

The Future of Science  
Tenth World conference - The eradication of hunger

Venice, 19th September 2014

# Safety and innovation on the table: trends in public perception of GMO and food related issues

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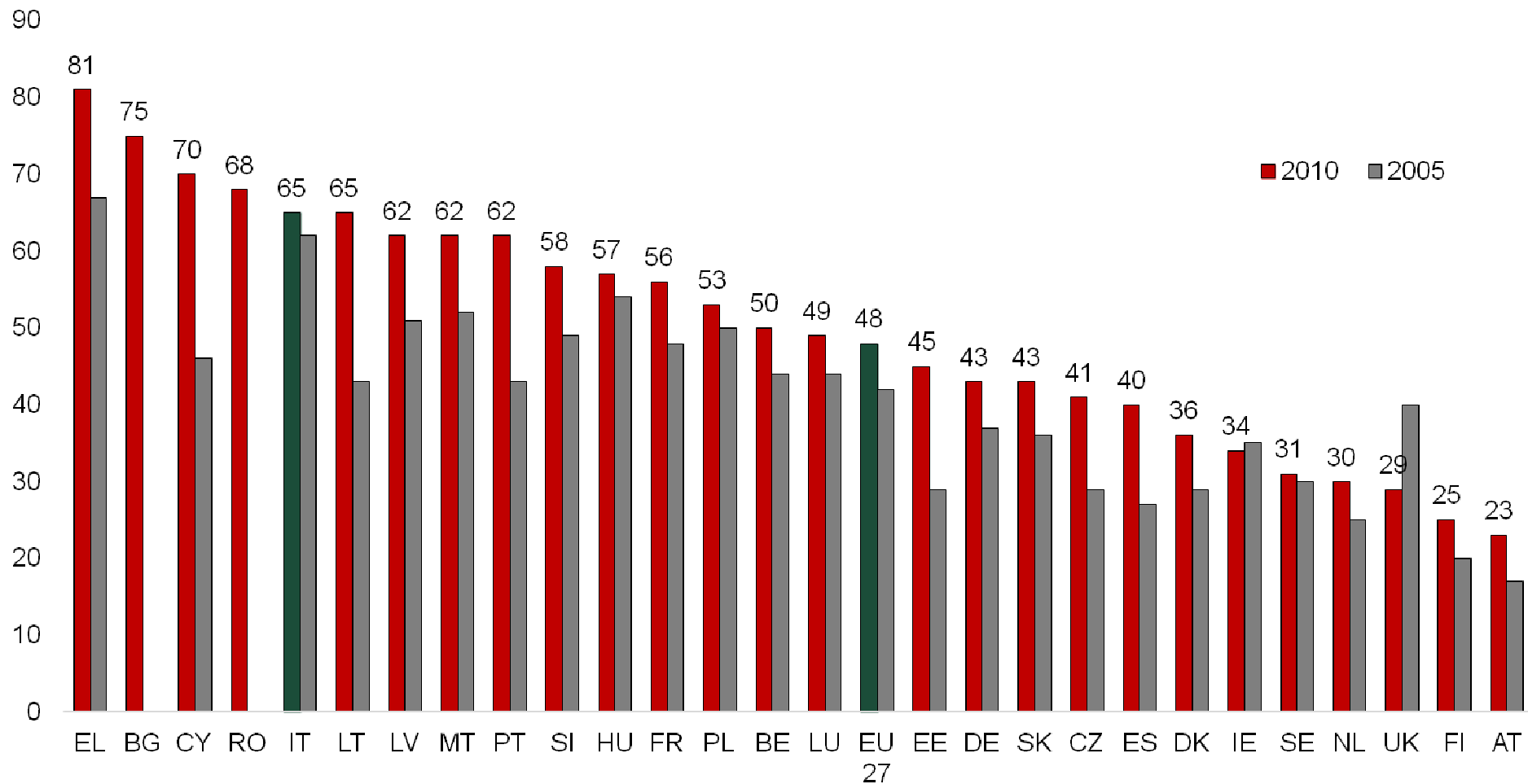
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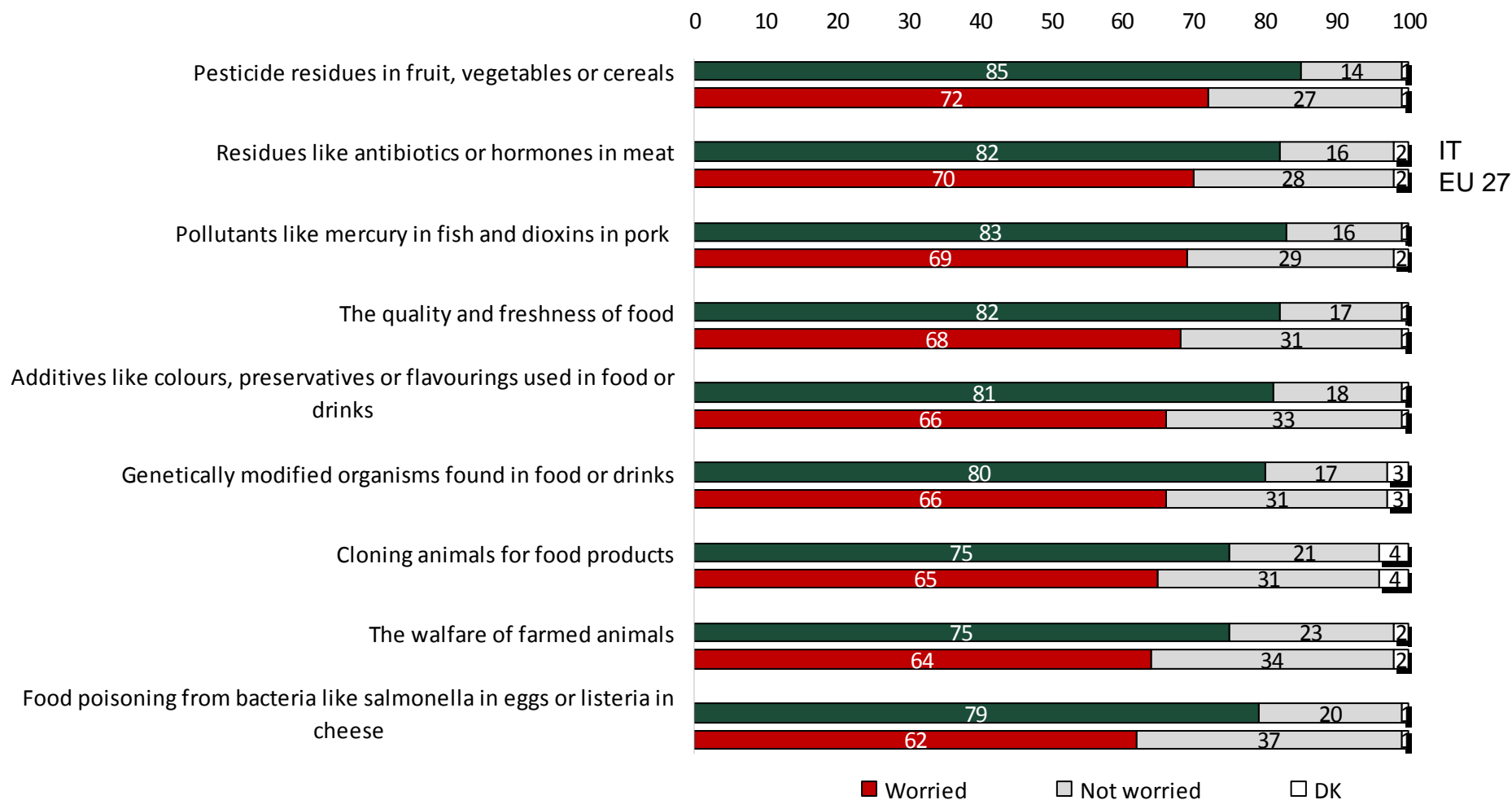


