

Using Warm-Season Annual Grasses to Restore Hay and Grazing Inventory

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Crabgrass



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Effect of Crabgrass Harvest Interval on Forage Quality

Harvest Interval	21	35	49
DM Yield	2,872	7,335	9,788
Growth Stage	Stem elongation	Early heading	Late heading
CP, %	15.6	14.3	11.0
NDF, %	61.3	66.6	69.8
ADF, %	35.7	38.9	42.7
TDN, %	62.6	59.1	54.8



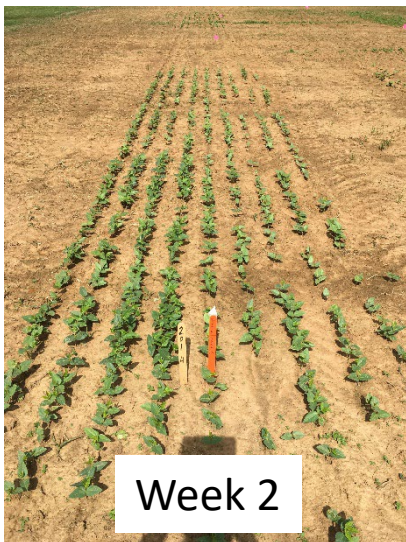
Warm Season Annuals

- Historically used mostly as ‘emergency crop’ or for hay
- Recent advent of cover crops have increased interest
 - Simple or complex blends of species
 - Species and varieties selected for agronomic benefits, not necessarily grazing
 - Yields, quality, grazing preference have not been tested on many of the species included in mixtures.
 - Many of them make great forage crops
 - Use rule of thumb for grazing millets and sudangrass
 - Start grazing at 18 to 36 inch height
 - Leave 6 to 8 inch stubble
 - Rapid growth habit makes it difficult to manage grazing

