Appendix 1.4 ICC and standard deviation values for select indicators

English: This appendix provides ICC values and standard deviations for select commonly used or donor-specific indicators whose underlying data is typically collected via a representative sample. This document is kept separate from the leading guide to allow for frequent updating. **This document was last updated in January 2024.**

Readers who wish to contribute ICC values to the tables in Appendix 1.4 or would like to help to calculate them should contact the author.

Français : Cette annexe fournit les valeurs de l'ICC et les écarts-types pour certains indicateurs couramment utilisés ou spécifiques aux donateurs, dont les données sous-jacentes sont généralement collectées par le biais d'un échantillon représentatif. Ce document est séparé du guide principal afin de permettre des mises à jour fréquentes. **La dernière mise à jour de ce document date de janvier 2024.**

Les lecteurs souhaitant contribuer aux valeurs de l'ICC dans les tableaux de l'annexe 1.4, ou souhaitant une aide pour les calculer, sont priés de contacter l'auteur.

Español: Este apéndice proporciona valores ICC y desviaciones estándar para indicadores seleccionados de uso común o específicos de un donante, cuyos datos subyacentes suelen recopilarse a través de una muestra representativa. Este documento se mantiene separado de la guía principal, para permitir su actualización frecuente. **Este documento se actualizó por última vez en enero de 2024.**

Los lectores que deseen aportar valores del ICC a las tablas del apéndice 1.4, o que deseen ayuda para calcularlos, deben ponerse en contacto con el autor.

TABLE 1. NON-DONOR SPECIFIC ICC VALUES AND STANDARD DEVIATIONS

Indicator (location)	Cluster	Individual	ICC	SD[1]	Reference
Farmer improved knowledge (Nampula/ Zambezia, Mozambique)	Enumeration area (100 households)	Household	0.04 – 0.13	N/A	(Geyer, Davis, and Narayan 2016)
Sapling survival rate (Nampula/ Zambezia, Mozambique)			0.10	0.27 (%)	
Agricultural income (Nampula/ Zambezia, Mozambique)			0.03	2,414 MZN/ household	
Choice to save in banks (Masindi, Uganda)	Community	Household	0.28	N/A	(Chowa, Ansong, and R. Despard 2014)
Food security and nutrition (multi-state, USA)	School	Student	0.24	N/A	(Juras 2016)
Second grade literacy scores (Koinadugu, Sierra Leone)	School	Student	0.58	1.83 (of 5)	Author's calculations; Phase 3 endline
Percent of attentive students in class (Borgou/ Alibori, Benin)	School	Student			Author's calculations; Phase 2 baseline
Child Development (DMC-II Checklist) (Bihar, India)	Health sub-center	Household	0.03	0.09	(Larson et al. 2017)
Prevalence of acute malnutrition[2] (DHS; 46 countries)	Cluster (DHS)	Household	<0.10	N/A	(Fenn, Morris, and Frost 2004)
Households using cheaper, unsafe water sources (Ethiopia)	*Kebele, gott*	Household	0.077	N/A	(Delea et al. 2019)
Households reducing essential WASH expenditures (El Salvador)	Community	Household	.04	N/A	(Almanzar, Cropper, and Guiteras 2014)
Households practicing cheaper open defecation (Northern region, Ghana)	Community	Household	0.05	N/A	(Harter, Inauen, and Mosler 2020)
Individuals with improved motivational state (London, UK)	Neighborhood	Individual	0.09	N/A	(Phillips et al. 2011)
(Guangdong, China)	District/ Family	Individual	0.257-0.271	N/A	(Yuan 2016)
Social Cohesion Barometer Indices	See Social Cohesion Barometer for MEAL guide				

[1] Where SD is N/A, the indicator is binary.

[2] USAID Office of Food for Peace (2019) requires that projects estimate sample sizes based on no larger than a 5% change in this indicator, regardless of target set.

