



Organic Honey Production and GM Plants

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Biofach 2011

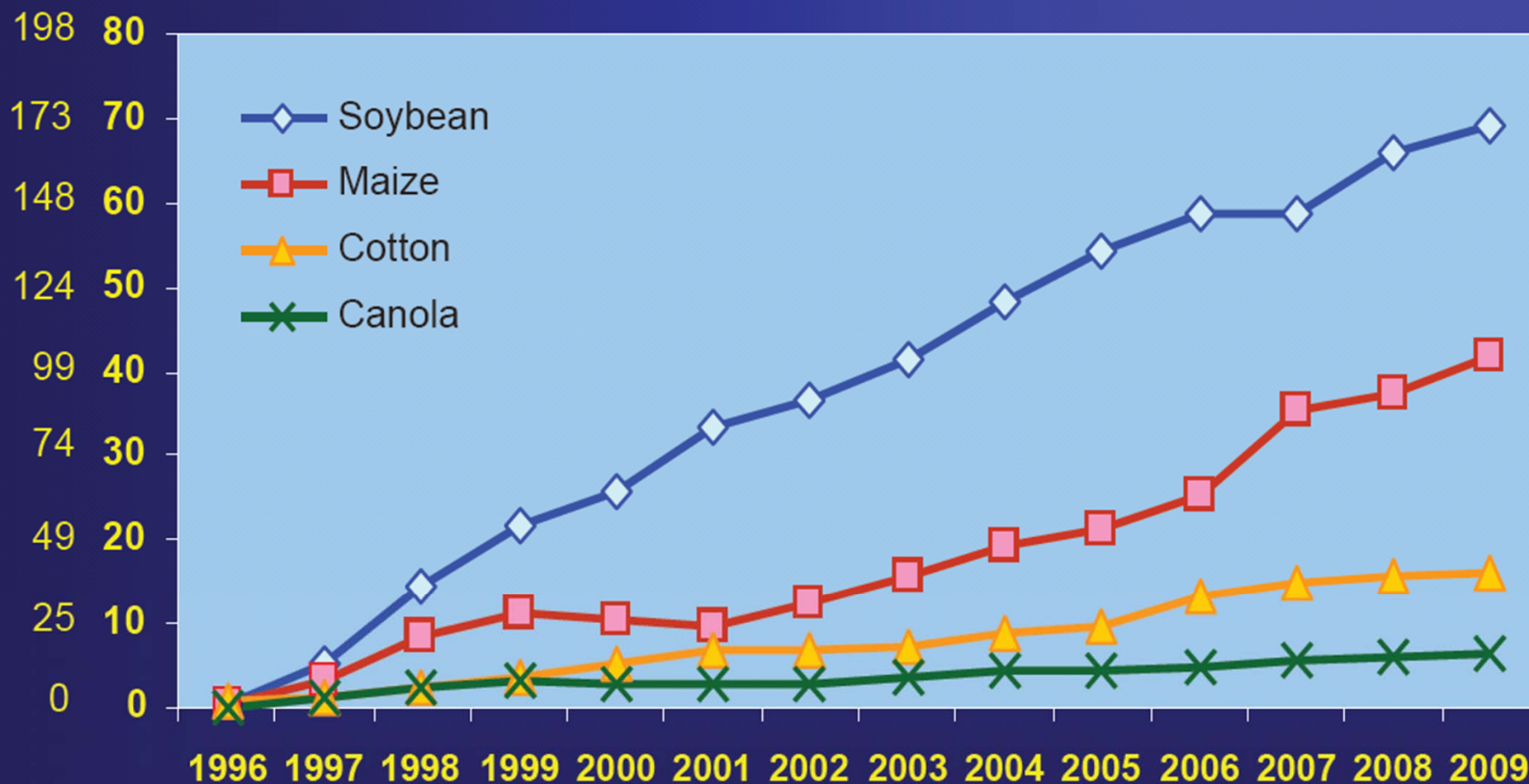
EU regulation on organic farming: Honey

- Within a radius of 3 km from the apiary site, nectar and pollen sources consist essentially of organically produced crops and/or spontaneous vegetation (...)
- crops treated with low environmental impact methods (...) which cannot significantly affect the qualification of beekeeping production as being organic;
- maintain enough distance from any non-agricultural production sources (...)
- In general, the EU regulation on organic farming excludes the use of gm products (plants, animals, food additives ...)

