
NEBRASKA SUPPLEMENTS TO THE NATIONAL IRRIGATION GUIDE:

CHAPTER 2 - SOILS

(c) Soil and Irrigation Parameters

(d) Use of Irrigation Design Groups

Table NE2-16 Available Water Holding Capacities

(e) Alphabetical list of irrigable soils in Nebraska and the applicable irrigation design group

(f) Irrigation design group description(s) including applicable soils, intake rates & water holding capacities

Irrigation Design Group 1

Irrigation Design Group 2

Irrigation Design Group 3

Irrigation Design Group 4

Irrigation Design Group 5

Irrigation Design Group 6

Irrigation Design Group 7

Irrigation Design Group 8

Irrigation Design Group 9

Irrigation Design Group 10

Irrigation Design Group 11

Irrigation Design Group 12

Irrigation Design Group 13

Irrigation Design Group 14

(210-VI-NEH-IG, Amend NE 4, April, 2005 – Updated 10/2019)
CHAPTER 3 - CROPS
(Formerly Section 682)

Section 682.1 Irrigation and Crop Production – Rescinded NE 3-21
Section 682.2 Plants– Rescinded NE 3-21
Section 682.3 Crops– Rescinded NE 3-22
Table 682-1 Crop Adaptations– Rescinded NE 3-22
Section 682.4 Climate, Soil, & Water Requirements for Crops– Rescinded NE 3-23
Table 682-2 Crop Seeding Rates to Yields– Rescinded NE 3-23
Figure 682-1 Corn (Average Root Depth) – Rescinded NE 3-24
Figure 682-2 Grain Sorghum (Average Root Depth) – Rescinded NE 3-25
Figure 682-3 Winter Wheat (Average Root Depth) – Rescinded NE 3-26
Figure 682-4 Spring Grain (Average Root Depth) – Rescinded NE 3-27
Figure 682-5 Sugar Beets (Average Root Depth) – Rescinded NE 3-28
Figure 682-6 Potatoes (Average Root Depth) – Rescinded NE 3-29
Figure 682-7 Soybean (Average Root Depth) – Rescinded NE 3-30
Figure 682-8 Sunflower (Average Root Depth) – Rescinded NE 3-31
Table 682-3 Climatic Crop Requirements– Rescinded NE 3-32
CHAPTER 4 - WATER REQUIREMENTS
(Formerly Section 683)

Section 683.1 Annual Water Requirements – Rescinded
Figure 683-1 Water Needs for Corn (10 out of 20 years) – Rescinded
Figure 683-2 Water Needs for Sorghum (10 out of 20 years) – Rescinded
Figure 683-3 Water Needs for Field Beans (10 out of 20 years) – Rescinded
Figure 683-4 Water Needs for Sugar Beets (10 out of 20 years) – Rescinded
Figure 683-5 Water Needs for Corn (15 out of 20 years) – Rescinded
Figure 683-6 Water Needs for Sorghum (15 out of 20 years) – Rescinded
Figure 683-7 Water Needs for Field Beans (15 out of 20 years) – Rescinded
Figure 683-8 Water Needs for Sugar Beets (15 out of 20 years) – Rescinded

Section 683.2 Daily Water Requirements – Rescinded
Section 683.21 Consumptive Use & Other Limiting Factors of Corn – Rescinded
Figures 683-9 Crop Consumptive Use Curves at Selected
A through G Sites in Nebraska:
  Figure A – Lincoln – Rescinded
  Figure B – York – Rescinded
  Figure C – Kearney – Rescinded
  Figure D – Ainsworth – Rescinded
  Figure E – McCook – Rescinded
  Figure F -- North Platte – Rescinded
  Figure G – Scottsbluff – Rescinded

Section 683.22 Consumptive Use and Limiting Factors of Sorghum – Rescinded
Figures 683-10  Sorghum Consumptive Use Curves at Selected Sites in Nebraska:

- Figure A – Lincoln– Rescinded
- Figure B – York– Rescinded
- Figure C – Kearney– Rescinded
- Figure D – Ainsworth– Rescinded
- Figure E – McCook– Rescinded
- Figure F – North Platte– Rescinded
- Figure G – Scottsbluff– Rescinded

Section 683.23 Consumptive Use and Limiting Factors of Sugar Beets– Rescinded

Figures 683-11 Sugar Beet Consumptive Use Curves at Selected Sites in Nebraska:

- Figure A – McCook– Rescinded
- Figure B – North Platte– Rescinded
- Figure C – Scottsbluff– Rescinded

Section 683.24 Consumptive Use and Limiting Factors of Field Beans– Rescinded

Figures 683-12 Field Bean Consumptive Use Curve at Selected Sites in Nebraska

- Figure A – Ainsworth– Rescinded
- Figure B – McCook– Rescinded
- Figure C – North Platte– Rescinded
- Figure D – Scottsbluff– Rescinded

Section 683.25 Consumptive Use and Limiting Factors of Potatoes– Rescinded

Figures 683-13 Potato Consumptive Use Curves at Selected Sites in Nebraska

- Figure A – Grand Island– Rescinded
- Figure B – Ainsworth– Rescinded
- Figure C – North Platte– Rescinded
- Figure D – Scottsbluff– Rescinded

Section 683.26 Consumptive Use and Limiting Factors of Selected Crops– Rescinded

Table 683-1 Consumptive Use of Selected Nebraska Crops– Rescinded
# CHAPTER 6 - IRRIGATION SYSTEM DESIGN
(Formerly Section 684)

## Section 652.0605 Low Pressure Center Pivot Design Criteria and Guidelines – Rescinded

Table
- Surface Storage due to Residue Levels & Slope – Rescinded NE 6-90

Figure
- Available Surface Storage for Bare Ground – Rescinded NE 6-90
- (Reserved) Subsurface Drip Irrigation Design Criteria and Guidelines – Rescinded NE 6-91
- Surface and Subsurface Drip Irrigation – Information To Submit on NRCS Assisted Jobs – Rescinded NE 6-93

Section 684.1 Furrow Irrigation – Rescinded NE 6-94

Section 684.11 Furrow Irrigation Description – Rescinded NE 6-94

Figure 684-1 Application Time, Advance, Recession vs. Intake Relationship – Rescinded NE 6-95

Section 684.12 Furrow Design Assumptions – Rescinded NE 6-96

Section 684.13 Furrow Design Limitations – Rescinded NE 6-99

Section 684.14 Furrow Design Procedure – Rescinded NE 6-101

Section 684.15 Use of Optimum Surface Irrigation Design Worksheets – Rescinded NE 6-102

Tables 684-1 Optimum Surface Irrigation Design Worksheets – Rescinded NE 6-107

Section 684.17 Example Design Problem for Furrow Irrigation – Rescinded NE 6-142

Figure 684-2 Example Problem – Rescinded NE 6-143

Section 684.62 Center Pivot Design Criteria – Rescinded NE 6-145

Table 684-3 Criteria for Use and Treatment of Land Under Sprinkler Irrigation Systems – Rescinded NE 6-146

