Table 1: Impact of of IVR and SMS treatments on knowledge (conditional on access to mobile phone)

	Mean	+IVR	p-value	N	+SMS	p-value	N
Knows optimal spacing (yes=1)	0.174	-0.015	0.392	3,002	0.002	0.941	2,736
	(0.380)	(0.020)			(0.022)		
Knows inputs best combined (yes=1)	0.905	-0.013	0.173	3,002	0.005	0.699	2,736
	(0.293)	(0.011)			(0.012)		
Knows optimal time for weeding (yes=1)	0.945	0.003	0.742	3,002	0.007	0.618	2,736
	(0.228)	(0.011)			(0.012)		
Knows how to fight armyworm (yes=1)	0.338	-0.009	0.690	3,002	0.008	0.720	2,736
	(0.474)	(0.021)			(0.023)		
Knowledge index	-0.109	-0.023	0.317	3,002	0.018	0.613	2,736
	(0.610)	(0.027)			(0.030)		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3 and number of observations in column 4; column 5 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 6; sample size is reported in column 7. Reported p-values are based on randomization inference (10,000 permutations). All specifications control for the other orthogonal factors in the factorial design.

Table 2: 2SLS estimates of impact of IVR and SMS treatments on household level knowledge

	Mean	+IVR	p-value	+SMS	p-value	N
Knows optimal spacing (yes=1)	0.160	-0.360	0.306	0.014	0.596	3,619
	(0.367)	(0.351)		(0.026)		
Knows inputs best combined (yes=1)	0.908	-0.331	0.115	0.014	0.379	3,619
	(0.290)	(0.210)		(0.015)		
Knows optimal time for weeding (yes=1)	0.954	0.178	0.350	0.000	0.979	3,619
	(0.210)	(0.191)		(0.015)		
Knows how to fight armyworm (yes=1)	0.336	-0.286	0.431	0.023	0.401	3,619
	(0.473)	(0.363)		(0.028)		
Knowledge index	-0.077	-0.396	0.376	0.026	0.458	3,619
	(0.562)	(0.473)		(0.036)		

Note: In the first column, means (and standard deviations) in the comparison group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3; column 4 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 5; sample size is reported in column 6. All specifications control for the other orthogonal factors in the factorial design.

Table 3: Impact of IVR and SMS treatments on agronomic practices (conditional on phone phone access)

	Mean	+IVR	p-value	N	+SMS	p-value	N
Planted immediately after start of rains (yes=1)	0.365	0.013	0.559	2,924	-0.020	0.433	2,673
	(0.483)	(0.022)			(0.024)		
Used spacing of 75cm x 30cm with a reduced seed rate (yes=1)	0.030	-0.011	0.360	2,962	0.014	0.331	2,707
	(0.171)	(0.013)			(0.014)		
Removed striga early on (yes=1)	0.690	-0.003	0.867	2,962	0.021	0.376	2,707
	(0.464)	(0.020)			(0.022)		
First weeding after 18-20 days (yes=1)	0.435	0.019	0.331	2,962	0.002	0.950	2,707
	(0.497)	(0.023)			(0.025)		
Recommended practices index	-0.088	0.008	0.685	2,924	0.014	0.584	2,673
	(0.482)	(0.024)			(0.026)		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3 and number of observations in column 4; column 5 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 6; sample size is reported in column 7. Reported p-values are based on randomization inference (10,000 permutations). All specifications control for the other orthogonal factors in the factorial design.

Table 4: 2SLS estimates of impact of IVR and SMS treatments on agronomic practices

	Mean	+IVR	p-value	+SMS	p-value	N
Planted immediately after start of rains (yes=1)	0.370	0.163	0.677	-0.002	0.940	3,500
	(0.484)	(0.391)		(0.029)		
Used spacing of 75cm x 30cm with a reduced seed rate (yes=1)	0.026	-0.089	0.670	0.020	0.231	3,560
	(0.158)	(0.210)		(0.017)		
Removed striga early on (yes=1)	0.685	-0.170	0.617	0.033	0.215	3,560
	(0.465)	(0.339)		(0.027)		
First weeding after 18-20 days (yes=1)	0.426	0.228	0.552	-0.012	0.693	3,560
	(0.495)	(0.383)		(0.030)		
Recommended practices index	-0.086	0.102	0.804	0.028	0.364	3,500
	(0.478)	(0.411)		(0.031)		

Note: In the first column, means (and standard deviations) in the comparison group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3; column 4 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 5; sample size is reported in column 6. All specifications control for the other orthogonal factors in the factorial design.

Table 5: Impact of IVR and SMS treatments on fertilizer and improved seed use (conditional on access to mobile phone)

