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## 2008 KSU INSORTMIL/USAID Poultry Experiment in West Africa

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**2008 KSU  
INSORTMIL/USAID  
Poultry Experiment in  
West Africa**

**S. Issa and J. D. Hancock  
Kansas State University, Manhattan  
March 31, 2009**

# Introduction

- **INTSORMIL (funded by USAID) promotes the use and marketability of sorghum and millet in developing nations around the world**
- **A key objective is to provide technology transfer that will improve production, storage, marketing, and utilization of sorghum and millet**
- **An additional objective is to build human capital via student training and collaboration with colleagues in targeted regions of the world**

# Justification

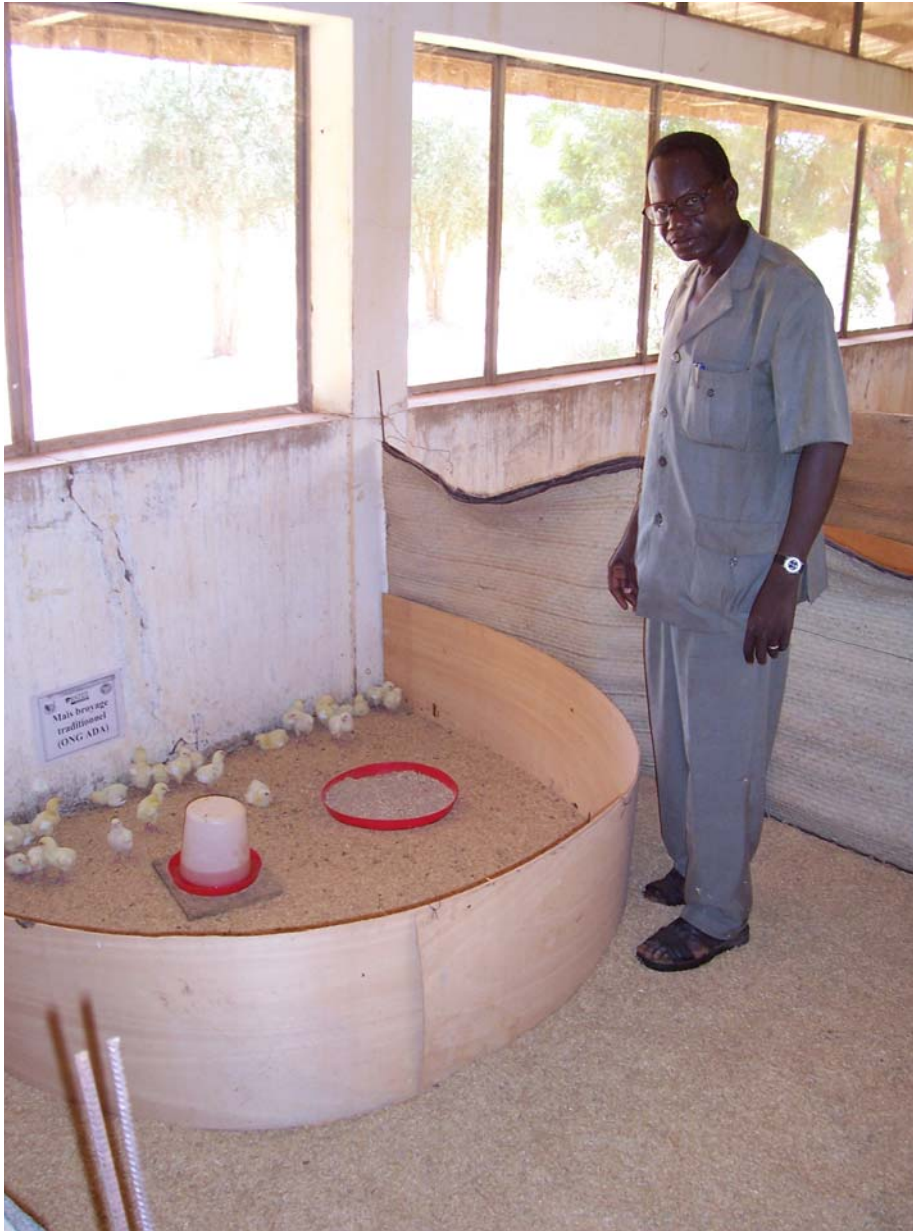
- We were approached by potential collaborators from the National Institute for Agronomic Research in Niger (INRAN)
- Sorghum is the second most produced cereal (after millet) in Niger
- Locally produced sorghum is generally less expensive than imported corn, yet imported corn remains the main cereal used in poultry feed (Abdoulaye et al., 2006)