TABLE 2. ICC VALUES AND STANDARD DEVIATIONS – SELECT FEED THE FUTURE FY23 STANDARD INDICATORS[3]

NO	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[4]	REFERENCE
EG.3-10,11,12	Yield of agricultural commodities (10 crops; Andhra Pradesh/ Maharashtra, India)	Village	Parcel	0.10	~600 kg/ ha	(Michler, Ward, and Shively 2016)
			Household	0.15		
	(Maize; Nicaragua)	Village	Household	0.097	-	(Brooks and Donovan 2018)
	(Beans; Nicaragua)			0.059	-	
	(Arabica coffee; Karnataka, India)	-	-	-	84.62 kg/ ha	(Madhura, Reddy, and Chandrashekar 2017)
	(Carrots; Central-Southern Brazil)	-	-	-	7,848 kg/ ha	(Lana 2012)
	(Tomatoes; greenhouses, Florida USA)	-	-	-	0.32 kg/ m^2	(Asci, VanSickle, and Cantliffe 2014)
EG3.2-24	Individuals in the ag/ food system adopting improved management practices (Improved grain storage; Mali)	Village	Individual	0.044	N/A	(Osei et al. 2018)
	(Aggregated sales; Mali)			0.210		
	(Used maize storage chemicals; Uganda)	LC1 (Village)	Household	0.099		(Omotilewa et al. 2018)
EG3.2-25	Ha under improved management (Planted in improved maize; Uganda)			0.102	0.070 ha	
EG.3.2-26	Value of annual sales of farms and firms (rice value/ ha; western Madagascar)	Village	Household	0.11	$41/ HH[5]	(Ring et al. 2017)
	(Coconut/ others; Nampula/ Zambezia, Mozambique)	Enumerator area	Household	0.217	24.85 MZN/ HH	(Geyer, Davis, and Narayan 2016)
		Village		0.093		
		Admin Post		0.059		
	(Maize, beans, sorghum, coffee; Nicaragua)	Village	Household	0.088	-	(Brooks and Donovan 2018)
EG.3.3-10	Females in nutrition-sensitive ag consuming minimum diversity diet (Malawi)[6]	Enumerator Area	Household	0.141	N/A	(Fitzsimons et al. 2016)
EG.10.4-8	Adults who perceive their land/ marine tenure rights as secure (Zambia)	Village	Household	0.06 – 0.09	N/A	(Huntington, Persha, and Starosta 2016)

[3] The selected indicators are FtF Activity/IM-level indicators, and those for which data collection will likely be clustered and/ or are continuous. Data collected from non-clustered samples do not require ICCs to determine the sample size; data for binary indicators do not have a standard deviation. Indicators are primarily outcome level, given that output level indicators are typically tracked via project records, and not a representative sample.

[4] Where SD is N/A, the indicator is binary.

[5] Author's calculations using citation data. SD = $(e^{0.061})\sqrt{1{,}454}$ (Higgins, Li, and Deeks 2019)

[6] This is the ICC for an index on household consumption, which was the closest equivalent available indicator.

NO	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[4]	REFERENCE
GNDR-a	Women's economic empowerment (Odisha, India)	Self-Help Group	Individual	0.017	N/A	(Brody et al. 2017)
HL.8.2-2	People gaining access to basic sanitation (Kenya, Malawi, Zambia, Zimbabwe)	Village	Household	0.23	N/A	(Handa et al. 2018)
RESIL-h	HH obtaining health insurance (Philippines)	Municipality	Household	0.07	N/A	(Capuno et al. 2014)
RESIL-i	Social capital index (China)	Community	Household	0.001[7]	1.16[8]	(Chen and Meng 2015)
RESIL-j	HH diversifying livelihoods (China)	Village	Individual	0.123-0.166	N/A	(Zhang et al. 2018)
RESIL-k	People accessing arsenic risk information (Bangladesh)	Village	Household	<0.10	N/A	(Bennear et al. 2013)
RESIL-L	People working together for community benefit (Brazilian Amazon)	Community	Household	0.035	N/A	(Simonet et al. 2018)
RESIL-2	Households reporting increased resilience to disasters (Somali, Oromia and Afar regions; Ethiopia)	Woreda	Household	0.18-0.27	N/A	(Bianco et al. 2018)

[7] Author's estimation based on change in ICC from the null to social capital-controlled model.

[8] Author's calculations using citation data. SD = $(0.01)\sqrt{13{,}453}$ (Higgins, Li, and Deeks 2019). Maximum value was 10, so to follow the 0 to 100 scale of this indicator, using SD of (1.16/10)*100 = 11.6.

