



Agri-Business Supplement

Zarai Taraqati Bank Limited.

CAUSES OF FOG AND ITS SOLUTIONS



Fog is essentially a cloud at ground level that causes a reduction in visibility to less than 1000 m. Fog usually forms during November to February in Pakistan. Favorable conditions for its development are light wind, clear sky, high moisture and lack of turbulence. Fog forms in the environment, where there are large concentrations of aerosols characterized by a low suspension of fine solid particles or liquid droplets, in air or another gas. High aerosols loads are an important factor contributing in severity of fog events. The enhanced pollution load result in atmospheric reactions, producing the secondary pollutants that may lead to increased aerosol concentration in the atmosphere. The source for moisture availability for fog formation in Pakistan is Indus river, western disturbances and soil moisture.

There are different types of fog i.e. Radiation, Advection, Frontal and Industrial. The radiation fog is the most dominant type of fog, which occurs when the radiational cooling at night decreases the air temperatures to its dew point temperature. It is suggested that Sulfur Dioxide (SO_2) is a main component of fog and Pakistan receives heavy amount of Sulfur Dioxide (SO_2), from the coal burning industries of India, which is adjacent to northeastern parts of Pakistan.

How Smog is formed?

Smog is blackish or yellowish fog formed by the mixture of different gases, particulate matter in the presence of sunlight. When sunlight and its heat react with gases and fine particles in the atmosphere, smog is formed.

It is purely caused by air pollution. Ground level ozone and fine particles are released in the air due to complex photochemical reactions between volatile organic compounds (VOC), sulfur dioxide (SO_2) and nitrogen oxides (NO_x). These VOC, SO_2 and NO_x are called precursors. The main sources of these precursors are pollutants released directly into the air by gasoline and diesel-run vehicles, industrial plants activities, and heating due to human activities. Smog is also often caused by heavy traffic, high temperatures, sunshine and calm winds. During the winter months when the wind speed are low, it helps the smoke and fog to become stagnate at a place forming smog and increasing pollution levels near the ground closer to where people are respiring.

Influence on Plants

The direct and indirect influence of the pollutant particles are following:



- Blockage of stomata
- Appearance of visible symptoms like chlorosis and necrosis
- Disruption of physiological process
- Reduction of growth, decrease in yield and quality
- Elimination of nutrients due to soil erosion
- Soil acidification (acid deposition in soil due to acid rain)

Environmental Effects

- It can cause water pollution.
- It can damage buildings & monuments.
- Smog can create acid deposits in the form of acid rain, snow, fog, gas, and dust.
- Heavy smog can result in a smog cloud that can reduce visibility by 70 percent.
- Smog clouds are dangerous to drivers, airplanes, bicyclists, and pedestrians.



Effects on Health

- Smog accounts for a rapid sprout in fatal health problems, including exacerbation of asthma, allergies, eye infections, respiratory tract infections, and cardiac pathologies leading to premature death
- It can be lethal for elder people and can increase the incidence of asthma in children.
- Particles of toxic chemicals in smog are easily inhaled through lungs and can cause serious problems for health.
- Thus, heavy smog results in a low production of vitamin D leading to cases of rickets among people.
- It can cause severe eye problems, including burning of eyes.

Factors Involved in Injury to Plants

The development and severity of the injury depends not only on the concentration of the particular pollutant, but also on a number of other factors. Such as:

- The length of exposure to the pollutant
- The plant species and its stage of development
- The environmental factors conducive to a build-up of the pollutant and to the preconditioning of the plant

Recent Situation in Pakistan

According to Pakistan Metrological Department, Light to moderate rainfall reported from few parts of Punjab, Khyber Pakhtunkhwa (K.P), and Gilgit Baltistan (G.B) while dry weather was reported from rest of the country during the 3rd decade of October 2018. Rrepresentative of Pakistan Met Department (PMD), Space and Upper Atmosphere Research Commission (SUPARCO) and Environment Protection Department (EPD) explained that weather conditions are favourable, however, the first week of November, 2018; Pakistan will face some smoggy conditions due to pollutants, which are being emitted from stubble burning and concentrated on the eastern border of India.

