

Proceedings of the



4-7 July 2000 – Valencia Spain

These proceedings were printed as a special issue of WORLD RABBIT SCIENCE, the journal of the World Rabbit Science Association, Volume 8, supplement 1

ISSN reference of this on line version is 2308-1910

(ISSN for all the on-line versions of the proceedings of the successive World Rabbit Congresses)

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**EFFECT OF DIETARY ENERGY LEVEL ON
PERFORMANCE IN FEMALE RABBITS**

Volume C, pages 373-376

Effect OF dietary energy level on performance in female rabbits

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Abstract

Primiparous and multiparous female rabbits were involved into this study. Half of both doe groups (n=2x6) were fed ad libitum with a diet containing a high energy level (DE= 12.7 MJ/kg) by using full-fat sunflower seeds. Controls (n=2x6) were also fed ad libitum a diet containing (11.7 MJ/kg). The investigation was carried out from the 23rd day of pregnancy to the 30th day of lactation.

Feeding the multiparous does with diet rich in energy had a positive effect on the litter weight at birth (+6.2%) and the developing of the litter during the first 9 days (+9.1%).

The energy supplementation improved the weight gain (+16.5%), feed intake (+13.5%) and conversion efficiency in multiparous females and their progenies. Although, there was no effect of energy supplementation in primiparous rabbits.

According to the results it can be stated that the energy deficit could be decreased in multiparous does reinseminated at the 14th day of lactation by increasing the energy level of the diet during the last week of pregnancy.

Introduction

It is a practical fact in rabbit stocks that the insemination of does at the 10-14th days post partum (so called semi intensive breeding system) is often unsuccessful. Moreover, the mortality rate increases during the suckling period and the productive lifetime of does decreases.

Despite the rapid metabolism and the utilisation of body reserves for milk synthesis and foetal growth vary and depend on the physiological state and breeding rhythm adopted, and require highly diversified strategies (Xiccato, 1996).

Several studies mention or indicate that an energy deficit could be responsible for a reduced weight of young at weaning, a decreased milk output, an impaired reproductive performance, especially when the rabbit does are submitted to intensive remating programs (Maertens and De Groote, 1988).

The aim of this study was to investigate whether the condition and reproduction performances of female rabbits reinseminated at the 14th day after kidding could be influenced by increasing the energy level of the feed.

