for others, give names and addresses of the owners of the land and indicate for each owner whether a corporation:
7. What does the landlord furnish as his share in the operation of this farm?
8. What did you agree to pay as rent for the year?

9. Do you operate this farm for others as hired manager?
10. How many acres in this farm do you own?
11. How many acres in this farm do you rent from others?

III.—FARM ACREAGE, APRIL 1, 1940

12. Total number of acres in this farm
13. Land from which crops were harvested in 1939
14. Land from which no crop was harvested in 1939 because of crop failure or destruction
15. Cropland lying idle all of 1939 or land in summer fallow in 1939
16. Land used ONLY for pasture or grazing in 1939
17. Woodland in this farm
18. All other land now in this farm

IV.—VALUES, APRIL 1, 1940

19. Total value of this farm (land and buildings), including farm land and buildings rented from others
20. Value of all buildings on this farm
21. Value of farm implements and machinery used in operating this farm, including automobiles, tractors, motortrucks, and trailers

V.—FARM MORTGAGE DEBT AND FARM TAXES

22. Was there any mortgage debt on the land and buildings so owned on April 1, 1940?
23. Total amount of outstanding mortgage debt on such land and buildings
24. What was the annual rate (contract rate) of interest on the first mortgage debt?
25. Give amount of taxes levied in 1939 on the REAL ESTATE of this farm owned by you on April 1, 1940
26. Give amount of taxes levied in 1939 on PERSONAL property owned by you on this farm

VI.—OTHER LAND OWNED, APRIL 1, 1940

27. Do you own any land in addition to that shown under Question 10?
28. How many acres of such land are rented or are to be rented this year to others (including that rented to croppers)?

VII.—WORK OFF FARM AND YEARS ON THIS FARM

29. How many days in 1939 did you work for pay or income off the farm you operated?
OF THESE, HOW MANY WERE SPENT—
(a) At farm work, not connected with your farm?
(b) At nonfarm jobs (including road work and relief or "made" work), businesses, or professions?
For (b), specify principal nonfarm occupation and industry:
30. Year when you began to operate THIS farm

VIII.—IRRIGATION

31. Land from which irrigated crops were harvested in 1939
32. Land irrigated in 1939 and used ONLY for grazing or pasture
33. Irrigation enterprise supplying water:
NAME
ADDRESS

(Reduced)

FARM CHARACTERISTICS BY VALUE OF PRODUCTS

names or identity, from your census reports. Only sworn census employees will see your statements. Data collected will be used solely for preparing statistical information concerning the Nation's Census Reports cannot be used for purposes of taxation, regulation, or investigation. 16-11233

