

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

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<b>Registration date</b> 02/12/2016	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 07/05/2025	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> 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/m<sup>2</sup>). 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?

Dr Aulo Gelli

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## Contact information

**Type(s)**

Scientific

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# Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

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

### Study design

Cluster randomized trial

### Primary study design

Interventional

### Secondary study design

Cluster randomised trial

**Study setting(s)**

Community

**Study type(s)**

Quality of life

**Participant information sheet**

Not available in web format, please use the contact details to request a patient information sheet

**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 measure**

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

## Secondary outcome measures

### 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),  $\alpha$ -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

**Overall study start date**

01/09/2016

**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

**Age group**

Mixed

**Sex**

Both

**Target number of participants**

Women and children from 1800 households in the 120 villages within 60 communes involved in the study

**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**  
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NW Suite 1000  
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## Sponsor information

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**Sponsor type**  
Research organisation

**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, 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**

**Publication and dissemination plan**

- 1. Planned publication of results in peer reviewed journals in the fields of nutrition, agriculture and economics
- 2. Planned presentation of preliminary research findings at international conferences and internal IFPRI seminars
- 3. Dissemination with government and civil society organizations in Burkina Faso. The strategy will focus on regular workshops in Ouagadougou to personally engage with local institutions, as well as research briefs for local dissemination
- 3. Reaching the international policy community through a range of media (e.g., policy briefs, blogs, video interviews), close engagement with the CGIAR Agriculture for Nutrition and Health (A4NH) program’s communication team, and presentations of our findings in major IFPRI reports

**Intention to publish date**

31/12/2023

**Individual participant data (IPD) sharing plan**

The current data sharing plans for the current study are unknown and will be made available at a later date.

**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?
<a href="#">Protocol article</a>	protocol	06/09/2017		Yes	No
<a href="#">Results article</a>	Effects on women's and children's diet adequacy	16/02/2022	17/02/2022	Yes	No
<a href="#">Results article</a>		26/03/2019	10/01/2024	Yes	No
<a href="#">Results article</a>	Dietary diversity	03/05/2025	07/05/2025	Yes	No