

Fourth Training Programme
Agricultural Research Station,
University of Agricultural Sciences, Dharwad.
Date : 4th to 11th December, 2007

Training Report

Short training course on “ Bt cotton : A change in pest scenario and integrated management” was jointly organized by National Centre for Integrated Pest Management, New Delhi and Agricultural Research Station, University of Agricultural Sciences, Dharwad. This training was sponsored by Ministry of Agriculture, Government of India and held at Agricultural Research Station, Hebbali farm, UAS, Dharwad from 4th to 11th November, 2007. Thirty five trainees from State Department of Agriculture, SAU's, KVK's and NGO's with minimum qualification of B. SC. Agriculture and experience in cotton participated from Karnataka. Total 30 lectures of cotton Scientists from NCIPM, New Delhi, CICR, SAU's and NGO's along with one visit to Biotechnology Laboratory and two field visits were arranged during the training programme.

The chief guest of inaugural function was by Dr.V.S. Korikanthimath, Director, ICAR Research Complex, Goa and Ex-member, Board Of Research, UAS, Dharwad, Dr.L.Krishna Naik, Director of Extension UAS, Dharwad chaired this session. Dr.H.S.Vijay Kumar Director of Instruction (Agri), UAS, Dharwad also graced this occasion. In inaugural address Dr.S.S.Patil, Principal Scientist and Head, ARS, Dharwad elaborated the purpose of this training. Dr.R.K.Tanwar, Principal Scientist, NCIPM, New Delhi, in his introductory remarks put forth the status of Bt cotton in India and need for integrated pest management. Dr S.B. Patil, Senior Scientist Entomology, ARS, Dharwad made a vote of thanks.

First lecture on scenario of cotton cultivation and future prospects in India was delivered by Dr. S.S Patil, Principal Scientist and Head ARS, Dharwad. Second lecture on concept of development of Bt transgenic was delivered by Dr. I.S. Katageri senior cotton breeder ARS, Dharwad. Third lecture on production technologies of Bt cotton was delivered by Dr. Y.R. Aladakatti senior scientist (Agronomy) ARS, Dharwad. Fourth lecture on field utilization of parasitoids and predators for the management of emerging

insect pests in Bt cotton delivered by Dr.R.K.Tanwar, Principal Scientist, NCIPM, New Delhi.

In the morning session a lecture on monitoring and management of sucking pests resistance in Bt cotton was delivered by Dr. S.S. Udikeri scientist entomology ARS, Dharwad. Dr. Anupam Barik, Director DOCD, Mumbai narrated about the Bt cotton cultivation, problems and prospects. Role of seed industries in improving the performance of Bt cotton experiences were shared by Dr. Choparker, Sr. cotton Breeder, and Head, Cotton Research, Mahyco, Maharashtra Hybrid seeds Company Ltd. Jalna. In afternoon session a lecture on mass production of insect bio-agents delivered by Dr.R.K.Tanwar, Principal, NCIPM, New Delhi. Dr. Sadanand of Monsanto Company mentioned about the regulatory processes for release of transgenic products in India.

On third day, first lecture on pink bollworm: A potential threat to Bt/ conventional cotton and need for its integrated management was delivered by Dr. S.B. Patil Senior Scientist Entomology, ARS, Dharwad. Then management of physiological disorder in Bt cotton lecture was delivered by Dr. B.C. Patil, Principal scientist plant physiology ARS, Dharwad. The participants were enlightened on IPR issues related to Bt cotton by Dr. R.S. Kulkarni professor of genetics and plant breeding University of Agricultural Sciences, Bangalore. The role of information communication technology (I.C.T.) in Bt cotton IPM was delivered by Dr. A. Dandapani, Senior scientist, NCIPM New Delhi. The demonstration on qualitative and quantitative detection of Bt gene in different plant parts in laboratory through different methods conducted by Dr. H.M. Vamadevaiah, senior scientist Biochemistry, ARS, Dharwad.