SCHEDULE No.	DEFINITION OF A FARM		ENUMERATOR'S RECORD AND CERTIFICATE	Code																																																
	<p>A farm, for Census purposes, is all the land on which some agricultural operations are performed by one person, either by his own labor alone or with the assistance of members of his household, or hired employees. The land operated by a partnership is likewise considered a farm. A "farm" may consist of a single tract of land, or a number of separate tracts, and the several tracts may be held under different tenures, as when one tract is owned by the farmer and another tract is rented by him. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm. Thus, on a plantation the land operated by each cropper, renter, or tenant should be reported as a separate farm, and the land operated by the owner or manager by means of wage hands should likewise be reported as a separate farm.</p> <p>Include dry-lot or barn dairies, nurseries, greenhouses, hatcheries, fur farms, mushroom cellars, apiaries, cranberry bogs, etc.</p> <p>Exclude "fish farms," fish hatcheries, "oyster farms," and "frog farms."</p> <p>Do not report as a farm any tract of land of less than 3 acres, unless its agricultural products in 1939 were valued at \$250 or more.</p>		<p>State _____ County _____ E. D. No. _____</p> <p>Number of farm in order of visitation _____</p> <p>From Population Schedule: Farm operator's name appears on Sheet No. _____; Line No. _____ Visitation number of farm operator's household _____ Visitation numbers of other households on this farm _____ If no dwelling, or if no occupied dwelling, on this farm, give the identification used to designate the place on your map, as: F-1; V-3, F-2; etc. _____</p> <p>Minor Civil Division _____ Give name, also class, as township, town, ward, precinct, district, beat, etc. _____ If any part of this farm is in another Minor Civil Division, give location and acreage— M. C. D. _____ COUNTY _____ ACRES _____</p> <p>If this farm is located— In surveyed area, give Sec. No. _____; Township _____; Range _____ Sec. No. _____; Township _____; Range _____ In incorporated place, give name _____ Enumeration completed by me at _____ {a. m.} on the _____ day of _____, 1940. (Signed) _____, Enumerator.</p>																																																	
THIS COLUMN FOR OFFICE USE ONLY	<p>IX.—COOPERATIVE SELLING AND PURCHASING, 1939</p> <p>Did you, in 1939, transact any business with or through—</p> <p>34. A cooperative SELLING organization? _____ (Yes or No) Code C</p> <p>35. A cooperative BUYING organization? _____ (Yes or No) 6</p> <p>36. A cooperative SERVICE organization? _____ (Yes or No) 7</p>																																																			
CODE																																																				
TENURE	<p>X.—FARM LABOR</p> <p>37. Number of workers 14 years old and over and wages paid for farm work on this farm (do not include housework or contract construction work):</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">CLASS OF LABOR</th> <th colspan="2">Number of persons 14 years old and over working the equivalent of 2 or more days the week of—</th> <th rowspan="2">Total cash wages paid for all hired labor in 1939</th> </tr> <tr> <th>Mar. 24-30, this year</th> <th>Sept. 24-30, last year</th> </tr> <tr> <th></th> <th>Number</th> <th>Number</th> <th>Dollars</th> </tr> </thead> <tbody> <tr> <td>(a) Operator and unpaid members of his family</td> <td></td> <td></td> <td>x x x x x x x</td> </tr> <tr> <td>(b) Labor hired by month</td> <td></td> <td></td> <td>(Omit cents)</td> </tr> <tr> <td>(c) Labor hired by day or week</td> <td></td> <td></td> <td>(Omit cents)</td> </tr> <tr> <td>(d) Others (include piece work and contract labor)</td> <td></td> <td></td> <td>(Omit cents)</td> </tr> </tbody> </table>	CLASS OF LABOR	Number of persons 14 years old and over working the equivalent of 2 or more days the week of—		Total cash wages paid for all hired labor in 1939	Mar. 24-30, this year	Sept. 24-30, last year		Number	Number	Dollars	(a) Operator and unpaid members of his family			x x x x x x x	(b) Labor hired by month			(Omit cents)	(c) Labor hired by day or week			(Omit cents)	(d) Others (include piece work and contract labor)			(Omit cents)																									
