August 31, 2021

REPORT ON RESTRUCTURING OF AGRICULTURE RESEARCH SYSTEM OF PAKISTAN

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PREFACE

This report on Restructuring of Agriculture Research System in Pakistan has been prepared at the directive of the Prime Minister as a part of the Agriculture Transformation Plan and has benefitted from the visits and interactions with the management and scientists working at the Pakistan Agriculture Council (PARC), National Agriculture Centre (NARC), Ayub Agriculture Research Center (AARI), National Institute of Biotechnology & Genetic Engineering (NIBGE), National Institute of Agriculture and Biology (NIAB) and the University of Agriculture, Faisalabad. Special Assistant to PM on Food Security Mr. Jamshed Iqbal Cheema was present at the discussions at Faisalabad. I also had discussion with Mr. Asad Gillani, Secretary Agriculture Department, Punjab whose department is responsible for the agriculture research. I wish to thank all of these organizations for arranging these meetings and visits.

It is my considered opinion that the restructuring of PARC and NARC cannot be done in isolation without placing it in the context of the overall national agriculture research system. Therefore, this report makes specific recommendations about PARC and NARC but extends its scope to the national system as such.

The PM Inspection Report and observations of Office of the Prime Minister on PARC were also taken into account. A thorough study of the reports including World Bank's report on Punjab Agricultural and Livestock Innovation System (2018), Independent Third Party Evaluation of PARC by IFPRI (2013), and those by the USAID , FAO and others on this topic were also undertaken and some of their practicable suggestions incorporated in this report.

It is suggested that this draft report may be circulated to the Ministry of National Food Security & Research and to the Provincial Agriculture Departments for their comments. While the subject of agriculture has been devolved under the 18th Constitutional Amendment, national agriculture research system like national market of goods and services is integrated and unified and is a national public good. The main driver of this system is the Indus River Basin which is indivisible and flows from the North to the South and provides succor to the people around the Basin. While fully respecting the administrative and legal jurisdiction of the provinces over their institutes and specificity of the agro-ecological zones, what we recommend is the greater collaboration, coordination and cooperation among them and the universities and the private sector, so that the average farmers should be able to derive maximum benefits from the efficiency, effectiveness, and impact of agriculture research.

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Introduction

1. Pakistan's Public Agriculture Research System comprises three distinct pillars (i) Federal Government (ii) Provincial Governments and (iii) Universities. A survey of research institutions existing throughout the country shows a total of 259 such institutions including 124 research stations and sub stations which are shown as independent entities by several institutes. If we exclude these stations and sub stations, there are 194 institutes, centers, directorates, divisions and sections—a plethora of varying names without any uniform taxonomy. The Federal Government has 64 organizations, mostly under the Ministry of National Food Security and Research (MNFSR), but also under the Ministry of Science and Technology (MoST), Strategic Plans Division (SPD) ,the Ministry of Commerce (MoC) and the Ministry of Water Resources (MoWR). The bulk of the institutions belong to the provinces. The four provinces together have 156 institutions and the Universities host 39.. A list of all research institutions working on agriculture research is placed at *Annexure*. The list needs to be updated as it was compiled two years ago and some changes may have taken place since then.

2. The two larger clusters in the country are Pakistan Agriculture Research Council (PARC) under the MNFSR with 24 Institutes and Centers having footprint throughout the country. The salient feature of PARC is its presence and activities in less endowed areas such as Balochistan, Gilgit Baltistan, Tharparkar, D.I. Khan etc. working on problems of difficult agro ecological zones or remote and scattered communities. The other significant cluster is Ayub Agriculture Research Institute (AARI), Faisalabad with 26 Institutes and 2 Sections scattered all over Punjab. AARI has predominant share in the number of varieties released in Punjab so far (70%) and is leader in wheat research. 85% wheat varieties propagated were developed by AARI. More important than the numerical strength is the quality of manpower which is also concentrated in these two clusters. PARC has 556 scientists including 186 working under the National Agriculture Research Center (NARC), AARI has 1081 scientists on its roll. If 625 scientists working in the University of Agriculture, 188 in NIAB and 249 in NIBGE are added, Faisalabad Cluster has an impressive constellation of 2143 agriculture researchers in various fields from Agronomy to Bio-technology, Genetics, Plant Breeding etc. These two clusters – NARC and AARI together employ 2867 agaric scientists – a critical mass that can collaborate to produce meaningful results.

3. Punjab Agriculture Research Board (PARB) was established in 2017 as an autonomous body under the Chairmanship of the Minister of Agriculture *"to foster an integrated approach for research planning and efficient allocation of research resources so that the agriculture innovation system of the province can generate appropriate solutions of the issues faced various stakeholders in the food and fiber chain"*. PARB has done some exemplary work in the field of competitive research grants for innovations in agriculture research.

Statement of Problem

4. Despite the above infrastructure and scientific manpower, the question that needs to be addressed is: Why Pakistan's Agriculture has remained stagnant over last twenty-five years (the only exception is maize). We were self-sufficient in wheat, staple crop for the majority of the population but lately wheat production has not been able to keep up with the population growth rate and the country has to resort to heavy imports putting pressure on balance of payments. Same is the case with cotton. The production levels have fallen from 13-14 million bales to 7-8 million bales within a decade. Pakistan being a textiles exporter is faced with cotton crisis where both the area under cultivation and the average yield have receded. One of the largest irrigation systems in the world produces low value corps much below its potential and is unable to meet the domestic needs of food and fiber.

5. Agriculture productivity is one of the key drivers of high growth, and poverty reduction strategy for Pakistan. The gaps in yields of progressive farmers and the national average have either remained unchanged or widened. A World Bank study estimated that total factor productivity in Agriculture sector has decelerated since 2001. The data suggests that yield increases are not only slower than the neighboring countries but that most of the yield growth derives from higher levels of inputs

6. The above picture shows that the gains achieved through research are not getting translated into higher productivity for the average farmers. The disconnect between the universities, research institutes, extension and the farmer field is one of the governance failures centered around coordination failure.

