# Supplementary materials

# Supplementary Table S1. Description of the projects and recipient institutions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** | **Grant Codee** | **Institution** | **Grant Title** | **Year** |
| Ghana | 2009 SHP 005 | Savanna Agricultural Research Institute | Boosting maize-legume based cropping system productivity in northern savannah zones of Ghana through widespread adoption of Integrated Soil Fertility Management (ISFM) | 2010 |
| Ghana | 2013 SHP 025 | CSRI-Savanna Agricultural Research Institute | Enhancing Soil Health in Northern Ghana: Inoculants Production, Distribution and Utilization through Private-Public Partnership | 2013 |
| Kenya | 2009 SHP 022 | Kenyatta University-Kenya | Enhancing Productivity and Market Development of Soybeans and Climbing Beans in Central Kenya | 2010 |
| Kenya | 2009 SHP 030 | Kenya Agricultural and Livestock Research Organization | Improving Smallholder Maize Productivity in Western Kenya through Integrated Soil Fertility Management | 2010 |
| Kenya | 2010 SHP 020 | Rural Outreach Program | Scaling up ISFM in western Kenya to enhance smallholder incomes and food security and nutrition | 2011 |
| Kenya | 2013 SHP 014 | Kenyatta University | Scaling up soybean and climbing beans in maize-soybean based systems of central Highlands of Kenya | 2013 |
| Kenya | 2015 SHP 002 | Rural Outreach Program | Taking soil fertility technologies to scale using a value chain approach in Western Kenya | 2015 |
| Malawi | 2009 SHP 021 | Clinton Development Initiative | Improving Soil health in Malawi through Scaled up soybean production and marketing | 2010 |
| Malawi | 2013 SHP 012 | Clinton Development Initiative | Scaling-up smallholder maize-soybean production and marketing using the anchor farm business model | 2013 |
| Rwanda | 2009 SHP 031 | Clinton Hunter Development Initiative | 'Improving soil health in Eastern Rwanda through scaling up of soybean production and marketing. | 2010 |
| Tanzania | 2009 SHP 023 | United Republic of Tanzania-Ministry of Agriculture, Food Security and Cooperatives | Improving soil productivity in smallholder maize-based production system through integration of soybeans and groundnuts in the southern highlands of Tanzania | 2010 |
| Tanzania | 2009 SHP 029 | United Republic of Tanzania-Ministry of Agriculture, Food Security and Cooperatives | Improving soil fertility management, access to improved germplasm and markets of the smallholder multiple cropping systems of Kagera region of Tanzania | 2010 |
