# The key to success in livestock interventions in developing countries? A systematic assessment of scientific evaluations for improved animal health and production.

Livestock keeping is very important in low-income countries, not only for the nutritious food produced, but also for the creation of livelihoods and incomes along the value chains. In addition, livestock is an important mean to get out of extreme poverty; it provides means of investments and empowers women. However, livestock often produce sub-optimally due to lack of proper feed, diseases and other managerial factors. This hampers the development, in addition to bringing the negative sides of livestock keeping, such as greenhouse gas emissions and zoonotic diseases, unnecessarily high in comparison to the outputs in animal products. Thus, many developmental projects are aimed towards increasing animal productivity and gains in the livestock value chains, and similarly much research for development are also focused on this. But how often are these interventions scientifically evaluated? Are the usual grant periods too short to allow scientific testing of the long term sustainability and impact? This project will aim to study published research papers to find to what extent interventions are evaluated and to determine which factors are key to success.

**Review Process Draft Protocol:**

Search of Online Databases

* Choosing keywords for search strings
* Search using two databases: CAB Direct & PubMed
* Include also reviews of interventions

Inclusion Criteria

* English language studies
* Studies published up to May 2017
* Studies that include the evaluation of a farm-level intervention in animal production and health
* Be academic and published in a peer-reviewed journal

Exclusion Criteria

* If not complying with the inclusion criteria above

Criteria for poor quality, adopted from Alonso et al (2016)

|  |
| --- |
| Not acknowledged biased selection of subjectsNo control of the intervention |
| Data analysis is not appropriate |
| Wrong or inappropriate methods are used  |
| Methods are not clear or incomplete |
| Reported results are incomplete and/or inaccurate |

Steps to Review:

1. Use search strings for searches in CAB Direct, and PubMed
2. Import references into reference manager
3. Delete duplicates.
4. Screen articles based on title and abstracts according to inclusion/exclusion criteria
5. Remove excluded articles
6. Retrieve full papers of “included articles” – if available online or author can be contacted.
7. Articles are then assessed based on the full text by researchers according to (i) inclusion/exclusion and (ii) quality criteria
8. Data extraction using template

Articles Retrieved from CAB Direct

Articles Retrieved from PubMed

Articles Retrieved from Web of Science and Cochrane

Total Articles Retrieved from Primary Search

Articles Screened Using Titles and Abstracts

Deleted duplicates

Removed non-academic sources

# of Articles Assessed Based on Full Text by Researchers

Articles removed based on inclusion/ exclusion criteria

Articles removed based on inclusion/ exclusion/ quality criteria

# of Articles Assessed Based on Full Text by Researchers

# of Articles used for review

**Flow Chart Illustrating Literature Retrieval**

Figure adapted from “Zoonosis emergence linked to agricultural intensification and environmental change” by Jones, B.A. et al., 2012, PNAS, 110(21), 8399-8404.

**Keywords**

|  |  |  |  |
| --- | --- | --- | --- |
| Geographical restriction | Evaluation  | Intervention restriction | Outcomes and impacts |
| Africa Asia South America Latin America“Country list” (a list of country names from the relevant regions) | Experiment Intervention Impact Evaluation Impact AssessmentTrial | Livestock CattleSheepGoatSwinePigFishSmall ruminantsMeatMilkEggdairyAnimal source foodAnimal productFoods of animal origin | YieldFood securityFood safetyNutritionIncomeProduc\*Meat produc\*Milk produc\*Dairy prod\*Livelihood |