Sorghums and Sudangrasses



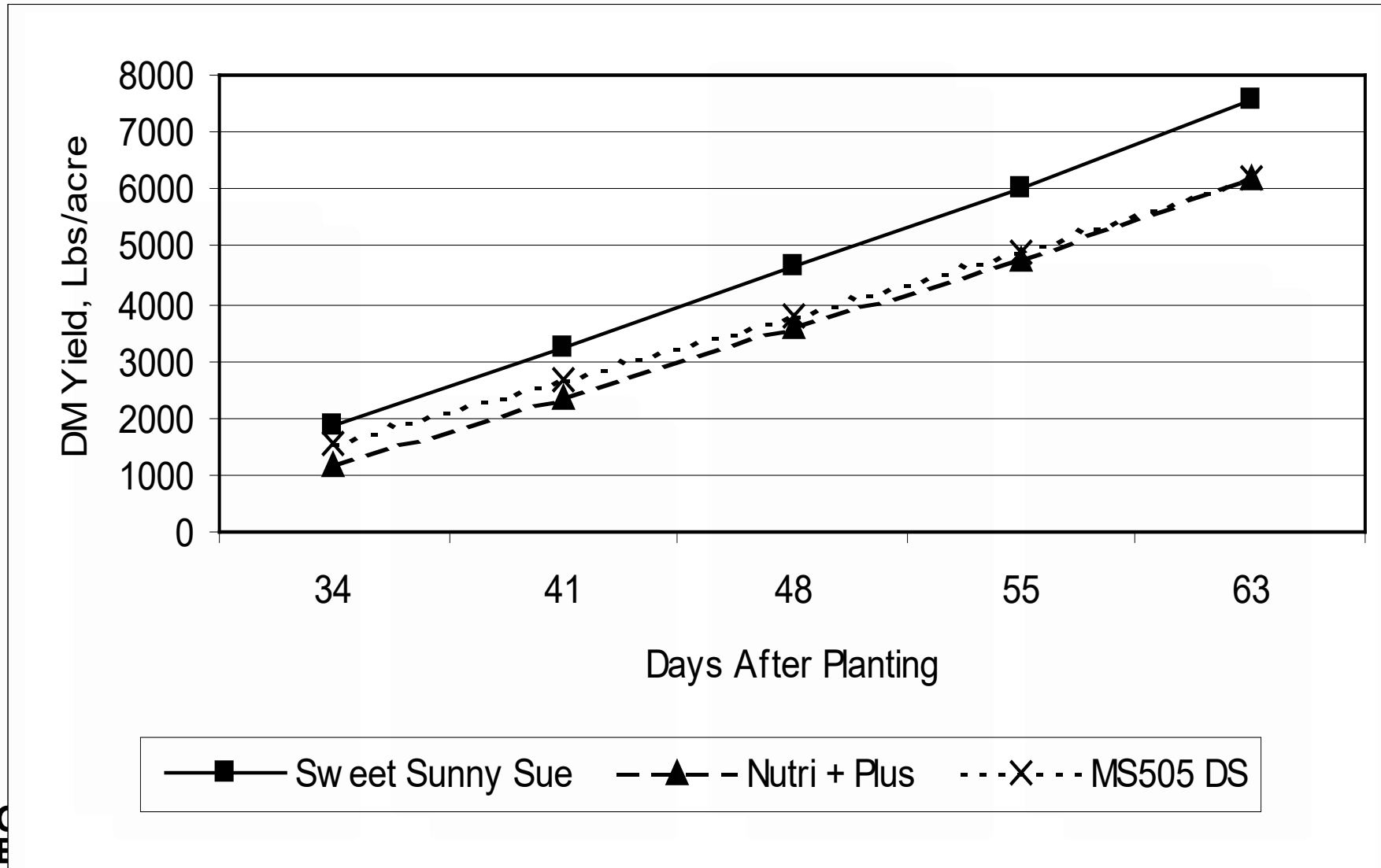
Plant Development Iron Clay Cowpea



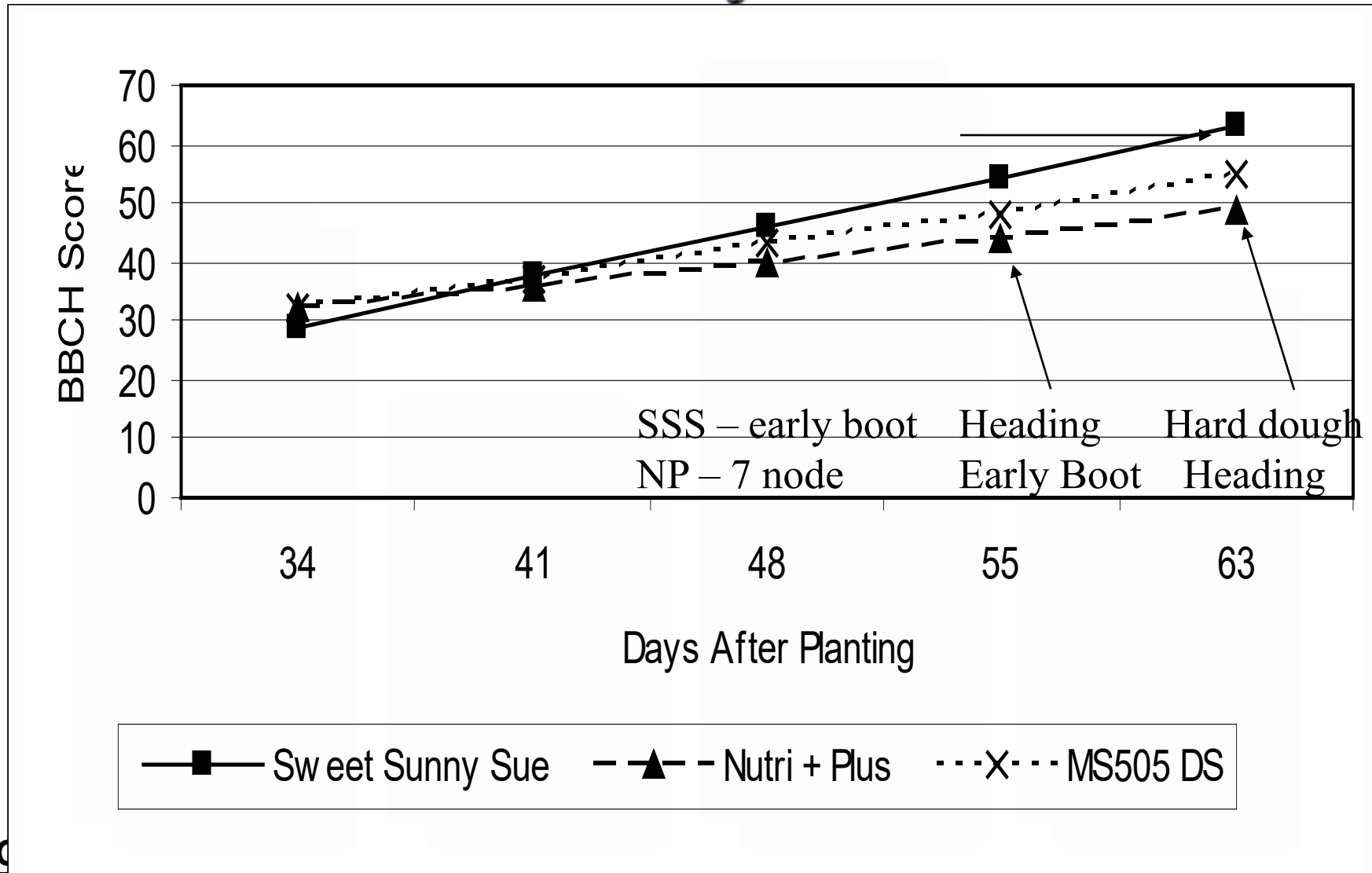
Plant Development Sorghum Sudan



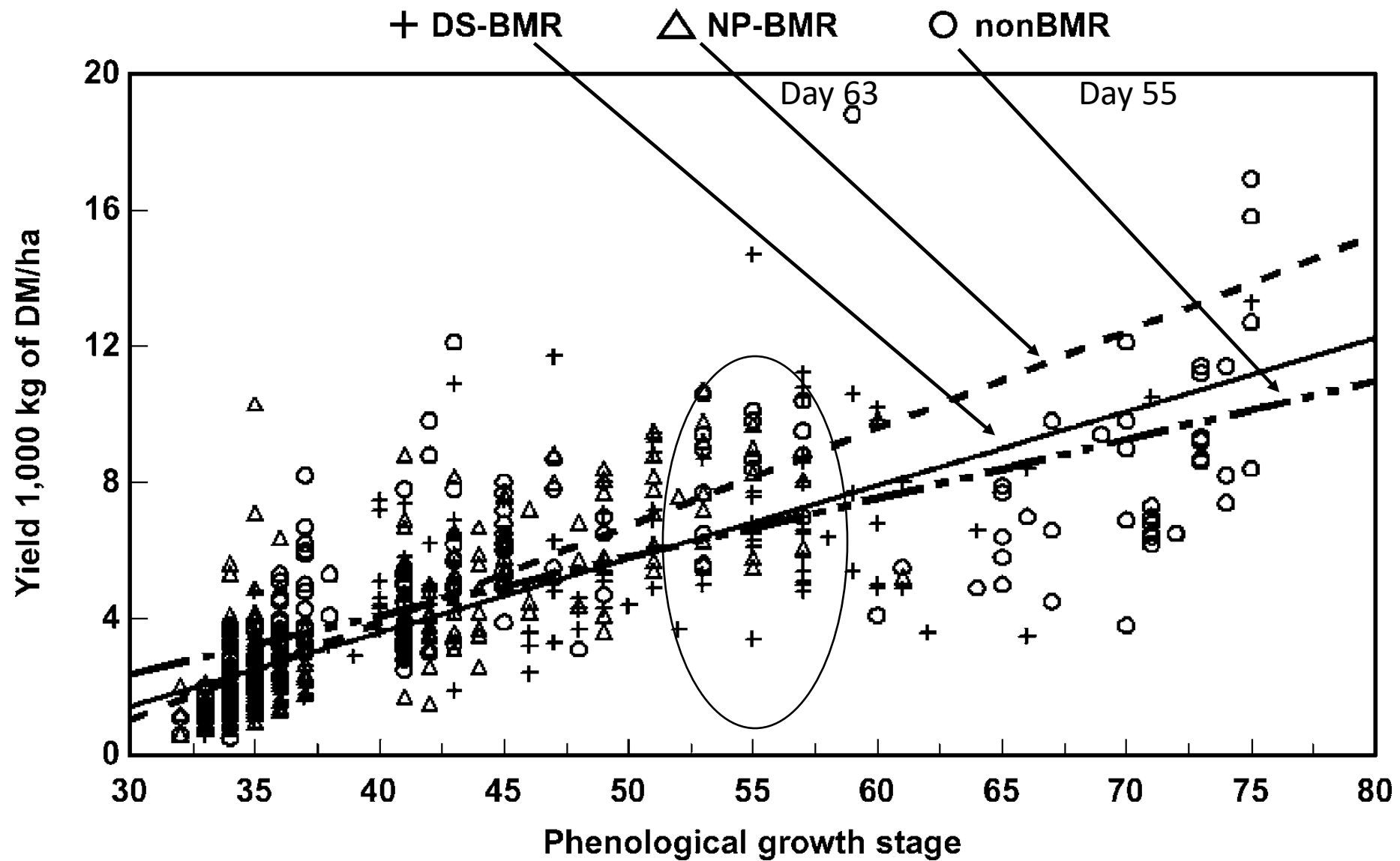
Dry Matter Yield



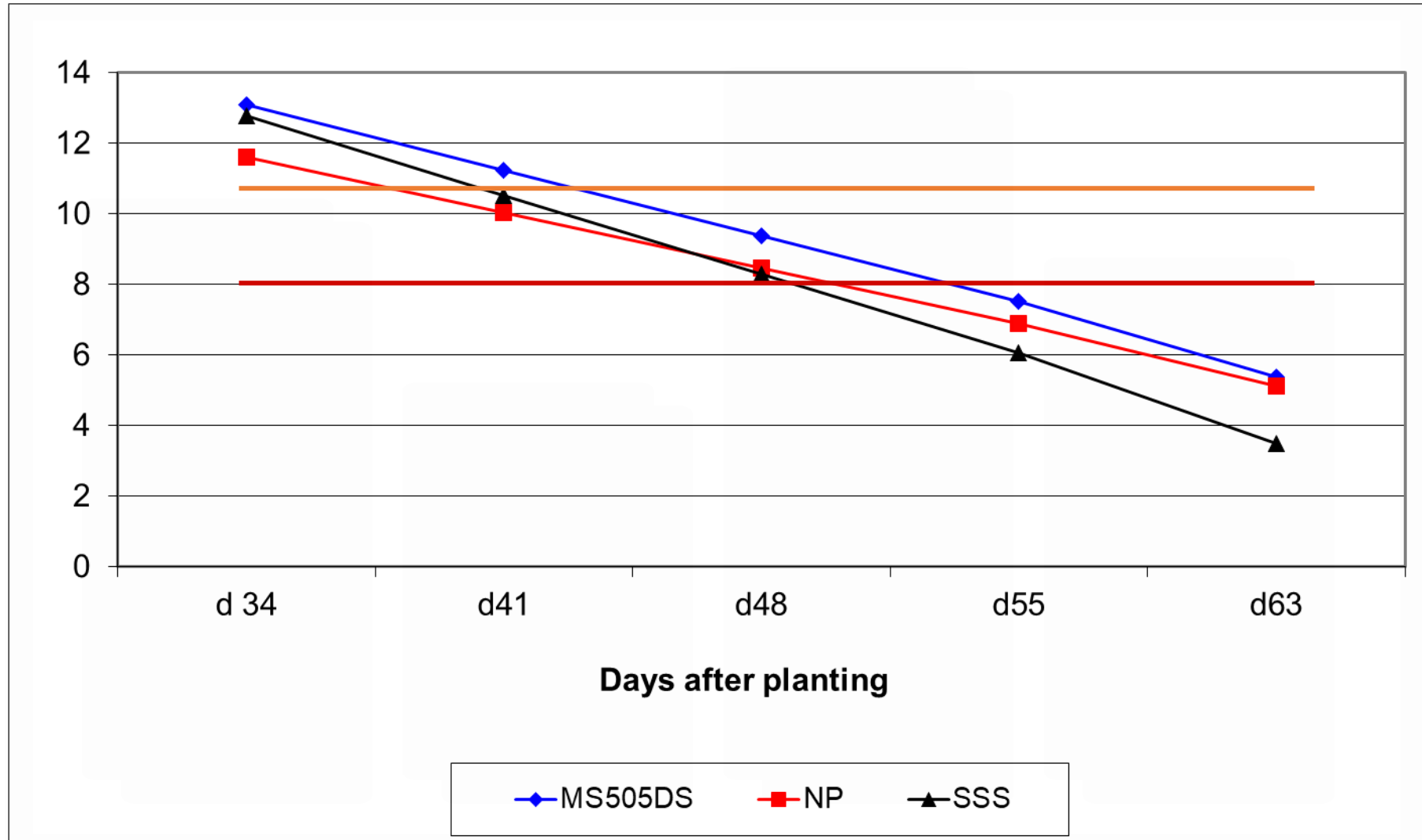
Maturity Score



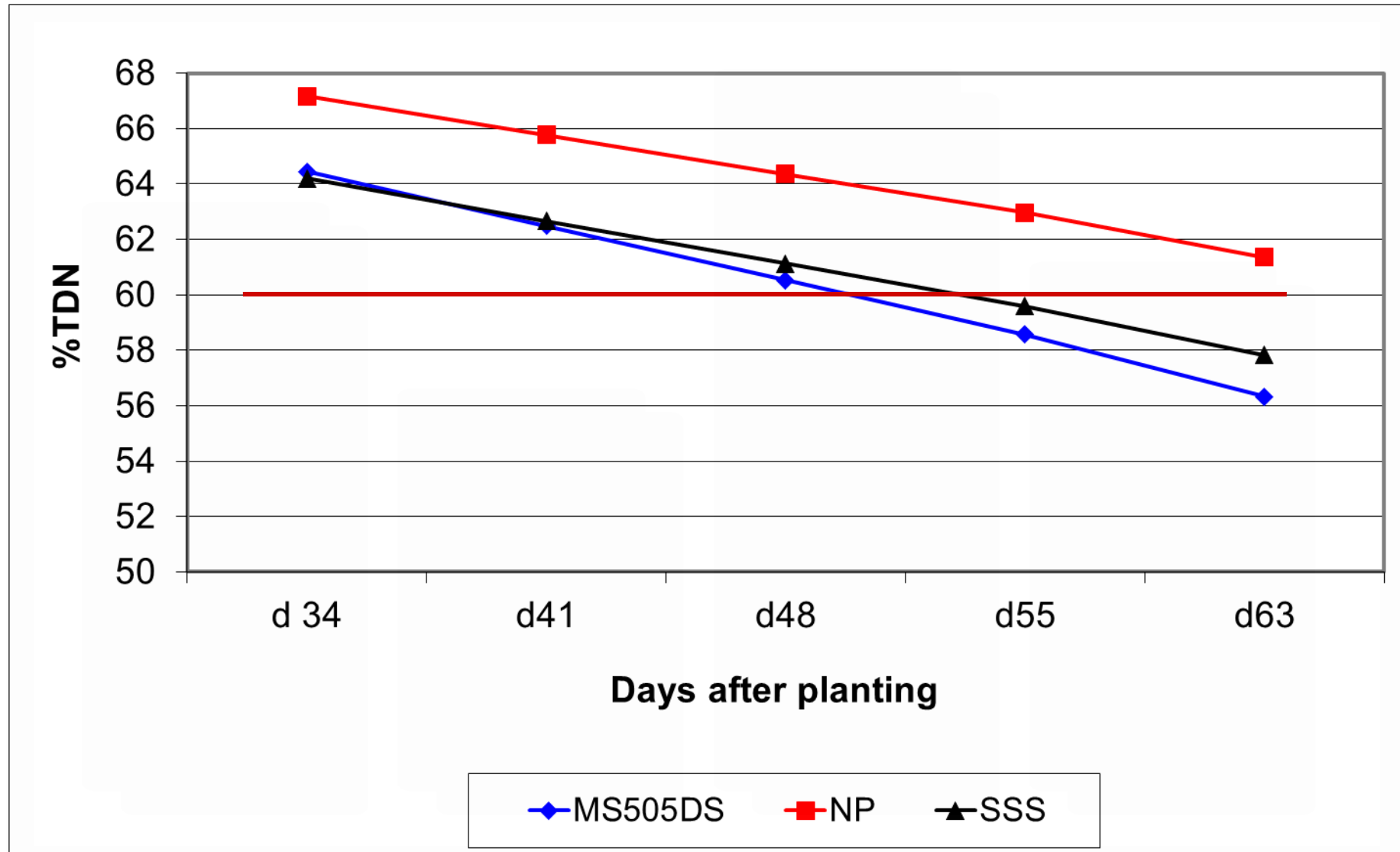
Yield at equal Maturity



Crude Protein, % of DM



Total Digestible Nutrients, %



Effect of BMR gene in Sudangrass Hybrids

