Department of Agriculture

Guru Nanak College, Budhlada, accredited 'A" grade by NAAC, Bangalore, is a premier institute for boys and girls education in Punjab region. Two departments of the college namely, Agriculture and Chemistry had been recommended by the Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India, New Delhi, to receive financial support under the Star College Scheme.

The objective of the Star College Scheme is to strengthen Life Science and Biotechnology education and training at the undergraduate level to encourage and attract students to pursue a career in Life Sciences.

For implementation of the Star College Scheme, the DBT, New Delhi sanctioned the first release of an amount of Rs. 10.00 lakhs under Non-recurring head and Rs. 3.00 lahks under Recurring head for the financial year 2019-20. The college further not received the second- and third-year grant for utilization under Recurring head by the recommended DBT during the financial year 2020-21 & 2021-22.

The scheme envisages:

- To strengthen the academic and physical infrastructure to enhance the teaching and learning process of the students and to stimulate critical thinking through providing 'hands on' exposure in experimental work.
- To increase the core instrumentation resources by procuring new equipments and upgrading existing facilities.
- To provide access and exposure to students to Research Laboratories and Industries in the country.
- To provide better library facility to students and teachers in the department.
- To organize workshops/Seminars/Guest lectures for students benefit.
- To conduct field trips/excursions for students to optimize learning.

Students Activity carried out by the Department of Agriculture during (2019-20)

Minor research-based project on different topic given to final year students

1. Projects on “Study of different genotypes of radish crop on the basis of their morphological traits
2. Project on “To Developed a vegetable crop museum
3. Project on “Response of date of Sowing on Pea crop”

(2020-21)

No summer training and Industrial visit programme organized due to covid-19 pandemic

(2021-22)

1. 1. Evaluation of 70 Germplasm of wheat crop for Agro-morphological traits and to identify superior genotypes suitable for Punjab region.
2. Onion Seed production technique by seed to seed and bulb to seed method by 2nd year students
3. To established nursery seedling of vegetable and ornamental plant, medicinal plant through traditional and propagation method.
4. To developed a vegetable crop museum for diversity identification and flower study.

5. Project on Seed production technique in cauliflower crop

Hand on training Programme

Sr No.	Title	Duration	Activity Coordinator	No. of students
2019-20				
1	Protective Cultivation of Vegetable crop	Oct. 2019(02day)	Dr. Garima Mahajan & Dr. Sarvan Kumar	36 Final YrB.Sc Agri
2	Importance of organic farming of Vegetable crop	Oct to Nov 2019	Dr. Permindersingh& Dr. Sarvan Kumar	301st yrB.Sc (H) Agri
3	Hybridization technique in Wheat and Mustard crop	Nov 2019	Dr. Sarvan Kumar	38SY B.Sc (Hons) Agri
4	Evaluation cum multiplication of breeding trial of cereal & Veg crop	Dec 2019	Dr. Garima & Dr. Sarvan Kumar	42 SY B.Sc (Hons) Agri
5	Nursery Management of vegetable crop	Jan 2020	Dr. Permindersingh, Dr. Sarvan Kumar & Mr. Amit Kumar	30 3rd YrB.Sc Agri
6	Lay-out and installation cum demonstration of Micro Irrigation System	03 days Jan 2020	Er. Dilip Kumar Ojha(Assistant prof.)	35SY B.Sc (Hons) Agri
2020-21				
1	Soil sample collection And their analysis	Feb-March 2021 (01 day)	Dr. J.S. Sawhney	27 B.Sc Agri 1st year
2	Protective Cultivation training	Jan-Feb 2021 (03day)	Dr. Garima Mahajan & Dr. Sarvan Kumar	35 Final YrB.Sc Agri
3	Breeding/Hybridization technique in Wheat crop	Feb 2021 (02 days)	Dr. Sarvan Kumar	28 Students 2nd B.Sc Agri
4	Lay out of vegetable Nursery and Management of vegetable crop	March 2021 (04 day)	Dr. Permindersingh, Dr. Sarvan Kumar	25 Students B.Sc Agri 3rd year
5	Vermi-composting unit	Feb-March 2021 (01 week)	Dr. J.S. Sawhney Dr. Garima Mahajan, Dr. Sarvan Kumar	30 students B.Sc Agri 3rd year
2021-22				
1	Use of Hybridization technique for new variety/ hybrid development in Wheat &Mustred crop	Nov-Dec 2021 (10 day)	Dr. Sarvan Kumar Khokhar	25 Students 2nd B.Sc Agri
2	Protected Cultivation of	May-June and	Dr. Garima Mahajan &	41 Final

