

Development of F1-hybrid varieties in winter oilseed rape in Europe



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Wir lassen Qualität wachsen

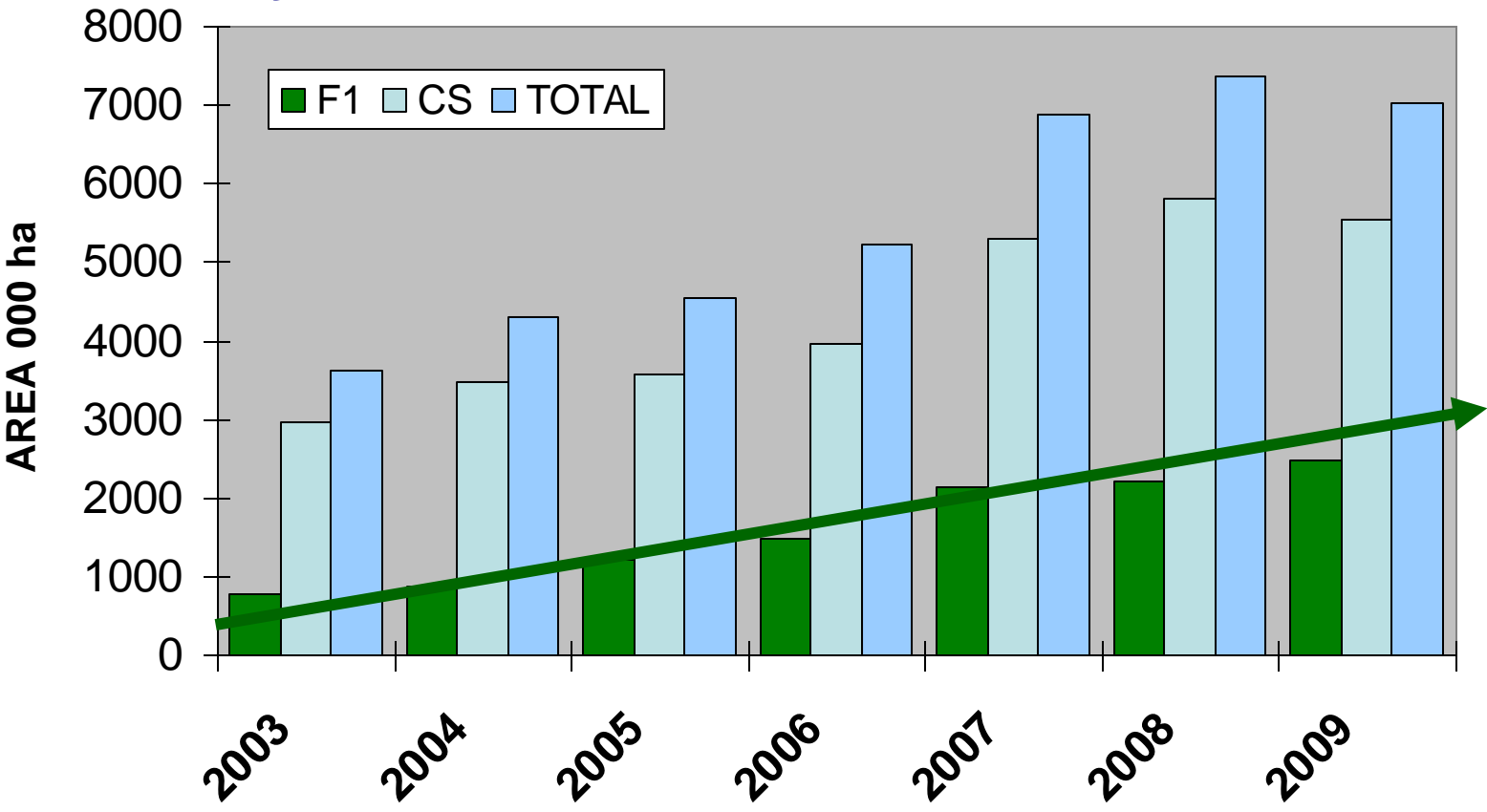


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WOSR F1-hybrid market development in Europe EU27+ UA

