Title: Similar world-wide patterns in the sex pheromone signal and response in the oriental fruit moth, Grapholita molesta (Lepidoptera: Tortricidae)

Authors: Alan Knight, Wilson Barros, Dolors Bosh, Adriana Escudero, Eduardo Fuentes-Contreras, Jules Hernandez, Yonggyun Kim, Orkun Kovanci, Alexandre Levi, Peter Lo, Fabio Molinari, Joan Valls, and César Gemeno

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Supplementary file "suppl.results". Contains the results of the statistical analyses and one additional figure

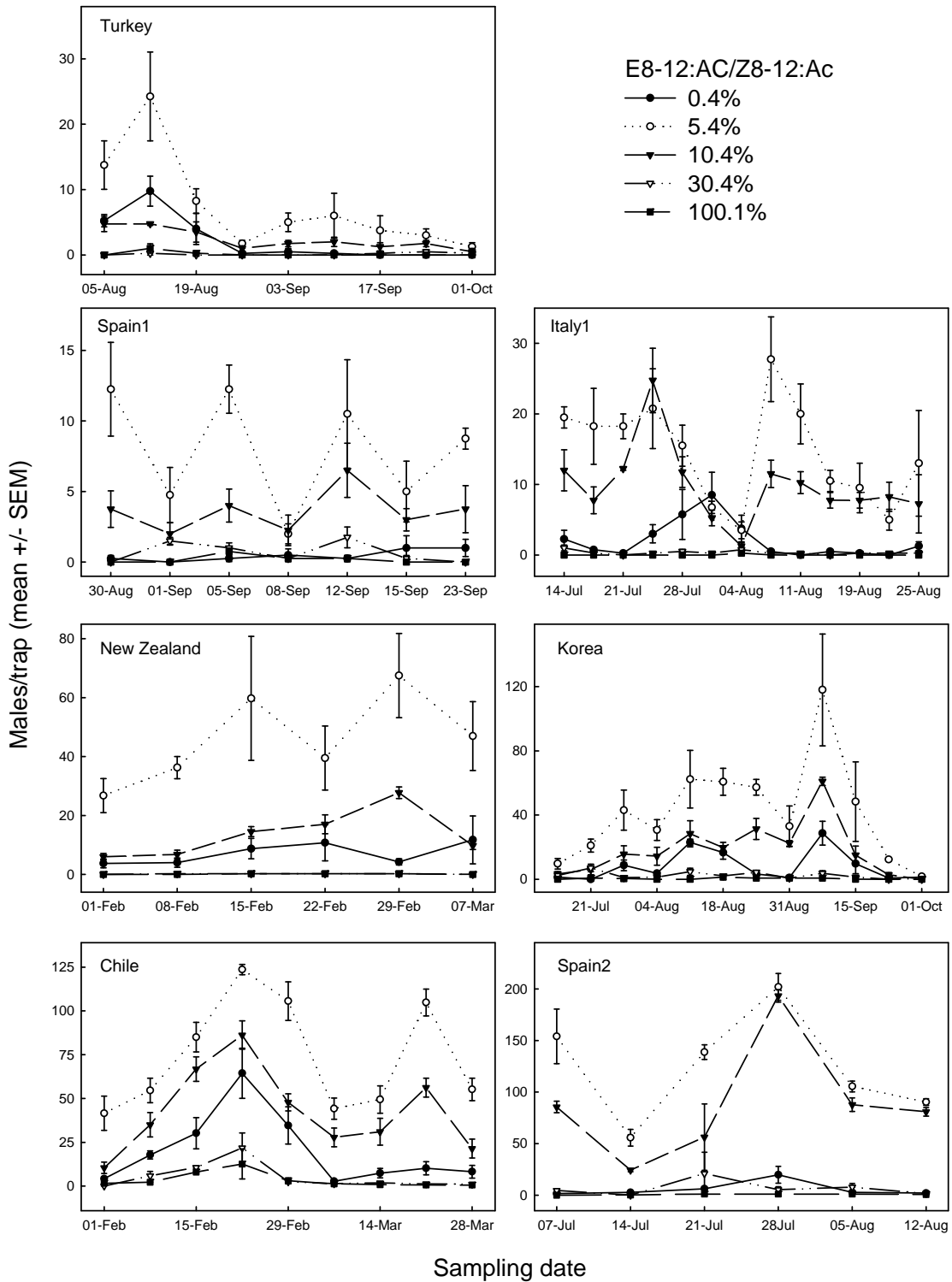**Supplementary results index**

Figure S1. Captures of *G. molesta* in pheromone traps at 7 world locations. Traps baited with different percentages (0.4 to 100.4%) of E8-12:Ac respect to the major compound, Z8-12:Ac

