SOUTH DAKOTA
CCA STUDY GUIDE

The publications listed here are reference materials for the Performance Objectives for South Dakota Certified Crop Advisers. Publications are listed for each area under the four competency areas: Soil Nutrient Management, Soil and Water Management, Pest Management and Crop Protection. In many instances, individual publications cover more than one area, though they have been specifically identified for a given area objective.

This study guide is not intended to provide direct questions and answers for the CCA exams, but rather to provide reference materials for continuing education. In this electronic format reference materials may be easily updated to reflect the latest research based agronomic information for the benefit of the adviser and his/her clientele.

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How Soil Holds Water

Plant Growth Regulators: Their Use in Crop Production

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Applying Fertilizer and Lime to CRP Land, Iowa State University, University Extension CRP-5 Conservation Reserve Program Issues and Options

Ag Lime Impact On Yield in Several Tillage Systems, Iowa State University

Area 3. N, P, K, plant requirements

Fertilizer Recommendations Guide – South Dakota State University Cooperative Extension Service

Best Management Practices for Nitrogen Use Statewide in Minnesota – University of Minnesota, Cooperative Extension Service

Understanding Nitrogen in Soils, University of Minnesota, Cooperative Extension Service
Effects of UAN or urea on growing corn, Iowa State University Cooperative Extension Service

Nitrogen fertilizer management options, Iowa State Cooperative Extension Service

Nitrogen Fertilizers, Michigan State University Cooperative Extension Service

Variable Rate Fertilization for Field Crops – Equipment Requirements – North Dakota State University

Management of Urea Fertilizers, North Central Regional Publication #326

Fertilizer Urea, University of Minnesota Cooperative Extension Service

Why manage phosphorus, Iowa State University Cooperative Extension

Phosphorus Facts Soil, Plant and Fertilizer, Kansas State University Cooperative Extension Service

Interpreting Mehlich-3 soil test results, Iowa State University Cooperative Extension Service

Potassium deficiency symptoms in corn, Iowa State University Cooperative Extension Service

Nitrogen Best Management Practices for Corn in South Dakota

Using Manure as a Nitrogen Fertilizer

Area 4. Secondary nutrient and micronutrient plant requirements

Fertilizer Recommendations Guide – South Dakota State University Cooperative Extension Service

Use and Management of Micronutrient Fertilizers in Nebraska, NebGuide G82-596-A

Area 5. Nutrient Application

How Soil Holds Water

Sampling for Plant Tissue Analysis – University of Wisconsin
Guidelines for Soil Sampling, NebGuide G91-1000-A --

Interpretation of Soil Test Results, Iowa State University Cooperative Extension Service

Soil Sampling as a Basis for fertilizer Application, North Dakota State University Cooperative Extension Service

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Soil Sampling as a Basis for fertilizer Application, North Dakota State University Cooperative Extension Service

Effectiveness of using low rates of plant nutrients, North Dakota State University -

Equipment considerations: liquid fertilizer, Iowa State University Cooperative Extension Service

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Management Practices: How to Sample Manure for Nutrient Analysis, Iowa State University Cooperative Extension Service

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SOIL AND WATER MANAGEMENT COMPETENCY AREAS

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Soil cation ratios for crop production, University of Minnesota

Soil electrical conductivity mapping, University of Wisconsin

Planning farmland drainage systems, University of Minnesota
Soil, water and plant characteristics important to irrigation, North Dakota State University

Area 2. Soil conservation

Buffers, common-sense conservation – NRCS

Using conservation tillage to control erosion, University of Minnesota

Preventing soil erosion after spring rains, Iowa State University

Estimating percent residue cover using the line-transect methods, University of Nebraska

Wet soils vulnerable to compaction, Iowa State University

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Soil, water and plant characteristics important to irrigation, North Dakota State University

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Managing saline soils in North Dakota, North Dakota State University

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Water quality and nitrogen, North Dakota State University

Managing nitrogen to prevent groundwater contamination, North Dakota State University
Potential priority watersheds for protection of water quality from contamination by manure nutrients, NRCS

Nitrogen application with irrigation water – Chemigation, University of Minnesota

Sources of groundwater contamination, DNR

**PEST MANAGEMENT COMPETENCY AREAS**

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Use of Seed Coating and Fungicide Treatment in Establishing Alfalfa, South Dakota State University

Herbicide Mode of Action, Iowa State University

Integrated Pest Management (IPM) BMP’s for Groundwater Protection from Pesticides, North Dakota State University

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Weed Control in Shelterbelts and Tree Plantings, South Dakota State University

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Noxious Weed Control, South Dakota State University

