



Agriculture Department
Government of the Punjab

KEY HIGHLIGHTS

SMOG CONTROL STRATEGY 2024-25

Key Initiatives

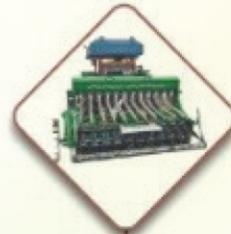


ACTIVATION OF
VIGILANCE TEAMS
(MOUZA LEVEL)

MASS MEDIA
MOBILIZATION



MEGA FARMER
CONVENTIONS



PROVISION OF
5000 SUBSIDIZED
SUPER SEEDERS

PROMOTION OF
MECHANIZATION



PROVISION OF
2000 SUBSIDIZED
RICE STRAW SHREDDERS



ISSUANCE OF WARNING
NOTICES

ENFORCEMENT OF SMOG
CONTROL RULES



CONTINUOUS PUBLIC
PARTICIPATION



DISTRIBUTION OF 3000
LASER LAND LEVELERS

LIVE GIS MAPPING OF
HOTSPOT / STUBBLE
BURNING SITES



WATER CONSERVATION
MEASURES
7300 NEW WATER COURSES

KEY NOTE ■



As the Government strives for progress and prosperity in Punjab, it is imperative to prioritize safer and healthier environment for our citizens. With this in mind, it becomes our prime focus to introduce multi-faceted plan aimed to tackle root causes of smog while fostering sustainable climate smart agricultural practices. By providing subsidies for farm mechanization, mass mobilization campaigns and enforcing strict smog control regulations, we are committed in transforming towards eco-friendly future

I urge all citizens to join us in this vital cause. Together, let us make Punjab; a place where clean air is not just a dream, but a reality for generations to come.

Syed Muhammad Ashiq Hussain Kirmani
Minister for Agriculture Punjab



PROLOGUE ■

The Punjab Agriculture Department is mandated to sustain food security and contribute towards the national economy. The Department has made significant progress in transforming the cropping sector of Punjab and is making grave efforts to make the agriculture sector more productive and sustainable along with promotion of climate smart agricultural practices.

In recent years, smog has emerged as a serious environmental and health hazard in Punjab with agricultural practices such as stubble burning contributing significantly to this issue. The burning of crop residue not only degrades soil health but also exacerbates air pollution, leading to severe respiratory and cardiovascular diseases among the population.

In response to these challenges, the Agriculture Department has devised a smog control strategy aimed at curbing crop residue burning and promoting sustainable agricultural practices. Agriculture department is committed to enforce strict regulations under the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023 to prevent stubble burning, while also providing farmers with viable alternatives through mechanized farming solutions. Key initiatives include Promotion of mechanized farming practices, Climate-smart agricultural practices, Awareness campaigns, Enforcement of smog control laws.

Moreover, as per vision of Chief Minister Punjab, a comprehensive Smog Control Strategy 2024-25 has been prepared by Agriculture Department as a part of broader Agriculture Transformation Program. This strategy outlines major steps of the Department to control menace of smog resulting from crop residue burning.

Mr. Iftikhar Ali Sahoo
Secretary Agriculture

EXECUTIVE SUMMARY ■

The Smog Control Strategy 2024-25 outlines the Punjab Government's comprehensive strategy to tackle the growing issue of smog, particularly the contribution of crop residue burning to air pollution. With Punjab's agriculture sector accounting for a significant portion of smog-producing activities, this plan is focused on reducing agricultural emissions through a mix of legislative enforcement, technological advancements, and community engagement.

The strategy aims to drastically reduce incidents of stubble burning through regulatory measures, technological interventions, and community engagement. Key measures include the implementation of the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023, which officially bans and penalizes stubble burning. Technological solutions involve deploying remote sensing technologies to monitor stubble burning events in real-time and promoting mechanized alternatives like the super Seeders and Rice Straw Shredders for sowing without the need to burn stubble.

In order to combat smog in Punjab and to achieve the desired objectives Agriculture Department has taken various initiatives which include provision of Super Seeders and Rice Straw Shredders to farmers on subsidized rates as an alternative to burn crop residues, extensive awareness campaigns and farmer training programs on alternate crop residue management practices and constitution of vigilance and monitoring teams for enforcement of Punjab Environmental Protection (Smog Prevention & Control) Rules 2023 across Punjab. The strategy is backed by the Judicial Water and Environment Commission, mandating cooperation from all governmental departments in Punjab to combat pollution and implement smog-reducing practices.

This Smog Control Strategy 2024-25 is a critical step in addressing the smog crisis, protecting public health, and ensuring long-term sustainability for Punjab's agricultural sector. The Government of Punjab is committed to delivering effective solutions and creating a cleaner, healthier future for all.

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Introduction

Smog, a blend of smoke and fog, is a form of severe air pollution that has become a significant environmental concern across the world. The phenomenon, first observed in industrial cities during the early 20th century, is primarily caused by the release of harmful pollutants into the atmosphere. These pollutants interact with sunlight and atmospheric particles to create ground-level ozone, which is a key component of smog. Key causes of smog are industrial



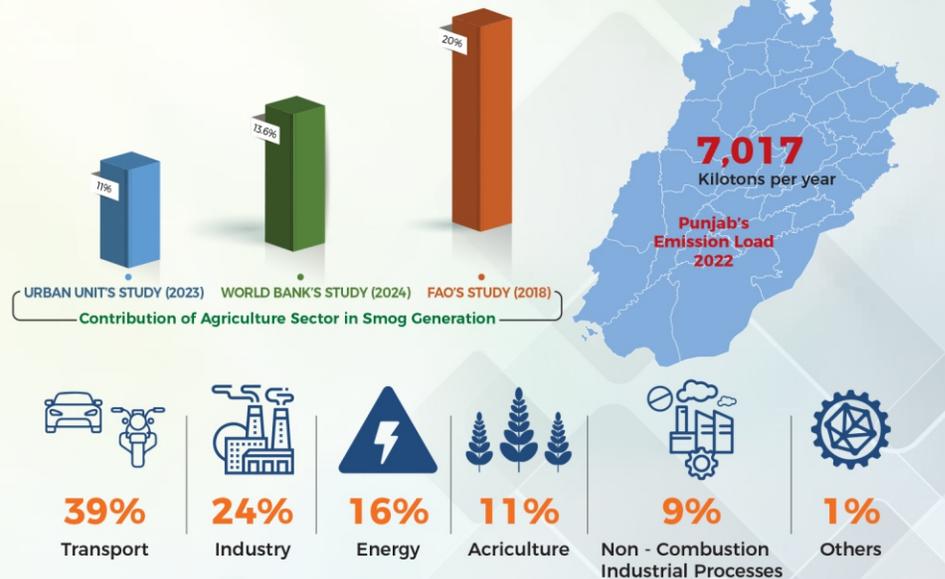
emissions, vehicular pollution, and agricultural practices like stubble burning.

The health implications of smog are severe and far-reaching. Smog is associated with respiratory diseases such as asthma, bronchitis, and lung infections. Prolonged exposure to smog can also lead to chronic conditions like heart disease, lung cancer, and even premature death. Studies have shown a link between smog exposure and an increased risk of heart attacks, strokes, and hypertension. According to the World Health Organization (WHO), air pollution, including smog, causes over 7 million premature deaths globally each year.

Stubble burning, a pervasive agricultural practice that involves the deliberate incineration of crop residues following the harvest of grains, has been globally acknowledged as a significant contributor to atmospheric pollution. This practice is commonly triggered following the harvest of grains such as paddy, wheat, corn, and other crops, having significant consequences for both local and global environments. The burning process emits a vast array of particulate and gaseous pollutants that have been scientifically linked to a variety of adverse effects on both human health and broader ecosystems. Among the direct impacts of stubble burning are depletion of soil nutrients (Nitrogen, Phosphorus, Potassium, and Sulphur) from the uppermost topsoil layer and a reduction in soil organic matter. This degradation of soil health in turn leads to declines in agricultural production and productivity, creating an unsustainable cycle of soil degradation and lower crop yields. The pollutants emitted by stubble burning can degrade air quality, which in turn leads to biodiversity loss, detrimental effects on water and energy efficiency and serious health impacts on both living beings. These issues have a wider societal impact contributing to health inequality and economic instability as well.

On a global scale, the trend of stubble burning is on the rise, influenced by factors such as increased mechanization in agriculture, labor shortages, and a dearth of viable and affordable alternatives for crop residue management. These challenges are particularly acute in paddy and wheat dominating areas of Punjab and across the border on Indian side as well, where number of incidents

associated with crop residue burning are very high and occurs during the post-harvest seasons. Resultantly, smog is the outcome where Agriculture Sector has been reported as third largest contributor with respect to other sectors in Punjab i.e. Transport and Industry (Source: FAO report on R-SMOG, 2018). According to the Urban Unit's report "Air Pollution Inventory of Punjab 1990-2020," agriculture contributes 11% to emissions. However, a separate study by the World Bank, titled "Cost-Effectiveness Analysis of Air Quality Management Options in Punjab," estimates agriculture's share in air pollution is 13.6%.



2. Problem Statement

Smog has emerged as a persistent environmental challenge in Punjab, particularly during the post-harvest season when agricultural practices like stubble burning exacerbate air pollution. Punjab's agricultural cycle consists of two main cropping seasons: Kharif (April to September) and Rabi (October to March). In central Punjab, most farmers practice crop rotation between rice and wheat, sowing rice in May and wheat in November. In order to expedite field preparation for wheat and other crops requiring fine seedbeds, many farmers resort to burning the leftover stubble from paddy harvesting. This practice has intensified alongside the increasing cultivation of rice in the region, significantly contributing to the worsening air quality.



