Slide 1

Coexistence

Coexistence of GM and non-GM cultivations

Clemens van de Wiel, Jan Schaart & Bert Lotz

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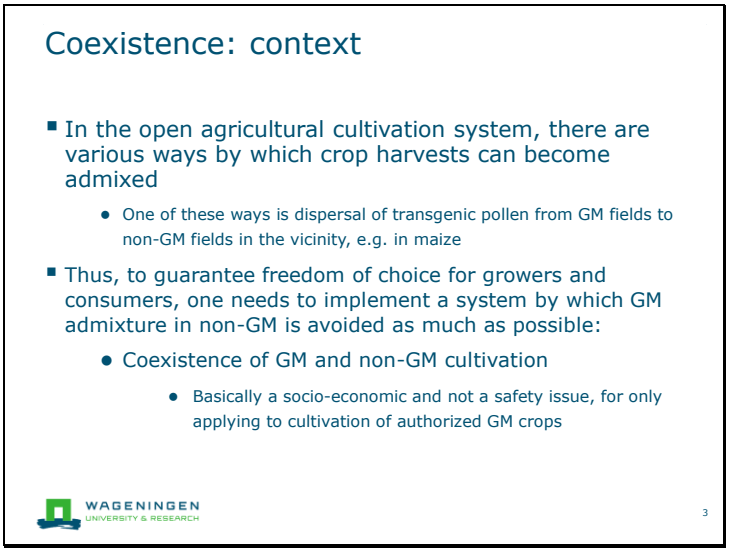
Slide 2

See the Regulation ppt for further info on legislation

Slide 3



The complexity of open agricultural system can be seen in the intricate systems to guarantee purity of cultivar seed lots; there are also measures and testing systems in place to avoid co-mingling.

Slide 4

Coexistence: EU recommendations

- Special legislation was developed enabling to cultivate GM and non-GM crops next to each other
  - Guaranteeing freedom of choice for growers and consumers, in particular organic production
  - Crop-specific measures to avoid as much as possible GM admixture in non-GM products, that is maintaining any adventitious GM presence below a feasible threshold

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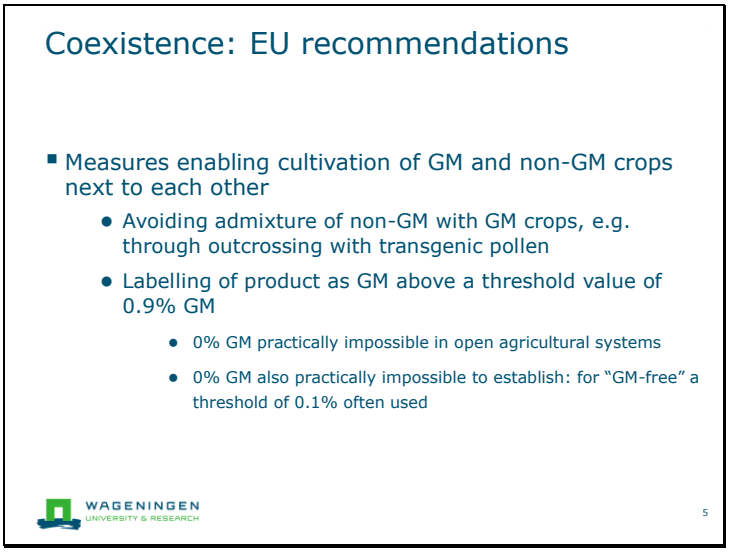

Detection of 0% GM impossible as there is statistically a large chance of false positive or negative results with all sampling and detection methods, no matter how sensitive, particularly in large heterogeneous lots. Reliable quantification is even harder; therefore the use of no lower threshold than 0.1% in practice.
Pollen may reach far: more than 1 km in wind pollinators, maize relatively heavy pollen, sugar beet relatively light that may reach even up to 10 km. Such distances have little value for the practice of co-existence, because they are far below threshold values or have been obtained under special conditions. They do show that 0% admixture is impossible.

