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Impact evaluation of an integrated poultry value chain and nutrition intervention (SE LEVER) in Burkina Faso

Submission date
24/11/2016

Recruitment status
No longer recruiting

Registration date
02/12/2016

Overall study status
Completed

Last Edited
16/09/2026

Condition category
Nutritional, Metabolic, Endocrine

[X] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Burkina Faso is one of the least developed countries in the world, showing high rates of child stunting (35%), wasting (16%) and anaemia (88%). Almost half of women are anaemic, and 16% of women are underweight (BMI<18.5kg/m2). Infant and young child feeding (IYCF) practices are particularly poor. Exclusive breastfeeding up to 6 months occurs in less than 13% of infants, and only 3% of children are introduced to solid or semi-solid foods in the 6-8 month window. Particularly pertinent for our study is the low rate of dietary diversification for young children (6-24 months). In the 2010 DHS, 14% of children under two years had consumed poultry flesh and egg consumption was limited to 3% of children in the same age group, whilst 80% of households owned poultry. These findings suggest that there is significant scope to further expand poultry-based income generation for rural households, and chicken and egg consumption for young children and their mothers. The aim of this study is to evaluate the impact of an integrated agriculture-nutrition package of interventions (including poultry value chain development, women's empowerment activities, and a behaviour change communications (BCC) strategy to promote improved diets and feeding, care and hygiene practices) called SE LEVER on the diets, health and nutritional status of women and children in Burkina Faso.

Who can participate?
Women aged 15-35 years who are pregnant or with at least one child aged 2-4 years living in the same household in the targeted villages and children aged 0-5 whose mothers are included in the study.

What does the study involve?
Communities are randomly allocated to one of three groups. Those in the first group receive the five-year long SE LEVER package, This involves receiving training on poultry production and marketing practises, access to behaviour change communication to improve nutrition practices, and training and sensitisation to improve women empowerment and decision-making on nutrition. Those in the second group receive the SE LEVER+ package. This involves receiving the SE LEVER package with a more intensive hygiene component. Those in the third group continue as normal for the duration of the study. At the start of the study and then after 6, 30, 36 and 48

months, participants in all groups undergo a range of assessments to evaluate their diets, health and nutritional status. In addition, household poultry production and costs are measured at the same times.

What are the possible benefits and risks of participating?
Participants who take part in the program benefit from improved knowledge and practices with regards to poultry production, as well as on optimal nutrition and feeding practices. There are no known risks related to the evaluation methods (questionnaires, anthropometry). Good clinical practices are respected when taking blood samples. All participants benefit from medical care in case a medical emergency is encountered during the evaluation visits. The program covers any medical costs related to any medical emergencies (consultation, prescriptions, hospitalization if decided by competent medical staff following the national protocol) until discharge. Long-term diseases are not covered by this engagement. The management of acute (sudden) malnutrition is available in every health centre free of charge.

Where is the study run from?
The study is run from Agribusiness Systems International and takes place in 120 rural villages within 60 communes in the Boucle de Mouhoun, Centre-Ouest and Haut-Bassins regions of Burkina Faso.

When is the study starting and how long is it expected to run for?
September 2016 to December 2022

Who is funding the study?
Bill and Melinda Gates Foundation (USA)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
OPP1149709

Study information

Scientific Title
Improving diets and nutrition of women and children through an integrated poultry value chain and nutrition intervention (SE LEVER) in Burkina Faso: a cluster randomised trial

Study objectives
The SE LEVER package of interventions is expected to have a positive effect on:
1. Diets of women and children under five years by increasing the knowledge on nutritious foods, influencing food purchase and production decisions, benefitting both poultry producers and other households receiving the BCC in the intervention villages
2. Infant and young children's nutrition and child caring practices by increasing the knowledge on such practices, benefitting poultry producer and other households receiving the BCC in the intervention villages
3. Poultry production practices, inputs, outputs and revenue of poultry producers in the intervention villages. Other households may benefit directly, or indirectly via increases in economic opportunities in the intervention villages
4. Sales and revenues of VVVs providing vaccination and other VC services in the intervention villages
5. Women's empowerment by increasing women's participation in VC activities in the intervention villages
6. [for SE LEVER+] Household hygiene and health environment leading to improvements in child infection and morbidity rates

Ethics approval required
Old ethics approval format

Ethics approval(s)
Not provided at time of registration

Primary study design
Interventional

Study design
Cluster randomized trial

Study type(s)
Quality of life

Health condition(s) or problem(s) studied
Undernutrition, micronutrient deficiencies, low-quality diets

Interventions

Communities will be randomly assigned to one of three treatment arms using a two stage restricted randomisation process, optimising the balance between treatment groups using a set of village and commune variables obtained from the national census.

SE LEVER intervention group: Participants receive the five year Soutenir l'Exploitation Familiale pour Lancer l'Élevage des Volailles et Valoriser l'Économie Rurale (SE LEVER) intervention. This involves training on poultry production and marketing practises, access to behaviour change communication to improve nutrition practices, and training and sensitisation to improve women empowerment and decision-making on nutrition.

SE LEVER+ group: In addition to the SE LEVER package, a more intensive hygiene component (SE LEVER+) is being designed to improve health and hygiene in the context of poultry flock management that will be implemented as part of a sub-study on WASH. The WASH component will include BCC based on community led total sanitation and baby-WASH concepts, with specific messaging tailored to also address hygiene related constraints involved in poultry rearing.

