

Proceedings of the Webinar

Title: Fast-Tracking Crop Improvement through Speed Breeding

Date: 22nd August 2025

Time: 11:00 AM – 12:15 PM (IST)

Platform: Google Meet



Introduction

The School of Speed Breeding (SoSB) at Institute of Horticulture Technology (IHT), organized a webinar on “Fast-Tracking Crop Improvement through Speed Breeding” on 22nd August 2025 from 11:00 AM to 1:00 PM. The event was first exclusive session designed for Seed industry and brought together distinguished speakers, researchers, plant breeders, and seed industry experts to discuss recent advances, methodologies, and applications of speed breeding for accelerating crop improvement. The webinar highlighted the latest advancements in agricultural innovation, focusing on how speed breeding is revolutionizing crop improvement by significantly reducing generation time and accelerating varietal development.

The webinar witnessed active participation from over 70 attendees representing academia, research institutes, seed companies, and start-ups. Key participants included professionals from Mahyco Private Limited, VNR seeds, Indo-American hybrid Seeds India Pvt Ltd, Rasi Seeds, Tokita Seed India Pvt Ltd, Booster Plant Genetics, Hytech Seed Pvt Ltd., ACSSEN Agriscience Pvt Ltd, Advanta Seeds, Nunhems India Pvt Ltd, Savannah Seeds Pvt. Ltd, HM Clause India Pvt Ltd, and many others.

Dr. R. S. Kureel, Director, Institute of Horticulture Technology (IHT), welcomed the participants. He emphasized the strategic role of speed breeding in addressing food security challenges and its application in developing climate-resilient crops. He further highlighted IHT's initiatives in establishing a School of Speed Breeding (SoSB) to offer advance methods to reduce the time required for a crop to complete its growth cycle from seed sowing to seed harvest, advancing crop research, shorten breeding time, faster variety development, and bring advance farming solutions.

Knowledge Sharing Session

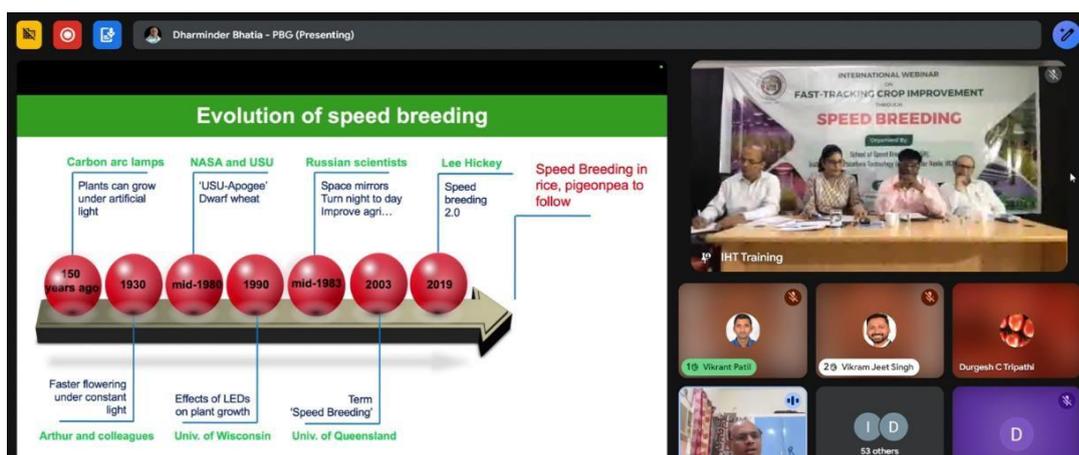
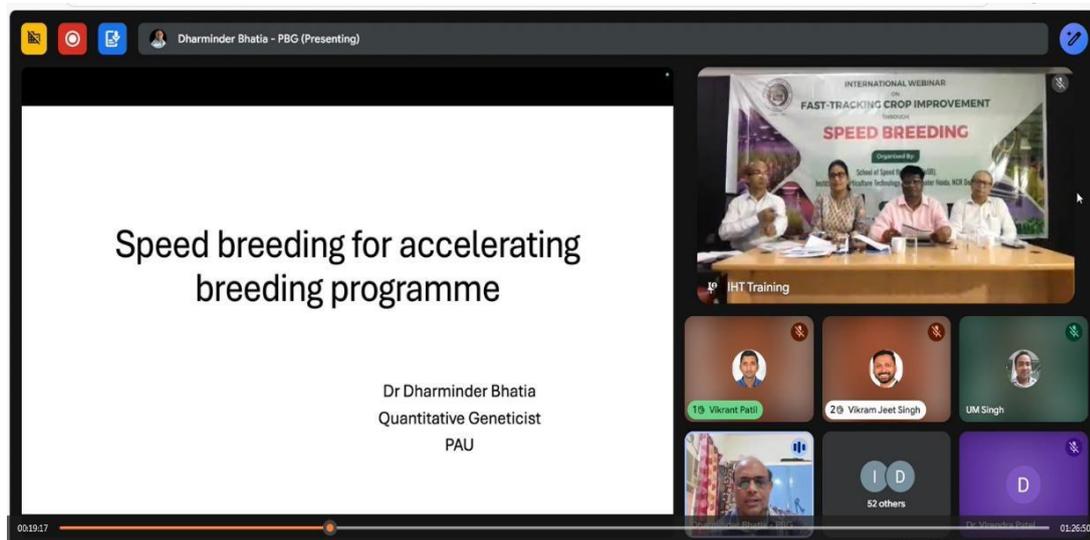
Chairperson: Dr. Virendra Patel, Senior Scientist – Biotechnology, IHT.

