



# Census of Agriculture: Then & Now

Pennsylvania Data User Conference

May 8, 2018

Presented By: Megan Lipke  
& Gina Geffrard



2017 CENSUS OF  
AGRICULTURE  
YOUR VOICE. YOUR FUTURE. YOUR OPPORTUNITY.

United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Census of Agriculture: Then & Now

- Farm Definition
- Data Collection Strategies
- Demographics



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Census of Agriculture History

- First census conducted in 1840
- Done every 10 years until 1920
- Done every 4 to 5 years beginning in 1925
- Beginning in 1982, conducted every 5 years (on the 2s and 7s)
- Transferred from the U.S. Department of Commerce to U.S. Department of Agriculture (USDA) in 1997
- The 2017 Census of Agriculture is the 29th overall and 5th for the National Agricultural Statistics Service (NASS)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# What is a 'Farm': Then and Now

## 1975 – Current:

Any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# What is a 'Farm': Then and Now

## 1975 – Current:

Any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.

---

## 1850 – 1860:

\$100 in total value of sales of agricultural products and no acreage requirement

(this would be over \$2900 in current dollars)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)



# What is a 'Farm': Then and Now

## 1850 – 1860:

\$100 in total value of sales of agricultural products and no acreage requirement

---

## 1870 – 1890:

Three acres or more involved with agriculture production  
or

If fewer than three acres, still qualified as farm with at least \$500 in total value of sales of agricultural products.

(this would be shy of \$9000 in current dollars)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# What is a 'Farm': Then and Now

## 1900:

No acreage or minimum sales requirement

Cranberry marshes, greenhouses, city dairies included  
if requiring the full-time services of at least one person

---

## 1910 – 1920:

At least three acres **and** sales of \$250 or more of agricultural products, **unless** operation required the full time services of at least one person



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# What is a 'Farm': Then and Now

## 1925 – 1945:

At least three acres **and** sales of \$250 or more of agriculture products

---

## 1950 – 1954:

At least three acres

**or**

if they had, or normally would have had, sales of \$150 or more of agricultural products

---

## 1959 – 1974:

At least 10 acres with at least \$50 of agricultural products

**or**

if had sales \$250 or more of agricultural products



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)



# What is a 'Farm': Then and Now

## 1975 – Current:

Any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.

Even without changing the definition in over 40 years, some farms that would not have counted in 1975 as 'farms' now do, because \$1000 in 1975 is over \$4500 now.

