

# EQUIP - Strengthening smallholder livestock systems for the future

#### **Ermias Kebreab**

#### Associate Dean and Director, World Food Center University of California, Davis

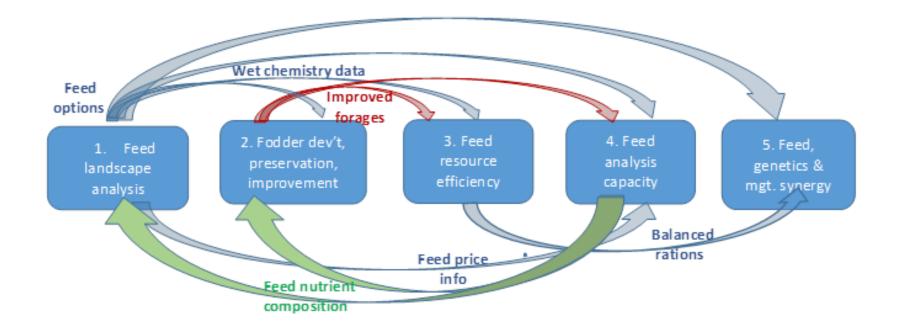
Component 3: Improved efficiency of feed resource use







## **EQUIP - Big Picture**









## Background

Key Challenges:

- Nutrition Often a limiting factor for efficient resource utilization
  - Key nutrients are fed below requirements leading to productivity gaps for milk (4.5 billion L/yr) in ET (FAO, 2012; Herrero et al., 2015)
- Feed management Small holder farmers need information to increase productivity using local feed







## Activities

- Estimate nutrient requirements of dairy cattle
- Develop ration formulation software for dairy cattle
  - Increase productivity
  - Raise incomes
- Experiments (lab and field based)
- Train extension agents and producers



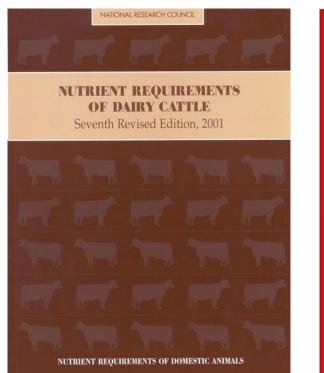




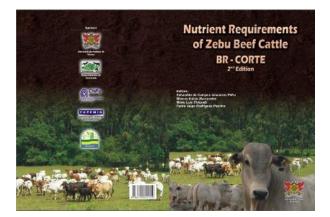




## **Activity 1. Requirements**



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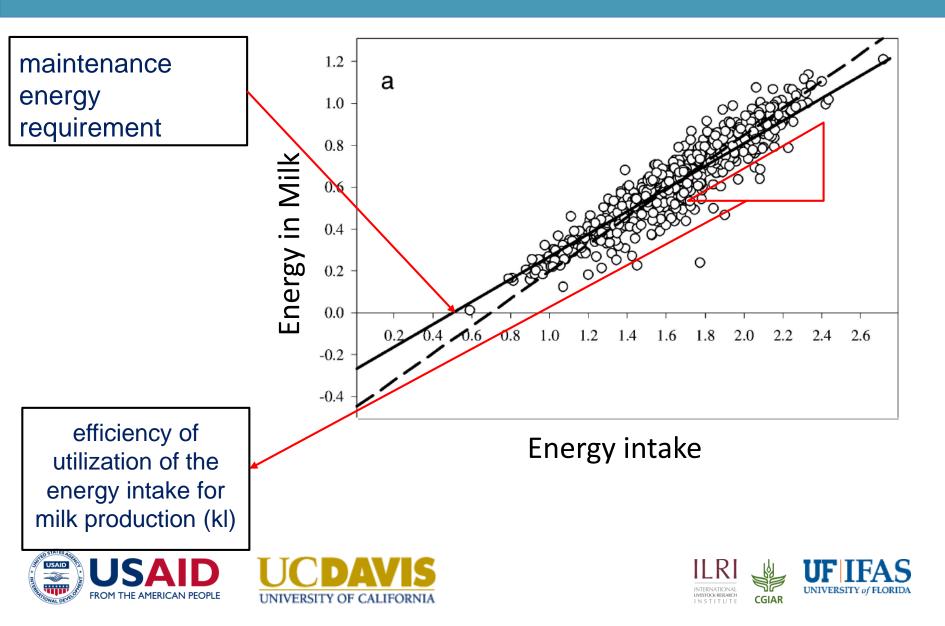






