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PUNJAB STATE FARMERS' POLICY



Punjab State Farmers' and Farm Workers' Commission

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THE PUNJAB STATE FARMERS' AND FARM WORKERS' COMMISSION

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PROLOGUE

The Punjab State Farmers' and Farm Workers' Commission has drafted the Punjab State Farmers' Policy. The fact that there was no such policy earlier in the State has made this task more challenging. The attempt is not to make an ideal policy document that meets the expectation of every stakeholder but to attempt a pragmatic policy document in the long-term interest of the largest number of farmers.

This document is the result of wide-ranging consultations with stakeholders. The Commission has kept financial constraints of the Government of Punjab and of the farmers in mind while drafting this policy. The suggested policy interventions are not exhaustive but are indicative and intend to take Punjab forward with a clear focus on improving farmers' prosperity and provide for a better quality of life.

Your valuable suggestions and inputs to improve the draft Punjab State Farmers' Policy are solicited.

Chairman

Punjab State Farmers' and Farm Workers' Commission

Punjab State Farmers' Policy

I. Introduction

1. A brief historical perspective
2. Challenges from beyond state boundaries

II. Vision

III. Who is a farmer

IV. Objectives

V. Policy

1. Governance
2. Socio-Economic Development
3. Climate Change, Sustainability and Bio-diversity
4. Land
5. Water and Power
6. Crops
7. Animal Husbandry, Fisheries and Others
8. Agriculture Research and Education
9. Farm Extension
10. Post-Harvest, Value Addition and Marketing
11. Credit and Risk Management
12. Farm Mechanisation

VI. Conclusion

I. Introduction

1. A Brief Historical Perspective

At the time of Independence, the Indian part of partitioned Punjab inherited the less productive part of the erstwhile state. In little more than two decades after Independence, however, Punjab emerged as an outstanding example of the Green Revolution and prosperous farmers, which other states in the country are still trying to emulate.

During the 1950s, basic institutional and economic infrastructure was created for agriculture through massive public investments. The investments were made in development of irrigation and rural electrification, agricultural research and extension services, strengthening of the cooperative credit structure and expansion of markets. Simultaneously, land reforms were undertaken and Punjab was able to record an agricultural growth rate of 4.6 per cent per annum during 1950-51 to 1964-65, even before the "Green Revolution".

The adoption of new production technologies by the farmers in the late 1960s along with expansion of marketing and storage infrastructure, smooth procurement of huge surpluses, the advantage of a ready market, better returns from paddy and wheat over other crops and impressive yield gains coupled with corresponding institutional arrangements led to a remarkable expansion of area under wheat and paddy. Consequently, the cultivation of most other crops registered a slow but persistent decline. Farm mechanization played an important role by ensuring timeliness and precision in farm operations. The pattern of growth for wheat and paddy over time is also indicated by data in Annexure-I.

Continuous investments in agriculture during the Green Revolution, through both forward and backward linkages, generated all-round economic development in the State. Manufacture of small-scale agriculture implements, transport and services emerged and flourished, along with social infrastructure and the spread of health and education in Punjab. The extension system for agriculture boasted of well-trained man-power and extensive reach to the farmers with the Punjab Agricultural University (PAU) leading at the technological forefront.

The demand for capital increased with transformation of the traditional agriculture to high input agriculture. The Cooperative System in the state is well developed but is plagued by political interference. Credit supply through cooperative institutions, land mortgage and public-sector banks kept pace with this development. Punjab has about 10 million acres of cultivated land and the total short-term credit required is estimated at Rs. 24,000 crores per season whereas the crop loan outstanding of all banks is around Rs. 60,000 crores. There are around 26 lakh farmers in the State whereas all banks together have issued more than 40 lakh Kisan Credit Cards. Over a period of 11 years (2004-05 to 2015-16), the credit offtake has increased by around 8 times whereas production increased only 1.11 times. This raises concerns about (a) the quality and use of credit; and (b) the inadequacy of the monitoring system. It is estimated that one tractor is available for every 8.7 hectares of cultivable land in the State and average use of tractors is less than 40% of the 1000 hours required for economic viability. This is borne out by the increasing indebtedness coupled with disintegration of the social fabric in rural areas, which has resulted in large number of suicides by farmers and farm labourers over the past two decades.

The over dependence on tube-wells and the over exploitation of ground water is reflected in Annexure-II. On an average, there are 34 tube wells per square kilometer of net sown area in Punjab (2015-16). The State policy of free power for agriculture in combination with central policy favourable to paddy cultivation paved the way for indiscriminate use of ground water. This has resulted in 110 out of 148 blocks being over exploited for ground water. The situation has reached a critical stage and a shift from existing practices is necessary to ensure that the next generation has adequate natural resources for its use.

