REVIVAL OF JAPANESE BREEDS AND CHINESE HYBRIDS AT DIFFERENT TEMPERATURES AND HUMIDITY

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ABSTRACT

The article provides information on theimported silkworm seedsrecovery rate, the duration, amount and other indicators of local seedsrecovery. It has been proved that the seeds produced in our country do not lag behind the imported seeds in incubation process terms and worm recovery rates, and even some of them are slightly higher.

Keywords: Seed, larva, silkworm, humidity, temperature, worm, feed, mulberry leaf, pill, silkworm viability, variety, yield.

INTRODUCTION

Silk industry development and promotionin the country, increasingpopulation material interestemployed in the industry, and quality national silk products production issues that can compete in the world market in President Resolution of the Republic of Uzbekistan on March 29, 2017 PDNo -2856 "On"Uzbekpaksanoat "associationactivities organization" and Resolution of the Cabinet of Ministers of the Republic of Uzbekistan on August 11, 2017 No 616 "On measures program for silk industry further development in 2017-2021" as well as President Resolutionof the Republic of Uzbekistan on January 12, 2018 PDNo -3472 "On measures for silk industryfurther develop in the Republic"are increasing the industryefficiency, strengthening the integration process in silk products production and improving farms and enterprises economic performance [1-2].

Research methods and materials:3 options were established for the experiment.Each variant consisted of 4 iterations, and 200 seeds were counted in each iterationand all variant seeds were animated simultaneously at different temperatures and humidity.

1stoption:"Japan" breed seedsfrom silkworms breed from Japan were incubated at 20-21^{0}Ctemperature and revived at 60-65% humidity.

"China" breed seeds from silkworms breed from China were incubated at20-21^{0}Ctemperature and revived at 60-65% humidity.

“Jingsong x Haoyue”silk worm hybridizationseedsfrom China were revived by incubating at 20-21^{0}Ctemperature and 60-65%humidity.

“Jingsong x Haoyue”silk worm hybridization seedsrevived at 20-21^{0}C temperatureand incubated at 60–65% humidity.

"Ipakchi-1 x Ipakchi-2" hybrid seeds in production (comparator)incubated at 20-21^{0}C temperature and at 60–65% humidity.

2st option:"Japan" breed seeds from silkworm breeds imported from Japanincubated at24-25^0 Ctemperature and 65-75% humidity.

"China" breedseeds from silkworm breeds imported from Chinaincubated at 24-25^0 C temperature and 65-75% humidity.

“Jingsong x Haoyue”silkworm hybrid seeds imported from Chinaincubated at 24-25^0 C temperature and revived 65-75% humidity.

“Haoyue x Jingsong”silkworm hybrid seeds imported from China incubated at 24-25^0 C temperature andrevived 65-75% humidity.

"Ipakchi-1 x Ipakchi-2"hybrid seeds in production (comparator) incubated at24-25^0 C temperature and revived 65-75% humidity.

3rd option: "Japan" breed seeds from silkworm breeds imported from Japan incubated at 28-29^{0}C temperature and revived 70-75 % humidity.

"China" breed seeds from silkworm breeds imported from China incubated at 28-29^{0}C temperature and revived 70-75 % humidity.

“Jingsong x Haoyue” silkworm hybrid seeds imported from China incubated at28-29^{0}C temperature and revived 70-75 % humidity.

“Haoyue x Jingsong” silkworm hybrid seeds imported from China incubated at 28-29^{0}C temperature and revived 70-75 % humidity.

"Ipakchi-1 x Ipakchi-2" hybrid seeds in production (comparator) incubated at 28-29^{0}C temperature and revived 70-75 % humidity.

Also now, because there are very few special incubators in the farmer's farms, mulberry silkworm eggs animate in the house at different temperatures and air humidity. For this reason, it was aimed to revive the eggs at a temperature that differs sharply and determine the amount of live worms.

RESEARCH RESULTS AND THEIR DISCUSSION

At present, 70-80% of the seeds that are animated in our republic are brought from abroad.But the notch yield of these seeds-infested worms is also not at the required level.In order to eliminate these shortcomings and quickly implement state decisions, a number of measures have been taken in farmer farms and enterprisescooperation, it will be necessary to introduce science innovations into life more quickly.When solving these issues positively, it is important to determine seeds revival amount from abroad.Therefore we conducted our research with the aim of identifying this issue and applying it in production.