Participants were exposed to root rot and wilts of Bt cotton their life cycle identification and management as well as role of novel insecticide molecules in management of Bt cotton. They were also enlightened on mirid bug an emerging problem in south zone on Bt cotton and its management as well as role of microbial agents in the management of emerging insect pests in Bt cotton and their production with special reference to SINPV/ Photorhabdus/ fungal biopesticides. On fifth day a lecture on integrated management of abiotic and biotic stresses in Bt cotton was delivered by Dr. Thyagarajan, Rasi Seeds. Role of botanical insecticides and their role in management of emerging sucking pest problems in in Bt cotton was shared by Dr. Basavanagouda,

professor and Head Department of Agriculture Entomology, Dharwad. The in the afternoon participants visited two villages i.e. (1) Haru Belevadi (2) Garag where Bt cotton is grown and interacted with the farmers to know about the prospects and problems of Bt cotton cultivation in this area.

In the next day they visited IPM villages where, visit to IPM Demonstration followed by group discussion and feed back of IPM farmers were arranged by Dr. S.B.Patil senior Scientist Entomologist and Dr. S.S. Udekeri Scientist Entomology, ARS, Dharwad. Dr. B.M. Khadi, Director, Central Institute for Cotton Research, Nagpur, delivered a lecture on Bt cotton Global and Indian perspectives. This was followed by lectures on Integrated Disease Management Strategies for the management of emerging diseases in Bt cotton specially rust disease as well as Integrated Pest Management strategies for the management of emerging insect pests in cotton delivered by Dr. P.Chidanbaram and Dr.T.Surulivelu respectively from CICR, Regional Station, Coimbatore. Dr.K.N.Gururajan from the same station also interacted with the participants on Hybrid technology for Bt cotton Fifth lecture on economics of Bt cotton delivered by Dr. S.B. Hosamani, Professor and Head , Department of Agriculture Economics ARS, Dharwad. Lastly future strategies for management of new emerging pest in Bt cotton was discussed by Dr. P Jeyakumar, Senior Scientist, Entomology, NCIPM, New Delhi.

On the last day of this training programme the farmers were given a overview about the Bt cotton international and Indian scenario and mode of action of cry proteins by Dr. O.M. Bambawale, Director, NCIPM, New Delhi. Afternoon session the valedictory function was organized under the chairmanship of Dr. O.M. Bambawale, Director, NCIPM, New Delhi. He expressed the need for dissemination of Bt cotton technology and IPM technology to the farmers and correct message should reach to the farmers about new technology. Chief guest was Dr. B.M. Khadi, Director CICR, Nagpur. He appreciated the efforts of the organizers for successfully conducting this training. Dr.S.S.Patil, Principal Scientist and Head, ARS, Dharwad also expressed the need for transfer of knowledge to cotton growers through extension workers. Dr S.B. Patil, Senior Scientist Entomology, ARS, Dharwad made a vote of thanks.

Trainees' Kit :

1. Crop Biotech & Biosafety – Book

2. Q & A on Bt cotton in India – Book
3. Mealy bugs and their management – Book
4. ISAAA Briefs – Book
5. Hand Book on Diagnosis and Integrated Management of Cotton Pests- Book
6. Disease and Disorders of Cotton in Changing Scenario- Book
7. A hand book on Trichogramma: Production and field release-Book
8. Bharat mein Bt kapas ki kahani – Video CD
9. Safe movement of transgenics – Video CD
10. Cotton IPM – Video CD
11. Pest Management Information System – A computer programme with A – Z information on cotton. (CD)
12. Lectures (MS Power Point and MS Word) and photos (CD)

Knowledge Imparting Organisations :

1. National Centre for Integrated Pest Management, New Delhi
2. Central Institute for Cotton Research, Nagpur
3. Central Institute for Cotton Research, Regional Station, Coimbtore
4. Directorate of Cotton Development Mumbai.
5. Cotton Research, Mahyco, Maharastra Hybrid seeds Company Ltd. Jalna
6. Monsanto Company
7. University of Agricultural Sciences, Bangalore
8. Agriculture Research Station, Dharwad
9. College of Agriculture, Raichur
10. Regional Agriculture Research Station, Raichur
11. Multiplex Pvt Ltd group.
12. Rasi Seeds
13. College of Agriculture, Dharwad