7. This report presents some recommendations to improve the governance and management of national agriculture system and to strengthen coordination mechanisms. But to make any meaningful impact, reforms in certified seeds multiplication and distribution, extension and propagation of the technologies developed by the researchers to the average farm level are the other main ingredients for successful transition to attain higher productivity.

MAIN FINDINGS

General

8. Pakistan's population is growing at 2% per annum. Per capita land is therefore projected to decrease from 0.21 acres/capita to 0.16 while water availability from 1000 cubic meters to 500 by 2030. Climate change is further going to exacerbate the situation as floods, droughts, volatile rainfall pattern arising from glacier melting affect the cropping pattern. Food staple production is likely to fall behind the rising demand. Prices for domestic consumers would escalate.

9. Increasing agriculture productivity is the only way out to meet these challenges as area expansion is constrained by rising urbanization. Yield gaps between potential, progressive farmers and average farmers can be bridged by better farm management, input supplies, better water use, agriculture education, research, training, input supply, extension, farm management, marketing, storage, transportation and processing that form the integrated value chain for increasing the productivity.

10. Agriculture research has to be strengthened to provide basic, applied and adaptive research for filling in the yield gaps but also to come up with new technologies and practices to cope with the land and water stresses.

11. Pakistan has low research intensity indicators, insufficient funding, low ratio of scientists to population with decreasing number of PhDs compared to other developing countries. After paying salaries and allowances of the current employees and the pension payments of retirees very little is left for carrying out actual research activities. With the fixed cost of buildings, labs, equipment and human resources, a slight increase in the operating costs can pay a hefty dividend.

Specific

Human Resources and Incentive structure

i. In 2011, the number of scientists working in PARC and its institutes was 612 out of the total strength of 2731. Ten years later, this number has dwindled to 556 out of 3800 of overall strength showing a declining ratio between scientists and support staff. Administration and Accounts staff form a disproportionately higher share of total employment.

ii. Within scientists category number of PhDs has touched an extremely low and unacceptable threshold level.. For example, NARC had 309 scientists with 120 PhDs in 2013 out of 1079 total staff while in 2021 the number of PhDs has declined to 81 , the number of scientists to 186 while the proportion of other staff has risen . There are hardly any high caliber scientists of international repute. The number of staff trained abroad at reputable universities is shrinking. Lack of exposure to international research centers and absence of continuous professional development and training for researchers in research management bring in inefficiencies.

iii. Training opportunities for fresh PhDs in form of post-doctoral fellowship, and for presenting papers at reputable International Conferences and Seminars are either lacking or, when available, go through cumbersome process.

iv. Participation in international conferences and seminars, exchange programs and collaborative research is low due to funding constraints and thus scientists are

unable to keep up with cutting edge and latest developments in their respective fields.

v. Very limited career growth opportunities even for highly qualified researchers.

vi. Outcomes and impact are neither encouraged nor rewarded.

Organization of Research

i. Organizational structures are highly fragmented with different nomenclatures e.g., institutes, centers, directorates, sections etc. without clear division of responsibilities, or demarcation of boundaries.

ii. Research station infrastructure are large but there are no targets or accountability for results.

iii. Major commodity programs are spread across many institutes with small budgets therefore they are unresponsive to immediate and urgent problems faced by the farmers.

iv. Coordinated programs of PARC, though exist on paper, have not generated the desired results.

v. Budgets for research operating costs are underfunded as 90 percent is consumed by the employee-related expenses i.e. salaries, allowances and pensions. Very little flexibility in moving budgets among expenditure category to achieve the desired results.

vi. Poor linkage between the research needs and the budget allocation. Lack of mobility of researchers to interact with farmers.

Organizational Culture

i. Most of the powers, administrative and financial, reside with the non-scientists and are not delegated to the research units and teams.

ii. Provincial departments and the federal ministries exert too much controls and interference in the working of the organizations.

iii. Team efforts particularly across disciplines and functions are conspicuous by their absence.

iv. Creativity and innovation are discouraged and bureaucratic norms and procedures dominate.

v. Supervising Departments/Ministries have adopted an audit approach i.e. how the inputs allocated have been used with little care for outcomes, impact, quality or relevance. The Incentive structure thus gets distorted as the researchers strive to focus on inputs.

RECOMMENDATIONS

PAKISTAN AGRICULTURE COUNCIL (PARC) AND NATIONAL AGRICULTURE RESEARCH CENTER (NARC)

12. The present configuration of the PARC directly managing 10 institutes under its umbrella and the NARC which forms part of PARC having 14 institutes under their direct control defies logic and creates splintering, overlapping and duplication of efforts and inefficient use of scarce resources. It is suggested that PARC should be relieved of the responsibilities of operating and managing research institutes and must have the responsibility of developing national agriculture research strategy and act as the main coordinating body for bringing synergies among the federal and provincial agriculture research institutes, the universities, private sector and international centers. National Agriculture Research Center (NARC) should become a full-fledged subsidiary of PARC and be given budgetary resources and operational autonomy to discharge its mandate and fulfill its targets. NARC should focus on upstream basic research rather than pulled in the direction of applied research that falls within the domain of the provincial institutes. NARC should be in-charge of all the research institutes presently under its control and the 9 research institutes being operated by the PARC directly. In all, it would have 23 research institutes under its domain enjoying financial and administrative autonomy with accountability for results. It would report to the Board of Governors of PARC but would have independent research advisory committees for its institutes for quality assurance and agenda setting thus widening its network of stakeholders and ensuring relevance and responsiveness to the national priorities and farmer needs.

13. PARC's present mandate covers neglected geographical areas, exploration of subjects and themes not covered by the existing research organizations and research involving high level scarce scientific manpower, infrastructure and equipment and coordination with other research bodies, including provincial research systems and private sector. The mandate is in the right direction but the governance structure, capacity, work planning, resource allocation of PARC do not permit it to adequately meet it.