Hybrid MS at harvest 2009 CS 45% / TOTAL 35%



SOURCE: NPZ / EUROSTAT



WOSR AREAS EUROPE 2008/09

Plantings 000 ha

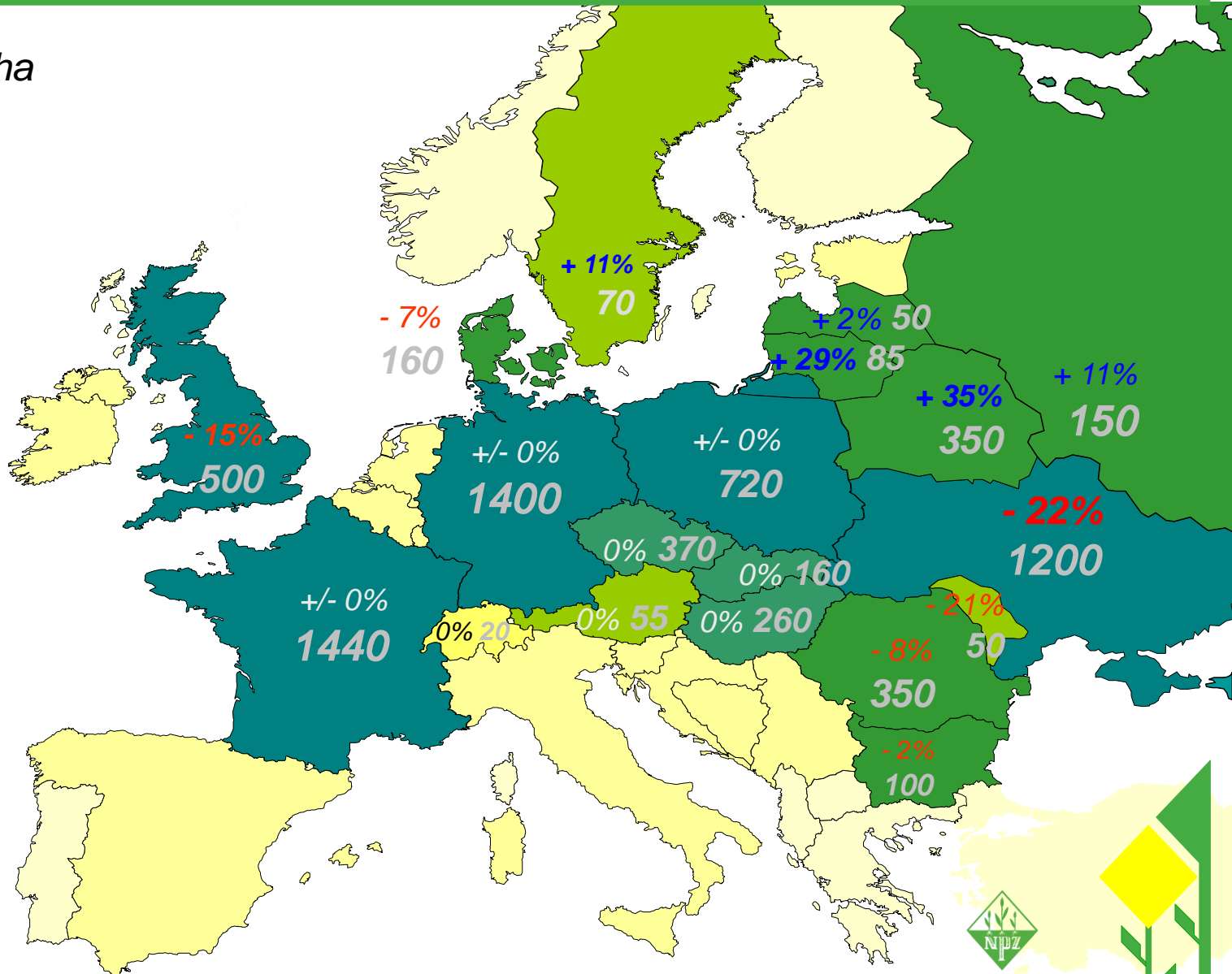
Δ 07/08
2008/09

EU15 - 2%
3.66 Mn ha

NMS + 3%
2.15 Mn ha

EU27 +/- 0%
5.8 Mn ha

CIS - 12%
1.75 Mn ha



SOURCE: NPZ FORECAST

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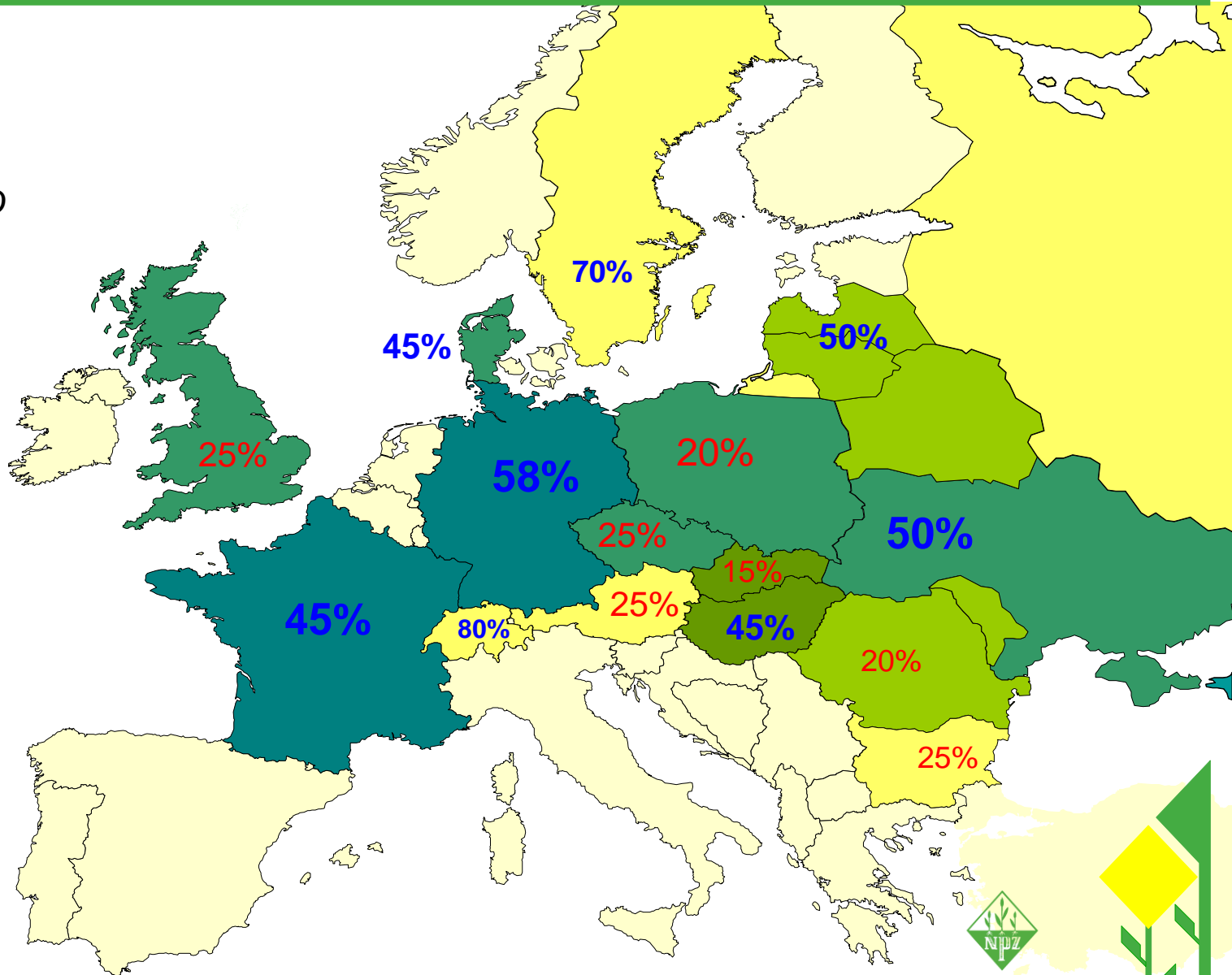


