

Conservation Practice Adoption and Motivations Survey (CPAMS)

Background and Objectives





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Overview

- Why CPAMS?
- Benefit for respondents
- Conservation programs
- Conservation practice adoption
- Information needs
- Information use

Natural Resources Conservation Service





Background: Why CPAMS?

- NRCS Mission: Conserve natural resources in agriculture
 - Preserve agricultural productivity
 - Improve environmental quality
- NRCS Strategy: Encourage farmers to use conservation practices
 - Conservation is voluntary
 - Work with farmers to develop and support farm-specific conservation plans
 - Provide technical and financial assistance for implementing plans
 - Programs usually cover only a part of actual costs
- Understanding producer motivations is critical to NRCS success
 - Long term, sustained conservation is largely up to producers
 - How can NRCS tailor conservation assistance to support sustained conservation?

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Background: Benefit to respondents

- Better Conservation Programs
 - Technical and financial assistance that meet producer needs
 - Stronger program of voluntary conservation
- Focus on producer stewardship
 - Understand the true, long-term benefit encouraging conservation
 - Small public investment can yield big, long term gains

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Background: Conservation programs

- **Technical assistance:** Direct consultation with the farmer, rancher, or landowner that may include developing a whole farm or ranch conservation plan or the planning, design, and layout of conservation practices.
- **Financial assistance:** A payment or grant that helps defray the cost of implementing conservation practices.
 - "Cost-sharing" for initial installation of structures (terraces, waste storage, fences)
 - Temporary incentives for using management practices (cover crops, nutrient management, grazing management)
- Many different programs
 - USDA—multiple programs
 - States—common in major agricultural states

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Background: Conservation programs—USDA examples

- Environmental Quality Incentives Program (EQIP)
 - Technical and financial assistance
 - ~50-75% initial cost of structural practices (terraces, waste storage, fences)
 - 3-5 years of financial support for management practices
- Conservation Technical Assistance: TA only
- Conservation Stewardship Program (CSP)
 - Technical and financial assistance
 - Eligible producers already have conservation in place
 - Participants agree to maintain existing conservation practices
 - Use "enhancements" to increase impact of existing programs
 - Contracts cover whole farm; 5-10 years

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Background: Farm-level adoption process

Stages of adoption

- Knowledge
- Persuasion
- Decision
- Implementation

Confirmation

Information

- Barriers (reasons for not trying practice)
- Advantages (reason for trying practice)
- Scale of initial (trial) adoption
- Role of technical/financial assistance
- Expand use after initial adoption? Reasons?
- Discontinue? Reasons?
- Role of technical/financial assistance?

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Background: Diffusion (overall adoption rate)

- Mix adopters and non-adopters in CPAMS will depend on adoption rates
 - Differ across practices
 - Differ by farm size
 - Differ across regions
- Information obtained will also vary
 - Sparse adoption: Mostly about Barriers
 - Broad adoption: All stages of adoption





Background: Information need

- Survey scope
 - Farm-wide enterprises (e.g., all cropland rather than a single field)
 - Multiple practices
 - Farms of different sizes/located in different regions
- Survey questions
 - Adoption process (non-adoption, initial adoption, expanded or discontinued adoption)
 - Use/importance of technical/financial assistance
 - Reasons for adoption/non-adoption
 - TA/FA available
 - Conservation (on farm)
 - Financial costs and benefits
 - Time and effort
 - Environmental (off-farm)

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Background: Use of information

- Improve technical and financial assistance programs
 - Are incentives too low for some practices, thereby depressing adoption?
 - Are we paying too much for some practices that would be adopted anyway?
 - Is technical assistance sufficient in some cases?
 - Are some practices prone to dis-adoption when financial assistance stops?
 - How important are incentives in achieving operation-wide adoption?