Training Schedule

Date & Time	Name of the Speaker	Title of Lecture
Day 1 (4.12.07; Tuesday)		
09.00-10.00		Registration
INAUGURAL SESSION		
10.00-10.15	Dr.S.S.Patil	Welcome address
10.30-10.45	Dr.V.S.Korikanthimath,	Inaugural address
10.45-10.50	Dr S.B. Patil	Vote of thanks
10.50-11.30		High Tea Break
11.30-13.00	Dr. S.S Patil	Cotton cultivation in India and cotton production technologies
14.00-15.15	Dr. I.S. Katageri	Concept of development of Bt transgenics with special reference to cotton in India
15.30-16.45	Dr. Y.R. Aladakatti	Production technologies of Bt cotton
	Dr.R.K.Tanwar	Field utilization of parasitoids and predators for the management of emerging insect pest in Bt cotton

Day 2 (5.12.07; Wednesday)		
09.00-10.15	Dr. S.S. Udikeri	Monitoring and management of sucking pests resistance in Bt cotton
10.15-11.30	Dr. Anupam Barik	Bt cotton cultivation, problems and prospects
11.45-13.00	Dr. Choparker	Role of seed industries in improving the performance of Bt cotton
14.00-15.15	Dr.R.K.Tanwar	Mass production of insect bio-agents
15.30-16.45	Dr. Sadanand	Regulatory processes for release of transgenic products in India
Day 3 (6.12.07; Thursday)		
09.00-10-15	Dr. S.B. Patil	pink bollworm: A potential threat to Bt/ conventional cotton and need for its integrated management
10.15-11.30	Dr. B.C. Patil	management of physiological disorder in Bt cotton
11.45-13.00	Dr. R.S. Kulkarni	IPR issues related to Bt cotton
14.00-15.00	Dr. A. Dandapani,	Role of information communication technology (I.C.T.) in Bt cotton IPM delivered by
15.00-17.00	Dr. H.M. Vanadevaiah	Process of qualitative and quantitative detection of Bt gene in different plant parts in laboratory through different methods
Day 4 (7.12.07; Friday)		
09.00-10.30	Dr. S.N. Chattannavar	Root rot and wilts of Bt cotton their life cycle identification and management
10.30-12.00	Dr. B.V. Patil	Role of novel insecticide molecules in management of Bt cotton delivered by
12.00-13.30	Dr. Ravi	Insecticide Resistance Management in Bt cotton in India
14.00-15.15	Dr. M. Bheemanna	emergence of mirid bug in Bt cotton and its management
15.30-17.15	Dr. Narayanan	Role of microbial agents in the management of emerging insect pests in Bt cotton and their production with special reference to SI NPV / <i>Photorhabdus</i> / fungal biopesticides
Day 5 (8.12.07; Saturday)		
10.00-11.00	Dr. Thyagarajan	Integrated management on abiotic and biotic stresses in Bt cotton
11.00-12.30	Dr. Basavanagouda	Botanical insecticides and their role in management of emerging sucking pest problems in in Bt cotton
14.00-17.00	visited two villages with Dr. S.B. Patil and Dr. S.S. Udikeri	Haru Belevadi (2) Garag farmers cotton field. Visit to Bt cotton fields and impact of PB Rope L
Day 6 (9.12.07; Sunday)		
8.00-18.00	Dr. S.B.Patil and Dr.	Visited IPM Demonstrations village where,

