

Supplementary Material

Farmers' willingness to conduct organic and conventional farming in Yuanli, Miaoli County—Survey Questionnaire

Name of Interviewee: _____ Questionnaire No.: _____

I. Background

1. Gender	1. Male; 2. Female
2. Age (year-old)	1. under 19; 2. 20-29; 3. 30-39; 4. 40-49; 5. 50-59; 6. 60-69; 7. Above 70
3. Education Level	1. None; 2. Elementary School; 3. Junior high school; 4. Senior high school & polytechnic; 5. College and Universities; 6. Masters or over
4. Rice growing experience	1. less than 1 year; 2. 1-5 years; 3. 6-10 years; 4. 11-20 years; 5. 21-30 years; 6. 31-40 years; 7. 41=50 years; 8. Over 50 years
5. Other incomes besides rice growing	1. None; 2. Agriculture; 3. Forestry; 4. Fishery; 5. Husbandry; 6. Industry; 7. Commerce; 8. Service industry; 9. Civil servant; 10. Retirement pension; 11. Others
6. Generation order in the family to engage in agriculture	1. Not clear; 2. 1 st generation; 3. 2 nd generation; 4. 3 rd generation or over
7. Family members	7-1 _(numbers)_ in total, including_(the following sections); 7-2 Spouse; 7-3 Parents & the elderly _(numbers)_ in total; 7-4 Children _(numbers)_ in total; 7-5 Others _(numbers)_ in total
8. Employee(s)	8-1 _(numbers)_ in total, including 8-2 _(numbers)_ family members
9. Residency location(address)	(fill in Chinese characters)

10. (continued from the last question) Living duration in the current location		1. less than 1 year; 2. 1-5 years; 3. 6-10 years; 4. 11-20 years; 5. 21-30 years; 6. 31-40 years; 7. 41-50 years; 8. Over 50 years
11. distance between residency & farmland(s)		1. less than 1km; 2. 2-5km; 3. 6-10km; 4. 11-20km; 5. 21-30 km; 6. Over 31km
12. ownership of farmland(s)		I have _12-1 (numbers)_ 甲(Kah, roughly equals to 1 hectare) _12-2 (numbers)_ 分(Fen, roughly equals to 0.1 hectare) for <u>self-owned farmland</u> ; _12-3 (numbers)_ 甲(Kah) _12-4 (numbers)_ 分(Fen) for <u>rented farmland</u>
13. way of farming		I have _13-1 (numbers)_ farmland(s) in total. <u>Organic area:</u> _13-2 (numbers)_ 甲(kah) _13-3 (numbers)_ 分(Fen); <u>Verification department:</u> _13-4 (fill in Chinese characters)_
14. How do you build trust with consumers?		1. Third party verification: verified by verification groups and inspected by the government. 2. Third party verification: verified by verified groups using their own credibility without inspection from the government. 3. Producers' honesty: consumers buy products directly from producers (pure trust relationship). 4. Consumer verification: consumer groups verify using their own standards.
15. way of farming in neighbor farms		1. All organic farmlands; 2. All conventional farmlands; 3. Half organic, half conventional; 4. More conventional; 5. More organic
16. Extent of irrigation water being polluted according to your observation		1. None; 2. Slightly-polluted; 3. Medium-polluted; 4. Heavily-polluted
17. Participate in organic farming programs	Frequency	1. None (skip question 18.); 2. _17-1 (numbers)_times last year; 3. _17-2 (numbers)_times in total in the past