	cucumber and tomato crop	Oct- Nov 2021(03day)	Dr. Sarvan Kumar Khokhar	YrB.Sc Agri
3	Seed production of flower crop (Marigold) for summer cultivation	June –July 2021 (05 days)	Dr. Sarvan Kumar and Mrs.Sushampreet Kaur	35 Students 3rd year B.Sc Agri
4	Lay out of vegetable Nursery and Management of vegetable crop	July to Sep 2021 (04 day)	Mr. Amandeep Kaur	25 Students B.Sc Agri 3rd year
5	Collect the weather data (Basic observation) at meteorological observatory	Whole season	Mrs. Sumandeep Kaur	1st year and 2nd year students
6	Estimate the moisture content (%), seed germination in different seed sample	Feb-March 2022	Dr. Sarvan Kumar	25 Students B.Sc Agri 2nd year

List of exhibitions/seminars/training courses conducted by the college:

- Conducted One day DBT sponsored National workshop on "Promotion of Self employment and Profitability in Agriculture Using Improved Technologies" on 06 March 2020. Total number of farmer and students participated (160)
- Organized One day National webinar on "Intellectual property Right & Patenting" in Collaboration with Patent Information centre Punjab State Council for Science & Technology, Chandigarh on 02 July 2020.
- Organized One day National webinar on "Impact of COVID-19 on Indian Economy" Collaboration with Department of Economics Guru Nanak College, Budhlada on 14 August 2020.
- Organized two days online quiz competition on "An online quiz in order to create Awareness about Modern Agriculture Techniques & Prevailing COVID-19 Pandemic" on 21-22 July 2020
- Department of agriculture Organized 04 day exhibition on Medicinal & Aromatic plant , different agriculture technology, models making and crop diversity by the students on 28 Feb to 03 March 2022. Total number of farmer and students, teacher from various school participated (200)
- Department of agriculture conduct One day Webinar "Changing Social Norms and Value in life" on 22 September 2021 by Dr. Nisha Mann Assistant prof. Department of Political Science Guru Nanak College Budhlada.

Name, designation, host institute of guest faculty invited:

- A lecture on Importance of Agro-Meteorology in Agriculture by Mr. Mohinder lal Assistant prof. PG Department of Agriculture GSSDGS Khalsa College, Patiala on 23 November 2019
- Organized online expert lecture on "Soil Testing Methods" by Dr. J.S. Sawhney Rtd. Professor Soil Science Punjab Agriculture University Ludhiana, presently professor soil science at GNC Budhlada on 27th August 2020
- Organized online expert lecture on "Problems and Prospects of organic farming in Punjab" by Dr. Perminder Singh Rtd. Professor Vegetable Science Punjab Agriculture University Ludhiana, presently professor vegetable science at GNC Budhlada on 21th December 2020

- Organized online expert lecture on “Challenges and opportunities in modern Agriculture practices” by Dr. Garima Mahajan Professor, Environmental Sciences GNC Budhlada on 15th September 2020
- Organized online expert lecture on “Raising of Vegetable Nursery” by Dr. Perminder Singh Rtd. Professor Vegetable Science Punjab Agriculture University Ludhiana, presently professor at GNC Budhlada on 8th October 2020
- Organized online expert lecture on “Improved Seed Production Technology of Wheat Crop in North West Plain Zone of Punjab” by Dr. Sarvan Kumar Assistant Professor Plant Breeding & Genetics Guru Nanak College Budhlada on 15th November 2020
- Organized online expert lecture on “Hybrid Seed Production in Vegetable Crops with reference to chilli” by Dr. Sarvan Kumar Assistant Professor Plant Breeding & Genetics Guru Nanak College Budhlada on 12 Jan 2021.
- The Department of agriculture is organized online expert lecture on “Role of Sport activity in today life” on 26 Feb 2022 delivered by Mr. Ramandeep Singh Assistant prof. & Head Department of Physical education Guru Nanak College Budhlada.
- Organized online expert lecture on “Seed Production in Vegetable Crops with reference to Cauliflower” by Dr. Sarvan Kumar Khokhar Assistant Professor Plant Breeding & Genetics Guru Nanak College Budhlada on 13 October 2021
- Organized online expert lecture on “Improved Seed Production Technology of Wheat & Barley Crop in Punjab” by Dr. Sarvan Kumar Assistant Professor Plant Breeding & Genetics Guru Nanak College Budhlada on 15th Jan 2022

List of new Practicals /demonstrations introduced in different departments in last one year

2019-20

1st.Yr. B.Sc. (Hons) Agri

1. Project on setting up, recording and maintenance of instruments in a meteorological observatory
2. Measurement of temperature, rainfall, evaporation, sunshine duration, wind direction, wind speed etc
3. Study of seeding equipments.
4. Identification of field crops and their seeds.
5. Determination of pH soil sample.
6. Determination of moisture in given soil sample
7. Collection of soil sample from the field crop
8. Microscopic examination of roots, stem and leaf (slides).
9. Identification of garden tools.
10. Diameter measurements using calipers and tape.
11. Study of mitosis and meiosis