The production technology worked well until mid 1980s but subsequently, growth in agriculture slowed down and growth in paddy and wheat yields decelerated. Compelled by policy aimed at national food security needs, Punjab focused on increasing production and productivity of paddy and wheat through expansion in area under these crops thus narrowing the genetic resource base. It has now reached a stage where substantial increases in production or productivity have become uneconomic and unsustainable.

A region specific primary ecological constraint has emerged in the form of falling water table. There is a dire need to diversify away from paddy. On the economic front, the returns from agriculture are not keeping pace with other sectors. A shift to higher value agriculture is generally advocated. Punjab is a net importer of horticulture produce. But a shift to horticulture is faced with several challenges as indicated by the fact that over 70 per cent of the green houses installed in the State are economically unviable.

There is a lack of trained extension services in non-traditional areas of agriculture. Even though farmers would need to be continuously supported, the design of the present agriculture

support programmes needs to be changed to make it more sustainable.

The department of agriculture and animal husbandry are understaffed by over 50% and even the deployment of extension staff is not uniform over the blocks. The enforcement of farm input regulations has been historically very weak, resulting in abnormally low conviction rates.

The share of livestock GDP in agriculture GDP is continuously increasing and contributed 31.86 per cent of the agricultural GDP during 2015-16. Dairy is an important component of the livestock sector and milk production contributes to about 80% of livestock output in the State. At present there is one veterinarian for about 6,000 animals in the state. Prolific and unregulated use of antibiotics in the livestock sector has become a major concern.

The challenges of today are consequences of the successes in the past.

The number of agricultural workers has increased from 24.50 lakh in 1970-71 to 35.22 lakh in 2015-16 but, as a percentage of total workers, the number of agricultural workers has declined from 62.70 per cent to 35.59 per cent during this period. Agriculture continues to support a large part of the workforce but the situation can largely be categorized as disguised unemployment.

Punjab industry has also suffered because of tax benefits provided to adjoining hill states, thereby adversely impacting creation of off-farm job opportunities for the youth of Punjab. The income of a Punjab farm household is still the highest in the country at an annual Rs. 2,16,708. The non-agricultural component in the farm household income in Punjab is about 4.2 per cent that is half of the national average, implying lack of occupational diversity in the

State's farm households and almost total dependence on agriculture.

The disparity between per capita income in the farm sector and the non-farm sector increased in recent years due to near stagnation in productivity, fragmentation of land holdings and the rising cost of production. This is also indicative of lack of skill, quality education and opportunities for alternate employment in rural areas. Under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), of the Government of India, Ministry of Rural Development, employment is generated only for 11 days per year per job card. More importantly, lack of credible data inhibits good decision making.

The Punjab Government has not been able to avail of the full advantage of Central Government programmes as its staff and consultants are not adequately familiar with the guidelines; more so about changes in these guidelines.

These dire circumstances call for a decisive shift to facilitate the 'well-being of farmers.'

On the positive side, Punjab has fertile soil, almost 99 per cent of its cultivated area under irrigation, adequate basic agricultural infrastructure, a dedicated group of agricultural scientists and enterprising farmers.

Given these advantages, it is not difficult to make a shift to profitable, modern, ecologically and nutritionally sound, market driven and diversified agriculture.

2. Challenges from Beyond State Boundaries

Punjab has limited influence on many emerging and perceived factors that have a bearing on the State's agriculture.

Improved economic prosperity across India is leading to fast-changing consumer preferences along with a conspicuous and welcome shift to more protein-rich diets, further dampening demand for the Public Distribution System (PDS) oriented produce of the State. A shift is also visualized from large scale physical delivery of grains under the PDS to Direct Benefit Transfer. This will adversely impact food procurement under the Minimum Support Price (MSP) programme in Punjab.

Crop yield, production and procurement in other states is increasing and, if this trend continues, the demand for Punjab's produce will diminish. The Central Government is in the process of formulating the policy and it is apprehended that the States may be asked to share the burden of deficiency price payment when market prices are below minimum support prices, while it remains responsible for arbitrarily decreasing prices.

The government is introducing Bhavantar Bhugtan Yojana for procurement of those crops for which MSP is announced but procurement is not made. Such procurement programmes would not be open ended but will be limited to a per farmer area cap and a quantity cap. A similar situation is likely to emerge for wheat and paddy in the near future which would be detrimental to the interests of State farmers.

The Central Government is in the process of changing the mechanism of delivery of fertilizer subsidy. If the shift is to per hectare/per crop subsidy, Punjab farmers will lose the cost advantage to that extent.

Agriculture is a State subject and the onus of ensuring delivery of quality input to the farmers lies with the States but the Acts enacted by the Central Government are not conducive for effective regulation and implementation at the State level.

