



# 2007 Georgia Peanut Tour

## Hot Topics

### Development of peanut-based products

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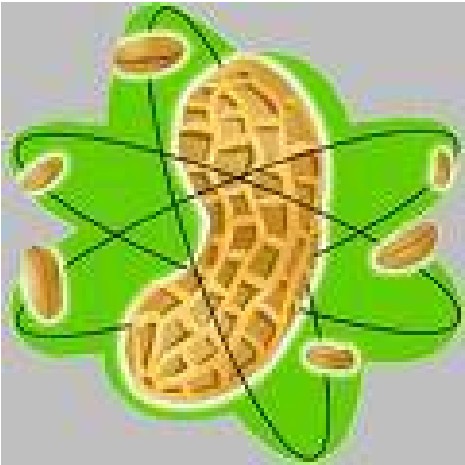


**FOOD Product Innovation and Commercialization**



# As we all know....

- **The Peanut is a Powerhouse**
- **Of Nutrition**



- **Healthy Fat**
  - No Trans
  - 80% Unsaturated
- **Protein and Amino Acids**
  - Richest source of Arginine
- **Vitamins**
  - Folate, Niacin, Riboflavin, Thiamin
  - B6, E
- **Minerals**
  - Copper to Zinc

**..however, peanut composition data are surprisingly sparse: Database values are often based on a handful of analyses**

***For that reason UGA food scientists have partnered with the Peanut Institute and the Food Processing Advisory Council (FoodPAC) to conduct intensive analysis of hundreds of peanut and peanut product samples.***



# Findings from these studies are beginning to be disseminated

## 2007 Institute of Food Technologists Meeting

Effect of Type and Cultivar on the Proximate Composition of Peanut Kernels Harvested in 2005 in the United States, Phillips, Eitenmiller, Pegg et al.

Comparison of Vitamin E Levels in Runner, Virginia and Spanish Peanuts, Shin, Pegg, Huang, Phillips, Eitenmiller

Folate Content of Runner Peanuts Grown in the Southeastern and Southwestern United States, Kota, Phillips, Pegg, Eitenmiller



# We love our peanut products...



# ...but sometimes we forget the potential of the peanut as a food *ingredient*

- *Even products with a relatively small level of peanut may add up to large overall utilization*



- Consider the soybean...
- Although most people think they taste terrible by themselves, they are in countless food products.