1. Dr. Uma Maheshwar Singh, Trait Deployment Lead, International Rice Research Institute (IRRI), Varanasi, presented insights on the deployment of speed breeding in rice improvement programs. He showcased practical applications of rapid generation advancement in Rice, and discussed its importance.

Genotypes	Subspecies	Duration	DEF in field	Generation time in field ^a	DTF in SBF	Early flowering ^b	Maturation time in SBF	Generation in SBF	Generation reduction ^c	Generation per year ^d
CO-51	Early		87.0	122.0	55.2	31.8	15.0	70.2	42.5	5.2
IR 64			84.0	119.0	55.9	28.1	15.0	70.9	40.4	5.1
DRR Dhan 44	Medium		93.0	128.0	53.0	40.0	15.0	68.0	46.9	5.4
Sarjoo 52			93.0	128.0	54.6	38.4	15.0	69.6	45.7	5.2
Swarna	Late		114.0	149.0	56.5	57.5	15.0	71.5	52.0	5.1
Samba Mahsuri			114.0	149.0	59.9	54.1	15.0	74.9	49.8	4.9
Black rice	Landrace (Late)		108.0	143.0	51.6	56.4	15.0	66.6	53.4	5.5
Kalanamak			130.0	165.0	52.6	77.4	15.0	67.6	59.0	5.4
Godonzipitan	Japanica	Early	84.0	119.0	57.3	26.7	15.0	72.3	39.2	5.0
Betagonbin			91.0	126.0	52.4	38.6	15.0	67.4	46.5	5.4

DEF: days to fifty percent flowering; DTF: days to flowering; SBF: SB facility.
^aOne generation time; ^bEarly flowering in speed breeding as compared to field; ^cPercentage reduction in one generation time under SB as compared to field; ^dgeneration per year in speed breeding

2. Dr. Dharminder Bhatia, Assistant Professor, Punjab Agricultural University (PAU), Ludhiana, shared experiences of adopting speed breeding for vegetable and cereal crops. He elaborated on integrating speed breeding with molecular tools for accelerating breeding pipelines.

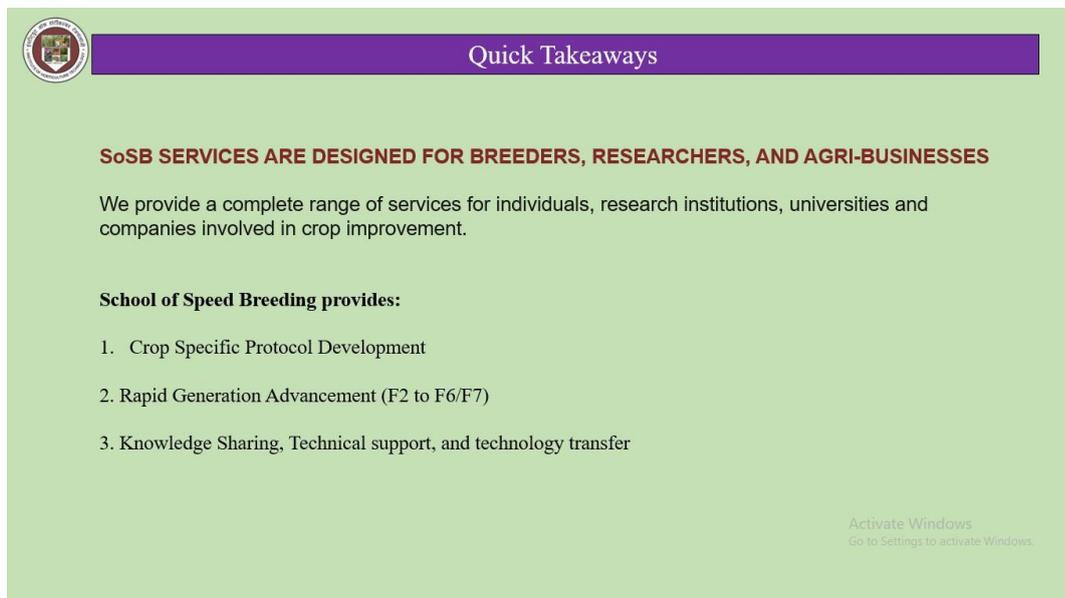
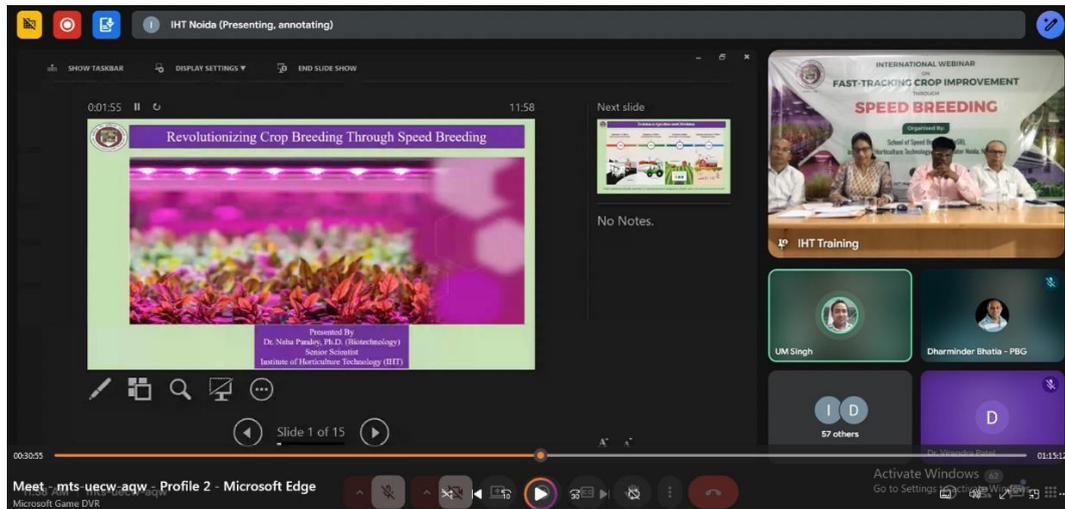