Government of Punjab has recently started a crackdown under section 144 against burning of crop stubble, garbage and industrial, vehicular emission to combat smog production. Under Section 144, the burning of crop residue and garbage would remain

banned and coal-fired brick kilns will remain closed from October to December.

Measures to Control air Pollution

Air pollution needs to be urgently addressed as Lahore is now considered amongst the most polluted cities in Asia. In the winter months, with delayed rainfall, the cold and continuously dry conditions concentrate all the pollutants in the lower levels of the atmosphere, causing the smog to spread all over the Punjab.

- Industries, furnaces industrial plants should be far from cities.
- Deforestation is a cause of smog, therefore, growing more trees can reduce it.
- Their should be complete ban on issuance of registration of two stroke vehicles especially in city areas.
- A smog policy needs to be devised
- Need to banned those furnaces to construct new brick kilns having the Bull Trench Kiln (BTK) technology

Some Agricultural Practices to Reduce air Pollution for Farmers

There are many ways that agricultural operations can reduce pollution, including:

- 1) **Nutrient management:** Applying fertilizers in the proper amount, at the right time of year and with the right method can significantly reduce the potential for pollution.
- 2) **Cover crops:** Planting certain grasses, grains or clovers can help to keep nutrients in soil and reducing soil erosion.
- 3) **Buffers:** Planting trees, shrubs and grass around fields, especially those that border water bodies, can help by absorbing or filtering out nutrients before they reach a water body.
- 4) **Conservation tillage:** Reducing frequency of tillage to reduces erosion and soil compaction, builds soil organic matter, and reduces runoff.
- 5) **Managing livestock waste:** Keep animals and their waste out of streams, rivers and lakes keeps nitrogen and phosphorus out of the water and restores stream banks.
- 6) **Drainage water management:** Reducing nutrient loadings that drain from agricultural fields helps prevent degradation of the water in local streams and lakes.

Source:

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IMPACT OF WATER SHORTAGE ON MAJOR CROPS

Pakistan is purely an agricultural country having an area of 196 million acres out of which 52.364 million acres is cultivable. Generally two crop seasons i.e. winter



and summer are prevailing in country, which in local terms are known as Rabi & Kharif crops. During the FY 2017-18, the availability of water for Kharif 2017 stood at 70.0 million acre feet (MAF) showing a decrease of 2.0 percent over Kharif 2016 and increase of 4.3 percent over the normal supplies of 67.1 MAF. During Rabi season 2017-18, the water availability stood at 24.2 MAF showing a decrease of 18.5 percent over Rabi 2016-17 and 33.5 percent less than normal availability of 36.4 MAF. Agricultural output in Pakistan is closely linked with the ample supply of irrigation water but unfortunately, there is shortage of water to the agriculture community. Unit production of crops is getting lower in country as farmers are facing economic problems in maintaining their agriculture production. In last fifty years, water used for agricultural purpose has been increased due to changes in cropping patterns. The success of sustainable agriculture in arid and semi-arid regions of the world depends only on the availability of the quality water which is constantly declining in Pakistan. Subsoil water quality is also declining due to its continuous consumption and its further conversion into brine & saline water by industrial pollution. Uplifting growth of global population is expected to cause increase in demand for cereals including wheat by 1.27% annually between 2000 and 2025 for which remedial measures are also be taken by the Pakistan to ensure food security.

The factors play major role in water shortage are raising population, climatic variations, poor future planning for construction of new dams and reservoirs.

Among major crops, Wheat is the largest crop planted in the Rabi growing season. Gram, lentil, tobacco, rapeseed, barley and mustard are some of the other crops.

