



Bionext

ROBUST POTATO VARIETIES

TOWARDS A RESILIENT
POTATO CHAIN WITH ROBUST
VARIETIES



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CONTENT

This brochure has been specifically developed for PotatoEurope 2025. The 18 varieties featured here can be admired in the VE-14 and V-FT-14 demonstration fields. You can also taste the varieties Peter Pan, Oscar and Alouette during the cooking workshop by TV chef Sharon de Miranda at the Horizon stand (E2-01).

Phytophthora infestans remains a major problem in potato cultivation. Following growing demand, particularly from organic growers, the development of robust varieties with improved Phytophthora resistance has been accelerated. In this brochure, we highlight the many developments and innovations that have been made over the past 10 years to tackle the Phytophthora problem. We also discuss the innovations that are currently being worked on and will be available in the near future.



WHAT ARE ROBUST VARIETIES?

By robust varieties, we mean potato varieties that perform consistently under organic growing conditions and are highly resistant to the potato disease Phytophthora. These are usually varieties with one or more resistance genes against Phytophthora. In addition, varieties with early tuber formation, even if they are less resistant, can still produce a good yield before a Phytophthora outbreak. All varieties in this brochure contain one or more resistance genes.

By 2025, approximately 90% of the varieties used in organic potato cultivation are robust. Thanks to the covenant "Accelerated transition to robust potatoes," which was launched in 2017, the organic potato chain was able to transition to these varieties. The covenant partners have agreed to give priority to robust varieties: in the production of seed potatoes, in cultivation, and in retail. The aim of the covenant is to gradually scale up to 100% robust organic potatoes of good quality by 2026. This applies to both cultivation and sales, including import and export.



THE TIMELINE

Dutch breeders have long sought to innovate potato varieties resistant to *Phytophthora infestans*, but real progress began after devastating late-blight outbreaks in 2016 took a heavy toll on organic production. In response, Bionext initiated the "Accelerated Transition to Robust Potato Varieties" covenant in 2017, involving 28 chain partners across breeding, farming, processing, and retail. As a result, 23 robust varieties were on the market by 2020, and by 2021, over 80% of organic potatoes grown in the Netherlands sourced from these varieties.

The covenant's extension in 2022 broadened its ambition to include industrial and export markets, aiming for 100% robustness by 2026.

Inspired by the Dutch initiative, this also led to the adoption of the covenant model in Belgium and France. Belgium implemented its first national covenant in 2018, active from 2019 to 2021, with cross-value-chain engagement to scale robust variety use in organic farming. In 2023, a joint Belgian–French covenant was signed at Potato Europe in Tournai, running through 2026.

2016

Phytophthora caused major damage to organic potato cultivation

2017

Bionext initiates covenant for 'accelerated transition to robust potato varieties'

2022

Covenant extended until 2026 – focus on industry and exports

2023

a joint Belgian–French covenant was signed at Potato Europe in Tournai

2023

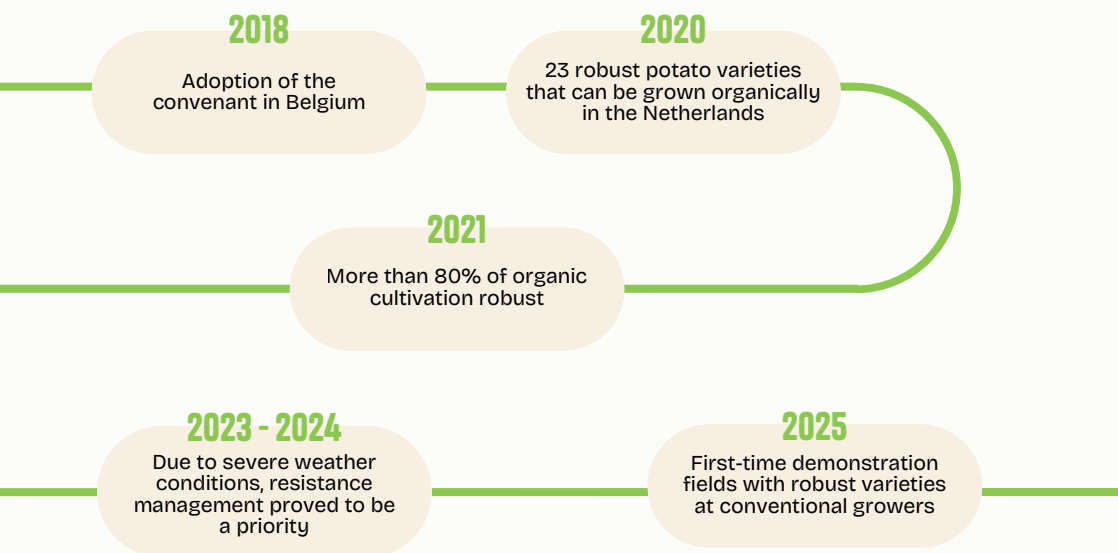
Establishment of Phytophthora Task Force with organic and conventional partners