| Uganda | 2009 SHP 001 | National Agricultural Research Organisation | Improving fertilizer recommendations and extension packages in Uganda | 2009 |
| Uganda | 2009 SHP 012 | Millennium Promise - Uganda Millennium Villages | Promotion of soybean production for improved soil health, incomes and nutritional security in Isingiro district | 2010 |
| Uganda | 2010 SHP 008 | Africa 2000 Network – Uganda (A2N-Uganda) | Improving smallholder productivity and controlling striga in eastern Uganda through scaling up of integrated soil fertility management (ISFM) interventions | 2010 |
| Zambia | 2009 SHP 020 | Zambia Agriculture Research Institute | Integrated Soil fertility management options for sustainable crop production for small holder farmers in Zambia | 2010 |
| Zambia | 2009 SHP 025 | Zambia Agriculture Research Institute | Increasing legume crop production for improved food security, nutrition and incomes by small scale farmers in Zambia | 2010 |

# Supplementary Table S2. Site characteristics

**Table S2**. Soil type (WBR classification), pH, and available N, P, and SOM of the sites covered by the trials, and the number of observations in the different countries in east Africa

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | District/  site | Soil type | Soil  pH | Available  N (%) | Available  P (mg kg-1) | SOM  (%) | Year | Number of observations | | |
| Country | Control | With P | P+inoculant |
| Ghana | Bwaku | Plinthosols | 5.50 | 0.43 | 4.00 | 1.10 | 2010 | 2 | 4 | 2 |
|  | Bimbilla | Lixisols | 5.40 | 0.05 | 6.00 | 1.20 | 2010 | 2 | 4 | 2 |
|  | Bimbilla | Lixisols | 5.40 | 0.05 | 6.00 | 1.20 | 2011 | 1 | 2 | 1 |
|  | Bimbilla | Lixisols | 5.40 | 0.05 | 6.00 | 1.20 | 2012 | 1 | 2 | 1 |
|  | Binduri | Plinthosols | 5.50 | 0.04 | 7.50 | 0.65 | 2010 | 2 | 4 | 2 |
|  | Chreponi | Lixisols | 5.60 | 0.04 | 7.00 | 0.60 | 2011 | 1 | 2 | 1 |
|  | Gushegu | Lixisols | 5.70 | 0.04 | 7.00 | 0.60 | 2012 | 1 | 2 | 1 |
|  | Karaga | Lixisols | 5.60 | 0.04 | 7.00 | 0.60 | 2011 | 1 | 2 | 1 |
|  | Kpachi | Plinthosols | 4.70 | 0.02 | 4.00 | 0.60 | 2012 | 1 | 2 | 1 |
|  | Nyankpala | Lixisols | 5.30 | 0.05 | 4.00 | 0.90 | 2010 | 2 | 4 | 2 |
|  | Saboba | Lixisols | 5.50 | 0.43 | 5.00 | 0.70 | 2010 | 2 | 4 | 2 |
|  | Saboba | Lixisols | 5.50 | 0.43 | 5.00 | 0.70 | 2011 | 1 | 2 | 1 |
|  | Saboba | Lixisols | 5.50 | 0.43 | 5.00 | 0.70 | 2012 | 1 | 2 | 1 |
|  | Salaga | Plinthosols | 5.30 | 0.03 | 4.00 | 0.80 | 2011 | 1 | 2 | 1 |
|  | Salaga | Plinthosols | 5.30 | 0.03 | 4.00 | 0.80 | 2012 | 1 | 2 | 1 |
|  | Savelugu | Plinthosols | 5.30 | 0.05 | 3.80 | 0.90 | 2011 | 1 | 2 | 1 |