# European citizens who think the food they eat could damage their health, 2005-2010



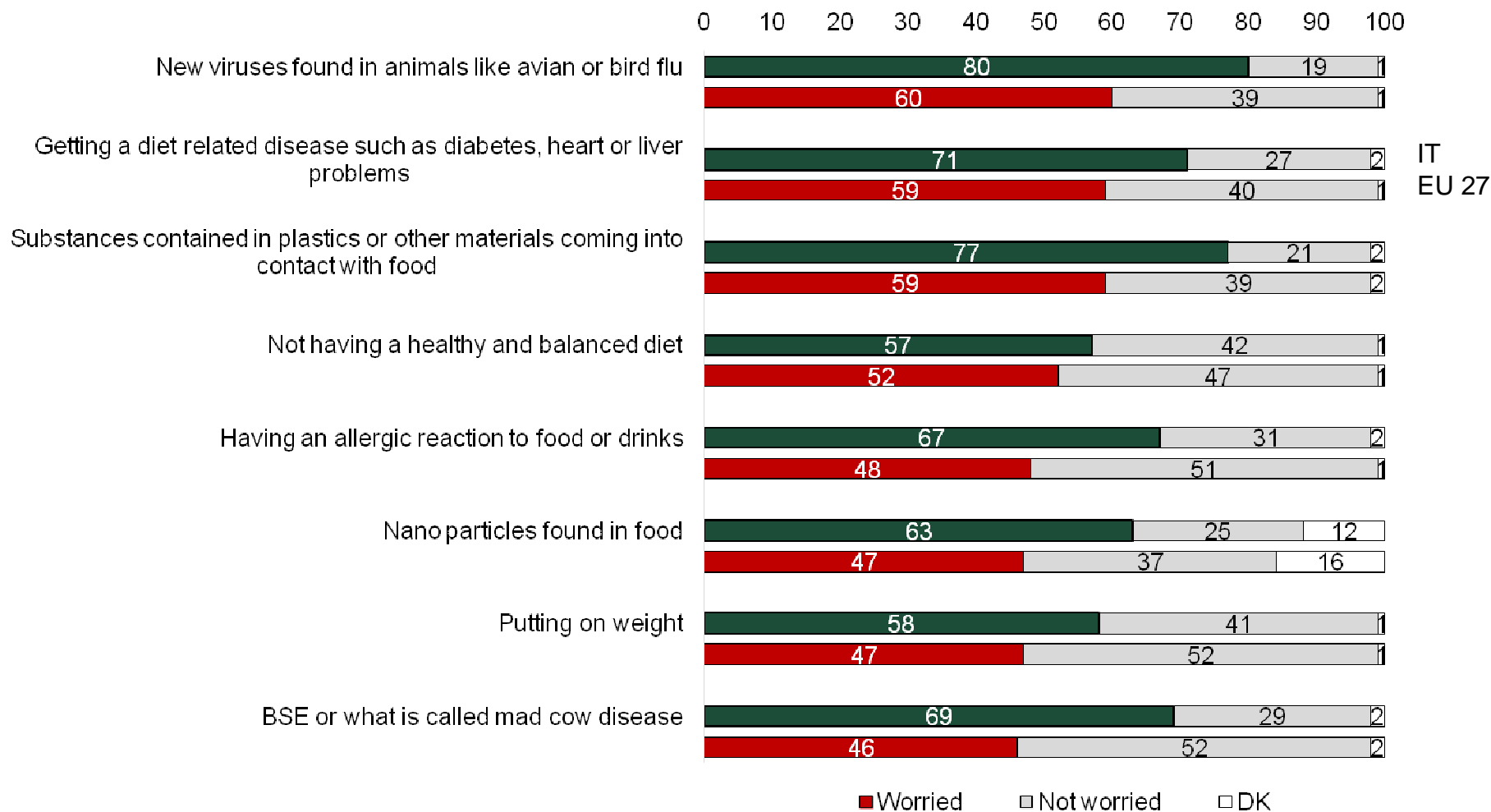
Source: European Commission, Special Eurobarometer 354. Food Related Risks, Luxembourg Office for Official Publications of the European Commission, november 2010.

# EU/IT Citizens worried about food related issues



Source: European Commission, Special Eurobarometer 354. Food Related Risks, Luxembourg Office for Official Publications of the European Commission, november 2010.

# EU/IT Citizens worried about food related issues



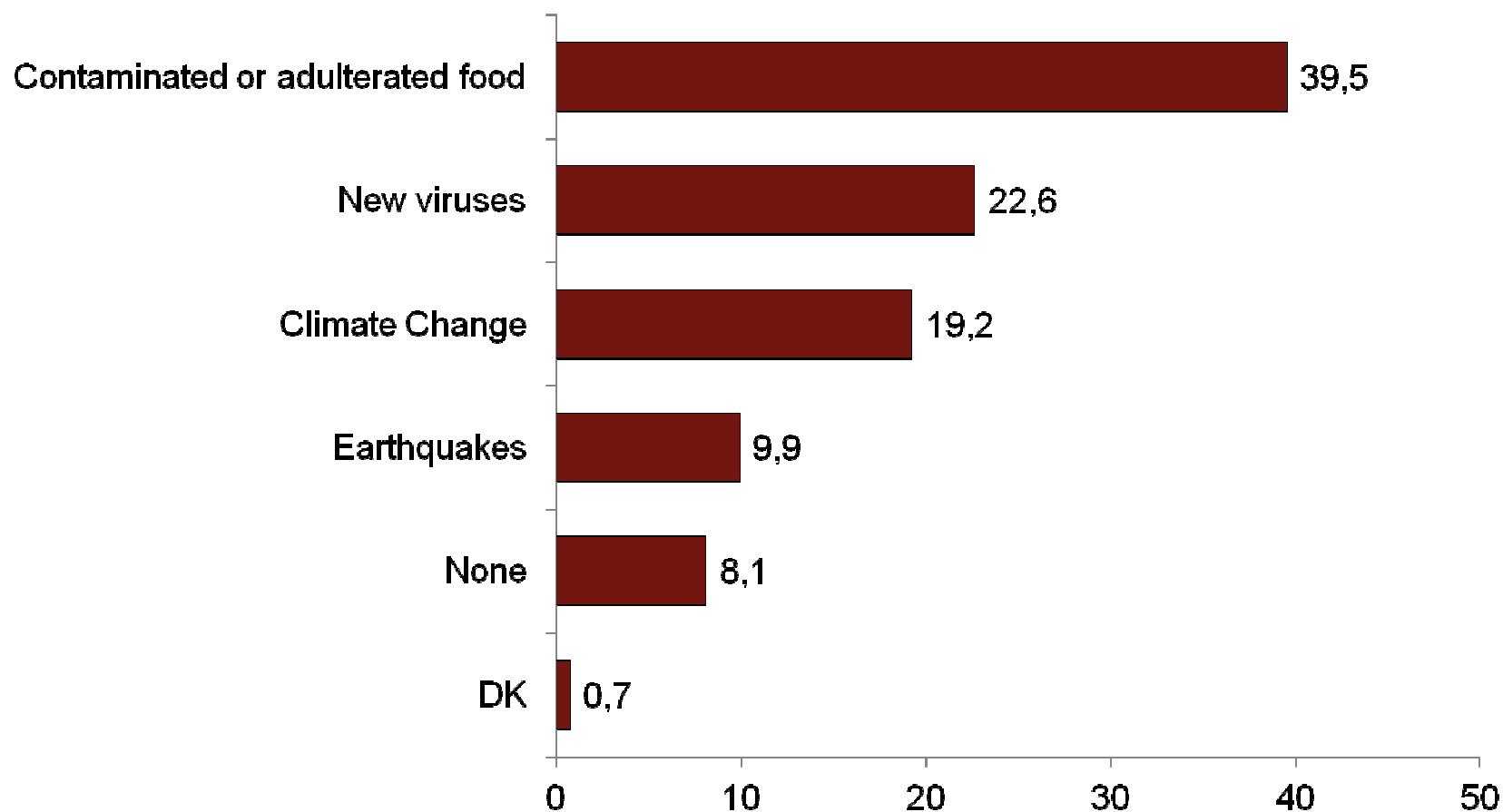
Source: European Commission, Special Eurobarometer 354. Food Related Risks, Luxembourg Office for Official Publications of the European Commission, november 2010.