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SIZE	<p>XI.—FARM EXPENDITURES IN 1939</p> <p>38. Amount expended in 1939 for hay, grain, mill feed, and other products for use as feed for domestic animals and poultry _____ \$ _____ (Omit cents) Code D</p> <p>39. Amount expended in 1939 for purchase of farm implements and machinery, including automobiles, tractors, motortrucks, and trailers. See kinds of machinery listed under Question 21. _____ \$ _____ (Omit cents) 1, 2</p> <p>40. Amount expended in 1939 for gasoline, distillate, kerosene, and oil for use on this farm _____ \$ _____ (Omit cents) 3, 4, 5</p> <p>41. Amount expended in 1939 for building materials, including lumber, roofing materials, hardware, cement, paint, fencing material, etc., for use on this farm _____ \$ _____ (Omit cents) 6, 7, 8</p> <p>42. Commercial fertilizer bought in 1939 for use on this farm (report fractional tons) _____ Tons _____ Cost _____ \$ _____ (Omit cents) 9, 10, 11</p> <p>43. Liming materials—lime, marl, gypsum, etc., bought in 1939 for use on this farm _____ \$ _____ (Omit cents) 12</p> <p>44. Number of automobiles on this farm _____ 13</p> <p>45. Number of motortrucks on this farm _____ 14</p> <p>46. Number of tractors on this farm _____ 15</p> <p>47. Is there an electric distribution line within ¼ mile of the farm dwelling? _____ (Yes or No) 16, 17</p> <p>48. If the dwelling is lighted by electricity, check (✓) source of current: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align:center;">1. _____ Power line</td> <td style="width:50%; text-align:center;">2. _____ Home plant</td> </tr> </table> </p> <p>49. Is there a telephone on this farm? _____ (Yes or No) 18, 19</p> <p>50. Check (✓) each kind of road on which this farm is located: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">1. _____ Hard-surfaced</td> <td style="width:25%; text-align:center;">2. _____ Gravel, shell, shale etc.</td> <td style="width:25%; text-align:center;">3. _____ Improved dirt</td> <td style="width:25%; text-align:center;">4. _____ Unimproved dirt</td> </tr> </table> </p>	1. _____ Power line	2. _____ Home plant	1. _____ Hard-surfaced	2. _____ Gravel, shell, shale etc.	3. _____ Improved dirt	4. _____ Unimproved dirt																																													
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STATES			<p>XIII.—SUPPLEMENTAL INFORMATION</p> <p>Give any changes in the area of this farm or in your tenure since September 1, 1939 (if none, write "None") _____</p> <p>Clarify any unusual entries in this report by adequate explanations below. Comment on unusual crops, yields, values, acreages, location and ownership of livestock, etc.: _____</p>																																																	
REGION	1		<p>SUMMER FALLOW</p> <p>Land in tilled summer fallow in 1939 on which no crop was planted for harvest in 1939 _____ Acres _____ Include also in Question 15.</p> <p>SOIL IMPROVEMENT CROPS</p> <p>Total acres of crops plowed under in 1939 for soil improvement purposes ONLY—not pastured, grazed, hogged, or otherwise harvested (green manure crops). _____ Acres _____ Cereals, soybeans, vetches, rye, etc. Underline or give kind. Include all such crops even though another crop was grown on the same land in 1939. That part of this acreage from which no crop of any kind was harvested or grazed in 1939 should also be included under Question 15.</p> <p>CROP FAILURE</p> <p>Crops planted for harvest in 1939 which were not harvested because of crop failure, destruction, or low prices (do not consider as failure any crops which were grazed, hogged, or otherwise harvested for any purpose):</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Name of first crop planted for harvest in 1939 which failed (1)</th> <th>If replanted to a crop for harvest in 1939, name of second crop (2)</th> <th>Acres of first crop which failed (3)</th> <th>Acres of second crop harvested (4)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>Report as reply to Question 14 the sum of acres in Column 3 minus the sum of acres in Column 4.</p> <p>DOUBLE CROPPING</p> <p>Crops which were harvested in 1939 in succession from the same acreage:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Name of first crop harvested (1)</th> <th>Name of second crop harvested (2)</th> <th>Acres of first crop harvested (3)</th> <th>Acres of second crop harvested (4)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>Interplanted crops which were harvested in 1939:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Name of principal crop (1)</th> <th>Name of interplanted crop (2)</th> <th>Acres of principal crop (3)</th> <th>Acres of interplanted crop (4)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>Note.—Double cropping must be considered in arriving at your reply to Question 13.</p>	Name of first crop planted for harvest in 1939 which failed (1)	If replanted to a crop for harvest in 1939, name of second crop (2)	Acres of first crop which failed (3)	Acres of second crop harvested (4)													Name of first crop harvested (1)	Name of second crop harvested (2)	Acres of first crop harvested (3)	Acres of second crop harvested (4)													Name of principal crop (1)	Name of interplanted crop (2)	Acres of principal crop (3)	Acres of interplanted crop (4)													
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CENSUS OF AGRICULTURE: 1940

