ISURF#05416: semi-dwarf grain amaranths with improved stems DB 2003878 and DB 2003883
ISU Breeder: David M. Brenner (Department of Agronomy and Plant Introduction Station)

https://www.cad.iastate.edu/amaranth

Two semi-dwarf grain amaranths with improved stems, released in 2022

DB 2003878 and DB 2003883 are semi-dwarf grain amaranth that combine the desirable lodging resistant stems from the ornamental variety Elephant Head (PI 584523) with the white seeds, and indeterminate inflorescences that are typical of grain production amaranths. They are from the genetic diversity in the United States National Plant Germplasm System's amaranth seed collection, at the North Central Regional Plant Introduction Station, Iowa State University. The parents include PI 568125, a male sterile selection by David Brenner from the grain amaranth variety 'Plainsman', and PI 584523, an ornamental amaranth 'Elephant Head' donated by Peter Kulakow in 1994. The PI numbers are documented online at the GRIN web site (https://npgsweb.ars-grin.gov/gringlobal/search). The male sterile Plainsman conferred, white seeds, and indeterminate inflorescence. The Elephant Head parent, which was crossed twice into the pedigree provided an unusually strong lodging-resistant stem. Peter Kulakow donated seeds of PI 584523 and recommended using it as a breeding parent because of its unusually good stems. These two DB lines are from the same parents and look similar, both have translucent seeds. They differ in DB 2003878 being 15 to 30 cm taller than DB 2003883, depending on the field-year in Ames, Iowa. DB 2003878 has a wider head and performed better in a yield trial (Yahaya et al. 2016). DB 2003883 is shorter and therefore may be better for use as a parent by plant breeders seeking progenies with short plants.
They were evaluated at Tennessee State University: Damba Yahaya, Ranjita Thapa and Matthew Blair. 2016. Yield Potential of Novel Semi-dwarf Grain Amaranths. http://amaranthinstitute.org/?p=1012

Tallness in field plantings

	cm tall	Grow-out years in Ames, Iowa
DB 2003878	120 to 150	8
DB 2003883	95 to 140	9

These Amaranth varieties are available for licensing to Amaranth breeders and developers worldwide.
Questions regarding the variety may be directed to the breeder, David Brenner at G212 Agronomy Hall, Iowa State University Ames, IA 50011 or by phone (515-294-6786) or email (dbrenner@iastate.edu).
If you have any questions regarding the licensing of these new varieties, please contact Dr. Yi Wu by phone (515-294-9442) or email (germplasm@iastate.edu).

DB 2003883 in the two rows on the left and DB 2003878 in the two rows on the right. The paper bags are to exclude pollen of other amaranths for producing genetically pure seeds. September 13, 2022.

DB 2003883 in 2021.

DB 2003883 after frost in 2021.

DB 2003878 in 2005.

DB 2003878 after frost in 2021.