

Arkansas Nutrient Management Planner's Guide

Table of Contents

Chapter 1 – Introduction

Water Quality Concerns and Regulations	1-1
Table 1-1. Animal requirements for CAFO	1-2
Figure 1-1. Nutrient Surplus Area Map	1-3
The Basis of Nutrient Management Planning	1-4
Defining Nutrient Management Plans.....	1-5
What are the Legal Implications of a Nutrient Management Plan?	1-7

Chapter 1 Power Point Presentation

Chapter 2 – Nutrient Management and Water Quality Concerns

Concerns from Nitrates	2-1
Concerns from Phosphorus	2-2
The Fate of Phosphorus Applied to Pastures	2-2

Chapter 2 Power Point Presentation

Chapter 3 – Soil Fertility

Essential Nutrients for Plant Growth	3-1
Determining the Need for Additional Nutrients.....	3-1
Soil Testing	3-2
Fertilizer Timing	3-2
Indications of Low Fertility	3-3
Primary Mineral Nutrients	3-3
Legumes in Pastures	3-5
Nutrient Recycling in Pasture and Hay Systems	3-6
Why Forages Sometimes Fail to Respond to Fertilizer	3-6
Fertilizer Grades.....	3-7
Bulk Blending of Fertilizer	3-7
Importance of Soil pH for Plant Growth.....	3-7
Liming Soils.....	3-8
Using Manure as Fertilizer.....	3-9

Chapter 3 Power Point Presentation

Chapter 4 – Developing a Nutrient Management Plan

General Elements and Format of a Plan.....	4-1
Section 1 – Description of Operation.....	4-1
Section 2 – Summary of Management Actions.....	4-2
Section 3 – Legal and Compliance Requirements	4-2
Section 4 – Collected Information	4-3
Section 5 – Nutrient Application Calculations and Analysis.....	4-3
Section 6 – Field Management Recommendations	4-3
Section 7 – Record Keeping.....	4-3
The Process of Writing a Plan	4-4

Chapter 4 Power Point Presentation

Chapter 5 – Farm Assessment and Inventory

Farm Inventory.....	5-1
Farm Sketches and Aerial Photographs and Maps.....	5-2
On-Farm Data Collection.....	5-3
Soil Sampling and Testing	5-4
Litter Sampling	5-7

Chapter 5 Power Point Presentation

Chapter 6 – Predicting Soil Loss in Arkansas Using RUSLE

RUSLE 2: Revisions to RUSLE	6-1
Determination of R	6-3
Determination of K	6-3
Determination of LS	6-3
Determination of C	6-5
Determination of A	6-5

Chapter 6 Power Point Presentation

Chapter 7 – Phosphorus-Based Nutrient Management Planning

Phosphorus Planning Options	7-1
The P-Index Approach.....	7-2
The P Source Terms.....	7-3
P Transport Factors	7-4
Determining the Risk Assessment Value.....	7-4

Chapter 7 Power Point Presentation

Chapter 8 Developing an Overall Farm Nutrient Inventory, Needs, and Budget

Determining Total Nutrients Derived from Manure Production.....	8-1
Determining Whole Farm Nutrient Needs	8-2
Determining Appropriate Nutrient Application Rates for Individual Pastures.....	8-4
Phosphorus-Based Application Rates	8-4
Determining Nutrient Budgets When Using Manure as a Fertilizer.....	8-6

Chapter 8 Power Point Presentation

Chapter 9 – Conservation Practices

Underlying Philosophy of a Plan	9-1
Appropriate Manure Application Rates	9-2
Setback Distances	9-2
Conservation Practices that Reduce Nutrient Losses.....	9-3

Chapter 9 Power Point Presentation

Chapter 10 – Record Keeping

Nutrient Management Regulations and Programs Requiring Records	10-2
Summary of Various Record Keeping Requirements.....	10-2
Arkansas Soil and Water Conservation Commission	10-2
Arkansas Department of Environmental Quality.....	10-6
USDA, Natural Resources Conservation Service	10-9

Chapter 10 Power Point Presentation

Appendix

Appendix A: [NRCS 590 Standard \(ftp://ftp-fc.sc.egov.usda.gov/AR/efotg/4/590.pdf\)](ftp://ftp-fc.sc.egov.usda.gov/AR/efotg/4/590.pdf)

Appendix B: [NRCS 633 Standard \(ftp://ftp-fc.sc.egov.usda.gov/AR/efotg/4/633.pdf\)](ftp://ftp-fc.sc.egov.usda.gov/AR/efotg/4/633.pdf)

Appendix C: [Arkansas Title 22 \(http://www.aswcc.arkansas.gov/Title%2022.doc\)](http://www.aswcc.arkansas.gov/Title%2022.doc)

Appendix D: [Operator Questionnaire](#)

Appendix E: [Nutrient Balance Worksheet](#)