ACADEMICIA: An International Multidisciplinary Research Journal
ISSN: 2249-7137 Vol. 15 Issue 7, July, 2025 SJIF 2022= 8.252
A peer reviewed journal

STRUCTURAL AND FUNCTIONAL ANALYSIS OF DEPARTMENT OF AGRICULTURE AND PUNJAB AGRICULTURAL UNIVERSITY

Dr. Harmilap Singh*

Email id: harmilap_barring@yahoo.co.in

DOI: 10.5958/2249-7137.2025.00043.3

ABSTRACT

Agriculture forms the backbone of Punjab's economy, making an efficient and well-coordinated administrative system essential for sustainable growth, innovation, and farmer welfare. This paper aims to examine the institutional framework and functional dynamics of Punjab's agricultural administration, focusing on the Department of Agriculture and Punjab Agricultural University (PAU). The objectives are to analyze the organizational structure and governance mechanisms of both institutions, assess their respective roles in policy formulation, research, extension services, and farmer support, and evaluate the extent of their collaboration in addressing the state's agricultural challenges. The study finds that the Department of Agriculture plays a central role in implementing agricultural policies, providing inputs, regulating markets, and delivering welfare schemes, while PAU contributes significantly to research, technological innovations, and farmer training programs. The interaction between these institutions has led to notable achievements in productivity enhancement, modernization of farming practices, and capacity building among farmers. However, the findings also reveal challenges such as limited resource optimization, gaps in policy implementation, and the need for greater integration of environmental sustainability in agricultural planning. The paper concludes with recommendations for strengthening institutional coordination, adopting climate-smart approaches, and enhancing participatory decision-making to ensure the long-term resilience of Punjab's agricultural sector.

KEYWORDS: *Agriculture, Administration, Policy Implementation, Farmer Welfare, Extension, Agricultural Modernization, Climate-Smart Agriculture.*

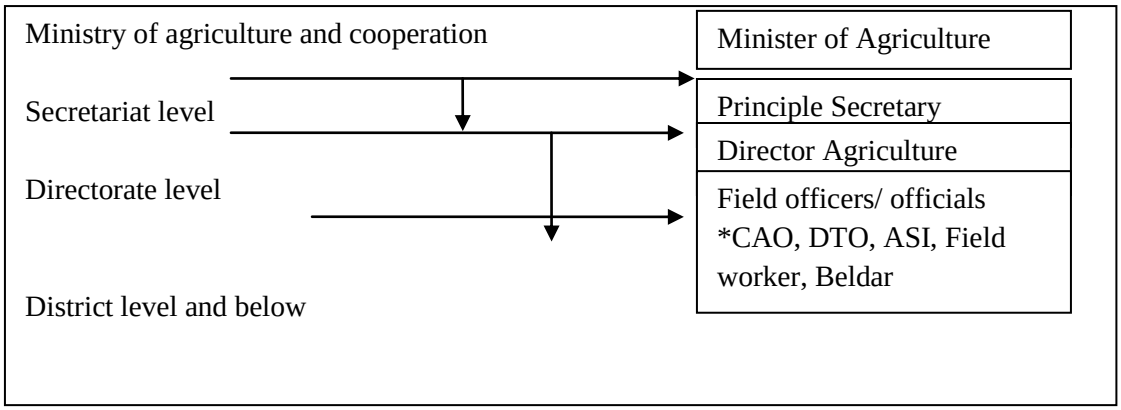
INTRODUCTION

Agriculture has long been the backbone of Punjab's economy, shaping its socio-economic development and sustaining the livelihoods of a large segment of its population. The state's agricultural success, particularly during the Green Revolution, is often attributed to its well-established institutional mechanisms and the collaborative efforts between the Department of Agriculture, Government of Punjab, and Punjab Agricultural University (PAU), Ludhiana. These institutions play a pivotal role in policy formulation, implementation, research, and extension activities aimed at improving productivity, ensuring food security, and enhancing farmers' welfare. The Department of Agriculture primarily focuses on policy execution, resource management, subsidy distribution, and the promotion of modern farming techniques, while PAU is recognized for its significant contributions to agricultural research, innovation, and capacity-

building programs. Together, they form an integrated administrative and functional framework that addresses challenges such as soil degradation, water scarcity, climate change, and market fluctuations. This paper examines the organizational structures, objectives, and operational strategies of these two vital institutions, with an emphasis on their inter-linkages, achievements, and areas for improvement to ensure sustainable agricultural growth in Punjab.

DEPARTMENT OF AGRICULTURE, PUNJAB

The Department of Agriculture, Punjab was constituted a long ago during the British Regime in 1860.A.D. The first set of rules was framed in the year 1933. The Director of Agriculture was the Head of the Department after independence,the state had its own administrative machinery and the department of agriculture remained part of the government structure. Presently, the department is headed by the minister at the government level (see chart below).



