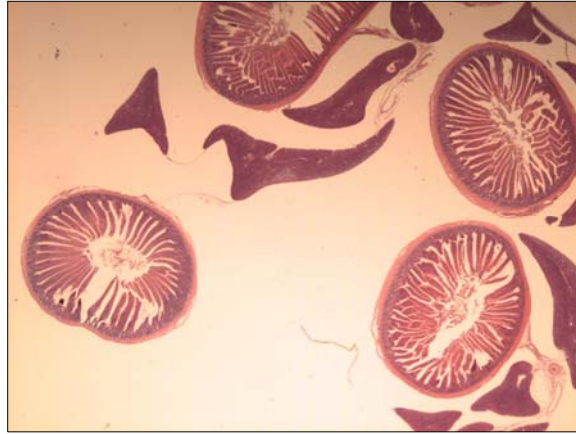


EFFECTS OF CELL-RATE™ ON INTESTINAL VILLI AND WEIGHT GAIN

In a trial in Brazil, the zoo technical parameters of Cobb Fast broilers were examined. The feeding of 500 ppm (500 g/ton) of CELL-RATE™ started at hatching and was continued until 10 days after hatching. The performance of the animals was monitored until slaughter. In addition the development of the intestinal tract was examined in this trial.



Length of villi (µm)

Age	CELL-RATE™	Control	Difference
10 days	170.626 ± 0.270	121.594 ± 0.276	+ 40.32%
14 days	179.179 ± 0.106	170.030 ± 0.160	+ 5.37%

Circumference (mm)

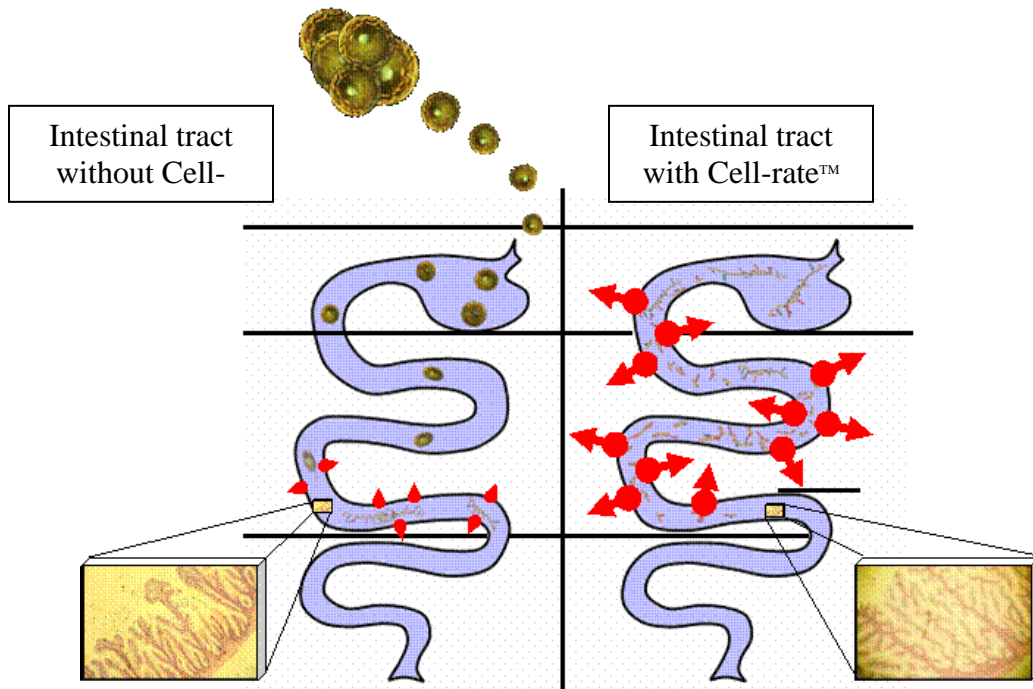
Age	CELL-RATE™	Control	Difference
10 days	23.18 ± 3.65	15.62 ± 3.72	+ 48.39%
14 days	24.88 ± 5.57	24.96 ± 5.10	0.00%

Compared to the control animals, the development of the intestinal villi in the test group was accelerated. The average length of intestinal villi achieved in the control after 14 days was accomplished in the trial group at day 10. Similar results were obtained for the circumference of the villi. In general, the test animals completed the intestinal development 4 days earlier than the controls. This advance is retained throughout the life of the animals and is reflected in improved performance. Moreover, the intestinal defence mechanisms are established faster which, therefore, achieves an earlier protection from bacterial or viral infections as well as parasitic attacks. The benefit of accelerated intestinal villi is the improvement in feed intake and nutrient absorption. During this trial the weight of the broilers were also measured.

Age	CELL-RATE™	Control	Difference
-----	------------	---------	------------

10 days	185.9 g	171.3 g	+ 8.52%
22 days	716.7 g	681.4 g	+ 5.18%
35 days	1620 g	1570 g	+ 3.18%
44 days	2368 g	2178 g	+ 8.72%

In this trial the performance of the CELL-RATE™ group clearly exceeds the control group. Throughout the whole trial, the broilers fed with CELL-RATE™ fortified feed grew faster and achieved a higher final body weight at slaughter.



Compared to normal feed, the unique formulation of the Cell-rate™ tailored for different species allows a facilitated uptake of the active ingredients in the small intestine and a rapid availability for every cell in need of these building blocks of life. This ensures optimized general health as well as improved development and performance. An immediate effect of dietary Cell-rate™ becomes apparent when examining intestinal structures. The elongation of intestinal villi and the increase in intestinal surface area help contribute to improved feed uptake and feed conversion. Supplementing feed with the Cell-rate™ augments the nutritional value of feed while reducing costs through benefits.