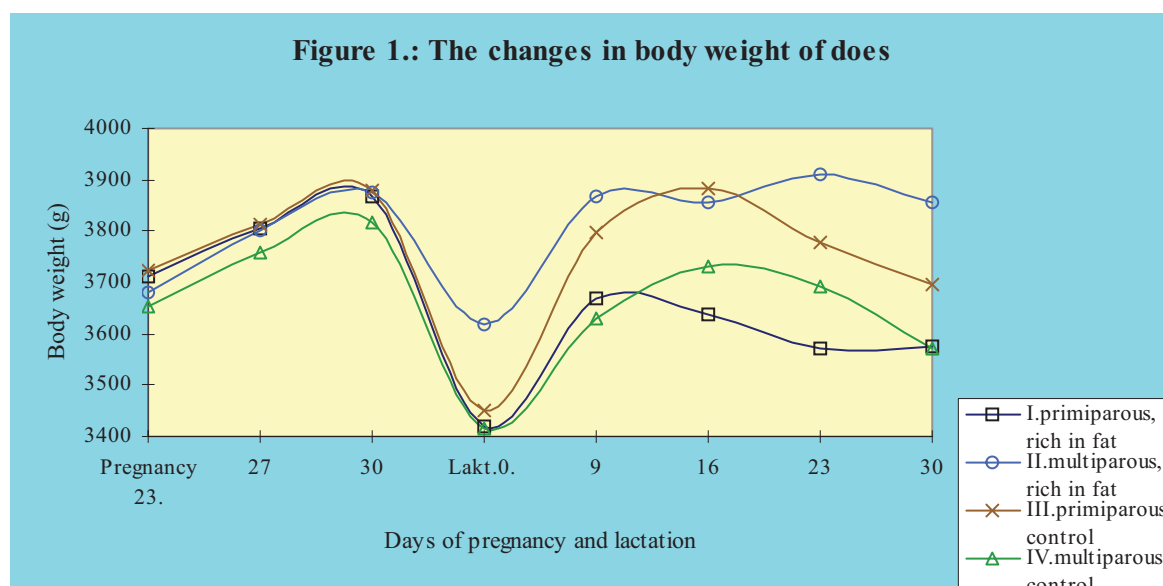
Material and methods

The following experimental groups were designed to satisfy the increased energy requirement of lactation in connection with pregnancy by improved energy level of the diet:

- | | |
|------------------|---|
| Group I (n=6): | Primiparous, ad lib., diet rich in fat (I, fat, Pp.) |
| Group II (n=6): | Multiparous reinseminated at the 14th day pp., ad lib., diet rich in fat (II, fat, Mp.) |
| Group III (n=6): | Primiparous, ad lib., control diet (III, cont, Pp) |
| Group IV (n=6): | Multiparous reinseminated at the 14th day pp., ad lib., control diet, (IV, cont, Mp.) |

Table 1.: Ingredients and chemical composition of the diets

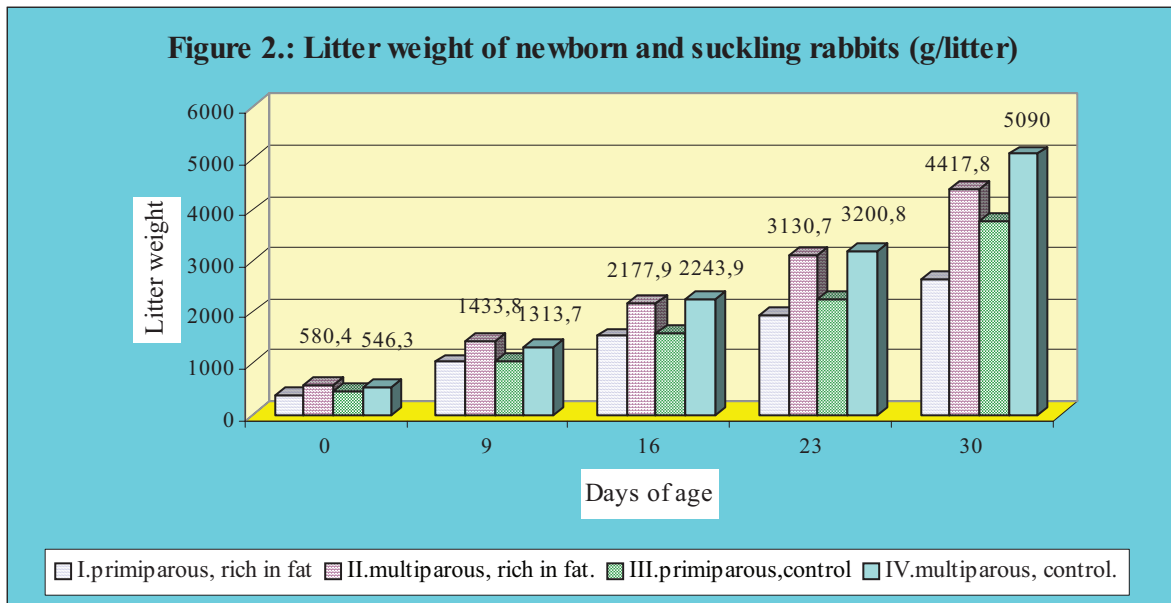
Ingredients (%)		Chemical comp				
DIETS		DIETS				
Fat		Control			Fat	Control
Full fat sunflower seeds	20	Maize	17	CP %	18.4	20.0
Alfalfa meal	35	Wheat	9	EE %	8.5	2.5
Soya meal	10	Barley	22	Cf %	13.0	13.0
Wheat bran	10	Wheat bran	8	NFE %	39.4	44.0
Barley	15	Alfalfa meal	37	Ash %	8.4	8.0
Wheat	6	Soya meal	3	Ca %	1.3	1.0
AP-18	2.6	Fish meal	1.1	P %	0.8	1.0
Limestone	0.5	Limestone	0.6	Water %	10.2	10.5
Salt	0.4	Salt	0.2	DE MJ/kg	12.7	11.7
Vitamine premix	0.5	AP-17	1.5	ME MJ/kg	12.0	11.06
		Vitamine premix	0.6			



