Table 1. Correlation tests between ammonium nitrate fertilizer usage, farmer age, owned land area, distance to input market, and distance to paved road.

Variable description	**Variable name**	**V1**	**V2**	**V3**	**V4**	**V5**
Farmers using Ammo-nitrate	**V1**= Ammonitrateuse	1.0000				
Distance to input market	**V2**=_0_BL_dist_input_market	**0.1240***** (0.0013)	1.0000			
Distance to paved road	**V3**=_0_BL_dist_paved_road	-0.0039 (0.9207)	0.1296*** (0.0009)	1.0000		
Age	**V4**=A_hhmember1_age	-0.0220 (0.5762)	-0.1130*** (0.0040)	-0.0842** (0.0335)	1.0000	
Total owned land	**V5**=D_landowned_total	**0.1076***** (0.0053)	0.0765** (0.0484)	0.0432 (0.2693)	0.0549 (0.1629)	1.0000
Variable description	**Variable name**	**V1'**	**V2**	**V3**	**V4**	**V5**
Ammo-nitrate future use	**V1'**= I_t2_ammonitre_plan	1.0000				
Distance to input market	**V2**=_0_BL_dist_input_market	**0.1315***** (0.0007)	1.0000			
Distance to paved road	**V3**=_0_BL_dist_paved_road	-0.0458 (0.2406)	0.1296*** (0.0009)	1.0000		
Age	**V4**=A_hhmember1_age	-0.0415 (0.2910)	-0.1130*** (0.0040)	-0.0842** (0.0335)	1.0000	
Total owned land	**V5**=D_landowned_total	**0.0885**** (0.0218)	0.0765** (0.0484)	0.0432 (0.2693)	0.0549 (0.1629)	1.0000

*Significant at 10% level; **Significant at 5% level; ***Significant at 1% level.
P-values are shown in brackets next to the corresponding significance level.

Table 2. Chi-square tests for independence between ammo-nitrate use and sociodemographic variables (governorate, landownership, gender and agricultural degree)

Governorate	**Ammo-nitrate Use**	**Total**
Kairouan	No: 259 (57.05%) Yes: 195 (42.95%)	454 (100%)
Zaghouan	No: 109 (50.23%) Yes: 108 (49.77%)	217 (100%)
Total	No: 368 (54.84%) Yes: 303 (45.16%)	671 (100%)
Pearson chi2 =	2.7559	p = 0.097
Likelihood-ratio chi2=	2.7503	p = 0.097
Cramér's V=	0.0641	-
Landownership	**Ammo-nitrate Use**	**Total**
No	No: 38 (71.70%) Yes: 15 (28.30%)	53 (100%)
Yes	No: 330 (53.40%) Yes: 288 (46.60%)	618 (100%)
Total	No : 368 (54.84%) Yes : 303 (45.16%)	671 (100%)
Pearson chi2 =	6.6009	p = 0.010
Likelihood-ratio chi2=	6.8708	p = 0.009
Cramér's V=	0.0992	-
Gender	**Ammo-nitrate Use**	**Total**
Female	No: 31(72.09%) Yes: 12 (27.91%)	43 (100%)
Male	No: 337(54.01%) Yes: 228 (45.99%)	624(100%)
Total	No: 368 (55.17%) Yes: 299 (44.83%)	667(100%)
Pearson chi2 =	5.3208	p = 0.021
Likelihood-ratio chi2=	5.5524	p = 0.018
Cramér's V=	0.0893	-
Agriculture degree	**Ammo-nitrate Use**	**Total**
No	No : 348 (55.15%) Yes : 283 (44.85%)	631 (100%)
Yes	No: 20 (50.00%) Yes: 20 (50.00%)	40 (100%)
Total	No:368 (54.84%) Yes:303 (45.16%)	671(100%)
Pearson chi2 =	0.4029	p = 0.526
Likelihood-ratio chi2=	0.4012	p = 0.526
Cramér's V=	0.0245	-

Table 3. Chi-square tests for independence between ammo-nitrate future use and sociodemographic variables (governorate, landownership, gender and agricultural degree)