WOSR AREAS F1 SHARES EUROPE 2007/08

Plantings %

F1 SHARES

CERTIFIED SEED



SOURCE: NPZ / RAPOOL

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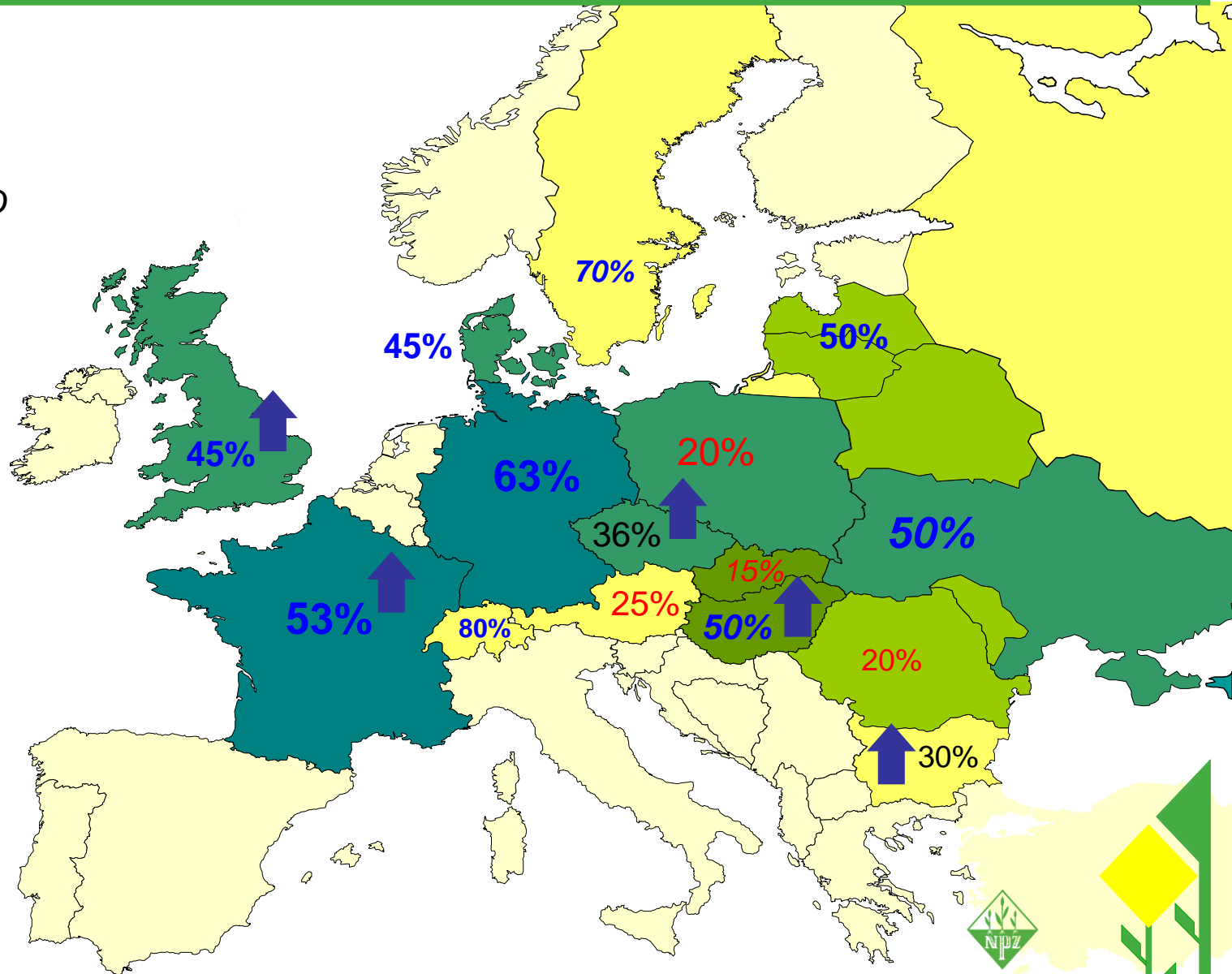


WOSR AREAS F1 SHARES EUROPE 2008/09

Plantings %

F1 SHARES

CERTIFIED SEED



SOURCE: NPZ FORECAST

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WOSR F1-hybrid market development in Europe

- **Market introduction in the mid nineties**
- **Since then grown on 12.9 Mn ha cumulatively**
- **2 hybrid systems available in the market**
- **200 WOSR hybrids released up to now**

- **Significant improvement in seed yield, oil content, winter hardiness, plant length, straw stiffness**
- **Improved disease resistances against blackleg, light leaf spot and clubroot**

