

## RESEARCHES REGARDING THE CARP BREEDING IN POLICULTURE WITH POLYODON SPATHULA

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### Abstract

*Our research had in view the improvement of summer carp (*Cyprinus carpio*) saplings breeding with a species of acipenseride –*Polyodon spathula*, improving in this way the production per hectar. The biological stuff was bred in a 0.8 ha pond in order to provide preparations for populating it in good conditions. At the end of our experiment the results were the following : 4326 kg/ha for carp and 389 kg/ha for *Polyodon spathula*. The survival percentage was 60 per cent for carp and 50 per cent for *Polyodon spathula*. The most important limited agents of breeding were the predators and the low oxygen content dissolved in water.*

**Key words:** breeding, *Cyprinus carpio*, *Polyodon spathula*

Breeding the fish is used in people nourishment in a different weight depending on the area, climate and tradition.

This has the chance to represent over 23% from the whole animal nourishment consumed in the world, due to a high content in proteins, vitamins, mineral salts and organoleptic and diet remarkable quality.

Modern man nourishment is more refined and elaborate making frequent use of additives and conservants damaging health; the coming back to a healthy nourishment has become a necessity.

### THE MAIN OBJECT OF THE PAPER

The main object was to improve the breeding technology of summer one carp, using breeding in policulture with an acipenserid.

Researches were done under production conditions using a breeding pond in Țigănași-farm, in the South-East of Moldavia Plane, in the high tank of the middle Prut. The tank had an area of 8000 m<sup>2</sup>, having a rectangular shape (L = 150 m, w = 60 m) average depth 1,5 m, exposure to the main North-Winds is on the longitudinal axis on the tank. The water supply was made from Prut river because the water flow and the quality of the water are adequate. The carp larva were obtained through naturally reproduction

directed in reproduction ponds which were properly prepared.

The larvae fish are gathered at the age of 12-15 days within a maximum few hours or sometimes a day. They are fed with foders characteristic to their age, beginning with day 5<sup>th</sup> sinceatching accured.

*Polyodon* larva are obtained through artificial reproduction at SCP Nucet. The post larva development is realized in concrete tanks.

### MATERIALS AND METHODS

The experimental *material* used was realized from native carp larva: Podu-Iloaie and Frasinet carp, at the age of 15 days and weighing 0,2-0,3 g/piece as well as *Polyodon* larva, aged 2,5-4,5 g/piece.

#### *Method*

The pond population was made with 120.000 piece of carp larva/ha and 10.000 polyodon. Before the population of the tank the following were accomplished:

- administration of completely fermented organic manure;
- administration of grounded quick lime weighing 1.000 kg/ha;
- repeated procedures for manure and soil liming inclusion;
- the tank flooding 12-15 days before its population. This procedure must be done

quickly so that the planctonic and benthonic biomass could have optimal breeding conditions until the population with biological material;

- administration of hay in the seashore area (100 kg/ha immediately after the inundation);

- administration of fodder yeast (1 g/mc/day) or bread yeast (0,1 g/mc/day) until the tank population with tadpoles;

- the fodders were administrated 3 time a day. Te fodder consumption was controlled every day at 7 a.m. and 6 a.m.;

The fodder was obtained from SC SAPOFISH having a 1/005 protein report and it was administred as moisten powders or grains.

Polyodon spatula was raised with carp in the same tank in order to permanently superintensive and control the dissolved oxygen and vegetation development.

The alvin and polydon tadpoles food consisted in zooplankton and aquatic insects, Cladeors and Daphnia being the favorite food for this specie.

When they reach 7-8 cm length they begin to feed through filtration with

copepodes and cladoceros. In order to develop and maintain these populations, they were used: organic manure, brewer's grains yeast applied in 20.000 kg/ha.

## RESULTS

The growing percentage for the two species was observed through the achieved growth rhythm and sanitary state of the above.

The monitoring of the growth was completed through decade quality weining, the obtained results were compared to some standard scales.

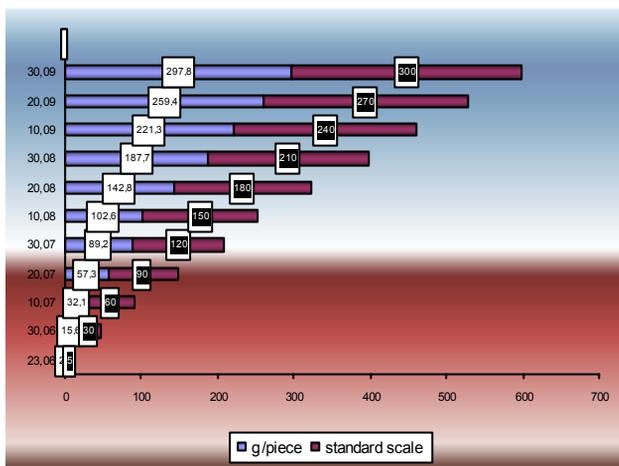
In order to observe the rhythm of growth, it was done the fishing control, when tadpoles were determinated follows: 100 tadpoles from each species were taken sorted on size (minus variants, plus variants). Extremes are excluded and the average weight of the remained is being calculated. The decade growth progress is also calculated and compared to some standard scales.

