

A PRELIMINARY STUDY OF THE PASTURED RABBIT IN FRANCE

BRADLEY R., HAGUE M.

La Querelle, 87310 Gorre, France

Abstract - The time is right for a modern approach to the traditional practice of warrenry (1).

The preliminary study was conducted in three stages.

The first stage (2) showed that even industrially-bred rabbits could adapt to living and breeding outdoors and all year round, but preferred to congregate in social groups. Once adapted, grass was the feed of preference allowing a considerable reduction of supplementary feed.

The second stage (3) in social groups showed the problems of population pressure and losses due to early weaning. They form a hierarchical society with minimal stress even when transported to fresh grazing.

The third stage (4) showed the measures necessary to reduce population pressure when late separation is practised. Studies of pure-bred stock led to the selection of a heavier, rustic, cross-bred breeding stock. The progressive adaptation of does was observed and a seasonal breeding pattern established.

Control of disease and predation requires further study during the season 1995/1996.

INTRODUCTION

(1) Warrenry was practiced from the Middle Ages until the middle of the nineteenth century in managed enclosed areas based on the Roman 'leporaria' system. Modern industrial methods of rabbit meat production are in crisis due to the high cost of installation, maintenance and feed and the low prices paid to the producers. It is therefore time for a new look at older, traditional methods particularly in view of the trend towards ecological and compassionate organic farming, producing a meat of high quality demanded by an increasing number of customers. The methods adopted in this study are based on organic farming principles but are equally applicable to a non-organic form of production.

MATERIAL AND METHODS

(2) Stage 1 - August to December 1993

Twenty does and eight bucks were housed individually in heavy mesh arcs of one metre square and 50 cms high at the centre, with sleeping/nest boxes permanently attached. The arcs were placed side-by-side on good grassland with no netting at the base, thus allowing access to pasture. Does were placed on one site, bucks on another, in a 500 square metre field, fenced with 1.20 metre high tension wire mesh buried 10 cms into the ground. All the rabbits were New Zealand X Californian introduced at ten weeks of age from an industrial unit. For the final two months we experimentally removed the arcs but retained the boxes and allowed the rabbits to live in a mixed sex social group. During this period their accustomed diet of dry rabbit pellets as a supplement to pasture was gradually reduced and eventually replaced by a mix of oats, peas and vetch.

(3) Stage 2 - January to July 1994

Two separate groups of twelve does and three bucks were transferred to fenced fields of 200 square metres. A hectare and a half was fenced externally with high tension wire mesh 1.60 metres high having 10 cms buried. The twenty-four does were chosen from the best of the industrially bred stock and their issue. Of the six bucks, four were the original New Zealand X Californian stock and two were bought in from hutch raised meat rabbits to introduce a heavier, more rustic blood line. Each social group was named a 'warren' and was housed in two 'caravans' (see glossary). Each caravan contained six boxes (40 x 25 x 25 cms) arranged either side of a central corridor. An indoor feeder and outdoor drinker were provided.

(4) Stage 3 - August 1994 to July 1995

The social groups were reduced to eight does and one buck and the fields enlarged to 400 square metres. A rabbit-sized hay rack was introduced for additional feed and nest building. The external fencing was topped with an electrified wire to deter ground based predators. The caravans were redesigned to contain four larger nest boxes (40 x 40 x 25 cms) and an area of common ground adjacent to the feeder. An additional small caravan without boxes was introduced to reduce population pressure from 'weaners'. Their protein supplement was provided by oats

only. Growers over ten weeks of age were separated into 400 square metre fields with unboxed caravans suitable for twenty young rabbits. They were supplemented with grower pellets as a finisher feed only. Pure-bred show rabbits were introduced to establish both pure and cross bred blood lines.