	Organizer 17-3	1. Council of Agriculture; 2. Soil and Water Conservation Bureau; 3. County government; 4. Township office; 5. Farmers' Association; 6. Irrigation Association; 7. Production and Marketing groups; 8. Community Development Association; 9. Others
	Information sources 17-4	1. Relatives; 2. Other farmer acquaintances; 3. TV; 4. Broadcast; 5. Internet; 6. Newspaper and magazines; 7. Neighbors; 8. Communities; 9. Farmers' Association; 10. Others
18. Participate in general agricultural programs	Frequency	1. None (skip question 19.); 2. _18-1 (numbers)_times last year; 3. _18-2 (numbers)_times in total in the past
	Organizer 18-3	1. Council of Agriculture; 2. Soil and Water Conservation Bureau; 3. County government; 4. Township office; 5. Farmers' Association; 6. Irrigation Association; 7. Production and Marketing groups; 8. Community Development Association; 9. Others
	Information sources 18-4	1. Relatives; 2. Other farmer acquaintances; 3. TV; 4. Broadcast; 5. Internet; 6. Newspaper and magazines; 7. Neighbors; 8. Communities; 9. Farmers' Association; 10. Others
19. Average amount of rice production last year (kg/1 hectare)		1 st season__19-1 (numbers) (kg/hectare)_ on average Rice type: 1. Taiken 8; 2. Taiken 9; 3. Taiken 14; 4. Taichung Sen 10 2 nd season__19-2 (numbers)(kg/hectare)_ on average Rice type: 1. Taiken 8; 2. Taiken 9; 3. Taiken 14; 4. Taichung Sen 10
20. yearly income from rice farm (NTD\$/year)		1. under 100,000; 2. 100,000-200,000; 3. 200,000-400,000; 4. 400,000-600,000; 5. 600,000-800,000; 6. 800,000-1,000,000; 7. Over 1,000,000

21. management cost of growing (rent, materials, employees) (NTD\$/year)	1. under 100,000; 2. 100,000-200,000; 3. 200,000-400,000; 4. 400,000-600,000; 5. 600,000-800,000; 6. 800,000-1,000,000; 7. Over 1,000,000	
22. way of selling	1 st season: _22-1 (numbers)_kg by Farmers' Association _22-2 (numbers)_kg by Sunsuivi.Co. _22-3 (numbers)_kg by selling on my own _22-4 (numbers)_kg by other ways	2 nd season: _22-5 (number)_kg by Farmers' Association _22-6 (numbers)_kg by Sunsuivi.Co. _22-7 (numbers)_kg by selling on my own _22-8 (numbers)_kg by other ways
23. Do you have a brand on your own?	No. Yes. Name_23-1_; Selling price_23-2_(numbers)__(NTD\$/kg)	

II. Rank from the following factors influencers of organic growing, whether you would conduct organic farming or not (34 questions in total)

1. Code numbers and corresponded ordered

-3	-2	-1	1	2	3
Very unimportant	unimportant	Not so important	Quite important	important	Very important

2. Questions

- (1) Additional income
- (2) Farming family background
- (3) Quantity of human resources
- (4) Inheritance of rice farming
- (5) Support from family
- (6) Childhood memories of paddies
- (7) Concerning environmental issues
- (8) Distance between farmlands and home
- (9) Stable irrigation source
- (10) Ownership of farmland
- (11) Convenience of rented farmland
- (12) Cost of conventional farmland transforming to organic one
- (13) Legal limit of "three-year transformation period"

- (14) Rate of organic farmland in the neighborhood
- (15) Degree of water being polluted
- (16) Assistance of professional technical counseling
- (17) Workload of labor
- (18) Spread of organic farming notion
- (19) Access to farming tools and machines
- (20) Possibility of developing leisurely agricultural farming experiences
- (21) Willingness of neighbor farmers
- (22) Collaboration network of organic farming
- (23) Social approval of organic farming
- (24) Amount produced by organic farming
- (25) Material cost of organic farming
- (26) Ways of sales for organic farming
- (27) Reputation of local brand
- (28) Chance of contractual collaboration
- (29) Synergistic ratio of organic purchase
- (30) Quality of organic rice
- (31) Possibility of establishing self-own brand
- (32) Prices of self-produced rice
- (33) Willingness of purchase from consumers
- (34) Consumers' health and food safety

IV. Current Situation, ways of growing and selling in the future (4 questions in total)

1. Code numbers and corresponded questions

Code numbers Options	1	2	3	4	5	6
a. Current way of farming (Conventional vs. organic farming)	Fully conventional	Very conventional	Partly conventional	Partly organic	Very organic	Fully organic
b. Expected way of farming in the future	Fully conventional	Very conventional	Partly conventional	Partly organic	Very organic	Fully organic

c. Current way of selling	Fully conventional selling (Farmers' Association, Rice companies, etc.)	More conventional selling	Partly conventional selling	Partly self-created selling	More self-created selling	Fully self-created selling (Self-owned brand, electric commerce, etc.)
d. Expected way of selling in the future	Fully conventional selling (Farmers' Association, Rice companies, etc.)	More conventional selling	Partly conventional selling	Partly self-created selling	More self-created selling	Fully self-created selling (Self-own brand, electric commerce, etc.)

