Improving amaranth at WorldVeg

Nutritious and easy to grow, amaranth is a healthy and profitable crop for small-scale farmers. Researchers at the World Vegetable Centre are working to make it a more productive crop for smallholders. A report by Nora Wagman.

Reach for the sky: This amaranth plant is one of several selected for breeding improved varieties at WorldVeg Eastern and Southern Africa. Credit Nora Wagman

WorldVeg scientists and field staff in Arusha, Tanzania have been selecting individual 4th and 5th generation amaranth plants to use in developing improved open-pollinated varieties of this versatile vegetable. Open-pollinated varieties allow farmers to save their own seeds for planting in the following seasons.

There are three types of amaranth: Vegetable types, grown for their nutritious and tasty leaves; grain types, which are favoured for the production of high-protein grain (seed); and dual-purpose types, which are used for both leaves and grain.

To develop improved open-pollinated amaranth varieties, WorldVeg breeders have been crossing grain and vegetable type parents to improve the seed yield of the vegetable type. Seed producers want the vegetable type to produce more seed while also
maintaining leaf quality. The plants are also being selected for traits such as height. Amaranth planted in October 2017 was 3.5 meters high weeks later!

The breeders harvest seed of the most desirable plants to replant in the next generation. The parents used in the crosses vary in stem, panicle and seed colours; plant height; panicle size and compactness; leaf shape and size; seed yield and seed size.

Amaranth offers an assortment of nutritional benefits, including highly digestible proteins (99% digestibility!) as well as vitamins and minerals such as potassium and iron. Plus, it is an easy crop to grow. Within 28 days of transplanting the leaves can be harvested for home consumption and/or sale, making amaranth a healthy and profitable crop for small-scale farmers.

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