

## FORAGE DOUBLE-CROP OPTIONS

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Mother Nature was not kind to forage producers in 2007. While 2008 has definitely been a different ball game, some producers may still be running short on hay. Annual forages played a viable role in offering feed options in 2007 but those unusual conditions aren't the only time to consider your double-crop options.

### Where Do Your Double-crop Opportunities Exist?

- Following wheat harvest as a forage or grain
- Rotational crop between alfalfa seedings
- Smother crop when replacing Kentucky 31 tall fescue
- After harvesting grain crops in late summer

### Summer Annuals

- Sorghum-sudangrass / sudangrass  
Ideally, seeded when soil temperatures reach 70°F at a rate of 25-35 lbs/acre Pure Live Seed, at an inch of depth. Usually ready to graze 30-45 days after seeding and will typically provide 4-6 tons dry matter per acre. Fairly palatable. A genetic mutation discovered at Purdue University known as the 'brown mid-rib' trait resulted in decreased lignin, increased digestibility and palatability of these warm-season grasses. As the name indicates some varieties will exhibit a brown mid-rib.
- Pearl Millet  
Seeded when soil temperatures reach 70°F at a rate of 15-20 lbs/acre

Pure Live Seed, at ¾-1 inch of depth. Highly palatable, drought tolerant and typically yields 3-5 tons dry matter per acre. Can not withstand cool temperatures as well as sorghum-sudangrass or sudangrass. .

- Teff

Relatively new to forage industry in mid-west. Originated from Ethiopia where it has been used for making flour for cooking. Very small seeds. Planted when soil temperatures reach 70°F at a rate of 4-5 lbs/acre Pure Live Seed at ¼" of depth. Preliminary results in Indiana indicate yields will be 3+ tons dry matter per acre and decent quality. Quality levels of teff were very similar to sorghum-sudangrass, sudangrass and pearl millet. Will teff become a standard Indiana producers will be able to rely on? Time will tell.

**2007 Feldun Purdue Ag Center Summer Annual Demonstration Plot –**  
 Dry Matter Yield. Plot seeded May 15, 2007. 150lbs total N per acre applied during season.

| Harvest Date | Teff | Pearl Millet | S x S | Sudangrass |
|--------------|------|--------------|-------|------------|
| 3-Jul        | 1.6  | 1.0          | 1.6   | 2.0        |
| 17-Aug       | 2.4  | 2.1          | 1.7   | 1.8        |
| Total        | 4.0  | 3.1          | 3.3   | 3.8        |

### **Potential Hazards of Summer Annuals**

#### **Prussic Acid Poisoning**

A hazard of sudangrass and sorghum-sudangrass. Grazing should not be initiated until after forage reaches 24-36" in height as young, rapidly growing plants are likely to contain high levels of prussic acid.

Generally, any stress condition that slows plant growth can increase prussic acid levels. Plants grown on soils low in phosphorus and potassium but fertilized well with N have a greater potential for prussic acid. Animals should not be allowed access until 7-10 days after a killing freeze as prussic acid compounds are slowly released.

#### **Nitrate Toxicity**

An issue when plants are stressed by drought, shade and low temperatures (<55°F). Nitrate toxicity can affect sudangrass, sorghum-sudangrass and millet as well as other crops. Animals under physiological stress are more susceptible to nitrate toxicity. Nitrate content is generally highest in young tissue and normally accumulates in stems. Nitrates can accumulate in mature tissue of sorghum-sudangrass and sudangrass. After a good rain, nitrates will be metabolized over the course of 10-14 days, allowing the plant to be grazed. Ensiling forage reduces nitrate levels by approximately 50 percent. Nitrate concentrations are not reduced in hay. Green chopped forages should be fed

immediately after cutting to prevent plants from respiring, increasing toxicity hazards.

### **Winter Annuals**

- **Cereal grains**

Winter wheat has long had a reputation for winter grazing in the Plains states. Fall seedings of wheat and other grains such as spring oats, cereal winter rye, and winter triticale (cross between wheat and rye) seeded at 90-120 pounds/acre can provide 2-5 tons of dry matter/acre in the spring. Spring oats seeded in August provide high quality forage in fall before frost. Wheat, cereal rye, and triticale will provide some grazing in fall but most forage will grow in spring. Cereal rye will provide higher yields but not as palatable. Seeding cereal grains for grazing should be complete by late August for fall grazing.

- **Italian Ryegrass**

Also known for foraging livestock in the winter months in the southern US. Seeded at 15-30 pounds it can produce higher quality feed than cereal grains in late spring. Winter hardiness is an issue with some varieties. Those varieties that survive the winter will grow

aggressively in the spring and can be difficult to kill.

### **Turnips**

Seeded at 2-4 pounds/acre, turnips can grow quickly and provide nutrient dense forage in 70-90 days. Livestock will need a source of roughage such as corn stalks, low quality hay or stockpiled fescue to balance-out the possible negative effects of this highly digestible forage.

Forage type turnips can provide 2-3 grazings as long as the bulbs are not damaged. Once turnip tops cease to grow, bulbs will provide adequate nutrition. Turnips can cause bloat and acidosis.

### **Economics**

Even if one is short on hay, date of planting and potential yield need to be taken into consideration, as purchasing more hay may be more economical and a sure-thing versus utilizing annual forages. Establishing summer annuals can approach \$150 per acre with seed, 150lbs of nitrogen per acre and charge of \$15 per acre for use of a no-till drill. If the soil needs to be tilled first or if the forage will be made into hay or chopped for silage the cost increases even more. As we learned in 2007, Mother Nature doesn't always play nice. Annual forages are definitely an option, but it boils down to how much risk one is willing to assume and how and when forages will be utilized.