



Synergizing fertilizer micro-dosing and indigenous vegetable production to enhance food and economic security of West African farmers (CIFSRF Phase 2)

Project Number 107983

Location of Study: Nigeria and Benin Republic

Report on Training of farmers on fertilizer micro-dosing and water management

MICROVEG PROJECT- NIGERIA AND BENIN REPORT



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Key Messages

- In Nigeria, 249 communities were engaged in the training 6379 male and 3633 female as master farmers while there were 20372 (71%) male and 12600 (29% female) demonstration farmers making a total of 42,984 farmers. There were 305 government representatives at the training sessions in Nigeria. In Benin a total of 1,964 master farmers (42% female) were trained who also trained 6,329 demo farmers (45% female) making a total of 8293 farmers reached.
- During the same period, in the area of seed production, handling, storage, processing and packaging, 544 farmers (49% female) were trained in Nigeria while in Benin 72 farmers (ave. 38% female) were trained.
- Vegetable value addition technologies were scaled up to processors with a total 836 actors (70% female) trained in Nigeria while 630 processors (83% female) were trained in Benin.
- Private Organizations and government representatives (305 in Nigeria and 310 in Benin) have been engaged during all training sessions during this reporting period. .
- As at September 2017, MicroVeg technologies in Nigeria had been scaled up to 124 schools in all states, training 881 teachers (46% female) and reaching over 68,000 students (45% female) while in Benin 57 schools have been reached training 76 teachers (38% female) and reaching 30157 students 41% female). The total revenue generated by the YVSC in Benin and Nigeria were USD2197 and USD1016, respectively.
- Our project engaged in the training of vulnerable groups especially prison inmates. We trained 600 prison inmates (10% female) at the Nigerian Prison Service, Ilesha, Osun State Nigeria on vegetable production technologies. We provided irrigation facility for the Prisons to ease dry season production.
- In August 2017, an AWARD of appreciation was presented to Prof Clement Adebooye - the MicroVeg Regional Project Coordinator by the Controller of Prison (CP), Osun State in recognition of MicroVeg's developmental work especially in the area of provision of irrigation facility (borehole), supply of seeds and capacity building in vegetables production.
- Further engagement with the Osun State Youth Empowerment Scheme (OYES) programme with the establishment of 15 ha capacity commercial *Ugu* farm in Ilesha and support from Osun State Government. OYES vegetable production activities has raised almost a million Naira (\$2,498) as at September, 2017. This is already influencing policy in Osun State.
- As a result of the promising results, the Governor of Osun State paid a visit to the central vegetable farm and further committed more support in funding and land allocation to the OYES program while pledging to support MicroVeg in the adoption of vegetable policies in Osun State.
- In Benin, we organized an award ceremony for entrepreneurs with innovative ideas on traditional leafy vegetables to encourage the former graduates of the University of Parakou and other academic institutions to undertake business on leafy vegetable production. In Nigeria, Young Vegetable Scientists club (YVSC) school quiz competitions were organized in 2 States: Osun and Ondo states, Nigeria. Prizes were awarded at the competitions.

- A total of 1 221 000 CFA and N382,800 (\$1100) was generated by YVSC in Benin and Nigeria, respectively and this is currently supporting school projects and rehabilitation.

Training of farmers on fertilizer micro-dosing, water and pest management

The training on fertilizer micro-dosing, water and pest management progressed during this reporting period. The training was a demand driven initiative from Innovation Platforms which was targeted at the knowledge needs of the farmers. The processes followed to carry out the training are:

- MicroVeg held series of meetings with all the different community leaders, actors and farmers groups on the need for training in southwest Nigeria with a total of 41 districts and 14 districts in Benin Republic.
- Farmers groups and other actors met and decided on the convenient date to hold the training as well as the suitable location,
- Each location IP representative organized the venue and planned the logistics for holding the training.
- At each location, Master farmers that were selected by farmers groups within the District were registered by MicroVeg for the training,
- Third party partners under the supervision of scientists carried out the trainings.
- Trainings were held at demonstration sites on improved nursery management, seed treatment technique, breaking seed dormancy, land preparation, seed rates / depths, planting and transplanting methods, fertilizer microdosing,, biological pest control using Neem/Siam extracts, water management and harvesting techniques.
- At each training session, MicroVeg gave the participating farmers some farm inputs and souvenirs which include high quality seeds, transplanting implement, fertilizer and seed treatment.
- Each trained Master Farmer was mandated to train his/her group and have a demo site at group level which will be monitored by MicroVeg Project.
- Follow up by NGO officers, Agricultural Development Programme field officers and Local Government agricultural field staff