Global Area of Biotech Crops, 1996 to 2009: By Crop (Million Hectares, Million Acres)



M Acres

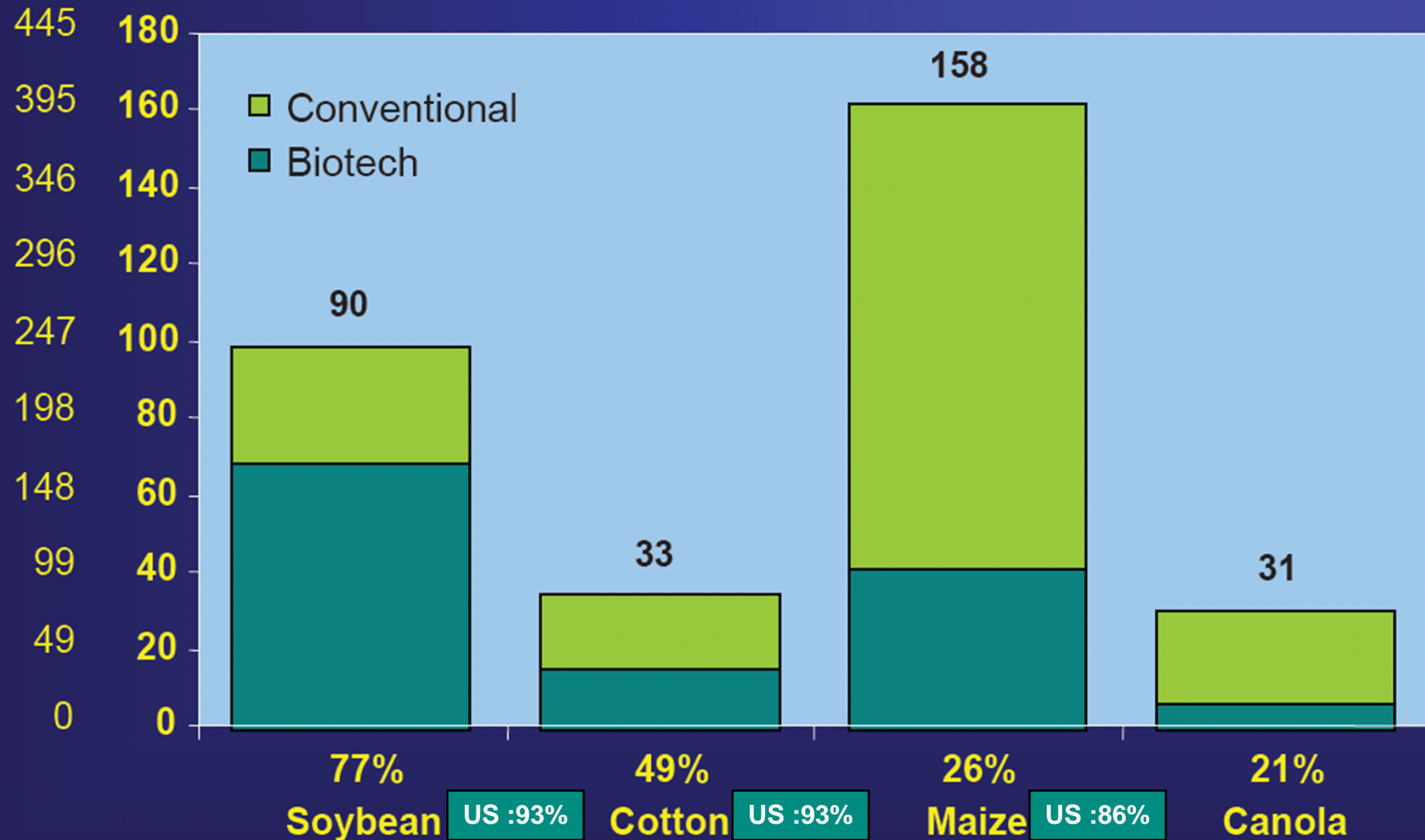


Source: Clive James, 2010

Global Adoption Rates (%) for Principal Biotech Crops (Million Hectares, Million Acres), 2009

