

# **NRCS Fundamentals of Conservation & Sustainability in Agriculture Certification**

Created in collaboration with USDA Natural Resources  
Conservation Service and Texas Corn Producers

## **Study Guide**

# **CERTIFICATION OVERVIEW**

The NRCS Fundamentals of Conservation & Sustainability in Agriculture Certification verifies individuals have obtained exceptional knowledge and skills in the areas of conservation and sustainability of various natural resources including soil, water, plants, animals and air.

## **EXAM OVERVIEW**

The NRCS Fundamentals of Conservation & Sustainability in Agriculture Certification is hosted on the iCEV testing platform. iCEV offers optional preparation material designed to ensure success on the certification exam. More information about the certification exam and testing platform can be found at <https://www.icevonline.com/nrcs>

The certification exam is a 100-question, randomized assessment. Exam questions are in the format of multiple choice, sort order, diagramming, matching, labeling and other question types meant to fully evaluate an individual's competency of the industry standards. The certification exam should be proctored within a controlled environment. The proctor of the exam must review and verify all exam procedures and provide electronic documentation through the exam platform.

## **ABOUT THE NATURAL RESOURCES CONSERVATION SERVICE AND TEXAS CORN PRODUCERS**

The Natural Resources Conservation Service has been partnering with industry professionals for over 80 years to help protect the natural resources of the world. The NRCS emphasizes cultivating a diverse, well-trained workforce, supporting urban agriculture and innovative production, addressing climate change and advancing equal opportunities. The NRCS mission is to deliver conservation solutions so agriculture producers can protect natural resources and feed a growing world.

The Texas Corn Producers promotes and protects the interest of Texas corn farmers through two organizations: the Texas Corn Producers Board and the Texas Corn Producers Association. TCPB is funded by a voluntary checkoff program. Checkoff funds are used for research, education and promotion to create better opportunities for farmers. TCPA advocates for farmers as it aims is to build a strong organizational support system for the corn industry across the state.

# INDUSTRY STANDARDS

The certification exam assesses knowledge and skills from the following weighted industry standards:



## SOIL- 25%

- Formation & Processes
- Properties
- Functions & Values
- Health & Quality
- Conservation & Management



## PLANTS- 20%

- Physical Structures & Functions
- Growth & Reproduction
- Nutrient Cycling
- Annuals & Perennials
- Natives & Invasives
- Crop Production
- Conservation & Management



## ANIMALS- 20%

- Morphology & Physiology
- Food Web & Trophic Levels
- Habitats
- Terrestrial & Marine
- Reproduction
- Conservation & Management



## WATER- 25%

- Physical & Chemical Properties
- Sources
- Hydrologic Cycle
- Quality & Pollution
- Regulations & Standards
- Treatment & Conservation



## AIR- 10%

- Quality & Components
- Contaminants
- Sources

# Industry Standard Overview

To pass the NRCS Fundamentals of Conservation & Sustainability in Agriculture Certification exam, certification candidates must have adequate knowledge of the industry standards. The following outlines an in-depth overview of the industry standards and sub-standards:

## Industry Standard: Soil



- Soil formation
  - parent material
  - living organisms
  - climate
  - landscape position
  - soil horizons
- Properties
  - sand
  - silt
  - clay
  - organic matter
- Health & Quality
  - fertility
  - soil pH
  - base saturation
- Conservation & Management
  - cover crops
  - crop rotation
  - reduced tillage

## Industry Standard: Plants



- Physical Structures & Functions
  - photosynthesis
  - annuals & perennials
  - aboveground shoot system
  - root system
- Plant Requirements
  - sunlight
  - water
  - air
  - proper temperature
  - nutrients

- Natives & Invasives
  - facultative weeds
  - noxious species
  - noxious weeds
- Crop Production
  - cash crops
  - legumes
  - hay or forage
  - small grains
  - cover crops
- Conservation & Management
  - revegetation
  - species selection
  - agroforestry
  - integrated pest management

## Industry Standard: Animals



- Morphology & Physiology
  - vertebrates & invertebrates
- Food Chain Structure
  - primary producers
  - primary consumers
  - secondary consumers
  - tertiary consumers
  - decomposers
- Habitats
  - wetlands
  - tundra
  - deserts
  - artic
  - rainforest
  - mountains
- Conservation & Management
  - restoration plans
  - grazing systems
  - tillage practices
  - five freedoms of animal welfare