- **It is well established that tannins have negative nutritional consequences in animals and humans and sorghum suffers from the image of necessarily having high tannin content**
- **Research at Kansas State University suggests that proper milling is even more important in sorghum-based than corn-based diets**
- **Hancock et al. (2000) proposed that adequate processing improved the nutritive value of sorghum in monogastrics to near that of corn**

# Goudel Research Facility





## Chick feeding assay

- Corn
- Local sorghum
- Improved sorghum

## Broiler experiment

- 60 days experiment

## Layer experiment

- 18 month experiment



# Objective

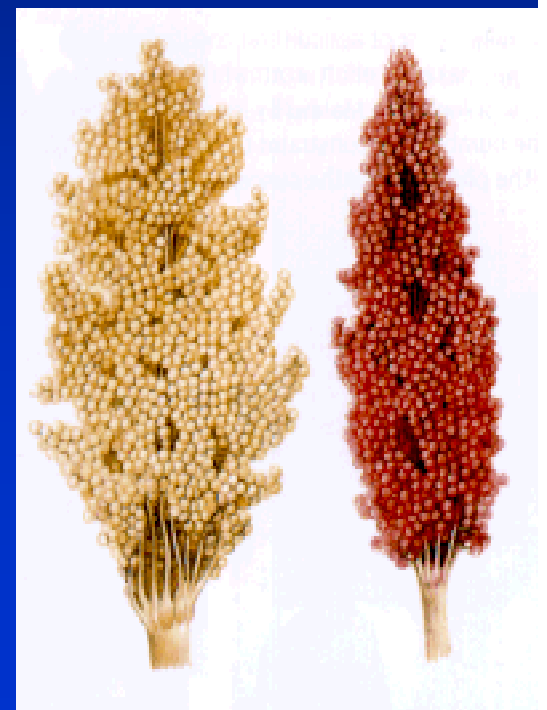
To determine the feeding value of diets made with imported corn, a local landrace sorghum, and an agronomically improved sorghum variety



- **Trts:**

- Imported corn
- A locally produced landrace sorghum (Mota Galmi) with red seed, purple plant, and 0.3mg of CE/100mg grain DM
- An improved variety (IRAT204) with white seed, tan plant, and no detectable tannins