14. PARC should, in the proposed set up, be responsible for the national agriculture research strategy under the Agriculture Transformation Plan in collaboration with the Agriculture Policy Institute (API) and also be responsible for coordination of the national research system i.e. federal and provincial bodies, universities and the private sector. The Terms of Reference of the reconfigured PARC would be:

i. National Agriculture Research Coordination Body comprising Federal and Provincial Agriculture systems replacing IPARCC

ii. Managing the National Coordinated Research Program - involving the Federal, Provincial, Universities, Private Sector.

iii. Competitive Research Grants Program - open to all while ensuring high rigorous standard of review, evaluation and awards.

iv. Human resource development and capacity building of all research institutes through post-doctoral fellowships, visiting scientist program, short term attachments with international research centers, inviting foreign researchers for collaborative programs, arranging participation in international conferences, memberships in international professional associations.

v. Focal agency for liaison and cooperative assignments for international research centers and foreign donor agencies including grant awarding bodies such as Foundations. CPEC Agriculture Cooperation program should be coordinated by PARC in close collaboration with the CPEC Authority, MNFSR and the provinces.

vi. Planning, monitoring and evaluating the National Coordinated research programs.

vii. Advising the Federal and Provincial Government in policy matter pertaining to agriculture sector development.

viii. Hold stakeholder consultations with farmer associations, service providers, agri business companies and assess the demand for new and existing programs.

ix. Each programmatic research institute should be encouraged to have an advisory committee consisting of international and national experts and other stakeholders in that particular field.

x. Develop an equipment sharing scheme across the board by pooling expensive, sophisticated equipment needed by researchers.

xi. Organize national seminars/conferences/workshops where researchers present their work and are given feedback for improvement

xii. Manage the revitalized PATCO for commercialization of research outputs

15. The areas where NARC should take initiatives in the future are:

i. Drought - resistant varieties for climate stressed crops

ii. Promoting export competitiveness and import substitution of agriculture commodities that are likely to be in demand.

iii. Diversification towards high value crops.

iv. Commercial application and utilization of improved technologies through public – private partnership strengthen PATCO.

v. Linkages with International Centers such as CIMMYT, IRRI, ICARDA, ICRISAT, US, Australia, Canada, UK, China research institutions should be intensified.

Public Policy Interventions

i. Agriculture R & D spending that has averaged $ 200 million annually or less than 0.1% of GDP has to be raised significantly. 90% of the budget gets consumed by salaries, allowances and pensions and very little is left for actual research work. Development budgets are geared towards brick and mortar and infrastructure. Both federal and provincial governments have to increase allocations for operational expenses to at least 30% of the total budget but link it with performance targets, and measurable outputs. An Endowment Fund either from donor grants or PSDP should be created to assure stability of funding for agriculture research.

ii. Government should direct the PARC not to replace those retiring or leaving the organization in administrative and accounting staff category. The savings thus effected should be used to recruit PhD scientists. Special pay scales were granted to the PARC Staff on my recommendation as Chairman, National Commission for Government Reforms (NCGR) in 2007. The intention was to raise the salary scales above the civil servants to attract, retain and motivate high caliber scientists. But the actual practice has fallen short of the intended purpose. There is hardly any differentiation between outstanding, average and poor performances as the majority of staff receive high ratings and therefore high salaries. Subjective judgments and personal preferences dominate performance evaluation and promotions rather than objective criteria. Establishment Division should apply the new Performance Management and Promotion Rules to all federal scientific research institutions including PARC after due adaptation.

iii. Government should create a Tenure Track Scientist category on the analogy of the Higher Education Commission where scientists with outstanding performance and outputs can be reviewed by internationally reputable peers for induction in this category after 5 to 8 years' service.

iv. Private sector funding and their own funded research establishments should be encouraged to boost overall spending on agriculture research and dissemination. FBR should consider providing tax credit for verifiable research activities by the private companies.

Funding Mechanism and Financial Resources

i. Four different types of funding should be made available to research organizations (a) Core funding for staff and operational expenses under Recurrent Budget (b) Competitive research grant fund under Recurrent budget and (c) Research Endowment Fund to be built up over a five-year period through Development budget (d) Capital expenditure on equipment, labs, research status etc out of Development budget.

ii. All international funding and individual research grants from international and national donors outside the government should be directly deposited in the Fund of that research organization.

iii. Research Institutes should generate part of their income from their own activities. PATCO which works under PARC for commercialization of research should be revitalized and contribute to the income.

iv. Cotton Cess should be collected diligently and used for research on cotton.

Incentive Structure

i. Complacency has become pervasive as there is job security, assured salary and pension benefits after retirement and other perks of government service. This attitude has to be shattered by introducing competition for funding of their research projects with greater emphasis on national priority areas. There would be no entitlement or automatic allocation of budget for any research team.

ii. PSF, PARB and HEC are three successful example of competitive research funding and should be emulated by PARC in designing its own competitive research funding program. Scientists can apply and secure funding from multiple sources, international and national, without any prior approvals from the heads of the institutions.

iii. Special Research Allowanced and Additional SRA should not form part of normal compensation but related to the performance categories

iv. Regular appointments should be made after 5 to 7 years after tracking their performance and after ensuring that they meet the specified criteria which should incorporate outcomes and impact of the work done.

v. Part of the income generated through commercialization of research products, processes, patents etc. should be allocated to the relevant research teams and their leaders

Human Resource Management and Capacity Building

i. The posts of heads of PARC, NARC and AARI should be advertised globally and the services of international research centers sought in the selection of the heads of these institutes. They should be paid SPSS salaries and benefits , given operational autonomy but held accountable through performance agreements.