Four segments of the food value chain namely agricultural inputs, commodity aggregation, brand ownership and retail are being consolidated. Corporate conglomerates are moving towards controlling the entire value chain. This will create a situation where it will become increasingly difficult even for the Central Government to control the process and terms of trade for farmers, which will continue to decline.

International trade negotiations and import-export policies are in the Central Government's domain where the opinion of the State Government is not being seriously considered. It must be noted with some concern that the Central Government responds faster to consumer food inflation than to a crash in agricultural prices. Farmers have often felt that they remain the primary inflation mitigation tool and their losses are hardly reckoned in these policy considerations. In the near future, food deficient states may be incentivised to procure shortfall directly from any available source. Punjab, as a primary producer, will continue to bear the brunt of consumer centric policy options.

Disturbed relations with neighboring Pakistan have restricted access to adjoining international markets. Punjab is a land-locked state and at a disadvantage to tap export opportunities vis-à-vis states that have coastlines.

Firming of crude oil prices will impact resource allocation and will lead to increase in cost of inputs in future.

II. Vision

“To continuously increase incomes of those dependent on agriculture on a sustainable basis while preserving the ecological balance for future generations.”

III. Who is a Farmer?

This policy is for farmers and goes beyond agriculture. Therefore, the term farmer has been defined to cover a host of activities.

The term “**FARMER**” in this policy refers to any person actively engaged in the economic and/or livelihood activity of producing primary agricultural commodities and includes all agricultural operational holders, cultivators, agricultural labourers, sharecroppers and tenants engaged in various farming-related occupations such as growing crops, poultry, livestock, fisheries, beekeeping and agro-forestry.

IV. Objectives

The time has come, for economic and ecological reasons, to re-orient policies and support systems to consistently improve prosperity and quality of life of farmers, particularly the small, marginal and landless farmers. The following are the key objectives of this policy:

1. Achieving acceptable levels of living standards for all.
2. Conserving natural resources.
3. Combating disguised unemployment.
4. Improving governance and delivery of services to farmers.

V. Policy

1. Governance

Farmers' distress and suicides are a direct consequence of the prevailing agrarian crisis caused by ineffectual policies. Some of the factors are lack of good governance, unsatisfactory enforcement of rules and regulations as well as intrusions into administrative matters leading to policy and implementation failures. Lack of coordination among ministries and departments within ministries is also an important factor for poor governance.

The Government shall, therefore:

- i. Merge the ministries of agriculture, cooperation and animal husbandry into one ministry. The merged entity will be under the direct control of an officer of the rank of Additional Chief Secretary to be assisted by suitable number of senior level officer for each new department.
- ii. Create a data bank on the farmers' ecosystem. Big data and machine learning will be used for evidence-based policy innovation and implementation.
- iii. Mandate e-documents (as per Information Technology Act, 2000) in all the State Government Departments and Ministries.
- iv. Leverage ICT technology to deliver services, farm extension and knowledge of government programmes to the farmers.
- v. Set up a responsive grievance redressal mechanism that will also enable resource-poor farmers to avail of the benefits of government schemes.
- vi. Ensure that government interventions are made with the purpose of positively impacting maximum number of farmer families. This will be done with the help of metrics to measure impact assessment, audit of government

programmes, time utilization, officer performance evaluation and targeted delivery of subsidy.

- vii. Evolve a mechanism for regular consultation with stakeholders and support will be directed to specific target groups.
- viii. Activate and facilitate Gram Sabha to meet and perform functions as per “Punjab Panchayati Raj Act, 1994”.
- ix. Accelerate geo-tagging and digitization of land with first priority to public assets.
- x. Build technological and managerial capacities of government officers.
- xi. Make the compliance of environmental and health care concerns for human and livestock, arising out of agricultural activities, an integral part of financial incentives.
- xii. Incentivise whistle blowers to ensure that quality inputs are provided to the farming community.
- xiii. Make available farmer-related services round the clock.
- xiv. Involve Guardians of Governance and PSFC for monitoring on-site programme implementation.
- xv. Ensure that all interventions and resource allocation are in conformity with the objectives of this Policy.
- xvi. Set up a mechanism in Delhi to proactively advocate the concerns of the State before the Union Government.