The agriculture sector depends heavily on canal irrigation as it accounts 90% in output of agriculture in Pakistan. The water situation for the upcoming years has been projected at 126.6 MAF (if three dams namely Kalabagh, Bhasha and Dasu become operationalized in year 2025. The graphical representation provides information about water requirement in MAF of major crops to maintain self-sufficiency (Fig). According to a survey conducted by Pakistan Council for Research in Water Resources, it is predicted that shortfall in water requirements will reach upto 274 MAF in the year 2025.

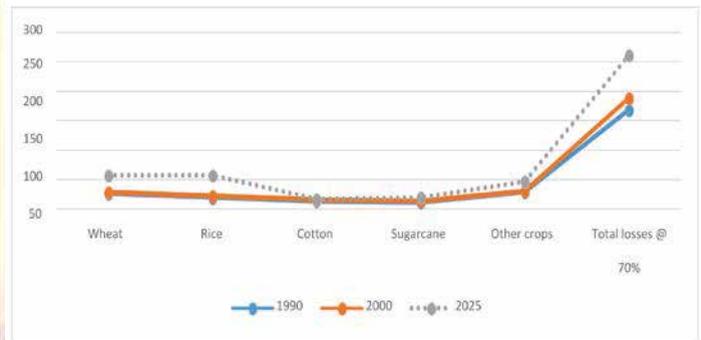


Fig. Agriculture water demand

According to Metrological Department, ongoing Rabi season, 2018 would face low rainfall pattern than normal range. They have forecasted low rains in October and November 2018. However, upper areas can receive rainfall during the coming months of December and January. At the end of Kharif sowing season of current year, water shortage had been recorded at 21%. Province-wise breakdown has showed that Punjab endured 20%, Sindh 17%, Balochistan 44% and Khyber-Pakhtunkhwa 33% water shortage. The total of 23.11 MAF of water would be available for Rabi crops in the 2018-19 season, which began in October 2018 and would continue till the end of March 2019.

Impacts of Water losses on Major Crops

The changing climate has direct relationship with shortening and increasing of growing season length. Shortage of water often delays the germination process of crops. The shortening of crop life cycle gives rise to resultant loss in crop yield, due to shorter period, the crop is not capable to complete its full production-potential. Further, the rise in temperature directly affects crop production. To understand the

effects of rising temperature on crop yields in Pakistan and in other countries, the crop simulation-modeling studies have pointed substantial losses in crop yields (Iqbal et al., 2009). Impact of rising temperature also causes substantial losses on crop yields in the rainfed areas of South and Southeast Asia (Fischer et al., 2002). Such decline in crop yields of wheat and rice especially in non-irrigated areas due to increase in temperature greater than 2.5°C in South Asia, will incur a loss in farm production and level net-revenue between 0 and 25% (Kumar and Parekh, 1998).

Further, in case of food production in South Asian countries, due to climate changes, the net cereal production is projected to decline at least by 4 to 10% by the end of this century (Alam et al., 2007). However, there might be significant regional differences in wheat, rice, and maize crop yields due to climate variability (Rozenweig et al., 2001).

Institute of Agriculture Extension and Rural Development, University of Agriculture, Faisalabad (UAF) has observed that farming community prefers canal water for farming. Due to water shortage and its limited supply, farmers are forced to relay on tube well water, which increases their cost of farming due to severe energy crises (Asim, et al. 2012). Mainly crops grown are wheat, rice, cotton, maize and sugarcane in the area of Punjab which make about 63 percent of the total cropped land. Growth of three major crops i.e. rice, cotton and sugarcane and 90 percent of wheat and maize is dependent on irrigated sources.