Control group: Participants receive no intervention for the duration of the study.

Follow up for participants in all treatment groups takes place at involves a cascade-model where local NGOs field staff training producers group volunteers, volunteer poultry vaccinators and women's association volunteers who will then train their group members once a month or deliver key messages to households for the 3 years of implementation. Training sessions with men and local leaders as well as a communications campaigns with radio spots and theatre troupes are also being developed.

Intervention Type
Behavioural

Primary outcome(s)
1. Mean probability of adequacy (MPA) of diets for women and children (2-4 years at baseline) measured through dietary assessment using the interactive 24-h recall multiple-pass method at baseline, and after 6, 30, 36, and 48 months
2. Infant and young child feeding practices for children aged 0-2 years measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
3. Household poultry production (output and sales) measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months

Key secondary outcome(s)
Women's empowerment and wellbeing
1. Women's empowerment is measured over the five domains of the Women's Empowerment in Agriculture Index (WEAI) using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
2. Maternal stress and well-being measured subjectively using validated scales such as Perceived Stress Scale (PSS) using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months

Poultry value chain system
3. Knowledge of improved poultry production practices is measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
4. Access to credit and poultry markets is measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
5. Poultry mortality is measured using interviews with caregiver at baseline, and after 6, 30, 36,

and 48 months
6. Input use (vaccinations) is measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
7. Investment in stocks, housing and marketing is measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months

Health status, hygiene and exposure to faecal contamination
8. Infection biomarkers in children, including serum c-reactive protein (CRP), α-1-acid glycoprotein (AGP) are measured at baseline, 36, and 48 months
9. Morbidity, diarrhoea, fever and chest infections in children measured through 2-week recall of morbidity symptoms at baseline, 36, and 48 months
10. Exposure to poultry faeces and cleanliness of mother and child, kitchen, house and compound, measured by spot-check observations at baseline, 36, and 48 months
11. Hygiene knowledge using a questionnaire previously tested in Burkina Faso and practices measured by 24-hour recall methods at baseline, 36, and 48 months

Nutrition knowledge, feeding and food consumption practices
12. Women's knowledge, attitudes and practices regarding IYCF and sanitation and hygiene, using a dietary assessment questionnaire and 24-hour recall methods using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
13. Women's dietary diversity is measured by 24-hour recall using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months
14. Energy and protein intake in women and children aged (2-5) is measured by 24-hour dietary recall using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months

Nutrition status
15. Children's iron status and anaemia prevalence is assessed by measuring haemoglobin (Hb), plasma ferritin (PF) and soluble transferrin receptor (TfR) in blood samples taken at baseline, 36, and 48 months
16. Women's iron status and anaemia prevalence is assessed by measuring haemoglobin (Hb), plasma ferritin (PF) and soluble transferrin receptor (TfR) in blood samples taken at baseline, 36, and 48 months
17. Biomarkers for vitamin A and zinc status (including serum retinol concentration, retinol binding protein (RBP) and serum zinc concentration) are assessed by measuring levels of plasma zinc (pZn) in blood samples at baseline, 36, and 48 months
18. Anthropometry (mean BMI for women, mean HAZ, HAD, WHZ, WAZ, stunting, wasting, underweight and mid-upper arm circumference for children) is measured using WHO recommended practices at baseline, and after 6, 30, 36, and 48 months

Household welfare
19. Consumption/expenditure and income (gender-disaggregated; total income and income from sale of agricultural production) is measured using interviews with caregiver at baseline, and after 6, 30, 36, and 48 months

Male perspectives and support for nutrition and women's empowerment
20. Men's knowledge and attitudes regarding the nutrition of women and children around the first 1000 days, women's time and status and their productive and reproductive roles, fathers' role in ensuring adequate health and nutrition of their family, domestic violence, using interviews with male caregivers at baseline, and after 6, 30, 36, and 48 months

Completion date
31/12/2022

Eligibility

Key inclusion criteria
1. Women aged 15-35 years who are pregnant or with at least one child aged 2-4 years living in the same household in the targeted villages
2. Children aged 0-5 years at baseline whose mothers are included in the study

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Mixed

Sex
All

Total final enrolment
0

Key exclusion criteria
Household head, child, parent or guardian unwilling to participate in the study

Date of first enrolment
01/03/2017

Date of final enrolment
01/05/2021

Locations

Countries of recruitment
Burkina Faso

United States of America

Study participating centre
Agribusiness Systems International
50 F Street
NW Suite 1000
Washington, D.C.
United States of America
20001

Sponsor information

Organisation
IFPRI

ROR
https://ror.org/03pxz9p87

Funder(s)

Funder type
Charity

Funder Name
Bill and Melinda Gates Foundation

Alternative Name(s)
Bill & Melinda Gates Foundation, Gates Foundation, Gates Learning Foundation, William H. Gates Foundation, BMGF, B&MGF, GF

Funding Body Type
Government organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	Effects on women's and children's diet adequacy	16/02/2022	17/02/2022	Yes	No
			10/01		

Results article		26/03/2019	/2024	Yes	No
Results article	Dietary diversity	03/05/2025	07/05 /2025	Yes	No
Results article	Enteropathogen carriage in Burkinabe children	15/09/2026	16/09 /2026	Yes	No
Protocol article		06/09/2017		Yes	No