2. Socio-Economic Development

Government shall make efforts to achieve a satisfactory and equitable standard of living for all farmers, particularly landless workers, marginal and small farmers. Government shall, therefore:

- i. Make basic clinical tests and medication available at affordable costs to offset the exorbitant expenditure of health care. The State will also dovetail its existing health insurance programme with the Central Government's new health insurance scheme.
- ii. Improve the quality of rural education to prepare students to compete with their urban peers. Content for every subject for each class/ category will be created and disseminated through various media including social media and free TV channels. Investment in Flip classrooms will be prioritised over investments in physical classrooms. In view of the preference for English for better employment opportunities, English medium education will be made available as an option.
- iii. Prioritise and strengthen skill development. Preference for local youth in industry will be incentivised. A separate skill registry for agricultural workers will be planned. Alternate employment opportunities both on-farm and off-farm will be increased.
- iv. Ensure the payment of equal wages to men and women workers for similar work.
- v. Consider the idea of providing income support (decoupled from production) to landless, marginal and small farmers so as to stabilise incomes that are subject to volatility.
- vi. Examine the possibility of providing pension cover under the existing Central Government contributory pension scheme with matching grant from the State Government.
- vii. Increase monthly pension and ensure its disbursement on time.

- viii. Compensate farm workers for loss of livelihoods, in the event of crop failure due to natural calamity or disease and pest epidemics, either through group insurance or through a separate fund.
- ix. Reconsider the policy for providing relief to suicide affected farmer families to make it more rational.
- x. Review and strengthen the programme for providing compensation to the victims of agricultural operations related accidents being run by Punjab Mandi Board.
- xi. Strengthen implementation of MGNREGA to cover more families and regions with more work days per family and set up effective monitoring mechanisms.
- xii. Explore financial incentives/grants for agriculture labour to reduce the cost of borrowing for non-farm activities.
- xiii. Constitute district/block level committees to monitor the implementation of welfare schemes related to housing, credit and sanitation etc. for agriculture labour, economically weaker sections and socially-backward persons in rural areas.
- xiv. Monitor panchayats distributing free plots to landless families to ensure that all landless of the State have a home of their own and provide assistance for construction. Support landless farmers, who received plots earlier but were unable to construct houses because of lack of capital. Dispossession of the original allottees will be penalised.
- xv. Develop a village-level mechanism or activate 'Gram Sabha' to identify the distressed families and meet regularly to counsel and support distressed families.
- xvi. Use social media outreach to change mindset and address concerns of drug use, suicides, depression and other psychological issues.
- xvii. Lay emphasis on improving physical health of individuals and will create infrastructure for sports in rural areas.

- xviii. Launch a campaign to check unnecessary expenditure on social engagements such as birth, marriage, death and, for this purpose, will bring out a Guest Control Order.
- xix. Commission a detailed study to ascertain the causes of farmers' suicides in Punjab and use the findings to suggest effective interventions.

3. Climate Change, Sustainability and Bio-diversity

While the impact of climate change is visible with worrisome sustained increase in temperatures and relative humidity across Punjab, there exists a window of opportunity for Punjab to initiate policy changes to mitigate its adverse impact and take advantage thereof.

The Government shall make efforts to preserve and restore ecosystems and to promote climate resilient agriculture by ensuring that:

- i. Village common lands are used to provide required biodiversity to protect agriculture. The cultivation of paddy in such lands shall not be permitted. Additionally, biodiversity reserves of about one hectare will be planned in each village.
- ii. Plants creating a stress on the environment are replaced by beneficial green cover foliage across Punjab to increase diversified local flora and fauna essential for bio-diversity and to save endangered local species.
- iii. Crop and variety based on-farm biodiversity is promoted.
- iv. A plan for reducing green-house gas and ammonia emissions and sequestering carbon while maintaining food production is put in place. Government will explore incentivising and propagating use of biomass for bio ethanol, CNG, compost, biochar, power generation and such others.
- v. A multi-pronged approach to take care of crop residues is finalized in consultation with experts in the field. Accordingly, a paddy straw challenge fund has been announced to attract new ideas to solve the residue management problem.
- vi. Possibility of availing of carbon credit for improved agricultural practices such as direct seeding of rice, zero burning of paddy straw and such others shall be explored.

4. Land

Land is the most vital resource for agriculture. To promote its optimal use, the Government shall:

- i. Permit non-farm use of good agricultural land only as a last resort.
- ii. Enact a law to enable land leasing.
- iii. Make 'takseem' mandatory at time of inheritance of property within six months and discourage fragmentation of land.
- iv. Ensure compulsory 'takseem' for land titles and simplify procedures. The Sub- Divisional Magistrate and Tehsildar will be held responsible for the same.
- v. Ensure that village common lands are reclaimed for common purposes of the village residents. Make the administration liable for ensuring that common lands are maintained for community use.
- vi. Make provisions to give, on a priority basis, panchayat land of the village on lease for agriculture to Cooperatives/Societies/Groups of economically and socially disadvantaged farmers.
- vii. Make certain that auction of panchayat land reserved for dalits is for use by dalits only, irrespective of all other considerations.
- viii. Financially penalise the panchayats where panchayat land is in adverse possession and hold elected Sarpanch and the concerned Block Development Officer of such villages liable.
- ix. Launch a programme for sustained land reclamation and improvement.
- x. Amend "The Punjab Security of Land Tenures Act, 1953" to provide for land rent based on the prevailing market rates.

