



ROOTS TUBERS & BANANAS



RESEARCH
PROGRAM ON
Roots, Tubers
and Bananas

Proposal Vol. II 2017-2022

July 2016

RTB Performance Indicator Matrix (PIM) Tables

Content

Table A- CRP Level: Contribution to 2022 CGIAR Targets	2
Quantitative contribution to countries.....	3
FP1-Discovery research for enhanced utilization of RTB genetic resources	6
PIM Table B: Flagship level: outcomes by windows of funding	6
PIM Table C: Flagship level: investments by sub-IDO's	7
PIM Table D: Flagship level: annual milestones table.....	8
FP2-Adaptive productive varieties and quality seed of RTB crops	10
PIM Table B: Flagship level: outcomes by windows of funding	10
PIM Table C: Flagship level: investments by sub-IDO's	11
PIM Table D: Flagship level: annual milestones table.....	12
FP3-Resilient RTB crops.....	16
PIM Table B: Flagship level: outcomes by windows of funding	16
PIM Table C: Flagship level: investments by sub-IDO's	17
PIM Table D: Flagship level: annual milestones table.....	18
FP4-Nutritious RTB food and value added through postharvest innovation.....	21
PIM Table B: Flagship level: outcomes by windows of funding	21
PIM Table C: Flagship level: investments by sub-IDO's	22
PIM Table D: Flagship level: annual milestones table.....	23
FP5-Improving livelihoods at scale	26
PIM Table B: Flagship level: outcomes by windows of funding	26
PIM Table C: Flagship level: investments by sub-IDO's	27
PIM Table D: Flagship level: annual milestones table.....	28

Table A- CRP Level: Contribution to 2022 CGIAR Targets

CGIAR Target	Target contribution	Unit of target	Amount Needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	Synergies with other CRP's/ Platforms (click Ctrl for multiple selection)
100 million more farm households have adopted improved varieties, breeds or trees, and / or improved management practices	8	million farm households	133,893,954	18	57	25	0	CCAFS, DCLAS, FTA, Maize, Rice, WLE, Wheat
30 million people, of which 50% are women, assisted to exit poverty	3.5	million people	111,811,430	17	59	24	0	CCAFS, DCLAS, FTA, Livestock, Maize, PIM, Rice, WLE, Wheat
Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5% per year	1.4	%	101,754,001	17	58	25	0	CCAFS, DCLAS, FTA, Genebanks, Genetic Gain platform, WLE
150 million more people, of which 50% are women, without deficiencies in one or more of the following essential micronutrients: iron, zinc, iodine, vitamin A, folate and vitamin B12	10	million people	61,052,400	17	58	25	0	A4NH, Fish, Livestock, Maize, Rice
10% reduction in women of reproductive age who are consuming less than the adequate number of food groups	3	%	40,701,600	17	58	25	0	A4NH, Fish, Livestock, Maize, Rice
55 million hectares (ha) degraded land area restored	1.9	millions of ha	88,330,094	22	47	31	0	CCAFS, DCLAS, FTA, WLE
		Total	537,543,479					

Quantitative contribution to countries

CGIAR Target: 100 million more farm households have adopted improved varieties, breeds or trees, and/or improved management practices

CGIAR Target countries	Other Country	Target contribution in country
DRC	—	1.5
Nigeria	—	1.2
Uganda	—	0.8
OTHER	China	0.7
Rwanda	—	0.4
OTHER	Thailand	0.3
India	—	0.3
Tanzania	—	0.3
Ghana	—	0.2
Malawi	—	0.2
REST OF THE WORLD	—	2.1

CGIAR Target: 30 million people, of which 50% are women, assisted to exit poverty

CGIAR Target countries	Other Country	Target contribution in country
DRC	—	0.6
Uganda	—	0.6
Nigeria	—	0.3
Malawi	—	0.3
Rwanda	—	0.3
OTHER	Burundi	0.3
Tanzania	—	0.25
Mozambique	—	0.1
Kenya	—	0.1
OTHER	Indonesia	0.05
REST OF THE WORLD	—	0.6

CGIAR Target: Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5% per year

CGIAR Target countries	Other Country	Target contribution in country
Nigeria	—	1
Uganda	—	0.6
OTHER	China	1.4
Rwanda	—	1
OTHER	Thailand	1
Ghana	—	1.6
REST OF THE WORLD	—	1.4

CGIAR Target: 150 million more people, of which 50% are women, without deficiencies in one or more of the following essential micronutrients: iron, zinc, iodine, vitamin A, folate and vitamin B12

CGIAR Target countries	Other Country	Target contribution in country
Uganda	—	1.2
Nigeria	—	1
Tanzania	—	1
Mozambique	—	0.8
Malawi	—	0.8
Ghana	—	0.6
Kenya	—	0.5
DRC	—	0.5
Rwanda	—	0.4
OTHER	Benin	0.3
REST OF THE WORLD	—	0.3

CGIAR Target: 10% reduction in women of reproductive age who are consuming less than the adequate number of food groups

CGIAR Target countries	Other Country	Target contribution in country
Uganda	—	3
Nigeria	—	2
Tanzania	—	2
Mozambique	—	3
Malawi	—	5
Ghana	—	7
Kenya	—	1
DRC	—	2
Rwanda	—	2
OTHER	Benin	5

CGIAR Target: 55 million hectares (ha) degraded land area restored

CGIAR Target countries	Other Country	Target contribution in country
Nigeria	—	0.35
OTHER	Indonesia	0.22
DRC	—	0.16
Uganda	—	0.15
OTHER	Brazil	0.14
Mozambique	—	0.1
Vietnam	—	0.1
Ghana	—	0.09
OTHER	Thailand	0.08
OTHER	Angola	0.08
REST OF THE WORLD	—	0.44