*String searches*

|  |  |
| --- | --- |
| Database | Syntax |
| Pubmed: | ("trial" OR experiment OR intervention OR "impact assessment" OR "impact evaluation") AND (Livestock OR Pig OR swine OR cattle OR goat OR sheep)) OR ("trial" OR experiment OR "impact assessment" OR intervention OR "impact evaluation") AND ("meat produc\*" OR "milk produc\*" OR egg OR "dairy produc\*" OR "animal source food" OR "animal derived food" OR "livestock derived food" OR "animal products" OR "foods of animal origin")) AND ("food security" OR "food safety" OR yield OR income OR livelihood OR nutrition OR produc\*)) AND ("Developing Countr\*" OR "developing nation\*" OR "developing world" OR "less developed countr\*" OR "under developed countr\*" OR "under developed nation\*" OR "under developed world" OR "low\* income countr\*" OR Africa OR Africa, Northern OR "Africa South of the Sahara" OR Africa, Central OR Africa, Eastern OR Africa, Southern OR Africa, Western OR America, South OR Caribbean OR "West Indies" OR "Latin America" OR Asia OR Asia, South OR Asia, Southern OR Asia, Southeastern OR Afghanistan OR Algeria OR Angola OR Armenia OR Bangladesh OR Benin OR Bhutan OR Botswana OR "Brunei Darussalam" OR "Burkina Faso" OR Burundi OR Cambodia OR Cameroon OR "Cape Verde" OR "Central African Republic" OR Chad OR Comoros OR Congo OR "Cote d'Ivoire" OR Djibouti OR "Democratic Republic of the Congo" OR "East Timor" OR Egypt OR Eritrea OR Ethiopia OR Gabon OR Gambia OR Ghana OR Guinea OR Guinea-Bissau OR India OR Indonesia OR Iran OR "Ivory Coast" OR Kenya OR Laos OR Lesotho OR Liberia OR Libya OR Madagascar OR Malawi OR Malaysia OR Maldives OR Mali OR Mauritania OR Mauritius OR Morocco OR Mozambique OR Myanmar OR Namibia OR Nepal OR Niger OR Nigeria OR Pakistan OR Papua New Guinea OR Philippines OR Rwanda OR Senegal OR Seychelles OR "Sierra Leone" OR Singapore OR "Sri Lanka" OR Somalia OR "South Africa" OR Sudan OR Swaziland OR Tanzania OR Thailand OR Togo OR Tunisia OR Uganda OR Vietnam OR Zambia OR Zimbabwe OR Brazil OR Mexico OR Argentina OR Colombia OR Venezuela OR Chile OR Peru OR Ecuador OR "Dominican Republic" OR Guatemala OR Panama OR "Costa Rica" OR Bolivia OR Uruguay OR Paraguay OR "El Salvador" OR "Trinidad and Tobago" OR Honduras OR Nicaragua OR Jamaica OR Haiti OR Suriname OR Bahamas OR Guyana OR Barbados OR Belize OR "Antigua and Barbuda" OR "Saint Lucia" OR Grenada OR "Saint Kitts and Nevis" OR "Saint Vincent and the Grenadines" OR Dominica[Title/Abstract]) |
| Cabdirect | (title: ("trial" OR experiment OR intervention OR "impact assessment" OR "impact evaluation") AND (Livestock OR Pig OR swine OR cattle OR goat OR sheep OR "meat produc\*" OR "milk produc\*" OR egg OR "dairy produc\*" OR "animal source food" OR "animal derived food" OR "livestock derived food" OR "animal products" OR "foods of animal origin") OR ab: ("trial" OR experiment OR intervention OR "impact assessment" OR "impact evaluation") AND (Livestock OR Pig OR swine OR cattle OR goat OR sheep OR "meat produc\*" OR "milk produc\*" OR egg OR "dairy produc\*" OR "animal source food" OR "animal derived food" OR "livestock derived food" OR "animal products" OR "foods of animal origin")) AND (title: ("food security" OR "food safety" OR yield OR income OR livelihood OR nutrition OR produc\*) OR ab: ("food security" OR "food safety" OR yield OR income OR livelihood OR nutrition OR produc\*)) AND (title: ("Developing Countr\*" OR Africa OR Asia OR "South\* Asia" OR Caribbean OR "West Indies" OR "Latin America" OR Sahara) OR ab: ("Developing Countr\*" OR Africa OR Asia OR "South\* Asia" OR Caribbean OR "West Indies" OR "Latin America" OR Sahara)) |