Forage Sorghum Varieties, Yield and Quality for California

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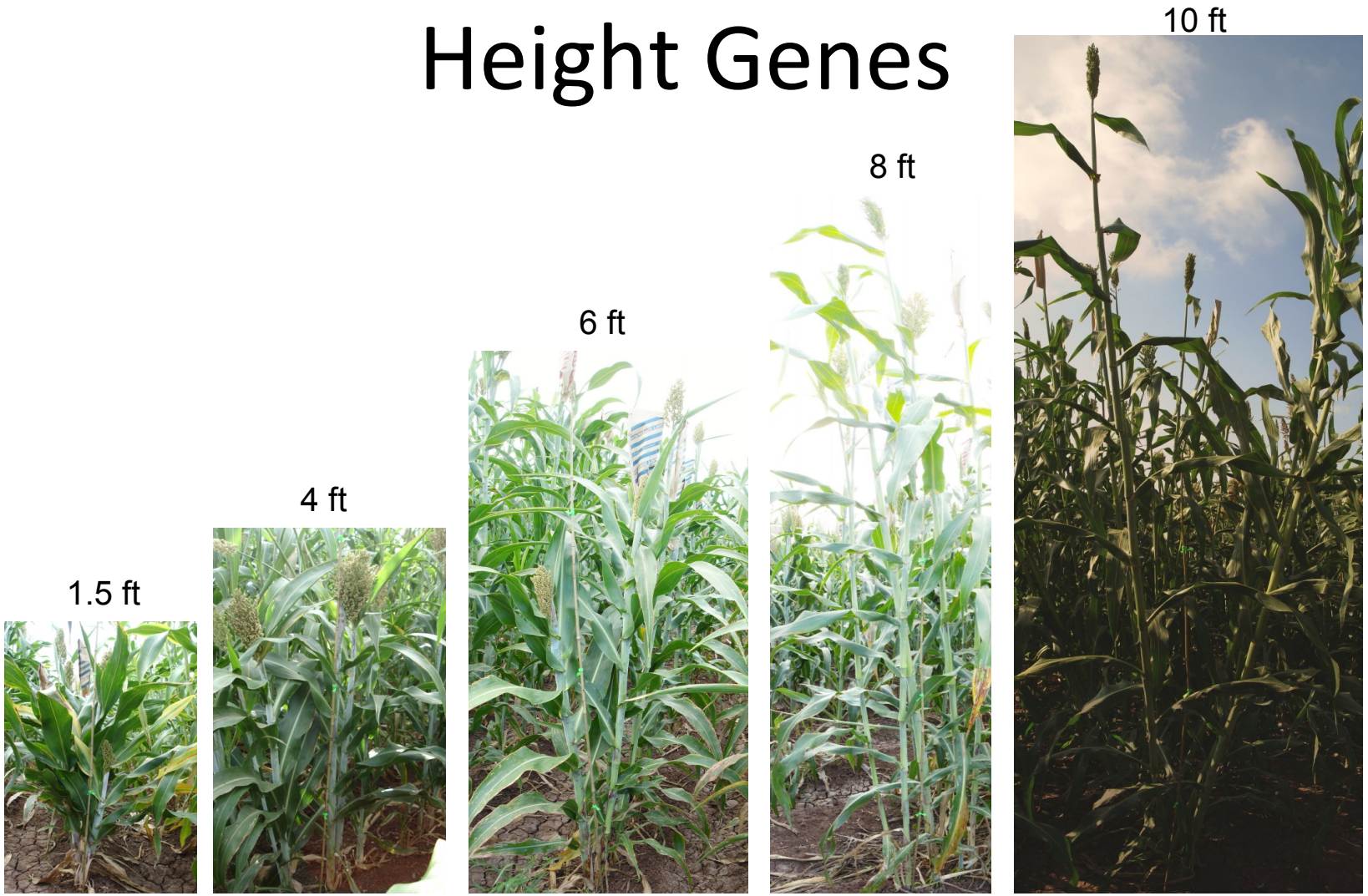
What is Sorghum?

- Hybrid Grain Sorghum-used primarily for animal and human consumption
- Hybrid Forage Sorghum-used for silage, green chop
- Hybrid Sudangrass-used primarily for hay production and some grazing
- Sweet Sorghum-used for molasses or syrup production
- Biomass sorghum-developed for renewable bio-products

What Makes Forage Sorghums Different?

