

1.1 Introduction

1.1.1 Background

Punjab Agricultural University (PAU) at Ludhiana was established in the year 1962 through the Punjab Agricultural University Act passed (October 1961) by the State Legislature. Originally, the University had three campuses, one each at Ludhiana, Hisar and Palampur. PAU was bifurcated (February 1970) by an Act¹ of the Parliament to establish PAU at Ludhiana and Haryana Agricultural University (now Chaudhary Charan Singh Haryana Agricultural University) at Hisar. Further, the College of Agriculture at Palampur, earlier under the aegis of PAU, Ludhiana was transferred to Himachal Pradesh University in July 1970. In April 2006, a new University, namely Guru Angad Dev Veterinary and Animal Sciences University at Ludhiana was carved out of the PAU.

Since its inception, PAU has contributed significantly to the farm and food sector not only in the State but also at the national level. In view of the significant impact of new technologies and high-yielding varieties during 1960s and 1970s on agricultural productivity in Punjab and national food security, PAU played a leading role in the “Green Revolution” in India. In recognition of its outstanding contributions to the nation, PAU was the first Agricultural University to be conferred with the “Best Institution Award” by the Indian Council of Agricultural Research (ICAR) in the year 1995 and again in 2017.

1.1.2 Mandate and Mission Statement of PAU

The Mandate of PAU is to:

- impart education in agriculture, agricultural engineering, allied basic sciences and home science for developing quality human resources;
- conduct research for seeking solutions to the emerging problems in agriculture and allied fields; and
- disseminate agricultural technologies to the farmers through various extension programmes.

The Mission of PAU is to serve the farming community through the generation and dissemination of knowledge for sustainable agricultural production.

In pursuance of its mandate and mission, the University imparts education, conducts research and provides extension services in agriculture, agricultural engineering, home science, and other allied basic sciences. PAU is spread over to an area of 494 hectares at Ludhiana, with an off-campus area of

¹ The Haryana and Punjab Agricultural Universities Act, 1970.

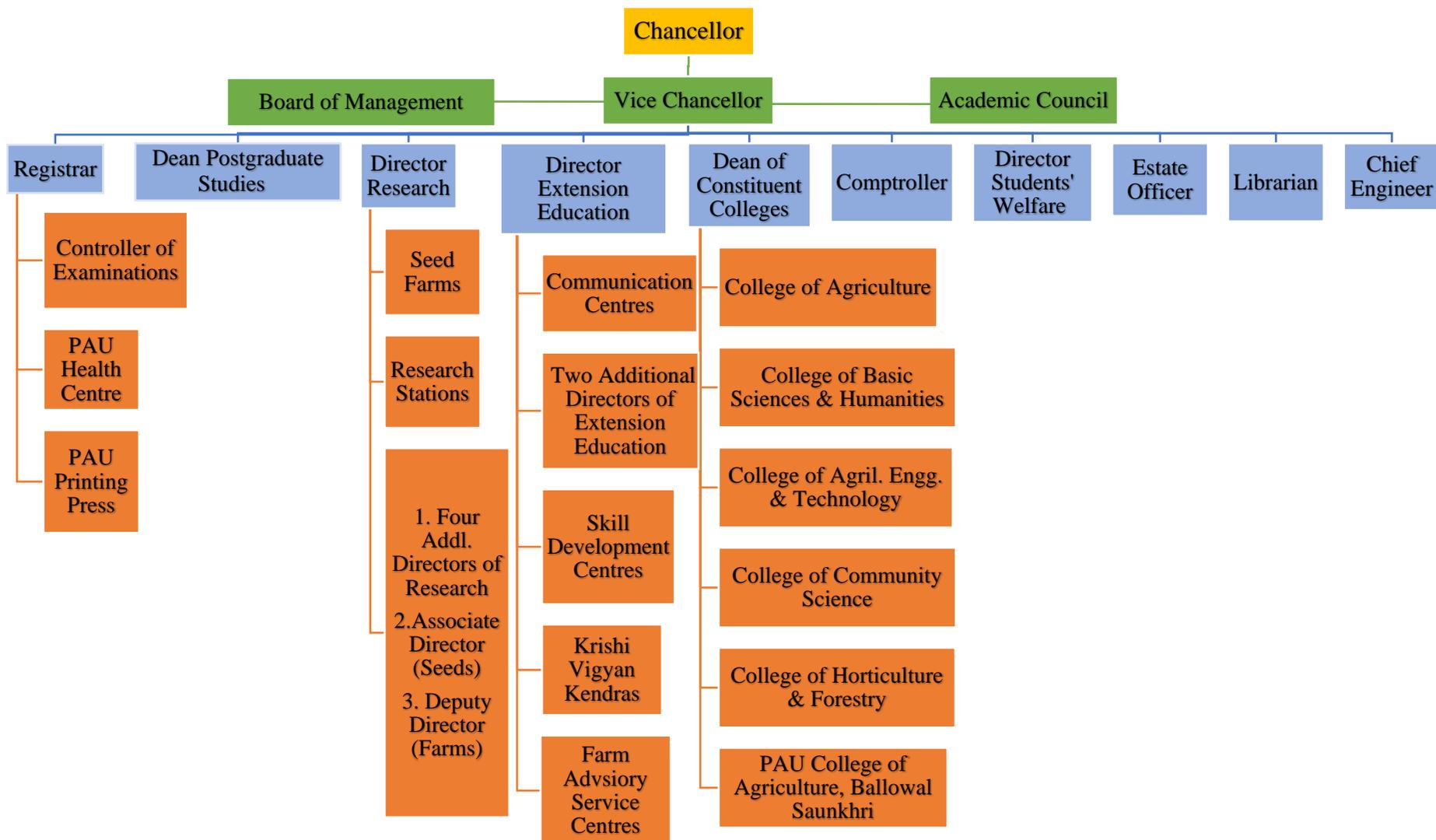
1,793 hectares. PAU has six constituent colleges², nine Research Stations (RSs), six Seed Farms besides 18 Krishi Vigyan Kendras (KVKs), as detailed in **Appendix 1.1**.

1.1.3 Organisational Set-up

The Governor of Punjab is the Chancellor and Honorary Chairman, while the Vice Chancellor (VC) is the Chief Executive of the University and serves as the Chairman of the Board of Management (BoM). The BoM is the apex body of the University which makes policy decisions, provides guidance for governance, appoints faculty & staff, controls assets and finances of the University. Other administrators assisting the VC are the Registrar for general administration and the Comptroller for financial management. The undergraduate teaching programmes of various faculties are administered by respective College Deans whereas postgraduate programmes are administered by the Dean, Postgraduate Studies. The Academic Council at the University level is responsible for designing new courses, modifying course curriculum and other academic matters. The organisational structure of PAU is shown in **Chart 1.1**.

² (i) College of Basic Sciences and Humanities; (ii) College of Community Science (Home Science); (iii) College of Agricultural Engineering and Technology; (iv) College of Agriculture; (v) College of Horticulture and Forestry; and (vi) College of Agriculture at Ballawal Saunkhri, SBS Nagar.

Chart 1.1: Organisational Structure of Punjab Agricultural University, Ludhiana



Source: Punjab Agricultural University

1.1.4 Scope of Audit and Methodology

The Performance Audit of PAU covering the period from 2017-18 to 2021-22 was conducted during June 2022 to February 2023. Test-check of records of offices of the Registrar, Comptroller, Director Research, Director Extension, Deans of Colleges and other controlling offices at the University campus were carried out. Besides, 12 out of 35 departments of five colleges³, six out of 18 KVKs, three out of nine RSs and two out of six Seed Farms (implementing units) were also selected⁴ for test-check, as detailed in **Appendix 1.1**. Further, students' and farmers' surveys were also conducted to assess their responses towards various facilities and extension services provided by the University and by KVKs respectively.

An entry conference was held with the University (VC, Registrar and Comptroller) in August 2022, wherein audit objectives, criteria, scope and methodology were discussed. The Audit findings were discussed with the University (VC, Registrar and Comptroller) in the exit conference held in June 2023 and the replies furnished by them had been suitably incorporated in the Report.

The working of PAU, Ludhiana for the period 2000-05 was earlier reviewed, which featured in the Report of the Comptroller and Auditor General of India (Civil) - Government of Punjab for the year ended 31 March 2006. The Public Accounts Committee (PAC) of Punjab Vidhan Sabha discussed the audit findings in its meetings held in January and July 2008. The recommendations of the PAC in this regard were taken into account while conducting the Performance Audit.

1.1.5 Audit Objectives

The objectives of the Performance Audit were to assess whether:

1. Financial management was efficient & effective, and the financial resources were mobilised and utilised optimally;
2. Academic functions in the fields of agriculture, agricultural engineering and allied fields were performed efficiently and effectively;
3. Research activities were carried out in agriculture, agricultural engineering and allied fields as per terms of funding agencies; and
4. dissemination of agricultural technologies to farmers through various extension programmes was done efficiently and effectively.

³ College of Agriculture, Ballawal Saunkhri, SBS Nagar (sixth college) started functioning from the academic year 2021-22.

⁴ Selection of Departments, KVKs, RSs and Seed Farms was made through stratified random sampling using IDEA (Interactive Data Extraction and Analysis) software, taking into account the expenditure as a criteria.

1.1.6 Audit criteria

The audit criteria were mainly derived from the following sources:

- Act and Statute of the University; University Accounts Code; Intellectual Property Rights Policy for Punjab Agricultural University issued in 2007; Punjab Agricultural University Pension Scheme, 1991; University's revised purchase procedure issued in 2009 and Punjab Agricultural University Calendar⁵, 2003;
- Norms of Indian Council of Agricultural Research (ICAR) and funding agencies for academic, research and extension activities;
- Plan and budget estimates, project proposals, minutes of meetings of BoM and Academic Council;
- Related provisions of various Acts viz. Protection of Plant Varieties and Farmers Rights Act, 2001; Geographical Indications of Goods (Registration and Protection) Act, 1999; Insecticides Act, 1968; Patents Act, 1970; Punjab Fruit Nurseries Act, 1961; Punjab Land Revenue Act, 1887; Rights of Persons with Disabilities Act, 2016; Punjab Municipal Building Bye-laws, 2018; Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 and Punjab Transparency in Public Procurement Act, 2019; and
- Guidelines/instructions/orders issued by the Government of India (GoI), the State Government and ICAR from time to time.

1.1.7 Organisation of audit findings

The audit findings, conclusions and recommendations relating to each of the objectives have been reported under the following heads:

1.2	Planning and Financial Management
1.3	Academic Activities
1.4	Research Activities
1.5	Extension of Agricultural Technologies

1.1.8 Acknowledgement

Audit acknowledges the cooperation and assistance extended by the management and staff of PAU, including the field units viz. RSs, KVKs, Seed Farms, etc. in conducting the Performance Audit.

⁵ PAU Calendar contains rules and regulations on various subjects framed by the University authorities from time-to-time.

1.2 Planning and Financial Management

The Comptroller of the University assists the Vice Chancellor for financial management and optimum utilisation of financial resources.

The audit findings related to the planning and financial management of the University are discussed in the succeeding paragraphs.

1.2.1 Planning

Board of Management (BoM) in its 297th meeting desired (June 2020) to prepare a Strategic Plan of the University initially for the five years from 2021-22 to 2025-26, followed by 10 years' Plan from 2021-22 to 2030-31. The Plan was to clearly describe vision, measurable targets and strategies and requirements for achieving these targets.

Audit noticed that:

- No Strategic Plan describing measurable targets, strategies and requirements was prepared during the period of Audit.
- PAU did not fix any activity-wise or department-wise physical targets like number of research projects, number of research papers, technologies and varieties to be developed and patent and registration thereof. In the absence of these details, oversight over the activities executed by the various departments of the University could not be verified.
- No faculty/scientist-wise targets were fixed for submission and execution of research projects.

The PAU stated (October 2024) that the preparation of Strategic Plans was under process, and the draft would be presented before BoM in due course. It further stated that the Strategic Plan would be finalised accordingly after the approval of BoM.

1.2.1.1 Shortfall in conduct of Board of Management meetings

Section 14 (K) of the Haryana and Punjab Agricultural Universities Act 1970, providing for the powers and duties of the Board, states that the Board should meet at such times and as often as it may deem necessary, provided that regular meetings of the Board shall be held once in every two months.

During 2017-18 to 2021-22, the BoM of the University conducted 26 meetings instead of 30 meetings required as per the Act *ibid*, leading to shortfall of four meetings.

The Registrar, PAU stated (October 2024) that the meeting of the BoM depends upon the availability and importance of the agenda items to be discussed in the meetings and availability of the Chief Secretary, GoP. The Registrar added that 10 meetings were held during 2022-24 (2022-23: four and 2023-24: six).

Non-conducting of requisite number of meetings as per the Act may affect the governance framework of the University in fulfilling its objectives.

1.2.1.2 Receipts and Expenditure

The University receives funds from the State Government as (Grants-in-Aid) (GIA) under education and research schemes. Though the University prepares scheme-wise budget estimates, it submits only demand for funds on a lump-sum basis to the State Government. It receives funds from the State Government from time to time. Besides, the Indian Council of Agricultural Research (ICAR) and other agencies⁶ also provide funds for “All-India Coordinated Research Projects⁷” (AICRP) and various other research projects, establishment and running of Krishi Vigyan Kendras (KVKs) for extension activities, etc. In addition, the University also generates income from own resources⁸.

The details of receipts and expenditure of the University during 2017-22 are depicted in **Table 1.1**.

Table 1.1: Receipts and expenditure of Punjab Agricultural University during 2017-22

(₹ in crore)

Year	Opening balance	Funds received from			Own income	Total funds available	Expenditure (per cent)	Closing balance
		GoP	ICAR	Other agencies				
1	2	3	4	5	6	7 (2+3+4+5+ 6)	8	9 (7-8)
2017-18	57.12	364.96	81.79	32.70	80.76	617.32	529.26 (85.74)	88.06 (14.26)
2018-19	88.06	380.05	101.44	33.13	82.24	684.93	528.25 (77.12)	156.68 (22.88)
2019-20	156.68	379.75	97.43	32.18	87.11	753.16	554.58 (73.63)	198.58 (26.37)
2020-21	198.58	401.56	91.16	33.65	80.49	805.49	589.47 (73.19)	215.97 (26.81)
2021-22*	215.97	421.82	93.23	35.05	80.02	846.09	596.25 (71.12)	249.84 (29.53)
Total		1,948.14	465.05	166.71	410.62	3,706.94	2,797.81	

Source: Data provided by PAU

*The accounts for 2021-22 onwards were yet to be prepared and laid before the Examiner Local Fund Accounts (ELFA), GoP. Hence, figures of grant, income and expenditure for the years 2021-22 had been taken from the statements provided by PAU. PAU intimated that these figures were subject to reconciliation and audit.

⁶ Department of Science and Technology (GoI), Department of Biotechnology (GoI), University Grants Commission and other agencies from public and private sectors for implementation of various projects with specific conditions relating to different components viz. expenditure, timelines, etc. for completion of the projects.

⁷ AICRP is a scheme of Indian Council of Agricultural Research for development/testing/identification of technologies through multi-location trials.

⁸ Application fee, tuition fee, examination fee, book and publications, bank interest income, PAU Museum income, rent of shops, sale of farm produce, fruits, vegetables, etc.

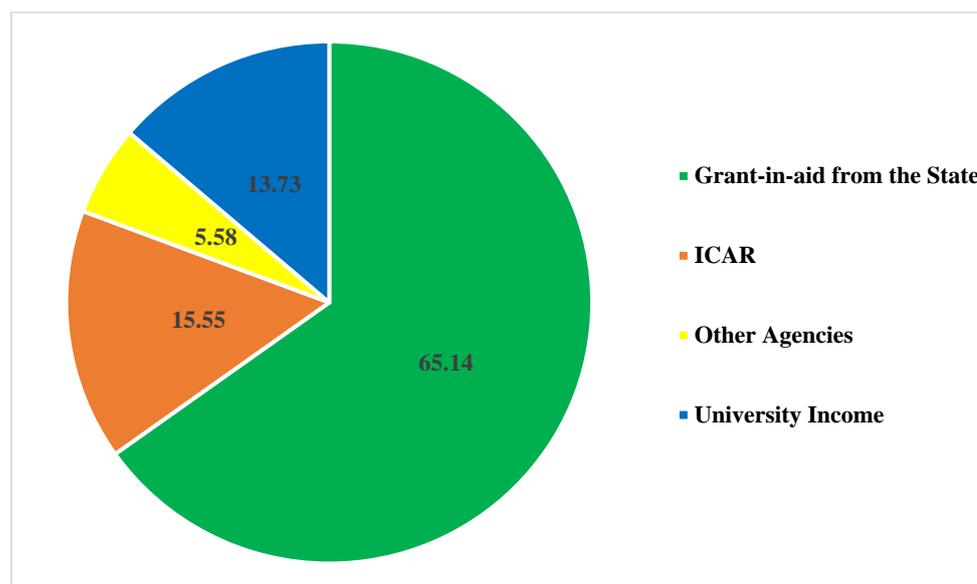
Table 1.1 shows that as against the available funds of ₹ 3,706.94 crore, an expenditure of ₹ 2,797.81 crore was incurred during the period 2017-22. During this five-year period, unspent funds with the University at the close of the financial year consistently increased from 14 *per cent* to 29 *per cent* of total available funds⁹. The increasing trend of the closing balances during 2017-22 showed an inability to use the funds and that budgeting was not realistic.

University replied (October 2024) that year-wise closing balances of funds received and expenditure incurred mainly consisted of University income from its own sources and of other *ad hoc* projects having a duration of three to five years, which was utilized against the short release of Grant-in-Aid to the University by the State Government.

1.2.1.3 Financial management

Components of receipt and expenditure of the University are depicted in **Charts 1.2(a) & 1.2(b)**.

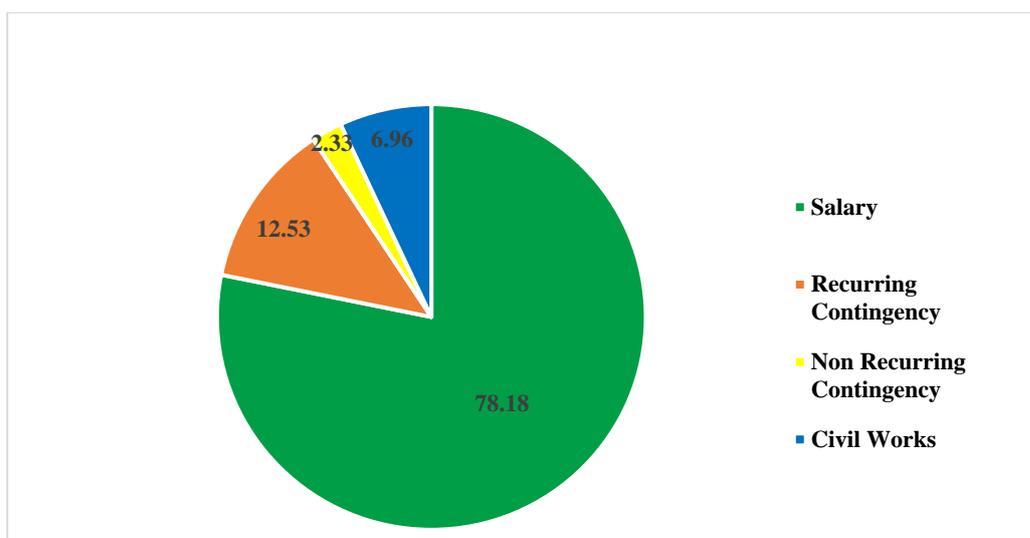
Chart 1.2(a): Average receipt sources during 2017-22¹⁰ (in *per cent*)



Source: Information supplied by PAU

⁹ Closing funds of the University does not include Pension Fund and Endowment Funds as discussed in *paragraphs 1.2.1.4 and 1.2.1.5 (v)* in this Report. It is pertinent to mention that the Pension Fund was not a registered Pension Fund or a Pension Trust and was being managed by the University on its own. The pension was being paid from the University account out of GIA instead of being routed through the Pension Fund. These closing balances mainly constituted unspent amount out of grants received from ICAR and own income (Revolving Fund & Consultancy and Self-Financing Schemes).

¹⁰ The accounts for the year 2017-18 to 2020-21 were finalised. The accounts for 2021-22 onwards were yet to be prepared and laid before ELFA, GoP.

Chart 1.2(b): Average head-wise expenditure during 2017-22 (in per cent)

Source: Information supplied by PAU

1.2.1.4 Inadequate Pension Fund

The Board of Management of the University in its 134th meeting held on 30 May 1991 approved the Pension Scheme for its employees with effect from 1st January 1986. The existing employees of the University had the right to opt for Pension Scheme by foregoing the University contributions credited to their Contributory Pension Fund (CPF) account along with interest thereon.

The PAU Pension Scheme (1991) provided that a Corpus Fund (to be called Pension Fund) would be constituted for PAU employees by transferring the CPF contributions made by the University along with interest accrued thereon. This would be subject to the condition that the Punjab Government and other financing agencies contribute 10 per cent of the salaries of the employees.

Audit observed that the Pension Fund created in the year 1992 for payment of pensionary benefits to PAU employees got exhausted in 2007, as due to implementation of the New Pension Scheme (2004) by the Government of Punjab and transfer of some employees of PAU to Guru Angad Dev Veterinary and Animal Sciences University (GADVASU) after its bifurcation (2006), the available matching share was not sufficient to pay the monthly pension. As the Pension Fund was exhausted in 2007 and the requisite funds were not available for payment of pension, the Confederation of PAU Pensioners Association filed (2008) a Civil Writ Petition (CWP) in the Hon'ble Punjab & Haryana High Court for payment of pension. The High Court ordered (May 2008) for payment of pensionary and retiral benefits to retired employees. Thereafter, the payment of pensionary benefits was being made¹¹ out of Grants-in-Aid (GIA) received from the Government of Punjab (GoP). Details thereof for the period 2017-22 are given in **Table 1.2**.

¹¹ As per orders (May 2008) of the Hon'ble Punjab and Haryana High Court.

Table 1.2: Details of payment of pensionary benefits out of GIA received from GoP during 2017-22

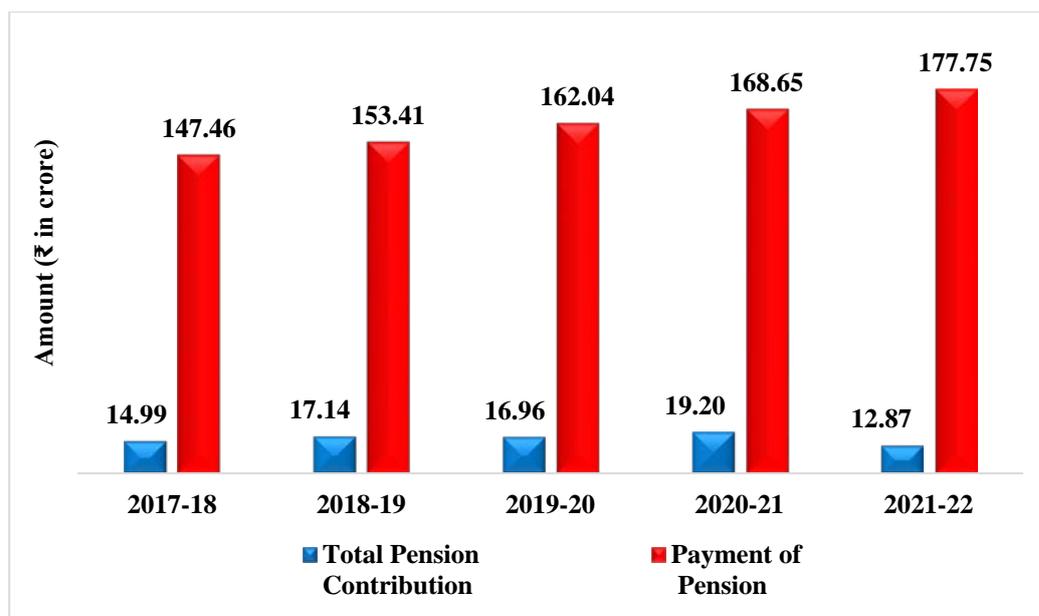
(₹ in crore)

Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
Total GIA received from GoP	364.96	380.05	379.75	401.56	421.82
Payment of pensionary benefits	147.46	153.41	162.04	168.65	177.75
GIA utilised for payment of pensionary benefits (in per cent)	40.40	40.37	42.67	42.00	42.14

Source: Information provided by PAU

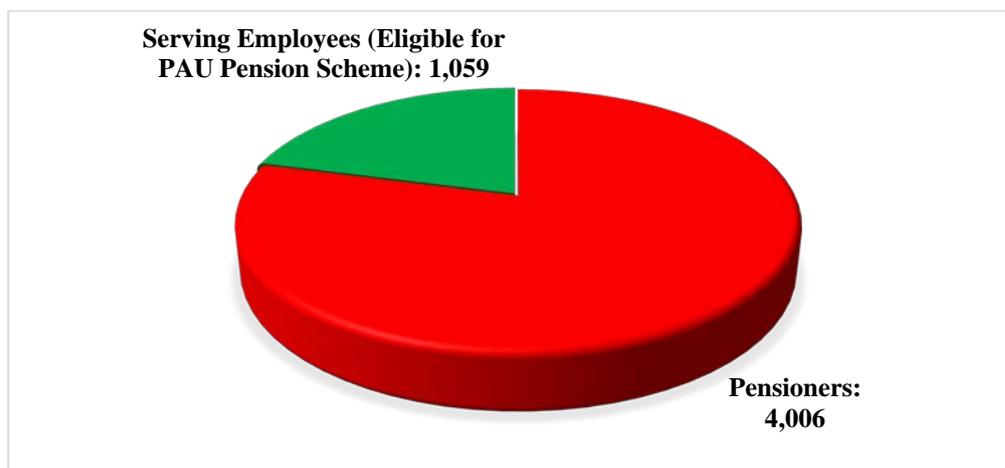
The position regarding total pension contributions recovered from the salaries of the employees *vis-a-vis* total pension payments made out of GIA by the University during the period 2017-22 is depicted in Chart 1.3. The status of pensioners and serving employees who had opted for PAU Pension Scheme as on 31 March 2022 is shown in **Chart 1.4**.

Chart 1.3: Details of pension payment liability from GIA *vis-a-vis* pension contributions to the Pension Fund during the year 2017-22



Source: Information provided by PAU

Chart 1.4: Total pensioners and employees opted for PAU Pension Scheme as on 31 March 2022



Source: Information provided by PAU

It was noticed that after court decision in 2008, an amount of ₹ 247.16 crore was accumulated in the Pension Fund as on 31 March 2022, but no amount was spent by the University out of this fund for payment of pension liabilities as the University is making payments of pensionary benefits out of GIA.

No actuarial valuation of this fund was made to assess the long-term sustainability for payment of defined pensionary benefits.

It was further noticed that out of the accumulated Pension Fund of ₹ 247.16 crore, an amount of ₹ 245.93 crore had been invested in FDRs, and ₹ 1.23 crore was lying in the Savings bank account. However, the University did not diversify the amount of the Pension Fund as per the investment pattern¹² notified (March 2015) by the Ministry of Finance, Department of Financial Services, GoI, to be followed for Non-Government Provident Funds, Superannuation Funds and Gratuity Funds with effect from 01 April 2015. Though the State Government does not have this kind of prescribed investment pattern, there was a prescribed investment pattern notified (March 2015) by the Ministry of Finance, Department of Financial Services, GoI. The prescribed limit for investment in term deposits, not less than one year, is only 35 to 45 per cent of the fund. The University invested 100 per cent of the fund in term deposits.