Population	Pheromone blend					
	Hexane	0.4%E	5.4%E	10.4%E	30.4%E	100.1%E
Chile	0.76 (0.15)	19.98 (3.59)	73.78 (5.07)	42.51 (3.93)	5.11 (1.37)	3.40 (1.07)
Italy	0.06 (0.03)	2.19 (0.55)	14.48 (1.37)	9.83 (0.93)	0.33 (0.08)	0.02 (0.02)
Korea	0.00 (0.00)	8.17 (1.78)	41.50 (6.31)	18.31 (2.96)	2.39 (0.45)	0.36 (0.14)
New Zealand	0.04 (0.04)	7.21 (1.81)	46.12 (5.51)	13.62 (1.73)	0.17 (0.08)	0.12 (0.07)
Spain1	0.00 (0.00)	0.46 (0.19)	7.93 (1.17)	3.61 (0.58)	0.68 (0.19)	0.18 (0.08)
Spain2	0.00 (0.00)	5.83 (1.88)	124.37 (11.14)	87.96 (12.21)	6.67 (3.52)	0.62 (0.17)
Turkey	0.08 (0.05)	2.22 (0.65)	7.44 (1.50)	2.36 (0.35)	0.14 (0.06)	0.14 (0.09)
USA1	0.80 (0.44)	0.20 (0.14)	13.90 (4.41)	5.70 (1.32)	0.10 (0.11)	0.10 (0.11)

Table S1. Mean (SEM) number of *G. molesta* males captured per date/plot/trap in traps from 8 world locations loaded with hexane or with 5 pheromone blends varying in the proportion of E8-12:Ac with respect to the major compound Z8-12:Ac.

Generalized linear mixed model fit by the Laplace approximation
Formula: male ~ 0 + trt.pop + (1 | date/plot)
Data: fields
AIC BIC logLik deviance
4955 5221 -2427 4855
Random effects:
 Groups   Name   Variance Std.Dev.
 plot:date (Intercept) 0.099518 0.31546
 date   (Intercept) 0.407104 0.63805
Number of obs: 1526, groups: plot:date, 255; date, 64

Parameter	Estimate	Std. Error	z value	Pr(>|z|)	
trt.popchile-0	2.8355	0.2243	12.639	< 2e-16	***
trt.popchile-10	3.5906	0.223	16.099	< 2e-16	***
trt.popchile-100	1.0646	0.2361	4.509	6.52E-06	***
trt.popchile-30	1.4723	0.2314	6.361	2.00E-10	***
trt.popchile-5	4.1419	0.2225	18.613	< 2e-16	***
trt.popchile-hexane	-0.4394	0.2804	-1.567	0.117081	
trt.popgirona-0	-0.9048	0.3762	-2.405	0.016158	*
trt.popgirona-10	1.1454	0.2728	4.199	2.68E-05	***
trt.popgirona-100	-1.8603	0.5145	-3.616	0.0003	***
trt.popgirona-30	-0.5253	0.3423	-1.535	0.124901	
trt.popgirona-5	1.9329	0.2627	7.359	1.86E-13	***
trt.popgirona-hexane	-3.4697	1.0323	-3.361	0.000776	***
trt.popitaly-0	0.6736	0.2101	3.206	0.001345	**
trt.popitaly-10	2.1536	0.1912	11.266	< 2e-16	***
trt.popitaly-100	-4.0827	1.0173	-4.013	5.99E-05	***
trt.popitaly-30	-1.2495	0.3057	-4.088	4.35E-05	***
trt.popitaly-5	2.5413	0.1895	13.41	< 2e-16	***
trt.popitaly-hexane	-2.9841	0.6067	-4.919	8.70E-07	***
trt.popKorea-0	1.6919	0.2049	8.258	< 2e-16	***
trt.popKorea-10	2.499	0.2002	12.482	< 2e-16	***
trt.popKorea-100	-1.4268	0.3399	-4.198	2.69E-05	***
trt.popKorea-30	0.4626	0.224	2.065	0.038939	*
trt.popKorea-5	3.3175	0.1981	16.748	< 2e-16	***
trt.popKorea-hexane	-3.9917	1.0192	-3.917	8.98E-05	***
trt.popLleida-0	1.6431	0.2859	5.747	9.11E-09	***
trt.popLleida-10	4.3564	0.274	15.898	< 2e-16	***
trt.popLleida-100	-0.5905	0.3759	-1.571	0.116189	
trt.popLleida-30	1.7766	0.2844	6.248	4.16E-10	***
trt.popLleida-5	4.7028	0.2738	17.178	< 2e-16	***
trt.popLleida-hexane	-3.2985	1.0366	-3.182	0.001463	**
trt.popnz-0	1.879	0.2836	6.625	3.48E-11	***
trt.popnz-10	2.5157	0.2788	9.023	< 2e-16	***