- Have been in California since the late 1800s
- Seed industry has been developed around forages
- Hybrids have been specifically bred for forage quality
- Introduction of novel genes for improvement

Height Genes



Photoperiod and Maturity Genes

Drought Tolerance

Roots are Important in Sorghum

bmr Genetics

Issue with some bmr forages

New Genetics

- Brachytic genes
  - Shortens internode length
- Has potential to resolve lodging issues with bmr forages

Evaluating Forages in California

- Starting our 4th year of hybrid evaluations
- Grown at both Westside and Kearney Agricultural Research and Extension Centers
- Typically grown on less than 19 applied inches of water at both sites
- Approximately 125 lbs of N

Data Collection

- Agronomic Data
  - Height
  - Flowering
  - Lodging
  - Yield
- Nutritional
  - Sent to Dairyland Labs

Top Agronomic Performers 2011-2012

Hybrid	Company	Maturity	Height (ft)	% Lodging	Ton ac^{-1} 65% Moist
SS 506	Sorghum Partners, LLC.	L	10.5	40.8	36.4
1990	Sorghum Partners, LLC.	PS	8.9	46.7	34.6
Pacesetter BMR-Red	Richardson Seeds	PS	9.3	60.8	31.7
SS 405	Sorghum Partners, LLC.	ML	9.9	35.8	31.7
SS 304	Sorghum Partners, LLC.	M	9.1	60.0	30.2
Sordan Headless	Sorghum Partners, LLC.	PS	9.9	20.8	29.1
NK 300	Sorghum Partners, LLC.	ME	6.8	11.3	26.3
Silo 700D	Richardson Seeds	L	7.2	5.0	24.9
AS781	AR-B-Seeds	ML	6.1	1.3	24.9
Silo 700D BMR	Richardson Seeds	L	7.2	11.3	24.2
9500	Richardson Seeds	ML	6.4	9.6	24.0

Agronomics continued

Hybrid	Company	Maturity	Height (ft)	% Lodging	Ton ac^{-1} 65% Moist
Trudan Headless	Sorghum Partners, LLC.	PS	10.3	13.8	23.9
Hikane II	Sorghum Partners, LLC.	ME	9.6	80.8	23.3
BH211 SBD	B-H Genetics	L	8.1	4.2	22.8
Grazex BMR 801	Sharp Brothers Seed	ML	9.7	77.9	22.5
Alta 7401	Advanta	L	6.1	2.5	22.0
BH312 FBD	B-H Genetics	ML	6.2	5.8	21.8
Alta 6402	Advanta US, Inc.	ME	8.7	11.7	21.6
Maxi Gain bmr-6	Coffey Seed	PS	8.9	70.4	19.5
Sordan 79	Sorghum Partners, LLC.	E	10.1	78.3	18.8
Great Scott BMR	Scott Seed	ML	6.9	13.3	18.1
Trudan 8	Sorghum Partners, LLC.	E	8.8	82.9	16.6

Nutrition Data

Hybrid	Company	Maturity	% ADF	% NDF	% TDN	Milk Lbs ton^{-1}
SS 506	Sorghum Partners, LLC.	L	43.0	63.1	53.3	1711.8
1990	Sorghum Partners, LLC.	PS	45.3	66.7	52.3	1579.8
Pacesetter BMR-Red	Richardson Seeds	PS	43.0	65.7	54.6	1975.1
SS 405	Sorghum Partners, LLC.	ML	40.9	59.9	54.6	1819.4
SS 304	Sorghum Partners, LLC.	M	39.2	57.8	55.7	1910.2
Sordan Headless	Sorghum Partners, LLC.	PS	43.8	64.0	51.3	1463.0
NK 300	Sorghum Partners, LLC.	ME	35.1	51.4	58.5	2162.4
Silo 700D	Richardson Seeds	L	34.3	50.8	59.0	2071.2
AS781	AR-B-Seeds	ML	33.7	49.3	59.6	2360.4
Silo 700D BMR	Richardson Seeds	L	35.0	53.3	58.8	2267.3
9500	Richardson Seeds	ML	33.8	49.0	59.9	2204.6