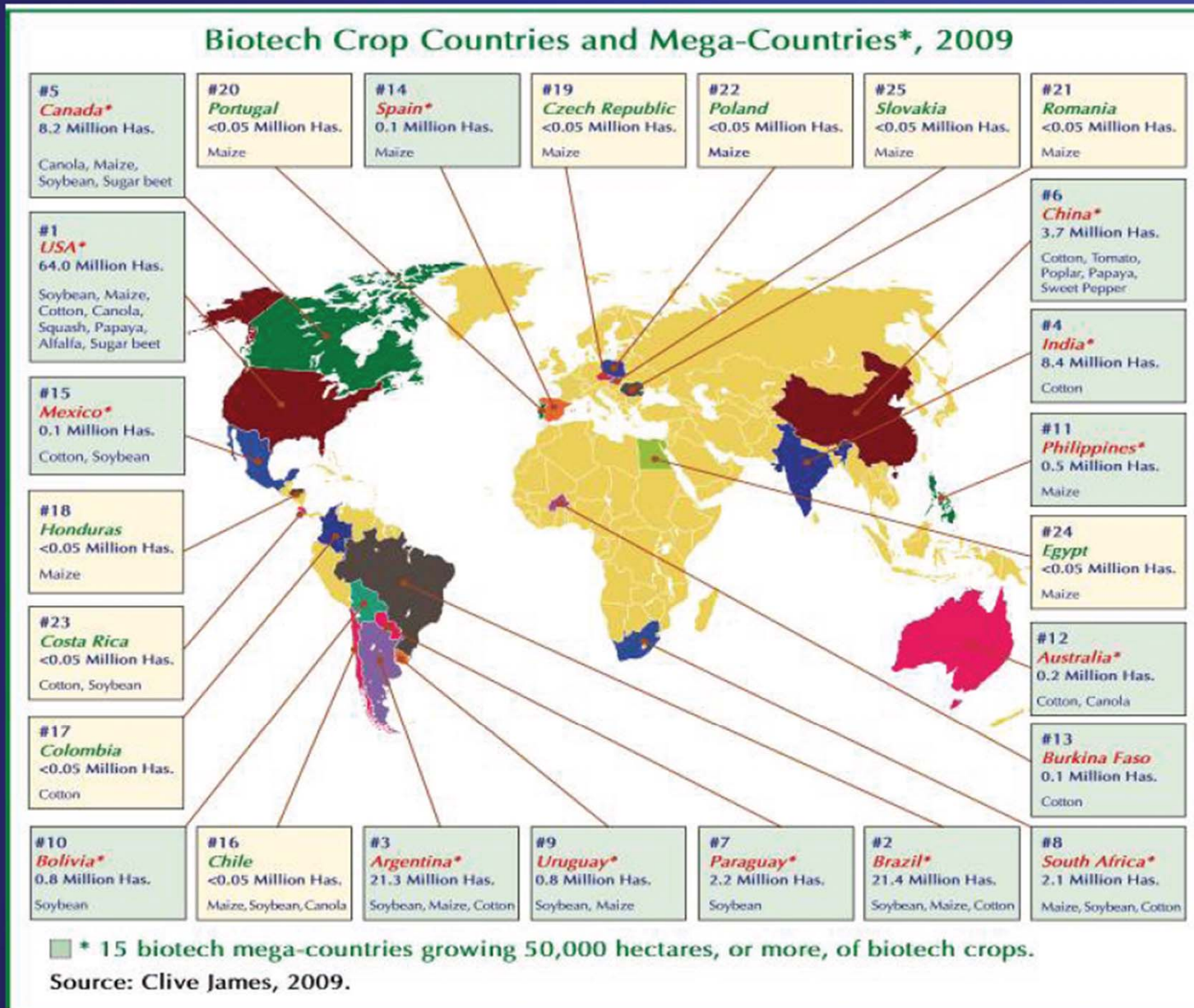


M Acres



Source: Clive James, 2010

Biotech Crop Countries and Mega-Countries, 2009



Facts about GMOs in the EU

- **Placing on the market of a GMO** needs an approval according to the directive on deliberate release into the environment (EU 2001/18)
- Decision applies to all member states
- **GMO cultivation in the EU: Potato, Maize**
 - National bans for Maize (or all gm crops): Austria, France, Greece, Hungary, Germany and Luxembourg
 - Cropping regions for potato: Germany, Sweden and Czech Republic
 - Main cropping regions for Bt-Maize: Spain, Portugal, Czech Republic, Rumania,
- No gm-fruits, -vegetables, animals
- Field trials/deliberate release: national legislation
- Co-existence and liability: national legislation