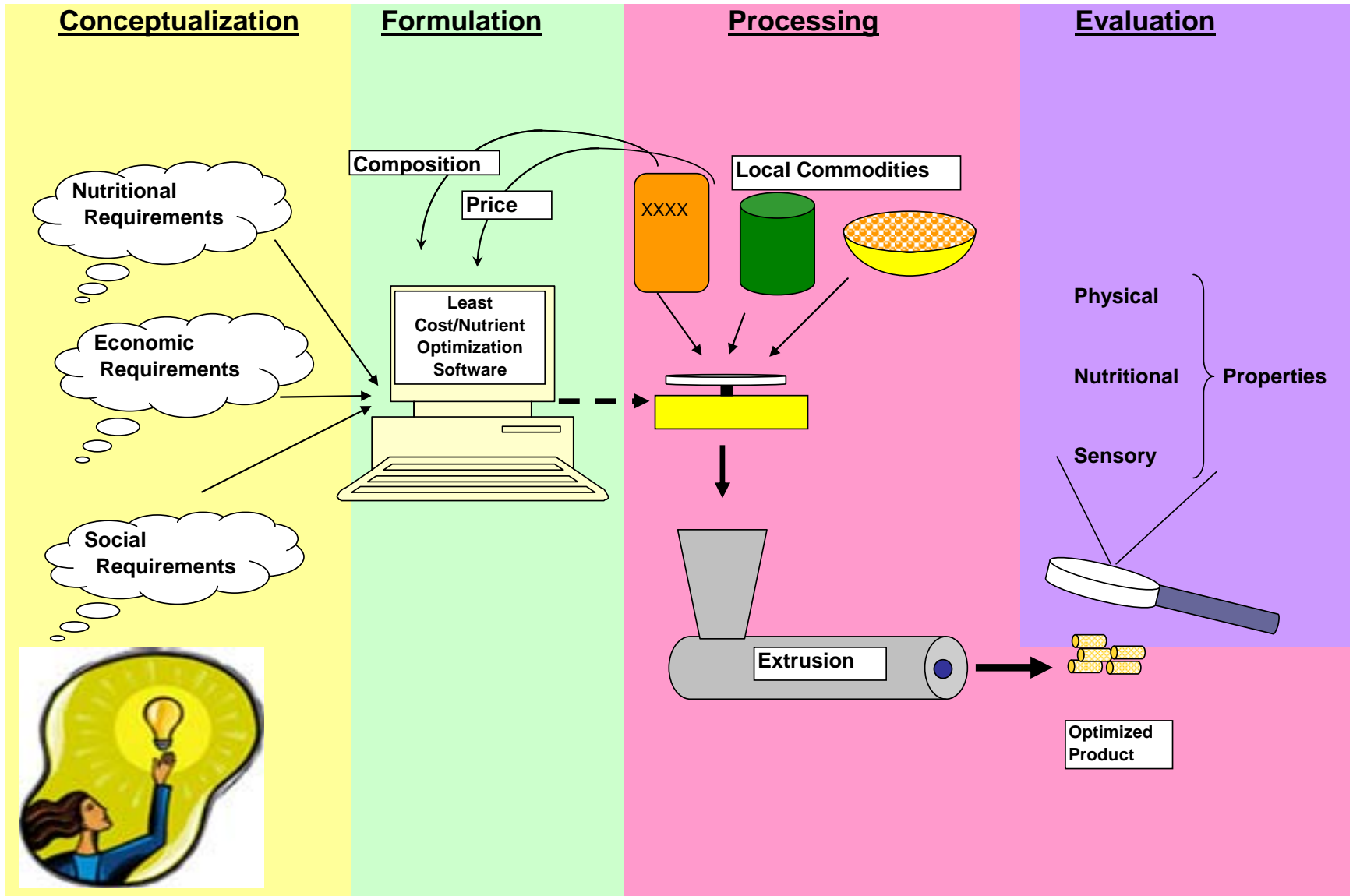
# Supported by the USAID CRSP Programs, we 'modestly' set out to develop 'world snacks' based on peanut and other healthy ingredients



**FOOD Product Innovation and Commercialization**



# Street/Snack Foods-New Approach





# Snack Product Goals

## Nutrition Goals:

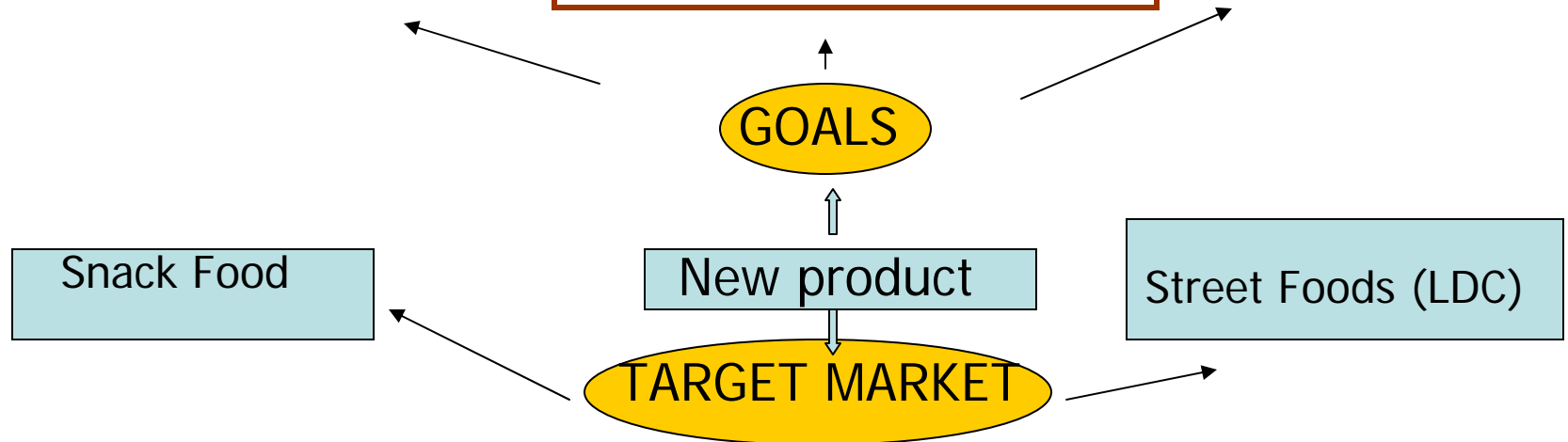
1. Meet 1/4<sup>th</sup> of DRI of 9-13 yr old
2. More than one Food group