Resource Session

Chairperson: Dr. Virendra Patel, IHT.

Dr. Neha Pandey, Senior Scientist – Biotechnology, IHT discussed importance of speed breeding and its significance in rapid generation advancement. She further introduced SoSB, its in-house speed breeding facility, and expert team comprising crop scientists, biotechnologists, and bioengineers who works to identify gaps and deliver crop-specific, technology-enabled solutions to reduce crop generation time. The SoSB services includes technical support in integrating speed breeding technology, developing crop-specific protocols,

conducting rapid generation advancement and collaboration opportunities for plant breeder, research institutions and Seed sectors working on crop improvement and variety development.



Open Discussion

The session was opened for participants to share experiences, ask questions, and exchange views. Key discussions revolved around Challenges in adapting speed breeding to diverse crops including cereals, pulses, vegetables, and fruit crops and on Integration of controlled environment facilities with molecular tools for studying effect of biotic and abiotic stress on crops using speed breeding technology.

Closing Remarks

Dr. Vijay K. Koul, Associate Director, IHT, summarized the webinar and emphasized on importance of speed breeding and how seed companies can reduce R&D time, lower costs, and save resources by cutting breeding cycles by 50-60%. He encouraged on collaborative or contract research with access to SoSB ready-to-use speed breeding facilities, and promoted the adoption of Speed Breeding Protocols for vegetables, cereals, pulses, and oilseeds for enhancing agricultural/Horticultural sustainability and resilience in India and beyond.



He extended thank you note and appreciated the active participation and engagement which contributed greatly to the success of this webinar. He further acknowledged the valuable contributions of all distinguished speakers, chairpersons, and participants.

Our prestigious Participants:

-  **ACSEN**
Agriscience ACSEN Agriscience Pvt Ltd
-  **ADVANTA**
Advanta Enterprises Limited
-  **आनन्द
सीड्स**
Anand Seeds

- 
 BASF - Nunhems
- 
 Bejo Sheetal Research Pvt Ltd
- 
 Booster Plant Genetics
- 
 DAYAL SEEDS PVT LTD
- 
 Grow Mahyco
- 
 Hytech Seed Pvt Ltd
- 
 Fluorotronix Innovation Pvt. Ltd.
- 
 HM.CLAUSE INDIA Pvt Ltd
- 
 Hytech Seed India Pvt. Ltd
- 
 Indo-American Hybrid Seeds India Pvt Ltd
- 
 Kalash Seeds Pvt Ltd
- 
 Mahyco Private Limited
- 
 Nirmal Seeds Pvt Ltd
- 
 PAN SEEDS PVT LTD
- 
 pjetau
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 Rallis India Limited
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 Rasi Seeds
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 Savannah seeds pvt ltd
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 SEEDWORKS INTERNATIONAL LTD
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 शक्ति वर्धक
 ब्राण्ड सच्ची
 आगीदारी Shakti Vardhak Hybrid Seeds



- VNR SEEDS PVT LTD
- **TOKITA**
I N D I A Tokita Seed India Pvt.Ltd.