

REPORT ABOUT THE RABBIT PRODUCTION IN THE FEDERAL REPUBLIC OF GERMANY

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The historic origin of rabbit husbandry in Germany was about 1149 p.Ch., when monks of the famous Corvey monastery on the Weser river have imported rabbits from France. In this time, the newborn rabbits or the fetusses of rabbits were asked as lanten food. Angora rabbits are mentioned at the first time in the year 1777 p.Ch.

This early activities in the field of meat- and woolproduction of rabbits remain without effective influence on the spreading of the rabbit as usefull animal. At first, in the end of the 19th century, new activities resulted on the development of rabbit husbandry by the meat protein deficiency among the incomeless proletariat in the large industry centers.

The rabbits gave the chance to produce meat in the small gardens of these peoples by feeding the rabbits with offals of the garden and kitchen and by plants and gras, collected alongside of road boards.

The first German rabbit breeder clubs were founded in these industrial centers in the last 19th century, and they were the origin of the late organized fancy breeders association in Germany. The increase of the rabbit productivity by improved breeding and production techniques was the aim of these first rabbit clubs. The improvement of the inheritant performance properties was focussed on the advancement by pure breeding from special races and by the selection of animals on the basis of distinct external, phenotypic symptoms, supposing strong genetical fixed correlation between external phenotype and performance properties.

By this method of selection according the performance improvement the external phenotypic criterias became more and more important in the systematic rabbit production, and fancy rabbits breeding with its numerous and different race specific characteristics began to develope. Furthermore, with increasing income, the interest on meat production for the own use decreases, but the interest in the hobby or fancy rabbit breeding grow up rapidly. Today, the German fancy rabbit breeders are organized in the "Zentralverband Deutscher Kaninchenzüchter - ZDK" (Central Association of German Rabbit Breeders) with more than 172000 members. Today, about 50 different races with a plurality of colour varyities are breded in Germany. Many rabbit exhibition contests on regional (community, county) or on overregional (state, federal) level take place every year or periodically.

At the last Federal Rabbit Exhibition in Stuttgart 1987, more than 36000 animals of about 70 different races and colour types were exhibited there.

By random sample tests the average of the fancy breeding stocks comprehends 9 breeding rabbits, 4 males and 5 females, with 1-2 litters per year and rabbit doe. The fancy rabbit are particular from social interests by the hobby engagement at holidays and weekends. Its economic importance is reduced and not exact to determine. The use or saling of meat of the rabbits or of its fur and wool may help also to improve the income of the breeders, but the intensity of this economic utilization depends on the personal income situation of the breeder.

The professional rabbit production in Germany is limited. Only about 100 professional rabbit breeders are organized in the "Bundesverband Deutscher Woll- und Fleischkaninchenzueger" (Federal Association of German Wool and Meat Rabbit Producers). The yearly rabbit meat consumption per person amounts about 0,3 kg with increasing tendency. Today, 4 rabbit processing plants with a capacity of 5000 animals per week are working in Germany. Besides New Zealand and Californian rabbits Hybrid types of German (ZIKA) or French (HYLAP) origin are used for meat production, preferably. In view of the tendency of portion marketing of meat rabbits animals with higher finishing weight (3 kg) and low fat content are favoured. According the guiding principals of the Deutsche Landwirtschaftsgesellschaft (DLG) comparative breeding and meat producing tests are carried out, including the rabbits offered by the producers.

In average, the professional producers keep about 200 female rabbits per year. The only German commercial basis breeding stock is the ZIKA-Hybridzucht, D-7081 Abtsgmünd-Untergröningen ( Dr. Zimmermann). This stock and all connected rabbit meat producers carried out the breeding by artificial insemination, developed in institutions of FR Germany.

The part of angora rabbit breeders in the organized fancy rabbit breeders is estimated on about 1000, with about 150 professional angora rabbit producers, who participate, regularly, at the random sample tests. These wool performance tests are done in Germany since 1935. Each of the 5 test stations have a capacity of 900 test places per year in two test periods. The stations are working following uniform testing rules, edited by the DLG.

In the first half year 1987, the calculated wool performance per year and angora rabbit, counted on the basis of one testing shearing with 91-days intervall amounts 1098 g wool per buck and 1300 g per doe. The top performance reached 1684 g at buck and 1860 g per doe. The highest wool harvest in Germany come to 2008 g in one female angora rabbit.

The feeding occurs in fancy rabbit exclusively by combination of pelleted all-mash feed or grain with rough feed (green materials, hay, offals from kitchen and garden). In the professional rabbit farms, allmash pellets ad libitum are fed usually. The production of industrial mixed rabbit allmash amount in the last year about 70000 t.

In general, 3 feed types are manufactured, that should contain following the DLG recommendations feedstuff components in the certain limitations.