The University stated (October 2024) that after the implementation of New Pension Scheme in 2004, the number of employees who opted for the PAU Pension Scheme started declining, viz. (31 March 2022: 1059 and 31 March 2024: 923), and the number of retirees started increasing

¹² (i) Government Securities and related investment (minimum 45 per cent and upto 50 per cent); (ii) Debt instruments and related investment viz. listed debt securities issued by body corporate, Basel-III tier-I bonds, term deposit receipts of not less than one year duration, units of mutual funds, etc. (minimum 35 per cent and upto 45 per cent); (iii) Short-term debt instruments and related investments viz. money market instruments, etc. (upto five per cent); (iv) Equities and related investments (minimum five per cent and upto 15 per cent); and (v) Asset backed, Trust structured and miscellaneous investments (upto five per cent).

(31 March 2022: 4006 and 31 March 2024: 4046). It was added (October 2024) that from April 2024, the pension demands are separately raised under GIA (36-Non salary) by the University and provided by the State Government without change in the quantum of total GIA received by the University.

Thus, in view of the inadequate Pension Fund, the University had no option but to rely on GIA being received from the State Government to meet its pension liabilities.

1.2.1.5 Preparation of financial statements

As per provisions of Section 34(4) of the Haryana and Punjab Agricultural Universities Act, 1970, the accounts and the Balance Sheet shall be submitted by the Vice-Chancellor through the Board of Management (BoM) to the appropriate Government, which shall cause them to be audited by the Examiner, Local Fund Accounts (ELFA). However, though ELFA had been auditing the Accounts (Utilisation of Grants) of the University, the Balance Sheet audit was not being conducted by them due to non-receipt of the Balance Sheet from the University.

(i) Guru Angad Dev Veterinary and Animal Sciences University (GADVASU) was established (August 2005) at Ludhiana by an Act of Punjab Legislature No. 16 of 2005 and started functioning with effect from 21 April 2006. GADVASU was carved out of PAU, with staff and resources bifurcated between the two institutions.

Test-check of records showed that at the time of establishment of GADVASU in 2006-07, an amount of ₹ 13.12 crore was shown in the certified accounts¹³ of PAU as recoverable from GADVASU being excess expenditure incurred on Non-plan Vet Scheme during the period 1996-97 to 2005-06. The request (September 2009) of the University for release of ₹ 13.12 crore for settlement of this excess expenditure was turned down (February/April 2011) by the Animal Husbandry Department, GoP. Thereafter, the records of the University did not indicate any efforts made to recover the amount. However, the University kept on reducing this amount (₹ 13.12 crore) from the unutilised grants at the end of each financial year. This resulted in an understatement of unutilised grants by ₹ 13.12 crore during the years 2017-18 to 2019-20.

The University prepared two sets of accounts, i.e., Accounts related to utilisation of grants (audited by the ELFA) and Financial Statements (audited by the chartered accountant).

(ii) The following deficiencies were noticed in the format and preparation of accounts and Balance Sheet:

¹³ Depicted as minus entry in the certified annual accounts for the years 2017-18 to 2019-20, as accounts for the years 2020-21 and 2021-22 were yet to be finalised (March 2023).

1. The provisions of the Haryana and Punjab Agricultural Universities Act, 1970 and Fifth Deans' Committee regarding the timeline for preparation/submission of Accounts and Balance Sheet within six months after the closure of the financial year, i.e., by September-end, were not adhered to by the University as is evident from the following facts:
 - Annual Statement of Accounts containing Grant Utilisation Certificates (GUCs) for the years 2017-18 (₹ 529.26 crore), 2018-19 (₹ 528.25 crore), 2019-20 (₹ 554.58 crore) and 2020-21 (₹ 589.47 crore) were placed before BoM during March 2019, August 2020, March 2021 and July 2024 respectively with delay of six to 33 months.
 - GUCs for the years 2021-22 having an expenditure of ₹ 596.25 crore were not placed before BoM (October 2024) and resultantly could not be forwarded to the State Government.

Delays in the submission of GUCs may impact the superintendence of the legislature on the effective utilisation of grants.

The Comptroller attributed (October 2024) the delayed submission of GUCs to a staff shortage in ELFA and added that the GUCs for the years 2021-22 onwards are still pending due to delay in ELFA audit.

2. The Annual Statement of Accounts (Balance Sheet) was being prepared on cash basis of accounting instead of accrual basis system as recommended (June 2016) by the Fifth Deans' Committee of ICAR. PAU did not include the money accruing to and payables by the University, except for the details of cheques issued but not cleared, outstanding receipts from banks and bank charges recoverable. Further, Annual Accounts for the year 2020-21 and 2021-22 were not certified so far (February 2023).

In the absence of an accrual basis system and proper disclosures in Notes to Accounts, the true and fair position of assets and liabilities of the University could not be ascertained.

The University stated (October 2024) that adoption of accrual basis of accounting for preparing University accounts requires Enterprise Resource Planning (ERP) software and involves huge expenditure. The ERP system would be implemented after obtaining a grant from the State Government.

The reply is not acceptable, as only ERP is not meant to prepare financial statements.

3. As per recommendations (June 2016) of the Fifth Deans' Committee, the University shall have a General Fund to which shall be credited its

income from fees, endowments and grants and income from properties of the University. Further, as per the evaluation proforma for ranking of Agricultural Universities for the year 2017 submitted to ICAR, it was stated that recommendations of the Fifth Deans' Committee had been fully implemented.

Audit observed that the University formed an endowment fund in August 2011. As per documents, the stated objective of the fund was to utilise interest earned on the corpus towards research, teaching and extension education. PAU was maintaining the Endowment Fund in a savings bank account, wherein all contributions received were being credited. As on 31 March 2022, an amount of ₹ 8.24 crore (including interest of ₹ 0.35 crore) had been invested in FDRs out of the fund and ₹ 0.33 crore was lying in the Savings bank account. However, as per recommendations of the Fifth Deans' Committee, the endowment fund should have been subsumed into the General Fund. The University maintains this fund separately.

The accumulated amount of the Endowment Fund had not been used for the envisaged purposes since its formation. Only in one instance, a budget estimate of ₹ 5.89 lakh on Strengthening of Research on prioritised areas Misc.101 (PC-4261) (Primary Unit: Recurring Contingency) was envisaged during the year 2012-13 out of this fund. However, records related to expenditure out of this scheme (recurring contingency) were not made available.

The University informed (October 2024) that preparation of the Balance Sheet for Endowment Fund was under process. The balance of the Endowment Fund was ₹ 9.57 crore as on 31 March 2024. Further, no amount was spent from the Endowment Fund during 2022-23 and 2023-24.

4. As per the provisions contained in Section 34 (3) of the Haryana and Punjab Agricultural Universities Act, 1970, the Finance Committee was required to examine the annual accounts of the University and to review the financial position of the University from time to time.

Audit noticed that as many as 33 bank accounts having a balance of ₹ 4.01 crore were being maintained by five colleges of the University as on 31 March 2020¹⁴ (**Appendix 1.2**) but the closing balances of these accounts were not reflected in the books of accounts of the University. There was nothing on record to suggest that these bank accounts were placed before the Finance Committee for review. Thus, non-reflection of a huge amount in the Balance Sheet of the University did not present a true picture of its financial position.

¹⁴ Balance Sheets for the years 2020-21 and 2021-22 were not finalised (March 2023).

The University stated (October 2024) that these accounts (pertaining to colleges) would be shown in the Balance Sheet after approval from the appropriate authority.

5. Other Deficiencies

- (a) The format of accounts and Balance Sheet was neither prescribed in the Act nor approved by the BoM.
- (b) Previous year figures were not depicted in the Balance Sheet and Income & Expenditure Account.
- (c) Schedule to accounts was not showing details of all the heads of Balance Sheet and Income & Expenditure Account.
- (d) All the significant accounting policies were not disclosed in the relevant schedule.
- (e) Pension Fund (₹ 247.16 crore) and Endowment Fund (₹ 8.24 crore) as on 31 March 2022¹⁵ were kept out of the accounts and Balance Sheet of the University. Non-reflection of amount of both the funds in the accounts and Balance Sheet does not give a true and fair view of the financial position of the University.
- (f) Notes to Accounts did not provide details like contingent liabilities and other explanatory notes. The University did not mention details of Pension Fund and Endowment Fund in the Notes to Accounts also.

The University stated (October 2024) that the standardised/customised format of Balance Sheet would be adopted, if applicable, after approval of the BoM.

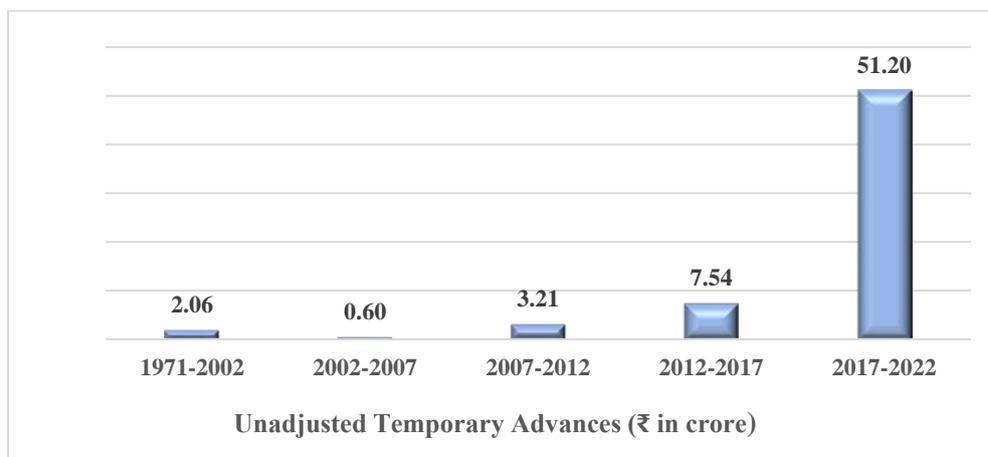
1.2.1.6 Outstanding temporary advances

Para 6.13 of the University Accounts Code provides that the account of temporary advances is rendered as early as possible and unspent balance, if any, refunded during the same financial year.

The University submitted a year-wise abstract of advances drawn and adjusted. From the data provided, Audit noticed that temporary advances of ₹ 64.61 crore remained unadjusted as on 31 March 2022, as detailed in **Appendix 1.3** and the age-wise break-up thereof has been shown in **Chart 1.5**.

¹⁵ University prepared accounts and Balance Sheet for the year 2017-18 to 2019-20. University accounts and Balance Sheet for the year 2020-21 and 2021-22 were not prepared/ finalised as of September 2023. However, the updated figures as on 31 March 2022 prepared by the University are taken.

Chart 1.5: Age-wise breakup of unadjusted temporary advances issued and lying unadjusted as on 31 March 2022



Source: PAU records

Age analysis of these advances showed that temporary advances totalling ₹ 13.42 crore¹⁶ were very old and outstanding for more than five years. This showed a weak internal control in the University. The chances of non-settlement of these advances cannot be ruled out.

PAU submitted year-wise details of outstanding temporary advances, which had particulars like advance number, amount and account head total of the temporary advances.

As evident from the chart above, temporary advances had shot up manifold during the period covered in audit. The description of the advances showed that these were drawn even for long term construction projects in many cases. It showed that temporary advances were drawn on routine basis without judging the urgency of disbursement of payments, in contravention of the rules/instructions, which provide that the account of temporary advances should be rendered as early as possible and unspent balance, if any, refunded during the same financial year.

Further test-check of records showed that five temporary advances amounting to ₹ 2.92 crore were drawn (March 2016-January 2018) for executing three civil works. Although these works were completed (October 2018-May 2019) after incurring an expenditure of ₹ 2.01 crore, leaving an unspent amount of ₹ 91.60 lakh¹⁷, yet the whole amount of temporary advance of ₹ 2.92 crore remained unadjusted as of March 2022. The reasons for non-adjustment were not found in the records.

Temporary advances remaining unadjusted for a long period could lead to their untraceability, thereby posing a risk of misappropriation of funds.

¹⁶ 1971-72 to 1979-80 (₹ 0.15 crore); 1980-81 to 1989-90 (₹ 0.16 crore); 1990-91 to 1999-2000 (₹ 1.72 crore); 2000-01 to 2009-10 (₹ 2.96 crore); and 2010-11 to 2016-17 (₹ 8.43 crore).

¹⁷ Construction of International Hostel at PAU, Ludhiana, Chain Link Fencing around University Seed Farm, Nabha and Extension of Seed sale Centre at Gate No. 01, PAU, Ludhiana.

The Public Accounts Committee (PAC) while discussing audit observation (*paragraph 3.2.7*) of the Report of the Comptroller and Auditor General of India (Civil) for the year ended 31 March 2006-Government of Punjab, had recommended (March 2009) to expedite the recovery process and also stressed upon effecting recovery in the same year in which they became due.

Despite the recommendation of the PAC, a huge amount of temporary advances was lying unadjusted as of March 2022.

In the exit conference, the University, while admitting the facts, assured (June 2023) that it would expedite the process for adjustment of outstanding temporary advances. Further, the University replied (October 2024) that temporary advances amounting to ₹ 71.86 crore were still pending adjustment as on 31 March 2024.

The University may discourage temporary advances for construction of projects. Instead, clear budget lines should be made operational.

1.2.1.7 Other issues

(i) Non-receipt of compensation of land

a) National Highways Authority of India (NHAI) acquired (between February 2021 and March 2022) 20.85 hectares of land falling in three villages, viz. Allowal, Kharak and Chohle under the jurisdiction of University Seed Farm (USF), Ladhawal. The Land Acquisition-cum-District Revenue Officer, Ludhiana (Competent Authority), on behalf of NHAI, announced (June 2021-April 2022) awards of ₹ 15.29 crore for the said land. The University was required to approach the said authority to receive the said amount and get the entire amount credited into the Accounts of the University. However, it was noticed that instead of approaching the Competent Authority promptly, PAU in December 2022 (with a delay of one and a half years after the award of compensation for the said land was pronounced) raised the matter with the Additional Chief Secretary, Government of Punjab for getting alternate land in lieu of compensation. There was nothing on record to show any timely action by the University with the Government to get equivalent alternate land. The indecision of the University is further evident from the fact that it initially pursued (December 2022) the matter with the State Government for allotment of alternate land in lieu of compensation (after the acquisition of land by the competent authority in February 2021 and March 2022) and then for enhancement of the compensation amount of the land (April 2023). When the claim for enhancement of compensation amount was rejected by the Competent Authority (June 2023), the BoM decided (August 2023) to accept the due compensation of ₹ 15.29 crore. The University stated that (October 2024), out of the awarded amount of ₹ 15.29 crore announced by the NHAI, it has received ₹ 14.91 crore. The process is underway to receive the remaining amount of compensation.

b) The State Government transferred (October 2010) 25 acres of land, on which KVK, Ropar had been functioning since 2004, to Indian Institute of Technology (IIT), Ropar. In lieu thereof, the State Government decided (November 2010) to allot 25 acre 01 *kanal* and 10 *marla* of land in village Bara Phul, Rupnagar to KVK (PAU) along with compensation of ₹ 25.00 lakh. Though the allotted land (25 acre 01 *kanal* and 10 *marla*) was in the possession of KVK Ropar since 2013-14, mutation of 11 acre 02 *kanal* and 01 *marla* had not yet been transferred in the name of PAU from Punjab State Co-operative Milk Producers Federation Limited (Milkfed). Besides, compensation of ₹ 25.00 lakh had not been received (May 2023) by the University. The Estate Officer, PAU attributed (May 2023) the reasons for non-mutation of the land in the name of PAU and non-receipt of compensation to non-issuance of notification/orders regarding transfer of the remaining piece of land (11 acre 02 *kanal* and 01 *marla*) by the State Government.

c) The Ministry of Road Transport and Highways (MoRTH), GoI notified (February 2014) for acquisition of land for four-laning of Sangrur-Patran-Khanauri road. Accordingly, possession of 0.0354 hectares of land of KVK Kheri (Sangrur) under PAU was taken by MoRTH in February 2016, though mutation of the said land in the name of PAU¹⁸ was carried out in December 2016. The BoM granted (November 2017) ex-post facto approval for the transfer of land.

Audit observed that although the University had received (April 2018) compensation amount of ₹ 2.12 lakh on account of dismantling of the boundary wall, they did not receive any compensation in respect of the land measuring 0.0354 hectares occupied by MoRTH. However, the University did not take up the matter with the authorities concerned to get its due compensation of land.

The University stated (October 2024) that the Vice Chancellor, PAU was regularly pursuing the matter with the State Government for compensation of land in respect of KVK Ropar but compensation of transferred land amounting to ₹ 25 lakh and mutation of remaining piece of land was still pending. It also stated that the Registrar, PAU had requested the Land Acquisition officer-cum-SDM, Sangrur to release compensation for the land acquired at KVK, Kheri (Sangrur) but compensation was still pending.

In both cases, responses from the State Government were awaited.

(ii) *Irregular maintenance of Security Deposit Account*

The Rules for Security Deposits by students of PAU Calendar (Chapter III) provide that the securities remaining unclaimed for three academic semesters succeeding the end of the semester in which the students left the college, either

¹⁸ Earlier, the land was in the name of the Horticulture Department, GoP.

by completing a particular course or otherwise, shall lapse. The amount so lapsed is to be credited to the Students Aid Fund.

Audit observed that:

- As on 31 March 2022, an amount of ₹ 6.75 crore was lying as balance in the security deposit accounts of five¹⁹ institutions of PAU {four colleges and Director Students' Welfare (DSW)}. The amount of security deposits lying in the bank accounts of these institutions had not been reconciled with that shown in their security deposit registers. The College of Community Science was not even maintaining separate accounts for securities deposited by students; thus, its closing balance could not be ascertained.
- No exercise was done by the respective colleges/DSW to declare security deposits as lapsed during the audit period (2017-22) as per rules *ibid*, except for two colleges *viz.* College of Agriculture (COA) (2017-18, 2019-20 and 2020-21) and College of Basic Sciences & Humanities (COBS&H) (2017-18 and 2018-19), which declared security deposits as lapsed intermittently.

This signifies weak financial control in respect of security deposits. Due to non-declaration of securities as lapsed timely as per the rules *ibid*, the requisite amounts were not transferred to the Students' Aid Fund, which could have been utilised for the benefit of students.

The University replied (October 2024) that the COA, College of Agriculture Engineering & Technology (COAE&T) and COBS&H had been transferring the interest from April 2022 onwards, as well as the amounts of lapsed securities, to the Students' Aid Fund on a regular basis. The amount was parked in the current account. Replies of other two colleges were awaited.

1.2.2 Internal Audit

The internal audit of the University was being conducted by its Internal Audit wing, consisting of one In-charge Internal Audit (two days a week), one Section Officer, and one Auditor (one day a week).

Audit noticed that:

- The Internal Audit Wing was functioning without sanctioned strength. One Assistant Accounts Officer, one Superintendent and four auditors were deputed on a full-time basis and one In-charge and two auditors were assigned on additional duty to the wing. Thus, continuous and critical appraisal of the functioning of the University and compliance to prescribed rules, regulations and guidelines could not be ensured.

¹⁹ (i) College of Agricultural Engineering and Technology (₹ 0.64 crore); (ii) College of Agriculture (₹ 1.81 crore); (iii) College of Horticulture and Forestry (₹ 0.28 crore); (iv) College of Basic Sciences and Humanities (₹ 1.14 crore); and (v) Director Students' Welfare (₹ 2.88 crore – hostel security).

- The University had neither prepared any internal audit manual nor prescribed any codified procedure specifying internal audit planning process, allocation of duties, checks to be applied, etc.
- The details of coverage and the period up to which the internal audit had been conducted, were not made available.
- No internal audit report had been prepared by the Internal Audit wing.
- There was no system in place for monitoring the functioning of the Internal Audit wing along with the irregularities noticed and action taken thereon, if any, by the higher management.

The University stated (October 2024) that its accounts were previously pre-audited by the Examiner Local Fund Accounts (ELFA) through a Resident Audit Examiner/Deputy Controller Local Audit (DCLA) and there was no internal audit wing in place. The pre-audit system was deemed suitable due to the large volume of research, teaching, extension and administrative activities at PAU. However, from August 2020, due to administrative reasons and staff shortages in ELFA, PAU's Internal Audit Cell took over the audit function, while some bills continued to be processed by ELFA (DCLA).

However, the response failed to address the main concern - the absence of a proper internal audit system. Assigning pre-audit duties to the Internal Audit Cell without a formal structure, defined procedures, or consistent reporting did not meet the standards of a comprehensive internal audit function, which is crucial for effective risk management and compliance.

1.2.3 Conclusion

Apart from preparing annual financial plans for obtaining requisite budget, no Strategic Plan describing measurable targets, strategies and requirements was prepared. The University spent 71 *per cent* to 86 *per cent* of the total available funds during 2017-22. The increasing trend of closing balances during 2017-20 showed unchecked deficiencies in budgeting and expenditure projection on part of the University.

The yearly pension payment liability of the University ranged between ₹ 147.46 crore and ₹ 177.75 crore, whereas yearly pension contributions to the Pension Fund was between ₹ 12.87 crore to ₹ 19.20 crore, which was far less than the pension payment liability during 2017-22. The accumulated Pension Fund of ₹ 247.16 crore was not utilised, and the University was meeting its pension liabilities out of GIA from the GoP.

Temporary advances were drawn on a routine basis without ensuring the urgency of disbursement of payments, in contravention of the extant rules/instructions. As on 31 March 2022, temporary advances of ₹ 64.61 crore remained unadjusted, of which ₹ 13.42 crore pertained to the period more than five years, i.e., 1971-72 to 2016-17.

Various inconsistencies were noticed in the preparation/maintenance of financial statements of the University, which were not in line with the codal provisions. The Annual Statement of Accounts containing Grant Utilisation Certificates for the year 2021-22 had not been prepared (October 2024).

The Internal Audit Wing was functioning without any sanctioned strength. The University had neither prepared any internal audit manual nor prescribed any codified procedure specifying internal audit. There was no system in place for monitoring the functioning of the Internal Audit wing.

1.2.4 Recommendations

In light of the audit findings, the University may:

- (i) *expedite the process for preparation of Strategic Plan to utilise the available funds optimally and to meet its mandate and mission more effectively;*
- (ii) *conduct actuarial valuation of its Pension Fund to fill the gap between Pension Fund contributions and pension liabilities;*
- (iii) *ensure preparation of financial statements properly to reflect true and correct financial position of the University;*
- (iv) *ensure adjustment of temporary advances in accordance with the codal provisions; and*
- (v) *ensure amendments to its Act or statute to formally establish a structured internal audit function. This inter-alia could include:*
 - a. defined sanctioned strength and structure*
 - b. guidelines on scope; independence and reporting lines*
 - c. defined roles, responsibilities, scope, planning and procedures of internal audit wing to ensure a systematic and standardised evaluation of the functioning of the University.*

1.3 Academic Activities

Academic programmes of the University are run through its six constituent colleges, namely the College of Agriculture (CoA), College of Agricultural Engineering and Technology (CoAE&T), College of Basic Sciences and Humanities (CoBS&H), College of Community Science (CoCS), College of Horticulture and Forestry (CoH&F) situated in the PAU Campus, Ludhiana and the College of Agriculture, at Ballawal Saunkhri²⁰, SBS Nagar.

The audit findings related to the academic activities of the University are discussed in the succeeding paragraphs.

²⁰ Started functioning from the academic year 2021-22.

1.3.1 Delay in renewal of accreditation

According to the University Grants Commission (UGC) Regulations, 2012, accreditation is compulsory for all universities. The National Agricultural Education Accreditation Board (NAEAB) of ICAR grants accreditation to agricultural universities and related institutions. The validity of accreditation is for five years. Each accredited higher educational institution is required to apply for re-accreditation, six months before the expiry of the existing accreditation, in accordance with the norms and procedures prescribed by the relevant Accreditation Agency. As per ICAR guidelines, Universities seeking grants must be accredited by the Accreditation Board of ICAR from the financial year 2016-17 onwards.

Audit noticed that NAEAB of ICAR gave accreditation (March 2014) to the University and its four²¹ constituent colleges, valid up to 10 March 2019. However, the University applied for reaccreditation on 07 December 2018, i.e., after a delay of nearly three months from the due date (10 September 2018) in contravention of the provisions *ibid*. Thereafter, the accreditation was renewed by NAEAB on 30 August 2019.

Due to non-accreditation during the period from March 2019 to August 2019, students of PAU were denied admission to postgraduate courses by the Himachal Pradesh Agricultural University.

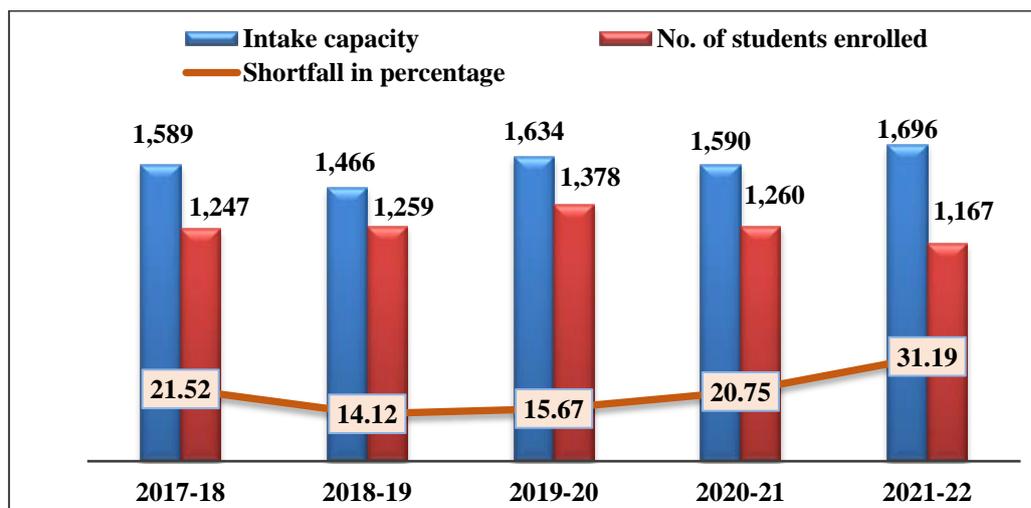
The University stated (October 2024) that the accreditation of PAU had been renewed successfully w.e.f. 1 April 2024 to 31 March 2029. Although the accreditation was granted with retrospective effect, the distress experienced by the students could have been avoided if prompt action was taken.

1.3.2 Shortage in enrolment of students

The position of intake capacity *vis-a-vis* enrolment of students in PAU for the period from 2017-18 to 2021-22 is depicted in **Chart 1.6**.

²¹ Other two colleges *viz* College of Horticulture and Forestry; and College of Agriculture at Ballawal Saunkhri, SBS Nagar were established in 2019 and 2021 respectively.

Chart 1.6: Position of intake capacity vis-a-vis enrolment of students during 2017-22



Source: Compiled from the Information supplied by PAU

Year-wise position of intake capacity vis-a-vis students enrolled in Undergraduate, Graduate and Doctoral (Ph.D.) Programmes offered by the University for the period 2017-18 to 2021-22 is given in **Table 1.3**.

