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To assess the Performance of Spring Rearing on Different silkworm Hybrids In Poonch District Of Jammu and Kashmir

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Silkworm rearing is the most traditional practice in Jammu and Kashmir and it helps the farmers to generate extra income by rearing silkworm larvae that spin cocoons which were later sold by the farmers to earn money. For the studied experiment, the more superior results have been obtained for the silkworm hybrid namely FC1xFC2 when compared its reciprocal cross namely FC2xFC1. In conclusion, it can be summarized that FC1XFC2 should be recommended for commercial use at farmer level particularly for the farmers of Poonch district. Therefore, from the present study entitled "To assess the Performance of Spring Rearing on Different silkworm Hybrids In Poonch District Of Jammu and Kashmir" t can be concluded that, silkworm rearing can be adopted as subsidiary income option among the farmers of Poonch District and the best suited breed for rearing in Poonch district can be recommended on the basis of present experiment is FC1xFC2 for spring rearing. The larval, pupal, cocoon and post cocoon characters were found to be significant ideal in FC1xFC2 silkworm breed.

Keywords: hybrids, cocoon, silkworm, spin, rearing filament, mulberry, shell, denier

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INTRODUCTION

Sericulture is the science that deals with the production of silk by rearing of silkworm. As we all know that the silk is called "Queen of textiles" because of its Glittery, luster, softness, elegance, durability and tensile properties and is discovered in china between 2600 and 2700 B.C .Silk is originating in the spittle of an insect is a natural fibrous substance and silk is actually obtained from the pupal nests or cocoon spun by larvae known as silkworm. Sericulture is an agro based industry it involves rearing of silkworms for the production of raw silk which the yarn is obtained out of the cocoons spun by certain species of insects. Sericulture also provides gainful employment, economic development and improvement in the quality of life to the people in rural area and therefore it plays an important role in anti poverty programme and prevents migration of rural people to urban area in search of employment. Sericulture or silk farming is the cultivation of silkworms to produce silk. Although there are several commercial species of silkworms, Bombyx mori, (the caterpillar of the domestic (silk moth) is the most widely used and intensively studied silkworm. Silk was believed to have first been produced China early as the Neolithic Period. Sericulture has become an important cottage industry in countries such Brazil, China, France, India, Italy, Japan, Korea, and Russia. Today, China and India are the two main producers, with more than 60% of the world's annual production.

The silkworms are fed with mulberry leaves, and after the moult. They climb a twig placed near them and spin their silken cocoon. The silk is a continuous filament, comprising fibroin protein, secreted from two salivary gland in the head of each worm, and a gum called sericin, which cements the filaments. The sericin is removed by placing the cocoons in hot water, which frees the silk filaments and readies them for reeling. This is known as the degumming process. The immersion in hot water also kills the silk moth pupa. Single filaments are combined to form thread, which is drawn under tension through several guides and wound onto reels. The threads may be plied to form yarn. After drying, the raw silk is packed according to quality.

The present study is proposed **"To assess the Performance of Spring Rearing on Different silkworm Hybrids In Poonch District Of Jammu and Kashmir"**

We will study in our present study the cocoon and post cocoon parameters of different silkworm hybrids.

REVIEW OF LITERATURE

Buhroo *et al*., (2017) studied that the rearing performance of some popular bivoltine silkworm Bombyx mori breeds during Spring season. They studied that twelve popular bivoltine silkworms (*Bombyx mori L.)* breeds viz CSR2, NB4D2, SK-1, CSR4, DUN6, SH6, CSR19, SK28, DUN22 and SK-31 were evaluated for their performance during spring season. The data was generated in respect of different traits during two years was recorded repetition wise and pooled. Singh et al; (2018) studied rearing performances of Bivoltine hybrids of the silkworm. (*Bombyx mori* L) in Poonch District of Jammu and Kashmir during spring season. They studied that In India the bulk of silk produced is from multivoltine which are of inferior quality. It is a fact that more than 96% of the silk comes from the multivoltine x multivoltine or multivoltine X bivoltine Hybrids. They also analyzed that quality silk can be only produced from Bivoltine. However, the climatic conditions of Poonch District of Jammu and Kashmir state are not conducive to rear bivoltine Hybrids throughout the year. They also reported that there is an urgent need to develop bivoltine Hybrids which can yield stable crops under adverse climatic conditions. Keeping in view all that they analyses that an attempt has been made to evaluate the bivoltine hybrids.

