

**UPOV Seminar October 30<sup>th</sup>, 2019**  
**‘Impact of EDV Concept on Plant Breeding: Outlook for vegetables’**

Laurens Kroon, Bejo, Head of Research

## INTRODUCTION

**Bejo, breeder of vegetable seeds for the professional grower**

**Together for the long term**

**Raising the bar with innovations**

**Harvesting now and fifty years from now**

**Quality: the best seeds and the best varieties**

## EXPLORING SINCE

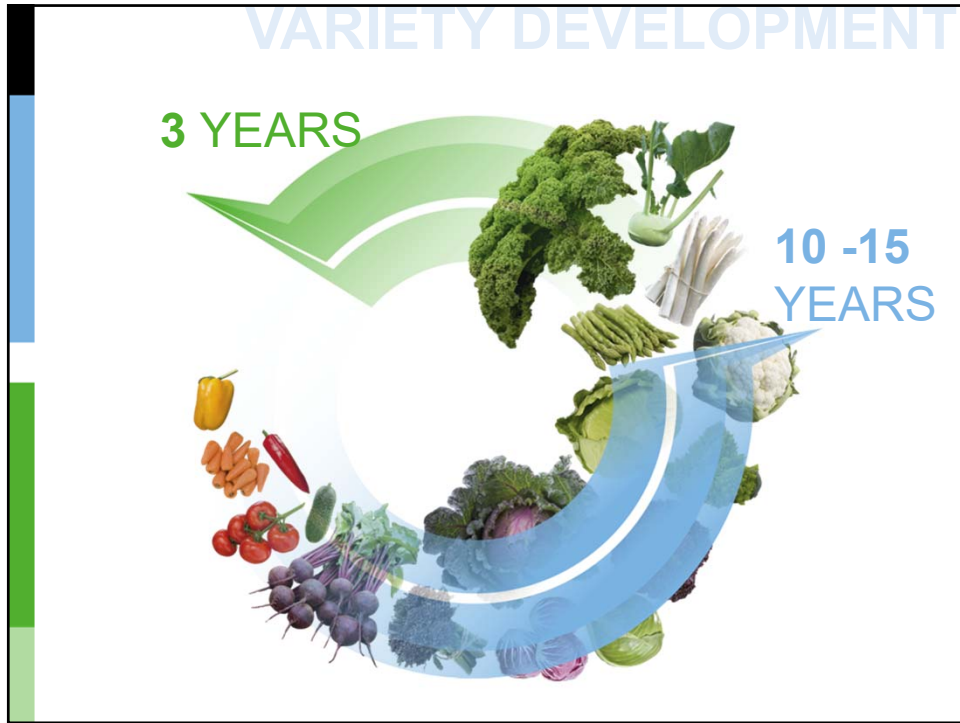
The timeline is a vertical line with circular images and text boxes connected to specific years. The years are: 1899, 1912, 1960s, 1978, 1980s, 1990s, 2002, 2004, 2009, and 2015. The images include historical buildings, a laboratory, a globe, and people in a field.