SMOG CONTROL STRATEGY 2024-25

3. Overview

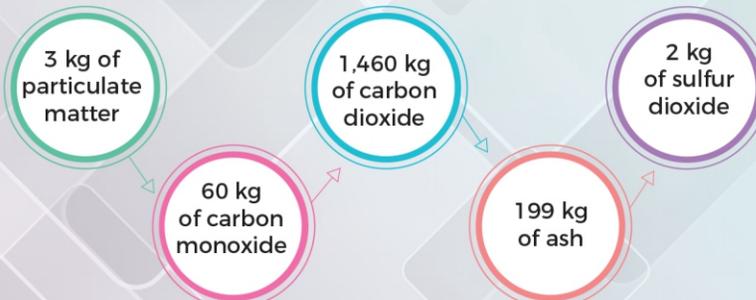
Historically Punjab is an agrarian province with over 70% share in National Agriculture. Out of total operational holding, a significant chunk of whopping, i.e. 2.38 million acres under wheat and paddy cultivation. Wheat is grown in all over Punjab whereas, paddy is mainly growing in Central Punjab and is now spreading to other parts of the province. Rice is cultivated on a total area of 6,434,000 acres in 2023. Major rice-growing divisions in Punjab include Gujranwala, Lahore, Faisalabad, Sahiwal, Bahawalpur and Multan. The area under rice crop in Punjab from 2020 to 2024 is given in the following table:



Year	Area under Rice Crop (000 acres)
2020-21	5,917
2021-22	6,314
2022-23	5,410
2023-24	6,434
2024-25	6,707

Area under rice crop in Punjab from 2020 to 2024

Open field burning of stubble from major crops, especially paddy crop, emits harmful gases, including carbon monoxide, nitrous oxide, nitric oxide, sulfur dioxide, methane, particulate matter, and hydrocarbons. This practice harms soil microflora and micro-fauna, damages nearby trees and standing crops, and creates ash that can reduce herbicide efficacy if not managed properly. Stubble burning depletes nutrients and adversely affects soil properties. Burning one tonne of straw releases:



The **on-site impact** of crop residue burning includes the removal of a large portion of essential organic matter, nitrogen, and phosphorus from the soil, as well as the loss of useful microflora and fauna. Whereas **off-site impact** is that the burning leads to significant air quality degradation, causing various health issues such as respiratory problems, including coughing, asthma, and bronchitis, as well as eye and skin diseases. Fine particles in the smoke further aggravate chronic heart and lung conditions, potentially leading to premature deaths. Additionally, the black soot produced from burning reduces visibility, increasing the risk of road accidents.

4. Scope

The **Smog Control Strategy 2024-25** is designed to address the critical issue of smog, particularly focusing on the contribution of crop residue burning in Punjab's agricultural regions. The strategy aims to engage multiple stakeholders, including government departments, farmers, environmental agencies, and local administration to collectively mitigate the harmful effects of smog on public health, agriculture, and the environment. The key areas covered by this strategy include:-



- **Geographical Coverage** The smog control strategy 2024-25 will be implemented across the rice-growing districts of Punjab, with special emphasis on core regions such as Gujranwala, Lahore, Faisalabad, Sahiwal, and Multan Division and district-level control rooms will oversee its execution to ensure comprehensive coverage.
- **Targeted Stakeholders** This strategy involves active participation from government bodies, including the Environment Protection Department, district administrations, and law enforcement agencies. Additionally, farmers and local communities are key stakeholders who will be engaged through awareness campaigns and incentives for adopting sustainable farming practices.

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- **Key Focus Areas** The emphasizes multiple approaches to reduce smog, including:
 - Climate smart agricultural practices including water conservation measures and soil health management for carbon containment. Public awareness initiatives targeting farmers and local communities to adopt climate-smart agricultural techniques.
 - Promoting mechanized farming practices like use of Super Seeders, Rice Straw Shredders and zero tillage.
 - Monitoring and reporting systems using satellite-based GIS surveillance to track real-time incidents of crop residue burning.
 - Strengthening legislative enforcement under the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023 to ensure penalties for stubble burning violations.
- **Timeframe** The strategy will be executed in three phases (pre-harvest, during-harvest, and post-harvest) spanning from May 2024 to February 2025, with continuous monitoring and evaluation to assess progress and effectiveness.
- **Expected Outcomes** The key outcomes of this strategy include a significant reduction in incidents of stubble burning, improved air quality, healthier soil for future crops, and enhanced collaboration between governmental and local bodies to address environmental challenges.

The Smog Control Strategy 2024-25 is a proactive and coordinated effort to not only combat smog but also pave the way for long-term sustainable agricultural practices in Punjab, benefiting both the environment and the population.

5. Effective Approaches for Management of Stubbles

Managing rice stubbles in an environmentally sustainable manner is a critical part of reducing air pollution caused by stubble burning. Various innovative approaches have been developed and promoted to address this challenge.

5.1. Zero / Minimum Tillage

To optimize the sowing period for wheat, zero or minimum tillage techniques are encouraged. These methods allow farmers to plant wheat without fully tilling the land, reducing soil disturbance and avoiding the need to burn stubble. A policy document of Agriculture Extension Wing on “Efforts to Minimize the Practice of Rice Crop Stubble Burning by Promoting the Use of Resource Conservation Technologies to Combat the Smog Issue covering the advantages, challenges and future prospects of zero / minimum tillage technique is attached at Annex-I.

5.2. Use of Super Seeders and Rice Straw Shredders

These implements help manage crop stubble without burning. The Super Seeder cuts and mixes stubble into the soil while preparing the seedbed, ensuring efficient planting for the next crop. The Rice Straw Shredder cuts and

evenly distributes the straw across the field, aiding decomposition and acting as a natural mulch, improving soil moisture retention. Government of the Punjab has devised a comprehensive strategy on promotion of mechanized management of rice straw burning by formulating a scheme titled “**Provision of Super Seeders and Rice Straw Shredder to the Farmers on Subsidized Rates to Combat the Issue of Smog**” at a cost of Rs.4,870 million. The policy document of this scheme” prepared by Field Wing of Agriculture Department is attached as Annex-II.

5.3. In Situ Incorporation

Incorporating stubbles directly into the soil is one of the most effective methods to improve soil fertility and reduce the need for burning. However, this approach is less favored by farmers due to the time required for stubble decomposition, which can delay wheat planting and affect nitrogen availability. Despite these challenges, in-situ incorporation remains a top priority for enhancing soil health and organic matter.

5.4. Stubble Burying

Stubble-burying in pits to create compost is an alternative to burning. This method is particularly suited for small farmers, who can use the compost to enrich their fields, thereby improving soil fertility and reducing the need for chemical fertilizers.

5.5. Other Uses of Crop Residue

Innovative uses for crop residues are being explored, including generating electricity in bio-thermal power plants, using straw as bedding material for cattle, and incorporating it in the production of paper and pulp. These practices provide additional income streams for farmers while reducing the environmental impact of stubble burning.



6. Judicial Interventions and Enforcement Measures

In order to take measures imperative for putting a stop to further contribution to pollution being cause to the atmosphere, the Honourable Lahore High Court, Lahore established the Judicial Water and Environment Commission vide order dated 31.10.2019 passed in W.P. No. 227807/2018 titled Haroon Farooq Vs G.O.P. etc. The relevant part of the order is reproduced as under: -



“The proceedings in this Court today have convinced this Court that it is imperative to put in place certain measures for dealing with the issue of pollution which has assumed alarming proportions in the recent days. It is likely to worsen in the coming days and must be dealt with on emergency basis. For the purpose, the Commission appointed by this Court is also designated as the Environmental Commission. It is directed that all departments of the Govt. of the Punjab shall render proper assistance to the Commission in the discharge of its functions and all proceedings taken by the Commission shall be deemed to have been authorized by this Court. The Commission shall take all measures which are imperative for putting a stop to further contribution to pollution being cause to the atmosphere of Lahore”.

In compliance with the Hon'ble Lahore High Court orders, the Judicial Water and Environment Commission has played a vital role by providing time-to-time advice in promoting climate-resilient agriculture and crop residue management practices. The commission has taken significant steps to improve the environment by issuing directions against stubble burning across Punjab. Additionally, the commission has advised the Agriculture Department to impose a complete ban on crop residue burning and to promote alternate solutions to enhance soil health by increasing the organic matter in the soil. Accordingly, Agriculture Department distributed 100 Pak/Super Seeders on priority basis to the farmers of core rice growing districts on subsidy during 2023 under the scheme titled **“Promotion of Mechanized Agriculture for Promotion of Crop Productivity” at a cost of Rs.50 million**. Additionally, Government of the Punjab, Agriculture Department has formulated a scheme titled **“Provision of Super seeders and Rice Straw Shredder to the Farmers on Subsidized Rates to Combat the Issue of Smog” at a cost of Rs.4,870 million during FY 2024-25** for provision these implements to farmers of core rice growing districts on subsidized rates. A **policy document** of this scheme is placed at **Annex-II**. Moreover, for effective implementation / enforcement of Punjab Environment Protection (Smog Prevention & Control) Rules 2023, field officers of Agriculture Department have been notified to act as authorized officers under the rules ibid.

7. Smog Mitigation Action Plan

7.1. Provincial Level

The Government of Punjab has taken significant steps to mitigate the adverse effects of smog and improve air quality across the province through legislative and enforcement measures. For this purpose, the Planning and Development Department has allocated funds amounting to Rs.5,000 million under the ADP scheme titled “Smog Less & Climate Resilient Punjab” appearing at G.S.No.3663 of ADP 2024-25 to provide funding to provincial departments for implementation/execution of smog mitigation interventions/measures across Punjab. Moreover, the allocation for climate-smart



agricultural interventions in the current ADP is Rs. 14,648 million. A project titled “Punjab Low Carbon and Adaptive Agriculture Project” for Rs. 35,750 million (US\$ 130 million) is in the pipeline with the support of the Asian Development Bank (ADB) to enhance the adoption of climate-adaptive agricultural mechanization and strengthen institutional capacity for low-carbon, adaptive agriculture in Punjab. Furthermore, a dedicated Smog Mitigation Unit led by the Senior Minister (Environment and Planning & Development) has been set up in the Planning & Development Board, Punjab, for monitoring, supervision and coordinating interdepartmental efforts to combat smog. To monitor the progress of smog-related interventions and ensure accountability, the Smog Mitigation Unit has developed a Smog Mitigation Projects Tracking Dashboard. This dashboard enables real-time tracking of activities and initiatives aimed at reducing air pollution. The Agriculture Department regularly updates its smog mitigation-related activities on the dashboard to ensure progress is transparent and measurable.