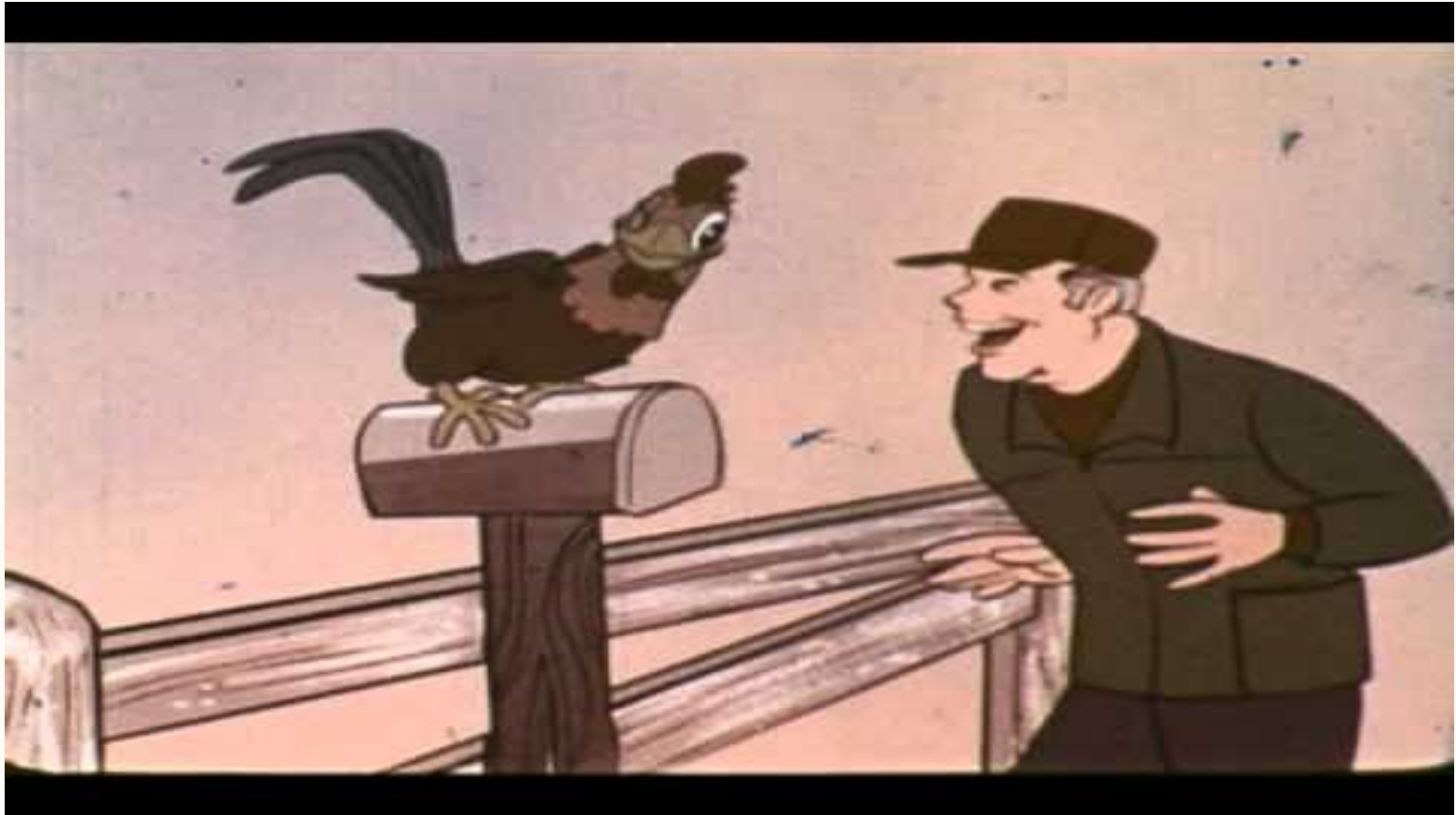
Similarly, crop prices have changed over time – but not always at the same rate as inflation. Corn was 64 cents in 1914, \$3.07 in 1975, and is \$3.70 now.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# 1969 Census of Agriculture PSA



# 2017 Census of Agriculture PSA



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Introduction of Data Collection Modes