ii. An open transparent, merit-based system of recruitment and induction with clearly defined eligibility criteria needs to be introduced across all public agriculture research organizations. The immediate need is to step up recruitment of PhDs and fill in the existing and future vacancies falling due to retirements. At least all research institutes should aim to have 50% of their scientists possessing PhD degrees especially from reputed foreign universities. Constant inflow of fresh blood into the stream is the only way to keep an organization full of vitality and creativity. Stagnant pools start stinking. Recruitment should take place at all levels and not restricted to the entry level only.

iii. Continuous professional development through advanced training courses, refresher courses, post-doctoral fellowships, attachments at international research centers, participation in international conferences and seminars, sabbaticals to spend time at foreign universities should form part of career progression and fully funded in the operating budget.

iv. Performance appraisals should be related to achievements of main objectives and measured by verifiable key performance indicators.

v. Promotions should be based on merit and not on seniority or length of service. Promotion rules should specify the criteria and allocation of points for different criteria. Weights should be given for performance and professional development. Only 20% should be placed in top category, 60% in the medium category and 20% below average. Annual increments and Special allowances should be based on placement in these categories

vi. Penalties and sanctions for non-performance should form an integral part of severance policy which should be applied in a transparent manner. Directory Retirement Rules of the Government of Pakistan should be adopted in the Service Rules.

vii. Promotion opportunities should not be restricted by vacancies against sanctioned strength and career progression path should be clearly defined and professional development opportunities be provided to the employees.

Governance and Organizational Reconfiguration

16. The guiding principle is that the basic and long term research would be done by PARC and the universities; applied research by the research institutes such as NARC, AARI, and adaptive research by the directorates of the provincial departments and the private sector.

i. Provincial Agriculture Research Department should be represented on PARC Board of Governors (BOG).

ii. A National Agriculture Research Coordination Board should be formed under the BOG with clearly defined terms of reference, powers of decision making, monitoring the progress and reporting periodically to the BOG

iii. More autonomy and financial resources should be given to research institutes with accountability for results. The present cumbersome vertical hierarchical structure with unnecessary controls at each stage stifle research work. Dynamism and flexibility are pre-requisite for innovation.

iv. The present configuration of research Institutes at the federal and provincial levels should be reorganized by establishing National Institutes of Excellence (NIEs). There should be no restriction on the ownership of these NIEs. To illustrate this point, the Wheat institute could be at AARI under Punjab Government at Faisalabad, Rice Institute at Kala Shah Kaku and Dokri , Cotton at Multan under the Federal Government, Coastal Area Research at Gwadar under the Baluchistan Government, Horticulture at Mirpurkhas under Sindh Government and Pakistan Forest Institute at Peshawar under the KP Government , and others under NARC, NIBGE and NIAB etc. In research world there is no hierarchy but equality based on expertise. Federal Government cannot insist that all NIEs should be under its control but the allocation should be made on the principle of comparative advantage i.e. who can best lead the effort given the infrastructure, expertise, past record and the capacity to meet the future challenges. The proposal is that all other researchers working under federal and provincial governments, universities or private sector should be affiliated with the NIE of their field to nurture synergies, collaboration and coordination. The NIE would act as the lead agency which would bring all the experts and specialists working in that field under its umbrella. A tentative list of the proposed NIEs is presented in Table below and this can be modified, expanded in light of the feedback from the stakeholders and further deliberations.

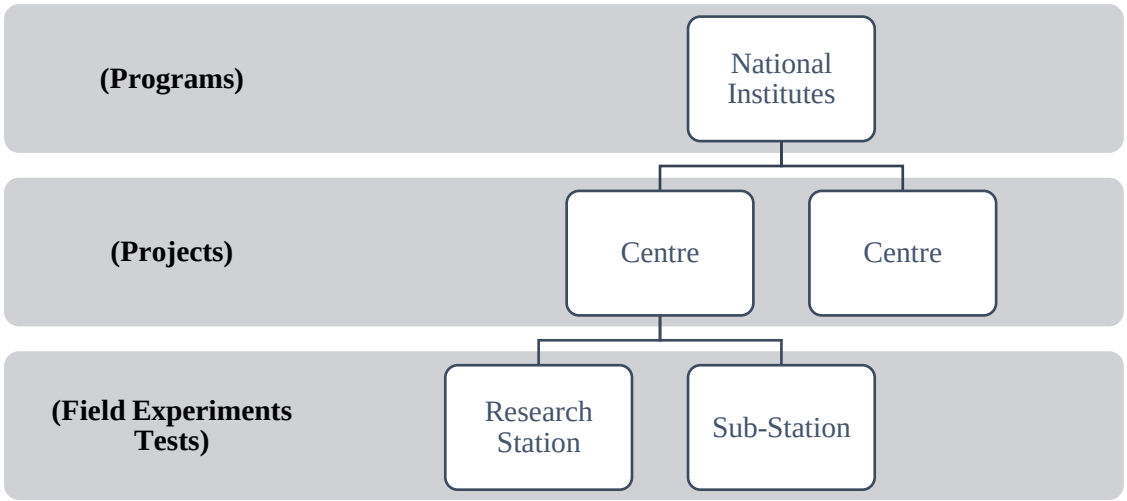
Table: Tentative List of Proposed National Institutes of Excellence

Commodities programs
1. National Cotton Research Institute
2. Wheat Research Institute
3. Rice Research Institute
4. Sugarcane Research Institute
5. Maize Research Institute
6. Oilseeds Research Institute
7. Legumes Research Institute
8. Horticulture Research Institute
9. Animal Sciences Research Institute
10. Dairy Research Institute
11. Vegetables Research Institute
12. Poultry Research Institute
Special areas programs
13. Arid Zone
14. Mountain Agriculture Research
15. Coastal Area Research
16. Pakistan Forest Institute

National Linkage

17. Each Institute should have a number of research centers spread across the country under the control of the federal or provincial government or a university.