Feed for breeding : at min. 12% rough fibres and 15% rough protein;

fattening allmash feed: at max. 12% rough fibres and at min. 16% rough protein;

angora rabbits allmash feed: at min. 12% rough fibres, 16% rough protein, 0,6% sulphuric amino acids, at max. 600 IU D<sub>3</sub> vitamin.

To use the amount dependend profit of the price for manufactured feed and to minimize the risk of enteritis in broiler rabbits the professional broilers stocks applies only breeding feedmash, but the fattening feed is used as additional feed in the combined feeding method.

The use of rabbits as laboratory animals is limited on some special research activities, i.e.

biotechnology (embryotransfer and gentransfer),

arteriosklerosis-research,

drug testing.

In the FR Germany many activities and programs in the rabbit research are done and the results have promoted the advancement of breeding, of production technology and of disease prevention, regionally and worldwide.

Many institution are involved in this activities and its research work and its addresses are enlisted in the following.

#### Research activities and performance testings in the FR Germany

##### 1.0 Performance testing

1.1 Angora wool performance testing for estimation of breeding value and population comparing (6,13,15,17,18)\*.

1.2 Performance testing of breeding and fattening between races and hybrids (18).

1.2.1 Comparison of races (breeds) under different climatic conditions (12,18).

1.3 Testing of feeding values of different commercial allmash feed (18).

1.4 Testing of feed additives (18).

1.5 Testing of stallequipments (18).

\* = number indicate the institutions that are engaged in this research activities.

- 2.0 Increasing of reproduction performance.
- 2.1 Shortening of suckling period (18).
- 2.2 Artificial insemination (3,7,10,18).
  
- 3.0 Studies about angora wool production.  
Estimation of heretability; use of methionine; shortening of shearing intervals; influence of sex and age on wool production; influence of climatic conditions; development of pilibetoare in the stomach; effiliation in angora rabbits; influences on the hair quality (1,8,9,12,14,18,).
  
- 4.0 Quality of slaughtered carcasses in rabbits.  
Influences of feeding intensity, influences of races and final fattening weight on meat quality and performance (2,16,18).
  
- 5.0 Feeding  
Rearing of sucklings with milk extender (7).
  
- 6.0 Diseases and disease control  
Control of infectious coryza and Pasteurellosis by eradication; pathogenesis and control of rabbit dysentery and enterotoxemia; prophylactic measures in intestinal and hepatic coccidiosis; influences of feeding, feed additives, drugs and of environmental conditions on the gut microflora in rabbits; losses of newborn rabbits in the perinatal and suckling period, and its control; meat hygiene and meat inspection of slaughtered rabbits; health precaution and animal welfare in rabbit housing.(22).
  
- 7.0 Further research activities  
Influences of tits on the rearing performance (7); distribution of races and productivity of rabbit breeding (18); climatic conditions in the nests (12,18,22); genetic adaption on high temperature (12); index selection of angora rabbits (5); alternative rabbit housing systems - deep litter, large group housing - (18); economic situation of rabbit production in developing countries (20); control of economic efficiency in rabbit production (18); physiology of feed consumption (19, 21); rationed feeding and enteritis (18); compensatoric growing of rabbits (18)

Adresses of research institutes and scientists

1. Deutsches Wollforschungsinstitut (German Wool Research Institute) Aachen, Veltmannplatz 8, 5100 Aachen
2. ZIKA-Hybrid Kaninchenzucht Dr. E. Zimmermann, Schweizerhof, 7081 Abtsgmünd - Untergröningen
3. Institut für Tierzucht und Tierfütterung (Institute of Animal Breeding and Feeding) Universität Bonn, Endericher Allee 15, 5300 Bonn
4. Deutsche Landwirtschaftsgesellschaft (DLG), Zimmerweg 16, 6000 Frankfurt/Main
5. Institut für Tierernährung der Tierärztl. Hochschule (Institute for Animal Feeding of Veterinary College), Bischofsholer Damm 15, 3000 Hannover
6. Lehr- und Versuchsanstalt für Viehhaltung (Testing Station for Husbandry), 2322 Futterkamp/üb. Lütjenburg
7. Ambulatorische und Geburtshilfliche Veterinärklinik der Universität Gießen (Ambulatoric and Obstetric Veterinary Clinic), Prof. Dr. Bostedt, Frankfurter Str. 124, 6300 Gießen
8. Institut für Tierzucht und Haustiergenetik der Universität Gießen (Institute Animal Breeding and Animal Genetic), Bismarckstr. 16, 6300 Gießen
9. Institut für Tierzucht und Heustiergenetik der Universität Göttingen (Institute for Animal Breeding and Genetic), Albrecht-Thaer-Weg 1, 3400 Göttingen
10. Tierärztliches Institut der Universität Göttingen (Veterinary Institute), Prof. Dr. Paufler, Groner Landstraße 2, 3400 Göttingen
11. Institut für Fortpflanzung und Andrologie der Tierärztlichen Hochschule Hannover (Institute for Reproduktion and Andrology Veterinary College Hannover), Prof. Dr. Weitze; Bünteweg 17, 3000 Hannover
12. Institut für Tierhygiene der Tierärztlichen Hochschule Hannover (Institute for Animal Hygiene), Prof. Dr. Stephan, Bünteweg 17, 3000 Hannover
13. Versuchsanstalt für Geflügelwirtschaft und Kleintierzucht (Testing Station for Poultry Production and small Animal), Hüttenallee 235, 4150 Krefeld-Großhüttenhof
14. Institut für Tierzucht und Tierhaltung der Universität Kiel (Institute for Animal Breeding and Housing University Kiel), Olshausener Str. 40-60, 2300 Kiel
15. Lehr- und Versuchsstation für Kleintierzucht (College and Testing Station for small Animal Husbandry), Mainbernheimer Str. 101, 8710 Kitzingen/Main
16. Bundesanstalt für Fleischforschung (Federal Research Center for Meat Research), Dr. Ristic, E.-C.-Baumann-Str. 20, 8650 Kulmbach
17. Lehr- und Versuchsanstalt für Viehhaltung (College and Testing Station for Animal Production), Neumühle, 6751 Münchweiler/Alsenz
18. Hessische Landesanstalt für Tierzucht (Hessian State Station for Animal Breeding), Dr. Schlolaut, Neu-Ulrichstein, 6313 Homberg/Ohm