Kumar *et al*., (2018) studied on exploration of sericulture in unexplored region of Jammu and Kashmir. They reported that due to rapid urbanizations, sericulture in state of Jammu and Kashmir has restricted to higher peripheral areas. Amar Dev *et al*., (2020) studied on field performance of two bivoltine double hybrids FC1 x FC2 and its reciprocal supplied by silkworm seed producer, Centre Udhampur. He reported that the field performance of two bivoltine double hybrids of silkworm, *Bombyx mori* L. viz FC1 x FC2 and FC2 x FC1 were assisted by collecting the feedback data from the fifteen cocoon growers (farmers) from different villages of the Udhampur district. The data showed that silkworm seed supplied by SSPC, Udhampur through DOS, J and K good cocoons crops and also fetches the better cocoon price in the cocoon market. Singh *et al.* (2000) studied hybrid vigor in twenty-seven crosses over mid parent

Value. High heterosis was observed in B_{104} × KA (16.47%) followed by A_{104} × NB_4D_2 (14.94%) and A_{101} x NB_4D_2 (11.28%). Highly significant hybrid vigor for cocoon shell weight was observed in B103 × KA (32.75%) followed by B_{102} x CC_1 (27.86%) and B_{104} × KA (14.71). Heterosis effect for cocoon shell ratio was higher in B_{103} × KA (18.50%) followed by B_{104} x KA (8.37%) and B_{102} x CC_1 (5.49%). Rajalakshmi *et al.* (2000) prepared twenty-three bivoltine hybrids from thirteen newly evolved bivoltine silkworm breeds. The genotypes were tested along with popular bivoltine hybrids (KA × NB_4D_2 and NB_4D_2 × NB_7) as control to identify the promising hybrids under hill conditions. Observations were made on eight economical important cocoon yield as well as silk yielding characters. The E.I values recorded eleven hybrids ranging from 54 to 60.90 and MST Asst. selection index values of 19 to 25. Three hybrids, *viz.,* CNR_{14} × D, CNR_{12} × D and CNR_{14} × O recorded E.I. values of 60.90, 59.93 and 56.70 and MST index values of 22, 19 and 20 respectively.

Rayar *et al.* (2000) utilized five popular traditional multivoltines races *viz.,* C. Nichi, Sarupat, Nistari (Normal), Nistari (Marked) and Tamil Nadu White with an objective of identifying a superior multi × bivoltine hybrid in place of existing Pure Mysore × NB_{18}. Among the hybrids studied, Sarupat × NB_{18} scored superiority in full grown larval weight (47.68 g), ten cocoon weight (22.68 g), shell weight (3.913 g), cocoon yield/25dfls (21.59 Kg) and number of cocoons/Kg (461.50) as compared to Pure Mysore × NB_{18}. Hybrid Nistari-(Marked) x NB_{18} was significantly good in filament length (1355.25m), ERR (90.75%) and at par with Sarupat × NB_{18} in cocoon and shell weight. Larval duration was significantly short in C. Nichi × NB_{18} (647.00 hr) and ranked third in overall performance among the hybrids studied.

