



Wildlife Formula Calculator species milk composition choices - Cottontail update

The pre-loaded species milk choices in the WildAgain Wildlife Formula Calculator have been updated to include more information on Cottontail rabbit milk. When created in early 2000's, the Calculator contained various species milk composition studies as published in the *Principles of Wildlife Rehabilitation* (2nd ed.) manual published by the National Wildlife Rehabilitators Association. As the Calculator has since expanded its functionality, it has been periodically updated to include additional species milk studies. It has also been updated to revise or include additional milk research studies that appear to be more complete in their scope, analysis and findings. In the case of Cottontails, a more robust milk composition study is available with many more milk samples and a broader scope of study methodology and analysis. As a result, WildAgain has incorporated that information in the Calculator. The basis for this change is discussed below.

In the Calculator's drop-down menu where the species milk is selected, two separate cottontail milk research studies were previously provided as choices (Jenness & Sloan; Oftedal), as well as a simple average of the two, as highlighted in the yellow shaded cells. These two studies were each based on a very limited number of milk samples when the research was performed.

Original Calculator option	Solids	Protein	Fat	Carbs	samples
Cottontail (Average)	35.7%	14.1%	16.2%	1.9%	6
Cottontail Jenness&Sloan	36.1%	12.5%	17.9%	1.0%	2
Cottontail Oftedal	35.2%	15.8%	14.4%	2.7%	4

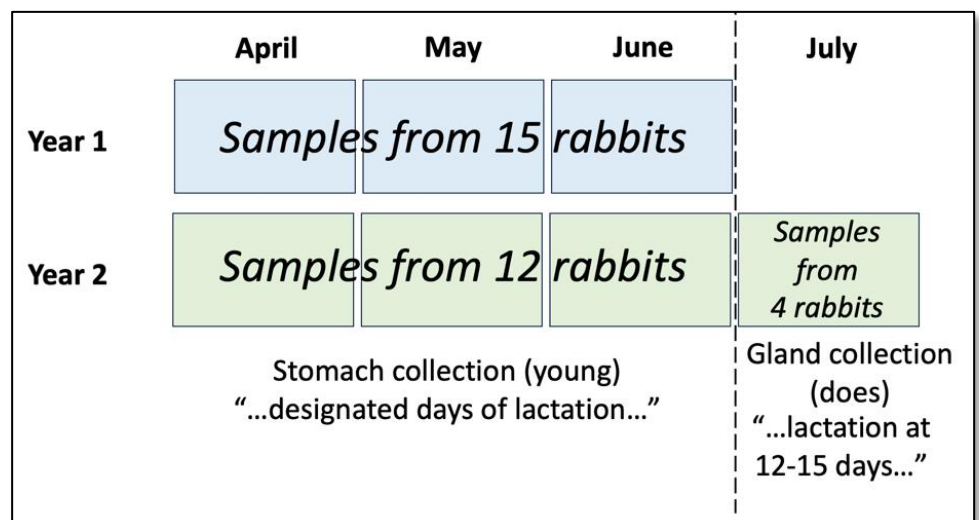
The newly updated choice for Cottontail milk in the Calculator drop-down menu is now based an average of values reported in the Anderson study and will appear as a single choice as shown in the yellow shaded cells.

The Anderson study analyzed a total of 31 milk samples, with 4 taken from mammary glands and 27 from

Updated menu choice	Solids	Protein	Fat	Carbs	samples
Cottontail (Average)	34.4%	15.2%	14.2%	2.5%	31
Cottontail (Anderson Gland)	35.2%	15.8%	14.4%	2.7%	4
Cottontail (Anderson Stomach)	33.6%	14.6%	13.9%	2.2%	27

the stomachs of young. [The 4 samples from the gland as reported in the Oftedal compilation (1995) of studies were actually referenced as these same 4 Anderson samples (1975).] As illustrated in the image at right, the sampling took place over spring/summer months and 2 years. That sampling period likely covered multiple stages in the lactation period as well as varying environmental (weather) conditions.

The broader scope of the Anderson Cottontail study also included the identification and analysis of the primary fatty acid profile, as well as the milk concentrations of more dietary minerals beyond calcium and phosphorus.



As a result of this change in the Calculator, previous formula recipes constructed and compared to the prior Cottontail species milk composition average will now show slightly different results in the green-shaded area of the Calculator where the recipe is compared to the species milk composition. The Anderson average has slightly higher proteins and slightly lower fats than the previous average as shown above. As such, recalculation of any prior recipe is suggested to decide if and how to adjust the formula recipe to maintain an acceptable match to the species milk (in the range of 65-75% of the mother's milk, with a preferred target of $\approx 70\%$).

If the user determines that the Anderson study appears to be more representative of the species milk, then a simple menu choice is all that is required. Alternatively, the user can certainly continue to use the prior Cottontail average milk composition values (provided above) to construct recipes, but would need to input those values thru the User Input tab in the Calculator workbook for them to be available in the drop-down menu (a [video tutorial](#) provides a walk-thru demonstration explaining that feature of the Calculator).

References

Anderson, Sadler, Knauer, Wippler, & Marshall. 1975. ***Composition of cottontail rabbit milk from stomachs of young and directly from gland.*** J Dairy Sci 1975 Oct; 58(10):1449-52.