OMITTED INQUIRY NUMBERS REPRESENT CROPS WHICH WILL BE INFREQUENTLY REPORTED IN THIS

XIV.—LIVESTOCK, APRIL 1, 1940, AND LIVESTOCK PRODUCTS, 1939				Code	XV.—CROPS HARVESTED ON THIS FARM IN 1939				Code
51. Horses of all kinds, including ponies, April 1, 1940. Number.....				E	CORN: Omit sweet corn (except for silage primarily). Also omit popcorn, "Egyptian corn," kafir, and milo maize. If grown with other crops, report total acreage of mixture.				
52. Mules, April 1, 1940. Number.....				1, 2	87. Total acreage of corn for all purposes.....				H-1
53. Cattle and calves over 3 months old, Apr. 1, 1940. Number.....				3, 4	88. Corn for grain, whether snapped, husked, or machine-harvested for grain.....				4.5 X
54. Cows and heifers that were 2 years old and over on January 1, 1940, and are— (a) Kept mainly for milk production? Number.....				5	89. Corn out for silage.....				7.4 X
(b) Kept mainly for beef production? Number.....				6	90. Whole plant hogged or grazed off by livestock, or cut for green or dry fodder and not husked or snapped.....				10, X, X
Cows milked and dairy products, 1939: 55. Total cows milked during any part of 1939 (include heifers milked)..... Number.....				7	SORGHUMS: "Egyptian corn," kafir, milo, hegar, atlas, sorghum cane, sweet sorghums, etc.				H-2
56. Milk produced in 1939 (report in gallons: 8.6 pounds=1 gallon)..... Gallons.....				8	91. All sorghums harvested for grain.....				1.2 X
57. Butter churned on farm in 1939..... Pounds.....				9	92. All sorghums cut for silage only (green wt.).....				4.5 X
58. Whole milk sold in 1939..... Gallons.....				10	93. All sorghums cut for hay or fodder (dry wt.).....				7.4 X
59. Cream sold in 1939 (Butterfat content)..... Pounds of butterfat.....				11	94. Sweet sorghums harvested for sirup.....				10, 11, X
60. Butter sold in 1939..... Pounds.....				12, 13	SMALL GRAINS threshed (or combined): Note.—Report grain hay under Question 121.				J-85
61. Value of all dairy products sold or traded in 1939—milk, cream, butter, cheese, etc. (Omit cents)..... \$.....				P	95. Mixed grains, other than a flax and wheat mixture.....				2.3 X
62. Sheep and lambs over 6 months old, April 1, 1940. Number.....				E	96. Wheat and oats; wheat and barley; wheat and rye; oats and barley; oats and peas; etc. Underline or give mixture.				H-3
63. Yearling ewes? Number.....				14	97. Oats threshed (or combined).....				1.2 X
64. Other ewes? Number.....				15	98. Oats cut for grain when ripe or nearly ripe and fed unthreshed (omit oat hay).....				4.4 X, J-98
NOTE.—If this farm has sheep on hand and no wool shorn in 1939, EXPLAIN.				16	99. Barley threshed (or combined).....				2.3 X, J-99
65. Sheep and lambs shorn in 1939. Number shorn..... Pounds of wool shorn.....				17, 18	100. Rye threshed (or combined).....				2.3 X, J-100
66. Hogs over 4 months old, April 1, 1940. Number.....				19	101. Flax threshed (or combined).....				2.3 X
67. Sows and gilts that farrowed since Dec. 1, 1939, or will farrow before June 1, 1940? Number.....				20	102. Where flax and wheat were grown together, report one-half of the acreage under each crop.				H-4
68. Animals butchered in 1939 for use on this farm or for sale from this farm. Number.....				F	103. Winter wheat (fall or winter sown) threshed (or combined).....				1.2 X
69. Goats and kids over 4 months old, April 1, 1940. Number.....				1, 2, 3, 4	104. Spring wheat (spring sown) threshed (or combined).....				4.5 X, J-105
70. Mohair and kid hair clipped in 1939. Pounds.....				5, 6	105. Emmer and spelt threshed (or combined).....				2.3 X, J-106
71. Goats milked during any part of 1939. Number.....				7	106. Buckwheat threshed (or combined).....				2.3 X
Livestock purchases and sales: 72. Bought in 1939. Number.....				8	ANNUAL LEGUMES for all purposes, except plowed under for green manure: Where grown with corn or other crops, report acreage of mixture in second column. The annual legumes cured for hay included under Questions 108-116 must also be reported under Question 116. Report fractional acreage.				K-8
73. Sold alive in 1939. Number.....				9, 10, 11, 12, 13, 14, 15, 16	108. Soybeans, total.....				2.3 X, 6.7, 4.5 X, K-10
74. Value of all livestock sold or traded in 1939, except poultry, bees, and fur animals. (Omit cents)..... \$.....				P	(a) Harvested for beans only.....				2.3 X, 6.7, 4.5 X, K-1
NOTE.—If this farm has chickens on hand but raised none or produced no eggs in 1939, EXPLAIN.				G	110. Cowpeas, total.....				2.3 X, 6.7, 4.5 X, K-1
75. Chickens.....				1, 2	(a) Harvested for peas.....				2.3 X, 6.7, 4.5 X, K-1
76. Turkeys.....				3, 4	111. Vetches, velvetbeans, mung and horse beans.....				4.7 X
77. Ducks.....				5, 6	Underline kind.				K-2
78. Other (specify).....				7, 8	112. Other dry field and seed beans (navy, pea bean, Great Northern, kidney, lima, pinto, etc.) and lentils.....				2.3 X, 4.5 X
79. Total chickens sold (including broilers and fryers) alive or dressed in 1939. Omit any sold as baby chicks. Number.....				9	Underline or give kind. Report green lima, snap, string, and wax beans under vegetables.				K-5
80. Chicken eggs produced in 1939. Dozens.....				10	113. Dry field and seed peas (specify kind).....				2.3 X, 4.5 X
81. Value of all poultry, eggs, baby chicks, poult, etc., sold or traded in 1939. (Omit cents)..... \$.....				P	Omit cowpeas. Report peas harvested green under vegetables.				
82. Hives of bees, April 1, 1940: (a) Owned by others, but kept on this farm. Number.....				11	HAY CROPS: For each hay, give total production all cuttings, counting only once acres of land on which grown.				
(b) Owned by you, on this farm and on non-farm land such as deserts, hills, swamps, etc. Number.....				12	116. HAY FROM:				J-16
83. Honey produced by your bees in 1939. Pounds.....				13	Cowpeas. Soybeans. Peanuts. Velvetbeans. Canada peas. Horsebeans. Austrian peas. Mungbeans. Other peas. Other beans. Vetches. Beggarsweed. Crotalaria. Lupines.				2.3 X
FUR ANIMALS IN CAPTIVITY: 84. Females over 3 months old, April 1, 1940. Number.....				14, 15	Underline kind. Acres for hay included under Questions 108-116 must be reported here also. Include peanut vines saved for hay, but omit "straw" where beans or peas have been threshed.				J-17
85. Pelts taken in 1939. Number.....				16, 17	117. Alfalfa cut for hay.....				2.3 X, J-18
86. Value of wool, mohair, meat, hides, etc., bees, honey, wax, and fur animals and pelts sold or traded in 1939. (Omit cents)..... \$.....				P	118. Sweetclover cut for hay.....				2.3 X, J-19
				4	119. Lespedeza cut for hay.....				2.3 X, J-20
					120. Clover or timothy, alone or mixed, cut for hay (do not include sweetclover).....				2.3 X, J-21
					121. Small grain hay—wheat, oats, barley, rye, etc. Underline or give kind. Omit oats reported under Question 97.				2.3 X, J-22
					122. All other tame hay cut.....				2.4 X, J-23
					Include old meadows, millet, Sudan, Johnson grass, orchard grass, redtop, crested wheatgrass, etc. Underline or give kind.				2.3 X, J-23
					123. Wild hay cut—marsh, prairie, or range grasses.....				2.3 X

