

Around the World with Soy



National Soybean Research Laboratory

University of Illinois at Urbana-Champaign

www.nsrll.illinois.edu

“ Education without children’s health is missing the heart of the matter”

- C. Everett Koop M.D., Former Surgeon General of the United States

NSRL International Partnerships



- Provide training in soy processing
- Develop culturally-appropriate soy applications
- Strengthen nutrition and health education
- Reinforce sustainable solutions
- Support for reproducible models by partnering with government, NGOs & businesses

School Feeding World View

- Every Day = 60 Million children go to school hungry
- Expected over 100 million hungry children by 2015
- School lunch programs are an investment in a nation's future



Source: World Feeding Programme

Healthy School Meals



- Nutrition & Health Education
- Acceptability
- Cost Effectiveness
- Transparency & Accountability
- Impact Measurements
- Government Participation
- Sustainability

School Lunch: A Great Investment

- School feeding programs increase cognitive development (Kristjansson, 2007)
- Each additional year of primary schooling leads to a 5% increase in future wages (World Bank)
- Higher income leads to 1% increase in life expectancy (Wigley, 2004)



Protein Quality

Product	PDCASS Score
Egg White	1.00
Cow's Milk (Casein)	1.00
Beef	0.92
Soybean	0.90 – 1.00
Pea	0.73
Kidney Bean	0.68
Chickpea	0.66
Oats	0.57
Peanut Meal	0.52
Lentils	0.52
Rice	0.47
Corn	0.42
Whole Wheat	0.40
Wheat Gluten	0.25



Kenya and Botswana



Botswana - Sorghum/Soy product for orphanage lunch program



Kenya - Partnership with a local wildlife protection NGO in the Masai Mara for a soy porridge school lunch program

Tajikistan

- Tandoori Naan enhanced with soy flour



India

- School meal programs feed over 860,000 children each day.
- Soy flour & TSP used in existing meals.
- New extruded soy snack developed by UIUC.
- Cost neutral or decreased costs
- Partnerships with schools, NGOs & governments



Vietnam



- Existing school meal featured noodles
- Soy flour incorporated into the noodles to increase protein
- Acceptability testing
- Soy milk & soy baked goods developed
- Micro-enterprise partnership with schools

The Caribbean

- **Haiti**
 - School Lunch Program
 - Nutrition education component
 - Extensive training
- **Dominican Republic**
 - Soy & micronutrient enhanced biscuits for school lunch program



School Lunch – Central America

Honduras & Guatemala

- Added soy flour & CSB to tortillas
- TSP in recipes
- Soy Cow for soy milk & okara



TSP Recipe Example

Soy Chorizo for 25

3 packets beef bouillon
3 onions finely chopped
3 green chilies chopped fine
3 garlic cloves mashed
Juice of sour orange or lemon
6 cup hydrated and drained textured soy
Salt and spices (cumin, pepper) to taste
Enough oil for frying

Preparation

1. Mix all seasonings
2. Add the chili and chopped onion
3. Add textured soy that has been soaked.
4. Mix well and stir-fry in oil

Serve with cooked rice and beans
(use 4 cup dry rice, 1# dry pintos)