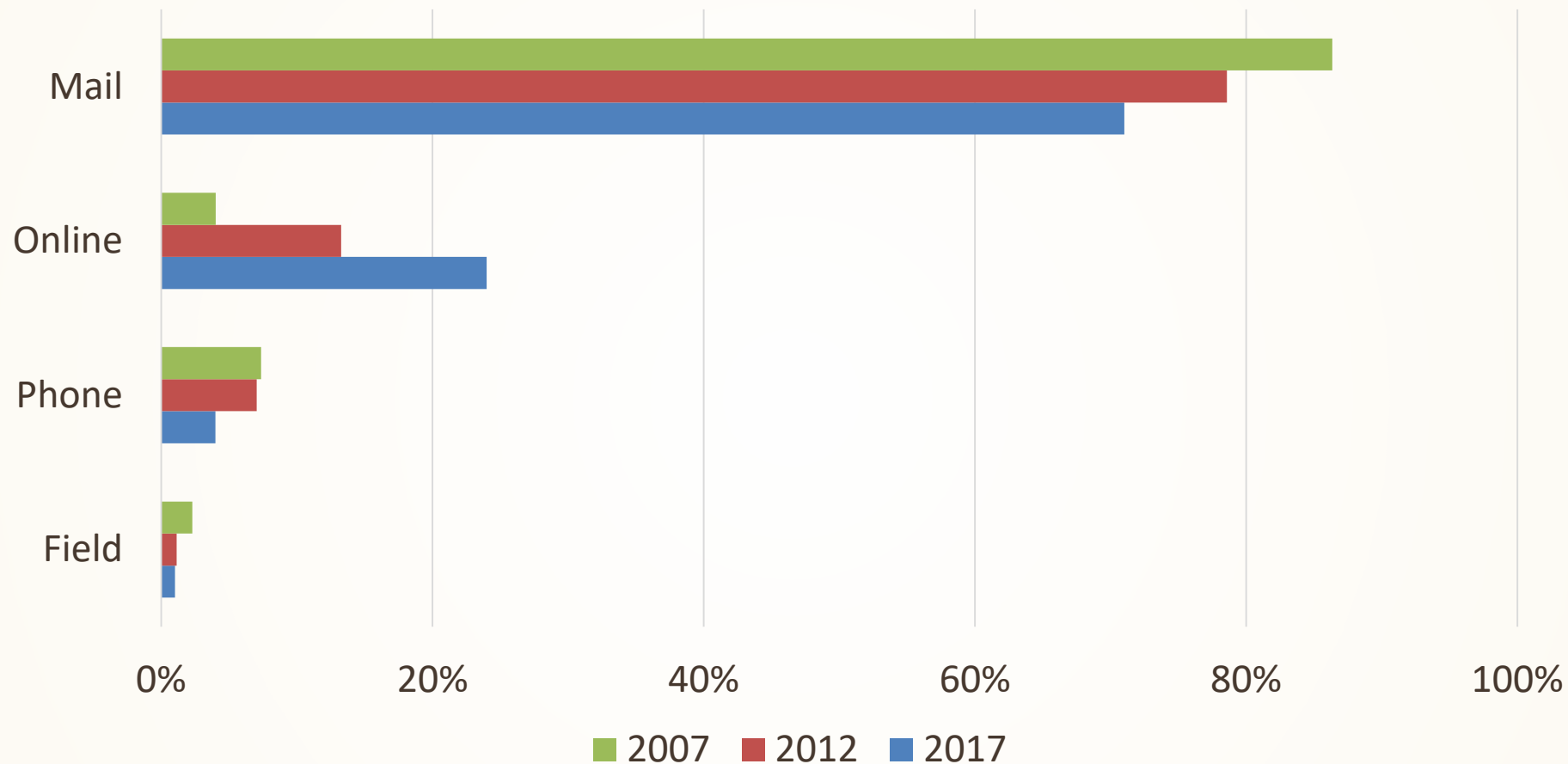
1840	1964	1969	2007	2012
Personal Enumeration (paper)	Mail	Phone Enumeration	Online	Personal enumeration (iPad)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Percent of Total Receipts<sup>1</sup>



<sup>1</sup> 2017 numbers as of 05/7/2018



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# 2017 Data Collection Strategy

- Mail procedures
  - Online Push letter
  - Initial mailings
  - Thank You/Reminder postcard
  - Non-response follow-up mailings
- Web procedures
  - Email blast
  - Online reporting



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)



# 2017 Data Collection Strategy (cont.)

- Field Procedures
  - Personal enumeration on iPad/paper/phone
- Phone Procedures
  - Incoming Telephone Call System
  - Non-response phone follow-up



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Then and Now

## STATISTICS OF PENNSYLVANIA.

193

TABLE X.—PROFESSIONS, OCCUPATIONS, AND TRADES OF THE MALE POPULATION.\*

Actors.....	133	Factory hands.....	1,718	Paper stainers.....	289
Agents.....	1,157	Farmers.....	206,347	Pattern makers.....	380
Agricultural implement makers.....	241	Farriers.....	95	Pavers.....	83
Apothecaries and druggists.....	1,618	Fire-work makers.....	10	Pawnbrokers.....	19
Architects.....	89	Fishermen.....	527	Pedlers.....	1,317
Artists.....	356	Flour dealers.....	131	Pen and pencil makers.....	20

Table 57. Women Operators – Selected Operator Characteristics: 2012 and 2007

[For meaning of abbreviations and symbols, see introductory text.]

