**Supplemental material**

**Supplemental Table 1** Single variate mixed-effect models of log-transformed milk iodine concentrations (MIC) as dependent variable and continuous or categorical predictors as independent variables, controlled by farm management as fixed effect and farm identification number as random effect in milk samples from 32 farms in Switzerland and Aosta valley1

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | n | β ± SE | *P value* |
| Farm characteristics |  |  |  |
| Region (all pairwise comp)Midland – JuraAlpine – JuraAlpine – Midland | 126 | 0.081 ± 0.414-0.312 ± 0.438-0.393 ± 0.290 | 0.980.750.36 |
| Farm type (reference conventional) | 126 | -0.339 ± 0.282 | 0.24 |
| Production typeMilk from Alpine grazingIndustry milkCheese  | 126126126 | -0.149 ± 0.2290.363 ± 0.289-0.207 ± 0.281 | 0.520.220.47 |
| Farm altitude [m above sea level] | 123 | -0.241 ± 0.137 | 0.090 |
| Farm size [ha] | 123 | 0.137 ± 0.134 | 0.32 |
| Log(Number of animals) [n] | 114 | 0.229 ± 0.116 | 0.051 |
| Herd’s average days in milk | 114 | -0.001 ± 0.074 | 0.99 |
| Daily milk yield [kg] | 114 | 0.191 ± 0.114 | 0.097 |
| Log(Primiparous cows) [%] | 111 | -0.018 ± 0.104 | 0.86 |
| Season (all pairwise comp)Jun – DecMar – DecSep – DecMar – JunSep – JunSep – Mar | 126 | -0.233 ± 0.164-0.030 ± 0.162-0.657 ± 0.1640.203 ± 0.164-0.424 ± 0.165-0.627 ± 0.164 | 0.481.00<0.0010.600.051<0.001 |
| Milk composition |  |  |  |
| Log(Fat content) [g/100g] | 114 | 0.221 ± 0.077 | 0.005 |
| Log(Protein content) [g/100g] | 114 | 0.033 ± 0.085 | 0.70 |
| Log(Cell count) [1000/mL] | 114 | -0.068 ± 0.077 | 0.38 |
| Teat dipping with iodine-containing disinfectantsIodine concentration of disinfectant [mg/mL] | 123111 | 0.868 ± 0.2570.157 ± 0.130 | 0.0020.24 |
| Iodine concentration in feed components [mg/kg DM]Log(Forages/concentrate ingredients)Log(Commercial concentrate)Log(Mineral mixture)Salt | 61525959 | 0.165 ± 0.137-0.086 ± 0.146-0.005 ± 0.176-0.055 ± 0.139 | 0.240.560.980.70 |
| Iodine concentration in feed components in total diet [mg/kg DM diet]Log(Forages/concentrate ingredients)Commercial concentratesSqrt(Mineral mixture)Salt30 g salt scenario50 g salt scenario70 g salt scenarioTotal feed30 g salt scenario50 g salt scenario70 g salt scenario | 616061616161606060 | 0.142 ± 0.1360.085 ± 0.1290.104 ± 0.1570.024 ± 0.142-0.025 ± 0.157-0.084 ± 0.1400.063 ± 0.1430.062 ± 0.1430.061 ± 0.144 | 0.310.510.510.870.870.550.660.670.68 |
| Daily iodine intake [mg/d] Log(Forages/concentrate ingredients)Log(Commercial concentrate)Log(Mineral mixture)Salt 50 g scenarioTotal feed 50 g salt scenario | 6152595952 | 0.099 ± 0.135-0.032 ± 0.1450.180 ± 0.172-0.135 ± 0.1450.173 ± 0.134 | 0.470.830.300.360.21 |

1 Significance level was set at *P*<0.05 and borderline significance level at *P*<0.1