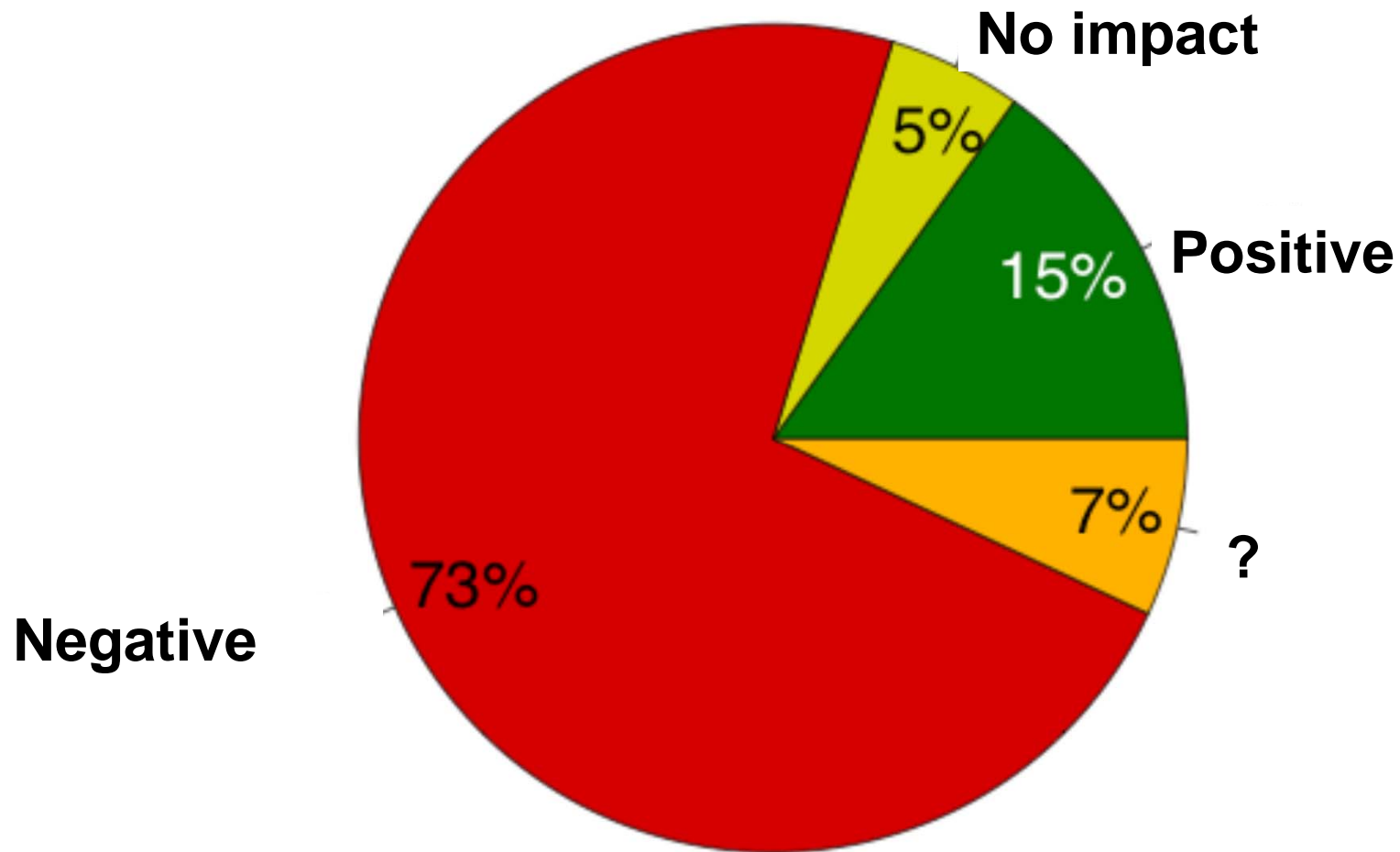
Facts about GMOs in the EU

- **Food and Feed made from genetically modified organisms (GMO) need an authorisation (EU 1829/2003).**
 - Decision for food and feed applies to all EU Member States
 - Mandatory labelling if a product contains more than 0.9% GM material
 - Traceability for material without DNA
 - For GMOs that are not authorized in the EU, the threshold is “zero” (the limit of detection)
- Food and Feed products from GMO: cotton, maize, oil seed rape, soybean, sugar beets