7.2. Departmental Level

Recognizing the significant impact of crop stubble burning and other contributing factors, the Agriculture Department has developed a comprehensive action plan. This plan focuses on addressing the root causes of smog by promoting sustainable agricultural practices across Punjab, with particular attention to the core rice-growing districts in Lahore, Gujranwala, Gujrat, Faisalabad, and Sahiwal divisions. In order to ensure effective execution of the action plan and seamless coordination with other departments, Agriculture Department has established a Provincial-Level Control Room. This control room is tasked with overseeing the implementation of the Smog Mitigation Action Plan and serving as a central hub for communication and coordination with various provincial departments, including the Environment Protection Department, Planning & Development Board, and field formations of Agriculture Department.

Each of the action plan has been mapped against activities along with timelines and the same has been submitted to Smog Mitigation Unit, P&D Board for its tracking and real-time monitoring through online dashboard. The snapshot of the action plan containing activities along with timelines is given as under: -

Action Plans - Agriculture Department



8. Duties / Responsibilities

The wing/directorate wise action plan is given as under:

8.1. Directorate General of Agriculture (Extension)

The Directorate General of Agriculture (Extension) plays a pivotal role in implementing the Smog Mitigation Action Plan. Its field offices will conduct extensive awareness campaigns, enforce regulations, and coordinate with other agencies to combat smog, particularly caused by stubble burning. Below are the key duties and responsibilities:

- **Farmer Training Programs on Awareness for combating Smog**

Field offices of Directorate General Agriculture (Extension) will hold farmer training programs from June, 2024 onwards. During previous season (2023-24), a total of 39,227 Farmers Training sessions were held - wherein a total of 471,477 farmers were trained (year wise detail is given in **Annex-III**). The same number of training programs on awareness will be scheduled this year at markaz / mouza level in 5 core rice growing divisions of Punjab.



- **Farmer Conventions / Mega Gatherings**

Field offices of Directorate General Agriculture (Extension) will conduct Farmer Conventions / Mega Gatherings at district / tehsil level in core rice growing division of the province. These gatherings will focus on promotion of Climate Smart Agriculture practices to reduce GHGs emissions, encompassing a range of practices and technologies that are tailored to specific agro-ecological conditions and socio-economic contexts. These gatherings will cover a range of topics, including:



- Conservation agriculture techniques including Zero Tillage Drill Sowing of Wheat (using super seeder etc.) and farms land leveling
- Sowing of high yielding climate-resilient crop varieties
- Precision fertilizing through soil testing
- Using combination of Organic and Synthetic chemical fertilizers for soil health
- Application of irrigation water at right time, right method and in right quantity
- Need based Pesticides / fungicide application on the crops
- Promotion of agroforestry

These technologies will be promoted through all possible extension tools including Farmer Training Programs, Farmer gatherings, Literature distribution etc. Moreover, subject experts from relevant wing/directorate/university shall also be invited to educate farmers in the above-mentioned topics as per their area of expertise.

- **Awareness Raising on Smog Prevention**

The field offices of the Directorate General Agriculture (Extension) will lead a series of awareness activities across the rice-growing areas of Punjab for the 2024-25 season. These campaigns aim to educate farmers on the harmful effects of stubble burning and promote environmentally sustainable practices to mitigate smog. Previous year's stats are at (**Annex-III**). Key activities planned for this year include:

- **Burjies Mottos**

Anti-smog messages (**Annex-IV**) will be written on Burjies (signboards), strategically placed in rice-growing areas to raise awareness. The Burjies will be updated with a special focus on the dangers of smog and the benefits of alternative farming methods starting in July 2024.



- **Announcements in Village Mosques**

A series of mosque announcements (**Annex-V**) will be conducted across the five divisions during September to December, with the aim of reaching farming communities and promoting best practices for smog reduction.



- **Literature Distribution**

One-pager leaflets will be distributed to farmers across the targeted divisions, educating them on sustainable alternatives to stubble burning. This literature will be disseminated as part of the campaign to promote soil health and smog mitigation.



- **Drum Beating Announcements**

In key villages, drum-beating sessions will be organized to spread awareness about smog prevention, supported by banners carrying short anti-smog messages. This activity will take place from September to December in prominent areas.



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- **Social Media Campaign**

Building on last year's success, where 232,859 Facebook and WhatsApp messages were circulated, this year's campaign will focus on village and markaz-level WhatsApp groups. From July to December 2024, daily social media updates will raise awareness about smog mitigation practices.



- **Issuance of Warning Notices**

Warning notices (**Annex-VI**) will be issued to registered farmers in rice-growing districts through the concerned field offices of the Directorate General Agriculture (Extension) during July and August 2024 as a preventive measure to deter stubble burning ahead of the harvest season. In addition to issuing notices, the field officers / staff concerned of Agriculture Department will facilitate visits of SHOs to villages where warnings will be directly communicated to discourage burning of rice crop residue. Field officers will also conduct daily visits to the villages of previous offenders and monitor identified hotspots within each district to ensure compliance and prevent potential violations. If any farmer is found engaging in stubble burning, legal action will be taken under the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023 (**Annex-VII**).

- **Establishment of Smog Control Rooms**

For real-time monitoring of Smog Mitigation Action Plan, control rooms will be established at Provincial, Divisional, and District. These control rooms will coordinate with field offices, district administrations, and relevant authorities to ensure compliance with the smog control measures.

Punjab Green App has been launched by Government of the Punjab for realtime reporting of rice stubble burning incident via this app. Farmers and citizens can also report incidents of rice stubble burning through Helpline **1373**.



- **Provincial Level Control Room**

The Provincial Control Room will serve as the central hub for overseeing the overall execution of the Smog Mitigation Action Plan. Key responsibilities include:

- **Daily Monitoring and Reporting** The provincial team will monitor smog-related activities across all core rice growing divisions and submit daily reports to Additional Secretary (Planning), Agriculture Department.
- **Coordination with Divisional Control Rooms** The Provincial Control Room will coordinate with divisional control rooms to ensure timely response to reported incidents and smooth communication between departments.
- **Policy Guidance** It will also provide guidance on policy matters and suggest

modifications to improve smog mitigation strategies.

- **Divisional Level Control Room**

The Divisional Control Rooms will act as regional hubs responsible for monitoring activities within their respective divisions. Their responsibilities include:

- **Real-time Incident Reporting** The divisional team will compile data on stubble burning incidents and other violations reported from district control rooms and relay the information to the Provincial Control Room.
- **Liaison with District Administrations** Divisional Control Rooms will maintain close liaison with district administrations to facilitate enforcement of the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023.
- **Ensuring Compliance** Divisional teams will ensure that field formations adhere to prescribed guidelines and take appropriate actions.

- **District Level Control Room**

District Control Rooms will be established to provide localized monitoring and response. Key duties include:

- **Field Inspections and Incident Verification** District-level teams will inspect and verify reports of stubble burning and other environmental violations. These reports will be forwarded to the divisional team for further action.
- **Coordination with Field Officers** They will work closely with Field Assistants (FAs) and Agriculture Officers (AOs) to ensure that all reports are acted upon and proper deterrent actions are initiated.
- **Complaint Management** These control rooms will also act as local complaint cells, handling public reports and ensuring they are addressed promptly.

- **Remote Sensing / GIS-Based Surveillance / Monitoring**

The Environment Protection Department will utilize remote sensing technology and satellite-based GIS surveillance to monitor rice crop residue burning incidents across Punjab. Thermal anomalies detected through satellite imagery will be reported in real-time to the Agriculture Department. Upon receiving these thermal anomalies, field offices of Directorate General Agriculture (Extension) will be responsible to conduct thorough on-site inspections of the identified areas to verify the incidents. If crop residue burning is confirmed, immediate deterrence actions will be initiated in accordance with the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023. This advanced surveillance system will ensure timely intervention and help mitigate the environmental impact of stubble burning.

- **Departmental Teams for combating Smog in CFY 2024-25**

These teams will mainly consist of AOs (Ext.) & FAs (Ext.). These teams will be supervised by ADAs (Ext.) & DDAs (Ext.) and report to DGA (Ext.) through Divisional DAs (Ext.). The main duties/responsibilities of departmental teams and mechanism/frequency of reporting is as under:

- The teams will stay vigilant in their areas of jurisdiction and will take action on any incident of stubble burning. The incidents may include thermal anomalies provided

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by Environment Protection Department and observed during surveillance.

- The Field Assistants also being part of surveillance teams will report to their concerned Agriculture Officers regarding stubble burning incidents. Upon which the agriculture Officer will approach the site and take action under smog rules 2023.

The activity of observation / tracking of burning incidents, their confirmation/ non confirmation and action taken will be conducted on daily basis. Subsequently, the concerned Agriculture Officer will be responsible for reporting to Provincial Control Room through his / her official hierarchy regularly.