Director of Agriculture in Punjab is a highly qualified agricultural scientist who serves as the state's agricultural advisor and is responsible for planning, implementing, and supervising agricultural production programmes. His duties include boosting state crop output, supporting national food security, advising on agro-industries, and managing input supplies such as seeds, fertilizers, and irrigation resources. The department is divided into specialised sections—Administration, Engineering, Hydrogeology, and Statistics—each led by Joint Directors, with further subdivisions for specific areas like extension, high-yield programmes, plant protection, and marketing. At the district level, Chief Agricultural Officers oversee agricultural activities across 23 districts and around 150 blocks.

Objectives of Department of Agriculture, Punjab :

1. Sustainably increase crop production and productivity thereby ensuring food security and enhanced income level of farmers.
2. Promote conservation agriculture.
3. Promote Integrated Nutrient Management (INM) and Integrated Pest Management (IPM).
4. Diversification to horticulture and other high value crops.
5. Efficient management of water resources for irrigation.

6. To disseminate the latest crop production technology to bridge knowledge gap between farmers and expert.

The Major Programmes of the Department of Agriculture :

1. Training camps of farmers at the district level where scientists of the PAU update the progressive farmers and field staff of the Department of Agriculture about the latest scientific techniques on crop production and marketing. These are organized both in Kharif and Rabi seasons at all the district head quarters. Later on the staff of the Department of Agriculture organizes farmers training camps at block and village level. Every year about 3 lakhs farmers are trained on scientific crop production.
2. A campaign is launched both in Kharif and Rabi seasons for soil testing so that the farmers may use balanced dose of fertilizers.
3. Punjab State Seeds Corporation and other agencies produce certified seed of various crops and distribute to the farmers, Department of Agriculture procures seeds from the Punseed and makes available to the farmers at the focal points.
4. Field staff of the Department of Agriculture organizes demonstration plots particularly on the use of seed treatment against pests, method of sowing, irrigation and pest control.

Activities of Department of Agriculture, Punjab

With the introduction of new technology at a rapid speed, practical training and education to the farmers engaged in agriculture and allied occupations had become necessity of the day. Agricultural Information Wing plays a major role in transmitting the latest farm technology to the farmers through farmers training camps and literature. Various activities under taken are as under:-

Farmer's Training: To impart training to the farmers, there are 12 Farmers Training Centers in the State including PAU. Ludhiana & Khalsa College, Amritsar. The detail of camps is given as under:

Name of Training Camps	**Achievements**
District level training camps during Rabi and Kharif	39
Block level training camps	318
Village level training camps	5659
TOTAL	**6016**

Source: Office of Director Agriculture, Punjab

Agricultural Technology Management Agency (ATMA): Extension Reforms in India were pilot studies tested in 28 Districts of 7 States under Innovations in Technology Dissemination (ITD) component of World Bank funded National Agricultural.

PUNJAB AGRICULTURE UNIVERSITY, LUDHIANA

The Punjab Agricultural University was established in 1962 to serve the state of erstwhile Punjab.The PAU has played a key role in increasing food grain production in the Punjab State

several folds share its reputation and ushering in an era of Green Revolution in India. It has also made notable contributions in increasing livestock and poultry production. In recognition of its outstanding achievements in agricultural research, education and extension, it was adjudged the Best Agricultural University in India in 1995.

The Punjab Agricultural University now has four constituent colleges, viz. College of Agriculture, College of Agricultural Engineering, College of Home science and College of Basic Sciences & Humanities. At present the University, through 28 departments in the four constituent colleges, offers 31 Master's and 30 Ph.D. programmes. The course curricula are constantly revised and restructured to keep pace with the latest developments in agriculture and allied fields.

Facts relating to Punjab Agricultural University

Area	:	580 hectare
Off campus area	:	2000 hectare
Research stations **(Six main, four sub-stations)**	:	10
Seeds farms	:	05
Faculty	:	866
Non-teaching	:	3071

Source: Office of Director Agriculture, Punjab

Goals of Punjab Agricultural University:

It is committed to continue improvement in the productivity and profitability of agriculture and allied sectors through the achievement of the following goals.:

- To provide quality education in the areas of agriculture, veterinary science, agricultural engineering and allied fields.
- To undertake basic applied and adaptive research to seek appropriate solutions to emerging problems in agriculture and develop relevant technologies to improve socio-economic conditions of the faring community.
- To develop an effective mechanism for the transfer of technology to the farmers and agricultural organisations through different extension programmes with a view to improve agricultural productivity and economic conditions of rural population.
- To develop appropriate technology for supporting the growth of agro-based industries.