Table 1.3: Position of intake capacity vis-a-vis enrolment of students in various programmes during 2017-22

Year	Intake capacity			Enrolled			Shortfall		
	Ord.	SSP	Total	Ord.	SSP	Total	Ord ²² .	SSP ²³	Total
Undergraduate Programmes									
2017-18	473	251	724	392	223	615	81	28	109(15)
2018-19	498	188	686	444	188	632	54	0	54(8)
2019-20	532	180	712	508	176	684	24	4	28(4)
2020-21	523	180	703	432	176	608	91	4	95(14)
2021-22	610	180	790	430	170	600	180	10	190(24)
Postgraduate Programmes									
2017-18	600	140	740	417	104	521	183	36	219(30)
2018-19	529	120	649	415	84	499	114	36	150(23)
2019-20	577	120	697	441	87	528	136	33	169(24)
2020-21	576	80	656	434	43	477	142	37	179(27)
2021-22	597	90	687	363	39	402	234	51	285(41)
Doctoral (Ph.D.) Programmes									
2017-18	125	Nil	125	111	Nil	111	14	Nil	14(11)
2018-19	131		131	128		128	3		3(2)
2019-20	225		225	166		166	59		59(26)
2020-21	231		231	175		175	56		56(24)
2021-22	219		219	165		165	54		54(25)

Source: Information supplied by PAU

As evident from Table 1.3, the shortfall of enrolment during 2017-22 was ranging between two to 41 per cent in various programmes (Undergraduate: four to 24 per cent); Postgraduate: 23 to 41 per cent) and Doctoral Programmes (two to 26 per cent).

²² Ordinary

²³ Self-Supporting Programme.

The shortfall in enrolment could be attributed to, among others, various deficiencies like shortage of faculty (*paragraph 1.3.4*), low placement (*paragraph 1.3.7*) and poor hostel, food facilities (*paragraph 1.3.14*) and decline in National Institutional Ranking Framework (NIRF) ranking²⁴ (*paragraph 1.3.15 (i)*).

Course-wise analysis revealed that there was 100 *per cent* enrolment in B.Sc. (Hons.) Agriculture (4 years) in 2017-18 and 2019-20; B.Sc. (Hons.) Horticulture (4 years) in 2020-21 and 2021-22; B.Sc. (Hons.) Agriculture (2+4 years) during 2017-22; B.Tech. - Food Tech. (4 years) during 2017-22; B.Tech. (Biotech.) in 2017-18 and 2018-19; B.Sc. (Hons.) Nutrition and Dietetics (4 years) from 2017-18 to 2020-21; and M.Sc. Horticulture and Forestry during 2019-22. However, there was shortfall in M.Tech. (45-67 *per cent*); M.Sc. Basic Science and Humanities (25-60 *per cent*); Business Administration (Agribusiness) (10-50 *per cent*); Business Administration (22-74 *per cent*); M.Sc. Home Science/Community Science (36-67 *per cent*); and five-year integrated M.Sc. (Hons.) (5-57 *per cent*) for the period 2017-22, as detailed in **Appendix 1.4**.

The University intimated (July 2024 and October 2024) that from the year 2023-24, they had started conducting third counselling for undergraduate programmes (10+2 merit on an all-India basis) as well as for postgraduate programmes. It was added that they had received double the application forms during 2023-24 as compared to last year. Further, the University replied that approximately 96 *per cent* seats in undergraduate programmes had been filled for the year 2024-25.

The University's response, asserting that 96 *per cent* of undergraduate seats had been filled for the academic year 2024-25, was not supported by the enrolment data provided. According to PAU's own figures, undergraduate programs had experienced enrolment shortfalls of 22, 25 and 13 *per cent* in the academic years 2022-23, 2023-24, and 2024-25 respectively. Postgraduate programs had shown even greater shortfalls, with enrolment gaps of 46, 51 and 45 *per cent* for the same academic years. Ph.D. programs had faced enrolment deficits of 39 *per cent* in 2022-23 and 35 *per cent* in 2023-24, with admissions for 2024-25 still ongoing. This consistent under-enrolment highlighted an ongoing gap between intake capacity and actual student enrolment, which had not been sufficiently addressed by the University's efforts, including the addition of a third round of counselling.

²⁴ NIRF ranking of PAU declined from 24 (2017) to 51 (2019) amongst 100 Universities in India; and 40 (2017) to 75 (2019) amongst 100 Institutes and Universities (combined) in India, as detailed in *paragraph 1.3.15*.

1.3.3 Low admission ratio of Persons with Disabilities

The Right of Persons with Disabilities Act, 2016 (hereinafter referred as the PwD Act) provides that every establishment shall notify an equal opportunity policy detailing the measures proposed to be taken by it.

Audit observed that though the University had circulated (December 2017) a notification for implementation of the PwD Act, it did not formulate any equal opportunity policy for Persons with Disabilities (PwDs) in line with the provisions of the Act.

(i) The status of admission of students and recruitment of staff in respect of PwD category during the period 2017-18 to 2021-22 is given in **Table 1.4**.

Table 1.4: Position of admission of students in PwD category

Year	Total seats reserved for PwD students*	No. of student applied in PwD category	PwD students admitted	Percentage admission w.r.t. total number of seats reserved for PwD students
2017-18	59	17	5	8.5
2018-19	57	17	10	17.5
2019-20	65	22	12	18.5
2020-21	65	17	7	10.8
2021-22	71	10	5	7.0

Source: Information provided by PAU

* Five per cent of the total seats are reserved for students in PwD category, as per PwD Act.

(ii) Section 16 (ii) of the Act provides that all educational institutions shall make building, campus and various facilities accessible. Section 45 provides a time limit for making existing infrastructure and premises accessible as per rules within a period not exceeding five years from the date of notification of such rules. Section 45 further provides that the Central Government may grant extension of time to the States on a case-to-case basis for adherence to this provision depending on their state of preparedness and other related parameters. Government of India framed Rules under the Act vide notification dated 15th June 2017. The rules provided that infrastructure should be as per the Harmonised Guidelines issued in February 2016.

As such, the rules provided that educational institutions should make the infrastructure accessible by 15 June 2022. These guidelines as well as the Punjab Municipal Building Bye-laws, 2018 *inter-alia* provide for requirement of lifts or ramps in addition to stairs, handrails on both sides of stairways, special toilets, drinking water facility and barrier-free entry/exit for wheelchair users.

Audit noticed the following deficiencies in providing these facilities to PwDs in line with the provisions of the rules *ibid* in the selected departments/ KVKs/ RSs/ Seed Farms/ Hostels of the University:

- None of the buildings of the selected units of the University had special provisions for toilets and drinking water for persons with disabilities (PwDs).

- Multi-floor buildings of nine Departments²⁵, eleven Hostels²⁶, two KVKs²⁷, and two RSs²⁸ did not have lifts or ramps in addition to stairs.
- Multi-floor buildings of two Departments²⁹, eight Hostels³⁰, one KVK (Nurmahal), and one RS (Abohar) did not have handrails on both sides of staircases.
- The entry/exit in respect of the buildings of six hostels³¹, two KVKs³², two RSs³³ and one Seed Farm (Ladhowal) was not barrier-free for wheelchair users.

No extension of timeline by the Central Government to PAU for implementing these measures in its buildings and campuses was found on record. Non-adherence to these provisions not only put the University in violation of the rules but also affected the students in PwD category.

The University assured (June 2023) to improve the PwD infrastructure at the earliest. Subsequently, the Director Students' Welfare informed (October 2024) that construction of ramps in eight hostels and washrooms in six hostels was still under consideration. However, data pertaining to the filling of seats reserved for PwD was not provided for the period 2022-24.

1.3.4 Position of teaching and non-teaching staff

The overall position of teaching and non-teaching staff of PAU for the period 2017-22 is depicted in **Table 1.5** and **Chart 1.7**.

Table 1.5: Position of teaching and non-teaching staff excluding outsourced staff

Year	Teaching staff			Non-teaching staff		
	SS	PIP	Shortage	SS	PIP	Shortage
2017-18	1,382	782	600	4,327	2,135	2,192
2018-19	1,359	758	601	4,273	1,946	2,327
2019-20	1,362	792	570	4,244	1,916	2,328
2020-21	1,355	822	533	4,193	1,796	2,397
2021-22	1,364	834	530	4,168	1,735	2,433

Source: Information provided by PAU

SS= Sanctioned Strength; PIP=Persons in Position

Note: This excludes outsourced staff, as the position thereof was not provided by the University.

²⁵ (i) Vegetable Science; (ii) Floriculture and Landscaping; (iii) Civil Engineering; (iv) Processing and Food Engineering; (v) Food and Nutrition; (vi) Extension Education and Communication Management; (vii) Botany; (viii) Chemistry; and (ix) Math, Statistics and Physics.

²⁶ (i) Hostel No.1; (ii) Hostel No. 2; (iii) Hostel No. 4 (iv); Hostel No. 5 (v); Hostel No. 7; (vi) Hostel No. 13; (vii) Hostel No. 10; (viii) Hostel No. 14; (ix) Hostel No. 15; (x) Hostel No. 16; and (xi) International Hostel

²⁷ (i) Ropar; and (ii) Nurmahal (Jalandhar).

²⁸ (i) Ballawal Saunkhri (SBS Nagar); and (ii) Abohar.

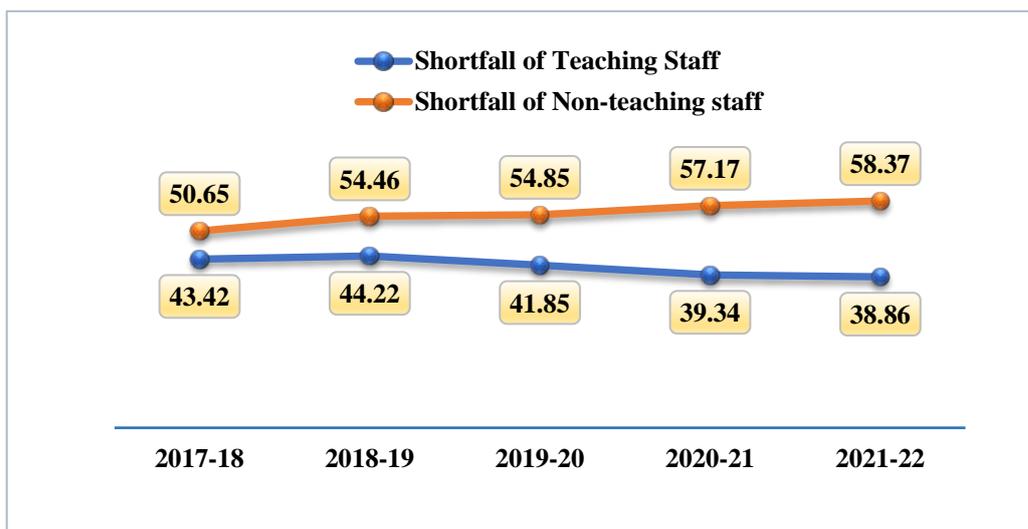
²⁹ (i) Civil Engineering; and (ii) Processing and Food Engineering.

³⁰ (i) Hostel No. 1; (ii) Hostel No. 2; (iii) Hostel No. 6; (iv) Hostel No. 12; (v) Hostel No. 13; (vi) Hostel No. 15; (vii) Hostel No. 16; and (viii) International Hostel.

³¹ (i) Hostel No. 1; (ii) Hostel No. 5; (iii) Hostel No. 10; (iv) Hostel No. 11; (v) Hostel No. 13; and (vi) Hostel No. 16.

³² (i) Faridkot; and (ii) Nurmahal (Jalandhar).

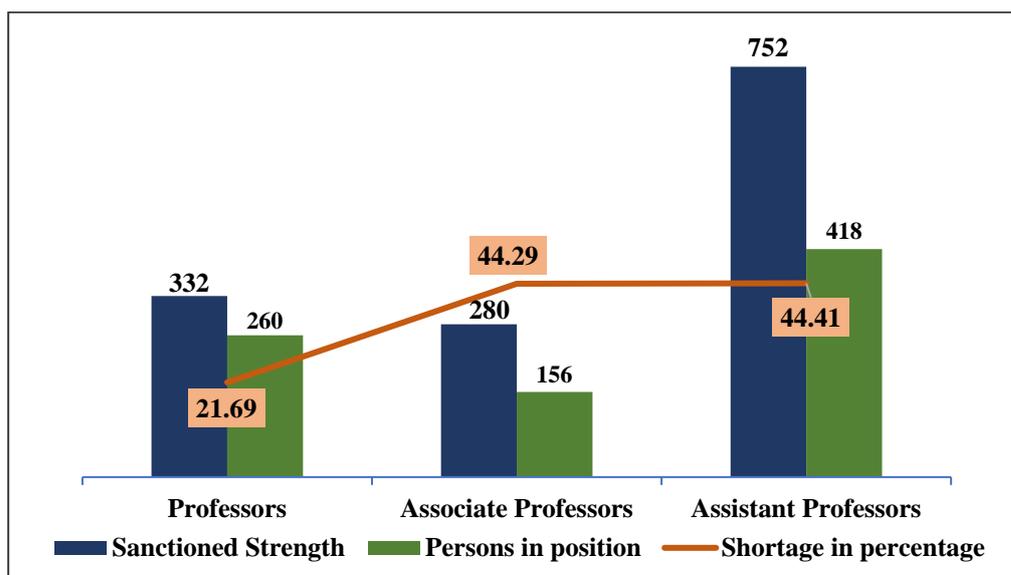
³³ (i) Bahadurgarh; and (ii) Ballawal Saunkhri (SBS Nagar).

Chart 1.7: Shortfall in percentage of Teaching and Non-teaching staff

Source: Information provided by PAU

As can be seen from the above chart, there was a substantial overall shortage of teaching staff and non-teaching staff during the period 2017-22. It was noticed that cadre strength of teaching and non-teaching staff was not reviewed despite instructions (March 2019) of BoM. The fact was admitted by the University in February 2023. Besides, a five-years Human Resource (HR) Plan giving the present profile of the faculty & other human resources and future requirements in view of the set objectives and targets was though initiated, but not finalised (February 2023), as desired (June 2020) by BoM.

The cadre-wise position of teaching staff as on 31 March 2022 is given in **Chart 1.8**.

Chart 1.8. Cadre-wise position of teaching staff as on 31 March 2022

Source: Information provided by PAU

As can be seen from **Chart 1.8**, there was substantial shortfall in various cadres of teaching staff as on 31 March 2022 which was 21.69 per cent in case of

Professors and 44.29 *per cent* in case of Associate Professors and 44.41 *per cent* in case of Assistant Professors. The issue of vacancy in the posts was also pointed out by the Peer Review Team of ICAR in August 2019. It recommended filling up these in a time-bound manner to make research and teaching more effective.

Shortfall in teaching staff not only affects enrolment (*paragraph 1.3.2*) and placement (*paragraph 1.3.7*) of students but also ranking of the University (*paragraph 1.3.16*).

In the exit conference, the University attributed (June 2023) the reasons for vacant posts of teaching and non-teaching staff to financial constraints; and stated that they would conduct the cadre review shortly. It was added that the University was also considering to invite guest faculty and experts from agriculture industries on need basis and to depute final year Ph.D. students for engaging them as teachers to meet the gap in teaching staff.

The University further replied (October 2024) that cadre review of non-teaching posts will be conducted as and when required. However, need based posts of non-teaching staff are being filled in the University keeping in view the financial position of the University. The University further stated that 33 Assistant Professors Level teachers and 66 Clerks have been recruited by the University since April 2023 to September 2024.

The reply of the PAU is not satisfactory as the efforts made to fill up the vacant posts are not adequate as the gap between sanctioned strength and men-in-position is still substantial.

1.3.5 Additional charge against vacant key posts

Section 11(b) of Haryana and Punjab Agricultural University Act, 1970 provides for key posts like Vice-Chancellor, Dean of Post-graduate Studies; Deans of the Colleges; Director Research; Director Agricultural Extension Education; Director Students' Welfare; Registrar, Comptroller, Estate Officer, Librarian; and such other persons in the service of the University as may be declared by the Statutes to be whole-time officers of the University.

Audit observed (November 2022) that the following posts of officers of the University were pending for regular appointments for periods ranging from one year to 21 years (May 2023), due to superannuation/completion of term/Extraordinary leave and were being looked after by other Deans/Professors and Scientists of PAU, as detailed in **Table 1.6**.

Table 1.6: Details of vacant key posts being looked after by other staff as of May 2023

Sr. No.	Name of post	Pending for regular appointment since	Period of pendency for regular appointment (In years/months)	Presently looked after by
1.	Registrar	01/12/2021	1 year 6 months	Dean, CoH&F
2.	Comptroller	01/09/2013	9 years 9 months	Dean, CoBS&H
3.	Dean of Post Graduate Studies (PGS)	01/08/2021	1 year 10 months	Professor, Entomology
4.	Dean, College of Agriculture (COA)	04/08/2020	2 years 10 months	Professor, Extension Education
5.	Director of Extension Education (DEE)	24/01/2022	1 year 4 months	Additional Director, Extension Education
6.	Director of Research (DoR)	29/05/2021	2 years	Additional Director, Research (H&FS)
7.	University Librarian	20/08/2004	18 years 9 months	Principal, Soil Chemist
8.	Estate Officer	07/06/2002	21 years	Principal Scientist, Agroforestry

Source: Information provided by PAU

In respect of posts at Sr. Nos. 1-6, the Act specifically provides that the incumbent of the post shall be a whole-time officer.

The University replied (October 2024) that key posts *viz*; Registrar, Dean PGS, Director Research, Dean College of Agriculture and Director Extension Education were filled in November/December 2023. However, key posts of the Comptroller, University Librarian and Estate Officer were still lying vacant.

1.3.6 Non-establishment of Distance Education Centre

As per the Report of the Fourth Deans' Committee (2006), colleges are encouraged to offer non-formal training programmes that are need-based, customised and self-financed. The Committee had also recommended provision of funds for hardware content development and to establish centres of Distance Education in each State Agricultural University/Deemed University. Further, Fifth Deans' Committee also recommended (June 2016) that individual universities should develop custom-designed Massive Open Online Courses to meet the skill requirements of their students, as desired under the Skill India Initiative.

Audit observed that PAU neither established a Distance Education Centre for providing distance education nor introduced online courses as per recommendations of the Fourth and Fifth Deans' Committee. Thus, the University could not provide education to those students who were unable to come physically to the University for various reasons. Further, during COVID-19 pandemic, when physical interaction became minimal and the need for digital initiatives as well as IT infrastructure development increased manifold, having a distance education learning process would have greatly benefited students. However, no such course was designed by PAU during the audit period.

Thus, distance education could not be imparted in agriculture and agricultural technologies to the workforce of the State for accelerating the pace of agricultural development.

Audit further noticed that other agricultural universities like Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh and Kerala Agricultural University, Thrissur were offering courses through Distance Education Centres.

The University stated (October 2024) that the PAU was a research-based University and most of its degree programmes were practical oriented. Therefore, it was not possible to establish a Distance Education Centre to provide distance education in science to the students. However, it could be established in courses without practical orientation. Further, to cater to the needs of students residing outside the city, a proposal for a one-year certificate course in French (online mode) was approved by the Academic Council and the admission notice to the said course had been advertised.

The response of the PAU was not acceptable as other agriculture universities had already established Distance Education Centres and are offering various courses through them.

1.3.7 Counselling and Placement Guidance Cell

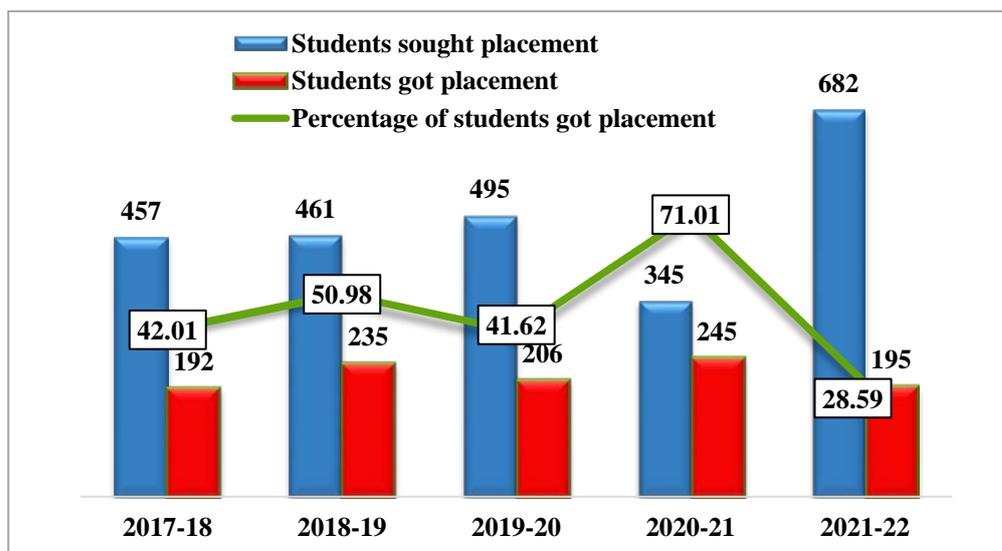
The PAU has a University Counselling and Placement Guidance Cell for providing career counselling and placement assistance to the students in securing placements.

Audit noticed that:

- There was no sanctioned strength of staff for the counselling and placement guidance cell.
- Director Students' Welfare was holding the additional charge of the Cell and other manpower was working there on contractual basis. As can be concluded, the placement cell was being run on *ad hoc* basis.
- The Placement Cell did not maintain college-wise/course-wise database of passed out students, students seeking placement and placed before July 2019. However, PAU furnished year-wise number of registered students and students getting placement during the year. Even, the college-wise/course-wise details of students claimed to be maintained post- July 2019 was not provided to Audit.

The position of placement of students during the period 2017-22 is depicted in **Chart 1.9**.

Chart 1.9: Position of placement of students during the period 2017-22



Source: Information provided by PAU

As can be seen from the Chart, the University was not able to place even its willing students during campus placements, as the percentage of student's placed ranged between 28.59 and 71.01 during 2017-18 to 2021-22.

The University provided data of highest, medium and lowest package. However, survey of 259 students conducted during the course of the Performance Audit showed that 53 *per cent* of the students were not aware about campus placement, while 47 *per cent* of those aware (121), were not satisfied with campus placement and the packages offered.

The University stated (October 2024) that information was collected from all the constituent colleges for preparing the database of final year students seeking placement. Various organisations were contacted and invited for campus placement on regular basis. University Counselling and Placement Guidance Cell also organised an "Employment Fair" in PAU campus on 11 October 2024 for giving a boost to the placements of PAU students.

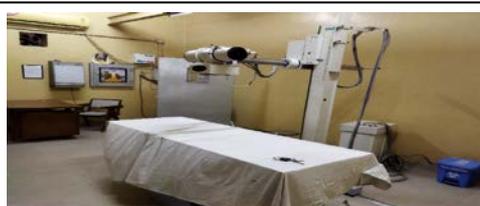
The University's response, citing data collection from constituent colleges and the recent employment fair held in October 2024, did not address the fundamental concerns identified. While organising an employment fair and contacting organisations for placements were commendable steps, they were insufficient to compensate for the systemic issues. Without college-wise and course-wise data on placements, the University could not effectively monitor, assess, or improve the success of its placement activities or cater to specific industry requirements for each course. The reliance on *ad hoc* staffing, with no sanctioned positions and key responsibilities held by the Director Students' Welfare as additional duties, indicates a lack of dedicated support for the placement cell.

1.3.8 Medical facilities to students and staff

PAU has a hospital named “PAU Hospital” (operational 24 hours with indoor capacity of 20 beds) in its campus since 1962 to provide medical facilities to its staff (present as well as retirees), their dependents and students. “PAU Hospital” was renamed as PAU Health Centre, with reduced capacity of 12 beds, from 30 March 2021.

Audit noticed that:

- Against the originally approved sanctioned strength of 28 posts in various cadres (7 Medical and 21 Paramedical), 10 persons (3 Medical and 7 Paramedical) were in position as on 31 March 2022. The key posts of three Medical Officers (MO), Pharmacist-cum-Store Keeper, Nurse, Senior Radiographer, Dark Room Attendant, Maid Attendant and Lab Attendant were vacant for 9-20 years (up to 31 March 2021). The University stated (November 2022) that the process to fill the vacant posts had been initiated.
- No corresponding change in sanctioned strength was made by the University while downgrading the capacity of the Health Centre with effect from 30 March 2021.
- An X-ray machine was available, but technicians to operate the machine were not available. Likewise, eye testing equipment and dental equipment were available, but the concerned doctors were not available. The operation theatre was non-functional due to non-availability of a Surgeon.



Photograph 1: Idle X-ray machine due to non-availability of Technician (31 August 2022)

The Chief Medical Officer, PAU Ludhiana intimated (October 2024) that the posts of three MOs and the post of MO (Dental) were lying vacant due to financial crisis or non-allotment of budget to fill these posts. The posts of Radiography Technician, Diet Assistant and Physiotherapy Assistant had been filled by the Registrar, PAU. Further, the recruitment for the posts of Multi-Purpose Health Worker (Female), Medical Lab Technician and Laboratory Attendants was under process.

The reply was not satisfactory as the University did not provide details of status of the operation theatre, eye-testing equipment and dental equipment. Further, the University did not provide any evidence indicating any effort made for budget allocation for filling up the vacant positions of three MOs and one MO (Dental).

Thus, non-functional medical infrastructure deprived staff and their dependents of requisite medical facilities in the University campus during medical emergency.

1.3.9 Non-establishment of Internal Quality Assurance Cell

Regulation No. 6.0.11 of UGC Regulations, 2010 prescribed establishment of an Internal Quality Assurance Cell (IQAC) in all Universities/Colleges as per the UGC/National Assessment and Accreditation Council (NAAC) guidelines. The IQAC is supposed to act as the documentation and record keeping cell of the Institution, including assistance in developing the API criteria-based Performance Based Appraisal System (PBAS).

Audit noticed that the University had not established an IQAC which serves as a coordinating cell to bring together academic, administrative and financial functions at one place, thereby depriving itself of quality improvement. Besides, due to non-formation of IQAC, the requisite academic and administrative audits could not be conducted as required by the Accreditation Board. Resultantly, the University could not ensure internalisation of quality culture, enhancement and integration amongst various activities of the institution and institutionalise good practices to improve institutional functioning.

Further, due to non-establishment of an IQAC, the impact of shortage of staff, reasons for poor placement, decline in ranking and enrolment of students could not be assessed and reported to the management to take corrective action.

The University informed (October 2024) that an IQAC had been established in January 2023 at PAU to promote conscious, consistent and catalytic action plans for improving its academic and administrative performance. However, details pertaining to academic and administrative audits to be performed by IQAC as mandated by accreditation board were not provided to Audit as of October 2024.

1.3.10 Grievance redressal mechanism

As per University Grants Commission (Redressal of Grievances of Students) Regulations, 2019, all Higher Education Institutes, whether established or incorporated by or under a Central Act or a State Act, shall constitute Collegiate Student Grievance Redressal Committee (CSGRC), Departmental Student Grievance Redressal Committee (DSGRC), Institutional Student Grievance Redressal Committee (ISGRC) and University Students' Grievance Redressal Committees (USGRC) for redressal of grievances of students. As per para 8(i) of the UGC (Redressal of Grievances of Students) Regulations 2019 (notified on 06 May 2019), each institution shall, within a period of three months from the date of issue of the notification, establish an online portal where any aggrieved may submit an application seeking redressal of grievances.

