

Minerals in forage for dairy cows*B. Johansson¹ and M. Åkerlind²**¹Swedish University of Agricultural Sciences, Department of Animal Environment & Health, Box 234, 532 23 Skara, Sweden, ²Växa Sverige, Box 7024, 750 07 Uppsala, Sweden; birgitta.johansson@slu.se*

Cows need minerals for their health and production and a high share of their mineral intake comes from forage. Feeding cows a high proportion of forage is also good for the environment. There are large variations in mineral concentrations (MC) in forages, depending on e.g. plant species composition and concentrations of plant-available minerals in the soil. In Sweden, the MC in soil varies between regions and some dairy farmers report mineral deficiency-related disorders of cows and calves. Dairy cows in Sweden are highly productive and it is possible that the recommended intake does not meet their requirements, at least of certain minerals, in some areas. This study examined whether the MC in forage differed between regions, and between organic and other producers. Large amounts of analytical data on minerals in forages (n=4,872), based on samples taken at harvest and from silages during 2015 and registered by Växa Sverige, were examined. The samples were divided into 10 Swedish regions and 212 were known to be samples from organic farms, while the other samples were mainly from conventional farms. The minerals studied were calcium (Ca), phosphorus (P), potassium (K), sodium (Na), sulphur (S), magnesium (Mg), chlorine (Cl), iron (Fe), manganese (Mn), zinc (Zn) and copper (Cu). The GLM procedure in SAS was used in statistical analyses. All minerals except S and Fe differed between the Swedish regions. In forage samples from northern Sweden, MC were generally lower than in samples from central and southern Sweden. Samples from organic farms had higher concentrations of Ca, P, K and Mg and lower concentrations of S than the other samples. It is known from earlier studies that legumes generally have higher MC than grasses and increased red clover proportion in ley mixtures increases MC in the overall mixed forage. Therefore, the higher MC in forage samples from organic farms may be the result of a higher clover fraction in the forage. It would be beneficial to consider MC differences in forages when composing qow diets.

Effect of new sustained-release non-protein nitrogen on performance of dairy cows*J. Roquet¹, M. Agovino² and H. Warren²**¹Alltech Spain, S.L., Can Lletget, 11, 08202 Sabadell, Spain, ²Alltech Biotechnology Centre, Summerhill Road, Dunboyne, Co. Meath, Ireland; hwarren@alltech.com*

This study investigated the effect of sustained-release (SR) ruminal non-protein nitrogen (NPN) source on performance of dairy cows. The milk production and milk composition of 100 Holstein dairy cows has been compared before and after the inclusion of Optisync® (OS, a new generation of SR NPN; Alltech Inc). The diet was based on rye silage, dehydrated alfalfa, corn, barley, soy bean meal and rapeseed meal. OS has been added to the diet replacing part of vegetable protein source, to have the same amount of dry matter and starch and reducing the amount of crude protein (17.35% vs 16.79%). Animals were on treatment for 60 days in average. Milk production and milk quality were recorded. No significant variation on milk quality (fat, protein, urea and SCC) has been established. Average milk production improved by +0,65 liter/head/day after OS inclusion in the diet (37.51 vs 38.16 liter/head/day). Animals between 30 and 100 days in milking recorded an increased production of 1.48 liter/head/day. Dung samples were sieved during the trial period using the Nasco's Digestion Analyser (3 sieves). The digestion analyser has been used as tool to monitor rumen function. A significant reduction of undigested particles in the first sieve was observed and it can explain an improvement of ruminal function and increase of fiber digestion. OS, new generation of sustained-release (SR) ruminal non-protein nitrogen (NPN) source can be used to replace part of vegetable protein source in dairy cows in order to improve milk production.