

Supplementary Materials for Bassey et al “Impact of Home Food Production on Nutritional Status and Nutritional Blindness in Children: a systematic review and meta-analysis of controlled trials”

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Supplementary Table 1. Details of on-going studies that appear to fit the inclusion criteria for this systematic review

Title	Name	Type of Intervention	Suggested Completion Date
Food and Agricultural Approaches to Reducing Malnutrition (FAARM). NCT02505711	Sabine Gabrysch Collaborators: <ul style="list-style-type: none"> • Helen Keller International • Brac University • University of Giessen • German Federal Ministry of Education and Research • Department for International Development, UK 	Reducing Young Child Undernutrition Through an Integrated Agricultural Project with Women's Groups: A Cluster-Randomized Trial in Rural Bangladesh	December 2019.
Multi-Sectoral Agricultural Intervention to Improve Nutrition, Health, And Developmental Outcomes Of HIV-Infected Children in Western Kenya NCT03170986	Lisa Butler, University of Connecticut	Multi-sectoral Agriculture and Microfinance Intervention	March 2021
Homestead Agriculture and Nutrition Project in Rufiji District, Tanzania. NCT03311698	Fawzi, Harvard School of Public Health	Nutrition-Sensitive Intervention Using Behavior Change Communication on Home Gardening, Diet, Nutrition, WASH, And Women's Empowerment.	December 2019
Evaluation of Orange Fleshed Sweet Potato Promotion and The Healthy Baby Toolkit in Southern Ethiopia: A Cluster Randomized Controlled Trial. NCT03423472	Amy Webb Girard, Emory University	Improve Diet Quality, Primarily of Women and Young Children, Through the Promotion of Vitamin A-Rich Orange Flesh Sweet potato (OFSP) Production and Nutrition Education	November 2019
Programme Effectiveness of An Integrated Programme to Reduce Maternal and Child Malnutrition in Kenya: Cluster Randomized, Parallel-Group, Prospective, Follow-Up Effectiveness Study in Children 6-35 Months of Age. NCT03448484	Fabian Rohner	Integrated Programme by Introducing Nutrition-Sensitive (Improved Water, Sanitation and Hygiene (Wash): e.g. Soap or Hand Washing) And Nutrition-Specific (e.g Micronutrient Supplements) Components	July 2020
Community Development and Nutrition Education in Banke District, Nepal: Effect on Child Health and Growth. NCT03516396	Laurie Miller, Md, Tufts University	Training Plus Enhanced Community Development Activities	December 2020.
Programme effectiveness Of an Integrated Programme to Reduce Maternal and Child Malnutrition in Kenya: Cluster randomized Controlled Trial in Pregnant Women and Their Offspring. NCT03558464	Fabian Rohner	Comparing an Agricultural Intervention Alone to A Combined Agricultural, Nutrition and Wash Intervention	April 2021.

Supplementary Table 2. Table showing major results for primary outcomes in this review

Study	Primary outcomes, in children ≤ 5 years					
	Xer-ophthalmia	Night Blindness	All-cause Mortality	Stunting	Wasting	Underweight
Faber et al., 2002	NR	NR	NR	NR	NR	NR
Gelli et al., 2018	NR	NR	NR	(mean/%) 36 – 72 months HFP -1.70 (36%) Control -1.70 (36%) 0.05 (0.05) 6 – 24 months HFP -1.87(45%) Control -2.29 (63%) 0.44 (0.16)	(mean/%) 36 – 72 months HFP -0.06 (16%) Control 0.08 (12%) -0.04(0.07) 6 – 24 months HFP 0.04 (2%) Control 0.09 (1%) -0.13(0.15)	(mean/%) 36 – 72 months HFP -1.16 (34%) Control -1.15 (32%) Impact (mean/SE) 0.05(0.05) 6 – 24 months HFP -1.05 (16%) Control -1.18 (22%) Difference -0.02(0.14)
Hotz et al., 2012 Mozambique	NR	NR	NR	NR	NR	NR
Hotz et al., 2016 Uganda	NR	NR	NR	NR	NR	NR
Khamhoung et al., 2000	NR	NR	NR	(Median, 95% CI) HFP -1.92 -2.1 – 1.87 (50.2%) Control -1.92 -2.52 – (-1.53) (47.1%)	(Median, 95% CI) HFP -0.50 -0.59 – (-0.44) (3.2%) Control -0.57 -0.77 – (-0.46)	(Median, 95% CI) HFP – 1.45 -2.1 – (-1.89) (27.6%) Control – 1.56 1.77 - 1.41 (33.3%)
Kidala et al., 2000	NR	NR	NR	NR	NR	NR
Kuchenbecker et al., 2017	NR	NR	NR	(mean/SD) HFP -1.79(1.15) Control – 1.85(1.10)	(mean/SD) HFP 0.32(1.00) Control 0.27(0.96)	(mean/SD) HFP -0.69(1.07) Control -0.76(1.05)