	Hay King BMR		Piper Non-BMR	
Maturity	Boot	Dough	Boot	Dough
Yield	10,581	20,677	10,726	13,163
DM	19.0	29.4	20.0	32.4
% CP	8.1	6.0	8.9	6.3
% NDF	73.8	75.6	78.9	82.5
% ADF	44.8	50.5	49.4	58.6
% TDN	56.0	54.8	52.6	50.1



Teff



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Pictures courtesy of Joel Reagan Barenbrug Seed



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Teff Response to N Fertilization

N Rate per harvest	Harvest 1	Harvest 2	Total	CP%
0 N/ac	1.1	1.6	2.7	7.9
25 N/ac	1.7	2.2	3.9	10.2
50 N/ac	2.0	2.8	4.8	11.7
100 N/ac	2.5	2.9	5.4	16.5
Average	1.8	2.4	4.2	11.6



Maturity at Harvest and Nutritive Quality

(Vinyard et al., 2018) Planted 6/20/2016; no N Fertilizer

Item	Boot	Early Head	Late Heading
Harvest, days	53	60	66
DM yield, lb/ac	2,547	3,580	4,613
Hay ton/acre	1.4	2.0	2.7
CP, %	18.7	14.7	11.9
%NDF	62.9	62.6	61.3
%ADF	28.0	28.7	27.6
%TDN	56.0	57.0	59.0



Planting Guide