Mitigation Measures

There is a need to take immediate adaptation measures which will help to stable agriculture growth rate at around 5%. Implementing industrial policies and national energy, which would contribute climate mitigation by avoiding Green House Gases (GHG) emission. To overcome the effect of climate changes taking measures such as developing new and innovative farm production practices, improve productivity, production measurement; changing in cropping pattern will be useful. Through the progress in genetic research is under way, short duration varieties have been developed for wheat and other Rabi crops. In addition, heat and drought resistant varieties for wheat, maize, rice, cotton and sugarcane are also available in market. There is need to adjust cropping pattern with oil seed crops in the wake of water availability.

Flood irrigation should be avoided and modern resourceful irrigation methods should be adopted such as use of drip, sprinkler, and trickle irrigation system in order to overcome the water shortage, protect the fertile soil, reducing seepage from the canal and distribution networks. By adopting these measures, we can reduce the adverse effects of climate change on crop yield, ensuring food security, thus reducing poverty level in Pakistan. We have to cope with climate change scenario at regional, national, and global level through establishing comparative advantage in agriculture and agro-based industries. It is significant to raise public awareness about climate change issues through print or electronic media. We have to analyze and evaluate the impact of climate change on socio-economic development of Pakistan.

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RAIN WATER HARVESTING TECHNIQUES A MITIGATION STRATEGY FOR WATER CRISES IN PAKISTAN

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Sources of water available in Pakistan are rainfall, surface water and underground water. According to UNDP report, Pakistan is facing an impending water crisis, which is posing a serious threat to the country's stability. Agriculture Scientists have reported that South Asian country is likely to become dry by 2025. In another report last year published by Pakistan Council of Research in Water Resources (PCRWR) warned that the country may run dry by 2025. Similarly PCRWR predicted that if this situation persists, Pakistan will face an acute water shortage or a drought-like situation in the near future.

Pakistan ranks third amongst countries facing water shortage as per report of International Monetary Fund (IMF). An important reason behind this is the excessive use of water without any controlling mechanism. Therefore, there is a dire need to device a controlling mechanism as developed in developed countries.

Agriculture of Pothowar region of Pakistan is mostly rainfall dependent. Farmers of this region can't utilize most of rain water due to its run off. The population is affected by the absence of rains. Rainfall

pattern in the Pothowar area is unpredictable. Delayed monsoons dry spells results in poor soil water availability during growing season and affect crop yield and increase risk of drought. Therefore, in such circumstances, the importance of rain water harvesting for agriculture, domestic, livestock use and controlling flash floods in an economically and environmentally sustainable manner is getting attention all over the world as well as in Pakistan.

Methods of Rainwater Harvesting

Rainwater harvesting is the collection and storage of rainwater for reuse on-site, rather than allowing it to run off. Stored water can be used for various purposes such as gardening, irrigation and drinking. Various methods of rainwater harvesting are described in this section.

1. Surface runoff harvesting
2. Roof top rainwater harvesting

Surface Runoff Harvesting

In urban areas rainwater flows away as surface runoff. This runoff can be caught and used for recharging aquifers by adopting appropriate methods.

Steps for Making Water Harvesting Channels

1) Selecting of suitable land:

Selecting of suitable land is the first step to make the Rain water harvesting Channels. The selected area must be in the slope where the rain water flows and gathered from all around.

2) Digging of Pits:

Digging of pits for water harvesting depends upon the area under cultivation located near to water harvesting channels.



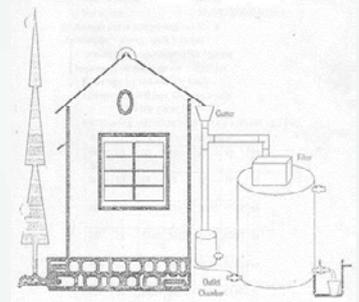
If the farmer have nearly one acre of land experts are suggested to construct 10x10 feet wide pits and nearly 10 feet deep.

3) Construction of water pound:

Third and the most important step in making water channels is construction. Construction should be done with good quality bricks and cemented. Experts also suggest make a roof over the water pound and keep open during the rainy reason/monsoon rainfall.

