NEW TOMATO ROOTSTOCKS

The Perfect Match!

With intermediate resistance (IR) to ToBRFV

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TOMATO ROOTSTOCKS

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New range of tomato rootstocks with intermediate resistance (IR) to ToBRFV virus

INTRODUCTION

In recent years, tomato rootstocks have become a very important technology for our tomato crops. The grafting technique began to be used at the end of the 1990s as a solution to soil disease problems. Over time its use has been increased, in response to other needs such as achieving increasingly longer cycles, increasing yield and fruit size, or coping with adverse conditions, including high or low temperatures, salinity, soil fatigue, etc.

At Syngenta, we have been working on genetic improvement of rootstocks for more than 25 years.

Throughout this time, we have developed a range of rootstocks with different characteristics.

We speak of our first generation of rootstocks like Arnold, Armstrong and Arazi as rootstocks with high versatility that provide an excellent balance between vegetative and generative growth to crops.

The latest releases, Kardia and Aorta, provide extra vigor to varieties to respond to more extreme growing conditions.

Currently, one of the major threats to tomato cultivation is the Tomato Brown Rugose Fruit Virus (ToBRFV). The expansion of this virus in the main production areas has been dramatic.

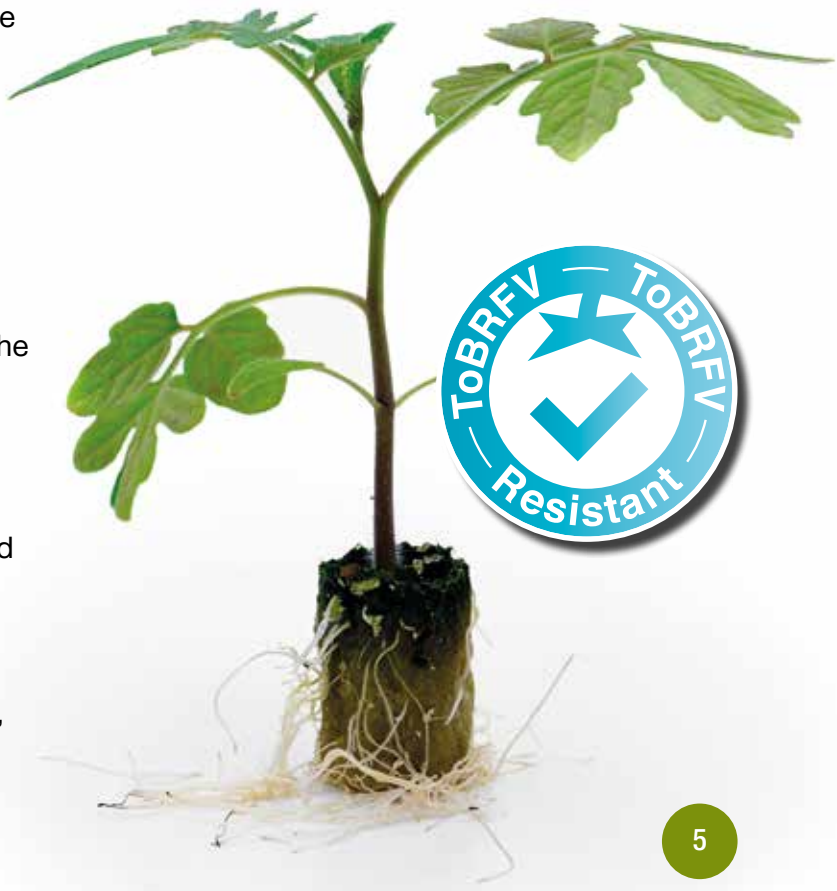
It has been verified that the root system can serve as a reservoir where the tomato brown rugose fruit virus multiplies. This viral multiplication can consume plant resources and may impact the variety's development, growth, yield and fruit quality.

Given the spread of the virus and the wide acceptance of grafting techniques in tomatoes, we have been working on a new generation of rootstocks over recent years.

Along with the development of new tomato varieties with intermediate resistance to tomato brown rugose fruit virus (ToBRFV), we have created a new range of rootstocks with intermediate resistance to rugose virus (ToBRFV) that responds to our producers' new needs.

Parallel to the search for rootstocks that increase production and fruit size while presenting resistance to the most common soil diseases, we continue to recommend winning combinations. Our strategy is based on the existence of optimal combinations between rootstocks and varieties.

