Alternative Forages to Replace Winterkilled Alfalfa

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Acknowledgements

- MN Dept. of Agric. Sustainable Agric. Demo. Grant Program, NCR SARE Producer Grant
- David and Julian Sjostrom, Pelican Rapids, MN
- Agassiz Seed, CROPLAN Genetics, Mycogen Seeds, and Olds Seed Solutions
- Barenbrug USA

Emergency Forage Trials: “911 Forages”

- Collaborative MN-WI-MSU effort
  - 6 locations (2 MN, 3 WI, 1 MSU)
  - MN 2002 and 2003, WI 2003 and 2004
- Determine influence of planting date and location on relative yield and quality of some emergency forage options
- 3 planting dates:
  - Early-mid May
  - Early June
  - ~ July 1
- 17 entries
- 3 replications

“911 Forages” “TALL” Entries

- “Tall”, 1-cut
  - 3 corn varieties for silage: 81, 95, 103 RM
  - BMR forage sorghum
- “Tall”, multi-cut
  - Sudangrass
  - BMR Sorghum X Sudan
  - Japanese millet
  - Hybrid pearl millet

“911 Forages” “SHORT” Entries

- “Short”, 1-cut
  - Golden German foxtail millet
  - Siberian foxtail millet
  - “Early” Soybean (RM 0.8, RR)
  - “Late” Soybean (RM 2.3, RR)
  - Oat/pea
  - Barley/pea
  - Forage barley
- Alfalfa

“911 Forages” Planting Rates

- 30-36” rows
  - Corn: 32,000 plants/ac
  - BMR Forage Sorghum: 10 lb/ac
- 6-8” rows
  - Sudan, SxS, all millets: 25 lb/ac
  - Barley: 80 lb/ac
  - Small grain-pea: 125 lb/ac
  - Soybean: 100 lb/ac
  - Alfalfa: 15 lb/ac

“911 Forages” Fertilization

- One-cut grasses: 100 lb N/ac
- Corn, forage sorghum: 150 lb N/ac
- Multi-cut grasses: 50 lb N/ac per harvest
  - 100-150 lb N/ac/yr
- P and K high

- 2003: No N applied at Pelican Rapids
  - Heavy manure in fall 2002

“911 Forages” Harvest Timing

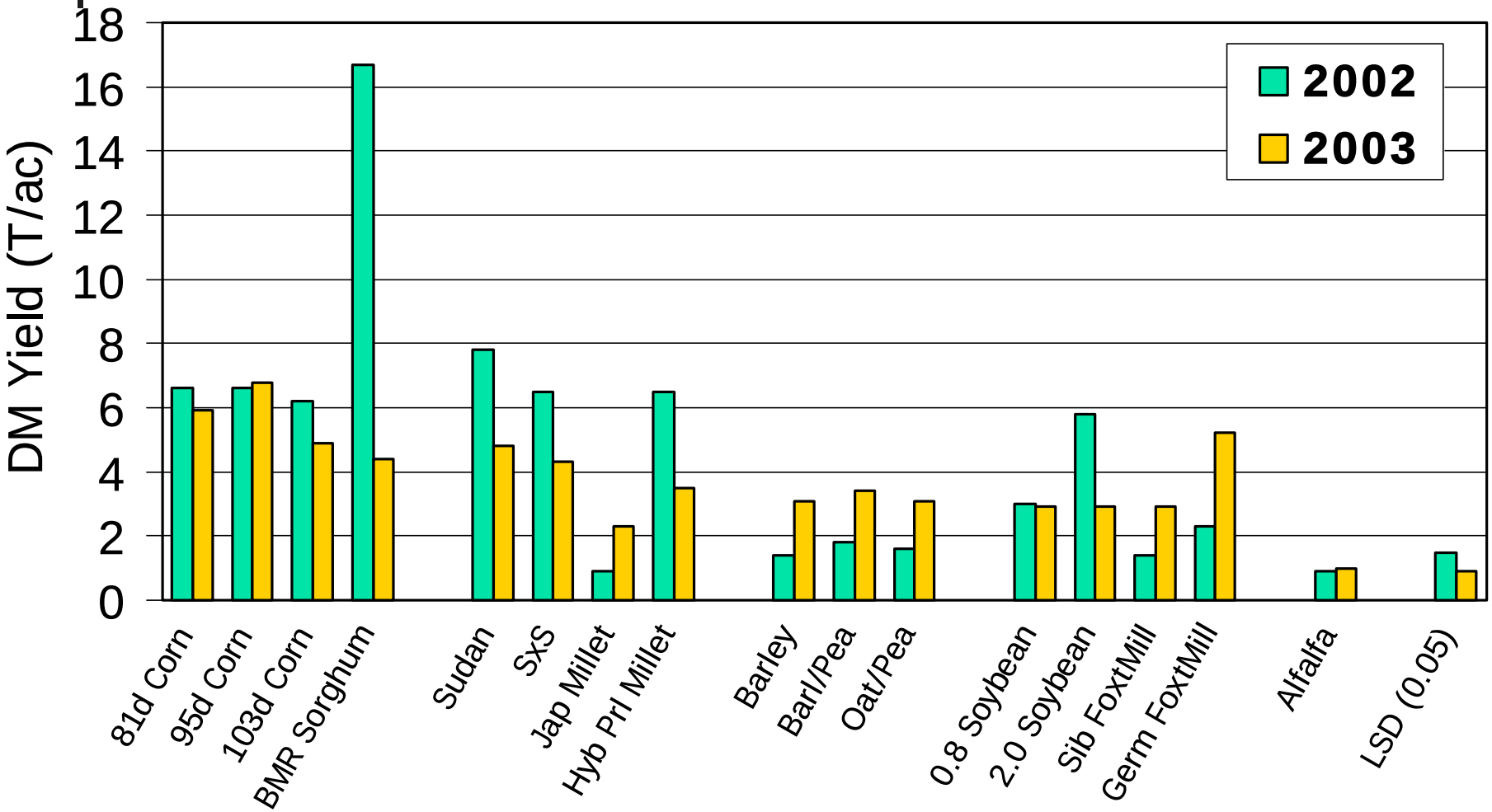
- Optimize yield and quality
  - Corn: ½ milk or 65% moisture
  - Forage sorghum: soft dough or 65% moisture
  - Multi-cut talls: 36” to 6-8” residual, last cut to 3” res.
  - Foxtail millets, barley: late boot
  - Small grain/pea: early milk
  - Soybean: R6.5
  - Alfalfa: 60 DAE, then every 30 d
- One to three harvests depending upon entry, planting date, and location