Suppose a serious food risk were found in a food you eat regularly such as fish, chicken or salad. How much confidence would you have in the following sources to give you accurate information about this risk?

	Confident		Not confident		DK	
	EU 27	IT	EU 27	IT	EU 27	IT
Your physician/ doctor and other health professionals	84	75	14	23	2	2
Family and friends	82	80	16	18	2	2
Consumer organisations	76	71	20	25	4	4
Scientists	73	66	23	29	4	5
Environmental protection groups	71	68	25	27	4	5
National and European food safety agencies (EFSA)	64	61	27	30	9	9
Farmers	58	54	38	40	4	6
European institutions	57	58	36	34	7	8
Media (TV, newspapers, radio)	48	41	49	54	3	5
(NATIONALITY) Government	47	43	50	52	3	5
Information found on the Internet	41	44	43	41	16	15
Supermarkets and shops	36	44	61	50	3	6
Food manufacturers	35	38	62	56	3	6

Source: European Commission, Special Eurobarometer 354. Food Related Risks, Luxembourg Office for Official Publications of the European Commission, november 2010.

# Italian citizens' main concerns for their health and safety

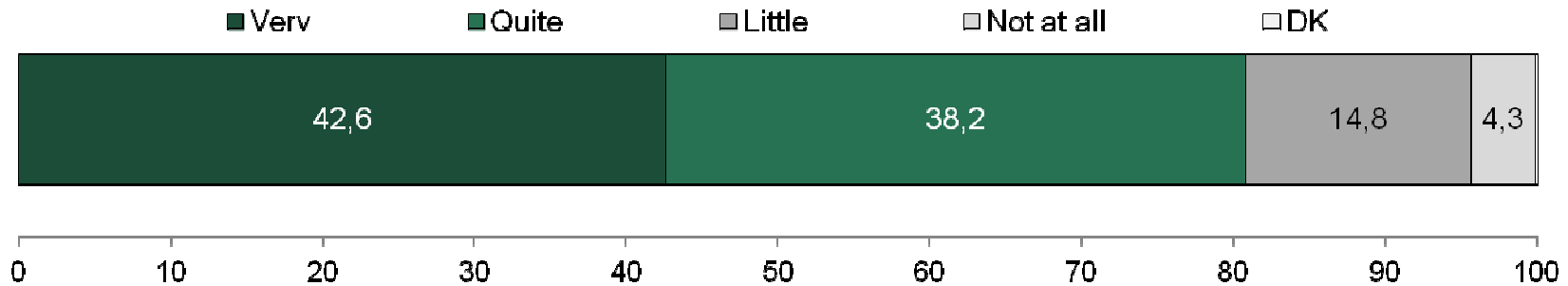


Source: *Observa, Science in Society Monitor*, 2013, n=1.005.