trt.popnz-100	-2.1757	0.6388	-3.406	0.000659	***
trt.popnz-30	-1.888	0.5698	-3.313	0.000922	***
trt.popnz-5	3.7351	0.2749	13.587	< 2e-16	***
trt.popnz-hexane	-3.2743	1.0367	-3.158	0.001586	**
trt.poporegon-0	-1.8191	0.8459	-2.15	0.031516	*
trt.poporegon-10	1.5309	0.4825	3.173	0.001511	**
trt.poporegon-100	-2.5122	1.1026	-2.278	0.022701	*
trt.poporegon-30	-2.5122	1.1026	-2.278	0.022701	*
trt.poporegon-5	2.4223	0.4717	5.136	2.81E-07	***
trt.poporegon-hexane	-0.4328	0.5834	-0.742	0.458201	
trt.popturkey-0	0.3633	0.2535	1.433	0.151947	
trt.popturkey-10	0.4239	0.2521	1.681	0.092671	.
trt.popturkey-100	-2.4093	0.5021	-4.799	1.60E-06	***
trt.popturkey-30	-2.4093	0.5021	-4.799	1.60E-06	***
trt.popturkey-5	1.5722	0.2356	6.674	2.50E-11	***
trt.popturkey-hexane	-2.9202	0.621	-4.703	2.57E-06	***

Table S2. Estimations from the fitted model GLMM on the number of males captured in the pheromone traps. The data shown in the main text (Table 2) are obtained by back-transforming Estimate and Std. Error from this table (e.g., $e^{estimate}$).

Population	Contrast	Estimate	Std. Error	z value	Pr(>|z|)	
Chile	0 vs 10	-0.75514	0.04044	-18.675	<0.001	***
Chile	0 vs 100	1.77084	0.08745	20.249	<0.001	***
Chile	0 vs 30	1.36321	0.07389	18.448	<0.001	***
Chile	0 vs 5	-1.30644	0.0376	-34.748	<0.001	***
Chile	0 vs hexane	3.27491	0.17471	18.745	<0.001	***
Chile	10 vs 100	2.52598	0.08402	30.065	<0.001	***
Chile	10 vs 30	2.11836	0.06979	30.353	<0.001	***
Chile	10 vs 5	-0.55129	0.0287	-19.206	<0.001	***
Chile	10 vs hexane	4.03006	0.17302	23.293	<0.001	***
Chile	100 vs 30	-0.40763	0.10433	-3.907	<0.001	***
Chile	100 vs 5	-3.07727	0.08269	-37.216	<0.001	***
Chile	100 vs hexane	1.50407	0.1896	7.933	<0.001	***
Chile	30 vs 5	-2.66965	0.06818	-39.153	<0.001	***
Chile	30 vs hexane	1.9117	0.18374	10.404	<0.001	***
Chile	5 vs hexane	4.58135	0.17237	26.578	<0.001	***
Spain1	0 vs 10	-2.0502	0.2948	-6.954	<0.001	***
Spain1	0 vs 100	0.9555	0.5265	1.815	0.3954	
Spain1	0 vs 30	-0.3795	0.3601	-1.054	0.8734	
Spain1	0 vs 5	-2.8378	0.2855	-9.939	<0.001	***
Spain1	0 vs hexane	2.5649	1.0383	2.47	0.1034	
Spain1	10 vs 100	3.0057	0.4584	6.557	<0.001	***
Spain1	10 vs 30	1.6707	0.2502	6.677	<0.001	***
Spain1	10 vs 5	-0.7876	0.1201	-6.558	<0.001	***
Spain1	10 vs hexane	4.6151	1.0055	4.59	<0.001	***
Spain1	100 vs 30	-1.335	0.5029	-2.655	0.0646	.
Spain1	100 vs 5	-3.7933	0.4525	-8.383	<0.001	***
Spain1	100 vs hexane	1.6094	1.0961	1.468	0.6295	
Spain1	30 vs 5	-2.4582	0.2392	-10.278	<0.001	***
Spain1	30 vs hexane	2.9444	1.0266	2.868	0.0353	*
Spain1	5 vs hexane	5.4027	1.0028	5.387	<0.001	***
Italy	0 vs 10	-1.48004	0.10748	-13.771	<0.001	***
Italy	0 vs 100	4.75632	1.00495	4.733	<0.001	***
Italy	0 vs 30	1.92311	0.2616	7.351	<0.001	***
Italy	0 vs 5	-1.86774	0.10451	-17.871	<0.001	***
Italy	0 vs hexane	3.6577	0.58569	6.245	<0.001	***
Italy	10 vs 100	6.23635	1.00114	6.229	<0.001	***
Italy	10 vs 30	3.40315	0.24658	13.801	<0.001	***
Italy	10 vs 5	-0.3877	0.05732	-6.763	<0.001	***
Italy	10 vs hexane	5.13774	0.57914	8.871	<0.001	***