911 Seeding at Pelican Rapids (NW MN) in 2002

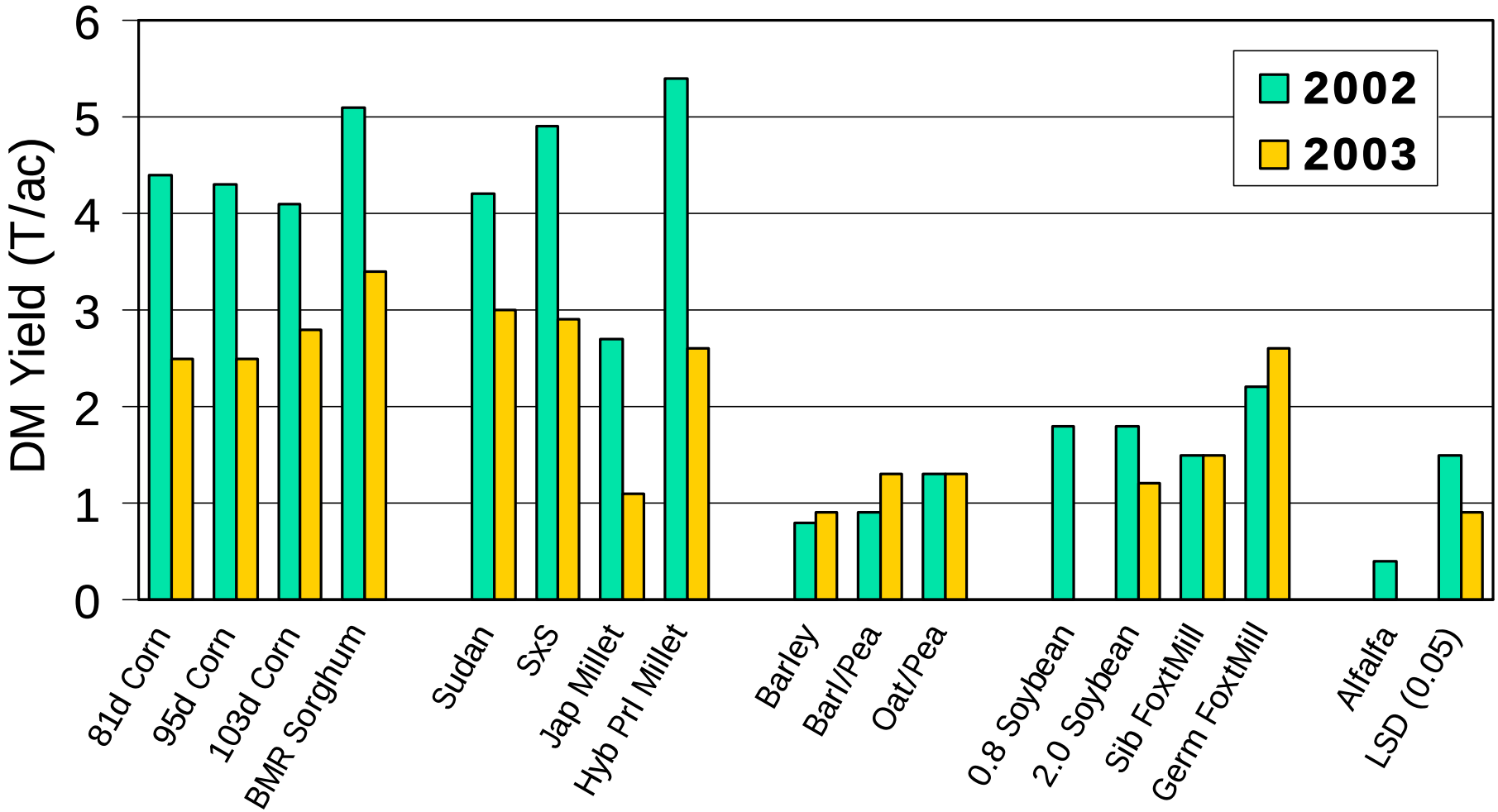
Sorghum x Sudan and Sudangrass at Spooner – Early June Planting

Pearl and Japanese Millet at Spooner – Early June Planting

FORAGE DM YIELD of crops planted **mid-May** 2002 and 2003 at Pelican Rapids, MN, and harvested 1 to 3 times.