Lakzadeh et al., 2010	NR	NR	NR	NR	NR	NR
Low et al., 2007	NR	NR	NR	NR	NR	NR
Marquis et al., 2017	NR	NR	NR	(beta-coefficient/SE) Impact 0.22 (0.06) 95% CI 0.09 – 0.34	(beta-coefficient/SE) Impact 0.07(0.08)	(beta-coefficient/SE) Impact 0.15(0.07) 95% CI 0.00 - 0.30
Olney et al., 2009	NR	NR	NR	(mean/SD) HFP -1.7(1.3) 40.5%, control -1.6(1.3) 42.3%	(mean/SD) HFP -1.0 (1.0) 14.8%, control -0.9 (1.0) 11.4%	(mean/SD) HFP -1.6(1.1) 36.1%, control -1.6(1.0) 34.4%
Olney et al., 2015	NR	NR	NR	(mean/SD) HFP -0.07 ± 0.17, -3.2pp (OWL) -0.07 ± 0.14, -4.6pp (HC)	(mean/SD) HFP 0.02 ± 0.19, -3.8pp (OWL) 0.17 ± 0.15, -8.8pp (HC)	(mean/SD) HFP -0.05±0.14, 0.1 pp (OWL) Control -0.16 ±0.12, -4.4pp (HC)
Osei et al., 2015	NR	NR	NR	(mean/SE) HFP -2.01 ± 0.10 (48%). control -2.40 ±0.12 (55.7%)	(mean/SE) HFP -0.71 ± 0.11(11.9%) control -0.80±0.10 (13.2%)	(mean/SE) HFP -1.57 ± 0.09 (32%). Control 1.84 ± 0.11 (39.6%)
Raneri et al., 2017., 2017	NR	NR	NR	NR	NR	NR
Reinbott et al., 2016	NR	NR	NR	(mean/SD) HFP -1.27, 1.09 Control -1.33,1.09	(mean/SD) HFP -0.63, 0.98 Control -0.63, 0.99	(mean/SD) HFP -1.13, 0.97 Control -1.15, 0.99
Schreinemachers et al., 2016	NR	NR	NR	NR	NR	NR

CI – Confidence Interval

Green – study

HC – Health Committee

HFP – Home Food Production

IP – Intensive Programme

NR – Not Reported

OWL – Older Women Leader

RP – Reduced Program

RAE – Retinol Activity Equivalent

SE – Standard Error

SD – Standard deviation

USD – US Dollars

Supplementary Table 3. Table showing major results for secondary outcomes in this review

Study	Secondary outcomes			
	Serum retinol/ vitamin A RAE	Dietary diversity	Income	Cost of intervention
Faber et al., 2002	(mean/SD) HFP $0.81 \pm 0.22 \mu\text{mol/l}$, control $0.73 \pm 0.19 \mu\text{mol/l}$,	NR	NR	NR
Gelli et al., 2018	NR	NR	NR	NR
Hotz et al., 2012 Mozambique	(mean/SE) OSP source Model 1 295.0 (85.7) $P < 0.01$, model 2 180.6 (68.2) $P < 0.01$, Non OSP source Model 1 231.8 (38.1), Model 2 10.9 (42.9)	NR	NR	NR
Hotz et al., 2016 Uganda	Vitamin A RAE 6 – 35 months (mean/SE) IP – control 297 ± 51 ($P < 0.01$) RP – control 229 ± 52 ($P < 0.01$) IP – RP 68 ± 43 3 – 5 years IP – control 206 ± 37 ($P < 0.01$) RP – control 370 ± 74 ($P < 0.01$) IP – RP -164 ± 78 ($P < 0.05$)	NR	NR	NR
Khamhoung et al., 2000	NR	NR	NR	NR
Kidala et al., 2000	Not infected with helminth – HFP $21.2 \mu\text{g/Dl}$, control $25.2 \mu\text{g/dL}$. Infected with helminth HFP $11.7 \mu\text{g/Dl}$, control $13.3 \mu\text{g/Dl}$	NR		
Kuchenbecker et al., 2017	Consumption of vitamin A-rich vegetable and fruits HFP 77.3%, control 70.2 ($P = 0.53$). vitamin A-rich roots and tubers HFP 13.2%, 12.1% ($P = 0.11$). Egg consumption HFP 16.2%, control 6.1% ($P < 0.01$)	HFP 71.1%, control 55.5% Impact 12.70% ($p = 0.01$)	NR	NR
Lakzadeh et al., 2010	Vitamin A RAE (mean/ CI) HFP - 373 (282 – 463)	NR	(Mean) HFP – 1.77 <0 05	220 USD for 22 months

	Control 271 (219 – 322) HFP plus fish pond 331 (253 – 410)		HFP plus fish pond 1.58 < 0.001)	239 USD for garden, fish pond and training
Low et al., 2007	Vitamin A RAE HFP 426µg, control 56µg. consumption of vitamin A-rich roots and tuber HFP 35%, control 5% (P < 0.001). Consumption of vitamin A-rich fruits and vegetables 56%, 31% (P < 0.001)	HFP 32%, control 9%.	Mean revenue from HFP US\$ 3.17 ± 2.91 from orange sweet potato sale	NR
Marquis et al., 2017	Unadjusted prevalence of egg consumption HFP 31.5% Control 22.6% P<0.005	Odds ratio 1.65 (95% CI) 1.02 – 2.69	NR	NR
Olney et al., 2009	NR	HFP 4.2 (2.2) Control 3.7 (2.3)	Income increased in HFP 49.7% (P<0.05), control 35.5%	NR
Olney et al., 2015	NR	NR	NR	NR
Osei et al., 2015	NR	NR	NR	NR
Raneri et al., 2017., 2017	Impact 0.4 (p<0.01). Vitamin A vegetables and fruits increased by 26g and 3g (p<0.001, p<0.01)	NR	NR	NR
Reinbott et al., 2016	Consumption of vitamin A-rich vegetables, fruits, root and tuber (%) for HFP – 46.2, 7.1, 38.2. control – 37.5, 6.3, 20.4 pro-vitamin A-rich roots and tubers (B=1.11, SE(B) =0.25; 95 % CI 0.62, 1.60, P = 0.001	(Mean/%) HFP 3.9 (64.9%) Control 3.6 (55.9%)	NR	NR
Schreinemachers et al., 2016	NR	NR	Mean -1.4 p-value = 0.798	23.2 USD per year