Singh *et al.* (2000) studied hybrid vigour in twenty seven crosses over mid parent value. High heterosis was observed in B104 × KA (16.47%) followed by A104 × NB_4D_2 (14.94%) and A_{101} × NB_4D_2 (11.28%). Highly significant hybrid vigour for cocoon shell weight was observed in B_{103} × KA (32.75%) followed by B_{102} × CC_1 (27.86%) and B104 × KA (14.71). Heterosis effect for cocoon shell ratio was higher in B_{103} × KA (18.50%) followed by B_{104} × KA (8.37%) and B_{102} × CC_1 (5.49%). Babu *et al*. (2001) studied thirty different crosses of silkworm and evaluated them for Their mid and better parent heterosis for silk productivity. Hybrid APS_{13} × APS_8 and APS_5 × APS_8 showed higher heterosis for silk productivity and were identified for commercial exploitation.

Prashant *et al*; (2020) studied evaluation of economic traits of selected FC1 x FC2 and FC4 x FC3 double hybrids treated with different doses of cholesterol during 4th and 5th instar silkworm *Bombyx mori* L. They reported that the effect of different concentration of cholesterol treatment during the 4th instar and economic character were better manifested on larval weight except larval duration significant improvement of cocoon characters and egg characters had been observed in FC1 x FC2 hybrid.

Krishnakumar (2001) observed better performance of CSR, KSO_1 and NP_2 breeds over KA and NB_4D_2 for most of the traits. CSR_5 performed better in total moulting duration (5 Days: 23 Hr), shell weight (0.380 g), silk productivity (4.09 cg/day), shell content (23.00 %), filament length (980 m), filament weight (0.31 g) and denier (2.87). CSR-2 was better in larval weight (4.30 g), larval volume (5.00 ml), cocoon yield (0.70 kg/500 larvae), fecundity (500), filament weight (0.31 g) and denier (2.87). CSR-4 recorded 25 days and 12 h of larval duration, cocoon weight (1.66 g) and denier (2.87). While, NP-2 and KSO-1 performed better in effective rate of rearing, pupation rate and hatching percentage. Singh *et al*., (2020) studied on performances of p1 bivoltine seed rearing at adopted seed rearers (ASRS) level during spring in three different seed zones They reported that the performances p1 seed rearing of four different silkworm races on some of the economic traits by feeding s-1635 variety of mulberry showed that in absence of extensions supervision support due to outbreak of covid-19 pandemic outbreak to the adopted seed races (ASRS) have harvested good cocoon yield per 100 Dfls ,pupation percentage was also attained above the norms set for procurement of seed cocoon etc .Further highest single cocoon weight (g) and shell percentage was found in fc2 pure breed.

Alam *et al*., (2019) studied on feasibility of late age silkworms silkworm rearing in poly house under temperate of conditions of Kashmir region .They studied that sericulture is practiced in Kashmir valley since century back and contributing high quality of bivoltine silk .since last few years

