A combination of automation technologies in rotary dairies was associated with increased labour efficiency but not milking throughput.

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ABSTRACT

Dairy farmers are adopting more smart farming technologies to assist with milking and managing their cows in response to increased herd sizes and a desire to improve labour efficiency and sustainability. In this study, we evaluated the adoption of smart technologies installed at the dairy, and milking practices, on New Zealand dairy farms. These data quantify current use of technology for labour-efficiency and decision-making, and provide insight into the next decade. A telephone survey of 500 farm decision-makers, selected randomly to provide an accurate representation of New Zealand dairy farms was conducted in 2018. Adoption rates for all farms are indicated for four automation technologies; automatic cup removers (39%), automatic drafting (24%), automatic teat spraying (29%), and in-shed feeding (40%), and four data capture technologies; electronic milk meters (8%), automatic animal weighing (7%), in-line mastitis detection (7%), and automatic heat detection (3%). Analysis by dairy type indicates an adoption rate for the automation technologies in rotary dairies of 49-77%, and 7-19% for data capture technologies. This compares with herringbone dairies at 12-29%, and 2-4% for automation and data capture technologies, respectively. Rotary dairies, with a combination of automatic cup removers, automatic teat spraying, and automatic drafting were associated with a higher labour efficiency (cows milked/ person.h) than rotary dairies without these technologies. Dairy farms will use increasing amounts of technology and the results this study provide information to guide future research and development.