CI – Confidence Interval

Green – study

HC – Health Committee

HFP – Home Food Production

IP – Intensive Programme

Yellow – primary outcome
NR – Not Reported
OWL – Older Women Leader
RP – Reduced Program
RAE – Retinol Activity Equivalent
SE – Standard Error
SD – Standard deviation
OSP – Orange Sweet Potato
B – Regression coefficient
USD – US Dollars

Supplementary Table 4. All meta-analysis results assessing effect on stunting, including sensitivity analyses and subgrouping.

Outcome	Studies	Participants	Statistical Method Random effects	Effect Estimate	I ²	Chi ²
Stunting	9	9446	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	7	5469	Mean Difference (IV, Random, 95% CI)	0.13 [0.01, 0.24]	84 %	37.26 P < 0.00001
Adjusted for clustering	2	706	Mean Difference (IV, Random, 95% CI)	0.24 [-0.00, 0.48]	41 %	1.68 P = 1.68
Unadjusted for clustering	4	3271	Mean Difference (IV, Random, 95% CI)	0.03 [-0.05, 0.12]	0%	1.39 P = 0.71
Prevalence of stunting	6	4091	Risk Ratio (M-H, Random, 95% CI)	Subtotals only		
Adjusted for clustering	2	206	Risk Ratio (M-H, Random, 95% CI)	0.86 [0.66, 1.12]		
Unadjusted for clustering	5	3885	Risk Ratio (M-H, Random, 95% CI)	0.94 [0.84, 1.05]	52 %	8.85 P = 0.08
Subgroup	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ² test for subgroup differences, p - value
Stunting subgrouped by continent	7	5469	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Asia	2	1127	Mean Difference (IV, Random, 95% CI)	0.69 [-0.89, 2.28]	92 %	0.09
Africa	5	4342	Mean Difference (IV, Random, 95% CI)	0.13 [-0.01, 0.25]	83 %	P = 0.77
Stunting subgrouped by duration	6	4137	Mean Difference (IV, Random, 95% CI)	Subtotals only		
12 to < 24 months	3	2052	Mean Difference (IV, Random, 95% CI)	0.19 [0.04, 0.34]	85 %	0.24 P = 0.63
24+ months	3	2085	Mean Difference (IV, Random, 95% CI)	0.31 [-0.14, 0.76]	87 %	
Stunting subgrouped by type of intervention	7	5468	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Home garden and poultry	6	4548	Mean Difference (IV, Random, 95% CI)	0.17 [-0.03, 0.32]	86 %	5.29 P = 0.02

Home garden	1	920	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.20, 0.08]	NA	
Sensitivity analyses	Studies	Participants	Statistical Method	Effect Estimate	P²	Chi²
Sensitivity analyses for stunting	9	9446	Mean Difference (IV, Fixed, 95% CI)	Subtotals only		
Fixed effects, adjusted for clustering and other factors	7	5469	Mean Difference (IV, Fixed, 95% CI)	0.00 [-0.01, 0.01]	84 %	37.26 P < 0.00001
Fixed effects, adjusted for clustering	2	706	Mean Difference (IV, Fixed, 95% CI)	0.22 [0.04, 0.40]	41 %	1.68 P = 0.19
Fixed effects, unadjusted for clustering	4	3271	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.05, 0.12]	0%	1.39 P = 0.71

Supplementary Table 5. All meta-analysis results assessing effect on wasting, including sensitivity analyses and subgrouping.

Outcome	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ²
Wasting	9	8486	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	6	4510	Mean Difference (IV, Random, 95% CI)	0.05 [-0.04, 0.14]	61%	12.67 P = 0.03
Adjusted for clustering	2	706	Mean Difference (IV, Random, 95% CI)	0.06 [-0.13, 0.25]	0%	0.06 P = 0.80
Unadjusted for clustering	4	3270	Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.09]	5%	3.15 P = 0.37
Prevalence of wasting	6	4090	Risk Ratio (M-H, Random, 95% CI)	Subtotals only		
Adjusted for clustering	1	206	Risk Ratio (M-H, Random, 95% CI)	0.91 [0.44, 1.87]		
Unadjusted for clustering	5	3884	Risk Ratio (M-H, Random, 95% CI)	0.89 [0.62, 1.28]	27%	5.5 P = 0.24
Subgroup	Studies	Participants	Statistical Method	Effect Estimate	I²	Chi² test for subgroup differences, p - value
Wasting (Type of intervention)	6	4510	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Home gardens and poultry	5	3589	Mean Difference (IV, Random, 95% CI)	0.06 [-0.05, 0.17]	63%	0.47 P = 0.49
Home garden	1	921	Mean Difference (IV, Random, 95% CI)	0.00 [-0.13, 0.13]	NA	
Wasting (duration of intervention)	6	4510	Mean Difference (IV, Random, 95% CI)	Subtotals only		
12 – 24 months	3	2052	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.10, 0.09]	0	1.53 P = 0.22
24+ months	3	2458	Mean Difference (IV, Random, 95% CI)	0.10 [-0.04, 0.25]	71%	
Wasting (continent)	6	4510	Mean Difference (IV, Random, 95% CI)	Subtotals only	NA	
Asia	1	3383	Mean Difference (IV, Random, 95% CI)	0.59 [0.15, 1.04]	48%	5.87 P = 0.021