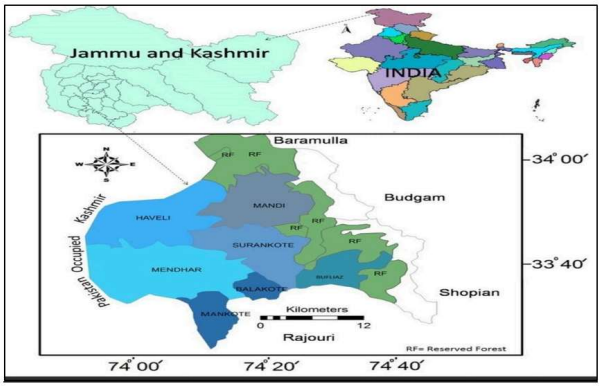
,It is observed that silkworm rearing is restricted to only poor farmers, While their study they made an attempt to fabricate / design poly- house in which silkworm rearing was conducted and the farmers has overcome from space problems during final stage of rearing . Their study clearly indicates that silkworm rearing could be conducted in poly- house in 5th stage and the quality of cocoons was at par with pucca constructed rearing house. Singh *et al*., (2018) studied on evaluation of different silkworm hybrids in Jammu Region. They reported that the agro climatic conditions of Jammu and Kashmir state are most ideal for bivoltine silkworm rearing , however quality cocoon production at commercial level has suffered, mostly because of inadequate quality of rearers ,due to lack of infrastructure facilities for silkworm rearing at farmers level. Besides these factors the silkworm race reared by farmers also affect the silkworm rearing .their study was undertaken and four different silkworm hybrids ,namely ;1,SH6,x NB4D2) double hybrids(CSR6x CSR26) x (CSR2 X CSR27) FC1(CSR6 x CSR26) FC2 (CSR2Xcsr27)were selected for rearing in spring season. Results obtained during rearing of these hybrids showed that overall performances of these hybrids showed that overall performances of CSR double hybrids showed that overall performances of CSR double hybrids (CSR6XCSR26) x (CSR6 x CSR26) x(CSR2 x CSR27) was better over the other three silkworm hybrids. Sharma *et al*., (2019) they studied that the economic analysis of silkworm rearing and cocoon production in Bilaspur Distt. of Himachal Pradesh. They reported that the diversification of rural economy in general and agricultural sector in particular has become to boost income and employment opportunities of the rural masses. Bhat *et al*., (2017) studied on the performances of some silkworm *Bombyx mori. L.*hybrids during summer season in Kashmir. They reported that eight newly evolved silkworm *Bombyx mori. L* hybrids were evaluated for their performances in eight metric traits viz fecundity, hatching, larval weight and shell ratio (%) The data analyzed statistically and subjected to multiple trait evaluation Index. Four hybrids SK23Xsbnp, SK6Xsbnp, NB4D2XSH6 and SK30Xsbnp exhibited better performances during summer season.

MATERIALS AND METHODS

Area of study

The present investigation is proposed to analyze The performances of spring rearing on different hybrids FC1XFC2 and FC2XFC1 [RECIPROCAL CROSS] in Poonch Distict of U.T Jammu and Kashmir.

Study area ma Poonch



Procurement of live material and type of seeds

Silkworm hybrid strain FC1 X FC2 was procured from the State Sericulture Department, Mendhar for the present investigation. After incubation of eggs at 25±1°C and relative humidity of 80±5%, black box was carried out on 8th day to achieve uniformity in hatching. The larvae hatched from the loose eggs were reared separately under uniform laboratory conditions as described by Yokoyama (1963) and Krishna swami (1978).

Methodology

Carried out proper disinfection of the rearing room and appliances in order to avoid infection by micro-organism, the rearing room, floor of the rearing rooms was disinfected with serichlor. Rearing was carried out in acclimatized room where temperature, relative humidity and photoperiods were controlled. Silkworms were reared in plastic trays which are arranged one over the other in tiers on rearing stands, legs of tray stands were placed on ant-well. Rearing stands are arranged in two rows parallel to the wall with adequate space in the centre, for removing the trays and for conducting the cleaning and feeding operations. The silkworm breeds were reared following shelf rearing techniques starting from brushing till cocoon spinning.

As soon as the larvae reached experiment site, worms were transferred to the rearing trays, the egg sheets are turned upside down to transfer the worms along with the leaves on the rearing trays. The rearing bed were provided with wet foam pad around the bed and covered with another

Sheet of news paper to complete the operation of brushing. Feathers were used for brushing and stretching the rearing beds. After brushing tender mulberry leave (Chakmajra variety) of suitable quality were selected, chopped at a size of 0.5 cm square and sprinkled in a thin layer on the newly hatched larvae.

First and second instar larvae were fed with 1st and 2ndleaves starting from the tops of the branched, and chopped double in size of larvae. During 3rd, 4th and 5th instar they were fed with full leaves. Mulberry for young silkworms has a great effect on the growth and health of silkworm. Therefore, leaves selected were soft, tender, rich in water content. Leaves were then chopped depending in the size of larva. Withering of leaf in rearing bed was prevented using paper soaked in water. Leaf moisture was retained by sprinkling water over the leaves and preserving under wet gunny cloth.

Feeding schedules

During 1st, 2nd, 3rdand 4 instar worms were fed three times a day 11 am, 2 pm and 5 pm, while during 5th instar worms were fed two times a day at 11 am and 4 am.

