



ADOPTION OF AUTUMN TO AUTUMN SEED PRESERVATION SCHEDULE FOR BIVOLTINE SILKWORM BREEDS / HYBRIDS UNDER SUB-TROPICAL CONDITIONS- A STUDY

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ABSTRACT

Silkworm seed preservation schedule for spring to spring, spring to autumn and autumn to spring are available and are being practiced in this part of the country. It is proposed to adopt autumn to autumn seed preservation schedule for sub-tropical conditions, especially Uttarakhand to make augmentation in seed supply. It is observed from the present study that silkworm seed may be kept under preservation for autumn to autumn without any adverse effect on economic parameters of cocoons.

KEY WORDS: *Seed Preservation Schedule, Autumn to Autumn, Bivoltine, Sub-Tropical Conditions*

INTRODUCTION

In Northern India, CSB / State grainages meet the demand of seed in the region. It had been discussed at length during different meetings to establish their own seed production unit by Directorate of Sericulture, Govt. of Uttarakhand. Considering the discussions held at different platforms, Directorate of Sericulture, Govt. of Uttarakhand has constructed their grainage at Premnagar, Dehradun which has started to work with cold storage facility by the support of Central Silk Board, Bangalore. Suggestion on seed preservation schedule had also come-up during different meetings with state department. It was discussed at length about different defined schedules of seed preservation being practiced in this region and it was felt that there must be some specific autumn to autumn schedule for

preservation of Bi-voltine races. However, studies have been conducted on silkworm seed production and its preservation for 10 days to 300 days to get uniform hatching (Tazima, 1964; 1978; 2001, Yokoyama, 1954; Ullal and Narsimhanna, 1978; Narsimhanna, 1988; Wang San – Wing, 1994; Jolly, 1983, 87, Dutta et al, 1996). Khatri et al. (2005) have studied preservation schedules for silkworm seed under north Indian condition. Studies on long-term preservation schedules have been carried out in tropical univoltine “Barpat” (Ravindra Singh et al., 2014), bivoltine eggs (Reddy et al., 2004; Rajanna et al., 2008) and non - diapause eggs (Kumareshan et al., 2004,) Singh et al. (2015) studied the hatchability and rearing performance of SK6 and SK7 and observed that they were almost similar in 4, 6, 8 and 10 months preserved eggs. Both bivoltine



silkworm breeds SK6 and SK7 were test verified in the field through Basic Seed Farms. The cocoon yield ranged from 50 to 75 kg and 51 to 71.840 kg/100 DFLs in SK6 and SK7, respectively. Keeping in view the importance of silkworm seed production in Uttarakhand state and seed requirement in Uttarakhand and other northern Indian states, the study was proposed by Director DoS, UK. This project was approved for one year only as pilot study, as it was felt that there are already existing preservation schedules for different periods. Keeping in view, present study under autumn to autumn seed preservation schedule was under taken and its effects on rearing parameters such as hatching, larval period, cocoon yield and SR% etc were observed for Bivoltine silkworm breeds / hybrids under sub- tropical conditions.

MATERIALS & METHODS

D x O2 and D x O3 silkworm seed were prepared during autumn season'2018 whereas SH6 x NB4D2 DFLs was prepared during spring season'2019

and are kept under different seed preservation schedule. 10 DFLs each of these hybrids were released in autumn season-2019 for rearing. (D is SK6 x SK7, O2 is APS9 x BBE198 and O3 is APS5 x APS9). SH6 x NB4D2 (ruling hybrid) was taken as a control. Rearing was conducted as per the recommended package of practices (Dandin and Giridhar, 2014; Jolly, 1987). Three replications were maintained with 250 larvae in each replication. Data were recorded for eight economic characters viz., fecundity, hatching percentage, larval period, cocoon yield (kg), cocoon weight, cocoon shell weight, cocoon shell percentage and pupation percentage.

RESULTS & DISCUSSIONS

10 DFLs each of D x o2 and D x O3, prepared in autumn rearing-2018 were released on 04-09-2019. The DFLs were hatched on 14-09-2019. The data recorded on pre cocoon rearing parameters are presented in Table-01.

Table-01- Rearing performance of seed preserved under autumn-2018 to autumn-2019 seed
Preservation schedule-

Source of DFLs	Name of the Hybrids	No. of DFLs	Date of Hatching	Fecundity	Hatching %	Larval period	Actual Yield (Kg)	Yield/100 DFLs (Kg)	Single cocoon wt (gm)	Single Shell wt (gm)	SR%	Pupation rate
RSRS, Sahaspur, Dehradun	D x O2	10	14-09-19	510	90.0	24:04	4.010	40.10	1.471	0.300	20.39	82.0
	D x O3	10	14-09-19	522	87.5	24:04	4.240	42.40	1.545	0.310	20.06	83.0

The data obtained reveals that autumn to autumn seed preservation schedule was found successful on all the rearing parameters include hatching and SR%. Any unseasonal hatching was also not observed in the course of autumn to autumn seed preservation schedule. Data of autumn to autumn preservation schedule was also compared with spring to autumn preservation schedule

with rearing parameters of ruling Hybrid of Uttarakhand i.e. SH6 x NB4D2 during autumn season'2019, as control. The data obtained on pre cocoon parameters are presented in Table 02.

Table-02- Rearing performance of seed preserved under spring-2019 to autumn-2019 seed
Preservation schedule-

Source of DFLs	Name of the Hybrids	No. of DFLs	Date of Hatching	Fecundity	Hatching %	Larval period	Actual Yield (Kg)	Yield /100 DFLs (Kg)	Single cocoon wt (gm)	Single Shell wt (gm)	SR%	Pupation rate
RSRS, Sahaspur, Dehradun	SH6 x NB4D2 (Control)	10	14-09-19	450	96.8	24:00	3.820	38.20	1.643	0.310	18.87	85.0

The comparative study on pre cocoon parameters of both the schedules reveal that autumn to autumn seed

preservation schedule was found at par with the spring to autumn seed preservation schedule and may be



adopted for bi-voltine silkworm breeds/hybrids under sub-tropical conditions. It has been reported that the hatchability and rearing performance of SK6 and SK7 were almost similar in 4, 6, 8 and 10 months preserved eggs (Singh et al., 2015) and is in accordance with the present finding. The field performance of the both bivoltine silkworm breeds SK6 and SK7 ranged from 50 to 75 kg and 51 to 71.840 kg/100 DFLs in SK6 and SK7, respectively (Singh et al., 2015). The finding is of great importance for Silkworm Seed Producers and they may make available the indented hybrid DFLs to the farmers on demand basis. This study will also bring augmentation in seed supply to seed supplying agencies of North and North-Western zones.

CONCLUSION

Rearing parameters of autumn to autumn seed preservation schedule was found at par with spring to autumn preservation schedule. The same may be utilized for long term silkworm seed preservation so as the indented silkworm seed may be made available to the farmers by the seed production centers.

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