FORAGE DM YIELD of crops planted **July 3** 2002 and 2003 at Pelican Rapids, MN, and harvested 1 or 2 times.

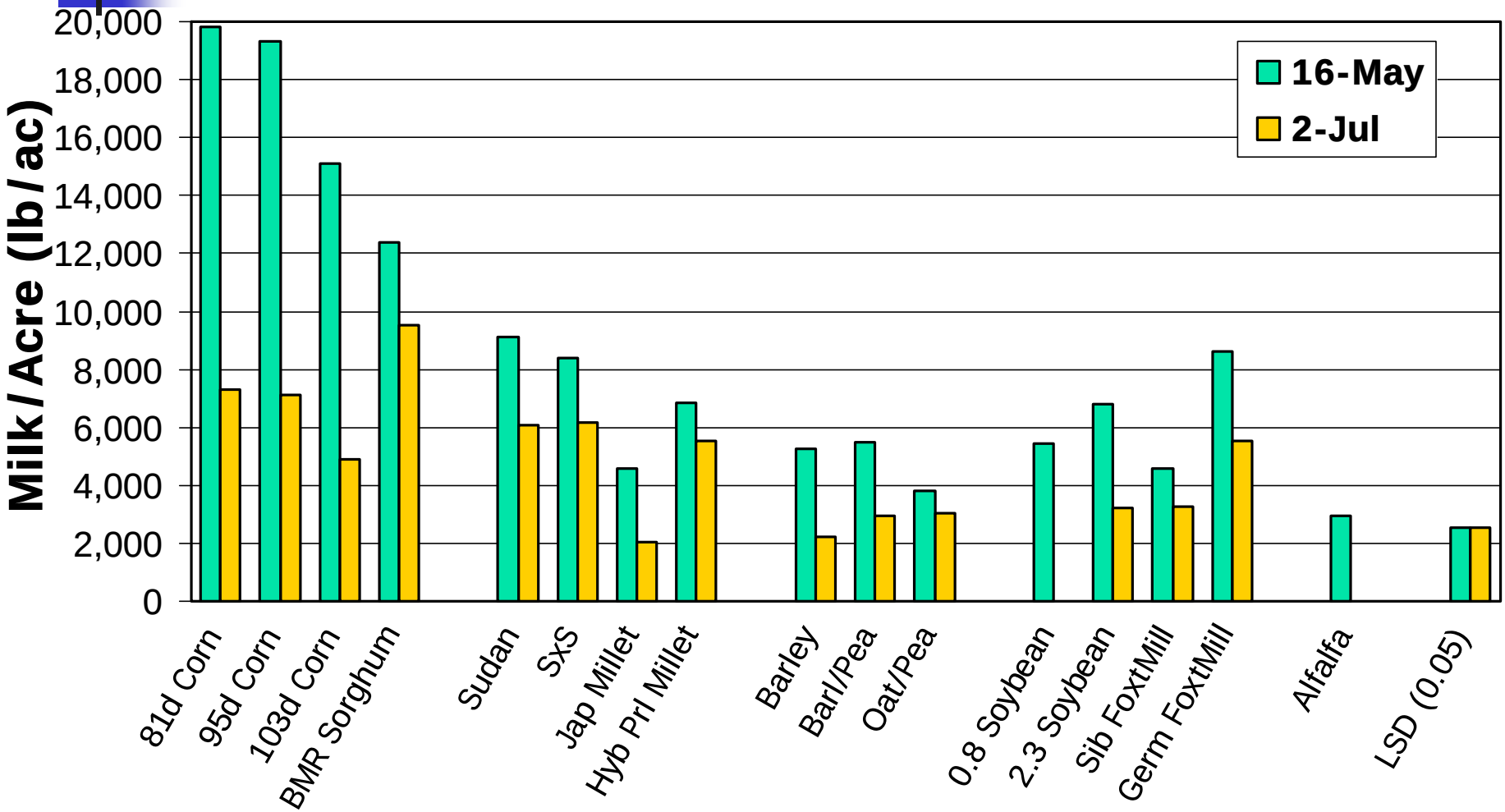


BMR Forage Sorghum Planted May 21, 2002 at Pelican Rapids (NW MN)

