

DEVELOPMENTS IN FISH CULTURE

Comparison of eye-up of rainbow trout eggs fertilized with precollected and pooled milt versus fertilized with milt stripped directly from males.

Investigators

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INTRODUCTION

At the Ennis National Fish Hatchery the standard method used for introducing milt to eggs is to strip milt directly from the anesthetized males to the pans of eggs. However, results from a recent experiment (July 98) in which the eggs were fertilized with precollected and pooled milt, yielded a significantly higher (8%) percent eye-up than what was achieved on the same day from different females from the same lot fertilized with milt direct from males. The intent of this experiment was to determine if there is a significant difference in percent eye-up between the standard method and the precollected method.

OBJECTIVE

Determine if there is a significant statistical difference in percent eye-up between the standard method and precollected method of introducing milt to eggs.

MATERIALS AND METHODS

Eggs from ten ERD-96 females were air spawned and eggs were split evenly into two plastic spawning pans each containing 1 liter of 0.75% saline solution. The eggs were then fertilized using the standard method of milt introduction ensuring that 3 to 4 "good" males were used for the ten females. "Good", is defined by the milt being relatively high in volume and possessing a strong white coloration. This group served as the control group for the experiment.

Eggs from ten additional ERD-96 females were air spawned and eggs were split evenly and put into the saline solution as noted above. Each pan of these eggs were fertilized with 10 ml of precollected and pooled milt from 20 ERD-96 males. Both groups of eggs were rinsed twice within two minutes of fertilization. Eggs were then water hardened

in a 50 PPM iodine solution for 30 minutes. After water hardening, the two groups were split into 3 replicate test jars for incubation. The eggs were shocked on day 15 and electronically counted and picked on day 16.

A two-sample T-test using the computer program Statistix version 4.1 was used to determine any significant statistical difference in means.

RESULTS

The percent eye-up for all three replicates of both groups ranged from 86.17% to 90.91% (Table 1). The T-test indicates no significant statistical difference between the two groups at the 0.05 level (Table 2; calculated $t=0.85$, table $t=2.78$) .

TABLE 1 Comparison of eye-up of rainbow trout eggs fertilized by precollecting and pooling versus applying milt direct from males.

Treatment	Total Eggs	Net Eyed	% Eye-up
pre/pool 1	8686	7641	87.89
pre/pool 2	7139	6254	87.60
pre/pool 3	7138	6159	86.28
		average	87.33
direct 1	6647	6043	90.91
direct 2	7543	6675	88.49
direct 3	9186	7916	86.17
		average	88.27

TABLE 2 Paired T-test of mean percent eyed rainbow trout eggs.

Variable	Mean	n	S.D.	S.E.	T	DF	P
Pooled	87.283	3	0.8884	0.5129	0.85	4	0.444
Direct	88.523	3	2.3702	1.3684	0.85	4	0.444
Assumption: Equal Variances							

CONCLUSION

We accept the null hypothesis that the means are statistically equal and conclude at least at this point in time that precollecting and pooling milt is no more effective than applying milt directly from the males as we normally do at the Ennis National Fish Hatchery.