Cleaning

Cleaning net (nylon net) with proper mesh were applied covering the full rearing bed just one feed before the cleaning time and the feeding is given above the net. At the time of next feed worms crawl up to feed. Then, the net along with the larvae were transferred to another tray and fresh feed was given only after giving sufficient spacing. The litter, leftover food and dead silkworms, were removed carefully and disposed off away from the rearing house.

Frequency of cleaning:

Bed change was carried out two times in 2nd instar, 3 times in 3rd instar and daily during 4th and 5th instars. The larvae were highly dusted before the feed with vijetha powder during active stage and after each moult. Silkworm develops very rapidly from age to age and increases several times their original weight and size in each instar. Crowded conditions limit space for optimum feeding and growth and results in sub- standard harvest. Also, it increases accumulation of gases; heat and fermentation of litter in the bed provide Uncongenial microclimate in the bed. Spacing was given once a day combined with bed cleaning. After bed cleaning when worms were transferred to another tray, fresh feed was given only after giving sufficient spacing.

Moulting

The silkworm larval life has five instar and 4 moults. In this process larvae casts of its skin to accumulate the body growth. The characters seen in larvae at the approach of moulting were, silkworms seized feeding, become immobile and holds its body vertically and wriggles out its old skin. Temperature and humidity were maintained during moulting. When the worms were settling for moult, the bed was spread to a thin layer to provide low humidity. Duration of fourth moulting were prolonged when compared to first three moults.

Environmental conditions & Temperature

The environmental factors like temperature, humidity, light and air have great influence on growth and development of silkworm. These factors directly or indirectly control the physiological activities of silkworm larvae. Hence, it is necessary to provide most favorable climate conditions to the silkworms at young stage. Temperature maintained in rearing room during 1st 2nd and 3rd instar is 27-28 ,27-28, 2627 respectively, were as temperature in rearing room during late instars (4th and 5th instar) was 25-26 and 24-25. 1st 2nd and 3rd instar relative humidity in rearing room is 85-90%, 85%, 80% respectively were as relative humidity in 4th and 5th instar is 70-75% and 65-70%. To maintain humidity during chawki rearing, rearing bed were provided with wet foam pad around the bed and are covered.

Identification of matured larvae

After eating sufficient mulberry leaves in the 5th instar, on 6th -7th day, the silkworm larvae hrinked, body becomes translucent and reduced eating. The matured larvae raise its head, start moving around in search of place for cocooning and passes soft litter. On the 8th day, the mature worms were picked up and placed in the mountages for spinning. Picking of matured larvae were done manually and picked by hand one by one and placed into plastic collapsible mountages, old newspaper were placed below the mountage to absorb the urination and to reducing humidity. Plastic collapsible montages

Require less mounting space, easy for disinfection and cocoon harvesting with adequate aeration. Mountages were kept horizontally on the rearing stands. Temperature 24 – 25ºC and humidity 60 – 70% were provided during spinning and Proper aeration were maintained in spinning room. As high temperature and high humidity adversely affect the reeling quality of cocoons it is important to provide rearing room with suitable temperature and humidity. Cocoons were harvested on 8th day of spinning. Premature harvesting of cocoon affects the quality to confirm the completion of pupation, few cocoon were cut open and checked.

✓**Observation to be Recorded:**

Larval Parameters

01. Effective rate of rearing (ERR%)

ERR will be calculated by the following formula,

$$ERR\% = \frac{\text{Number of good cocoons spun X 100}}{\text{Number of larvae brushed}}$$

02. Total larval duration (d:h)

The mean larval duration was derived by calculating the larval feeding and moulting periods in hours commencing from I instar to V instar. It was calculated as the total hours taken from the date of brushing to the mounting of ripe worms.

03. Weight of mature larvae (g)

Mature larva was selected randomly from each replication of each treatment and weight is recorded.