## Social Goals:

1. Affordable
2. Promotion of Small Scale industry
3. Safe product

## Price Goals:

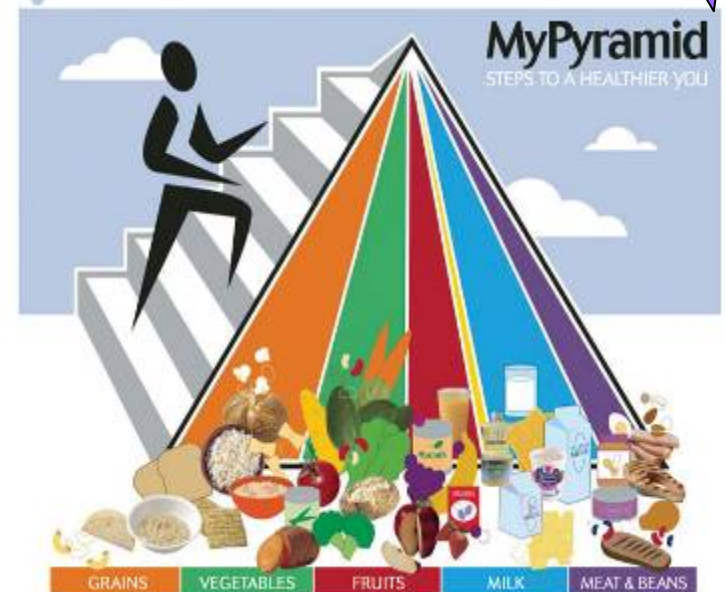
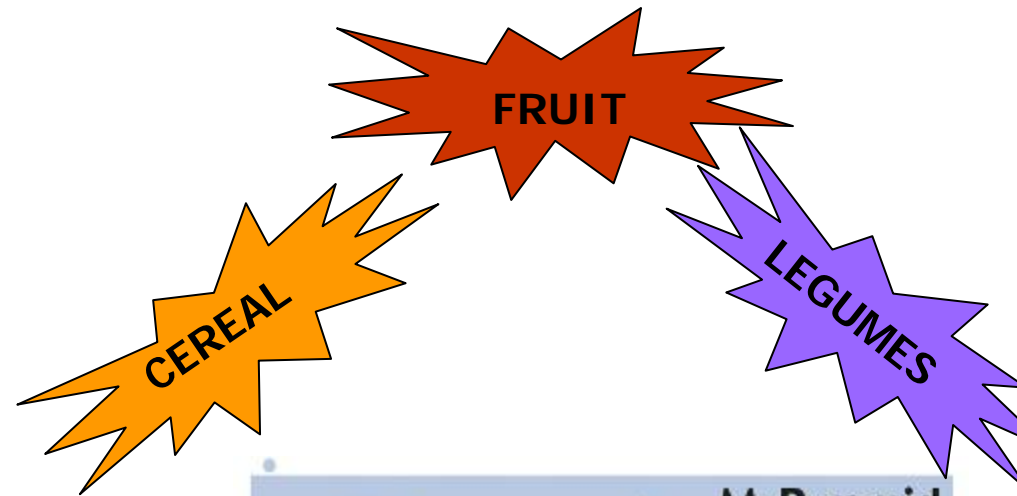
1. Least cost formulation



