

## **B. Name of the Programme: Ph. D. in Agricultural Chemicals**

### **6.4.1. Brief History of the Programme:**

The discipline of Agricultural Chemicals was very much in existence since 1970's under the then Department of Agricultural Chemistry & Soil Science, Faculty of Agriculture. The Department of Agricultural Chemicals was established in the year **2000** with the recommendation of Government of West Bengal and accord sanction of teaching and non-teaching staffs.

### **Objectives:**

- Teaching, research and extension activities in the field of crop protective chemicals, especially in the areas of naturally occurring and synthetic pesticides, bio-pesticides, pesticide formulation development.
- Collaborative research programme with International and National institute for better exposure.
- To develop expertise in handling sophisticated modern instruments viz. GC-MS/MS, LC-MS/MS.
- Hands on training for application in food and environmental laboratory.

### **Accomplishment:**

- The Agricultural Chemicals programme consists of 14 credit hours course (Theory + Practical).
- Successfully supervised one foreign student for award of the Ph.D degree in Agricultural Chemicals under Indo-African Fellowship programme.
- At present 10 nos. students are pursuing Ph.D in Agricultural Chemicals.
- Two students have qualified the ICAR-NET and one student qualified the UGC-NET.
- One student was awarded Certificate of Appreciation for oral presentation from his Ph.D work at the *All India Post Graduate Students' Research Convention in Soil Science* held at Bihar Agricultural University, Sabour, Bhagalpur, Bihar during March 15-16, 2019.
- One student was also conferred Special Award Certificate for poster presentation from his Ph.D work at the *National Seminar on Agro-chemical Inputs and Its Extension Approaches Towards Food Security and Bio-safety: Prospects & Challenges* held at Ramakrishna Mission Ashrama, Narendrapur, Kolkata, West Bengal during 15-16 November, 2019.



- One student has been conferred “Society of Pesticide Science (SPS) – India for Best Ph. D. Thesis Award” during the 1<sup>st</sup> National Agrochemicals Congress during 13-16 November, 2019 at ICAR-IARI, New Delhi.
- One student has been awarded the Best Poster presentation from the Ph.D work on “Method Standardization for Determination of Multiple Pesticides Residues in Sugarcane Products” at the 7<sup>th</sup> Annual Conference of the India Section of AOAC International held at Park Hotel, New Delhi during 28-29 February, 2020.
- Ten nos. of research papers have been published from Ph.D work with NAAS rating ranging from 5.98 to 11.4.
- The expertised knowledge in the field of pesticide formulation added more credential of the faculty members by inviting them as a resource person to deliver Keynote-cum-Invited Address, Chairman of Technical Session in National Seminar, Guest of Honor, etc.

#### 6.4.2. Faculty Strength

SL. No.	Type of Faculty	Sanctioned Faculty	Faculty in place	Vacant position	Faculty recommended by ICAR
1.	Professor	1	1	0	
2.	Associate Professor	1	0	1	1
3.	Assistant Professor	3	2+2*	1	2

\* Faculties from AINP on Pesticide Residues

#### 6.4.3. Technical and Supporting staff

SL. No.	Type of Technical and Supporting Staff	Sanctioned	Staff in place	Vacant position	No. of Staff recommended by the ICAR
1.	Technical Assistant	1	0	1	2 (Lab Assistant)
2.	Junior Assistant	1	0	1	1 (Assistant)
3.	Office Assistant				
4.	Laboratory Attendant	2	1	1	
5.	Junior Storekeeper	1	1	0	
6.	Field Worker		1		
7.	Field Assistant				1 (Field Assistant)

#### 6.4.4. Classrooms and Laboratories:

**6.4.4.1. Number of Classroom: One (1)** with dimension of 10.30 m x 2.92 m and having 25 sitting capacity



**6.4.4.2. Number of Functional Laboratories: 5**

Sl No.	Name of Laboratory/ Facility	Area (Square-metre)	No. of Supporting Staff Attached
1.	<b>UG Laboratory</b>	60.08 (30 students)	2
2.	<b>PG Laboratory-I</b>	60.08 (20 students)	
3.	<b>PG Laboratory-II</b>	60.08 (10 students)	
4.	<b>PG Analytical Laboratory</b>	46.62 (5 students)	
5.	<b>Agrochemical Formulation Laboratory</b>	93 (30 students)	1