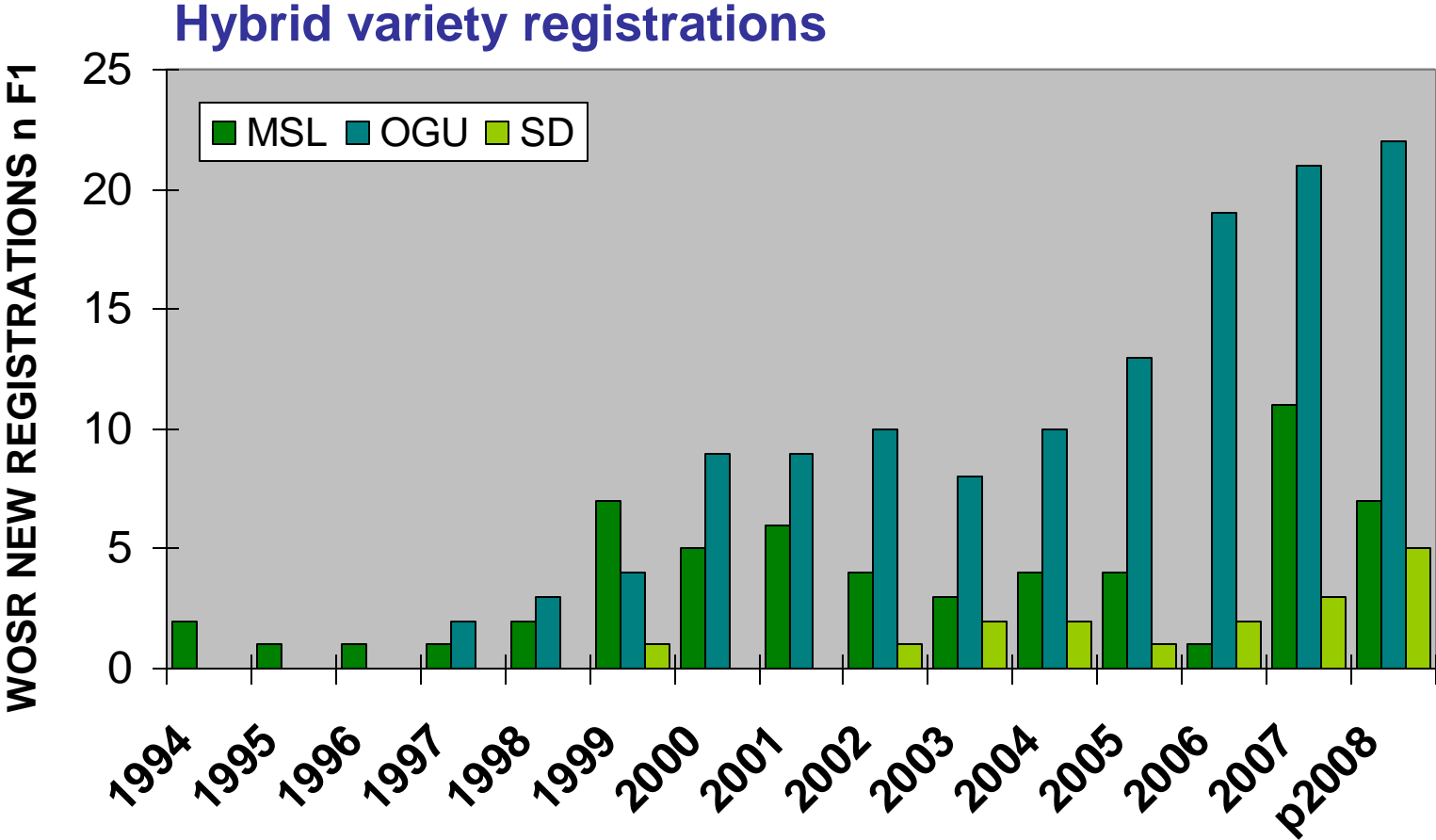


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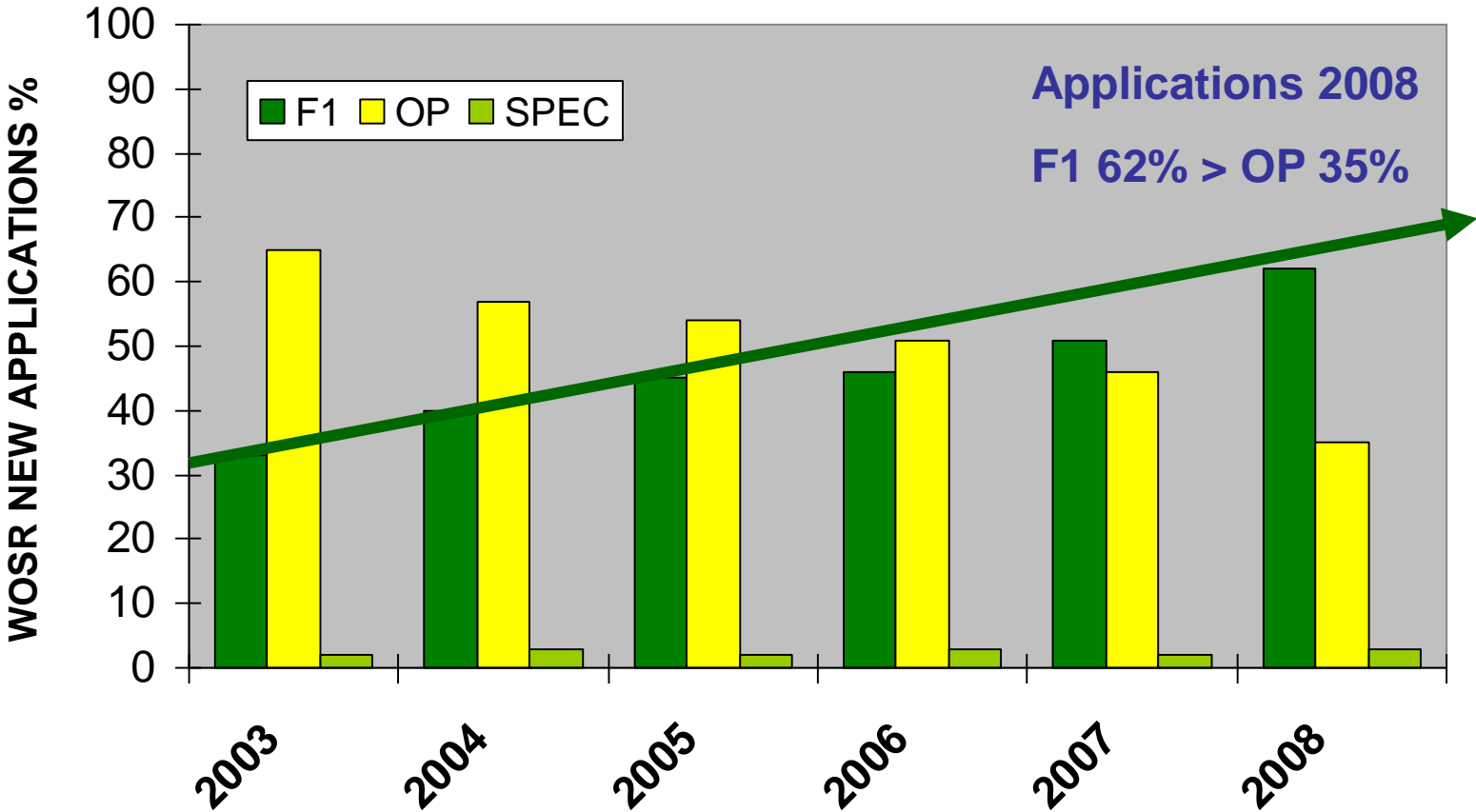
WOSR F1-hybrid variety registrations in Europe



