

# Key role for Selenomethionine and Vitamin E to boost fertility

**Organic selenium in poultry diets outperforms inorganic selenium in terms of improving fertility for both sexes, according to research by Dr. Frank W. Edens of the Department of Poultry Science, North Carolina State University.**

The challenge for poultry breeders is how to improve hatchability, productivity, and liveability: In his presentation during the Poultry Conference sector of Alltech's 18<sup>th</sup> Annual Feed Industry Symposium, held May 13-15 in Lexington, Ky, USA Dr. Frank Edens told the audience that there is a key role to play for selenomethionine and vitamin E. In his studies he compared the effects of dietary selenomethionine (Sel-Plex™) and selenite on sperm morphology, male reproductive performance and female broiler breeder performance.

### Male fertility

In his studies on the sexual development of young roosters, Edens discovered that birds fed diets supplemented with selenite had more abnormal sperm cells than those fed diets supplemented with selenomethionine. (Table 1)

In a separate study, the Sperm Quality Index of two breeder flocks was examined and found to be greater for the selenomethionine-fed roosters. This study also suggested greater motility and sperm numbers as well as more normal spermatozoa and fewer abnormal forms in the selenomethionine-fed roosters. In aging roosters, those fed selenite had a greater decline in normal numbers than selenomethionine-fed roosters.

### More productive females

Females were given selenite or selenomethionine beginning at 21 weeks of age. At 11 weeks of production, selenomethionine-fed hens exhibited improved egg production, fertility, daily numbers of settable eggs and hatchability (Table 2). Overall, there has been an improvement in chicks per hen capitalized on each of the two farms – data comparable with those from UK commercial studies. □



**Roosters fed selenomethionine perform well due to better sperm quality.**

**Table 1. Influence of Se sources on sperm quality (2 collections)**

Variable	Selenite		Sel-Plex	
	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
Sperm Quality Index	254 <sup>b</sup>	300 <sup>a</sup>		
Normal sperm, %	91.62 <sup>b</sup>	85.39 <sup>c</sup>	98.43 <sup>a</sup>	97.65 <sup>a</sup>
Dead sperm, %	1.31 <sup>a</sup>	1.94 <sup>a</sup>	0.42 <sup>b</sup>	0.56 <sup>b</sup>
Bent midpiece, %	3.78 <sup>a</sup>	6.21 <sup>a</sup>	0.51 <sup>b</sup>	0.76 <sup>b</sup>
Corkscrew, %	1.33 <sup>a</sup>	3.19 <sup>a</sup>	0.40 <sup>b</sup>	0.58 <sup>b</sup>
Other, %	1.95 <sup>a</sup>	3.27 <sup>a</sup>	0.24 <sup>b</sup>	0.41 <sup>b</sup>

a,b Means in a row differ significantly (P<0.05).

**Table 2. 11-week egg production, fertility, daily settable eggs and hatchability of eggs from Hubbard Ultra-Yield breeder hens**

Variable	Farm 1			Farm 2		
	Selen	SeMet	Diff.	Selen	SeMet	Diff.
Production, %	82.87	85.46	2.59	84.22	84.74	0.52
Fertility, %	96.12	96.68	0.56	96.23	97.26	1.03
Settable eggs	8799	9111	312	8379	8647	268
Hatchability, %	83.10	84.40	1.30	82.40	82.64	0.29