	Mean	+IVR	p-value	N	+SMS	p-value	N
			fertilizer use				
Used DAP/NPK on at least one plot? (yes=1)	0.285	0.029	0.095	2,962	-0.022	0.408	2,707
	(0.453)	(0.020)			(0.022)		
Used urea on at least one plot? (yes=1)	0.050	0.013	0.288	2,962	-0.031	0.050	2,707
	(0.218)	(0.014)			(0.015)		
Used organic fertilizer on at least one plot? (yes=1)	0.150	-0.044**	0.011	2,962	0.037	0.083	2,707
	(0.358)	(0.019)			(0.021)		
Fertilizer index	-0.074	-0.002	0.908	2,962	-0.015	0.675	2,707
	(0.531)	(0.027)			(0.029)		
			seed use				
Used hybrid maize seed on at least one plot? (yes=1)	0.330	0.023	0.234	2,962	-0.053	0.028*	2,707
	0.471	0.021			0.023		
Used Open Polinated Varieties on at least one plot? (yes=1)	0.275	0.011	0.543	2,962	0.026	0.386	2,707
	0.448	0.021			0.023		
Seed index	0.010	0.038	0.161	2,962	-0.026	0.475	2,707
	0.701	0.030			0.033		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3 and number of observations in column 4; column 5 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 6; sample size is reported in column 7. Reported p-values are based on randomization inference (10,000 permutations); ** and * denote that the difference is signficant at the 5 and 10 percent level, respectively, after correcting for multiple hypothesis testing using a family-wise sharp null (10,000 permutations). All specifications control for the other orthogonal factors in the factorial design.

Table 6: 2SLS estimates of impact of IVR and SMS treatments on fertilizer and improved seed use

	Mean	+IVR	p-value	+SMS	p-value	N
			fertilizer use			
Used DAP/NPK on at least one plot? (yes=1)	0.264	0.393	0.228	-0.011	0.661	3,560
	(0.442)	(0.325)		(0.025)		
Used urea on at least one plot? (yes=1)	0.051	0.225	0.320	-0.030	0.092	3,560
	(0.221)	(0.226)		(0.018)		
Used organic fertilizer on at least one plot? (yes=1)	0.157	-0.704	0.037	0.044	0.077	3,560
	(0.365)	(0.337)		(0.025)		
Fertilizer index	-0.057	-0.078	0.846	-0.003	0.994	3,560
	(0.547)	(0.443)		(0.035)		
			seed use			
Used hybrid maize seed on at least one plot? (yes=1)	0.289	0.732	0.046	-0.063	0.022	3,560
	(0.454)	(0.367)		(0.027)		
Used Open Polinated Varieties on at least one plot? (yes=1)	0.302	0.164	0.635	0.033	0.220	3,560
	(0.460)	(0.345)		(0.027)		
Seed index	0.032	0.242	0.605	0.004	0.876	3,560
	(0.700)	(0.447)		(0.036)		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3 and number of observations in column 4; column 5 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 6; sample size is reported in column 7. Reported p-values are based on randomization inference (10,000 permutations); ***, ** and * denote that the difference is signficant at the 1, 5 and 10 percent level, respectively, after correcting for multiple hypothesis testing using a family-wise sharp null (10,000 permutations). All specifications control for the other orthogonal factors in the factorial design.

Table 7: Impact of IVR and SMS treatments on household level production (conditional on access to mobile phone)

	Mean	+IVR	p-value	N	+SMS	p-value	N
Maize production (log(kg))	5.921	0.057	0.146	2,742	-0.001	0.894	2,511
	(0.706)	(0.036)			(0.039)		
Maize area (log(acre))	0.054	-0.018	0.492	2,782	0.004	0.997	2,545
	(0.554)	(0.029)			(0.031)		
Maize yield (log(kg/acre))	5.879	0.042	0.203	2,756	0.011	0.737	2,518
	(0.654)	(0.031)			(0.034)		
Yield better than normal (yes=1)	0.405	-0.005	0.812	2,962	0.036	0.166	2,707
	(0.492)	(0.023)			(0.024)		
Labour(log(mandays))	4.157	-0.009	0.729	2,802	0.021	0.515	2,549
	(0.571)	(0.027)			(0.028)		
Labour productivity (log(kg/mandays))	1.673	0.060	0.082	2,780	-0.012	0.672	2,543
	(0.708)	(0.036)			(0.039)		
Production index	-0.052	0.016	0.306	2,756	0.009	0.572	2,518
	(0.378)	(0.017)			(0.018)		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3 and number of observations in column 4; column 5 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 6; sample size is reported in column 7. Reported p-values are based on randomization inference (10,000 permutations). All specifications control for the other orthogonal factors in the factorial design.

Table 8: 2SLS estimates of impact of IVR and SMS treatments on production

	Mean	+IVR	p-value	+SMS	p-value	N
Maize production (log(kg))	5.814	0.912	0.173	0.054	0.276	3,344
	(0.765)	(0.670)		(0.050)		
Maize area (log(acre))	0.018	-0.240	0.614	0.031	0.415	3,341
	(0.580)	(0.476)		(0.038)		
Maize yield (log(kg/acre))	5.850	0.690	0.224	0.005	0.898	3,302
	(0.658)	(0.568)		(0.041)		
Yield better than normal (yes=1)	0.387	0.008	0.983	0.048	0.103	3,560
	(0.488)	(0.374)		(0.030)		
Labour(log(mandays))	4.132	-0.056	0.895	0.037	0.296	3,370
	(0.577)	(0.421)		(0.036)		
Labour productivity (log(kg/mandays))	1.650	1.185	0.076	0.000	0.996	3,341
	(0.720)	(0.667)		(0.048)		
Production index	-0.053	0.159	0.625	0.007	0.702	3,302
	(0.365)	(0.297)		(0.022)		

Note: In the first column, means (and standard deviations) in the control group are presented for each variable. Column 2 reports differences between video only and video+ivr (and standard error) with its corresponding p-value in column 3; column 4 reports differences between video+ivr and video+ivr+SMS (and standard error) with its corresponding p-value in column 5; sample size is reported in column 6. All specifications control for the other orthogonal factors in the factorial design.