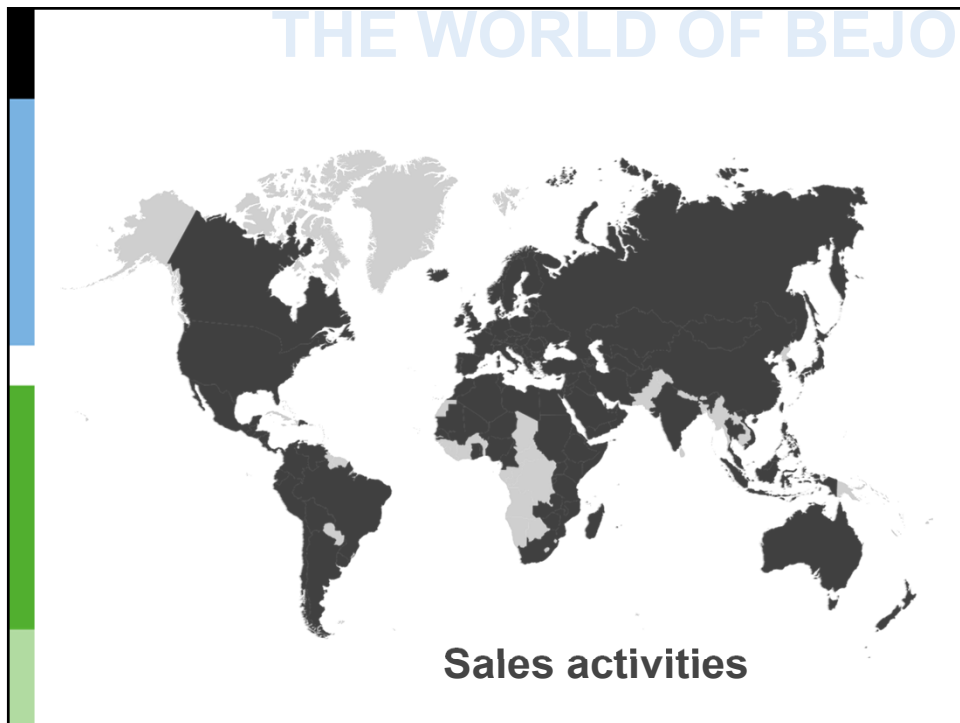
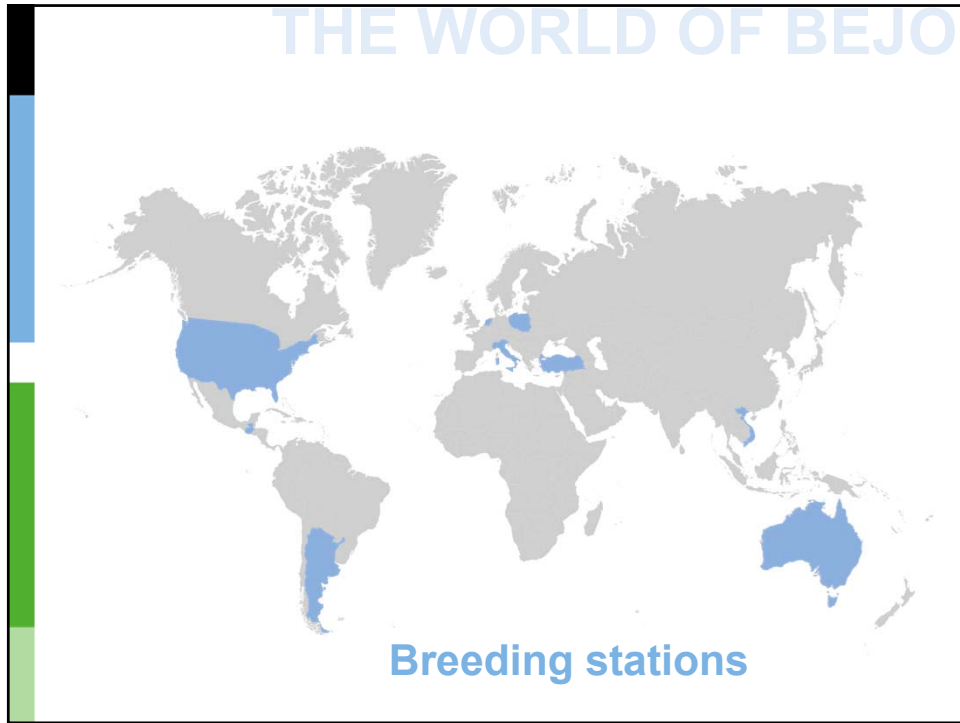
- 1899**: Grocer **Jacob Jong** starts in seed trade
- 1912**: Baker's son **Cor Beemsterboer** starts in seed trade
- 1960s**: Collaboration in new breeding techniques starts (**Hybridisation**)
- 1978**: Merger Cor Beemsterboer & Jacob Jong become **Bejo Zaden**
- 1980s**: Expansion and establishment of Bejo in Europe
- 1990s**: Advances in research marker technology
- 2002**: Quality Standard logo
- 2004**: Quality Standard logo
- 2009**: Quality Standard logo
- 2015**: Acquisition of Agrisemen a lettuce breeding company

## TODAY

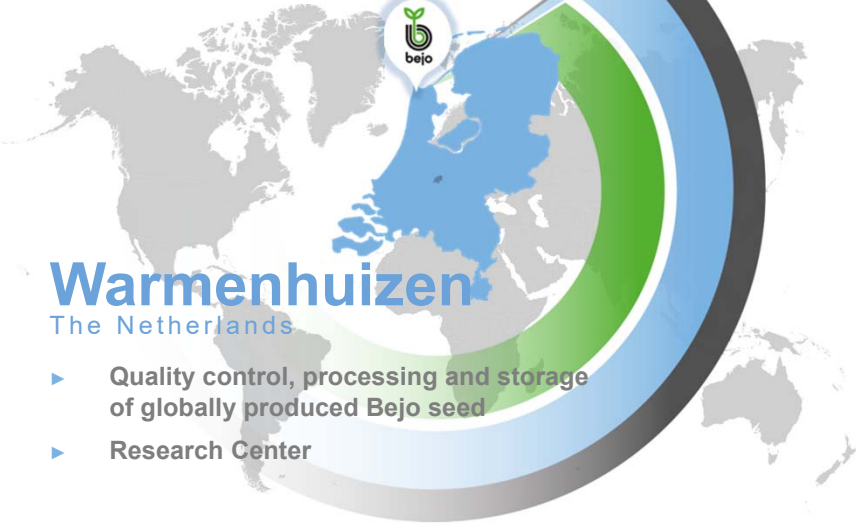
- ▶ **1800 employees** worldwide
- ▶ **Broad assortment** 50 crops, 1200 varieties
- ▶ **Organic program** 50 crops, 190 varieties
- ▶ **Breeding, production & sales** around the world







# THE WORLD OF BEJO



**Warmenhuisen**  
The Netherlands

- ▶ Quality control, processing and storage of globally produced Bejo seed
- ▶ Research Center

The slide features a world map with the Netherlands highlighted in blue. A callout bubble containing the Bejo logo (a stylized 'b' with a green plant) points to the Netherlands. To the right of the map is a large, stylized circular graphic composed of concentric arcs in blue, green, and grey. On the left side of the slide, there is a vertical bar with segments in blue, green, and grey.