Table S1. Survey score conversion for select responses used for social influence group classification.

Age	Under 19	20-29	30-39	40-49	50-59	60-69	70 +
Original Score	1	2	3	4	5	6	7
Converted Score	0	0	1	2	3	4	5

Education	None	Elementary	Junior High	High School/Poly	College	Masters +
Original Score	1	2	3	4	5	6
Converted Score	0	1	2	3	4	5

Farming Experience	< 1 year	1-5 yrs	6-10 yrs	11-20 yrs	21-30 yrs	31-40 yrs	41-50yrs	51yrs +
Original Score	1	2	3	4	5	6	7	8
Converted Score	0	1	1	2	3	4	5	5

Govt Organic Training	Total number of times in lifetime (non categorical original scores based on actual responses)							
Original Score	0	1	2	3	6	7	10	16
Converted category	0	1-2	3-4	5-6	7-8	9-10	11 +	11 +
Converted Score	0	0	1	2	3	4	5	5

Note: Govt Training refers to government sponsored organic agricultural training. Farming experience refers to experience growing rice whether conventionally or organically.

Table S2. Survey score conversion for organic farming opinion questions (II, 1-34).

	Very Unimportant	Unimportant	Not So Important	Quite Important	Important	Very Important
Original Score	-3	-2	-1	1	2	3

Converted Score	0	1	2	3	4	5
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Note: Original survey conducted in Mandarin Chinese with questions and results translated into English.