● **Village Level Surveillance Squads**

Village level surveillance squads comprising following shall be constituted for monitoring and surveillance of the crop residue burning incidents during rice crop harvesting season:

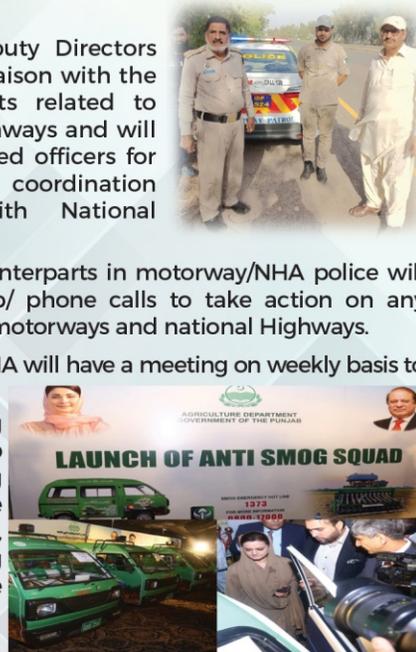


● **Coordination with NH&MP**

Divisional Directors Extension and Deputy Directors Agriculture Extension will keep a close liaison with the Motorway Police for taking up reports related to stubbles' burning along Motorways/ Highways and will be reported accordingly to the authorized officers for appropriate action. The details of coordination mechanism, meeting frequency with National Highways & Motorway Police is as under:

- The Deputy Director Ext and their counterparts in motorway/NHA police will keep close liaison through WhatsApp/ phone calls to take action on any incident of stubble burning alongside motorways and national Highways.
- Agriculture Department & Motorway/ NHA will have a meeting on weekly basis to reconcile the incidents and action taken.

In a significant step towards combating smog, the Senior Minister Punjab inaugurated a specialized Anti-Smog Squad to conduct surveillance along the motorways and highways. This squad, equipped with advanced monitoring tools, will work in coordination with the National Highways and Motorway Police



(NH&MP) to patrol key routes and respond swiftly to reports of stubble burning or other violations.

● **Deployment of Authorized Officers for Enforcement**

Deputy Director Agri., Assistant Director Agri. and Agriculture Officers of Extension Wing has been designated as authorized officers (**Annex-VIII**) at district, tehsil and markaz level under the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023 who will be responsible for imposing fines and taking legal actions against violators in their jurisdictions.

● **Deterrence and Action Against Stubble Burning**

A robust Monitoring and Reporting System will be implemented for tracking stubble burning incidents in real time. This system will ensure timely reporting of rice crop residue burning incidents for taking legal action at appropriate level of the Agriculture Department, in coordination with the Environment Protection Department and local authorities. With this system in place, Field Assistants, being part of surveillance teams, will be responsible for reporting any stubble burning incidents to the Agriculture Officer concerned who will initiate legal proceedings in accordance with the Punjab Environmental Protection (Smog Prevention & Control) Rules 2023. These proceedings include issuance of legal notices, registration of FIRs and / or imposition of penalties to the violators.

8.2. Directorate General of Agriculture (Information)

A robust awareness campaign will be undertaken during 2024-25 which shall include mass outreach through Print & Electronic Media, Social Media, Display Board, Announcements, Awareness Walk, Village/ Mouza Level-Volunteer Committees, and Literature Distribution. The awareness campaign with defined monthly targets will be started in August 2024 up till February 2025, to educate paddy farmers regarding hazards of burning of Paddy Stubbles and benefits of alternative stubble management practices.

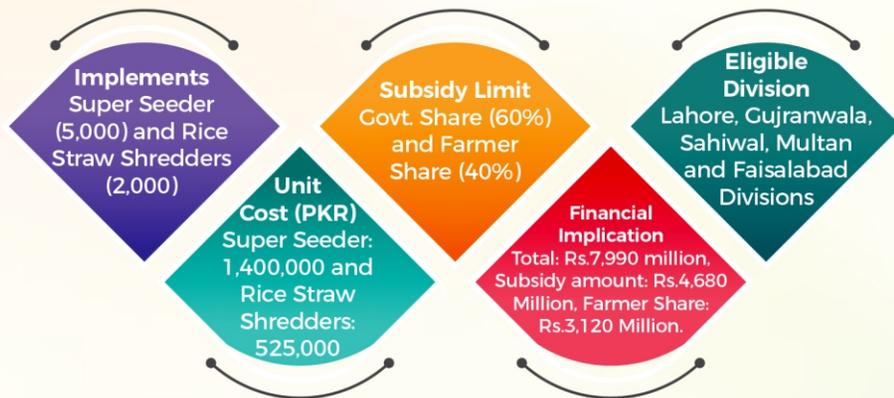
The important activities of the plan of Directorate General Agriculture (Information) are as under:

Sr.	Activity	Target	Timeline
1.	Press Release	15	Aug. 2024 to Dec. 2024
2.	Agri. Feature	04	Sep. 2024 to Dec. 2024
3.	Newspaper Advertisement	04	May 2024 to Dec. 2024
4.	News Tickers	60	Sep. 2024 to Dec. 2024
5.	TV News Packages	10	Sep. 2024 to Dec. 2024
6.	TVC/Messages	03	May 2024 to Dec. 2024

8.3. Directorate General of Agriculture (Field)

Field Wing of Agriculture Department is executing a scheme for provision of 5,000 Super Seeders and 2,000 Rice Straw Shredders to the farmers 21 rice growing districts (Cujranwala, Sialkot, Narowal, Hafizabad, Cujrat, Mandi Baha ud Din, Lahore, Kasur, Sheikhpura, Nankana Sahib, Faisalabad, Toba Tek Singh, Jhang, Chiniot, Okara, Sahiwal, Pakpattan, Vehari, Khanewal, Multan and Lodhran) on subsidized rates (60% subsidy). The program will be implemented in different phases until the targets are achieved. The details of the scheme are as under:

SMOG CONTROL STRATEGY 2024-25



Directorate General of Agriculture (Field) shall execute the scheme under non development portfolio from Apr 2024 to December 2025.

8.4. Directorate General of Agriculture (Research)

Following activities will be performed by Directorate General Agriculture (Research) under Smog Action Plan (2024-25)



- Supporting awareness activities of DGA (Ext. & AR) as per their areas of expertise in farmer gatherings/awareness programs
- Exploring options for alternate uses of rice crop residue e.g. pilot project on biochar production.
- Conducting research to develop and promote crop varieties resilient to adverse environmental conditions.
- Investigating and promoting sustainable farming practices, including reduced tillage, cover cropping, and the use of organic fertilizers, to minimize crop residue and air pollution.
- Collaborating with environmental agencies and research institutions to develop strategies to reduce the impact of agricultural practices on smog.
- Any other support needed to carryout smog related activities.

8.5. Directorate General (Crop Reporting Services)

Directorate General, Crop Reporting Service will undertake following activities under Smog Combat/Contingency Plan (2024-25)



- Providing periodic estimates of area harvested and area burnt during upcoming rice harvesting season
- The Crop Reporting Service GIS & RS team in collaboration with Urban Unit will undertake mapping of rice stubble burning sites using satellite imagery & available coordinates (longitude/latitude)
- Any other support needed to carryout smog related activities.

8.6. Directorate General of Agriculture (Water Management)

Directorate General Agriculture (Water Management) will undertake following activities under Smog Combat/Contingency Plan (2024-25)

- Eradication of Sarkanda (*Tripidium bengalense*)/Weeds along the watercourses with the help of Water Users Associations (WUAs) before commencement of rice harvesting season
- Exploring options for efficient water management during smog season
- Any other support needed to carryout smog related activities

8.7. Directorate General of Agriculture (PW&QCP)

DGA (PW&QCP) will undertake following activities under Smog Combat/Contingency Plan (2024-25)

- Supporting awareness regarding responsible use of pesticides in rice crop in collaboration of DGA (Ext. & AR)
- Any other support needed to carryout smog related activities

8.8. Agriculture Universities

University of Agriculture Faisalabad (UAF), Pir Mehar Ali Shah University of Arid Agriculture, Rawalpindi, Muhammad Nawaz Shareef University of Agriculture, Multan and it's sub campuses will be engaged in following activities under Smog Combat/Contingency Plan (2024-25): -



- Supporting awareness activities of DGA (Ext.) as per their areas of expertise in farmer gatherings/awareness programs.
- Organizing awareness sessions/ walks/talks of students/experts regarding smog and its mitigation. Promoting publications on crop residue managements to combat smog using print, electronic and social media platforms.
- Exploring options for alternate uses of rice crop residue including both on-farm and off-farm solutions.
- Agriculture universities will integrate smog and environmental pollution topics into their curriculum, particularly focusing on the impact of agricultural practices such as stubble burning on air quality.
- Courses and workshops will be designed to educate students on sustainable agricultural practices, including crop residue management and smog mitigation strategies.
- Research projects related to air pollution, climate resilience, and sustainable farming techniques will be encouraged as part of academic activities.
- Any other support needed to carryout smog related activities.

The activity matrix comprising activities of all related wings/directorate is given at **Annex-X**.

ANNEXURES

Annex-I - Zero Tillage Policy

POLICY DOCUMENT - EFFORTS TO MINIMIZE THE PRACTICE OF RICE CROP STUBBLE BURNING BY PROMOTING THE USE OF RESOURCE CONSERVATION TECHNOLOGIES TO COMBAT THE SMOG ISSUE



DIRECTORATE GENERAL AGRICULTURE (EXTENSION) PUNJAB LAHORE

1. Smog control strategy 2024-25

The Department of Agri. Extension has formulated smog control strategies at Divisional level under the umbrella of smog control strategy of Agri. Extension at Punjab level which comprised of two phases Pre-harvest and During Harvest Phases, being implemented this year (2024-25) in Punjab:

- Pre-Harvest phase emphasizes on creating awareness using all possible platforms including print, electronic & social media, farmer gatherings, conventions, announcements, notices etc. to prevent farmers from rice stubble burning as well as educating farmers about alternatives of this practice.
- The Harvest phase will mainly consist of strict monitoring, inspection and action taking against the culprits of rice stubble burning along with providing and promoting use of alternate solutions for rice stubble burning e.g. promoting mechanized management of rice crop residue, resource conservation technology i.e., the use of zero tillage, happy seeder and super seeder machines for wheat cultivation etc.