The research was conducted on hybrids imported from China and Japanese breeds, as well as local seeds created by scientists of UzIITI. The experiments were incubated by the recommended constant temperature method for silk worm seeds, which were wrapped in white clay, and the number of alive worms and viable seeds was determined every day.Initially, messenger worms were then calculated asworms revived percentage over 4 days.

For local seeds were used Ipakchi - 1 x Ipakchi - 2 hybrid seeds, which are widely grown in the country.

As a controlthe studies were conducted on Ipakchi-1 x Ipakchi-2 hybrids, which are widely bred (70%) on Chinese farms and hybrids imported from China and Japan. For the experiment, were established3 options, 1st eggs were revived at 20-21^{0}C temperature and 60-65% humidity, 2nd option at 24-25^0 C temperature and 65-75% humidity, and 3rdoption at 28-29^{0}C temperature and 70-75% humidity.

Therein: The following breeds and hybrids were used according to the options:

"Japan" seeds imported from Japan.

"China" seeds imported from China.

"*Jigsong X Haoyue*"hybrid seeds imported from China.

"*Haoyue X Jigsong*" hybrid seeds imported from China.

(Comparative) Ipakchi-1 x Ipakchi-2 hybrid seeds made in Uzbekistan

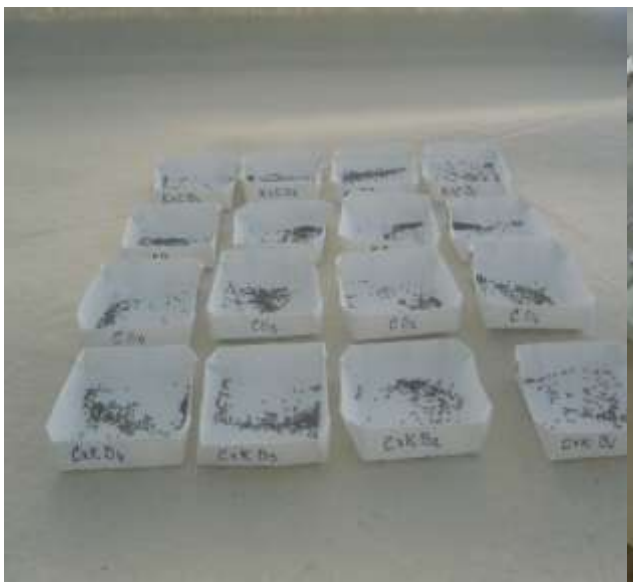

Figure 1. Revitalization of foreign and domestic breeds and hybrid seeds in the laboratory

Figure 1

Revival of foreign silkworm seeds at different temperatures and humidity (2012-2018).

Options	Incubation period (days)	Amount of messenger worms, (%)	Жонланган куртлар микдори, %				Amount of dead worms (%)	Resurrection of worms from eggs (days)	Total number of live worms (%)
			1-day	2-day	3-day	4-day			
Temperature 20 -21 ^{0}C humidity 60–65%									
"Japan" breed	14	4,0	20,5	30,5	20,5	14,0	10,5	5,5	89,5±0,15
"China" breed	13	4,5	23,0	28,5	22,0	13,0	9,0	5,0	91,0±0,20
"*Jigsong X Haoyue*"	13	2,5	33,5	34,5	16,0	6,5	7,0	4,5	93,0±0,14
"*Haoyue X Jigsong*"	13	2,5	31,0	36,0	15,0	7,5	8,0	5,0	92,0±0,19
Ipakchi-1 x Ipakchi-2	13	2,0	34,5	36,5	16,0	6,0	7,0	4,5	93,0±0,20
Temperature 24 -25 ^{0}C humidity 65–75 % да									
"Japan" breed	11	1,5	44,0	43,0	7,0	—	4,5	2,5	95,5±0,21
"China" breed	10	1,5	48,5	40,0	6,0	—	4,0	2,5	96,0±0,22
"*Jigsong X Haoyue*"	10	0,5	54,0	41,0	1,5	0,5	2,5	2,5	97,5±0,19
"*Haoyue X Jigsong*"	10	0,5	52,0	41,0	2,5	1,0	3,0	2,5	97,0±0,18
Ipakchi-1 x Ipakchi-2	10	0,5	50,0	43,0	3,0	—	3,5	2,5	96,5±0,21
Temperature 28 -29 ^{0}C humidity 70–75 % да									
"Japan" breed	9	5,5	48,5	25,5	1,0	—	19,5	2,0	80,5±0,16
"China" breed	8	5,0	50,5	24,0	1,5	—	19,0	2,0	81,0±0,15
"*Jigsong X Haoyue*"	8	4,5	62,0	14,0	2,0	—	17,5	2,0	82,5±0,18
"*Haoyue X Jigsong*"	8	3,0	62,0	16,0	1,0	—	18,0	2,0	82,5±0,17
Ipakchi-1 x Ipakchi-2	8	6,5	60,0	14,0	1,0	—	18,5	2,0	81,5±0,17