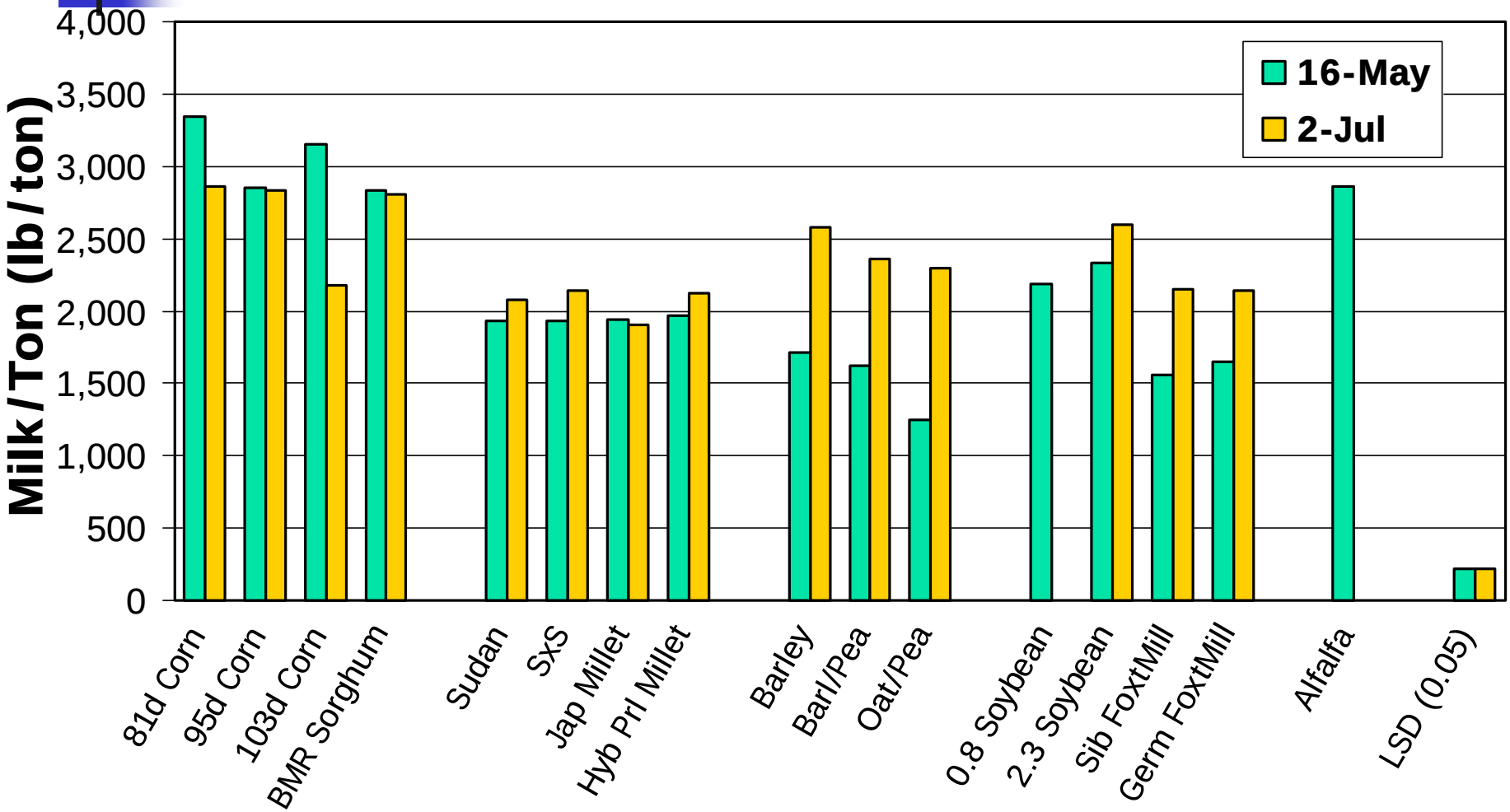
Emergency Forages Study

September Harvest of Corn and Forage Sorghum Planted July 3, 2002 at Pelican Rapids (NW MN).

MILK PRODUCTION per ACRE (Milk2000, UW) for crops planted May 16 vs. July 2, 2003, at Pelican Rapids, MN, and harvested 1 to 3 times.



