FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Synergism of feed, management & genetic interventions

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Outline

- Brief introduction
- Research design
- Activities & approach of research
- Accomplishment
- Expected outcomes
- Summary

Introduction

- Increasing the productivity of smallholder dairy farms is a high priority of the Ethiopian government (GTP & the Livestock Master Plan)
- Improvement in the genetic composition of dairy cows is central to this effort
- A lot of work by development partners (PAID, ADGG) & government extension services have resulted in the introduction of improved dairy genetic material through AI
- **However, to fully optimize the gains of the greater genetic potential of cows for milk production, their feeding & mgt need to be explored**

Objectives

1. To examine if combining feed-management related training with genetic improvement will synergistically increase milk quantity & improve milk quality of dairy cows
2. Examine the degree to which the increase is related to the intensity of training & level of genetics involved

Research design

- Involves 96 smallholder dairy farmers across 4 regions (Oromia, Amhara, SNNP & Tigray)
  1. 32 left untrained = **Control group**
  2. 32 receive management training from PAID as a standard part of its program = **PAID group**
  3. 32 receive improved feeds/seeds, feeding & management training, ration formulation = **Feed-management group**

Main activities of project

1. Site selection (weredas, kebeles, smallholder dairy farmers & development agents)
2. Collection of baseline data
3. Undertake feed, management & genetic interactions study
4. Support & monitoring of field research
5. Terminal data collection

1. Selection of target sites

- 96 smallholder dairy farmers levels in the primary milk shed areas in 4 regions

  = 4 regions × 2 weredas per region × 2 kebeles per wereda × 6 SHHs per kebele

- Weredas that have been targeted/close to FEED I & II, & a subset of those involved by ADGG & PAID projects

- Proximity/colocation with FEED I & II weredas
  - allow us to power the FEED II project's FCUs & extensive resource provision & capacity building
- ADGG & PAID program participants are targeted
  - give the opportunity to optimize the genetic resources introduced through these BMGF-funded projects

2. Baseline data

- Feeds available, feeding practices & relative levels of dairy management on farms & milking management
- From ADGG project - examine in detail to identify gaps in the data collected that are critical for EQUIP study
- Surveys & key participant interviews targeting smallholder dairy farmers & extension workers

3. Feed and management training

- Training modules developed or adapt previously developed training mgt modules to address the specific educational needs of smallholder farmers
- Training target improved feeds, feeding, housing & mgt of milk, calves, heifers & cows
- Training conducted at two levels
  1. Training of government extension agents or DAs = TOT for 2 d
  2. Training of farmers by TOT – for 6 d

Research approach

- Interventions in the **feed-mgt treatment** will include
  - supplements & concentrates necessary to compliment on-farm feed resources & optimize nutrition required for higher production, health & reproductive performance
  - forage planting materials (seed/seedlings) & highly nutritious forages such as alfalfa & elephant grass
- After the initial 18 m, the untrained farmers will receive feed & mgt training & will be followed for an additional 18 m to assess repeatability & sustainability of any intervention successes observed with the initial group

4. Support and monitoring

- After training the farmers, a support & monitoring plan for the next 18 m will be implemented
- Monitoring visits either by the researcher or the extension agent at least once a week
- Monitoring will include
  - level of implementation at the farm level
  - quality & improvements at the milk collection centers
  - feedback from extension agents

5. Terminal data collection

- Data from each farm will be summarized & represent one experimental unit for statistical analysis
- Specific variables of interest include milk yield, milk quality assessment from the cooperative (including rejection rates), & adoption rates of feed & mgt techniques
- Hair samples - to more accurately explain the impact of genetic composition in each group

Accomplishment

- Site selection in Oromia, SNNP and Amhara regions completed
- Some baseline data were collected
- Getting more baseline data from ADGG is ongoing

Expected outcomes

- Contribute to ongoing & future development-focused projects
  - Complement the efforts of the BMGF-funded projects (PAID & ADGG) by targeting a subgroup of their smallholder farmers to demonstrate synergistic increases in productivity from this feed & mgt interventions
  - Supplement the achievements of the USDA FEED I and II projects
  - Contribute to the development of feed resources & smallholder capacity to use them

Summary

Treatment / Group	Training	Training/support/monitoring	
Control	No	Training (after 18 months)	Support, monitoring & data collection
PAID	Trained	Assessment	Monitoring & data collection
Feed-management	Yes	Support, assessment	Support, monitoring & data collection

Thank you
for your attention