Syngenta sites in Germany
Product portfolio of Syngenta

Crop Protection
- Selective herbicides
- Non-selective herbicides
- Fungicides
- Insecticides
- Seed care

Seeds
- Corn & Soybean
- Diverse Field Crops
- Vegetables
- Cereals

Lawn & Garden
- Flowers
- Growing Media
- Chemical Controls
- Turf & Ornamental
Syngenta Sites in Germany

Syngenta:
Major Sites: Maintal, Bad Salzuflen, Kleve
Breeding Stations: Bad Salzuflen, Regensburg, Liesborn, Motterwitz

Seeds activities in DE

<table>
<thead>
<tr>
<th>Crop</th>
<th>Breeding</th>
<th>Production</th>
<th>Sales</th>
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<td>Sugarbeet</td>
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Rapeseed yield and transfer to farm by variety breeding

Stephan Pleines
Bad Salzuflen
28.06.2013
Rapeseed yield architecture

Solutions by breeding?

Transfer to farm yields
Theoretical yield potential of rapeseed

- Plants/m² (40)
- Pods/plant (200)
- Seed/pod (20)
- TKW (5 g)
- pods/m² (8,000)
- seeds/m² (160,000)
- yield/area (8 t/ha = 800 g/m²)
Rapeseed yield architecture

Solutions by breeding?

Transfer to farm yields
Transition from Line to Hybrid breeding

Line breeding: recombination of best market adapted line varieties

Hybrid breeding: development of heterotic genepools and recurrent selection
Main breeding goals

● **Yield Increase:**
  - Seed yield
  - Higher oil content

● **Yield Stability:**
  - Standing power
  - Disease resistance
  - Cold tolerance

● **Quality Improvement:**
  - Lower GSL content
  - Modified fatty acid pattern
Marker assisted recurrent selection

Genetic map with markers

Yield trials

Correlation of marker data and yield

Design of ideal genotype

Recurrent crossing plan with best parental lines
Microspore method – work flow

1. Sowing of donor plant
   - Week 0

2. Microspore isolation
   - 19 weeks

3. Embryo growing (liquid medium)
   - 21 weeks

4. Embryo growing (solid medium)
   - 24 weeks

5. Sprout growing (solid medium)
   - 32 weeks

6. Sprout growing (soil – greenhouse)
   - 37 weeks

7. Flowering DH plant (greenhouse)
   - 54 weeks

8. Harvest of DH plant
   - 63 weeks
WOSR: Genetic potential and trend of performance through heterosis in hybrids

Today

2020

8-12%

25-35%

female

F1

male
Rapeseed yield architecture

Solutions by breeding?

Transfer to farm yields
Drivers for seed yield in rapeseed and solutions

- Climate
- Location
- Rotation
- Soil tillage
- Sowing
- Diseases
- Insects
- Seed dressing

CP
Thank you for your attention