

# More chicken and pork in the pot, and money in pocket: Improving forages for monogastric animals with low-income farmers

Centro Internacional de Agricultura Tropical (CIAT)

<b>Country/Region:</b>	Colombia, DR Congo, Nicaragua
<b>German participation</b>	University of Hohenheim and University of Rostock
<b>Leading scientists:</b>	Michael Peters
<b>Duration:</b>	March 2009 - February 2012



## Initial situation

Our project addresses a scarcity of high-quality feed that restricts animal production and market competitiveness. Smallholder farmers keeping monogastric animals (e.g., swine, poultry) typically use feed of low nutritional value, in combination with concentrate feed



which is costly and often competes directly with food for humans.

Women have an important role in monogastric production. They often participate in both producing feed and tending animals. By producing high-

value feed on-farm, animal production and product quality increase improving household nutrition and income.

Sales opportunities for animal products are encouraging, with markets for pork and poultry growing even more rapidly than overall livestock products. Yet, despite these market opportunities, new agricultural technologies may not always generate equitable benefits, and may exclude lower-income households. Recent field analyses of forage and monogastric production reveal that informal production and sales can be enhanced.

## Approach of the project

The project addresses both family nutrition and income generation in the rural areas of Colombia, DR Congo and Nicaragua, with wider implications for smallholder monogastric production throughout the tropics. To achieve food and nutritional security and poverty alleviation, the project comprises three areas of research:

(1) identifying suitable high-quality forages; (2) improving partnership effectiveness to adapt and innovate forage-feed resources for equitable integration within smallholder production systems; and (3) collaboratively prioritizing market and small-business development activities according to distinct socio-economic contexts.

### Major results achieved

We were able to identify and test a range of forage species suitable for nutrition of monogastric animals in smallholder systems, with *Vigna unguiculata* (cowpea), *Lablab purpureus* and *Canavalia brasiliensis* so far being the most promising species. First results of on-farm trials with swine indicate that these high quality feeds can replace 25 to 50% of concentrates without affecting growth. Furthermore, these legume species help improve soil fertility and farm production.

Diagnostic, market and social network studies confirm the importance of monogastric production for poverty alleviation and gender equity, while indicating pathways for integrating technical options within smallholder systems and value chains. At the onset of the project in DR Congo emerged unexpectedly the importance of domestic cavies (i.e., guinea pigs) production to generate cash income for school fees.

### Expected impact

While basic laboratory research will enhance efficiency in screening methods for forage-based feed alternatives in monogastric nutrition and on-farm work will test and validate these options, the socio-economic research is expected to facilitate the co-development of feed op-

tions and linkages of smallholder farmers with markets. As proof of concept, it is estimated that 500 smallholder crop-livestock producers will directly benefit during the project time frame. Principles defined can be applied in multiple environments reducing poverty and increasing food security for many thousands of smallholder crop-livestock producers.



**Collaborating Institutions:** Instituto Nicaragüense de Tecnología Agropecuaria (INTA), Nicaragua; Universidad Nacional de Colombia-Palmira, Colombia; Universidad del Cauca, Colombia; Consortium for Improved Agriculture-based Livelihoods in Central Africa (CIALCA), DR Congo; Université Catholique de Bukavu, DR Congo; Université Evangélique en Afrique (UEA), DR Congo; University of Hohenheim; University of Rostock. The project also benefits from the involvement of CIM/BMZ-supported scientists.

---

**The Advisory Service on Agricultural Research for Development (BEAF)** manages Germany's contribution to international agricultural research. Instruments for implementation are project funding, postdoc funding, small grants and liaising between German and international researchers. BEAF is part of GIZ and acts on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ).

---

#### Imprint

**Published by:**  
Deutsche Gesellschaft für Internationale  
Zusammenarbeit (GIZ) GmbH  
Advisory Service on Agricultural Research  
for Development (BEAF)

Dag-Hammarskjöld-Weg 1-5  
65760 Eschborn, Germany

T +49 61 96 79-3347  
F +49 61 96 79-803347  
E [beaf@giz.de](mailto:beaf@giz.de)  
I [www.giz.de/agricultural-research](http://www.giz.de/agricultural-research)

Dahlmannstr. 4  
53113 Bonn

T +49 228 24934 231  
F +49 228 24934 215  
E [judith.jansen@giz.de](mailto:judith.jansen@giz.de)

#### Photo credit:

p.1, above title & p.2, right: © Rein van der Hoek/CIAT  
p.1, left: © Brigitte Maass/CIAT  
p.1, right: © Sonja Heinritz/CIAT

#### Contact:

Dr. Michael Peters: [m.peters-ciat@cgiar.org](mailto:m.peters-ciat@cgiar.org)