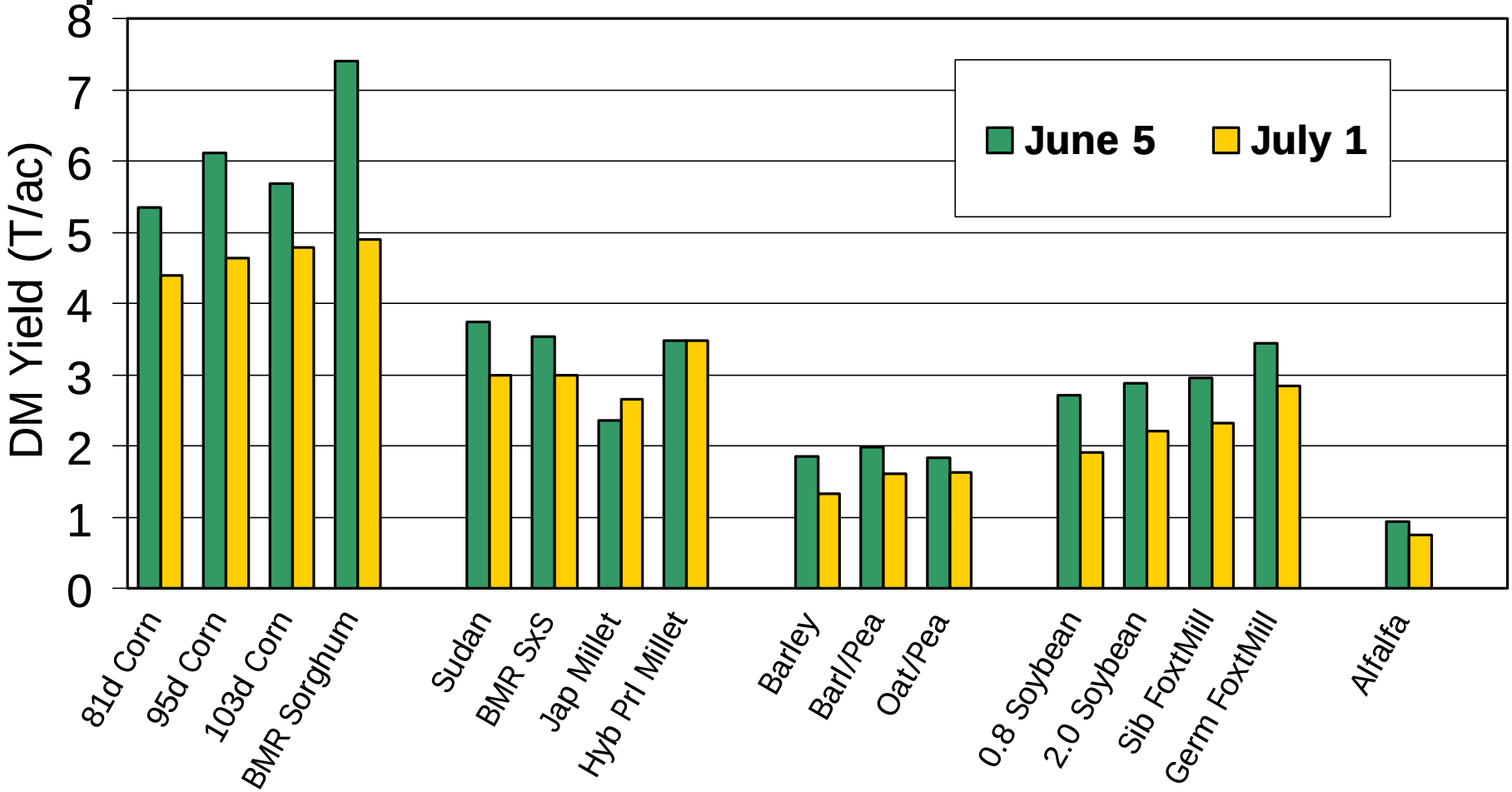
MILK PRODUCTION per TON (Milk2000, UW) for crops planted May 16 vs. July 2, 2003, at Pelican Rapids, MN, and harvested 1 to 3 times.



Final (Mid-Sept.) 2002 Harvest of Sudangrass and Hybrid Pearl Millet at Pelican Rapids (NW MN)

Forage yield of annual crops planted June 5 vs. July 1 in MN and WI in 2003 (avg. of 5 locations)

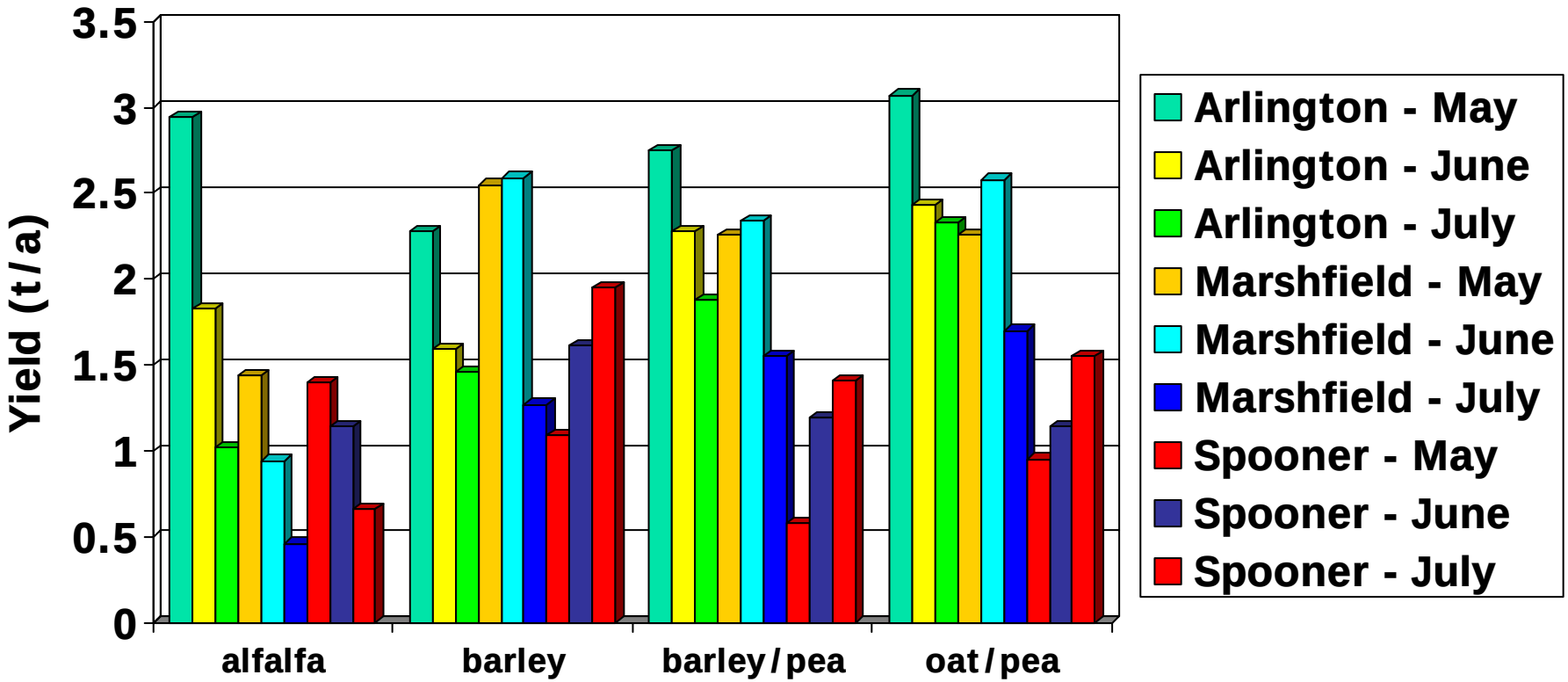
(Sudan, SxS, Japanese and pearl millets, alfalfa harvested 2-3X; others 1X)