# Nutritional Goals- 1/4<sup>TH</sup> OF DRI

## DRI Requirement

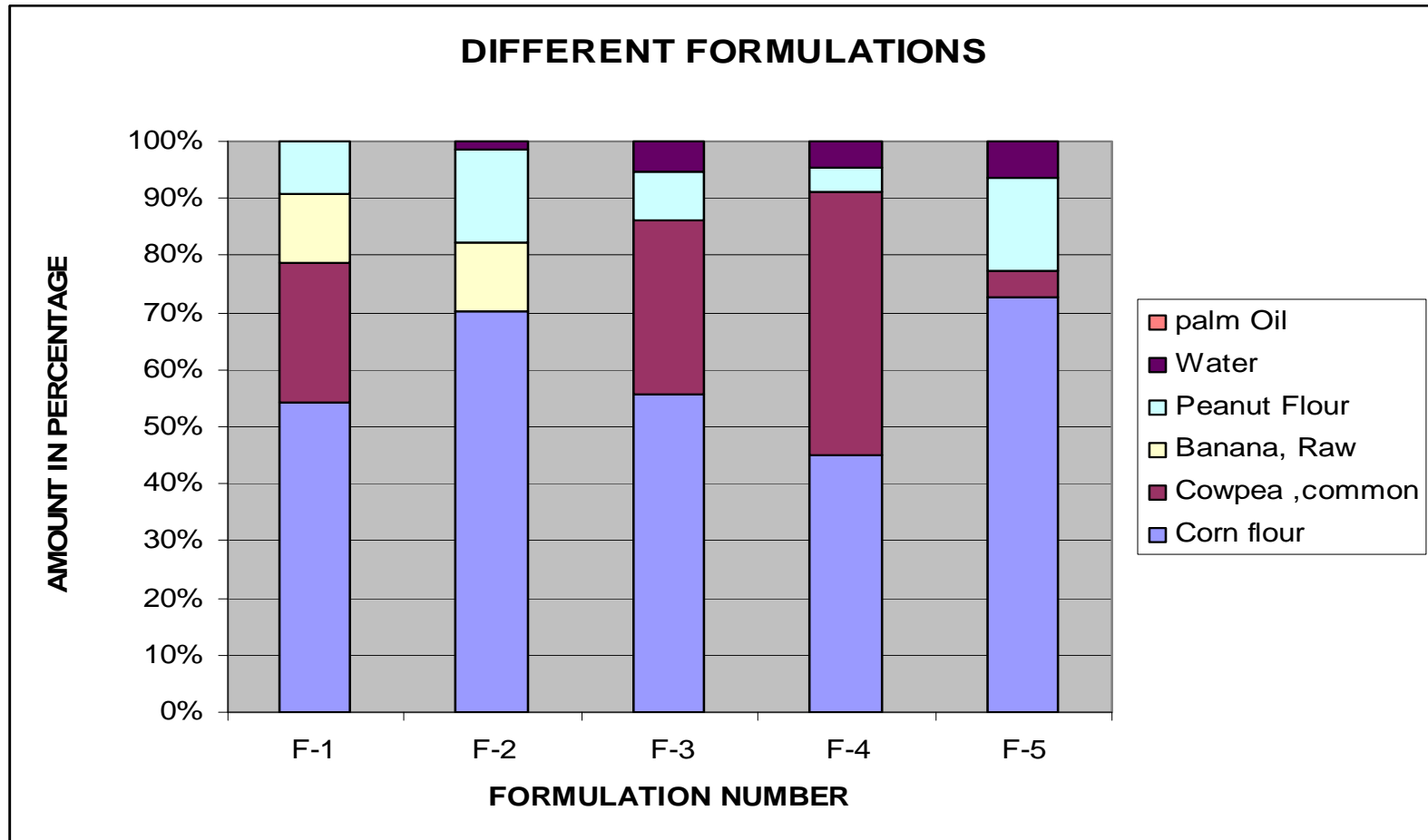
Protein (g)	8.5
Iron(mg)	2
Calcium(mg)	325
Vit A(IU)	500
Vit C(mg)	11.25
Fibre(g)	5.75-7
	6.25-7.75
Sodium (mg)	375-550
Cholesterol (mg)	<300
Total fat (g)	18.37
Calories	400-500
	450-550



