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TESTS WITH EGGS OF BROWN TROUT AT PARIS HATCHERY

By

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Tests with brown trout brood stock were made at the Paris hatchery to determine the effect of certain diets, and of certain methods of stripping the fish, on survival of eggs and fry.

Since there is an annual occurrence of blue-sac disease among brown trout sac-fry at this station, it was felt that jarring of the eggs during the usual method of forcibly expelling them onto the hard surface of a metal pan might be responsible for the condition. To test this idea, one lot of eggs was expelled onto several layers of cheese-cloth in a pan to lessen the shock.

Eggs purchased from Wareham, Massachusetts, were segregated from all other lots for a comparison of survival rate with Michigan eggs.

The control lot of eggs was taken from anesthetized brood stock at the Paris station which had been fed on the usual hatchery diet of cooked horse meat, and raw horse meat, for comparison with eggs taken from brood stock fed Head Tide pellets. Separate records were kept for all lots.

The following lots were tested:

Lot No. 1 Eggs from brood stock fed regular food.

Lot No. 2 Eggs taken on cloth from brood stock fed regular food.

Lot No. 3 Spawn from females fed Head Tide and males fed on regular food.

Lot No. 4 Eggs of brood stock fed Head Tide beginning on May 1, 1952.

Lot No. 5 Eggs received from Wareham, Massachusetts.

Loss records are given in Table 1.

The lots were kept separate until the end of February, when No. 1 and No. 2 were combined, and No. 3 and No. 4 were combined.

Total loss among the eggs from brood stock fed Head Tide pellets (Lots No. 3 and No. 4) was about ten percent higher than the loss from eggs from brood stock fed the normal diet (Lots No. 1 and No. 2). Any conclusions as to the cause of this difference, however, are obscured by the indefinite feeding of the fish on Head Tide. The character of the holding pond was such that the fish, and pellets thrown into the pond, could scarcely be seen because of the depth of water and dark-colored bottom. Consequently it was difficult to ascertain whether the fish were eating the pellets, or not. They were not avid for the pellets at the beginning of the test and they appeared to lack vitality during the summer, although the loss was low, varying from two fish (0.50 percent) for the month of July, to four fish (1.01 percent) during August.

During December, January and February, the loss among the eggs taken on cloth (Lot No. 2) was 5.31 percent lower than that for eggs taken without the cloth. Excluding December when the initial post-spawning loss was sustained, the loss during January and February among the eggs taken without cloth was 1.68 percent more (4.48 percent without cloth; 2.80 percent with cloth) or almost twice as high as the eggs taken with cloth. (This difference in loss late in development was related to the use of cloth.)

For comparison of Paris eggs with Wareham eggs, figures for December should not be used because they include the first post-spawning pickoff of the Paris eggs whereas this initial pickoff had already been made on the Wareham eggs before they reached Paris. The percentage loss for January and February, then, makes a more equal comparison. Loss among the Wareham eggs for this period closely approximated that of Paris eggs. For Paris eggs, loss for January and February was 4.48 percent without cloth, and 2.80 percent with cloth. Loss among Wareham eggs was 3.43 percent.

In conclusion, the survival of eggs from trout fed Head Tide pellets was at least ten percent lower than those from trout fed the normal Paris hatchery diet. Survival of eggs taken on cloth was slightly better (27.07 percent loss among eggs taken on cloth and 32.38 percent loss without cloth) than among the eggs taken without cloth; the difference, although highly significant statistically, is small on a percentage basis and therefore of relatively little importance.

Loss among the eggs from Wareham, Massachusetts, was not signicantly different from that of eggs taken at Paris hatchery.

The interest and cooperation of Mr. Claude Lydell, Mr. Richard Broderick, and the hatchery crew who actually carried out the tests, are gratefully acknowledged.

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Table 1

MONTH	LOT No. 1			LOT No. 2			LOT No. 3		
	Total number	Total loss	Percent loss	Total number	Total loss	Percent loss	Total number	Total loss	Percent loss
December 1952	759,395	171,155	22.58	68,769	17,169	24.90	164,632	38,909	23.60
January 1953 [1]	413,660	12,404	2.99	51,600	1,147	2.22	125,723	22,651	18.01
February 1953	401,256	6,155	1.53	50,453	301	0.59	103,072	8,632	8.37
TOTALS [2]	585,815	189,714	32.38	68,769	18,617	27.07	164,632	70,192	42.63
TOTALS- January February [2]	413,660	18,559	4.48	51,600	1,448	2.80	125,723	31,283	24.88

MONTH	LOT No. 4			LOT No. 5		
	Total number	Total loss	Percent loss	Total number	Total loss	Percent loss
December 1952	154,841	49,372	31.80	105,824	240	0.22
January 1953	105,469	20,605	19.53	105,584	1,316	1.24
February 1953	84,864	7,471	8.80	104,268	2,301	2.21
TOTALS	154,841	77,448	43.55	105,824	3,857	3.65
TOTALS- January February	105,469	28,076	26.62	105,584	3,617	3.43

[1] Original number less eggs shipped from station.

[2] Original number less loss during December and less eggs shipped from station.