Sunflowers & Millet
Jeremy Bunch, Shepherd’s Grain
2016 PNDSA Conference
Sunflowers

-Markets? Yes for oilseeds: Global Harvest, Mead, WA (will be at Ag Expo in Spokane)
-Commodity Price
-Last week the price was $21/cwt; in October it was $18.45, FOB Mead

http://www.ams.usda.gov/mnreports/ms_gr851.txt
Sunflowers

- Confectionary & Oilseed
- Oilseeds are black, Confectionary grey stripe
- Oilseeds come in high oleic and mid oleic
- You don’t need high oleic for birdseed
- Pick the seed that allows you flexibility with weed control (Clearfield, Express tolerant)
Sunflowers
Sunflowers

- Plant 1.5” to 2” into moisture
- Soil temp should be 50 degrees and warming
- Row spacing is less important; PLANT POPULATION IS KEY
- Air seeder vs. corn planter
- Can plant 2 weeks prior to last frost, but soil temps are more important to follow
Sunflowers
Sunflowers
Sunflowers

-Low Precip Zone: 16k to 18k seeds/acre
-Intermediate Zone: 18k to 20k seeds/acre
-High Precip Zone: 20k to 22k seeds/acre
-Seed bags will have seed count and lbs. listed on them, so you can figure out lb./acre
-About 6,000 seeds/lb., so being off by one lb. can make a big difference in target population.
Sunflowers

- Water usage: ?, somewhere between 8” and 38”. Irrigation aims for 19”.
- Sunflowers are the most water use efficient broadleaf crop besides peas
- 6’ to 8’ extensive branching roots find available soil moisture
### Table 6. Nitrogen (N), phosphate (P$_2$O$_5$) and potash (K$_2$O) recommendations for sunflower in North Dakota.

<table>
<thead>
<tr>
<th>Yield Goal</th>
<th>Soil N plus fertilizer N</th>
<th>Soil Test Phosphorus, ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Bray-1</td>
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<tr>
<td>lb/acre</td>
<td>lb/acre-2 ft.</td>
<td>Olsen</td>
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<tr>
<td>1,000</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>1,500</td>
<td>75</td>
<td>31</td>
</tr>
<tr>
<td>2,000</td>
<td>100</td>
<td>41</td>
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<tr>
<td>2,500</td>
<td>125</td>
<td>51</td>
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</tbody>
</table>

NDSU Sunflower Production Guide:  
NDSU Sunflower Production Guide:

<table>
<thead>
<tr>
<th>Yield Goal</th>
<th>Soil Test Potassium, ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-40</td>
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<tr>
<td>lb/acre</td>
<td>VL</td>
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<tr>
<td>1,000</td>
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<td>2,000</td>
<td>71</td>
</tr>
<tr>
<td>2,500</td>
<td>89</td>
</tr>
</tbody>
</table>
Sunflowers

Weed Control:
- Pre: Spartan, glyphosate tank mix up to a month prior to seeding
- Spartan requires no incorporation, but needs ½” rain to activate.
- Watch plant-back restrictions on Spartan
Sunflowers

-Clearfield and Express tolerant varieties are available.
-Post applied grass control: Assert, Assure II, Poast, Select, Select Max
-Once sunflowers are 15” tall they become more fragile. After that check label or crop consultant for timing of aerial applications.
Sunflowers

- Can harvest when seeds are 16% moisture, but elevators need them down to 10% or less to store (ideal for oilseeds is 6% to 8%)
- Pans
- Refer to production guides or combine manual for concave, sieve, and cylinder settings
Sunflowers

- In rotation:
  - Warm season broadleaf (asteraceae family)
  - Later planting allows for later burndown
  - Will use up water
  - Will cycle deep nutrients
  - Puts carbon deeper in the soil with roots
  - Will not leave a lot of carbon above the soil
  - Breaks up disease and pest cycles
  - Plant after a grass, and follow with a grass
Proso Millet

- Warm Season C4 Grass
- 65 to 70 degree soil temp; not frost tolerant
- 20 lb./acre seeding rate at ½” to 1”
- Total N: 100 to 120 lb.
- Total P: ~40 lb.
- Total K: ~80 lb.

Variety: Huntsman
Proso Millet

-In Rotation:
- Delayed Planting as part of weed management plan
- Carbon sequestration with C4
- Breaks up disease/pest cycles (but has pest challenges)
- Shallow fibrous roots; will need a summer rain…. Or two
Proso Millet

- Weed control:
  Pre – Glyphosate burn down
  Post – broadleaf herbicides are registered.

- Clarity
- Does not compete well at first, so a good burn down is critical
50 days after seeding
Proso Millet

- Harvest/Store under 13% moisture
- DTM: ~120
- Encourage WSU research on this
- Market: Global Harvest
- Seed is available: Call me
CONCLUSIONS

- Implementing warm season crops will greatly help weed management IF accompanied with low disturbance and an emphasis on retaining residue.
- Diversifying the rotation is good for soil biology.
- Sunflowers are relatively drought tolerant and will find water. Millet is going to need some rain in the growing season.
- Thinking about residue: millet is going to add it, sunflowers are going to leave you with none. Follow with winter wheat or cover crop.