

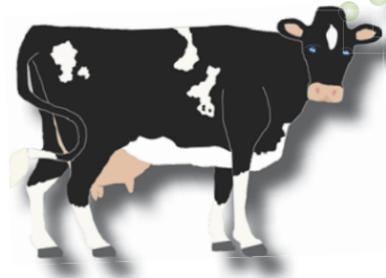
# If cows could text . . .

they'd tell you about their unique characteristics and beneficial contributions to humankind!

## DY knw hw cows make moo?

(milk)

hope this isn't TMI!



FYI, think of nutrients like building blocks

- 1** Cows eat feeds which contain many nutrients:
- |               |          |
|---------------|----------|
| carbohydrates | fats     |
| protein       | water    |
| vitamins      | minerals |

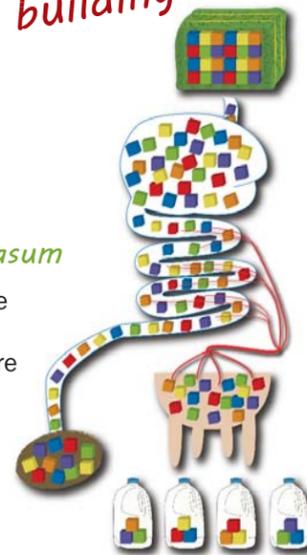
- 2** The feed is broken down and the nutrients are mixed up and moved through her 4 stomach compartments:

*rumen reticulum omasum abomasum*

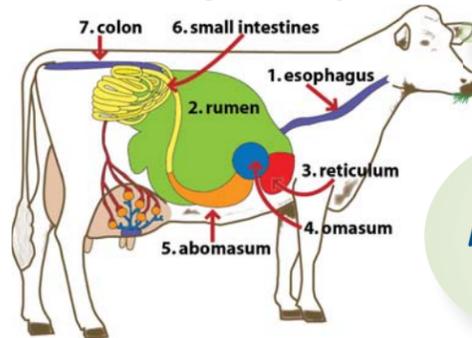
- 3** The digested feed moves to her **1**) small intestine where the nutrients are absorbed into the **2**) bloodstream and carried to the **3**) udder where the cow puts the nutrients back together in another form to make milk.

Absorbed nutrients are also used to nourish the cow.

- 4** Undigested feed and unused nutrients leave the body as waste (manure).



## wrd of d day is rumen

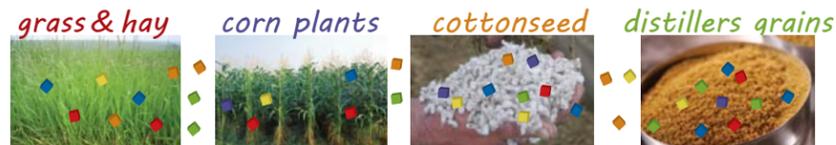


IDK what I'd do w/o my rumen

### watz a rumen?

A rumen is the first of 4 compartments in a cow's stomach. It is full of bacteria and other microbes that help the cow break down the fibrous cells in plants like grass. When cows eat, the rumen microbes get first dibs on the feed; then those microbes and the products they produce actually feed the cow.

### I dare u2 eat these!

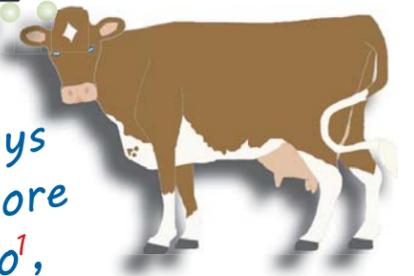


Nutrients are found in these products, too. But human stomachs can't break down the cell walls and release many of those nutrients. However, a cow's 4-compartment stomach can break down cell walls, thanks to the microbes and the mechanical action of cud chewing. So cows can utilize grass grown on land that's too steep or dry for row crops; or byproducts from human food, fiber and fuel production. Then they turn it into delicious, nutritious milk! What a service to humankind!

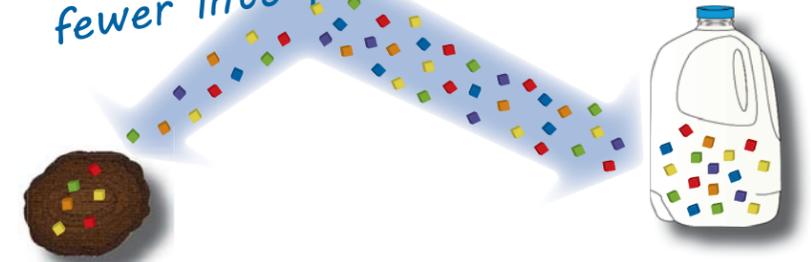
## BTW, cows make

i'm telin u, that's TMI!

## poo, too!



research is finding ways to help cows put more nutrients into moo<sup>1</sup>, fewer into poo<sup>2</sup>



When cows put more nutrients into <sup>1</sup>milk, and not <sup>2</sup>manure, it improves both the economic and environmental sustainability of the farm. That's why research at the U.S. Dairy Forage Research Center is looking for new ways to do this . . .

- by making changes in feed or feeding methods
- by improving feed harvest and storage methods
- by studying how cows digest and utilize nutrients.

Research is also finding ways for farmers to make better use of the nutrients that do end up in the manure so that . . .

- more nutrients are used to fertilize crops and
- fewer nutrients are lost to the environment.

May copy for educational purposes.

U.S. Dairy Forage Research Center/USDA-Agricultural Research Service  
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Research farm at S8822 Sunsent Dr. (off of Hwy. 78), Prairie du Sac, WI 53578

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