As can be seen from the data in Table 1, when the silkworm seed was revived at a temperature below normal (24-25^{0}C)(20-21^{0}C), the incubation period lasted 13-14 days in all options, and the hatching from the eggs lasted 4.5-5.5 days.Usually at moderate temperatures the incubation lasts 10 days and the worms hatch in 3 days.It can be seen that when the temperature is 20-21^{0}C during the incubation period, embryonic development is delayed for 3-4 days and worm resuscitation is delayed for 2 days. This prolongs the feeding of the worms, leaving the adult worms on hot days and the leaves hardening and cracking, as well as a decrease in productivity.At the same time, the release of worms from eggs is 2.0-4.5%, which to 1.5-4.0% is more than usual (0.2-0.5%), the number of worms revived on the first day decreased by 25-30% compared to the emergence of worms from seeds revived under moderate conditions, on the second day by 6.0-13.0%, on the contrary, it caused an increase of 13-17% on the third day and 6.0-13% on the fourth day. The total number of live worms was 89.5% in "Japan"breed, 91% in "China"breed, 93% in the China hybrids and the control variant, and to 2.0-3.5% less than in the moderate conditions. When the incubation process is carried out under moderate conditions (temperature 24-25^{0}C and humidity 75-80%), the incubation period lasts 10 days, and the messenger worms are 0.5-1.5%, the emergence of worms from the eggs lasted 3 days. At the same time, 87-93% of worms were revived on 1-2days , and 2.5-3.0% on 3days .This figure was 6-7% in "Japan"and "China" breeds. The total worm output from eggs was 95.5-97.0%, which was observed at the level of demand.

Revitalization of eggs at abnormal temperatures (28-29^{0}C) showed that the incubation period lasted 8-9 days, shortened by 1-2 days compared to moderate conditions, worm hatching from eggs was mostly completed in 2 days, with the highest (60–62%) amount on the first day.However, it was found that the amount of non-living seeds decreased by 15-16%, and the total number of revived worms decreased by 1.05-15.5%.

CONCLUSION

The following conclusion can be drawn by analyzing the results of research on the effect of sharply different temperatures and relative humidity on the resuscitation of silkworm eggs.

First, the fact that the temperature in the incubator is below normal during the period of egg revitalization slows down the embryonic development process in the egg and delays the emergence of worms and the feeding period. During the incubation period, when the temperature exceeds the norm, the incubation period is shortened by one day, and the resuscitation of worms from eggs is reduced by 15.0–15.5%.Because high temperatures accelerate the physiological, biochemical and metabolic processes in the egg. As a result, the normal development of the embryo is disrupted, and the live worms become weak and susceptible to disease. Therefore, when incubating eggs, it is advisable to have 24–25^{0}Ctemperature and 75-80%humidity.

Second, if imported breeds and hybrids revive eggs at below-normal or high temperatures, the incubation process will be disrupted, worm resuscitation will be disrupted, and the survival rate will drop sharply.

Third, the percentage of revived eggs of imported silkworm breeds and hybrids does not exceed those of local seeds.Therefore, we recommend using local seeds without incurring additional costs (foreign seeds are two to three times more expensive), and we recommend that the money spent on seeds from abroad be spent on silkworm breeding enterprises in the Republic.

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