	Sorghum	Sorghum x Sudangrass	Pearl Millet	Teff	Crabgrass
Seeding rate					
Drill	4-6	20-25	8-10	8-10	-
Broadcast	15-20	30-40	15-20	8-10	4-6
Seed depth	1 to 1½ "	¾ to 1"	½ - ¾"	1/8"	<1/2"
Prussic acid	+	+	-	-	-
Nitrates	+++	+++	+++	+/-	+/-



Value of Hay Quality – BMR vs non-BMR Sudangrass

Non-BMR

- \$75/ bag = \$37.50/acre
- Boot Stage
 - 10,726 #/acre = \$6.99/ton DM
 - 52.6% TDN = \$13.29/ton TDN
 - \$1.56/day to meet cow needs
 - \$1.45/day for supplement*
 - \$90/ton of hay
- Dough seed stage
 - 13,163 #/acre = \$5.70/ton DM
 - 50.1% TDN = \$11.37/ton TDN

BMR

- \$108/bag = \$54/acre
- Boot Stage
 - 10,581 #/acre = \$10.21/ton DM
 - 56.0% TDN = \$18.23/ton TDN
 - \$1.22/day to meet cow needs
 - \$1.05/day for supplement*
 - \$63/ton of hay
- Dough seed stage
 - 20,677 #/acre = \$3.26/ton DM
 - 54.8% TDN = \$5.94/ton TDN





Questions?



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