

Barriers and possibilities for independent plant breeding and seed production

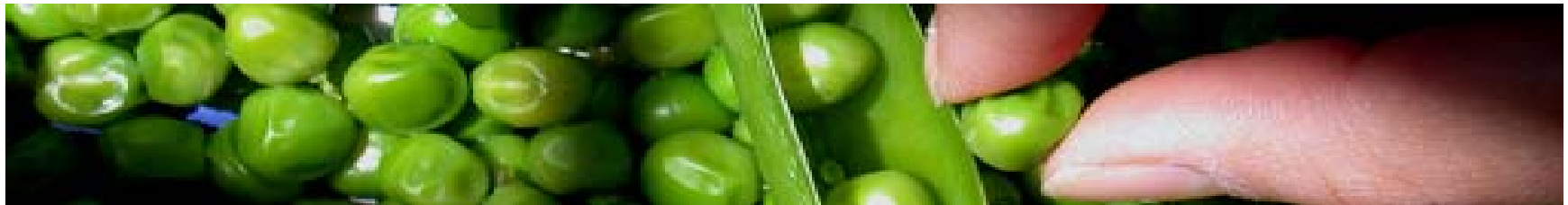
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Organic breeding and organic seeds

In future we have to distinguish:

➤ **Organic variety:**

Variety from a certified organic breeding program
(the term should be protected legally)



➤ **Organic seeds:**

Conventional bred varieties, propagated for one or two years on organic farms

Seed trade and breeding is strictly regulated



- DHS**= Test for **D**istinctivness, **H**omogeneity and **S**tability to achieve variety protection rights (UPOV):

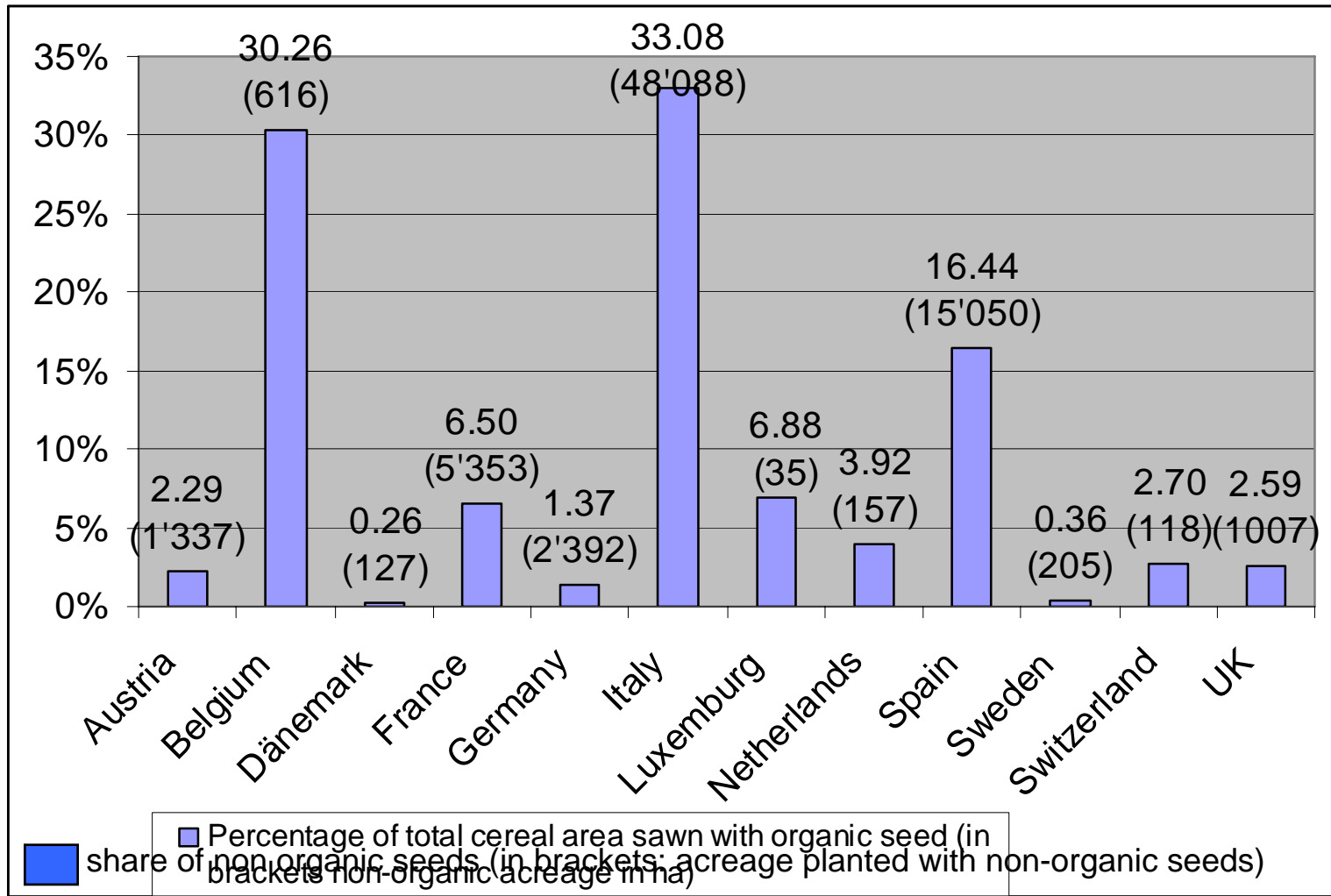
DHS is very time consuming and expensive