(Reduced)

FARM CHARACTERISTICS BY VALUE OF PRODUCTS

GENERAL AREA. WHERE FRACTIONAL ACREAGE OR PRODUCTION IS REQUIRED, REPORT AS: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, ETC.

SCHEDULE No.	CLOVER AND GRASS SEEDS: Report on "country-run" basis.	Acres harvested in 1939	Quantity harvested in 1939	Code	SMALL FRUITS: Report fractional acreage. Note.—Do not report nonbearing acreage.	Acres harvested in 1939	Quantity harvested in 1939	Code
	124. Alfalfa seed.....		Bu.....	J-24 2.3 X J-25	172. Blackberries and dewberries (tame only).....		Qt.....	M-72 2.3
	125. Sweetclover seed.....		Bu.....	2.3 X J-26	173. Tame blueberries.....		Qt.....	2.3
	126. Lespedeza seed..... Korean, Kobe, sericea, etc. Underline or give kind.		Lb.....	2.3 X J-27	174. Wild blueberries..... Where the land is used primarily for their production.		Qt.....	4.5 M-76
	127. Clover seed..... Red, mammoth, Lavino, alsike, erimson, white Dutch, etc. Underline or give kind.		Bu.....	2.3 X J-28	176. Cranberries.....		Qt.....	2.3 M-78
	128. Grass seed..... Timothy, redtop, blaugrass, millet, Sudan, canary, bent, ryegrass, crested wheat-grass, etc. Underline or give kind.		Bu.....	2.3 X	179. Black raspberries (tame only).....		Qt.....	2.3
	MISCELLANEOUS CROPS: Report fractional acreage.				180. Red raspberries (tame only).....		Qt.....	4.5 M-81
THE ABOVE SPACE FOR OFFICE USE ONLY	129. Irish potatoes..... Grown for home use or for sale.		Bu.....	L-29 1.2 X L-31	181. Strawberries.....		Qt.....	2.3 M-82
	131. Sweetpotatoes and yams..... Grown for home use or for sale.		Bu.....	1.2 X L-32	183. Other (specify).....		Qt.....	2.3 M-83
	132. Tobacco (total, all types)..... Give type number or local designation. If more than 1 type, give separate reports for each below:		Lb.....	1.2 X			Qt.....	2.3
			Lb.....					
	135. Sugar beets harvested for sugar.....		Tons.....	L-35 1.2 X L-37	TREE FRUITS, NUTS, AND GRAPES:			
	137. Broomcorn.....		Lb.....	1.2 X L-38	184. Land in bearing and nonbearing fruit orchards, vineyards, and planted nut trees, April 1, 1940 (omit nurseries)..... Acres.....			N (14 item only) 1, X
	138. Popcorn.....		Bu.....	1.2 X L-39	Report fractional acreage.			
	139. Mint harvested for oil..... Peppermint and spearmint. Underline which.		Lb.....	1.2 X (Oil)	KIND OF FRUIT:			
	140. Silage crops, other than corn and sorghums (specify)..... Alfalfa silage, soybean silage, oat silage, etc. Omit byproducts, as beet tops and pulp, pea vines, etc.		Tons.....	L-40 1.2 X	Report dried fruits on fresh-weight basis. Do not include trees and vines in nursery.			
	141. Root and grain crops (other than corn and annual legumes) hogged or grazed off.....		X X X X X X Unit	L-41 1.2 X	Number of trees or vines, April 1, 1940			
142. Other field crops not elsewhere reported..... Give name and unit of measure.		Unit	1.2 X	Not of bearing age				
Report: Flax for fiber. Hemp. Peanuts. Sunflower seed. Wormseed, etc. Chicory. Ginseng. Hops. Pumpkins for feed.				Of bearing age				
143. Value of the crops reported under Questions 87-142 (including landlord's share) which were or are to be sold or traded (omit cents)..... \$.....				Report fruits on fresh basis				
VEGETABLES FOR FARM HOUSEHOLD(S) USE: 144. Value of vegetables grown on this farm in 1939 for consumption by your family and by all households on this farm..... \$..... Omit Irish and sweet potatoes, also any vegetables fed to animals. (Omit cents)				185. Apples.....				