Italy	100 vs 30	-2.83321	1.02916	-2.753	0.044	*
Italy	100 vs 5	-6.62405	1.00083	-6.619	<0.001	***
Italy	100 vs hexane	-1.09861	1.15489	-0.951	0.9075	
Italy	30 vs 5	-3.79084	0.2453	-15.454	<0.001	***
Italy	30 vs hexane	1.7346	0.62633	2.769	0.0422	*
Italy	5 vs hexane	5.52544	0.57859	9.55	<0.001	***
Korea	0 vs 10	-0.80714	0.07014	-11.508	<0.001	***
Korea	0 vs 100	3.11865	0.28343	11.003	<0.001	***
Korea	0 vs 30	1.22924	0.1226	10.026	<0.001	***
Korea	0 vs 5	-1.62563	0.06381	-25.478	<0.001	***
Korea	0 vs hexane	5.68358	1.00176	5.674	<0.001	***
Korea	10 vs 100	3.92578	0.28009	14.016	<0.001	***
Korea	10 vs 30	2.03638	0.11466	17.76	<0.001	***
Korea	10 vs 5	-0.81849	0.04677	-17.502	<0.001	***
Korea	10 vs hexane	6.49072	1.00082	6.485	<0.001	***
Korea	100 vs 30	-1.8894	0.2976	-6.349	<0.001	***
Korea	100 vs 5	-4.74427	0.27857	-17.031	<0.001	***
Korea	100 vs hexane	2.56493	1.03781	2.471	0.095	.
Korea	30 vs 5	-2.85487	0.1109	-25.743	<0.001	***
Korea	30 vs hexane	4.45433	1.00586	4.428	<0.001	***
Korea	5 vs hexane	7.3092	1.00039	7.306	<0.001	***
Spain2	0 vs 10	-2.71328	0.08727	-31.089	<0.001	***
Spain2	0 vs 100	2.23359	0.27168	8.221	<0.001	***
Spain2	0 vs 30	-0.13353	0.11573	-1.154	0.8088	
Spain2	0 vs 5	-3.05971	0.08648	-35.383	<0.001	***
Spain2	0 vs hexane	4.94164	1.00357	4.924	<0.001	***
Spain2	10 vs 100	4.94687	0.25912	19.091	<0.001	***
Spain2	10 vs 30	2.57974	0.082	31.461	<0.001	***
Spain2	10 vs 5	-0.34644	0.02844	-12.182	<0.001	***
Spain2	10 vs hexane	7.65492	1.00024	7.653	<0.001	***
Spain2	100 vs 30	-2.36712	0.27003	-8.766	<0.001	***
Spain2	100 vs 5	-5.29331	0.25885	-20.449	<0.001	***
Spain2	100 vs hexane	2.70805	1.0328	2.622	0.0614	.
Spain2	30 vs 5	-2.92618	0.08115	-36.06	<0.001	***
Spain2	30 vs hexane	5.07517	1.00312	5.059	<0.001	***
Spain2	5 vs hexane	8.00136	1.00017	8	<0.001	***
New Zealand	0 vs 10	-0.63667	0.09402	-6.772	<1e-04	***
New Zealand	0 vs 100	4.05469	0.58236	6.963	<1e-04	***
New Zealand	0 vs 30	3.76701	0.50577	7.448	<1e-04	***
New Zealand	0 vs 5	-1.85612	0.08176	-22.703	<1e-04	***
New Zealand	0 vs hexane	5.1533	1.00292	5.138	<1e-04	***
New Zealand	10 vs 100	4.69136	0.58002	8.088	<1e-04	***
New Zealand	10 vs 30	4.40368	0.50307	8.754	<1e-04	***