(210-VI-NEH-IG, Amend NE 1, December 2000 – Updated 10/2019) NE6-i
<table>
<thead>
<tr>
<th>Table Reference</th>
<th>Description</th>
<th>NE Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 684-4</td>
<td>Allowable Irrigation Application Rates for Sprinkler Systems—Rescinded</td>
<td>NE 6-149</td>
</tr>
<tr>
<td>Section 684.63</td>
<td>Use of Design Tables for Sprinkler Irrigation—Rescinded</td>
<td>NE 6-151</td>
</tr>
<tr>
<td>Table 684-5</td>
<td>Distribution of Water from a Center Pivot—Rescinded</td>
<td>NE 6-152</td>
</tr>
<tr>
<td>Table 684-6</td>
<td>Pressure Losses in Different Lengths of Pivots—Rescinded</td>
<td>NE 6-153</td>
</tr>
<tr>
<td>Table 684-7</td>
<td>Nozzle Discharges with Various Pressures—Rescinded</td>
<td>NE 6-154</td>
</tr>
<tr>
<td>Figure 684-5</td>
<td>Center Pivot Configurations—Rescinded</td>
<td>NE 6-155</td>
</tr>
<tr>
<td>Table 684-8</td>
<td>Net Irrigation Application vs. Gross Applications—Rescinded</td>
<td>NE 6-157</td>
</tr>
<tr>
<td>Section 684.64</td>
<td>Center Pivot Design Example—Rescinded</td>
<td>NE 6-158</td>
</tr>
<tr>
<td>Figure 684-6</td>
<td>Center Pivot Sprinkler Design Evaluation Example—Rescinded</td>
<td>NE 6-159</td>
</tr>
<tr>
<td>Section 684.65</td>
<td>Instruction on the Use of NE-ENG-59, Center Pivot Sprinkler Design Evaluation—Rescinded</td>
<td>NE 6-161</td>
</tr>
</tbody>
</table>
CHAPTER 7 - FARM DISTRIBUTION COMPONENTS  
(Formerly Section 685)  

| PAGE |
|------------------|-------|
| Section 685.1    | General– Rescinded                | NE 7-30 |
| Section 685.2    | Open Channel Flow– Rescinded      | NE 7-30 |
| Section 685.21   | Open Channel Flow Design– Rescinded| NE 7-30 |
| Table 685-1      | Irrigation Ditch Capacities– Rescinded| NE 7-31 |
| Section 685.22   | Irrigation Ditch Lining Design Example– Rescinded | NE 7-33 |
| Section 685.23   | Measurement of Flow in Open Ditches– Rescinded | NE 7-34 |
| Section 685.24   | Siphon Tubes– Rescinded           | NE 7-34 |
| Table 685-2      | Siphon Tube Discharge– Rescinded  | NE 7-35 |
| Section 685.3    | Pipelines– Rescinded              | NE 7-36 |
| Section 685.31   | Pipelines Design– Rescinded       | NE 7-36 |
| Section 685.32   | Use of Head Loss Tables for Pipelines– Rescinded | NE 7-36 |
| Table 685-3      | Friction Loss in Plastic Pipelines (IPS Pipe) – Rescinded | NE 7-37 |
| Table 685-4      | Friction Loss in Plastic Pipelines (IPS Pipe) – Rescinded | NE 7-38 |
| Table 685-5      | Friction Loss in Plastic Pipelines (PIP Pipe) – Rescinded | NE 7-39 |
| Table 685-6      | Friction Loss in Plastic Pipelines (PIP Pipe) – Rescinded | NE 7-40 |
| Table 685-7      | Velocities in Plastic Irrigation Pipe– Rescinded | NE 7-41 |
| Table 685-8      | Head Loss in Concrete Pipe– Rescinded | NE 7-42 |
| Table 685-9      | Friction Loss in Asbestos Cement Pipe– Rescinded | NE 7-43 |
| Table 685-10     | Friction Loss for Aluminum Pipe with Couplings– Rescinded | NE 7-44 |
| Table 685-11     | Friction Loss in Pipe Fittings– Rescinded | NE 7-45 |
| Table 685-12     | Correction Factor for Multiple Outlets With Coupling Bands– Rescinded | NE 7-46 |
| Table 685-13     | Friction Loss in Gated Pipe– Rescinded | NE 7-47 |
| Table 685-14     | Friction Loss in Aluminum Pipe 2'' - 6''– Rescinded | NE 7-48 |