FP1-Discovery research for enhanced utilization of RTB genetic resources

PIM Table B: Flagship level: outcomes by windows of funding

2022 outcome description	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Outcome 1.1: For each RTB crop, populations with at least 3 end-users preferred traits and adapted to 2 targeted regions are available (For more details please refer to Table FP1.4)	20,002,442	29	47	24	0	5,800,708	9,401,148	4,800,586	0
Outcome 1.2: Across RTB crops, average 25% reduction of time needed for traits discovery and incorporation into breeding pipelines	30,003,662	29	47	24	0	8,701,062	14,101,721	7,200,879	0
Outcome 1.3: Conservation status of wild relatives and landraces of at least 3 RTB crops improved in 3 key hotspots	15,001,831	29	47	24	0	4,350,531	7,050,861	3,600,439	0
Outcome 1.4: At least 20% of newly developed RTB breeding populations with enhanced resilience to climatic shocks available for testing in FP2	15,001,831	29	47	24	0	4,350,531	7,050,861	3,600,439	0
Outcome 1.5: Collaboration for more effective breeding enhanced through a breeding community of practices including at least 40 stakeholders in 10 countries	10,001,221	29	47	24	0	2,900,354	4,700,574	2,400,293	0
Outcome 1.6: Enhanced capacity in genomic selection and advanced breeding methods of at least 150 R&D partners, of which at least 30% are female, through short and long term trainings	10,001,221	29	47	24	0	2,900,354	4,700,574	2,400,293	0
	100,012,208					29,003,540	47,005,738	24,002,930	0

PIM Table C: Flagship level: investments by sub-IDO's

Sub-IDO	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Enhanced genetic gains	20,002,442	29	47	24	0	5,800,708	9,401,148	4,800,586	0
Increased conservation and use of genetic resources	30,003,662	29	47	24	0	8,701,062	14,101,721	7,200,879	0
Enrichment of plant and animal biodiversity for multiple goods and services	15,001,831	29	47	24	0	4,350,531	7,050,861	3,600,439	0
Enhanced adaptive capacity to climate risks	10,001,221	29	47	24	0	2,900,354	4,700,574	2,400,293	0
Enhanced capacity to deal with climatic risks and extremes	5,000,610	29	47	24	0	1,450,177	2,350,287	1,200,146	0
Enhanced institutional capacity of partner research organizations	10,001,221	29	47	24	0	2,900,354	4,700,574	2,400,293	0
Enhanced individual capacity in partner research organizations through training and exchange	10,001,221	29	47	24	0	2,900,354	4,700,574	2,400,293	0
	100,012,208					29,003,540	47,005,738	24,002,930	0

PIM Table D: Flagship level: annual milestones table

Year	Milestone description	Means of verifying	For which outcomes
2018	5 new tools applied for genomic mapping and editing	Scientific publications and reports	Outcome 1.1: For each RTB crop, populations with at least 3 end-users preferred traits and adapted to 2 targeted regions are available (For more details please refer to Table FP1.4)
2019	Markers for pest and disease traits developed and tested in 15 crop x pest/disease combinations	Scientific publications and reports	Outcome 1.1: For each RTB crop, populations with at least 3 end-users preferred traits and adapted to 2 targeted regions are available (For more details please refer to Table FP1.4)
2020	4 data management platforms linking genomic and breeding data under implementation	Open-access data bases	Outcome 1.1: For each RTB crop, populations with at least 3 end-users preferred traits and adapted to 2 targeted regions are available (For more details please refer to Table FP1.4)
2018	Participatory methods for trait definition and selection (including at least 30% of female participants) used in 50% of RTB/partners joint activities	Program and Project Reports	Outcome 1.2: Across RTB crops, average 25% reduction of time needed for traits discovery and incorporation into breeding pipelines
2020	Platforms for high-throughput phenotyping under implementation for at least 4 RTB crops	Annual reports of innovation coalitions	Outcome 1.2: Across RTB crops, average 25% reduction of time needed for traits discovery and incorporation into breeding pipelines
2018	Baseline data on conservation status available in open access databases for at least 2 target crops	Open-access data bases	Outcome 1.3: Conservation status of wild relatives and landraces of at least 3 RTB crops improved in 3 key hotspots
2019	Best practices and monitoring systems identified and characterized	Scientific publications and reports	Outcome 1.3: Conservation status of wild relatives and landraces of at least 3 RTB crops improved in 3 key hotspots
2020	Functional policies and incentive systems piloted in 5 countries and recommendations formulated for dissemination of successful models	Annual reports of relevant stakeholders	Outcome 1.3: Conservation status of wild relatives and landraces of at least 3 RTB crops improved in 3 key hotspots
2019	Platforms for high-throughput phenotyping for climate resilience under development for at least 4 RTB crops	Scientific publications and reports	Outcome 1.4: At least 20% of newly developed RTB breeding populations with enhanced resilience to climatic shocks available for testing in FP2
2021	Platforms for high-throughput phenotyping for climate resilience under implementation for at least 3 RTB crops	Scientific publications and reports	Outcome 1.4: At least 20% of newly developed RTB breeding populations with enhanced resilience to climatic shocks available for testing in FP2
2017	Breeding community of practice established in collaboration with at least 15 stakeholders in 6 countries	Annual reports of relevant stakeholders	Outcome 1.5: Collaboration for more effective breeding enhanced through a breeding community of practices including at least 40 stakeholders in 10 countries

Year	Milestone description	Means of verifying	For which outcomes
2019	Breeding community of practice under implementation in collaboration with at least 20 stakeholders in 6 countries	Annual reports of relevant stakeholders	Outcome 1.5: Collaboration for more effective breeding enhanced through a breeding community of practices including at least 40 stakeholders in 10 countries
2018	Partner institutions identify at least 20 candidates (at least 30% female) for advanced degree training	Annual reports of relevant stakeholders	Outcome 1.6: Enhanced capacity in genomic selection and advanced breeding methods of at least 150 R&D partners, of which at least 30% are female, through short and long term trainings
2020	At least 15 candidates supported for advanced degree training, of which at least 30% are female	Annual reports of relevant stakeholders	Outcome 1.6: Enhanced capacity in genomic selection and advanced breeding methods of at least 150 R&D partners, of which at least 30% are female, through short and long term trainings