SOURCE: VARIETY REGISTRATION



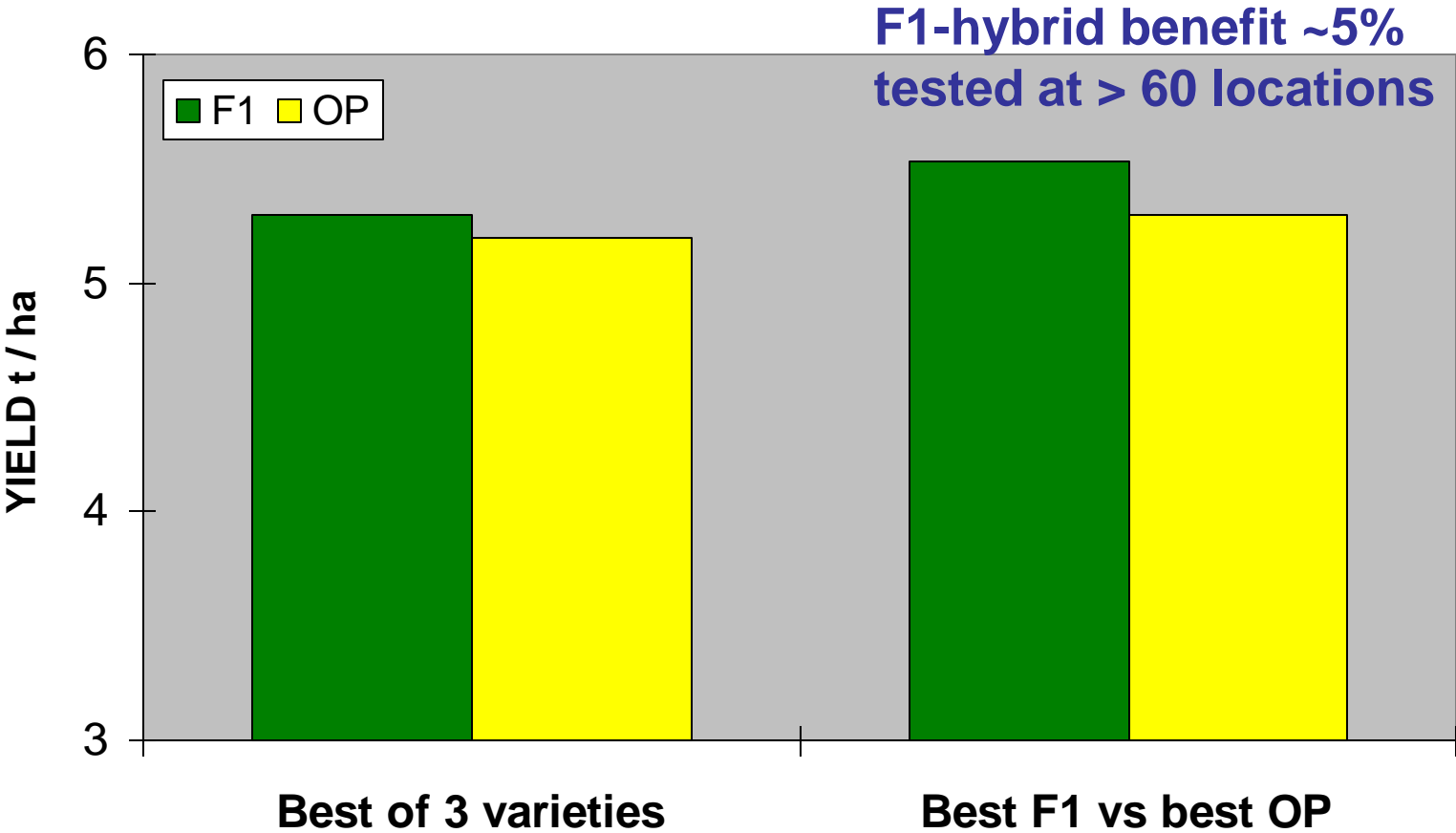
Variety applications change towards F1 > OP in EU27 *