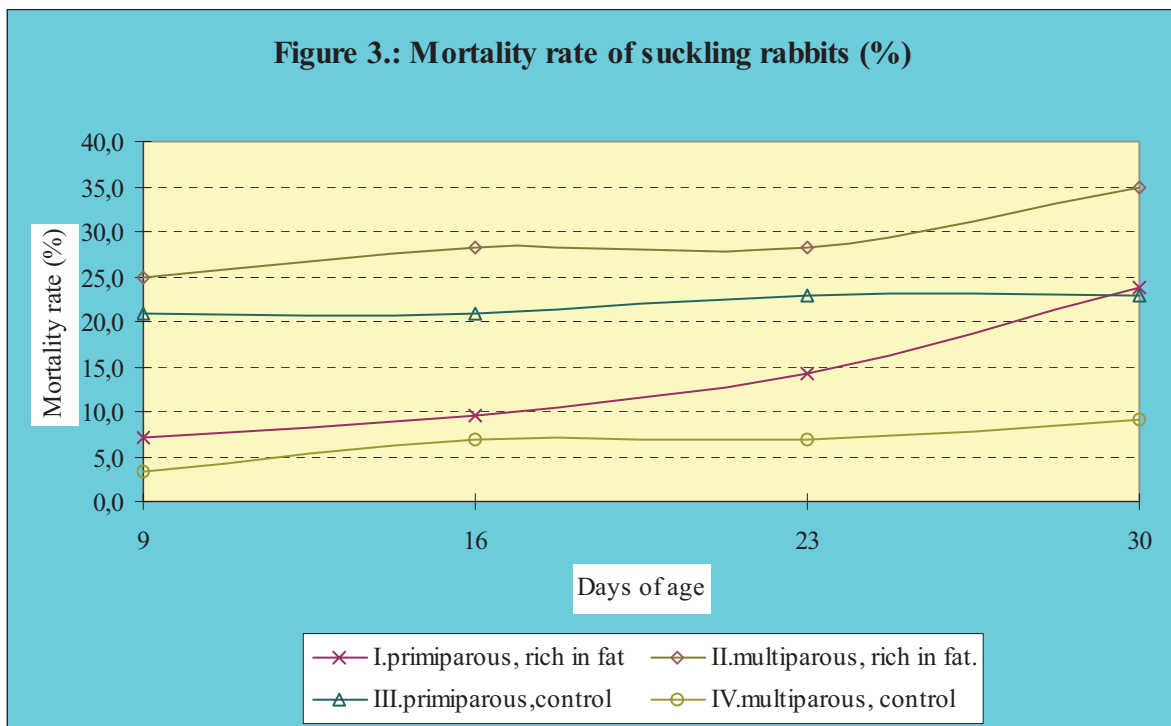
The changes in body weight of does are shown in **figure 1**. There was the highest weight gain in Group II (multiparous does have been reseeded at the 14 th day of lactation and fed with diet rich in energy) during the last week of pregnancy compared to other groups (196 g vs 155-160 g). According to our opinion this fact could be explained with a considerable energy storage in spite of lactation.

Moreover, the body weight of females at the 30th day of lactation also in Group II was lower only with 22 g than was at the 30th day of previous pregnancy compared to Group I (294 g) and Control groups (184 and 245 g).