VEGETABLES HARVESTED IN 1939 FOR SALE (not for home use): Include vegetables sold to canneries. Note.—Where a crop was harvested following another on the same land during the year, report acreage for each crop.				187. Sour cherries.....				
Report fractional acreage. Omit cents	Vegetables harvested in 1939 for sale	Code	Report fractional acreage. Omit cents	Vegetables harvested in 1939 for sale	188. Sweet cherries.....			
Acres	Value		Acres	Value	189. Peaches.....			
146. Asparagus.....	\$.....	M-46	158. Eggplant.....	\$.....	192. Pears.....			
147. Green lima beans.....	\$.....	M-47	161. Lettuce.....	\$.....	195. Plums and prunes.....			
148. Snap, string, or wax beans.....	\$.....	M-48	162. Dry onions.....	\$.....	198. Grapes.....			
149. Beets (table).....	\$.....	M-49	163. Green peas.....	\$.....	208. Other tree fruits..... Give name and unit of measure.			
151. Cabbage.....	\$.....	M-51	164. Sweet peppers and pimientos.....	\$.....	Report: Apricots, figs, nectarines, quinces, etc.			
152. Cantaloupes, muskmelons, honeyballs, honeydews, casabas, Persian, etc.....	\$.....	M-52	165. Spinach.....	\$.....	210. Improved pecans (budded, grafted, or top-worked).....			
153. Carrots.....	\$.....	M-53	166. Tomatoes.....	\$.....	211. Wild or seedling pecans.....			
154. Cauliflower.....	\$.....	M-54	167. Watermelons.....	\$.....	215. Other nuts..... Specify.			
155. Celery.....	\$.....	M-55	168. Other* Specify.....	\$.....	Report: Cultivated chestnuts, English or Persian walnuts, etc.			
158. Sweet corn.....	\$.....	M-57			229. Value of all fruits and nuts, including small fruits, produced in 1939 that were or are to be sold or traded..... \$..... (Omit cents)			
177. Cucumbers.....	\$.....	M-57			230. Maple sirup and sugar made in 1939: Trees tapped..... Sirup..... Sugar..... (Number) (Gallons) (Pounds)			
					231. Value (estimated) of products of this farm in 1939 that were used by your family and by all households on this farm (meat, milk, poultry, eggs, honey, vegetables, fruits, firewood, fuel wood, etc.)..... \$..... (Omit cents)			
					232. Value of forest products sold in 1939..... \$..... Include firewood, fuel wood, standing timber, sawlogs, veneer logs, pulpwood, mine props, tanbark, charcoal, fence posts, railroad ties, poles and piling, turpentine, resin, maple sirup and sugar, etc.			
					XVI.—VALUE OF PRODUCTS USED AND OF FOREST PRODUCTS SOLD IN 1939			
					231. Value (estimated) of products of this farm in 1939 that were used by your family and by all households on this farm (meat, milk, poultry, eggs, honey, vegetables, fruits, firewood, fuel wood, etc.)..... \$..... (Omit cents)			
					232. Value of forest products sold in 1939..... \$..... Include firewood, fuel wood, standing timber, sawlogs, veneer logs, pulpwood, mine props, tanbark, charcoal, fence posts, railroad ties, poles and piling, turpentine, resin, maple sirup and sugar, etc.			
					HORTICULTURAL SPECIALTIES: Report fractional acreage.			
					169. Crops grown under glass (flowers and plants, also vegetables) and propagated mushroom-rooms..... Underline which.			
					170. Nursery products (trees, shrubs, vines, ornamentals, etc.).....			
					171. Flower and vegetable seeds, bulbs, and flowers and plants grown in the open..... Underline which.			
					Area in 1939 Sales in 1939			
					(Sq. feet) (Omit cents)			
					(Acres) (Omit cents)			
					(Acres) (Omit cents)			
					(Acres) (Omit cents)			
					7			
					M-69			
					2.3			
					M-70			
					2.3			
					M-71			
					2.3			
					9			
					10			