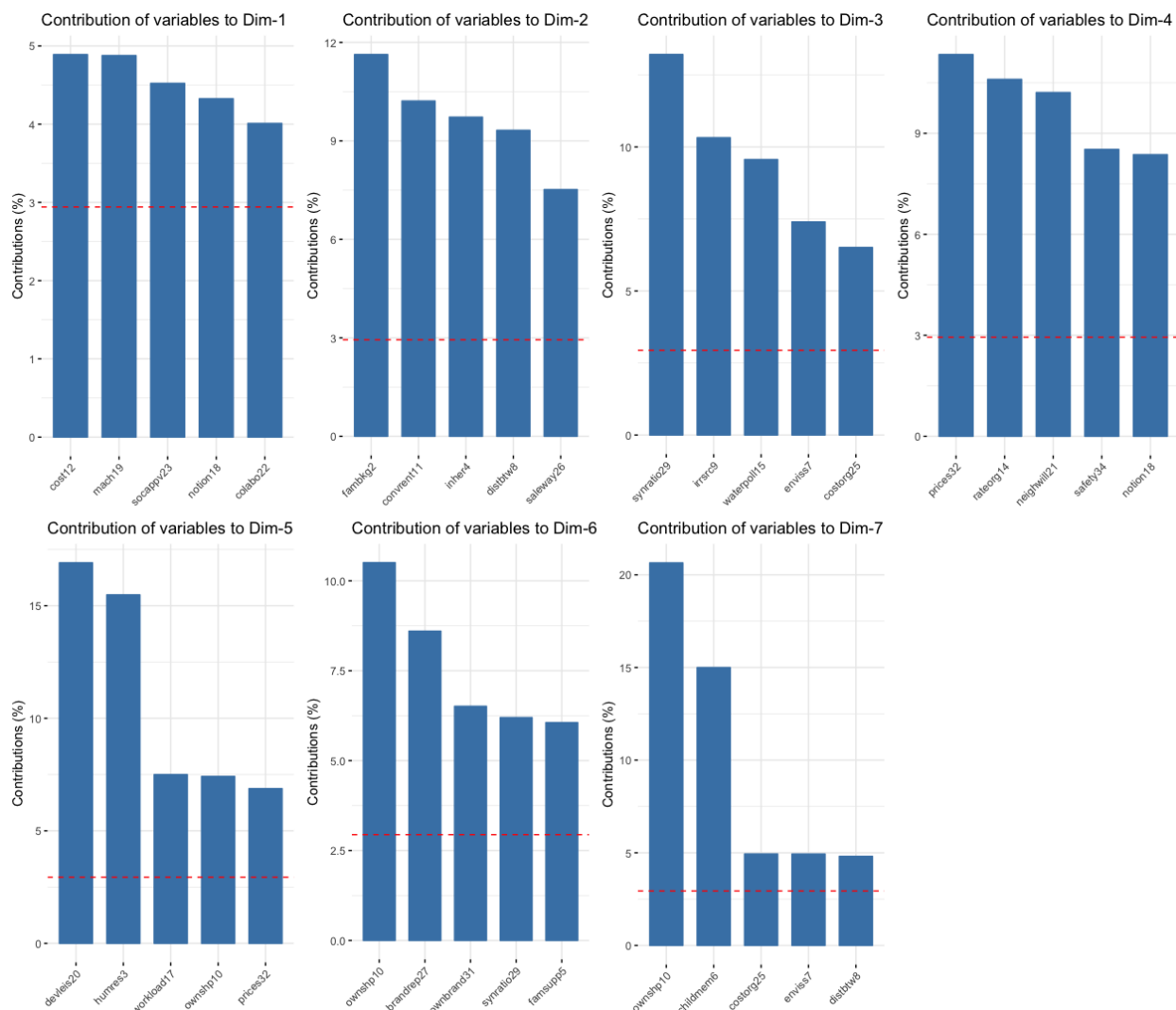


Figure S1. Top five contributing variables to each principal components (dimensions) 1-7 for Miaoli total sample. Red dashed line indicates the expected average contribution, if variable contributions were uniform.

Table S3. Correlations between principal components (PC) 1-3 and original variables for Miaoli total SEPL farmers.

	PC1 40% of total variation Transformation cost component	PC2 9% of total variation Family component	PC3 8% of total variation Consumer behavior component
Cost12	0.810272226		
Mach19	0.809225818		
Socappv23	0.77921866		
Notion18	0.762039389		

Colabo22	0.733750223		
Fambkg2		0.611163642	
Convrent11		0.572772783	
Inher4		0.558801244	
Distbtw8		0.54716116	
Saleway26		-0.491318872	
Synratio29			0.591112153
Irrsrc9			-0.522498653
Waterpoll15			-0.502948215
Enviss7			-0.442378583
Costorg25			0.415013092

Table S4a. Correlations between principal components (PC) 1-3 and top 5 original variables for SEPL Coast farmers.

	PC1 39% of total variation	PC2 15% of total variation	PC3 11% of total variation
	Notion component	Convenience of Land Rent component	Childhood memories component
Notion18	0.94769764		
Cost12	0.9384392		
Prodamt24	0.92821674		
Costorg25	0.88595989		
Saleway26	0.8811005		
Convrent11		0.680826318	
Irrsrc9		-0.666729033	
Fambkg2		0.658761093	
Enviss7		-0.644257625	
Prices32		0.615590664	
Childmem6			0.637603917
Enviss7			0.574095396
Ownshp10			0.573467296
Fambkg2			0.547354986
Ctrcolabo28			0.54597397

Table S4. Correlation coefficient and p-value of variables significantly correlated to Principal Component 1 for SEPL Coast farmers.

