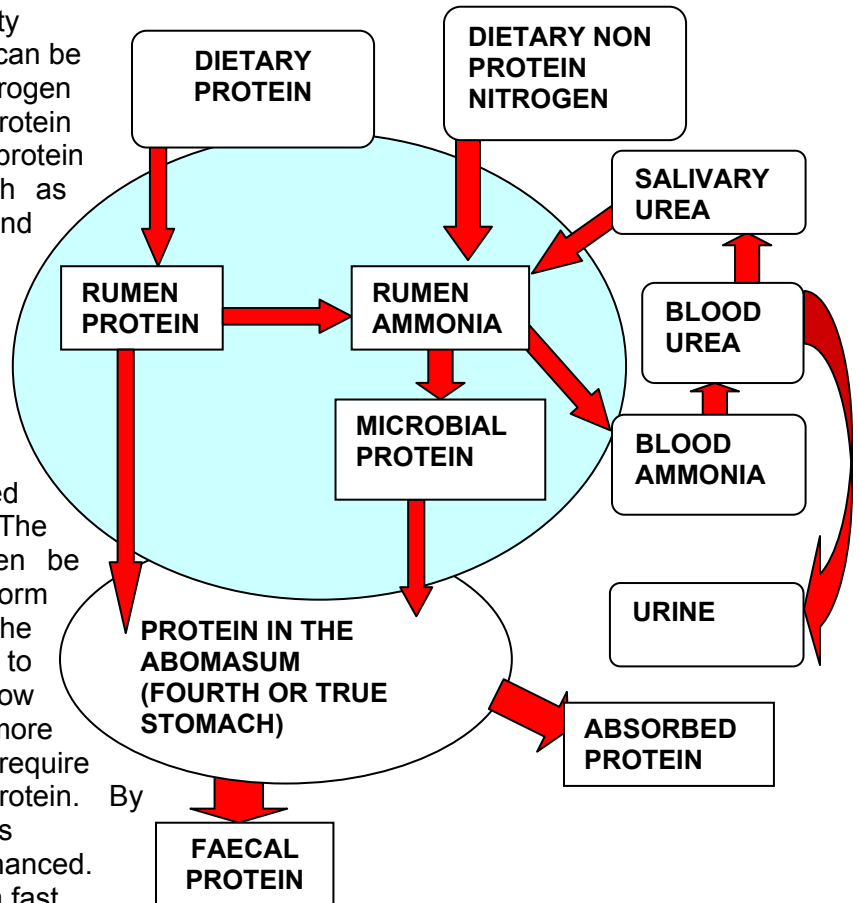


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## What happens to the Protein I feed my cattle?

What happens to the protein that we feed to our cattle is very important in terms of productivity achieved from this protein. Protein can be fed as true protein or non protein nitrogen (NPN). True protein comes from protein meals, grains and pasture. Non protein nitrogen can come in forms such as urea, Sulphate of ammonia and various other products.

When these products reach the rumen the microbes break them down to form ammonia. True protein that is fed can also be broken down in the rumen to form ammonia. This protein is termed Rumen Degradable Protein. The ammonia that is formed can then be utilised by the rumen microbes to form microbial protein. This feeds the rumen microbes allowing them to multiply and therefore digest low protein feeds faster and more effectively. The rumen microbes require energy to convert ammonia into protein. By supplying energy at the same rate as ammonia the conversion can be enhanced. As urea releases ammonia quickly a fast release energy source such as starch helps convert ammonia to protein.



If there is excessive ammonia in the rumen it passes across the rumen wall into the blood stream. This ammonia in the blood will pass to the liver where it is converted to urea. Converting the ammonia back to urea costs the beast energy. This urea may then be passed out in the urine and so wasted. A proportion of this urea circulates to the salivary glands where it is secreted into the saliva and so passes back to the rumen. By keeping the excessive ammonia production to a minimum we can maximize the efficiency of use of the supplemented nitrogen.

True protein that is not broken down in the rumen is termed bypass protein. Bypass protein does not feed the rumen microbes but directly feeds the beast. As the microbes die and are swept out of the rumen they pass to the fourth stomach and are digested by the beast thus supplying microbial protein which the beast can digest and absorb.

Supplementing with high bypass protein meals does not feed the rumen microbes and so does not increase the digestion of dry forage. To feed the rumen microbes we need to feed Non Protein Nitrogen or rumen degradable protein sources. Protein meals usually contain high levels of energy and so boost the growth rate by supplying energy and protein.