



Perception of coexistence measures by farmers in five European Member States

Pascal Tillie, Emilio Rodríguez-Cerezo
(European Commission, Joint Research Centre)

Thomas Venus
(Wageningen University)

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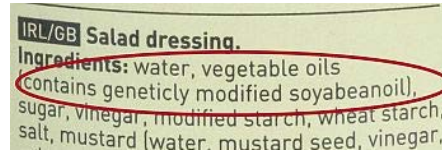


www.price-coexistence.com



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Coexistence for separate marketing



Crop farming (e.g., maize)	Food product (e.g., cornflakes)	Animal product (e.g., poultry, milk)
GM	GM	Conv.
Conv.	Conv.	GM-free

Coexistence at farm-level

- Farmers' choice to grow and market GM or non-GM crops depends on coexistence
- Coexistence depends on coexistence measures
- Coexistence measures effectiveness depends on farming conditions
- EU Directive 2001/18/EC obligates each EU Member State to adopt national coexistence measures



Study idea and finding

- Coexistence measures are costly
- How do the measures affect farmers' decision to grow GM?
 - Survey of 1,408 farmers in 5 EU Member States: Germany, Portugal, Romania, Spain, UK
 - Result:
 - Coexistence measures constraining planting decision of farmers are regarded as most burdensome.
 - Public GMO perception important



	2007	2008	2009	2010	2011	2012	2013
Spain	75.148	79.269	76.057	76.575	97.325	116.306	136.962
France	21.147	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Czech Rep	5.000	8.380	6.480	4.680	5.090	3.080	2.800
Portugal	4.500	4.851	5.094	4.868	7.723	9.278	8.171
Germany*	2.685	3.171	n.a.	n.a.	n.a.	n.a.	n.a.
Slovakia	900	1.900	857	1,248	760	189	100
Romania	350	7.146	3.244	822	588	217	834
Poland	320	3.000	3.000	3.000	3.900	4.000	n.a.
Total GM maize	110.050	107.717	94.750	91.193	115.386	133.679	148.867

Source: www.gmo-compass.org referring to: Industrieverband EuropaBio, ISAAA, USDA / Foreign Agriculture Service (2010, 2011, 2012, 2013)

* Source: Site register of the Federal Bureau for Consumer Protection and Food Safety, BVL

	DE	ES	PT	RO	UK
Age	51.0	52.4	49.3	45.6	55.3
Gender (% male)	95.7	99.2	90.9	89.5	98.1
Size of farm (ha)	1147.3	55.5	171.1	710.1	403.8
% land rented	65.2	25.2	27.5	87.3	34.4
Staff number	21.7	1.9	2.6	10.3	4.0
Sample size	47	1,015	45	82	214



Ex-ante measures

- Compulsory registration
- Temporal isolation distance
- Spatial isolation minimum distance (150m, 300m)
- Buffer rows (12m)
- Public GMO register



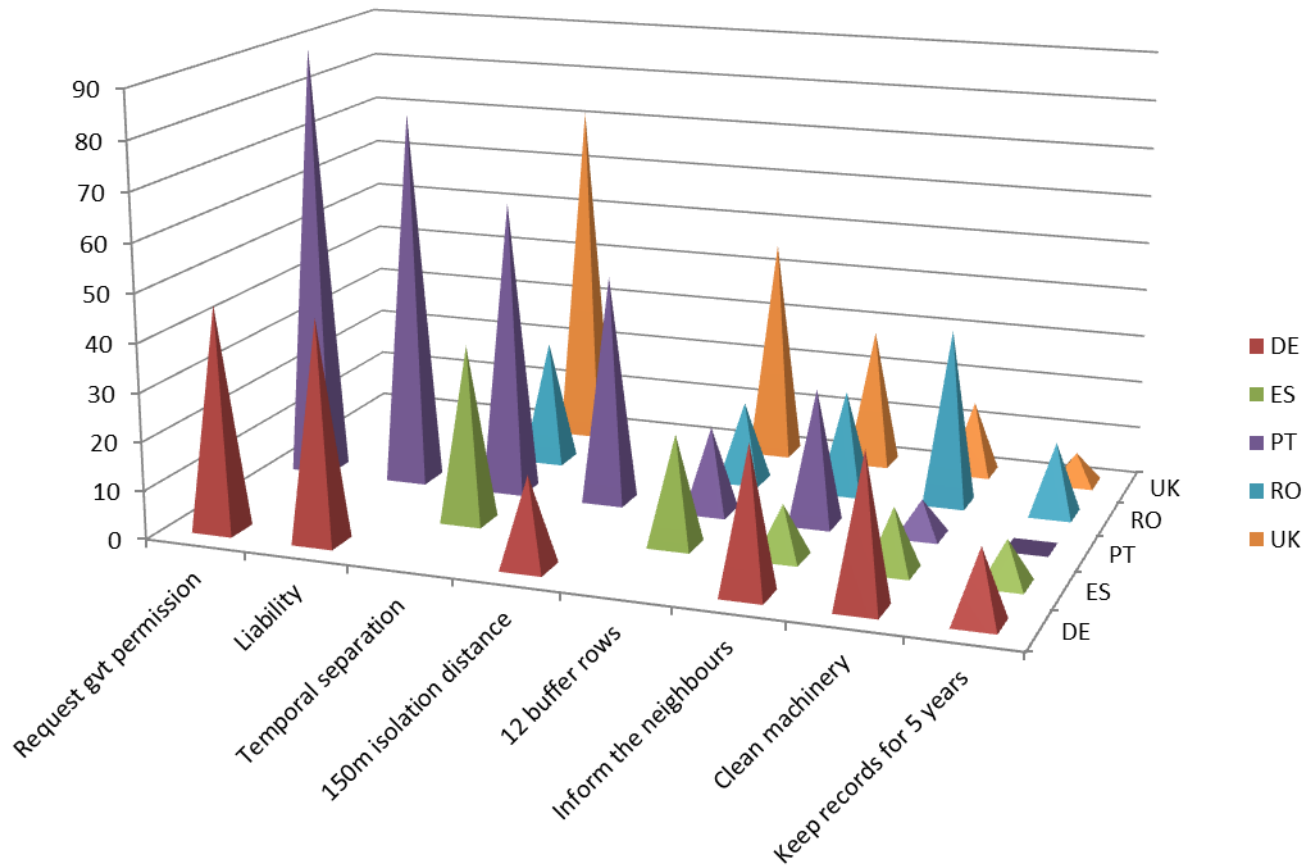
Ex-ante measures (Contd.)