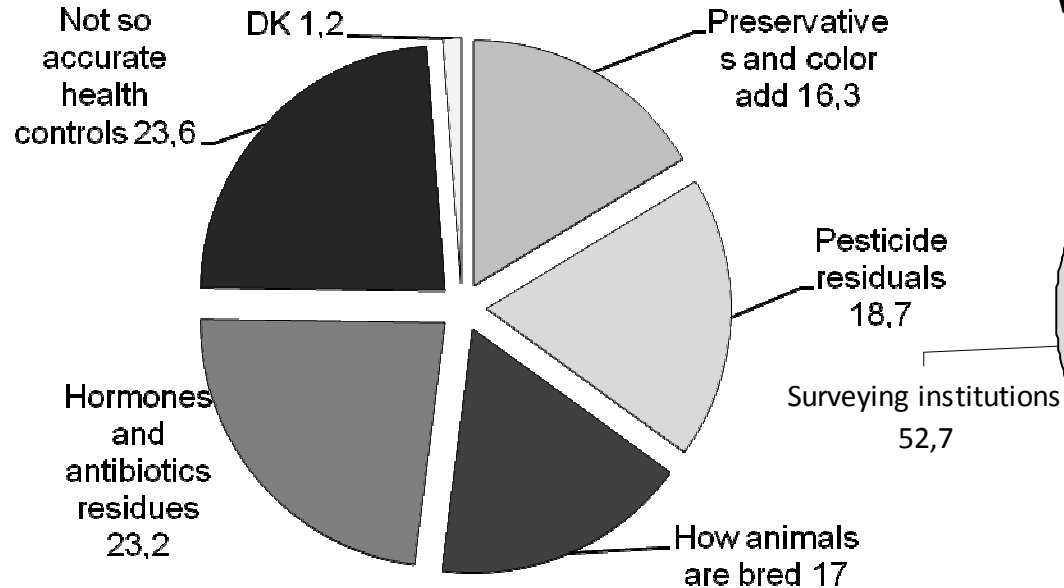
# Italians and food safety

Source: *Observe Science in Society*, 2013, n=1005

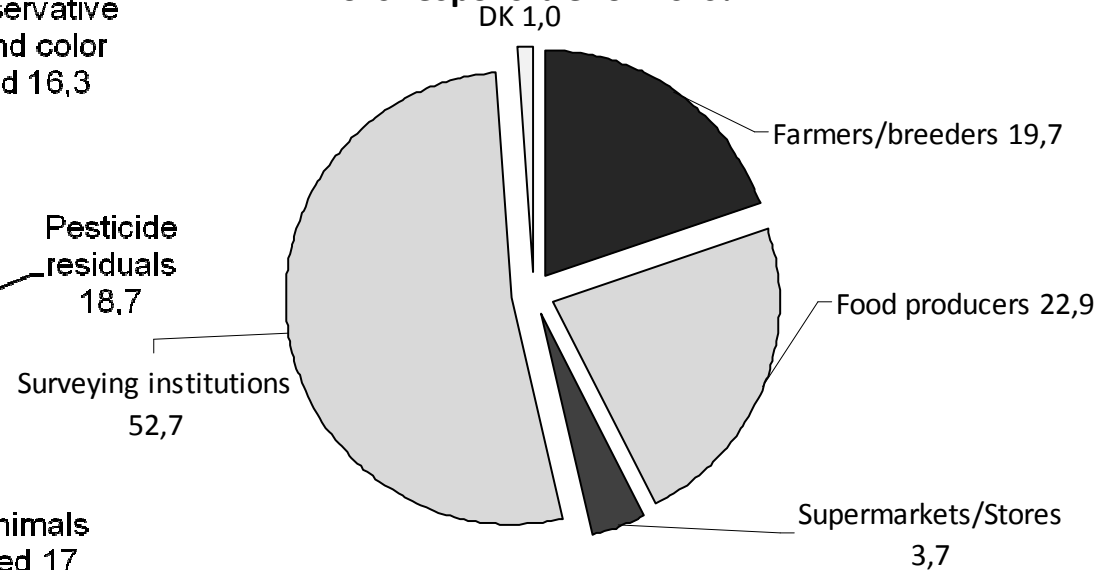
## How much are you worried for food safety?



## Greatest concern



## Who is responsible for risks?





# How much are worried about the safety of food you eat?

		Very much	Quite	Little	Not at all	Very much/quite	Little/Not at all
Gender	M	37,2	42,6	15,2	5,0	79,8	20,2
	F	47,7	34,2	14,4	3,7	81,9	18,1
Age class	15-29	32,4	34,6	27,0	6,0	67,0	33,0
	30-44	45,3	43,8	7,8	3,1	89,1	10,9
	45-59	49,0	34,7	14,7	1,6	83,7	16,3
	60 +	41,2	38,7	13,4	6,7	79,9	20,1
Educational level	Primary	48,1	35,4	12,3	4,2	83,5	16,5
	Middle	46,6	34,5	14,4	4,5	81,1	18,9
	High	36,9	44,0	15,0	4,1	80,9	19,1
	Univ	34,5	41,2	20,1	4,2	75,7	24,3
Scientific literacy level	0	51,0	36,6	7,6	4,8	87,6	12,4
	1	55,7	28,5	11,7	4,1	84,2	15,8
	2	33,1	42,2	19,4	5,3	75,3	24,7
	3	34,5	45,9	16,5	3,1	80,4	19,6
Media exposure to science	Low	44,3	37,0	15,0	3,7	81,3	18,7
	Medium	38,9	40,5	15,4	5,2	79,4	20,6
	High	45,4	38,3	12,8	3,5	83,7	16,3
Trust in science	Low	49,4	36,5	12,9	1,2	85,9	14,1
	Medium	39,6	41,2	15,6	3,6	80,8	19,2
	High	46,6	31,8	15,4	6,2	78,4	21,6
Openness to the new	Low	38,1	35,6	16,9	9,4	73,7	26,3
	Medium	41,3	41,9	13,8	3,0	83,2	16,8
	High	35,8	46,0	15,4	2,8	81,8	18,2

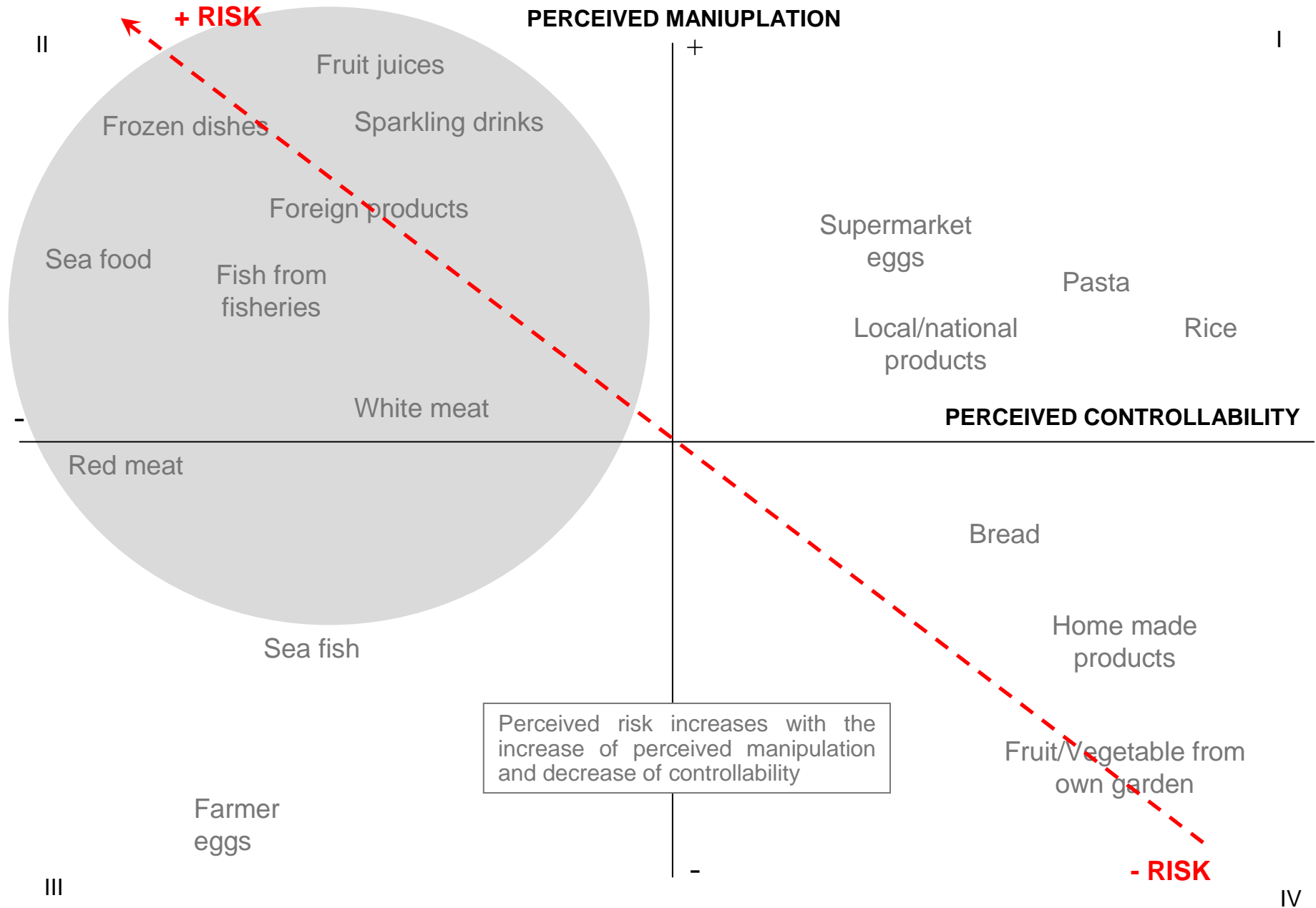
Source: Observa, Science in Society Monitor, 2013, n=1005.