FP2-Adaptive productive varieties and quality seed of RTB crops

PIM Table B: Flagship level: outcomes by windows of funding

2022 outcome description	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Outcome 2.1: 20,000,000 people (4,000,000 HH), of which 50% are women, increased their annual income by increasing RTB sales and diversifying market strategies	39,090,282	14	62	24	0	5,472,639	24,235,975	9,381,668	0
Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%	99,028,716	14	62	24	0	13,864,020	61,397,804	23,766,892	0
Outcome 2.3: Targeted breeding programs increased by 10% the diversity of the genetic base used (e.g. number of banana wild species used as parental lines)	13,030,094	14	62	24	0	1,824,213	8,078,658	3,127,223	0
Outcome 2.4: Annual production of at least one nutrient-rich RTB crop increased by 5-10% in 10 targeted countries	41,696,301	14	62	24	0	5,837,482	25,851,707	10,007,112	0
Outcome 2.5: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH	13,030,094	14	62	24	0	1,824,213	8,078,658	3,127,223	0
Outcome 2.6: At least 35% increase in number of female and young beneficiaries of at least 500,000 HH perceive to have better control over assets and resources	10,424,075	14	62	24	0	1,459,371	6,462,927	2,501,778	0
Outcome 2.7: Regulatory frameworks for seed production and seed quality control (including QDS) under implementation in 10 countries	18,242,132	14	62	24	0	2,553,898	11,310,122	4,378,112	0
Outcome 2.8: Every year, 8,000 R&D stakeholders (50% female) trained through short term programs on designing and implementing smallholder-oriented breeding programs and sustainable seed systems	26,060,188	14	62	24	0	3,648,426	16,157,317	6,254,445	0
	260,601,882					36,484,263	161,573,167	62,544,452	0

PIM Table C: Flagship level: investments by sub-IDO's

Sub-IDO	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Diversified enterprise opportunities	39,090,282	14	62	24	0	5,472,639	24,235,975	9,381,668	0
Closed yield gaps through improved agronomic and animal husbandry practices	46,908,339	14	62	24	0	6,567,167	29,083,170	11,258,001	0
Enhanced genetic gains	52,120,377	14	62	24	0	7,296,853	32,314,634	12,508,890	0
Increased conservation and use of genetic resources	13,030,094	14	62	24	0	1,824,213	8,078,658	3,127,223	0
Increased availability of diverse nutrient-rich foods	41,696,301	14	62	24	0	5,837,482	25,851,707	10,007,112	0
Enhanced adaptive capacity to climate risks	7,818,056	14	62	24	0	1,094,528	4,847,195	1,876,333	0
Enhanced capacity to deal with climatic risks and extremes	5,212,038	14	62	24	0	729,685	3,231,464	1,250,889	0
Gender-equitable control of productive assets and resources	10,424,075	14	62	24	0	1,459,371	6,462,927	2,501,778	0
Conducive agricultural policy environment	18,242,132	14	62	24	0	2,553,898	11,310,122	4,378,112	0
Enhanced individual capacity in partner research organizations through training and exchange	26,060,188	14	62	24	0	3,648,426	16,157,317	6,254,445	0
	260,601,882					36,484,263	161,573,167	62,544,452	0

PIM Table D: Flagship level: annual milestones table

Year	Milestone description	Means of verifying	For which outcomes
2018	Rapid multiplication techniques for seed/planting material validated and framework to support best fitting options for different seed multipliers categories developed	Program and Project Reports	Outcome 2.1: 20,000,000 people (4,000,000 HH), of which 50% are women, increased their annual income by increasing RTB sales and diversifying market strategies
2019	Seed business models developed and under testing in at least 6 countries	Program and Project Reports	Outcome 2.1: 20,000,000 people (4,000,000 HH), of which 50% are women, increased their annual income by increasing RTB sales and diversifying market strategies
2020	New market-oriented approaches for diversified RTB products piloted in at least 5 countries	Program and Project Reports	Outcome 2.1: 20,000,000 people (4,000,000 HH), of which 50% are women, increased their annual income by increasing RTB sales and diversifying market strategies
2021	5,000 profitable decentralized seed business created, of which 30% are run by women and young people	Study reports, Project reports	Outcome 2.1: 20,000,000 people (4,000,000 HH), of which 50% are women, increased their annual income by increasing RTB sales and diversifying market strategies
2017	Crop-specific evidences collected on the effect of genotype, management and environment on seed degeneration rate	Scientific publications and reports	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2018	At least 6 crop and soil fertility management practices refined for new varieties	Scientific publications and reports	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2018	50% of candidate varieties (RTB-input) with full panel of user-preferred traits annually included in national trials for variety release	Annual reports of national breeding programs and other relevant partners	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2019	At least 1 Intergrated technology package (quality seed/improved varieties + ICM) per crop disseminated	Programme and Project Reports, Annual reports of relevant stakeholders	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2019	5 global and crop-specific decision support tools fine-tuned for an integrated management of seed degeneration	Scientific publications and reports	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2020	75% of varieties (RTB-input) with full panel of user-preferred traits annually released	Annual reports of national breeding programs and other relevant partners,	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%

Year	Milestone description	Means of verifying	For which outcomes
		National catalogues on variety released	
2021	Increased number of farmer HH adopting improved post-harvest techniques including adapted storage facilities, especially for on-farm seed management	Adoption study reports, Project reports	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2021	Increased number of farmer HH adopting improved varieties	National statistics, Adoption study reports, Project reports, Modelling	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2022	Increased number of HH (at least 2,500,000) adopting improved agronomic practices for RTB ware and seed production	National statistics, Adoption study reports, Project reports, Modelling	Outcome 2.2: At least 5,000,000 HH increased their annual RTB yield by at least 10%
2017	Gender-differentiated users-need and preferences for trait selection assessed in 15 countries and results communicated to orient breeding programs	Scientific publications and reports, Annual reports of relevant stakeholders	Outcome 2.3: Targeted breeding programs increased by 10% the diversity of the genetic base used (e.g. number of banana wild species used as parental lines)
2019	Traditional knowledge of the landraces and wild relatives for banana in 2 countries documented for traits of importance, traditional uses, and other cultural and socio-economic aspects	Scientific publications and reports, Annual reports of relevant stakeholders	Outcome 2.3: Targeted breeding programs increased by 10% the diversity of the genetic base used (e.g. number of banana wild species used as parental lines)
2021	Traditional knowledge of the landraces and wild relatives for banana in 5 countries documented for traits of importance, traditional uses, and other cultural and socio-economic aspects	Scientific publications, reports	Outcome 2.3: Targeted breeding programs increased by 10% the diversity of the genetic base used (e.g. number of banana wild species used as parental lines)
2018	30% of candidate nutritious varieties (RTB-input) annually included in target country national trials for variety release	Annual reports of national breeding programs and other relevant partners	Outcome 2.4: Annual production of at least one nutrient-rich RTB crop increased by 5-10% in 10 targeted countries
2020	50% of candidate nutritious varieties (RTB-input) included in national trials effectively released	Annual reports of national breeding programs and other relevant partners, National catalogues on variety released	Outcome 2.4: Annual production of at least one nutrient-rich RTB crop increased by 5-10% in 10 targeted countries