Mission of Punjab Agricultural University:

- Excellence in teaching, research and extension.
- Developing quality manpower.
- Undertaking basic, applied and adaptive research.
- Improving socio-economic conditions of the farming community through cost-effective technologies.

- Developing & promoting appropriate technologies for supporting agro-based industries & generating self-employment opportunities for the youth.
- Seeking appropriate solutions to emerging problems & challenges.

Infrastructure and Athletics

The Punjab Agricultural University is renowned for its academic excellence, research impact, and vibrant extracurricular environment, with world-class sports facilities, cultural spaces, and extensive research farms spread across diverse agro-climatic zones. Its highly qualified faculty and alumni have earned numerous prestigious national and international awards, while the institution itself has been acclaimed as the best agricultural university in Asia and credited with a pivotal role in ushering the Green Revolution in India.

Campus:

Punjab Agricultural University (PAU) is located in Ludhiana city (Punjab State) in northwest India, 316 km from New Delhi. It is well connected by road and rail with the national capital. Situated on the Ludhiana - Ferozepur Road, the university covers an area of 1,510 acres (6.1 km^2) on its main campus and 4,615 acres (18.68 km^2) at the regional research stations. Modeled on the pattern of land grant colleges in the U.S.A., the PAU performs the integrated functions of teaching, research and extension in agriculture, agricultural engineering, home science and allied disciplines. The university has well-equipped laboratories, library and lecture rooms and elaborate farm facilities. Accommodation is available in the university hostels for single students. Married students, if accompanied by their family members, have to find accommodation outside the campus.

Achievements of Punjab Agricultural University:

PAU played a key role to usher-in the first green revolution which transformed the socio-economic life of the peasantry of the region. It enabled the country to achieve self-sufficiency in food grains. This became possible through developing

- Improved varieties and hybrids of field crops, fruits and vegetables.
- Production and protection technologies.
- Appropriate mechanization of farm operations.
- PAU was declared the best state agricultural university in 1995 by the Indian Council of Agricultural Research.
- ICAR has set up five centres of Advanced Studies at PAU (Of these three are now in GADVASU).
- Punjab with 1.53 per cent geographical area contributes about 60 per cent wheat and 45 per cent rice to the central food grain kitty. This is a consequence of path-breaking research at PAU backed by world-class teaching and extension services provided at the door-step of farmers, and the continuous Government policy support.

Contributions of Punjab Agricultural University to Society:

PAU wheat varieties, PBW 343 sown on 2.9 million hectare in Punjab, accrues to farmers benefits worth Rs. 8,900 million, annually.

- Zero tillage means a saving of Rs. 2,500 per hectare. This technology has been adopted on 0.5 million hectare. Net annual saving in cost of cultivation estimated at Rs. 1,250 million.
- Punjab bee-keepers produce 26 per cent of India's total honey.
- Punjab mushroom growers account for 50 per cent of India's total mushroom production.
- Food grain production in Punjab has jumped from 3.2 million tonnes in 1960-61 to 25.9 million tonnes in 2004-05, against India's 205 million tonnes from 82 million tonnes, i.e. more than 8 times as compared to 2.5 times of the country in the corresponding period.
- Punjab's share in India's food grain production was 13 per cent in 2004-05 against a mere 4 per cent in 1960-61; such has been the impact of the green revolution ushered-in by PAU.

Administration of Punjab Agricultural University:

The Board of Management (BOM) is the apex body of the university, which makes policy decisions, provides guidance for governance, appoints faculty and staff and controls assets and finances of the university. The Governor of Punjab is the Chancellor and honorary chairman while the Vice-Chancellor is the chief executive of the university and serves as chairman of the BOM. There are 13 official and non-official members in the Board of Management. Other administrators assisting the Vice-Chancellor are the Registrar for general administration and the Controller for financial management. The undergraduate teaching programmes of various faculties are administered by respective College Deans whereas postgraduate programmes are administered by Dean, Postgraduate Studies. The Academic Council at the university level and the Board of Studies at the college level play an effective role in designing new courses, modifying course curricula and other academic matters. The Director Students' Welfare looks after students' welfare, extra curricular activities, sports, medical and health care. Research and extension programmes are supervised by the Director of Research and the Director of Extension Education, respectively. The Director of Research is assisted by Additional Director of Research in Agriculture and Coordinators of Research of the respective colleges of the university. An Additional Director of Extension Education assists the Director of Extension Education in training and communication. The maintenance of infrastructure and physical facilities are being looked after by the Estate Officer-cum-Chief Engineer.

Kisan Melas at Punjab Agricultural University:

Punjab Agricultural University pioneered the concept of Kisan Melas in India in 1967, organising them twice a year to provide farmers with field demonstrations, exhibitions, and competitions. These events, held both at the Ludhiana campus and regionally across different agro-climatic zones, attract nearly 0.1 million farmers per session and also feature prestigious awards recognising progressive and innovative farming practices.