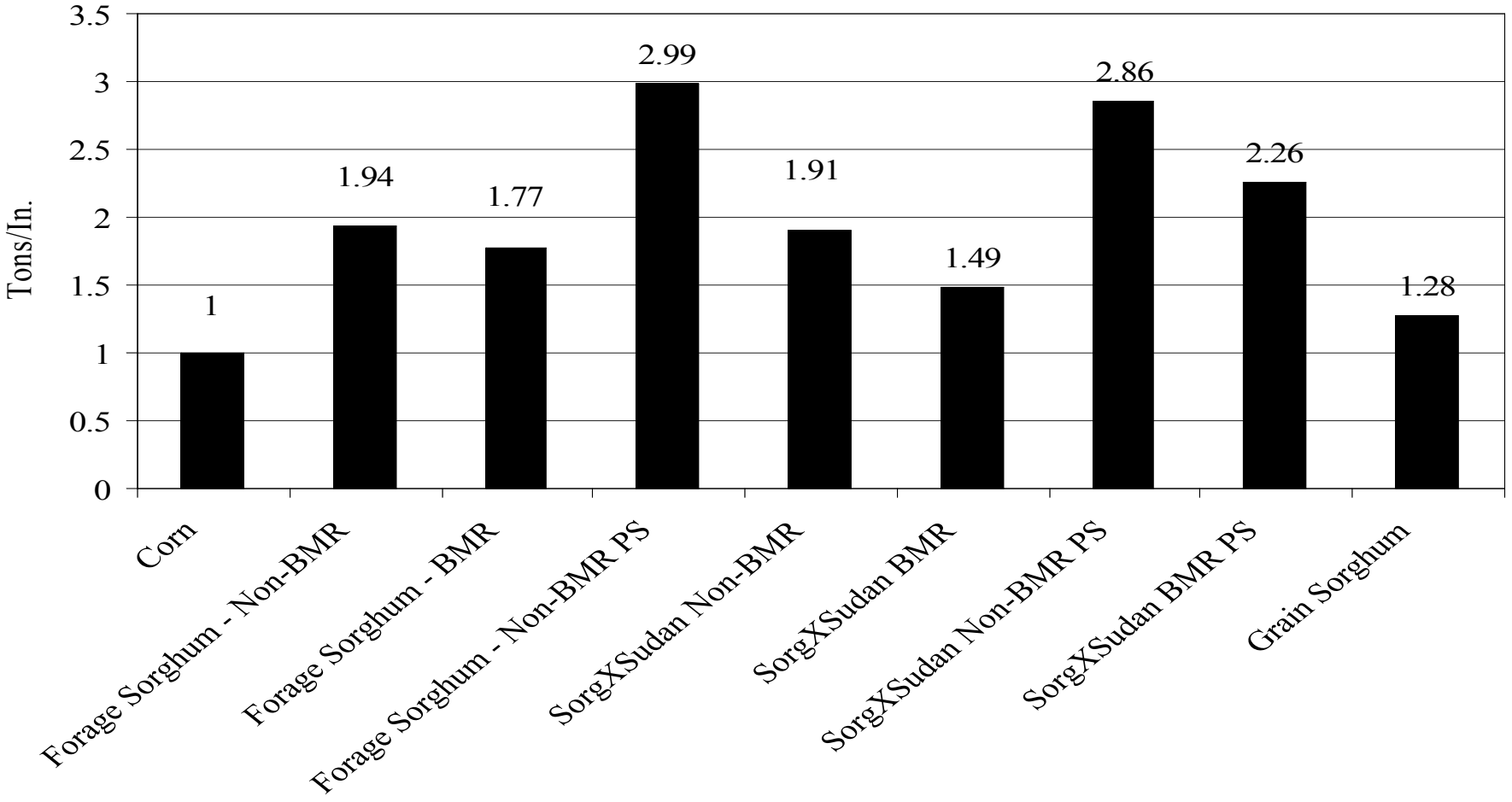
Nutrition Data

Hybrid	Company	Maturity	ADF	NDF	TDN	Lbs ton^{-1}
Trudan Headless	Sorghum Partners, LLC.	PS	44.4	64.3	51.8	1405.8
Hikane II	Sorghum Partners, LLC.	ME	39.2	57.2	55.6	1967.6
BH211 SBD	B-H Genetics	L	37.6	55.4	58.0	2251.1
Grazex BMR 801	Sharp Brothers Seed	ML	40.5	60.2	55.2	1960.4
Alta 7401	Advanta	L	34.9	51.4	58.7	2251.1
BH312 FBD	B-H Genetics	ML	35.1	51.6	57.8	2296.3
Alta 6402	Advanta US, Inc.	ME	37.6	55.7	57.8	2161.6
Maxi Gain bmr-6	Coffey Seed	PS	42.0	61.5	53.1	1861.9
Sordan 79	Sorghum Partners, LLC.	E	41.7	60.4	53.4	1701.6
Great Scott BMR	Scott Seed	ML	35.5	53.2	58.4	2238.9
Trudan 8	Sorghum Partners, LLC.	E	37.7	54.6	57.2	1936.6

Lessons to be Learned

- Plant populations, not pounds per acre are necessary
- Managing N fertility is important
- Sorghum forages can be both high yielding and good quality
- Sorghum forages can be managed on less water than most other crops

Water is the Key!



Bottom Line:
Sorghum is Not Corn!!

- Grain is smaller
  - Processing is different
- Forages are not the same as grain
- Different agronomic practices to optimize yields
  - Require less water and fertilizer
  - Shorter growing season
- Different nutritional qualities which require different feed strategies
  - PS sorghum have no grain
  - Dual purpose sorghums need to be harvest at correct time or need the grain processed
  - Bmr have high digestibility, lower lignin

Questions

Look us up at: sorghum.ucanr.edu