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Conservation Practice Adoption and Motivations Survey (CPAMS)

Questionnaire Format



Questionnaire Format



- Land Use and Livestock
- General Conservation
- Technical Assistance
- Version-Specific Sections
- Demographics
- Value of Sales
- Conclusion





Section Overview



- Practice screener
 - Yes Complete section
 - No Complete Agree/Disagree table, then go to next section
- Additional routing throughout Section







Conservation Practice Adoption and Motivations Survey (CPAMS)

Version 1 - Crop Practices





- Cover Crops
- Nutrient Management
- Pest Management
- Tillage
- Drainage Water Management
- Runoff Management
- Edge of Field Structures
- Wetland Conservation Practices
- Irrigation Management and System Improvements
- Conservation Stewardship Program







Section 4. Cover Crops



- Primarily for managing soil fertility, soil quality, and controlling weeds, pests and diseases
- 2017 COA cover crops on 5% of cropland
- Since 1997, NRCS financial assistance to approximately 2.7% crop acres
- Some states also assist farmers with cover crops
- Screen: Have you ever used cover crops?
- Ask about cover crop detail if used in 2021









Section 5. Nutrient Management

- A written nutrient management plan guides the amount, source, placement, and timing of the application of nutrients and soil amendments
- Since 1997 NRCS financial assistance for 81,000 operators for plans covering 29.9 million acres
- Screen: Have you ever followed a written nutrient management plan?







Section 5. Nutrient Management

- 1. Which of the following nutrient or fertility management practices did you use in 2021? Check all that apply.
 - Follow recommendations from a soil test or tissue test
 Incorporate nutrients through tillage or injection
 Apply nutrients no more than 30 days in advance of planting
 Split application (applying nutrients after the crop is already growing)
 Precision nutrient management (applying nutrients according to site specific recommendations for GPS-referenced sampling points)
 - 306 Precision lime application

307

Adaptive nutrient management (using test plots and consulting with a nutrient management expert to adapt nutrient applications (rate, source, timing, placement) based on nutrient use efficiencies)







Section 6. Pest Management

- Pests: weeds, insects, or disease
- A written pest management plan is a sitespecific combination of pest prevention, avoidance, monitoring, and suppression strategies
- Since 1997, NRCS provided financial assistance for 51,000 operators for plans covering 23.1 million acres
- Screen: Have you ever followed a written pest management plan?





Section 6. Pest Management

1. Which of the following pest management practices did you use in 2021? Check all that apply.













- Tillage practices manage crop residue on the soil surface year-round by limiting soil-disturbing activities
 - <u>No-till</u> planting crops without tilling the soil.
 - <u>Strip-till</u> planting crops in a narrow band of tilled soil
 - <u>Reduced tillage</u> reduce the number and type of yearly tillage operations
- Tillage practice adoption
 - <u>No-till</u> (continuous): 103 million acres (33% of cropland)
 - <u>Reduced tillage</u> (Mulch-till): 107 million acres (34% of cropland)
- Since 1997, NRCS financial assistance on 12.7 million acres
- Screen: Have you ever used no-till, strip-till, or reduced till?





Section 8. Drainage Water Management



- A written drainage water management plan guides management of drainage volume and water table by regulating flow from a surface or subsurface drainage system.
- NRCS has contracted with 690 operations on 86,000 acres
- Screen: Have you ever followed a written drainage water management plan developed with assistance from a technical expert?







Section 9. Runoff Management

- Runoff management practices slow the movement of water over land, reduce erosion, protect or improve water quality, or store runoff for moisture conservation.
- Practices on ~20-25% of cropland
 - Many practices may have been installed by earlier owners
 - For structures installed, TA and FA is common
- Screen: In 2021, were any structural practices for runoff management in use on land owned or leased by this operation?





- Edge of field structures establish permanent vegetation at field borders, adjacent to waterways, or in sensitive areas to reduce erosion, improve water or air quality, manage pests, or provide wildlife habitat.
- One or more practices on ~10 percent of cropland
 - Many practices may have been installed by earlier owners
 - For structures installed, TA and FA is common
- Screen: In 2021, were any edge of field structures in use on land owned or leased by this operation?



Section 11. Wetland Conservation



 Is any portion of your operation (owned or leased) subject to any of the following easements or contracts to protect wetlands? Check all that apply.











Have either of the following practices ever been installed on your operation to conserve or increase wetlands? Complete the table below, then follow the instructions at the end of the table.