Africa	5	1127	Mean Difference (IV, Random, 95% CI)	0.04 [-0.03, 0.11]		
Outcomes	Studies	Participants	Statistical Method	Effect Estimate	I²	Chi²
Wasting	9	8486	Mean Difference (IV, Fixed, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	6	4510	Mean Difference (IV, Fixed, 95% CI)	0.09 [0.08, 0.10]	61%	12.67 P = 0.03
Unadjusted for clustering	2	706	Mean Difference (IV, Fixed, 95% CI)	0.06 [-0.13, 0.25]	0%	0.06 P = 0.80
Unadjusted for clustering	4	3270	Mean Difference (IV, Fixed, 95% CI)	0.01 [-0.06, 0.08]	5%	3.15 P = 0.37
Prevalence of wasting	6	4090	Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only		
Adjusted for clustering	1	206	Risk Ratio (M-H, Fixed, 95% CI)	0.91 [0.44, 1.87]	NA	
Unadjusted for clustering	5	3884	Risk Ratio (M-H, Fixed, 95% CI)	0.89 [0.68, 1.16]	27%	5.5 P = 0.24

Supplementary Table 6. All meta-analysis results assessing effect on underweight, including sensitivity analyses and subgrouping.

Outcomes	Studies	Participants	Statistical Method Random effects	Effect Estimate	I ²	Chi ²
Underweight	8	7968	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	6	4510	Mean Difference (IV, Random, 95% CI)	0.07 [-0.01, 0.15]	63 %	13.61 P = 0.02
Adjusted for clustering	2	707	Mean Difference (IV, Random, 95% CI)	0.16 [-0.02, 0.34]	0%	0.93 P = 0.33
Unadjusted for clustering	3	2751	Mean Difference (IV, Random, 95% CI)	0.03 [-0.05, 0.11]	0%	0.69 P = 0.71
Prevalence of underweight	6	4095	Risk Ratio (M-H, Random, 95% CI)	Subtotals only		
Adjusted for clustering	1	207	Risk Ratio (M-H, Random, 95% CI)	0.82 [0.57, 1.19]		
Unadjusted for clustering	5	3888	Risk Ratio (M-H, Random, 95% CI)	0.95 [0.84, 1.07]	25 %	5.36 P = 0.25
Subgroup	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ² test for subgroup differences, p - value
Underweight (continent)	6	4510	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Africa	4	3383	Mean Difference (IV, Random, 95% CI)	0.05 [0.04, 0.06]	0%	0.62 P = 0.43
Asia	2	1127	Mean Difference (IV, Random, 95% CI)	0.47 [-0.58, 1.52]	91 %	
Underweight (Duration)	6	3888	Mean Difference (IV, Random, 95% CI)	Subtotals only		
12 – 24 months	3	1552	Mean Difference (IV, Random, 95% CI)	0.08 [-0.08, 0.15]	0%	0.09 P = 0.77
24+ months	3	2336	Mean Difference (IV, Random, 95% CI)	0.11 [-0.09, 0.30]	82 %	
Underweight (type of intervention)	6	3888	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Home garden and poultry	5	3344	Mean Difference (IV, Random, 95% CI)	0.09 [-0.01, 0.19]	68 %	1.76 P = 0.18

Home garden	1	544	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.15, 0.11]	NA	
Outcomes	Studies	Participants	Statistical Method	Effect Estimate	I²	Chi²
Underweight	8	7968	Mean Difference (IV, Fixed, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	6	4510	Mean Difference (IV, Fixed, 95% CI)	0.05 [0.04, 0.06]	63%	13.61
Adjusted for clustering	2	707	Mean Difference (IV, Fixed, 95% CI)	0.16 [-0.02, 0.34]	0%	0.93
Unadjusted for clustering	3	2751	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.05, 0.11]	0%	0.69
Prevalence of underweight	6	4095	Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only		
Adjusted for clustering	1	207	Risk Ratio (M-H, Fixed, 95% CI)	0.82 [0.57, 1.19]	NA	
Unadjusted for clustering	5	3888	Risk Ratio (M-H, Fixed, 95% CI)	0.95 [0.86, 1.05]	25%	5.36

Supplementary Table 7. All meta-analysis results assessing effect on serum retinol, including sensitivity analyses and subgrouping.

Outcomes	Studies	Participants	Statistical Method Random effects	Effect Estimate	I²	Chi²
Serum retinol	3	780	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	1	413	Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.05]		
Unadjusted for clustering	2	367	Mean Difference (IV, Random, 95% CI)	-0.07 [-0.37, 0.24]	92%	13.15
Outcomes	Studies	Participants	Statistical Method Fixed Effects	Effect Estimate	I²	Chi²
Serum retinol	3	780	Mean Difference (IV, Random, 95% CI)	Subtotals only		
Adjusted for clustering and other factors	1	413	Mean Difference (IV, Fixed, 95% CI)	-0.01 [-0.06, 0.05]		
Unadjusted for clustering	2	367	Mean Difference (IV, Fixed, 95% CI)	0.05 [0.00, 0.10]	92%	13.15

Supplementary Table 8. All meta-analysis results assessing effect on dietary diversity, including sensitivity analyses and subgrouping.