04. Length of ten mature larvae (cm)

Mature larva was selected randomly from each replication of each treatment and length is recorded.

05. Determination of Survivability (%)

$$\frac{\text{No of worm survived} \times 100}{\text{Total no of worm}}$$

06. Larval Mortality Percentage (%)

$$\frac{\text{No of worm died} \times 100}{\text{Total no of larva}}$$

Economic parameters of cocoons

01. Single cocoon weight (g)

The cocoons were randomly selected from each replication of the treatments and weight was recorded on the fifth day of mounting and average weight was expressed.

02. Single shell weight (g)

After taking cocoon weight, ten cocoons were cut open and the cocoon shell weight was recorded and the average was calculated to get the mean shell weight.

03. Pupal weight (g)

The pupae which were obtained from the cut open cocoons were weighed to determine the mean papal weight.

04. Shell ratio (%)

Shell ratio denotes the total amount of silk available in a single cocoon and is expressed in percentage. Shell ratio was calculated by using the formula

$$\frac{\text{Single shell weight} \times 100}{\text{Single cocoon weight}}$$

05. Pupation (%)

$$\frac{\text{No of larva pupate} \times 100}{\text{Total no of larvae}}$$

06. Filament length

Ten cocoons per replications were selected and each cocoon was reeled using eupprovette and silk filament length was recorded Filament length was calculated by the formula,

$$L = R \times 1.125$$

Where, in

L= Length of the silk filament (m)

R= Number of evolutions

1.125m = circumference of the eupprovette. Raw silk %

07. Denier

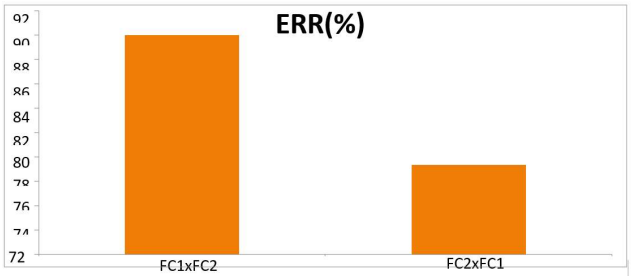
Denier represents the size of the silk filament, it was found out by using the formula,

$$\text{Denier} = \frac{\text{weight of silk filament (g)} \times 9000}{\text{Length of silk filament (g)}}$$

RESULTS AND DISCUSSION

01. **EFFECTIVE RATE OF REARING (ERR %)**

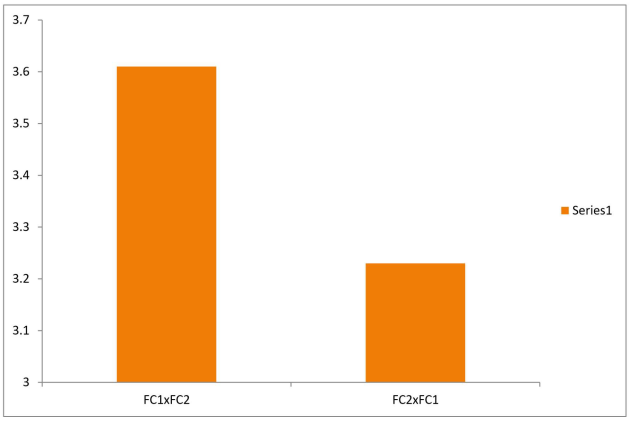
In the given study we observed that the highest (ERR %) is shown in FC1XFC2 breed that is 90.000 as compare to FC2XFC1 79.333.



