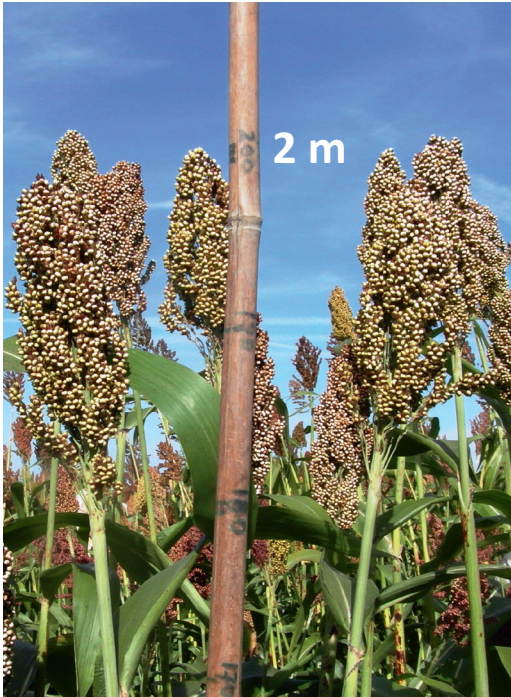


# Breeding and selection of sorghum for regions above 50° latitude

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## Seed set at 51 degrees Northern latitude NOW possible



### Feed: Characteristics of Dutch bred sorghums at 51° NL

	Sowing time	Row distance cm	Dry Matter %	Yield tons dry matter/ha	Raw protein	VCOS T&T	Sugar	Starch	Plants/ha	Sugar+starch	Harvest
HD100	May 2015	37	14		204	72	45	90		135	6-Oct 15
L20	May 12	30	28	29,4	46	66	268	28	433.333	296	29-Oct-2012
L7	May 13	60	38	18,2	95	72	113	264	277.000	377	30-Oct 13
Maize	End of April 13	75	30	20,3	70	69	84	251		335	30-Oct 13

Yields almost equal or higher maize

Yields of tall sorghums up to 29 t dry matter per ha

### Seed set at 51 degrees Northern latitude NOW possible

		51° 20' Northern Latitude 3° 30' Eastern Longitude 1 m altitude		-34° 17' Southern Latitude 70° 74' Western Longitude 572 m altitude	
Average Development stage¹ = DVSA¹		PD4 =14-6-2016	PD2 =14-5-2016	PD = 18-12 -2014	PD = 18-12 -2014
Entry	Pedigree/name	DVSA 97 das 19 09 16	DVSA 93 das 15 08 16	DVSA 92 das 20 03 15	Grain Yield mt/ha
C1	Sorghum nigricans	78	67	75	6,2
HD7	Sorghum bicolor	72	48	82	6,2
C2	Sorghum bicolor	68	47	79	7,2

DVSA¹ Decimal Code Cereals

- Sorghum bicolor has poor emergence in cold soils and seed set during cool weather
- Earliness at 51° not necessarily earliness at 34° latitude, differential responses
- Yields in Chile above 6 mt per ha for Dutch bred materials



		51° 20' Northern Latitude 3° 30' Eastern Longitude 1 m altitude		-34° 2 Southern Latitude 70° 7 Western Longitude 572 m altitude	
Average Development stage¹ = DVSA¹		PD1 =7-5-2016	PD2 =14-5-2016	PD3 =30-5-2016	PD4 =14-6-2016
Entry	Pedigree/name	DVSA 135 das2 19 09 16	DVSA 128 das 19 09 16	DVSA 112 das 19 09 16	DVSA 97 das 19 09 16
C1	Sorghum nigricans	90	85	83	78
HD7	Sorghum bicolor	80	78	76	72

das² = days after sowing

- Sowings late May and June have a faster development then earlier sowings
- Later sowings may have sterility and may not have viable seeds

### Plant heights

		51° 20' Northern Latitude 3° 30' Eastern Longitude 1 m altitude		-34° 2 Southern Latitude 70° 7 Western Longitude 572 m altitude	
Plant height (cm)		PD4 =14-6-2016	PD2 =14-5-2016	PD = 18-12 -2014	
Entry	Pedigree/name	Plant height 97 das 19 09 16	Plant height 93 das 15 08 16	Plant height 92 das 20 03 15	
C1	Sorghum nigricans	240	200	235	
HD7	Sorghum bicolor	230	155	209	
C2	Sorghum bicolor	230	150	201	
C3	Sorghum bicolor	240	175	232	

- Plant heights tend to vary with temperature regime
- Medium tall varieties can produce heights over 2 m at 51° latitude



		51° 20' Northern Latitude 3° 30' Eastern Longitude 1 m altitude		-34° 2 Southern Latitude 70° 7 Western Longitude 572 m altitude	
Plant height (cm)		PD1 =7-5-2016	PD2 =14-5-2016	PD3 =30-5-2016	PD4 =14-6-2016
Entry	Pedigree/name	Plant height 135 das 19 09 16	Plant height 128 das 19 09 16	Plant height 112 das 19 09 16	Plant height 97 das 19 09 16
C1	Sorghum nigricans	210	210	220	240
HD7	Sorghum bicolor	215	230	220	230
C2	Sorghum bicolor	191	200	220	230
C3	Sorghum bicolor	190	180	180	240

- Medium tall varieties can produce heights over 2 m at 51° Northern latitude, in sowings from early May to mid June