Outcomes	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ²
Dietary diversity	3	2643	Std. Mean Difference (IV, Random, 95% CI)	Subtotals only		
Unadjusted for clustering	3	2643	Std. Mean Difference (IV, Random, 95% CI)	0.24 [0.15, 0.34]	0%	1.06
Subgroup	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ² test for subgroup difference s, p - value
Dietary Diversity (continent)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only		
Africa	2	2169	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.14, 0.36]	0%	0.07 P = 0.80
Asia	1	474	Std. Mean Difference (IV, Random, 95% CI)	0.22 [0.04, 0.41]	NA	
Dietary diversity (duration)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only		
12 – 24 months	1	1210	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.12, 0.34]	NA	0.17 P = 0.68
24+ months	2	1433	Std. Mean Difference (IV, Random, 95% CI)	0.27 [0.11, 0.43]	0%	
Outcomes	Studies	Participants	Statistical Method	Effect Estimate	I ²	Chi ²
Dietary diversity	3	2643	Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only		
Unadjusted for clustering	3	2643	Std. Mean Difference (IV, Fixed, 95% CI)	0.24 [0.15, 0.34]	0%	1.06

Appendix 1. Embase Ovid Search Strategy

- 1 (home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory).ti,ab. (5242669)
- 2 ((home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory) adj3 (goat* or poultry or dairy or dairies or fruit* or vegetable* or cow* or cattle or chicken*)).ti,ab. (12653)
- 3 ((home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory) adj3 (garden* or farm* or grow* or agricultur* or horticultur*)).ti,ab. (35999)
- 4 ((orange* or colour* or color* or dark* or carotene* or (vitamin* adj3 A) or betacarotene* or beta-carotene* or retinol*) adj3 (vegetable* or fruit* or potato* or tuber*)).ti,ab. (3524)
- 5 (garden* adj3 (vegetabl* or fruit* or traditional*)).ti,ab. (701)
- 6 ((food-based* or commun* or women*) adj3 ((vitamin* adj3 A) or carotene* or betacarotene* or beta-carotene* or retinol* or nutritio*)).ti,ab. (4543)
- 7 ((home* or house*) adj3 (nutritio* or food* or security)).ti,ab. (10101)
- 8 young adult/ or child/ or juvenile/ or infant/ or infant/ (2076505)
- 9 'crossover procedure'.de. (58047)
- 10 'double-blind procedure'.de. (157592)
- 11 (cross adj1 over*).de,ab,ti. (30559)
- 12 'randomized controlled trial'.de. (533609)
- 13 'single-blind procedure'.de. (33779)
- 14 (random* or factorial* or crossover*).de,ti,ab. (1661926)
- 15 (doubl* adj1 blind*).de,ti,ab. (194996)
- 16 (singl* adj1 blind*).de,ti,ab. (23496)
- 17 (placebo* or assign* or allocat* or volunteer*).de,ab,ti. (1091492)
- 18 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 (2335884)
- 19 animal husbandry/ or cattle farming/ or dairying/ or pig farming/ or poultry farming/ or sheep farming/ (29279)
- 20 1 and 19 (7231)
- 21 2 or 3 or 4 or 5 or 6 or 7 or 20 (70890)
- 22 8 and 18 and 21 (1169)

Appendix 2. Medline Ovid Search Strategy

- 1 (home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory).ti,ab. (4192447)
- 2 ((home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory) adj3 (goat* or poultry or dairy or dairies or fruit* or vegetable* or cow* or cattle or chicken*)).ti,ab. (11852)
- 3 ((home* or hous* or kitchen* or commun* or women* or local* or (small adj scale*) or family or families or domestic* or traditional* or participatory) adj3 (garden* or farm* or grow* or agricultur* or horticultur*)).ti,ab. (31326)
- 4 ((orange* or colour* or color* or dark* or carotene* or (vitamin* adj3 A) or betacarotene* or beta-carotene* or retinol*) adj3 (vegetable* or fruit* or potato* or tuber*)).ti,ab. (3112)
- 5 agriculture/ or animal husbandry/ or crop production/ or dairying/ or farms/ or gardening/ or gardens/ (69631)
- 6 1 and 5 (17500)
- 7 (garden* adj3 (vegetabl* or fruit* or traditional*)).ti,ab. (554)
- 8 ((food-based* or commun* or women*) adj3 ((vitamin* adj3 A) or carotene* or betacarotene* or beta-carotene* or retinol* or nutritio*)).ti,ab. (3692)
- 9 ((home* or house*) adj3 (nutritio* or food* or security)).ti,ab. (7769)
- 10 2 or 3 or 4 or 6 or 7 or 8 or 9 (69611)
- 11 randomized controlled trial.pt. (475046)
- 12 controlled clinical trial.pt. (92873)
- 13 randomized.ab. (435896)
- 14 placebo.ab. (195891)
- 15 randomly.ab. (306347)
- 16 trial.ab. (455120)
- 17 groups.ab. (1886657)
- 18 11 or 12 or 13 or 14 or 15 or 16 or 17 (2723247)
- 19 exp animals/ not humans.sh. (4539906)
- 20 18 not 19 (2306576)
- 21 adolescent/ or young adult/ or child/ or child, preschool/ or infant/ (3384237)
- 22 10 and 20 and 21 (2285)