REGION
1

Some Sampling Uses of Data From the Census of Agriculture¹

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The 1930 Census of Agriculture classification of farms by type of farm was used for making type-of-farm tabulations by counties and States of many agricultural items, such as acreage of land in farms, numbers of farms by tenure of operator, expenditures for specified items, etc. For the 1940 Census of Agriculture it was decided to use sample data instead of complete tabulations as a basis for presenting statistics on the characteristics of farms classified according to type (major source of income), according to total value of farm products, and according to color-tenure of operator. Four considerations contributed mainly to this decision: The urgent need for the figures in connection with war programs, particularly statistics on marginal (low income) farms and on farm labor; the necessity for holding costs to a minimum; the greater variety of tabulations that could be made on a sample basis than on a complete basis with the funds available; and the possibility of securing experience and information which would be valuable in preparing plans for future censuses, either on a complete or on a sample basis. The purpose of this talk is to review the work that has been done to date on these tabulations of sample data from the 1940 Census of Agriculture.

SAMPLE DESIGN AND TYPE OF SAMPLING UNIT

The primary objective of these tabulations of sample data was to secure national statistics on farm characteristics. The secondary objective was to provide measures of the variation in these statistics by large geographic regions.

All of the data for one farm for a group of related items, such as value of farm products, are on a single punch card. Consequently it was feasible to use the smallest available sampling unit, that is, the individual farm. Most previous studies of sampling techniques for proposed sample censuses of agriculture have centered about the problem of size of sampling unit; i.e., the problem of balancing enumeration difficulties and costs for small sampling units, such as individual farms, against the loss of information for large sampling units, such as clusters of farms. The number of farms, according to the 1940 Agriculture Census, varies from 135,000 for the New England Division to nearly 1,100,000 for the West North Central Division. It was recognized that it would be desirable to vary the sampling ratio of number of farms for each geographic area for which statistics were desired. It was also recognized that for tabulations of farms classified by type of farm the sampling ratio should be varied by type groups; likewise for any tabulations of farms classified by total value of farm products, it would be desirable to vary the sampling ratio of number of farms by value groups. Administrative considerations made such procedures impractical; consequently, the following alternative was substituted:

First, the cards were sorted into two primary strata: Farms with less than \$10,000 and farms with \$10,000 or more total value of products. The farms with \$10,000 and over total value of farm products represented only 1 percent of all farms, but accounted for approximately 17 percent of the gross farm income for the United States in 1939. The cards for all farms with \$10,000 and over total value of farm products were sorted out and tabulated, i.e., a 100-percent sample was used.

For farms with less than \$10,000 total value of products a 2-percent sample was selected by machine by sorting out all

¹Paper presented at a meeting of the Washington chapter of the American Statistical Association.

punch cards with serial numbers ending in 15 and 65. The same terminal digit "5" was selected to reduce the number of cards handled in the subsequent sort, i.e., 600,000 compared with 1,200,000. The "15" was selected to reduce the number of counties excluded from the sample. There were only 22 counties in the United States, chiefly independent cities in Virginia, which had less than 15 farms at the time of the 1940 Census, and which were, therefore, excluded from this 2-percent sample.