# What is your greatest concern regarding the safety of food you eat?

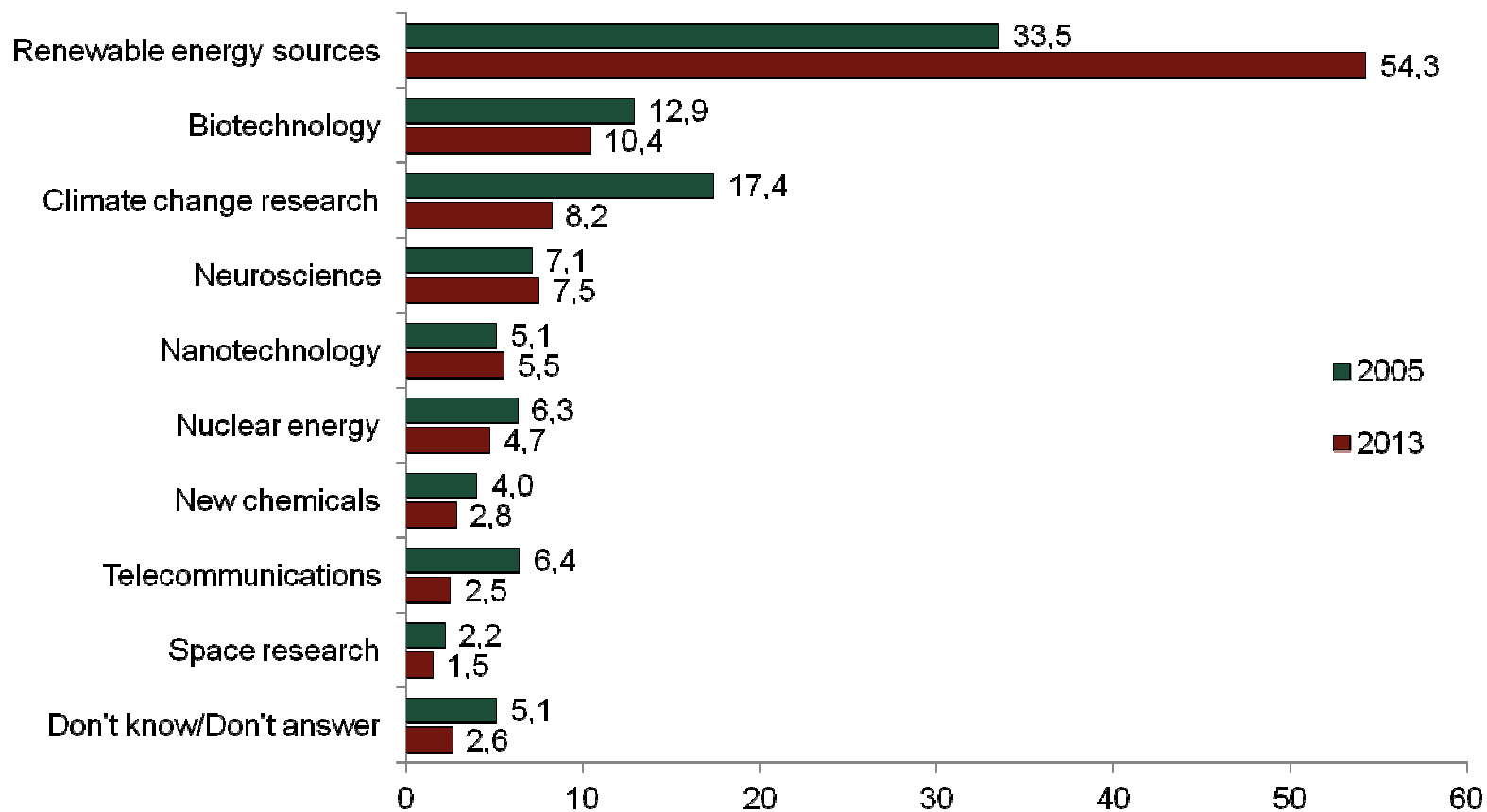
		Preservatives and color additives	Pesticide residuals	How animals are bred	Hormones/antibiotics residuals	Unaccurate health controls
Gender	M	19,5	15,7	18,6	20,4	25,8
	F	13,7	21,9	15,9	26,4	22,1
Age class	15-29	22,8	15,2	18,1	18,1	25,8
	30-44	15,7	18,5	16,1	26,6	23,1
	45-59	12,4	20,2	17,8	26,9	22,7
	60 +	16,6	20,4	17,6	21,1	24,3
Educational level	Primary	20,1	22,1	14,6	21,6	21,6
	Middle	17,5	18,4	17,0	23,4	23,7
	High	14,3	17,9	20,8	22,6	24,4
	Univ	11,7	17,1	14,4	29,7	27,1
Scientific literacy level	0	24,3	10,3	11,8	14,0	39,6
	1	17,4	17,0	18,5	27,5	19,6
	2	13,8	22,9	17,9	23,5	21,9
	3	14,2	20,6	18,3	24,3	22,6
Media exposure to science	Low	17,7	19,0	22,0	21,2	20,1
	Medium	17,0	19,3	10,2	25,1	28,4
	High	11,8	16,2	18,4	27,9	25,7
Trust in science	Low	14,6	29,3	18,3	15,9	21,9
	Medium	18,1	17,7	16,4	24,2	23,6
	High	13,2	19,1	19,5	25,7	22,5
Openness to the new	Low	14,0	21,7	12,6	25,9	25,8
	Medium	19,9	17,4	16,1	21,1	25,5
	High	13,2	18,5	22,4	24,4	21,5

Source: Observa, Science in Society Monitor, 2013, n=1005.