This partnership marks the first full French involvement and now includes 35 robust varieties recognized by Belgian and French stakeholders. By early 2023, over 60% of organic potatoes sold in Belgian supermarkets were robust varieties. The covenant places emphasis not only on cultivation but also on distribution channels, processing for chips and fries, and cross-border export/import promotion.

The Netherlands faced high disease pressure and breakdown of single resistance genes in 2023-2024. In response, the Dutch organic and

conventional sectors joined under a Phytophthora Taskforce, led by BO Akkerbouw (The Dutch branch organisation for arable farming), launched in 2023. Monitoring systems went live and in 2025 the first conventional demonstration fields under the “On the way to PlanetProof” label were planted, affirming the collaboration between organic and conventional sectors towards a resilient potato cultivation with robust varieties.



CURRENT DEVELOPMENTS

PhytoAlert

In 2025, a web application was launched in which conventional and organic growers can anonymously report Phytophthora infections.

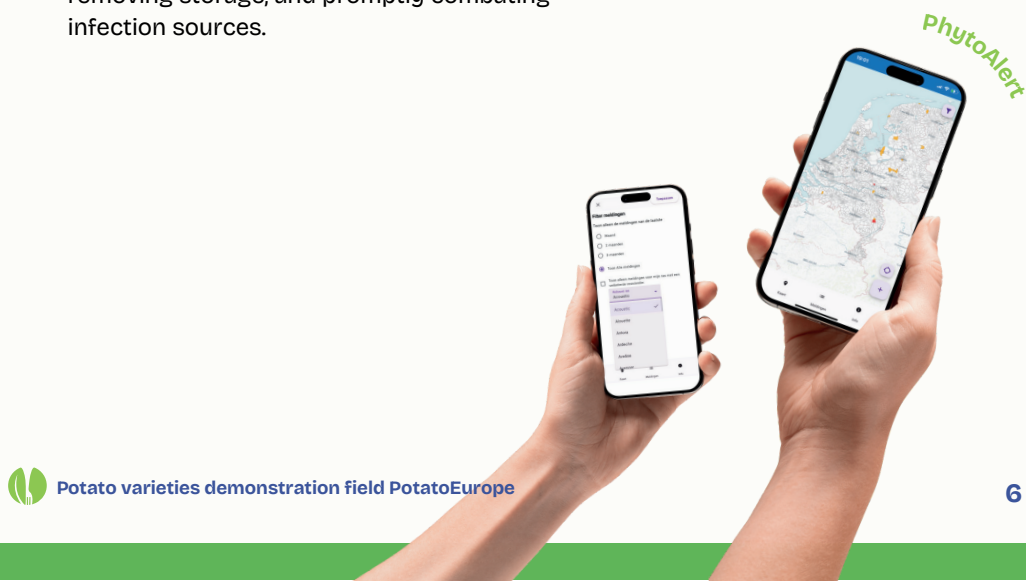
The application is synchronised with a schedule in which varieties with improved resistance are grouped according to their comparable response in the field to Phytophthora infections. Growers can filter for the robust varieties they grow themselves, so that only reports on varieties from the same resistance group are visible. In the coming years, PhytoAlert will be developed further based on the practical experiences of users.

A BioBOS

This is a decision support system specifically designed for field inspections by organic potato growers. The BioBOS system indicates the best days to inspect your field for possible Phytophthora infections or infestations. This increases the likelihood that growers will detect and address infection sites in a timely manner, before the Phytophthora infestation spreads throughout the entire crop and the surrounding area.

Self-enforcement groups

From 2026 onwards, pilots will be set up in the province of Flevoland with so-called self-enforcement groups. An organic and a conventional grower will jointly monitor potato cultivation among a group of fellow farmers and, where necessary, remind them to comply with the statutory cultivation regulations, such as covering waste piles, removing storage, and promptly combating infection sources.



Spore traps

As part of the research project 'Resistance management for controlling *Phytophthora infestans*', a spore trap is being tested that can detect *Phytophthora* spores in the air. A network of such spore traps could make an important contribution in the future to the effective monitoring of the presence and composition of *Phytophthora* in the Netherlands.

