Diverse Pasture Performance, Persistence, and Management

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https://www.americanmeadows.com/grass-and-groundcover-seeds/patridge-pea-seeds

https://www.ernstseed.com/product/illinois-bundlflower/

*Photo credits: Applewood Seed*
Forb Establishment in NWSG

Third season population of forbs planted with NWSGs per m² by seedbed preparation

- No Till NWSG: 9
- No Till Forbs: 11
- Tilled NWSG: 13
- Tilled Forbs: 11

Second season population of forbs planted into two-year old NWSG stand per m² by seedbed preparation

- No Till NWSG: 12
- No Till Forbs: 4
- Tilled NWSG: 12
- Tilled Forbs: 3
Grazing Management and Forb Persistence

Persistence of Native Forbs

Sampling Period

- Total Forbs
- Big Bluestem/Indiangrass
Grazing Management and Forb Persistence

Persistence of Native Forbs

Sampling Period

Forbs (Plants per Square Foot)

Switchgrass (Tillers per Square Foot)

Pre_Yr1, Post_Yr1, Pre_Yr2, Post_Yr2, Pre_Yr3, Post_Yr3

Total Forbs

Switchgrass
Average Crude Protein Content of Native Forbs
Cattle Performance on Native Pastures Over the Grazing Season

![Graph showing ADG (lb/d) for different months and years.](chart)

- **P = 0.6 (trt)**
- **P < 0.0001 (period)**
Cattle Performance on Native Pastures

![Graph showing cattle performance on native pastures with total ADG (lb/d) for the years 2021 and 2022. The graph illustrates the difference in performance between control (red) and forb (blue) treatments. The values for 2021 are 1.47 and 1.59, respectively, and for 2022 they are 1.56 and 1.66. The p-value for the comparison is 0.6.](image)
Grazing Days Per Acre

<table>
<thead>
<tr>
<th>Year</th>
<th>Treatment</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cont</td>
<td>33</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>forb</td>
<td>33</td>
<td>51</td>
</tr>
</tbody>
</table>

$P=0.04$
Cattle Gain Per Acre

Gain Per Acre (lb/ac)

Year

2021 2022

48 52 76 76

Treatment

cont  forb

P=0.8
Herbicide Injury of Native Forbs 2 Weeks Post Treatment

[Graph showing herbicide injury levels (0-10) for different species (plat, 24db, cim, gly, dur) across various herbicide treatments (PURC, LL, CUPP, OX, MAX).]
Herbicide Injury of Native Forbs 8 Weeks Post Treatment
Flowering Patterns of Native Forbs
# Recommended Forbs

<table>
<thead>
<tr>
<th>Forb</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple coneflower</td>
<td>Consistent blooms for pollinators and birds</td>
</tr>
<tr>
<td>Lanceleaf coreopsis</td>
<td>Early season blooms</td>
</tr>
<tr>
<td>Black-eyed susan</td>
<td>Quick-establishing biennial</td>
</tr>
<tr>
<td>Maximillian sunflower</td>
<td>Late season blooms</td>
</tr>
<tr>
<td>Oxeye sunflower</td>
<td>Moderate forage mass and persistent in pastures</td>
</tr>
<tr>
<td>Desmodium</td>
<td>Readily consumed legume</td>
</tr>
</tbody>
</table>
Summary - Forb Establishment and Persistence

- Stand management impacts composition and forb persistence
- Forbs establish best when seeded with NWSG compared to interseeding into an established stand
- Diverse forb mixtures extend the blooming period throughout the season
Summary-Forb Quality and Animal Performance

• Most forbs meet or exceed the CP needs of a growing steer
• Low fiber concentrations suggest no barrier to intake and palatability
• Cattle perform similarly when grazing NWSG and interseeded NWSG
• Grazing days and gain per acre are season dependent
Summary-Forb Herbicide Tolerance and Management

• All forbs received damage from all herbicide treatments, but most were moderately tolerant

• 2,4-DB and plateau appear to be the best tolerated herbicides when sprayed early in the season
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Questions?