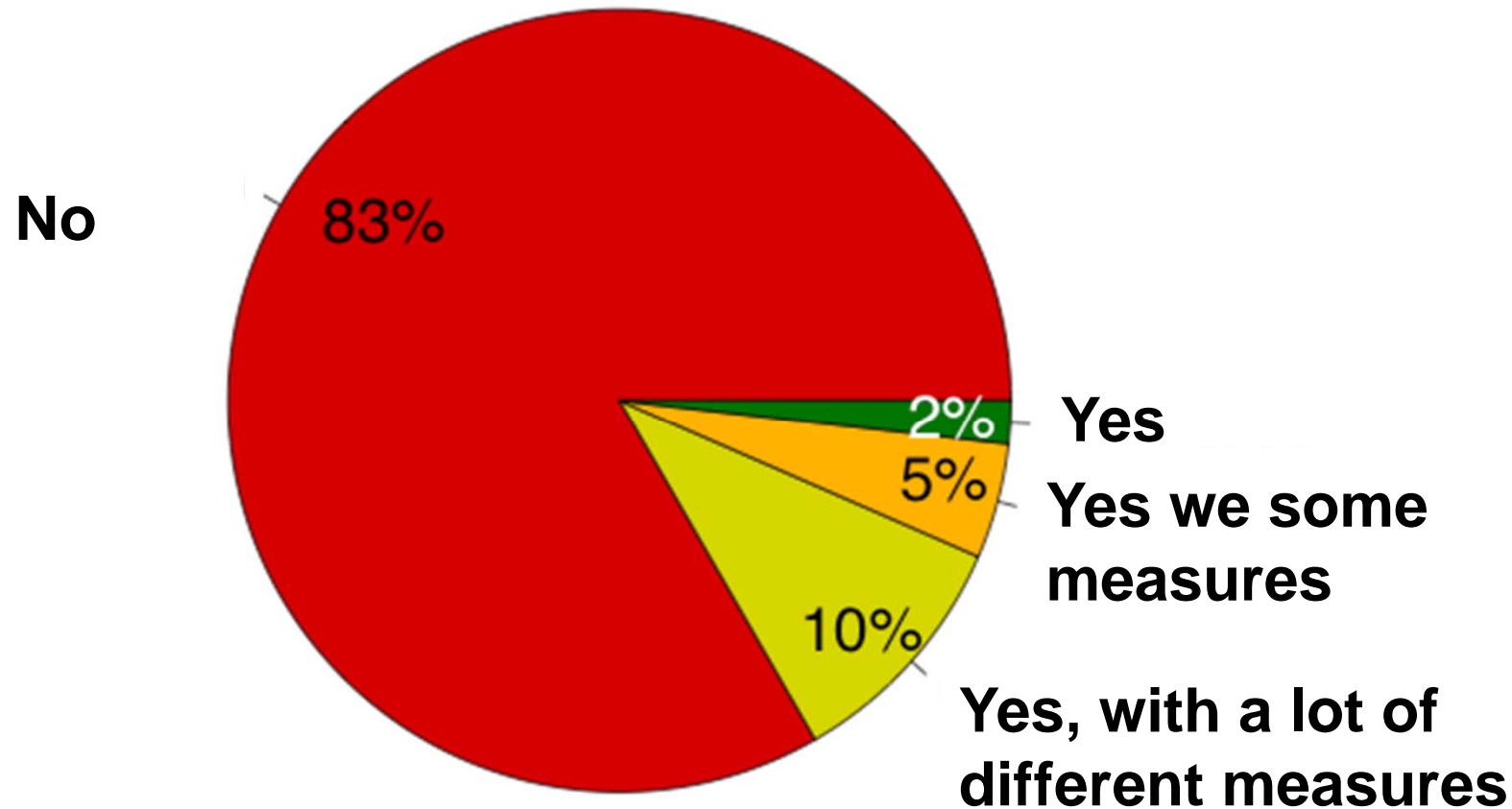
Legal Background for Honey

- Not a issue in the food and feed regulation on GMO: neither 2001/18 nor 1829/2003, or coexistence guidelines
- No label requirements for honey, pollen is not seen as a food additive
- Bee pollen would be labelled
- European Court of Justice is currently discussing the topic
- According to the advocate general:
 - Honey with Pollen from gm- plants without approval according to 1829/2003 is not allowed on the market
 - if honey containing Maize MON 810 needs an additional approval remains unclear.

Survey among beekeepers in Switzerland: The impact of GM crops on honey quality?



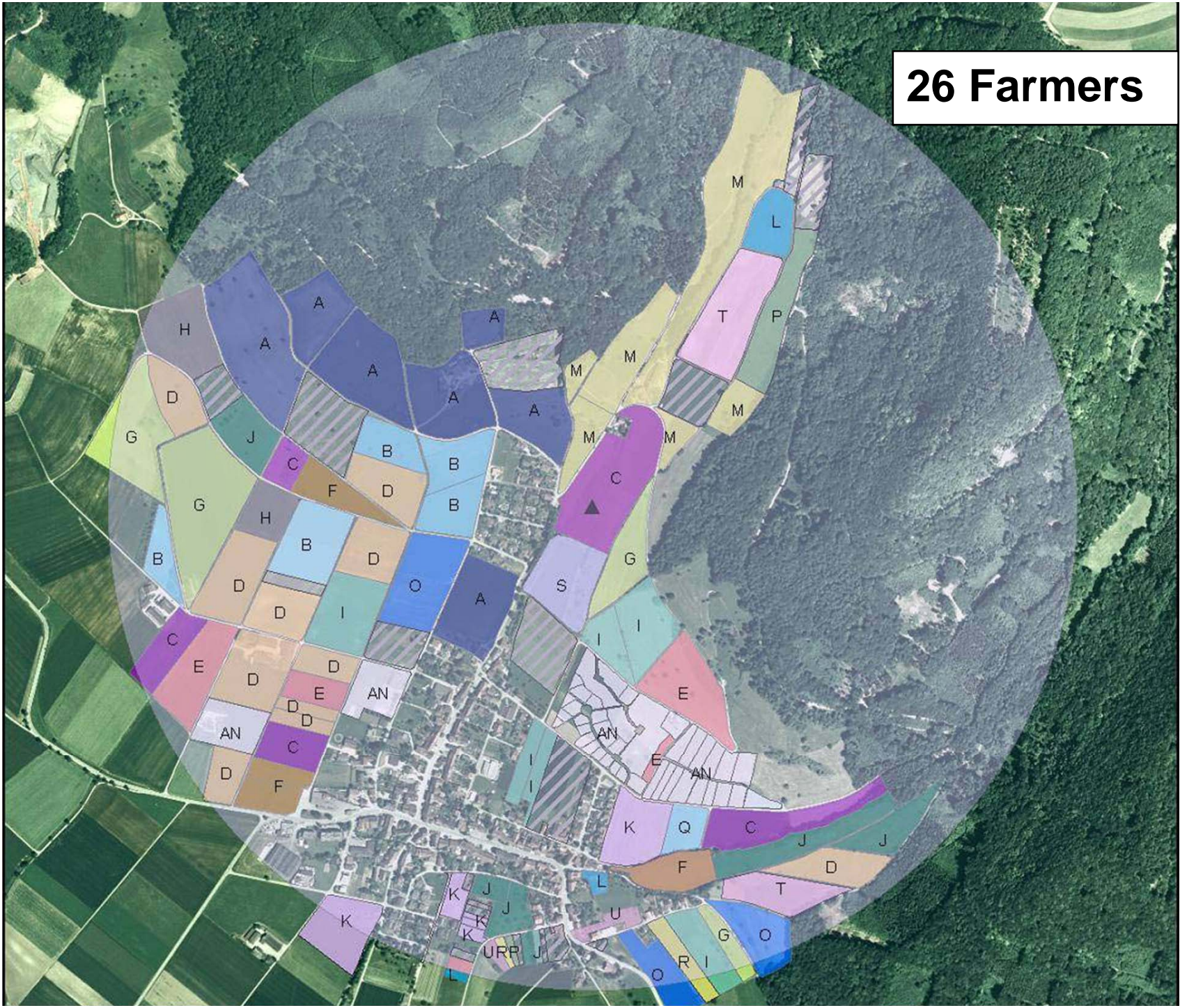
Would it be feasible to produce gmo free honey when gm plant are grown in your region



