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Composition and quality studies of milk from production to consumption in urban automated dairy sector

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The present study was carried out at ten urban dairy units with a minimum number of hundred dairy animals by using a structured interview schedule and for the quality studies of milk, a three strata assessment. In milking automation majority were using bucket milking machines (40%) followed by rotary parlor (30%), herring-bone parlor (20%) and a combination of bucket milking machines and parlor (10%). Infrastructure and automation in storage and processing study has revealed that BMC's (80%) were popular at the farms and others were having combination of BMC's, pasteurization, Automatic estrous detectors such as activity meters or pedometers are used in collars or on legs.

In the cost-analysis highest cost among the variable costs incurred per animal per day in the dairy units was of feed (87.82%) followed by labor (5.47%), medicines cost (3.21%), operational costs (1.9%) and insurance cost (1.6%). Correlation between cost of milk production and feed costs were positive and significant ($p < 0.01$). Milk production was found negatively correlated to cost of feed, medicines and insurance costs. In the fully automated dairy units the mean herd size (1074), fixed costs (136,497,785) and variable costs (9677180) are higher than in the semi-automated dairy units mean herd size (331), fixed costs (60980118) and variable cost (55987.3). For every 100 units of herd, fully automated units are using 3 units of labor and in semi-automated dairy units for every 100 units of herd 8.2 units of labor is used which is 2.7 times higher and costs incurred per unit herd in semi-automated on labor are also 2.7 times higher.

Milk produced in the fully automated farms have better keeping quality. There are increased average fat values in fully automated farms 4.18, 5.32 and 4.07 than in the semi-automated farms 3.66, 4.41 and 3.92 which is profitable as the price for milk is given on the fat percent. SNF values are almost similar in both automated (8.375, 8.9275 and 8.09) and semi-automated milk samples (8.582, 8.948 and 8.094). The somatic cell counts are high in all the samples in all the dairy units but in the fully automated (253896.5, 366271 and 303551.5) farms have comparatively low SCC's than semi-automated (441593.16, 480543.16 and 406919) farms. In terms of SPC count fully automated units samples (32750, 38000 and 26750) are of good quality but in semi-automated first two strata samples (51000, 58833.3) are good but 3rd strata (37833.3) is fair in quality. In SPC counts fully automated milk samples have low values of SPC. Milk samples have coliforms present in 1:100 and 1:10 dilution and is not satisfactory in terms of CC and relatively fully automated units (5.5, 7.25 and 5) have less coliform counts than semi-automated (25.3, 33.3 and 16.6). In the fully automated dairy units the mean average milk yield per animal per day and mean fat% and mean value of output from milk per animal are higher (16, 5.32 and 676.5 respectively).