Table 1a: Training of farmers on fertilizer micro-dosing, water and pest Management in Nigeria

[illegible]

Odo Otin	4	IP	2	111	97	355	340	466	437	903	7
Iwo	7	IP	4	127	56	406	196	533	252	785	10
Ede	4	IP	4	35	89	112	312	147	401	548	12
Ejigbo	4	IP	3	85	41	272	144	357	185	542	5
Ife North	5	IP	2	112	38	358	133	470	171	641	5
Ife central	3	SDA	2	75	15	240	53	315	68	383	3
Ayedaade	2	IP	2	32	12	96	36	129	46	175	3
Ilesa	6	IP	3	28	25	84	75	112	100	212	3
Irewole	3	IP	3	36	18	108	54	144	72	216	4
Ondo state											
Akure	4	IP	3	112	45	358	158	470	203	673	11
Owena	3	IP	2	189	65	605	228	794	293	1086	7
Ondo East	6	IP	3	250	112	800	392	1050	504	1554	9
Igbara Oke	4	IP	2	87	55	278	193	365.4	248	613	4
Owo	3	IP	2	102	20	326	70	428	90	518	3
Iwaro	2	IP	2	120	3	384	11	504	14	518	1
Supare	4	IP	2	70	15	224	53	294	68	362	1
Akoko North East	2	IP	2	18	32	54	96	72	126	198	4
Ekiti state											
Ogotun	3	IP	3	165	75	528	263	693	338	1031	7
Ado Ekiti central	7	IP	4	120	89	384	312	504	401	905	10
Ijero	5	IP	3	86	32	275	112	361	144	505	4
Ikere	3	IP	2	88	55	282	193	370	248	940	8

Ikole	6	IP	6	105	23	336	81	441	104	545	6
Ifaki	4	IP	4	107	26	343	91	449	117	566	6
Iludun	1	IP	1	68	16	218	56	286	72	358	6
Oye-Ekiti	2	IP	2	18	9	54	27	72	36	108	3
Ilejemeje	1	IP	1	16	14	48	42	64	56	120	3
Kwara state											
Asa	6	IP	5	60	382	192	1337	252	1719	1971	10
Ilorin west	8	IP	3	220	185	704	648	924	833	1757	9
Ajasse Ipo	8	IP	4	220	52	704	182	924	234	1158	5
Ifelodun	4	IP	1	55	25	176	88	231	113	344	9
Idi-emi	1	IP	1	0	31	0	109	0	140	140	6
Osere	2	IP	1	50	25	160	88	210	113	323	2
Ganmo	2	IP	1	210	24	672	84	882	108	990	2
Orogbangba	1	IP	1	310	23	992	81	1302	104	1406	2
Lasoju	1	IP	1	33	76	99	228	132	304	436	3
Lagos state											
Badagry	7	IP	4	74	30	237	105	311	135	446	8
Ojoo/Iba	30	IP	20	725	250	2320	875	3045	1125	4170	9
Ikorodu	12	IP	5	325	370	1040	1295	1365	1665	3030	14
Alimosho Agege	6	IP	3	343	356	1098	1246	1441	1602	3043	2
Epe	4	IP	2	25	23	80	81	105	104	209	2
Ibeju-Lekki	3	IP	2	52	61	166	214	218	275	493	2
LASU	1	IP	1	17	08	51	24	68	32	100	2
Total	249		164	6379male	3633 female	20372	12600	26751 male	16233 female	42984	305

Table 1b: Training of Benin farmers on fertilizer micro-dosing, water and pest management