# VARIETY PROTECTION

- ▶ Value of Breeders Exemption in Breeding
- ▶ Variety protection in hybrid vegetable crops
- ▶ Variety protection in OP varieties
- ▶ New Breeding Techniques and EDV

The slide contains a list of four bullet points in blue text. On the left side, there is a vertical bar with segments in blue, green, and grey, matching the design of the slide above.

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- The breeders exemption provides plant breeders the opportunity to work with the top genetics available in the market, and improve their own varieties with it
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- The genetic background of a hybrid variety is protected as such, so Breeding companies receive fair revenue for their breeding effort



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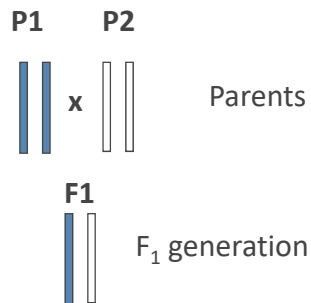
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- International Licensing Platform provides for fair access to patented traits

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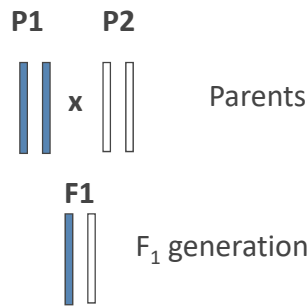
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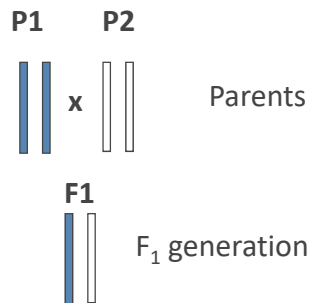
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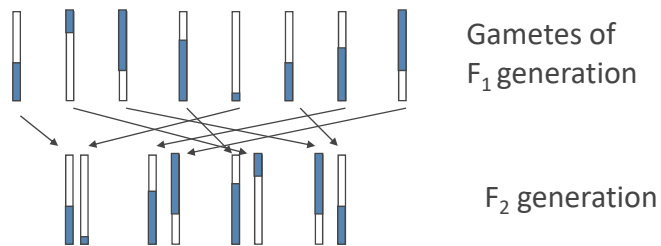
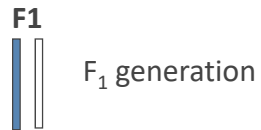
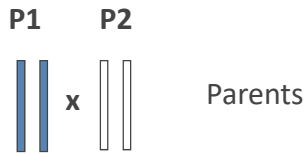
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  - Hybrid varieties are formed by crossing a female and a male inbred line
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  - A hybrid variety can only be (re)produced when you have access to the parental lines



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  - In normal breeding practice, the chances that use of a protected variety in a competitor's breeding process leads to an EDV are slim (except for deliberate copycat breeding)

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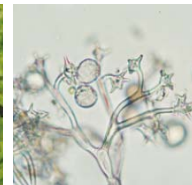
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  - **Lettuce is one of the few crops in Bejo that is OP**
  - **Agreement on use of material in lettuce breeding programs (Use of competitor variety in a backcross program more than once may lead to an EDV)**

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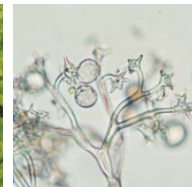
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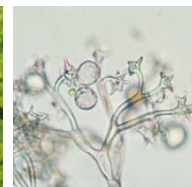
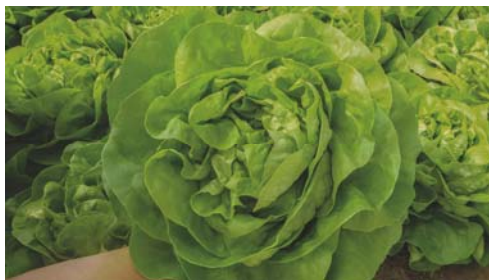
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  - Bremia resistance is an important trait in variety development (make or break trait in the market)
  - Resistance is often broken within two to five years, rat race between Breeder and pathogen



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  - What if a third party with access to Gene Editing Technology comes up with a way to modify a gene involved in Bremia susceptibility to ensure durable resistance?
  - And they decide to edit this trait in the leading varieties in the market?
  - According to the some interpretations of the EDV concept, this trait is sufficiently innovative to claim the developed varieties do not qualify as EDVs

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  - Because of the non-EDV principle, the developers of the initial variety will receive no remuneration for their breeding effort
  - The OP nature of this crop means that propagation and seed production of the improved varieties is easily achieved
  - The third party can benefit from years of market development, breeding effort and contributions to research projects in the public domain by the lettuce breeding companies at limited costs

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- ▶ **Proper protection of the efforts and investments made by the Breeding companies leads to continued improvement of varieties, which is translated into farmers benefits**