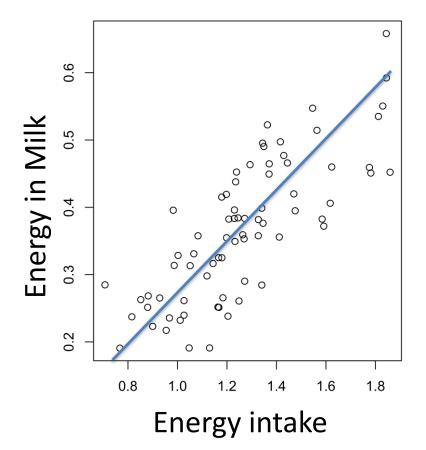








#### Preliminary data analysis











- Determination of maintenance energy requirement:
  - Use Greenfeed (1<sup>st</sup> in Africa) at EIAR
  - Measure O<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>
  - Calculate heat production









#### **Activity 2. Ration Formulation Software**

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#### Main menu of the PC DAIRY ETH 2020 English

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PCDAIRY Ration Program for Dairy Ca	attle
Main Menu	-Choose one of the following programs:
	A MAXIMIZE Profit Maximizing Dairy Ration
	B LC Least Cost Ration: Lactating / Dry Cow
	C GROWING Least Cost Ration: Growing Animals
<i>ኢትዮጵያ</i> ዊ	D ANLSIS-L Analysis: Lactating / Dry Cow E ANLSIS-G Analysis: Growing Animals
	F FEEDLIST Feed Library Editor
	G DELIVERY Feed Loading and Unloading
	H FEEDTAG Feedtag
Configuration About	Exit Program









#### Nutrient analysis from ACDI/VOCA

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PCDAIRY 2020 ETHIOPIA [FEED LIBRARY]									
FEED ANALYSIS:									
Feed Numbe	er:  277		Libray:	ALT.		Intern	ational Feed Number:		
Feed Name:	Wheat middlin	ig 2				Price:	\$ 0.00 per met ton		
DM as fed:	87.82	<mark>%</mark> Type:	C Concentrate	▼ MVI:	0.00	Group	o: 0 , 0 , 30		
	NUTRIENT ANALYSIS: 100.00					% DRY MATTER BASIS			
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NEM	1.960	Mcal/kg	CL	0.000		%	NUT5 0.000 %		
NEG	1.540	Mcal/kg	K	1.006		%	,		
TDN	80.760	%	MG .	0.401		%			
CP	25.310	%	NA	0.000		%			
UIP	0.000	%	P	0.685		%			
DIP	0.000	%	S	0.000		%			
CF	7.400	%	CO	0.000		opm			
ECF	0.000	%	CU	11.650		opm			
ADF	0.000	%	FE	0.000		opm			
NDF	0.000	%	1	0.000		opm			
FAT	5.050	%	MN	92.990		opm			
ASH	4.290	%	SE	0.000		opm			
NPN	0.000	%	ZN	76.100		opm			
VITA	0.000	k IU/kg	NUT1	0.000		%			
VITD	0.000	k IU/kg	NUT2	0.000		%			
VITE	0.000	IU/kg	NUT3	0.000		%			
Enter feed num	nber						Cancel Save		









#### Animal menu of the PC DAIRY ETH 2020 Amharic

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#### **Activity 3. Lab and Field Experiments**

- Software adjusted based on new data
- 3 diet formulated based on energy supply (85, 100, 115% requirement)
- Similar as above with minerals
- Production measurements at Hawassa and EIAR using indigenous and improved breeds)



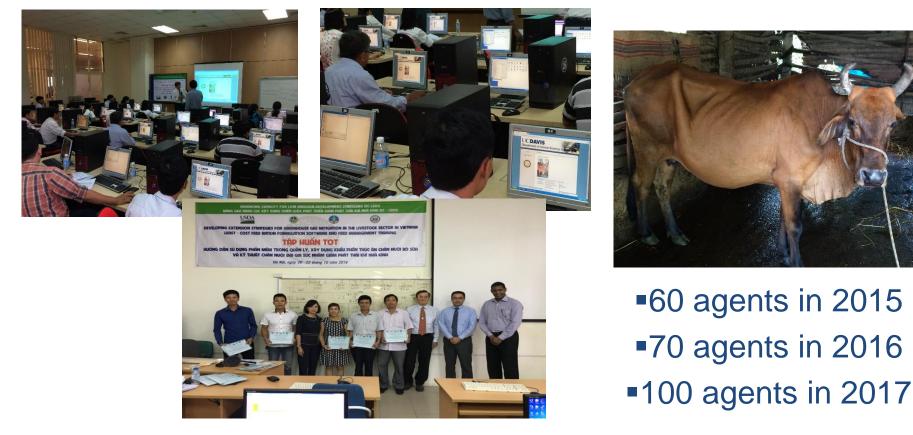








## **Activity 4. Training**











## FEEDIFUTURE

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

www.feedthefuture.gov