Location	Village	IP/SDA	Number of IP/SDA	Master farmers		Demo farmers		Total farmers		Total	Government representatives and NGOs
				Male	Female	Male	Female	Male	Female		
Parakou	3	IP	3	82	91	193	234	275	325	600	2
N'Dali - Bembéréké	3	IP	3	62	50	133	200	195	250	445	2
Djougou	3	IP	3	95	54	287	204	382	258	640	2
Boukoumbé - Natitingou	3	IP	3	78	56	279	237	357	293	650	2
Bohicon	3	IP	3	96	69	289	246	385	315	700	2
Abomey Calavi	5	IP	5	88	73	252	209	340	282	622	2
Sèmè	2	IP	2	117	79	373	317	490	396	886	3
Cotonou	5	IP	5	223	114	603	486	826	600	1426	3
Grand Popo	6	IP	6	237	161	752	573	989	734	1723	2
Tchaourou	3	SDA	30	16	23	59	103	75	125	200	2
Ouaké	3	SDA	30	19	28	79	74	98	102	200	2
Djidja	3	SDA	30	33	20	83	65	116	85	201	2
Total	42	SDA	123	1146	818	3382	2947	4528	3765	8293	26

In Nigeria, 249 communities were engaged in the training 6379 male and 3633 female as master farmers while there were 20372 (71%) male and 12600 (29%) female demonstration farmers. There were 305 government representatives at the training sessions in Nigeria. In Benin a total of 1,964 master farmers (42% female) were trained who also trained 6,329 demo farmers (45% female) making a total of 8293 farmers reached.



Fig 1: Training of farmers on Fertilizer Microdosing Innovations



Fig 2: Training of Benin National Actors on the Agronomy of Micro-dosing and Water Management (N'dali, Benin)

Further empowerment on Osun State Youth Empowerment Scheme (OYES)

Between March and September 2017, further training of the young farmers was ongoing to ensure that they become well integrated in the new technologies. Site visits also took place in the 30 Local Government Areas where the OYES have established farms and 16 sites are currently active and generating revenue. These revenues are owned by the youths and profits are shared among members of a brigade at the end of harvest. Records showed that OYES brigade members generated profit of 300% on investments since the establishment of the farms in January, 2017. As a result of this success, the State government supported the OYES with funding and also provided facilities to set up a 15ha -central Telfaria (Ugu) farm across the State. A spectacular one was the vegetable farm set up by the OYES cadets at Ilesha, Osun State with a pilot of 3ha of Telfaria (Ugu) planted using MicroVeg technologies and supervised by MicroVeg Scale up team. Activities on the state farm started in June, a full analysis of the farm will be sent in the final report.

Table 2: Analysis of OYES revenues

Local government	Location	Size of land	Revenue from January – September, 2017 (Nigerian Naira)	Revenue from January – September, 2017 (US\$)
Irepodun	Ilobu	5 acres	93,000	254.4
Iwo	Laraoye, Ile-Ogbo, I kire-ile	4 ha	147500	403.5
Ejigbo	Ejigbo	2 acres	68000	186.0
Ilesha east	Egbedore	4 ha	138000	377.6
Ire/Ikirun	Asaba Oyan	3 acres	26720	73.1
Odo otin	Inisa, Iwoye	5 acres	51900	141.9
Obokun	Obokun	1 acre	5500	15.0
Ilesha	Ilesha West	2 acres	38000	103.9
Ife East	Oke ogbo	1 acre	4500	12.3
Ayediire	Ayediire	4 acres	123000	336.5
Atakunmosa East	Iperindo	5 acres	88300	241.6
Ede north	Araromi	3 acres	23000	62.9

Oriade	Ijebu ijsha	3 acres	39700	108.6
Ife north	Ipetumodu	4 acres	54500	149.1
Ife central	Gbongan	1 acre	4000	10.9
Ede south	Laogun	2 acre	7500	20.5
Total		53 acres	913,120	2,498.3

1 US Dollar=365.5 Nigerian Naira

As at September, 2017, OYES had generated almost 1 million naira (N913,120) which is equivalent of 2,498.3 US dollars through sales of fresh vegetables at local markets. We project a 200% increase in revenues by the next reporting period due to the dry season irrigation farming which yields more income as a result of the scarcity in vegetables. Final analysis of revenues including revenues from seed production and value addition activities will highlighted in the final report.