5. Water and Power

Water is most precious input for agriculture. The water table is continuously getting depleted and extraction of water is becoming ecologically and economically unsustainable. Even worse, problems of severe water logging and soil salinisation are emerging in the south-western parts of Punjab. To improve water productivity the Government will, therefore:

- i. Frame a State Water Policy to promote and regulate the conjunctive and optimum use of surface and groundwater.
- ii. Use *Abiana* (water charges) for maintenance of canal irrigation system. To ensure supply of water at tail-ends, all the canal outlets will be checked and re-modeled so as to draw only authorized discharge of water.
- iii. Strictly enforce the law to check the theft of canal water. The Divisional Canal Officer shall be held accountable for theft of water in his jurisdiction.
- iv. Enforce the law enabling laying of underground pipeline system to facilitate farmers to optimise water use efficiency and resources.
- v. Encourage improved on-farm practices that optimise water use efficiency by the use of water-efficient technologies, including micro irrigation and fertigation systems run by solar power.
- vi. Take up management of land and water resources on watershed basis. Specifically take up *in-situ* rain water conservation through construction of water-harvesting structures particularly in *Kandi* area. Promote drainage line treatment with a combination of vegetative and engineering structures to control erosion where required.
- vii. Promote restoration of storage capacity of natural and man-made water bodies. Prioritise recharging ground water in the critical regions.

- viii. Efficiently maintain the existing canals and drainage systems in the State. Prioritise lining of canals. Modernize the canal regulation system, including head works.
- ix. Ensure continuous monitoring of canal water for quality and traceability of effluents.
- x. Encourage recycling of waste water for irrigation. The discharge of untreated sewage into the natural streams and canals will not be allowed.
- xi. Strictly enforce setting up of treatments plants by all industries discharging effluents.
- xii. Rationalize ballooning power subsidy to reduce unsustainable use of ground water. Power subsidy will be strictly restricted to non-income tax payee farmers.
- xiii. Initially levy a flat rate for power @ Rs.100 per BHP per month for the farmer owing 4 hectares of land or more, to be utilized for welfare of small, marginal and landless farmers. Subsequently, consider rationing the power subsidy to a financial cap for such farmers.
- xiv. Explore options of providing power subsidy as a direct benefit transfer.
- xv. Confine free residential electricity to socially and economically backward sections of rural society.

6. Crops

Raising crops is the primary economic activity of the farmers. The objective of enhancing farmers' incomes makes promotion of diversification imperative from economic and ecological points of view. For this purpose, the Government shall:

- i. Facilitate preparation of Area Specific Crop Production Plans based on harmonising natural endowments and market demand so that all investments and effort of various departments are in-sync with government objectives. The funds under various programmes will be deployed as per these plans.
- ii. Incentivise agro-ecological management for a sustainable system approach.
- iii. Promote organic farming and converge all activities/schemes for organic farming being implemented by various agencies under the Agriculture Department. Incentivise certification for organic farming.
- iv. Check sale of sub-standard agricultural inputs and, for this purpose, examine the possibility of enacting a State legislation.
- v. License only those pesticides for use in the State which are included in the packages of practices recommended by PAU.
- vi. Ensure that soil health cards are prepared for every field and farmers are educated about the proper use of fertilisers based on soil and crop-based parameters. Promote a balanced and conjunctive use of chemical and organic fertilisers to enhance soil fertility. Introduce newer technologies such as Microbiome technologies to improve crop yields, pest control and reduce water use.
- vii. Develop Integrated Pest and Disease Management modules for all major crops to achieve an annual reduction of 10% in use of agro-chemicals in the State.

- viii. Prepare a separate seed policy to ensure proper certification of seeds sold in the State. Strengthen State seed agencies and encourage seed production including fodder seed. Expand the role of the private sector in strengthening seed production of the high yielding varieties/hybrids.
- ix. Amend the “Planting Material and Nursery Act, 1961” to enforce availability of quality disease-free planting materials to the farmers.
- x. Incentivise fruit and vegetable cultivation such that it becomes a sustainable and viable venture for farmers with special focus on cluster farming and in peri-urban areas.
- xi. Focus on floriculture for generating income and employment opportunities and incentivise exports.
- xii. Propagate beekeeping for improving not only the sustainability of agriculture but also for improving livelihoods.
- xiii. Incentivise protected cultivation only in areas where adequate trained manpower to hand hold and support farmers for this technology is available.
- xiv. Promote agroforestry particularly in the foothills and ‘bet’ areas as well as in water-logged and saline areas of the State.