# A map of food risk perception



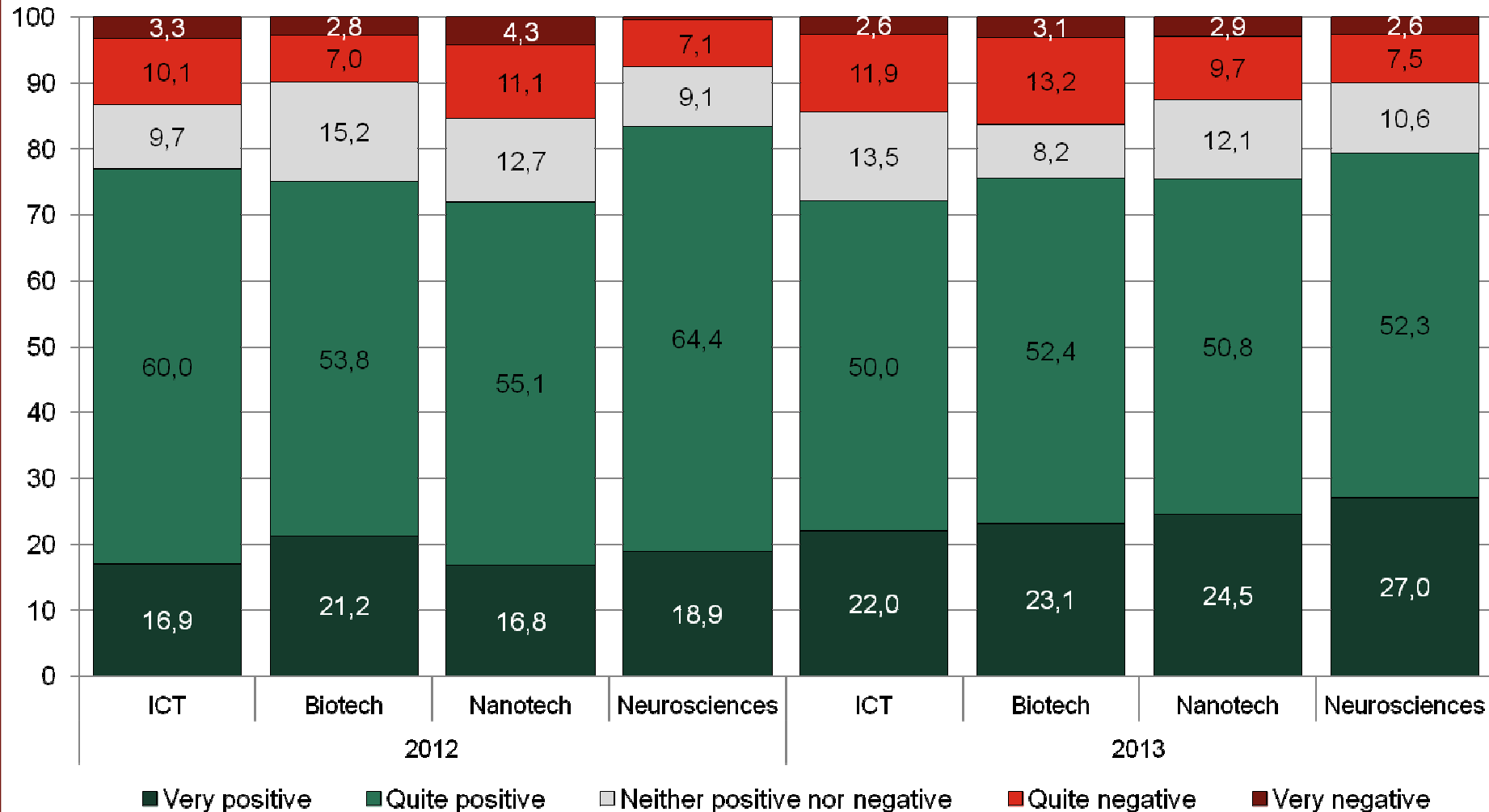
# Priorities in research investments, according to Italian citizens



Source: Observa, Science in Society Monitor, 2005: n=953, 2013: n=1005.

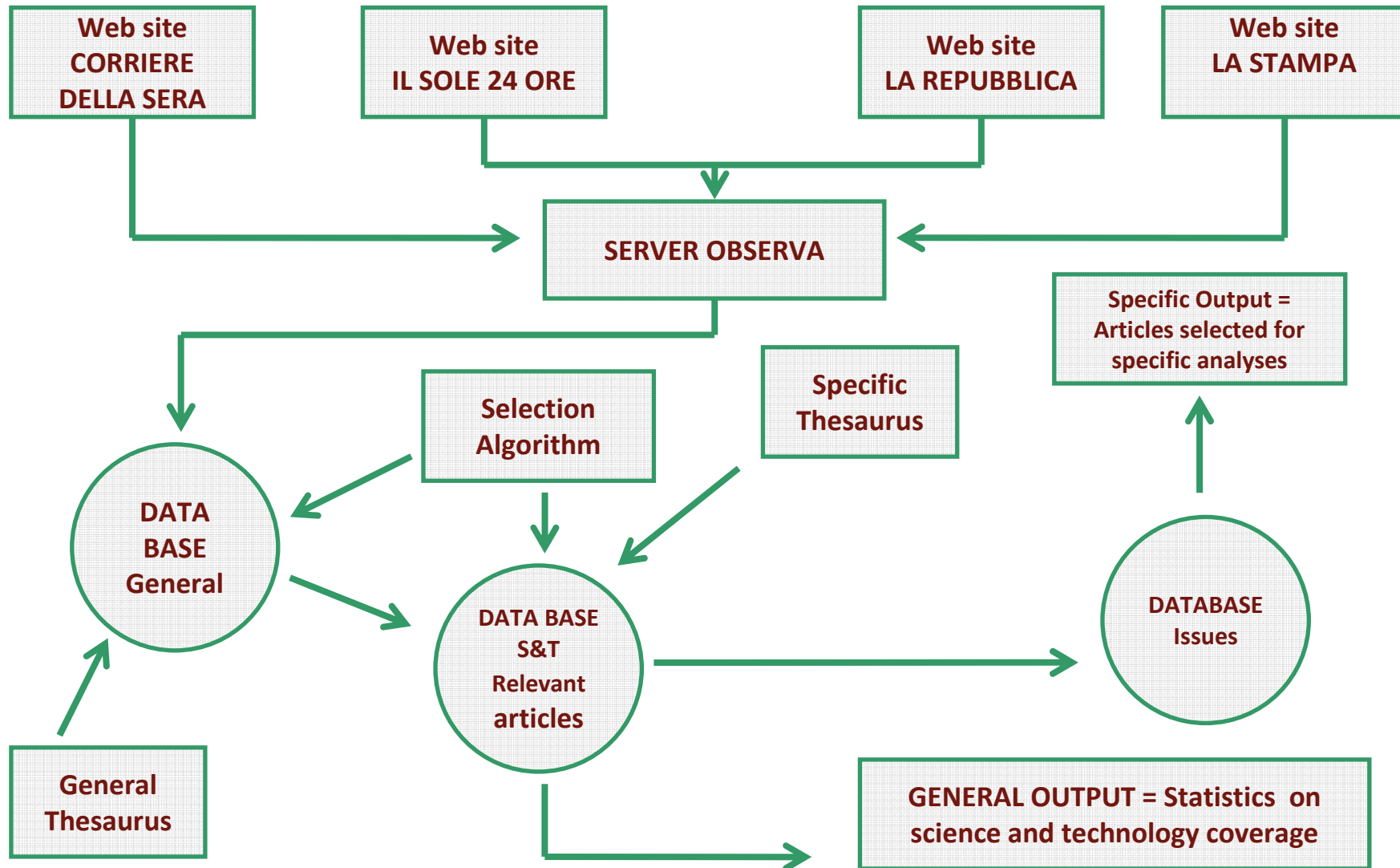
# Perceived changes brought about by different fields

(% on the total of citizens who feel informed on each field)



Source: Observa, Science in Society Monitor, 2012: n=995, 2013: n=1005.