Year	Milestone description	Means of verifying	For which outcomes
2021	3,500,000 households, of which at least 25% are female headed, adopting nutritious varieties	National statistics, Adoption study reports, Project reports, Modelling, disaggregated data used in adoption studies	Outcome 2.4: Annual production of at least one nutrient-rich RTB crop increased by 5-10% in 10 targeted countries
2017	Climate responsive breeding targets developed for all crops in at least 5 target environments	Scientific publications and reports	Outcome 2.5: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2018	40% of breeding populations showing improved resilience under future climates included in national breeding programs	Annual reports of national breeding programs and other relevant partners	Outcome 2.5: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2020	20% of breeding populations with drought tolerance and other traits of importance for resilience to future climates released as varieties	Annual reports of national breeding programs and other relevant partners, National catalogues on variety released	Outcome 2.5: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2017	Baseline of gender roles in seed multiplication and/or crop production and/or varietal selection available in five countries/crops	Scientific publications and reports	Outcome 2.6: At least 35% increase in number of female and young beneficiaries of at least 500,000 HH perceive to have better control over assets and resources
2020	Women's participation increased by 30% for the design of RTB supported capacity development and extension interventions in the field of seed multiplication / seed management / crop management designed	Program and project reports	Outcome 2.6: At least 35% increase in number of female and young beneficiaries of at least 500,000 HH perceive to have better control over assets and resources
2021	At least 25% of HH adopting improved varieties/seeds are female headed households	Specific study reports and disaggregated data used in adoption studies and other documents	Outcome 2.6: At least 35% increase in number of female and young beneficiaries of at least 500,000 HH perceive to have better control over assets and resources
2018	Regulatory frameworks for seed production and seed quality control (including QDS) developed and under discussion in 10 countries	Annual reports and official document of relevant stakeholders	Outcome 2.7: Regulatory frameworks for seed production and seed quality control (including QDS) under implementation in 10 countries

Year	Milestone description	Means of verifying	For which outcomes
2020	Regulatory frameworks for seed production and seed quality control (including QDS) approved in 10 countries	Annual reports and official document of relevant stakeholders	Outcome 2.7: Regulatory frameworks for seed production and seed quality control (including QDS) under implementation in 10 countries
2021	Benefit-sharing mechanisms protecting custodian farmers' rights and facilitating the exchange of Musa genetic resources piloted in 3 countries and recommendations formulated	Annual reports and official document of relevant stakeholders	Outcome 2.7: Regulatory frameworks for seed production and seed quality control (including QDS) under implementation in 10 countries
2021	RTB included in national food security related policies and initiatives in at least 10 countries	Annual reports and official document of relevant stakeholders	Outcome 2.7: Regulatory frameworks for seed production and seed quality control (including QDS) under implementation in 10 countries
2021	150 individuals (50% female) trained through long term programs (e.g. MSc and PhD students)	Program and Projects reports	Outcome 2.8: Every year, 8,000 R&D stakeholders (50% female) trained through short term programs on designing and implementing smallholder-oriented breeding programs and sustainable seed systems

FP3-Resilient RTB crops

PIM Table B: Flagship level: outcomes by windows of funding

2022 outcome description	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households	52,244,887	19	43	38	0	9,926,529	22,465,301	19,853,057	0
Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems	36,281,172	19	43	38	0	6,893,423	15,600,904	13,786,845	0
Outcome 3.3: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH	29,024,937	19	43	38	0	5,514,738	12,480,723	11,029,476	0
Outcome 3.4: New technologies and practices have been equally adopted women and men farmers	7,256,234	19	43	38	0	1,378,684	3,120,181	2,757,369	0
Outcome 3.5: 25 National and 5 regional plant protection agencies with strategies for containment and management under implementation	10,158,728	19	43	38	0	1,930,158	4,368,253	3,860,317	0
Outcome 3.6: Growing number of extension services (governmental org., NGOs and private sector) providing advice on improved ICM and IPDM increased	10,158,729	19	43	38	0	1,930,159	4,368,253	3,860,317	0
	145,124,687					27,573,691	62,403,615	55,147,381	0

PIM Table C: Flagship level: investments by sub-IDO's

Sub-IDO	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Reduced pre and post harvest losses, incl. climate change	26,122,444	19	43	38	0	4,963,264	11,232,651	9,926,529	0
Closed yield gaps through improved agronomic and animal husbandry practices	26,122,444	19	43	38	0	4,963,264	11,232,651	9,926,529	0
Increased resilience of agro-ecosystems and communities, especially those including smallholders	36,281,172	19	43	38	0	6,893,423	15,600,904	13,786,845	0
Enhanced adaptive capacity to climate risks	21,768,703	19	43	38	0	4,136,054	9,360,542	8,272,107	0
Enhanced capacity to deal with climatic risks and extremes	7,256,234	19	43	38	0	1,378,684	3,120,181	2,757,369	0
Gender-equitable control of productive assets and resources	7,256,234	19	43	38	0	1,378,684	3,120,181	2,757,369	0
Conducive agricultural policy environment	10,158,728	19	43	38	0	1,930,158	4,368,253	3,860,317	0
Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	10,158,728	19	43	38	0	1,930,158	4,368,253	3,860,317	0
	145,124,687					27,573,691	62,403,615	55,147,381	0

PIM Table D: Flagship level: annual milestones table

Year	Milestone description	Means of verifying	For which outcomes
2017	Baseline of pest incidence and damage available for 10 countries	Scientific publications and reports	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2017	Global Pest Risk Analysis (PRA) available for at least 3 target RTB pests and diseases	Scientific publications and reports	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2018	Best practices and novel approaches for quality seed systems and farmer/community action for IPM identified and tested in at least 10 countries	Scientific publications and reports	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2018	Epidemiological models for better understanding of host-virus-vector dynamics progressively adapted to diverse cropping systems and results documented	Scientific publications and reports	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2019	At least 5 user-specific and locally adapted IPM strategies refined	Scientific publications and reports	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2020	Locally adapted approaches for quality seed systems and farmer/community action for IPM disseminated in 20 countries	Program and Project reports, Annual reports of relevant stakeholders	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2021	Individual and community strategies for IPM equally adopted by male and female farmers in 1,200,000 HH	National statistics, Adoption study reports, Project reports, Modelling, disaggregated data used in adoption studies	Outcome 3.1: In areas affected by pests and diseases, RTB yield restored to previous infection conditions by at least 1,500,000 farmer HH, of which at least 25% are female headed households
2018	At least 5 gender-sensitive and site-specific practices for crop, soil fertility and water management validated under diverse agro-ecologies	Scientific publications and reports	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2019	Development and testing of decision support systems for ICM in different agro-ecologies and for different crops	Scientific publications and reports	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems

Year	Milestone description	Means of verifying	For which outcomes
2019	Priority locations for pest/disease invasion identified based upon solid predictions of cross-border spread and impact of plant pathogens and pests	Scientific publications and reports	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2020	Multi-stakeholder initiatives for promoting refinement and scale of selected sustainable management practices under implementation in 10 countries	Program and Project reports, Annual reports of relevant stakeholders	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2020	Results provided by prediction models used for the development of at least 50% of new sustainable management practices	Program and Project reports, Annual reports of relevant stakeholders	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2021	Results provided by prediction models used for developing or updating national and regional strategies	Program and Project reports, Annual reports of relevant stakeholders	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2021	Gender-sensitive, context -specific agronomic practices adopted in 1,200,000 HH, of which at least 25% are female headed households	National statistics, Adoption study reports, Project reports, Modelling, disaggregated data used in adoption studies	Outcome 3.2: 1,800,000 ha of current RTB production area converted to sustainable cropping systems
2017	Downscaled climate change models linked to insect disease modelling for at least 5 major pest/regional combinations	Scientific publications, databases/models and reports	Outcome 3.3: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2019	90% of newly developed prediction models and PRA realized explicitly consider climate change effects	Scientific publications and reports	Outcome 3.3: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2021	At least 60% of developed IPM/ICM management strategies assessed in terms of adaptation to future climates	Scientific publications and reports	Outcome 3.3: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2022	At least 50% of developed IPM/ICM management strategies contribute in strengthening male and female farmers' adaptation capacity to climate change	Scientific publications and reports documenting on-farm trials	Outcome 3.3: Capacity to deal with climate risks and extremes increased for at least 1,000,000 HH
2017	Gender differentiated needs assessment of capacity development available in at least 8 pest/country combinations	Scientific publications and reports	Outcome 3.4: New technologies and practices have been equally adopted women and men farmers

Year	Milestone description	Means of verifying	For which outcomes
2019	Women's participation increased by at least 30% for the design of RTB supported capacity development and extension interventions in the field of IPM and ICM	Program and Projects reports	Outcome 3.4: New technologies and practices have been equally adopted women and men farmers
2020	At least 33% of female participants ensured in all capacity development efforts (including extension services providing advice on ICM and IPM)	Program and Projects reports, Annual reports of relevant stakeholders	Outcome 3.4: New technologies and practices have been equally adopted women and men farmers
2017	Cost effective diagnostic tools and protocols developed for at least 3 key pests and diseases	Scientific publications and reports	Outcome 3.5: 25 National and 5 regional plant protection agencies with strategies for containment and management under implementation
2019	25 National and 5 regional plant protection agencies with improved strategies for pests and diseases containment and management	Annual reports of relevant stakeholders	Outcome 3.5: 25 National and 5 regional plant protection agencies with strategies for containment and management under implementation
2020	Monitoring networks established in collaboration with NARS in 30 countries/regions to record the geographic distribution and incidence of chronic and emerging pests and diseases	Annual reports of relevant stakeholders, projects reports	Outcome 3.5: 25 National and 5 regional plant protection agencies with strategies for containment and management under implementation
2017	Engagement of stakeholders in impact pathway analysis for at least 3 cluster/country combination	Program and Projects reports	Outcome 3.6: Growing number of extension services (governmental org., NGOs and private sector) providing advice on improved ICM and IPDM increased
2018	R&D partners and farmers test in at least 3 initiatives user-specific and gender-sensitive models for technology refinement and scaling	Annual reports of relevant stakeholders, projects reports	Outcome 3.6: Growing number of extension services (governmental org., NGOs and private sector) providing advice on improved ICM and IPDM increased
2020	R&D partners and farmers implement in at least 10 initiatives user-specific and gender-sensitive models for technology refinement and scaling	Annual reports of relevant stakeholders, projects reports	Outcome 3.6: Growing number of extension services (governmental org., NGOs and private sector) providing advice on improved ICM and IPDM increased

FP4-Nutritious RTB food and value added through postharvest innovation

PIM Table B: Flagship level: outcomes by windows of funding

2022 outcome description	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)	21,609,333	11	68	21	0	2,377,027	14,694,346	4,537,960	0
Outcome 4.2: 20,000 small scale processors, 30 % of which are female, reduced water- and energy-related production costs by 15-20% in cassava sector with growing spillover in other RTB crops	21,609,333	11	68	21	0	2,377,027	14,694,346	4,537,960	0
Outcome 4.3: Post-harvest physical and quality losses reduced in at least 10 countries through better post-harvest management, improved storage, and utilization of waste across RTB crops	16,207,000	11	68	21	0	1,782,770	11,020,760	3,403,470	0
Outcome 4.4: Diet quality indices increased by 20% for at least 2,000,000 farmer households and urban/rural consumers	27,011,666	11	68	21	0	2,971,283	18,367,933	5,672,450	0
Outcome 4.5: At least 35% increase in number of women and youth beneficiaries in at least 200,000 HH who perceive to have better control over assets and resources	8,643,733	11	68	21	0	950,811	5,877,738	1,815,184	0
Outcome 4.6: Food-based nutrition programs/ initiatives promoting RTB crops under implementation in at least 10 countries	6,482,800	11	68	21	0	713,108	4,408,304	1,361,388	0
Outcome 4.7: 60 development-focused organizations, including women's networks and alliances, having increased their capacity for innovation (e.g. enhanced human capital and improved collaboration network in relevant domains) to scale up fuller utilization of RTB	6,482,800	11	68	21	0	713,108	4,408,304	1,361,388	0
	108,046,665					11,885,133	73,471,732	22,689,800	0