- Notify neighbors about intention to cultivate GM plants
- Obligation to inquire information from the lower nature conservation authority
- Avoid commingling (e.g., cleaning mashinery)
- Crop rotation (no conventional maize one year after Bt)
- Documentation: Keep records for 5 years

Ex-post liability

- Property right with non-GM farmer
- Strict liability
- Joint liability





General picture

- Farmers regard as burdensome:
 - Administrative measures that restrict their freedom of choice
 - Practical measures involving coordination with others

- Other administrative measures and obligation to inform are unproblematic

- Some differences arise from agronomic variation



(Expected) yield and gross margin increase

	DE	ES	PT	RO		UK	
Crop considered	Maize	Maize	Maize	Maize	Maize	Oilseed rape	Sugar Beet
Yield increase (%)	9.3	14.0	9.1	18.3	14.0	4.0	5.5
Gross margin (EUR/ha)	34	n/a	157	179	18	55	38

Why do/did farmers not adopt GM crops?

Values in %

	DE	ES	PT	RO	UK	average
A majority in society is opposed to it	80	37	59	40	62	56
It is associated with complicated management (e.g., coexistence rules like refuge areas, etc.)	50	29	57	68	57	52
I prefer not to change my type of crop	5	83	27	66	39	44
The seed would be too expensive and is not easily available	15	77	0	78	45	43
I think GM maize / oilseed rape / sugar beet would be difficult to sell	55	11	5	30	60	32
I cultivate the crop under specific standards that forbid GM (i.e., organic)	0	72	14	62	9	32
I have more faith in the use of insecticides to combat pests and diseases	5	44	5	27	47	26
I do not think there would be an increase in economic returns	20	33	9	23	39	25
I do not think there would be an increase in yields	15	32	9	21	34	22
It would cause conflict with my neighbors	20	12	5	15	49	20
I do not believe in these new kinds of crops	15	38	0	10	25	18

Table 3: Trends in support for GM food (excluding DKs)

% respondents who agree or totally agree that GM food should be encouraged					
	1996	1999	2002	2005	2010
United Kingdom	52	37	46	35	44
Ireland	57	45	57	43	37
Portugal	63	47	56	56	37
Spain	66	58	61	53	35
Denmark	33	33	35	31	32
Netherlands	59	53	52	27	30
Norway	37	30			30
Finland	65	57	56	38	30
Belgium	57	40	39	28	28
Sweden	35	33	41	24	28
Italy	51	42	35	42	24
Austria	22	26	33	24	23
Germany	47	42	40	22	22
Switzerland	34				20
Luxembourg	44	29	26	16	19
France	43	28	28	23	16
Greece	49	21	26	14	10
Czech Republic				57	41
Slovakia				38	38
Malta				51	32
Hungary				29	32
Poland				28	30
Estonia				25	28
Slovenia				23	21
Latvia				19	14
Lithuania				42	11
Cyprus				19	10
Iceland					39
Romania					16
Bulgaria					13
Croatia					13
Turkey					7



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	DE	ES	PT	RO	UK*
Issues with neighbouring farmers (%)	0.0	0.4	4.3	9.8	63.1
Issues with neighbouring beekeepers (%)	18.5	0.1	0.0	2.4	56.1

- UK farmers expect much higher problems than actually the case in growing countries.

Bee keeper conflicts

- Conflicts lead to honey bee case
- MON 810 was not approved for food
- Bee keeper could not sell honey with Bt pollen
- Still: Honey with pollen of GM crops without food approval cannot be sold.
- 2014: EU commission classify honey as natural component instead of ingredient (labeling unnecessary if GM approved)



Conclusion

- Germany, Romania: Mainly above average size farms planted Bt maize
- Constraints to planting decision of farmers are most burdensome
- Information provision to neighbor or public itself unproblematic.
- However, potential externalities (e.g., conflicts, field destruction).