**6.4.4.3. List of equipment, laboratories, farm facilities, workshops and other instructional units**

SL. No.	Name of Laboratory/ Facility	List of equipment and facilities
1.	<b>UG Laboratory</b>	Hot air oven, Double distillation set (glass), Water bath, Soxhlet apparatus, TLC set, Suction filter, Knapsack sprayer (Aspire make), Balance.
2.	<b>PG Laboratory-I</b>	Hot air Oven, Water bath, Soxhlet apparatus (Local Make), Rotary evaporator (Labard Instrument), Plain balance, Solvent distillation, Reflux, Separating funnel, Carbon disulfide apparatus, Melting point, Vortex, Refrigerator
3.	<b>PG Laboratory-II</b>	GLC, Model – 7890B (Agilent), GLC, Model - Trace 1110 (Thermo Fisher), GLC, Model - M-1000 (Chemito), HPLC, Model - 1220 Infinity (Agilent), HPLC, Model - PU-2080 Plus (Jasco), HPLC, Model - SPD-M10A VP (Shimadzu), HTPLC; Model – Linomat-5 (Camag), Centrifuge, Model -5804R (Eppendorf), UV-Vis spectrophotometer; Model – UV-2700 (Labomed)
4.	<b>PG Analytical Laboratory</b>	GC & HPLC (Agilent make), Refrigerator,
5.	<b>Agrochemical Formulation Laboratory</b>	MPLC (Sepacore System, Buchi); Rotary Vacuum Evaporator (R-3, Buchi); Extruder 20 & Spheronizer 75; Karl Fischer Titrator (Lab India); Tissue Homogenizer (IKA); Balance (Mettler); pH Meter (Systronics); Ball Mill; Magnetic Stirrer.

**6.4.4.4. Justify whether these facilities are sufficient to meet the course curricula requirement:**

For successful accomplishment of the programme in respect of practicals as per the recommended syllabus of V<sup>th</sup> Deans Committee, the present facilities can be used at a satisfactory level.



**6.4.4.5. Number of theory batches for the Degree Programme- 1**

**6.4.4.6. Number of Practical Batches for the Degree Programme-1**

**6.4.4.4. Justify whether these facilities are sufficient to meet the course curricula requirement:**

For successful accomplishment of the programme in respect of practical as per the recommended syllabus of V Deans Committee, the present facilities can be used at a satisfactorily level.

**6.4.4.5. Number of theory batches for the Degree Programme- 1**

**6.4.4.6. Number of Practical Batches for the Degree Programme-1**

**6.4.5. Conduct of Practical and Hands-on-Training:**

The practical classes are being conducted in the functional laboratories of the Department as per the syllabus of Ph.D (Ag) in Agricultural Chemicals.

Lists of Practical Manuals for Agricultural Chemicals Programme in Doctoral Degree.

Course No.	Semester	Course Title
AC-703	1 <sup>st</sup>	Approach Towards Synthesis of Pesticides
AC-752	2 <sup>nd</sup>	Chemistry of Bio-pesticides

**6.4.6. Supervision of students in PhD Programme:**

**6.4.6.1. Total Number of Students pursuing the Degree at Present: 10**

**6.4.6.2. Total Number of faculties supervising the Students: 5**

	2016-17	2017-18	2018-19	2019-20	2020-21
Total No. of Students pursuing the degree	1	3	5	7	10
Total Number of eligible faculties	5	5	5	5	5

**Eligible Criteria to become a PhD Advisor:**

(Clause 6.03 of the BCKV Regulations regarding Doctoral Degree Programme, 2019)

**6.03. Recognition of chairperson / Member of Advisory Committee**

- (i) A teacher of the Viswavidyalaya as defined in the Act having at least three (3) years of research and/ or teaching experience after a doctoral degree and at least seven (7) publications after the doctoral degree or joining in service as applicable in the NAAS/ UGC rated journals and /or peer reviewed journals with impact factor as approved by the Board of Studies of the concerned department and subsequently by the PG-UG Council of the respective Faculty, if required, may be recognised as chairperson / member of the Advisory Committee of a student under doctoral degree program.



- (ii) A teacher of the Viswavidyalaya without Doctorate degree but having at least 10 years research / teaching experience and at least seven (7) publications in the NAAS/ UGC rated journals and /or peer reviewed journals with impact factor as approved by the Board of Studies of the concerned department and subsequently by the PG-UG Council of the respective Faculty, if required, may be recognised as chairperson /member of Advisory committee of a student under doctoral degree program.
- (iii) The teachers of the Viswavidyalaya who have registered themselves for the doctoral degree programme shall not be eligible as the Chairman / Member of the Advisory committee of a student.