Governorate	**Ammo-nitrate Future Use**	**Total**
Kairouan	No : 163 (35.90%) Yes : 291(64.10%)	454 (100%)
Zaghouan	No: 63 (29.03%) Yes: 154 (70.97%)	217 (100%)
Total	No : 226 (33.68%) Yes : 445 (66.32%)	671 (100%)
Pearson chi2 =	3.1030	p = 0.078
Likelihood-ratio chi2=	3.1456	p = 0.076
Cramér's V=	0.0680	-
Landownership	**Ammo-nitrate Future Use**	**Total**
No	No : 28 (52.83%) Yes : 25 (47.17%)	53 (100%)
Yes	No: 198 (32.04%) Yes: 420 (67.96%)	618(100%)
Total	No : 226 (33.68%) Yes : 445 (66.32%)	671(100%)
Pearson chi2 =	9.4468	p = 0.002
Likelihood-ratio chi2=	8.9245	p = 0.003
Cramér's V=	0.1187	-
Gender	**Ammo-nitrate Future Use**	**Total**
Female	No : 23 (53.49%) Yes : 20 (46.51%)	43 (100%)
Male	No : 203 (32.53%) Yes : 421 (67.47%)	624 (100%)
Total	No : 226 (33.88%) Yes : 441 (66.12%)	667 (100%)
Pearson chi2 =	5.3208	p = 0.021
Likelihood-ratio chi2=	5.5524	p = 0.018
Cramér's V=	0.0893	-
Agriculture degree	**Ammo-nitrate Future Use**	**Total**
No	No : 211 (33.44%) Yes : 420 (66.56%)	631 (100%)
Yes	No : 15 (37.50%) Yes : 25 (62.50%)	40 (100%)
Total	No : 226 (33.68%) Yes : 445 (66.32%)	671(100%)
Pearson chi2 =	0.2777	p = 0.598
Likelihood-ratio chi2=	0.2733	p = 0.601
Cramér's V=	-0.0203	-

Model 1: Future Use of Ammonium Nitrate.

Logistic regression			Number of obs	=	618
			LR chi2(27)	=	337.14
			Prob > chi2	=	0
Log likelihood = -214.37062			Pseudo R2	=	0.4402

I_t2_ammonitre_plan	Odds ratio	Std.err.	z	P>z	[95%conf. interval]
gov1	0.795022	0.2151224	-0.85	0.397	.4677948 1.351148
0_BL_dist_input_market	1.028447	0.0129783	2.22	0.026	1.003322 1.054202
0_head_degree	0.3849394	0.1995727	-1.84	0.066	.139343 1.063407
A_hhmember1_age	0.9876316	0.009009	-1.36	0.172	.9701313 1.005448
Gender	2.185928	1.111334	1.54	0.124	.8070153 5.920931
D_landowned_total	1.002878	0.0170528	0.17	0.866	.9700056 1.036864
totalbarelyvalue	1.000318	0.0003388	0.94	0.348	.9996542 1.000982
I_t2_ammonitre_nrused	1.161873	0.0476119	3.66	0.000	1.072205 1.25904
J_t2_able_skills	1.105806	0.0634962	1.75	0.080	.9881036 1.23753
J_t2_able_pay	1.181829	0.0820603	2.41	0.016	1.031458 1.354122
J_t2_able_avail	1.018136	0.0303101	0.6	0.546	.9604296 1.079311
O_shosck_worst_8	0.2394131	0.3230558	-1.06	0.289	.0170046 3.370777
O_shosck_worst_9	0.3424199	0.198873	-1.85	0.065	.1096964 1.068872
O_shosck_worst_10	1.107445	1.377595	0.08	0.935	.0967116 12.68136
O_shosck_worst_11	0.2074812	0.093267	-3.5	0.000	.08597 .5007384
O_shosck_worst_13	0.1864261	0.0917291	-3.41	0.001	.0710692 .4890262
O_shosck_worst_14	0.1351696	0.1032496	-2.62	0.009	.0302473 .6040477
J_t2_benefitscodeAA					
1	3.680435	6.88884	0.7	0.486	.0939001 144.2555
2	7.961383	14.10677	1.17	0.242	.2470271 256.5857
3	17.04643	19.20495	2.52	0.012	1.873477 155.1025
4	16.744	21.62186	2.18	0.029	1.332557 210.3936
5	26.80107	32.7647	2.69	0.007	2.440878 294.2784
I_t2_ammonitre_whynotcodeC_8	0.0709096	0.0317245	-5.92	0	.0295041 .1704225
I_t2_ammonitre_whynotcodeC_4	0.0871942	0.0386978	-5.5	0	.0365355 .2080945
I_t2_ammonitre_whynotcodeC_7	0.423567	0.1983165	-1.83	0.067	.1691939 1.060375
I_t2_ammonitre_whynotcodeC_9	0.331837	0.123536	-2.96	0.003	.1599706 .6883502
cons	0.070209	0.0941828	-1.98	0.048	.0050645 .9733037

Note: _cons estimates baseline odds.

