

KULTURSAAT e.v.

Association for Breeding Research and Crop Maintenance
Based on Biodynamic Principles

Breeding Biography of a Biodynamic Variety

Updated: 15/02/2017



Salad cucumber for protected cultivation under glass and plastic

HELENA

German Plant Variety Registry Code:
GU 358

Breeder:

Ulrike BEHRENDT

Variety Description:

HELENA is a parthenocarpic (seedless) snake cucumber variety for protected cultivation with almost exclusively female-flowers (gynoecious). The fruits are long and smooth and at maturity are medium- to dark-green in color. They can become quite long and have a very fine, mild, rounded flavor.

Background:

All snake cucumber of the commercial type for greenhouse cultivation are parthenocarpic and gynoecious (only female flowers). What is taken in this case is essentially an unfertilized, immature fruit of a plant that no longer forms male flowers. When the flower is fertilized, for example, after cross-pollination with a monoecious (mixed male and female variety), salad cucumber type, the snake cucumber forms fattened, club-shaped fruits with seed – in other words, tasty, but unfortunately not marketable. The gardener must decide whether they want to have seed-forming cucumbers or gynoecious snake cucumber varieties in the same greenhouse – otherwise, it does not work together.

How does a gynoecious cucumber get male pollen-bearing flowers then, which are still needed for fertilization and seed production? In conventional seed production, silver nitrate and gibberellin plant hormones are sprayed onto the growing plant, so that the gynoecious plants are stimulated into male flower formation. The use of plant hormones is generally prohibited in organic farming except in Holland, and contradicts the biodynamic concept of the closed farming system. When we take the plant as a being that from one generation to the next further develops, then this development is interrupted in the gynoecious plant and must be artificially stimulated from outside itself.

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Breeding History:

The new variety HELENA is a true snake cucumber of the parthenocarpic type, but forms under certain conditions single pollen-bearing male flowers. HELENA was bred out of the open-pollinated cultivar MILGU (from the former German Democratic Republic). The breeding work on this variety began in 1996 on the biodynamic Oldendorfer Seed Farm. When MILGU was tested after the reunification of Germany by the German Plant Variety Registry, it was found to have an inhomogeneous flowering expression; there were gynoecious, monoecious, but also undesired almost complete male flowering plants. From this original stock, single directed pollination was carried out. In addition the influence of the temperature on the formation of male flowers could be observed and translated into a useful process.

The result is a snake cucumber that forms isolated male flowers, which appear almost exclusively in the lower part of the plant, where the plant is already expended. The plant therefore retains the potential to continue to multiply. In warmer enclosures the plants remain generally completely gynoecious. When the few male flowers are removed, there is no reason not to grow any other parthenocarpic snake cucumber varieties in the same greenhouse. In order to maintain the described flowering behavior, the variety is propagated for maintenance breeding and seed multiplication with single pollination.

Registration in the variety register of the German Plant Variety Registry took place in 2001. U. Behrendt carries out the further maintenance breeding at Oldendorfer Seed Farm. The Bingenheimer Saatgut AG is responsible for the organization of the multiplication and commercialization of the sale seed.