S.Y. B.Sc. (Hons) Agri

1. Study of plant breeder kit
2. Method of composting and vermi composting
3. Seed sampling and testing physical purity, germination test, seed vigour test
4. Collection and preservation of plant diseased speciman

T.Y.B.Sc. Agri

1. Determination of soil moisture by oven method
2. Preparation of jam and jelly
3. Diagnosis and identification of plant disease on the basis of symptoms
4. Detection of adulteration of milk
5. Testing of milk and cream for fat by garber method

Final.Y. B.Sc. Agri

1. Different types of application equipment, including sprayers dusters, seed dressers, their structure, working, handling and maintenance
2. Collection and preservation of insects
3. Seed analysis on the basis of purity and germination, tests of viability.
4. Practices in Plant propagation. The candidates should be proficient in the art of budding, grafting, cutting, layering etc.
5. Pruning practices. The candidates should know various pruning practices in fruit plants

2020-21

The practical / demonstration is not more introduced due to short period of offline teaching due to COVID-19. During the season 2020-21 some practical introduced as given below

1st.Yr. B.Sc. (Hons) Agri

1. Project on setting up, recording and maintenance of instruments in a meteorological observatory
2. Measurement of evaporation, sunshine duration, wind direction, wind speed etc.
3. Determination of pH soil sample.
4. Determination of moisture in given soil sample
5. Identification of garden tools.
6. Study of mitosis and meiosis

S.Y. B.Sc. (Hons) Agri

1. Seed sampling and testing physical purity, germination test
2. Study of plant breeder kit
3. Moisture mesurement in different seed sample

T.Y.B.Sc. Agri

1. Diagnosis and identification of plant disease on the basis of symptoms
2. Detection of adulteration of milk
3. Testing of milk and cream for fat by garber method

Final.Y. B.Sc. Agri

1. 1. Different types of application equipment, including sprayers dusters, seed dressers, their structure, working, handling and maintenance
2. 2. Practices in Plant propagation. The candidates should be proficient in the art of budding, grafting, cutting, layering etc.
3. 3. Pruning practices. The candidates should know various pruning practices in fruit plants

Details of equipment purchased in each department from DBT grant. (item, no., cost, date of order placed, purchase/installation)

Sr. No.	Name of equipments	Qty.	Bill No. & Date	
1	Microscope Binocular	6	GST/MHTP77 07/08/2019	
2	Digital Refrotecometer	1		
3	Incubator	2		
4	Automatic milk analyzer	1		
5	Incubator cum hatcher (50 egg capacity)	1		
6	Brooder Hachine electric machine	1		
7	Automatic seed/ grain counter	1		
8	Microscope Binocular	34		GST/MHTP74 03/08/2019
9	Microscope monocular	10		GST/MHTP72 30/07/2019
10	Fluorescence Micro scope	1		
11	Compound microscope with photo display	2		
12	PH meter table model	4		
13	EC Meter	1		
14	Stereoscopic binocular microscope	4		
15	Seed germinator	3		GST/MHTP67 25/07/2019
16	Photo flame meter	1		
17	Electronic Moisture Meter	2		
18	Garber Centrifugal machine	1		
19	Spray pump battery operated	1		000568 28/9/2020

Impact of DBT support to the Agriculture Departments

Significant improvements in the field of imparting quality education and training to the students have been achieved upon receiving DBT support. Some improvements may be listed as follows:

- The Star College Scheme has enabled the departments to procure new equipments and it has aided in upgrading existing teaching resources which have in turn improved the 'hands on' experimental exposure of the students. This has in turn enhanced the quality of learning and teaching of the students and teachers respectively.
- The Scheme has also enabled the departments to enrich their departmental library with additional reference books and science related journals to which students and teachers have gained quick and easy access.
- DBT support has made it possible for the departments to organize exposure trips to relevant research laboratories and scientific institutes. The industrial visits have proved to be highly

- Beneficial to the students. It has widened their scope of learning and evoked in them an interest to explore the practical aspects of theoretical knowledge gained in classroom.
- The under graduates students were able to take up small in- house projects which helped them to gain an insight into research methodology.
- Guest lectures were organized for student benefit.
- The grant has enabled the departments to organize workshops & student seminars and other activities.
- The improvement of IT facilities in participating departments have motivated students and teachers to optimize their learning capabilities.
- The funds supported under the Star College Scheme have eased the financial burden faced by the departments due to the existing budget of the institution.