Characteristics	All operators <sup>1</sup>		Principal operator		Characteristics	All operators <sup>1</sup>		Principal operator	
	2012	2007	2012	2007		2012	2007	2012	2007
Operators ..... number	969,672	985,192	288,264	306,209	Age group - Con.				
Primary occupation:					35 to 44 years .....	119,534	157,193	25,615	35,444
Farming .....	348,230	341,538	124,567	121,799	45 to 54 years .....	243,585	283,098	63,148	77,016
Other .....	621,442	643,654	163,697	184,410	55 to 64 years .....	279,063	251,231	81,401	77,155
Place of residence:					65 to 74 years .....	167,389	137,246	57,907	53,179
On farm operated .....	787,455	796,072	223,713	232,683	75 years and over .....	82,725	77,610	47,758	50,329
Not on farm operated .....	182,217	189,120	64,551	73,526	Average age of -				
Days worked off farm:					All operators .....	55.6	54.0	(X)	(X)
None .....	365,782	338,395	125,060	124,779	Principal operator .....	(X)	(X)	60.1	58.8
Any .....	603,890	646,797	163,204	181,430	Second operator .....	54.1	52.2	(X)	(X)
1 to 40 days .....	83,330	107,340	22,268	29,224	Third operator .....	49.1	47.9	(X)	(X)



2017 CENSUS OF AGRICULTURE  
YOUR VOICE. YOUR FUTURE. YOUR OPPORTUNITY.

United States Department of Agriculture  
National Agricultural Statistics Service

www.agcensus.usda.gov

# Demographics: Recent History

## 1997:

*NASS takes over Census of Agriculture from the Census Bureau*

### 'Senior Partner'

- Demographic information on one operator was collected
- Some items reflected 'all operators' in one response.

## From 2002 – 2012:

'Total number of operators who are involved in *day-to-day decisions*'

- Demographic information was collected on up to three operators
- Designated the first operator listed as the "principal operator"
  - Defined as the person primarily responsible for the on-site, day-to-day operation of the farm or ranch business
  - For joint operators, instructions indicated the oldest person would be designated as "principal operator"



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017

- Every census cycle includes a review and proposals are made for new or modified census content
- Feedback following 2012 Census of Agriculture
  - Measurement of farm operators may not fully capture role of women and new/beginning farmers
- At the request of NASS, the National Institute of Statistical Sciences (NISS) convened an expert panel.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Panel Recommendations

1. Terms “operator” and “principal operator” are replaced with neutral terms, “individual” and “person”
2. Asks for the number of individuals *involved* in decisions (not just *day-to-day* decisions)
3. Asks for involvement in specific types of decisions (allowing for joint involvement)
4. Allows respondents to report demographic data for up to four farm operators
5. Allows for multiple principal operators to be designated



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Implementation of these recommendations

- Nomenclature
- Bridging
- Algorithm
- Updated Demographic tables
- Operating Arrangements
- Decision-making Questions



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)



# Demographics: Changes for 2017: Publishing Nomenclature

## Recommendations

- Use the label 'Producers' instead of 'Operators' in all publications.
- Use the following terminology for the 2017 CoA:
  - all producers (up to 4 per farm)
  - principal producers (up to 4 per farm, not all producers must be principal producers)
  - non-principal producers (up to 3 per farm, assuming NASS requires one principal producer per farm)
  - primary producer (1 per farm, used only in 2017)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Publishing Nomenclature

## Primary Producer

- equivalent to 'principal operator' (2012)
- one producer per farm
- will only be used for 2017
- used as a bridging term to compare 2012 data with 2017 data

operators' in all publications.

2017 CoA:

all producers must be

, assuming NASS requires

- primary producer (1 per farm, used only in 2017)

# Demographics: Changes for 2017: Bridging 2012 to 2017

## Recommendations

- Bridge the 2012 publication and 2017 publication using a designated or derived single reference person (primary producer) in bridging tables.
- Volume 1 should contain ONLY one bridging table, which would include the standard producer characteristics table rows.
- The new table is only included in Volume 1 for the 2017 cycle.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Bridging 2012 to 2017

Table 79. Selected Producer Characteristics: 2012 and 2017

[For meaning of abbreviations and symbols, see introductory text.]