|  | Talensi-Nabdam | Plinthosols | 5.40 | 0.04 | 4.00 | 0.95 | 2010 | 2 | 4 | 2 |
|  | Tolon | Plinthosols | 5.10 | 0.04 | 3.00 | 0.68 | 2010 | 2 | 4 | 2 |
|  | Tolon | Plinthosols | 5.10 | 0.04 | 3.00 | 0.68 | 2011 | 1 | 2 | 1 |
|  | Tolon | Plinthosols | 5.10 | 0.04 | 3.00 | 0.68 | 2012 | 1 | 2 | 1 |
|  | Wa | Plinthosols | 5.20 | 0.03 | 3.50 | 0.85 | 2010 | 1 | 2 | 1 |
|  | Walewale | Plinthosols | 5.30 | 0.04 | 3.80 | 0.80 | 2010 | 2 | 4 | 2 |
|  | Walewale | Plinthosols | 5.30 | 0.04 | 3.80 | 0.80 | 2012 | 1 | 2 | 1 |
|  | West Gonja | Plinthosols | 5.10 | 0.03 | 3.50 | 0.60 | 2010 | 2 | 4 | 2 |
|  | Wulensi | Plinthosols | 5.30 | 0.04 | 4.00 | 0.80 | 2010 | 2 | 4 | 2 |
|  | Wulensi | Plinthosols | 5.30 | 0.04 | 4.00 | 0.80 | 2011 | 1 | 2 | 1 |
|  | Wulensi | Plinthosols | 5.30 | 0.04 | 4.00 | 0.80 | 2012 | 1 | 2 | 1 |
|  | Yendi | Lixisols | 5.40 | 0.05 | 5.00 | 1.00 | 2011 | 1 | 2 | 1 |
|  | Zabzugu | Lixisols | 5.60 | 0.04 | 7.00 | 0.90 | 2012 | 1 | 2 | 1 |
| Kenya | Busia | Acrisols | 4.90 | 0.15 | 10.20 | 1.13 | 2010 | 9 | 27 | 27 |
|  | Busia | Acrisols | 4.90 | 0.15 | 10.20 | 1.13 | 2011 | 9 | 27 | 18 |
|  | Busia | Acrisols | 4.90 | 0.15 | 10.20 | 1.13 | 2012 | 7 | 27 | 27 |
|  | Embu | Nitisols | 6.00 | 0.60 | 10.00 | 3.50 | 2010 | 8 | 16 | 0 |
|  | Embu | Nitisols | 6.00 | 0.60 | 10.00 | 3.50 | 2011 | 4 | 8 | 0 |
| Rwanda | Gatsibo | Acrisols | 5.40 | 0.60 | 9.00 | 3.40 | 2011 | 8 | 16 | 0 |
|  | Gatsibo | Acrisols | 5.40 | 0.60 | 9.00 | 3.40 | 2012 | 12 | 24 | 0 |
|  | Gatsibo | Acrisols | 5.40 | 0.60 | 9.00 | 3.40 | 2013 | 8 | 16 | 0 |
|  | Gisagara | Ferralsols | 5.30 | 0.16 | 6.60 | 3.80 | 2011 | 0 | 30 | 0 |
|  | Kayonza | Acrisols | 5.40 | 0.30 | 9.80 | 3.70 | 2011 | 8 | 16 | 0 |
|  | Kayonza | Acrisols | 5.40 | 0.30 | 9.80 | 3.70 | 2012 | 8 | 16 | 0 |
|  | Kayonza | Acrisols | 5.40 | 0.30 | 9.80 | 3.70 | 2013 | 8 | 16 | 0 |
|  | Kirehe | Acrisols | 5.50 | 0.20 | 6.00 | 3.10 | 2011 | 20 | 40 | 0 |
|  | Kirehe | Acrisols | 5.50 | 0.20 | 6.00 | 3.10 | 2012 | 8 | 16 | 0 |
|  | Kirehe | Acrisols | 5.50 | 0.20 | 6.00 | 3.10 | 2013 | 20 | 40 | 0 |
| Tanzania | Bukoba | Cambisols | 5.30 | 0.37 | 12.00 | 2.50 | 2011 | 6 | 6 | 6 |
|  | Bukoba | Cambisols | 5.30 | 0.37 | 12.00 | 2.50 | 2012 | 12 | 12 | 12 |
|  | Bukoba | Cambisols | 5.30 | 0.37 | 12.00 | 2.50 | 2013 | 12 | 15 | 15 |
|  | Mbinga | Acrisols | 5.60 | 0.16 | 9.00 | 2.44 | 2013 | 13 | 26 | 13 |
|  | Misenyi | Leptosols | 5.80 | 0.18 | 9.20 | 2.50 | 2012 | 3 | 3 | 3 |
|  | Misenyi | Leptosols | 5.80 | 0.18 | 9.20 | 2.50 | 2013 | 6 | 6 | 6 |