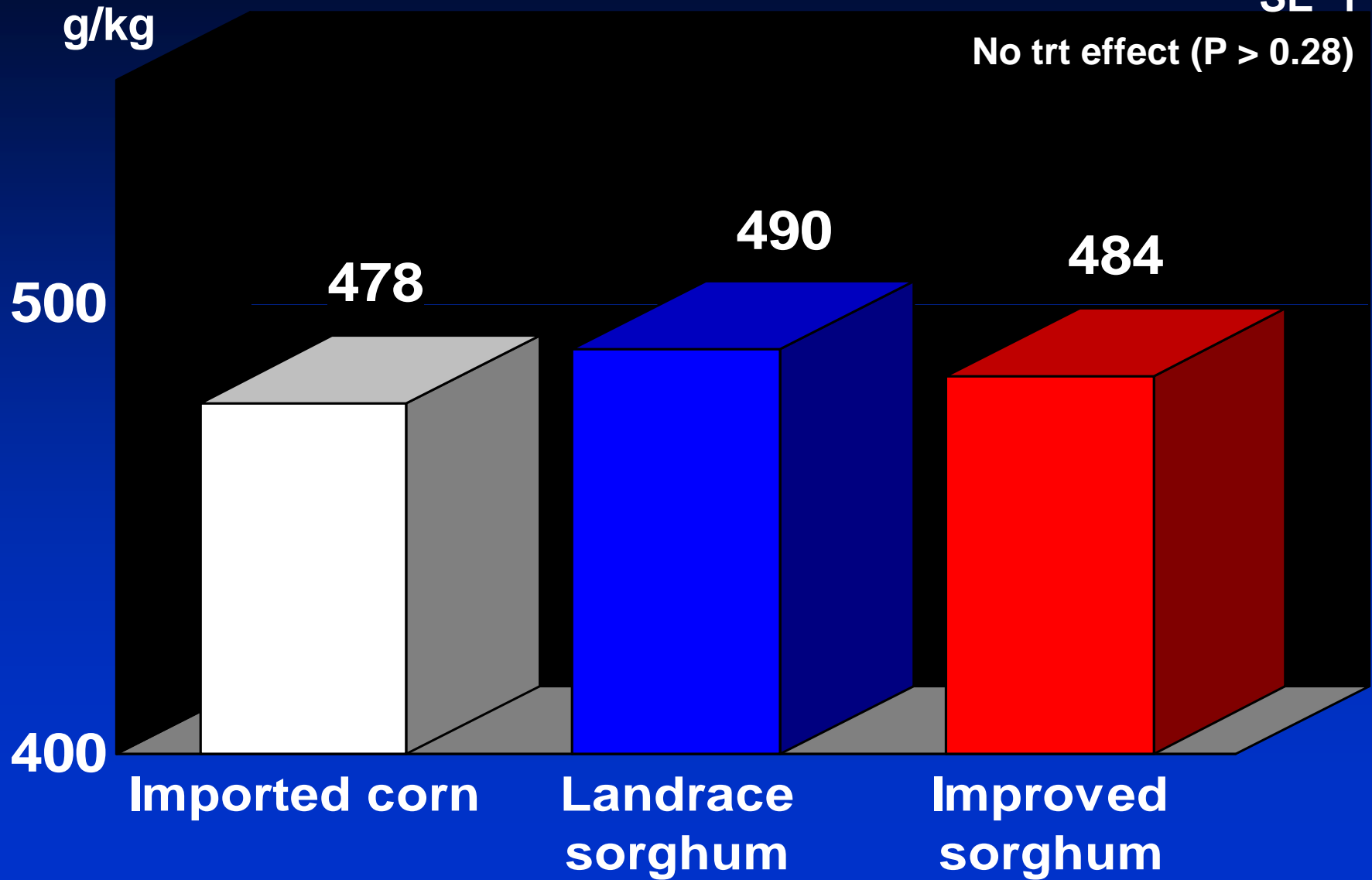
**Particle Size: 600**