I_t2_ammonitre_plan	Coefficient	Std. err.	z	P>z	[95% conf.interval]	
gov1	-0.22927	0.270611	-0.85	0.397	-0.75966	0.301117
_0_BL_dist_input_market	0.028028	0.012634	2.22	0.027	0.003266	0.05279
_0_head_degree	-0.9546	0.518338	-1.84	0.066	-1.97052	0.061324
A_hhmember1_age	-0.01247	0.00914	-1.36	0.173	-0.03038	0.005447
Gender	0.782482	0.508542	1.54	0.124	-0.21424	1.779206
D_landowned_total	0.002858	0.01701	0.17	0.867	-0.03048	0.036196
totalbarelyvalue	0.000318	0.000339	0.94	0.348	-0.00035	0.000981
I_t2_ammonitre_nrused	0.150076	0.040987	3.66	0	0.069744	0.230408
J_t2_able_skills	0.100464	0.057498	1.75	0.081	-0.01223	0.213158
J_t2_able_pay	0.167061	0.06943	2.41	0.016	0.03098	0.303141
J_t2_able_avail	0.018061	0.029938	0.6	0.546	-0.04062	0.076739
O_shosck_worst_8	-1.42989	1.349461	-1.06	0.289	-4.07478	1.215009
O_shosck_worst_9	-1.07229	0.580994	-1.85	0.065	-2.21102	0.066439
O_shosck_worst_10	0.101107	1.244152	0.08	0.935	-2.33739	2.539599
O_shosck_worst_11	-1.57356	0.450109	-3.5	0	-2.45576	-0.69136
O_shosck_worst_12	-0.04866	1.285599	-0.04	0.97	-2.56839	2.471063
O_shosck_worst_13	-1.68034	0.492307	-3.41	0.001	-2.64524	-0.71543
O_shosck_worst_14	-2.00246	0.764586	-2.62	0.009	-3.50102	-0.5039
J_t2_benefitscodeAA						
1	1.302823	1.871841	0.7	0.486	-2.36592	4.971564
2	2.074734	1.771873	1.17	0.242	-1.39807	5.547542
3	2.836501	1.126756	2.52	0.012	0.6281	5.044902
4	2.818054	1.291358	2.18	0.029	0.287038	5.34907
5	3.28863	1.222565	2.69	0.007	0.892448	5.684813
I_t2_ammonitre_whynotcodeC_8	-2.64699	0.447719	-5.91	0	-3.5245	-1.76948
I_t2_ammonitre_whynotcodeC_4	-2.44019	0.444081	-5.49	0	-3.31058	-1.56981
I_t2_ammonitre_whynotcodeC_7	-0.85946	0.468339	-1.84	0.066	-1.77738	0.058471
I_t2_ammonitre_whynotcodeC_9	-1.10263	0.372494	-2.96	0.003	-1.8327	-0.37255
_cons	-2.65467	1.342154	-1.98	0.048	-5.28525	-0.0241

Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	618	-382.9396	-214.371	28	484.7412	608.6829

Note: BIC uses N = number of observations.

