

## Curriculum Vitae

### Rishi Kumar, Senior Scientist (Agri; Entomology), detail of work done and project handled.

- I did my Ph.D in Agricultural Entomology in 1999 on “Taxonomic Investigation on Noctuidae of Hisar (Haryana) India ”.
- In 2000-2007, joined as Assistant Professor of Plant Protection (Entomology) at *Krishi Vigyan Kendra* (Farm Science Centre), Punjab Agricultural University, Ludhiana (India) having job responsibilities to Impart trainings to State Agriculture Department Personnel as well as farmers in Plant Protection . In 2005, I was the member of monitoring team for *Bt* cotton to be released for North Zone of India.
- After 7 years exposure in Extension Services at Punjab Agricultural University, Ludhiana (India) joined as Senior Scientist (Agril Entomology) at Central Institute for Cotton Research, Nagpur (Maharashtra,India) having its regional station at Sirsa ( Haryana. India). The main activities include resistance monitoring in bollworms to cry toxins through diet incorporation bioassays, resistance monitoring in sucking pests to commonly used insecticides through bioassays, eco-friendly and sustainable management of insect-pests of cotton. Studied the impact of systemic insecticides on sucking pests and non-target arthropod communities in Bt and non Bt cotton
- Published 26 papers in Indian journal. One recommendation of spot sprays of insecticides for the control of mealy bug, *Phenacoccus solenopsis* Tinsley a new pest after the introduction of Bt cotton in India.
- ***My present project involved a lot of field working, drawing attention to the effects of cry toxins deployed for resistance to bollworms on non target arthropods particularly the predators***

#### References:

Dr K.R.Kranthi, Director,Central Institute for Cotton Research, Nagpur(Indian Council of Agricultural Research).[krkranthi@gmail.com](mailto:krkranthi@gmail.com)

Dr. D.Monga, PI and Head, Central Institute for Cotton Research, Regional Station, Sirsa E-Mail:  
[dmonga2009@gmail.com](mailto:dmonga2009@gmail.com)

## PERSONAL DETAIL

1. **Name** : **Dr. RISHI KUMAR**
2. **Designation** : SENIOR SCIENTIST (Agriculture Entomology)
3. **Date of Birth** : 10<sup>th</sup> February; 1970
4. **Address** : Central Institute for Cotton Research, Regional Station, Sirsa (Haryana) - 125 055
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## 7. Education

Degree	Year	Major field	University/ Institution	Division/ Distinction
High School	1986 June	English, Hindi, Maths, Science, S.S., Sanskrit	Board of School Education, Haryana(India)	78.55% (1 <sup>st</sup> Division )
Graduation	1991 September	B.Sc.(Hons) Agriculture	CCS Haryana Agricultural University, Hisar (India)	71.86% (1 <sup>st</sup> Division)
Masters	1994 March	M.Sc. (Agril. Entomology)	CCS Haryana Agricultural University, Hisar (India)	82.4% (1 <sup>st</sup> Division)
Ph.D.*	1999 August	Ph.D.(Agril Entomology)	CCS Haryana Agricultural University, Hisar (India)	87.60% (1 <sup>st</sup> Division )
Any other	2000 June	Post Graduate Diploma in Marketing Management	Indira Gandhi Open National University, Delhi(India)	'B' Grade

## 8. Professional Positions held:

Designation	Pay scale (Rs.)	Nature of work	Institute (Organization)	Period (From - To)
Research Associate	Rs 11195/- (Fixed)	To assist the PI	CCSHAU, Hisar	20.03.1998 to 1.08.2000
Assistant Professor	Rs 8000- 13500/-	Extension /Research	KVK,PAU, Bathinda	2.08.2000 to 4.10.2007
Senior Scientist	Rs 37000- 63400/- (GP 9000/-)	Research in Cotton Entomology	Central Institute for Cotton Research, Nagpur (India)	5.10.2007 to Till Date

## 9. Training/advance exposure in the area of work:

- I. Insecticide toxicology organized by Centre of Advance Studies , Department of Entomology, CCS HAU, Hisar from 15<sup>th</sup> October 1999 to 4<sup>th</sup> November ,1999
- II. Advances in Apiculture organized by Centre of Advance Studies, Department of Entomology, CCS HAU, Hisar from 15<sup>th</sup> February 2001 to 7<sup>th</sup> March 2001