PIM Table C: Flagship level: investments by sub-IDO's

Sub-IDO	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Diversified enterprise opportunities	21,609,333	11	68	21	0	2,377,027	14,694,346	4,537,960	0
More efficient use of inputs	21,609,333	11	68	21	0	2,377,027	14,694,346	4,537,960	0
Reduced pre and post harvest losses, incl. climate change	16,207,000	11	68	21	0	1,782,770	11,020,760	3,403,470	0
Optimized consumption of diverse nutrient-rich foods	27,011,666	11	68	21	0	2,971,283	18,367,933	5,672,450	0
Gender-equitable control of productive assets and resources	8,643,733	11	68	21	0	950,811	5,877,738	1,815,184	0
Conducive agricultural policy environment	6,482,800	11	68	21	0	713,108	4,408,304	1,361,388	0
Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	6,482,800	11	68	21	0	713,108	4,408,304	1,361,388	0
	108,046,665					11,885,133	73,471,732	22,689,800	0

PIM Table D: Flagship level: annual milestones table

Year	Milestone description	Means of verifying	For which outcomes
2017	RTB value chains, including processing supply chains and fresh market chains, analyzed in 5 countries, with a gender-sensitive approach, to identify opportunities for products improvement/development	Scientific publications and reports	Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)
2018	At least 6 processes and protocols for expanding and diversifying RTB sales (processed products and fresh produce) jointly defined with producers, processors, and traders and NARS	Annual reports of relevant stakeholders, projects reports	Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)
2019	At least 4 processes and protocols for expanding and diversifying RTB sales tested with producers, processors, and traders and NARS	Annual reports of relevant stakeholders, projects reports	Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)
2020	At least 2 processes and protocols for expanding and diversifying RTB sales under dissemination with producers, processors, and traders	Annual reports of relevant stakeholders, projects reports	Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)
2021	Increased RTB sales and employment, of which 33% directly benefit women and young people, created in RTB value chains (measured at intervention site level for selected countries)	Study reports, Project reports	Outcome 4.1: 700,000 households, 25% of which are female headed, have increased their income by 15-20% by increasing and diversifying RTB sales (food, feed, industrial raw material and seeds)
2017	Baseline of efficiencies and processing losses available for 5 local SME types in 3 countries	Scientific publications and reports	Outcome 4.2: 20,000 small scale processors, 30 % of which are female, reduced water- and energy- related production costs by 15-20% in cassava sector with growing spillover in other RTB crops
2018	More efficient processing technologies, supply chain management models, and waste management options tested in at least 3 countries	Scientific publications, study reports, Project reports	Outcome 4.2: 20,000 small scale processors, 30 % of which are female, reduced water- and energy- related production costs by 15-20% in cassava sector with growing spillover in other RTB crops
2020	More efficient processing technologies, supply chain management models, and waste	Study reports, Project reports	Outcome 4.2: 20,000 small scale processors, 30 % of which are female, reduced water- and energy- related production costs by

Year	Milestone description	Means of verifying	For which outcomes
	management options disseminated in at least 3 countries		15-20% in cassava sector with growing spillover in other RTB crops
2017	RTB value chains analyzed in 5 countries to identify priority entry points for reducing post-harvest losses, improving storage, and stepping up waste utilization	Scientific publications and reports	Outcome 4.3: Post-harvest physical and quality losses reduced in at least 10 countries through better post-harvest management, improved storage, and utilization of waste across RTB crops
2018	Locally-adapted and user-demanded post-harvest, storage, and waste utilization technologies and management options developed and tested in 10 countries	Annual reports of relevant stakeholders, projects reports	Outcome 4.3: Post-harvest physical and quality losses reduced in at least 10 countries through better post-harvest management, improved storage, and utilization of waste across RTB crops
2019	Promising technologies and management options selected by stakeholders, partnerships formed and dissemination plans developed for large scale dissemination	Annual reports of relevant stakeholders, projects reports	Outcome 4.3: Post-harvest physical and quality losses reduced in at least 10 countries through better post-harvest management, improved storage, and utilization of waste across RTB crops
2020	Locally-adapted and user-demanded post-harvest, storage, and waste utilization technologies and management options disseminated in 10 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.3: Post-harvest physical and quality losses reduced in at least 10 countries through better post-harvest management, improved storage, and utilization of waste across RTB crops
2017	For ongoing dissemination of OFSP, biofortified cassava, and other nutritious RTB crops: nutrition education/counseling and SBCC methodologies, partnerships, metrics and results documented and analyzed in 10 countries	Scientific publications and reports	Outcome 4.4: Diet quality indices increased by 20% for at least 2,000,000 farmer households and urban/rural consumers
2018	Dissemination approaches more effective and efficient through use of improved education/counseling and SBCC methods, better targeting through partnerships with nutrition/health agencies, and stronger monitoring and learning based on improved metrics and processes - applied to OFSP, biofortified cassava and additional RTB crops in 10 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.4: Diet quality indices increased by 20% for at least 2,000,000 farmer households and urban/rural consumers
2020	At least 2,600,000 consumers improve their diet quality through affordable, safe and nutritious RTB foods	Study reports, Annual reports of relevant stakeholders, National statistics	Outcome 4.4: Diet quality indices increased by 20% for at least 2,000,000 farmer households and urban/rural consumers

Year	Milestone description	Means of verifying	For which outcomes
2022	Diet quality, including diet diversity, improved for 50% of women of reproductive age and children under 5 years of age in at least 2,000,000 HH	Study reports	Outcome 4.4: Diet quality indices increased by 20% for at least 2,000,000 farmer households and urban/rural consumers
2017	Gender analysis of RTB value chains and RTB post-harvest intervention approaches documented in 4 countries	Scientific publications and reports	Outcome 4.5: At least 35% increase in number of women and youth beneficiaries in at least 200,000 HH who perceive to have better control over assets and resources
2019	Approaches for developing more gender inclusive RTB value chains refined and under implementation in 10 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.5: At least 35% increase in number of women and youth beneficiaries in at least 200,000 HH who perceive to have better control over assets and resources
2018	RTB crops and products compliant with national nutrition and safety standards for inclusion in mainstream national nutrition programs in at least 3 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.6: Food-based nutrition programs/ initiatives promoting RTB crops under implementation in at least 10 countries
2019	RTB crops and products actively promoted by mainstream national nutrition programs in at least 6 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.6: Food-based nutrition programs/ initiatives promoting RTB crops under implementation in at least 10 countries
2021	RTB crops and products actively promoted by mainstream national nutrition programs in at least 10 countries, with commercial sector investments in highly nutritious RTB foods in at least 2 countries	Study reports, Annual reports of relevant stakeholders, projects reports	Outcome 4.6: Food-based nutrition programs/ initiatives promoting RTB crops under implementation in at least 10 countries
2019	Novel institutional arrangements (e.g. research-private industry innovation platforms) established in 4 countries to foster innovation and scaling of RTB processing technologies and value chains	Annual reports of relevant stakeholders, projects reports	Outcome 4.7: 60 development-focused organizations, including women's networks and alliances, having increased their capacity for innovation (e.g. enhanced human capital and improved collaboration network in relevant domains) to scale up fuller utilization of RTB
2021	At least 60 organizations and businesses in 10 countries invested in human resources (at least 33% female beneficiaries) and organizational development to scale up production and dissemination of nutritious RTB foods and value-added products	Annual reports of relevant stakeholders	Outcome 4.7: 60 development-focused organizations, including women's networks and alliances, having increased their capacity for innovation (e.g. enhanced human capital and improved collaboration network in relevant domains) to scale up fuller utilization of RTB