Fig 3: OYES Vegetable farm

Outcomes of the OYES program

1. For the first time in the lifetime of the youths, they are cultivating vegetables as major business for income generation.

2. Preliminary cultivation by the youths have now reached 53 acres (132.5ha) spread across Osun state making an income of N913,120 (\$2,498) between March to September, 2017.
3. Vegetable enterprises are now a source of income and livelihood for the trained 10,000 youths under the Agricultural brigade of the OYES
4. Osun state government has adopted the vegetable technologies for the state and are using MicroVeg technologies to generate revenue for the state. This is already influencing policy in Osun State.
5. New interest in vegetables has increased with increased awareness made by MicroVeg through radio and community activities which is supporting OYES by creating additional market demand and contributing to higher consumption of vegetables and nutrition diversity within their communities.

As a result of the promising results, the Governor of Osun State paid a visit to the central vegetable farm and further committed more support in funding and land allocation to the OYES program while pledging to support MicroVeg in the adoption of vegetable policies in Osun State. Picture below showing the Governor with the MicroVeg team.



Fig 4: Visit of the Osun State Governor to OYES Central Vegetable Farm

Seed production training

With the conclusion on the Value addition technology and seed production technology development during this reporting period, deployment of the technologies was planned by the scaling up team which is led by the 3rd party partners. Training was carried out for Seed producers in 7 States: Ekiti, Osun, Ondo, Ogun, Kwara, Lagos and Oyo states. Four hundred and seventy-eight (478) seed producers (49.7% female) from

7 States participated in the training in Nigeria while in Benin, four training sessions were organized on seed production. Seed producers from 11 districts attended the trainings. Women accounted for 37.5% of trained seed producers. In both Benin and Nigeria, the farmers represented 51 districts and 190 groups/cooperatives. The trainees have been charged to go back to their districts to train members and establish seed producing cooperatives at the district level. The Scaling up team will work with the groups to ensure registration of the seed cooperatives. Seed production training comprised the following modules

- Seed production and Handling
- Seed processing and storage
- Seed packaging



Fig 5: A cross section of Participants at the seed production training in Osogbo, Osun State, Nigeria

Table 3a: Statistics of Participants at the Seed Production Training in Nigeria

State	Districts	Number of Groups	Male	Female	Total
Ekiti	Ikere	9	1	9	10
	Ijero	6	5	1	6
	Ekiti South West	3	3	0	3
	Ifaki	2	2	2	4
	Oye	3	3	4	7
	Ado Ekiti	8	5	7	12

	Iludun	1	2	2	4
	Ikole	3	4	2	6
	Ileje-meje	1	1	1	2
Oyo	Egbeda	4	2	2	4
	Akanran	3	1	2	3
	Ijaiye/Akinyele	8	2	6	8
	Oluyole	7	2	5	7
	IDDO	3	2	1	3
	Ogbomosho	3	3	2	5
	Oyo West	2	4	3	7
	ATISBO	2	4	4	8
	Saki	3	6	2	8
	Odo Otin	5	4	4	8
	Iwo	5	3	2	5
	Ede	5	2	3	5
	Ejigbo	4	2	2	4
	Ife North	2	4	5	9
	Ife central	2	3	4	7
	OYES Cadets	16	8	8	16
Ogun state	Ewekoro	10	8	12	20
	Odogbolu	7	10	4	14
	Ilisan	5	9	6	15
	Abeokuta south	5	5	5	10
	Agbeloba Ogijo	3	4	6	10
	Ado- Odo	2	4	4	8
	Odeda	2	3	4	7
Lagos	Badagry	7	8	6	14
	Ojoo/Iba	30	12	18	30
	Ikorodu	12	10	8	18
	Alimosho Agege	6	3	6	9