- III. Application of Techniques in Entomology organized by Centre of Advance Studies , Department of Entomology, CCS HAU, Hisar from 22<sup>th</sup> February 2005 to 15<sup>th</sup> March 2005
- IV. Advance training on molecular basis of Host Plant Resistance at Centre of Advance Faculty Training Department of Entomology, CCSHAU, Hisar from 11Jan, 2011-31 January2011.
- V. Training on Environmental Impact of Insect Resistant genetically modified Cotton on Non target beneficial (predators) Arthropods Newyork Agriculture Experiment Station, Cornell University, Geneva -14456 from9<sup>th</sup>Oct, 2012 to 31<sup>st</sup> Jan, 2013.
- VI. Attended *Short duration refresher course on “Detection and Measurement of Insecticide Resistance Including Molecular Aspects in Insect Pests* September 02-11, 2013 at National Bureau of Agriculturally Important Insects (NBAIL), PB No.2491, HA Farm Post, Bellary Road, Bengaluru -560024

**10. Services Provided to Home Institution: (Extension Achievements)**

S.No.	Item (Numbers)	Details	Year	Additional Information
i.	Vocational trainings for farmers(38)	Beekeeping and IPM	2000-06	1130 participants
ii.	Short duration training for farmers(107)	IPM in various crops	2000-06	3400 participants
iii.	Training for Extension Personnel(6)	IPM and IRM	2000-06	106 extension personnel
iv.	Training for army personnel (5)	Beekeeping and IPM	2000-06	45 army persons
v.	Front line demonstration (442)	Cotton, oilseeds & pulse	2000-10	Various locations
vi.	Method demonstrations (24)	IPM and Bee keeping	2000-06	-
vii.	Exhibitions Installed (60)	Display of plant protection activities	2000-10	55 at various functions
viii.	Field days organised (35)	Cotton , oilseed & pulses	2000-10	Different locations
ix.	<i>Kisan melas</i> (25)	<i>Rabi &amp; Kharif</i> crops	2000-10	At Ludhiana & Bathinda
x.	Surveys conducted (30)	For insect pest problems	2000-10	Bathinda and Mansa
	Invitation lecture (205)	On IPM and Bee keeping	2000-10	For farmers and farm women
	Radio and TV talks (8)	IPM and Beekeeping	2000-10	For farmers and farm women

### **11. Recommendations for package of Practices Published by PAU:**

- i. Spot Application of Profenophos 40EC @3.5 ml or Cholorpyriphos20EC @ 8ml, Quinalphos 25EC @ 5.5ml or Acephate75 SP @ 5.5 g, Thiodicarb 75WP @ 2.0g or Carbaryl 50WP@6g per liter water for management of mealybug in cotton.
- ii. Management of citrus whitefly, aphid and psylla.
- iii. Recommendation of Flubendamide 480SC for the control of Bollworm complex in cotton.
- iv. Tested new brands of Imidacloprid/Acetamiprid/Thiomethoxam for the management of leafhopper in cotton

### **12. Memberships of Professional Societies:**

- Association for Advancement of Entomology, University of Kerala , Trivandrum
- Indian Society for Cotton Improvement ,Central Institute for Research on Cotton Technology, Mumbai (India)
- Cotton Research and Development Association, CCS Haryana Agricultural University , Hisar , India

### **13. Current Research Area:**

- Formulation of sustainable strategies for pest management in cotton.
- Resistance and resurgence monitoring in insect-pests of cotton.

### **14. Achievements:**

- Evaluation of Bt cotton hybrids (Bollgard and Bollgard-II) for their association with emerging and key pests released during 2008 and 2009 for North Zone of India.
- Monitoring of resistance in bollworm against the Cry proteins deployed in cotton for their resistance to bollworm.
- Monitoring of resistance in cotton leafhopper, *Amrasca bigutella bigutella* against the novel chemistries applied for its management.
- Biology of mealy bug, its parasitisation by *Aenasius bambawalei* Hayat and mealybug sampling strategies in cotton finalized. Evaluation of Strategies for the eco-friendly management of mealybug in transgenic cotton. Insecticides Induced Resurgence in mealybug reported.

### **15. Present Research Programs and Projects: (6)**

- Studies on the impact of systemic insecticides on sucking pests and non-target arthropod communities in Bt and non Bt cotton ( Rishi Kumar ,2008-2010)—Sponsored by Central Institute for Cotton Research, Nagpur - **(Completed)**