* DE / FR / UK / DK / PL / CZ / SK / HU

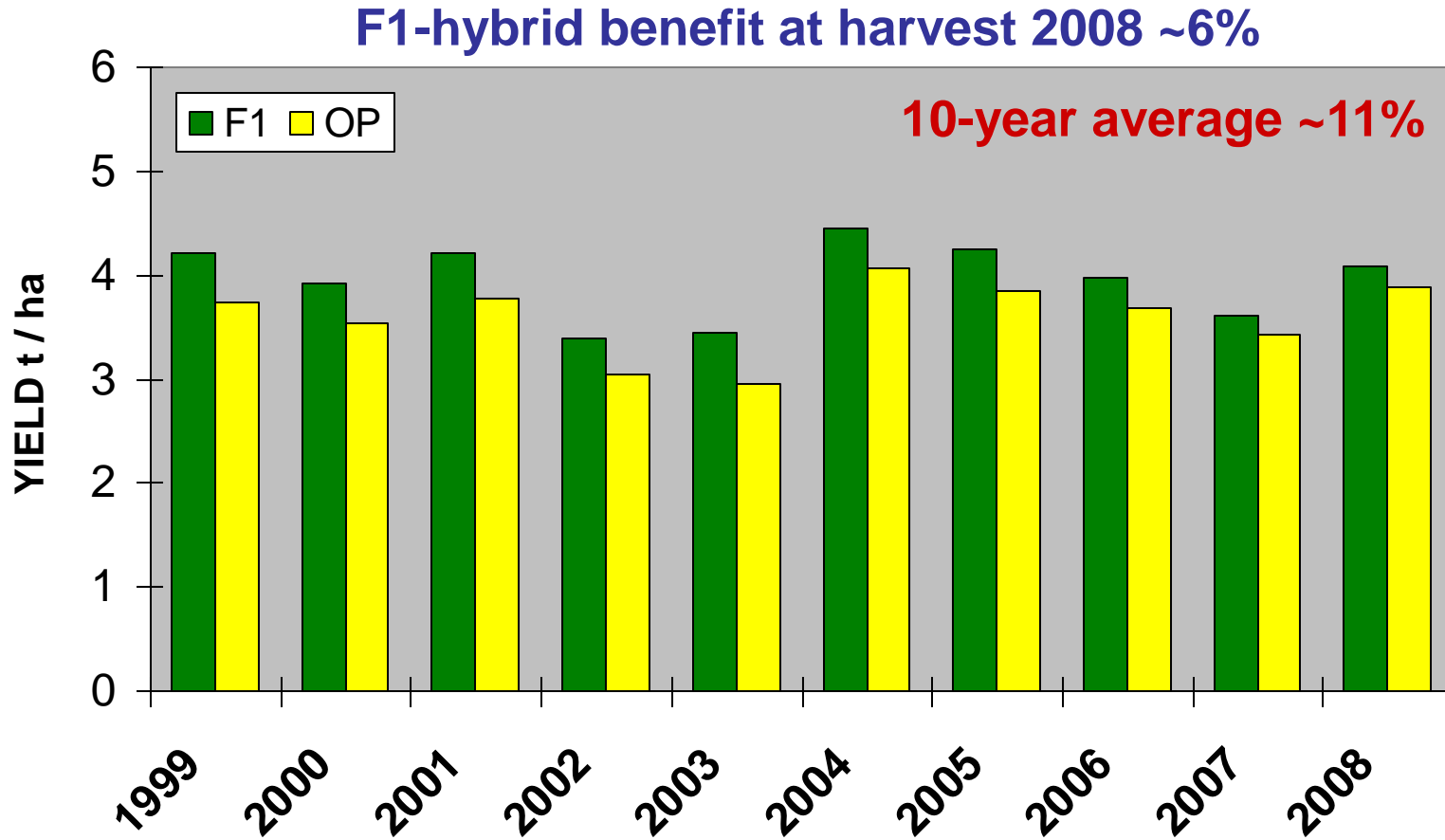


WOSR F1-hybrid benefit in LSV trials, Germany 2008



SOURCE: LSV 2007/08

Ten years WOSR F1-hybrid benefit in Germany on farm level



