



## Chronoregulation of Ruminants Feed Intake: A Cropping Science

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Chronophysiology is an evolutionary pragmatic interscience that helps ruminants cope with the fluctuating environment. In light of the most recent discoveries on feeding and eating timing-orchestration of postprandial intake and rumen fermentation patterns, an innovative perspective is born to analyze chronophysiology as a major organizer of voluntary feed intake (VFI). This article elaborates on this postmodern innovation.

**Keywords:** Chronophysiology; Ruminant; Nutrient intake; Circadian pattern

### Introduction

Quantitative evaluation of the factors regulating VFI in high-producing ruminants is of high priority, as it enables proper modeling and adequately accurate predictions of feed intake especially during critical physiological conditions [1,2]. However, due the multitude of effects under varying farm, diet and animal conditions, securing reasonable accuracy has been an enormous challenge [3-6].

Recent discoveries on timing of feeding-eating mediation of postprandial and circadian patterns of feed intake in lactating dairy cows, have opened new windows into VFI regulation [7,8]. The fact that night-fed cows consume feed more rapidly shortly post-feeding compared to morning-fed cows suggests that the mechanisms regulating VFI differ in nature and magnitude depending on time of the 24-h period.

The path of evolution has equipped ruminants with biological tools to effectively ferment and degrade plant cell walls and be able to survive in such a natural wild environment. As such, ruminants developed

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