FP5-Improving livelihoods at scale

PIM Table B: Flagship level: outcomes by windows of funding

2022 outcome description	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Outcome 5.1: Income increased by 20% for at least 550,000 HH	19,541,634	25	53	22	0	4,885,409	10,357,066	4,299,159	0
Outcome 5.2: Whole-farm productivity increased by 25% for at least 1,000,000 HH	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Outcome 5.3: Diet quality indices increased by 20% for at least 300,000 farmer households	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Outcome 5.4: Improved soil management practices adopted on at least 200,000 ha cultivated by smallholder farmers	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Outcome 5.5: Capacity to deal with climate risks and extremes increased for at least 500,000 HH	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Outcome 5.6: At least 35% increase in number of female and young beneficiaries of at least 200,000 HH perceive to have better control over assets and resources	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Outcome 5.7: RTB delivery flagships and at least 55 research and development partner organizations with more gender-responsive planning and implementation processes, reflected in at least 5 additional collaborative arrangements with public sector and civil society organizations supporting gender transformation	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Outcome 5.9: At least 1,500 research/development staff in RTB and in mixed-type partner organizations across prime target countries with strengthened research and innovation capacities including gender-responsive and transformative research	19,541,634	25	53	22	0	4,885,409	10,357,066	4,299,159	0
Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
	130,277,560					32,569,390	69,047,107	28,661,063	0

PIM Table C: Flagship level: investments by sub-IDO's

Sub-IDO	Amount needed (\$)	W1+W2 (%)	W3 (%)	Bilateral (%)	Other (%)	W1+W2 (Amount)	W3 (Amount)	Bilateral (Amount)	Other (Amount)
Diversified enterprise opportunities	19,541,634	25	53	22	0	4,885,409	10,357,066	4,299,159	0
Closed yield gaps through improved agronomic and animal husbandry practices	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Optimized consumption of diverse nutrient-rich foods	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Agricultural systems diversified and intensified in ways that protect soils and water	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Enhanced adaptive capacity to climate risks	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Enhanced capacity to deal with climatic risks and extremes	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Gender-equitable control of productive assets and resources	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Improved capacity of women and young people to participate in decision-making	6,513,878	25	53	22	0	1,628,470	3,452,355	1,433,053	0
Increased capacity of beneficiaries to adopt research outputs	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
Enhanced institutional capacity of partner research organizations	10,422,205	25	53	22	0	2,605,551	5,523,769	2,292,885	0
Enhanced individual capacity in partner research organizations through training and exchange	9,119,429	25	53	22	0	2,279,857	4,833,297	2,006,274	0
Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	13,027,756	25	53	22	0	3,256,939	6,904,711	2,866,106	0
	130,277,560					32,569,390	69,047,107	28,661,063	0

PIM Table D: Flagship level: annual milestones table

Year	Milestone description	Means of verifying	For which outcomes
2018	Trade-offs and synergies among different SDI options for market-driven household income improvement in RTB-based farming systems analyzed in at least 15 target countries	Scientific publications and reports	Outcome 5.1: Income increased by 20% for at least 550,000 HH
2018	Adoption constraints influencing the adoption of selected SDI options in RTB-related farming systems analyzed and documented in 10 countries	Scientific publications and reports	Outcome 5.1: Income increased by 20% for at least 550,000 HH
2019	At least 10 multistakeholder partnerships (landscape level - region/district administrative level) supported in decision-making process on RTB-based farming system intensification and diversification	Annual reports and official document of relevant stakeholders, study reports	Outcome 5.1: Income increased by 20% for at least 550,000 HH
2021	Multistakeholder partnerships in at least 10 landscapes (region/district administrative level) promoted system intensification and diversification options in RTB-based farming	Annual reports and official document of relevant stakeholders, study reports	Outcome 5.1: Income increased by 20% for at least 550,000 HH
2018	SDI options identified with farmers and farm communities and expected effects on whole-farm productivity assessed in at least 15 countries	Scientific publications and reports	Outcome 5.2: Whole-farm productivity increased by 25% for at least 1,000,000 HH
2019	Entry-points and scaling opportunities for context specific whole-farm productivity approaches in RTB-based farming systems assessed in collaboration with key stakeholders in at least 10 countries	Scientific publications and reports	Outcome 5.2: Whole-farm productivity increased by 25% for at least 1,000,000 HH
2021	Whole-farm productivity approaches included in national/regional policies and development initiatives in at least 10 countries	Annual reports and official document of relevant stakeholders, study reports	Outcome 5.2: Whole-farm productivity increased by 25% for at least 1,000,000 HH
2018	Options for whole-diets improvements in RTB-related farming systems identified and assessed in 15 countries	Scientific publications and reports	Outcome 5.3: Diet quality indices increased by 20% for at least 300,000 farmer households
2019	Multistakeholder platforms at regional/district level including local communities and national health/nutrition/agricultural systems defined initiatives to promote adapted options for whole-diets improvements in at least 10 countries	Annual reports and official document of relevant stakeholders, study reports	Outcome 5.3: Diet quality indices increased by 20% for at least 300,000 farmer households

