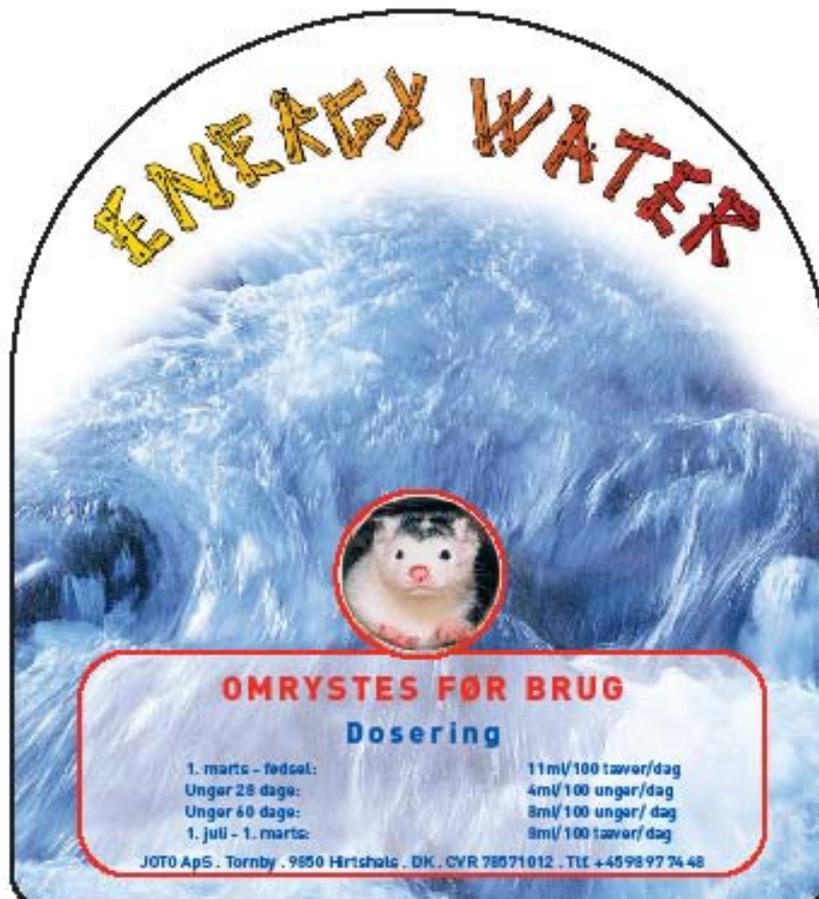


## NEW FEED ADDITIVE.

The long awaited feed additive of the new century, which is designed to develop the optimal animal, is now available.

**ENERGY WATER** optimises the immunosystem over time. Up to 3 generations are required for the mink to reach optimal immunocompetence. This is the status report for reproduction period of the 2<sup>nd</sup> year. We do however find the results so interesting, that we wish to share them with you.



**ENERGY WATER**

**OMRYSTES FØR BRUG**  
**Dosering**

1. marts - fødsel:	11ml/100 liter/dag
Unger 28 dage:	4ml/100 unger/dag
Unger 60 dage:	8ml/100 unger/ dag
1. juli - 1. marts:	8ml/100 liter/dag

JOTO ApS . Tornby . 9850 Hirtshals . DK . CVR 78571012 . Tlf +45 98 97 74 48

## **Trial with ENERGY WATER for mink.**

We have now received the status report for the reproduction period of the 2<sup>nd</sup> trial year from the Danish Fur Breeders Research Center. The report covers the period from December 1<sup>st</sup> 2007 and until the kits are 49 days old in 2008.

All breeding animals are 1<sup>st</sup> year animals and consequently all animals in the EWM group are from parents which have been given EWM for a minimum of three month prior to mating.

The P-values indicates statistical significance. For scientific results to be significant the P-value has to be below 0.05, which means that it is more than 95% probable that the observed difference is due to the treatment. If  $P < 0.10$  the probability is 90 %.

The statistical significance is calculated in relations to the number of animals. With the observed difference in reproduction results, it is expected to be statistical significant with larger trial groups. If you look at the fantastic reproduction results in the EWM group you can see, that even 0.61 more kits per initial female only gives a P-value of 0.10. In other words 90 % probability of a difference with about 140 females per group (table 2).

### **Note table 4:**

Live at birth: +0.48 kits.

Dead at birth: -0.22 kits.

Kits day28: +0.54 kits.

Kits day 49: +0.33 kits!!! Commented later!!!

See table 3&4:

### **Female weight on day 28:**

The EWM females weigh significantly less – have they had a higher milk yield?

More kits but weighing less. Combining these two parameters shows that the total kit body mass is higher in the EWM group, so in conclusion the females have had a higher milk yield.

Calculated bodymass on day 28 assuming equal number of males and females:

EWM:  $838.2 * 172.5g = 144.590$  kg

Control:  $757.5 * 180.5g = 136.729$  kg

The EWM females have milked/produced 7.861 kg more(5.75%).

### **Female weight on day 49:**

The females in the two groups weigh exactly the same; but in the 3 weeks from day 28 to day 49, the EWM kits have grown from being smaller on day 28 to be significantly heavier on day 49.

Male kits  $P = 0.008$  (99.2%)

Female kits  $P = 0.02$  (98%)

### **Number of kits on day 49:**

From day 28 to day 49 0.43 kits/female are lost in the EWM group. In the 1<sup>st</sup> year this was only 0.12 kits/female.

No sticky kits were found during these 3 weeks.

No other signs of diseases were noted during these 3 weeks.

The research farm has to live up to the new legislations regarding weaning age.

The higher mortality is assumed to be due to females killing some more kits before she is removed.

