

breeding values were estimated with an animal model of repeatability and records of the current generation and the previous one. The variance of direct genetic effects was always 10% of the phenotypic variance, and the repeatability was 20%. In the simulation, the variance of maternal genetic effects ranged between 0 and 50% of the direct genetic variance. The genetic correlations ranged between +0.3 and -0.7. When the simulation model did not include maternal effects, the response was +0.22 young rabbits per litter and generation. Higher responses, +0.25-0.32 young rabbits, were obtained when maternal effects were positively correlated with direct effects. The minimum response was achieved with high negative correlations and large genetic maternal variance (0.12 young rabbits per litter and generation). The influence of maternal effects negatively and weakly correlated with direct effects was dependent on the value of the genetic maternal variance. The accuracy of the selection is reduced by negative genetic correlations. The reduction increased with high maternal variances. Reductions in the initial genetic variances (direct and maternal), around 15%, were observed in all cases.

31 - JOLY T.*, RENARD J.P.

Establishment of a cryobank of gametes and embryos: a new tool for selection and preservation of rabbit population.

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 225-233.

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The establishment of a cryobank of gametes and embryos would currently be very useful in maintaining animal genetic diversity and in protecting populations threatened with extinction. We have begun to establish such a bank using the rabbit as a model, a species which is of interest from both zootechnological and biomedical point of view. We first defined the genetical and technical parameters for establishing an embryo bank. Subsequently we have begun to apply these techniques of cryopreservation to several populations: a line with a monogenical mutation (rabbit "sauteur d'Alfort"), a line of biomedical interest selected for allotypic variation in genes coding for immunoglobulin heavy chain, a synthetic line (INRA 1029) support of a divergent selection experiment, a breed with reduced population size (the "Brun-marron de Lorraine"). With these lines we evaluated the global costs to save a population. Now, this research should allow us to define the scientific and economic choices important in the extension of this work to other rabbit populations.

32 - ROCHAMBEAU H. de, RETAILLEAU B.*, ELSÉN J.M.

Genetic analysis of mandibular prognathism in the rabbit

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 235-240.

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The genetic control of prognathism was studied in a selected rabbit strain. From 35299 animals observed before 13 weeks of age between 1990 and 1993, 0,59 % showed the default. A segregation analysis lead to the conclusion that the trait is under the control of a recessive major gene with a low penetrance.

33 - ROCHAMBEAU H. de, RETAILLEAU B. *, POIVEY J.P., ALLAIN D.

Selection for individual weight at 70 days in rabbits

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 241-245.

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In this paper, we analyse the individual weight at 70 days from 66 004 rabbits born between January 1st, 1987 and the December 31st, 1992. Additive genetic and maternal variances for this trait, expressed as a proportion of phenotypic variance are equal to 0,16 and 0,17. Selection intensity (0,98) and generation length (48 weeks) are a bit smaller than unity. Annual genetic progress, estimated by a BLUP animal model is around 37 g.

34 - SANTACREU M.A. , CLIMENT A., ARGENTE M.J., BLASCO A.

Relationships between characteristics and irrigation level of the fetus and fetal survival in two lines of rabbit divergently selected for uterine efficiency

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 247-253.

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A total of 115 rabbit does from two lines selected to increase (EU+) or decrease (EU-) litter size on unilaterally ovariectomized does and a group of 41 intact does were used in the experiment. All the does were slaughtered at the 25th day of the 5th gestation. The number of live and dead fetuses, the weight of the fetus and the weight of fetal and maternal placentae were recorded. The irrigation of each implantation site was classified according to the number of veins. The intact does showed a slightly lower fetus weight. EU+ does showed the highest values of fetal and maternal placentae weight of the live fetuses. The fetuses placed at the top and bottom of the uterine horn were heavier, being the heaviest the fetuses placed near the ovary. However, fetal survival was better for the fetuses near the bottom of the uterus, and worse for the fetuses placed near the ovary. Fetuses at the bottom of the uterus had a better irrigation. Live fetuses had also a better irrigation than dead fetuses, and fetuses with a poor irrigation were slightly lighter.

FOURRURE ET LAINE ANGORA

35 - BOUCHER S., DENIS B.*

Genetic study of the thuringier coat in the rabbit : an original recessive gene.

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 255-262.

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There is traditionally two genetic interpretations for the thuringier coat (black and fawn), in the rabbit. In the first interpretation, the

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38 - AOUN M., GRENET L.**, MOUSSET J.L., ROBERT P.*

Effect of a supplementation with oxytetracycline or living yeast on the rabbit growth performance.

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 277-283.