# Snack Food Possible Ingredients

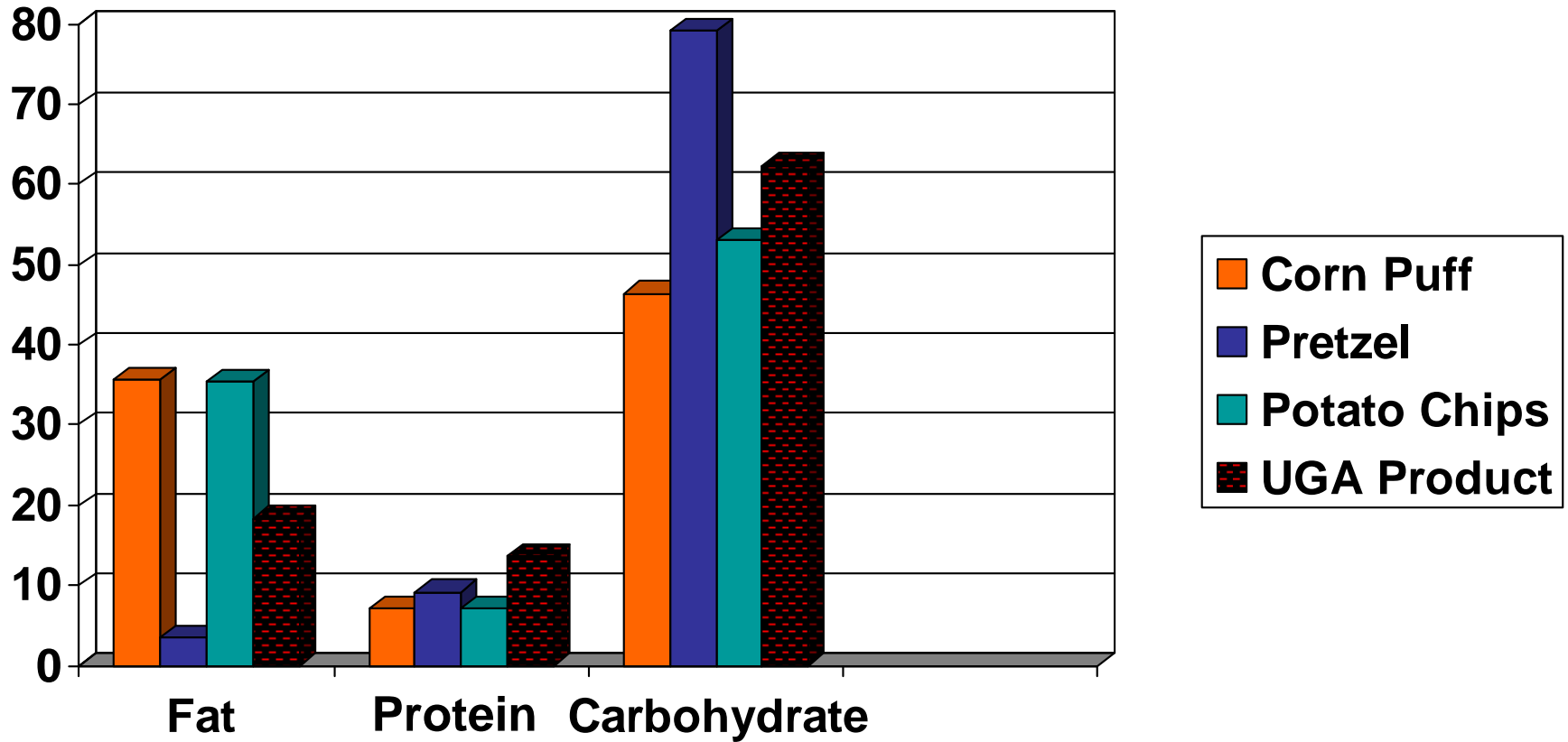
1. Cereals (corn, sorghum, millet, rice)
2. Oilseeds (peanut)
3. Starchy legumes (cowpea)
4. Starchy fruits (banana, plantain)
5. Starchy roots and tubers (yam, cassava)
6. Vegetable oil (palm)