|  | Morogoro | Ferralsols | 5.70 | 0.19 | 9.00 | 2.80 | 2013 | 2 | 4 | 2 |
|  | Muleba | Cambisols | 5.20 | 0.18 | 12.00 | 1.60 | 2012 | 3 | 3 | 2 |
|  | Muleba | Cambisols | 5.20 | 0.18 | 12.00 | 1.60 | 2013 | 6 | 6 | 6 |
| Uganda | Bulenge | Plinthosols | 5.60 | 0.15 | 5.50 | 3.40 | 2011 | 3 | 3 | 3 |
|  | Dokolo | Ferralsols | 5.90 | 0.20 | 8.00 | 3.40 | 2009 | 6 | 72 | 0 |
|  | Dokolo | Ferralsols | 5.90 | 0.20 | 8.00 | 3.40 | 2010 | 15 | 114 | 6 |
|  | Dokolo | Ferralsols | 5.90 | 0.20 | 8.00 | 3.40 | 2011 | 14 | 96 | 0 |
|  | Iganga | Plinthosols | 6.00 | 0.19 | 11.00 | 3.30 | 2010 | 14 | 14 | 14 |
|  | Iganga | Plinthosols | 6.00 | 0.19 | 11.00 | 3.30 | 2011 | 3 | 4 | 4 |
|  | Kumi | Plinthosols | 5.80 | 0.16 | 11.00 | 1.40 | 2009 | 6 | 72 | 0 |
|  | Kumi | Plinthosols | 5.80 | 0.16 | 11.00 | 1.40 | 2010 | 9 | 108 | 0 |
|  | Kumi | Plinthosols | 5.80 | 0.16 | 11.00 | 1.40 | 2011 | 6 | 72 | 0 |
|  | Lira | Plinthosols | 6.00 | 0.16 | 11.00 | 1.30 | 2010 | 6 | 72 | 0 |
|  | Namutumba | Plinthosols | 5.70 | 0.18 | 4.40 | 3.40 | 2011 | 3 | 3 | 3 |
|  | Nsinze | Plinthosols | 5.60 | 0.19 | 4.10 | 3.80 | 2011 | 5 | 5 | 5 |
|  | Tororo | Plinthosols | 6.20 | 0.14 | 6.00 | 1.30 | 2010 | 6 | 72 | 0 |
|  | Tororo | Plinthosols | 6.20 | 0.14 | 6.00 | 1.30 | 2011 | 6 | 71 | 0 |
|  | Wakiso | Plinthosols | 6.00 | 0.12 | 8.00 | 1.80 | 2009 | 6 | 72 | 0 |
|  | Wakiso | Plinthosols | 6.00 | 0.12 | 8.00 | 1.80 | 2010 | 6 | 72 | 0 |
| Malawi | Kasungu | Lixisols | 6.00 | 0.04 | 9.00 | 1.20 | 2013 | 0 | 0 | 12 |
|  | Mchinji | Lixisols | 5.20 | 0.04 | 9.00 | 1.30 | 2011 | 0 | 45 | 0 |
|  | Mchinji | Lixisols | 5.20 | 0.04 | 9.00 | 1.30 | 2013 | 0 | 0 | 76 |
|  | Mzimba | Leptosols | 5.70 | 0.03 | 5.00 | 0.60 | 2013 | 0 | 11 | 0 |
| Zambia | Chibombo | Acrisols | 5.30 | 0.04 | 10.00 | 1.40 | 2012 | 8 | 8 | 16 |
|  | Chipata | Luvisols | 5.00 | 0.05 | 12.00 | 1.40 | 2012 | 12 | 12 | 24 |
|  | Chipata | Luvisols | 5.00 | 0.05 | 12.00 | 1.40 | 2013 | 9 | 9 | 18 |
|  | Choma | Acrisols | 5.40 | 0.06 | 11.00 | 1.30 | 2013 | 7 | 7 | 14 |
|  | Mazabuka | Luvisols | 5.60 | 0.03 | 12.00 | 1.22 | 2012 | 12 | 12 | 24 |
|  | Mumbwa | Luvisols | 5.50 | 0.07 | 10.00 | 1.55 | 2012 | 1 | 1 | 2 |
|  |  |  |  |  |  |  | 2013 | 1 | 1 | 2 |

USDA class equivalent: Lixisols = Alfisols; Plinthosols = *Plinthaquox*, *Plinthaqualfs*, *Plinthoxeralfs*, *Plinthustalfs*, *Plinthaquults*, *Plinthohumults*, *Plinthudults* and *Plinthustults;* Nitisols = *Alfisols;* Acrisols = *Ultisols;* Ferralsols = *Oxisols;* Cambisols = *Inceptisols;* 7Leptosols = *Entisols*; Luvisols(*Alfisols*)