# Science in the Media Monitor



ent Selection

ent documents  
 last 30 days

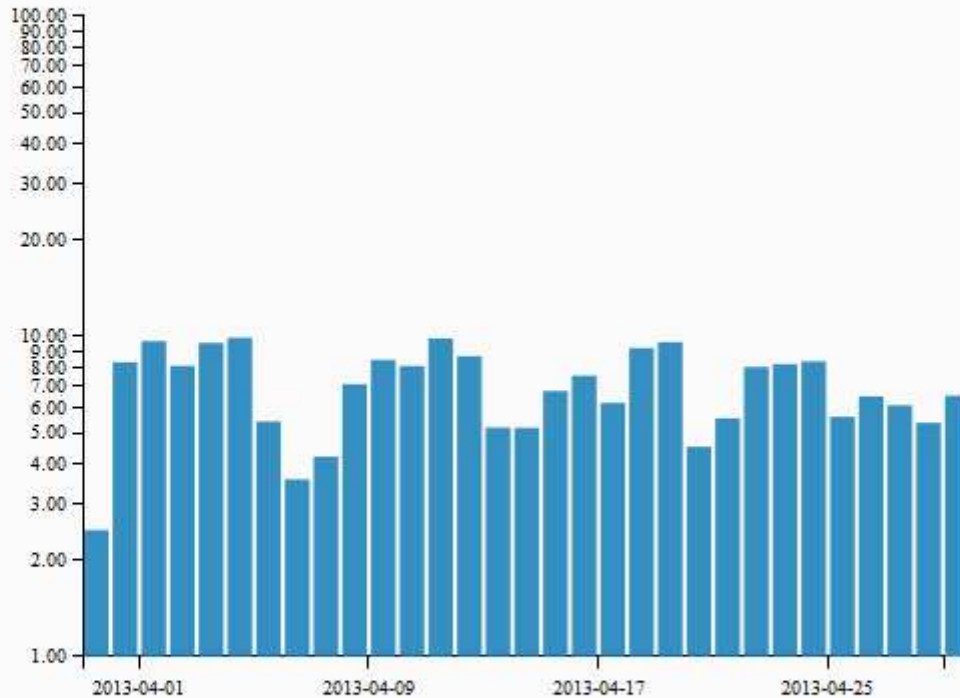
le Classification

levant: 16131  
 nt: 1251

ance Classes



SALIENCE TREND IN THE LAST 30 DAYS



Term Clouds

Thesaurus Keywords

android apple atomic biolog cancro cardia  
 cellule chimic enr co2 computer digita  
 elettron farmac fisic fisica fotovoltaic  
 genetica ingegneria inquinamento iphone  
 matematica medic microsoft molecol  
 nature neurolog nobel nucleare onco pc pe  
 protein psichiatr psicolog ricercator  
 rinnovabil robot satellit science scienziat  
 smartphone software staminal technol  
 trapiant tumor university wifi

Thesaurus Multipliers

ambiental antibiotic artificial clim ecolog emis  
 geni innovazion invenzion laborator particell  
 ricerca ricerche scientific scopert  
 tecnolog virtuale

TOP TEN RELEVANT DOCUMENTS IN THE LAST 30 DAYS

Il bosone di Higgs e quelle scoperte che cambiano la vita

[http://www.corriere.it/scienze/13\\_aprile\\_15/bosone-higgs-scoperte-cambiano-la-vi...](http://www.corriere.it/scienze/13_aprile_15/bosone-higgs-scoperte-cambiano-la-vi...)

2013-04-15 - NEWSPAPER - CORRIERE/HomePage,CORRIERE/scienze

La scoperta della ricerca epigenetica del cane del Cane Il bosone di Higgs e quelle scoperte che cambiano la vita

# GMO in the Italian Media, 2008-2014

Source: *Observa Science in the Media Monitor, 2014*

Newspaper	n	%
AVVENIRE	19	4,1
CORRIERE	76	16,4
GIORNALE	91	19,6
LASTAMPA	67	14,4
MATTINO	8	1,7
MESSAGGERO	5	1,1
REPUBBLICA	50	10,8
SOLE24ORE	148	31,9
Totale	464	100,0

Year	n	%
2008	6	1,3
2009	8	1,7
2010	133	28,7
2011	60	12,9
2012	63	13,6
2013	112	24,1
2014	82	17,7
Totale	464	100,0

	2008	2009	2010	2011	2012	2013	2014	Totale
AVVENIRE				3	5	5	6	19
CORRIERE	1	4	17	14	14	17	9	76
GIORNALE			38	21	10	16	6	91
LASTAMPA	1	3	13	3	5	23	19	67
MATTINO						5	3	8
MESSAGGERO						3	2	5
REPUBBLICA			1	4	13	15	17	50
SOLE24ORE	4	1	64	15	16	28	20	148
Totale	6	8	133	60	63	112	82	464



# Word cloud of most common terms in Italian daily media coverage of GMO, 2008-2014

Source: *Observe Science in the Media Monitor, 2014*

Showing top 50 of 28684 possible words

agricoltori (151) agricoltura (183) alimentare (160) bruxelles (128) campo (133) coldiretti (165)  
coltivazione (179) commissione (159) consumatori (127) decisione (120) dell'ambiente (114) esempio (123)  
euro (159) europa (157) europea (222) fronte (113) galan (124) geneticamente (254)  
italia (341) italiana (155) lega (113) legge (178) mais (345) mercato (167) milano (129)  
ministero (127) modificati (129) modo (184) nuove (117) **ogm** (1384) paesi (214) pi (188)  
piante (117) politica (193) politiche (147) presidente (270) prodotti (393)  
produzione (186) punto (132) qualita (125) regioni (115) ricerca (297) rispetto (179) roma (141)  
salute (180) scienza (137) sicurezza (126) spiega (112) sviluppo (148) ue (202)

# Opinions on whether research on agricultural biotechnologies (GMO) should continue in Italy

	2003	2013	Why	2003	2013
Favorable	57,3	64,2	Science should go forward without limits	20,1	17,7
			GM food could feed Third World populations	25,7	28,4
			Other countries such as US have been using GM food for long time	3,6	5,6
			GM food will reduce costs of fruit/vegetables	3,5	7,7
			Other	1,5	2,6
			DK	2,9	2,2
Against	33,4	30,7	It's all driven by multinationals interests	5,7	1,0
			We don't know what the risks are	11,6	8,4
			Man should not interfere with Nature	14,8	6,8
			I don't trust scientists	1,0	2,3
			Other	0,3	12,2
Undecided	9,3	5,1	Have no competence to decide	6,3	1,4
			Unclear what GMO are	1,9	2,5
			Pros and cons seems balanced	0,9	0,8
			Other	0,2	/
			DK	/	0,4

Source: Observa, Science in Society Monitor, 2003: n=994, 2013: n=1005.