- VCU**= **V**alue for **C**ultivation and **U**se

Official variety trials to enter the EU-Common Catalogue (binding for main crops!)

VCU is often done on conventional farms and on to high input level

Share of derogations for cereals (2004)



Market share of organic seeds

species	agric. surface EU		market segments	ha. per segment	kg seeds
	total ha	org. 5%			
Brassica*	100'000	5'000	45	112	28
Carrots	75'000	3'750	30	120	240
Onions	100'000	5'000	35	140	564

* Without Broccoli and Cauliflower

Source of total surface: FAO

Conclusions:

- Less choice of varieties
- Price increase for organic seeds
- Higher share of organic production necessary
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source: Bejo Seeds, Netherlands

Main factors for higher organic seed price

- More basis seed needed
- higher production costs, especially in the second year (more handicraft for weeding)
- less output, more surface needed
- higher risk of loss due to diseases
- bad effects of the small lot size (package, distribution etc.)



Expensive hand labour for biennial crops



Foto: Bejo Seeds, Chile

Price increase due to organic seed use



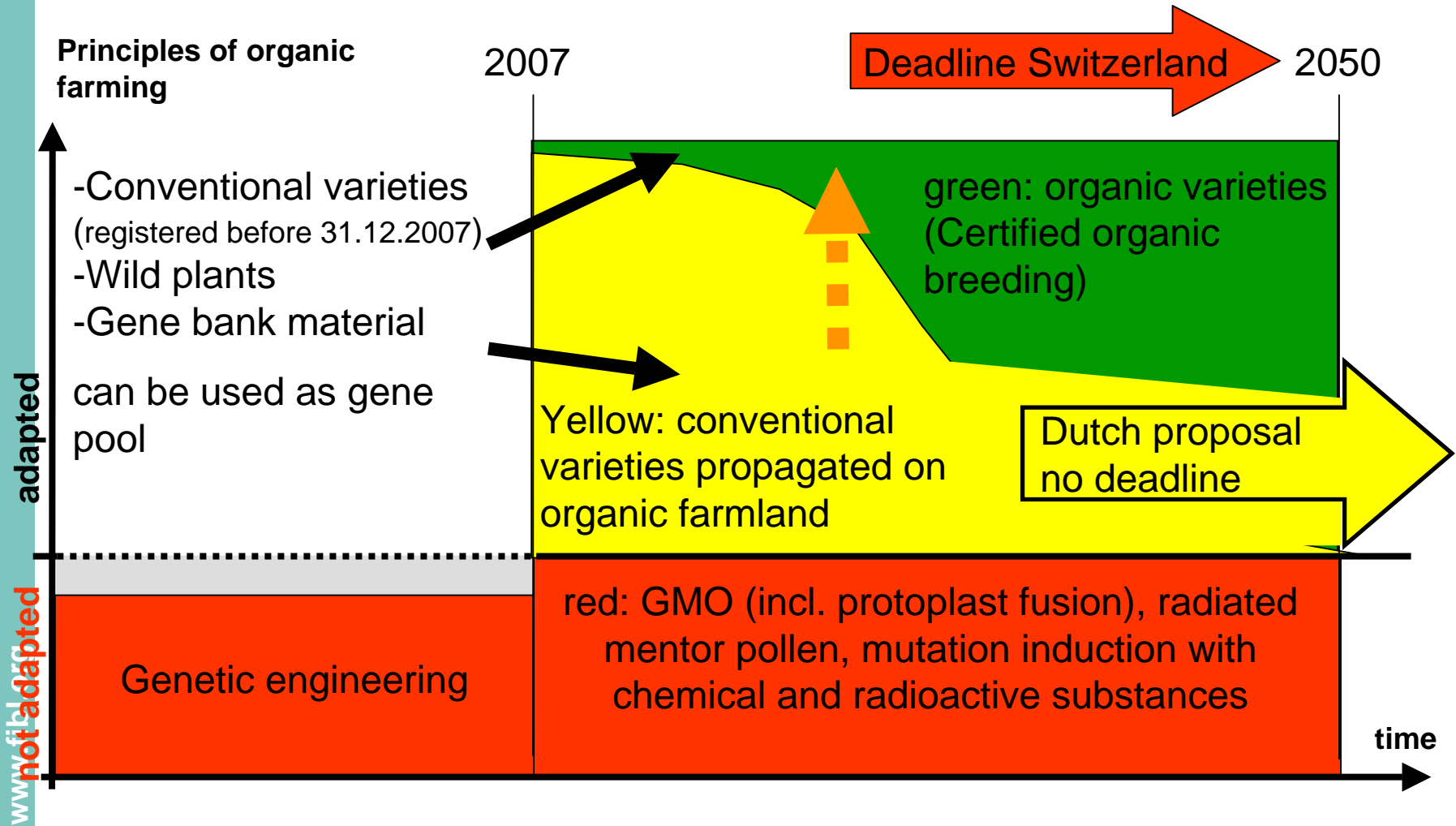
Price increase for organic seeds

species	price factor
onions	2.5
carrots	2
white cabbage	1.8
fennel	1.6
brussel sprouts	1.6
leek	1.5
radicchio rosso	1.2
red beet	2.1



Price increase for **end products**:
2 to 8 %

time horizon for organic breeding



Acceptance of breeding guidelines

- **Currently no farming association implemented breeding guidelines**
- **Problems with control : exchange with other breeders, (outsourced) laboratory processes**
- **(Conventional) breeders prefer to have one breeding program with selection of varieties in organic conditions**