Appendix 3. Search strategy for Scopus

- 1 (home* or hous* or kitchen* or commun* or women* or local* or (small W scale*) or family or families or domestic* or traditional* or participatory) (11524044)
- 2 ((home* or hous* or kitchen* or commun* or women* or local* or (small W scale*) or family or families or domestic* or traditional* or participatory) W/3 (goat* or poultry or dairy or dairies or fruit* or vegetable* or cow* or cattle or chicken*)) (30567)
- 3 ((orange* or colour* or color* or dark* or carotene* or (vitamin A) or betacarotene* or beta-carotene* or retinol*) W/3 (vegetable* or fruit* or potato* or tuber*)) (21490)
- 4 agriculture or animal husbandry or crop production or dairying or farms or gardening or gardens (49752)
- 5 1 and 4 (16991)
- 6 #2 OR #3 OR #5 (67700)
- 7 (randomized AND controlled AND trial.pt.)) OR (TITLE-ABS-KEY (controlled AND clinical AND trial.pt.)) OR (TITLE-ABS-KEY (randomized* OR placebo* OR trial* OR group*)) (9278588)
- 8 adolescent or young adult or child, preschool or infant (2655954)
- 9 6 and 7 and 8 (1018)

Appendix 4. Search strategy for Cochrane Central Register of Controlled Trials

- #1 (home* or hous* or kitchen* or commun* or women* or local* or (small NEAR scale*) or family or families or domestic* or traditional* or participatory) (309242)
- #2 ((home* or hous* or kitchen* or commun* or women* or local* or (small NEAR scale*) or family or families or domestic* or traditional* or participatory) NEAR (goat* or poultry or dairy or dairies or fruit* or vegetable* or cow* or cattle or chicken*)) (808)
- #3 ((home* or hous* or kitchen* or commun* or women* or local* or (small NEAR scale*) or family or families or domestic* or traditional* or participatory) NEAR (garden* or farm* or grow* or agricultur* or horticultur*)) (2070)
- #4 ((orange* or colour* or color* or dark* or carotene* or (vitamin* NEAR A) or betacarotene* or beta-carotene* or retinol*) NEAR (vegetable* or fruit* or potato* or tuber*)) (429)
- #5 agriculture or animal husbandry or crop production or dairying or farms or gardening or gardens (1489)
- #6 #1 AND #5 (754)
- #7 (garden* NEAR (vegetabl* or fruit* or traditional*)) (44)
- #8 ((food-based* or commun* or women*) NEAR ((vitamin* NEAR A) or carotene* or betacarotene* or beta-carotene* or retinol* or nutritio*)) (1698)
- #9 ((home* or house*) NEAR (nutritio* or food* or security)) (1453)
- #10 #2 OR #3 OR #4 OR #6 OR #7 OR #8 OR #9 (6371)
- #11 adolescent or young adult or child or preschool or infant (259111)
- #12 #10 AND #11 (2283)

Appendix 5. Search strategy for International Clinical Trial Registry Platform (ICTRP)

1. carotene* or (vitamin A) or betacarotene* or beta-carotene* or retinol* (19 records for 16 trials found)
2. (home* or hous* or kitchen* or commun* or women* or local* or family or families or domestic* or traditional* or participatory) AND (garden* or agriculture or horticulture or farm* or goat* or poultry or dairy or dairies or fruit* or vegetable* or cow* or cattle* or chicken* or animal husbandry or crop production) (42 records for 28 trials found)

Appendix 6. Characteristics and risk of bias assessment of included studies

Faber 2002

Methods	Controlled clinical trial
Participants	Women
Interventions	Intervention arm: Training in home gardening and nutrition education Control arm: No intervention was received location: South Africa Period of study: 2 years
Outcomes	Serum retinol level in children in micromole/liter

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	a nearby village was chosen as the control. randomization was not done
Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was given
Blinding of outcome assessment (detection bias)	Unclear risk	no clear information was given
Incomplete outcome data (attrition bias)	Unclear risk	no clear information was given
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	High risk	Orange-fleshed sweet potato and butter-nut squash was not in season when follow-up was done. this may have affected the response

Gelli 2018

Methods	Cluster randomized controlled trial
Participants	Women aged above 14 years
Interventions	Intervention arm: Training in agricultural practices and distribution of chicks and seedling. Loans granted to households, cooking sessions, nutrition education. Control group was exposed to child nutrition education Location: Malawi Period of study: 1 year
Outcomes	Stunting, wasting and underweight measured in children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	first and second level randomization was done
Allocation concealment (selection bias)	High risk	enumerators were not blinded to the allocation
Blinding of participants and personnel (performance bias)	Unclear risk	no information was provided
Blinding of outcome assessment (detection bias)	Unclear risk	no information was provided
Incomplete outcome data (attrition bias)	Low risk	information on the number of incomplete data and reason was given. 7% attrition
Selective reporting (reporting bias)	Low risk	some outcomes were published in another journal
Other bias	Low risk	no others source of bias was noted

Hotz 2012

Methods	Cluster randomized trial
Participants	Women with mean age of 28.9 years
Interventions	Distribution of orange sweet potato vines and nutrition education, demand creation for selling surplus orange fleshed sweet potato.