Throughout this catalogue, you will find information about our new rootstocks range. You can consult with our commercial team more about our new rootstocks.



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Kronosor

CHARACTERISTICS

- ✔ KRONOSOR is a high-vigor interspecific root-stock with intermediate resistance to ToBRFV, increasing plant vigor and ensuring good growth continuity.
- ✔ KRONOSOR root system is very strong and tap-rooted with a high root renewal rate and a high capacity for water and nutrient absorption. It is performs well even in abiotic stress conditions such as salinity, soil compaction, and extreme temperatures, both high and low.
- ✔ It is armored with a strong resistance pack, in addition to ToBRFV intermediate resistance.
- ✔ Provides greater uniformity to fruit size and helps achieving high yield potential. Maintains ideal flowering and fruit set levels throughout the production cycle.
- ✔ Ideal for grafting varieties where we need to increase plant vigor and where we need continuity in flowering and vegetation.
- ✔ In general, it is recommended for long crops in soil or hydroponic crops.

RESISTANCES	
(HR):	Fol: 0-1 (US1-2) / For / Va, Vd / TMV: 0 / ToMV: 0-2
(IR):	Pl / Ma, Mi, Mj / ToBRFV

Strong plant vigor, with no discounts in yield and quality!

Fervour

CHARACTERISTICS

- ✔ FERVOUR is a high-vigor interspecific rootstock with intermediate resistance to ToBRFV and provides the necessary strength for our growing cycles, increasing plant vigor and ensuring good growth continuity.
- ✔ The root system is very strong and tap-rooted with a high root renewal rate, with high capacity for water and nutrient absorption. It is prepared for stress conditions such as salinity, soil compaction, and extreme temperatures, both high and low.
- ✔ Strong resistance pack in main diseases, in addition to resistance to ToBRFV and F3.
- ✔ Provides greater uniformity to fruit size and helps achieving high yield potential. Maintains ideal flowering and fruit set levels throughout the production cycle.
- ✔ All these characteristics result in grafted plants on FERVOUR being very healthy, with dark foliage.
- ✔ Ideal for grafting varieties where we need to increase plant vigor and where we need continuity in flowering and vegetation.
- ✔ In general, it is recommended for long crops in soil or hydroponic crops.

RESISTANCES	
(HR):	Fol: 0-2 (US1-3) / For / Va, Vd / TMV:0 / ToMV: 0-2
(IR):	Pl / Ma, Mi, Mj / ToBRFV

Vigorous plants, bigger fruit size and high resistance to F3!

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Armour

CHARACTERISTICS

- ✔ ARMOUR is an interspecific rootstock of medium-high vigor with intermediate resistance to ToBRFV. Ideal for grafting vigorous varieties or varieties in vegetative conditions (such as low salinity conditions) that need power and good level of resistance to soil diseases.
- ✔ Its root system is powerful with a high renewal rate, which provides the plant with appropriate vigor and balance to handle long cultivation cycles.
- ✔ Good performance in low temperatures due to its powerful root system.
- ✔ Maintains good balance between fruit setting and vegetation.
- ✔ Easy-to-manage rootstock due to its versatility and plasticity: it can be used for various growing conditions and different varieties.

RESISTANCES	
(HR):	Ff: A-E / Fol: 0-1 (US1-2) / For / Va, Vd / TMV:0 / ToMV: 0-2
(IR):	Pl / Ma, Mi, Mj, ToBRFV

Perfect balance between fruit setting and plant development!

Honor

CHARACTERISTICS

- ✔ HONOR is an interspecific rootstock of medium vigor with intermediate resistance to ToBRFV. It provides the crop with excellent generative behavior, promoting flowering, fruit set and fruit enlargement while moderating vegetation to maintain an ideal balance between vegetative and generative growth.
- ✔ Its taproot system is accompanied by a very dense root hair system, with high root renewal capacity.
- ✔ Ideal for grafting onto highly vegetative, high-vigor varieties, as it moderates their behavior. Also suitable for medium-vigor varieties, as it can increase their productive potential.
- ✔ Rootstock with easy cultural management, due to its versatility and plasticity. It can be used for various growing conditions and different varieties.