Economical restrictions

- Experience of small bio-dynamic breeders shows: varieties just sold on organic markets are hardly financially viable
- E.g.: 20'000 ha of farmland are necessary to cover the costs of one new cereal cultivar
- Consequence: organic breeders promote their varieties to non-organic low-input production
- Without support from public funds, the important work of organic breeding cannot be tackled properly

Definition of independence?

- **Physical independence:**
 - Independent seed production (all species, all quantities?)
 - Independent seed trade
 - Independent breeding programs (own guidelines)
 - No contacts to conventional breeders (no exchange of plant material)

- **Financial independence:**
own organic breeding companies

Different independence status at different time horizons!

Conclusions for organic seed production

- **100% provision needs 120% production = expensive**
- **Basis seed production is not yet tackled
>> which generation is the limit?**
- **Companies (accredited organic seed cooperatives) can be independent but difficulties with licenses from conventional (vegetable) breeders**
- **Independent seed trade and logistics are possible , but expensive**

=independence is possible but at high price

Conclusions for organic breeding

- **Conventional (old) breeders own gene material >> exchange should be possible**
= no physical independence
 - **Breeding is very expensive**
 - >>breeding for low input
 - >>public funded breeding
 - >>cooperation with conventional breeder
(see Bejo, Vitalis in NL, KWS in GE)**=no financial independence**
- = independence is hardly possible, alternatives (like participative breeding should be enforced)**