

# Evaluating Variety Choices and Novel Genes for Forage Sorghums in 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





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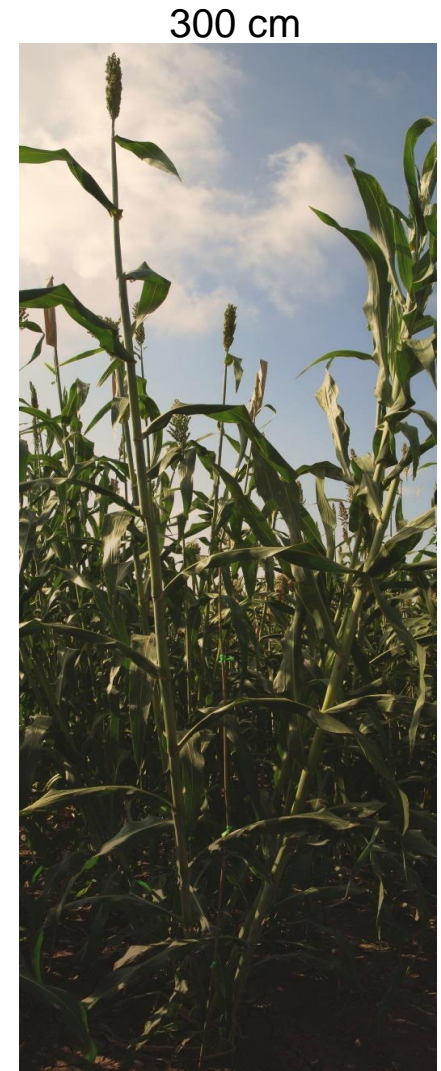
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# What Makes Forage Sorghums Different?

- 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



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# Photoperiod and Maturity Genes



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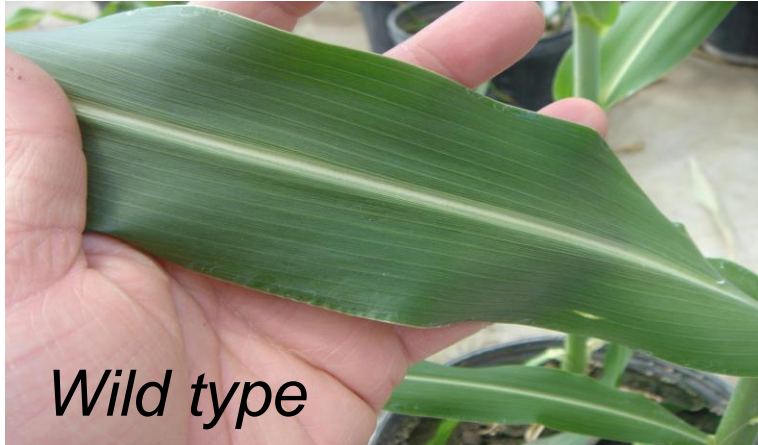
# Drought Tolerance



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# bmr Genetics



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# Issue with some bmr forages



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# New Genetics



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



# Evaluating Forages in California

- Finishing up 3 years of hybrid evaluations
- Grown at both Westside and Kearney Agricultural Research and Extension Centers
- Typically with less than 19 applied inches of water
- Approximately 125 lbs of N