RESISTANCES	
(HR):	Ff: A-E / Fol: 0-1 (US1-2) / For / Va, Vd / TMV:0 / ToMV: 0-2
(IR):	PI / Ma, Mi, Mj, ToBRFV

Resilient plant, easy to manage!

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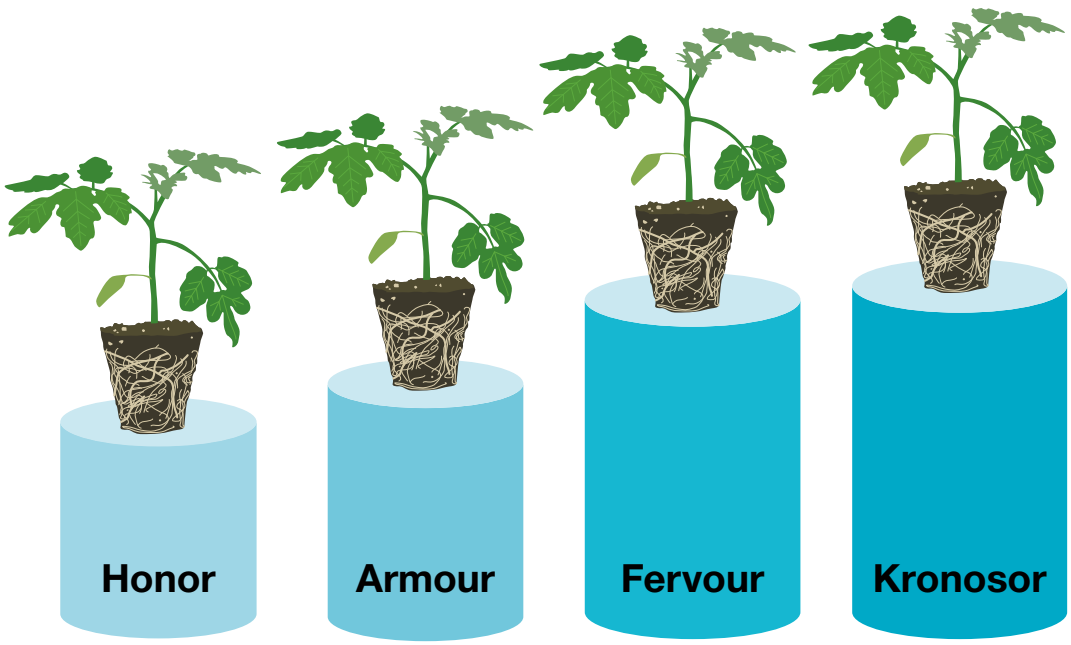
Vigor scale of New Rootstocks



Glossary

Intermediate Resistance (IR):

Varieties that limit the growth and development of the specific pest or disease, but may show more symptoms compared to highly resistant varieties. Varieties with intermediate resistance will still show fewer disease symptoms or damage than susceptible varieties, when grown under similar environmental conditions and/or pest or disease pressure.

Ma: *Meloidogyne arenaria*

Mi: *Meloidogyne incognita*

Mj: *Meloidogyne javanica nematodes*

Pl: *Pyrenochaeta lycopersici*

ToBRFV: Tomato Brown Rugose Fruit Virus

High Resistance (HR):

Varieties that limit the growth and development of the specific pest or disease under normal disease or pest pressure, when compared to susceptible varieties. However, these varieties may show some disease symptoms or damage under strong pest or disease pressure.

Ff: A-E *Fulvia fulva* group A - E

Fol: 0-1 (US1-2) *Fusarium oxysporum f. sp. lycopersici* race 1-2

Fol: 0-2 (US1-3) *Fusarium oxysporum f. sp. lycopersici* race 1, 2, 3

For: *Fusarium oxysporum f.sp. radicis-lycopersici*

TMV: 0 Tobacco Mosaic Virus race 0

ToMV: 0-2 Tomato Mosaic Virus strain 0 - 2

Va: *Verticillium albo-atrum*

Vd: *Verticillium dahliae*

Symbols

Vigor increase	Root system development increase
Yield increase	Flowering and fruit setting increase
Fruit size and uniformity increase	Vegetative balance
Flavor improvement	Fol: 0-2 (us1-3 *fusarium oxysporum* f. Sp. *Lycopersici* race 1, 2, 3.)
Tolerance to extreme temperatures	Tolerance to moderate temperatures
Salinity tolerance	

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