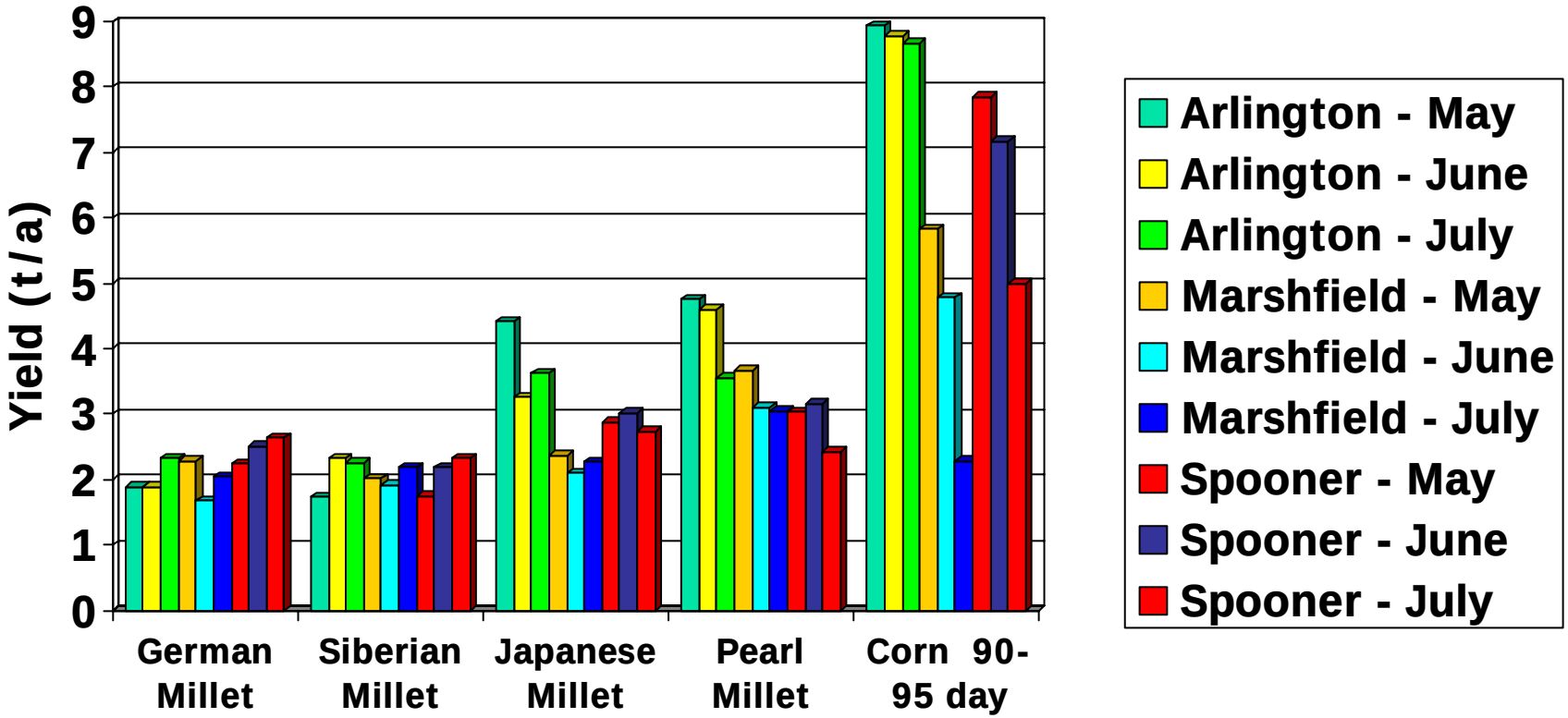
Foxtail Millet, Soybean and Small Grain/Pea