Audit observed that during 2017-18 to 2021-22:

- No such committees in line with UGC Regulations *ibid* were constituted in the University.
- Neither any policy/guidelines were framed for grievance redressal of students nor any Students' Grievance Redressal Cell was established in the University.
- There was no online portal for students for registration of their grievances/complaints.

Non-establishment of a grievance forum renders students vulnerable, as they may not have a readily available body/forum to report their grievances.

The University stated (June 2023 and October 2024) that a Grievance Redressal Cell had been established in College of Agriculture Engineering & Technology and that the Student Grievance Redressal Committee was constituted (September 2023) for the academic sessions 2023-24 & 2024-25. The Committee was re-constituted (September 2024) at the University level as per UGC Regulations 2023 for the academic sessions 2024-25.

The University did not provide any details regarding establishment of an online portal for grievance redressal, as mandated by the UGC.

1.3.11 Implementation of provisions under Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013

Rules framed under the “Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (Act)” provide that every employer shall *inter alia* formulate and widely disseminate an internal policy for prohibition, prevention and redressal of sexual harassment at workplace.

Audit observed that though an internal policy regarding sexual harassment had been framed by the University in the year 2002 to comply with the directions of the Supreme Court, it was yet to be reviewed in the light of new provisions of the Act. The provisions as outlined in PAU notification issued in the year of 2002 were more than 20 years old, which may require changes in the context of the Act as detailed below.

- Para 12 of notification of the University provides a timeline of 15 days for filing of the complaint whereas Section 9 of the Act provides timeline of three months. A relook of the old internal policy would ensure policy alignment with the provisions of the Act.

The University assured (May 2023) to look into the internal policy.

Further contraventions noticed during audit were as under:

- Two members of the Internal Complaint Committee (ICC) continued for more than three years (six years & eight months and three years & two

months as of March 2022) in contravention of the provisions of Section 4 (3) of the Act.

- No information regarding penal consequences and constitution of Committee as required under Section 19 (b) of the Act was displayed in the University premises.
- Section 19 (c) of the Act provides organisation of workshop/ awareness programmes at regular intervals. However, only three workshops for sensitising the staff/students were organised (March 2020, January 2021 and April 2021) during the audit period.
- Only two reports (2016-17 and 2018-19) were submitted by the Committee during the period of five years (2017-22) against the requirement of annual submission of report in each calendar year as per provisions of Section 21(1) of the Act.

The University stated (October 2024) that a new ICC had been constituted on 11 August 2023. The penal consequences and the Constitution of ICC had been displayed on the University website. Three workshops/interactive sessions had been organised after the constitution of the new ICC. The annual report of ICC for the period 2022-24 was pending submission.

The University's response to the audit findings regarding the implementation of the Act did not adequately address the systemic issues identified. While the establishment of a new ICC in August 2023 and the display of penal consequences on the University website were positive steps, these measures did not retrospectively resolve the deficiencies in compliance observed during the audit period.

1.3.12 Establishment of new College of Agriculture at Ballowal Saunkhri, SBS Nagar

(i) As per recommendations of the Fifth Deans' Committee, ICAR issued directions (July 2016) regarding minimum requirements for the establishment of new colleges in agriculture and allied disciplines. These recommendations, which were made mandatory by ICAR, were linked to the accreditation of institutions and the release of ICAR grants.

The Government of Punjab (GoP) approved (March 2021) the proposal (November 2019) of the University to start a new College at Research Station Ballowal Saunkhri, SBS Nagar. Accordingly, the College of Agriculture, Ballowal Saunkhri started functioning by admitting the first batch of 61 students from the academic year 2021-22.

Audit observed that the faculty strength and the infrastructure facilities available at this new College were far below the requirements recommended by the Fifth Deans' Committee, as detailed in **Table 1.7**.

Table 1.7: Details of facilities available vis-a-vis required in College of Agriculture at Ballawal Saunkhri, SBS Nagar

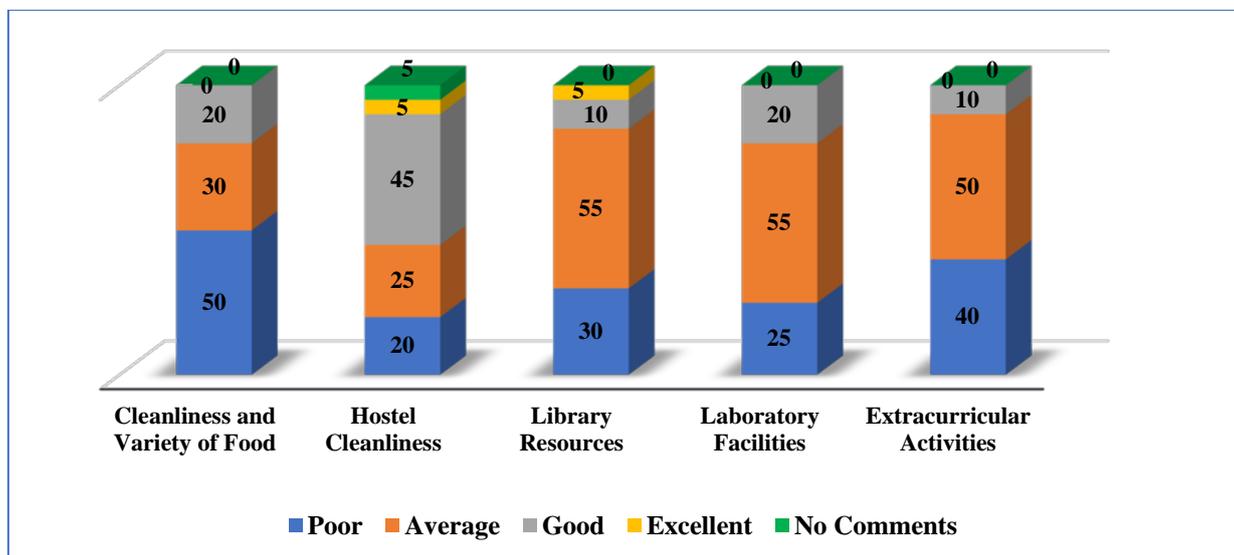
Sr. No.	Minimum facilities required as per Fifth Deans' Committee recommendation/ ICAR directions	Facilities available
1.	Five smart lecture halls	Though eight lecture halls have been planned, only two lecture halls with projectors were available as on 31 March 2022.
2.	31 teaching staff	Only seven contractual teaching assistants were serving in the College. Besides, 15 scientists of RS at Ballawal Saunkhri were assigned with additional duties of teaching. The detailed roles of these teaching staff with that of requirement could not be compared for want of breakup of data provided.
3.	Two hostels (separate for boys and girls with 150 capacity each)	Regular hostels were under construction, temporary arrangements were made to accommodate the students in college campus.
4.	12 full-fledged laboratories	There were provisions of nine laboratories but only five were operational during period of audit.

Source: Recommendations of Fifth Deans' Committee and information provided by the College

A joint inspection of this college was also carried out by audit. During joint inspection, it was observed that no interactive touch-screen boards, first-aid box, firefighting equipment and grievance redressal information boards were installed.

(ii) Audit conducted (January 2023) students' survey (sample size of 20 out of a total of 61 students) and joint inspection of the infrastructure at the College of Agriculture, Ballawal Saunkhri; results thereof are shown in **Chart 1.10**.

Chart 1.10: Results of Survey (in percentage) of the infrastructure at the College of Agriculture, Ballawal Saunkhri, SBS Nagar



Source: Survey results

Thus, students were discontented with the infrastructure due to poor transportation, fewer laboratories, no library and reading rooms, medical facilities etc. which also impacted brand value of the University.

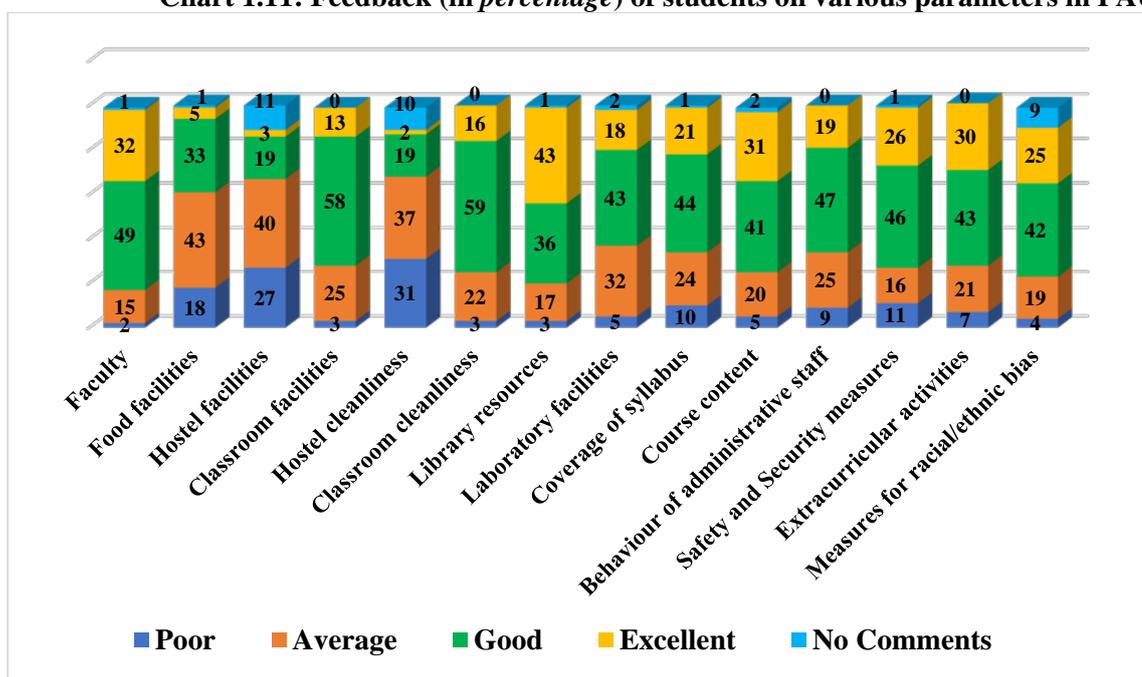
In the exit conference, the University assured (June 2023) to provide necessary facilities to students at the new College of Agriculture, Ballawal Saunkhri at the earliest. Subsequently, the Dean, PAU College of Agriculture, Ballawal Saunkhri informed (October 2024) that the main building of college – comprises of eight lecture rooms, six laboratories, eighteen faculty rooms, one committee room, one multipurpose hall with 500 seating capacity, one Library with reading area and evaluation room and first phase of girls’ hostel with a capacity of 100 students had been completed whereas the construction of first phase of boys’ hostel had been started. Nine well equipped laboratories (six in college main building and three in research station building) had been established.

The details of the completion of work were awaited in Audit as of October 2024.

1.3.13 Feedback of students on various parameters

As IQAC was not implemented in the University, there was no independent mechanism for audit to ascertain feedback of the students. Hence, feedback of 259 out of 4,016 students (as on 31 March 2022) of 12 selected departments in respect of five constituent colleges located in the University Campus, was taken to assess their satisfaction level on various parameters/activities; outcome thereof is depicted in **Chart 1.11**.

Chart 1.11: Feedback (in percentage) of students on various parameters in PAU



Source: Student Survey

Chart 1.11 shows that:

- More than 60 *per cent* of the students rated the “hostel and food facilities” besides “hostel cleanliness” as either poor or average.

- 37 per cent of the students (most of them were from Departments of Chemistry; Vegetable Sciences; and Extension Education & Communication Management) had rated the ‘laboratory facilities’ provided by the University as either poor or average; and
- As many as 34 per cent of the students (most of them were from Departments of Vegetable Sciences; Extension Education & Communication Management; and Entomology) had rated the ‘coverage of syllabus’ during the course study as either poor or average.

The University stated (October 2024) that the sample size of the students from which the feedback was noted, was only five per cent of the total students of the University. The remarks of such small sample could not be generalised. Further, the University requested that feedback may be taken again but with a bigger sample and from the department of the entire University so that the generalisation of facts could be ascertained. Reply of the University was not satisfactory as students for survey were randomly selected and it was the representative sample of the overall students.

1.3.14 Joint inspection of campus buildings

Joint inspection of 12 selected academic departments and 14 hostels of the University was carried out during the course of audit to ascertain availability of various facilities for the students. The deficiencies noticed during the joint inspection are detailed in **Table 1.8**.

Table 1.8: Results of joint inspection of campus buildings of the selected departments and hostels of PAU

Sr. No.	Facility	Academic Departments (12)	Hostels (14)
1.	Firefighting System	Firefighting equipment were absent in seven ³⁴ departments and in Chemistry Department, firefighting equipment had expired (2021).	Firefighting equipment were available in three ³⁵ hostels only.
2.	First-aid box	First-aid box facility was not available in eight ³⁶ departments.	First-aid box facility was not available in five ³⁷ hostels.
3.	Fixed assets marking	Marking on fixed assets was not available in six ³⁸ departments whereas in five ³⁹ departments, marking was partial.	Marking on fixed assets was available only in two hostels viz. Hostel Nos. 10 and 16.

Source: Joint inspection of selected departments and hostels

³⁴ (i) Extension Education & Communication Management; (ii) Floriculture & Landscaping; (iii) Food & Nutrition; (iv) Maths, Stats & Physics; (v) Plant Pathology; (vi) Processing & Food Engineering; and (vii) Vegetable Science.

³⁵ Hostel Nos. 4, 7 and 10.

³⁶ (i) Entomology; (ii) Ext. Education & Communication Management; (iii) Floriculture & Landscaping; (iv) Food & Nutrition; (v) Maths, Stats & Physics; (vi) Plant Pathology; (vii) Processing & Food Engineering; and (viii) Vegetable Science.

³⁷ Hostel Nos. 1, 11, 12, 14 and 15.

³⁸ (i) Botany; (ii) Civil Engineering; (iii) Entomology; (iv) Extension Education; (v) Extension Education & Communication Management; and (vi) Processing & Food Engineering.

³⁹ (i) Chemistry; (ii) Floriculture & Landscaping; (iii) Maths, Stats & Physics; (iv) Plant Pathology; and (v) Vegetable Science.

In addition to the above,

- Interactive board/touch screens were not available in classrooms of six departments⁴⁰.
- Grievance redressal board was not available in all the departments except for Department of Botany, Civil Engineering and Extension Education.
- Washrooms were not well-maintained in two hostels⁴¹. A sample of deficiency is shown in the photographs attached as **Photograph number 2 and 3**.
- Separate dustbin facility for segregation of waste was not available in five hostels⁴².
- Generator facility was not available in any of the hostels despite power cuts.
- TV and newspaper facility were not available in Hostel Nos. 12 and 13.



Photograph 2 and 3: Broken washroom of Hostel No. 1 (11-01-2023)

Further, in the absence of asset marking, the proper identification of assets cannot be ensured, thereby posing risk of their misappropriation.

The University stated (October 2024) that the firefighting equipment and first aid boxes had been installed in all the hostels. Hostel staff had been instructed to complete the process of marking fixed assets and it will be completed shortly.

The details of the completion of work were awaited in Audit as of October 2024.

1.3.15 Ranking of Punjab Agricultural University

(i) The National Institutional Ranking Framework (NIRF) outlines a methodology which ranks various universities and institutions on the basis of

⁴⁰ (i) Chemistry; (ii) Entomology; (iii) Extension Education; (iv) Extension Education & Communication Management; (v) Processing & Food Engineering; and (vi) Vegetable Science.

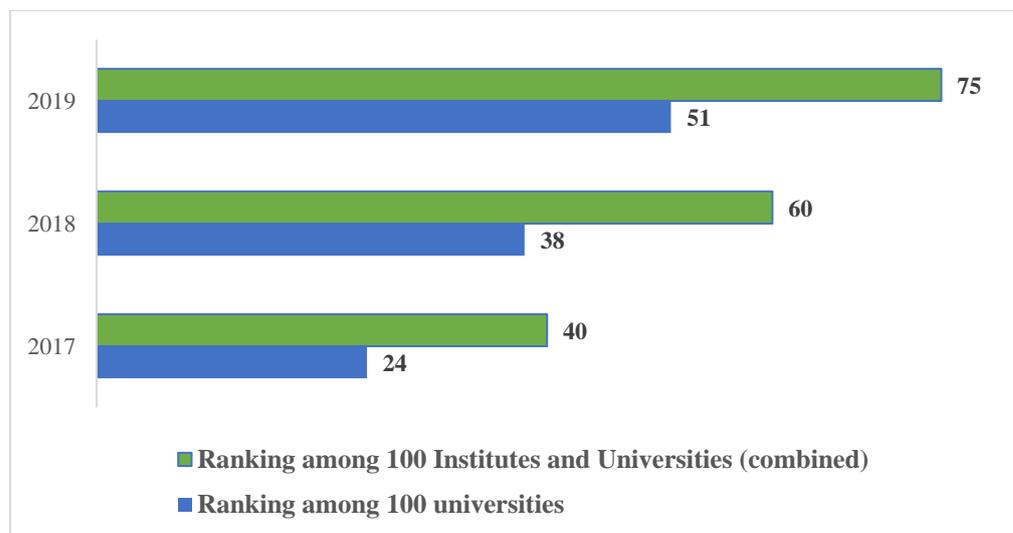
⁴¹ Hostel Nos. 1 and 13.

⁴² Hostel Number 1, 2, 11, 13 and 15.

five parameters viz. Teaching, Learning and Resources (30 per cent); Research and Professional Practice (30 per cent); Graduation Outcome (20 per cent); Outreach and Inclusivity (10 per cent); and Perception (10 per cent). As per directions (24 December 2020) of the ICAR, the NIRF has not ranked the Agricultural Universities during 2020-21. Subsequently, ICAR (September 2022) asked the State Agricultural Universities to initiate the process of NIRF ranking.

The trend of NIRF ranking of PAU amongst 100 universities in India; and 100 Institutes and Universities (combined) in India during 2017-19⁴³ is depicted in **Chart 1.12**.

Chart 1.12: NIRF ranking of PAU during 2017-19



Source: Website of National Institutional Ranking Framework (NIRF)

There was a marked gradual decline in the NIRF ranking of the University year after year. The decline in NIRF ranking of the University was attributable to decrease in scores in respect of four parameters⁴⁴ “Teaching, Learning & Resources, Graduation Outcome, Outreach & Inclusivity and Perception” while in respect of the fifth parameter⁴⁵, the scores increased slightly.

Audit further noticed that PAU did not analyse the reasons for decline in NIRF rankings, thus, could not take corrective measures.

(ii) In line with the National Initiative on Ranking of Indian Institutions, ranking of Agricultural Universities was initiated by ICAR in the year 2017.

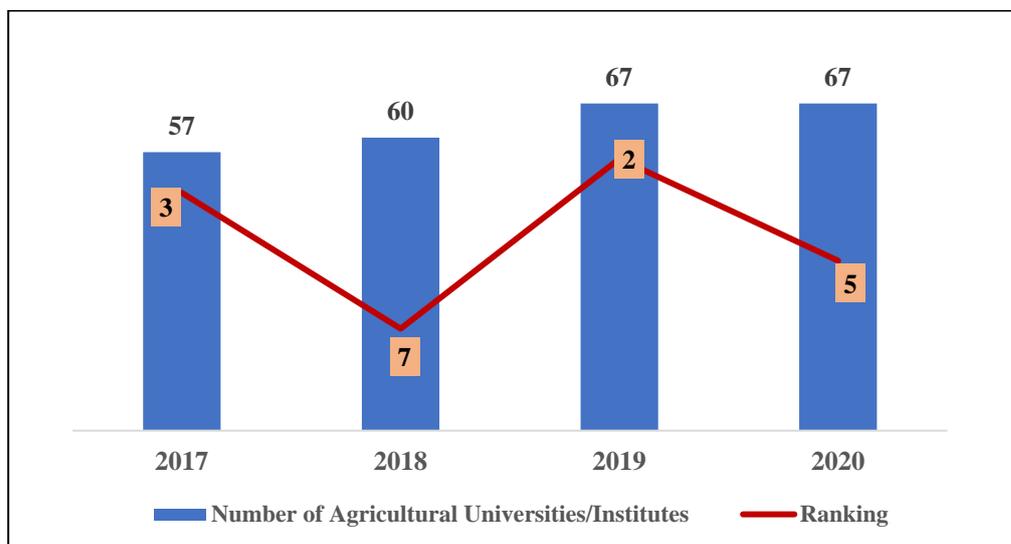
⁴³ NIRF did not rank the Agricultural Universities for the year 2019-20 onwards, as per directions of ICAR.

⁴⁴ Teaching, Learning and Resources (77.94 per cent in the year 2017 to 76.96 per cent in the year 2019); Graduation Outcome (57.20 per cent in the year 2017 to 56.22 per cent in the year 2019); Outreach and Inclusivity (from 48.44 per cent in the year 2017 to 40.94 per cent in the year 2019); Perception (3.83 per cent in the year 2017 to 3.19 per cent in the year 2019).

⁴⁵ Research and Profession Practice: scores increased from 16.51 per cent in the year 2017 to 19.73 per cent in the year 2019

The ranking was discontinued from 2021 onwards. The ICAR ranking of PAU during the period 2017-20⁴⁶ is depicted in **Chart 1.13**.

Chart 1.13: ICAR ranking of PAU during the period 2017-20



Source: Website of ICAR

However, the performance of the University on the aforesaid individual parameters could not be assessed as the parameter-wise scores for ranking were not released by ICAR.

In the exit conference, the University assured (June 2023) to take necessary steps to improve NIRF ranking. Subsequently, the University stated (October 2024) that PAU secured 74th and 80th position in the overall category by NIRF in 2023 and 2024 respectively. Further, the University secured third position among agriculture and allied sector category by NIRF-2023 and 2024.

The reply of the University was not satisfactory as it reflected continued decline in NIRF ranking in the overall category (82nd position).

1.3.16 Conclusion

The University remained without the requisite accreditation of Indian Council of Agricultural Research (ICAR) for more than five months due to delay in applying for reaccreditation with National Agricultural Education Accreditation Board (NAEAB).

There was shortfall in enrolment of students from 14 *per cent* to 31 *per cent* of the intake capacity during the period 2017-22. Besides, admission of students in PwD category remained less than 20 *per cent*.

There was overall shortage of teaching staff ranging between 39 and 43 *per cent* and non-teaching staff ranging between 51 and 58 *per cent* during the period

⁴⁶ ICAR ranking has been discontinued from 2021 onwards, as confirmed by the University.

2017-22. The shortfall in various cadres of teaching staff ranged between 22 and 44 *per cent* as on 31 March 2022.

PAU neither established any Distance Education Centre nor introduced any online course (except for French language).

As against 345 to 682 students seeking placements, 29 to 71 *per cent* students got placement during the period 2017-22. While percentage of student placement increased from 42 to 71 during 2017-18 to 2020-21, it decreased to 29 *per cent* during 2021-22.

The University did not establish Internal Quality Assurance Cell (IQAC). Grievance redressal mechanism for the students was also lacking.

The National Institutional Ranking Framework (NIRF) ranking of PAU declined from 24 (2017) to 51 (2019) amongst 100 Universities in India; and from 40 (2017) to 75 (2019) amongst 100 Institutes and Universities (combined) in India.

1.3.17 Recommendations

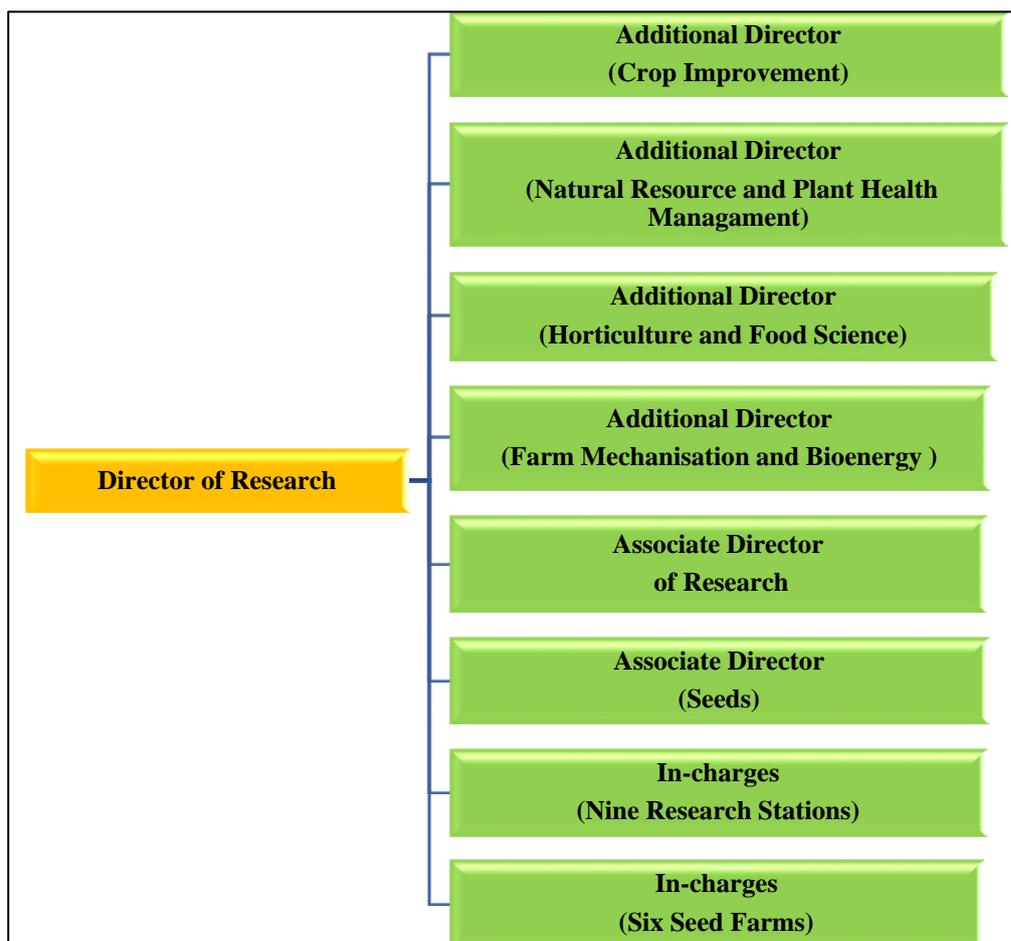
In the light of the audit findings, the University may:

- (i) *ensure accreditation of ICAR in a time bound manner so as to avoid any adverse impact on the activities of the University;*
- (ii) *take effective measures to fill up the vacant posts of teaching and non-teaching staff;*
- (iii) *explore establishing of distance education centers;*
- (iv) *strengthen Counselling and Placement Guidance Cell and grievance redressal mechanism;*
- (v) *strive to improve the NIRF ranking by addressing the related issues.*

1.4 Research Activities

PAU conducts varied research in agriculture and allied disciplines including basic sciences and humanities, farm engineering and home science through its Directorate of Research. The organisational structure thereof is given on the next page.

