



## DRY GRAIN PULSES CRSP MANAGEMENT OFFICE

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Consultation on  
*“Enhancing the Nutritional Quality of Diets through Pulses in Developing Countries”*

Hosted by the Department of Food Science and Human Nutrition, Michigan State University,  
December 5-6, 2011, East Lansing, Michigan

### Summary of Recommendations

A. Conduct community based interventions utilizing pulse containing diets:

1. To improve the first 1000 days of life (conception to 24 months of age).
2. To reduce childhood stunting.
3. To improve pregnancy outcome and lactation in diets of young, pregnant, and lactating women.
4. To improve dietary diversity in urban areas to minimize gaining excess weight and onset of type 2 diabetes and heart disease.

In order to accomplish these recommendations, a variety of research activities were recommended. Some of the initial required activities will require assembly and compilation of databases relative to (1) nutrient content of cooked/processed pulse foods of interest, and (2) the bioavailability of nutrients in pulses. Research will be needed to fill in the knowledge gaps.

Nutrient and energy requirements for humans are known and computer simulation/modeling can be used to determine what proportion of nutrient needs is met by consuming pulses. The nutrient gaps can be met by food fortification, supplement usage, or increased access to a wide variety of foods.

B. Alternately/in addition, nutrient bioavailability from pulses can be improved for certain nutrients through plant breeding and food processing. Examples include:

1. Reducing phytate content of pulses via plant breeding and/or food processing to increase trace mineral bioavailability;
2. Increasing nutrient content through pulse breeding (biofortification);

3. Increasing methionine, cysteine and tryptophan content of pulse protein through pulse breeding; and
4. Improving protein digestibility via plant breeding and/or food processing.

C. Other recommended research activities for grain legumes are to determine:

1. The market costs per unit of nutrient if the various nutrients and energy are provided by pulses;
2. The labor and other costs per unit of nutrient and energy associated with growing, harvesting, and storing pulses (e.g., production per hectare, production risks, relative storage problems, etc.);
3. The labor and other costs per unit of nutrient and energy associated with cooking/processing pulses – time and fuel for example;
4. If there are less expensive and easier approaches to obtaining the nutrients and energy than through the pulse chain; and
5. Expand our understanding of the role of pulse bioactive constituents (non-nutrients) to prevent health problems such as diabetes, heart diseases, and certain cancers.

Prepared by Dr. Maurice Bennink, January 30, 2012