Variable	Correlation	P value
notion18	0.947697642	0.000000000071494
cost12	0.938439202	0.000000000324242
prodamt24	0.928216738	0.000000001340096
costorg25	0.885959892	0.000000091946208
saleway26	0.881100496	0.000000134018850
orgqual30	0.880908592	0.000000135982267
rateorg14	0.878393691	0.000000164164275
synratio29	0.874200248	0.000000222724731
neighwill21	0.770508577	0.000043757159446
workload17	0.748673619	0.000094519723932
mach19	0.728407687	0.000180933527455

threeyr13	0.718871117	0.000240946874965
consumwill33	0.709566619	0.000315238640263
socappv23	0.707875111	0.000330664104870
brandrep27	0.694831823	0.000472888910470
colabo22	0.680514834	0.000686229397609
ownbrand31	0.627568751	0.002322830614867
famsupp5	0.586527615	0.005195411400279
devleis20	0.565364497	0.007565106154465
humres3	0.554683828	0.009062251802470
techcouns16	0.516486045	0.016523812862701
prices32	0.491179324	0.023750810347463

Note: Variables with p-values smaller than 0.05 are listed.

Table S5. Correlation coefficient and p-value of variables significantly correlated to Principal Component 2 for SEPL Coast farmers.

Variable	Correlation	P value
convrent11	0.680826318	0.000680838
fambkg2	0.658761093	0.001164629
prices32	0.615590664	0.002971252
inher4	0.570003543	0.006981524
ownbrand31	0.559782789	0.008319836
ownshp10	0.489494749	0.024309183
ctrcolabo28	-0.546233605	0.010411527
techcouns16	-0.549481662	0.009874734
waterpoll15	-0.558420384	0.008513134
safety34	-0.575819691	0.006302748
enviss7	-0.644257625	0.001620477
irrsrc9	-0.666729033	0.000964187

Note: Variables with p-values smaller than 0.05 are listed.

Table S6. Correlation coefficient and p-value of variables significantly correlated to Principal Component 3 for SEPL Coast farmers.

Variable	Correlation	P value
childmem6	0.637603917	0.001875259
enviss7	0.574095396	0.006498041
ownshp10	0.573467296	0.006570407
fambkg2	0.547354986	0.010223574
ctrcolabo28	0.54597397	0.010455443
waterpoll15	0.459465479	0.036133837
inher4	0.450837353	0.040251682
distbtw8	0.436888562	0.047670892

humres3	-0.43327227	0.049756417
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Note: Variables with p-values smaller than 0.05 are listed.

Table S7. Correlation coefficient and p-value of variables significantly correlated to Principal Component 4 for SEPL Coast farmers.

Variable	Correlation	P value
neighwill21	0.509365096	0.018348737
irrsrc9	0.483090232	0.02652801
famsupp5	0.474539301	0.029737378
socappv23	-0.451081009	0.040130597
childmem6	-0.455357141	0.038051359
distbtw8	-0.552881756	0.009337261

Note: Variables with p-values smaller than 0.05 are listed.

Table S8. Correlation coefficient and p-value of variables significantly correlated to Principal Component 5 for SEPL Coast farmers.

Variable	Correlation	P value
addinc1	0.563699338	0.007784117
consumwill33	0.537711705	0.011933951

Note: Variables with p-values smaller than 0.05 are listed.

Table S9. Correlation coefficient and p-value of variables significantly correlated to Principal Component 6 for SEPL Coast farmers.

Variable	Correlation	P value
ownshp10	0.515637564	0.016733251
addinc1	0.441610055	0.04505026

Note: Variables with p-values smaller than 0.05 are listed.

Table S10. Correlation coefficient and p-value of variables significantly correlated to Principal Component 7 for SEPL Coast farmers.

Variable	Correlation	P value
safety34	0.496046075	0.022194816

Note: Variables with p-values smaller than 0.05 are listed.

Now-Table S11. Correlations between principal components (PC) 1-3 and top 5 original variables for Miaoli Plain farmers.

	PC1 33% of total variation	PC2 15% of total variation	PC3 12% of total variation
	Family component	Collaboration Component	Quality component
Famsupp4	0.87672553		
Mach19	0.86537821		
Ownshp10	0.84462884		
Inher4	0.81424033		
Socappv23	0.79582382		
Ctrlcolabo28		0.70314542	

Devleis20		-0.63232379	
Neighwill21		-0.61850277	
Addincl1		-0.60292347	
Irrsrc9		0.59196574	
Orgqual30			0.744339449
Waterpoll15			0.734878098
Consumwill33			-0.574778031
Rateorg14			0.569505548
Threeyr13			-0.511637836

Table S12. Correlation coefficient and p-value of variables significantly correlated to Principal Component 1 for SEPL Plain farmers.

