

Table S1. The questionnaire of adaptation measures for agriculture to climate change impacts.

No	Climate Change Impact	Measure	Efficiency of the Measure	Urgency of Implementing the Measure	Usefulness of Implementation Irrespective of Climate Change	Technical Difficulty	Contribution to Climate Change Adaptation	Economic Viability	Social Acceptance
			100 - More Efficient 1 - Less Efficient	100 - More Urgent 1 - Less Urgent	100 - More Useful 1 - Less Useful	100 - More Difficult 1 - Less Difficult	100 - More Significant 1 - Less Significant	100 - More expensive 1 - Less expensive	100 - More Accepted 1 - Less Accepted
1/35	Drought stress	Use of green manure for vegetables							
2/35		Earlier planting of potatoes							
3/35		Breeding early maturing potato varieties for shorter rainy seasons							
4/35		Applying deficit irrigation strategies (e.g. regulated deficit irrigation) in olive groves							
5/35		Applying conservation tillage combined with vegetation cover in row-middles floors during winter and mulching it at the beginning of spring in olive groves							
6/35		Applying deficit irrigation strategies (e.g. regulated deficit irrigation, partial root drying or sustained deficit irrigation) in vineyards							
7/35		Applying the principles of conservation agriculture in rainfed cereals							
8/35		Applying zero tillage and early sowing in wheat/barley crops							
9/35		Strengthen on-farm water harvesting							
10/35		Applying supplementary irrigation at critical periods of the cropping season in rainfed crops							

11/3 5		Use of efficient irrigation systems and schedules
12/3 5		Development of water markets and setting clear water use properties
13/3 5		Applying organic mulching for olive groves
14/3 5		Enhanced low skirts (crotches) in young olive trees
15/3 5		Use of heat-resistant grape varieties
16/3 5		Avoiding north-south row orientation of vineyards
17/3 5	Heat stress	Applying straw mulch in the inter-row of vineyards
18/3 5		Artificial shading of vineyards
19/3 5		Use of kaolin clay as sunscreen for vineyards
20/3 5		Relocating vineyards to higher elevations or higher latitude that are presently cooler
21/3 5		Applying evaporative cooling of grapevines by overhead microsprinklers
22/3 5		Applying principles of Integrated Pest Management (IPM)
23/3 5		Crop rotations in the row-middle floors of the irrigated olive groves
24/3 5	Decreasing plant health	Strengthen increased diversity of cultivars or crops (diversification)
25/3 5		Development of a data base with long-term monitoring data of population dynamics of main pest and disease of study crops at project areas
26/3 5		Development of pest risk analysis model for the project areas

27/3 5		Development of internet-based platforms for the main pathosystems in the project areas
28/3 5		Enhanced global networking of researchers and stakeholders at all levels across plant protection spectrum
29/3 5	Extreme weather events	Tomato cultivation in greenhouses
30/3 5		Development/improvement of early warning systems
31/3 5	Reduced crop productivity	Intercropping with legumes
32/3 5	Total impact	Use of local cereal landraces and/or local vegetable and tree varieties
33/3 5		Breeding drought/heat resistant/tolerant crop varieties
34/3 5		Improvement of agricultural advisory and external services for building resilience to climate change
35/3 5		Strengthen local institutional support for promotion of adaptation measures
Add your measure (s)		

Table S2. Average score (mean $\pm$ SD) of each criterion and score for the general adaptation measures. Number of respondents is given in parenthesis.