Model 2: Current Use of Ammonium Nitrate

Logistic regression Number of obs= 553

LR chi2(31)= 216.40

Prob > chi2= 0.0000

Log likelihood = -275.06443 Pseudo R2 = 0.2823

Ammonitrateuse	Coefficient	Std. err.	z	P>z	[95% conf. interval]	
0 BL dist input market	0.0186202	0.010048	1.85	0.064	-0.00107	0.038314
0 head degree	0.3823331	0.472128	0.81	0.418	-0.54302	1.307686
A hhmember1 age	-0.0162084	0.00849	-1.91	0.056	-0.03285	0.000432
Gender	0.5482523	0.491789	1.11	0.265	-0.41564	1.51214
Owner	0.3475626	0.444613	0.78	0.434	-0.52386	1.218988
D landowned total	0.0151474	0.014235	1.06	0.287	-0.01275	0.043048
1.gov1	-0.5850404	0.248526	-2.35	0.019	-1.07214	-0.09794
totalbarelyvalue	0.0002935	0.000171	1.71	0.087	-4.2E-05	0.00063
J t2 perc accesscodeA						
2	-0.1056636	0.426659	-0.25	0.804	-0.9419	0.730572
3	-0.9645387	0.457385	-2.11	0.035	-1.861	-0.06808
4	-1.25878	0.52246	-2.41	0.016	-2.28278	-0.23478
J t2 perc labourcodeC						
2	0.925678	0.468558	1.98	0.048	0.007321	1.844035
3	0.7766647	0.45303	1.71	0.086	-0.11126	1.664587
4	0.4521156	0.457051	0.99	0.323	-0.44369	1.347918
J t2 perc knowcodeC						
2	-0.7779608	0.491107	-1.58	0.113	-1.74051	0.184592
3	0.080013	0.457317	0.17	0.861	-0.81631	0.976337
4	0.5466814	0.481064	1.14	0.256	-0.39619	1.489549
J t2 able skills	0.3167576	0.061082	5.19	0	0.19704	0.436475
J t2 able pay	0.2736036	0.058796	4.65	0	0.158365	0.388842
J t2 able avail	-0.0459916	0.062762	-0.73	0.464	-0.169	0.07702
J t2 depend	0.4600782	0.153651	2.99	0.003	0.158929	0.761228
O shock drought yn	-1.225249	1.069826	-1.15	0.252	-3.32207	0.871572
O shock temp yn	-0.2566775	0.282147	-0.91	0.363	-0.80968	0.296321
O shock hail yn	-0.8921739	0.38368	-2.33	0.02	-1.64417	-0.14017
O shock wind yn	1.005058	0.359708	2.79	0.005	0.300044	1.710072
O shock flood yn	-0.2570248	0.382527	-0.67	0.502	-1.00676	0.492714
O shock priceinput yn	0.9341553	0.480968	1.94	0.052	-0.00852	1.876834
O shock pricedown yn	-0.1763327	0.245657	-0.72	0.473	-0.65781	0.305146
O shock pricecons yn	0.6639629	0.48806	1.36	0.174	-0.29262	1.620543
I t2 ammonitre infocodeA 6	1.710804	0.782448	2.19	0.029	0.177234	3.244374
O shosck worst 11	0.7121458	0.378689	1.88	0.06	-0.03007	1.454363
cons	-4.073249	1.58234	-2.57	0.01	-7.17458	-0.97192