In polyodon case the results are presented in table and picture 1.

Table 1

The results regarding Polyodon spatula growth for the period of june-september

No.	Dates of control	Weight per piece (g/piece)	Standard scale (g/piece)
1	23.06	2,5	5
2	30.06	15,6	30
3	10.07	32,1	60
4	20.07	57,3	90
5	30.07	89,2	120
6	10.08	102,6	150
7	20.08	142,8	180
8	30.08	187,7	210
9	10.09	221,3	240
10	20.09	259,4	270
11	31.09	397,8	300



Analysis the rhythm of growth of Polyodon spathula larva, we notice the variability depending on the period of time when the fishing control was completed.

At the beginning of the experiment the average weight was 2,5g, smaller than standard weight. The most difficult period was that from the end of June and the first decade of July when the rhythm of growth was 1,7g/day/piece.

After the first decade July it was recorded a significant growth of the rhythm of breeding attaining 4,2 g/day/piece corresponding to the end of August.

For fishing polyodon tadpoles we used gauze and the temperature of water had a range from 5 to 10°C. Concerning the carp the rhythm of breeding in July recorded the values presented in picture 2.

Table 2  
 Results concerning the carp breeding for the period of June-September

No.	Dates of control	Weight per piece (g/piece)	Standard scale (g/piece)
1	23.06	0,2	0
2	30.06	4,0	10
3	10.07	9,2	20
4	20.07	16,3	30
5	30.07	26,2	40
6	10.08	31,5	50
7	20.08	37,2	60
8	30.08	43,6	70
9	10.09	54,9	80
10	20.09	65,7	90
11	31.09	72,1	100

Analyzing the above picture we observe a 0,38 g/day rhythm of growth during the first period. It is considered the most difficult period from this interval. During the last decade of the month the rhythm of growth was 0,57g/piece.

In August, the values of the rhythm of growth varied between 0,53-0,64g/day/piece and in September in the first decade it was

0,59 g/day/piece and at the end it was 0,99 g/day/piece.

During the all experimental period the medium was 0,71g/day considered adequate.

The qualitative parameters of the aquatic medium, represented by temperature and the quality of oxygen in water, as well as the quantity of fodder are presented in picture 3.

Table 3  
 Parameters of the quality of water and consumption of food for the analysed period

Month	Temperature (°C)		Oxygen (mg/l)		Administred fodder (kg/zi)	
	$\bar{X} \pm s_{\bar{X}}$	V%	$\bar{X} \pm s_{\bar{X}}$	V%	$\bar{X} \pm s_{\bar{X}}$	V%
iuly	25,14±0,29	5,17	3,36±0,12	24,19	100,3±0,84	5,11
august	27,66±0,23	4,69	3,23±0,16	28,17	124,56±0,91	4,01
september	23,05±0,48	10,97	3,66±0,33	29,63	202,2±15,1	8,3

Analyzing the presented in picture 3 we observe a variation of the water temperature, during the three mouths of observation. It was recorded a minimum medium in september of 23,05°C and a maximum of 27,66°C in august.

The dissolved oxygen didn't record the difference for the analyzed periods. The quantity of water was 3,23 mg/l in august and 3,66 mg/l in september. The quantity of administrated fodder increased from 103 kg/month in june to 202,5 kg in september.

We also observed an increase in the consumption of fodder depending in the age of the carp with and being affected by the temperature or the quantity of oxygen in water. At the end of the experiment it was obtained a production of 4326 kg/ha of carp and 289 kg/ha of polyodon, with individual weight of 72,1 g/piece in *Cyprinus carpio*, and 297,2 g/piece in *Polyodon spathula*.

The survival percentage was 60% at carp and 50% at the other species.

The results obtained are encoring, intending to retake the experiences in order

to finish some aspects regarding post larva period, the growth of survival rate through reduction of predators, control of the development of the blue algae and establishment of adequate equation regarding tadpole density, conditions of surrounding and food, which permit the achievement of a bigger production/ha (8-10.000 kg)

## CONCLUSION

1. Breeding the *Polyodon spathula* with *Cyprinus carpio* eau contribute to the increase of productivity of te pisciculture tank by using natural food adequately.

2. The breeding rhythm of the two species was adequate even if after the population, the difficulties were smaller than the standard scale.

## REFERENCES

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