Reducing climate footprints and making milk production more sustainable is an urgent need for future dairying. Mitigating methane emission through specific feed practices can be one approach, but also new management strategies as e.g. extended lactation may be a valid alternative. By delaying insemination, longer calving intervals are achieved, which can be a beneficial strategy for high yielding dairy cows due to a reduction in feed use per kg milk produced and fewer risk periods around calving. However, there are still concerns whether extended lactation for more than the traditional 12 months impairs milk quality. Likewise, increasing yields per cow will lead to lower carbon footprints per liter of milk produced, but we still need to secure healthy animals and a premium milk quality. A new project studies nitrogen and phosphor metabolism through controlled feed experiments, and evaluates the N/P excretions, as well as the transfer to milk. Regulations demand a better monitoring of the N and P flows from farms to the environment, but from a milk perspective changes in N/P supplementation may also affect the protein-mineral balance in milk and thereby affect milk functionality. This may go hand in hand with a growing interest for phasing out imported soy and secure a more self-sufficient feed production for dairy cows. Internationally dairy labels based on 100% grass-fed dairy cows have increasing market shares. Our primary aims are to document how these emerging strategies affect milk composition and functionality, and to secure that milk quality is not compromised in the search for more sustainable solutions for dairy production systems.