2. Historical perspective and importance of Zero Tillage

A wheat zero tillage drill was primarily designed for planting wheat directly into the soil without prior tillage. Zero Tillage was introduced to address several agricultural challenges in the Rice-Wheat system. Traditional tillage methods require significant labor, time, and energy. However, this technology was time and cost effective. It was helpful to conserve moisture, land preparations with least disturbing the soil, preventing late sowing of wheat and sowing of wheat efficiently (adjustment of seed & fertilizer rate/acre) and lines sowing through drill were its additional advantages which ultimately were the critical factors to improve wheat yields, especially after rice harvesting. Besides this it could support a diverse ecosystem in the soil, which can enhance nutrient cycling besides managing crop residues effectively, reducing stubble burning resulting environmental pollution and smog issues. Despite all these benefits there were certain reasons due to which this technology was not adopted widely by the farmers. Those facts and point of view of different stakeholders are discussed as follow:-

2.1. Barriers to the Adoption of Zero Tillage

Farmers often cite multiple reasons for not adopting Zero Tillage, including high initial costs, uncertainty about the benefits, and a lack of immediate returns on investment. There is also skepticism about the effectiveness of the technology on small farms especially, where the financial risk may be too high. Additionally, some farmers feel that Zero Tillage machines do not perform well in poorly leveled fields or when dealing with certain soil types and crop residues.

Failures in Zero Tillage adoption can stem from reduction in yield, compactness of soil, cost of machinery wear and tear, chocking of drill (leading to low plant population if gaps are not filled), necessitate excessive use of herbicides especially in managing stubborn or perennial weeds, inadequate farmer/driver training and other barriers which may include the high cost of equipment and farmer's reluctance to change traditional practices.

Addressing these challenges through tailored Government policies, subsidies, and extension services is essential for success.

2.2. Farmer Viewpoints on the Limitations of Zero Tillage

Most of the farmers who have used zero tillage technology were of the view that this technology has failed not only to enhance average yield and production of wheat but also failed to improve the soil health condition. According to these farmers zero tillage is not the only solution but improved tillage through smart machines is the need of the hour to meet the international standards of production.

2.3. Manufacturer Insight on Zero Tillage Machines

The manufacturers attribute the failure of Zero Tillage machines to poor design not suited for specific local conditions, low-quality materials, or the lack of after-sales service. To improve the technology, manufacturers were of the view to focus on customizing machines for local crop and soil types, increasing the durability of machines, and reducing production costs with Govt. support. They demanded strong collaboration from agricultural engineering researchers and farmers to fine tune the technology for long-term success. They also pointed out high cost per unit

(Rs. 3,00,000 to 3,50,000) as one of the reasons behind failure of this technology.

2.4. Impact of Rice Varieties on Zero Tillage Machine Performance

Different rice varieties, especially in terms of plant height and residues' volume, can significantly impact the performance of Zero Tillage machines. Newer high-yielding varieties produce more biomass, which can clog or reduce the efficiency of Zero Tillage seeders. Varieties with shorter stubble or lower residue volumes would be easier to manage. Therefore, developing machines that handle varying amounts of residues effectively is essential for wider adoption of Zero Tillage technology. The machine developed in these lines is Happy seeder and its latest version is Super Seeder.

3. Super Seeder/Pak Seeder machine and its future

3.1. Salient features of Super seeder

Super seeder machine is the latest version of Zero tillage machines. It offers a promising future for sustainable agriculture. It rotavates the rice straw, incorporate it in the soil, sow the seeds in lines and also has the facility of fertilizers bed dressing at the same time without any need of rice crop residues burning, which is a major issue in almost all of the rice-growing areas. In prevailing conditions, particularly in rice-wheat rotation, as well as changing climatic conditions, the use of Super Seeder will be a positive development. The calamity of smog can also be efficiently controlled through the large-scale adoption of super seeders by the farmers in rice wheat area and the commercial use of paddy straw i.e use in Biofuel pallets and paper industry etc. Further advantages include reducing pollution, saving time, improving soil health including the below mentioned.

3.2. Advantages of Super Seeder

- **Efficient Crop Residue Management** Handles crop residues, especially rice stubble, more effectively than zero tillage, Rabi drill, happy seeder, and turbo seeder.
- **No Need for Burning Residue:** Reduces the need for burning rice stubble, helping to curb air pollution leading to Smog reduction.
- **Simultaneous Tillage and Sowing:** Combines tillage and sowing in a single pass, saving time and reducing costs.
- **Improved Seed and Fertilizer Placement:** Ensures optimal placement of seeds and fertilizer, leading to better crop establishment.
- **Minimizes Soil Disturbance:** Causes less soil disturbance compared to conventional tillage, while still being effective in seedbed preparation.
- **Reduces Weed Pressure:** Better weed control due to uniform seedbed preparation and residues' management.
- **Adaptation to different soil conditions:** Although performs well in varying soil types, but at the same time, farmers also reported issues such as

machinery breakdowns, inadequate soil penetration, and difficulties in handling high volumes of rice straw, which are common in certain regions.

3.3. Disadvantages of Super Seeder

Along with its a number of benefits this newly evolved machine has also some disadvantages. These could include higher initial costs, its wear and tear, complexity in operation, and the need for high power tractor*, with specific field conditions for optimal performance. The future lies in improving affordability and ensuring widespread availability.

* The farmers are being facilitated with high power tractors to operate such type of machinery. Such as Green Tractor Program in which 950 tractor of varying power will be provided to the famers all over the Punjab.

3.4. Suggestion to increase adaptation of Super Seeder

In order to improve adoption, farmers suggest developing more adaptable, low weight but durable machinery, better training on maintenance and use, and more localized research to tailor the technology to specific conditions. Farmers also need access to affordable equipment through cooperative schemes or government subsidies.

4. Way forward

Moving forward, a holistic approach is needed that integrates farmer awareness, Government support, technological improvements, and financial incentives. A focus on developing region/site-specific solutions, training of farmers for operating machines properly, providing financial assistance, and providing after sale service facilities will be the key for adoption of mechanical farming. Encouraging cooperative ownership models or rental services i.e, through service providers**. A for expensive machinery could also be an important step to facilitate adoption. Continues research and extension services will ensure the evolution of technology resulting revolution in agriculture.

** The Govt. in first phase has provided 1000 Super Seeders on subsidized through open balloting to the farmers and service providers on prescribed criteria. In next phase 4000 more Super Seeders will be awarded to eligible candidate on subsidy basis.

Annex-II - Super Seeder Policy

POLICY DOCUMENT - PROVISION OF SUPER SEEDER/ PAK SEEDER AND RICE STRAW SHREDDER TO THE FARMERS ON SUBSIDIZED RATES TO COMBAT THE ISSUE OF SMOG



DIRECTORATE GENERAL AGRICULTURE (FIELD) PUNJAB LAHORE
GOVERNMENT OF THE PUNJAB, AGRICULTURE DEPARTMENT | May, 2024

1. Background

In Punjab, a SMOG emergency is declared every year around September-October and the Government has also banned crop residue burning. Heavy fines are also imposed to the culprits by the local authorities where open field crop burnings are reported. Preventing burning of agricultural residue, will promote alternative use of agricultural residue i.e. animal feed, fuel or their incorporation into the soil. In this regard, provision of agricultural machinery like Super Seeder/ Pak Seeder for wheat sowing is required to mitigate the issue of crop residue burning in core areas of rice i.e., Lahore, Gujranwala, Gujrat, Sahiwal, Multan and Faisalabad Divisions. These machines will be provided to farmers on

subsidy @ 60% during 2024-25 to stop the issue of crop residue burning. Through the availability of these machines, rice growers have wider option to sow their wheat crop directly, instead of burning the rice crop residue.

2. Objective

Provision of agricultural machinery at subsidized rates to promote mechanized management of rice crop residue instead of open field burning

3. Implementation Procedure

As per approved Scheme titled “Provision of Super Seeder/ Pak Seeder and Rice Straw Shredder on Subsidized Rates to Combat the Issue of Smog” by the Standing Committee of Cabinet for Finance and Development during its 1st meeting held on 04.04.2024 under non-development budget, the following procedure was notified to regulate the provision of subsidy on purchase of Pak / Super Seeder and Rice Straw Shredder;

3.1. Project Area

The scheme will be implemented in twenty-one districts of Punjab including Lahore, Kasur, Sheikhpura, Nankana, Gujranwala, Hafizabad, Gujrat, Mandi-Bahaudin, Sialkot, Narowal, Faisalabad, Jhang, Chiniot, TT Singh, Multan, Lodhran, Khanewal, Vehari, Sahiwal, Pakpattan and Okara.

3.2. Scope

Under this scheme 5,000 Pak / Super Seeders and 2,000 Rice Straw Shredders @ 60% subsidy has been approved for the distribution among the small-scale service providers working in the villages having tractor > 65 HP.

