# Table of Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minnesota Soil Moisture - Fall 1982 and Spring 1983 Outlook</td>
<td>1</td>
</tr>
<tr>
<td>Soil Moisture Conditions, June 1982</td>
<td>5</td>
</tr>
<tr>
<td>Statewide 1982 Precipitation</td>
<td>7</td>
</tr>
<tr>
<td>Some Notes on Agricultural Remote Sensing and the Implementation of New Data Handling Technologies in Field Research</td>
<td>8</td>
</tr>
</tbody>
</table>

## Becker Experiments

- Influence of Nitrogen Rate, Timing of Nitrogen Application and Use of Nitrification Inhibitors for Irrigated Corn Production - Becker, MN - 1982 ........................................ 14
- Influence of Nitrogen Form, Nitrogen Rate, Timing of Nitrogen Application and Nitrification Inhibitors for Irrigated Corn - Becker, MN - 1982 ........................................ 20
- High Corn and Soybean Yield Experiments on the Coarse Textured, Irrigated Soils of Minnesota ........................................ 25
- Micronutrient Fertilization of Potatoes and Corn under Irrigation ............................................................................. 33
- The Effect of Tillage, N Rate, and Nitrification Inhibitors for Irrigated Corn - Becker, MN - 1982 ................................. 38
- Soil Test Lab Comparison on Irrigated Corn - Becker, MN - 1982 .................................................................................. 41

## Crookston Experiments

- 1982 Weather ..................................................................................... 44
- Starter Fertilizer Study - Spring Wheat .......................................... 45
- Broadcast Fertilizer Study - Spring Wheat ......................................... 47
- High Phosphorus and Potassium Rates on Continuous Spring Wheat ....... 49
- Effects of Nitrogen and Phosphorus Application Methods on Spring Wheat ................................................................. 52
- Effects of High Nitrogen Rates in Starter Fertilizer on Spring Wheat .................................................................................... 54
- Soil Test Levels and Crop Quality as Affected by Different Fertilizer Programs in a Continuous Wheat Cropping System .......... 55
- Nitrogen Fertilization and Nitrogen Utilization by Twelve Small Grain Varieties - Crookston, MN - 1982 ......................... 57
- Comparison of Nitrogen Sources on Spring Wheat and Barley .............. 61
- Effects of Nitrogen Rate and Placement on Two Malting Barley Varieties ............................................................... 63
- Effects of Nitrogen on Sunflower ..................................................... 65
- Nitrogen, Phosphorus and Potassium Fertilizer Studies on Oilseed Sunflower .............................................................. 66
Lamberton Experiments

Long-term Soil Moisture Record ................................................................. 72
Twenty-three Years of Field Experimentation with Nitrogen Source, Placement, and Time of Application to a Webster Loam near Lamberton ................................................................. 74
Availability of Residual Nitrate-N to Corn ....................................................... 78

Morris Experiments

Weather Summary - 1982 ..................................................................................... 82
Manure Rate Study ............................................................................................ 83
Residual Effect of Heavy Applications of Animal Manures on Corn Growth and Yield and Soil Properties ........................................................... 85
Nitrogen Fertilization and Utilization by Twelve Small Grain Varieties ................. 87
Effects of Nitrogen and Phosphorus Application Methods on Spring Wheat - 1982 .......................................................... 91
Effect of Fertilizer on Corn Grain Yield and N Content of the Ear Leaves ............... 94
Continuous Corn Silage ...................................................................................... 96
Effect of Iron on the Correction of Soybean Chlorosis ......................................... 97
Soil Test Lab Comparison .................................................................................. 98

Staples Experiments

Problems with Irrigated Corn 1982 ................................................................. 104
Corn - Bean Rotation ......................................................................................... 107

Waseca Experiments

Southern Experiment Station - Waseca, Weather Data 1982 .................................. 108
Rotation Nitrogen Study ...................................................................................... 109
Nitrogen Loss to Tile Lines as Affected by Tillage .............................................. 112
Nitrogen Efficiency as Affected by Ridge-Planting ............................................ 114
Soil Test Comparison Study ............................................................................. 121
Liquid and Dry Starter Fertilizers for Corn in South-Central Minnesota ............... 127
Use of Dwell and N-Serve as Nitrification Inhibitors with Fall vs. Spring Nitrogen Application for Corn Production in Southern Mn ........................................... 130
Conservation Tillage Study ............................................................................... 135
Soybean Row Width in a Ridge-Plant Tillage System .......................................... 144
Effect of Time of Ridging Soybeans on Soybean Production in a Ridge-Planting System .............................................................. 146
Maximum Yield Demonstration ........................................................................ 148
Soil Classification
Relating Soil Survey Data to Crop Response and Land Management.................................................154

Soil Erosion
The Influence of Erosion Class and Slope Steepness on the Productivity of Mt. Carroll Silt Loam Soil.................................................................................................................................158

Soil Testing
Comparison of Three Phosphorus Soil Test Procedures to Wheat, Corn and Soybean Yields..............165
Micronutrients and Relationships to Micronutrient Soil Tests.................................................................171

Tillage
Tillage-Soil Fertility Studies on a Typic Eutrochrept in Goodhue Co.....................................................175
The Effect of Tillage, N Rate, and Nitrapyrin on Corn Growth, Goodhue County, MN 1982...............185
The Effect of Tillage, N Rate, Soil P and K, and Nitrapyrin on Corn Growth, Lancaster, WI - 1981 and 1982...............................................................................................................................189
Corn Tillage Residue Management, Lancaster 1982............................................................................193

Alfalfa
Sulfur, Boron and Magnesium Trials on a Problem Alfalfa Field.........................................................199

Corn
High Phosphorus and Potassium Rates for Continuous Corn..............................................................201

Potatoes
Nitrogen, Phosphorus, and Potassium Fertilization of Potatoes on Nonirrigated Mineral Soils in Northwestern Minnesota.................................................................206

Soybeans
The Relationship of Soil Solution Chemistry to Iron Chlorosis and Yield of Soybeans on High Lime Soils..........................................................................................................................213

Wild Rice
Wild Rice Fertilization Research - 1982.....................................................................................................216