Bundesverband Naturkost Naturwaren

German market requirements for vegetables varieties free from cell-fusion breeding technology

Holger Scharpenberg

Bundesverband Naturkost Naturwaren (BNN) e.V.

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What is the BNN and what does BNN want to achieve?

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- is the Association of Organic Processors, Wholesalers and Retailers which represents the interests of the organic food and natural goods sector on a political and economical level
- BNN Monitoring for Fruit and Vegetables in the whole food trade adds to the established process controls in the ecological food industry
- One of BNN's long-term goals is to expand organic plant breeding up to a supply of varieties for all cultures and climatic conditions

What is Cell-fusion and the Cell-fusion breeding technology??

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- in general: The fusion of the plasma membranes of two cells
- Cell fusions are used as a method to transfer the so-called ›cytoplasmic male sterility‹ (CMS) in cabbage species and chicory
  - Mother plant is made male sterile in a biotechnological process
  - this means that self-fertilization is not possible
- CMS occurs naturally in many plants but is now **almost exclusively** introduced into the breeding lines in the laboratory using methods similar to genetic engineering
  - it makes hybrid breeding much faster and easier.

What is the problem?

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- According to the EU organic regulation, varieties produced with the help of cell fusions <u>are allowed</u> and there is <u>no labeling requirement</u>
- the market for Brassicas and chicory is dominated by cell-fusion derived CMS-hybrids.
- A narrow bottle neck has been created for these varieties, since most organic labels do not permit their cultivation
- it is now completely confusing which seeds were produced with CMS technology.
  - For this reason farmer stop to cultivate these crops

What is the BNN campaigning for?

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- The BNN demand for a statutory labeling of the methods used in plant breeding and the associated freedom of choice for growers, retailers and consumers has unfortunately not yet been implemented by politicians

- Today‘s focus:
  1. Positive list for cell fusion free varieties
  2. Breeding cooperation “fruit and vegetable monitoring”

- it's not just about increasing yield and uniformity:
  - Breeding goals such as taste, resistance or food quality must be better communicated to consumers.

1: Positive List - Cell fusion free varieties in vegetable production

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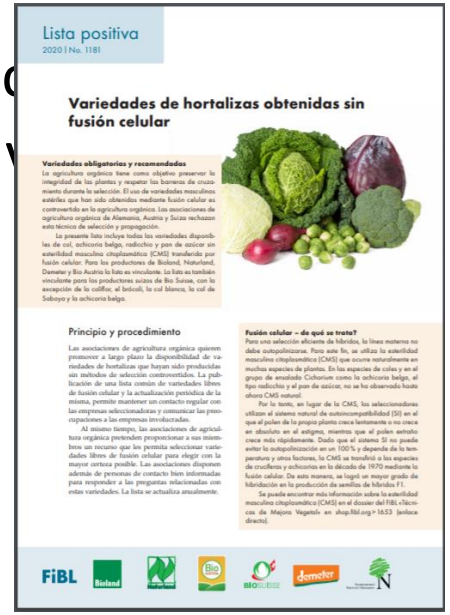
- The proportion of hybrids in certified organic agric
  between 65 and 100%, depending on the type of v
  - organic breeding often reaches a dead end
- The organic farming associations Bioland, Naturland, Bio Austria and Demeter prescribe the use of cell fusion-free varieties.
  - A positive list of cell fusion-free varieties was published in collaboration with Bioland, Demeter, Naturland, Bio Austria, Bio Suisse, BNN and FIBL


Lista positiva
2020 | No. 1181

Variedades de hortalizas obtenidas sin fusión celular

Variedades obligatorias y recomendadas

Principio y procedimiento

Fusión celular – de qué se trata?

FiBL Bioland Naturland Bio Austria BIOSUISSE demeter

FiBL Bioland Naturland BIO AUSTRIA BIOSUISSE demeter

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1: Positive List - Cell fusion free varieties in vegetable production

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- contains all available varieties of sugar loaf, chicory, cabbage and radicchio types that are not based on CMS transferred by cell fusion

- in this way, varieties that have emerged without critical breeding processes are promoted in the long term

- Download e.g.: https://www.liveseed.eu/wp-content/uploads/2020/09/1181-variedades-hortalizas-sin-fc.pdf

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- The **positive list** was created with the **support of the Liveseed project** within the framework of the EU's Horizon 2020 program created.

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2: Breeding cooperation “fruit and vegetable monitoring” of the BNN

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- **Goal:** to increase the range of marketable, organically bred and officially approved varieties in a timely manner
- **Focus:** Development of cell fusion-free varieties as an alternative to CMS hybrids.
- **Funding Period:** 2015 -2022
- **Initiated by:** Kultursaat e.V., saat:gut e.V., Software-AG-Stiftung and BNN e.V.

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SOFTWARE AG-Stiftung

KULTURSAAT e.V.

saat:gut e.V. ÖKOLOGISCHE PFLANZENZÜCHTUNG

2: Breeding cooperation “fruit and vegetable monitoring” of the BNN

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Supporter:

2: Breeding cooperation “fruit and vegetable monitoring” of the BNN

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- 19 participants in the BNN's fruit and vegetable monitoring program
  - Donation of 0.015% of the annual turnover of the previous year with organic fruits and vegetables

- By the end of 2022, over 510,000€ will be made available directly for ecological breeding projects

2: Breeding cooperation “fruit and vegetable monitoring” of the BNN

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What happened until now?

- **Until 2019:** three breeding projects were successfully completed
  - Broccoli „Rasmus“, Chicore „Etardo“ and Cucumber „Cleopha“
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- **By 2022:** a further r
  - E.g. yellow-frui

Thanks for your attention!