

BIOSAFETY LAW AND ITS IMPLICATIONS IN TURKEY

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Planted

COST Action CA18111
Genome Editing in Plants

REGULATORY OVERSIGHT IN BIOTECHNOLOGY

- ❑ Field Trials Decree (1998)
- ❑ TUBİTAK and MoA Drafts
- ❑ Cartagena Protocol ratified 2003
- ❑ UNEP/GEF Project USD 444 000
- ❑ Biosafety Law of 2010 enacted

BT- MAIZE FIELD TRIALS

Table 1. Comparison of grain yields of transgenic Bt- Maize, Isogenic Variety and leading Commercial Hybrid Variety (CHV) after 3 years of field trials in Cukurova Agricultural Research Institute.

Variety	Sprayed Plot (MTon/ha)	Non-sprayed Plot (MTon/ha)	Average Yield (MTon/ha)
Bt-Maize	11.334 A	11.259 A	11.196
Isogenic Variety	8.902 B	6.932 D	7.917
CHV	7.957 C	5.990 E	6.973
LSD	92.02		

Table 2. Fumonisin levels determined by CD-ELISA method in transgenic and non-transgenic maize kernels grown between 2001-2003.


Varieties	Fumonisin Level (ppm)			
	2001	2002	2003	Average *
Bt-Maize(-)	2.5	0.78	0.32	1.200 a
Bt-Maize(+)	2.6	0.63	0.82	1.3500 a
Isogenic Variety(-)	17.5	16.75	13.85	16.0333 b
Isogenic Variety(+)	15.6	12.70	11.32	13.2067 b
CHV(-)	18.1	17.70	13.65	16.4833 b
CHV(+)	16.6	14.60	10.60	13.9333 b

(-) Non-sprayed, (+) Sprayed ; *Statistically different based on Duncan's test (0.05)

BIOSAFETY LAW

- ❑ Regulation on the Import and Processing of GMOs (October 26, 2009)
 - ❑ amended 4 times; some articles cancelled by the Higher Court of State
- ❑ Biosafety Law (published on March 26, 2010; enacted on September 26, 2010)
- ❑ Implementing regulations (September 27, 2010)


BIOSAFETY LAW

- ❑ The Law mixes environmental and food safety
 - ❑ No procedural distinction between different categories including research
 - ❑ Unclear and confusing
 - ❑ Severe penalties including 5-12 years of imprisonment
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- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, set against the blue gradient background.

BIOSAFETY LAW

- ❑ Inconsistent w/ the Cartagena Protocol and the EU Directives and Regulations
- ❑ No mechanism for exemptions as in the Cartagena Protocol
- ❑ “Zero risk” or “no risk” (e.g. article 6) is not used in Cartagena Protocol or EU legislation
- ❑ 0 % treshhold for LLP

BIOSAFETY LAW

- ❑ Inconsistent and contradictory w/ itself and implementing regulations
 - ❑ Articles on how to work w/ GM plants and animals while it is totally banned to grow these
 - ❑ While objective is safety, socio-economic and ethical considerations are also included
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BIOSAFETY LAW

- ❑ The production of GM plants and animals is prohibited
- ❑ The use of GM ingredients in baby food is prohibited
- ❑ The GMO should not propagate itself or its characteristics in the environment...
- ❑ Can't even import GM beans for processing.
- ❑ Liabilities and severe penalties for any transgenic activity including researchers
- ❑ Food use is not allowed
- ❑ Only 36 maize and soy events are approved for feed use

ECONOMIC IMPACT OF THE BIOSAFETY LAW ON THE TURKISH AGRI-FOOD CHAIN (2009-2011)

Cost type	\$ million
Short term costs (October-November 2009) – higher cost of soybeans and derivatives	48.0
Additional stock holding costs (soybeans and derivatives)	47.7 (477)
GMO testing of import consignments	0.7 to 5.8
Demurrage (delay) charges	47.0
Higher price of domestic corn	417.0
Replacement of soy oil in food uses	73.7
Replacement of corn oil	43.5
Premia for certified non GM corn for food uses	33.0
Replacement of soy protein derivatives and lecithin	13.2 to 14.6
Higher price for pet food ingredients	8.5
Inability to access soybeans and derivatives inn the poultry and egg sectors: additional feed costs and production losses (late 2009/early 2010)	103.0
Total	835.3 to 841.8 (1,312.3 to 1,318.8)

Source: Brookes, 2011

BIOTECHNOLOGY STRATEGY AND ACTION PLAN

- ❑ Designated as priority research area since 1980
- ❑ Limited funding until 2000
- ❑ Biotechnology Strategy and Action Plan 2013-2018
- ❑ Increased funding to about USD 500 million
- ❑ 26 Biotechnology Research Centers
- ❑ Biosimilar drug development...
- ❑ Agricultural biotechnology?

CONCLUSIONS:

- ❑ GMO's are not produced but some imported
- ❑ Therefore punishing Turkish farmers
- ❑ Import is possible but “illegal”
- ❑ Research is possible but “illegal”
- ❑ Immediate revision of the Biosafety Law is needed for compliance w/ the EU regulations
- ❑ Science based and transparent biotechnology governance is needed for being competitive in the globalized world.