- Emerging and key pests in cotton: their characterization, taxonomy, genetic diversity and control” (K. R. Kranthi, Rishi Kumar ,2007-12) – sponsored by Technology Mission on Cotton, ICAR, India **(Completed)**
- Development and validation of IPM/ IRM Strategies for *Bt* and conventional cotton under different ecosystem(B.B. Bhosle, Sandhya Kranthi and Rishi Kumar, 2007-2012)- sponsored by Technology Mission on Cotton, ICAR, India **(Completed)**
- Dissemination of Insecticide Resistance Management Strategies formulated for Bt Cotton in Haryana (K.R.Kranthi, Dilip Monga and Rishi Kumar ,2007-12, 2012-17)—In Progress sponsored by Technology Mission on Cotton, ICAR, India
- Research into development of decision Support System for major insect pests of rice and cotton based cropping systems (Dr V.S.Nagrare, Rishi Kumar ) – sponsored by NAIP-DSS-C2046 **(Completed)**
- Monitoring For Changes In Bollworm Susceptibility To Toxins Deployed In Pest Resistant Transgenic Cotton funded by Genetic Engineering Approval Committee through Indian Council of Agricultural Research, India(2010-12)— Sponsored by GEAC **(Completed)**
- Simulation models/electronic gadgets to predict insect infestation, bollworm resistance to Bt cotton, area, production and price of cotton **(Dr.Sandhya Kranthi, Rishi Kumar) 2012-17-** In Progress sponsored by Technology Mission on Cotton, ICAR, India
- All India Coordinated Cotton Improvement project(AICCIP) (Dr.Dharajothi, Rishi Kumar)-- **Continue**

#### **16. Conference/ Seminar / Symposia Participation: 10.**

Best Poster Presentation Award in “*Silver Jubilee International Symposium on Global Cotton Production Technologies vis-a-vis Climate Change*“ from 10-12 October, 2012 to V.Chinna Babu Naik, N.V.V.S.D.Prasad, **Rishi Kumar**, S.S.Patil, H.R.Desai, U.Hole and S.Kranthi for the poster on ‘Changing Scenario of Pink Bollworm, *Pectinophora gossypiella* (Saunders) incidence on Cotton in India’

#### **Best paper Award**

Best paper Award at the National Conference on technology for Development and Production of Rainfed Cotton, Organized by the Regional Cotton Research Station Navasari Agricultural University, Baruch, Gujarat. For the paper Refuge in Bag- A Concept in Resistance Management. October 24<sup>th</sup>-25<sup>th</sup> 2013.

## 17.Publications

### Research Papers (27)

1. **Rishi Kumar**, V. S. Nagrare, Mukesh Nitharwal ,Dinesh Swami & Y. G. Prasad. 2013. Within-plant distribution of an invasive mealybug, *Phenacoccus solenopsis*, and associated losses in cotton. *Phytoparasitica* DOI 10.1007/s12600-013-0361-6.
2. **Rishi Kumar**; Monga, D; S.L.Jat;A.K.Indoria; R. Chauhan and K.R.Kranthi.2012. Impact evaluation of Insecticide Resistance Management Strategies in cotton under Technology Mission on Cotton (*Gossypium hirsutum*) *Indian J. Agril. Sciences* (82):852-857.
3. **Rishi Kumar**, S. Kranthi, M. Nitharwal, S. L. Jat & D. Monga .2012.Influence of pesticides and application methods on pest and predatory arthropods associated with cotton. *Phytoparasitica* DOI 10.1007/s12600-012-0241-5.
4. **Rishi Kumar**, Monga, D., Nitharwal, M., Jat, S. L. and Kishor Chand. 2011. Validation of eco-friendly IPM packages in Bt- cotton at farmer's participatory field. *Journal of Cotton Research and Development*, **25** (2): 243-247.
5. **Rishi Kumar**, Dinesh Swami, Kishor Chand Kumhar and R S Bhawaria .2011.New Formulation of Acephate and Other Insecticides Against Sucking Pests in Cotton. *Indian Journal of Plant Protection*, **39**(3):236-238.
6. **Rishi Kumar**, Nitharwal, M., Chauhan, R., Pal, V. and Kranthi, K.K. 2011. Evaluation of Ecofriendly Control Methods for Management of Mealybug, *Phenacoccus solenopsis* Tinsley in cotton, *Journal of Entomology*, ISSN 1812-5660/DOI:10.3923/je.2011 (First on online)
7. Monga, D., Kishor Chand Kumhar and **Rishi Kumar** 2011. Compatibility studies of *Fusarium pallidoroseum* with insecticides. *J. Biol. Control* **25** (1): 60-61.
8. **Rishi Kumar**, Shravan Lal Jat, Vijander Pal and Rahul Chauhan.2010. Biology of Solenopsis Mealy Bug, *Phenacoccus solenopsis* Tinsley (Hemiptera: Psuedococcidae) on Cotton. *Entomon.* **34** (3):189-192
9. Monga, D., Kishor Chand Kumhar and **Rishi Kumar** 2010. Record of *Fusarium pallidoroseum* (Cooke) Sacc. on cotton mealybug. *J. Biol. Control* **24**(4): 366-368.