This corresponds to the higher kit weight and the lower female weight in the EWM group indicating a more pronounced problem – an annoying animal “welfare” legislation.

8 % barren females is a high figure, but all are 1<sup>st</sup> year females. In the 1<sup>st</sup> trial year there was 4.7% barren females in the EWM group.

**The standard deviation** is shown in parenthesis, and tells us about the spread in the observations between animals. Note that the EWM figures are all lower, indicating a homogenous and healthy group of animals with less spread in the performance.

ENERGY WATER is a liquid solute added to the feed on a daily basis.  
It is easiest to add at the feed kitchen,  
or in a feeding machine with build in mixer,  
or through the water dosing on the feeding machine (not quite so precise but O.K.).

The annual cost of EWM is about dkk 5.00 per produced pelt (depends on the breeding result).  
Using EWM from December 1st to June 20th cost about dkk 1.50 per kit.  
Using EWM is not an expense; but an investment with a high return.

A program for dosage calculation is available on CD.  
We are naturally available for further information.

## Production Trial with Mink (*Mustela vison*)

### with Addition of "Energy Water Mink" to their feed (PFC0602)

#### Status Report - Lactation Perioden 2008

Between the company JOTO ApS, Rævsøkærvej 21, DK-9850 Hirtshals, Denmark and Copenhagen Fur, represented by their department, Danish Fur Breeders Research Center, Herningvej 112, DK-7500 Holstebro, Denmark a contract was signed in relation to the product "Energy Water Mink" (EWM).

The main purpose of the trial is, to investigate the long term effect of the product "Energy Water Mink" on reproduction, growth, and fur quality when used in mink feed. Surveillance of the animals health status should be followed throughout the trial period.

The present report is covering the second trial year.

#### Trial Plan

The trial will be carried out in a period lasting up to three years with two separate groups based on about 125 females of the colour type brown/glow. The two groups were originally established on the basis of about 135 pairs of sibling, so that one from each pair was placed in separate groups. The selection of breeding animals during the three period will be using the same criteria as the farm in general. Mating takes place within the groups while a minimal inbreeding is aimed at.

Weight is registered at live quality grading, at pelting, 28 and 49 days of age. Reproduction parameters are registered, and the pelts are graded together with the remainder of PFC's other "trial" pelts. Auction data from KF will be collected. All data will be treated statistically.

Regular feed kitchen feed is used throughout the trial. In the trial group, Energy Water Mink will be added quantitatively according to the instructions from JOTO. Possible changes in feed consistency will be adjusted with crushed and dried sugar beet pulp. In the control group, a similar amount of water will be added and the consistency adjusted in the same way.

#### Results

Respectively 142 and 144 females were placed in each group. Quality and grading weights are shown in table 1. The development in the number of females as well as the breeding results are shown in table 2. Percentage of barren females are shown both in table 2 and 3.

**Table 1. Quality and grading weights for females selected for breeding in 2008.**

Group	Quality	Grading weightt
EWM	3,4 (1,0)	1588 (171)
Control	3,2 (1,1)	1603 (175)
		NS (0,46)

**Table 2. Development in number of females and reproduction results (numbers in parenthesis are std).**

Group	Females Start, n	Dead bef. Mating, n	Unmated, n	Mated, n	Barren, n	Barren, %	Litters, n	Kits per initial female	Kits per mated female
EWM	142	2	2	138	11	8,0	127	6,38 (3,13)	6,57 (2,97)
Control	144	5	3	136	11	8,1	125	5,77 (3,25)	6,11 (3,02)
					NS	NS		NS (0,1)	NS (0,2)

Development in female weight from the beginning of the experiment and until day 49 after birth is shown in table 3.

**Table 3. Reproduction results and female weights. (numbers in parenthesis are std).**

Group	Mated Females, n	Barren, n	Barren, %	Litters, n	Body condition at birth*	Female weight, g	
						day 28	day 49
EWM	138	11	8,0	127	3,04 (0,27)	1367 (150) B	1151 (163)
Control	136	11	8,1	125	3,02 (0,40)	1441 (162) A	1151 (152)
p-value		NS	NS		NS (0,59)	0,0009	NS

\* Evaluated on a scale from 1 to 5 with 1 as thin, 3 as normal and 5 as fat. # Different letters indicates statistical significant differences.

Litter results and kit weights are shown in table 4.

**Table 4. Litter results and kit weights.**

Group	Litters, n	Live At Birth	Dead Born	Kits day 28, n	Kit weight day 28, g		Kits day 49, n	Kit weight day 49, g	
					Males	Females		Per litter	Males
EWM	127	7,13 (2,35)	0,39 (0,83)	6,60 (2,37)	180 (30) B	165 (27)	6,17	532 (89) B	456 (67) B
Control	125	6,65 (2,51)	0,61 (1,07)	6,06 (2,63)	190 (33) A	171 (30)	5,84	506 (91) A	440 (68) A
p-værdi		NS (0,11)	NS (0,08)	NS (0,09)	0,03	NS (0,1)		0,008	0,02

## Discussion

As shown in the above tables, the female weights on day 28 after birth are significantly different, so that the females in the EWM group are lighter. Even though there is no significant difference in the number of kits on day 28 the highest number is the EWM group.

The male kits in the EWM group are significantly lighter on day 28 and it is statistically without influence, that number of kits in the litter is higher. On the other hand both male and female kits in the EWM group are significantly heavier on day 49 after birth.

The difference in female weight on day 28 and the male kit weight on day 49 are following the same pattern as in 2007.

**Conclusion**

Based on the present results we conclude that the kits in the EWM group are heavier on day 49 after birth.

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2008/09/04

Peter Sandbøl