Control of Biennial Thistle, South Dakota State University

Grassy Weed Control, South Dakota State University

Leafy Spurge Control, South Dakota State University

Weed Control in Oilseed Crops 2011, South Dakota State University

Weed Control in Soybeans 2011, South Dakota State University

Weed Control in Small Grains and Millet 2011, South Dakota State University
Weed Control in Corn 2011, South Dakota State University
Weed Control in Sorghum 2011, South Dakota State University
Fall Control of Field Bindweed, South Dakota State University
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Soybean Cyst Nematode, South Dakota State University
Common Root and Crown Rot Diseases in Wheat in South Dakota, South Dakota State University
Alfalfa Disease Management South Dakota State University
Crop Rotations for Managing Plant Disease, Iowa State University
Symptoms and Controls of Crop Diseases, North Dakota State University
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White mold life cycle, University of Minnesota
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**IPM Strategies for Grasshopper Control, South Dakota State University**

**Emerging Insect Pests of Corn, South Dakota State University**

**Soybean Aphid Thresholds, South Dakota State University**

**Sunflower moths ands and banded sunflower moths, South Dakota State University**

**Sunflower Seed Weevils, South Dakota State University**

**European Corn Borer, South Dakota State University**

**Ladybugs of South Dakota. South Dakota State University**

**Bean Leaf Beetle in South Dakota, South Dakota State University**

**Alfalfa Weevil Control in South Dakota, South Dakota State University**

**Grasshopper Management In Winter Wheat, South Dakota State University**

**IPM Strategies for Grasshopper Control, South Dakota State University**

**The Armyworm and the Army Cutworm, North Dakota state University**

**Corn cutworms, University of Nebraska**

**Bt corn and the European Corn Borer, University of Minnesota**

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**Coveralls and aprons, South Dakota State University**

**Chemigation Management, South Dakota State University**

**Handling Pesticides Properly, South Dakota State University**
Area 6. Using pesticide in an environmentally sound way

Personal Pesticide Protection – Gloves, South Dakota State University  -- http://agbiopubs.sdstate.edu/articles/ExEx8123.pdf

Pesticide Container Disposal and Recycling, South Dakota State University

Waste Pesticides, South Dakota State University

Chemigation Safety, South Dakota State University

Applying Pesticides Correctly, Virginia Cooperative Extension Service

Spray Equipment and Calibration, North Dakota State University

Sprayer Calibration Fundamentals, Colorado State University

How is the Assessment Process for Groundwater Contamination from Pesticides Used for BMP Selection, North Dakota State University

Area 7. Integrated pest management

Alfalfa Management and pest management in South Dakota, South Dakota State University

Biocontrol of Noxious Weeds in South Dakota, South Dakota State University

Insect Pest Management Alternatives, South Dakota State University  -- http://agbiopubs.sdstate.edu/articles/ex8107.htm

Farmstead BMP Recommendations for Groundwater Protection from Pesticides, North Dakota State University
CROP PROTECTION COMPETENCY AREAS

Area 1. General crop adaptation

Complete crop production index, Iowa State University

Forage yield and quality of multileaflet alfalfa, South Dakota State University

Area 2. Tillage systems used for seedbed preparation of row crops, small grain and forage crops

Fall Tillage and tillage equipment, Iowa State University

Conservation tillage and planting systems, University of Nebraska

Ridge plant systems: equipment, University of Nebraska

Area 3. Seeding date factors

Complete crop production index, Iowa State University

Alfalfa Management and pest management in South Dakota, South Dakota State University

Sunflower production, South Dakota State University

Corn production guide, North Dakota State University

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Complete crop production index, Iowa State University

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Plant populations for maximum corn yield potential

New opportunities in variable-rate seeding corn
Corn production, North Dakota State University

Crop rotations for increased productivity, North Dakota State University

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Complete crop production index, Iowa State University

Alfalfa Management and pest management in South Dakota, South Dakota State University

Sunflower production, South Dakota State University

Corn production, North Dakota State University

**Area 6. Crop damage, mortality and factors influencing replanting decisions**

Winter injury in alfalfa :assessment and management, South Dakota State University

Small grain damage from frost dependent on many factors, North Dakota State University

Hail damage assessment to soybeans, Iowa State University

Frost damage or immature corn, South Dakota State University

Determining yield loss due to replanting, University of Minnesota

Uneven corn fields, Purdue University

Herbicide injury of Corn and Soybeans, Purdue University

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Crop rotations for increased productivity, North Dakota State University
Area 8. Identification of crops in both seed and vegetative states

   Sunflower production, South Dakota State University
   Corn production, North Dakota State University

Area 9. Growth and development stages of major crops (SD)

   Sunflower production, South Dakota State University
   Corn production, North Dakota State University
   Identifying leaf stages in small grains, North Dakota State University

Area 10. Crop improvement and biotechnology

   Iowa State University – Biotechnology publications

Area 11. Precision Ag

   Defining management zones for precision farming –
   Yield monitors create on-and off-farm profit opportunities –
   Site-specific farming: what is it? North Dakota State University