	Control was exposed to no intervention Period of study: 3 years Location: Mozambique
Outcomes	Retinol activity equivalent in children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	clusters were selected
Allocation concealment (selection bias)	Unclear risk	no clear information was provided
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was provided
Blinding of outcome assessment (detection bias)	Unclear risk	no clear information was provided
Incomplete outcome data (attrition bias)	Low risk	the rate of attrition was given, 9 - 11%
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	Low risk	no other source of bias was noted

Hotz 2012a

Methods	Cluster randomized controlled trial
Participants	Women with mean age of 34 years
Interventions	Distribution of orange sweet potato vines and nutrition education, demand creation for selling surplus orange fleshed sweet potato. Control group had no intervention Location: Uganda Period of study: 2 years
Outcomes	Serum retinol in children measured in micromole/liter.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	no clear information was given
Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was given
Blinding of outcome assessment (detection bias)	Low risk	a separate research design team evaluated outcomes
Incomplete outcome data (attrition bias)	High risk	information was not provided
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	High risk	Judgement Comment: It is unclear whether the control group was exposed to the area-wide interventions (community radio etc.) or not. The prevalence of VAD was very low in the women at baseline, compared to previous known local/national averages. The authors mention that a secular trend for improving vitamin A status may have had an impact on their findings, such as through food fortification and vitamin A supplementation

Khamhoung 2000

Methods	Controlled clinical trial
Participants	Women aged 15 - 45 years
Interventions	Training on setting up home gardens and animal rearing. Control group received no intervention Location: LAOs Period of study: 2 years

Outcomes	stunting, wasting and underweight in children
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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	no clear information was given
Allocation concealment (selection bias)	High risk	no allocation concealment was done
Blinding of participants and personnel (performance bias)	High risk	this was not considered in the study
Blinding of outcome assessment (detection bias)	High risk	this was not considered in the study
Incomplete outcome data (attrition bias)	Low risk	information was provided
Selective reporting (reporting bias)	Unclear risk	insufficient information
Other bias	High risk	Judgement Comment: large differences in baseline data

Kidala 2000

Methods	Controlled clinical trial
Participants	Women
Interventions	Training and distribution of seedlings, nutrition education, cooking sessions. Control arm received no intervention Location: Tanzania Period of study: 2 years
Outcomes	Serum retinol in children measured in micromole per liter

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	one district was the intervention, another was the control - unclear how this was chosen, but the intervention had occurred in one place, it is unclear whether the control group was considered at that time.

Allocation concealment (selection bias)	High risk	Information on how allocation concealment was done was not provided
Blinding of participants and personnel (performance bias)	High risk	Not stated in the study
Blinding of outcome assessment (detection bias)	High risk	This was not stated to have been carried out
Incomplete outcome data (attrition bias)	High risk	Data only available for half of the children included in the survey
Selective reporting (reporting bias)	Unclear risk	No trials register found, intentions unclear, baseline data lost.
Other bias	High risk	No information on baseline similarity of groups - high risk of bias

Kuchenbecker 2017

Methods	Cluster randomized controlled trial
Participants	Women with a mean age of 27.2 years
Interventions	Distribution of farming items, livestock and training in farming. Nutrition education. Control arm received only agricultural practices with no nutrition education. Location: Malawi Period of study: 3 years
Outcomes	Stunting, wasting and underweight in children. Vitamin A-rich food intake

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A two-stage probability sampling strategy was applied. At the first sampling stage, villages were sampled proportional to population size using the software ENA for Smart. At the second sampling stage, 15 households with children under two years of age were randomly selected from each village using the software R.

Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	Information not provided
Blinding of outcome assessment (detection bias)	Unclear risk	information not provided
Incomplete outcome data (attrition bias)	Low risk	data at both baseline and end line almost similar
Selective reporting (reporting bias)	Unclear risk	information on protocol is unclear
Other bias	Low risk	None

Lakzadeh 2010

Methods	Cluster randomized trial
Participants	Women
Interventions	<p>Training and distribution of seedlings for home gardening. Creation of fish ponds. 3 arms – HFP plus fish pond, HFP</p> <p>Control arm had no intervention</p> <p>Location: Cambodia</p> <p>Period of study: 22 months</p>
Outcomes	income, cost of intervention, vitamin A retinol activity equivalent

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	a two-stage randomized cluster sampling method
Allocation concealment (selection bias)	Unclear risk	no information given
Blinding of participants and personnel (performance bias)	Unclear risk	no information given

Blinding of outcome assessment (detection bias)	Unclear risk	no information given
Incomplete outcome data (attrition bias)	Low risk	attrition rate was provided
Selective reporting (reporting bias)	Low risk	protocol was checked
Other bias	Low risk	no other source of bias noted

Low 2007

Methods	Controlled clinical trial
Participants	Women
Interventions	Training and distribution of orange sweet potato vines, demand creation, nutrition education. Control group was not exposed to the interventions Location: Mozambique Period of study: 2 years
Outcomes	Dietary diversity, vitamin A retinal activity equivalent, income

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	no clear information was given
Allocation concealment (selection bias)	Unclear risk	No information given
Blinding of participants and personnel (performance bias)	Unclear risk	No information was given
Blinding of outcome assessment (detection bias)	Unclear risk	No information given
Incomplete outcome data (attrition bias)	Low risk	information on attrition was given and it was almost the same in both arms
Selective reporting (reporting bias)	Unclear risk	No trial registry number or protocol given to compare
Other bias	Low risk	no other source of bias noted

Marquis 2017

Methods	Cluster randomized trial
Participants	Women
Interventions	<p>Training, distribution of seedlings, chicks and orange sweet potato vines, cooking sessions, nutrition education.</p> <p>Control group received no intervention</p> <p>Location: Ghana</p> <p>Period of study: 1 year</p>
Outcomes	stunting, wasting and underweight in children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	The 16 clusters were randomly assigned to treatment group(sequential, using random numbers
Allocation concealment (selection bias)	Unclear risk	information was not provided
Blinding of participants and personnel (performance bias)	Low risk	The clusters were geographically distant enough from each other to avoid direct contamination—that is, no control community participants received inputs or took part in educational activities planned for intervention participants
Blinding of outcome assessment (detection bias)	Low risk	it was not possible to mask the treatment assignment; therefore, the project maintained separate field staff for the implementation of the intervention and survey data collection.
Incomplete outcome data (attrition bias)	Low risk	rate of study attrition was 14.4%
Selective reporting (reporting bias)	Low risk	protocol was assessed
Other bias	Low risk	no other source of bias noted