TABLE 3. ICC VALUES AND STANDARD DEVIATIONS - SELECT BHA RFSA FY23 STANDARD INDICATORS[9]

NO	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[10]	REFERENCE
PM04	Households with soap and water at a handwashing station	See Table 2, FtF Indicator HL.8.2-5				
PM06	Female participants in nutrition-sensitive ag consuming minimum diversity diet	See Table 2, FtF Indicator EG.3.3-10				
PM09	Ha under improved management	See Table 2, FtF Indicator EG3.2-25				
PM11	Individuals adopting climate risk-reducing actions (Pressure irrigation, corn/ soybean; US)	State	Household	0.743-0.838	N/A	(Fan, Massey, and Park 2018)
	(Scheduled irrigation, corn/ soybean, US)			0.073-0.114		
PM12	Ha under improved management that promotes climate risk reduction	See Table 2, FtF Indicator EG3.2-28				
PM14	Farmers adopting value chain activities	See Table 2, FtF Indicator EG3.2-24 and 25				
PM15	Yield of agricultural commodities	See Table 2, FtF Indicator EG.3-10,11,12				
PM16	Individuals in the agri-food system adopting improved management	See Table 2, FtF Indicator EG3.2-24				
PM17	Hours worked (week; Malawi)	Enumerator Area	Individual (male)	0.100	20.7 Hrs/ind[11]	(Fitzsimons et al. 2016)
PM21	Individuals gaining access to basic drinking water (Kenya, Malawi, Zambia, Zimbabwe)	Village	Household	0.18	N/A	(Handa et al. 2018)
PM22	Individuals gaining access to basic sanitation	See Table 2, FtF Indicator HL.8.2-2				
PM24	Live births receiving at least four antenatal care visits (Bangladesh, India, Malawi)	Village	Individual	0.021 – 0.154	N/A	(Pagel et al. 2011)
PM27	Referred acute malnutrition cases treated (Burkina Faso)	Health center	Child	0.040	N/A	(Becquey et al. 2019)
PM33	Value of annual sales of farms and firms	See Table 2, FtF Indicator EG.3.2-26				
PM38	Increased access to public services (Health care; Mozambique)	Enumerator area	Individual	0.15	N/A	(Vergara et al. 2011)
PM44	People contributing to local decision-making	See Table 2, FtF Indicator RESIL-f				

[9] The selected indicators are FFP indicators collected by implementing partners, those for which data collection will likely be clustered and/ or are continuous. Data collected from non-clustered samples do not require ICCs to determine the sample size; data for binary indicators do not have a standard deviation. Indicators are primarily outcome level, given that output level indicators are typically tracked via project records, and not a representative sample.

[10] Where SD is N/A, the indicator is binary.

[11] Author's calculations using citation raw data, variable "fat_tot_hrs_wk"

NO	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[10]	REFERENCE
MP45	People prepared for future shock	See Table 2, FtF Indicator RESIL-g				
PM46	People obtaining shock-mitigating insurance	See Table 2, FtF Indicator RESIL-h				
PM47	Social capital index	See Table 2, FtF Indicator RESIL-i				
PM48	HH diversifying livelihoods	See Table 2, FtF Indicator RESIL-j				
PM49	People accessing risk information	See Table 2, FtF Indicator RESIL-k				
PM50	People working together for community benefit	See Table 2, FtF Indicator RESIL-L				
PM51	HH recovery from shocks/ stresses	See Table 2, FtF Indicator RESIL-2				

TABLE 4. ICC VALUES AND STANDARD DEVIATIONS – SELECT USDA FY19 STANDARD INDICATORS[12]