10. Monga, D., **Rishi Kumar**, V. Pal and Jat, M. C. 2009. Mealy bug a new pest of cotton crop in Haryana: a survey. *Journal of Insect Science*. **22 (1)**: 100-103.
11. **Rishi Kumar**, Kranthi,K.R., Monga, D. and Jat, S. L. 2009. Natural parasitization of *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) on cotton by *Aenasius bambawalei* Hayat (Hymenoptera: Encyrtidae). *J. Biol. Control*. **23 (4)**: 457-460.
12. **Rishi Kumar**, Pal, V., Jat, M.C., Monga, D. and Jat, S.L. 2009. Studies on *Phenacoccus solenopsis* Tinsley: A newly reported mealybug species on transgenic cotton in North India, *Indian Journal of Entomology*, 71 (2):125-129
13. **Rishi Kumar**, Sucheta and Gather,S.K. 2004. Relative abundance of economically important noctuids of Haryana. *Pestology XXVIII (3)*:38-41
14. **Rishi Kumar**, Singh R, Bharti, Suhag, P. and Kalidhar, S. B. 2003. Insecticidal action of *Melia azedarach* L. seed extracts on *Helicoverpa armigera* (Hubner). *Bangladesh J. Agril. Res.* 28 (2): 227-235
15. **Rishi Kumar**, Singh,R and Kalidhar,S.B. 2003. Insecticidal properties of Bakain *Melia azedarach* L.- A Review *.Agric. Rev.* **24 (2)**: 101-115
16. **Rishi Kumar**, Sucheta and Khokhar, K.S. 2003. Identification of *Spodoptera litura* (Fabricius) and *Spodoptera exigua* (Hubner) (Amphipyriinae: Noctuidae:Lepidoptera) *J.Ent.Res.* **27(2)**:157-165
17. **Rishi Kumar**, Sucheta and Khokhar,K.S. 2002 Taxonomic studies on light trap collected species of Catocalinae (Noctuidae: Lepidoptera) *J.Ent.Res.* **26(4)**:323-335
18. **Rishi Kumar**, Sucheta and Khokhar,K.S. 2002. Identification of *Mythimna unipuncta* (Haworth) and *M. loreyi* (Duponchel) (Hadeninae: Noctuidae:Lepidoptera ). *Entomon* **30 (2)**:131-139
19. Bharti, Suhag, P., **Rishi Kumar**, Singh, R. and Kalidhar, S. B. 2002. Phytochemical investigation on *Melia azedarach* seed. *J. Med. Arom. Plant. Sci.* **24** : 33-35

20. **Rishi Kumar**, Singh, R., Bharti, Suhag, P and Khalidhar S, B. 2001. Bio-evaluation of *Melia azedarach* seed extracts on *Mythimna unipuncta*. *J.Med.AromPlant.Sci.* **23**: 652-657.
21. **Rishi Kumar**, Singh, R., Bharti, Suhag, P.and Kalidhar, S. B. 2001. Studies on insecticidal properties of *Melia azedarach* seeds on *Earias vitella*. *J. Cotton Res. Dev.* **15 (2)**: 156-161.
22. Rani, M., Suhag, P., **Rishi Kumar** and Kalidhar S,B. 1999. Chemical components and biological efficacy of *Melia azedarach*. L. stems *J.Med.ArmPlant.Sci.* **21**:1043-1047.
23. **Rishi Kumar**, Rani,M. and Khalidhar S,B. 1996. Biological efficacy of *Melia azedarach*. L. stems. *J. Med. Arom. Plant.Sci.* **21**: 1074-1078
24. **Rishi Kumar**, Sucheta and Khokhar, K.S. 1996. Effect of insecticidal seed treatment on the germination and vigour of okra seed. *Seed Res.* **24(1)**: 73-74
25. **Rishi Kumar**, Sucheta and Khokhar, K.S. 1996. Studies on the chemical control of sucking pests infesting okra. *Annals Biol.* **12 (1)**: 104-109.
26. **Rishi Kumar**, Sucheta, Khokhar, K.S. and Agarwal, N. 1996. Comparative efficiency of different insecticides applied against fruit borer infestation as seed treatment and foliar sprays on fruit yield of okra. *Annals Agril. Res.* **17 (3)**: 241-243