	Epe	4	8	4	12
	Ibeju-Lekki	3	6	6	12
	LASU	1	1	1	2
Kwara	Asa	6	4	6	10
	Ilorin west	8	8	6	14
	Ajasse Ipo	8	6	8	14
	Ifelodun	4	8	8	16
	Idi-emi	1	2	2	4
	Osere	2	4	4	8
	Ganmo	2	4	4	8
	Orogbangba	1	1	1	2
	Lasojù	1	1	1	2
Ondo	Akure	4	4	4	8
	Owena	3	3	3	6
	Ondo East	6	8	4	12
	Igbara Oke	4	6	2	8
	Owo	3	4	2	6
	Iwaro	2	2	2	4
	Akoko North East	4	5	8	13
Osun	Odo Otin	5	5	3	11
	Iwo/Ayediire	5	4	2	6
	Ede	5	5	5	10
	Ejigbo	4	4	4	8
	Ife North	2	2	2	4
	Ife central	2	4	4	8
	Ilesha	2	4	4	8
	OYES Cadets	7	7	3	10
Total		266	275	269	544
% of women	49.4%				

Table 3b: Statistics of Seed Producers at the training in Benin

Location	Actors		
	Male	Female	Total
Parakou	6	3	9
Tchaourou	4	2	6
Djougou-Ouaké	6	4	10
Boukoumbé – Natitingou	3	2	5
Bohicon-Djidja	4	2	6
Abomey Calavi	8	4	12
Cotonou	6	4	10
Grand-Popo	8	6	14
Total	45	27	72
% of women	37.5		

Training on Value addition technologies

The Microveg scaling up team organized training for vegetable / value addition entrepreneurs as well as public and private partners at State levels in 7 states of Nigeria and 14 districts in Benin Republic. In Nigeria, the local processors trained from 200 vegetable producers groups were chosen from Innovation platforms, a total 853 actors (62% female) were trained in all major value addition technologies by the Food science team while 630 processors (83% female) were trained in Benin. Technologies disseminated include:

- Drying of fresh vegetables using local materials
- Processing, handling and storage
- Cooking of vegetables in soups to optimize nutritional quality especially for children and pregnant women
- Incorporation of vegetable extracts into confectionaries e.g Bread, Chin-chin and maize pudding
- Production of Sirop and juice with TLV (Tchayo,)
- Incorporation of TLV in local foods (Ablo, Toubani, Atta/akara)



Fig 6: A cross section of Processors at the value addition training in Osogbo, Osun State, Nigeria



Fig 7: Local actors training on value addition, in Bohicon (Benin)



Fig 8: Local actors training on value addition, in Parakou (Benin)

Table 4a: Statistics on scaling up Value addition training processors in Nigeria

State	District	Processors		Consumers		Total
		Male	Female	Male	female	
Ekiti	Ikere	1	5	2	3	11
	Ijero	0	3	2	3	8
	Ekiti South West	0	3	1	1	5
	Ado Ekiti	2	4	1	1	8
	Oye	2	1	1	1	5
	Ifaki	3	1	1	2	7
	Iludun	2	2	2	4	10
	Ikole	2	2	2	2	8
	Akanran	0	3	2	2	7
	Ijaiye/Akinyele	1	7	1	2	11
	Oluyole	3	4	1	2	10
	IDDO	0	3	1	2	6
	Ogbomosho	1	2	2	2	7
	Oyo West	1	1	1	2	5