Making conventional potato cultivation more sustainable

Potato growers who meet the extra-legal requirements of the On the way to PlanetProof quality mark work from an integrated approach to make conventional potato cultivation more sustainable. The cultivation of robust varieties with improved resistance to *Phytophthora* can make an important contribution to this. The aim is to use robust varieties to increase the resilience of potato cultivation as a whole, while at the same time reducing the use of chemical crop protection products.

At the request of SMK (Stichting Milieukeur), the independent scheme manager of the label, demonstration fields with robust varieties were therefore established in 2025 at On the way to PlanetProof farms. In addition to promoting robust varieties, the demonstration fields are intended to investigate the added value of different varieties and test different strategies for Integrated Crop Management (ICM) for improved resistance management.

All parties in the chain (from breeder to grower, from packer to retailer) must work together to build a resilient and more sustainable potato chain. This starts with conscious choices for varieties with strong resistance. SMK therefore actively involves chain parties in raising awareness and jointly formulating objectives for the purchase of varieties with improved resistance.

THE ROBUST VARIETIES

The following pages describe the 18 robust varieties in the VE-14 and V-FT-14 demonstration fields. Technical terms are used, so below is a brief legend to explain some of these terms.

LEGEND

COOKING TYPE

A = firm-cooking
B = fairly firm-cooking
C = floury
D = very floury

TUBER SHAPE

R = round
O = oval
L = long

RIPENING AND PLANTING TIME

V = early
M = middle
L = late
(..) = maturation period
in months

UNDERWATER WEIGHT AND DRY MATTER

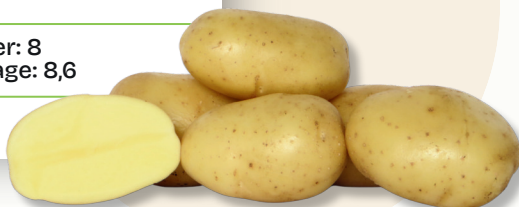
These are important indicators for the processing industry to determine whether these potatoes are suitable for processing into fries or crisps. They are closely related and indicate roughly the same thing.



ALANIS

Trading house	Interseed Holland B.V.
Application	French Fries
Colour (skin)	Light yellow
Colour (flesh)	Light yellow
Cooking type	B
Ripening time	M(6)
Tuber shape	OLO
Underwater weight	405 grams
Dry matter %	21,5
Phytophthora resistance index	Tuber: 8 Foliage: 8,6

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ALOUETTE

Trading house	Agrico
Application	Traditional
Colour (skin)	Red
Colour (flesh)	Dark yellow
Cooking type	AB
Ripening time	M(7)
Tuber shape	LO
Underwater weight	389 grams
Dry matter %	21,1
Phytophthora resistance index	Tuber: 9 Foliage: 8,2

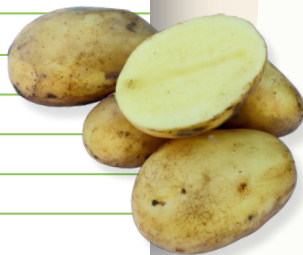
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CAMILLO

Trading house	Geersing Potato Specialist
Application	Traditional
Colour (skin)	Light yellow
Colour (flesh)	Light yellow
Cooking type	A
Ripening time	MV(7,5)
Tuber shape	LO
Underwater weight	335 grams
Dry matter %	18,5
Phytophthora resistance index	Tuber: 9 Foliage: 8,8

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CAMMEO

Trading house	Geersing Potato Specialist
Application	Traditional / French Fries
Colour (skin)	Light yellow
Colour (flesh)	Light yellow
Cooking type	AB
Ripening time	M(6)
Tuber shape	O
Underwater weight	370 grams
Dry matter %	20,2
Phytophthora resistance index	Tuber: 8,5 Foliage: 8,7

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CAROLUS

Trading house	Agrico
Application	Traditional / French Fries
Colour (skin)	Yellow (red eyes)
Colour (flesh)	Yellow
Cooking type	B
Ripening time	M(6,1)
Tuber shape	ROO
Underwater weight	398 grams
Dry matter %	21,6
Phytophthora resistance index	Tuber: 9 Foliage: 8,6

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CONNECT

Trading house	Solana Holland
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	BC
Ripening time	ML(5,5)
Tuber shape	RO
Underwater weight	389 grams
Dry matter %	21,1
Phytophthora resistance index	Tuber: 9,1 Foliage: 8,6