Variable	Correlation	P value
famsupp5	0.876725533	0.00000387651
mach19	0.865378212	0.00000725019
ownshp10	0.844628839	0.00001994409
inher4	0.814240325	0.00006934770
socappv23	0.795823824	0.00013305953
colabo22	0.787753515	0.00017351739
fambkg2	0.746432534	0.00057806061
cost12	0.736682597	0.00074357396
enviss7	0.706986804	0.00150580661
childmem6	0.666878242	0.00345589230
convrent11	0.663022502	0.00371966316
distbtw8	0.644877889	0.00518951297
ownbrand31	0.598036489	0.01122155662
brandrep27	0.586344877	0.01336845373
prices32	0.580785841	0.01449692971
devleis20	0.56927904	0.01707092666
safety34	0.563076878	0.01859970456
costorg25	0.536738526	0.02632064034
consumwill33	0.524342444	0.03071689604
threeyr13	0.519466762	0.03259264643
humres3	0.48636494	0.04774265080

Note: Variables with p-values smaller than 0.05 are listed.

Table S13. Correlation coefficient and p-value of variables significantly correlated to Principal Component 2 for SEPL Plain farmers.

Variable	Correlation	P value
ctrcolabo28	0.703145424	0.001639724
irrrsrc9	0.591965743	0.012299159
techcouns16	0.586752165	0.013288588
prices32	0.486485786	0.047679142

saleway26	0.482424446	0.049848605
prodamt24	-0.502605246	0.039762276
addinc1	-0.602923468	0.010409725
neighwill21	-0.618502774	0.008128453
devleis20	-0.632323787	0.006456995

Note: Variables with p-values smaller than 0.05 are listed.

Table S14. Correlation coefficient and p-value of variables significantly correlated to Principal Component 3 for SEPL Plain farmers.

Variable	Correlation	P value
orgqual30	0.744339449	0.000610727
waterpoll15	0.734878098	0.000778138
rateorg14	0.569505548	0.017017022
brandrep27	-0.509215657	0.036821575
threeyr13	-0.511637836	0.035786606
consumwill33	-0.574778031	0.01579956

Note: Variables with p-values smaller than 0.05 are listed.

Table S15. Correlation coefficient and p-value of variables significantly correlated to Principal Component 4 for SEPL Plain farmers.

Variable	Correlation	P value
notion18	0.761606801	0.000381893
saleway26	0.753306398	0.000480807
techcouns16	0.639218877	0.005733322
prodamt24	0.531598061	0.028080379
addinc1	0.493683365	0.044009802

Note: Variables with p-values smaller than 0.05 are listed.

Table S16. Correlation coefficient and p-value of variables significantly correlated to Principal Component 5 for SEPL Plain farmers.

Variable	Correlation	P value
addinc1	0.563699338	0.007784117
consumwill33	0.537711705	0.011933951

Note: Variables with p-values smaller than 0.05 are listed.

Table S17. Correlation coefficient and p-value of variables significantly correlated to Principal Component 6 for SEPL Plain farmers.

Variable	Correlation	P value
safety34	-0.5099841	0.03649079

Note: Variables with p-values smaller than 0.05 are listed.

Table S18. Correlation coefficient and p-value of variables significantly correlated to Principal Component 7 for SEPL Plain farmers.

Variable	Correlation	P value
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costorg25	0.533658566	0.027364439
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Note: Variables with p-values smaller than 0.05 are listed.

Now Table S19. Correlations between principal components (PC) 1-3 and top 5 original variables for Miaoli Mountain farmers.

	PC1 44% of total variation	PC2 16% of total variation	PC3 12% of total variation
	Irrigation component	Childhood memories component	Prevalence component
Irrsrc9	0.9213995		
Waterpoll15	0.8944978		
Cost12	0.851317		
Techcouns16	0.8417667		
Safety34	0.8353658		
Childmem6		0.729564524	
Convrent11		0.724553165	
Humres3		0.675539963	
Distbtw8		0.671937845	
Costorg25		-0.623067776	
Rateorg14			-0.086491055
Brandrep27			0.64000597
Inher4			-0.61126295
Consumwill33			-0.57878015
Farmsupp5			-0.5596505

Table S20. Correlation coefficient and p-value of variables significantly correlated to Principal Component 1 for SEPL Mountain farmers.