# Opinions on whether research on agricultural biotechnologies (GMO) should continue in Italy

	2003	2004	2008	2010	2013	Why	2003	2004	2008	2010	2013
Favorable	57,3	59,3	44,7	50,8	64,2	Science should go forward without limits	20,1	22,1	19,7	19,4	17,7
						GM food could feed Third World populations	25,7	26,2	10,8	16,0	28,4
						Other countries such as US have been using GM for long time	3,6	3,0	4,0	8,5	5,6
						GM food will reduce costs of fruit/vegetables	3,5	4,3	6,4	3,5	7,7
						Other	1,5	3,7	3,8	1,1	2,6
						DK	2,9	/	/	2,3	2,2
Against	33,4	31,9	23,1	32,4	30,7	It's all driven by multinationals interests	5,7	5,3	6,2	11,2	1
						We don't know what the risks are	11,6	10,8	6,6	10,2	8,4
						Man should not interfere with Nature	14,8	14,5	7,8	8,7	6,8
						I don't trust scientists	1	0,2	1,9	0,6	2,3
						Other	0,3	1,1	/	1,7	12,2
						DK	/	/	0,6	/	/
Undecided	9,3	8,8	32,2	16,8	5,1	Have no competence to decide	6,3	4,2	15,6	9,4	1,4
						Unclear what GMO are	1,9	3,0	11,1	5,9	2,5
						Pros and cons seems balanced	0,9	1,3	4,1	1,0	0,8
						Other	0,2	0,3	1,4	0,5	/
						DK	/	/	/	/	0,4

Source: *Observe, Science in Society Monitor*, 2003: n=994, 2004: n=953; 2008: n=996; 2010: n=985; 2013: n=1005.

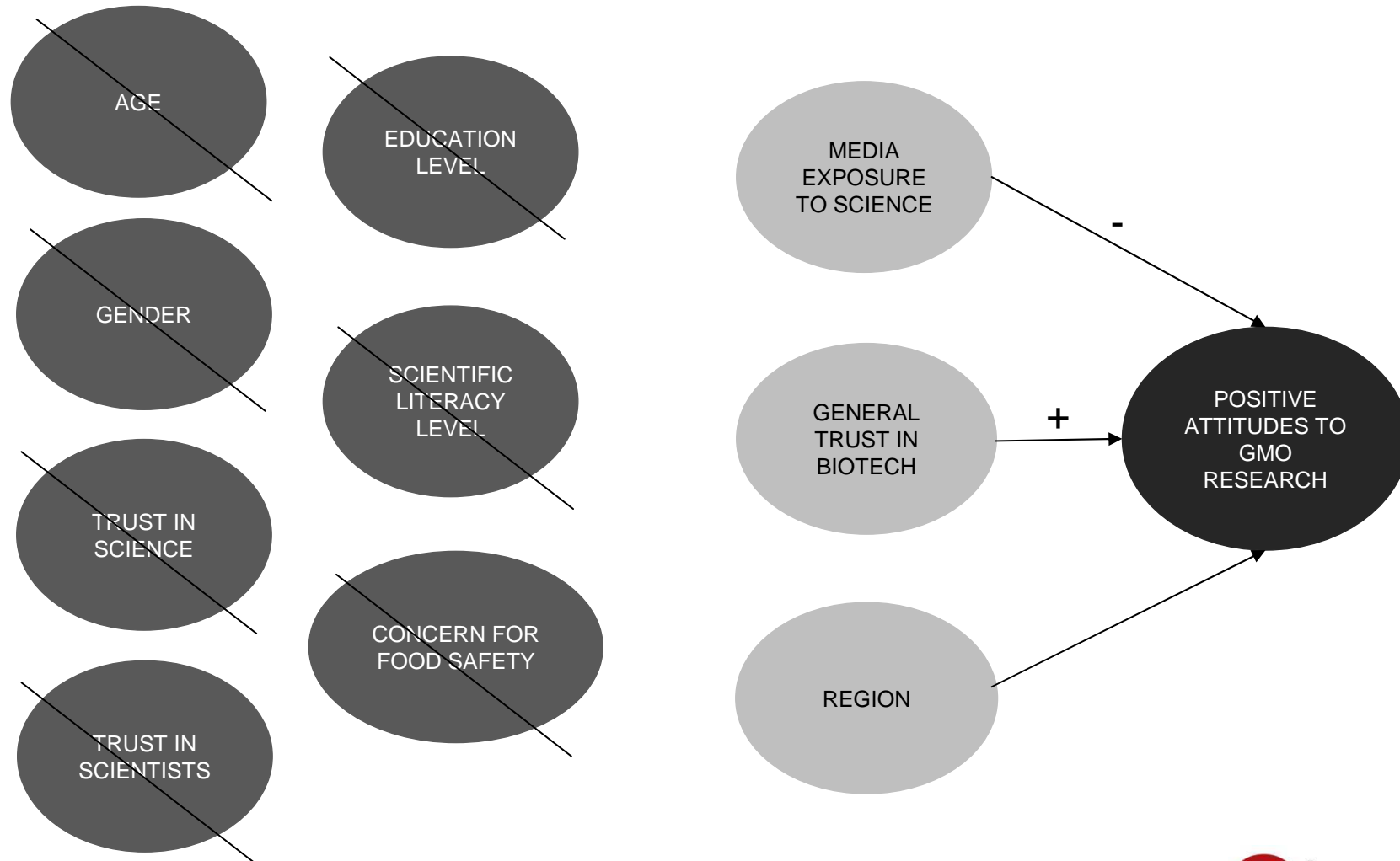
# Regression model to explain positive attitudes to research on agricultural biotechnologies (GMO)

	Modello 1			Modello 2			Modello 3			Modello 4		
	B	E.S.	Sig.	B	E.S.	Sig.	B	E.S.	Sig.	B	E.S.	Sig.
Female	-0,201	0,161	0,214									
Age	-0,175	0,086	0,043	-0,173	0,086	0,044	-0,169	0,086	0,048	-0,148	0,086	0,085
Medium/high education	-0,093	0,173	0,590	-0,109	0,172	0,525						
Scientific Literacy	-0,128	0,088	0,147	-0,126	0,087	0,145	-0,127	0,085	0,137	-0,127	0,085	0,136
Media exposure to science	-0,184	0,081	0,022	-0,174	0,080	0,029	-0,193	0,079	0,015	-0,201	0,079	0,012
Trust in Science	0,111	0,081	0,170	0,117	0,081	0,147	0,137	0,082	0,094	0,132	0,082	0,106
Concern for food safety	-0,032	0,081	0,695									
Trust in scientists	-0,065	0,187	0,728									
Trust in Biotech (general)	0,327	0,079	0,000	0,33	0,079	0,000	0,334	0,080	0,000	0,349	0,081	0,000
North							-0,407	0,160	0,011			
South + islands										0,631	0,176	0,000
Constant	1,009	0,183	0,000	0,87	0,109	0,000	1,008	0,111	0,000	0,624	0,096	0,000

Le variabili sono state ottenute attraverso la costruzione di indici sommatori e poi sono state standardizzate. Le variabili sono state standardizzate per porre a confronto effetti casuali esercitati da variabili esplicative espresse mediante unità di misure diverse. Per analizzare eventuali problemi di multicollinearità è stata costruita una tabella di correlazione: nessuno dei coefficienti di correlazione assume dei valori troppo alti. L'analisi è stata compiuta testando modelli di regressione logistica binaria.

Source: *Observe, Science in Society Monitor.*

# Regression model to explain positive attitudes to research on agricultural biotechnologies (GMO)



Source: Observa, Science in Society Monitor.

# Acknowledgements

- Barbara Saracino for data analysis and statistical modelling.

# To continue the discussion...

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