	S.S. Udekeri	visit to IPM Demonstration followed by group discussion and feed back of IPM farmers.
Day 7 (10.12.07; Monday)		
09.00-10-15	Dr. B.M. Khadi	Bt cotton Global and Indian perspective
10.15-11.30	Dr. P.Chidanbaram	Integrated Disease Management Strategies for the management of emerging diseases in Bt cotton specially rust disease in cotton
11.45-13.00	Dr. K.N. Gururajan	Hybrid seed production technology for Bt cotton
14.00-15.00	Dr. T. Surulivelu	Integrated Pest Management Strategies for the management of emerging insect pests in Bt cotton
15.00-16.00	Dr. S.B. Hosamani	Economics of Bt cotton
16.00-17.00	Dr. P Jeya Kumar	Future strategies management for new emerging pest in Bt cotton
Day 8(11.12.07; Tuesday)		
09.00-11.00	Dr. O.M. Bambawale	Bt cotton international and Indian scenario
11.15-12.30	Dr. O.M. Bambawale	Mode of action of cry proteins
Valedictory session		
13.00-15.30	Dr. B.M. Khadi	Chief guest
	Dr. O.M. Bambawale	chairmanship
	Dr.S.S.Patil	valedictory remarks
	Dr S.B. Patil,	Vote of thanks

List of Participants

Sr. No.	Name and Designation	Address Designation	Organizations/ Institutes
1	Shri D. Venkatesha Setty	AAO,	RSK, Hullahalli
2	Shri. E.S. Hombal	AAO	RSK, Yareger, Raichure
3	Shri. S. H. Pujar	AAO	RSK, Gillesugar, Raichure
4	Mr. Basavaraj Huggi	Cotton Breeder	Monsanto
5	Mr. S.H. Yadahalli	AO	RSK, Kagwad
6	Mr. K.N. Maharaddi	AO	RSK, Yaragatti
7	Mr. Prabhu Nadakatti		Mrithyunjaya Seeds dharwad
8	Smt. Anasuya L. Patil	AO	Navalgund

9	Mr. V.V. Vittalarao	AO	Hubli
10	Mr. Zaheerpasha Qhureshi	RA	ARS, Dharwad
11	Mr. Prakash koler	RA	ARS, Dharwad
12	Mr. Govindappa N. Hosagoudar	RA	ARS, Dharwad
13	Mr. Shivamurthy D.	RA	ARS, Dharwad
14	Mr. R.A Nandagavi	RA	ARS, Dharwad
15	Mr. R.G. Kulkarni	Director	Kisan Bharti Trust Sindhanoor
16	Smt. Sharada G. Patil	A.D.A.(FW)	JDA Office Dharwad
17	Mr Guruprasad G.S.	RA	ARS, Dharwad
18	Dr. Shaila H.M.	RA	ARS, Dharwad
19	Mr. Renuka B. Hirekurubar	RA	ARS, Dharwad
20	Sh. Amar Singh	RA	NCIPM, New Delhi
21	Mr. Veershetty G.L.	Trial Co-ordinator	UPL, Hyderabad
22	Shri H.Y. Betageri	Agril. Asstt.	Office of ADA, Haveri
23	Smt. Y. Jayashree	AO (FW)	Office of ADA, Savanur
24	Mr. D.C. Chougala	SMS (plant protection)	Birds KVK, Tukkanatti
25	Mr. Rajeevakumar Negalur	SMS (Agronomy)	KVK, Ganagavati
26	Dr. M.G. Hegde	SMS (Agril. Ento.)	KVK Sirsi
27	Dr. K.B. Yadahalli	SMS (Plant Pathology)	KVK, Hanumanamatti
28	Mr. Sunil Kumar N.M.	SMS (Agril. Ento.)	KVK, Bidar
29	Dr. C. M. Kalibavi	SMS (Agronomy)	KVK, Hagari
30	Dr. Basavarappa M.P.	SMS (Plant Pathology)	KVK, Raichure
31	Dr. S.T. Hundekar	SMS (Soil Science)	KVK, Dharwad
32	Dr. Suresha D. Ekbote	SMS (Plant Patho.)	KVK, Bagalkot
33	Dr. S.K. Mudlapur	SMS (Plant	K.H. Patil KVK, Hulkoti

		Protection)	
34	Mr. Raju G. Teggelli	SMS (Agri.Ento.)	KVK, Gulbarga
35	Mr. A.Y. Hugar	Asst. Prof. Agronomy	ARS, Kathalagure