

MODULE 1: DEMONSTRATION 1

DISPLAY OF THE AMOUNTS OF CEREALS AND LEGUMES REQUIRED TO PROVIDE EQUIVALENT AMOUNTS OF PROTEIN

PURPOSE:

- Demonstrate that legumes are high in protein.
- Demonstrate the comparatively large amount of cereal grain that would have to be consumed to obtain an equal amount of protein in much smaller servings of legumes.

CONCEPT OF DEMONSTRATION

This display is a simple reminder that legumes are valuable to the human diet because of their high levels of protein. The high level of protein means a high level of nitrogen, and this is in large part due to biological nitrogen fixation. Even though legumes are rich in protein, it is necessary to eat a mixture of cereals and legumes in order to get all the required amino acids and proteins.

CONDUCTING THE DEMONSTRATION

This demonstration can be carried out easily by displaying the different amounts of cereal and legume seeds that provide the same amount of protein as in a serving of rice. The different seeds should have a label indicating their percent protein.

1. A simple display can be made that shows the different amounts of legumes and cereals needed to provide approximately 30 g protein. The following amounts can be placed in similar (same volume), clear containers with a label including their protein content:

Food Item	Protein	Seed required to provide 30 g protein
	%	g
Rice	7.5	400
Maize	9.5	317
Mungbean	24	125
Peanut	26	114
Cowpea	25	121
Soybean	38	80

The main points are: 1) it takes more rice or maize to get the same amount of total protein as in the legumes; and 2) both cereal and legume proteins are required to obtain complete dietary protein.

2. Some nodulated legumes should be on display during this first review and discussion session. These plants can be removed from the extra pots planted for the cross-inoculation demonstration of **Module 3**. These include lima bean, peanut, soybean and common bean that have been inoculated with their respective, effective rhizobia. The whole plant, including the root system, should be washed clean and then displayed in a water-filled glass container. A few of the large crown nodules on each plant can be sliced open. These plants should be inoculated and sown 30 days before the start of course.