



Supplementary Materials

Table S1. Description of non-probability (empirical) sampling with the quota method.

Parameters	Province					Total
	Sefrou	Fès	Meknes	El Hajeb	Ifrane	
Area (Ha)						
Vegetable gardening	820	3460	7032	9127	1434	21,873
Arboriculture	6670	3772	8498	15,331	462	35,733
Percentage %						
Vegetable gardening	4	16	32	42	7	100
Arboriculture	19	11	24	43	4	100
Factor						
Vegetable gardening	1	4	8	10	2	25
Arboriculture	5	3	6	10	1	25

Table S2. Knowledge and decision-making mechanism related to pesticide use practices.

No	Question	n (%)
1	To initiate treatment, you rely on? $\chi^2 = 361.1^{**}$	
	Harmfulness threshold	239 (45.2%)
	The date fixed in advance	242 (46%)
	Regional surveillance	9 (1.7%)
	Neighbors	37 (7%)
2	What support is available for decision making in terms of choice of the date of treatment? $\chi^2 = 357.1^{**}$	
	Harmfulness threshold	21(4%)
	The date fixed in advance	258 (49%)
	Regional surveillance	220 (41.8%)
	Neighbors	27(5.1%)
3	What support is available for decision making in terms of choice of the concentration of treatment $\chi^2 = 673.1^{**}$	
	Harmfulness threshold	2 (0.4%)
	The date fixed in advance	366 (69.6%)
	Regional surveillance	154 (29.3%)
	Neighbors	4 (0.8%)
4	What support is available for decision making in terms of choice of the active ingredient? $\chi^2 = 683^{**}$	
	Harmfulness threshold	4 (0.8%)
	The date fixed in advance	375 (71.3%)
	Regional surveillance	135 (25.7%)
	Neighbors	12 (2.3%)
5	If treatment is ineffective, will you rather tend? $\chi^2 = 82.2^{**}$	
	increase the concentration or change the product.	159 (30.2%)
	consult a specialist in phytosanitary products	367 (69.8%)
6	Where do you buy phytosanitary products? $\chi^2 = 452.7^{**}$	
	retailer	507 (96.4%)
	company directly	19 (3.6%)
7	Do you use other methods than chemical methods? $\chi^2 = 655^{**}$	
	Never	450 (85.6%)
	Rare	67 (12.7)
	Often	9 (1.7)
8	If so, what are these methods? $\chi^2 = 1036^{**}$	
	biological control	19 (25%)
	variety resistance	7 (9.2%)
	rotation	50 (65.8%)

$^{**} p < 0.05.$

Table S3. Behavior of farmers for storing and disposing of pesticides.

No	Question	n (%)
1	Do you have a room fitted out for the storage of phytosanitary products? $\chi^2 = 23.8^{**}$	
	Yes	319 (60.6%)
	No	207 (39.4%)
2	Do you respect the recommended use of concentrations? $\chi^2 = 385^{**}$	
	Often	57 (10.8%)
	Frequent	82 (15.6%)
	Always	387(73.6)
3	Do you take into account the climate (rain, wind ...) to carry out a treatment? $\chi^2 = 475^{**}$	
	Yes	513 (97.5%)
	No	13(2.5%)
4	Do you take into account the time of day (morning, midday, evening) when performing treatment? $\chi^2 = 338^{**}$	
	Yes	474 (90.1%)
	No	52 (9.9%)
5	Who's in charge of treatment? $\chi^2 = 596.8^{**}$	
	Myself	438 (83.3%)
	qualified person	20 (3.8%)
	simple farm worker	68 (12.9%)
6	What is the fate of the sprayer rinse water after its use? $\chi^2 = 413^{**}$	
	Application in the treated field.	381 (72.4%)
	Application on uncultivated land	140 (26.6%)
	Release into waterways	5 (1%)
7	What is the fate of chemical packaging? $\chi^2 = 41.4^{**}$	
	Leave at the edge of the fields	
	Yes	192 (36.5%)
	No	334(63.5%)
	Burial $\chi^2 = 0.4$	
	Yes	255(48.5%)
	No	271 (51.5%)
	Public landfills $\chi^2 = 56.2^{**}$	
	Yes	177 (33.7%)
	No	349 (66.3%)
	Streams $\chi^2 = 212^{**}$	
	Yes	96 (18.3%)
	No	430 (81.7%)
	Cremation $\chi^2 = 5.5^{**}$	
	Yes	236 (44.9%)
	No	290 (55.1%)

** $p < 0.05$.

Table S4. Precautionary measure of the farmers surveyed.

No	Question	n (%)
1	Use of waterproof gloves $\chi^2 = 41.4^{**}$	
	Never	205 (39%)
	Sometimes	215 (40.9%)
	Every use	106 (20.2%)
2	Use of hat $\chi^2 = 294.7^{**}$	
	Never	348 (66.2%)
	Sometimes	148 (28.1%)
	Every use	30 (5.7%)
3	Use of masks $\chi^2 = 128.2^{**}$	
	Never	255 (48.5%)
	Sometimes	216 (41.1%)
	Every use	55 (10.5%)
4	Use of boots $\chi^2 = 90.3^{**}$	
	Never	80 (15.2%)
	Sometimes	257 (48.9%)
	Every use	189 (35.9%)
5	Use of mask with filter cartridge $\chi^2 = 998.7^{**}$	
	Never	517 (98.3%)
	Sometimes	2 (0.4%)
	Every use	7 (1.3%)
6	Use of goggles $\chi^2 = 419.2^{**}$	
	Never	385 (73.2%)
	Sometimes	132 (25.1%)
	Every use	9 (1.7%)
7	Porridge preparation place Orchard	526 (100%)
8	Consume food while spraying $\chi^2 = 144.8^{**}$	
	Yes	125 (23.8%)
	No	401 (76.2%)
9	Consume drinks while spraying $\chi^2 = 10.4^{**}$	
	Yes	300 (57%)
	No	226 (40.7%)
10	What types of measures do you take after application pesticides? Take a shower $\chi^2 = 479$	
	Yes	514 (97.7%)
	No	12 (2.3%)
	Cleaning clothes $\chi^2 = 93.6$	
	Yes	374 (71.1%)
	No	152 (28.9%)

** $p < 0.05$.

Table S5. Awareness of the risks of pesticides on the environment and human health.

No	Question	n (%)
1	Do you know the pesticide residues? $\chi^2 = 301.1$ **	
	Yes	64 (12.2%)
	No	462 (87.8%)
2	Do you think pesticides are harmful to human health? $\chi^2 = 605.8$ **	
	Neutral	126 (24%)
	Average for	76 (14.4%)
	Agree	324 (61.6%)
3	Did you know that the environment can be affected by pesticides? $\chi^2 = 227.5$ **	
	Yes	436 (82.9%)
	No	90 (17.1%)
4	Do you think that water pollution is linked to the application of pesticides? $\chi^2 = 196.2$ **	
	Neutral	67 (12.7%)
	Average for	19 (3.6%)
	Agree	440 (83.7%)
5	Do you know the relationship between pesticides and disease? $\chi^2 = 90.3$ **	
	Yes	372 (70.7%)
	No	154 (29.3%)

** $p < 0.05$.