18. Each center would have a number of Research Stations and Sub Stations.



19. Each Center would be organized on functional basis. An illustrative list is proposed below which can be expanded or rationalized after deliberations among the experts :

i. Plant or Breeding
ii. Soil Sciences & Plant Nutrition
iii. Water Resource Management
iv. Genetics and Biotechnology
v. Entomology and Pathology
vi. Social Sciences

20. Once the above separation and organizational configuration is approved, the MNFSR should design appropriate management structure of PARC and NARC.

Evaluation of Research

21. The three methods of evaluating research are the results achieved in respect of Output, Outcome and Impact. The time horizon for each of these methods would vary and the interaction of other variables outside the direct control of the researchers would play complementary roles and, in some cases, quite significant. For example, if public policy interventions in the form of support price or indicative price for a few crops skews farmer profitability in that direction it would be unfair to expect the research to make any impact. Similarly, if the water pricing does not charge a higher rate on volumetric consumption basis but a flat basis, some of the water conserving varieties may not see the light of the day.

1) Output – improvement in yields, reduction in costs, through efficient input use.
2) Outcome – how much cultivated area under the new technology?
3) Impact – economic, social, environmental benefits.

22. Notwithstanding these constraints, the metrics for evaluating the performance of research institutes should shift away from '*outputs i.e. the number of varieties released'* to '*how much cultivated area has been brought under released varieties out of the total cultivated area'; What has been the impact on the farmer incomes and the economy – savings in production costs*, or *savings or earning foreign exchange through import substitution* or *export expansion at the macro level*; *What is the adoption ratio of new released varieties*? and *How much area is shifting, towards high value crops*. These metrics would bring about visibility for agriculture research but also induce greater funding. Therefore, it is in the interest of research institutes to adopt these metrics in the evaluation of the work they are doing.

Annexure

AGRICULTURE RESEARCH INSTITUTES IN PAKISTAN

FEDERAL

Pakistan Agricultural Research Council (PARC), Islamabad

1. Balochistan Agricultural Research & Development Centre, Quetta
2. Himalayan Agricultural Research Institute, Islamabad
3. Mountain Agricultural Research Centre, Gilgit
4. National Agricultural Research Centre (NARC), Islamabad
5. National Tea and High Value Crops Research Institute, Mansehra
6. National Sugar Crops and Horticultural Institute, Thatta
7. Southern Zone Agricultural Research Centre, Karachi
8. Arid Zone Research Institute, Umerkot
9. Arid Research Institute, Bahawalpur
10. Social Sciences research Institutes

National Agriculture Research Center (NARC), Islamabad

11. Agricultural engineering institute (AEI)
12. Animal Sciences Institute
13. Bio Resources Conservation institute (BCI)
14. Climate energy and water research institute (CEWRI)
15. Crop Disease Research Institute (CDRI)
16. Crop Sciences Institute (CSI)
17. Food Science Research Institute (FSRI)
18. Horticultural Research Institute (HRI)
19. Honeybee Research Institute (HBRI)
20. Institute of Plant and Environmental protection (IPEP)
21. Land Resources Research Institute (LRRI)
22. National institute of Genomics and Advance Biotechnology (NIGAB)
23. Rangeland Research institute (RRI)

24. Social Sciences Institute

Pakistan Central Cotton Committee

25. Directorate Agri Research
26. Directorate Marketing & Economic Research
27. Directorate Cotton Cess Management
28. Central Cotton Research Institute, Multan
29. Central Cotton Research Institute, Sakrand
30. Pakistan Institute of Cotton Research & Technology, Karachi
31. Cotton Research Station, Bahawalpur
32. Cotton Research Station, Sahiwal
33. Cotton Research Station, Ghotki
34. Cotton Research Station, Sibbi
35. Cotton Research Station, Lasbela
36. Cotton Research Station, D.I. Khan
37. Cotton Research Station, Mirpur Khas

Pakistan Atomic Energy Commission (PAEC), Islamabad

38. Nuclear Institute for Food and Agriculture (NIFA), Peshawar
39. National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad
40. Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad
    i. Plant Breeding & Genetics Division, Faisalabad
    ii. Soil & Environmental Sciences Division, Faisalabad
    iii. Plant Protection Division, Faisalabad
    iv. Animal Sciences Division Faisalabad
41. Nuclear Institute of Agriculture (NIA), Tandojam
    i. Plant Breeding & Genetics, Tandojam
    ii. Plant Protection, Tandojam,
    iii. Plant Physiology, Tandojam
    iv. Soil Science, Tandojam

Pakistan Council for Research in Water Resources (PCRWR), Islamabad

42. Regional Office, Bahawalpur

43. Regional Office, Lahore
44. Water Resources Research Centre, Peshawar
45. Water Resources Research Centre, Quetta
46. Drainage Research Centre, Tandojam

Pakistan Council of Scientific and Industrial Research (PCSIR), Islamabad

47. Food and Marine Resources Research Center, Karachi
48. Food and Biotechnology Research Centre, Lahore
49. Food Technology Centre, Peshawar
50. Rural Development Section, Hyderabad
51. Fruit Processing & Preservation Section, Skardu
52. Fruit Dehydration Section, Skardu

Water Resources

53. International Waterlogging and Salinity Research Institute, Lahore

Strategic Plans Division

54. SUPARCO crop data

Pakistan Tobacco Board (PTB), Peshawar and Gujrat

55. Tobacco Model Farm, Dadu
56. Tobacco Model Farm,Hazro, Attock
57. Tobacco Model Farm, Jampur
58. Tobacco Model Farm, Muner
59. Tobacco Model Farm, Pishin
60. Tobacco Research Station, Mardan
61. Tobacco Research Station, Swat
62. Tobacco Research Sub-station, Kunjah, Gujrat
63. Tobacco Research Sub-station, Mansehra
64. Tobacco Research Sub-station, Okara