Adaptation Measures	Efficiency of the Measure	Urgency of Implementing the Measure	Usefulness of Implementation the Measure	Technical Difficulty	Contribution to climate change adaptation	Economic Viability	Social Acceptance	Score
<i>Drought stress</i>								
Strengthen on-farm water harvesting	75 $\pm$ 24.5 (55)	71 $\pm$ 23.6 (55)	72 $\pm$ 25.6 (52)	63 $\pm$ 23.6 (52)	72 $\pm$ 25.9 (55)	67 $\pm$ 22.5 (54)	58 $\pm$ 27 (54)	60 $\pm$ 14.4 (55)
Use of efficient irrigation systems and schedule	87 $\pm$ 13.4 (54)	80 $\pm$ 18.6 (54)	85 $\pm$ 16.3 (54)	60 $\pm$ 21.1 (51)	77 $\pm$ 23.5 (54)	62 $\pm$ 24.9 (53)	71 $\pm$ 24.4 (53)	69 $\pm$ 10.5 (54)
Development of water markets and setting clear water use properties	60 $\pm$ 31.4 (47)	55 $\pm$ 31.9 (47)	58 $\pm$ 33.3 (47)	64 $\pm$ 26.8 (44)	60 $\pm$ 29.9 (47)	63 $\pm$ 28.7 (45)	40 $\pm$ 27.2 (45)	49 $\pm$ 19.8 (47)
<i>Decreasing plant health</i>								
Applying principles of Integrated Pest Management (IPM)	73 $\pm$ 22.7 (56)	73 $\pm$ 23 (56)	77 $\pm$ 20.9 (56)	47 $\pm$ 23.5 (53)	59 $\pm$ 27.5 (56)	52 $\pm$ 24.9 (55)	67 $\pm$ 25 (55)	65 $\pm$ 12.9 (56)
Strengthen increased diversity of cultivars or crops (diversification)	67 $\pm$ 24.2 (54)	64 $\pm$ 24.1 (54)	71 $\pm$ 21.6 (54)	53 $\pm$ 28.8 (51)	62 $\pm$ 22.8 (54)	54 $\pm$ 22.5 (53)	59 $\pm$ 26.5 (53)	60 $\pm$ 14.6 (54)
Development of a data base with long-term monitoring data of population dynamics of main pest and disease of study crops at project areas	70 $\pm$ 25.2 (56)	61 $\pm$ 21.8 (56)	67 $\pm$ 29.1 (56)	64 $\pm$ 24.9 (53)	61 $\pm$ 26 (56)	69 $\pm$ 19.7 (55)	65 $\pm$ 31 (52)	56 $\pm$ 19.1 (56)
Development of pest risk analysis model for the project areas	65 $\pm$ 27.5 (55)	59 $\pm$ 26.7 (55)	65 $\pm$ 27.8 (55)	63 $\pm$ 23.7 (52)	59 $\pm$ 25.9 (55)	65 $\pm$ 22.7 (54)	61 $\pm$ 32.2 (51)	54 $\pm$ 19.1 (55)
Development of internet-based platforms for the main pathosystems in the project areas	62 $\pm$ 25.4 (55)	53 $\pm$ 28.6 (55)	60 $\pm$ 28.7 (55)	63 $\pm$ 21.8 (52)	53 $\pm$ 23.5 (55)	66 $\pm$ 23.3 (54)	63 $\pm$ 30.8 (51)	52 $\pm$ 17.8 (55)
Enhanced global networking of researchers and stakeholders at all levels across plant protection spectrum	66 $\pm$ 20.6 (55)	61 $\pm$ 24.9 (55)	67 $\pm$ 23.7 (55)	55 $\pm$ 22.8 (52)	57 $\pm$ 22.8 (55)	56 $\pm$ 23.3 (54)	69 $\pm$ 24.9 (52)	59 $\pm$ 14.4 (55)
<i>Extreme weather events</i>								
Development/improvement of early warning systems	78 $\pm$ 19.7 (55)	77 $\pm$ 20.3 (55)	75 $\pm$ 20.4 (55)	65 $\pm$ 21.7 (54)	66 $\pm$ 24.1 (55)	63 $\pm$ 23.3 (53)	79 $\pm$ 21.1 (51)	64 $\pm$ 12.2 (55)
<i>Total impact</i>								
Use of local cereal landraces and/or local vegetable and tree varieties	72 $\pm$ 25.5 (54)	67 $\pm$ 25.5 (54)	72 $\pm$ 20.4 (54)	52 $\pm$ 24.5 (51)	61 $\pm$ 27.2 (54)	48 $\pm$ 18.6 (52)	70 $\pm$ 27.8 (53)	63 $\pm$ 16.3 (54)
Breeding drought/heat resistant/tolerant crop varieties	76 $\pm$ 22.6 (55)	68 $\pm$ 23.5 (55)	68 $\pm$ 24.1 (55)	61 $\pm$ 23.8 (52)	69 $\pm$ 19.5 (54)	60 $\pm$ 25.8 (54)	62 $\pm$ 29.4 (54)	61 $\pm$ 15.5 (55)
Improvement of agricultural advisory and external services for building resilience to climate change	78 $\pm$ 12.9 (55)	75 $\pm$ 16.9 (55)	77 $\pm$ 16.8 (55)	56 $\pm$ 17.7 (52)	72 $\pm$ 18 (55)	53 $\pm$ 20 (54)	81 $\pm$ 15.6 (54)	68 $\pm$ 8.8 (55)
Strengthen local institutional support for promotion of adaptation measures	77 $\pm$ 12.3 (54)	73 $\pm$ 17.8 (54)	72 $\pm$ 19.3 (54)	54 $\pm$ 17.6 (51)	69 $\pm$ 25 (55)	50 $\pm$ 19.8 (53)	77 $\pm$ 19.7 (50)	66 $\pm$ 10.1 (54)

Table S3. Average score (mean $\pm$ SD) of each criterion and score for the crop-specific adaptation measures. Number of respondents is given in parenthesis.