No	Indicator (location)	Cluster	Individual	ICC	SD[13]	Reference
MGD 1	Second grade literacy (Bam/ Sanmatenga, Burkina Faso)	School	Student	0.24	N/A	[14]
	(Koinadugu, Sierra Leone)			0.15		[15]
	(Mopti/ Koulikoro, Mali)			0.06		[16]
MGD 2	Primary school attendance rate (Koinadugu, Sierra Leone)	School	Classroom	0.74	0.44	[17]
MGD 4/ MGD 5	Percent of teachers adopting new techniques (Bam/ Sanmatenga, Burkina Faso)	School	Teacher	0.44	N/A	[14]
MGD 19/ MGD 23	Percent of individuals adopting new child health and nutrition practices[18] (Immunizations, handwashing at key times, safe water, latrine use, iodized salt, vitamin A drops, iron, and deworming; Nusa Tenggara, Indonesia)	School	Caregiver	0.33	N/A	(Aboud, Proulx, and Asrilla 2016)
MGD 20/ MGD 22	Percent of individuals adopting new safe food prep and storage practices (Bam/ Sanmatenga, Burkina Faso)	School	Cook	0.90	N/A	[14]
FFPr 1	Yield of agricultural commodities	See Table 2, FtF Indicator EG.3-10,11,12				
FFPr 2	Ha under improved management that promotes climate risk reduction	See Table 2, FtF Indicator RESIL-L				
FFPr 3	Ha under improved management	See Table 2, FtF Indicator EG3.2-25				
FFPr 4	Individuals in the agriculture system adopting improved management	See Table 2, FtF Indicator EG3.2-24				
FFPr 18	Value of annual sales of farms and firms	See Table 2, FtF Indicator EG.3.2-26				
FFPr 19	Volume of commodities sold by farms and firms					
FFPr 20	Jobs attributed to USDA assistance	See Table 3, RFSA Indicator PM17				

[12] The selected indicators are primarily outcome level, given that activity or output level indicators are typically tracked via project records, and not a representative sample. They also exclude binary indicators that are typically collected from a non-clustered sample, as neither an ICC nor SD would be needed.

[13] Where SD is N/A, the indicator is binary.

[14] Author's calculations; project participant data from previous project's final evaluation

[15] Author's calculations; project participant data from Phase 4 baseline study

[16] Author's calculations; project participant data from Phase 3 midterm evaluation

[17] Author's calculations; official data

[18] This indicator was introduced by USDA in FY18 – it has not yet been collected by a CRS project.

TABLE 5. ICC VALUES AND STANDARD DEVIATIONS – SELECT BHA FY23 EMERGENCY STANDARD INDICATORS[19]

NO.	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[20]	REFERENCE
FS01	Food Consumption Score (FCS) (Lean season; Niger)	Primary sampling unit	Household	0.37	-	(Schnitzer 2019)
	(Uganda)	-	Household	-	18.96 - 226.61	(Tiwari, Skoufias, and Sherpa 2013)
FS02	Reduced Coping Strategies Index (rCSI)[21]					
FS03	Household Hunger Scale (HHS) score (Kenya, Zimbabwe, Zambia)	Village	Household	0.07	-	(Handa et al. 2018)
	(Burundi)	-	-	-	1.6	(Leroy et al. 2019)
A02	Ha under improved management	See Table 2, FtF Indicator EG3.2-25				
A04	Households practicing improved post-harvest storage	See Table 2, FtF Indicator EG3.2-24				
A05	Households with access to sufficient seed to plant (Planted improved maize; Uganda)	LC1 (Village)	Household	0.099	N/A	(Omotilewa et al. 2018)
A10	Ha protected against disease or pest attacks	See Table 2, FtF Indicator EG3.2-25				
A12	Individuals practicing crop protection procedures	See Table 2, FtF Indicator EG3.2-24				
A15	Number of animals owned per individual (Somali, Oromia and Afar regions; Ethiopia)	Woreda	Household	0.27	3.5 cattle	(Bianco et al. 2018)
	(Kenya, Malawi, Zambia, Zimbabwe)	Village	Household	0.01-0.06	-	(Handa et al. 2018)
A19	Weight (kg) aquatic resources harvested (George Bank, USA)	Haul	Tow	0.68	1.5 kg[22]	(Pennington and Volstad 1994)
D05	Individual perception of being affected by hazards (Water quality; urban Bangladesh)	Strata (water pollution)	Household	0.126[23]	N/A	(Mahmud, Sawada, and Yamada 2019)
	(Air quality; urban Bangladesh)			0.04		
	(Road hazard; urban Bangladesh)			0.28		
	(Diarrhea; Northern region, Ghana)	Community	Household	0.04		(Harter, Inauen, and Mosler 2020)
D07	Individuals retaining DRR knowledge after 2 months (CPR training, Sweden)	Class	Individual	0.24-0.29	N/A	(Nord et al. 2017)

[19] The selected indicators are BHA emergency indicators collected by via surveys, and those for which data collection will likely be clustered and/ or are continuous. (Data collected from non-clustered samples do not require ICCs to determine the sample size; binary indicators do require a standard deviation to calculate their sample size). Indicators are primarily outcome level, given that output level indicators are typically tracked via project records, and not a representative sample. Indicators tracked through routine monitoring are also not included as they also are not likely to be collected from a representative sample.