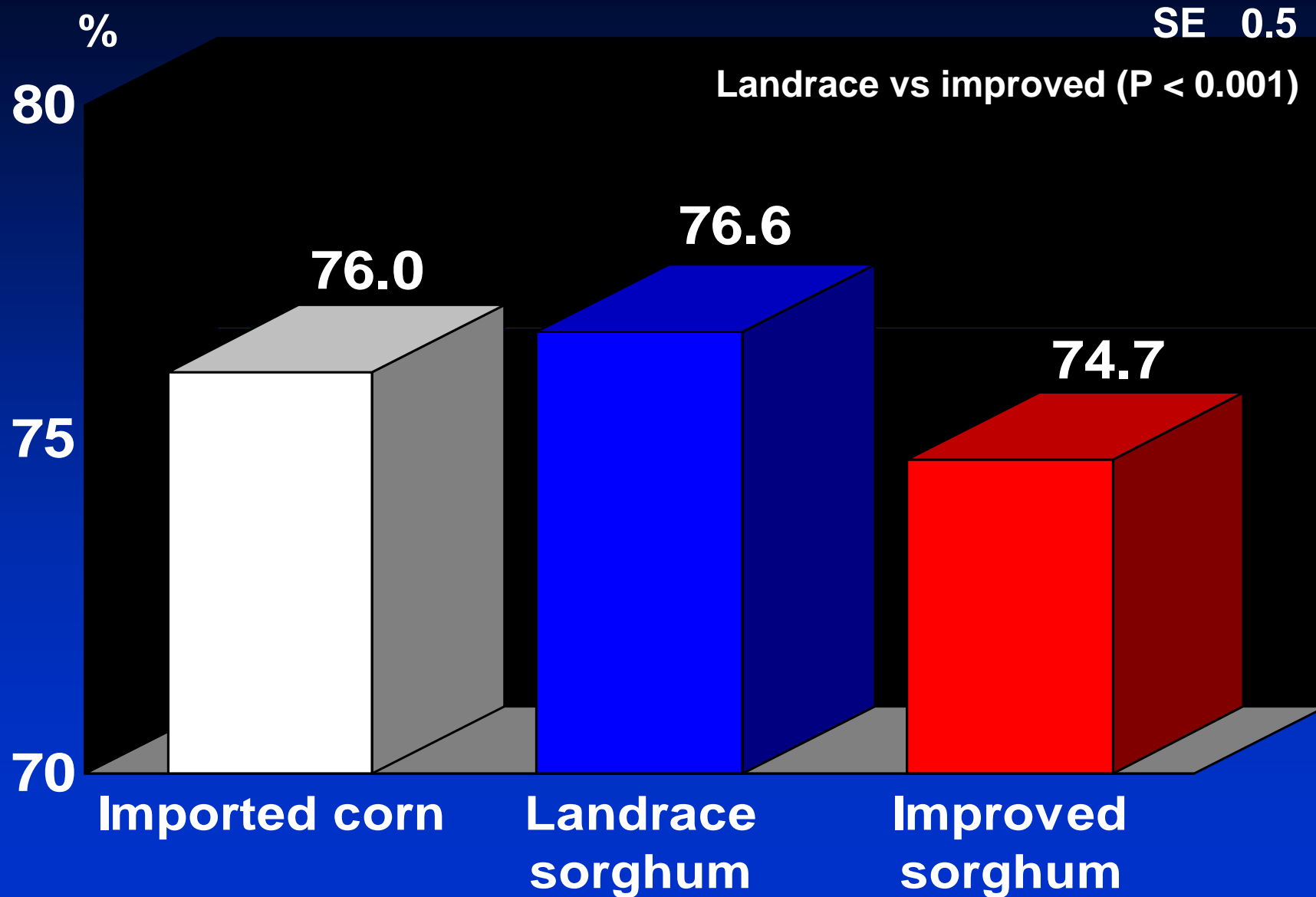
# Gain:Feed d 0 to 60

SE 1