Adaptation Measures	Efficiency of the Measure	Urgency of Implementing the Measure	Usefulness of Implementation the Measure	Technical Difficulty	Contribution to Climate Change Adaptation	Economic Viability	Social Acceptance	Score
Cereals (wheat, barley)								
<i>Drought stress</i>								
Applying zero tillage and early sowing in wheat/barley crops	60 $\pm$ 23.6 (49)	56 $\pm$ 25.5 (49)	56 $\pm$ 23.3 (49)	54 $\pm$ 26.3 (49)	56 $\pm$ 23.8 (48)	53 $\pm$ 28 (48)	50 $\pm$ 23.8 (47)	53 $\pm$ 13.5 (49)
Applying the principles of conservation agriculture in rainfed cereals	61 $\pm$ 26.9 (50)	56 $\pm$ 26.4 (50)	63 $\pm$ 25.3 (50)	54 $\pm$ 26.8 (50)	55 $\pm$ 29.3 (50)	43 $\pm$ 27.5 (49)	61 $\pm$ 28 (48)	57 $\pm$ 13.8 (49)
Applying supplementary irrigation at critical periods of the cropping season in rainfed crops	82 $\pm$ 14.3 (55)	64 $\pm$ 20.4 (55)	75 $\pm$ 21.5 (55)	60 $\pm$ 24.1 (52)	59 $\pm$ 26.4 (55)	53 $\pm$ 24.7 (54)	65 $\pm$ 21.3 (53)	62 $\pm$ 10.7 (55)
<i>Reduced crop productivity</i>								
Intercropping with legumes	73 $\pm$ 20 (53)	64 $\pm$ 28.5 (53)	74 $\pm$ 23.3 (53)	45 $\pm$ 21.3 (53)	64 $\pm$ 22.4 (53)	48 $\pm$ 18.6 (52)	63 $\pm$ 25.7 (51)	64 $\pm$ 13.8 (53)
Vegetables (potatoes, tomatoes)								
<i>Drought stress</i>								
Use of green manure for vegetables	56 $\pm$ 23.1 (49)	51 $\pm$ 25.5 (49)	66 $\pm$ 23.9 (49)	43 $\pm$ 27.3 (47)	52 $\pm$ 26.2 (49)	38 $\pm$ 22.2 (48)	66 $\pm$ 30 (47)	59 $\pm$ 14.9 (49)
Earlier planting of potatoes	64 $\pm$ 21 (49)	47 $\pm$ 23.6 (49)	61 $\pm$ 22.2 (49)	43 $\pm$ 26.3 (49)	55 $\pm$ 22.3 (49)	38 $\pm$ 24.9 (48)	64 $\pm$ 24.8 (47)	58 $\pm$ 13 (49)
Breeding early maturing potato varieties for shorter rainy seasons	66 $\pm$ 23.2 (49)	55 $\pm$ 24.2 (49)	61 $\pm$ 23.3 (49)	47 $\pm$ 29.9 (49)	63 $\pm$ 26.1 (45)	50 $\pm$ 28.4 (47)	62 $\pm$ 30.5 (47)	58 $\pm$ 14.5 (49)
<i>Extreme weather events</i>								
Tomato cultivation in greenhouse	66 $\pm$ 28.2 (46)	47 $\pm$ 23.32 (45)	56 $\pm$ 26.2 (45)	62 $\pm$ 21.9 (45)	52 $\pm$ 24.1 (45)	65 $\pm$ 29.3 (44)	50 $\pm$ 26.7 (44)	50 $\pm$ 7.9 (46)
Reduced crop productivity								
Intercropping with legumes	73 $\pm$ 20 (53)	64 $\pm$ 28.5 (53)	74 $\pm$ 23.3 (53)	45 $\pm$ 21.3 (53)	64 $\pm$ 22.4 (53)	48 $\pm$ 18.6 (52)	63 $\pm$ 25.7 (51)	64 $\pm$ 13.8 (53)
Adaptation measures	Efficiency of the measure	Urgency of implementing the measure	Usefulness of implementation the measure	Technical difficulty	Contribution to climate change adaptation	Economic viability	Social acceptance	Score
Perennial crops (grapes, olives)								
<i>Drought stress</i>								
Applying deficit irrigation strategies (e.g. regulated deficit irrigation, partial root drying or sustained deficit irrigation) in vineyards	65 $\pm$ 23.4 (53)	57 $\pm$ 25.6 (53)	67 $\pm$ 25.2 (53)	50 $\pm$ 26.6 (50)	59 $\pm$ 26.6 (53)	45 $\pm$ 23.9 (52)	60 $\pm$ 26.8 (51)	59 $\pm$ 16.5 (53)