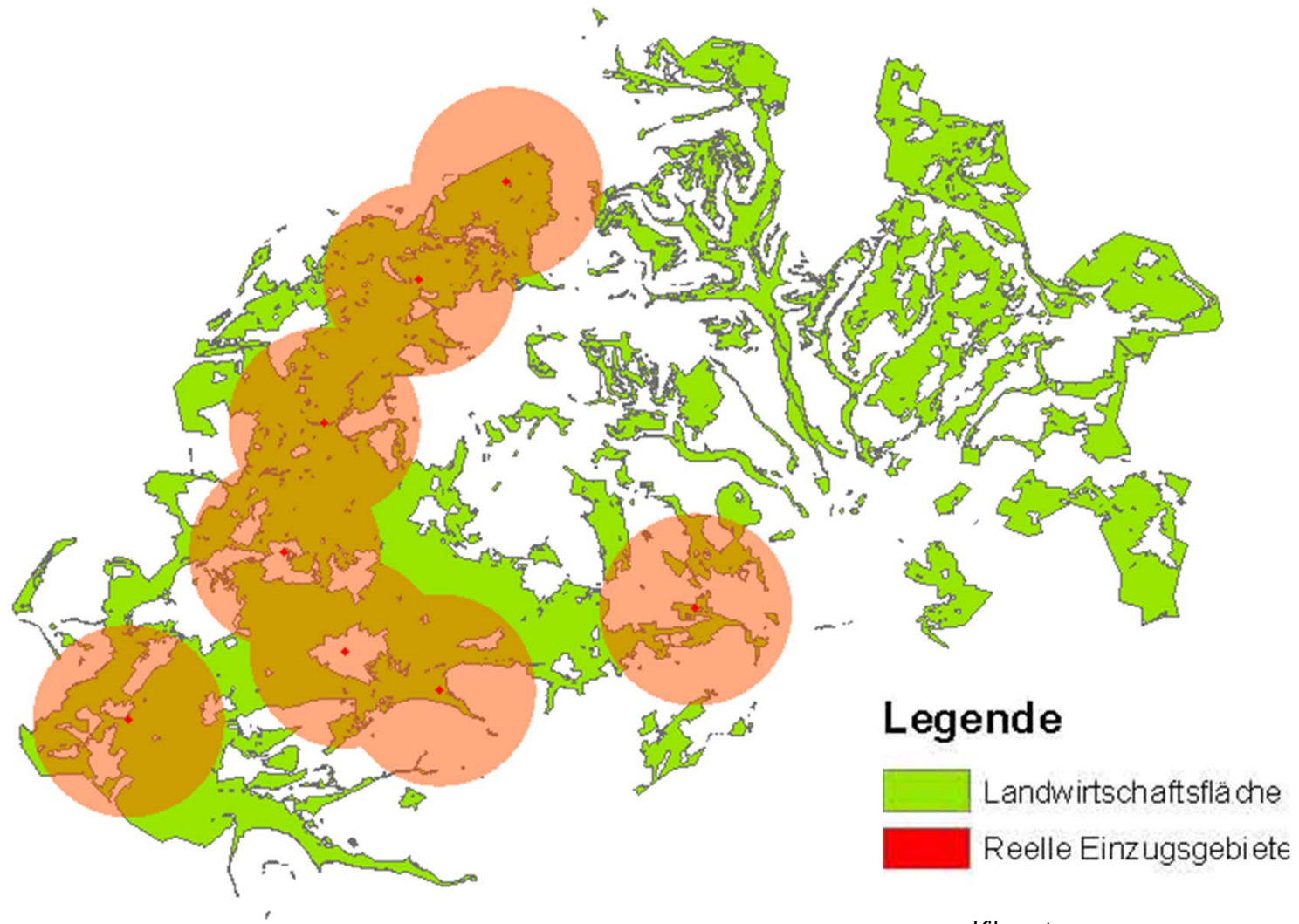
12 Farmers



26 Farmers



Modell BeJuBee



Pollen collection: Search for gm plants or test for GMO free Regions



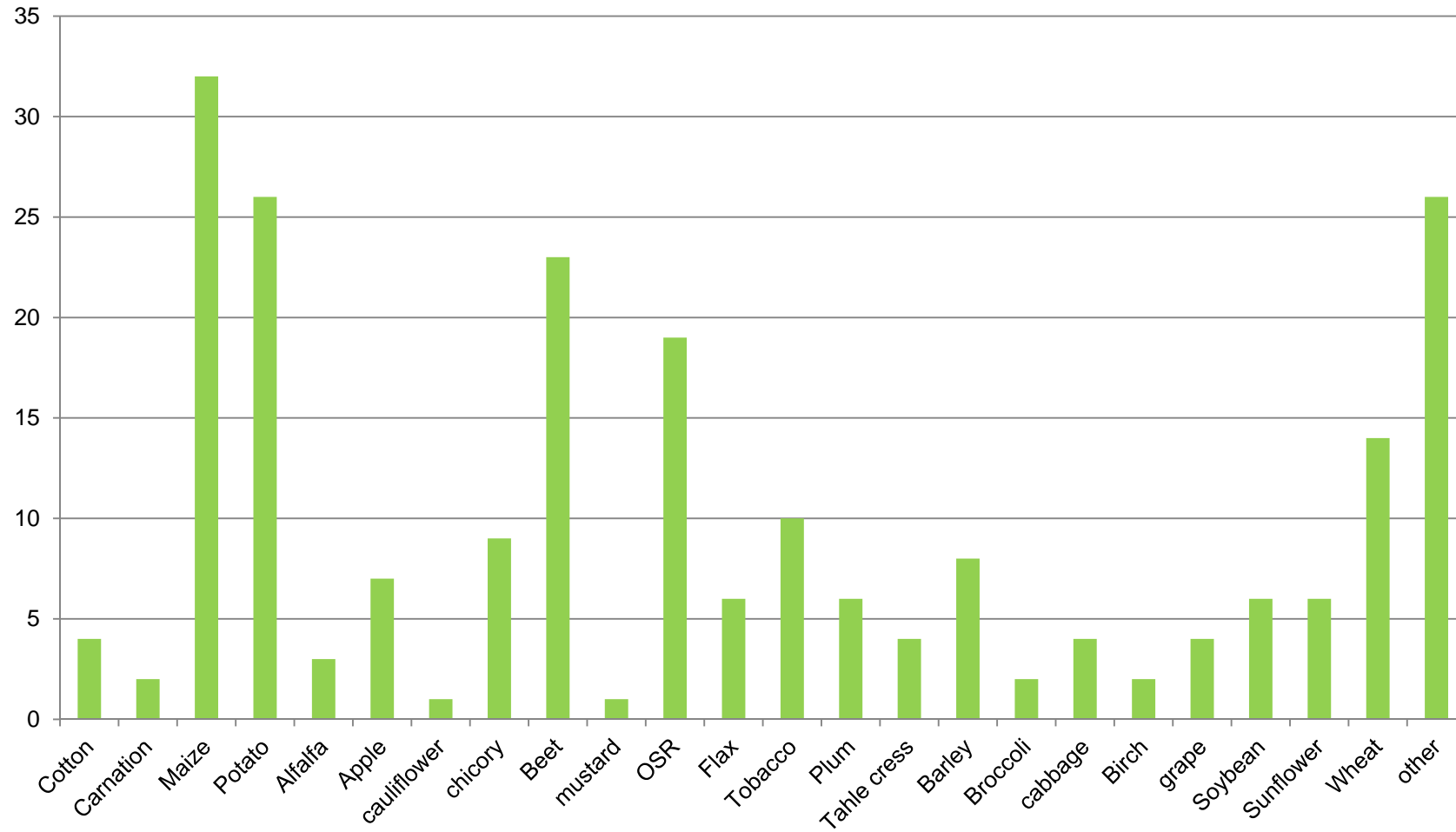
Conclusion

- The aspect of beekeeping is not included into the current debate on coexistence in Europe
- GMO free honey:
 - A »mission impossible« for beekeepers in the Americas (US, CA, Brazil, Argentina, Paraguay)
 - In the EU, it depends on the region
 - EU court of Justice might be of benefit for EU Beekeepers but not for honey producers in the Americas.
- Situation for organic producers seem to be even more complicated
- Needs attention from research and policy