Olney 2009

Methods	Randomized controlled trial
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Participants	Women
Interventions	Training and distribution of seedlings and chicks, nutrition education. Control arm received no intervention Location: Cambodia Period of study: 19 months
Outcomes	Stunting, wasting, underweight and dietary diversity in children, income

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	a selection was done rather than randomization
Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was given
Blinding of outcome assessment (detection bias)	Unclear risk	no clear information was given
Incomplete outcome data (attrition bias)	Unclear risk	no clear information was given
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	High risk	difference in characteristics between the two arms

Olney 2015

Methods	Cluster randomized controlled trial
Participants	Women
Interventions	Training in home garden, distributions of seedlings and chicks, nutrition education. Control arm received no intervention. Nutrition education was carried out by two groups of women – health committee and older women group Location: Burkina Faso Period of study: 2 years
Outcomes	Stunting, wasting and underweight in children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	No information on randomization of clusters
Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was given
Blinding of outcome assessment (detection bias)	High risk	data was collected at home
Incomplete outcome data (attrition bias)	Low risk	attrition rate was given
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	Low risk	no other source of bias was noted

Osei 2015

Methods	Cluster randomized trial
Participants	Women
Interventions	<p>Training in home gardening, and poultry. Nutrition education. Three arms were used- HFP, HFP plus micronutrient powder and control arm</p> <p>Control group received no intervention.</p> <p>Location: Nepal</p> <p>Period of study: 4 years</p>
Outcomes	Stunting, wasting and underweight in children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A multistage cluster sampling procedure. A simple random sampling procedure was then used to select four pairs of Ilakas. The same procedure was used to assign one of the selected Ilakas in each pair to EHFP or control

Allocation concealment (selection bias)	Unclear risk	insufficient information
Blinding of participants and personnel (performance bias)	Low risk	Investigators and field workers were not blinded. However, the assignment of clusters rather than individuals to the study groups prevented participants in one group from knowing the treatment received by those in the other groups.
Blinding of outcome assessment (detection bias)	Unclear risk	no clear information was given
Incomplete outcome data (attrition bias)	Low risk	The baseline characteristics of those who dropped out of the study were not different from those who completed the study
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	Low risk	no other source of bias was noted

Raneri 2017

Methods	Custer randomized controlled trials
Participants	Women
Interventions	Training in home garden, nutrition education and cooking demonstrations. Control group had no intervention. Location: Vietnam Period of study: one year
Outcomes	intake of vitamin A-rich foods

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	no clear information was given
Allocation concealment (selection bias)	Unclear risk	no clear information was given
Blinding of participants and personnel (performance bias)	Unclear risk	no clear information was given

Blinding of outcome assessment (detection bias)	Unclear risk	no clear information was given
Incomplete outcome data (attrition bias)	Unclear risk	no clear information was given
Selective reporting (reporting bias)	Unclear risk	no clear information was given
Other bias	Unclear risk	Insufficient information

Reinbott 2018

Methods	Cluster randomized trial
Participants	Women
Interventions	Training in home gardening, nutrition education and giving out of vouchers. Control arm received agricultural practices with no nutrition education Location: Cambodia Period of study: 2 years
Outcomes	Stunting, wasting, underweight and dietary diversity in Children

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	The sampling was conducted using a two-stage probability sampling strategy. Initially, three villages per commune were sampled proportional to population size. Intervention and comparison areas were identified using the software package 'Experiment' and the operation 'randomize'. The 'Experiment' package is a software extension to the statistical software R©
Allocation concealment (selection bias)	Unclear risk	no clear information was provided
Blinding of participants and personnel (performance bias)	Low risk	Difficult due to nature of study. However, did attempt to conceal from field researchers as participants invited to a central meeting point for participating in the survey
Blinding of outcome	Low risk	At impact, enumerators were blind to group assignment.

assessment (detection bias)		
Incomplete outcome data (attrition bias)	Low risk	Attrition rate less than 20%
Selective reporting (reporting bias)	Unclear risk	no clear information was provided
Other bias	Low risk	no other source of bias was noted

Schreinemachers 2016

Methods	Controlled clinical trial
Participants	Women
Interventions	Training in home gardening, distribution of seedlings and orange sweet potato vines. Control arm received no intervention Location: Bangladesh Period of study: 3 years
Outcomes	Income

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	'Randomly selected' – no further information given
Allocation concealment (selection bias)	Unclear risk	Insufficient information
Blinding of participants and personnel (performance bias)	Unclear risk	no information given.
Blinding of outcome assessment (detection bias)	Unclear risk	insufficient information

Incomplete outcome data (attrition bias)	Low risk	the 5 per cent sample attrition was explained by women being absent from their home during the visit
Selective reporting (reporting bias)	Unclear risk	no information given
Other bias	Low risk	There is potential bias from spillover effects of the intervention on the control group because the trained women had been encouraged to share their new knowledge with their neighbors. If such spill over did occur, then the evaluation is likely to underestimate the true impact of the intervention. Although the intervention and control groups were in different villages and there is only a 12-month period between baseline and follow up, spill over could affect the findings here. The authors have discussed this however there is no way to quantify the impact of any spillover effect with the design used.