



## STANDPOINT

on a dissertation for obtaining an educational and scientific degree "doctor" in: field of higher education **6. Agricultural sciences and veterinary medicine** professional direction **6.3 Animal husbandry**, scientific specialty **Breeding of farm animals, biology and biotechnology of reproduction**

**Author of the dissertation:** **Stanimir Georgiev Bonev** part-time PhD student in the Department of "Animal Sciences", Agricultural University, Plovdiv

**Dissertation topic:** "Morphometric and reproductive characteristics of Acipenseridae fishes in the conditions of super-intensive breeding technology"

**Reviewer:** Prof. Dr. Plamen Pavlov Petrov, Faculty of Agronomy at the Agricultural University - Plovdiv, higher education area 6. Agricultural sciences and veterinary medicine, professional direction 6.3 Animal husbandry, scientific specialty "Special branches (bees)", and "Breeding of agricultural animals, biology and biotechnology of reproduction" designated as a member of the scientific jury by order No. RD-16-778/07/05/2022 from the AU Rector.

### 1. Topicality of the problem

In recent decades, aquaculture and sturgeon farming in particular in our country have seen great development, turning into an entire industry. At the same time, super-intensive sturgeon farming as a new sub-sector faces many problems, especially in the field of sturgeon breeding and reproduction. In Bulgaria, similar studies are relatively scarce, which defines the presented study as extremely topical and of great scientific and scientific-applied importance. The fact that the study, based on a complex approach and aimed at the study of morphometric and reproductive characteristics and sturgeon hybrids in the conditions of super-intensive cage technology, is the first of its kind in our country speaks for the relevance of the problem.

### 2. Purpose, tasks, hypotheses and research methods..

The purpose, as well as the tasks set for its achievement, are clearly formulated. The working hypothesis is to carry out morphometric characterization and comparative morphometric analysis, ultrasound monitoring of sexual development and characterization of sperm production in sturgeon fish grown on industrial super-intensive cage technology.

Appropriate research methods were used for the implementation of the set tasks. The three-year studies were carried out on sufficient samples of fish of different ages. A suitable specialized software was used for the statistical processing of the obtained results and their analysis.



### **3. Transparency and presentation of the obtained results.**

The obtained results are presented in a volume of 127 pages, which is 60% of the entire dissertation. The very good illustration of the dissertation is impressive, and with original photographic material - in the dissertation, 35 tables and 56 figures are presented, correctly labeled and titled.

### **4. Discussion of results and references.**

The PhD student has thoroughly familiarized himself with sturgeon research. The references are presented on 28 pages and include 223 sources, of which 39 are in Cyrillic. The obtained results are divided into several subsections: morphometric characteristics, sexual development of female and male fish and sperm production in sturgeon fish grown on industrial super-intensive cage technology.

The main conclusions from the conducted studies - a total of 5 derive from the obtained results. Six valuable recommendations for the practice related to the improvement of the breeding technology and the breeding activity in the sturgeon farms were also made.

### **5. Dissertation Contributions.**

The relatively large samples of sturgeon fish of different origin, age and sex analyzed in Stanimir Bonev's dissertation clears any doubts about his personal involvement and the reliability of the material on which the contributions of the dissertation under consideration are based.

#### **Scientific contributions**

1. The parameters of the main indicators characterizing the economic qualities of Russian sturgeon and hybrid (F1 Ab x Ag) (fatness, compactness, thickness and width of the body, etc.) when reared in the conditions of super-intensive cage technology were established, as well as the influence of the genotype and sex over them. **Original scientific contribution;**
2. For the first time, a study was carried out and age and seasonal dynamics of gonadal development were established in Russian sturgeon and hybrid (F1 Ab x Ag) cultured under the conditions of super intensive cage technology. A comparative analysis of the sexual development of male and female individuals of the Russian sturgeon and the hybrid was performed. **Original scientific contribution;**
3. It was established that female hybrids (F1 Ab x Ag) are more precocious than female Russian sturgeons when reared in the conditions of super-intensive cage technology, and within the same age, they significantly outstrip them in terms of ovarian development. **Original scientific contribution;**
4. Seasonal dynamics of ovarian and testicular development in Siberian sturgeon cultured under super-intensive cage technology have been established for the first time. **Original scientific contribution;**



## Scientific-applied contributions

1. A complex study of morphometric and reproductive characteristics of sturgeon fishes (Russian sturgeon and hybrid (F1 Ab x Ag)) of different sex and age, cultivated under conditions of super-intensive cage technology was performed for the first time. **Original scientific-applied contribution;**

2. Morphometric differences have been demonstrated on a number of plastic and meristic features, between Russian sturgeon and hybrid (F1 Ab x Ag), and between the sexes within the genotype, grown in conditions of super-intensive cage technology. The possibility to use the morphometric analysis as a tool for species and sex identification, to assess the reaction of fish to the conditions of cultivation, as well as to determine the possibility and directions of breeding-improvement activities has been established. **Original scientific-applied contribution;**

3. The possibility of ultrasound diagnosis of ovaries and testes to be used for monitoring the gonad development and stages of maturity in live sturgeon is proven, as well as for early sex determination, which is particularly important to increase the efficiency of farms for caviar production. Affirmative contribution with elements of originality. **Affirmative scientific-applied contribution with elements of originality;**

4. It has been established that the sex of the Siberian sturgeon can be determined as early as 3 years of age in the conditions of super-intensive cage technology. **Affirmative scientific-applied contribution with elements of originality;**

5. For the first time a study of sperm production complex indicators of Russian sturgeon and hybrid (F1 Ab x Ag) of different age groups was conducted. It was found that when cultivated in conditions of super-intensive cage technology, Russian sturgeon and hybrid have good sperm production and can be successfully used for reproduction. It is recommended to use males over 9 years of age for breeding. **Original scientific-applied contribution.**

### 6. Critical notes and questions.

Critical remarks and questions raised when examining the dissertation are taken into account and answered in the dissertation under consideration.

### 7. Published articles and citations.

The PhD student has indicated 5 publications related to the dissertation, of which he is independent in one and first author in two. Four of the scientific articles were published in refereed and indexed journals in world-renowned databases of scientific information.

The presented abstract reflects objectively the structure and content of the dissertation.

## CONCLUSION:

Based on the different research methods learned and applied by the PhD student, the correctly performed experiments, the generalizations and conclusions, I believe that



the presented dissertation meets the requirements of the ZRASRB and the Regulations of the Agricultural University for its application, which gives me a reason to evaluate it **POSITIVELY**.

I allow myself to propose to the honorable Scientific Jury also to vote positively and award **Stanimir Georgiev Bonev** the educational and scientific degree "**Doctor**" in: field of higher education **6. Agricultural sciences and veterinary medicine** professional direction **6.3 Animal husbandry**, scientific specialty **Breeding of farm animals, biology and biotechnology of reproduction**.

Date: 08.08.2022.  
Plovdiv

**STANDPOINT**  
**PREPARED BY:** .....  
(prof. Plamen Petrov)

