

## Feed the Future Innovation Lab for Livestock Systems

### INNOVATION SUMMARY: LEUCAENA LEUCOCEPHALA TREE SPECIES FOR LIVING FENCES AND ANIMAL FEED IN CAMBODIA

This innovation consists of utilizing the *Leucaena leucocephala* tree species as a living fence and source of animal forage. Living fences can provide both forage for livestock in rice-based agricultural systems as well as provide protection for the rice crop from wandering livestock.



### INNOVATION QUICK FACTS

**Lead Implementing Institution:** University of Tennessee

-  **Category:** Forage
-  **Applied in:** Cambodia
-  **Innovation Type:** Management Practice
-  **New/Adapted:** Adapted
-  **Created for:** Women & Men
-  **Nutrition Linkage:** Dietary Quality

### APPLICATION OF THE INNOVATION

The innovation was tested in Cambodia but can be implemented in mixed crop-livestock systems as damage of crops by free roaming cattle is a common problem in many countries. To establish a living fence the area needs to be cleared prior to planting of the leguminous tree around the borders of rice paddies. The *Leucaena leucocephala* tree species was found to be suitable in terms of growth characteristics and biomass production in smallholder rice systems in Cambodia, but other types of leguminous tree species (e.g. *Gliricidia sepium*) could be used depending on the location. When planting the living fence, it is important to plant them at a spacing of 20-30 cm so that they can form a fence and they may need to be protected from grazing animals until the fence is established.

### THE PROBLEM & ITS IMPORTANCE

Shortage of quality livestock feed, particularly feed sources high in protein, limits animal productivity. Additionally, in the dry season in mixed-crop livestock systems, roaming livestock reduce the potential to grow secondary crops in rice paddies. Thus, a living legume tree fence could provide dual benefits to Cambodian smallholder farmers through supply of high-quality forage as well as by protecting crops in paddy fields during the dry season.

### POTENTIAL BENEFITS

It is possible to use living fences to increase the production of nutritious fodder without competing with land area used for human staple crop production. The *Leucaena leucocephala* tree species can produce sufficient biomass throughout the dry season, enabling year-round availability of forage for improved animal production and additional income for farmers. Planting the trees as a living fence around paddy fields will prevent livestock from destroying the crops in the paddy.