

Salient Features of WB-DH

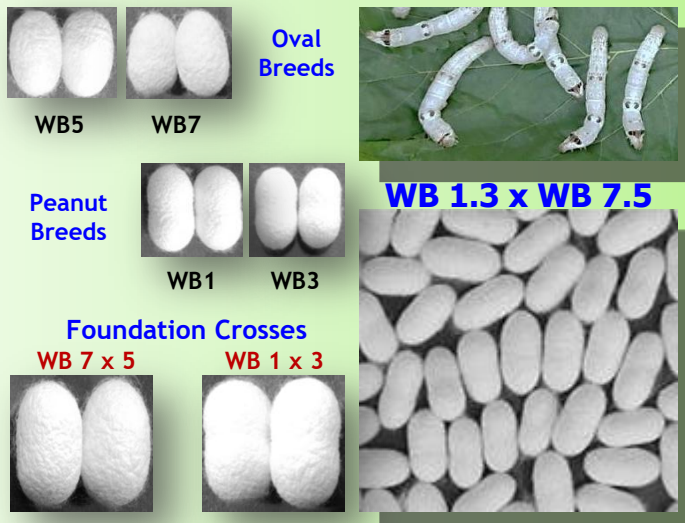
- ❖ Robust double hybrid for rearing in adverse seasons also
- ❖ Marked bluish white larvae
- ❖ Cocoon yield: 60-65 kg/100 dfls
- ❖ Reelability: >80%
- ❖ Renditta: 6.5 - 7.0 kg
- ❖ Neatness: 91p

On Station Trials

Performance of WB-DH in East & NE
[8 crops @ 5 centers]

Hybrid	WB-DH	SK 6 x 7	BCon 1 x 4	Improvement (%) Over	
				SK 6 x 7	BCon 1 x 4
ERR (No.)	8952	8009	8273	10.53	7.58
ERR (Wt.Kg)	14.67	12.42	12.60	15.32	14.09
Cocoon Wt. (g)	1.675	1.603	1.508	4.31	9.97
Shell Wt. (g)	0.330	0.281	0.271	14.61	17.9
Shell Ratio (%)	19.67	17.68	18.14	10.08	7.77
Cocoon Yield/ 100 dfls (Kg)	73.35	62.10	63.00	18.12	16.43

WB-DH is Most Suitable for Bivoltine Silkworm Rearing in East & North Eastern States Unfavourable Seasons Also)



WB-DH Advantages

- ✓ High temperature tolerant double hybrid
- ✓ Sustainable productivity
- ✓ Crop stability across seasons
- ✓ Improved cocoon yields
- ✓ Improved shell ratio
- ✓ Higher reelability
- ✓ Low renditta
- ✓ Better BV Hybrid for adverse seasons

Contributors

N. Chandrakanth, V.S. Raviraj, Sahadeb Roy, V. Lakshmanan & V. Sivaprasad

For Further Details Contact

DIRECTOR

CSRTI, Berhampore – 742 101, West Bengal

Tel: 03482-224713, EPABX: 224716/17/18

Fax: 03482-224714/224890

Email: csrtiber@gmail.com; csrtiber.csb@nic.in

www.csrtiber.res.in

Pamphlet No. 89 @CSRTI-Berhampore April, 2021

WB-DH

(WB 1.3 x WB 7.5)

Bivoltine Double Hybrid with Tolerance to High Temperature



CSRTI

Central Sericultral Research & Training Institute

Central Silk Board, Ministry of Textiles

Govt. of India, Berhampore, West Bengal

WB-DH

(WB 1.3 x WB 7.5)

Bivoltine Double Hybrid with Tolerance to High Temperature

West Bengal sericulture is majorly dependent on multi x bivoltine hybrids for raw silk production. The major constraints include unfavourable seasons characterized by adverse climatic conditions (high temperature & high relative humidity) and non-availability of robust bivoltine hybrids. The temperature shoots up to 40°C making silkworm rearing very difficult. Such agro-climatic conditions warrant rearing of thermo-tolerant silkworm breeds.

Many silkworm breeds developed for thermo-tolerance following exposure to high temperature failed to survive in the field as thermo-tolerance trait is genetic. Therefore, necessary molecular interventions were made by CSRTI-Berhampore to employ two SSR markers (S0803 & S0816) associated with silkworm thermo-tolerance to develop thermo-tolerant breeds (WB1, WB3, WB5 & WB7), Foundation crosses (WB 1x3 & WB 7x5) and double hybrid (WB 1.3 x 7.5) through marker assisted selection (MAS). The DNA markers were introgressed into the productive bivoltine silkworm breeds (Gen3 & D6-M) to develop productive thermo-tolerant bivoltine breeds. The developed double hybrid is most suitable for rearing under high temperature with standard rearing practices. These thermo-tolerant silkworm breeds could perform well with sustainable productivity in unfavourable seasons (65% ERR & 45kg/100 dfls). WB 1.3 x 7.5 exhibited stable high temperature tolerance across the seasons. WB 1.3 x 7.5 productivity is most promising in Eastern & North Eastern India for rearing through out the year.

Comparative Laboratory Performance of WB-DH

Avg. Temp. (32.9°C; 27-38°C) & Relative Humidity (83.3%; 78-95%)

Hybrid	WB-DH		SK 6 x 7		Bcon 1 x 4		Improvement (%) Over (F & UF)	
	FS	UFS	FS	UFS	FS	UFS	SK 6 x 7	Bcon 1 x 4
Fecundity (No)	583	528	489	518	495	491	19.22 1.93	17.78 7.54
ERR (No.)	8900	6524	7850	5184	6533	4478	13.38 25.85	36.23 45.69
ERR (Wt. Kg)	14.52	9.18	10.25	7.06	9.25	6.72	41.67 30.03	56.97 36.61
Cocoon Wt. (g)	1.661	1.505	1.303	1.240	1.314	1.283	27.48 21.37	26.41 17.30
Shell Wt. (g)	0.347	0.282	0.217	0.207	0.215	0.217	59.91 36.23	61.40 29.95
Shell Ratio (%)	20.89	18.69	16.65	16.65	16.36	16.84	25.47 12.25	27.69 10.99
Cocoon Yield/ 100 dfls (Kg)	72.61	45.90	51.25	35.30	46.26	33.60	41.68 30.03	56.96 36.61
Reelability (%)	81	79	77	72	75	71	5.19 9.72	8.00 11.27
Filament Length (m)	826	781	783	690	781	682	5.49 13.19	5.76 14.52
Silk Recovery (%)	78	72	76	69	73	69	2.63 4.34	6.84 4.34

Values represent data from 4 crops in Unfavourable Seasons (UFS: Jaistha, Shravani, Aswina & Bhaduri) & 2 crops in Favourable Seasons (FS: Agrahayani & Falguni)