Feed Mix LP Problem
DSA/ISE 5113

An agricultural mill produces a different feed for cattle, sheep, and chickens by mixing the following raw ingredients: corn, limestone, soybeans, and fish meal. These ingredients contain the following nutrients: vitamins, protein, calcium, and crude fat in the following quantities:

	Nutrient, *k*			
Ingredient, *i*	Vitamins	Protein	Calcium	Crude Fat
Corn	8	10	6	8
Limestone	6	5	10	6
Soybeans	10	12	6	6
Fish Meal	4	18	6	9

The mill has (firm) contracts for the following feed demands:

	Cattle	Sheep	Chicken
Demand (kg)	10,000	6,000	8,000

There are limited availabilities of the raw ingredients:

	Corn	Limestone	Soybeans	Fish Meal
Supply (kg)	6,000	10,000	4,000	5,000

The different feeds have quality bounds per kilogram:

	Vitamins		Protein		Calcium		Crude fat	
	min	max	min	max	min	max	min	max
Cattle	6	--	6	--	7	--	4	8
Sheep	6	--	6	--	6	--	4	8
Chicken	4	6	6	--	6	--	4	8

Cost per kg of the raw ingredients is as follows:

	Corn	Limestone	Soybeans	Fish Meal
cost/kg	$0.20	$0.12	$0.24	$0.12