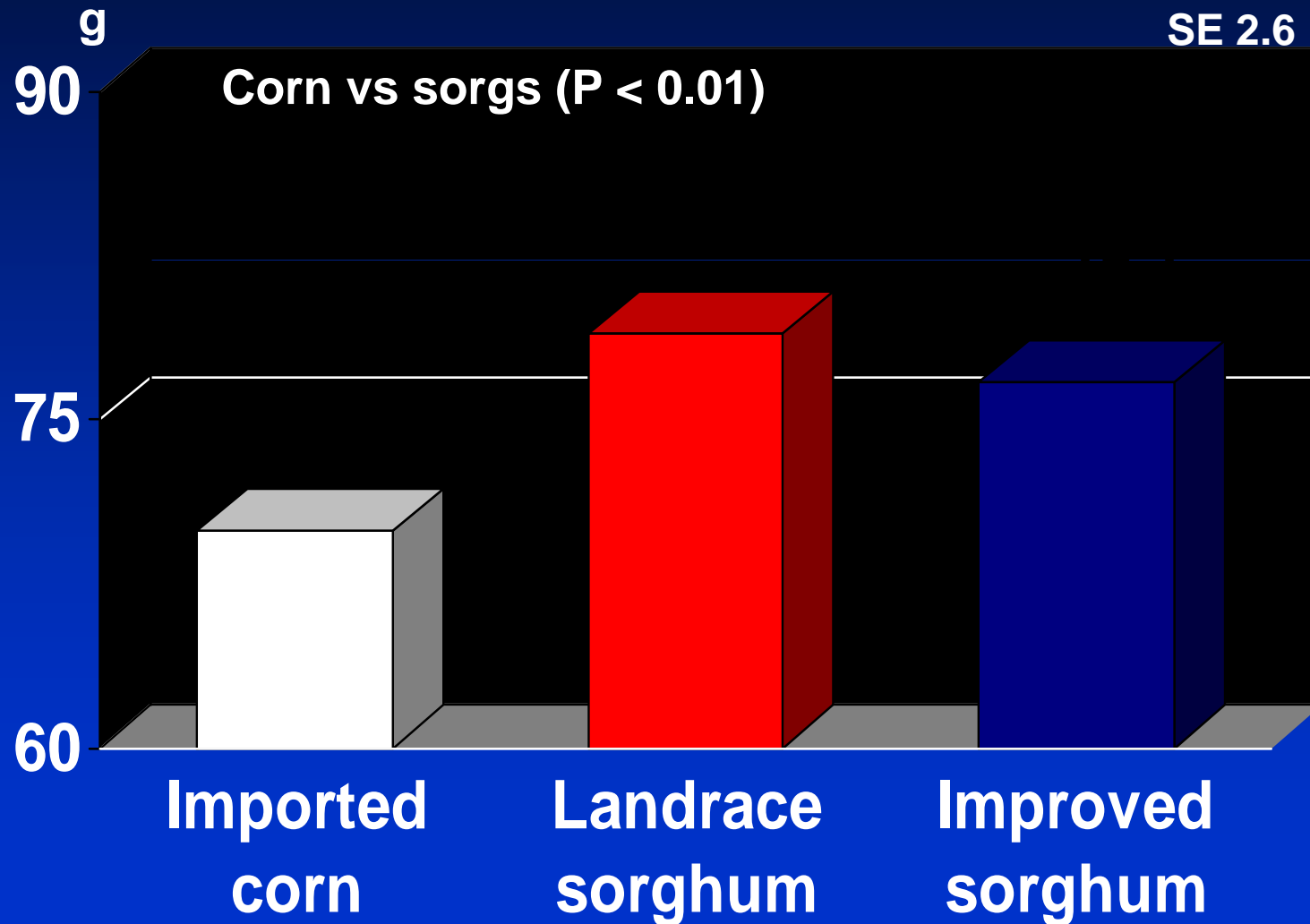
No trt effect (P > 0.28)



