# EFFECT OF A LIMITED ACCESS TO WATER ON MORTALITY OF FATTENING RABBITS

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## ABSTRACT

The aim of this trial was to study the effect of water restriction on mortality of fattening rabbits. Rabbits were housed in cages containing 8 rabbits. In the control group, the rabbits were given water *ad libitum*, but pelleted feed was restricted. In the other group, the rabbits were given water during 2.5 hs per day, but feed was given *ad libitum*. Average mortality was of 15,1%, mainly caused by digestive problem. Water restriction led to a significant decrease of the mortality since in the control group, mortality was of 19,3 %, whereas in the water restricted group, mortality was of 9.3%.

**Key words**: water restriction, feed restriction, fattening rabbits, digestive mortality.

## INTRODUCTION

Feed restriction is used in rabbit breeding to reduce digestive mortality after weaning. The efficiency of feed restriction on mortality and morbidity rates was demonstrated by GIDENNE *et al*. (2003) for feed intake reduced to 70- 80 % of the *ad libitum* level.

Feed restriction represents a large working load for the farmer and can not always be applied in rabbit breeding. Moreover, it is difficult to restrict feed properly when mortality starts in the breeding and when the number of rabbits is variable from one cage to another. Water restriction could be an alternative to feed restriction and is easier to apply in the breeding.

It has been demonstrated (VERDELHAN *et al*., 2004) that a water restriction from 1h30 to 4h per day allowed to reproduce feed restriction, ranging from 78 to 87% of the ad lib level. However nowadays there exists no result to study the effect of water restriction on mortality.

Thus, the objective of our study was to examine the effect of a limited access to water (2h30) on the mortality rate of fattening rabbits.

## MATERIAL AND METHODS

The trial takes place in Brittany (France) and was performed in a breeding farm.

**Animals and housing**
1758 rabbits of Hyla strain were weaned at the age of 38 days and housed in a windowless building. There were 8 rabbits per flat-deck cage. Each cage was provided with an automatic waterer. The cages were distributed in 4 half-rows. Two half-rows were allotted randomly to the control group and the two other half-rows were allotted to the water restricted group.

**Water and Diet**
In the control group, rabbits had free access to water; feed was restricted and given in one meal (105g/d from 35 to 61 days and 145g/d from 61 to 71 days). In the water restricted group, rabbits had access to water during 2h30 at the end of the day and feed was given ad libitum.
Rabbits of the two groups were fed the same diet: diet 1 from the age of 35 to 61 days, diet 2 from the age of 61 to 71 days (tables 1 and 2). Feed was pelleted.

**Table1. Composition of the diets (% as feed).**

| | Diet 1 | Diet 2 |
|---|---|---|
| Wheat and Wheat bran | 35.5 | 34.4 |
| Rape seed meal | 3.0 | 0.0 |
| Sunflower meal | 16.2 | 28.6 |
| Alfalfa | 10.0 | 10.0 |
| Fruit and sugar beet pulp | 25.0 | 17.0 |
| Soya oil | 0.7 | 0.7 |
| Molasses | 7.0 | 6.0 |
| Vitamine and Mineral mix | 2.6 | 3.3 |
| | | |
| Supplementation | | |
| Apramycine (ppm) | 100 | 0 |
| Robenidine (ppm) | 66 | 0 |

**Table 2. Nutritive values of the diets (calculated % as feed).**

| | Diet 1 | Diet 2 |
|---|---|---|
| Dry Matter | 88.8 | 88.3 |
| Crude Protein | 15.1 | 16.0 |
| Crude Fiber | 17.4 | 16.2 |
| Digestible Energy calculated according to INRA Tables (kcal/g) | 2350 | 2450 |

**Veterinary treatment**

From the age of 39 to 42 days and 46 to 49 days, water was supplemented with Neomycine. From the age of 35 to 61 days, diet was supplemented with 66ppm Robénidine and 100 ppm Apramycine.

**Records and controls**
Total mortality and digestive mortality of rabbits were noted daily.

### Statistical analysis

The mortality rates between the two treatments were compared with the Chi-square test.

## RESULTS AND DISCUSSION

### Fattening mortality

The average mortality during fattening was of 15.1%. Among the dead rabbits, 68.9% presented signs of diarrhoea. Other rabbits died from respiratory or unknown causes.
In the control group, mortality during fattening was of 19.3%, whereas in the water restricted group, mortality during fattening was of 9.3%.
Water restriction allowed to decrease significantly mortality during fattening compared to feed restriction. This result was observed from the weaning.

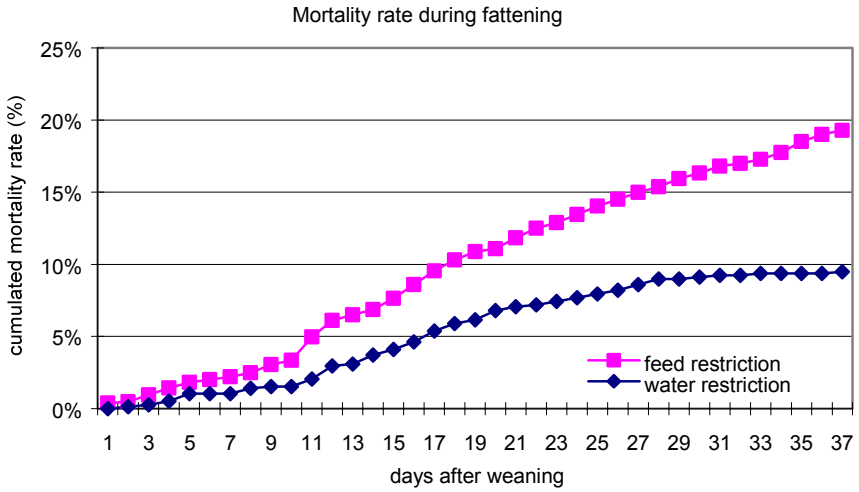


**Figure 1. Mortality during fattening**

VERDELHAN (2004) showed that water restriction allowed to reproduce feed restriction: a limited access to drinking water of 2h30 led to a decrease in feed consumption to 83% of the *ad libitum* level. Moreover, GIDENNE (2003) demonstrated that feed restriction to 80% of the *ad libitum* level allowed to decrease significantly mortality during fattening (from 10.2% to 5.5 %).

The results of this trial linked these two results together. Our assumption that water restriction has similar effects as feed restriction was confirmed. With the restriction levels applied in this trial, the effects of water restriction was even larger than the effects of feed restriction.

## CONCLUSION

In these trial conditions, water restriction allowed to decrease significantly digestive mortality during fattening compared to feed restriction. These results should be refined with further studies to fit the level of restriction according to the conditions of each

breeding (housing, sanitary conditions, weather…). However, this is a new and promising area of research especially to find solutions to rabbit enterocolitis.

## REFERENCES

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