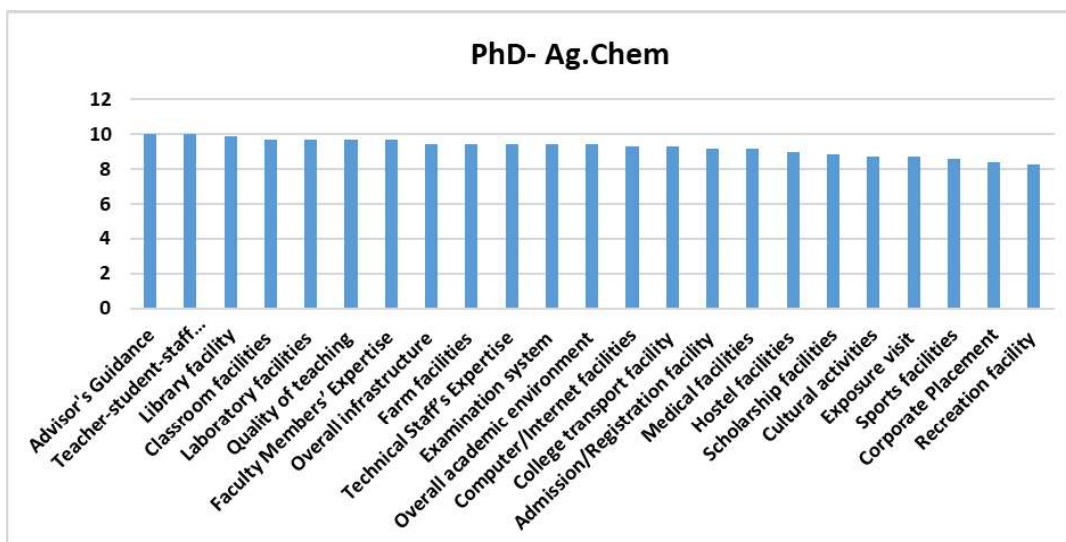
\* Documentary evidence attached as annexure I

#### **6.4.7. Feedback of stakeholders:**

##### **6.4.7.1. Mention the feedback mechanism**

Feedback from the students was conducted in Google Forms using standard questionnaire (24 questions) developed on the basis of comprehensive dimension of Agricultural Education in BCKV campus. The dimension covered all the physical and academic facilities provided by the University. The responses were collected on a 10-point scale (1 denotes poorest facility and 10 denotes excellent facility) from the students of this programme. Individual responses were analyzed statistically (by computation of weighted average of every facility as perceived by the students) for the programme and the result was graphically presented in the SSR. As a documentary evidence, individual responses collected from the students' email ID through Google Forms have been stored in our computer (Google Drive). On demand, of ICAR Peer Review Team, the link for the individual responses can be shared.





**Comment:** Doctoral students of PhD-Ag. Chemicals Programme are extremely happy with nearly all the facilities provided by the University. The recreational facilities, according to them, can be improved.

#### 6.4.7.2. What action the University has taken to address the issues raised in the feedback?

##### *Action taken*

The feedback reports were shared with concerned sections of the university. Students responded very positively with regards to majority of the facilities provided by the university. However, with respect to timely publication of results and corporate placement, there are ample scopes of improvement. Considering this feedback, the university has taken administrative actions for publication of results within stipulated period as reflected in the circulars of the concerned authorities. As corporate placement, to a great extent, is beyond the purview of the university itself, the Placement Cell continuously in touch with the potential employers to utilize the vacancies in favour of BCKV.

##### *Impact*

We are expecting very positive impacts in near future on these issues as some steps have already been taken in recent times as mentioned above.



#### 6.4.8. Student intake and attrition in the programme for last five years:

Academic Year	Sanctioned strength	Actual intake	Attrition (%)	Students awarded with the degree
2016-17	1	0		0
2017-18	3	3		1
2018-19	3	3		0
2019-20	2	2		0
2020-21	5	5		0

Note: Students can submit their thesis from 6<sup>th</sup> semester onwards. Hence, working out attrition cannot be possible. Therefore, the number of students awarded with the Ph D in different academic session are included in the table.

#### 6.4.9. ICT Application in Curricula Delivery:

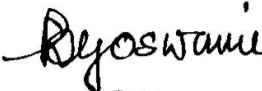
The systematic use of ICT tools in classroom instruction makes the teaching learning process more effective and highly interactive. Generally, in the pre-pandemic condition the use of ICT in our faculty was limited to classroom lecture through power point presentation using LCD projector. The use of ICT tools became more dominant as the pandemic situation started. The Department carries out the teaching and learning process completely in distance mode via electronic networks. The ICT tools used for the curriculum delivery for different theory and practical classes are tabulated below:

Theory	Practical
<ol style="list-style-type: none"><li>1. Google meet has been used for taking regular classes</li><li>2. E-mail, Whatsapp etc. has been used for giving lecture notes.</li><li>3. University website is being used for uploading the video lecture</li><li>4. Use of Google form for taking Quiz and End Term using camera.</li></ol>	<ol style="list-style-type: none"><li>1. Use of Google meet for practical purposes.</li><li>2. Use of Internet of Things (IoT) for sensor based experiments.</li></ol>

I, the **Dean, Prof. Subhendu Bikash Goswami**, hereby certify that the information contained in the Section 6.4.1 to 6.4.9 are furnished as per the records available in the college, and degree awarding university.

Place: Mohanpur

Date: 02-11-2021

  
Dean  
Faculty of Agriculture  
Bidhan Chandra Krishi Viswavidyalaya  
Mohanpur, Nadia, West Bengal

(Signature of Dean of the Faculty with Date & Seal)