# Data Collection

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



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# Agronomic Data

Hybrid	Company	Type	Maturity	Height (cm)	% Lodging	Ton ac <sup>-1</sup> 65% Moist
SS 506	Sorghum Partners, LLC.	FS	L	319.90 a	40.83 d	36.35 a
1990	Sorghum Partners, LLC.	FS	PS	272.58 g	46.67 c-d	34.57 a-b
Pacesetter BMR-Red	Richardson Seeds	FS	PS	285.05 d-g	60.83 b-c	31.69 a-c
SS 405	Sorghum Partners, LLC.	FS	ML	300.52 a-d	35.83 d	31.66 a-c
SS 304	Sorghum Partners, LLC.	FS	M	277.56 e-g	60.00 b-c	30.170 b-d
Sordan Headless	Sorghum Partners, LLC.	FS	PS	301.33 a-d	20.83 e	29.11 c-e
NK 300	Sorghum Partners, LLC.	FS	ME	208.79 i-k	11.25 e-f	26.25 d-f
Silo 700D	Richardson Seeds	FS	L	219.51 i	5.00 f	24.88 d-f
AS781	AR-B-Seeds	FS	ML	187.48 k-l	1.25 f	24.86 d-g
Silo 700D BMR	Richardson Seeds	FS	L	219.89 i	11.25 e-f	24.20 e-g
9500	Richardson Seeds	FS	ML	196.56 k-l	9.58 e-f	23.97 e-h
Trudan Headless	Sorghum Partners, LLC.	FS	PS	315.40 a-b	13.75 e-f	23.90 e-h
Hikane II	Sorghum Partners, LLC.	FS	ME	291.27 c-f	80.83 a	23.34 f-i
BH211 SBD	B-H Genetics	FS	L	246.71 h	4.17 f	22.82 f-i
Grazex BMR 801	Sharp Brothers Seed	FS	ML	296.92 b-d	77.92 a	22.47 f-i
Alta 7401	Advanta	FS	L	186.49 l	2.50 f	21.96 f-j
BH312 FBD	B-H Genetics	FS	ML	189.18 j-l	5.83 f	21.81 f-i
Alta 6402	Advanta US, Inc.	FS	ME	264.89 g-h	11.67 e-f	21.60 f-j
Maxi Gain bmr-6	Coffey Seed	SS	PS	270.84 f-g	70.42 a-b	19.45 g-j
Sordan 79	Sorghum Partners, LLC.	FS	E	307.90 a-c	78.33 a	18.77 h-j
Great Scott BMR	Scott Seed	FS	ML	209.83 i-j	13.33 e-f	18.11 i-j
Trudan 8	Sorghum Partners, LLC.	FS	E	268.71 g-h	82.92 a	16.64 j



# Nutrition Data

Hybrid	Company	Type	Maturity	% ADF	% NDF	% TDN	48 hr NDFD	Milk Lbs ton <sup>-1</sup>
SS 506	Sorghum Partners, LLC.	FS	L	42.99 b-d	63.14 b-d	53.34 g-h	35.84 f-g	1711.77 f-g
1990	Sorghum Partners, LLC.	FS	PS	45.29 a	66.69 a	52.26 h	35.90 f-g	1579.76 g-h
Pacesetter BMR-Red	Richardson Seeds	FS	PS	43.01 b-d	65.65 a-b	54.59 f-g	45.60 b-c	1975.11 d-e
SS 405	Sorghum Partners, LLC.	FS	ML	40.89 d-f	59.92 d-e	54.60 f-g	36.96 f	1819.38 e-f
SS 304	Sorghum Partners, LLC.	FS	M	39.18 f-g	57.75 e-f	55.71 c-f	41.10 e	1910.21 d-e
Sordan Headless	Sorghum Partners, LLC.	FS	PS	43.84 a-c	63.96 a-c	51.34 h	34.20 g	1463.04 h-i
NK 300	Sorghum Partners, LLC.	FS	ME	35.05 i	51.39 h-j	58.47 a-b	41.68 d-e	2162.40 b-c
Silo 700D	Richardson Seeds	FS	L	34.33 i	50.78 i-j	58.96 a-b	39.86 e	2071.22 c-d
AS781	AR-B-Seeds	FS	ML	33.65 i	49.32 j	59.62 a	47.30 a-b	2360.38 a
Silo 700D BMR	Richardson Seeds	FS	L	34.99 i	53.29 g-i	58.78 a-b	47.05 a-b	2267.29 a-b
9500	Richardson Seeds	FS	ML	33.78 i	49.03 j	59.86 a	41.94 d-e	2204.55 a-c
Trudan Headless	Sorghum Partners, LLC.	FS	PS	44.44 a-b	64.29 a-c	51.84 h	34.66 f-g	1405.84 i
Hikane II	Sorghum Partners, LLC.	FS	ME	39.21 f-g	57.16 e-f	55.61 d-f	41.06 e	1967.62 d-e
BH211 SBD	B-H Genetics	FS	L	37.58 g-h	55.39 f-g	57.95 a-b	45.99 a-c	2251.13 a-b
Grazex BMR 801	Sharp Brothers Seed	FS	ML	40.52 e-f	60.19 d-e	55.15 e-g	40.89 e	1960.43 d-e
Alta 7401	Advanta	FS	L	34.89 i	51.37 h-j	58.73 a-b	47.19 a-b	2251.12 a-b
BH312 FBD	B-H Genetics	FS	ML	35.07 i	51.57 h-j	57.83 a-c	48.29 a	2296.28 a-b
Alta 6402	Advanta US, Inc.	FS	ME	37.59 g-h	55.65 f-g	57.79 a-d	46.62 a-b	2161.56 b-c
Maxi Gain bmr-6	Coffey Seed	SS	PS	41.95 c-e	61.51 c-d	53.07 g-h	43.86 c-d	1861.90 e-f
Sordan 79	Sorghum Partners, LLC.	FS	E	41.70 c-e	60.37 d-e	53.37 g-h	36.08 f-g	1701.61 f-g
Great Scott BMR	Scott Seed	FS	ML	35.48 h-i	53.18 h-g	58.41 a-b	47.23 a-b	2238.88 a-b
Trudan 8	Sorghum Partners, LLC.	FS	E	37.72 g-h	54.62 f-h	57.17 b-e	35.97 f-g	1936.56 d-e