[20] Where SD is N/A, the indicator is binary.

[21] No ICC or SD could be located. Previous Food for Peace guidance said to use the same sample size as that calculated for indicators E4 or E2, as they expect this to be a smaller size than needed for those indicators.

[22] Author's calculations of average ICC and SD in reported study. Fish length converted to SD using online tool. Value comes from a scientific study; a household survey SD will likely be higher. A haul is each time a fishing net is dropped in the water; a tow is the length of time the net is left in the water.

[23] Author's calculations, solving equation (14) for ρ. Where $\rho = (Deff - 1)/(m - 1)$.

NO.	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[20]	REFERENCE
	(Mastitis training; Tanzania)	Village	Farmer	0.22[4][2]		(Bell et al. 2005)
F02	Women participate in decisions on food assistance	N/A[24]		0.05	N/A	(Waddington et al. 2019)
H15	Community members recalling health ed messages (Malawi)	Enumerator Area	Individual	0.156	N/A	(Fitzsimons et al. 2016)
	(Northern region, Ghana)	Community	Household	0.04		(Harter, Inauen, and Mosler 2020)
H20	Individuals recalling 2+ protective measures	See Table 5, Emergency Indicators D07 and/ or H15				
M02	Households meeting their basic needs (Somali, Oromia and Afar regions; Ethiopia)	Woreda	Household	0.256	N/A	(Bianco et al. 2018)
M03	Individuals reporting assistance delivered in a participatory manner	See Table 5, Emergency Indicator W26				
M04	Households with shelter meeting standards					
M10	Households by Livelihoods Coping Strategies phase (Somali, Oromia and Afar regions; Ethiopia)	Woreda	Household	0.184	N/A	(Bianco et al. 2018)
N07						
N08	Infants 0-5 months breastfed exclusively	Enumerator Area	Infant	0.049	N/A	(Fitzsimons et al. 2016)
N09	Children 6–23 months eating from 5+ food groups (Malawi)		Child	0.085		
N10	Reproductive age women eating minimum diversity diet (Odisha, India)	Village	Women	0.06	N/A	(Kadiyala et al. 2018)
S03	Individuals in settlements retaining shelter/DRR knowledge after 2 months	See Table 5, Emergency Indicator D7				
S05	Individuals reporting satisfaction with NFI quality	See Table 5, Emergency Indicator W28				
S10	Settlement participants with met expectations	See Table 5, Emergency Indicator W26				
T06	Individuals retaining hydrometeorological knowledge after 2 months	See Table 5, Emergency Indicator D07				
W04	Households properly disposing of solid waste (Northern Karnataka, India)	Village	Household	0.14	N/A	(Friedrich et al. 2020)
W08	Households with proper handwashing station	See Table 5, Emergency Indicator W19				
W09	Households with no feces in the living area (Northern Karnataka, India)	Village	Household	0.21-0.27	N/A	
W10	Individuals who know 3+ critical times to wash hands (Harare, Zimbabwe)	Neighborhood	Caregivers	0.04-0.12	N/A	(Friedrich, Kappler, and Mosler 2018)
	(Andhra Pradesh, India)	Village	Household	0.04		(Biran et al. 2014)

[24] No exact measure was found, but the reference recommends this ICC.