Organisational structure of Directorate of Research, PAU



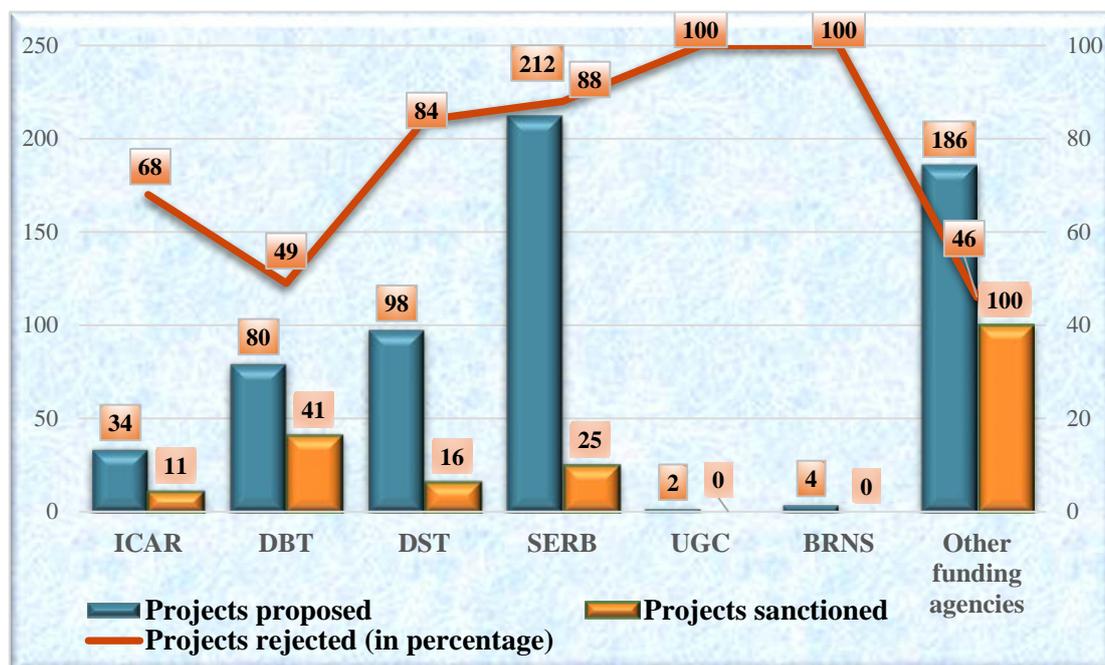
The audit findings related to research activities of PAU are discussed in the succeeding paragraphs.

1.4.1 Execution of research projects

Various agencies *viz.* ICAR, Ministry of Science and Technology, Department of Biotechnology (DBT) and Department of Science and Technology (DST), GoI, Science and Engineering Research Board (SERB), Board of Research in Nuclear Science (BRNS), Indian Meteorological Department (IMD), University Grants Commission (UGC), etc. give funds to the University to carry out their research activities/projects.

The agency-wise details of research projects proposed and sanctioned to the University during the period from 2017-18 to 2021-22 are given in **Chart 1.14**.

Chart 1.14: Funding agency-wise details of research projects proposed and sanctioned during the period 2017-22



Source: Information supplied by PAU

Note: Projects sanctioned by other funding agencies include two jointly funded projects.

Audit noticed that out of a total of 616 new research projects proposed during 2017-22 by the University, only 193 research projects (31.33 per cent) were sanctioned by the project funding agencies. DST (GoI) and SERB, New Delhi sanctioned only 16.33 and 11.79 per cent of proposals respectively, whereas no project was sanctioned by UGC and BRNS during the period 2017-22, as shown in **Chart 1.14**.

Out of a total of 397 research projects (204 ongoing projects as on 01 April 2017 and 193 research projects sanctioned during 2017-22), 218 research projects (55 per cent) were completed during the period 2017-22.

1.4.1.1 Non-approval of research project proposals by funding agencies

Audit called for decision letters issued by the funding agencies to analyse the reasons for non-acceptance of research proposals. In the absence of any system to obtain the decision letters from the funding agencies in the University, Audit could get only 41 decision letters out of 423 unapproved projects. On detailed scrutiny of 41 decision letters of the funding agencies (as provided by the University), Audit observed the following:

- In 15 out of 41 cases, the funding agencies cited reasons for rejection as lack of novelty, absence of a basic scientific question, unimpressive publication record of Principal Investigators (PI), lack of clarity in methodology, etc. (**Appendix 1.5**).

- Nothing was found on record to show that the University devised any checklist to reduce such high rejection rate of proposals by the funding agencies.
- The University could not evolve any mechanism to ascertain/review the reasons for non-approval of research project proposals by the funding agencies so as to bring improvement in their future project proposals.

The University informed (October 2024) that it had circulated (June 2024) a standard operating procedure under which the research proposals submitted by the Principal Investigator through the Head of Department would be forwarded to the Project Evaluation and Review Committee by the Director of Research (DoR). The DoR would approve such proposals for final submission to the funding agency. Now the Research proposals were being considered (July 2024) by the Project Evaluation and Review Committee accordingly.

1.4.1.2 Review of research projects

On test-check of 104⁴⁷ research projects (26 per cent) (61 completed and 43 ongoing) out of total 397 research projects, it was found that database of research projects and the related files were not properly maintained/updated by the office of Director (Research). Some of the discrepancies noticed in maintenance of records of test-checked research projects are detailed in **Table 1.9**.

Table 1.9: Discrepancies in maintenance of records of test-checked research projects

Sr. No.	Particulars	No. of projects (percentage)
Completed projects		61
1.	Sanction letter not on record	3 (4.92)
2.	Final UCs not on record	16 (26.22)
3.	Completion Report not on record	34 (55.74)
4.	Approval of completion Report/Remarks, if any, not on record	54 (88.52)
5.	Outcome of the project/ research to Director Extension Education not on record	60 (98.36)
Ongoing projects		43
6.	Sanction letter not on record	5 (11.63)
7.	Progress reports not on record	23 (53.49)
8.	Periodical UCs not on record	13 (30.23)

Source: PAU records

The University intimated that completion reports were being uploaded/submitted by the concerned scientists directly to the funding agencies. This indicated that the University did not maintain any library of outcomes of

⁴⁷ Selected by adopting Systematic Sampling method.

research projects executed by its scientists. In the absence of such a system, there was nothing on record to suggest that the said results were being disseminated to the stakeholders viz. students, fellow scientists and farmers.

Director (Research) stated (October 2024) that the requisite instructions regarding maintenance of proper documentation of research projects submitted, approved, completed and the outcome of these projects by the scientists had been issued (February 2023) to the concerned departments.

1.4.1.3 Termination of the project due to “poor progress”

The Department of Science and Technology (DST), GoI (funding agency) sanctioned (November 2016) financial assistance of ₹ 16.78 lakh (revised to ₹ 19.78 lakh⁴⁸ in February 2018) for the project “Development of farmer-friendly Immunochromatographic Strips for the detection of potato virus” to be completed within a period of three years. The funding agency released (November 2016 and December 2018) an amount of ₹ 16.06 lakh for execution of the research project.

Audit observed that after completion of 75 *per cent* of the project work with an expenditure of ₹ 15.43 lakh, the Director (Research) requested (December 2018) the funding agency to transfer the project to another Principal Investigator (PI) as the present PI was leaving the country/job and thus, would not be able to continue the project. However, the funding agency, after reviewing the progress of the project, rated it as ‘Poor’ and recommended (May 2019) closure of the project. Accordingly, the project was closed and the unspent balance of ₹ 0.67 lakh (including interest) was refunded (November 2019) to the funding agency. It was noticed that the University was not monitoring the progress of the project periodically in accordance with the provisions under Statute of PAU. As per Statute of PAU (Clause 6 (a), Chapter IV), the Director Research office shall monitor and review the progress of different research schemes and provide coordination among the researchers in the college.

Thus, due to inadequate monitoring at the level of the University for successful completion of the research project, it lost the opportunity of research in the area of development of farmer friendly immunochromatographic strips for potato virus. Further, impact assessment due to non-achievement of objectives under this project was also not done by the University.

The University informed (October 2024) that Internal Project Monitoring and Implementation of External funded projects committee(s) of the concerned department had now been formed and were reviewing the externally funded projects.

⁴⁸ General component (₹ 15.25 lakh); Capital Assets (₹ 1.53 lakh); and Manpower (₹ three lakh).

1.4.1.4 Non-completion of the research project

The Department of Biotechnology, Ministry of Science and Technology, GoI sanctioned (December 2017) a Joint Research Project (DBT-INNOVATE, United Kingdom) “Development and Optimisation of Fresh Produce Supply Chain and Storage Systems” to be completed by the University within two years i.e. up to December 2019. The main objectives of the project were:

- end-to-end supply chain review;
- development of a low cost on-farm cold store and farm packaging system;
- improvement in the performance of high-volume cold storage systems etc.

The Indian component of this joint research project was sanctioned at a total cost of ₹ 200.86 lakh⁴⁹, which included the University’s share of ₹ 69.87 lakh. The details of receipt and expenditure under the research project in respect of PAU component are given in **Table 1.10**.

Table 1.10: Details of receipt and expenditure under the research project

(₹ in lakh)

Instalment	Year	Opening Balance	Funds received (Date of receipt)	Interest earned	Total available funds	Amount utilized	Closing Balance
1 st	2017-18	00.00	48.44 (08.12.2017)	0.13	48.57	4.22	44.35
	2018-19	44.35	-	1.19	45.54	10.20	35.34
2 nd	2019-20	35.34	12.02 (03.12.2019)	0.41	47.77	11.02	36.75
	2020-21	36.75	-	0.69	37.44	2.01	35.43*
Total			60.46	2.42	62.88	27.45	35.43

Source: PAU records

* Refunded to GoI in October/November 2022

Table 1.10 shows that against the sanctioned amount of ₹ 69.87 lakh, the University received ₹ 60.46 lakh between December 2017 and December 2019. However, the project could not be completed by the stipulated date and the University continued to incur expenditure till the year 2020-21.

Audit noticed that the first instalment of ₹ 48.44 lakh included ₹ 28.00 lakh meant for equipment⁵⁰. Though the University spent ₹ 27.45 lakh mainly on manpower, travel, contingency, etc., no expenditure was incurred on purchase of requisite equipment till March 2021. The reasons for non-procurement of the specified equipment viz. Spectrophotometer were attributed (February 2023) to lockdown due to COVID pandemic from March 2020 onwards and non-receipt

⁴⁹ Centre of Innovative and Applied Bioprocessing (CIAB) Mohali (₹ 44.80 lakh); PAU Ludhiana (₹ 69.87 lakh); and Sangha Innovation (P) Limited, Jalandhar (₹ 86.19 lakh).

⁵⁰ Purchase of Spectrophotometer (₹ eight lakh); and Restructuring of old cold rooms into CA Stores (₹ 20.00 lakh).

of quotations in respect of restructuring of old cold room into Controlled Atmosphere⁵¹ (CA) stores.

Subsequently, on being asked (May and December 2021) by the Department of Biotechnology, GoI to refund the unspent amount, the University, after spending 44 *per cent* (March 2021) of the total available funds i.e. ₹ 62.88 lakh (including interest), refunded (October and November 2022) the unspent funds of ₹ 35.43 lakh to GoI.

Thus, despite availability of funds since December 2017, the University could not procure the requisite equipment, etc., thereby resulting in non-completion of the research project and deprivation of benefits from the envisaged objectives of the project.

The Director of Research stated (October 2024) that care would be taken to avoid such lapses in future. project monitoring would be strengthened to monitor projects more closely.

1.4.1.5 Research Project on Menace of Pink Bollworm

The Pink Bollworm is an insect known for being a pest in cotton farming. They chew through the cotton lint to feed on the seeds. Since cotton is used for both fiber and seed oil, the damage is two-fold. Their disruption of the protective tissue around the boll is a portal of entry for other insects and fungi.

During the year 2015, severe damage to BG-II cotton by Pink Bollworm and resultant loss to its yield was observed in many regions of Gujarat and some parts of Andhra Pradesh, Maharashtra and Telangana.

In Punjab, the Pink Bollworm infestation on BG-II cotton was noticed in the year 2019 at two locations in Bathinda district. Further surveys carried out during the year 2020 revealed presence of Pink Bollworm in 31 villages of Bathinda district as well as Mansa district at the fag-end of 2020 crop season, and outbreak of this pest occurred again in these areas during 2021 crop season too. Low incidence of Pink Bollworm was also recorded in certain pockets of Sangrur, Sri Muktsar Sahib, Fazilka, Faridkot, Barnala and Moga districts in 2022 crop season.

The PAU submitted two projects⁵² to the funding agencies to combat the menace of Pink Bollworm in cotton crop. However, these projects were not approved by the funding agencies as detailed below:

- One of the projects (Developing CRISPR-Cas9 based genome editing system for Pink Bollworm) was not shortlisted by SERB (DST) with the

⁵¹ A controlled atmosphere is an agricultural storage method in which the concentrations of oxygen, carbon dioxide and nitrogen, as well as the temperature and humidity of a storage room are regulated.

⁵² (i) Elucidating the role of cry toxin receptors in imparting resistance to Pink Bollworm (Department of Biotechnology, GoI); and (ii) Developing CRISPR-Cas9 based genome editing system for pink bollworm (Science and Engineering Research Board under Department of Science and Technology, GoI).

remarks that the scientific rationale for the project was not presented convincingly with strong preliminary evidence. Thus, the project lacked focus and scientific merit.

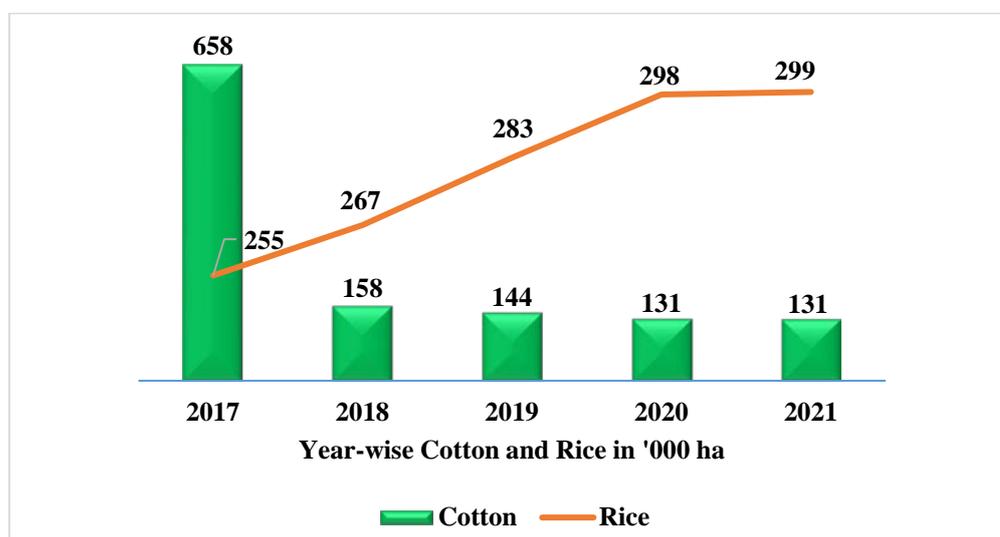
- No response in respect of the second project was received from Department of Biotechnology, GoI.

Subsequently, the University submitted (October 2021) a strategy to combat the menace to the Department of Agriculture and Farmers Welfare, Punjab and demanded a budget of ₹ 73.88 crore for the purpose. However, the information regarding approval of the proposal by the State Government was awaited (May 2023).

Thus, even after a span of more than three years of the outbreak of Pink Bollworm in Punjab during 2018-19, no research could be conducted to combat the menace of Pink Bollworm in cotton crop.

Further, the University in its report (October 2021) concluded that due to Pink Bollworm incidence losses were above 75 per cent in many cases in Bathinda and Mansa districts. Audit noticed that the cultivated area of cotton in Bathinda and Mansa districts reduced from 6.58 lakh hectares in 2017 to 1.31 lakh hectares in 2021, whereas the cultivated area of rice increased from 2.55 lakh hectares in 2017 to 2.99 lakh hectares in 2021, as shown in **Chart 1.15**.

Chart 1.15: Trend of cultivated area of cotton crop vis-a-vis rice crop in Bathinda and Mansa districts during 2017-21



Source: Statistical Abstract of Punjab State

In the exit conference, the VC stated (June 2023) that resistance of cotton to various insect-pests had gone down. However, the University was doing various extension activities to create awareness amongst the farmers. As regards reduction in cultivated area of cotton, he added that cotton was a risky crop and rice/wheat crops were much better placed than cotton, as per economies of agricultural crops.

The reply of the University was not in line with its vision document “Vision 2040” which resolved for remunerative cropping system of cotton-wheat/ mustard which would have helped in saving water as compared to the rice-wheat cropping system.

The University stated (October 2024) that they had submitted a strategy in October 2021 to combat the menace to State Government and demanded ₹ 73.88 crore, but no budget was sanctioned till date (October 2024). Further, the University, citing reference of meeting (September 2024) of Inter-State Consultative & Monitoring Committee on cotton, stated that during the current season the crop was in very good condition.

The reply was not acceptable as area under cotton in affected districts i.e. Bathinda and Mansa was reduced to 1.17 lakh hectares in 2023 and information of the area covered under cotton and yield of the crop (as claimed in the reply) in these districts was awaited.

1.4.1.6 Setting up Food Testing Laboratory

ICAR approved (October 2015) a Grant-in-Aid of ₹ 131.00⁵³ lakh for setting up a Food Testing Laboratory (FTL) at RS, Bathinda, of which the Ministry of Food Processing Industries (MFPI) share (₹ 101.10 lakh) was to be released by ICAR in three instalments⁵⁴. Besides, emoluments at the rate of 80 per cent for two technical staff for two years were to be released as fourth and final instalment after meeting all requisites⁵⁵. The FTL was to be set up within two years from the date of release of the first instalment. Further, as per the guidelines, NABL⁵⁶ accreditation was required to be obtained after setting up of FTL.

Audit noticed that ICAR released the first instalment of ₹ 40.44 lakh in December 2016 for setting up the FTL at RS, Bathinda. The second instalment of ₹ 40.44 lakh was to be received after utilisation of the first instalment. However, PAU could utilise only ₹ 38.20 lakh (out of ₹ 40.44 lakh) till December 2019, leaving a balance of ₹ 2.24 lakh. Subsequently, ICAR released (January 2020) second instalment of ₹ 37.24 lakh (out of ₹ 40.44 lakh), of which ₹ 36.56 lakh was utilised for the purpose during 2020-21. Thus, the University could not set up the FTL within the stipulated period of two years (24 months) from receipt of the first instalment (December 2016). It took 46 months (i.e. December 2016 to October 2020) to purchase and install

⁵³ Ministry of Food Processing Industries (MoFPI), GoI contribution: ₹ 101.10 lakh and PAU's contribution: ₹ 29.90 lakh.

⁵⁴ 1st installment of 40 per cent of the total grant would be released after receiving requisite documents/confirmations; and 2nd installment of 40 per cent and 3rd of 20 per cent of the total grant would be released only after ensuring full utilisation of 1st/2nd installment of grant towards purchase of lab equipment, expenditure on Technical Civil Works and fixing of Furniture & Fixtures for housing the equipment, as the case may be.

⁵⁵ Procurement and installation of PAC approved equipment and submission of utilisation certificate for 3rd instalment along with the status of NABL accreditation.

⁵⁶ National Accreditation Board for Testing and Calibration Laboratory.

equipment and furniture & fixture, with an expenditure of ₹ 74.76 lakh⁵⁷ (out of ₹ 77.68 lakh).

Further, request (January 2022) of the University for release of third instalment (20 *per cent* of the total grant) was turned down (March 2022) by ICAR citing immense delay in implementation of the project and consequently closed the project. The University had to refund the unspent amount of ₹ 2.92 lakh to ICAR.

Thus, due to non-adherence of the timeline for setting up of FTL, funds towards third instalment (₹ 9.60 lakh) were not released. Had the University completed its setting up in time, it could have claimed reimbursement of 80 *per cent* of salary for two technical staff as well. Further, the University did not obtain the requisite NABL accreditation and was running the FTL partially from April 2021 without NABL accreditation thereby failing to establish a fully functional surveillance system for monitoring the quality and composition of food, etc.

In the exit conference, the University stated (June 2023) that NABL accreditation would be obtained at the earliest and FTL would be made fully functional.

The University stated (October 2024) that the FTL was fully functional now and NABL accreditation of the lab was in progress.

The reply was not acceptable as FTL was functioning without NABL accreditation, contrary to the assurance given in the exit conference.

1.4.2 Intellectual Property Management

India, as a member of the World Trade Organisation (WTO), is obliged to comply with the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement), which requires member countries to provide for the protection of Intellectual Property Rights (IPR) in one form or the other, in all fields of technology including agriculture. IPRs, among other things include patents, protection of plant varieties and Geographical Indication (GI) of goods.

Audit observed that:

- The Technology Marketing and Intellectual Property Rights (TMIPR Cell, formed (2006) by the University, did not have any dedicated full-time staff. Against two sanctioned posts for the Cell, the Associate Director of Research was holding additional charge of the Cell and a scientist from the Department of Plant Breeding and Genetics was assigned additional duty of the Cell. Non-availability of dedicated staff impacted the protection/registration of intellectual property rights and commercialisation of technologies and varieties developed by the

⁵⁷ Equipment (₹ 72.26 lakh out of ₹ 89.00 lakh meant for the purpose); and Furniture & Fixtures (₹ 2.50 lakh).

University, as discussed in the succeeding paragraphs. The University assured (January 2023) to post full-time staff in the Cell as per requirement.

- PAU prepared its IPR Policy in February 2007. The Policy, however, did not incorporate detailed guidelines regarding management of patents and plant varieties protection, commercialisation of intellectual properties, joint ownership of intellectual properties, etc. in the line with the guidelines issued by ICAR. The University assured (January 2023) to revise the policy guidelines as per requirement.
- No Standard Operating Procedure (SOP) prescribing various timelines for registration, transfer of technologies/plant varieties and mechanism for their valuation for determination of licence fee was framed by the University.
- There was no system of periodic reporting of the technologies/plant varieties developed, patented or registered (yet to be commercialised) to the VC and BoM so as to ensure timely dissemination of the benefits of these technologies/plant varieties to the end users. Thus, the role of the Cell in commercialisation was limited and ineffective.

The University stated (October 2024) that Technology and Marketing & IPR Cell had started preparing a database for various technologies approved by Research Evaluation Committee (REC). All the technologies, approved by REC from 25 July 2023 to till date, for commercialisation had been entered into the database.

However, the University remained silent on SOP and system of periodic reporting.

1.4.2.1 Protection of Intellectual Properties

ICAR Guidelines prescribe that all research results which are patentable under law should be taken up for patent protection. The developed technologies need to be protected against unauthorised use/exploitation by other agencies within and outside the country for commercial gains.

(i) Patent of technologies under Patents Act, 1970

Research results in any field of technology are patentable under the Patents Act, 1970, subject to the conditions/provisions contained therein. The Patents Act defines "inventive step" as a feature of invention⁵⁸. If the Controller of Patents is satisfied that patent application or specification did not comply with the provisions of the Act, the same can be refused.

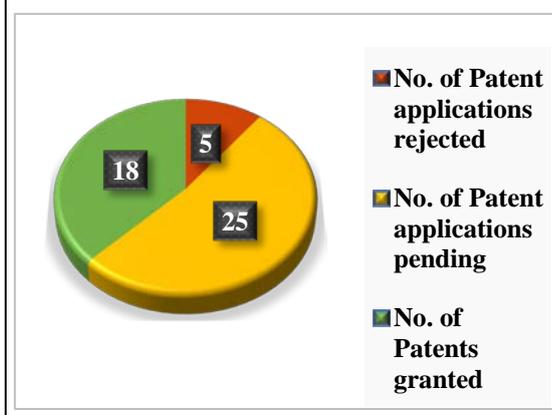
On detailed scrutiny by Audit, it was observed that:

⁵⁸ Involving technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.

➤ PAU could not provide any consolidated database of the inventions/technologies developed by its various departments.

➤ Chart 1.16 indicates that the University applied (2006-22) for registration of 48 technologies under the Patents Act, of which 18 technologies⁵⁹ were granted patent rights as of November 2022 (**Appendix 1.6**), five applications were rejected and 25 technologies were lying pending.

Chart 1.16: Status of 48 technologies applied for registration under the Patents Act, 1970



➤ Five patent applications filed (May 2008-March 2015) by PAU were refused (September 2016 to June 2020) by the Controller of Patents under Section 15 of the Act, on the following reasons:

- Alleged invention lacked inventive step;
- The application did not qualify the provisions of Patent Act, 1970;
- Mere discovery of any new property or new use for a known substance and mere use of known process could not be treated patentable invention;
- It was not a patentable subject matter; and
- In case of patent application for production of probiotic fruit juices, reply was not filed by PAU to the Controller General of Patents, Design and Trade Marks, hence, patent was not granted in this case.

➤ As many as 25 patent applications (May 2013-July 2022) of PAU were pending with Controller General of Patents, GoI as of November 2022, as detailed in **Appendix 1.7**. Of these:

- Seven pending applications pertained to the period prior to the year 2017 i.e. more than five years old.
- As many as 13 applications were under amended examination⁶⁰. Five of these applications under amended examination were more than five years old.

⁵⁹ Include patent rights in respect of four collaborative developed technologies which were granted in the name of ICAR, as discussed in *paragraph 1.4.2.2*.

⁶⁰ When an examination is made for a patent application, the patent examiner issues FER (First Examination Report) citing the defects in the application including claims; and to address all the deficiencies identified in patent application by the examiner, the applicant amends patent claims through an amendment.

- In one case (Sr. No. 13 of **Appendix 1.7**), reply was not submitted and in three cases (Sr. Nos. 18, 19 & 20 of **Appendix 1.7**) request for examination⁶¹ was not submitted.
- Rest five applications were filed between April 2021 and July 2022 and were under “application not yet published” status.

It was further noticed that no request was made by the University for the expeditious examination⁶² of the patent application as per Rule 24C of the Patent Rules.

The VC assured (June 2023) to constitute a strong screening committee for patent applications. The University further intimated (October 2024) that Intellectual Property Assessment committee (IPAC) had been formed. IPAC was constituted by including various Heads of the Departments and senior level experts from various departments of the University as per the subject matter of the patent proposal. However, the University had not given any specific reply to the rejection of patent applications and follow-up of pending applications.

(ii) Registration of plant varieties under ‘The Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act, 2001’

Under the Patents Act, plant varieties cannot be patented in India, rather these can be protected by registering them under ‘The Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act, 2001’. Section 28 of the PPV&FR Act provides that a certificate of registration for a variety issued under this Act shall confer an exclusive right on the breeder or his successor, his agent or licensee, to produce, sell, market, distribute, import or export the variety. Section 64 of the Act provides that if a person sells, exports, imports or produces a registered variety without permission of the breeder, it is considered as an infringement of the law.