Punjab Agricultural University's Expert Areas:

Skill Development		
Food & Nutrition Management	Food Service Management	Cooking
		Baking
		Preservation
		Catering
	Food safety	Food Hygiene
		Food Borne diseases
		Food Adulteration
Apparel Designing, Production & Marketing	Garment Designing	
	Pattern Making	
	Garment Construction	
	Value Addition	Natural Dyeing
		Decorative Dyeing
		Tie and Dye
		Batik
	Textile Embellishments	Fabric Painting
		Fabric Printing
		Embroidery
		Darie Weaving
		Macrame
	Marketing of Various Garments	
Family Resource Management	Time Management	
	Energy Management	
	Money Management	
	Value addition through Art & Craft	Gift Packing
		Rural Handicrafts
Communication and Instructional Technology	Communication & soft skills	
	Instructional Designing skills	
	Instructional delivery skills	
Empowerment of Women	Gender Sensitization	
	Entrepreneurial training	
	Organization of Extension training programmes	
	Leadership Development	
	Training of trainers	
Innovation		
Diagnostics, Testing & Validation	Textile Designing & Testing	Textile Technology Development
		Textile designing

		Textile Crafts
		Textile finishes
		Textile testing
	Identification & prevalence of Nutritional Problems and Disease	
	Nutritional Assessment & Evaluation	
	Psychological measurement	
	Training needs Assessment & Analysis	
	Evaluating educational packages/ materials	
	Exploration, testing & validation of indigenous knowledge	
	Impact Assessment of Development Interventions	
Technology Development	Value addition technologies in arts & crafts	
	Instructional module/media development	
	Nutritional Recipes	
	Therapeutic diets	
	Dyeing of animal and vegetable fibers with natural dyes	
	Non-conventional Printing techniques	
Outreach		
Transfer of Homestead technologies	Apparel designing technologies, construction & embellishments	
	Clothing care and detergent making techniques	
	Nutritional Training	
	Child Care & Counseling Services	
	Resource Conservation & Utilization	
	Art & Craft skills	
	Communication & leaderships	
Consultancy		
Expert Services	Establishment of a Boutique	
	Garment Construction & Tailoring Unit	
	Home Preservation of fruits & vegetables	
	Soap & detergent Making Unit	
	Establishment of a day care centre	
	Consumer Empowerment cell	
	Designing functional home interiors	
	Designing a functional kitchen	
	Establishment of Educational Technology Cell	
	Educational Counseling	
	Family Counseling	
	Instructional Media Production Unit	
	Dyeing of animal and vegetable fibers with natural dyes	

CONCLUSION

The Department of Agriculture and the Punjab Agricultural University together form the backbone of Punjab's agricultural growth, sustainability, and innovation. Their structural and functional synergy ensures that research, education, and extension services are effectively integrated to address the evolving needs of farmers. Through systematic policy implementation, targeted research, advanced technological interventions, and proactive farmer outreach programmes like Kisan Melas, these institutions have significantly contributed to enhancing crop productivity, promoting sustainable practices, and improving rural livelihoods. By maintaining a strong linkage between laboratory research and field application, they have not only strengthened Punjab's agricultural economy but have also set a benchmark for agricultural development models in India. Moving forward, continued investment in modernisation, climate-resilient practices, and farmer-centric policies will be essential to sustain this growth trajectory and ensure food security for future generations.

REFERENCES

1. Chaudhary, Krishan Bir., *"Our farmers will pay the price"*. Fanner's forum, 7(1) January 2007.
2. Chauhan, S.K., *" Beekeeping entrepreneurship : A success story"*, Indian fanning, 57(2), May 2007.
3. Department of Agriculture and Farmers Welfare, Punjab. (2023). Annual report 2022–23. Government of Punjab.
4. Gill, M. S., & Singh, R. (2018),*Agricultural development in Punjab: Issues and strategies*. Indian Journal of Economics and Development, 14(2), 278–284.
5. Kaur, G., & Sidhu, R. S. (2020),*Agricultural extension and advisory services in Punjab: Role of Punjab Agricultural University*. Agricultural Reviews
6. Punjab Agricultural University. (2023),*Research and extension activities 2022–23. Ludhiana*: Punjab Agricultural University.
7. Singh, B., & Sharma, P. K. (2019),*Technological innovations for sustainable agriculture in Punjab*. Journal of Agricultural Research, 56(4), 501–512.
8. Singh, S., & Gill, S. S. (2021),*Challenges and opportunities for Punjab agriculture in the 21st century*. Economic and Political Weekly, 56(10), 45–52.