Ammonitrateuse	Odds ratio	Std. err.	z	P>z	[95% conf.	interval]
0 BL dist input market	1.018795	0.010237	1.85	0.064	0.998927	1.039057
0 head degree	1.4657	0.691997	0.81	0.418	0.580991	3.697607
A hhmember1 age	0.9839222	0.008354	-1.91	0.056	0.967685	1.000432
Gender	1.730226	0.850906	1.11	0.265	0.659921	4.536429
Owner	1.415613	0.6294	0.78	0.434	0.592228	3.383762
D landowned total	1.015263	0.014453	1.06	0.287	0.987328	1.043988
1.gov1	0.5570834	0.138449	-2.35	0.019	0.342275	0.906704
totalbarelyvalue	1.000294	0.000171	1.71	0.087	0.999958	1.00063
J t2 perc accesscodeA						
2	0.8997272	0.383877	-0.25	0.804	0.389887	2.076268
3	0.381159	0.174337	-2.11	0.035	0.155517	0.934186
4	0.2840003	0.148379	-2.41	0.016	0.102	0.790747
J t2 perc labourcodeC						
2	2.523579	1.182443	1.98	0.048	1.007348	6.321995
3	2.174208	0.984982	1.71	0.086	0.894708	5.283492
4	1.571634	0.718316	0.99	0.323	0.641666	3.849403
J t2 perc knowcodeC						
2	0.4593417	0.225586	-1.58	0.113	0.17543	1.202727
3	1.083301	0.495412	0.17	0.861	0.442059	2.654715
4	1.727511	0.831043	1.14	0.256	0.672881	4.435096
J t2 able skills	1.37267	0.083845	5.19	0	1.217793	1.547244
J t2 able pay	1.314693	0.077299	4.65	0	1.171594	1.475271
J t2 able avail	0.95505	0.059941	-0.73	0.464	0.844506	1.080063
J t2 depend	1.584198	0.243413	2.99	0.003	1.172255	2.140903
O shock drought yn	0.2936846	0.314191	-1.15	0.252	0.036078	2.390666
O shock temp yn	0.7736177	0.218274	-0.91	0.363	0.445002	1.344902
O shock hail yn	0.409764	0.157218	-2.33	0.02	0.193172	0.869207
O shock wind yn	2.732066	0.982745	2.79	0.005	1.349918	5.529362
O shock flood yn	0.773349	0.295827	-0.67	0.502	0.3654	1.636752
O shock priceinput yn	2.545063	1.224093	1.94	0.052	0.991513	6.532792
O shock pricedown yn	0.838339	0.205944	-0.72	0.473	0.517984	1.356824
O shock pricecons yn	1.942475	0.948044	1.36	0.174	0.746308	5.055833
I t2 ammonitre infocodeA 6	5.533409	4.329606	2.19	0.029	1.19391	25.64566
O shosck worst 11	2.03836	0.771905	1.88	0.06	0.970376	4.281756
cons	0.017022	0.026935	-2.57	0.01	0.000766	0.378356

Note: _cons estimates baseline odds.

Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	553	-383.2661	-275.064	32	614.1289	752.2203

Note: BIC uses N = number of observations. See [R] IC note.

VIF
Model 2: Future use of ammonium nitrate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	@_0_BL_dist_input_market	0.890	1.124
	@_0_head_degree	0.956	1.046
	A_hhmember1_age	0.915	1.093
	Gender	0.940	1.063
	D_landowned_total	0.907	1.102
	gov1	0.852	1.174
	totalbarelyvalue	0.891	1.123
	J_t2_able_skills	0.599	1.669
	J_t2_able_pay	0.590	1.694
	J_t2_able_avail	0.755	1.324
	I_t2_ammonitre_nrused	0.536	1.867
	O_shosck_worst_11	0.805	1.242
	O_shosck_worst_8	0.962	1.040
	O_shosck_worst_9	0.954	1.049
	O_shosck_worst_10	0.970	1.031
	O_shosck_worst_13	0.923	1.084
	O_shosck_worst_14	0.944	1.059
	J_t2_benefitscodeAA	0.942	1.062
	I_t2_ammonitre_whynotcodeC_8	0.717	1.395
	I_t2_ammonitre_whynotcodeC_4	0.767	1.305
	I_t2_ammonitre_whynotcodeC_7	0.806	1.240
	I_t2_ammonitre_whynotcodeC_9	0.699	1.431

VIFcurent use

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	@_0_BL_dist_input_market	0.909	1.101
	@_0_head_degree	0.955	1.047
	A_hhmember1_age	0.913	1,095
	Gender	0.937	1.067
	Owner	0.862	1.160
	D_landowned_total	0.905	1.104
	gov1	0.804	1.243
	totalbarelyvalue	0.870	1.149
	J_t2_perc_accesscodeA	0.486	2.056
	J_t2_perc_labourcodeC	0.524	1.910
	J_t2_perc_knowcodeC	0.611	1.636
	J_t2_able_skills	0.668	1.498
	J_t2_able_pay	0.657	1.522
	J_t2_able_avail	0.443	2.256
	J_t2_depend	0.709	1.411
	O_shock_drought_yn	0.875	1.143
	O_shock_temp_yn	0.665	1.504
	O_shock_hail_yn	0.801	1.248
	O_shock_wind_yn	0.421	2.378
	O_shock_flood_yn	0.835	1.197
	O_shock_priceinput_yn	0.733	1.364
	O_shock_pricedown_yn	0.759	1.318
	O_shock_pricecons_yn	0.775	1.291
	I_t2_ammonitre_infocodeA_5	0.923	1.083
	O_shosck_worst_11	0.741	1.349