Audit observed that:

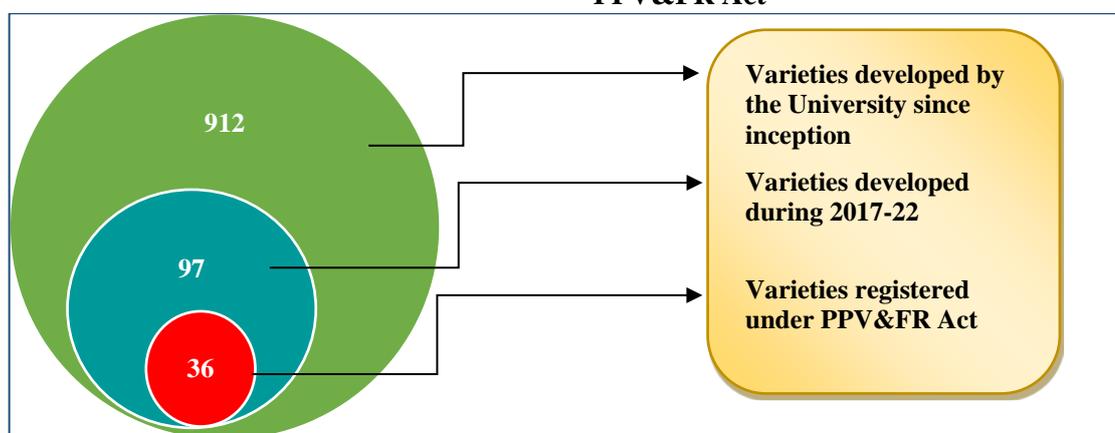
- There was a data mismatch between University and PPV&FR website. It was intimated to Audit by the IPR cell that since its inception in 1962 to March 2022, PAU has developed 912 varieties of various crops (including 97 varieties developed during 2017-22), out of which only 118 varieties were applied for registration under the PPV&FR Act and only 55 varieties were registered under the PPV&FR Act up to

⁶¹ An application for the grant of a patent is taken up for examination by the Indian Patent Office only when a request for examination of the application is filed. Unless a request for examination is filed by either *the Applicant or any other interested party* there shall be no examination of a patent application. The time for filing a request for examination shall be 48 months from the date of priority of the application or from the date of filing of the application, whichever comes earlier.

⁶² As per Rule 24C of the Patent Rules as amended in 2019, a request for expedited examination can be filed with the prescribed fees in Form 18A along with the fee within the period prescribed in Rule 24B on the ground that the *applicant* is an institute established by a Central, Provincial or State Act, which is owned or controlled by the Government.

31 March 2022. It was also intimated that out of 97 varieties developed during 2017-22, only two varieties were proposed for registration under PPV&FR Act (detailed in **Chart 1.17**). Audit, however, noticed from the official website of Protection of Plant Varieties and Farmers' Rights Authority, Ministry of Agriculture and Farmers Welfare that only 36 varieties were registered in the name of the University under the PPV&FR Act up to October 2022 (**Appendix 1.8**). Thus, the figures of varieties registered under PPV&FR Act provided by IPR cell did not match with the figures available with official website of PPV&FR Authority.

Chart 1.17: Details of the plant varieties developed and registered under PPV&FR Act



Source: Information provided by PAU and Website of PPV&FR

- Audit further noticed that certain seed varieties developed by PAU were available for online sale by various private vendors. A review of the website of one private vendor⁶³ revealed that seeds of popular paddy varieties of PAU viz. PR-122, PR-123, PR-124, PR-126 and PR-127 were available for sale by the private vendor. The seeds of PAU's most popular paddy variety i.e. PR-126 were available for online sale by four⁶⁴ other vendors. Had these varieties been got registered under the PPV&FR Act, the University could have taken suitable legal action against the vendors selling these varieties in the open market, in accordance with Sections 64 and 65 of the Act *ibid*.

Thus, the University was not only suffering financial loss but brand value of its developed varieties also got impacted, as the private vendors selling the products may not have the requisite quality as that of PAU.

The University stated (October 2024) that registering agricultural technologies and varieties under the Patents Act or PPV&FR Act was very costly and a lengthy (4-5 years) affair and by that time better varieties become available.

⁶³ M/s. Brar Seed Store.

⁶⁴ (i) M/s Yamuna Seeds; (ii) M/s MK Natural Grain EXIM; (iii) M/s Shakti Vardhak Hybrid Seeds Private Limited; and (iv) M/s. Mahaluxmi Seeds (available on Amazon).

The reply was not acceptable as additional revenue could be generated by commercialising these technologies and varieties. Further, IPR policy of PAU provided for registration of varieties under PPV&FR Act. Moreover, even after release of new improved varieties, the old varieties⁶⁵ did not become redundant and remained part of the publication of PAU 'Package of Practice for Crops of Punjab' and Seed Production Programme of the University.

(iii) Geographical Indication of Goods

The protection of agricultural goods indicated to specific geographical territories/regions is governed by the Geographical Indication (GI) of Goods Act, 1999. Clause 3.6 of the IPR policy of the University provides that it will file registration for GI if a plant variety or other goods were developed and owned by the University.

Audit observed that the University developed several varieties like Punjab Kheera-1, Punjab Tinda-1, Punjab Swarna, Punjab Raunak, Punjab Safeda, Punjab Apple-Guava, Punjab Kiran, Punjab Shingar, Punjab Mohini, Punjab Haldi, Punjabi Mixed Tadka, etc. However, these varieties were not registered under GI of Goods Act.

It was noticed that Kerala Agricultural University (KAU) obtained GI registration for Pokkali rice, Vazhakkulam Pineapple, Wayanad Jeerakasala Rice and Wayanad Gandhakasala Rice. Assam Agricultural University obtained GI registration of Joha Rice. Himachal Pradesh Agricultural University also applied for GI registration of Japonica Red Rice.

The University stated (October 2024) that they were pursuing with the Geographical Indications Registry, Intellectual Property office, GOI the application for Potato Seed (grown in Doaba Region of Punjab). The University further stated that it intended to identify more such products in future.

The University, however, remained silent regarding non-registration of already developed varieties under the Act *ibid*.

1.4.2.2 IPR developed in Collaborative research registered in the name of ICAR only

As per clause 2.2.1.1 of the IPR Policy (February 2007), in case of collaborative research, Intellectual Property generated by PAU under collaborative/sponsored research projects will be jointly owned by PAU and its collaborators/partners. The umbrella Memorandum of Understanding (MoU) entered into (December 2015) between PAU and ICAR provides that techniques, technologies, material etc. developed by PAU and ICAR would be joint property of both the agencies' provided claims/formalities are filed by PAU.

⁶⁵ Paddy varieties like PR-113 (1998) and PR-114 (1999) were part of Package of Practice for Crops of Punjab (Kharif 2021) and Seed Production Programme for 2021.

Audit observed that:

- Out of 18 patents, as discussed in Paragraph 1.4.2.1(i), in four cases having collaborative research of PAU and ICAR, the patent certificates were granted in the name of ICAR only, as detailed in **Table 1.11**. It was noticed that the Intellectual Property claims of these technologies were filed by ICAR and not by PAU.

Table 1.11: Details of collaborative developed technologies (PAU and ICAR) registered in the name of ICAR

Sr. No.	Name of the technology	Date of grant of patent
1.	Beneficiation of phosphate rock for segregation of phosphorous containing heavy metal free minerals	19 September 2018
2.	Nanofabrication of phosphorous on kaolin mineral receptacles	24 July 2019
3.	Zinc in clay-mineral receptacles in Nanoforms for their use as advance mineral including novel fertiliser	26 December 2020
4.	Nanofabrication process involving clay minerals as receptacles for manufacturing advance Nanomaterials including novel fertiliser (Process)	21 July 2021

Source: Information provided by PAU

- In addition to 36 plant varieties registered in the name of PAU, as discussed in **paragraph 1.4.2.1 (ii)**, 34 varieties were registered in the name of ICAR though these varieties were developed under collaborative research of PAU and ICAR (**Appendix 1.9**).

PAU could not provide any justification as to how the ICAR could get sole registration in violation of the joint registration as agreed to between ICAR and PAU. In the absence of documentation, Audit was not able to ascertain whether PAU had made adequate efforts to include its name as joint owner of these technologies and varieties, thereby losing the opportunity of benefit sharing, as ICAR was the sole IPR holder of these properties developed by PAU.

The VC assured (June 2023) that joint ownership registration would be taken care of in case of collaborative projects. Further, the University intimated (October 2024) that no instance of filing of IP under collaborative work with ICAR had come up since June 2023. The University further assured the filing of joint IP ownership, in case of such future instances.

1.4.2.3 Commercialisation of Intellectual Properties

As per ICAR guidelines (2006 and 2018), commercialisation means the transfer of IPR-enabled technologies or other know-how through licensing under the terms and conditions specified in the licence agreement entered into for the purpose or through auction or sale. As per Paragraph 9.5 of ICAR guidelines,

the licence fee, royalty and/or sale price of breeder seed shall be determined⁶⁶ either on a fixed basis, through negotiations with the licensee, or through an open bidding process, as appropriate.

Audit noticed the following inconsistencies in the commercialisation of Intellectual Properties (technologies and plant varieties) developed by PAU:

(i) Commercialisation of intellectual properties on ad-hoc basis

Audit observed that:

- The PAU entered into (2017-22) 261 Memoranda of Agreement (MoA) in respect of its 53 Intellectual Properties (36 technologies and 17 plant varieties) developed, and received one-time licence fee ranging from ₹ 10,000 to ₹ 5,00,000 per MoA from different companies/firms/individuals, which was determined on *ad-hoc* basis without any standardised process.
- There was no provision for collection of royalty based on number of items sold although other State Agricultural Universities (SAUs) like Junagarh Agricultural University and Tamil Nadu Agricultural University provided for receipt of royalty for technology transfers. The Govind Ballabh Pant University of Agriculture & Technology (GBPUAT), Pantnagar (Uttarakhand) adopted the process of bidding for transfer of patented technologies.

In the absence of provisions regarding collection of royalty in MoA, the University not only suffered financial loss but also could not ascertain the quantum of sale of its technologies/plant varieties to ensure their reach to the farmers/end users.

The University assured (October 2024) to include royalty clause in MoAs on case-to-case basis to ensure that the buyers are bound by the royalty terms specified in MoA.

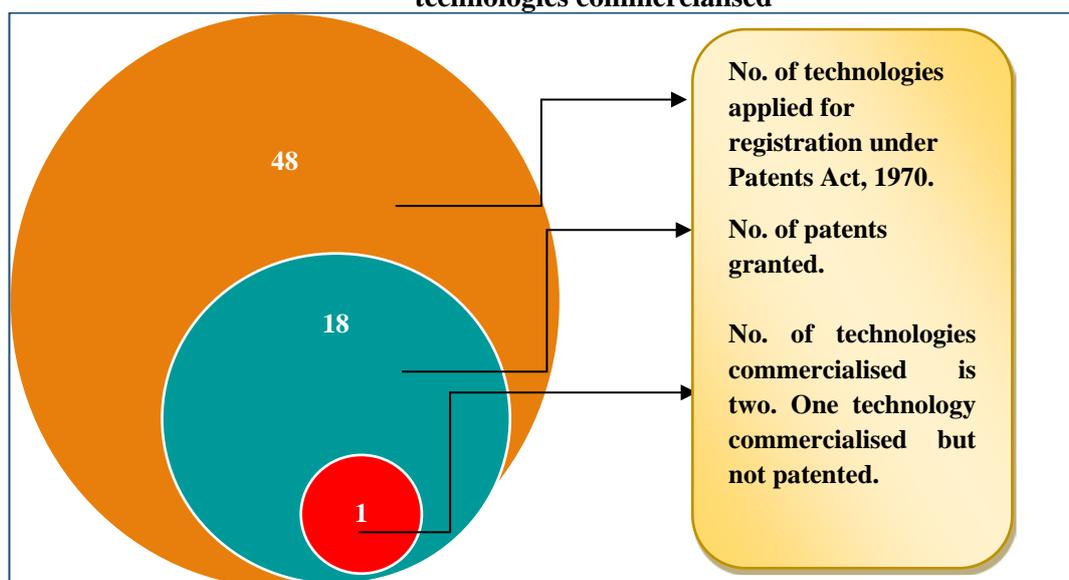
(ii) Non-commercialisation of patented technologies

The PAU did not maintain any consolidated database of the technologies developed by its various departments. The University applied for 48 technologies and was granted 18 patents (including four patents granted in the name of ICAR) under the Patents Act. However, only two⁶⁷ out of 48 technologies were commercialised as of August 2022 (**Chart 1.18**).

⁶⁶ Expert opinion and judgment together with the cost of seeking and maintaining the plant variety, cost of production, handling and supply of breeder seed and other institutional costs to be considered to fix the price/licence fee.

⁶⁷ (i) Straw Cutter cum Spreader (published but not patented) commercialised on 25 June 2018; and (ii) Electric Soil Disinfectant (patented) commercialised on 18 August 2022.

Chart 1.18: Details of technologies applied for patents, patents granted and technologies commercialised



Source: Information provided by PAU

No efforts were made to commercialise the remaining 36 technologies⁶⁸ by TMIPR Cell of PAU. Resultantly, these technologies could not be transferred from lab to land even after patenting/publishing.

During test-check of records, Audit noticed that some of the technologies which were developed by the University had neither been patented nor were commercialised (as of March 2022) even after a lapse of 4-17 years, as detailed in **Table 1.12** as an illustration.

Table 1.12: Details of some technologies developed by PAU but not commercialised

Sr. No.	Name of the technology	Year of development	Features of technology
1.	Radial honey extractor	2005	The machine extracts honey from combs using centrifugal force. It is easy to operate, saves time and maintain hygiene.
2.	Honey wax uncapping knife	2009	The machine facilitates fatigue-less operation and results in more number of frames to be uncapped in less time and can replace the prevalent practice of uncapping with non-scientific and unhygienic conventional knives.
3.	Red Wine	2016	It is a technology for preparation of red wine from Punjab Macs Purple Cultivar of Grapes.
4.	Pectin extraction plant	2018	The machine is suitable for Kinnow/Musambi peel. It is easy to operate, saves time and maintain hygiene.

Source: Concerned Departments of PAU

⁶⁸ Patented technologies (17); and Published technologies but not patented (19). As per Section 11A of the Patents Act, 1970, the applicant shall have privileges as if patent was granted on the date of publication of application.

(iii) Non-commercialisation of developed plant varieties

PAU developed 97 varieties of various crops during 2017-22 (as detailed in **Appendix 1.10**). Of these, only seven varieties were commercialised by entering into MoAs with private parties. Besides, 10 varieties⁶⁹ which were developed prior to the audit period had also been commercialised. (**Appendix 1.11**). No action was taken to commercialise the remaining 90 crop varieties.

PAU though carried out seed production of only 52 out of 90 varieties in its seed farms, 38 varieties could not be transferred from lab to land. PAU could not furnish any reason for the non-commercialisation of these plant varieties.

The University stated (October 2024) that now it was actively commercialising its technologies. University also added that post June 2023, two patents and 10 technologies / varieties had been commercialised for the first time. However, Audit could not verify the same as the University declined to share MoAs on account of confidentiality clause.

1.4.3 Seed Production

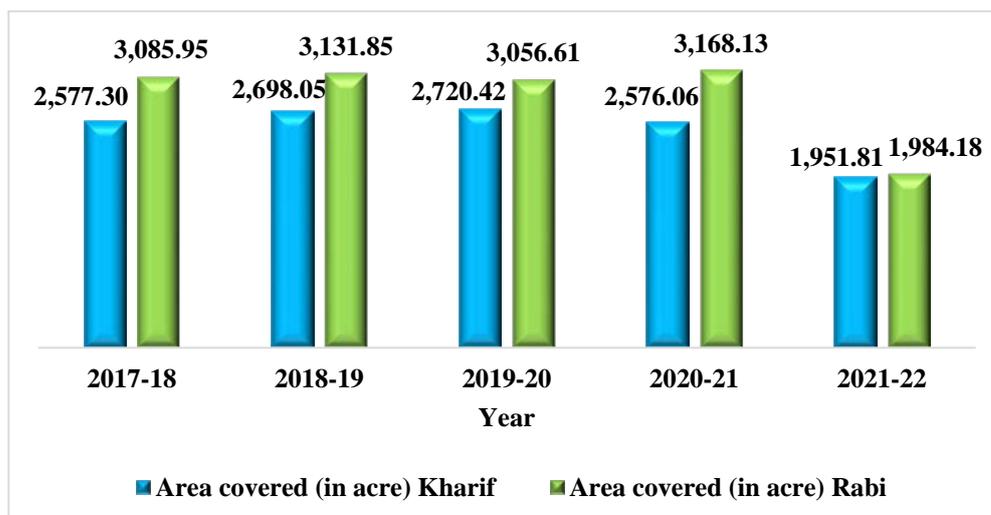
1.4.3.1 Decrease in cultivable area and seed production

(i) Kharif and Rabi crops seeds

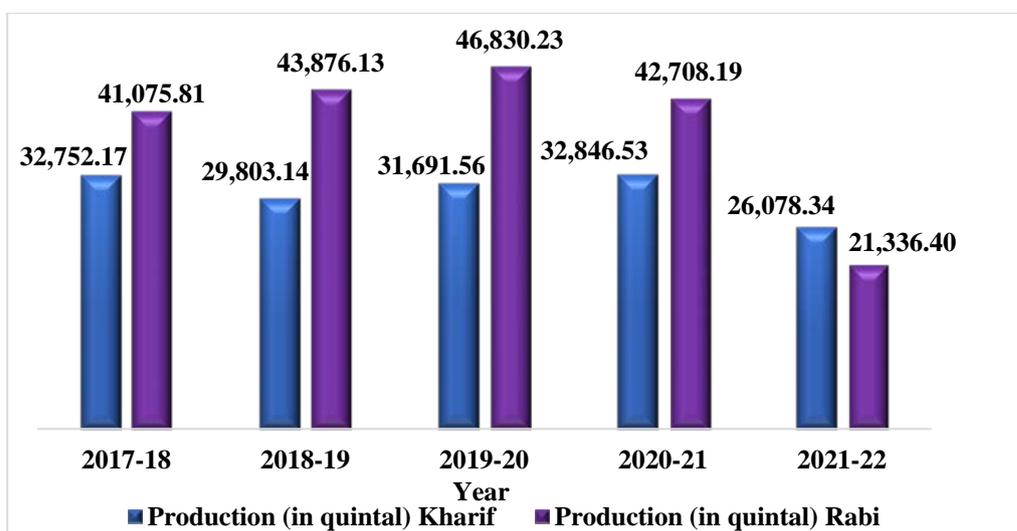
PAU has its own seed production programme of field crops⁷⁰ for rabi and kharif. Whenever a new variety is recommended by Research Evaluation Committee (REC) for Adaptive Research Trails, the seed production of that variety is undertaken at University Seed Farms so that at the time of release of the variety, sufficient seed is available to distribute to the farmers of the State. After release of the variety, seed production is undertaken as per the demand for seed of a particular variety. The details of area covered and seed production during the period 2017-22 are shown in **Chart 1.19** and **Chart 1.20** respectively.

⁶⁹ Sr. Nos. 37 to 42, 44, 45, 51 and 53 of Appendix 1.11.

⁷⁰ Rabi Crops: Wheat, Barseem, Oats, Barley, Sunflower, African sarson, Gram, etc.; and Kharif Crops: Paddy, Basmati, Maize, Cotton, Moong, Arhar, Mash, etc.

Chart 1.19: Details of seed production area of PAU during the period 2017-22

Source: Concerned Department of PAU

Chart 1.20: Details of seed production during the period 2017-22

Source: Concerned Department of PAU

Chart 1.19 shows that there was reduction of 24.23 and 37.37 per cent in cultivable area of Kharif and Rabi respectively. Resultantly, the production of Kharif and Rabi seeds reduced by 20.61 and 50.04 per cent during the year 2021-22 when compared with previous year (**Chart 1.20**). The reasons for reduction were attributed to non-renewal of lease of 1,220 acre of land at Raja Harinder Singh Seed Farm (RHSSF), Faridkot due to a litigation⁷¹ between the lessor and the owner of the land. The University replied (October 2024) that it had stopped cultivation at RHSSF, Faridkot after termination of lease agreement in April 2021 and as a result, quantity of seed production decreased. However, the land remained in possession of PAU. PAU had again started cultivation at RHSSF, Faridkot during Kharif 2023. It was further stated that

⁷¹ Litigation of 1,220 acre of land between Maharawal Khewaji Trust (with whom the lease was to be executed) and descendants of the Royal Family (to whom the land pertained).

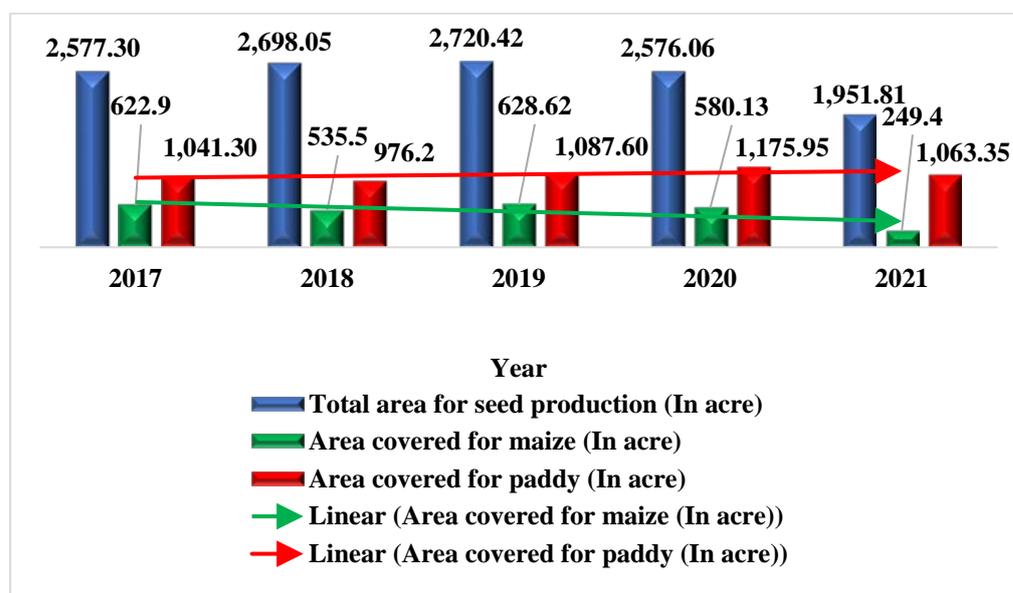
seed production at RHSSF, Faridkot was undertaken on 711.50 acres and 999.50 area was brought under seed production during Rabi 2023-24.

(ii) **Maize seeds**

Punjab is facing problem of depletion of groundwater level⁷². In order to save groundwater, PAU through its vision document “Vision 2040” resolved to promote alternative crops having less water requirement like pulses, maize, oilseeds, fruits, vegetables etc.

The seed production programme of the University witnessed no substantial improvement in maize production even after incurring expenditure of ₹ 12.54 crore on various maize schemes during 2017-22. The details of area covered for seed production of maize and paddy by PAU during 2017-22 are given in **Chart 1.21**.

Chart 1.21: Area covered for seed production in respect of Maize and Paddy by PAU during the year 2017-21 (Kharif)



Source: Concerned Department of PAU

Chart 1.21 shows that the maize area to total area reduced from 24.17 per cent in the year 2017 to 12.78 per cent in the year 2021.

The University attributed the reasons for a sharp reduction in the maize area to the expiry of the lease of 1,220 acres of land at RHSSF, Faridkot. The reply was not acceptable as the area under maize to total area was reduced to 22.52 per cent in the year 2020 too.

It was further noticed that only two⁷³ of the selected six KVKs had conducted frontline demonstrations on maize crops, though many new varieties of the crop were released by PAU and despite it recognising the huge demand for maize in

⁷² Average Maximum Ground Water Level depleted from 25.28 meter to 32.88 meter in a span of 10 years (October 2011-October 2021).

⁷³ (i) Langroya (SBS Nagar); and (ii) Nurmahal (Jalandhar).

the industry. Thus, on one side, the University recognised a huge demand for maize in the industry whereas, on the other side, frontline demonstrations were not conducted in all the KVKs.

This shows that adequate efforts to increase the area of maize were lacking, which was not in line with the diversification and water-saving resolution as per the vision document of the University. Even the National Seminar on ‘Maize for crop diversification under changing climate scenario’ held in 2020 also stressed addressing the issue of declining water table through diversification of rice with maize.

In the exit conference, the VC stated (June 2023) that the University had received back the said piece of land at RHSSF, Faridkot and they had started growing seeds from the current season (Kharif 2023). It was added that the University was trying its best to promote maize in Punjab.

The University stated (October 2024) that PAU again started cultivation at RHSSF Faridkot during Kharif 2023 as land remained in possession of the University. Further, during Kharif 2023, a 421.30 acre area was under seed production of maize, and total seed production of maize was 1026 quintal releasing in substantial increase in seed production in maize. Reply did not address the issue of reduction of maize during 2017-21 despite incurring expenditure of ₹ 12.54 crore on various maize schemes.

1.4.3.2 Poor performance of Bt cotton varieties

The “PAU Bt-1 (April 2017), Bt-2 (December 2021) and Bt-3 (October 2020)” are the cotton varieties developed by the University for commercial cultivation in Punjab. The details of production and sale of various varieties of PAU Bt Cotton during 2017-22 are given in **Table 1.13**.

Table 1.13: Details of production and sale of various varieties of PAU Bt Cotton during 2017-22

Year	Station	PAU Bt Cotton variety	Planned area (in acre)	Actual area (in acre)	Yield (in quintal)	Sale as seed (in quintal)	Sale as produce (in quintal)
2017	RS Bathinda	Bt1	20.0	20.0	65.10	25.31	39.79
2018	RS Bathinda	Bt1	-	30.0	131.76	-	131.76
	USF Faridkot		10.0	164.0	797.0	-	797.0
2019	RS Bathinda	Bt1	5.0	4.0	20.60	-	20.60
	USF Faridkot		50.0	54.0	199.29	-	199.29
2020	USF Faridkot	Bt1	10.0	20.0	47.22	-	47.22
		Bt3	-	3.0	6.5	-	6.5
2021	RS Bathinda	Bt2	5	5.0	7.30	-	7.30
	USF Faridkot	Bt3	10.0	-	-	-	-
2022	RS Bathinda	Bt1	0.5	-	-	<i>Seeds to be sold during Kharif 2023</i>	
		Bt2	6.0	5.0	7.35		
		Bt3	-	2.0	3.50		
	RS Abohar	Bt3	5.0	4.0	4.12		
Total			121.5	311.0	1,289.74	25.31	1,249.46

Source: Information provided by PAU

Table 1.13 shows that:

- Against the yield of 1,274.77 quintals (excluding yield of 14.97 quintals in the year 2022) of the graded seed of Bt cotton, only 25.31 quintals i.e. two *per cent* (Bt1 cotton in the year 2017) was sold as seed and the remaining 1,249.46 quintal was sold as produce during the period 2017-21.

The University attributed (December 2022) the reasons for this to less demand for PAU varieties in comparison to the varieties developed by major private producers owning Bollguard-II technology in the market. The University, however, could not justify the reasons for continued production of PAU cotton varieties having less demand and also for not exploring the development of improved cotton varieties.

- The entire yield of Bt2 and Bt3 cotton, though produced in small quantity, was sold as produce during the years 2020 and 2021.

This not only shows poor planning on the part of PAU but also indicates that its efforts were not in line with its seed production programme to provide adequate seed to the farmers of the State.

A review of records related to research and Adaptive Research Trials from 2018-19 to 2021-22 revealed that average seed cotton yield of PAU Bt1 was 7.6 quintals per acre. However, average seed cotton yield of PAU Bt1 was mentioned as 11.2 quintals per acre in the Package of Practices for Crops of Punjab Kharif 2022 (a book published by PAU for awareness of farmers), thereby disseminating incorrect information to the farmers. Although the production of PAU Bt1 was stopped under University Seed Programme after 2020 yet PAU Bt1 variety was kept in the Package of Practices for Crops of Punjab Kharif for the years 2021 and 2022.

The University stated (October 2024) that the Research Evaluation Committee of PAU had approved the proposal (February 2023) for deletion of PAU Bt1 cotton from Package of Practices for Crops of Punjab 2023.

