

Professional Training

Market Driven Breeding for Tomatoes

Dates: **January 29 & 30, 2025**

Duration: **2 Days**

*A field trip will be organized on January 31
which will be optional and self - paid*



10.00 – 5.00 pm

Program Coordinator:

Dr. Surinder Tikoo, Independent Director, ATPBR



ATPBR

Breeding for Prosperity



Location: Bangalore, Karnataka



About ATPBR

The ATPBR is a non-profit organization uniting plant breeders from public and private sectors. It fosters collaboration by creating a platform for joint capacity-building courses, research projects, and co-incubation initiatives. Its mission is to promote innovation, support technology entrepreneurs, and nurture global research leaders for a sustainable seed industry.

• Learning Outcomes:

By the end of this training, participants will:

- Gain a deep understanding of the challenges and opportunities in tomato breeding.
- Learn about the latest breeding techniques and biotechnological tools to improve tomato varieties.
- Understand market needs and how to commercialize new tomato varieties.
- Be equipped with practical knowledge to apply breeding methods to solve real-world problems in tomato production.



Program Details



Day 1 (1st half):

1. Introduction to Tomato Breeding - explained with actual case studies

• Overview of Tomato Breeding

- Importance of tomatoes in global agriculture
- Economic significance of tomato in India – historical & modern trends
- Tomato Segmentation and their relevance for breeding targets

• Genetic Basis of Tomato Breeding

Basic genetics: Mendelian inheritance in tomatoes

- On key genes influencing quality traits such as color, size, shape, shelf life etc; quantitative traits such as yield & yield components; and the commercial relevance of these traits

Discussion: Q&A on above

2. Challenges in Tomato Breeding

• Disease Resistance in Tomato Breeding

- Common diseases: Early Blight, Late Blight, Fusarium Wilt, Tomato Yellow Leaf Curl Virus (TYLCV), TMV, Verticillium Wilt, Spotted wilt virus & their inheritance & screening methodologies
- Breeding for disease resistance: Challenges in developing disease-resistant cultivars – case studies
- Role of biotechnology and genetic modification in disease resistance – with real examples

• Pest Management and Breeding for Pest Resistance

- Impact of insect pests like aphids, whiteflies, and root-knot nematodes on tomato production and screening methodologies
- Role of integrated pest management (IPM) to help understand what we can solve by IPM may not need breeding
- Breeding strategies for pest resistance with actual examples

• Environmental Stress Tolerance

- Impact of climate change on tomato cultivation and possible breeding strategies
- Breeding for heat stress – Current status & future with examples

Discussion: Q&A on above



Day 1 (2nd half):

- **Opportunities in Tomato Breeding**

- **Market-Oriented Breeding: Fresh vs. Processing Tomatoes – With Actual Examples**

- Breeding strategies for fresh market tomatoes
- Breeding strategies for processing tomatoes

- **Innovation through Biotechnology and Genetic Engineering – case studies**

- Role of genomic selection and molecular markers in improving traits
- Marker-assisted selection (MAS) in tomato breeding
- The role of biotechnology (GMO) in developing tomatoes for pest resistance, improved yield, and nutrient enhancement
- Opportunities in genome editing technologies (e.g., CRISPR) for precise trait development

Discussion: Q&A on above

Day 2 (1st half):

Commercialization and Market Strategies for Tomato Varieties

- **From Lab to Market: Commercialization of New Tomato Varieties**

- The commercialization process: Product development, seed production, and variety release
- Licensing B to B strategies
- Regulatory considerations for GM or gene editing (Crisper Cas) tomato varieties in India & abroad



- **Marketing and Seed Distribution**

- Strategies for promoting new tomato varieties to growers and distributors
- Understanding market demand to help prioritise breeding targets – the process

- **Opportunities in the Global Tomato Market**

- Expanding breeding programs to cater to international markets
- Opportunities in organic tomato breeding and sustainable farming practices

- **Future Trends in Tomato Breeding**

- The potential role of AI, machine learning, and big data in accelerating breeding programs
- The future of tomatoes in the face of climate change and consumer demands for healthier, more sustainable food options

Discussion: Q&A on above

Day 2 (2nd half):

Group work to plan a selected breeding program on tomato (based on group agreement) with timelines & resources & final presentation by the groups

• Additional Components:

- **Interactive Workshops:** Hands-on sessions on designing breeding programs for specific trait by using conventional and biotechnology tools in tomato breeding.
- **Expert Guest Speakers:** Leading breeders and biotechnologists to share their experiences and insights on overcoming challenges in tomato breeding.
- **Q&A Sessions:** Opportunities for participants to ask questions and discuss specific issues they face in their breeding programs.

Registration Fees

Professionals from Public & Private sectors: Rs. 25,000 +18% GST (Rs. 29,500)

More than one participant from the same organization, fee will be Rs. 20,000 + 18% GST (Rs. 23600) /each

Student Fee: ₹10,000 + 18% GST (₹11,800). For more than one student, the fee will be ₹7,000 + 18% GST (₹8,260) per student.

Fee Includes Lunch, and two times high tea, All presentations. Accommodation is not included in the registration fee. However, recommendations for accommodation will be provided on request only.

Mode of Payment

Direct Bank Transfer

Foundation for Advanced Training in Plant Breeding (ATPBR)

HDFC Bank, Ac. No. 50200050384008 (Current)

IFSC Code: HDFC0006315, Aurangabad, Maharashtra 431001

SWIFT Code: HDFCINBB

Online link

www.atpbr.com/registration



+91 87939 88121



www.atpbr.com



admin@atpbr.com
