



Tomato

DORENIA

German Plant Variety Registry Code:
TOT 397

Breeder:

Christoph MATTHES

Variety Description:

DORENIA is a tall-growing staking tomato with bipinnate and finely constituted leaves. It yields unmottled, red, medium-sized, oval-round to egg-shaped fruits averaging between 60 to 70 grams. The tomatoes are not prone to green collar formation and are significantly less prone to splitting compared to QUADRO, one of its original breeding stock varieties.

It has a balanced sweetness to acidity ratio with a fine aroma that distinguishes its flavor. The consistency of the fruit is not mealy like the QUADRO variety. DORENIA is characterized by a good *Phytophthora* tolerance in outdoor cultivation. This characteristic is particularly evident in a delayed leaf infestation as well as the ability to continue to grow and produce healthy fruits in the upper layers even after continued infestation in dry weather. Due to its vigor DORENIA is not suitable for greenhouse cultivation, because the inter-nodal distances are too far apart.

Breeding History:

Starting by cross-breeding the variety MATINA into QUADRO (1997), DORENIA was developed over eight generations using breed lines subjected each year to further propagation and selection under outdoor conditions at Dottenfelderhof Farm in Bad Vilbel (until 2006). In the selection, in addition to yield, flavor and resistance to *Phytophthora infestans* were in the foreground; in other words, plants with a delayed and minimal *Phytophthora* infestation and good flavor were selected. The resulting flavor was a balanced sweetness and acidity ratio with a less mealy consistency.

Initially, selection of potato-leaf plants (of the MATINA type) was avoided, since these tend to have a higher susceptibility to *Phytophthora*. On the other hand, plants with mottled fruits (QUADRO type) were

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deliberately not selected, since these are prone to green collar formation. As much as possible, selection for a round fruit shape was attempted, although in the end the oval-round to egg-shaped form prevailed.

The initiative for this breeding project began with Dr. H. Spiess. In 1997 he carried out the crosses and participated in the selection decisions during the first years. In the course of time the responsibility for the breeding was transferred to Christoph Matthes.

Overview of Breeding History:

1997: Cross QUADRO (mother plant) X MATINA (pollinator)

1998: QUADRO X MATINA F1, 30 plants were planted, selection from 27 plants.

1999: QUADRO X MATINA F2, propagation of 26 progeny lines, 10 plants each; selection of 8 plants as first choice and 15 plants as second.

2000: QUADRO X MATINA F3, propagation of 10 progeny lines, up to 42 plants each; selection of 30 plants as first choice and 20 plants as second.

2001: QUADRO X MATINA F4, outdoor propagation of 20 progeny lines from 6 breeding lines, 16 plants each (320 plants in total). Selection of 19 plants as first choice and 14 as second.

2002: QUADRO X MATINA F5, outdoor propagation of 21 progeny from four breeding lines, 9 plants each (182 plants in total). Selection of 13 plants as first choice and 15 as second.

2003: QUADRO X MATINA F6, outdoor propagation of 19 progeny from five breeding lines (176 plants in total). Selection of 6 plants as first choice and 6 plants as second.

2004: QUADRO X MATINA F7, outdoor propagation of 9 progeny from 3 breeding lines (94 plants in total). Selection (from breeding lines "4.9" and "22.5") of 9 first choice plants and 7 second choice.

2005: QUADRO X MATINA F8, outdoor propagation at Dottenfelderhof Farm of 11 progeny from two breeding lines (lines "4.9" and "22.5"), total of 153 plants. Selection of 5 plants as first choice and 8 plants as second choice. Breeding line "4.9": selection of the progeny named "4.9-2/05 (6/02-6/03 (1.1-3/04-2.7))" as favorite, from which two single plants are selected.

Parallel to this, outdoor cultivation on the neighboring Luisenhof Farm of 7 progeny from the two favorite breeding lines (lines "4.9" and "22.5"), a total of 250 plants. Selection of 4 plants as first choice and 10 as second choice. Final decision in favor of "4.9" breeding line.

2006:

QUADRO X MATINA F9 in outdoor cultivation, breeding line "4.9", with the progeny 4.9-1/06 (6/02-6/03 (1.1)-3/04-2.9-2/05-1.9). This progeny is the favorite of the breeding line for a possible variety registration. 12 single plants harvested, of which 4 are first choice (foundation stock). Seed from this progeny were submitted for trial at the Registry (2007-2008).

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Another progeny from this line: 4.9-2/06- (6/02-6/03 (1.1)-3/04-2.7-2/05-1.5), is the second favorite singled out for the variety registry, from which 6 plants are selected.

From another progeny: 4.9-5/06- (6/02-6/03 (1.1)-3/04-2.7-1/05-1.5), a single plant is selected.

In addition, five further progeny from the QxM 4.9 breed line are trialed at Dottenfelderhof Farm and selected.

2007:

QUADRO X MATINA F10 in outdoor cultivation: breed line "4.9": Two principal lines from the previous years, FL1/06 and FL2/06, are trialed and compared. FL1/06 second choice selection from 31 plants out of 4 progeny, and first choice from 63 plants out of 5 progeny (foundation seed). In addition from FL2/06 24 plants are selected from 4 progeny.

2008:

QUADRO x MATINA F11 from breed line 4.9: from the first and second choice plants, a total of 22 single plant progeny, are propagated at Dottenfelderhof Farm for yield comparisons. Total of 23 plants were selected. News from the Plant Variety Registry that an inhomogeneous resistance to *Verticillium* and *Fusarium* was found. Therefore 3 single plants from the line 1/06-C-11/07 were separately planted, and a maximum of seed was harvested from the plants to have seed available to submit a new sample for the Registry trial.

2009:

QUADRO X MATINA F12, the objective of the work was to test for *Phytophthora* tolerance and further select upon the 16 plants selected from the previous year. On the other hand, nine individual plants from selected plant progeny were propagated in isolation in order to rule out any extraneous pollination. The seed of these progeny was trialed at the Julius-Kuhn Institute (JKI) in terms of susceptibility of resistance to *Verticillium* and *Fusarium*. The hope was to find a single plant with homogenous descendants with regard to these diseases. Unfortunately, this hope was only met for *Verticillium* resistance where two uniformly susceptible plants could be identified.

2010-2011

QUADRO X MATINA (F13-F14): Further maintenance breeding work. In 2006, the variety had been submitted for Registry trial at the German Plant Variety Registry (trial years 2007 and 2008) for the first time. Due to inhomogeneous *Verticillium* and *Fusarium* resistances, the application for varietal approval was rejected. After an attempt failed in 2009 to find progeny with sufficient uniformity of susceptibility to *Verticillium dahlia* and *Fusarium oxysporum* by cultivation of isolated single plants and subsequent resistance examinations, the variety was further maintenance bred in 2011.

In 2012, DORENIA was approved as an amateur variety (according to Directive 2009/145 / EG). maintenance breeding of the variety is sustained by Ch. Matthes at Dottenfelderhof Farm. The organization of the multiplication and commercialization of the sale seed is, among other things, the responsibility of the Bingenheimer Saatgut AG.