

How much food, water, and space do grazing animals need to survive?

Livestock Animal	Average Animal Weight	Drinking Water* per day (per year)	Food (Vegetation)* per day (per year)	Northern California required grazing area	Arid Rangelands required grazing area
Dairy Cow 	540 kg (1200 pounds)	65 L (23725 L)	15.8 kg (5767 kg)	1.75 acres	15 acres
Beef Cattle 	680 kg (1500 pounds)	59 L (21535 L)	11.3 kg (4125 kg)	1.25 acres	11 acres
Horse 	450 kg (1000 pounds)	60 L (21900 L)	10 kg (3650 kg)	1 acre	10 acres
Pig 	90kg (200 pounds)	17 L (6205 L)	4.2 kg (1533 kg)	0.5 acres	4 acres
Camel 	500-600 kg (1300 pounds)	Highly variable (can go weeks without drinking if plants are moist)	3.5 kg (1278 kg)	0.5 acres	3 acres
Goat 	22kg (50 pounds)	5 L (1825 L)	2.5 kg (913 kg)	0.25 acres	2 acres
Sheep 	80kg (175 pounds)	11 L (4015 L)	1.7 kg (620 kg)	0.25 acres	2 acres

* This is the amount an individual animal needs in order to survive.

Livestock Grazing in Northern California

Name: _____

Date: _____

Congratulations! Through a stroke of great fortune, you have been given **100 acres** of prime grazing land in Northern California (Note: One acre is the area of land covered by 90 yards of a football field). Now you have the important task of figuring out which livestock to raise.

1. Choose your own combination of at least 3 different animals, and calculate how many of each you can have on your land. Each square on the grid represents one acre of land in Northern California.
 - a. Choose a symbol for each type of animal you've picked and write it in the legend to the right of the grid. By referring to the Food, Water and Space chart, include how many acres each one requires. (For example, a dairy cow requires 1.8 acres in Northern California, so you would mark 1.8 squares for each dairy cow on your land.)
 - b. Then, write the symbols in the grid squares used for each animal. Draw an outline around each individual animal's area so you can count them more easily.

Grid Legend			
Symbol	Animal	Acres	Total #
 = 1 acre			

Report your business plan. How many of each animal did you choose? Why did you choose them? What will they provide to you?

2. My Sustainable Northern California Ranch Plan

Welcome to year two of ranching. Has all or almost all of the grass been eaten? Can you come up with a better plan for using your land more thoughtfully, so that it will be sustainable and can produce grass year after year? (Hint: Try "rotational grazing.")

	Grid Legend			
	Symbol	Animal	Acres	Total #
	= 1 acre			

How is this plan different than what you did in your first ranching plan? Why is it important to think ahead?

3. My Sustainable Arid Rangeland Ranch Plan

Because you have created a sustainable plan in the temperate rangelands, ranchers in Kenya and in the Amazon want to hire you to come up with a sustainable plan for their ranches.

Refer to the Food, Water and Space chart to design an appropriate and successful plan for that area. Hint: Many ranchers in Kenya, an arid rangeland, are switching to camel milk and meat for their products. Can you guess why?

	Grid Legend			
	Symbol	Animal	Acres	Total #
	= 1 acre			

How did your California plan differ from the plan you came up with in this arid land? Why was it different?