Year	Milestone description	Means of verifying	For which outcomes
2021	Multistakeholder initiative implemented at regional/district for whole-diets improvements in at least 10 countries	Annual reports and official document of relevant stakeholders, study reports	Outcome 5.3: Diet quality indices increased by 20% for at least 300,000 farmer households
2019	In at least 10 RTB-related farming systems, effects of selected SDI approaches on soil water and nutrient cycles assessed and documented	Scientific publications and reports	Outcome 5.4: Improved soil management practices adopted on at least 200,000 ha cultivated by smallholder farmers
2020	SDI approaches with positive effects on soil water and nutrient cycles disseminated in at least 5 countries	Scientific publications and reports, Adoption study reports	Outcome 5.4: Improved soil management practices adopted on at least 200,000 ha cultivated by smallholder farmers
2017	Households options for improving their resilience to climate risks and extremes assessed in RTB-related farming systems in 5 countries	Scientific publications and reports	Outcome 5.5: Capacity to deal with climate risks and extremes increased for at least 500,000 HH
2019	Multistakeholder partnerships supported by RTB included expected effects on households' capacity to deal with climate risks and extremes as criterion in the analysis of alternative options for SDI	Annual reports of relevant stakeholders, study reports	Outcome 5.5: Capacity to deal with climate risks and extremes increased for at least 500,000 HH
2020	75% of the SDI options under dissemination were assessed for and present an expected positive effect on households' capacity to deal with climate risks and extremes	Annual reports of relevant stakeholders, study reports	Outcome 5.5: Capacity to deal with climate risks and extremes increased for at least 500,000 HH
2019	50% of SDI options for market-driven household income improvement assessed using gender-responsive approaches	Scientific publications and reports	Outcome 5.6: At least 35% increase in number of female and young beneficiaries of at least 200,000 HH perceive to have better control over assets and resources
2021	Equitable SDI options for market-driven household income improvement under implementation in at least 5 countries	Annual reports of relevant stakeholders, study reports	Outcome 5.6: At least 35% increase in number of female and young beneficiaries of at least 200,000 HH perceive to have better control over assets and resources
2018	At least 10% increase of female scientists participating in key-decision-making processes concerning RTB interventions and strategies	Project and Program reports	Outcome 5.7: RTB delivery flagships and at least 55 research and development partner organizations with more gender-responsive planning and implementation processes, reflected in at least 5 additional collaborative arrangements with public sector and civil society organizations supporting gender transformation

Year	Milestone description	Means of verifying	For which outcomes
2020	At least 20% increase of female scientists participating in key-decision-making processes concerning RTB interventions and strategies	Project and Program reports	Outcome 5.7: RTB delivery flagships and at least 55 research and development partner organizations with more gender-responsive planning and implementation processes, reflected in at least 5 additional collaborative arrangements with public sector and civil society organizations supporting gender transformation
2017	At least 1 systems innovation coalition established in each country selected for site integration and problem identification and prioritization exercises conducted	Annual reports of Innovation Coalitions and relevant stakeholders	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2017	At least 44 bi-annual stakeholder meetings held across target countries for co-design of impact pathways and M&EL around implementation, including needs assessment and customized product development	Project and Program reports	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2018	At least 1 systems innovation coalition per action site experiment with prioritized alternative interventions options.	Annual reports of Innovation Coalitions and relevant stakeholders	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2019	At least 44 bi-annual stakeholder meetings held across target countries for co-design of impact pathways and M&EL around implementation, including needs assessment and customized product development	Project and Program reports	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2020	At least 1 systems innovation coalition per action site participates in trade-off analysis between selected alternative interventions options	Annual reports of Innovation Coalitions and relevant stakeholders	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2021	At least 44 bi-annual stakeholder meetings held across target countries for co-design of impact pathways and M&EL around implementation, including needs assessment and customized product development	Project and Program reports	Outcome 5.8: At least 66 cases where RTB crops/technologies are newly included in policies or programs executed by government agencies, NGOs, and/or private sector
2018	50 individuals (50% female) trained through long term programs (e.g. MSc and PhD students)	Project and Program reports	Outcome 5.9: At least 1,500 research/development staff in RTB and in mixed-type partner organizations across prime target countries with strengthened

Year	Milestone description	Means of verifying	For which outcomes
			research and innovation capacities including gender-responsive and transformative research
2019	Gender and youth capacity development strategies and training materials developed and/or adapted in collaboration with key partners in 10 countries	Project and Program reports, Annual reports of relevant partners	Outcome 5.9: At least 1,500 research/development staff in RTB and in mixed-type partner organizations across prime target countries with strengthened research and innovation capacities including gender-responsive and transformative research
2020	100 individuals (50% female) trained through long term programs (e.g. MSc and PhD students)	Project and Program reports	Outcome 5.9: At least 1,500 research/development staff in RTB and in mixed-type partner organizations across prime target countries with strengthened research and innovation capacities including gender-responsive and transformative research
2021	At least 1,500 users of RTB knowledge sharing mechanisms with strengthened capacity for designing, implementing and assessing RTB research	Project and Program reports, Annual reports of relevant stakeholders and partners	Outcome 5.9: At least 1,500 research/development staff in RTB and in mixed-type partner organizations across prime target countries with strengthened research and innovation capacities including gender-responsive and transformative research
2017	Comparative assessment of scaling models (desk study)	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2018	At least 2 ex-post impact assessments using low-cost methods based on expert workshops covering at least 6 crop-country combinations, to be undertaken in target countries with regard to varietal adoption, changes in agronomic practices, and other key areas of agri-food systems	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2018	Design principles for at least 5 partnerships and scaling models in a minimum of 5 target countries defined	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2018	At least 3 new ex-post impact assessments using low-cost methods based on expert workshops covering at least 9 crop-country combinations, to be undertaken in target countries with regard to varietal adoption, changes in agronomic practices, and other key areas of agri-food systems	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose

Year	Milestone description	Means of verifying	For which outcomes
2019	At least 17 research and development partner organizations (5 regional and 12 national) in target regions and countries applying elements of foresight and priority assessment approaches in strategic planning	Project and Program reports, Annual reports of relevant stakeholders and partners, Surveys	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2020	At least 5 new ex-post impact assessments using low-cost methods based on expert workshops covering at least 15 crop-country combinations, to be undertaken in target countries with regard to varietal adoption, changes in agronomic practices, and other key areas of agri-food systems	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2021	Performance of at least 5 partnerships and scaling models in a minimum of 5 target countries assessed, and cross-country experiences shared	Study reports, Project reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose
2022	At least 5 large-scale and rigorous impact studies conducted	Scientific publications and reports	Outcome 5.10: At least 5 partnerships and scaling models tested in a minimum of 5 target countries and adjusted to be fit for purpose

www.rtb.cgiar.org

A broad alliance of research-for-development stakeholders & partners