7. Animal Husbandry, Fisheries and Others

The Government recognizes that the farmers' income can be increased by giving a bigger impetus to livestock development. Livestock sector has the potential to generate self-employment opportunities for a large number of farmers. Therefore, Government shall make efforts to:

- i.** Promote rearing of buffaloes of high genetic merit through research and development as the future dairy animal of Punjab. Salvaging male buffalo for meat will improve economic returns to the farmers and will generate employment.
- ii.** Raise nursery of heifers with high genetic potential as replacement stock to achieve lowering of age at first calving by 8-9 months.
- iii.** Incentivize rearing of goats to improve livelihood, particularly for resource- poor families in rural areas.
- iv.** Encourage piggery for diversification, employment generation and increasing income of farmers.
- v.** Promote backyard poultry programme with induction of breeds suitable for this purpose.
- vi.** Make Punjab a repository of superior genetic merit bulls and semen, organise its production in a farmer participatory mode through identification, selection and registration of elite females.
- vii.** Take up herd registration of the State's livestock to improve genetic selection, ensure traceability and minimize use of antibiotics.
- viii.** Strengthen existing veterinary dispensaries and hospitals. Take steps for capacity building of veterinary officers and paravets through refresher courses and compulsory mid-carrier training courses.
- ix.** Regularly screen/test animals at farmer's doorstep for major infectious diseases, using standard diagnostic protocols to

avoid losses. Provide for regular and mandatory vaccination for livestock to make Punjab a disease-free State.

- x. Ensure proper storage facility and cold chain for vaccines for effective disease prevention.
- xi. Enact a legislation to regulate the quality of livestock feed. Promote ration balancing and introduce area specific mineral mixture to meet nutritional needs of the animals.
- xii. Popularize new methods of preservation of fodder like silage and bailing.
- xiii. Expand area under aquaculture with special focus on salt-affected, water-logged, underproductive or unproductive waste lands in south west districts of the State.
- xiv. Increase availability of quality fish seed by creating necessary infrastructure like fish seed hatcheries and trained manpower required for fish seed production. Establish state level brood stock bank and take up hatchery registration and fish seed certification.
- xv. Incentivise modernization of abattoirs, set up a framework for butchers' shops, utilise slaughter house waste and develop value added products.
- xvi. Strictly implement quality standards and development of uniform meat quality evaluation system in the state, including livestock waste management.
- xvii. Establish and encourage rendering units across the State.
- xviii. Mandate the Departments/Agencies to provide emergency services and artificial insemination services round the clock. Ensure that each veterinary hospital has a functional primary diagnostic laboratory and each polyclinic a well-established molecular diagnostic laboratory for timely diagnostics and interventions.
- xix. Ensure hassle-free transportation of livestock across the state.
- xx. Collect cow-cess and ensure its proper utilization to tackle stray cattle menace.

8. Agriculture Research and Education

Efforts will be made to improve scientific literacy about valuable traditional practices and new technologies. The Government will:

- i. Ensure adequate human resources, working contingencies and required infrastructure to the universities and strengthen livestock research in GADVASU.
- ii. Effectively implement the “Punjab State Council for Higher Education Act 2017” to improve and regulate the quality of agricultural education as per Indian Council of Agricultural Research (ICAR) guidelines.
- iii. Encourage research on farming systems with a focus on intercropping as a means for agricultural diversity and enhancing incomes.
- iv. Advise universities to focus on research for responding to ground-level issues of farming and their solutions particularly on development of water-efficient crops, varieties and practices along with salt-tolerant varieties for salinity-affected areas.
- v. Focus on developing new seeds with high productivity and higher tolerance to biotic and abiotic stresses.
- vi. Improve coordination between universities and departments to enable knowledge transfer, innovation and extension work. Encourage regular feedback and consultation for finalizing the package of practices recommended to farmers.
- vii. Encourage inter-disciplinary education and multi-disciplinary research to develop human resources to take a broader view of the circumstances.
- viii. Provide adequate budgetary support for strengthening and restructuring research programmes and development of high-caliber human resource. Leverage funds under Central Government schemes for the purpose.

- ix. Establish Centres of Excellence for strengthening research in rearing buffalo and small ruminants especially goat, pig and fish.
- x. Strengthen horticulture research and education for diversification and research in alternate crops to paddy and farming systems.