SOURCE: KLEFFMANN 1999-2008 based on 20,423 farmer interviews

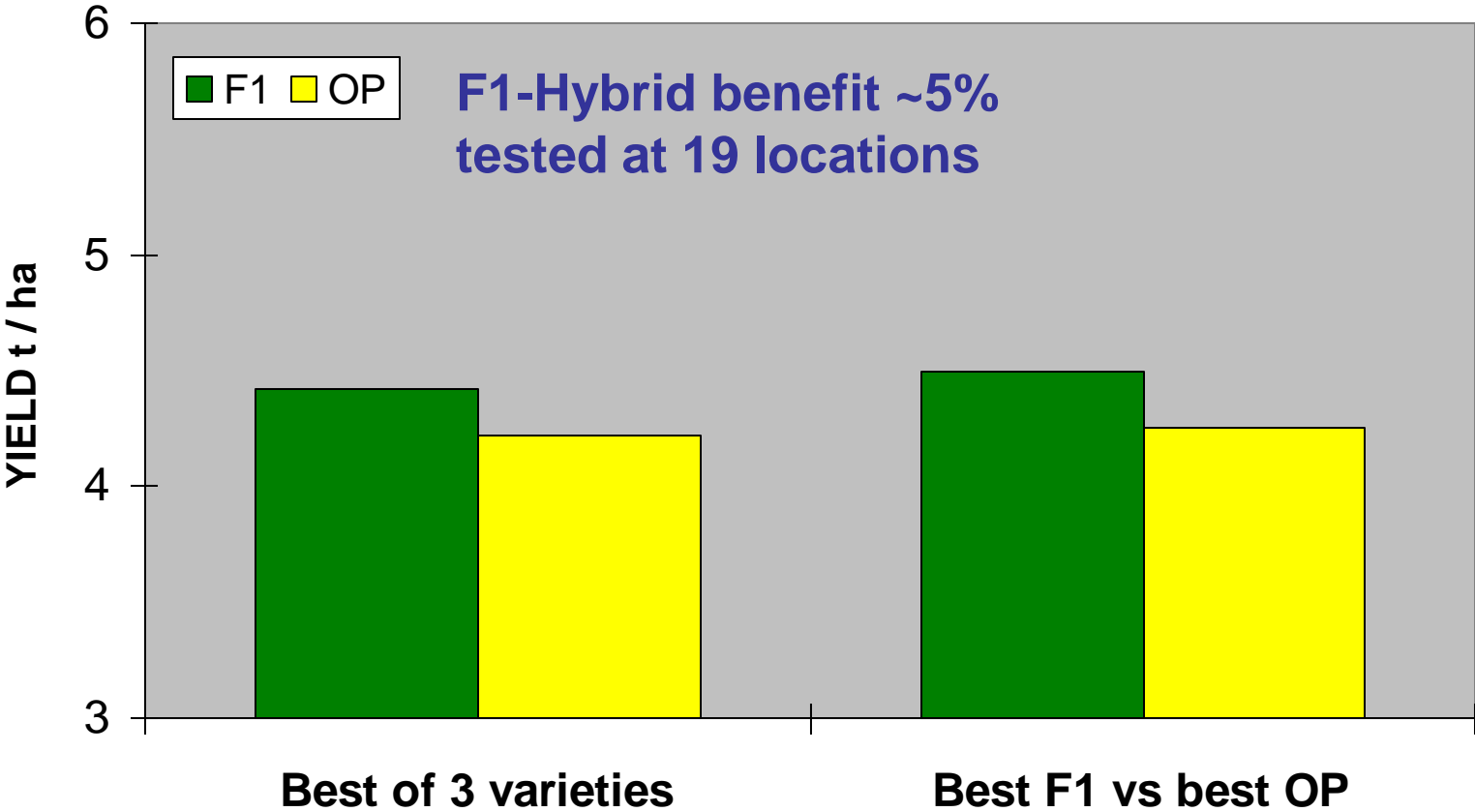
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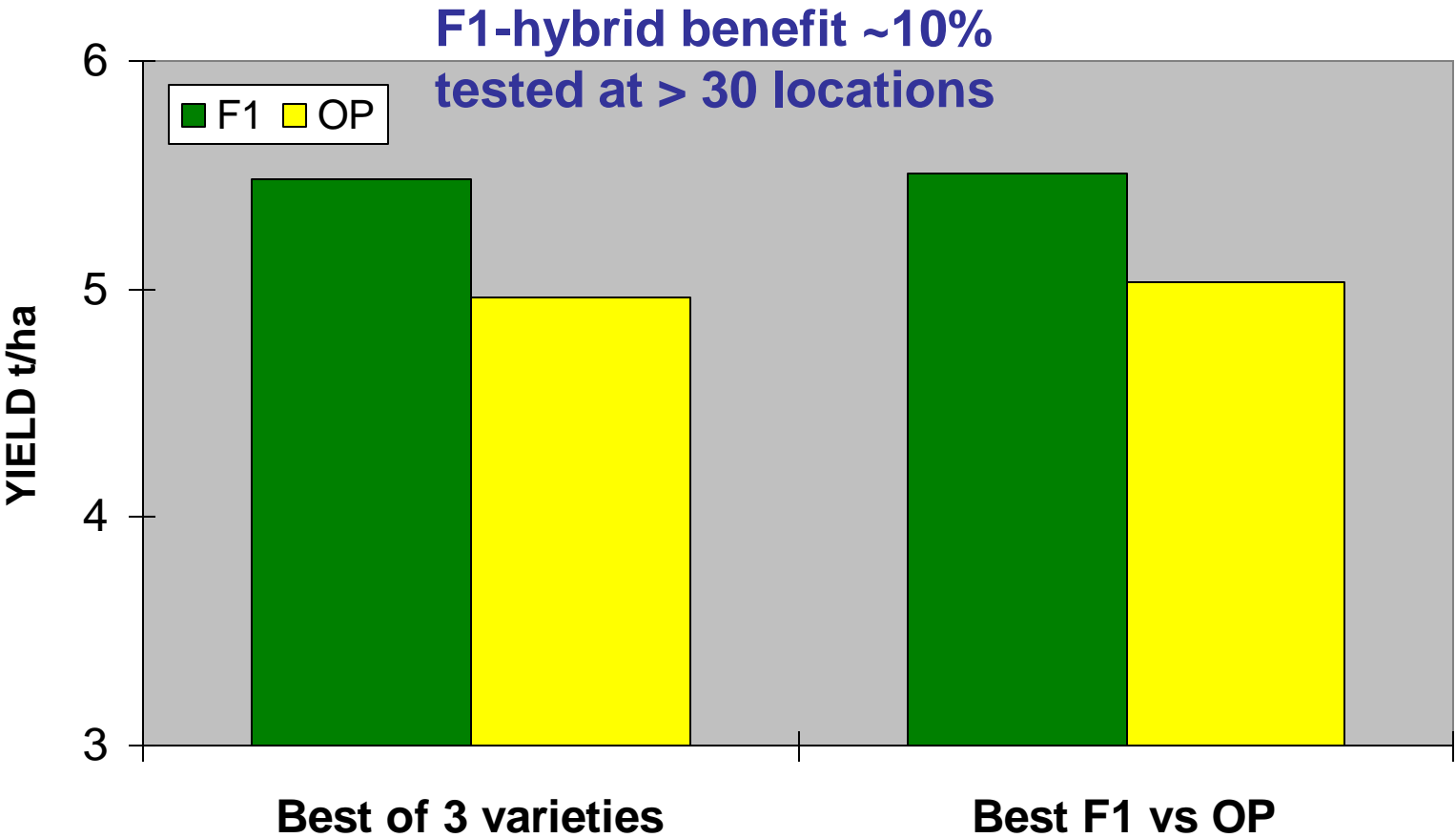
Benefit of WOSR F1-hybrids in CETIOM trials, France 2008