	ATISBO	1	1	1	1	4
	Saki	1	1	1	2	5
Osun	Odo Otin	3	8	1	2	14
	Iwo/Ayediire	1	5	2	2	10
	Ede	4	5	1	1	11
	Ejigbo	4	4	1	2	11
	Ife North	2	2	1	3	8
	Ife central	4	4	2	3	13
	Ilesha	4	4	1	1	10
	OYES Cadets	2	5	16	22	45
Ogun state	Ewekoro	3	5	1	4	13
	Odogbolu	2	6	3	4	15
	Ilisan	5	7	5	12	29
	Abeokuta south	2	8	2	4	16
	Agbeloba Ogijo	2	2	2	4	10
	Ado- Odo	2	2	1	3	8
	Odeda	1	1	2	2	6
Lagos	Badagry	2	4	8	14	28
	Ojoo/Iba	15	30	21	30	96
	Ikorodu	10	16	6	12	44
	Alimosho Agege	2	4	6	5	17
	Epe	6	14	5	6	31
	Ibeju-Lekki	2	4	3	4	13
Kwara	Asa	0	26	3	5	34
	Ilorin west	3	18	4	4	29
	Ajasse Ipo	1	15	10	7	33
	Ifelodun	2	14	4	6	26
	Idi-emi	2	12	2	6	22
	Ganmo	1	1	2	2	6
Ondo	Akure	4	8	2	2	16
	Owena	2	2	2	2	8
	Ondo East	4	6	2	2	14
	Igbara Oke	2	2	2	2	8
	Owo	1	1	2	2	6
	Iwaro	2	2	2	2	8
	Akoko North East	1	1	2	2	6
Others actors	Ife north	0	42	20	25	87
	Ife Master bakers	65	35	12	15	127
	Erinfun	40	60	8	7	115
	UNIOSUN	72	125	24	20	241
	total	300	553	215	283	1351

	Total female	836	62% female			
Gender distribution	Total male	515	38% male			

Table 4b: Statistics on scaling up value addition processors training in Benin

Location	Processors			Producers			Private partners			Consumers			Total		Total	%
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female		
Parakou	10	43	53	15	37	52	8	11	19	8	70	78	41	176	217	81,1
N'Dali - Bembérékè	6	43	49	10	30	40	2	21	23	8	55	63	26	159	185	85,9
Tchaourou	9	51	60	11	36	47	4	16	20	13	61	74	37	175	212	82,5
Djougou-Ouaké	11	68	79	21	47	68	4	11	15	20	80	100	56	227	283	80,2
Boukoubé - Natitingou	4	25	29	8	20	28	3	11	14	13	82	95	28	146	174	83,9
Bohicon-Djidja	6	80	86	11	62	73	5	12	17	7	105	112	29	270	299	90,3
Abomey Calavi	16	49	65	11	16	27	7	42	49	15	72	87	49	190	239	79,5
Sèmè	8	26	34	14	17	31	3	24	27	5	61	66	30	142	172	82,6
Cotonou	24	80	104	20	63	83	6	85	91	11	96	107	61	344	405	84,9
Grand-Popo	11	60	71	39	51	90	4	31	35	23	102	125	77	283	360	78,6
Total	105	525	630	160	379	539	46	264	310	123	784	907	434	2112	2546	83,0

The training carried out in both countries targeted disseminating the technologies to local vegetable processors who could add value to the vegetables and produce a standard product acceptable and healthy for consumption and industrial uses. 630 processors were trained in Benin while 853 processors in Nigeria with 83% and 62% female participation respectively.

Value addition training and demonstration on Ablo, juice, Akara

The recent training organized by Benin team was related to new innovations. Descriptions of juice, Ablo, Akara or Ablo processes were demonstrated to all participants. The training took place in all the project districts (Parakou, N'dali, Bemberekè, Semè, Abomey-Calavi, Bohicon, Djidja, Cotonou, Ouaké, Djougou, and Boukoubé). In total, 630 processors, 539 producers, 310 private partners and 907 consumers were trained with 83.0% of female (Table 4b).

Training Workshop on Vegetable-Enriched Pastries

In addition, over 42 women were trained on how to produce vegetable-enriched products in Ife North Local Government Area of Osun State, Nigeria on August 17, 2017

The team also trained the Ife Master Bakers Association on how to incorporate vegetable powder and coarse broken vegetable leaves into bread for vegetable bread production. The meeting had over 100 bakery owners in Ile-Ife community in attendance.

At Aba-Erinfun, Ado-Ekiti, Ekiti State, Nigeria in collaboration with MICROVEG Innovation platforms, participants were also trained on production of vegetable enriched pastries such as cookies, chin-chin and bread. The training involved over 100 participants with about 60% female. The value addition team carefully explained that vegetable leaves can be processed via drying using convectional or hurdle technology through the use of jacketed bucket dryer powered with charcoal.