(210-VI-NEH-IG, Amend NE 3, February 2002 – Updated 10/2019)
Figure 685-1 Friction Loss in Valves– Rescinded NE 7-49
Section 685.33 Gated Pipelines– Rescinded NE 7-50
Section 685.34 Measurement of Flow in a Pipeline– Rescinded NE 7-50
Section 685.4 Reuse Systems– Rescinded NE 7-51
Table 685-15 Capacity of Tailwater Ponds and Pumps for Varying Sizes of Water Supply– Rescinded NE 7-52
Figure 685-2 Plan View of Reuse System Alternatives– Rescinded NE 7-53
Section 685.5 Design of a Tailwater Recovery System– Rescinded NE 7-54
Instruct. for Flowmeter Data Sheet (NE-ENG-83) – Rescinded NE 7-55
Example of Completed NE-ENG-83 – Rescinded NE 7-56
Instructions for Variable Flow Tail Water Recovery System Data Sheet (NE-ENG-84) – Rescinded NE-7-58
Table 7-1 Suction Intake Pipe Losses (feet) 4" Aluminum Pipe– Rescinded NE 7-61
Table 7-2 Section Intake Pipe Losses (feet) 5" Aluminum Pipe– Rescinded NE 7-61
Table 7-3 Section Intake Pipe Losses (feet) 6" Aluminum Pipe– Rescinded NE 7-62
Table 7-4 Allowable Suction Head for Aluminum Pipe– Rescinded NE 7-62
Table 7-5 Atmospheric Pressure at Various Altitudes– Rescinded NE 7-63
Table 7-6 Vapor Pressures at Various Water Temperatures– Rescinded NE 7-63
Exhibit 7-1 Pump Curve, GF300 Performance– Rescinded NE 7-64
Exhibit 7-2 Pump Curve, GF400 Performance– Rescinded NE 7-65
Exhibit 7-3 Pump Curve, GF 600 Performance– Rescinded NE 7-66
Example of Completed NE-ENG-84– Rescinded NE-7-67
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>687.3</td>
<td>Predictive Yield of Surface Water Where Gaging Records Don’t Exist– Rescinded</td>
<td>NE 8-22</td>
</tr>
<tr>
<td>Section/Part</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>686.14</td>
<td>Tensiometers– Rescinded</td>
<td>NE 9-224</td>
</tr>
<tr>
<td>686.141</td>
<td>Tensiometer Example Problem– Rescinded</td>
<td>NE 9-229</td>
</tr>
<tr>
<td>686.15</td>
<td>Electrical Resistance Blocks– Rescinded</td>
<td>NE 9-234</td>
</tr>
<tr>
<td>686.151</td>
<td>Example Problem on the Use of Electrical Resistance Blocks– Rescinded</td>
<td>NE 9-237</td>
</tr>
<tr>
<td>686.16</td>
<td>Example Problem Engineering Form 69– Rescinded</td>
<td>NE 9-249</td>
</tr>
<tr>
<td>686.2</td>
<td>Furrow Evaluations– Rescinded</td>
<td>NE 9-240</td>
</tr>
<tr>
<td>686.21</td>
<td>Evaluations by Inflow-Outflow Method– Rescinded</td>
<td>NE 9-240</td>
</tr>
<tr>
<td>686.211</td>
<td>Example of Furrow Intake Evaluation– Rescinded</td>
<td>NE 9-245</td>
</tr>
<tr>
<td>686.22</td>
<td>Orifice Plates– Rescinded</td>
<td>NE 9-252</td>
</tr>
<tr>
<td>686.14</td>
<td>Tensiometer Dials– Rescinded</td>
<td>NE 9-225</td>
</tr>
<tr>
<td></td>
<td>Table 686-1 Recommended Depth for Setting Tensiometers– Rescinded</td>
<td>NE 9-225</td>
</tr>
<tr>
<td></td>
<td>Table 686-2 Interpretation of Tensiometer Readings– Rescinded</td>
<td>NE 9-228</td>
</tr>
<tr>
<td>686.141</td>
<td>Plot of Example Profile Moisture vs. Suction– Rescinded</td>
<td>NE 9-232</td>
</tr>
<tr>
<td>686.15</td>
<td>Interpretation of Readings on the Electrical Resistance Meters– Rescinded</td>
<td>NE 9-236</td>
</tr>
<tr>
<td>686.151</td>
<td>Electrical Resistance Readings for Starting Irrigation of Corn and Grain Sorghum– Rescinded</td>
<td>NE 9-238</td>
</tr>
<tr>
<td></td>
<td>Plot of Electrical Resistance vs. Moisture for the Sample Problem– Rescinded</td>
<td>NE 9-239</td>
</tr>
<tr>
<td>686.2</td>
<td>Plan View of an Evaluated Furrow– Rescinded</td>
<td>NE 9-244</td>
</tr>
<tr>
<td>686.21</td>
<td>Cross Section of an Evaluated Furrow– Rescinded</td>
<td>NE 9-244</td>
</tr>
<tr>
<td>686.16</td>
<td>Example Problem Engineering Form 69– Rescinded</td>
<td>NE 9-249</td>
</tr>
<tr>
<td>686.211</td>
<td>Plot of Example Intake Curve– Rescinded</td>
<td>NE 9-251</td>
</tr>
</tbody>
</table>