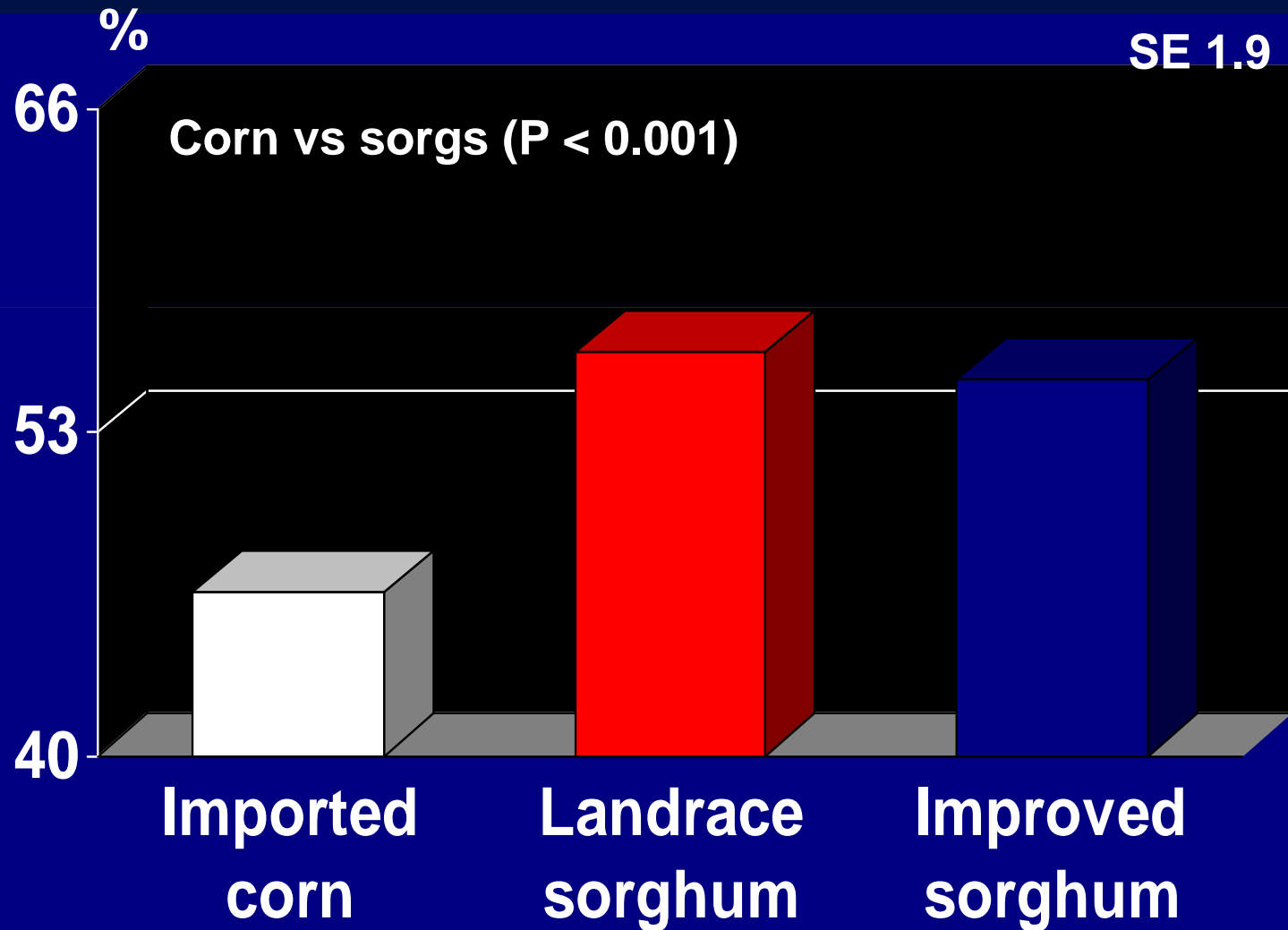
# Carcass Yield d 60



# Feed Intake for Layers Fed Corn vs Sorghums in West Africa



# Percentage Production for Layers Fed Corn vs Sorghums in West Africa



# Successes

- **Completion of collaborative research projects with INRAN (2005 and 2006)**
- **Projects served as basis for an INRAN Sorghum Field Day and development of a Poultry Producers Association in Niamey (2005 and 2006)**
- **Experiments served as senior projects for two students at Abdou Momouni University, Niamey, Niger (2005 and 2006)**
- **Two papers at the 2006 International FRSIT Conference in Ouagadougou, Burkina Faso**
- **Two posters at the 2006 SICNA Conference, Santa Anna Puebla, NM**

- **Two posters at the 2007 National Field Day, Niamey, Niger**
- **Abstract at the 2007 Poultry Science Association Meetings, San Antonio, TX**
- **Presentation at the 2007 Technology Transfer Workshop, Senegal**
- **Abstract at the 2008 International Poultry Conference, Atlanta, GA**
- **Presentations in the USGC Sorghum Utilization Workshops in Ireland, England, Holland, and France, 2008**
- **Session Chair for the 2008 Int. Conf. for Competitiveness in Poultry for Africa, Senegal**