Slide 6

Coexistence: EU recommendations

- Recently suggestions for flexibility with Member States
  - No additional measures when GM labelling does not have economic consequences
  - For GM-free (organic) possibility of lower threshold values when fitting to local market conditions
    - Conditional upon proportionality towards other growers (freedom of choice)
    - In NL larger isolation distances were already advised for GM-free to provide extra safeguards (see below)

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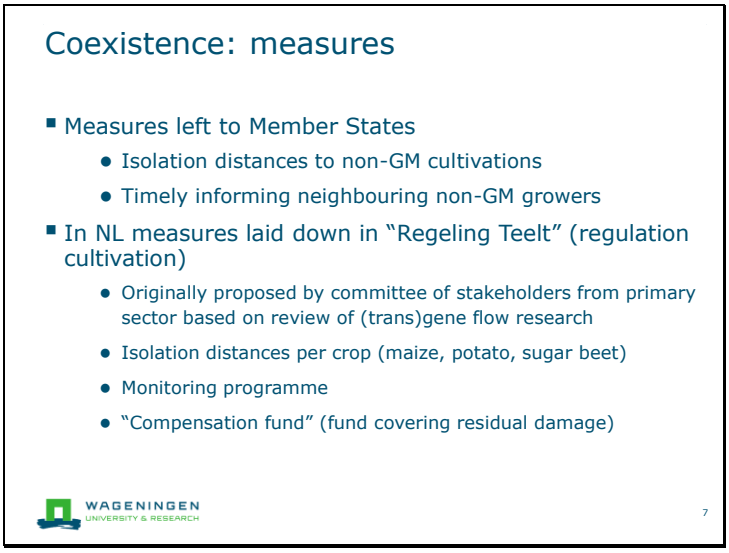

Apart from isolation distances, clean sowing and harvesting machinery and storage facilities important, probably best to have these all separate for GM. Probably the most difficult is completely avoiding human error (see example of admixture in Amflora seed potato production in Regulation ppt).

Slide 8

Coexistence: measures NL

- Measures differ per crop
  - Isolation distances in maize to prevent pollen-mediated gene flow: 25 m to conventional, 250 m to GM-free (organic)
  - With potato or sugar beet, isolation distances less important as their harvest not a product of pollination, need for isolation in time (next potato or sugar beet, resp., in rotation):
    - With potato, groundkeepers (volunteers) from tubers remaining after harvest in next crop (familiar weed problem in sugar beet)
    - With sugar beet, control of bolters to prevent seed set that could produce volunteers in next crop (familiar problem of weed beets)

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Coexistence: international

- Measures differ per EU Member State
  - Isolation distances in maize: vary from 25 m to 600 m (30 km)
- GM threshold values for labelling vary world-wide:
  - E.g. Japan 5%, Korea 3%, Australia/New Zealand 1%
- In US & Canada "Identity-Preserved" systems where non-GM producer responsible for measures to obtain higher market value
  - Existing systems outside GM: "waxy" (amylopectin starch) or sugar maize suffer quality loss when outcrossing with other maize types
  - In EU measures responsibility of GM producer as the one coming with a novel and competitive product

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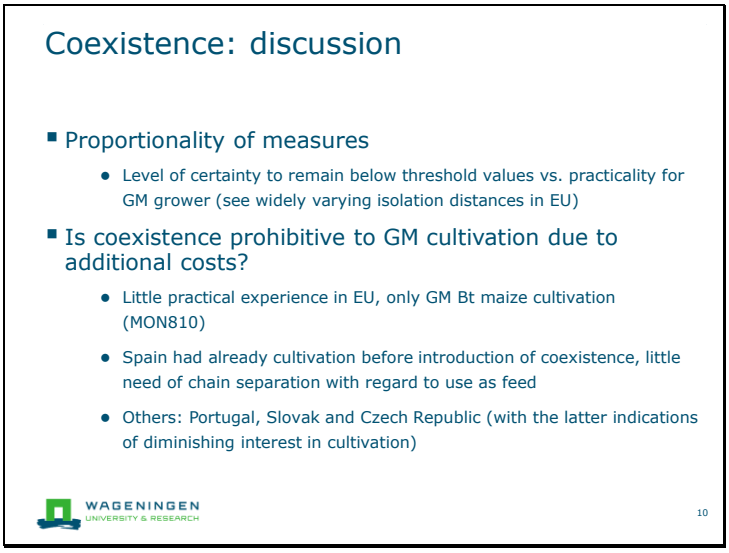
Slide 10



Czech Republic reports lower interest of farmers in Bt maize cultivation because of additional (administrative) burdens of co-existence.