On Vegetable Powder Availability

Participants were informed about different methods of achieving dried vegetable leaves. The method that involves the use of charcoal-driven drying mechanism through with a hybrid jacketed bucket was demonstrated to them. They were also informed that raw vegetables can be blended with water to form vegetable slurry which can be used in lieu of water for production of bread.

Gender Mainstreaming Activities

A comprehensive report on our gender mainstreaming activities is presented as Appendix 2. Gender was mainstreamed into all scaling up activities as the gender specialists attended our training activities while providing guidance on better gender approaches. Between March and September, 2017, the gender team assessed the field training, how male and female were adopting the technologies, demonstration activities of farmers and challenges faced during the adoption process. Several meetings were held with the vegetable producers and processors assessing their adoption activities and providing guidance on mainstreaming gender into the demonstration and training activities.

Benin and Nigeria team also participated in a workshop session on Women in Agriculture at the Africa Green Revolution Forum (AGRF) on the 5th of September 2017 in Abidjan (Cote d'Ivoire). IDRC co-chairs the AGRF Thematic Working Group on Women in Agriculture with FAO .





Fig 7: Gender mainstreaming meetings with the locals in Southwest Nigeria.

Further Training of Teachers and YVSC:

Vegetable enthusiasts are growing all over southwestern Nigeria and Benin Republic with the intervention and awareness being created by MicroVeg Project. Between March and September, 2017, training was carried out in additional 25 schools in southwest Nigeria resulting in a total of 279 schools in the seven States in Nigeria and additional 20 schools in Benin. The areas in which the project has empowered the schools include training, supply of farm implements and seeds so as to spread fertilizer microdosing vegetable production to upcoming young scientists.

We have since the inception of the project trained, 881 teachers (46% female) and 68,154 students (45.2% female) in Nigeria. In Benin 38% of the teachers were female. The unintended outcomes from these interventions are:

- Students are now going home to replicate their own gardens thereby influencing their parents in vegetable production and consumption.
- Teachers are better empowered to give practical agricultural education to all students studying agriculture and not the YVSC students making a more inclusive agricultural curriculum

- The school communities have now established gardens, thus maintaining knowledge transfer and generating income for the school. This has created not just a new science community but a vibrant environment for agricultural education thus creating a platform for youth agricultural advancement and spreading climate smart vegetable technologies across Nigeria.



Fig 8: School teachers training session



Fig 9. Club of Tourou Primary school, Parakou district, Bénin



Fig 9. Donation of farm tools to the club of Tourou Primary school, Parakou district, Bénin

Table 5a: YVSC training in Nigeria

Location	Number of schools	YVSC members		total students	No of teachers trained		total teachers trained	money realized from sales of vegetables
		Male	Female		Men	Women		
Oyo State								
Ona-ara/ Akanran	15	1250	1270	2520	18	15	33	25500
Iddo	10	2202	1555	3757	21	15	36	15500
Ogbomosho	4	1643	985	2628	26	22	48	4000
Osun State								
Iwo	18	1825	1920	3745	12	14	26	25,000
Ede	12	2300	1910	4210	18	12	30	33,000
Ife	8	2345	1647	3992	23	28	51	7,500
Ilesha	8	1050	790	1840	21	19	40	5000
Ogun State								
Odogbolu	12	1250	930	2180	12	15	27	3500
Ilisan	10	1850	530	1380	15	8	23	7000
Abeokuta South	14	621	580	1201	15	13	28	8000

Lagos State								
Iba	16	1250	1390	2640	8	12	20	20,000
Ikorodu	26	1800	1550	3350	22	20	42	33,500
Badagry	6	1350	1255	2605	10	12	22	8500
Ondo State								
Ondo East	14	1020	910	1930	25	20	45	17,500
Akure	22	2780	2250	5030	35	45	80	30,400
Akoko North West	5	1560	1430	15860	18	14	32	4500
Akoko South	5	685	703	1388	12	11	23	2500
Ekiti State								
Ado Ekiti	20	1850	1290	4140	40	25	65	25,000
Ijero	16	1910	1350	3560	15	14	29	21000
Ikole	4	680	1120	1800	16	18	34	6500
Iludun	2	460	505	965	14	11	25	3400
Oye	2	1022	967	1989	22	18	40	7600
Kwara State								
Ilorin	16	1650	1340	2990	25	20	45	18000
Ajasse Ipo	10	1955	1602	3557	30	10	40	16500
Afon	2	600	530	1130	21	19	40	7400
Ogele	2	435	502	937	26	15	41	6500