02. **LARVAL WEIGHT (gms)**

In the given study we observed that the highest larval weight is shown by FC1XFC2 breed 90.000 as compared to that of FC2XFC1 breed 79.333s

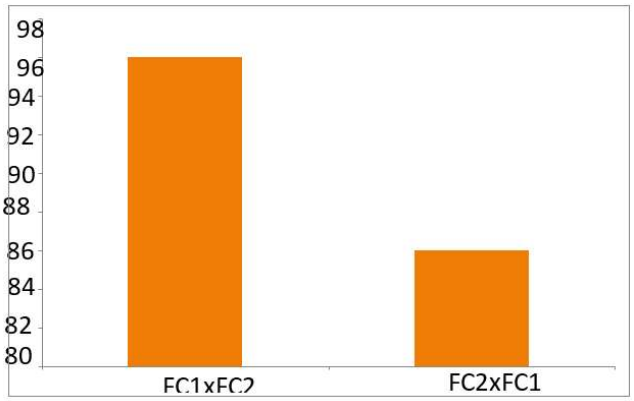
Treatment	Larval Weight	
	Mean	S.E.
FC1XFC2	90.000	1.155
FC2XFC1	79.333	0.667
C.D.	3.801	
SE(m)	0.943	
SE(d)	1.333	
C.V.	1.929	



3 LARVA SURVIVABILITY (%)

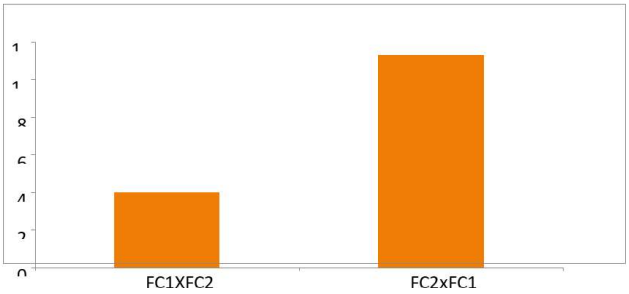
In the given study we observed that highest survivability is shown by FC1XFC2 96.000 as compare to the FC2XFC1 breed 11.333.

Treatment	Larval Survivability	
	Mean	S.E.
FC1XFC2	96.000	0.009
FC2XFC1	88.667	0.036
C.D.	0.106	
SE(m)	0.026	
SE(d)	0.037	
C.V.	1.329	



04. **LARVAL MOTILITY (%)**

In the given study we observed that the highest larval mortality showed in the FC2XFC1 breed as compare to FC1XFC2 breed.

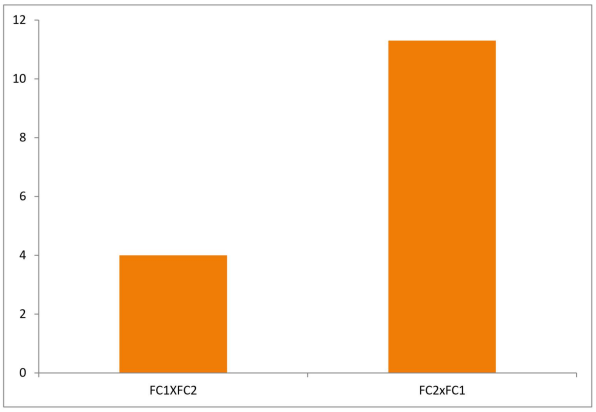


5 LARVAL DURATIONS (days)

In the given study we observed that we have highest larval duration shown in FC1XFC2 breed as compared to that of FC2XFC1

06. **LARVAL SIZE (cms)**

In the given study we have observed that the highest larval size is shown in the FC2XFC1 as compared to that of FC1XFC2.



Treatment	Larval size	
	Mean	S.E.
FC1XFC2	26.333	0.333
FC2XFC1	27.333	0.333
C.D.	N/A	
SE(m)	0.333	
SE(d)	0.471	
C.V.	2.152	

07. **SINGLE COCOON WEIGHT (gms)**

In the given study we have observed that the highest single cocoon weight is showed in FC1XFC2 as compared to that of FC2XFC1 breed.

08. **SINGLE SHELL WEIGHT (gms)**

In the given study it is observed that the highest shell weight is shown in FC1XFC2 as compare to that of FC2XFC1 breed.