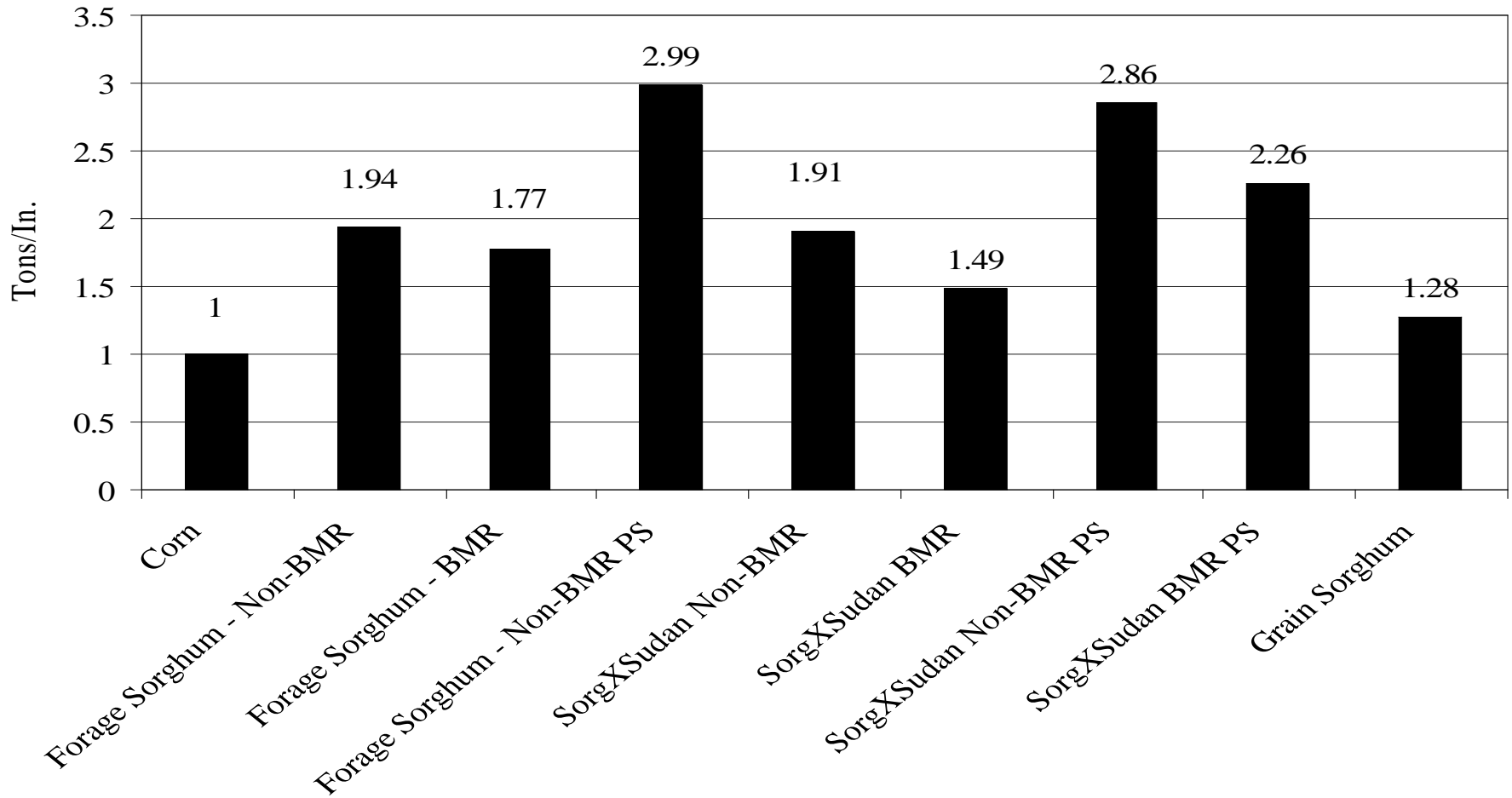


# Lessons to be Learned

- 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!



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# Questions

Look us up at: [sorghum.ucanr.edu](http://sorghum.ucanr.edu)



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