New Zealand	10 vs 5	-1.21945	0.06294	-19.374	<1e-04	***
New Zealand	10 vs hexane	5.78997	1.00156	5.781	<1e-04	***
New Zealand	100 vs 30	-0.28768	0.76379	-0.377	0.999	
New Zealand	100 vs 5	-5.91082	0.57816	-10.224	<1e-04	***
New Zealand	100 vs hexane	1.0986	1.15474	0.951	0.908	
New Zealand	30 vs 5	-5.62314	0.50092	-11.226	<1e-04	***
New Zealand	30 vs hexane	1.38628	1.11808	1.24	0.763	
New Zealand	5 vs hexane	7.00942	1.00049	7.006	<1e-04	***
USA	0 vs 10	-3.35E+00	7.20E-01	-4.655	<0.001	***
USA	0 vs 100	6.93E-01	1.23E+00	0.566	0.991	
USA	0 vs 30	6.93E-01	1.23E+00	0.566	0.991	
USA	0 vs 5	-4.24E+00	7.12E-01	-5.954	<0.001	***
USA	0 vs hexane	-1.39E+00	7.91E-01	-1.753	0.433	
USA	10 vs 100	4.04E+00	1.01E+00	4.007	<0.001	***
USA	10 vs 30	4.04E+00	1.01E+00	4.007	<0.001	***
USA	10 vs 5	-8.91E-01	1.57E-01	-5.666	<0.001	***
USA	10 vs hexane	1.96E+00	3.78E-01	5.2	<0.001	***
USA	100 vs 30	-2.71E-10	1.42E+00	0	1	
USA	100 vs 5	-4.93E+00	1.00E+00	-4.916	<0.001	***
USA	100 vs hexane	-2.08E+00	1.06E+00	-1.96	0.308	
USA	30 vs 5	-4.93E+00	1.00E+00	-4.916	<0.001	***
USA	30 vs hexane	-2.08E+00	1.06E+00	-1.96	0.308	
USA	5 vs hexane	2.86E+00	3.64E-01	7.851	<0.001	***
Turkey	0 vs 10	-6.06E-02	1.56E-01	-0.389	0.998	
Turkey	0 vs 100	2.77E+00	4.61E-01	6.01	<1e-05	***
Turkey	0 vs 30	2.77E+00	4.61E-01	6.01	<1e-05	***
Turkey	0 vs 5	-1.21E+00	1.28E-01	-9.482	<1e-05	***
Turkey	0 vs hexane	3.28E+00	5.89E-01	5.579	<1e-05	***
Turkey	10 vs 100	2.83E+00	4.61E-01	6.152	<1e-05	***
Turkey	10 vs 30	2.83E+00	4.61E-01	6.152	<1e-05	***
Turkey	10 vs 5	-1.15E+00	1.25E-01	-9.218	<1e-05	***
Turkey	10 vs hexane	3.34E+00	5.88E-01	5.688	<1e-05	***
Turkey	100 vs 30	-2.71E-09	6.33E-01	0	1	
Turkey	100 vs 5	-3.98E+00	4.52E-01	-8.814	<1e-05	***
Turkey	100 vs hexane	5.11E-01	7.31E-01	0.699	0.977	
Turkey	30 vs 5	-3.98E+00	4.52E-01	-8.814	<1e-05	***
Turkey	30 vs hexane	5.11E-01	7.31E-01	0.699	0.977	
Turkey	5 vs hexane	4.49E+00	5.81E-01	7.732	<1e-05	***

Table S3. Contrasts among treatments within population, corrected by multiple testing with a single-step method, for male *G. molesta* captured in pheromone traps loaded with different percentages of the E8-12:Ac isomer or hexane. For each population all possible paired differences are statistically assessed. P-values shown in the table are corrected.

Female	Male			
	France	Italy2	Spain2	USA2
France	0.89 (74/83)	0.86 (37/43)	0.88 (38/43)	0.74 (31/42)
Italy2	0.94 (44/47)	0.88 (78/89)	0.91 (43/47)	0.61 (27/44)
Spain2	0.89 (41/46)	0.81 (38/47)	0.78 (68/87)	0.73 (33/45)
USA2	0.66 (29/44)	0.70 (31/44)	0.77 (34/44)	0.61 (27/44)

Table S4. Proportion of males responding to live females in the wind tunnel (number individuals landed/total individuals tested). Males and females from 4 populations were cross-tested.

Generalized linear mixed model fit by the Laplace approximation
Formula: land ~ 0 + male.female + (1 | nday)
AIC   BIC logLik deviance
 804 884.4 -385   770
Random effects:
 Groups Name   Variance Std.Dev.
 nday   (Intercept) 0.54258 0.7366
Number of obs: 839, groups: nday, 109

Parameter	Estimate	Std.Error	z values	Pr(>|z|)	
male.femalefrance-france	2.368	0.449	5.270	0.000	***
male.femalefrance-Italy	2.870	0.712	4.030	0.000	***
male.femalefrance-lleida	2.235	0.590	3.790	0.000	***
male.femalefrance-USA	0.764	0.449	1.700	0.089	.
male.femaleitaly-france	1.952	0.557	3.510	0.000	***
male.femaleitaly-Italy	2.158	0.411	5.250	0.000	***
male.femaleitaly-lleida	1.537	0.497	3.090	0.002	**
male.femaleitaly-USA	1.031	0.470	2.200	0.028	*
male.femalelleida-france	2.189	0.591	3.700	0.000	***
male.femalelleida-Italy	2.540	0.636	3.990	0.000	***
male.femalelleida-lleida	1.409	0.353	3.990	0.000	***
male.femalelleida-USA	1.380	0.488	2.830	0.005	**
male.femaleUSA-france	1.107	0.476	2.320	0.020	*
male.femaleUSA-Italy	0.467	0.442	1.060	0.291	
male.femaleUSA-lleida	1.122	0.462	2.430	0.015	*
male.femaleUSA-USA	0.563	0.440	1.280	0.201	

Table S5. Maximum likelihood estimates of probability of landing for *G. molesta* males in a wind tunnel experiment in response to females from their own or from different populations. Table 4 of the main text is obtained from the back-transformed Estimate and its Std. Error (e.g., $e^{estimate}/1+e^{estimate}$).