Variable	Correlation	P value
irrsrc9	0.921399481	0.00000015156
waterpoll15	0.894497789	0.00000127222
cost12	0.850131695	0.00001547613
techcouns16	0.841766716	0.00002267069
safety34	0.835365819	0.00002992983
mach19	0.829162963	0.00003875111
ctrcolabo28	0.808955441	0.00008419464
orgqual30	0.80846858	0.00008568754
socappv23	0.803173983	0.00010341500
saleway26	0.79263676	0.00014796845
colabo22	0.76042101	0.00039488385
addinc1	0.757613737	0.00042711393
enviss7	0.713447211	0.00130091632
ownbrand31	0.69053805	0.00214973405
consumwill33	0.653430774	0.00444730240
notion18	0.646587106	0.00503372041
neighwill21	0.644858329	0.00519131804

rateorg14	0.633374137	0.00634225144
workload17	0.611606144	0.00908301477
ownshp10	0.610064488	0.00930815080
prices32	0.582015877	0.01424099165
humres3	0.57351789	0.01608410585
threeyr13	0.568200786	0.01732936801
distbtw8	0.552938509	0.02132716445
brandrep27	0.544543723	0.02381304892
costorg25	0.536549751	0.02638371722
childmem6	0.496131108	0.04281188024

Note: Variables with p-values smaller than 0.05 are listed.

Table S21. Correlation coefficient and p-value of variables significantly correlated to Principal Component 2 for SEPL Mountain farmers.

Variable	Correlation	P value
childmem6	0.729564524	0.000887728
convrent11	0.724553165	0.001002489
humres3	0.675539963	0.002918498
distbtw8	0.671937845	0.003133034
workload17	0.588504179	0.012949321
fambkg2	0.575245874	0.015694932
famsupp5	0.561262425	0.019066605
notion18	0.550158169	0.022126974
inher4	0.497112864	0.042338404
prodamt24	-0.511554838	0.035821699
costorg25	-0.623067776	0.007542031

Note: Variables with p-values smaller than 0.05 are listed.

Table S22. Correlation coefficient and p-value of variables significantly correlated to Principal Component 3 for SEPL Mountain farmers.

Variable	Correlation	P value
rateorg14	0.685803036	0.002371978
brandrep27	0.640005968	0.005655051
neighwill21	0.559253873	0.019594083
prices32	-0.545559107	0.023500967
famsupp5	-0.559650498	0.01948903
consumwill33	-0.578780149	0.014922024
inher4	-0.611262946	0.009132754

Note: Variables with p-values smaller than 0.05 are listed.

Table S23. Correlation coefficient and p-value of variables significantly correlated to Principal Component 4 for SEPL Mountain farmers.

Variable	Correlation	P value
synratio29	0.626528951	0.00712041
prodamt24	0.569341276	0.017056102
colabo22	-0.491098673	0.045302045

Note: Variables with p-values smaller than 0.05 are listed.

Table S24. Correlation coefficient and p-value of variables significantly correlated to Principal Component 5 for SEPL Mountain farmers.

Variable	Correlation	P value
addinc1	0.563699338	0.007784117
consumwill33	0.537711705	0.011933951

Note: Variables with p-values smaller than 0.05 are listed.

Table S25. Correlation coefficient and p-value of variables significantly correlated to Principal Component 6 for SEPL Mountain farmers.

Variable	Correlation	P value
ownshp10	0.525279679	0.030366033
devleis20	0.48520812	0.048353831

Note: Variables with p-values smaller than 0.05 are listed.

Table S26. Correlation coefficient and p-value of variables significantly correlated to Principal Component 7 for SEPL Mountain farmers.

Variable	Correlation	P value
fambkg2	0.509873399	0.036538302

Note: Variables with p-values smaller than 0.05 are listed.