# Examples of formulations extruded

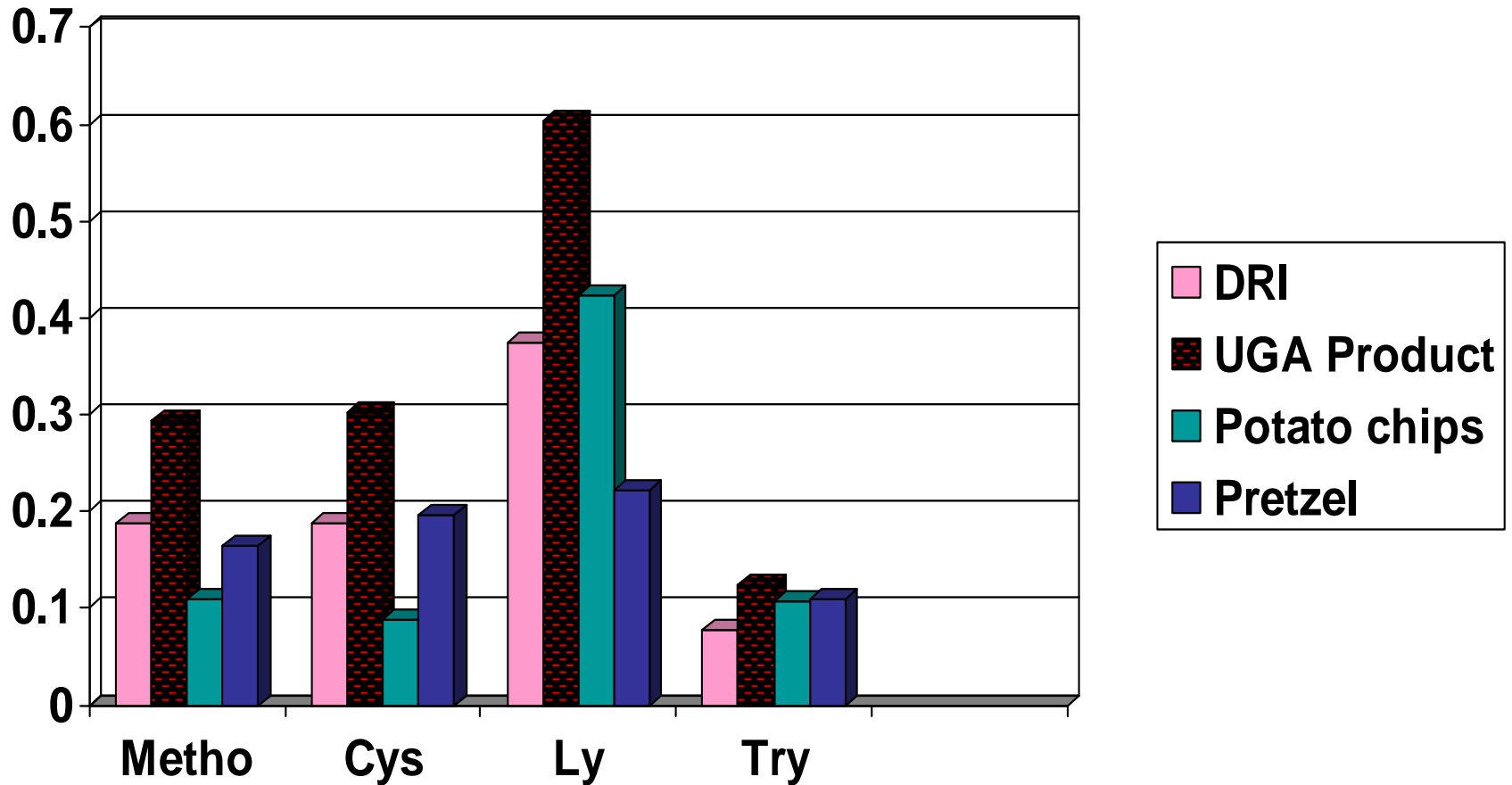


•Price of the product ingredients=\$0.01 to \$0.04/100g.

# Comparison between commercial products and CRSP snack



# Comparative amino acid profile



# EXTRUSION





# CONSUMER ACCEPTABILITY

- Mean of 6 formulations including control were compared.
- The formulation were judged for 7 attributes as shown Below:

PRODUCT CHARACTERSTICS						
SAMPLES	APPEARANCE	COLOR	AROMA	FLAVOR	TEXTURE	LIKE
507	6.75 A	6.94 A	6.06 B	6.50AB	6.78 AB	6.47 A
300	6.72 A	6.94 A	6.47 AB	7.00 A	7.09 A	6.87 A
10	6.25 AB	6.53 AB	6.38 AB	6.37 AB	6.31 BC	6.31 A
129	6.25 AB	6.31 BC	6.91 A	7.00 A	7.09 A	6.72 A
289	5.69 B	5.94 C	6.06B	5.09 C	4.69D	4.78 B

# Beyond “*Plumpy’Nut*®”

## Future work

- Very nutrient-dense, easy to consume  
“Ready to use Therapeutic Foods” for distribution to immunocompromised and other severely malnourished individuals
  - Use of American peanuts and local ingredients
  - Nutritionally Balanced
  - Easy to swallow, probiotics, aflatoxin-binding

$$E = MC^2$$

$$E_{\text{at}} = M_{\text{ore peanut produ}} C_{\text{ts}}^2$$

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