Thank you for your attention



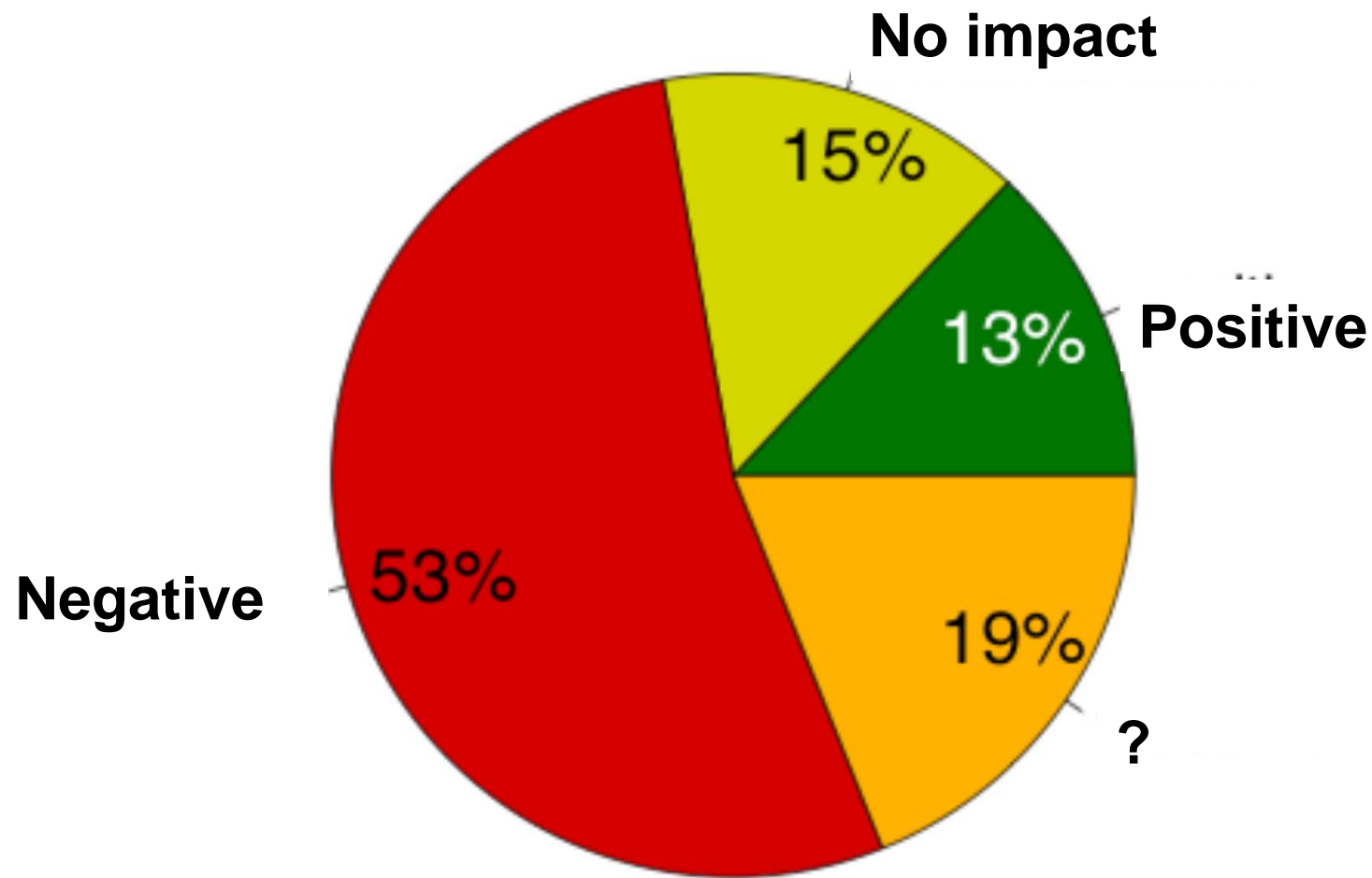
Crops tested in field trials in Europe



Market approvals world wide incl. cropping

Crop	US	CA	EU
Soybean	9	7	0
Maize	28	33	1 (2)
Cotton	12	0	0
Oil seed rape	13	9	0
Potato	4	4	1
Sugar Beet	3	2	0
Rice	2	0	0
(Flax)	1	1	0
Papaya	2	0	0
Alfalfa	1	1	0
Squash/Tomato	3	0	0

The impact of gm planting on the price of the honey



GM Crops and Bees

Crop	Pollination	GM Variety
Oil seed rape	Wind, Insects	✓
Sugar beet	-	✓
Maize	Wind	✓
Cotton	Self pollination, insects	✓
Soybean	Insects, Bees, Self pollination	✓
Papaya	Wind, insects	✓
Apple	Bees	✓
Alfalfa	Bumblebee, bee	✓
Wheat	Self pollination	✓
Rice	Self pollination	✓
Grape vine	Wind, insects, bees	✓
Sunflower	Bees, insects	

Organism? Product of ? Produced by?

- › Organism: → approval and labelling
 - › Seeds, grains for food and feed use
- › Product from a GMO: → approval and labelling
 - › Flour, Starch, Glucose
 - › Meal from Oilseed Rape (rapeseed)
 - › Lecithin (from soybean, rapeseed, cotton)
 - › Vitamins
- › Produced by microorganisms: → no labelling, no approval process
 - › Amino acids (lysine, methionine, threonine, tryptophan, valine), vitamins (B₂, B₁₂), amino acids, flavors produced by microorganisms
 - › Enzymes (Pectinase, Amylase, Chymosin)
 - › Milk, cheese, eggs from animals fed with genetically modified feed stuff

Excluded in Organic Farming
(exceptions for microorganisms possible)

Events for food and feed

Crop	US	CA	EU Food and Feed
Soy	9	7	3
Maize	28	33	22
Cotton	12	0	6
Oil seed rape	13	9	3
Potato	4	4	(1)
Sugar Beet	3	2	1
Flax	1	1	0
Alfalfa	1	1	0
Papaya	2	0	0
Squash*	2	0	0
Rice	2	0	0
Tomato *	1	0	0

GM-maize in the EU

EU-27 GE Crop Production in Seven Major Member States

