**Supplement Table 1.** Variable and analysis list.

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| **#** | **Variable** | **Variable analysis** |
| 1 | Fat and Protein Corrected Milk (FPCM) kg | Network and regression analysis |
| 2 | Total Dry Matter Intake (DMI) kg | Network and regression analysis |
| 3 | FPCM/DMI kg | Network and regression analysis |
| 4 | Total Diet Crude Protein (CP) % | Network and regression analysis |
| 5 | Total Diet Acid Detergent Fiber (ADF) % | Network and regression analysis |
| 6 | Total Diet Amylase Neutral Detergent Fiber (aNDF) % | Network and regression analysis |
| 7 | Partially Mixed Ration (PMR) Lignin % | Network and regression analysis |
| 8 | Total Diet Starch % | Network and regression analysis |
| 9 | Total Diet Ash % | Network and regression analysis |
| 10 | Total Diet Fat % | Network and regression analysis |
| 11 | Total Diet Non-fiber Carbohydrate (NFC) % | Network and regression analysis |
| 12 | % Energy Cosumed @ Robot | Network and regression analysis |
| 13 | PMR Mcal Conc. | Network and regression analysis |
| 14 | Mcal Conc. of Robot Feed | Network and regression analysis |
| 15 | Milk Speed | Network and regression analysis |
| 16 | Log # Refusals | Network and regression analysis |
| 17 | # Milkings/Cow/Day | Network and regression analysis |
| 18 | kg Conc./100kg Milk | Network and regression analysis |
| 19 | Average Boxtime minutes/Visit | Network and regression analysis |
| 20 | Average Fat % Indication | Network and regression analysis |
| 21 | Average Protein % Indication | Network and regression analysis |
| 22 | Average Fat Protein Ratio (FPR) | Network and regression analysis |
| 23 | Log Free Time | Network and regression analysis |
| 24 | Cows/Robot | Network and regression analysis |
| 25 | FPCM/Milking | Network and regression analysis |
| 26 | Average Feeding Rate | Network and regression analysis |
| 27 | Log Rest Feed Conc. | Network and regression analysis |
| 28 | Rumination | Regression analysis/removed from network analysis (missing data) |
| 29 | # Connection Attempts | Regression analysis/removed from network analysis (missing data) |
| 30 | kg Concentrates Lactation Days-60 | Regression analysis/removed from network analysis (missing data) |
| 31 | Treatment Time | Regression analysis/removed from network analysis (missing data) |
| 32 | Log # Failures | Regression analysis/removed from network analysis (missing data) |
| 33 | Energy Corrected Milk (ECM) | Removed (high correlation) |
| 34 | kg Butterfat and Protein Yield | Removed (high correlation) |
| 35 | ECM/DMI kg | Removed (high correlation) |
| 36 | Total Mcals consumed | Removed (high correlation) |
| 37 | Mcals Consumed @ Robot | Removed (high correlation) |
| 38 | Mcals Consumed in PMR | Removed (high correlation) |
| 39 | Percent of Energy Consumed in PMR | Removed (high correlation) |
| 40 | Ratio of Refusals to Percent of Energy at the Bunk | Removed (high correlation) |
| 41 | Log kg Rest Feed | Removed (high correlation) |
| 42 | Total Diet Mcal Concentration | Removed (high correlation) |
| 43 | Milk Production/Cow/Day | Removed (high correlation) |
| 44 | kg Concentrates kg Milk 60 | Removed (high correlation) |
| 45 | kg Fat | Removed (high correlation) |
| 46 | kg Protein | Removed (high correlation) |
| 47 | Total Butterfat and Protein | Removed (high correlation) |
| 48 | ECM/Milking | Removed (high correlation) |
| 49 | Less Rest Feed | Removed (high correlation) |
| 50 | kg Crude Protein from PMR | Removed (kg) |
| 51 | kg Crude Protein @ Robot | Removed (kg) |
| 52 | kg ADF Consumed | Removed (kg) |
| 53 | kg NDF Consumed | Removed (kg) |
| 54 | kg Lignin from PMR Consumed | Removed (kg) |
| 55 | kg Starch from PMR | Removed (kg) |
| 56 | kg Starch @ Robot | Removed (kg) |
| 57 | Number of Robots | Removed (farm level) |
| 58 | Milk/Robot | Removed (missing data) |
| 59 | Total Amount of Milk Produced | Removed (farm level) |
| 60 | Number of Visit | Removed (farm level) |
| 61 | Amount of Milk Separated | Removed (farm level) |
| 62 | Number of Cows Milk Separation | Removed (farm level) |
| 63 | kg Concentrates Fed | Removed (farm level) |
| 64 | kg Rest Feed Concentrates | Removed (farm level) |
| 65 | Number of Cows Milking | Removed (farm level) |