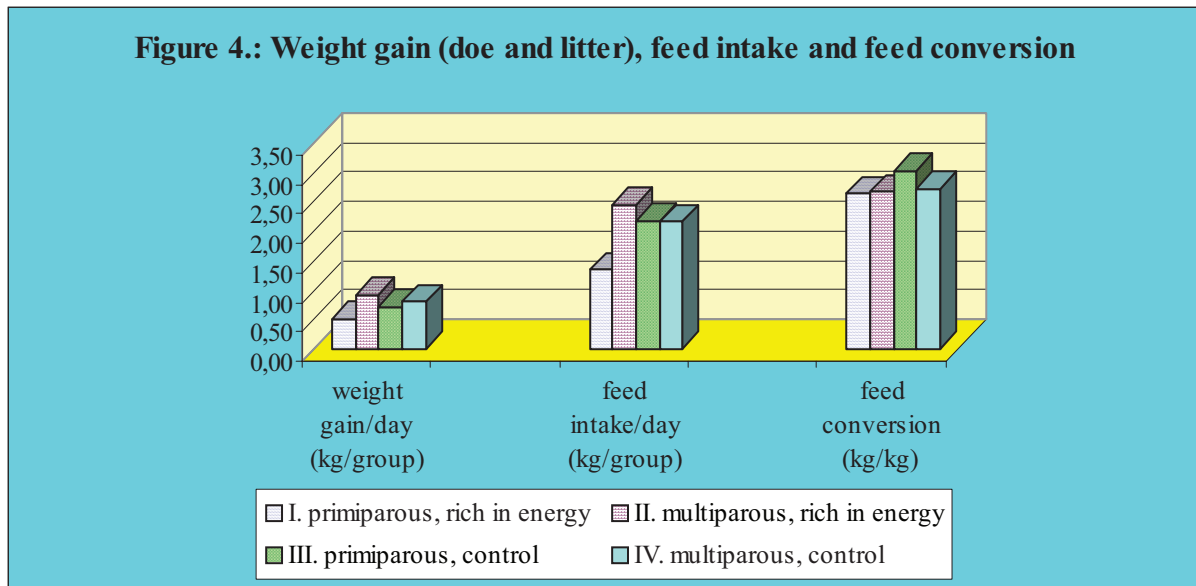
Figure 2. shows that the feeding with energy rich diet had a positive effect on litter weight at birth (580 g/litter) and the growing of litter until the 9th day of age (1434 g/litter) in multiparous females.



According to **figure 3**, it can be clearly seen that the mortality rate from 9th day of age until the 30th day of age was the highest also in multiparous females fed with energy rich diet. Moreover, the average body weight of growing rabbits at the 30th day of age was the highest (680 g) also in the same group comparing with the other ones (497, 612, 636 g).



Energy supplementation influenced favourably the weight gain, feed intake and conversion efficiency in multiparous does and their litters. On the other hand the energy supplementation rather decreased the performances in primiparous females (**figure 4**).



Conclusions

1. During the last week of pregnancy the increasing energy level of the diet could decrease the energy deficit in multiparous does reseeded at the 14th day of their lactation. In spite of lactation, the body weight of females at the 30th day of lactation can attain the level at 30th day of pregnancy. Nevertheless the positive effect of the energy supplementation has not been found in primiparous females.
2. Feeding with energy rich diet has a positive effect on litter weight at birth and the growing of litter until 9th day of age in multiparous females as Maertens and De Groote (1988) reported and Xiccato (1996) reviewed.
3. The mortality rate from the 9th day of age until the 30th day of age was the worst in multiparous females fed with energy rich diet (Like in Xiccato's review in 1996). Although the average body weight of growing rabbits at the 30th day of age was the highest.
4. Energy supplementation influenced favorably the weight gain, feed intake and conversion efficiency in multiparous does and their litters. But the energy supplementation decreased the performance in multiparous females.

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