Characteristics	2017				2012	
	All Producers	All Principal Producers	Non-Principal Producers	Primary producers	All Operators	Principal Operators
Producers .....number						
Hired manager (see text).....						
Primary occupation:						
Farming .....						
Other .....						
New and Beginning						
Young Producers (						
Place of residence:						
On farm operated .....						
Not on farm operated .....						
Days worked off farm:						
None .....						
Any .....						
1 to 49 days .....						
50 to 99 days .....						
100 to 199 days .....						
200 days or more .....						

# Demographics: Changes for 2017: Primary Producer Algorithm

The Expert Panel reviewed work from NASS and derived the following recommendation for establishing a primary producer:

- If only one producer is listed in the form, then use that person.
- If multiple producers are indicated as principal operator in the 2017 CoA form, then apply the following algorithm to the columns of the principal operators, moving down the list to break a tie.
  - **Use the person that makes the largest number of decision**
  - **Use the person with the least time worked off of the farm**
  - **Randomly select from remaining persons**
- If no principal operators are identified in the CoA form, apply the same algorithm in 2 to all persons listed on the form.

# Demographics: Changes for 2017: Demographic Tables

## Recommendation

**Create a table with producer characteristics with columns reflecting different operating arrangements to replace 2012 tables.**

## Recommended Operating Arrangements

Any producer: Count of all farms with a producer

Single producer: Farms with one producer operating the farm

Joint producers:

- Spousal: Farms with 2 married producers operating the farm
- Non-spousal: Farms with two non-married producers operating the farm

Multiple producers: Farms with 3 or 4 producers operating the farm

Other management operating arrangements: Farms operated by more than 4 producers, not fitting into one of the other identified categories.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)



# Demographics: Changes for 2017: Demographic Tables

## Recommendation

**Create a table with producer characteristics with columns reflecting different operating arrangements to replace 2012 tables.**

Recom

### Final Tables

- Panel recommended operating arrangements were modified based on publication difficulties and the quality of responses to the spouse question
- Publication tables will focus on the number of producers, not the spousal relationship between the producers

Any

Sing

Join

•

•

Mult

Othe

than 4 producers, not fitting into one of the other identified categories.



2017 CENSUS OF  
AGRICULTURE  
YOUR VOICE. YOUR FUTURE. YOUR OPPORTUNITY.

United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Demographic Tables

**Table XX. Selected Producer Characteristics by Operating Arrangements: 2017**

[Data were collected for a maximum of four operators per farm. For meaning of abbreviations and symbols, see introductory text]

Characteristics	All producers	One producer	Two producers	Three or four producers	Five or more producers
Producers.....number					
Sex of producer:					
Male.....					
Female.....					

**Table 55. Selected Operator Characteristics for Principal, Second, and Third Operator: 2012**

[For meaning of abbreviations and symbols, see introductory text.]

Characteristics	All operators <sup>1</sup>	Principal operator	Second operator	Third operator
Operators .....number	3,180,074	2,109,303	928,151	142,620
Sex of operator:				
Male .....	2,210,402	1,821,039	302,043	87,320
Spouse of principal operator .....	90,893	(X)	88,931	1,962
Female .....	969,672	288,264	626,108	55,300
Spouse of principal operator .....	583,393	(X)	568,012	15,381
Primary occupation:				
Farming .....	1,412,077	1,007,904	342,317	61,856
Other .....	1,767,997	1,101,399	585,834	80,764



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# **Demographics: Changes for 2017:**

## **Demographic Tables: Producer Characteristics**

### **Recommendation**

**Create producer characteristics tables for the following groups:**

- Men
- Women
- New/beginning producers: 10 years or less operating
- Young producers: 35 years old or younger
- Veterans



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017:

## Demographic Tables: Producer Characteristics

**Table 55. Selected Producer Characteristics of Women Producers: 2017**

[Data were collected for a maximum of four operators per farm. For meaning of abbreviations and symbols, see introductory text.]

Characteristics	All producers	All principal producers
Producers.....number		
Sex of producer:		
Male.....		
Female.....		
Hired manager (see text).....		

