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GENERAL CHARACTERISTICS OF EJACULATE AND EFFECTIVE WAYS COLLECTION OF SPERM JAPANESE QUAIL (COTURNIX JAPONICA)

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The main approaches for the successful collection of Japanese quails sperm with female stimulation and describing the qualitative and quantitative characteristics of ejaculate. It was established that stimulation of males using females is the most effective method of maximum quality characteristics: a large volume of ejaculate, and a high concentration of a large number of live morphologically normal sperm is very important to study the reproductive characteristics of quail.
Keywords: *Japanese quail, semen collection, characteristics of sperm, ejaculate.*

Japanese quail is one of the most popular bird species that is widely used not only as poultry to produce eggs and meat, but also as laboratory animals, as well as a model for research. Adult birds are relatively small: weight ranges from 100 to 200 g, and daily feed intake from 20 to 30 g per specimen. Females begin laying eggs at 6 weeks of age. The reproductive period lasts 10-12 months, during which a female can bear about 300 eggs. The incubation period is 17-18 days, which makes it possible to get a year for about four generations of birds. Simple and low cost of feed, a short incubation period, the rapid reproduction of birds makes this a convenient model for experiments in genetics, endocrinology, embryology and physiology._

A simple and effective way of sampling sperm and insemination required in order

to effectively use quail in research and industry. Dorsal abdominal massage is most often used for taking ejaculate in birds (1 - 4). However, our experiments on quail showed that the dorsal abdominal massage received small amounts of ejaculate (14 ml on average) with a low concentration of sperm (596×10^6 ml^{-1}). Therefore, the effective sampling sperm can be used to stimulate the male using a female that was later successfully used in our experiments.

The aim - to evaluate the effectiveness of the stimulation of males using females for collection ejaculate in Japanese quail, make observations by the reaction of males and their response to this procedure and conduct quantitative and qualitative evaluation of the main parameters of ejaculate.

Materials and methods. The study used 30 male Japanese quail females and 10 for stimulation. Males were kept in individual cages and female groups at room temperature (22 ° C) and 14hod./10hod. cycle of light / dark. Water and balanced in vitamins and minerals feed the birds were available without restriction. The experiment was conducted in two phases. During the first 30 sexually mature males (10-11 weeks of age) 3-4 times a week doing dorzoabdominal massage to assess their response to intake of semen. Then selected 10 males with erection and ejaculation fastest, from which the second phase of the experiment after using them to stimulate females received sperm. At the time there was intense excitement characteristic curve back male, then it quickly took on females to avoid mating immediately after massaging the side walls of the cloaca, penis got out without resulting in soon, appeared sperm. From each male sperm by 10 fences. Females that were used to stimulate the males were of reproductive age and characterized by a calm temperament; males allowing them to rise rapidly.

Collecting sperm from each male was carried out twice a week. To collect semen using dispenser. In most cases, for maximum efficiency and convenience of the procedure was performed by two operators.

In freshly semen was evaluated following characteristics: size, color, viscosity ejaculate, sperm concentration and morphology, and the presence of bleeding and faeces.

Sperm concentration was determined using a Makler chamber. Sperm morphology was studied by staining Romanovsky-Himza (13). In each smear 300 spermatozoa were divided into seven classes, including six live spermatozoa were presented with the following features: morphologically normal, with the pathology of the head, with abnormal tails, with minor deviations in morphology, spermatids, spermatozoa with other deformities and dead sperm the existence of which was analyzed by strokes painted eosin (14). In addition, in the second stage of the experiment determined the speed and type of response of males to semen sampling.

In order to provide a reliable assessment of the quality of ejaculate was proposed as an indicator of sperm quality factor (FQS), which was calculated by the following formula:

$$FQS = \frac{\text{sperm concentration } (n \times 10^6 \text{ ml}^{-1}) \times \text{ejaculate volume (ml)} \times \text{live normal spermatozoa (\%)}}{100\%}$$

Results and discussion. Based on the responses of males, sperm sampling procedure was divided into four categories: 1) males are very excited right after placing on the back of the female, trying to mate and give semen quality (category "a"); 2) quail from which ejaculate obtained by prolonged stimulation - about 30 seconds (Category "B"); 3) The need for stimulation was more than 60 seconds, while males were given a small amount of semen mixed with foam or contaminated with blood or faeces (Category "B"); 4) males did not respond to the presence of females (category "d").

For artificial insemination using the male category only "a" and "b".

Quail sperm density and appearance was similar to condensed milk. Ejaculate very excitable males was often contaminated with blood.

The most important indicator is considered to characterize ejaculate semen quality

factor (FYAS), which consists of three main parameters and very comfortable to adequately assess the quality of semen (Tab.1).

Table 1. Characteristics of native ejaculate male Japanese quail collected after stimulation using females.

	The concentration of sperm [x 10^6 мл$^{-1}$]	The volume of ejaculate [мл]	Semen quality factor (FQS)	Classes sperm [%]					
				The number of live sperm	Morphologically normal	The pathology of head	Cervical pathology	Minor deviation	Other strain
The average values	678,0±196,08	0,026 ± 0,011	15,3 ± 8,64	92,1 ± 3,86	82,2 ± 5,63	3,1 ± 1,90	1,9 ± 0,97	1,2 ± 0,64	5,0 ± 2,76

Conclusions

1) The artificial insemination of Japanese quail, stimulation of males using females have a more effective method for collection of semen compared with dorzoabdominal massage. This method facilitated the rapid stimulation of male ejaculation, which took place within a few seconds.

2) When applying both techniques success depended on the choice of a male. The presence of unauthorized or unusual items negatively affect the response of males and sperm quality. 3) By using the method of abdominal massage should be patient and calm, while applying techniques using stimulating females - should be careful not to miss the moment when the male should be removed from females, because quite often it is difficult to control time. Knowledge of bird behavior and experience proper massing sidewalls male cloaca is very important to get the desired result.

4) In order to become accustomed to male sperm sampling procedures need 2 weeks.

5) Fast and correct sampling sperm in males depends on the speed of their response to the presence of females. On this basis the selection was carried out males. To increase the sex drive they were kept separate from the females.

6) There were insignificant differences in the quantitative and qualitative characteristics of semen of male quail, unlike other species of birds (20).

7) Stimulation of males using females given the opportunity to receive ejaculate with the best quality characteristics: a large volume of semen, its high concentration and plenty of live morphologically normal sperm.

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