PROVINCIAL

BALOCHISTAN

Agriculture Extension, Quetta

65. Directorate of Adaptive Research, Quetta

Agriculture Research Institute, Quetta

66. ARI Directorate of Cereal Crops, Quetta
67. ARI Directorate of Farm Machinery, Quetta
68. ARI Directorate of Fodder, Quetta
69. ARI Directorate of Kharan, Kharan
70. ARI Directorate of Khuzdar, Khuzdar
71. ARI Directorate of KilIa Saifullah, KiIla Saifullah
72. ARI Directorate of Lasbella at Wayaro Farm Uthal, Uthal
73. ARI Directorate of Loralai, Loralai
74. ARI Directorate of Panjgoor, Panjgoor
75. ARI Directorate of Plant Protection, Quetta
76. ARI Directorate of Post Harvest & Food Technology, Quetta
77. ARI Directorate of Sibi , Sibi
78. ARI Directorate of Soil & Water Testing, Quetta
79. ARI Directorate of Special Crops, Quetta
80. ARI Directorate of Turbat, Turbat
81. ARI Directorate of Usta Muhammad, Usta Muhammad
82. ARI Directorate of Zhob, Zhob
83. ARI Field Experiment Station, Dhadar
84. ARI Field Experiment Station, Gwadar
85. ARI Field Experiment Station, Kalat
86. ARI Field Experiment Station, Killa Abdullah
87. ARI Field Experiment Station, Mastung
88. ARI Directorate of Cotton, Quetta
89. ARI Directorate of Pulses, Quetta

90. ARI Directorate of Floriculture, Quetta

91. ARI Directorate of Fruit, Quetta

92. ARI Directorate of Potato, Pishin

93. ARI Directorate of Vegetable Seed Production, Quetta

94. ARI Directorate of Viticulture Pishin, Pishin

95. ARI Directorate of Ziarat (Horticulture), Ziarat

KPK

96. Livestock and Veterinary

97. Livestock Research and Dairy Development, Peshawar

98. Livestock Research & Development Station, Surezai, Peshawar

    i. Livestock Research & Development Station, Paharpur, D I Khan
    ii. Livestock Research & Development Station Dir, Lower Dir
    iii. Poultry Research Institute, Jabba, Mansehra
    iv. Arid Zdne SfflalI Ruminant Research Institute, Ghulam Banda, Kohat

99. Veterinary Research Institute, Peshawar

    i. Center of Microbiology & Biotechnology, Peshawar
    ii. Center of Parasitology & Poultry, Peshawar
    iii. Center of Biological. Production, Peshawar
    iv. Foot & Mouth Disease Research Center, Peshawar
    v. Regional Directorate of Veterinary Research & Disease Investigation Center,
    vi. Abbottabad
    vii. Regional Directorate of Veterinary Research & Disease Investigation Center, Swat
    viii. Regional Directorate of Veterinary Research & Disease Investigation Center, Kohat
    ix. Regional Directorate of Veterinary Research & Disease Investigation Center, D.I. Khan
    x. Regional Directorate of Veterinary Research & Disease Investigation Center, Lakki Marwat
    xi. Regional Directorate of Veterinary Research & Disease investigation Center, Tank

Agriculture Research System, Peshawar

100. Agricultural Research Institute, Swat

101. Agricultural Research Institute, Tarnab, Peshawar

102. Sugar Crops Research Institute, Mardan

103. Agricultural Research Station, Ahmad Wala, Karak

104. Agricultural Research Station, Baffa, Mansehrà

105. Agricultural Research Station, Buner

106. Agricultural Research Station, Buner

107. Agricultural Research Station, Charsadda

108. Agricultural Research Station, FATA

109. Agricultural Research Station, Seenlasht, Chitral

110. Agricultural Research Station, Serai Naurang, Amnawar, Bannu

111. Agriculture Research Institute, Dl Khan

112. Agriculture Research Station, Bannu

113. Agriculture Research Station, Swabi

114. Barani.Agricultural Research Station, Jarma, Kohat

115. Cereal Crops Research Institute, Nowshera

116. Hazara Agriculture Research Station, Abbottabad

117. Livestock Research and Dairy Development, Peshawar

    i. Arid Zone Small Ruminant Research Institute, Ghulam Banda, Kohat
    ii. Livestock Research & Development Station, Lower Dir
    iii. Livestock Research & Development Station, Paharpur, D I Khan
    iv. Livestock Research & Development Station, Surezai, Peshawar
    v. Poultry Research Institute, Jabba, Mansehra

Forestry, Environment and Wildlife Department

118. Pakistan Forest Institute, Peshawar

    i. Forestry Research Division, Peshawar
    ii. Forest Products Research Division, Peshawar
    iii. Biological Sciences Research Division, Peshawar
    iv. Biodiversity Division, Peshawar
    v. Non-Timber Forest Produce, Peshawar
    vi. Field Research Station, Shinkiari, District Mansehra
    vii. Field Research Station, Ratta Kulaçhi, D.l:Khan
    viii. Field Research Station, Kharian
    ix. Field Research Station, Bhurban
    x. Field Research Station, Kalam, District Swat

PUNJAB

Forest, Wildlife & Fisheries Department, Punjab

119. Punjab Forestry Research Institute, Gatwala, Fisalabad

   i. Research Sub-Center, Ghora Gali
   ii. Research Sub-Center, Bahawalpur
   iii. Field Station(Changa Manga Irrigated Plantation), Changa Manga
   iv. Field Station (Chichawatni Irrigated Plantation), Chichawatni
   v. Field-Station (Shorkot Irrigated Plantation), Shorkot
   vi. Field Station (Bhagat Irrigated Plantation), Bhagat
   vii. Field Station (Daphar Irrigated Plantation), Daphar

120. Wildlife Research Center, Gatwala, Faisalabad

121. Fisheries Research & Training Institute Complex, Lahore

Irrigation Department:

122. Irrigation Research Institute, Lahore

Livestock & Dairy Development Department

123. Barani Livestock Production Research Institute, Kherimurat, District Attock

124. Buffalo Research Institute, Pattoki

   i. Livestock Experiment Station, .Bhunikey, Pattoki, District Kasur
   ii. Livestock Experiment Station, Chak Katora, District Bahawalpur
   iii. Livestock Experiment Station, Haroonabad, District Bahawalnagar

125. Livestock Production and Research Institute, Bahadurnagar, Okara

126. Poultry Research Institute, Rawalpindi

127. Research Center for Conservation of indigenous Breeds, Jhang

128. Veterinary. Research Institute, Lahore

129. Animal Nutrition Research Centre, Rakh Dera Chal, Lahore

Agricultural Mechanization Research Institute (AMRI), Multan

130. AMRI Research Divisions, Faisalabad

131. Hydra Drill Research Section, Sargodha

Agriculture Extension & Adaptive Research, Lahore

132. Farm Training & Adaptive Research, Chakwal

133. Farm Training & Adaptive Research, Gujranwala

134. Farm Training & Adaptive Research, Karor, Layyah

135. Farm Training & Adaptive Research, Rahirn Var Khani

136. Farm Training & Adaptive Research, Sargodha

137. Farm Training & Adaptive ReSarch, Sheikhupura

138. Farm Training & Adaptive Research, Vehari

Agricultural Mechanization Research Institute, Multan

139. Research Division, Faisalabad

140. Hydra Drill Research Section, Sargodha

Ayub Agricultural Research Institute (AARI), Faisalabad

141. Agronomic Research Institute, Faisalabad

    i. Agronomic Research Station, Khanewal
    ii. Agronomic Research Station, Karor
    iii. Agronomic Research Station, Bahawalpur
    iv. Agronomic Research Station, Farooqabad

142. Arid Zone Research Institute, Bhakkar

143. Barani Agricultural Research Institute, Chakwal

    i. Barani Agri Research Station, Fatehjang
    ii. Horticultural Research Station, Nowshera
    iii. Hill Fruit Research Station, Muree
    iv. Groundnut Research Station, Attock
    v. Gram Breeding Research Station, Attock

144. Entomological Research Institute, Faisalabad

145. Fodder Research Institute, Sargodha

    i. Experimental Seed Production Unit, Farooqabad
    ii. Guar Research Station, Bahawalpur
    iii. Agronomy Forage Production Section, Faisalabad
    iv. Hill Grasses Research Sub-Station, Charrapani
    v. Fodder Research Sub-Station, Faisalabad

146. Horticultural Research Institute, Faisalabad

147. Institute of Soil Chemistry & Environmental Sciences, Faisalabad

    i. Pesticide Quality Control Lab, Faisalabad
    ii. Pesticide Quality Control Lab, Multan
    iii. Pesticide Quality Control Lab, Bahawalpur
    iv. Pesticide Residue Lab, Kala Shah Kaku

v. Provincial Pesticide Reference Lab, Kala Shah Kaku
vi. Soil Chemistry Section, AARI, Faisalabad

148. Maize & Millets Research Institute, Yusafwala, Sahiwal

i. Sorghum Research Sub-Station, D G Khan
ii. Millets Research Station, Rwalpindi
iii. Maize Research Station, AARI, Faisalabad

149. Plant Pathology Research Institute, Faisalabad

150. Post-Harvest Research Center Faisalabad

151. Rapid Soil Fertility Research Institute, Lahore

152. Regional Agricultural Research Institute, Bahawalpur

153. Soil & Water Conservation Research institute, Chakwal

i) Soil and Water Conservation Research Station, Fatehjang
ii) Soil and Water Conservation Research Station, Sohawa

154. Soil Salinity Research Institute, Pindi Bhattian

155. Citrus Research Institute, Sargodha

156. Horticultural Research Institute, Faisalabad

157. Mango Research Institute, Multan

158. Horticultural Research Station, Sahiwal

159. Entomological Research Institute, Faisalabad

160. Statistical Section AARI, Faisalabad

161. Potato Research Institute, Sahiwal

i. Potato Research Station, Sialkot
ii. Potato Res Sub-Station, Muree
iii. Potato Res Sub-Station, Faisalabad

162. Vegetable Research Institute, Faisalabad

i. Vegetable Res Sub-Station, Sheikhupura
ii. Vegetable Research Sub-Station, Sahiwal
iii. Vegetable Research Sub-Station, Multan
iv. Vegetable Research Sub-Station, Jhang
v. Vegetable Res Sub-Station, Bahawalpur
vi. Vegetable Res Sub-Station, Mianwali

163. Pulses Research Institute, Faisalabad

i. Pulses Research Sub-Station, Sahowali
ii. Pulses Research Sub- Station, Farooqabad

iii. Gram Breeding Research Sub-Station, Kallurkot
iv. Pulses Farm, Kot Naina, Narowal
v. Pulses Research Sub-Station, Rakhuttra, Khushab

164. Rice Research Institute, Kala Shah Kaku

165. Cotton Research Institute, Multan

166. Sugarcane Research Institute, Faisalabad

i. Sugarcane Research Station, Khanpur
ii. Sugarcane Breeding Sub-Station, Muree

167. Wheat Research Institute, Faisalabad

i. Wheat Research Sub-Station, Muree

168. Oilseeds Research Institute, Faisalabad

i. Oilseeds Research Station, Khanpur
ii. Oilseeds Research Station, Bahawalpur
iii. Oilseeds Research Sub-station, Mianwali