## Industry Standard: Water



- Physical & Chemical Properties
  - cohesion and adhesion
- Sources
  - surface water
  - ground water
- Hydrologic Cycle
  - solid, liquid, gas
  - evapotranspiration
  - sublimation
  - precipitation
- Quality & Pollution
  - nonpoint & point source pollution
  - pH
  - nutrients
  - drought
- Regulations & Standards
  - clean water act
  - safe drinking water act
  - the EPA

## Industry Standard: Air



- Quality & Components
  - nitrogen, oxygen, argon, carbon dioxide, nitrous oxides, methane, ozone, water vapor
- Contaminants
  - particulate matter
  - bulk materials
  - ozone precursors
  - nitrogen cycling
  - combustion
  - biological organisms
- Conservation
  - dust suppression
  - vehicular control
  - windbreak control
  - land management

# Optional Preparation Materials Overview

The preparation materials offered by iCEV for the NRCS Fundamentals of Conservation and Sustainability in Agriculture Certification was specifically created to prepare candidates for the certification exam. While it is not required to complete the preparatory materials before accessing the certification exam, NRCS recommends certification candidates complete some form of training. The following outlines the lessons scope and objectives:

## Lesson 1: Sustainability of Natural Resources

1. To analyze sustainability.
2. To identify Earth's natural resources and their importance.
3. To evaluate methods of conservation.

## Lesson 2: Soil: Introduction

1. To define soil.
2. To analyze the role soil has in the world.
3. To discover the physical, chemical and biological properties of soil.

## Lesson 3: Soil: Components & Composition

1. To define the textures of soil.
2. To analyze soil formation.
3. To identify the living organisms within the soil surface.
4. To discover how soil is changed and translocated.

## Lesson 4: Soil: Health & Quality

1. To define soil health.
2. To analyze the chemical, physical and biological properties of soil.
3. To identify the inherent and dynamic qualities of soil.

## Lesson 5: Soil: Conservation & Management

1. To explain the importance of wetland habitats to North America and the Earth.
2. To assess threats to wetland habitats.
3. To demonstrate knowledge of managing and conserving wetland habitats.

## Lesson 6: Water: Introduction

1. To define water.
2. To analyze the role water has in the world.
3. To discover how much water is on Earth.

## **Lesson 7: Water: Components & Composition**

1. To define freshwater and its sources.
2. To analyze the water cycle.
3. To identify the properties of water.

## **Lesson 8: Water: Health & Quality**

1. To define water quality.
2. To analyze the regulations and standards for water quality.
3. To identify how to test water quality and how water is treated.

## **Lesson 9: Water: Conservation & Management**

1. To analyze water conservation practices in agriculture, industrial and human activities.
2. To identify areas of water quality concern.
3. To evaluate ways to improve water quality.

## **Lesson 10: Plants & Animals: Introduction**

1. To define an ecosystem.
2. To analyze plants' roles in ecosystems.
3. To analyze animals' roles in ecosystems.
4. To discover how plants and animals work together to achieve a healthy ecosystem.

## **Lesson 11: Plants & Animals: Components & Composition**

1. To understand how energy flows through trophic levels.
2. To classify plants and animals based on their characteristics.
3. To understand the relationship between plants, animals and the environment.

## **Lesson 12: Plants & Animals: Healthy & Quality**

1. To understand the pests and diseases which affect plants and animals daily.
2. To discover the environmental causes which are harmful to plants and animals and how to lessen the severity of harmful effects.
3. To understand how human activities affect plant and animal health.

## **Lesson 13: Plants & Animals: Conservation Management**

1. To identify plant and animal resource concerns.
2. To determine methods which mitigate damage to plants and animals in nature and agriculture.
3. To understand the conservation and management efforts.



## **Lesson 14: Air: Introduction**

1. To define air quality.
2. To analyze the role air plays on Earth.
3. To discover the components of air.
4. To analyze the management strategies used to positively increase air quality.

## **Lesson 15: Air: Components & Composition**

1. To analyze the components and composition of air.
2. To understand the role air components play in air pollution.
3. To discover the activities which lead to the decrease of air quality.

## **Lesson 16: Air: Health & Quality**

1. To define air health & quality.
2. To analyze how air quality is measured.
3. To discover the activities which lead to unhealthy air.

## **Lesson 17: Air: Conservation & Management**

1. To analyze different air management practices.
2. To understand the management strategies in general land management systems.
3. To discover the management strategies in farming and ranching operations.