Slide 1

Genetic modification – introduction

What is genetic modification?

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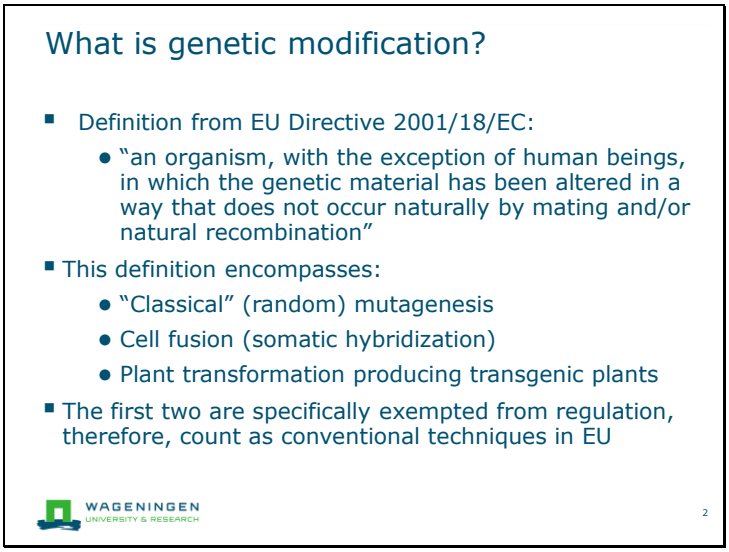
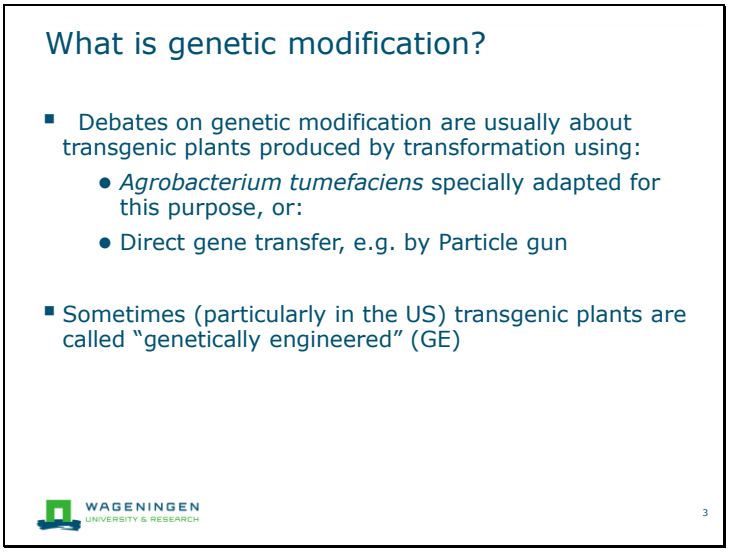
Slide 2



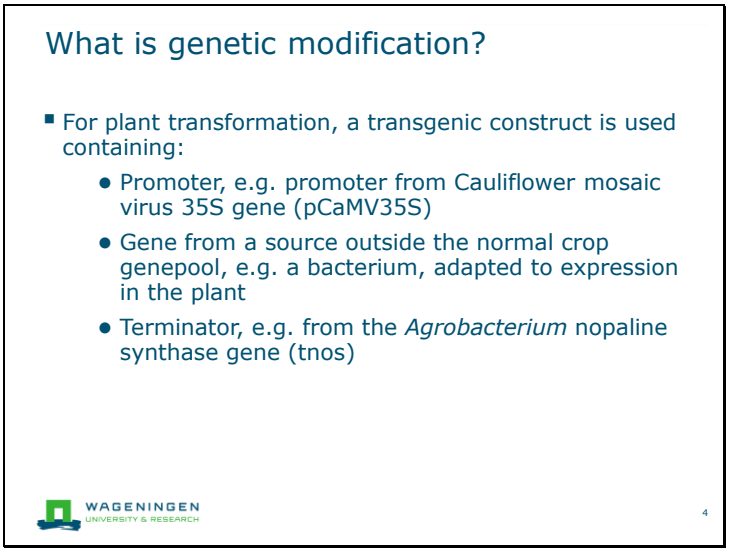
"Classical" mutagenesis uses radiation or chemical mutagens, such as EMS, to produce random mutations. Desirable traits need to be selected from treated materials and accompanying undesirable mutations need to be filtered out by (back)crossing. In cell fusion, protoplasts from different genotypes (e.g. species) are fused and the fusion products are regenerated to new hybrid plants. In this way, plant species can by hybridized that are difficult to cross. Moreover, new combinations of nuclear and cytoplasmic genomes can be made. The latter is important for introducing cytoplasmic male sterility (usually based on mitochondrial genomes, e.g. Ogura cytoplasm in *Brassica*) important to hybrid cultivar production, see Hybrid cultivars ppt. Provided the cell fusion product could also be produced by classical crossing, the plant is exempted from EU regulation, like "classical" mutagenesis. In both cases, without knowledge about their origin, the plants are basically indistinguishable from conventional breeding products. In addition, both types of plants are thought to have a "history" of safe use". More details on regulation in the Regulation ppt.

Slide 3



The idea behind "genetically engineered" is that it more clearly distinguishes transgenic plants from conventional plant breeding products, as basically all products of plant breeding could be called "genetically modified". The basic elements in the transgenic construct make transgenic plants clearly recognizable from conventional plant breeding products. Cisgenic plants are produced in this manner but the construct basically only contains "native" genetic material, that is, from the crop's normal genepool (cross-compatible species), see NPBT ppt.

Slide 4



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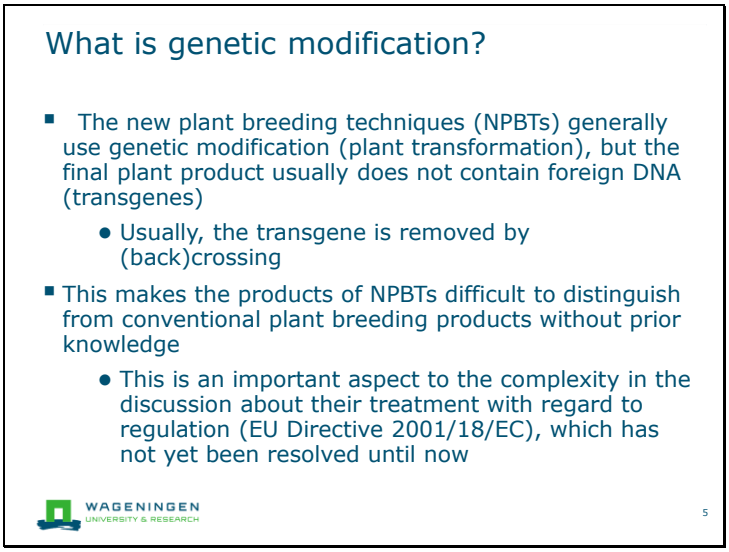
Slide 5



Cisgenic plants are an exception in that the construct introduced is not removed but basically only contains “native” genetic material, that is, from the crop’s normal genepool (cross-compatible species). More details are in the NPBT ppt.