Seeded Forages for Complementary Grazing

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## Water use and forage crop yield

<table>
<thead>
<tr>
<th>Crop</th>
<th>Acre-inches water/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foxtail millet</td>
<td>2.4</td>
</tr>
<tr>
<td>Sorghum-sudan hybrids</td>
<td>2.7</td>
</tr>
<tr>
<td>Corn</td>
<td>3.4</td>
</tr>
<tr>
<td>Sudangrass</td>
<td>3.4</td>
</tr>
<tr>
<td>Oats</td>
<td>5.2</td>
</tr>
<tr>
<td>CS perennial grasses</td>
<td>5.5</td>
</tr>
<tr>
<td>(Volesky estimate)</td>
<td></td>
</tr>
<tr>
<td>Rye</td>
<td>5.6</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>7.6</td>
</tr>
</tbody>
</table>

From: J. Bauder, Mont. State Univ.
Average monthly precipitation and estimated cool-season grass water use at North Platte, NE.

- **Season Precip.**: 16.69"
- **Season Kc**: 32.53"
Annual Forages for Pasture

Cool Season Annuals

*Spring seeded:*

Oats

Spring triticale

Italian ryegrass

Barley

Field Peas
Oats + Field Peas
Seeded: April 1, 2003

June 10, 2003
Yield of oats forage and rainfall - irrigation amounts, North Platte.

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield (T/ac)</th>
<th>Water (inches)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rain</td>
<td>Irrigation</td>
</tr>
<tr>
<td>2004</td>
<td>3.13</td>
<td>10.18</td>
<td>3.89</td>
</tr>
<tr>
<td>2004 (dryland)</td>
<td>2.44</td>
<td>10.18</td>
<td>- -</td>
</tr>
<tr>
<td>2003</td>
<td>3.65</td>
<td>9.99</td>
<td>5.40</td>
</tr>
<tr>
<td>2002</td>
<td>2.90</td>
<td>3.72</td>
<td>8.65</td>
</tr>
</tbody>
</table>

¹ During planting to harvest period.
Oats - Suggestions

Spring Oats:
- Plant at soil temperature 43° F (late-March to early April)
- Forage, grain, and dual-purpose varieties available
- Seeding rate: 1.0 – 1.5 bu/ac (20 seeds/ft²) dryland;
  1.5 – 2.0 bu/ac (25-35 seeds/ft²) irrigated
- Fertilizer – 60 – 80 lb/nitrogen per acre, P2O5 based on soil test
- Begin grazing when 7 – 8” tall (about May 15 to 21)
- Rotational graze at 2 - 3 week intervals to 6-inch stubble height
- Carrying capacity: 2 – 3.5 AUM/acre
- Hay at flowering stage to double crop (approx. June 20)
- Hay yield 2 to 3 ton per acre
Italian Ryegrass
Seeded: April 1, 2003

May 21, 2003
(5” tall)
Effect of "Zorro" Italian ryegrass seeding rate on total yield of "Loyal" oats and Italian ryegrass in a mixed seeding, North Platte, 2004.\(^1\)

<table>
<thead>
<tr>
<th>Italian ryegrass seeding rate (lb/acre)</th>
<th>Yield (T/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1.0</td>
</tr>
<tr>
<td>16</td>
<td>3.0</td>
</tr>
<tr>
<td>24</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Oats: \(2.59\ T/acre\)
Italian ryegrass: \(3.51\ T/acre\)

\(^1\) Total yield from 6 harvests (May - October).
\(^a\) Means with unlike letters significantly differ (P<0.05).
Italian Ryegrass seeded into Alfalfa (15 lb/ac)
Seeded: March 30, 2003
May 27, 2003
Italian Ryegrass and Alfalfa
Alfalfa and Italian Ryegrass: 9-16-03
Italian Ryegrass

- Uses:
  - Interseeded into declining alfalfa stands or cool-season perennial grass pasture (10 – 15 lb/acre)
  - Mixed seeding with oats or other spring cereal (8 – 12 lb/acre)
- Late March to early April seeding
- Production from June – October
- Leafy, high quality forage; rapid regrowth
- Difficult to hay in pure stands.
- Needs good fertility and consistent moisture
- Winter survival and 2nd year production likely
Annual Forages for Hay/Pasture

Warm Season Annuals

*Late-spring or early summer seeded:*
Millet (grazing & hay types)
S X S hybrids
Sorghum
Sudangrass
Corn
42 days after planting

- Graze-X II BMR 727 Sorghum-Sudan Hybrid
- Fast-Gro 202M Hybrid Pearl Millet
- Canex BMR 310 Hybrid Forage Sorghum
Gene 18 BMR Sorghum-Sudan Hybrid

3-Way Cross Sorghum-Sudan Hybrid
Yield of summer annual forages and rainfall amounts, North Platte and Sidney.

<table>
<thead>
<tr>
<th>Species</th>
<th>Year</th>
<th>Yield (T/ac)</th>
<th>Rain (inches)¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North Platte</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-S hybrids</td>
<td>2004</td>
<td>4.20</td>
<td>13.07</td>
</tr>
<tr>
<td>S-S hybrids</td>
<td>2003</td>
<td>3.37</td>
<td>6.31</td>
</tr>
<tr>
<td>Foxtail millet</td>
<td>2004</td>
<td>2.28</td>
<td>10.47</td>
</tr>
<tr>
<td>Foxtail millet</td>
<td>2003</td>
<td>2.02</td>
<td>5.84</td>
</tr>
<tr>
<td><strong>Sidney</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-S hybrids</td>
<td>2004</td>
<td>1.41</td>
<td>6.14 (hail)</td>
</tr>
<tr>
<td>S-S hybrids</td>
<td>2003</td>
<td>2.47</td>
<td>5.70</td>
</tr>
<tr>
<td>Foxtail millet</td>
<td>2004</td>
<td>1.47</td>
<td>5.78 (hail)</td>
</tr>
<tr>
<td>Foxtail millet</td>
<td>2003</td>
<td>1.75</td>
<td>5.45</td>
</tr>
</tbody>
</table>

¹ During planting to harvest period.
FERTILIZER for SUMMER ANNUALS

**Nitrogen 50 – 70 lbs./acre**
**P2O5 based on soil test**
**Apply at planting or right after planting**
Annual Forages for Hay/Pasture

*Summer or late-summer seeded (for fall forage):*

**Oats and/or Turnips**
- **Planting date:** late July through August
- **Seeding rate:** Oats: 2 bu/acre; Turnips 2-3 lb/ac

**Rye, triticale, winter wheat**
- **Planting date:** late August – September
- **Minimal fall forage, but primarily the following spring**
Oats

← 30 days

60 days →
Turnips

← 30 days

60 ← days →
Forage yield, height, and dry matter content of August-seeded oats, turnips, and rye, North Platte, 2002.*

<table>
<thead>
<tr>
<th>Forage</th>
<th>Yield Ton/ac</th>
<th>Height Inches</th>
<th>DM %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td>2.39</td>
<td>33</td>
<td>25</td>
</tr>
<tr>
<td>Turnips (tops)</td>
<td>2.02</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Turnips (bulbs)</td>
<td>2.81</td>
<td>- -</td>
<td>11</td>
</tr>
<tr>
<td>Rye</td>
<td>0.83</td>
<td>10</td>
<td>21</td>
</tr>
</tbody>
</table>

* Forages were seeded August 9 and harvested October 22 (74 days).
Oats + Turnips
(2.40 AUM/acre)
(72 AUD/acre)

Nov. 1, 2004