Foxtail Millet and Soybean at Spooner – Early June Planting

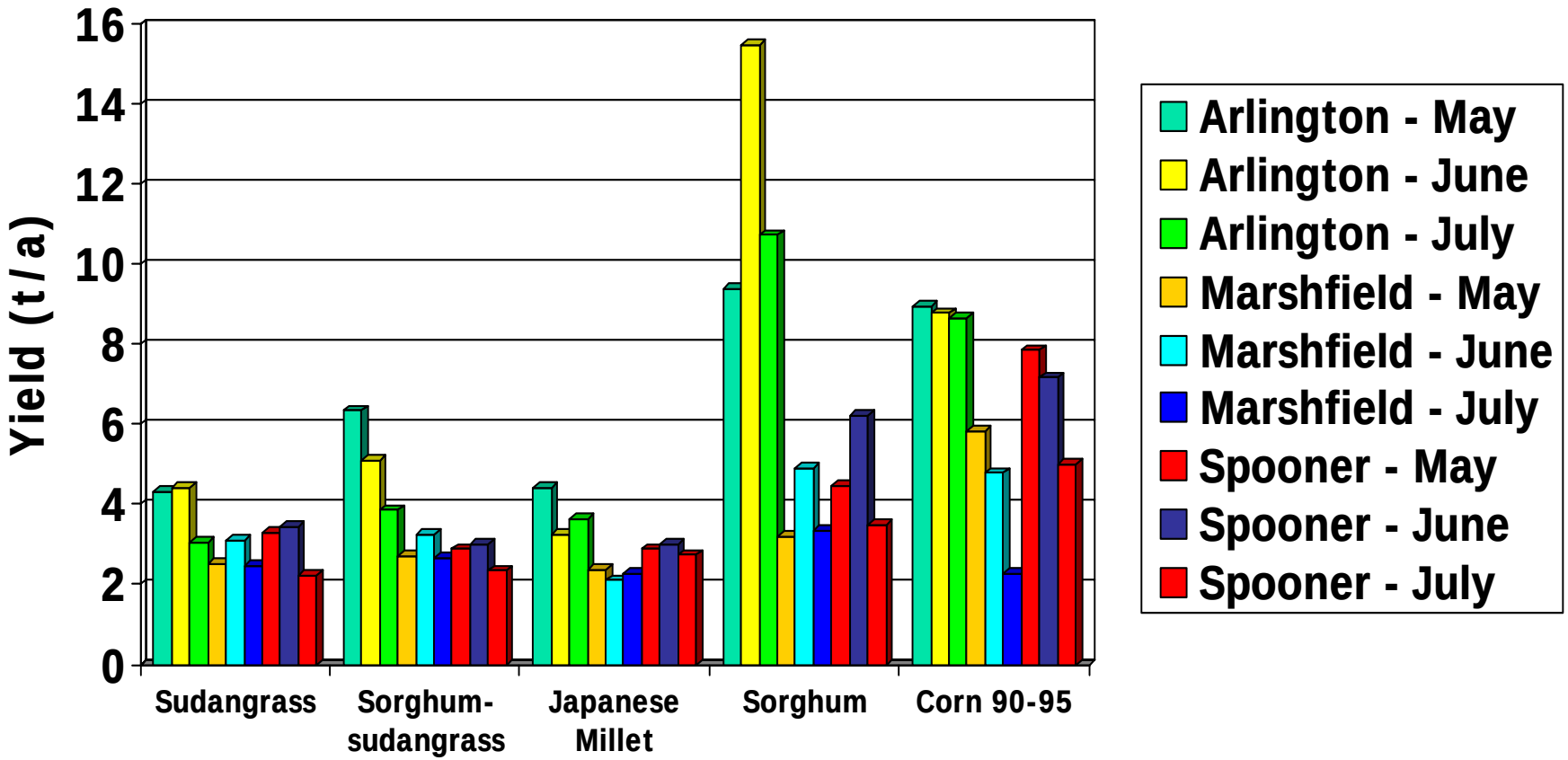
Forage in short time



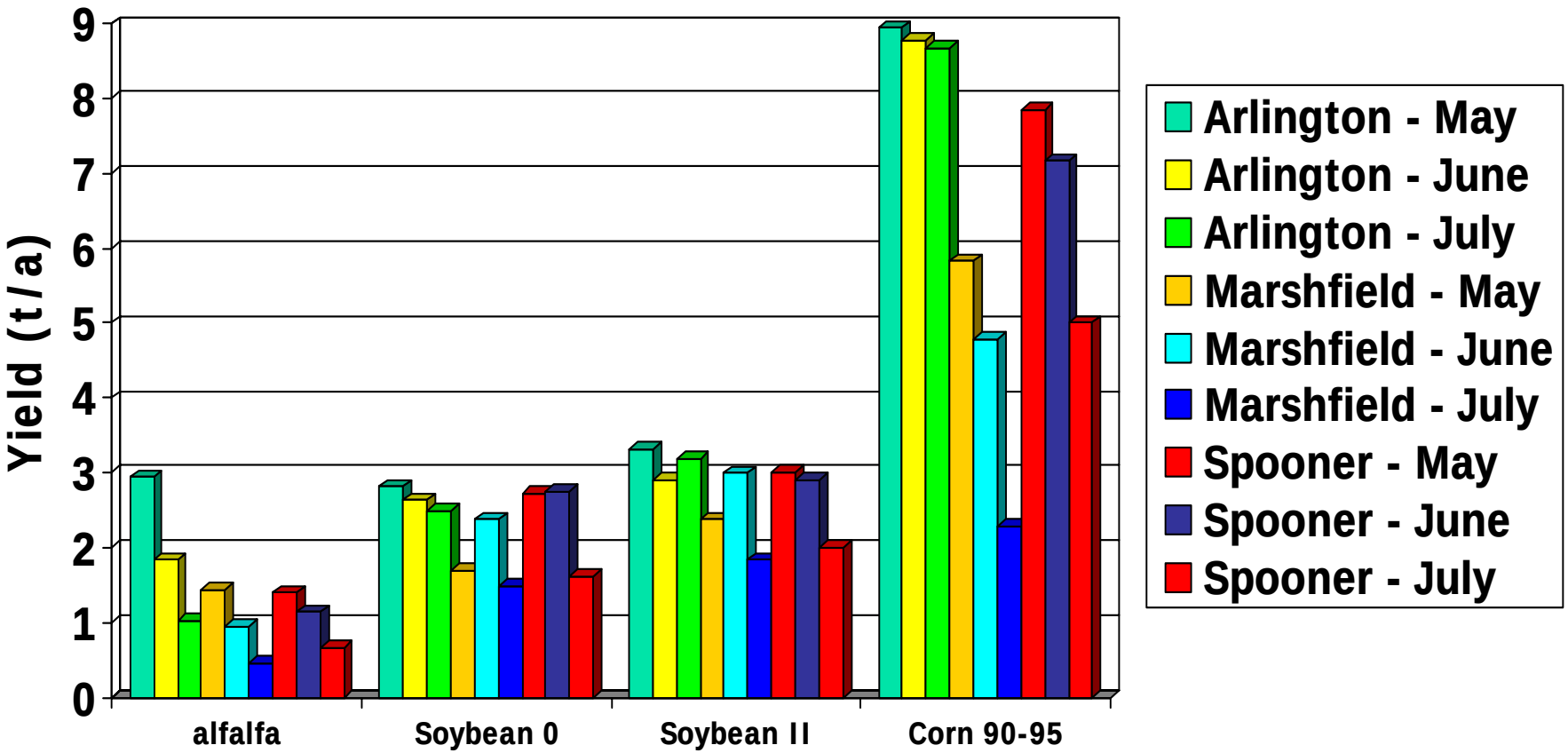
Millets for emergency forage



Sorghums and Sudangrasses for emergency forage



Alfalfa and Soybeans for emergency forage



Barley/Peas for Silage on Krause Farm in Buffalo (Central MN)

Small Grain-Pea Mixtures

- Cut at early head - early milk for maximum nutrient yield (oat at early milk, pea late flower)
- Pea improves CP and RFV and lengthens harvest window
- Earlier planting dates yield more and favor peas and quality
- Harvest 60-70 days after seeding
- Can use oat, triticale, or barley; barley ready earliest
- Later planting dates favor small grain
- Must physically mix seed to reduce seed segregation

Soybean for Forage

- Up to 6 ton DM/ac, 19% CP, 44% NDF, 61% DDM when planted early
- Harvest at R6 (full seed) to R7 (first pods turning color)
- Grain types probably better than forage types (too late maturing); similar yield, higher quality because of grain
- Ensiling ability due to high oil in seed?
  - mix with grass (WI recommendation)

Emergency Forages Conclusions

- Goals? Needs? Timeframe? Seed costs/availability?
- Best tonnage/energy options
  - Its tough to beat corn silage, even at late planting dates
  - BMR forage sorghum similar/better yield, but similar/lower FQ
- Multiple-cut/graze options?