**Table 57. Women Operators – Selected Operator Characteristics: 2012 and 2007**

[For meaning of abbreviations and symbols, see introductory text.]

Characteristics	All operators <sup>1</sup>		Principal operator		Characteristics
	2012	2007	2012	2007	
Operators.....number	969,672	985,192	288,264	306,209	Age group - Con.
Primary occupation:					35 to 44 years.....
Farming.....	348,230	341,538	124,567	121,799	45 to 54 years.....
Other.....	621,442	643,654	163,697	184,410	55 to 64 years.....
Place of residence:					65 to 74 years.....
On farm operated.....	787,455	796,072	223,713	232,683	75 years and over.....
Not on farm operated.....	182,217	189,120	64,551	73,526	Average age of -
					All operators

# **Demographics: Changes for 2017: Demographic Tables: Farm Characteristics**

## **Recommendation**

### **Create farm characteristics tables for the identified groups:**

- Include operating arrangements where applicable.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017:

## Demographic Tables: Farm Characteristics

**Table 59. Female Producers - Selected Farm Characteristics: 2017**

[Data were collected for a maximum of four producers per farm. For meaning of abbreviations and symbols, see introductory text.]

Characteristics	Any producer is female	Any principal producer is female
<b>FARMS AND LAND IN FARMS</b>		
1 Farms ..... number		
2 Land in farms ..... acres		
<b>FARMS BY SIZE</b>		
3 1 to 9 acres .....		
4 10 to 49 acres .....		
5 50 to 179 acres .....		
6 180 to 499 acres .....		

**Table 56. Women Principal Operators - Selected Farm Characteristics: 2012 and 2007**

[For meaning of abbreviations and symbols, see introductory text.]

Characteristics	Principal operator		Characteristics
	2012	2007	
<b>FARMS AND LAND IN FARMS</b>			<b>FARMS BY NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) - Con.</b>
Farms ..... number	288,264	306,209	Other crop farming (1119) - Con.
Land in farms ..... acres	62,672,816	64,264,566	Sugarcane farming, hay farming, and all other crop farming (11193, 11194, 11199) .....
<b>FARMS BY SIZE</b>			Beef cattle ranching and farming (11211) .....
1 to 9 acres .....	53,520	56,526	
10 to 49 acres .....	102,944	107,352	
50 to 179 acres .....	80,997	86,991	



# Demographics: Changes for 2017: Decision-making Categories

## Recommendations

- Publish a farm characteristics (count of farms indicating one or more producer made a specific type of decision) table for decision making questions.
- Publish a producer characteristics (count of producers indicating they made a specific type of decision) table for decision making questions.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Demographics: Changes for 2017: Decision-making Categories

Day-to-day decisions	Land use and/or crop decisions	Livestock decisions	Record keeping and financial management	Estate or succession planning
----------------------	--------------------------------	---------------------	-----------------------------------------	-------------------------------

Characteristics	Day-to-day decisions	Land use and/or crop decisions	Livestock decisions	Record keeping and financial management	Estate or succession planning
<b>FARMS AND LAND IN FARMS</b>					
Farms.....number..					
.....percent..					
Land in farms.....acres..					
Average size of fam.....acres..					



# Publication

- The 2017 Census of Agriculture will produce 3 volumes of agricultural statistics:
  - Volume 1: Geographic Area Series (released 2019 – 2020)
    - U.S., State, County, etc.
  - Volume 2: Subject Series (released 2019 – 2022)
    - Congressional, specialty, typology, etc.
  - Volume 3: Special Studies (released 2019 – 2021)
    - Irrigation, organic, horticulture, etc.



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)

# Questions?

- Megan Lipke
  - Northeastern Regional Field Office (Harrisburg, PA)
  - [Megan.Lipke@nass.usda.gov](mailto:Megan.Lipke@nass.usda.gov)
- Gina Geffrard
  - Census and Survey Division (Washington, DC)
  - [Gina.Geffrard@nass.usda.gov](mailto:Gina.Geffrard@nass.usda.gov)



United States Department of Agriculture  
National Agricultural Statistics Service

[www.agcensus.usda.gov](http://www.agcensus.usda.gov)