

# The participatory evaluation of Amaranth germplasm for leaf yield in South Africa

Jansen van Rensburg WS<sup>1\*</sup>, Khoza LN<sup>1</sup>, Gerrano AS<sup>1</sup>, Bairu MW<sup>1</sup>, Denby K<sup>2</sup>.

<sup>1</sup>Agricultural Research Council, Vegetable Ornamental Plants, Private Bag X293. Pretoria, 0001, South Africa

<sup>2</sup>Department of Biology, University of York, Wentworth Way, York YO10 5DD

\*Corresponding author: [WjvRensburg@arc.agric.za](mailto:WjvRensburg@arc.agric.za)

## Abstract

Amaranth, better known as thepe or imbuya, is a very popular leafy vegetable in South Africa. Amaranth is very nutritious and 100 g cooked amaranth can contribute up to 70% of the daily beta-carotene and 30% of the daily iron needs of growing toddlers. Traditionally, amaranth is wild harvested but it can be cultivated with great success; however, no genetically improved material available in South Africa. The Agricultural Research Council (ARC) in collaboration with the University of York (UoY) and the Department of Agriculture, Forestry and Fisheries (DAFF) has embarked on a project to evaluate amaranth germplasm. Eleven promising amaranth lines were selected based phenotypic traits. A formal yield trial was planted at ARC-Vegetable and Ornamental Plants, Roodeplaat research farm, Gauteng. The yield trial was planted in a randomised complete block design with three replicates during 2018/19 and 2019/20 cropping season. The young growth shoots and leaves were harvested three times and the fresh and dry weight of the three harvests were determined. Participatory demonstration trials were planted during 2019/20 with two farmers on their field in Gauteng, one farmer in Mpumalanga and a farmers group in KwaZulu Natal. These farmers were visited during the season and group discussions were held. The result showed that the amaranth lines differ significantly for all yield attributes. The different farmers evaluation were very similar. They all prefer green leaved amaranth. All of them have harvested for own consumption. The farmers in Mpumalanga and KwaZulu Natal have sell to the local community for home consumption. Three Amaranth lines namely, Anna, ACAT Seedfair and Arusha can be recommended for cultivation by small-scale farmers in the country. These lines will also be included in the amaranth breeding program at ARC.