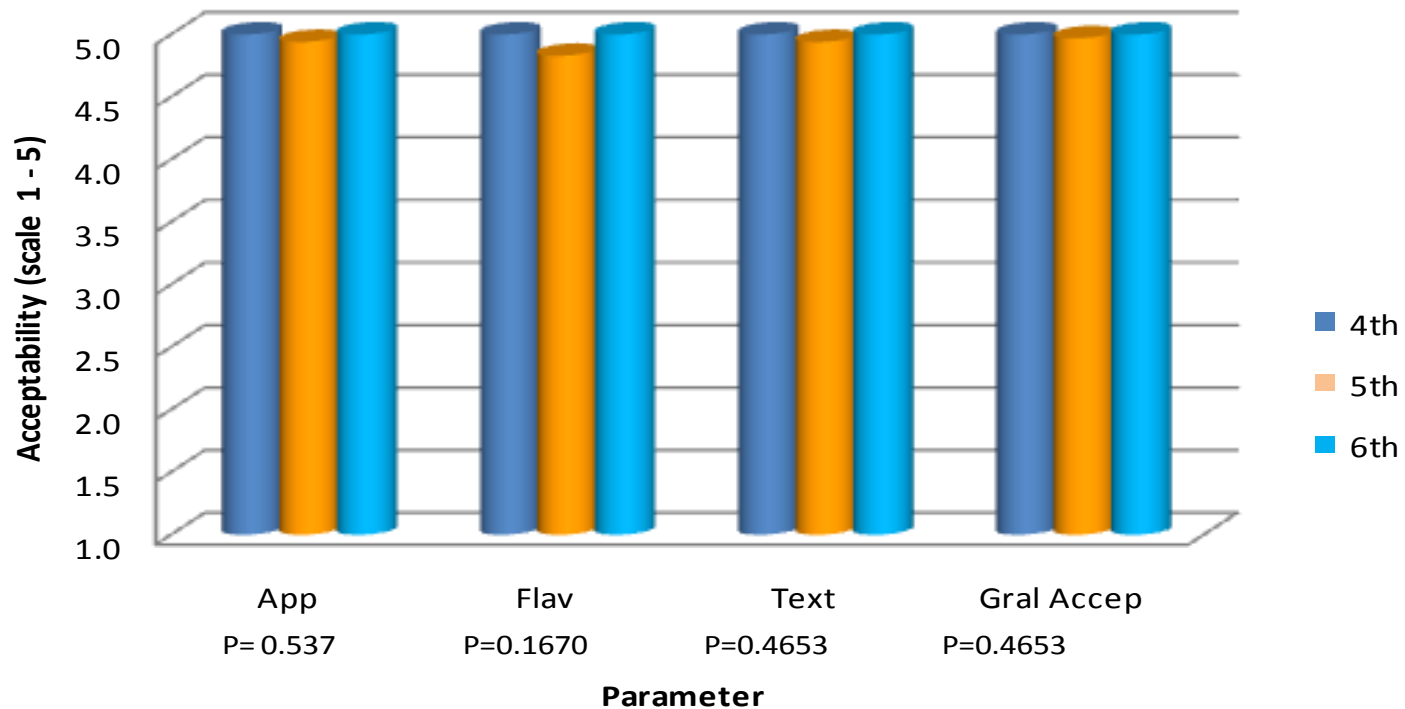


Recipe yields 10g protein &

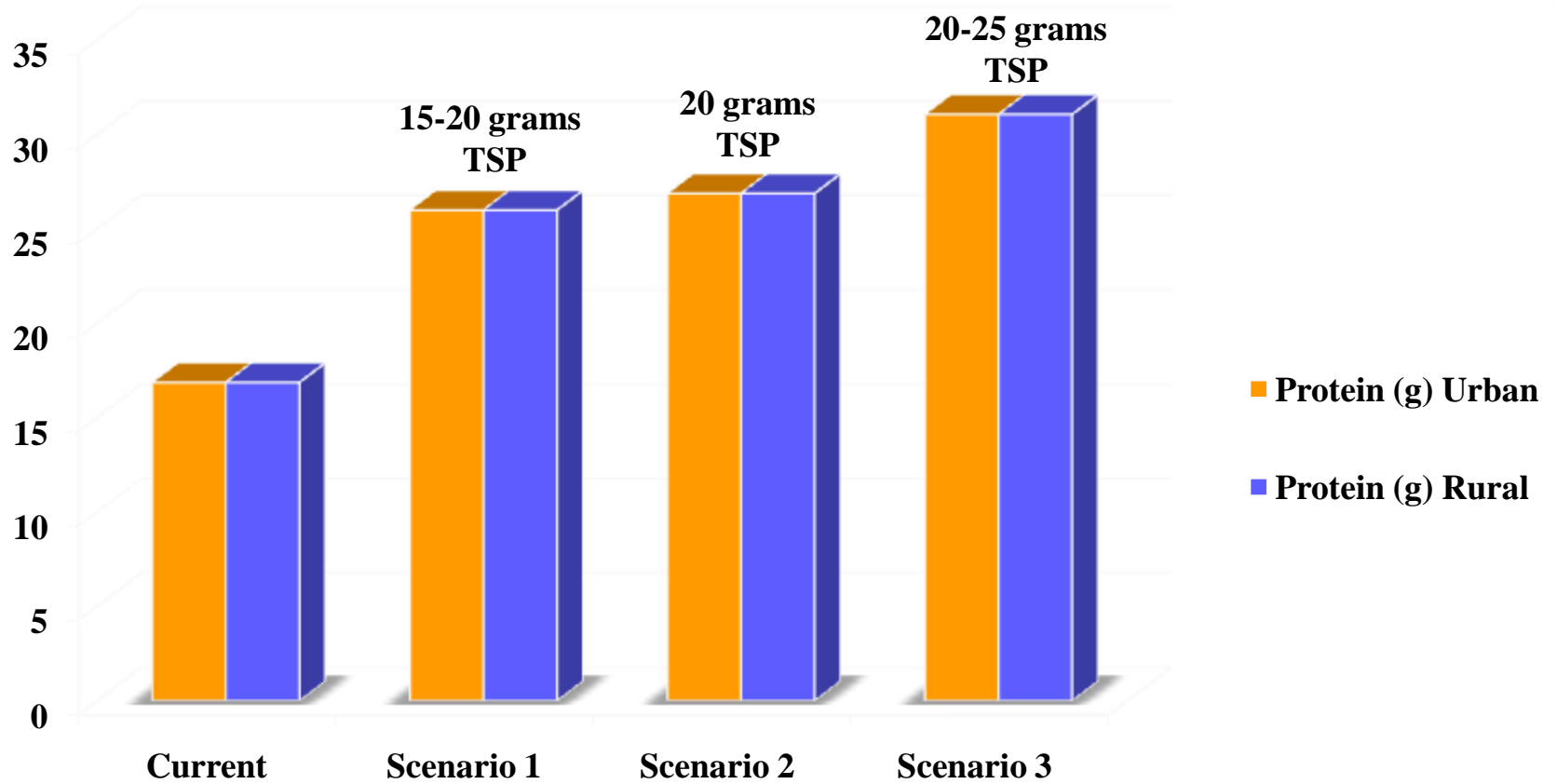
Acceptability of School Meal with Textured Soy Protein