Contrast between females from France and females from each of the other three populations in their attraction to males from France
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)	
fr vs it == 0	-0.501	0.842	-0.60	0.895	
fr vs llei == 0	0.134	0.741	0.18	0.996	
fr vs usa == 0	1.604	0.635	2.53	0.032	*

Contrast between females from Italy2 and females from each of the other three populations in their attraction to males from Italy2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)
fr vs it == 0	0.2056	0.6920	0.30	0.98
it vs llei == 0	1.1270	0.6242	1.81	0.18
it vs usa == 0	-0.0314	0.7202	-0.04	1.00

Contrast between females from Spain2 and females from each of the other three populations in their attraction to males from Spin2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)
fr vs llei == 0	-0.7802	0.6886	-1.13	0.57
it vs llei == 0	-1.1306	0.7272	-1.55	0.31
llei vs usa == 0	0.0294	0.6024	0.05	1.00

Contrast between females from USA2 and females from each of the other three populations in their attraction to males from USA2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)	
fr vs usa == 0	-1.6703	0.6486	-2.58	0.028	*
it vs usa == 0	0.0961	0.6236	0.15	0.997	
llei vs usa == 0	-0.5590	0.6380	-0.88	0.716	

Contrast between males from France and males from each of the other three populations responding to females from France
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)
fr vs it == 0	0.416	0.715	0.58	0.90
fr vs llei == 0	0.179	0.742	0.24	0.99
fr vs usa == 0	1.261	0.655	1.93	0.14

Contrast between males from Italy2 and males from each of the other three populations responding to females from Italy2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)	
fr vs it == 0	-0.712	0.822	-0.87	0.747	
it vs llei == 0	-0.382	0.757	-0.50	0.935	
it vs usa == 0	1.691	0.604	2.80	0.015	*

Contrast between males from Spain2 and males from each of the other three populations responding to females from Spain2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)	
fr vs llei == 0	-0.826	0.687	-1.20	0.52	
it vs llei == 0	-0.128	0.610	-0.21	0.99	
llei vs usa == 0	2.531	0.581	4.35	<1e-04	***

Contrast between males from USA2 and males from each of the other the populations responding to females from USA2
Estimate Std. Error z value Pr(>|z|)

	Estimate	Std. Error	z value	Pr(>|z|)
fr vs usa == 0	-0.201	0.629	-0.32	0.98

it vs usa == 0   -0.468   0.644   -0.73   0.81
usa vs usa == 0   -0.816   0.657   -1.24   0.46

Table S6. Differences between treatments corrected by multiple testing with a single-step method, for the number of males from 4 populations responding females from the same 4 populations. For each male population we compared their response to females of their own population with their response to females from the other populations. For each female population we compared the attraction of males from their own population with that of males from the other populations. P-values shown in the table are corrected.

Population	Pheromone blend						
	0.4%E	5.4%E	10.4%E	20.4%E	30.4%E	60.4%E	100.1%E
France	0.13	0.65	0.77	0.67	0.33	0.12	0.02
	(7/52)	(33/51)	(40/52)	(35/52)	(17/52)	(6/49)	(1/48)
Italy	0.13	0.75	0.85	0.75	0.75	0.49	0.23
	(12/90)	(67/89)	(74/87)	(72/96)	(66/88)	(42/86)	(18/77)
Spain2	0.11	0.92	0.83	0.84	0.44	0.14	0.10
	(6/53)	(47/51)	(40/48)	(37/44)	(23/52)	(7/50)	(5/50)
USA1	0.14	0.62	0.72	0.74	0.35	0.04	0.00
	(7/50)	(32/52)	(39/54)	(28/38)	(19/55)	(2/47)	(0/31)

Table S7. Proportion of male landings on odor stimulus sources in the wind tunnel (number individuals landed/total individuals tested). Pheromone blends differed in the ratio of the E8-12:Ac isomer. Males from 4 populations were tested.