(210-VI-NEH-IG, Amend NE 1, December 2000 – Updated 10/2019) NE9-i
Table 686-5 Discharge through Submerged Flow Orifices– Rescinded NE 9-253
Table 686-6 Discharge through Free Flow Orifices– Rescinded NE 9-254
Section 686.3 Management of a Center Pivot Sprinkler– Rescinded NE 9-255
Section 686.31 Field Evaluation of a Center Pivot Sprinkler– Rescinded NE 9-255
Figure 686-16 Example Problem (Eng. - 60) – Rescinded NE 9-260
Section 686.32 Conclusions and Recommendations for the Center Pivot Sprinkler Example Problem– Rescinded NE 9-262
Figure 686-17 Plot of Center Pivot Sprinkler Application Example Problem– Rescinded NE 9-263
Figure 686-18 Plot of Consumptive Use vs. Application Example Problem– Rescinded NE 9-264
Figure 686-19 Soil Profile Moisture Under the Low Quarter of The Pivot Example Problem– Rescinded NE 9-265
Section 686.4 Scheduling– Rescinded NE 9-266
Section 686.41 Discussion of Scheduling– Rescinded NE 9-266
Section 686.42 Example of a Furrow Irrigation Scheduling System– Rescinded NE 9-267
Figure 686-20 Plot of Moisture in Example Problem– Rescinded NE 9-269
CHAPTER 10 – ECOSYSTEM-BASED MANAGEMENT SYSTEMS AND IRRIGATION PLANNING

Irrigation Planning, Documentation, and Reporting Requirements - Rescinded

PAGE

NE 10-29

(210-VI-NEH-IG, Amend NE 1, December 2000 - Updated 10/2019)
CHAPTER 11 - ECONOMIC EVALUATIONS
(Formerly Section 688)

Section 688.1 Computation Procedure– Rescinded NE 11-25
CHAPTER 15 – RESOURCE PLANNING AND EVALUATION
TOOLS AND WORKSHEETS
(Formerly Section 689)

NE-ENG-83 – Rescinded NE 15-116
NE-ENG-84 – Rescinded NE 15-118
Farm Irrigation Rating System – Rescinded
<table>
<thead>
<tr>
<th>Table 690-2</th>
<th>Acre Feet of Water Pumped in T. Hours– Rescinded</th>
<th>NE 16-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 690-3</td>
<td>Water Pressure– Rescinded</td>
<td>NE 16-8</td>
</tr>
<tr>
<td>Table 690-4</td>
<td>Clock Time for Change of Furrow Streams– Rescinded</td>
<td>NE 16-9</td>
</tr>
<tr>
<td>Table 690-5</td>
<td>Gross Irrigation Application– Rescinded</td>
<td>NE 16-10</td>
</tr>
</tbody>
</table>
CHAPTER 17 - GLOSSARY AND REFERENCES
(Formerly Section 690)


Nebraska NebGuide NF 94-176 – Rescinded
Nebraska NebGuide NF 94-178 – Rescinded
Nebraska NebGuide NF 94-179 – Rescinded
Nebraska NebGuide G91-1021 – Rescinded