9. Farm Extension

Over the last decade farm extension services have not kept pace with the rising knowledge requirements of the farmers. This has led to overuse and misuse of inputs and also resulted in proliferation of spurious and sub-standard insecticides, seeds and fertilizers. The government will:

- i. Restructure the departments of agriculture and horticulture to align and merge all extension services to reduce administrative and organizational burden of delivering services and improve monitoring.
- ii. Make an effort to recruit at least one-third of its officers from amongst women while making new recruitments.
- iii. Upgrade the knowledge and IT skills of the field functionaries through various refresher courses and compulsory mid-career training.
- iv. Focus on peer learning to help disseminate information through 'fellow farmers' to get multiplier effect in extension.
- v. Adopt new technologies, use satellite imagery, hand-held sensors, smart phones and social media to ensure that proper farm extension services reach the last farmer.
- vi. Make it mandatory for input sellers to report all delivery and sale transactions in real time to the State Government.
- vii. Encourage the private sector to complement farm extension, while continuing to place the onus of providing extension on with the agriculture department.
- viii. Mandate and incentivise a Contract Service Provider System for input management to ensure that initially 10 per cent of the total sales of agricultural inputs, particularly insecticides to farmers by companies/ retailers be delivered as services. This share will progressively increase to 50 per cent.
- ix. Address the issues of a nearly absent livestock extension programme in the state through propagation of new technology and knowledge to farmers. Create a new

Department of Livestock and Fisheries Development by merging and restructuring the Department of Dairy Development and Fisheries with a mandate to provide extension services.

10. Post-Harvest, Value addition and Marketing

Punjab agriculture has now reached a stage where the incomes of farmers cannot be continuously increased by simply growing crops that the central government procures. The focus should now be shifted to producing what the market demands. The Government will:

- i. Establish a Market Intelligence Cell to assess the demand of Indian and international markets for agricultural commodities of relevance to Punjab, particularly horticulture and livestock products in consonance with international trade treaties.
- ii. Adopt a strategy for providing complete cold chain facilities collectively for niche areas having potential for production of horticulture crops/livestock products, to enable the maximum utilisation of the facilities.
- iii. Develop strategies to promote and initiate campaigns such as "Food of the Punjab" designed to tap market opportunities for getting premium on the produce of the state.
- iv. Lay emphasis on farm gate primary processing for adding value to agricultural produce and enhancing farmers' incomes.
- v. Reorganize institutions like MARKFED and Punjab Agro Industries Corporation to ensure organized processing and marketing of farmers' produce in accordance with their primary mandate, which is not food-grain handling.
- vi. Make investments to develop 4-5 modern timber markets in the State with latest infrastructure for drying, seasoning and saw mills that could be used by farmers or their groups to make value-added products.
- vii. Establish and promote 4-5 modern fish markets.
- viii. Encourage the Punjab State Agricultural Marketing Board (Mandi Board) to create a special purpose vehicle (SPV) by raising its own resources for making silos at railheads and

mandis to improve efficiency of food grain procurement and dispatch.

- ix. Ensure that the Punjab Mandi Board actively facilitates the establishment of producer markets and private market either in Public Private Partnership (PPP) mode or otherwise. Promote e-markets and market yards for special commodities along with necessary infrastructure for marketing.
- x. Reduce the notice period to receive direct payment for sale of produce from 45 days to 7 days.
- xi. Set up a fund for need based research and price stabilization of milk and non-MSP crops to be funded by a cess of 20 per cent on the commission of arthiyas for procurement of wheat and paddy.
- xii. Actively promote collectivization of small and marginal farmers into commodity specific Farmer Producer Organizations (FPOs) especially for small ruminants, livestock products and perishables.
- xiii. Establish a business incubation centre for promotion of agri-tech/agri-processing start-ups and development of agri-entrepreneurs to bring agriculture to the innovation forefront and reap the benefit of private enterprise for betterment of the rural economy.

11. Credit and Risk Management

Amongst institutional sources of agricultural finance, cooperatives have always remained important due to their close contact with the farmers. To strengthen the cooperatives, the credit infrastructure and to introduce effective risk management, the Government will:

- i. Minimize the role of inactive members of cooperative institutions in its day- to-day functioning by amending the Punjab Cooperative Society Rules 1963.
- ii. Encourage Primary Agricultural Cooperative Societies to take up other activities. The societies shall be used effectively for agricultural development in view of their outreach.
- iii. Amend rules to make the cooperative department more responsive to the requirements of the times, including time-bound disposal of appeals and various cases within its preview.
- iv. Develop a unified cooperative credit infrastructure to create a larger banking institution for improving its efficiency and better utilization of available human and financial resources.
- v. Ensure availability of cheaper credit to farmers belonging to scheduled caste and resource-poor communities by mandating that the Primary Agricultural Cooperative Societies include them as members as envisaged in the Constitution of India.
- vi. Amend and update the “Punjab Settlement of Agricultural Indebtedness Act, 2016” so that farmers do not have to pay more than double the principal amount.
- vii. Create a mechanism for strict monitoring of institutional loans to farmers, with specific focus on micro finance organizations and non-banking finance companies.
- viii. Enable the tenant farmers/share croppers to obtain crop loans without difficulty after land leasing act is legislated.