Applying deficit irrigation strategies (e.g. regulated deficit irrigation) in olive groves	73 ± 22.4 (52)	68 ± 23.5 (52)	72 ± 21.7 (52)	45 ± 22.4 (51)	65 ± 24.2 (52)	48 ± 26.1 (51)	65 ± 25.9 (50)	64 ± 13 (52)
Applying conservation tillage combined with vegetation cover in row-middle floors during winter and mulching it at the beginning of spring olive groves	60 ± 27.9 (52)	51 ± 29.5 (51)	61 ± 28 (51)	50 ± 22.8 (48)	56 ± 28.1 (51)	59 ± 24.6 (51)	58 ± 21 (44)	53 ± 16.1 (51)
Applying supplementary irrigation at critical periods of the cropping season in rainfed crops	82 ± 14.3 (55)	64 ± 20.4 (55)	75 ± 21.5 (55)	60 ± 24.1 (52)	59 ± 26.4 (55)	53 ± 24.7 (54)	65 ± 21.3 (53)	62 ± 10.7 (55)
Heat stress								
Applying organic mulching for olive groves	62 ± 28 (52)	61 ± 27.4 (52)	69 ± 25.4 (52)	44 ± 24.4 (49)	58 ± 28.4 (52)	59 ± 24.6 (50)	61 ± 24.4 (50)	58 ± 17.1 (52)
Enhanced low skirts (crotches) in young olive trees	50 ± 31.7 (42)	46 ± 30.4 (42)	46 ± 30.7 (46)	46 ± 23.6 (39)	40 ± 28.6 (42)	53 ± 26.7 (39)	41 ± 27.1 (40)	47 ± 20 (43)
Use of heat-resistant grape varieties	74 ± 23.3 (52)	64 ± 23.4 (52)	60 ± 26.5 (51)	62 ± 24 (49)	66 ± 26.1 (52)	71 ± 22.3 (51)	51 ± 30.8 (51)	55 ± 16.8 (52)
Avoiding north-south row orientation of vineyards	51 ± 24.7 (46)	43 ± 26.1 (47)	43 ± 25 (47)	50 ± 28.3 (44)	44 ± 27.4 (47)	56 ± 29.2 (46)	47 ± 23.1 (46)	46 ± 16.8 (47)
Applying straw mulch in the inter-row of vineyards	54 ± 29.2 (53)	47 ± 30.5 (53)	58 ± 29.8 (53)	48 ± 27 (50)	47 ± 30.7 (53)	58 ± 27 (52)	51 ± 27.6 (52)	50 ± 16.8 (53)
Artificial shading of vineyards	62 ± 25.8 (51)	46 ± 20.4 (50)	50 ± 25.4 (51)	73 ± 23.3 (48)	58 ± 27 (51)	79 ± 23.1 (51)	39 ± 23.2 (48)	43 ± 13.5 (52)
Use of kaolin clay as sunscreen for vineyards	58 ± 27.7 (43)	51 ± 28 (43)	52 ± 28.1 (43)	56 ± 25.9 (56)	55 ± 28.7 (43)	64 ± 25.8 (42)	46 ± 24.6 (42)	49 ± 19.6 (43)
Relocating vineyards to higher elevations or higher latitude that are presently cooler	69 ± 20.4 (50)	46 ± 22.1 (50)	48 ± 25 (50)	70 ± 23.6 (46)	58 ± 24.6 (50)	72 ± 28.7 (49)	35 ± 26.3 (49)	45 ± 14.2 (50)
Adaptation measures	Efficiency of the measure	Urgency of implementing the measure	Usefulness of implementation the measure	Technical difficulty	Contribution to climate change adaptation	Economic viability	Social acceptance	Score
Heat stress (continue)								
Applying evaporative cooling of grapevines by overhead microsprinklers	52 ± 28.2 (50)	31 ± 21.3 (50)	32 ± 24.8 (49)	75 ± 26.9 (46)	43 ± 27.5 (49)	72 ± 32.9 (48)	27 ± 21.7 (48)	34 ± 15.1 (50)
Decreasing plant health								
Crop rotations in the row-middle floors of the irrigated olive groves	52 ± 30.6 (48)	45 ± 29.9 (48)	55 ± 31.1 (48)	49 ± 23.7 (45)	46 ± 28.6 (48)	52 ± 27.8 (47)	59 ± 28.9 (47)	51 ± 17.2 (48)