3.3. Applications

- i. Director General Agriculture (Field), Punjab Lahore will invite applications through the national newspapers for provision of financial assistance.
- ii. Schedule for submission of applications will be advertised in the press and the applicants will submit applications complete in all respect with an undertaking (on stamp paper of Rs. 100/-) that the applicant meets the eligibility criteria set for the proposed financial assistance. The farmers/ service providers fulfilling the following criteria will be eligible for the grant of financial assistance;
 - a. Owns a tractor not less than 65 HP.
 - b. Undertakes to carry out / provide services to other farmers on rental basis.
 - c. Has not applied for provision of machinery and equipment under this scheme from any other District in the Punjab.
 - d. Has not availed the subsidy for these machines and implements under any other scheme from any other District in the Punjab.
 - e. Will get the machinery and implement booked from pre-qualified firms within 20 days of issuance of allotment letter and failure to do so will cause

cancellation of financial assistance being offered under the scheme, which will not be challenged in any court of law and the subsidy will be awarded to the next farmer as per merit list.

f. Will abide by the decision of the allotment committee and will not challenge them in any court of law.

iii. The applications will be received / collected in the office of Assistant Agricultural Engineer (Field) / Assistant Director Agricultural Engineering of concerned district who will maintain record of applicants accordingly. However, the farmers can also submit the application at tehsil level in the office of Assistant Director Agriculture (Ext.)

iv. CNIC, tractor registration / transfer letter or any kind of ownership proof etc. including other conditions mentioned in eligibility criteria will be attached alongwith the application.

v. On expiry of last date for receipt of applications, the Assistant Agricultural Engineer (Field) / Assistant Director Agricultural Engineering of the concerned district will close the register with his signature while recording certificate showing the receipt of total applications. Director Agricultural Engineering / Agricultural Engineer of concerned division will ensure in person that all record has been properly maintained in each district of his division.

vi. Scrutiny Committee will scrutinize the received applications within 05 days as per TORs. The list of eligible and ineligible applications will be displayed on the notice board of the office of Assistant Agricultural Engineer / Assistant Director Agricultural Engineering concerned. The reason (s) for rejections will be mentioned. Five (05) days will be provided to the ineligible applicants to submit appeal (if any) to the Director Agricultural Engineering / Agricultural Engineer of concerned division after display of list. The Director Agricultural Engineering / Agricultural Engineer of concerned division will dispose-of the appeal (s) within 03 days. The decision of Director Agricultural Engineering / Agricultural Engineer of concerned division will be final and cannot be challenged in any court of law.

vii. The final list of eligible applicants will be displayed on the notice board of the office of Assistant Agricultural Engineer / Assistant Director Agricultural Engineering concerned within 02 weeks.

viii. Scrutiny committee will consist of the following members;

TORs of the scrutiny committee will be;

- a. To scrutinize received applications of concerned district.
- b. To prepare the list of Agricultural Mechanization Service Providers (eligible and ineligible) and display the list on the notice board of concerned Assistant Agricultural Engineer (Field) / Assistant Director Agricultural Engineering after completion of due formalities.
- c. To assist and facilitate Allotment Committee in balloting and allotment.

ix. Scrutiny committee of concerned district will forward scrutinized applications immediately, for balloting process to be conducted by the District Allotment Committee (DAC). The District Allotment Committee will carry out balloting within time bound schedule, if required. The formation of the allotment committee will be as under:

TORs of Balloting Committee will be;

- a. To conduct balloting of scrutinized applications.
- b. To finalize merit list and waiting list after balloting.

x. After balloting the list of successful candidates and in waiting will be displayed on notice board by concerned Assistant Agricultural Engineer / Assistant Director Agricultural Engineering within 02 days of balloting.

xi. Allotment letters will be issued to the successful candidates by the respective Assistant Agricultural Engineer / Assistant Director Agricultural Engineering within 03 days of balloting.

xii. The selected candidates will be bound to book the machinery from pre-qualified manufacturers within 20 days and if a selectee fails to do so within 20 days after the issuance of allotment letter, his allotment will automatically be stand cancelled. The Assistant Agricultural Engineer / Assistant Director Agricultural Engineering concerned will allot the machinery to the next applicant lying in waiting list who will get the machinery booked within 15 days of receipt of allotment order. In case, this allottee also fails to have the machinery booked within given time, allotment so made will be presumed cancelled and further it will be made in favor of the next selectee on the waiting list who will have to book the machinery within 10 days. Proper guidance will be given to the allottee about the procedure of booking by the Assistant Agricultural Engineer / Assistant Director Agricultural Engineering concerned.

xiii. If allottee expires before the delivery of machinery and implement, the legal heirs of the deceased (indicated by the applicant in the application form) will be eligible for the machine and implement. In case the legal heirs fail to book the machine and implement within 10 days, the allotment shall stands cancelled and next selectee as per waiting list will become eligible for machines and implement.

xiv. Cancellation of allotment and re-allotment of machinery to next farmer / service provider as per waiting list will be made by the Assistant Agricultural Engineer / Assistant Director Agricultural Engineering of concerned district.

xv. The Assistant Agricultural Engineer / Assistant Director Agricultural Engineering will submit report to the Director Agricultural Engineering / Agricultural Engineer concerned about the status of booking / delivery of machinery to the farmer / service provider in the respective district

3.4. Quality Assurance Plan

There will be two inspections to ensure quality manufacturing of proposed

implements and its delivery to the beneficiary site. The pre-shipment inspection will be conducted at firm premises by the Quality Inspection Committee (QIC) to ensure quality manufacturing of proposed implement and post shipment inspection will be carried out at agricultural mechanization service providers (Individual Farmers, Mechanization Service Providing Enterprises) premises by the District Inspection Committee. The pre-shipment inspection will be conducted by QIC of Concerned Division where manufacturing firm is located and post shipment inspection will be conducted by DIC at agricultural mechanization service providers (Individual Farmers, Mechanization Service Providing Enterprises) site.

The Quality Inspection Committee will inspect the machines / implements as per approved specifications. A dedicated code will be embossed at each unit to ensure its identification. Copy of the inspection report duly signed by the Committee will be given to the manufacturing firm and one copy will be handed over to District Inspection Committee for post shipment inspection after delivery at beneficiary premises.

The Quality Inspection Committee shall consist of the following:
TORs of the Quality Inspection Committee will be;

- a. To inspect the machines / implements at firms premises as per specifications and quality of manufacturing.
- b. Will allow the manufacturer to deliver the machines / implements to the agricultural mechanization service providers (Individual Farmers, Mechanization Service Providing Enterprises) after ensuring the quality.

The manufacturing firm will inform in writing to the convener of Quality Inspection Committee after manufacturing of implement. The Quality Inspection Committee will conduct the inspection. After inspection the manufacturing firm will deliver the implement to the beneficiary and will inform the Convener of District Inspection Committee in writing for post shipment inspection of implement at beneficiary premises.

The District Inspection Committee will conduct post shipment inspection of the implements after delivery at beneficiary premise and prepare inspection report and send the copies of both 1st and 2nd inspection reports to the Director General Agriculture (Field) Punjab Lahore. The District Inspection Committee shall consist of the following:

TORs of the district inspection committee will be;

The Director General Agriculture (Field) may assign special duties to any officer for random inspection of the manufacturing sites to cross check the quality manufacturing.

3.5. Mode of Payment

- i. Application for grant of subsidy for machine and implements will be submitted at District/ Tehsil level indicating the name of implement applied

for subsidy.

- ii. The maximum amount of subsidy shall be @ 60% of the cost in approved scheme for each implement.
- iii. The colour of the machine / implement under the scheme will be green.
- iv. The market prices of the agricultural machines/equipment are unpredictable due to changing economic conditions of the country as it is linked with the fluctuation rate in Pak Rupee. The subsidy amounts for agricultural implements have been fixed w.r.t the present market prices of the implements, any rise in the value/market price of any implement will be fixed by the Prequalification Committee (PQC) constituted by the Agriculture Department.
- v. The amount of subsidy will be paid to the firm, after the delivery of machine/ implement to the beneficiary and satisfactory reports from both Quality and District Inspection Committees. The farmer will pay his share at the time of booking in the shape of Demand Draft / CDR etc in the name of concerned firm and subsidy amount will be released by Government of the Punjab to the manufacturer. The farmer share will be released to the concerned firm after the successful Quality Inspection.
- vi. The farmer will be bound to purchase implement / machines according to the specifications from pre-qualified firms and in case of any additional attachment or modification on demand of farmer the additional cost will be borne by the farmer.
- vii. The manufacturer will submit original bill in triplicate alongwith allotment letter, booking letter, quality inspection and delivery inspection reports for release of subsidy amount to the concerned Assistant Agricultural Engineer / Assistant Director Agricultural Engineering who will forward the same to the Director General Agriculture (Field) Punjab Lahore after verifying the bill under intimation to the concerned Additional Director General / Director /Agriculture Engineer.
- viii. The subsidy will be paid to the manufacturer by Director General Agriculture (Field) Punjab Lahore in the shape of cheque through AG / treasury from SDA / Assan Assignment Account (AAA). Any wrong information from the manufacturer will be sufficient to delist the firm from further business by the Pre-Qualification Committee under the project after ascertainment of facts and on written report.

3.6. Prequalification of Manufacturers

Keeping in view, smooth and immediate execution of the proposed plan, the already prequalified manufacturers of agricultural machinery under the Field Wing of Agriculture Department would be considered as prequalified firm for this scheme. However, prequalification of new firms will also be made if required.

3.7. Project Steering Committee (PSC)

The terms of references (TORs) of the committee shall include, inter alia the followings:

- Revise annual physical targets within the overall scope of the scheme on need basis;
- Reallocate resources among districts from available savings (un-utilized funds) out of annual work plan as per demand / potential;
- Devise mechanism for transparent monitoring of project activities and maintaining profile of beneficiaries;
- Revise the eligibility criteria for selection of agricultural mechanization service providers (Individual Farmers / Mechanization Service Providing Enterprises) for provision of agricultural machines & implements if and when required;
- Remove bottlenecks arising during implementation of the project;
- Approve / change mechanism for disbursement of subsidy if required;
- Review the project progress, implementation status and take necessary actions to overcome difficulties;
- Mid-Course correction during the implementation of the project through yearly reviews.

3.8. Monitoring and Evaluation Mechanism

Director General Agriculture (Field) Punjab being Project Director will implement and monitor the overall project activities through its monitory and evaluation mechanism headed by Additional Director General, Agricultural Engineering (H/Q), Lahore. In this setup 03 Directors (Monitory and Evaluation) at regional level and 09 deputy directors (Monitory and Evaluation) at division level of Field Wing of Agriculture Department Government of Punjab will be responsible to ensure that the machines & implements provided by the pre-qualified firms is of quality and according to notified specifications through personal visits of their concerned regions/division. Further, the Director General Agriculture (Field) will cross check the activities through its officers working in the Directorate General Agriculture (Field) Punjab, Lahore.