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ESPERANTO

Trading house	Geersing Potato Specialist
Application	Crisps
Colour (skin)	Light yellow
Colour (flesh)	Yellow
Cooking type	BC
Ripening time	M(5,5)
Tuber shape	RRO
Underwater weight	468 grams
Dry matter %	25
Phytophthora resistance index	Tuber: 9 Foliage: 8,4

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JACKY

Trading house	Agrico
Application	Traditional (baby potato)
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	M(6,5)
Tuber shape	RRO
Underwater weight	368 grams
Dry matter %	20,1
Phytophthora resistance index	Tuber: 9 Foliage: 9

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KHLOE

Trading house	Geersing Potato Specialist
Application	Traditional / French Fries
Colour (skin)	Red
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	V(7,5)
Tuber shape	LO
Underwater weight	380 grams
Dry matter %	20,7
Phytophthora resistance index	Tuber: 9 Foliage: 9,9

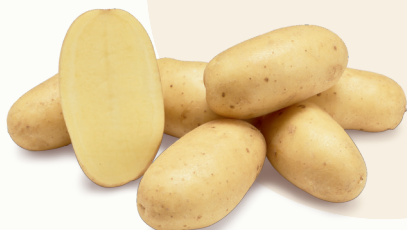
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LEVANTE

Trading house	Agrico
Application	Traditional
Colour (skin)	Light yellow
Colour (flesh)	Yellow
Cooking type	B
Ripening time	ML(5,5)
Tuber shape	LO
Underwater weight	365 grams
Dry matter %	19,9
Phytophthora resistance index	Tuber: 7,5 Foliage: 8,5

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NOLA

Trading house	Solana Holland
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Dark yellow
Cooking type	A
Ripening time	M(6)
Tuber shape	OLO
Underwater weight	355 grams
Dry matter %	19,5
Phytophthora resistance index	Tuber: 9,5 Foliage: 9,5

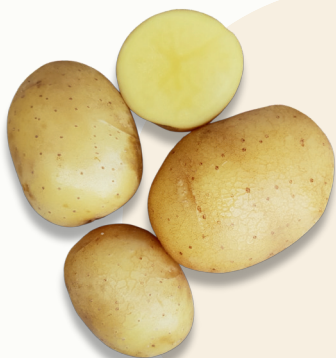
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OSCAR

Trading house	Plantera BV
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	M(7)
Tuber shape	RO
Underwater weight	370 grams
Dry matter %	20,2
Phytophthora resistance index	Tuber: 8 Foliage: 8,6

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PETER PAN

Trading house	Geersing Potato Specialist
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	ML(5)
Tuber shape	RO
Underwater weight	420 grams
Dry matter %	22,5
Phytophthora resistance index	Tuber: 9 Foliage: 9,6

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REZA

Trading house	Solana Holland
Application	Traditional / French Fries
Colour (skin)	Dark red
Colour (flesh)	Dark yellow
Cooking type	AB
Ripening time	MV(6,9)
Tuber shape	O
Underwater weight	366 grams
Dry matter %	20
Phytophthora resistance index	Tuber: 9 Foliage: 9,9

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TWINNER

Trading house	Agrico
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	V(8)
Tuber shape	O
Underwater weight	360 grams
Dry matter %	19,7
Phytophthora resistance index	Tuber: 9 Foliage: 8,7

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TWISTER

Trading house	Agrico
Application	Traditional
Colour (skin)	Yellow
Colour (flesh)	Yellow
Cooking type	AB
Ripening time	MV(7,5)
Tuber shape	RO
Underwater weight	345 grams
Dry matter %	19
Phytophthora resistance index	Tuber: 9 Foliage: 8,5

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VITABELLA

Trading house	Plantera BV
Application	Traditional / French Fries
Colour (skin)	Light yellow
Colour (flesh)	Yellow
Cooking type	A
Ripening time	V(7,5)
Tuber shape	LO
Underwater weight	387 grams
Dry matter %	20,4
Phytophthora resistance index	Tuber: 9,3 Foliage: 8,7

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VITANOIRE

Trading house	Plantera BV
Application	Traditional / French Fries
Colour (skin)	Purple
Colour (flesh)	Purple
Cooking type	A
Ripening time	V(8)
Tuber shape	O
Underwater weight	360 grams
Dry matter %	19,7
Phytophthora resistance index	Tuber: 9 Foliage: 8,4

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THANKS TO

SMK

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Medegefinancierd door
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READ MORE ABOUT THE PROJECT

'towards a resilient
potato chain with
robust varieties'



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