	Land Owned		Land Leased	
	962	1 🗌 Yes	963	1 🗌 Yes
Restored or enhanced existing wetlands		3 🗌 No		3 🗌 No
	964	1 🗌 Yes	965	1 🗌 Yes
Created new wetlands		3 🗌 No		3 🗌 No

If you answered "No" to all of the questions in Item 2 above, continue. If you answered "Yes" to any of the questions in Item 2 above, go to Item 3, page 34.







Section 12. Irrigation Water Management

- A written irrigation water management plan lays out the process of determining and controlling the volume, frequency and application rate of irrigation water
- NRCS contracted with 32,800 operations on 8.5 million acres
- Screen: have you used any irrigation equipment to irrigate a portion of your land at any time?







Section 12. Irrigation Water Management

- What irrigation systems are in use on operation?
 - Systems on owned, rented land
 - Installed or upgraded by operation during past 15 years?
 - Which of the following irrigation systems are in use on your cropland? Complete the table below, then follow the instructions at the end of the table.

	Land Owned	Land Leased	Installed New by this operation in the last 15 years	Upgraded by this operation in the last 15 years
Micro or Drip	¹⁰⁵⁵ 1 🗌 Yes	¹⁰⁵⁶ 1 🗌 Yes	¹⁰⁵⁷ 1 Yes	¹⁰⁵⁸ 1 🗌 Yes
	3 🗌 No	3 🗌 No	3 No	3 🗌 No
Sprinkler	¹⁰⁵⁹ 1 ☐ Yes	¹⁰⁶⁰ 1 ☐ Yes	¹⁰⁶¹ 1 ☐ Yes	¹⁰⁶² 1 ☐ Yes
	3 ☐ No	3 ☐ No	3 ☐ No	3 ☐ No
Gravity or Flood	¹⁰⁶³ 1 🗌 Yes	¹⁰⁶⁴ 1 🗌 Yes	¹⁰⁶⁵ 1 Yes	¹⁰⁶⁶ 1 🗌 Yes
	3 🗌 No	3 🗌 No	3 No	3 🗌 No
Sub Irrigation	¹⁰⁶⁷ 1 ☐ Yes	¹⁰⁶⁸ 1 🗌 Yes	1089 1 Yes	¹⁰⁷⁰ 1 Yes
	3 ☐ No	3 🗌 No	3 No	3 No



If no irrigation systems have been installed or upgraded in the last 15 years, go to Item 8, page 40; otherwise continue.



Questions?









Conservation Practice Adoption and Motivations Survey (CPAMS)

Version 2 – Confined Livestock Practices





Farmstead Focus – Confined Livestock









Livestock Waste System Functions

- Production livestock waste is produced
- Collection Initial gathering of waste from confinement area
- Transfer Movement of waste after collection
- Storage Containment until treated or utilized
- Treatment Solid separation, moisture adjustment, anaerobic or aerobic
- Utilization Land application, feeding, other





Waste Cycle







Farmstead Focus – Feedlot Example







Farmstead Focus – Dairy Example







Farmstead Focus – Hog Example







Farmstead Focus – Poultry Example









- Questionnaire is 32 pages long
 - Watch out for skips within the questionnaire
- There are many motivation questions within this questionnaire
 - 17 tables about agree, neither, or disagree statements
 - Over 100 questions with a yes or no option
 - Technical Assistance expertise or information provided for planning or implementing a conservation practice or designing, laying out or installing conservation structures. Expertise can be from TSP, technical service providers.
 - Financial Assistance received money to help defray the cost of implementation







- Land Use and Livestock
- Waste (Manure) Storage Facilities
- Animal Mortality Facilities
- Waste (Manure) Separation Facilities
- Comprehensive Nutrient Management
- Waste Utilization
- Diversion of Runoff
- Stabilization or Protection of Heavily Used Areas







- Screener: Did you raise (regardless of ownership) any swine, poultry, milk cows, veal calves, feeder cattle including backgrounders on your operation during 2021?
- Watch out for skip instructions in screener
- During 2021, how many acres were operated on this operation?
- Report the total number of livestock or poultry on December 31, 2021
 - Beef cows
 - Milk cows
 - Cattle and calves
 - Includes fed cattle, stockers and feeders
 - Hogs and pigs
 - Poultry
 - Layers, turkeys, broilers and other poultry