4. Summary of Cost

(Rs. In Million)

Rationale	Unit Price	Total Units (Nos.)	Total Subsidy Govt Share @ 60%	Total Farmer Share @ 40%	Total
Super / Pak Seeder	1.350	5,000	4,050	2,700	6,750
Rice Straw Shredder	0.525	2,000	630	420	1,050
Total			4,680	3,120	7,800
Implementation Cost			190		190
Grand Total			4,870		7,990

5. Implementation Status

In order to collect applications from interested farmers/ service providers for provision of Super / Pak Seeder and Rice Straw Shredder, the draft SPL advertisement was submitted to the Director General Agricultural Information on 05.04.2024 to publish in newspapers after the perusal of Secretary Agriculture. The same was published in daily newspapers on 09th & 19th April, and 04th May 2024. The last date for receiving of applications was fixed as 07th May, 2024. The detail of applications received, rejected and accepted is as under;

Rationale	Supper / Pak Seeder	Rice Straw Shredder	Total
Total Applications	8,334	2,151	10,485
Rejected Applications	2,949	787	3,740
Accepted Applications	5,385	1,364	6,745

The balloting for successful farmers was carried out on 17th May, 2024 in the relevant districts by the notified District Allotment Committees. The balloting of district Sheikhpura was carried out at Rice Research Institute, Kala Shah Kaku wherein the rice value chain mechanization related agricultural machinery were also displayed. The Senior Minister Punjab, Minister Agriculture Punjab and Secretary Agriculture, also attended this ceremony and appreciated the efforts of Field Wing of Agriculture Department for completion of successful balloting process.

The priority wise list of successful farmers of each district has been prepared and displayed in each district. As per discussion during the meetings with Minister Agriculture and the manufacturers regarding the present manufacturing capacity of supplier firms of this equipment it was decided that during 1st phase before the next harvesting of the rice crop, allotment letters should be issued to 1,000 farmers/ service providers of Pak/Super seeders; while the case for provision of remaining 4,000 will be processed later on, and in meanwhile the fresh prequalification of new firms may also be carried out. For 1000 Pak Seeders/ Super Seeders, the district wise share has been worked out based on proportionate share of total target of each district.

Accordingly, the allotment letters were issued to the successful farmers for booking of 1,000 Pak/ Super Seeders. The detail of booking, manufacturing and delivery upto 18.10.24 is given as under;

Total Booked	1000 Nos.
Completely Manufactured	7722 Nos.
Under Process	88 Nos.
Delivered to farmers	708 Nos.

M/s Nespak (Pvt) Limited has been hired as short-term Consultant for Third Party Validation and to ensure the quality of manufacturing of the Pak/ Super Seeder. Nespak field engineer take part in quality inspection at firms manufacturing premises before shipment to the farmer site and verify the delivery of the Pak/ Super Seeder at farmer premises.

Annex-III - Progress Report - Smog Awareness Campaign

Sr. #	Activities	2020-21	2021-22	2022-23	2023-24
1	No. of Volunteer Committees	23,179	22,712	22,727	2,2739
2	No. of farmers contacted by Volunteer Committees	379,503	244,280	232,125	236,737
3	No. of farmer trainings conducted	29,066	46,364	38,499	39,227
4	No. of farmers trained regarding Smog	576,060	680,203	482,143	471,477
5	No. of Burjie Mottos for Awareness	4,016	4,126	3,972	3,667
6	No. of Announcements in the village mosques	46,928	45,693	42,214	48,114
7	Announcements through Dhol / Drum Beating	-	-	1,049	813
8	Total no. of literature distributed	241,200	186,415	239,942	225,778
9	Social Media Campaign (FB, WhatsApp etc.) (No.)	-	-	115,873	232,854
10	Warning Notices Issued to farmers	-	-	2,750	193,356

Annex-IV - Burjies Mottos

سموگ کنٹرول پروگرام کے تحت 5 ہزار سپریڈری کاشتکاروں کو 60% سبسڈی پرفراہمی۔

فصلات کی باقیات کو آگ نہ لگائیں یہ قانوناً جرم ہے۔

فصلات کی باقیات کو زمین میں دبائیں، سموگ سے پاک صاف ماحول صحت مند زندگی۔

فصلات کی باقیات کو آگ نہ لگانے پر فی ایکڑ 15000 روپے جرمانہ ہوگا۔

فصلات کے ٹڈوں اور پرالی کو آگ نہ لگائیں بلکہ زمین میں دبائیں زمین کی ذرخیزی بڑھائیں۔

فصلات کی باقیات کو نہ جلائیں، سموگ بن سکتا ہے زندگی کا رنگ۔

فصلات کی باقیات کو نہ جلائیں، آنکھوں کی الرجی سے نجات پائیں۔

فصلات کی باقیات کو آگ، سموگ کی موجودگی بڑھائے ماحولیاتی آلودگی۔

Annex-V - Mosque Announcements

ضروری اعلان برائے کاشتکاران

حضرات ایک ضروری اعلان سماعت فرمائیں۔

محکمہ زراعت کی طرف سے آپکو اطلاع دی جاتی ہے کہ فصلوں کی ہر قسم کی باقیات بشمول جڑی بوٹیوں اور سرکنڈوں کو آگ لگانا قانوناً جرم ہے۔ جس کی سزا میں 15000/- روپے جرمانہ فی ایکڑ یا ہر ممکن قانونی چارہ جوئی شامل ہیں۔ آپ کو تنبیہ کی جاتی ہے کہ فصلات بشمول دھان اور کماد کے ٹڈھوں اور دیگر باقیات کو آگ لگانے سے گریز کریں کیونکہ ان کا دھواں ماحولیاتی آلودگی کا باعث اور مضر صحت ہے۔ نیز زمین کی ذرخیزی بھی تباہ ہوتی ہے۔ شکریہ

دستخط فلید اسسٹنٹ

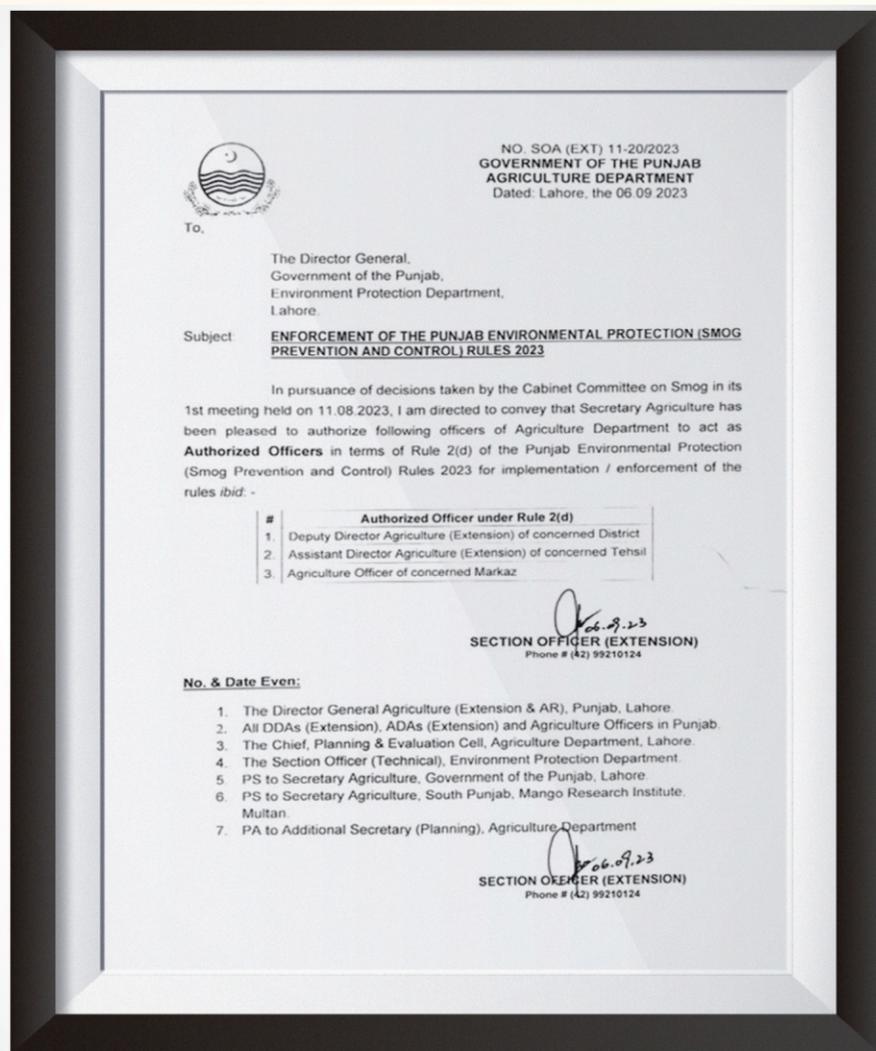
نام فلید اسسٹنٹ:

دستخط موذن/خادم مسجد

نام موذن/خادم مسجد

تاریخ:

Annex-VIII - Deployment of Authorized Officers



Annex-IX - Awareness Campaign Agri Information

Print & Electronic Media

Activity	Frequency	Key Messages
Press Release	15	• Provision of latest machinery to farmers for rice harvest under Chief Minister Program for smog control on subsidy basis about rice production enhancement
Agri. Feature	04	
Newspaper Advertisement	04	• Ban on rice stubble burning • How to avoid rice stubble burning/ alternative ways for disposal of rice crop waste.
Fortnightly Ziratnama	02 (Article + editorial)	
Outdoor publicity designs with anti-smog messages.		As per requirement/requisition from Agriculture Extension Wing and budget availability.
Brochures/ pamphlets/ banners/ posters, leaflets etc.		As per requirement/requisition/budget.
Talks to be broadcast through Radio Stations in Punjab	12	
TV Tickers: Issued/ displayed through TV Channels	60	
TV News Packages	10	
TVC/Messages	03	
Media coverage of meetings etc.	As per schedule	

SOCIAL MEDIA

Social Media (Website, Facebook, Twitter, TikTok, Youtube Channel, WhatsApp Channel & Groups).	30	▪ Static Posts
	04	▪ TVC
	03	▪ Short Videos / Message of Experts
	05	▪ Views of Progressive Growers