Sensory Acceptability of a meal (rice, beans, soy, tortillas) in the School Jose Trinidad Cabañas-SPS Honduras

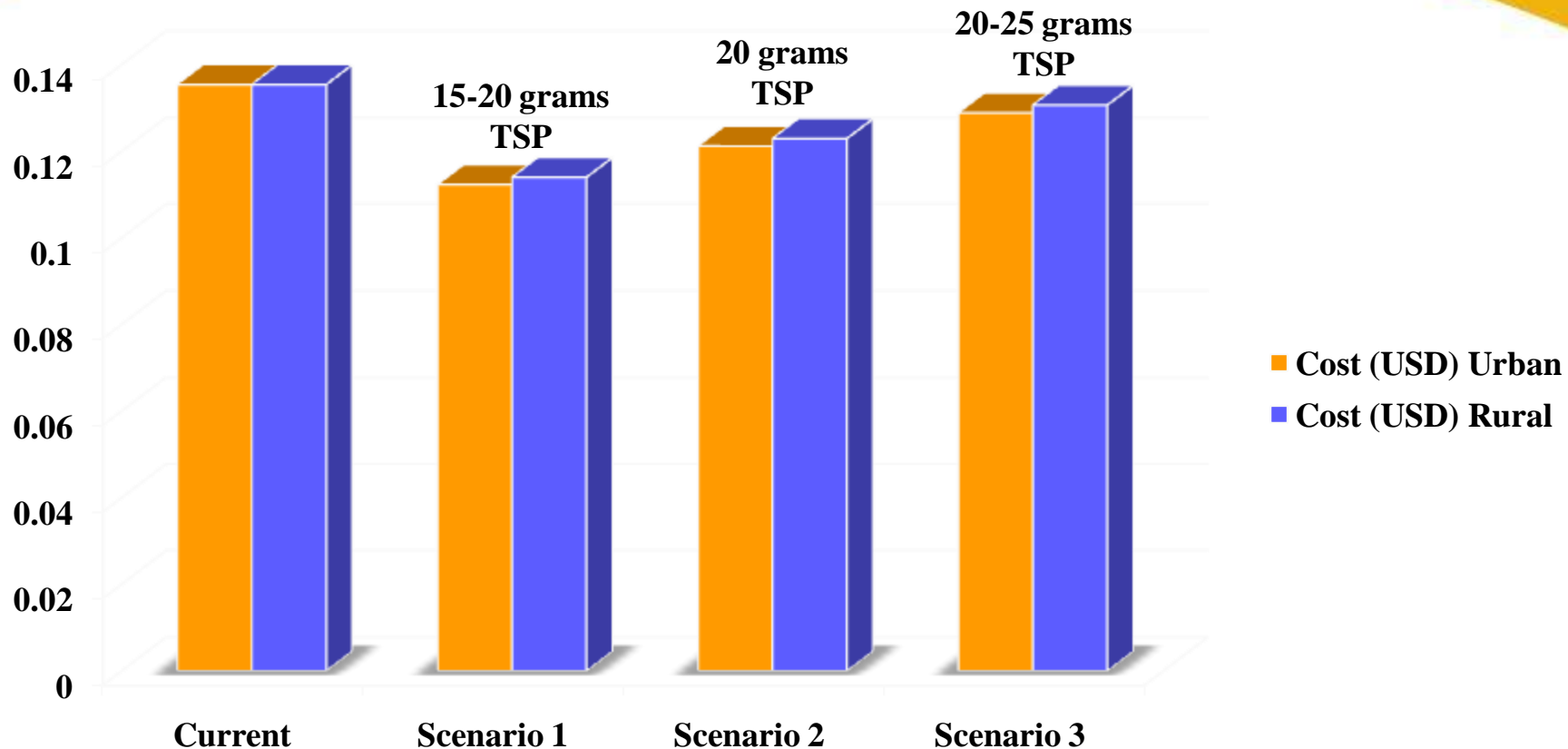
Scale: 1-5; 1 = I do not like it very much and 5= I like it very much



Protein Increase with TSP Usage



Cost Savings of Increasing Protein with TSP



Achieving Sustainability

- **Home Grown Ingredients**

- Economics
- Supplement local foods (rice, sorghum, flour, corn, etc...) with high quality ingredients to improve nutrition
- Supplement locally produced foods to enhance traditional foodways & acceptability of new ingredients



Achieving Sustainability



- Establishing procurement networks – inside & outside the country
- Long term storage facilities and procedures
- Governmental & NGO support
- Policy development for inclusion of soy in school programs and feeding rations

Thank You

National Soybean Research Laboratory

*Research, Outreach and
Education supporting
soybean production and
nutrition*



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