RESULTS AND DISCUSSION

(2) Stage 1

Half of the does failed to make the adaptation as their concentrated pellet diet was gradually reduced and replaced by a much smaller supplement of mixed cereals. Some refused to eat any grass or any alternative to pelleted food ; others fouled their nest boxes and rarely ventured outside ; four does cannibalised or abandoned their 'nestlings'. These were eliminated. Almost all bucks adapted well. Even those who accepted the diet change had their preferences and rejected either peas or vetch. It soon became clear that this method would prove impracticable on a commercial scale as an adult rabbit could eat out a metre square of grass in twenty-four hours and needed moving daily. The established and well-adapted rabbits were seen to make shallow digs between adjacent arcs enabling them to congregate in one area and form social groups. This applied equally to does and bucks. The occasional rabbit who enlarged a possible escape point and achieved freedom always returned later to their enclosure for food, shelter and safety. When the arcs were removed, the rabbits lived without additional problems in a mixed sex social group. We concluded that rabbits are able to live out of doors on pasture all year round : they prefer to live in social, mixed sex groups : once adapted, they eat a high proportion of grass permitting a considerable reduction in supplementary feeding in season : and given adequate food and shelter, they return to their home warrens even after a period of freedom.

(3) Stage 2

Twelve does together with their 'nestlings' and 'weanlings' led to population pressure and losses of new-born nestlings. The small nest boxes proved inadequate in size as weanlings and adult rabbits used the same boxes for repose leading to smothering and trampling of the nestlings. The hutch-raised rabbits adapted more quickly to a primarily grass fed and more active existence being already accustomed to green feed and solid flooring. The bucks established a dominance pattern during the breeding season and inferior bucks were removed. Most were used to establish their own warrens as the stock expanded and proved viable without competitive conflict. 200 square metres of grazing proved inadequate for warrens of this size and it was necessary to move them at weekly intervals. However, the rabbits showed no disturbance as a result of being chased into their caravans, shut up and moved by tractor. As soon as the doors were opened they recommenced feeding on fresh grazing. Hard weaning at six weeks of age led to heavy losses of weaners from *Pasteurellosis* and liver *coccidiosis*. The boldest were also capable of squeezing through the wire and finding their way back to the maternal warren. Mating and breeding patterns established at this stage will be fully discussed in Stage 3 when a full breeding season was observed. We concluded that overcrowding due to population pressure leads to unacceptably high losses of nestlings and weanlings : that early weaning leads to unacceptable losses of weaners : that size of nest boxes, caravans and grazing area is of paramount importance : that does and particularly bucks establish a hierarchy but live a harmonious social life with only occasional minor altercations : and that they adapt remarkably well to the disturbance of being moved to new grazing without increased symptoms of stress.

(4) Stage 3

The decreased density introduced at this stage has proved the optimum to date allowing forty does and their followers to the hectare. Larger nest boxes were chosen as a result of measuring the underground nest area of a burrowing doe. The new boxes were placed to allow side corridors and the best does have learned to block the entrance hole with a ball of hay. The area of common ground is regularly used by groups of rabbits for repose and during bad weather thus releasing the pressure on the nesting area. The introduction of pure bred stock, being Le Geant Papillon Français, Argenté de Champagne and Fauve de Bourgogne was unsuccessful as they proved too fragile for the outdoor life. Their crossed bloodline is however present in the breeding stock. The pure bred New Zealand has excellent mothering qualities and an ideal conformation but their fur is too long, fine and absorbent. However crossing with a more rustic male has eliminated this problem. The ideal buck has proved to be a heavy (5 kg) rustic agouti-coloured male, type Normande. This crossed with New Zealand females produces a heavy, agouti-coloured, quick growing, rustic rabbit ideal for outdoor production. These have been named 'Enzags'. Since there has been no automatic replacement of breeding stock each year, the natural breeding life span of these rabbits has yet to be ascertained. Because the bucks live with their eight does all the year round, mating takes place