  - Sudangrass, sorghum x sudan, and hybrid pearl millet (no prussic acid concerns) competitive with corn yield when warm/wet; higher CP, but lower energy; need warm soil

Emergency Forages Conclusions

- Foxtail millets (especially German)
  - Impressive yields within ~2 months
  - CONSISTENTLY good, clean stands
  - Fairly low quality – too mature?
- Small grain (& pea) best planted early – best quick, high-quality option
- Soybean impressive forage yield and “alfalfa quality”
  - Up to 6 ton DM/ac
  - 3 ton DM/ac from July 1, 2003 (drought!) St. Paul planting
  - How harvest/handle?

Italian Ryegrass in Stearns Co. in August 2004

Italian and annual ryegrass yields in Stearns Co., 2004
(Seeded 30 April 2004, 5 harvests, Univ. of MN and Barenbrug USA)

Variety	Description	DM Yield (T/ac)
Barextra	Tetraploid Italian ryegrass, veg.	6.5
Jumbo	Tetraploid annual ryegrass, head	6.4
Bardelta	Diploid Italian ryegrass, veg.	6.2
LM 270	Diploid annual ryegrass, head	6.0
Baridana	Orchardgrass, veg.	3.7
Jim	Oat, boot	2.3

Italian ryegrass forage quality and milk production potential in Stearns Co., 2004

(Seeded 30 April 2004, 4 harvests, Univ. of MN and Barenbrug USA)

Variety	Descr.	Harvest(s)	DM Yield (T/Ac)	RFQ	RFV	Milk/ Ton	Milk/ Acre
Barextra	4X IRG	4 harvests	6.5	193	143	3,130	19,000
Bardelta	2X IRG	4 harvests	6.2	181	138	3,030	17,500
Barextra	4X IRG	Sept. 27	1.5	164	119	2,930	4,480
Bardelta	2X IRG	Sept. 27	1.3	150	111	2,750	3,520
Baridana	OG	Sept. 27	1.1	124	101	2,160	2,400