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Generalized linear mixed model fit by the Laplace approximation
Formula: land ~ 0 + trt.pop + (1 | nday)
AIC BIC logLik deviance
1653 1810 -797.4   1595
Random effects:
Groups Name   Variance Std.Dev.
nday   (Intercept) 0.0903   0.3005
Number of obs: 1644, groups: nday, 59

Parameter	Estimate	Std. Error	z value	Pr(>|z|)	
trt.popfrance-0	-1.9278	0.4185	-4.61	4.10E-06	***
trt.popfrance-10	1.1873	0.3411	3.48	0.0005	***
trt.popfrance-100	-3.8114	1.0326	-3.69	0.00022	***
trt.popfrance-20	0.7033	0.3073	2.29	0.0221	*
trt.popfrance-30	-0.7599	0.3077	-2.47	0.01352	*
trt.popfrance-5	0.5772	0.3049	1.89	0.05836	.
trt.popfrance-60	-2.0465	0.4483	-4.57	5.00E-06	***
trt.popitaly-0	-1.9187	0.3201	-5.99	2.00E-09	***
trt.popitaly-10	1.7564	0.3104	5.66	1.50E-08	***
trt.popitaly-100	-1.2107	0.2829	-4.28	1.90E-05	***
trt.popitaly-20	1.1357	0.2459	4.62	3.90E-06	***
trt.popitaly-30	1.1133	0.2563	4.34	1.40E-05	***
trt.popitaly-5	1.1299	0.2559	4.42	1.00E-05	***
trt.popitaly-60	-0.0638	0.2261	-0.28	0.77792	
trt.poplleida-0	-2.0797	0.4485	-4.64	3.50E-06	***
trt.poplleida-10	1.6349	0.4026	4.06	4.90E-05	***
trt.poplleida-100	-2.2292	0.4862	-4.59	4.50E-06	***
trt.poplleida-20	1.7079	0.4275	3.99	6.50E-05	***
trt.poplleida-30	-0.2228	0.2964	-0.75	0.45229	
trt.poplleida-5	2.5087	0.5364	4.68	2.90E-06	***
trt.poplleida-60	-1.8262	0.4225	-4.32	1.50E-05	***
trt.popUSA-0	-1.9882	0.4294	-4.63	3.70E-06	***
trt.popUSA-10	0.9296	0.3252	2.86	0.00425	**
trt.popUSA-100	-3.509	1.0441	-3.36	0.00078	***
trt.popUSA-20	1.1223	0.3851	2.91	0.00357	**
trt.popUSA-30	-0.7268	0.3101	-2.34	0.0191	*
trt.popUSA-5	0.4208	0.308	1.37	0.17187	
trt.popUSA-60	-3.3163	0.7432	-4.46	8.10E-06	***

Table S8. Maximum likelihood estimates of probability of landing for *G. molesta* males in a wind tunnel experiment in response to different percentages of E8-12:Ac in synthetic pheromone. Table 3 of the main text is obtained from the back-transformed Estimate and its Std. Error ($e^{estimate}/1+e^{estimate}$).

Population	Contrast	Estimate	Std. Error	z value	Pr (>|z|)
France	0 vs 10	-3.11	0.53	-5.90	<0.001 ***
France	0 vs 100	1.89	1.11	1.70	0.59
France	0 vs 20	-2.63	0.51	-5.19	<0.001 ***
France	0 vs 30	-1.17	0.51	-2.30	0.22
France	0 vs 6	-2.50	0.51	-4.96	<0.001 ***
France	0 vs 60	0.12	0.60	0.20	1.00
France	10 vs 100	5.00	1.08	4.62	<0.001 ***
France	10 vs 20	0.48	0.45	1.09	0.93
France	10 vs 30	1.95	0.45	4.37	<0.001 ***
France	10 vs 6	0.61	0.44	1.38	0.80
France	10 vs 60	3.23	0.55	5.86	<0.001 ***
France	100 vs 20	-4.52	1.07	-4.21	<0.001 ***
France	100 vs 30	-3.05	1.07	-2.85	0.060 .
France	100 vs 6	-4.39	1.07	-4.10	<0.001 ***
France	100 vs 60	-1.77	1.12	-1.58	0.68
France	20 vs 30	1.46	0.42	3.48	0.008 **
France	20 vs 6	0.13	0.42	0.30	1.00
France	20 vs 60	2.75	0.53	5.17	<0.001 ***
France	30 vs 6	-1.34	0.42	-3.20	0.021 *
France	30 vs 60	1.29	0.53	2.42	0.18
France	6 vs 60	2.62	0.53	4.95	<0.001 ***
Italy	0 vs 10	-3.67	0.44	-8.42	<0.001 ***
Italy	0 vs 100	-0.71	0.42	-1.69	0.62
Italy	0 vs 20	-3.05	0.39	-7.75	<0.001 ***
Italy	0 vs 30	-3.03	0.40	-7.58	<0.001 ***
Italy	0 vs 6	-3.05	0.40	-7.63	<0.001 ***
Italy	0 vs 60	-1.85	0.38	-4.87	<0.001 ***
Italy	10 vs 100	2.97	0.41	7.22	<0.001 ***
Italy	10 vs 20	0.62	0.39	1.61	0.67
Italy	10 vs 30	0.64	0.39	1.64	0.65
Italy	10 vs 6	0.63	0.39	1.60	0.68
Italy	10 vs 60	1.82	0.37	4.88	<0.001 ***
Italy	100 vs 20	-2.35	0.36	-6.43	<0.001 ***
Italy	100 vs 30	-2.32	0.37	-6.25	<0.001 ***
Italy	100 vs 6	-2.34	0.37	-6.30	<0.001 ***
Italy	100 vs 60	-1.15	0.35	-3.27	0.0184 *
Italy	20 vs 30	0.02	0.34	0.06	1.00
Italy	20 vs 6	0.01	0.34	0.02	1.00
Italy	20 vs 60	1.20	0.32	3.72	0.0037 **
Italy	30 vs 6	-0.02	0.35	-0.05	1.00
Italy	30 vs 60	1.18	0.33	3.57	0.0064 **
Italy	6 vs 60	1.19	0.33	3.62	0.0054 **
Spain2	0 vs 10	-3.71	0.59	-6.33	<0.001 ***
Spain2	0 vs 100	0.15	0.65	0.23	1.00
Spain2	0 vs 20	-3.79	0.60	-6.27	<0.001 ***
Spain2	0 vs 30	-1.86	0.52	-3.57	0.0061 **
Spain2	0 vs 6	-4.59	0.69	-6.69	<0.001 ***