SOURCE: CETIOM 2007/08



Benefit of WOSR F1-hybrids in PDO trials, Poland 2008



SOURCE: COBORU 2007/08

Hybrid yield safeguards

1. Sowing

Later sowing dates

- ✓ Flexibility

Sowing density

- ✓ Efficiency plants/m²

2. Early development

Plant / Root growth

- ✓ Hybrid vigor
- ✓ Weed suppression

3. General stress tolerance

Abiotic factors

- ✓ Adaptation to extremes
- ✓ Winter hardiness
- ✓ Drought tolerance

Biotic factors

- ✓ Plant health / Vigor
- ✓ Regenerative ability

Hybrid yield safeguards

> 10% stable yield increase possible

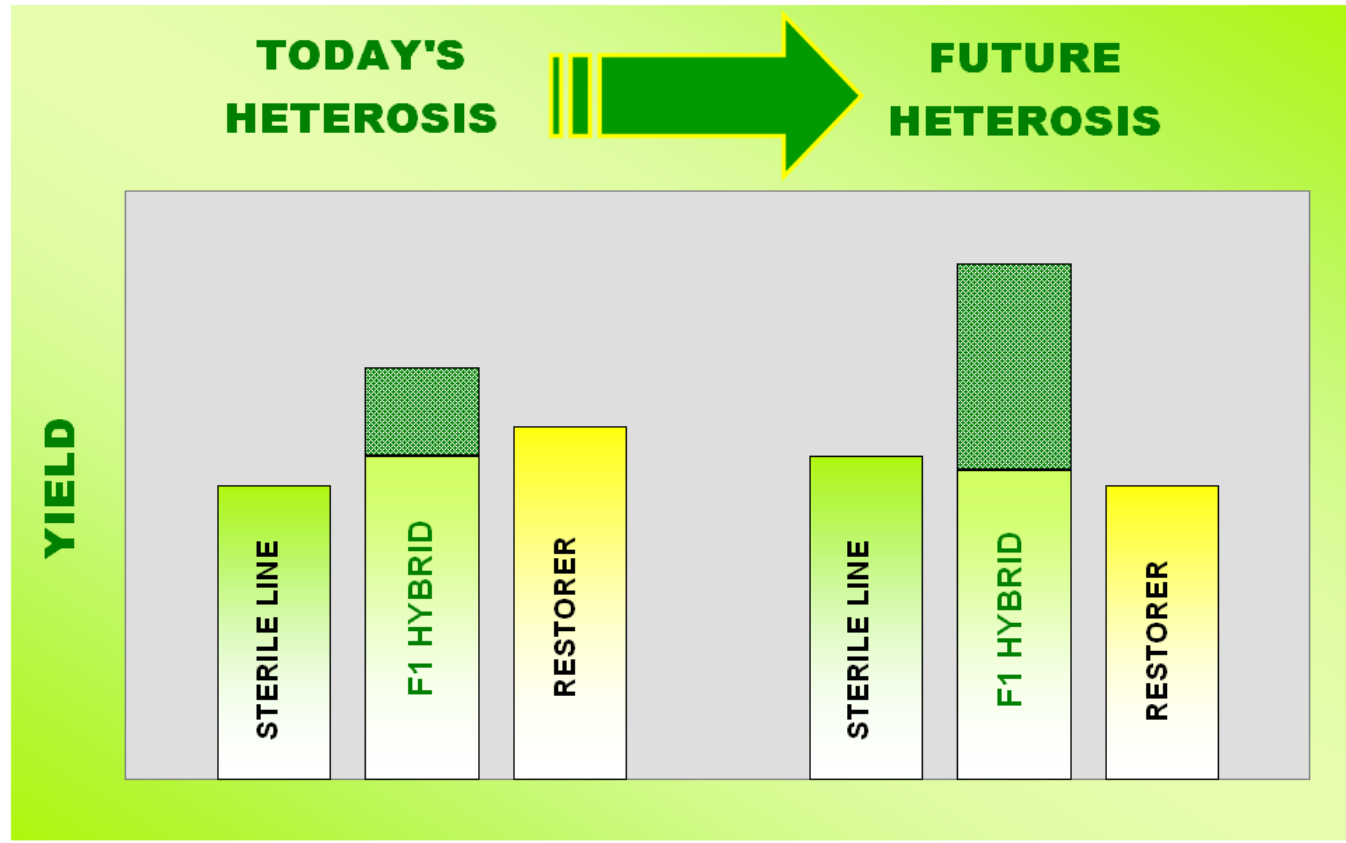
4. Further considerations:

- ✓ Crop rotation support
- ✓ Soil cultivation (Reduced tillage)
- ✓ Optimum fertilisation
- ✓ Integrated Disease & Pest Management



Heterosis improvement through biotechnology

Knowledge about genetic distances on molecular basis will lead to more heterosis in F1-hybrids in the future



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Perspectives for WOSR F1-hybrid varieties in Europe

- **Main on-farm benefit of F1-hybrids
= stable seed yield improvement**
- **Within next 10 years doubling of hybrid shares**
- **More knowledge on heterosis will further improve yield
driven by**
 - a) Biotechnology tools**
 - b) Reciprocal recurrent selection**



Thank you very much for your attention