1.4.3.3 Loss due to sale of graded seed as produce

PAU has its own seed production programme (for the University seed farms, KVKs and RSs) of field crops for Kharif and Rabi for each crop year, wherein, the demand of each variety is discussed in detail (on the basis of feedback from farmers obtained through *kisan melas* and committee members of seed production programme) to finalise seed production. They also fix seed sale rates of field crops for Kharif and Rabi sowing seasons. The Report of the Comptroller and Auditor General of India (Civil) for the year ended 31 March 2006 - Government of Punjab (*paragraph 3.2.11*) had highlighted losses due to sale of seeds as grains.

Audit noticed that the University not only suffered a loss of ₹ 7.26 crore due to sale of graded seed as produce in respect of Kharif and Rabi crops during the period 2017-21, as detailed in **Table 1.14**, but also faced a potential impact on the brand value of PAU seeds.

Table 1.14: Sale of graded seeds as produce in respect of Kharif and Rabi crops during the period 2017-22

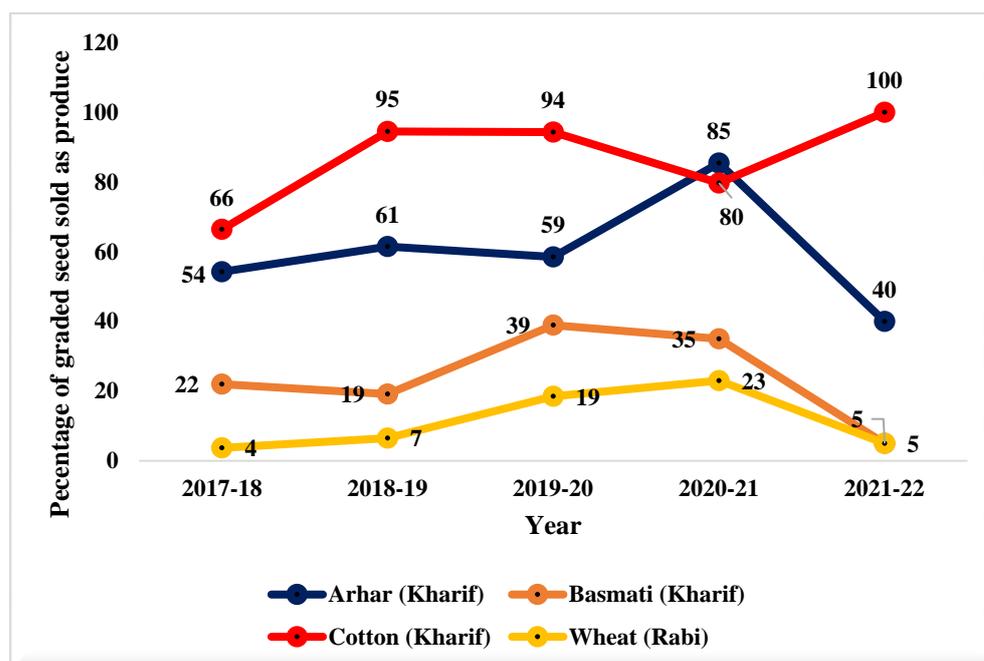
Crop Season	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Kharif	Graded Seed Production (in quintal)	25,720.08	21,719.72	23,433.85	25,330.09	20,033.87	1,16,237.61
	Sale as Seed (in quintal)	21,436.20	19,238.48	20,934.95	23,197.63	18,968.11	1,03,775.37
	Sale as produce (in quintal)#	4,283.88	2,481.24	2,498.90	2,132.46	1,065.76	12,462.24
	Loss due to sale of yield as produce (₹ in crore) (A)	1.00	0.73	0.98	1.06	0.31	4.08
Rabi	Graded Seed Production (in quintal)	34,220.55	35,880.71	38,328.12	35,677.54	16,140.33	1,60,247.25
	Sale as Seed (in quintal)	32,760.98	33,291.77	31,051.84	27,502.64	15,212.49	1,39,819.72
	Sale as produce (in quintal)#	1,459.58	2,588.94	7,276.28	8,174.90	927.84	20,427.54
	Loss due to sale of yield as produce (₹ in crore) (B)	0.33	0.34	1.02	1.30	0.19	3.18
Total Loss (A+B) (₹ in crore)		1.33	1.07	2.00	2.36	0.50	7.26

Source: PAU records

#The rates of sales of graded seed as produce were considered on average basis.

The trend of sale of graded seed as produce in respect of major Kharif and Rabi crops is depicted in **Chart 1.22**.

Chart 1.22: Trend of sale of graded seeds as produce in respect of major Kharif and Rabi crops during the period 2017-22



Source: Information provided by PAU

The mandate of PAU is to provide different varieties of seeds (not produce) to farmers. The demand of seeds is anticipated by PAU in the seed production programme and by holding *Kisan Melas* for farmers, wherein, the feedback of farmers was taken for the purpose. The University should have prepared realistic estimates in respect of seeds having less demand to avoid sale of its graded seed as produce to avoid loss.

In the exit conference, the University attributed (June 2023) the reasons for the loss due to sale of graded seed as produce to diversification of crops as these crops were not popular amongst the farmers. The VC further stressed upon the realistic estimates of seed production.

The reply was not acceptable as the major constituent of the loss was attributable to key crops *viz.* wheat, cotton, Basmati and Arhar, seeds of which were sold as produce (as depicted in **Chart 1.22**). Moreover, PAU Bt1 (cotton) variety was kept in the seed production programme despite its graded seed being sold as produce.

The University replied (October 2024) that varieties of various crops developed by PAU were resistant to major diseases but with passage of time, a variety might become susceptible to new races of a pathogen. In such a situation, cultivation of a single variety in large area of the state might result in epidemic. To avoid this, different varieties needed to be grown and therefore, PAU was producing seed of various varieties of a crop. This may also sometimes result in unsold seed of a few varieties. Precise estimation of seed requirement for particular variety to be sold in next year was very difficult as the demand for seed was governed by many factors like biotic and abiotic stresses, market preference and availability of seed of newly developed varieties.

The reply was not acceptable as University, while chalking out the seed production programme, conducted deliberations about each variety as per the crop season with various stakeholders.

During the survey (October 2022/January 2023), the farmers expressed demand for PAU seeds through KVKs. Seven of the surveyed farmers (out of 120) also highlighted shortage of certain varieties of seeds at university seed outlets at KVKs. The claim of seed shortage by farmers and sale of seeds as 'Produce' by the University indicated that either the demand estimation for seed production programme was faulty or the PAU's distribution network of seeds was not proper.

Further, the inconsistency was persisting despite being pointed out earlier through the Audit Report *ibid.*

1.4.4 Manufacture and sale of insecticides

As per the Insecticides Act, 1968 (Act), manufacturing, sale and distribution of insecticides without licence is strictly prohibited and is punishable with fine and

minimum imprisonment for a term which may be extended to two years. Further, the Insecticides Rules, 1971 notified under the Act *inter alia* specify that the packing of insecticides must bear a label as well as a leaflet, duly approved by Registration Committee (RC) which would contain the requisite information⁷⁴.

During test-check of records, inconsistencies noticed related to manufacturing and sale of insecticides are discussed as under:

(i) PAU manufactured formulations of two insecticides⁷⁵ during 2017-22 and sold these insecticides to the farmers through KVKs and Farmer Advisory Service Centres and also used these insecticides internally for demonstrations. However, the University did not apply for registration/licence of these insecticides with RC (December 2022). The labels and leaflets of these insecticides were neither got approved from RC nor was the licence obtained from the State Licensing Authority (Department of Agriculture and Farmers' Welfare) to manufacture these insecticides, in contravention of the provision *ibid*.

The University stated (October 2024) that they were providing these insecticides not for commercial benefit and the same were distributed to the selected farmers for demonstration and also to test its sustained efficacy as some time the strains lose its effectiveness with passage of time.

The reply was not acceptable, as sale invoices were available on record and manufacturing and sale/distribution of these insecticides without licence was prohibited as per the provisions of the Act *ibid*.

(ii) With the objective of mass production of Bioagents (insecticides) viz. Trichoderma and Pseudomonas, the Department of Plant Pathology, PAU procured⁷⁶ (March 2021) a Digital Automated Fermenter at a cost of ₹ 25 lakh. The Fermenter was installed in January 2022 and was used only once in May 2022 to produce 8-10 litres of Trichoderma. However, the equipment could not be



Photograph 4: Digital Automated Fermenter without UPS (09.08.2022)

⁷⁴ Name of the manufacturer, registration number, name of active and other ingredients, batch number and expiry date, among other mandatory items shall be printed on the label of packing. Leaflet must mandatorily contain the details like plant disease, insects and noxious animals or weeds for which the insecticide is to be applied and also the details regarding manner in which the insecticide is to be used.

⁷⁵ Trichoderma Harzianum: 5,450 kg with sale of ₹ 8,17,500/-; and Pseudomonas fluorescens: 900 kg with sale of ₹ 1,12,500/-

⁷⁶ Under the Scheme "Addressing food security through nutritionally enriched improved cultivars and technologies for Swasth Bharat under Purse Program" CSS-36 (PC-6247) under sub-head Non-Recurring Contingency.

put to use afterwards due to non-availability of uninterrupted power supply (UPS) system and Trichoderma was being produced manually since then and that too without obtaining the requisite license for the purpose.

Thus, in the absence of requisite licence to manufacture Trichoderma, the procurement of digital automated fermenter was unwarranted.

The University stated (October 2024) that it was done as per decision taken by higher authorities.

The reply was not acceptable as the University procured digital automated fermenter for manufacturing Trichoderma without obtaining requisite licence.

(iii) As per clause 8.4.3 of the ICAR Guidelines (October 2006) for Intellectual Property Management and Technology transfer/Commercialisation, normally non-exclusive licences will be executed for technologies such as inputs (e.g. bio-pesticides or bio-fertilisers) so that these can lead to their wider adoption and thereby maximise research benefits to farmers and other end users.

Audit noticed that the University entered (July 2013) into an exclusive (instead of non-exclusive) Memorandum of Understanding (MoU) with a manufacturer for further research and development, manufacture and marketing of the bio-pesticide Trichoderma Harzianum strain developed by it, in violation of the guidelines *ibid*.

Audit noticed that the vendor could not obtain the license for production. Resultantly, Trichoderma Harzianum could not be produced and sold/commercialised since 2013. Thus, entering into an exclusive MoU with a vendor/manufacturer for bio-pesticide was in violation of ICAR guidelines.

In the exit conference, the University while admitting the facts stated (June 2023) that suitable steps would be taken for requisite registration, and also assured to take a relook for a fresh MoU on non-exclusive basis.

The University reported (October 2024) that the biopesticide Trichoderma Asperellum 2 per cent WP (Trichoderma Harzianum) was registered with the Central Insecticides Board and Registration Committee (CIBRC) Faridabad on 30 May 2024, for eco-friendly management of bakanae/foot rot disease in basmati rice.

1.4.5 Operation of Fruit Nurseries without license

As per Section 3 of the Punjab Fruit Nurseries Act, 1961 (Act), no owner shall, conduct or establish a fruit nursery unless he has obtained a licence under this Act. It further provides that where an owner has more than one fruit nursery in different towns and villages, he shall obtain a separate licence in respect of each such fruit nursery.

During audit, it was noticed that the University was operating nine fruit nurseries⁷⁷ (established during the period from 1962 to 2012) in its campus, research stations and seed farm without obtaining the requisite licence for the purpose, in contravention of the provisions of the Act *ibid*.

Thus, the operation of fruit nurseries without obtaining the requisite license was violative of the provisions of the Act and may invite penal provisions under Section 13 of the Act.

The University stated (October 2024) that the Department of Fruit Science would try to obtain license within three months.

1.4.6 Quality of research publications

The National Academy of Agricultural Sciences (NAAS) initiated a process of rating/scoring of scientific research journals with the primary objective to bring uniformity in the evaluation of publications. For determining NAAS score of research journals, NAAS has classified them into the following two categories:

Category I	Those journals where Thompson Reuters Impact Factor ⁷⁸ is available, the scores are assigned as 6.00+ Impact Factor with capping on 20.00.
Category II	Those journals where Thompson Reuters Impact Factor is not available, the marks are assigned on the basis of information provided by the Publishers in a prescribed proforma and also evaluation of scientific contents of the journals.

The details of the publications of PAU printed in various research journals (with/without NAAS ratings) during the period 2017-22 are given in **Table 1.15**.

Table 1.15: Publications of PAU printed in various research journals (with/without NAAS ratings)

Total number of publications printed in various journals	5,811
Total number of publications printed in journals having NAAS ratings	5,343
Total number of publications printed in journals without NAAS rating	468
Total number of publications printed in journals having NAAS ratings above 'six'	2,396

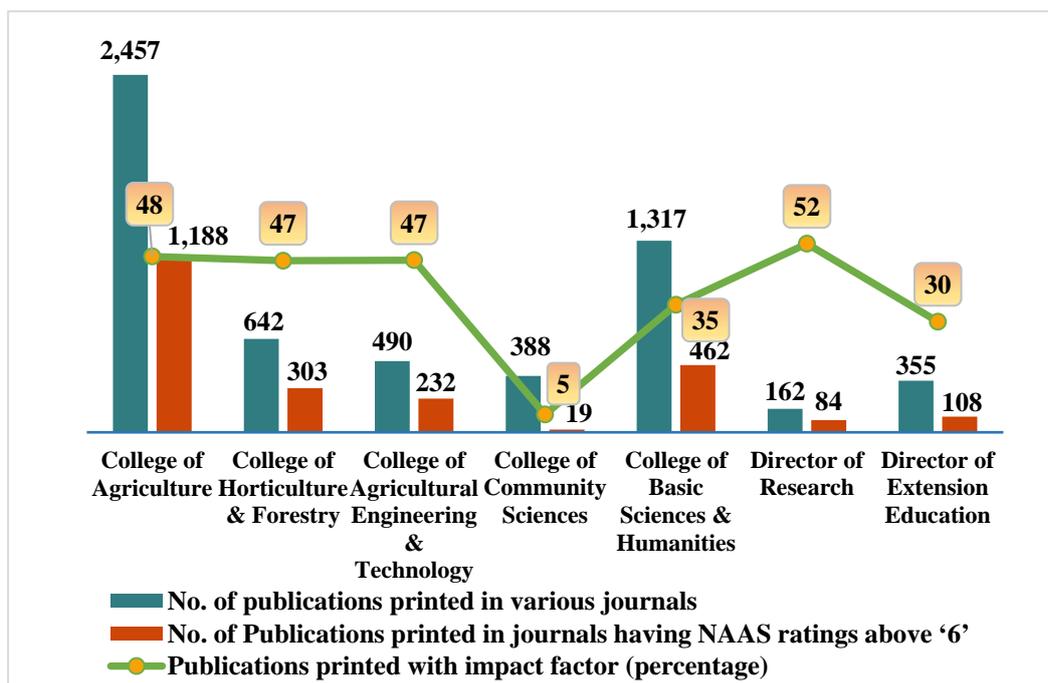
Source: Information provided by PAU

The college/office-wise details of the publications of PAU printed in various research journals during the period 2017-22 are given in **Chart 1.23**.

⁷⁷ (i) PAU, Ludhiana (1970); (ii) RS Abohar (1962); (iii) RFRS Bahadurgarh (1963); (iv) RS Ballawal Saunkhri (1990); (v) RS Bathinda (1982); (vi) RFRS Gangian (1974); (vii) RS Gurdaspur (1973); (viii) FRS Jallowal-Lesriwal (2012); and (ix) USF Ladhawal (2001).

⁷⁸ It is a globally recognised indicator for assessing journals.

Chart 1.23: College/Office-wise details publications of PAU printed in various research journals during 2017-22



Source: Information provided by PAU

Audit observed that:

- The University did not have faculty-wise details of above-mentioned research publications. In the absence of same, Audit could not verify the veracity of the assertions regarding these research publications.
- During the accreditation process (August 2019), the Peer Review Team of ICAR pointed out that the number of publications per faculty needed attention. However, the University did not fix any faculty/scientist-wise targets for submission and publication of research papers.
- The University could not provide any faculty-wise centralised database containing faculty profile, qualifications, postings so far, trainings attended, research projects executed, research papers published, citation records⁷⁹ etc despite specific request.
- The University publishes its own journal publication viz. Agricultural Research Journal (Journal of Research, PAU). The NAAS Score of the journal increased from 4.71 (2018-20) to 5.44 (2021 and 2022) but it was still less than the impact factor (6.00+).

The University stated (October 2024) that current impact rating of journal is 5.16 and it was undertaking efforts to improve the rating to (6.00+).

⁷⁹ H-index, I-10 index, UGC Consortium for Academic Research and Ethics (CARE) index.

1.4.7 Short transfer of land to PAU

In view of the orders (April 2015) of GoP, PAU, as per decisions⁸⁰ of the BoM, transferred (November 2015) 175 acre 1 *kanal* and 12 *marla* of land to the Health Department, GoP for establishment of All India Institute of Medical Sciences (AIIMS) at Bathinda. In lieu thereof, the GoP transferred (November 2015) 162 acre 2 *kanal* and 6 *marla* of land at four different locations in Punjab to PAU, as detailed in **Table 1.16**, thereby resulting in 12 acre 7 *kanal* 6 *marla* less transfer of land to PAU.

Table 1.16: Details of land transferred to PAU

Sr. No.	Station	Area Acre-Kanal-Marla
1.	Sekhupura Farm, Department of Agriculture, Bathinda	50-00-02
2.	Jiwan Singh Wala, Department of Horticulture, Bathinda	26-03-08
3.	Khanora Farm, Department of Horticulture, Hoshiarpur	36-00-16
4.	Dyal Bharang, Department of Agriculture, Amritsar	49-06-00
Total		162-02-06

Source: PAU records

Further, in the case of alternate allotted land (26 acre 3 *kanal* 8 *marla*) at Jiwan Singh Wala, Bathinda, the actual measurement of land as per records of the Horticulture Department worked out to 23 acre 4 *kanal* and 15 *marla* thereby resulting in 2 acre 6 *kanal* 13 *marla* less transfer of land to PAU.

Thus, in all, PAU received 15 acre 5 *kanal* 19 *marla* less land than the land transferred to the Health Department for establishment of AIIMS at Bathinda.

It was further noticed that though land measuring 49 acre 6 *kanal* in respect of Dyal Bharang, Amritsar was in the possession of PAU, mutation thereof had not been transferred in the name of the University (May 2023). In spite of the issue of non-updation of land records being pointed out earlier in the Report of the Comptroller and Auditor General of India (Civil) for the year ended 31 March 2006 - Government of Punjab (*paragraph 3.2.19*), the issues of mutation were persisting.

On being pointed out in audit, the University stated (October 2024) that it had taken up the matter (December 2023) with the Director, Horticulture Department Punjab on short transfer of land at Jiwan Singh Wala, Bathinda. The response of Horticulture department was awaited (October 2024). In case of land transferred at Dyal Bharang, Amritsar, the University stated (October 2024) that land of Dyal Bharang, Amritsar was in the name of President of India, thus mutation of the said land could not be done in the name of university. It further stated that necessary action would be taken for the

⁸⁰ 274th meeting (09-11-2015); 285th meeting (26-03-2018); and 287th meeting (12-10-2018).

transfer of *Girdawari*⁸¹ in the name of university as the mutation of land is not possible.

In case of short transfer of 12 acre, 7 kanal and 6 marla, the University stated (October 2024) that the land measuring 162 acre, 2 kanal, 6 Marla in lieu of 175 acre, 1 canal, 12 Marla was transferred to University as per decision of GoP/BoM.

The reply was not acceptable as the University did not take up the matter of short transfer of land with GoP at the appropriate time which ultimately resulted in short transfer of land to the University. The short transfer of land to PAU would ultimately impact the cultivable area of the University for research and seed production.

1.4.8 Joint inspection of Research Stations and Seed Farms

Joint inspection of selected RSs and two Seed Farms was conducted along with University authorities during the course of audit to ascertain various facilities.

During joint inspection, Audit observed that the following facilities were lacking:

(i) Research Stations

- In two RSs (Abohar and Bahadurgarh), first-aid facilities were not available.
- There was no firefighting equipment in any of the RSs.
- Grievance Redressal Board was not displayed in any of the RSs.
- Asset numbers on assets and furniture & fixtures were not being marked at RS, Bahadurgarh and at other two RSs, marking was partial.

(ii) Seed Farms

- Fire-fighting equipment, grievance redressal boards and first-aid boxes were not available in any of the selected Seed Farms. Asset numbers on assets and furniture & fixtures were partially marked at USF Ladhawal.

The University said in March 2023 that it had given instructions to install CCTV cameras, fire-fighting equipment, and grievance redressal boards at all RSs in the next financial year. They added (October 2024) that these items were installed at RS Ballawal Saunkhri. At RS Bahadurgarh, a first aid box and fire extinguisher were installed. No such facilities were installed at USF, Nabha.

1.4.9 Conclusion

Out of total 616 new research projects proposed by the University, only 193 research projects (31.33 *per cent*) were sanctioned by the project funding

⁸¹ Girdawari is an annual crop inspection conducted by the revenue officials in the villages of the State of Punjab.

agencies during 2017-22. The University did not evolve any mechanism to ascertain/review the reasons for non-approval of research project proposals by the funding agencies so as to bring improvement in their future project proposals. Despite availability of funds from the funding agencies, cases of termination/non-completion of the projects were also noticed due to inadequate monitoring by PAU.

The Technology Marketing and Intellectual Property Rights (TMIPR) Cell of PAU did not have any dedicated full-time staff. No Standard Operating Procedure (SOP) prescribing timelines for registration, transfer of technologies/plant varieties and mechanism for their valuation for determination of licence fee was framed by the University. There was no system of periodic reporting of the technologies/plant varieties developed, patented, registered (yet to be commercialised) to the VC and BoM so as to ensure timely dissemination of the benefits of these technologies/plant varieties to the end users.

As against 48 developed technologies applied under the Patents Act, 1970, 18 technologies were granted patent rights as of November 2022. Of these, in four cases having collaborative research of PAU and ICAR, the patent certificates were granted in the name of ICAR instead of joint registration. Five patent applications filed by PAU were refused and 25 patent applications were lying pending with Controller General of Patents, GoI as of November 2022.

Out of 97 developed plant varieties applied for registration under PPV&FR Act, 36 varieties were registered as of June 2022. Additionally, 34 varieties were registered in the name of ICAR instead of joint registration as these varieties were developed under collaborative research of PAU and ICAR. As many as 17 plant varieties were got commercialised during 2017-22 but without getting them registered under PPV&FR Act. Besides, various plant varieties having geographical indication, were not registered under the Geographical Indication of Goods Act, 1999 by the University.

There was reduction of 24.23 *per cent* and 37.37 *per cent* in cultivable area of Kharif and Rabi respectively, resultantly, the production of Kharif and Rabi seeds reduced by 20.61 *per cent* and 50.04 *per cent* during the years 2020-21 and 2021-22 respectively. The cases of short transfer of land to the University were also noticed thereby impacting cultivable area of the University for research work and seed production.

Against the yield of 1,274.77 quintal of graded seed of Bt cotton, only 25.31 quintal i.e. two *per cent* (Bt1 cotton in the year 2017) was sold as seed and the remaining 1,249.46 quintal was sold as produce during the period 2017-2021. The University suffered a loss of 7.26 crore due to sale of graded seeds as produce in respect of Kharif and Rabi crops during the period 2017-21.

Manufacturing and distribution/sale of two insecticides viz; Trichoderma Harzianum and Pseudomonas Fluorescens without obtaining mandatory licences – were noticed. Nine fruit nurseries were also being operated without obtaining mandatory licences.

Only five to 52 per cent of the total research publications in respect of seven colleges/offices could find a place in journals with Thompson Reuters Impact Factor with score of 6.00+ during the period 2017-22. Joint inspection of three selected RSs and two Seed Farms showed lack of various facilities.

1.4.10 Recommendations

The University may:

- (i) *develop a robust process for evaluating research proposals before submission to the funding agencies and for reviewing the unapproved or unsuccessful projects to identify reasons for future course correction;*
- (ii) *strengthen the Technology Marketing and Intellectual Property Rights (TMIPR) Cell to ensure timely registration and commercialisation of its own developed technologies and plant varieties; and to ensure joint ownership registration in case of collaborative projects, under the Patent Act, 1970, PPV&FR Act, 2001 and GI of Goods Act, 1999, to secure its ownership rights;*
- (iii) *take effective measures to increase the cultivable area so as to increase production of Kharif and Rabi seeds, and ensure distribution/ sale of yield as graded seeds instead of produce for providing adequate seeds to the farmers of the State to secure revenue as well as brand value of PAU seeds;*
- (iv) *obtain requisite licenses for manufacture and distribution/sale of insecticides and operation of fruit nurseries, from the concerned authorities in line with the codal provisions;*
- (v) *take effective measures for publication of quality research publications in the journals with impact factor 6.00+, and*
- (vi) *ensure providing requisite facilities at RSs and Seed Farms to facilitate effective research activities by the University.*

1.5 Extension of Agricultural Technologies

The Punjab Agricultural University (PAU) disseminates outcome of improved agricultural technologies and plant/seed varieties amongst farmers by way of trainings and field demonstrations through its 18⁸² *Krishi Vigyan Kendras*

⁸² Excluding four other KVKs in the State of Punjab - three KVKs at SAS Nagar, Tarn Taran, and Barnala under Guru Angad Dev Veterinary & Animal Sciences University, Ludhiana; and one KVK at Fazilka under the Director, Central Institute of Post Harvest Engineering & Technology (CIPHET), Abohar.

(KVK) (as detailed in **Appendix 1.1**); 15 Farm Advisory Service Centres⁸³ (FASC) located in different districts of the State; and Plant Health Clinic located in the premises of PAU, Ludhiana later named as Agricultural Technology Information Centre (ATIC).

The KVK scheme is 100 *per cent* financed by Government of India (GoI) and KVKs are sanctioned to Agricultural Universities, ICAR institutes, related Government Departments and Non-Government Organisations (NGO) working in the agriculture field. KVKs are an integral part of the National Agricultural Research System⁸⁴ (NARS) which aims at assessment of location specific technology modules in agriculture and allied enterprises, through technology assessment, refinement and demonstrations. These have been functioning as Knowledge and Resource Centre of agricultural technology supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district and are linking NARS with extension system and farmers. To achieve the aim, KVKs transfer technologies through various extension modes like *Kisan Melas*, workshops, demonstrations, specialised trainings, exhibitions, campaigns, technical guidance, sale of farm literature and TV/radio talks.

The FASCs were established with the objective of quick transfer of technology amongst the farmers of the State and getting first hand feedback of their field problems. FASCs act as an organic link between the University research system, field functionaries and farmers.

The audit findings related to extension activities of PAU are discussed in the succeeding paragraphs.

