Effect of selenite and selenised yeast supplementation on selenium concentration of Finnish organic milk – a farm survey

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Fig. 2. Experimental mixture.

OBJECTIVES

- Organic milk contains less Se than conventional milk in Finland due the naturally low Se concentration in soil, and the Se fertilising of the conventional fields resulting higher milk Se
- Sodium selenite supplement in animal feeding is not enough in organic dairy farms to meet the level of conventional milk
- The aim of this farm survey was to determine an adequate Se supply for dairy cows in Finnish organic farming by replacing sodium selenite totally or partly with selenised yeast

MATERIALS AND METHODS

- Survey was conducted during spring 2008 with 15 organic dairy farms in Eastern Finland (Fig. 1)
- Three types of selenium (Se) supplementations: selenium yeast (SY), sodium selenite (SS) or their (50:50) combination (SYS) was used
  - daily amount was approximately 3 - 4 mg (adjusted according milk yield)
- Se (Sel-Plex™) was included in an experimental farm-ready mineral-vitamin mixture provided and prepared by Raiso Feed Ltd (Fig. 2)
- Latin square design consisted from 3 Se treatments, 3 feeding periods and 3 balanced (milk yield, herd size, housing and feeding system) farm groups
- After each 28 days period bulk-tank milk samples were collected and frozen prior to Se analysis at Agrifood research Finland (MTT)
- Study is part of Core Organic PhytoMilk-project
  - in Finland founded by MMM

Fig. 1. A participant farmer.

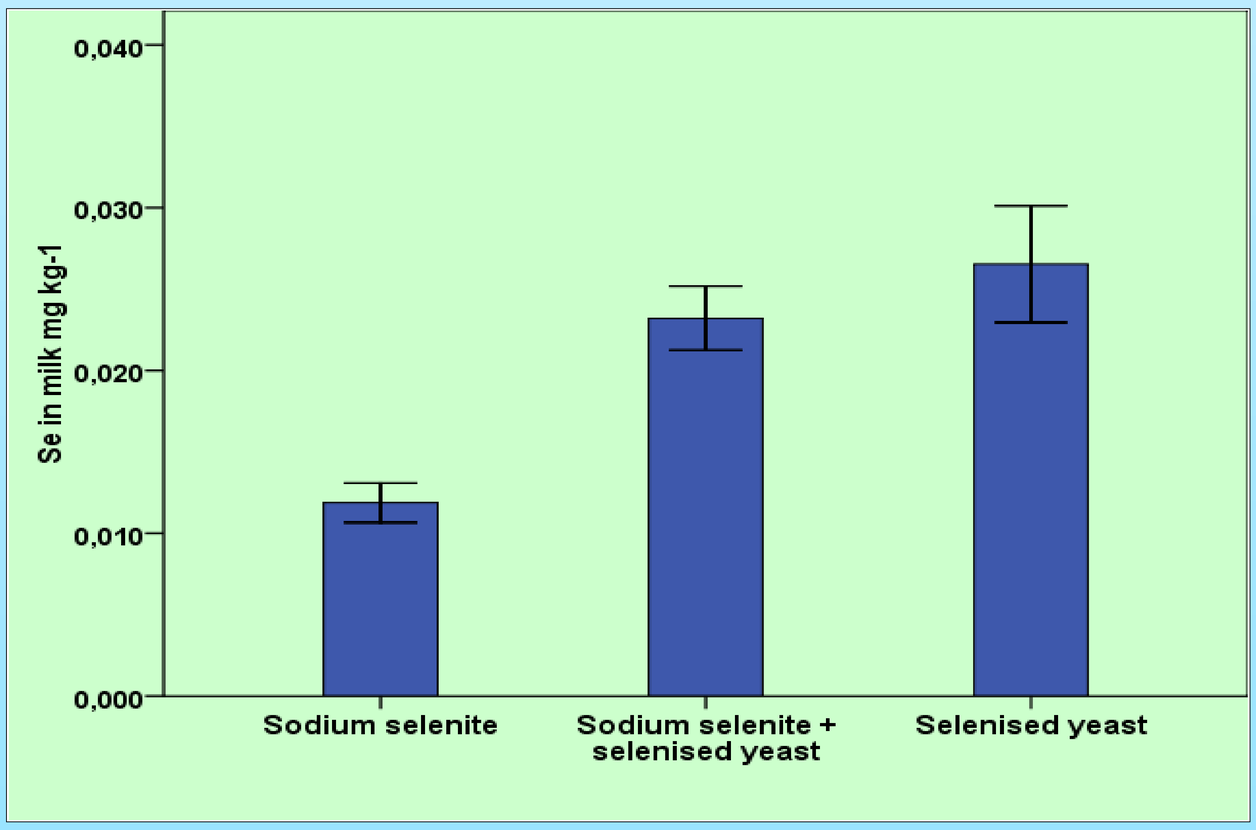

Fig. 3. Effect of Se supplementation forms on milk Se concentration.

RESULTS

- The Se supplementation form was crucial for milk Se concentration ($P<0.001$, Fig 3.)
- Sodium selenite resulted the lowest Se concentration near the current milk Se concentration of Finnish organic milk
- Selenised yeast resulted Se level similar to Finnish conventional milk
- Mixture (50:50) of selenised yeast and sodium selenite resulted almost similar level to selenised yeast

CONCLUSIONS

Selenised yeast is powerful tool also for organic farms in increasing milk Se concentration and it is needed if the target is to reach the level of Finnish conventional milk.
Se yeast containing commercial feeds are convenient way to ensure cow's Se intake.