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### Organisateur

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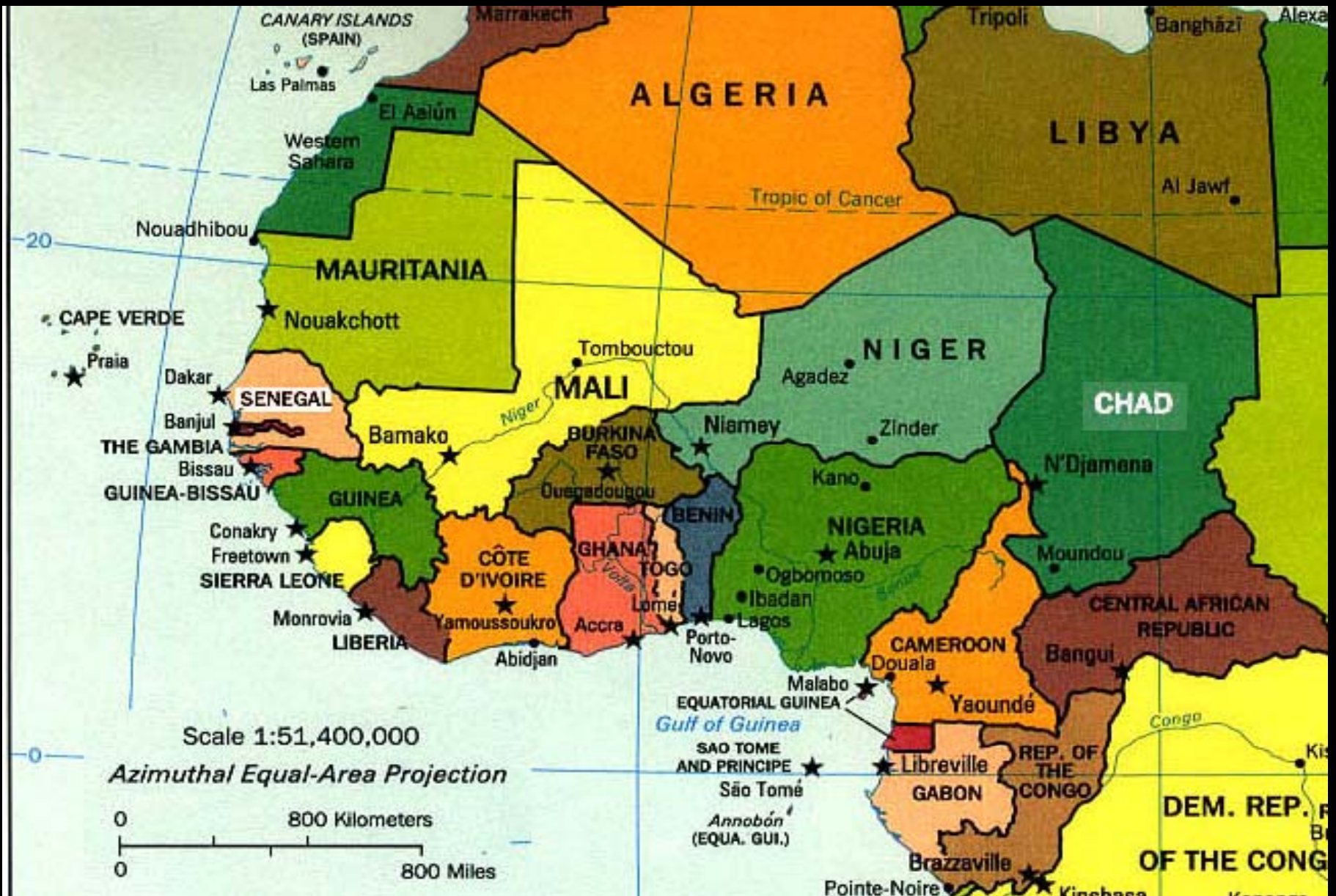


**So, what's  
next?**

# **Feeding Value of Corn vs Properly Milled Local Sorghum for Poultry in West Africa**

- **Salissou Issa and Joe Hancock Kansas State University, Manhattan, USA**
- **Ayao Missohou, Regional College of Sciences and Veterinary Medicine (EISMV), Dakar, Senegal**
- **Bantieni Traore, Institute of Rural Economy (IER), Bamako, Mali**
- **Hien Olo, National Institute for Environment and Agricultural Research (INERA), Bobo-Dioulasso, Burkina Faso**
- **Hamani Marichatou, Abdou Moumouni University (UAM), Niamey, Niger**
- **Iro Nkama, University of Maiduguri, Nigeria**

# West Africa



- **TRTS: Corn and locally produced sorghum (non-tannin) ground through 6.4 and 2 mm screens**
- **Samples of all cereals and diets collected and subjected to p-size and proximate determinations**
- **Each station to feed a minimum of 400 1-d-old broiler chicks (25 birds/pen and four pens/trt) for 42 d**

- **Feed and water consumed ad libitum**
- **Birds killed (12) and carcass yield recorded**
- **Response criteria will be ADG, ADFI, G:F, and carcass yield**
- **All data pooled and analyzed as a 2 x 2 factorial with main effects of cereal source and particle size**

# Difficulties

- **Funding (Provide enough as things are more expensive than in USA or EC)**
- **Facilities (poultry houses, feed mill)**
- **Input Accessibility (feed ingredients, chicks)**
- **Transportation**

# Success

- **Create a West African/KSU poultry Network**
- **Premix for the 5 project sites**
- **Discuss protocol and data collection forms**
- **Improving the poultry house (lighting, compartments)**
- **Strength relationships between Research Institutes, Universities, and Processors (Poultry producers and feeds industries)**
- **Training (8 students) and information exchange (22 presentation related to sorghum processing and utilization)**

**Questions?**