Directorate of Floriculture (T&R), Lahore

169. Cut Flower Research Production & Technology Dissemination, Orchard scheme Area, Islamabad

170. Horticultural Research Institute for Floriculture $c Landscaping, Rawalpindi

171. Horticultural Research Sub-Station for Floriculture and Landscaping, Faisalabad

172. Horticultural Research Sub-Station for Floriculture and Landscaping, Multan

173. Wild Flora Collection & Identification Sub-Station, Murree

SINDH

Agriculture Research Sindh, Tandojam

174. Agriculture Research Institute, Tandojam

175. Agriculture Research Sub-Station (Multi crop), Kotdiji

176. Agriculture Research Sub-Station (Multi crop), Sakrand

177. Agriculture Research Sub:-Station (Multi crop), Shikarpur

178. Auxiliary Seed Multiplication Farm, Nasirabad

179. Jujube Research Station, Taridojam

180. Maize & Millet Research Station, Dadu

181. Quaid-e-Awam Agriculture Research. Institute, Larkana

182. Cotton Research Station, Ghotki
183. Cotton Research Sub-Station, Mirpur khas
184. Chiku, Papaya and Banana Research Station, Ghulamullah
185. Chilies Research Station, Mirpur khas
186. Citrus Research Station, Sakrand
187. Coconut Research Station, Karachi
188. Date Palm Research Station, Kotdiji
189. Guava Research Station, Naudero
190. Horticulture Research Station, Mirpur khas
191. Horticulture Research Sub-Station, Kot Ghulam Muhammad
192. Horticulture Research Sub-Station, Mirpur khas
193. Onion Research Station, Husri, Hyderabad
194. seeds Research Station, Golarchi
195. Sindh Horticulture Research Institute, Mirpur khas
196. Tomato Research Station, Badin Vegetable Research Station, Mirpur khas
197. Vegetable Research Sub-Station, Husri
198. Vegetable Research Sub-Station, Mirpur khas
199. Vegetable Research Sub-Station, Sarhad
200. Onion Research Station, Husri, Hyderaba
201. Jujube Research Station, Tandojam
202. Groundnut Research Sub-Station, Sanghar
203. Oilseeds Research Station, Golarchi
204. Oilseeds Research Station, Shikarpur
205. Sunflower Research Station, Sangi
206. Pulses Research Station, Dokri
207. Pulses. Research Sub-Station, Tandojam
208. Rice Research Institute, Dokri
209. Rice Research Station; Thatta
210. Rice Research Sub-Station, Shikarpur
211. Sugarcane Research Station, Naudero

212. Sugarcane Research Station, Sujawal

213. Southern Wheat Research Station, Tandojam

214. Wheat Research Institute; Sakrand

Forestry and Wildlife department

215. Research and Development Division (Forest & Wildlife Dept.), Hyderabad

Irrigation and Power. Department

216. Hydrology and Research in Sindh, Hyderabad

Livestock and Fisheries Department

217. Poultry Production and Research Institute, Karachi

218. Sindh Poultry Vaccine Centre, Karachi

219. Fisheries Research & Development, Karachi

220. Veterinary Research &Diagnosis, Tandojam

UNIVERSITIES

University of Agriculture, Faisalabad

221. U.S. Pakistan Center for Advanced Studies in Agriculture and Food Security, Faisalabad

University of Karachi, Karachi

222. National Nematological Research Centre, Karachi

Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi

223. Institute of Hydroponic Agriculture, Rawalpindi

University of the Punjab, Lahore

224. Institute of Agricultural Sciences, Lahore

225. Climate Change Research Centre, Faisalabad

City University of Science & Information Technology, Peshawar

226. Center of Advance Research in Water, Environment and Climate, Peshawar

Lahore University of Management Sciences

227. Precision Agriculture and Analytics Lab (University of Agriculture), Faisalabad

228. Centre for Water Informatics & Technology, Lahore

Sindh Agriculture University, Tandojam

229. Institute of Food Sciences and Technology, Tandojam

Shah Abdul Latif University, Khairpur

230. Date Palm Research Institute, Khairpur

Mehran University of Engineering and Technology, Jamshoro

231. U.S-Pakistan Center for Advanced Studies in Water, Jamshoro

National University of Sciences & Technology, Islamabad

232. National Center of Robotics and Automation (National University of Sciences & Technology, Islamabad), Islamabad

233. Centre for Biodiversity & Conservation, Khairpur

University of Agriculture, Faisalabad

234. Center for Advanced Studies in Agriculture and Food Security, Faisalabad

235. Water Management Research Centre, Faisalabad

University of Chitral, Chitral

236. Wildlife and Ecosystem Research Cell, Chitral

University of Karachi, Karachi

237. Dr. A. Q. Khan Institute of Biotechnology and Genetic Engineering, Karachi

238. Centre for Excellence in Marine Biology, Karachi

239. Institute of Sustainable Halophyte Utilization, Karachi

240. Marine Reference Collection & Resource Centre, Karachi

241. National Nematological Research Centre, Karachi

242. Centre for Molecular Genetics, Karachi

243. Institute of Marine Science, Karachi

University of the Punjab, Lahore

244. Centre for Excellence in Molecular Biology, Lahore

245. Centre for Integrated Mountain Research, Lahore

University of Veterinary and Animal Sciences, Lahore

246. Bioequivalence Study Center, Lahore

Bahauddin Zakariya University, Multan

247. Institute of Molecular Biology and Biotechnology, Multan

248. Institute of Pure and Applied Biology, Multan

Arid Agriculture University, Rawalpindi

249. Institute of Food and Nutritional Sciences, Rawalpindi

250. Institute of Geo-Information & Earth Observation, Rawalpindi

251. Institute of Hydroponic Agriculture, Rawalpindi

University of Lahore, Lahore

252. Institute of Molecular Biology and Biotechnology, Lahore

253. University Institute of Diet & Nutritional Sciences, Lahore

University of the Punjab, Lahore

254. Centre for Applied Molecular Biology, Lahore

255. Institute of Agricultural Sciences, Lahore

256. Institute of Biochemistry & Biotechnology, Lahore

University of Agriculture, Peshawar

257. Institute of Biotechnology & Genetic Engineering, Peshawar.

University of Balochistan, Quetta

258. Center for Advaned Studies in Vaccinology and Biotechnology, Quetta

259. Institute of Biochemistry, Quetta