19. Institut für Ökonomie der landwirtschaftlichen Produktion in den Tropen und Subtropen (Institute for Economic Agriculture Production in tropic and subtropic areas), Prof. Dr. Doppler, Universität Stuttgart-Hohenheim, 7000 Stuttgart 70
20. Institut für Zoophysiologie der Universität Hohenheim (Institute for Zoophysiology University Hohenheim), Prof. Dr. Hörnicke, Garbenstr. 32, 7000 Stuttgart 70
21. Zentrale Versuchstieranlage der Universität Ulm (Central Laboratory Animal Station University Ulm), Dr. Jilge, Parkstr. 11, 7900 Ulm
22. Institut für Kleintierzucht, Arbeitsgebiet Hygiene und Krankheiten (Institute for Poultry and Small Animal Science, Division of Hygiene and Diseases), Prof. Dr. Löliger, Dr. Matthes, Dörnbergstr. 25/27, 3100 Celle

Colleges or faculties of agriculture science offer lessons about rabbit production (University Hohenheim, Faculty of Agriculture Science, Weihenstephan, Faculty of Agriculture Science University Bonn, Faculty of Agriculture Science University Gießen, Faculty of Agriculture Science University Göttingen, Faculty of Agriculture Science University Berlin, Faculty of Agriculture Science University Kiel).

On the Veterinary College Hannover lesson about rabbit diseases are offered regularly each year.

Transfers of informations about the results of rabbit research occur in regularly symposia of the German group of WRSA in connection with the German Veterinary Medical Association as well as occasionally of meeting of this session for rabbit breeding of the German Agriculture Society (DLG) and of the Association of the German Rabbit Meat- and Wool Producer.

Following publication about rabbit production are available:

1. Books:

Kölz, W., Maute, A., Posthoff, H., Dietrich, A., Rommel, M. (1980):  
Bewertungsbestimmungen (Einheitsstandard).  
Zentralverband Deutscher Kaninchenzüchter e.V., Langenburger Str. 62,  
7000 Stuttgart 40

Löliger, H.-Ch. (1986):  
Kaninchenkrankheiten  
Ferdinand Enke Verlag, Postfach 1304, 7000 Stuttgart 1

Schley, P. (1985):  
Kaninchen  
Verlag Eugen Ulmer, Wollgrasweg 41, 7000 Stuttgart 70

Schlolaut, W. (1983):  
Die Ernährung des Kaninchens.  
Hoffman-La Roche AG, 7889 Grenzach-Wyhlen  
English Translation 1985  
Spanish Translation 1986

Schlolaut, W., Doppler, W., Lange, K., Lölinger, H.-Ch., Paufler, S., Zimmermann, E.  
(1984):  
Kompendium der Kaninchenproduktion unter Berücksichtigung der Verhältnisse in der  
Dritten Welt.  
TZ-Verlagsgesellschaft mbH, Postfach 29, 6101 Roßdorf 1  
English Translation 1985  
French Translation 1985

## 2. Journals

Deutsche Geflügelwirtschaft und Schweineproduktion - DGS  
Verlag Eugen Ulmer, 7000 Stuttgart  
Supplement about rabbit production each 28 days.

Deutscher Kleintierzüchter - Ausgabe Kaninchen (rabbit edition) -  
Verlag Oertel & Spörer, 7410 Reutlingen

Das blaue Kaninchenjahrbuch  
Verlag Oertel & Spörer, 7410 Reutlingen



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Rabbit  
Science  
Association