- ix. Lay more emphasis on providing investment credit for small ruminants to landless labourers.
- x. Consider a debt settlement scheme for agricultural workers/landless labourers.
- xi. Explore the possibility of providing a viable crop insurance product to the farmers.
- xii. Establish a Crop Compensation Fund for farmers, wherein the farmer is provided a compensation of Rs. 12,000/acre in case of 100 per cent loss of crop. Explore the option of premium being collected from purchase of agricultural commodities by the Government agencies.
- xiii. Considering the unviability of Pradhan Mantri Fasal Bima Yojana for Punjab, design its own scheme whereby farmers contribution is lesser while compensation claims are settled timely.
- xiv. Incentivize livestock insurance and initiate an awareness campaign.

12. Farm Mechanization

There is heavy capital investment in agriculture machinery and its under-utilization is leading to higher costs of production and lower net income to farmers. The State will:

- i. Promote access to farm machinery through Primary Agricultural Cooperative Societies, FPOs and entrepreneurs.
- ii. Encourage Dairy Machinery Service Centers for providing costly machinery for fodder sowing, harvesting and silage/hay making to the dairy farmers on custom-hiring basis.
- iii. Review type of agricultural implements being provided under various schemes of different departments and make concerted efforts to promote only newly-developed equipment based on the crop production plan for the area.
- iv. Encourage mechanization of various farm operations especially in fruits, vegetable and livestock on priority basis.
- v. Prioritize support to machines that are part of resource conservation technology.
- vi. Attempt to make Punjab a hub for machinery exports and sales within India given that farm machinery manufacturing in Punjab is in a developed stage. Provide further financial incentives to small and medium machinery manufacturers along with specific allocation of funds for training manpower.

VI. Conclusion

A decade of business as usual has left farmers in an unenviable position. Future generations deserve better. Punjab is struggling to meet the aspirations of its farmers and the time has come to take a critical look at the deteriorating natural resources, changing economic environment, emerging market scenarios and the ambitions of the Punjabi youth.

Creation of off-farm employment opportunities for at least 20 per cent of the population dependent on agriculture is of paramount importance to make farming sustainable.

PSFC is a statutory body and does not have a mandate for implementing the recommended policy interventions. Therefore, this policy document has no action plan supporting it. Based on the policy, a detailed action plan will be prepared by different Government departments with the concurrence of the PSFC.

The policy shall be revisited after five years to take stock of the evolving situation and incorporate need-based changes to enable it to achieve the cherished goal of ensuring better life for the rural masses.

END

Annexure-I

An overview of Agriculture Development in the State

Items	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2015-16
Paddy							
Area (Lakh Hec)	2.27	3.90	11.83	20.15	26.12	28.30	29.70
Productivity (Tonne/Hec)	1.505	2.774	4.099	4.833	5.259	5.742	5.961
Production (Lakh MT)	3.54	10.32	49.50	97.59	137.36	162.5	177.05
Contribution to central Pool (per cent)	NA	24.7	45.3	41.0	33.3	25.3	27.3
Wheat							
Area (Lakh Hec)	14	22.99	28.12	32.73	34.08	35.10	35.06
Productivity (Tonne/Hec)	1.24	2.24	2.73	3.72	4.56	4.69	4.58
Production (Lakh MT)	17.42	51.45	76.77	121.59	155.51	164.72	160.68
Contribution to central Pool (per cent)	NA	74	73.0	61.0	57.6	45.4	36.8
Horticulture							
Area (Lakh Hec)	NA	NA	0.63	1.52	1.75	2.58	3.26
Production (Lakh MT)	NA	NA	8.76	20.68	28.17	50.18	65.72
Milk							
Milk Production ('000 ton)	NA	2400	3221	5142	7774	9423	10774
Per Capita availability of Milk (grams/days)	NA	444	541	682	870	931	1025
Other Parameters							
Fertilizer (Lakh MT)	0.005	2.13	7.62	12.2	13.13	19.11	20.4
No. of Tractors	1114	22345	118848	289064	434032	434000	517743

Cropping intensity (per cent)	126	140	161	178	186	190	190
Growth Rate of Agriculture (per cent)	NA	NA	3.66	5.13	3.20	1.84	0.79
Contribution of Livestock to Agricultural GDP (per cent)	NA	25.55	29.39	24.46	32.19	27.49	31.86

Source: PAU and Department of Horticulture, Punjab

Annexure-II

Area under various water table depths (per cent)

Year	Depth Range				
	0-5 m	5-10 m	10-15 m	15-20 m	>20 m
1973	42	40		13	5
1980	42	44		12	2
1990	24	58	15	2	1
2000	24	44	22	8	2
2005	16	28	31	16	8
2010	10	23	21	18	28
2015	14	21	17	17	31
2016	13	22	16	17	32

Source: Department of Agriculture, Punjab