	124	37343	30811	68154	474	407	881	N362,800

Districts	Number of schools	Student			Teacher			Money realized from sales of harvested vegetables. (CFA)
		Male	Female	Totale	Male	Female	Total	
Parakou	12	3 197	3 197	6 393	10	7	17	330000
N'Dali - Bembérékè	7	2 610	653	3 263	6	3	9	87500
Djougou	7	1 538	1 538	3 076	5	4	9	148500
Boukoumbé - Natitingou	7	3 169	2 112	5 281	5	2	7	200000
Bohicon	7	3 328	2 218	5 546	6	3	9	108000
Tchaourou	4	1 596	1 596	3 191	5	2	7	102000
Ouaké	6	1 071	714	1 786	4	6	10	105000
Djidja	7	1 135	486	1 621	6	2	8	140000
Total	57	17 643	12 514	30 157	47	29	76	1221000

As at September 2017, MicroVeg technologies in Nigeria had been scaled up to 124 schools in all states, training 881 teachers (46% female) and reaching over 68,000 students (45% female) while in Benin 57 schools have been adopted training 76 teachers (38% female) and reaching 30 157.students (41 % female).

Training of Vulnerable groups: Ilesha Prisons inmates:

The scaling up team in June, 2017 began discussions with the management of Nigeria Prisons Service (NPS), Ilesha Osun State, Nigeria, a restricted facility housing over 600 inmates to see how these individuals could be empowered with skills in vegetable production. This is intended to create job for the inmates after serving their jail terms and also to provide food and good quality nutrient for the inmates. At the point of MicroVeg intervention it became clear that the Prisons lacked water and facilities to run a farm of any sort. MicroVeg sank a borehole water source for the Prisons and provided irrigation facilities to support a vegetable farm within the prisons community. In August, 2017, MicroVeg also physically trained the inmates on all the vegetable production technologies. As at September, 2017, the prisons have established a fanciful vegetable farm with capacity to cater for all the vegetable needs of the 600 inmates. MicroVeg supplied the seeds, fertilizers and tools in addition to irrigation facility. In August 2017, an AWARD of appreciation was presented to Prof Clement Adebooye, MicroVeg Coordinator by the Controller of Prison (CP), Osun State for his contribution towards agricultural development of the prison inmates.



Fig 9: Presentation of Award by the Comptroller of Prison

Training of young business entrepreneurs on Leafy vegetable in Benin

Training workshop were held for entrepreneurs. A total of 20 short-listed candidates took part in the training.

The training provided necessary information to the participants on ways of improving project ideas by integrating improved technologies.

Young entrepreneurs awards

Award of ceremony for entrepreneurs with innovative ideas on traditional leafy vegetables was organized to encourage the former graduates of the University of Parakou to undertake business on leafy vegetable production. This ceremony was organized in collaboration with the University of Parakou (Photo).





Photo: Training and Award ceremony of best young entrepreneurs on leafy vegetables

Young vegetable scientists club Quiz Competitions

In June/July 2017, the project organized a quiz event to give award of excellence in vegetable sciences knowledge among the YVSC students in Nigeria. This event further served as a platform to motivate the schools in their efforts towards driving the YVSC clubs even after the end of the project. The competition which took place in Osun and Ondo States was well attended by Principals, representatives from the government and Parents Teachers Association. A total of 20 schools participated in the quiz competition and 3 categories of prizes were awarded including certificates of participation. Students demonstrated sound knowledge in various vegetable science topics. See pictures below.



Contestant at Osun State quiz competition in progress



Winning schools in Ondo State overall best school in ondo state