Annex-X - Activity Matrix

Sr.	Activity	Target	Timeline	Responsibility	Focal Person (add Contact Details)
DGA (Ext. & AR)					
1	Departmental teams for combatingsmog	354	Aug. 2024 to Feb. 2025	DGA (Ext.)	DGA (Ext.) Agriculture House, 21-Davis Road, Lahroe. 042-99200732 caodgaextpunjab@gmail.com
2	Activation of Surveillance Committees for combating Smog.	22,739	July, 2024 to Dec. 2025		
3	Farmer Training Programs on Awareness for combating Smog	39227	Sep, 2024 to Dec. 2025		
4	Mega Gatherings / Farmer Conventions on Climate Smart Agricultural Practices to Reduce GHG Emissions	256	Aug, 2024 to Feb. 2025		
5	Burjie Mottos on Awareness for combating Smog	3667	July, 2024 to Dec. 2024		
6	Announcements in the village mosques for Awareness on combating Smog	48114	Sep. 2024 to Dec. 2024		
7	Announcements through Dhol / Drum Beating for Awareness on combating Smog	813	Sep. 2024 to Dec. 2024		
8	Literature (One Pager) Distribution for Awareness on combating Smog	225,778	Aug. 2024 to Sep. 2024		
9	Messages in UCs and Markaz Level WhatsApp groups on daily basis for Awareness on combating Smog	3151 Whatsapp Groups	Aug. 2024 to Sep. 2024		
10	Warning Notices Issuance to Registered Farmers for combating Smog	Registered farmers	July. 2024 to Aug. 2024		
11	Establishment of Smog Control Rooms in CFY 2024-25	1 Provincial, 10 Divisional & 39 District level. Total=50	Aug. 2024 to Dec. 2024		
12	Mapping of Stubble Burning Sites	-	May, 2024 to December, 2024		
13	Authorized Officers of Extension	-	Aug. 2024 to Dec. 2024		
14	Inspection Teams/ Moreover, Special Inspection Teams	-	Aug. 2024 to Dec. 2024		
15	Motorway Police	-	Aug. 2024 to Dec. 2024		
16	FIRs/Fine will be lodged/imposed against Incidents reported in CFY 2024-25	-	Aug. 2024 to Dec. 2024		

Directorate General of Agri. (Information)

17	Press Release	15	Aug. 2024 to Dec. 2024	Director General Agricultural Information, Punjab	Directorate General Agricultural Information, Agriculture House, 21-Davis Road, Lahore. 042-99200731 dainformation@gmail.com
18	Agri. Feature	04	Sep. 2024 to Dec. 2024		
19	Newspaper Advertisement	04	Sep. 2024 to Dec. 2024		
20	Fortnightly Ziratnama	02	Sep. 2024 to Dec. 2024		
21	Outdoor publicity designs with anti-smog messages.	As per requirement/ budget availability	Sep. 2024 to Dec. 2024		
22	Brochures/pamphlets/ banners/ posters, leaflets etc.	As per requirement/ budget availability	Sep. 2024 to Dec. 2024		
23	Talks to be broadcast through Radio Stations in Punjab	12	Sep. 2024 to Dec. 2024		
24	TV Tickers: Issued/ displayed	60	Sep. 2024 to Dec. 2024		
25	TV News Packages	10	Sep. 2024 to Dec. 2024		
26	TVC/Messages	03	Sep. 2024 to Dec. 2024		
27	Media coverage of meetings etc.	As per schedule	Sep. 2024 to Dec. 2024		
28	Social Media (Website, Facebook, Twitter, TikTok, Youtube Channel, WhatsApp Channel & Groups).	30 static posts, 4TVC, 3 short videos/ message of experts, 05 views progressive growers.	Sep. 2024 to Dec. 2024		

Directorate General of Agriculture (Field)

29	Provision of Super-Seeders & Rice Straw Shredders	5000 Super-seeders & 2000 Rice Straw Shredders	Apr, 2024 to June 2025	DGA (Field)	DGA (Field), O/O Soil Survey Punjab, Near Awan Town, Multan Road, Lahore. 042-37831445 fieldwing@gmail.com
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Directorate General of Agriculture (Research)

30	Pilot project on Bio-char production through Soil Fertility Research Institute (SFRI).	-	July, 2024 to June, 2026	DGA (Research)	Chief Scientist, Soil Fertility Research Institute, Thokar Niaz Baig, Lahore. 042-99233581 director_sfri@yahoo.com
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31	Supporting awareness/any other support needed to carryout smog related activities of DGA (Ext. & AR)	As per requirement	July 2024 to Dec. 2024		
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Directorate General (Crop Reporting Services)

32	Periodic estimates of area harvested and area burnt	-	July 2024 to Dec. 2024	DG, Crop Reporting Service, Punjab, Lahore	DC, Crop Reporting Service, Punjab, Lahore. Awan Town, Multan Road, Lahore. 042-99330377 dacrspunjab@hotmail.com
33	Support needed to carryout smog related activities	-	Aug. 2024 to Dec. 2024		

Directorate General of Agriculture (Water Management)

34	Eradication of Sarkanda (Tripidium bengalense)/Weeds along the watercourses with the help of Water Users Associations (WUAs)	-	July, 2024 to Aug, 2024	DGA (Water Management)	DGA (Water Management), Agriculture House, 21-Davis Road, Lahore. 042-99200703 pipipwm@gmail.com
35	Support needed to carryout smog related activities	-	Aug. 2024 to Dec. 2024		

Directorate General of Agriculture (PW&QCP)

36	Supporting awareness regarding responsible use of pesticides in rice crop/any other support needed to carryout smog related activities of DGA (Ext. & AR)	-	July, 2024 to Dec, 2024	DGA (PW&QCP)	DGA (PW&QCP) Agriculture House, 21-Davis Road, Lahore. 042-99204371 controlroomagric@gmail.com
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University of Agriculture, Faisalabad and Muhammad Nawaz Sharif University of Agriculture, Multan

37	Supporting awareness activities of DGA (Ext. & AR)	-	July, 2024 to Aug, 2024	VCs UAF & MNSUA, Multan	i. VC UAF, 041-9200200 vc@uaf.edu.pk ii. VC MNSUA, Multan 061-9201680 9201560 vc@mnsuam.edu.pk
38	Organizing awareness sessions/walks/talks of students/experts regarding smog and its mitigation	-	July, 2024 to Aug, 2024		
39	Promoting publications on crop residue managements to combat smog using print, electronic and social media platforms.	-	July, 2024 to Aug, 2024		
40	Exploring options for alternate uses of rice crop residue including both on-farm and off-farm solutions.	-	July, 2024 to Aug, 2024		

List of Important Contacts

Designation	Address	Contact	Email
Secretary Agriculture	21-Davis Road, Lahore.	042-99200522	agripunjab@hotmail.com
Special Secretary Agriculture (Marketing & Development)	21-Davis Road, Lahore.	042-99204229	ssampunjab@gmail.com
Additional Secretary (Planning)	21-Davis Road, Lahore.	042-99200130	patoasplanning@gmail.com
Chief, Planning & Evaluation Cell	251-Rewaz Garden, Lahore.	042-99213324	chief_pe_cell@hotmail.com
Chief Agriculture Officer / DGA (Extension)	Agriculture House, 21-Davis Road, Lahroe	042-99200732	caodgaextpunjab@gmail.com
DGA (Field)	Multan Road, Lahore		fieldwing@gmail.com
Chief Scientist Agriculture (Research)	AARI, Jhang Road, Faisalabad	041-9201671	dgaraari@yahoo.com
DGA (Water Management)	Agriculture House, 21-Davis Road, Lahroe	042-99200703	pipipwm@gmail.com
DGA (PW&QCP)	Agriculture House, 21-Davis Road, Lahroe	042-99204371	controlroomagric@gmail.com
Director General of Agricultural Information	Agriculture House, 21-Davis Road, Lahroe	042-99200731	dainformation@gmail.com
Chief Scientist, Soil Fertility Research Institute	Thokar Niaz Baig, Lahore	042-99233581	director_sfri@yahoo.com
Vice Chancellor, University of Agriculture Faisalabad	Faisalabad	041-9200200	vc@uaf.edu.pk
Vice Chancellor, Muhammad Nawaz Shareef University of Agriculture, Multan	Multan	061-9201680 9201560	vc@mnsuam.edu.pk
Vice Chancellor, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi	Rawalpindi	0251-9292104	vc@uaar.edu.pk
DG, Crop Reporting Service, Punjab, Lahore	Awan Town, Multan Road, Lahore	042-99330377	dacrspunjab@hotmail.com

Key Initiatives

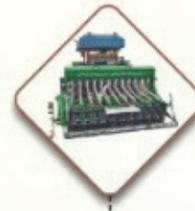


ACTIVATION OF VIGILANCE TEAMS (MOUZA LEVEL)

MASS MEDIA MOBILIZATION



MEGA FARMER CONVENTIONS



PROVISION OF 5000 SUBSIDIZED SUPER SEEDERS

PROMOTION OF MECHANIZATION



PROVISION OF 2000 SUBSIDIZED RICE STRAW SHREDDERS



ISSUANCE OF WARNING NOTICES

ENFORCEMENT OF SMOG CONTROL RULES



CONTINUOUS PUBLIC PARTICIPATION



DISTRIBUTION OF 3000 LASER LAND LEVELERS

LIVE GIS MAPPING OF HOTSPOT / STUBBLE BURNING SITES



WATER CONSERVATION MEASURES
7300 NEW WATER COURSES

Compilation

Agha Nabeel Akhtar

Special Secretary
(Marketing & Development)
Agriculture Department

Capt (R) Waqas Rashid, PAS

(TAMGHA-I-BASALAT)
Additional Secretary (Planning) /
Agriculture Department

Focal Person

Naveed Asmat Kahloon

Director General
Agricultural (Information)

Nasir Iqbal

Assistant Chief
Planning & Evaluation Cell
Agriculture Department

Hafiz Muhammad Ijaz
Section Officer (Planning-II)
Agriculture Department



Planning Wing - Agriculture Department
Government of the Punjab