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Ripening of cheese consists of complex microbial interactions between starter lactic acid bacteria (SLAB) and non-starter lactic acid bacteria (NSLAB). One of the key microbial interactions is growth of NSLAB by utilization of metabolites (various sugars) released from SLAB during cell death. The establishment of a high NSLAB level in cheese is slow, taking several months, but it is a prerequisite for high quality. Therefore, significant cost saving would be achieved if a high level of NSLAB could be established faster. This study, using broth models and cheese trials, was performed to optimize and accelerate the SLAB cell death-NSLAB growth interaction. Cheddar cheese was manufactured using a commercial SLAB containing *Lactococus lactis* subsp. *cremoris* and subsp. *lactis* with fast cell lysis properties. Furthermore, at the curd milling, glucose was added to increase the growth rate of NSLAB. One third of the added glucose was retained in the curd; however, 1 week post-manufacture, no detectable glucose was present in the cheese. As NSLAB levels were still under the detection limit (10^2 CFU/g of cheese) after 1 week post-manufacture, it is concluded that SLAB were responsible for the glucose depletion. Surprisingly, the broth models showed that at 5 % salt-in-moisture SLAB were unable to utilize glucose. These results indicate that in order to accelerate the cheese ripening by supplementing with sugars, it is necessary to screen for sugars exclusively utilized by the NSLAB.