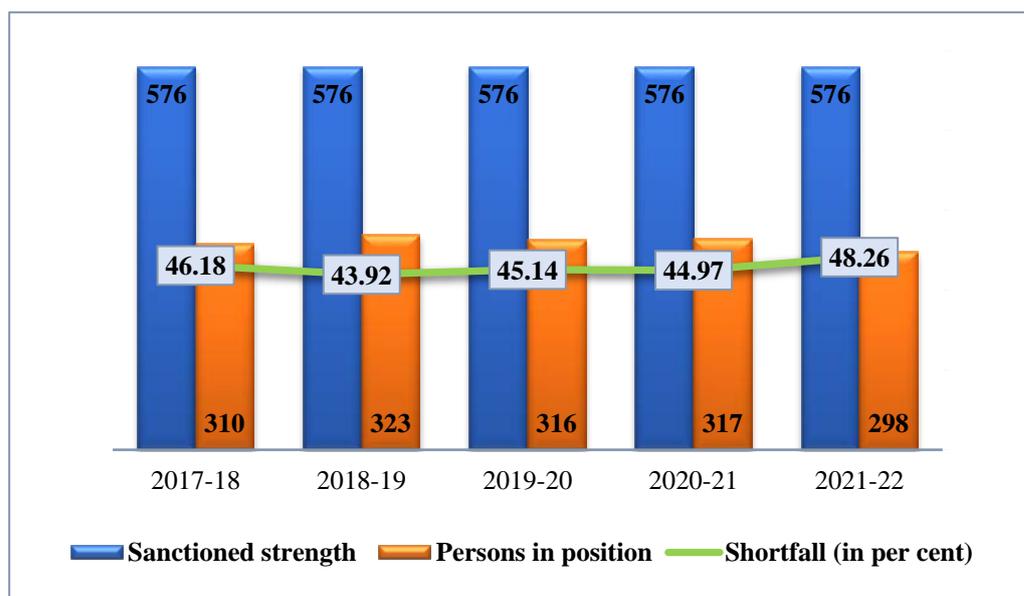
1.5.1 Position of staff deployed for extension activities

The position of staff deployed for extension activities during the period 2017-18 to 2021-22 is depicted in **Chart 1.24**.

⁸³ (i) Amritsar; (ii) Bathinda; (iii) Barnala; (iv) Faridkot; (v) Fazilka; (vi) Ferozepur; (vii) Gurdaspur; (viii) Hoshiarpur; (ix) Jalandhar; (x) Kapurthala; (xi) Patiala; (xii) Ropar; (xiii) Sangrur; (xiv) Tarn Taran; and (xv) SAS Nagar, running under the control of Director Extension Education, PAU Ludhiana.

⁸⁴ The NARS has contributed to make India self-sufficient in food production and serves the agricultural technology and information needs of the country. It has research network of 102 ICAR Institutes, 11 Agricultural Technology Application Research Institutes and 73 Agricultural Universities spread across the country. NARS is a system and continuously strengthening its Agricultural Research Activities for the benefit of Indian farming community for producing various crops.

Chart 1.24: Position of staff deployed for extension activities during 2017-22



Source: Information provided by office of the Director of Extension Education

Category/branch-wise analysis of staff showed shortage of teaching staff (27-30 per cent) and non-teaching staff (37-51 per cent) in KVKs & FASCs; and teaching staff (67-71 per cent) and non-teaching staff (63-88 per cent) in the office of Director Extension Education during the period 2017-22 (*Appendix 1.12*).

The substantial shortage of staff engaged in extension activities impacted the extension education viz. trainings, inadequate frontline demonstrations (FLD) of newly developed technologies and varieties, etc., as discussed in *paragraphs 1.5.3 and 1.5.4*.

The Director of Extension Education informed (September 2023 and October 2024) that all vacant posts had been advertised (June 2023) and PAU had recruited four Deputy Directors (Training), 22 Assistant Professors and two Assistants in different KVKs during 2024. The process of recruiting other staff was stated to be underway.

Although the University had made efforts to fill the gap between sanctioned strength and Men-in-position yet the shortage of staff was still substantial as recruitment process had been initiated for only 28 posts against the vacancy of 278 in 2021-22.

1.5.2 Landholdings of Krishi Vigyan Kendras

As of March 2022, 18 KVKs had been sanctioned to PAU by ICAR under a GoI Scheme. To establish these KVKs, ICAR executed (February 1982-September 2016) MoUs with PAU, which included *inter alia* requirement of good quality cultivable land for each KVK for imparting training/instructions through work-experience/learning by doing.

Audit noticed that out of 18 KVKs, only one KVK at Gurdaspur fulfilled the condition of minimum landholding as per the MoU. In the remaining 17 KVKs, the shortage of cultivable land ranged from 1 acre to 47.8 acre in accordance with the requirement in the respective MoUs (**Appendix 1.13**). Thus, norms fixed by ICAR for landholdings in respect of 17 KVKs were not adhered to thereby impacting the dissemination of practical training/work experience to the beneficiaries.

PAU, in exit conference (June 2023), attributed the reasons for shortfall in landholdings to the high cost of land in Punjab and stated that the matter would be looked in major land shortfall cases in KVKs.

The University responded (October 2024) that as per ICAR guidelines, 20 hectares area was to be made available free of cost for the establishment of a KVK in a district and PAU had established 18 KVKs either on panchayat land or at PAU farms. The site selection was purely approved by a committee from ICAR, New Delhi and PAU only facilitated the committee for visiting to sites to be donated by panchayat. The KVKs were established on the lands approved by the Site Selection Committee and it depends upon the land donated by the respective panchayats.

The reply may be seen in the light of the fact that land was a major source for imparting agricultural trainings. As such, shortage of land with KVKs impacted the quality of training provided.

1.5.3 Trainings imparted by Krishi Vigyan Kendras

Mandate of the KVKs include imparting need-based training to the farmers to update their knowledge and skills in modern agricultural technologies and to conduct training of extension personnel to orient them in the frontier areas of technology development. KVKs also provide vocational training⁸⁵ to progressive farmers, farmwomen and rural youth in knowledge and skills, which enables them to start small-scale enterprises⁸⁶ for self-employment or generating additional income apart from their farm income.

The Report of the Comptroller and Auditor General of India (Civil) for the year ended 31 March 2006-Government of Punjab (**paragraph 3.2.16**) had highlighted the shortfall in trainings.

(i) The overall position of targets *vis-a-vis* achievement of trainings imparted by six selected KVKs in terms of the number of courses and participants during the period 2017-22 is detailed in **Table 1.17**.

⁸⁵ Hybrid seed production; cultivation of aromatic and medical plants; dairy; poultry; bee-keeping; vermicompost; fishery; piggery; mushroom growing; integrated pest management; nursery raising (horticultural, vegetables and flower plants); food processing and value addition; repair and maintenance of farm machinery; self-employment of rural youth; etc.

⁸⁶ Stitching; embroidery; knitting; soft toy making; soap and detergent making; fruit and vegetable preservation; food and nutrition; etc.

Table 1.17: Targets vis-a-vis achievement of trainings imparted by six selected KVKs in terms of number of courses and participants during 2017-22

Sr. No.	Name of KVK	Number of courses		Number of participants	
		Target	Achievement	Target	Achievement
1.	Faridkot	502	467	7,000	6,790
2.	Ferozpur	450	592	9,958	11,761
3.	Langroya (SBS Nagar)	451	424	9,622	8,649
4.	Nurmahal (Jalandhar)	488	398	9,679	9,621
5.	Ropar	467	428	7,707	14,254
6.	Kheri (Sangrur)	429	352	9,930	8,849

Source: Documents of Test-checked KVKs

Table 1.17 shows that except for two KVKs at Ferozpur (achieving targets in respect of number of courses and participants) and Ropar (achieving targets in terms of participants), none of the other four selected KVKs could achieve the targets for imparting trainings to the beneficiaries during the period 2017-22.

The category-wise shortfall in terms of number of courses and participants in respect of six selected KVKs during the period 2017-22 is depicted in **Table 1.18 and Appendix 1.14 and Appendix 1.15**.

Table 1.18: Category-wise shortage in achievement of targets in terms of number of courses and participants in respect of six selected KVKs during the period 2017-22

Sr. No.	Name of KVK	Shortfall (in per cent)					
		Farmers and farmwomen		Vocational courses		In-service trainings	
		Courses	Participants	Courses	Participants	Courses	Participants
1.	Faridkot	7.19	4.16	2.5	10.3	16.67	0
2.	Ferozpur	0	0	1.52	59.36	62.12	58.36
3.	Langroya (SBS Nagar)	4.78	13.23	16.39	0	0	17.74
4.	Nurmahal (Jalandhar)	4.31	0	27.00	0	77.78	51.11
5.	Ropar	4.06	0	3.85	0	50.00	10.99
6.	Kheri (Sangrur)	16.96	7.11	15.63	14.40	29.55	28.63

Source: Test-checked KVKs

Analysis of category-wise targets vis-a-vis achievement in respect of the six selected districts during 2017-22 (**Table 1.18**) showed that:

- Achievement in terms of number of courses and participants in ‘Farmers and Farmwomen’ category was satisfactory except in KVK, Kheri (Sangrur), where the shortage in number of courses was found to be more than 15 per cent over a period of five years.
- In ‘Vocational Courses’ category, more than 15 per cent shortage was found in three KVKs⁸⁷ in terms of number of courses and in KVK,

⁸⁷ Langroya (SBS Nagar), Kheri (Sangrur) and Nurmahal (Jalandhar).

Ferozepur shortage in number of participants was 59 per cent over a period of five years.

- Under 'In-service Training' category, more than 15 per cent shortage was found in five KVKs⁸⁸, including three KVKs⁸⁹ having shortage of 50 per cent and above in terms of number of courses; and in terms of number of participants, more than 15 per cent shortage was found in four KVKs including two KVKs having more than 50 per cent shortage over a period of five years.

The shortfall in achievement of targets could be attributable to shortage of manpower and requisite landholdings, as discussed in *paragraphs 1.5.1 and 1.5.2* respectively.

(ii) Under the Central Sector Scheme⁹⁰, the KVKs under PAU adopt villages to carry out various extension activities and impart trainings to the farmers to reduce burning of crop residue. The adoption was done to impart PAU crop residue management techniques to farmers, adoption of crop residue management techniques among masses to reduce burning of crop residue. The details of number of villages adopted by each of the selected KVKs for the period from 2018-19⁹¹ to 2021-22, are given in **Table 1.19**.

Table 1.19: Details of number of villages adopted by the selected KVKs during the period 2018-22

Sr. No	Name of KVK	No. of blocks in the district	No. of villages adopted	Blocks covered	Blocks not covered
1.	Faridkot	3	20	Faridkot and Kotakpura	Jaiton
2.	Ferozepur	6	16	Ferozepur, Zira, Ghall Khurd, Mamdot and Makhu	Guru Harsahai
3.	Langroya (SBS Nagar)	5	22*	Banga, Saroya and SBS Nagar	Aur and Balachaur
4.	Nurmahal (Jalandhar)	11	19	Lohian, Shahkot and Nurmahal, Nakodar and Adampur	Bhogpur, Phillaur, Rurka Kalan, Mehatpur, Jalandhar East and Jalandhar West
5.	Ropar	5	16*	Chamkaur Sahib and Ropar	Sri Anandpur Sahib, Morinda and Nurpur Bedi
6.	Kheri (Sangrur)	8	18*	Sunam, Bhawanigarh, Dhuri, Sangrur, Sherpur, Andana/ Moonak and Lehragaga	Dirba

Source: Test-checked KVKs and official website of concerned districts (for total number of blocks in a district)

* KVK, Ropar adopted one village twice (2019-20 and 2021-22); KVK, Kheri (Sangrur) adopted one village twice (2018-19 and 2020-21); and KVK, Langroya (SBS Nagar) adopted six villages twice and one village thrice during the period 2018-2022.

It is evident from the table that villages from only 24 blocks were selected by KVKs based on the adaptability of farmers to new technologies based on primary surveys in consultation with Sarpanches, progressive farmers,

⁸⁸ Faridkot, Ferozepur, Kheri (Sangrur), Nurmahal (Jalandhar) and Ropar.

⁸⁹ Ferozepur, Nurmahal (Jalandhar) and Ropar.

⁹⁰ Promotion of Agricultural mechanization for in-Situ management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi.

⁹¹ Adoption of villages was started from 2018-19 onwards.

Agriculture Development Officers, and Cooperative Societies. However, reasons for not covering villages from the remaining 14 blocks were not furnished to the Audit.

The University informed (October 2024) that all the blocks of Punjab had been covered. Reply was not acceptable, as only 94 blocks had been covered while there were 152 blocks in the state.

1.5.4 Frontline demonstrations

Frontline Demonstrations (FLD) are conducted by KVKs to demonstrate newly released crop production and protected technologies and its management practices in the farmers' field under different agro-climatic regions and farming situations. The FLDs are conducted in a block of two to four hectares of land in order to have better impact of the demonstrated technologies on the farmers and field level extension functionaries.

- (i) The details of selected KVKs which did not conduct any FLD on major crops during the period 2017-22 are given in **Table 1.20**.

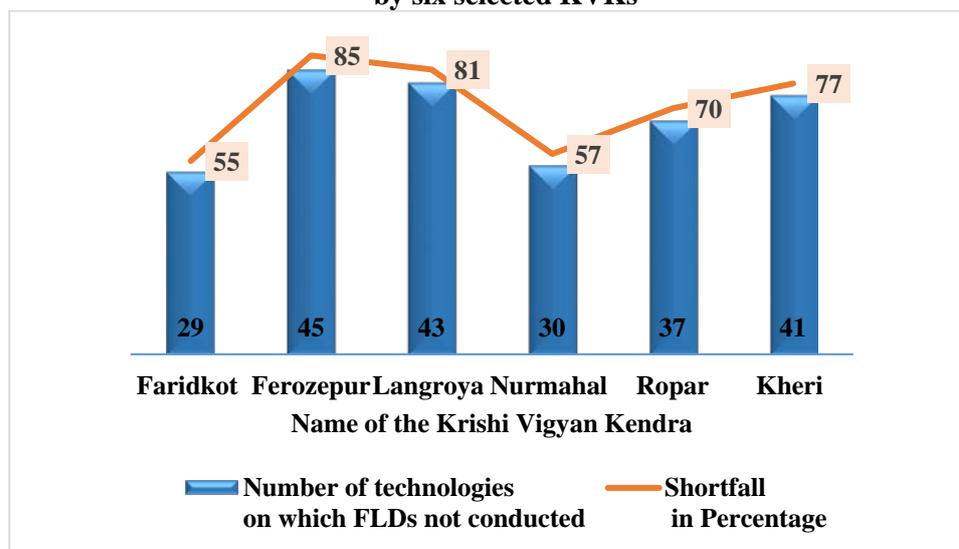
Table 1.20: Selected KVKs which did not conduct any FLD on major crops during the period 2017-22

Sr. No.	Name of crop	Name of KVK not conducted FLDs
1.	Paddy varieties	Ferozepur, Langroya (SBS Nagar), Nurmahal (Jalandhar) and Ropar
2.	Barley	Faridkot, Ferozepur, Langroya (SBS Nagar), Nurmahal (Jalandhar) and Ropar
3.	Maize	Faridkot, Ropar and Kheri (Sangrur) though many new varieties of maize crop were released by the University
4.	Forage crops like maize fodder, Shaftal, Barseem, Napier Bajra, etc.	Ferozepur, Langroya (SBS Nagar), Nurmahal (Jalandhar), and Ropar
5.	Floriculture varieties	Faridkot, Langroya (SBS Nagar), Ropar
6.	Fruit crops	Ropar and Kheri (Sangrur)

Source: Test-checked KVKs

- (ii) The University developed 53 technologies during the period 2017-18 to 2021-22. The details of technologies on which FLDs were not conducted by six selected KVKs are depicted in **Chart 1.25**.

Chart 1.25: Details of technologies on which FLDs were not conducted by six selected KVKs



Source: Test-checked KVKs

In the exit conference, the University while admitting the facts stated (June 2023) that required number of FLDs would be conducted in future. Further, the University replied (October 2024) that the target of Cluster Frontline Demonstrations (CFLDs) had been achieved by all KVKs during Kharif 2023 to Kharif 2024, however, the detailed information (KVK-wise) was not provided to the audit.

1.5.5 Soil and water testing

Soil testing is the only way to determine the fertiliser need of a crop in a particular field. The prime step in the soil-testing programme is the collection of soil sample. The analysis of soil sample is done to determine the available nutrient status and physico-chemical properties of soil. The fertiliser recommendations for the field crop are generally given based on a small amount of soil tested in the laboratories.

The Management Guidelines of KVK issued (January 2014) by ICAR provide that soil, water and plant analysis is mandatory for KVKs to support field interventions and demonstrations. The results of the analysis should be interpreted with recommendations.

Test-check of records in the selected KVKs showed that targets for soil samples collection and testing were not fixed. The testing of soil samples was being done as per requirement of the farmers. The details of soil samples collected and tested at soil testing laboratories in six selected KVKs during 2017-22 are depicted in **Table 1.21**.

Table 1.21: Details of soil samples collected and tested at soil testing laboratories in six selected KVKs/during 2017-22

Sr. No.	Name of KVK	Number of soil samples collected and tested				
		2017-18	2018-19	2019-20	2020-21	2021-22
1.	Faridkot	463	582	266	38	20
2.	Ferozepur	189	392	107	72	178
3.	Kheri (Sangrur)*	680	968	161	0	129
4.	Langroya (SBS Nagar)	118	235	263	110	110
5.	Nurmahal (Jalandhar)	254	284	155	185	172
6.	Ropar	457	60	190	151	84

Source: Test-checked KVKs

* in case of Kheri (Sangrur) Soil samples collected were got tested from PAU Soil and Water Testing Laboratory, Ludhiana from the year 2018-19 onwards.

Audit observed that in the absence of fixation of any targets by PAU, the soil samples collected and tested by six KVKs, except in 2018-19 by five KVKs, were mostly on a decreasing trend during the period 2017-18 to 2021-22. Inadequate soil and water testing would deprive the farmers of the recommendations in respect of the fertilisers to be used for a particular crop.

It was also noticed that the Soil Testing Laboratory (STL) at KVK Kheri (Sangrur) was not functional since January 2018 due to non-availability of skilled staff and lack of infrastructure.



The soil samples collected by KVK Kheri (Sangrur) during the period 2018-19 to 2021-22 were got tested from PAU Soil and Water Testing Laboratory, Ludhiana. The University replied (October 2024) that the electrical conductivity meter had been procured and the testing of irrigation water samples was being done in the soil testing lab of KVK, Sangrur. From June 2023 to September 2024 a total of 219 water samples were tested, however, the University remained silent on sample testing of soil.

Further, four out of six selected KVKs viz. Nurmahal (Jalandhar); Langroya (SBS Nagar); Kheri (Sangrur); and Ropar were not testing the soil samples for conducting FLDs, in line with Management Guidelines of KVK *ibid*.

1.5.6 Non-setting up of Community Radio Stations

As per guidelines (October 2018) of the Scheme ‘Support to State Extension Programmes for Extension Reforms’, Community Radio Stations (CRSs) were to be promoted in a big way to expand the reach of localised technologies to the farmers located within a radius of 20 to 50 kilometres. A total amount of not more than ₹ 65 lakh (including capital and recurring cost) was proposed to be provided as assistance to SAUs for CRS spread over operational period.

Audit noticed that the University did not submit any proposal under the Scheme, thus, it could not set up CRS in any of its 18 KVKs. However, State Agricultural University of the neighbouring State of Haryana had set up CRSs in its KVKs. As CRS is one of the effective means to communicate/disseminate the technologies to the farmers, non-establishment thereof deprived the farmers of the intended benefits.

Although University assured (June 2023) to set up CRSs at KVKs in Punjab, but it later stated (October 2024) that effective range of a community radio station was in the radius of 5-10 kms only which would not serve the purpose of KVKs having operational area of more than 50 kms. Moreover, a technical team of two engineers, content writers, editing person as well as radio jockey was required which was not provided by ICAR. All India Radio Jalandhar was broadcasting one-hour daily programme with the collaboration of the University for the farmers. Besides this, two daily programmes of duration five minutes and 15 minutes were broadcast in morning and afternoon sessions. The narrow broadcasting stations active in Bathinda, Patiala and Fazilka were engaging experts from the RSs of the University in sending information to the farmers. Director of Extension Education further added that PAU had developed strong extension linkages for the dissemination of the technology through All India Radio and TV. The response of the Director showed their reluctance in setting up of CRSs at KVKs as adopted by other states too. Their statement on the range of CRSs was contrary to guidelines for Support to State Extension Programmes for Extension Reforms (ATMA) scheme 2018.

1.5.7 Agricultural Technology Information Centre

The mandate and functions of the Agricultural Technology Information Centre (ATIC) set up in PAU, Ludhiana were to provide a “single-window delivery system” for agricultural products and services like sale of farm implements, bio-fertilisers, soil and water testing, seed quality testing, sale of nursery plants to the farmers, to facilitate direct access of farmers to technology advice and other services and to provide mechanism for feedback from the users to the University. The ATIC of the University is engaged in providing regular technical services⁹² to the visiting farmers, selling seeds of high yielding crop

⁹² Diagnosis of samples infected of pests/diseases/nutritional deficiencies, etc.

varieties (and small vegetable kits for kitchen gardens), and selling of farm literature for the benefit of farmers.

Audit noticed that ATIC of the University did not sell any insecticides, bio-fertilisers, farm implements, herbal nursery plants. The farmers who visited the Centre were advised to get the requisite products from the concerned departments. The University further stated that ATIC did not test samples of soil and water, but these were tested in the department of Soil Sciences. Thus, ATIC did not serve fully as a “single window delivery system” for technology products, diagnostic services and information for farmers and other end users defeating the purpose of setting up an ATIC.

The University stated (October 2024) that Bio-agents (Trichoderma) were being made available in ATIC in collaboration with Department of Entomology whereas soil and water samples were being collected in ATIC in collaboration with Department of Soil Science. However, the University did not furnish any document in support of their reply.

1.5.8 Other issues

(i) *Non-maintenance of centralised database of farmers*

A beneficiary database helps an organisation track the impact of its work. The database is used to store information about the specific benefits that each beneficiary receives. This data is used to measure the effectiveness of the organisation's programmes and to demonstrate the value of its work to its stakeholders. Additionally, having accurate and up-to-date information about beneficiaries helps an organisation to identify and address any potential issues or challenges in its programmes.

The University imparts trainings to the farmers, provides frontline demonstrations and supplies seeds to the farmers. To measure effectiveness of these activities, the impact assessment is to be carried out periodically, in line with the recommendations of High-Power Committee on the management of KVKs (January 2014). Audit, however, noticed that the University did not have any farmer-wise centralised database, indicating their name, identification, contact number, landholdings, type of soil, soil health card, crop varieties cultivated, trainings imparted, frontline demonstrations (FLD) given, seeds sold, etc. In the absence of which, the University was unable to track the impact of the trainings imparted, soil requirements, crop varieties cultivated, seeds sold, etc. and to assess effectiveness of its extension activities, identify their training needs and address any potential issues or challenges.

The Director of Extension Education informed (October 2024) that PAU had farmer database prepared using PAU *Kisan Mobile App* and about 98040 farmers all over Punjab were associated. However, neither the database nor any impact assessment reports to measure the effectiveness of imparting training to farmers, providing frontline demonstrations and supplying seeds to farmers,

was provided to Audit. In the absence of which, claim of PAU regarding availability of database of farmers could not be verified.

(ii) Farmers' complaints handling system

Complaints/Suggestions play an important role for the management of an organisation to be accountable to the public, as well as providing valuable prompts to review organisational performance and the conduct of people that work within and for it. Audit noticed that:

- The University had not framed any policy/guidelines for handling complaints of farmers of the State.
- There was no online portal for the farmers for registration of their grievances/complaints/suggestions.
- The University did not maintain any centralised data related to number of complaints received from the farmers and action taken there against.
- In the selected KVKs, complaint registers were not being maintained.

The University stated (October 2024) that PAU was in the process of extending Farmers' Portal for farmer complaints handling system and this would be operational within the next couple of months.

(iii) Joint Inspection of Krishi Vigyan Kendras

A joint inspection of six selected KVKs was conducted during the course of audit to ascertain availability of various facilities in KVKs. Audit noticed that:

- In KVK Ropar, there was no farmers' hostel facility. In KVK Langroya (SBS Nagar), hostel (constructed in December 2009) was being used for storage purpose due to non-availability of water and electricity facilities. In KVK Kheri (Sangrur), there were five rooms in the hostel but without any infrastructure.
- In KVK Nurmahal (Jalandhar), there was no first-aid box facility.
- In three KVKs (Ferozepur, Ropar and Faridkot), there were no fire-fighting equipment.
- In four KVKs (Ropar, Nurmahal (Jalandhar), Faridkot and Kheri (Sangrur)), there was no grievance redressal board displayed in the respective buildings, while the other two KVKs (Ferozepur and Langroya (SBS Nagar) had displayed grievance redressal board.
- In KVK Langroya (SBS Nagar), asset number on fixed assets and furniture and fixtures were not marked.

The University stated (October 2024) that-

- Trainees in Rupnagar, SBS Nagar and Sangrur being smaller districts, prefer to go back to their homes in respective districts after attending

non-residential training rather than staying at training hostel. Hence the training hostel, as temporary measures, was used for storage purpose.

- A first-aid box facility had been installed at KVK Jalandhar.
- Fire extinguisher had been installed in at KVKs Faridkot, Ferozepur and Ropar.
- Grievance redressal boards/Suggestion boxes had been installed at KVKs Faridkot, Jalandhar and Sangrur.
- Asset numbers on fixed assets, furniture and fixtures had been marked in KVK Langroya (SBS Nagar)

1.5.9 Conclusion

The shortage of staff deployed for extension activities ranged between 44 *per cent* and 48 *per cent* during 2017-22.

In 17 out of 18 KVKs, shortage of cultivable land ranged from one acre to 47.8 acre as per requirement in the respective Memorandum of Understandings (MoU) with ICAR thereby impacting dissemination of practical training/work experience to the beneficiaries.

Except for two KVKs at Ferozepur (achieving targets in respect of number of courses and participants) and Ropar (achieving targets in terms of participants), none of the other four selected KVKs could achieve the targets for imparting trainings to the beneficiaries during the period 2017-22. Besides, the frontline demonstrations (FLD) on major crops and the newly developed technologies were lacking in the selected KVKs.

The University did not fix any targets for collection and testing of soil and water samples. In the absence thereof, the soil samples collected and tested by six KVKs, except in 2018-19 by five KVKs, were mostly on a decreasing trend during the period 2017-22.

Community Radio Stations were not set up in any of the 18 KVKs, as the University did not submit any proposal for the purpose under the scheme 'Support to State Extension Programmes for Extension Reforms'.

The Agricultural Technology Information Centre (ATIC) set up in PAU did not serve fully as a single window delivery system for technology products, diagnostic services and information for farmers and other end users.

1.5.10 Recommendations

In light of the audit findings, the University may:

- take effective measures to overcome the shortage of requisite staff for extension activities;*
- impart adequate training/frontline demonstrations on newly developed crops and technologies, to the end users;*

- (iii) *ensure requisite landholdings with KVKs as per MoUs with ICAR for adequate dissemination of practical training/work experience to the beneficiaries;*
- (iv) *fix targets for collection and testing of soil and water samples;*
- (v) *consider setting up of Community Radio Stations in accordance with the guidelines of the ‘Support to State Extension Programmes for Extension Reforms’ Scheme*
- (vi) *strengthen the Agricultural Technology Information Centre (ATIC) to operate as single window supporting delivery system providing technology products, diagnostic services and information to farmers and other end users: and*
- (vii) *consider maintaining farmers’ centralised database to assess effectiveness of its extension activities, identify their training needs and address any potential issues and challenges.*

The matter was referred (March 2023) to the State Government; their replies were awaited (October 2024).