Spain2	0 vs 60	-0.25	0.60	-0.42	1.00
Spain2	10 vs 100	3.86	0.62	6.27	<0.001 ***
Spain2	10 vs 20	-0.07	0.57	-0.13	1.00
Spain2	10 vs 30	1.86	0.48	3.87	0.0021 **
Spain2	10 vs 6	-0.87	0.66	-1.33	0.83
Spain2	10 vs 60	3.46	0.57	6.10	<0.001 ***
Spain2	100 vs 20	-3.94	0.63	-6.22	<0.001 ***
Spain2	100 vs 30	-2.01	0.55	-3.63	0.0051 **
Spain2	100 vs 6	-4.74	0.71	-6.66	<0.001 ***
Spain2	100 vs 60	-0.40	0.63	-0.64	1.00
Spain2	20 vs 30	1.93	0.50	3.85	0.0021 **
Spain2	20 vs 6	-0.80	0.67	-1.19	0.89
Spain2	20 vs 60	3.53	0.58	6.04	<0.001 ***
Spain2	30 vs 6	-2.73	0.60	-4.58	<0.001 ***
Spain2	30 vs 60	1.60	0.50	3.23	0.0209 *
Spain2	6 vs 60	4.33	0.67	6.49	<0.001 ***
USA	0 vs 10	-2.91	0.52	-5.63	<0.001 ***
USA	0 vs 100	14.58	686.91	0.02	1.00
USA	0 vs 20	-3.11	0.57	-5.49	<0.001 ***
USA	0 vs 30	-1.26	0.51	-2.50	0.13
USA	0 vs 6	-2.41	0.51	-4.75	<0.001 ***
USA	0 vs 60	1.33	0.84	1.58	0.64
USA	10 vs 100	17.50	686.91	0.03	1.00
USA	10 vs 20	-0.19	0.49	-0.39	1.00
USA	10 vs 30	1.65	0.42	3.92	0.0012 **
USA	10 vs 6	0.51	0.42	1.20	0.87
USA	10 vs 60	4.24	0.80	5.32	<0.001 ***
USA	100 vs 20	-17.69	686.91	-0.03	1.00
USA	100 vs 30	-15.84	686.91	-0.02	1.00
USA	100 vs 6	-16.99	686.91	-0.02	1.00
USA	100 vs 60	-13.25	686.91	-0.02	1.00
USA	20 vs 30	1.85	0.48	3.83	0.0018 **
USA	20 vs 6	0.70	0.48	1.46	0.72
USA	20 vs 60	4.43	0.83	5.34	<0.001 ***
USA	30 vs 6	-1.15	0.41	-2.81	0.0570 .
USA	30 vs 60	2.59	0.79	3.28	0.0131 *
USA	6 vs 60	3.73	0.79	4.73	<0.001 ***

Table S9. Differences among treatments within population, corrected by multiple testing with a single-step method, for the number of males from 4 populations responding the synthetic pheromone blends varying in the proportion of the E8-12:Ac isomer. For each population all possible paired differences are statistically assessed. P-values shown in the table are corrected.