Treatment	Single Shell weight	
	Mean	S.E.
FC1XFC2	0.417	0.009
FC2XFC1	0.280	0.010
C.D.	0.038	
SE(m)	0.009	
SE(d)	0.013	
C.V.	4.688	

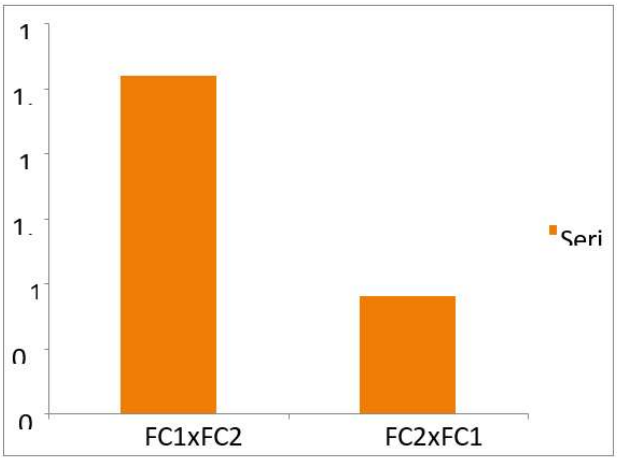
09. **SHELL RATIO** In the given study it is observed that the highest shell ratio is shown in FC1XFC2 as compare to FC2XFC1 breed

TREATMENT	Shell Ratio	
	MEAN	S.E.
FC1XFC2	25.923	0.319
FC2XFC1	21.480	0.060
C.D.	0.924	
SE(m)	0.229	
SE(d)	0.324	
C.V	1.676	

10 PUPAL WEIGHT (gms)

In the given study we have observed that the highest pupal weight is observed in FC1XFC2 as compared to that of FC2XFC1.

TREATMENT	Pupal Weight	
	MEAN	S.E.
FC1XFC2	1.163	0.002
FC2XFC1	0.987	0.003
C.D.	0.063	
SE(m)	0.016	
SE(d)	0-002	
C.V.	2-519	



SUMMARY AND CONCLUSION

Silkworm rearing is the most traditional practice in Jammu and Kashmir and it helps the farmers to generate extra income by rearing silkworm larvae that spin cocoons which were later sold by the farmers to earn money. Silkworm rearing is a mechanism that allows mature silkworms to spin cocoons on a platform. At the field, there are several sorts of mountages, some of which are more popular. Farmers construct such mountages out of a variety of locally accessible materials. According to previous research, the type of material utilized, as well as the design and construction of the mountage, will determine the quality of the silkworm cocoon, *Bombyx mori* L. In addition to providing support for spinning worms, mountages should meet the following requirements: providing a convenient and uniform space with appropriate dimensions for spinning good sized cocoons, preventing the formation of double and malformed cocoons, providing ventilation for drying up the worm's last excreta prior to spinning, and allowing easy mounting and harvesting. Narrow area limits ventilation for spinning larvae, resulting in poor cocoon reelability; larger room, on the other hand, wastes silk in the form of floss used by

The silkworm to build foundation for cocoon formation. (Mathur and Qadri, 2010). Improper rearing and careless handling and maintenance of mature silkworms result in the creation of faulty cocoons, resulting in a loss of 5 to 8% of cocoon output (Chandrakanth *et al*., 2004). For the studied experiment, the more superior results have been obtained for the silkworm hybrid namely FC1xFC2 when compared its reciprocal cross namely FC2xFC1.

In conclusion, it can be summarized that FC1XFC2 should be recommended for commercial use at farmer level particularly for the farmers of Poonch district. Therefore, from the present study entitled **"To assess the Performance of Spring Rearing on Different silkworm Hybrids In Poonch District Of Jammu and Kashmir"** it can be concluded that, silkworm rearing can be adopted as subsidiary income option among the farmers of Poonch District and the best suited breed for rearing in Poonch district can be recommended on the basis of present experiment is FC1xFC2 for spring rearing. The larval, pupal, cocoon and post cocoon characters were found to be significant ideal in FC1xFC2 silkworm breed.

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