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Three groups of 80 rabbits weaned at the age of 32 days and at an average weight of 760 g were taken to compare two types of supplementations in the rabbit growth diet, with a non supplemented food : group A received the non supplemented food. Group B was supplemented with oxytetracycline (OTC) at 200 ppm. Group C was supplemented with living yeast (*Saccharomyces cerevisiae* Sc47). Supplementations were made from weaning to slaughter age. Mortality and growth results don't show any significant difference between the three groups, although group B seems to have the best results. Feed to gain ratio are nearly the same in group B and C (3.25 and 3.23) and seems to be better than in group A (3.38). For each group, slaughter yield increases with slaughter age (56.7 % to 59.2 % from 64 days to 77 days). The best slaughter yield is obtained with group B on the slaughter age of 64 and 70 days, with group A on the age of 77 days, but differences are not significant.

39 - FORTUN L., LEBAS F.

Effects of the level and origin of dietary energy on reproduction performance of primiparous simultaneously pregnant and lactating rabbit does.

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 285-292.

INRA, Station de Recherches Cunicoles, Centre de Recherches de Toulouse, 31326 Castanet Tolosan Cédex (France)

The aim of this experiment was to study the effects of the level and origin of dietary energy on foetal growth and mobilisation of body reserves, in concurrently primiparous *post partum* pregnant and lactating rabbit does with standardized to 10 young litters. Does were given control diet (2400 kcal/kg DM; group T, n=23) or highly energetic diet (2900 kcal/kg DM). Energy increase comes mainly from maize starch (group A, n=23) or sunflower oil (group G, n=22). During the first 21 days of lactation+gestation, the digestible energy (DE) intake was higher in group G than in A (799 vs 740 kcal DE/d) and in T (690 kcal DE/d; $P < 0.05$). During the same period, milk production estimated through the litter weight at 21 days, was higher in group G (4.18 kg) than in A (3.58 kg; $P < 0.05$); group T was intermediate (3.8 kg). On day 28 of gestation, the does were slaughtered. The weights of adipose tissues, liver and sum of all the maternal tissues were higher in groups A and G than in T group ($P < 0.05$). Number of dead or live foetuses and foetal live weight were similar in the three groups. These results indicate that the increase the energy level of the diet did not improve foetal growth in concurrently pregnant and lactating does. On the contrary, it could reduce the mobilisation of body reserves but for this purpose, addition of starch is more efficient than lipids if the diets are isoenergetic.

thuringier coat seems like himalayan coat. In the second, the eumelanin of the aa genotype is partially obliterated by the ee genotype. With new experiences, the authors confute the two theories. They propound a new gene at the A locus for the thuringier coat: a^{α} , recessive on a (black). The dominance of A^+ on a^{α} is not complete and the phenotype due to A^+a^{α} genotype is different if there is E^+ or E^{α} at the E locus. So the hypothesis that a^{α} is recessive on a, seems just a little peculiar but it explains the experimental facts.

36 - ROCHAMBEAU H. de, THEBAULT R.G.*, VRILLON J.L.*, ALLAIN D.

Some non-genetic factors on fur quality in two "Rex du Magneraud" strains :

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 263-270.

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This paper describes the growth and the fur characteristics of 3 096 rabbits from two "Rex du Magneraud" strains. The rabbits were weighed at four, eight and twelve weeks. The bristlyness of the fur was quoted at four, eight and eighteen weeks, which was the slaughter age. The length of the down, the compacity and the maturity of the fur were measured at the same time. The bristlyness marks at four and eight weeks had a small coefficient of correlation with the marks at slaughter age ($r = 0.29$ and 0.32). The fur of the Castor strain had less bristles, and a lower compacity than those from the Chinchilla strain. Sex and litter size at weaning had only small effects on these traits. Heavier rabbits at eight and twelve weeks gave more mature furs at slaughter; these furs had longer downs and a better compacity. The bristlyness marks decreased sharply during the period under review (2 years). A slaughter at eighteen weeks give good quality fur in our breeding systems.

37 - VRILLON J.L., THEBAULT R.G., ROCHAMBEAU H. de*

Adoption practice an unusual result observed on a Rex rabbit strain

6èmes Journées de la Recherche Cunicole en France, INRA-ITAVI, La Rochelle 6-7 déc. 1994, 271-276.

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We follow a study expecting a quantitative and qualitative improvement of strains of Rex rabbits called "Rex du Magneraud". Our investigation try to establish a relation between zootechnical traits and fur quality traits. Breeding our 3 strains of Rex rabbits : Chinchilla Rex (CHR), Castor Rex (CR) and Albinos Rex (AR), we noticed a low nursing ability of the CHR strain : 41 % birth to weaning mortality vs 12.5 % and 21.2 % in the AR and CR lines.

We have planned an experiment on 4 groups of litters issued of CHR and AR females. Two groups of litters have been nursed by their own mother and we exchanged the young between the litters of two other groups. The result shows a very high mortality rate from birth to weaning in one group : litters of CHR mothers nursing their own young. The difference is twice as much as for the three other groups : 39.5 % mortality vs 19.4 % to 26.5 %.

The hypothesis of a lack of antibodies production in CHR mothers is put forward.