There is no reason to infer any relationship between the characteristics of the farms and their serial numbers. The serial numbers had been placed on the individual farm schedules prior to the time that the data were transferred from the schedules to the punch cards. The selection of the sample farms was on a county basis; that is, the secondary stratification of the 2-percent sample was geographic. Although the machine selection of the sample farms was done by counties, the individual farm schedules had been arranged by minor civil divisions within each county prior to numbering. Consequently, the geographic distribution of the sample farms approaches a stratification by minor civil divisions within each county. To a considerable extent, the original order of enumeration was preserved in numbering the schedules. Accordingly, the 2-percent sample also approximates a selection along the enumerator's route of every 50th farm in the "Under \$10,000" category.

SCOPE OF TABULATIONS

At the present time, the following tabulations are completed or in progress:

- (1) Analysis of characteristics of small farms.
- (2) Analysis of farm characteristics by type of farm.
- (3) Analysis of value of farm products by color-tenure of operator.

The first tabulations are being made in cooperation with the Bureau of Agricultural Economics and the Farm Security Administration of the Department of Agriculture. Preliminary reports, or press releases, are now being prepared showing figures for those items by geographic regions for which the expected error is small enough to justify publication. Present plans are to publish the results of all three of these series of tabulations in a special monograph.

METHODS OF EXPANDING THE SAMPLE

For the tabulations for the Department of Agriculture, two factors were available for expanding or inflating the sample. Published figures were available for the total number of farms and total value of farm products for each value-of-farm-products group. For these tabulations it was decided to use the total number of farms in each value group for expanding the sample data.

For nearly all of the items sampled, the totals for all value-of-farm-products groups were also known. On such items, the expanded sample figures for each value-of-farm-products group were scaled to equal these previously published totals by simple proportionate adjustments. In some of the tabulations, cross-classification tables were involved, such as numbers of farms cross classified by total value of farm products and by size of farm. In such cases, the expanded sample figures for all cells were adjusted to equal these known totals by a succession of horizontal and vertical proportionate adjustments. These adjustments were made for the convenience of any user who

might wish to relate the figures to previously published Census data.

It was recognized that for some of the items, particularly such items as value of land and buildings, and expenditures, some increase in precision might have been obtained had the sample data been expanded by using an inflation factor based on the total value of farm products for each value-of-products group. The decision to use total number of farms instead of value of products in expanding the sample was determined partly by administrative reasons and partly by the fact that, since the tabulation sort was by value of farm products, much of the over-all relationship between value of farm products and the sampled items had already been taken into account.

A third expansion factor, which could have been used, was the reciprocal of the sampling ratio based on number of farms for the total sample, that is, for all value groups combined. Obviously this would have given less precision than that obtained by the use of sampling ratios for the individual value groups. This would be particularly true for the terminal value groups where the population numbers of farms are relatively small and the sampling ratios quite variable.

PRECISION OF DATA

Because of cost and operational considerations, it was considered impractical to vary the size of sample by value groups or by geographic areas. For this reason, it is to be expected that the relative sampling errors will be considerably smaller for the central value groups, for which the number of farms is generally large, than for terminal value groups which have few farms. A similar difference in relative sampling errors is to be expected as between geographic divisions with large numbers of farms and geographic divisions with fewer farms. Likewise, the relative sampling errors differ as between items, depending, in the case of the farm counts, upon differences in the proportion of farms reporting specified characteristics, and, for

quantitative items, upon differences in the variability of the items.

For example, in estimating average age of operator, the size of sample necessary for a given degree of precision is considerably less than that required for all land in farms, cropland harvested, value of land and buildings, and work off farm. Some evidence is available from California and Illinois: For the upper terminal value groups in Illinois and California the sample size for all land in farms would need to be from 40 to 80 times as large as that for average age of operator to secure the same relative precision. The higher-value-groups include not only farms with large acreages but also small-size farms, such as hatcheries, greenhouses, and nurseries which accounts for the high degree of variability.

For work off farm in these high income groups the sample data for California indicate that it would require a sample approximately 250 times as large as that for average age of operator to secure the same relative precision. Most operators of large-income farms report very few days of work off farm, but a few such operators report nearly full-time nonfarm employment, generally at professional or business occupations. To secure statistics on the number of days of work off farm for these value groups with a relative error of 10 percent would require approximately a 33-percent sample, which figure includes a correction for sampling from a finite population. In these comparisons the formula used is for an unstratified sample; therefore, the coefficients of variation may slightly overstate the facts.

In the tables accompanying the reports, the figures have been marked with an asterisk when the expected sampling error is relatively large. However, in evaluating the reliability of the figures, the consistency in the pattern of relationships should be taken into account as well as the indicated precision for individual cells. For practically all items studied to date the relationship patterns have been remarkably consistent between States and geographic divisions.