according to the natural cycle of the does. The buck pursues and courts each doe for up to a three day period and the doe permits mating to take place only when she is in full oestrus. There have been a few cases of post-partum mating, some leading to abandonment of the subsequent litter. The does average five litters of eight nestlings between the third week in September and the first week in July, in this area of France. There have been no births outside this season. With few exceptions, does born before the end of December give birth in their first season (April to June) whereas does born from January onwards take a full year to come into production. Mature and well-established does collect up grass and hay to construct their own nest within the already hay-lined nest boxes in addition to plucking their fur as a duvet and closing the entrance with a ball of hay. A few does revert to their natural instincts and dig nesting burrows underground, but the losses of nestlings born underground are unacceptably high. Does in their second season give an improved performance with regard to nesting and maternal care. Separation now takes place at ten weeks of age reducing losses due to disease and drifting. Losses over ten weeks of age are minimal and because of the low cost of feeding almost entirely on grass, it is possible to grow on the young rabbits to 2.5 to 3 kgs weight economically. Problems of disease and predation have to be faced. Vaccination against V.H.D. (1 per year) and myxomatosis (2 per year) is an essential preventative practice and 100 % effective. Soluble sulphur in the drinking water gives short-term relief from pasteurellosis and thymol may be of interest for the control of liver coccidiosis. Forage cabbage is popular and may prove to play a part in the control of internal parasites. Worm problems, in particular strongles, have been treated with a totally effective chemical vermifuge pending further research into organic methods of treatment. Rabbits developing abscesses, torticollis and malocclusion are eliminated. Predation is a major problem peculiar to this system of rabbit farming and a totally effective preventative measure has yet to be devised. Ground-based predators can be controlled by high fencing and an electrified wire. Air-borne predators never affect adult rabbits but birds of prey and crows, particularly during their nesting season, will take weanlings between three and six weeks old. In view of the prohibitive cost of netting over a full hectare, other preventative measures are being tested throughout the 1995/96 season. We concluded that population density, housing design and field size are crucial factors : selection of breeding stock is of prime importance : breeding is seasonal and averages five litters of eight nestlings a year : well adapted does build their own nests : separation at ten weeks of age reduces losses of weaners and growers : control of disease and predation requires further study. The present enclosure is three hectares housing ten warrens, being a total of eighty breeding does, ten bucks and their followers.

GLOSSARY

Warren = Mixed sex social group of rabbits. Also the ground and caravans they occupy.

Caravan = Uniquely designed, moveable housing.

Nestlings = Babies birth to three weeks.

Weanlings = Babies three to six weeks

Weaners = Six to ten week olds.

Growers = Ten week olds to sale weight.

Agouti = The colour of the wild rabbit.

Enzag = New Zealand X Agouti.

REFERENCES

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BIADI F., LEGALL A., 1993. Le Lapin de Garenne. *Hatier*, Paris.

Etude préliminaire du lapin au pâturage en France - C'est le moment pour une approche moderne de la pratique traditionnelle des garennes de lapin clos (1). Cette étude préliminaire a été gérée en trois étapes. La première (2) a fait preuve que même les lapins élevés en batterie pouvaient s'adapter à vivre et se reproduire en plein-air, tout au long de l'année et préféreraient vivre en groupes sociaux. Après une période d'adaptation, l'herbage était de préférence, la nourriture principale, permettant une réduction considérable de l'apport d'aliments complémentaires. La deuxième étape (3) a montré les problèmes de poussée démographique et les pertes dues au sevrage dur. Les lapins forment des sociétés hiérarchiques où les stress sont réduits au minimum, même lorsqu'ils sont transportés sur un nouveau pâturage. La troisième étape (4) a fait preuve des moyens qu'il faut faire pour réduire la poussée démographique quand le sevrage tardif (10 semaines) est mis en pratique. Les études des races pures nous ont amenés à la sélection d'une souche croisée, plus lourde et rustique. L'adaptation progressive des lapines reproductrices était observée et leur système de reproduction saisonnier établi. La maîtrise des maladies et des animaux prédateurs nécessite des plus amples études pendant la saison 1995/1996.