NO.	INDICATOR (LOCATION)	CLUSTER	INDIVIDUAL	ICC	SD[20]	REFERENCE
W11	Households who store their drinking water safely (Baja California Sur, Mexico)	Rural communities	Household	0.18	N/A	(Reygadas et al. 2018)
W12	Individuals reporting defecating latrine the last time (Northern Karnataka, India)	Village	Household	0.24	N/A	(Friedrich et al. 2020)
W15	Households practicing open defecation (Kenya, Malawi, Zambia, Zimbabwe)			0.23	N/A	(Handa et al. 2018)
	(West Darfur, Sudan)	Village	Household	0.31-0.44		(Deitchler, Deconinck, and Bergeron 2008)
	(Northern Karnataka, India)	Village	Household	0.21-0.23		(Friedrich et al. 2020)
W19	Latrines with functional handwashing facilities (Northern Karnataka, India)			0.20	N/A	
W20	Average number of users per functioning toilet (southern Syria)	Sub-district, community	Household	-	4.7	(Sikder et al. 2018)
		See Table 5, Emergency Indicator W12 and W15				
W26	Households satisfied with contents of WASH NFIs	N/A		0.02-0.05 [25]	N/A	
W27	Households satisfied with the quantity of WASH NFIs				N/A	
W28	Households satisfied with the quality of WASH NFIs				N/A	
W31	Average liters/person/day collected from all sources	Primary sampling unit	Household	0.09	401 L/ HH/ day[26]	(Social Impact 2017)
W33	Households using only improved water sources	Village	Household	0.18	N/A	(Handa et al. 2018)
W34	Households whose drinking water supplies have 0 fecal coliforms per 100 ml sample (Hands; Accra, Ghana)	School	Student	0.77	N/A	(Natkin)
W35	Households whose drinking water supplies have a free residual chlorine (FRC) > 0.2 mg/L	Village; region	Tube well	0.00-0.54	N/A	(Naser et al. 2018)
W36	Households receiving point-of-use chlorine products whose water supplies have (FRC) present (central Bangladesh)				N/A	

[25] No relevant study was found. However, a few documents studying similar indicators assumed ICCs in this range.

[26] Author's conversion from 36.1 m^3/ HH/ quarter.

TABLE 6. ICC VALUES AND STANDARD DEVIATIONS – SELECT CRS GLOBAL RESULTS[27]

Indicator (location)	Cluster	Individual	ICC	SD[28]	Reference
Goal Area 1: All People Live in Just and Peaceful Societies					
Individuals participating in collective actions	See Table 2, FtF Indicator RESIL-L				
Individuals with accountable/ responsive service providers (Uganda)	Subcounty	Parish councilor	0.10	N/A	(Raffler 2022)
Number of women/girls currently in union with increased input in household decisions	See Table 5, Emergency Indicator F02				
Goal Area 2: All People Survive and Thrive in the Face of Disasters					
Households with shelter meeting standards	See Table 5, Emergency Indicator M04				
Households reporting increased resilience to disasters	See Table 2, FtF Indicator RESIL-2				
Goal Area 3: All People Achieve Dignified and Resilient Livelihoods in Flourishing Landscapes					
Individuals brought out of poverty (Total consumption; Niger)	Primary sampling unit	Household	0.09	N/A	(Schnitzer 2019)
(Mexico)	Admin unit (*municipio*)		0.027		(Tarozzi and Deaton 2009)
Increase in agricultural productivity	See Table 2, FtF Indicator EG. 3-10,11,12				
Hectares of land under restoration through improved practices	See Table 2, FtF Indicator RESIL-L			18.09 ha[29]	(Simonet et al. 2018)
Goal Area 4: All Children Reach Their Full Health and Development Potential in Safe and Nurturing Families					
Children 6-23 months receiving minimum acceptable diet (4 agrarian regions, Ethiopia)	N/A[30]		0.08	N/A	(Moss et al. 2018)
Individuals gaining access to basic drinking water	See Table 2, FtF Indicator HL.8.2-2				
Children in improved learning environments	School	Child	0.29	N/A	(Duflo, Glennerster, and Kremer 2007)
Goal Area 5: Youth Empowerment					
Number of youth who are employed or self-employed (Youth resilience; China)	School	Individual	<0.05	N/A	(Tang et al. 2022)
(Youth ed and health; Jharkhand, India)	Community	Individual	0.03-0.40	N/A	(Rath et al. 2020)

[27] The selected indicators are CRS Global Results whose Performance Indicator Reference Sheets indicate they are collected via representative samples, and not from a census of all project activities/ participants.

[28] Where SD is N/A, the indicator is binary.

[29] Author's calculations using citation data. SD = (88.34 ha*0.2048). This may be larger than total farm sizes in some contexts. Note the mean area under improved management was 59.43 ha.

[30] Anticipated ICC. No actual value found in literature, but 0.08 is within the range also anticipated by other studies.

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