### **Paper presented and published in Conference/workshops (10)**

1. **Rishi Kumar**, Dinesh Swami, Vijender Pal and K. R. Kranthi.2011. Insecticide induced resurgence of mealybug, *Phenacoccus solenopsis* Tinsley in cotton. Presented in *World Cotton Research Conference* (Nov 7-11, 2011) pp 198-202
2. Monga,D., K.C.Kumhar and **Rishi Kumar**. 2009. Integrated management of mealy bug, *Phenacoccus solenopsis* Tinsley on cotton. *International conference on emerging trends in production, processing and utilization of natural fibres* in 16-19 April, 2009 at Mumbai, India. Pp 132-137



### **Book Chapter: (1)**

1. **Rishi Kumar**, Dilip Monga, Shravan Lal Jat and K. C. Kumhar 2009. Pest management in changing scenario In Book :*Sustainable Crop Production Strategies* (2Volumes Set) Pp 434-485

### **Coverage in Central Institute for Cotton Research (CICR), Newsletter: (3)**

1. **Rishi Kumar**, Jat, S. L. and Monga, D. 2009. Lady bird beetle *Brumus suturalis* – a potential predator of mealybug: *April-June, 2009*
2. **Rishi Kumar** and Monga, D. 2009. Record of parasites and parasitoids on mealybug, *Phenacoccus solenopsis* Tinsley at different locations: *Jan.-March, 2009*
3. **Rishi Kumar**, M. Nitharwal and D. Monga .2010. *Spodoptera exigua* an emerging pest of cotton. October-December, 2010.

### **Technical Manual/Bulletin: (3)**

1. Monga, D, **Rishi Kumar** and Indoria,A.K. **2009**. *Insecticide Resistance Management (IRM) School Manual*. Published by CICR, RS, Sirsa, pp 1-65.
2. Nagrare, V.S., Kranthi, S., **Rishi Kumar**, Dhara Jothi, B., Amutha, M., Deshmukh A.J., Bisane, K.D. and Kranthi, K.R. **2011**. *Compendium of Cotton Mealybugs*. Published by CICR, Nagpur
3. S. Vennila, Y. G. Prasad, M. Prabhakar, **Rishi Kumar**, V. Nagrare, M. Amutha, Dhara Jyothi, Meenu Agarwal, G. Sreedevi, B. Venkateswarlu, K. R. Kranthi and O.M Bambawalei. **2011**. *Spatio –temporal distribution of host plants of cotton mealybug, Phenacoccus solenopsis Tinsley in India*, Technical Bulletin No 26, National Centre for integrated Pest Management ,New Delhi P50
4. S.Mohan, D.Monga, **Rishi Kumar**, V.Nagrare, Nandini Gotke-Narkhedar, S.Vennila,R.K.Tanwar,O.P.Sharma,Someshwar Bhagat, Meenu Aggarwal, C.Chattopadhyay, Rakesh Kumar, Ajanta birah, N.Amaresan, Amar Singh, S.N.Sushil,Ram Asre, K.S.Kapoor, P.Jeyakumar and K. Satyagopal .**2014**. Integrated pest management package for cotton. P.84. Published by Director, NCIPM, New Delhi on behalf of Directorate of Plant Protection, Quarantine and Storage, Faridabad.

### **Pumphlet & Pictorial Key Board /Poster/Banner: (4)**

1. Sohi,A.S., Dhawan,A.K.,brar,D.S.and **Rishi Kumar .2005.** *Punjab wich narne kapas di kasat layi jaruri nukte*( Important hints for successful cultivation of cotton in Punjab).

2 .Brar, D.S. and **Rishi Kumar .2007.** *Mealybug de Agao wadhe attehamle nu rokan layi ahim nukte*( Important point to check the further spread of mealybug in cotton ).

**3.Kumar, Rishi,** K.C.Kumhar and Monga,D. 2008 . *Kapas mein mealy bug ki Samasya evem roktham* (In Hindi).

4. **Kumar, Rishi** and Monga, D. 2008. *Kapas mein mealybug ke liye eisa karein evem eisa na karein* ( **Do and Don't do** for mealybug management in Cotton ).

5. **Rishi Kumar,** Kuldeep Singh, Dilip Monga, Renu Soni and Netrapal Singh 2012.*Kitnashak avrodhkata prabandhan project ke tehat kitnashko ke upyog ke surkshit tarike pp 6 (100 copies).*

6.*Bharat Srakar dwara sanchalit “kitnashak avrodhakata prabandhan” karyakaram ke tehat ras chusak keeton ka prabandhan (Posters 5000 copies and banner 15 )*

### **Messages**

Write and recorded **15 messages on cotton production, protection and clean pickings** for the farmers Haryana and created a Insecticide Resistance Management Farmers community through **IFFCO KISAN SANCHAR LIMITED and NABAARD.**