Section 2. General Conservation

- Opinion based questions about conservation practices and technology
- General manual management or conservation practices on your farming operation





Section 3. Technical Assistance

- Screener: Have you ever received technical assistance for conservation from any federal, state, local university or other source that was not financial?
- Yes or No, watch for skip instructions







Section 4. Waste Storage Facilities

- Screener: Are waste storage facilities currently in use of your livestock operation?
 - Buildings for solid waste
 - Impoundments, compacted soil lining
 - Impoundments, concrete lining
 - Impoundments, geomembrane or geosynthetic clay lining
 - Tank, Steel lined
- Watch out for skip instructions within Section 3







Section 4. Waste Storage Facilities







- Screener: Do you have animal mortality facilities on your operation?
- Watch out of skip instructions within section 5
- Examples of Animal Mortality Facilities
 - Rendering
 - Composting
 - Burial
 - Freezer
 - Incineration
 - Gasification





Section 6. Waste Separation Facilities

- Screener: Do you have waste (manure) separation facilities on your operation include filters or screens or settling tanks, basins or changes?
- Watch out for skip instructions within section 6
- Examples of waste separators
 - Inclined screen, vibratory screen, rotating screen
 - Screw press, roller press, belt press
 - Weeping wall
 - Settling basin
 - Centrifuge





Section 6. Waste Separation Facilities







Section 7. Nutrient Management

- Screener: Do you have a written CNMP?
- What is a comprehensive nutrient management plan or CNMP?
 - It is a written comprehensive plan developed with assistance from a government agency, private consultant or other technical expert to manage manure and other nutrients.
 - Must include the following in the written plan
 - Animal confinement and land treatment area
 - Meets NRCS criteria for water quality and soil erosion
 - Mitigates any negative impacts to air quality or excessive air emissions
 - Follows federal, state and local laws and regulations
 - Satisfies the operator's production objectives
 - Watch out for skip instructions within section 7







- Screener: Does your livestock operation produce liquid waste?
- Do you use pipelines, pumping plants, or irrigation equipment to facilitate land application of manure?
 - Pipeline a pipeline or appurtenances installed to convey liquid waste for land application. Include a pipeline that carries waste to an irrigation system or tractor driven injector.
 - Pumping plant a pump used to apply waste to the field
 - Include pumps, power units, appurtenances, pumping to an irrigation system or tractor driven injector
 - Sprinkler Irrigation distribution system that applies liquid waste through nozzles under pressure.
- Watch out for skip instructions within section 8





- Screener: What type of runoff control and diversion structures are currently in use on your livestock operation?
 - Roofs and covers roof or cover used to divert rainfall from waste handling structures or capture gases to control emissions or odor
 - Roof runoff structure gutters, downspouts pipes and drains that collect, control and transport rainfall from roofs and covers
 - Diversion include channels constructed on a slope to divert water away from agricultural waste systems
- Watch out for skip instructions within section 9





Section 9. Diversion of Runoff







Section 10. Stabilization or Protection

- Screener: Do you have vegetative cover, surfacing, or structures to stabilize or protect areas that are frequently and intensively used by people, animals and vehicles?
 - Vegetative cover would be grass
 - Surfacing rock or gravel
 - Structures concrete









- Section 11 Demographics
- Section 12 Value of Sales
- Section 13 Conclusion







Conservation Practice Adoption and Motivations Survey (CPAMS)

Data Collection and Due Dates





Data Collection & Due Dates

• Important Dates:

- May 9 Pre-survey letter mailed
- May 30 1st mailing questionnaire
- June 13 CAPI opens
- July 11 2nd mailing questionnaire
- August 1 Postcards reminders
- August 12 Last day to enter data into CAPI
- September 15 Survey results







Reminder Postcards

Cropland Practices

A REMINDER ABOUT YOUR CONSERVATION PRACTICE ADOPTION MOTIVATIONS SURVEY



Confided Livestock

A REMINDER ABOUT YOUR CONSERVATION PRACTICE ADOPTION MOTIVATIONS SURVEY