Roof Top Rainwater Harvesting

It is a system of catching rainwater where it falls. In rooftop harvesting, the roof becomes the catchments, and the rainwater is collected from the roof of the house/building. It can either be stored in a tank



or diverted to artificial recharge system. This method is less expensive and very effective, if implemented properly. It helps in augmenting the ground water level of the area. Harvesting system is given in the typical schematic diagram shown in figure.

Need for Rooftop Rain Water Harvesting

1. To meet the ever increasing demand for water
2. To reduce the runoff
3. To avoid flooding of roads
4. To augment the ground water storage and control decline of water levels
5. To reduce ground water pollution
6. To improve the quality of ground water
7. To reduce the soil erosion
8. To supplement domestic water requirement during summer, drought etc.

The system mainly constitutes of following sub components:

- Catchments
- Transportation
- First flush
- Filter

Advantages of Rain Water Harvesting

1. Provides self-sufficiency to your water supply
2. Reduces the cost for pumping of ground water
3. Provides high quality water, soft and low in minerals
4. Improves the quality of ground water through dilution when recharged to ground water
5. Reduces soil erosion in urban areas
6. The rooftop rain water harvesting is less expensive
7. Rainwater harvesting systems are simple and can be adopted by individuals
8. Rooftop rain water harvesting systems are easy to construct, operate and maintain
9. In hilly terrains, rain water harvesting is preferred

10. In saline or coastal areas, rain water provides good quality water, when it recharge to ground water, it reduces salinity and also helps in maintaining balance between the fresh-saline water interfaces

11. In Islands, due to limited extent of fresh water aquifers, rain water harvesting is the most preferred source of water for domestic use

12. In desert, where rain fall is low, rain water harvesting is also providing relief to people

A GENDER-RESPONSIVE APPROACH TO CLIMATE-SMART AGRICULTURE (CSA)

In a rapidly changing world, farmers are being faced with numerous challenges and one of them is climate change. While discussing gender responsiveness, following questions may arise, which require answers to mitigate risks towards Climate Smart Agriculture (CSA):-



- Why is taking gender into account so crucial to support farmers in this process?
- Their increasing role in food systems and food security positions them as an essential player and partner in this process?
- Women typically have less access than men to assets, knowledge and resources, and consequently do not have the same capacity to take up new climate-smart practices that will make them more resilient to a changing climate?

While cultures and norms are changing slowly, appropriate interventions looking at preferences and needs of different groups of men and women can help encourage or accelerate this change, and provide equal opportunities for men and women's uptake of new practices (e.g. improved soil, water management, agro-forestry, crop and livestock technologies and management practices).

Women are among the most marginalized groups of society. They typically have less access to the land, credit, extension services that affect their ability to adapt to events like droughts and floods (Huyer et al. 2015). On the other hand, women's unique knowledge and expertise concerning environmental management can contribute to innovative solutions that promote agricultural productivity and sustainability. Thus, at

the bare minimum, investments in CSA should help promote gender-responsive climate policies and programmes. CSA interventions need to take account of the fact that men and women have different resources, rights, limitations and concerns and seek genuine change in gender dynamics in agricultural production and social inclusion.

Gender is a critical dimension of climate-smart agriculture. Agricultural growth is one such solution to tackling issues such as food and nutrition insecurity, and poverty that climate change exacerbates.

With more variable rainfall and higher temperatures, most of farmers will have to shift what they produce, and how they produce it. This includes putting more time, money and effort into soil and water management practices; planting trees; growing legumes; adopting stress tolerant varieties, shifting from maize to sorghum, or from cattle to goats, to name just a few examples of key climate-smart opportunities for smallholders in many regions of the world.

Latest research is showing that how completely neglected and under-served smallholders, especially women farmers, within food systems in lower-income countries have been ignored. They don't receive the agricultural and climate information they need and have much less access to inputs, credit and services than do men. These women are partners with their males from dawn to dusk in contributing on the farm. They not only produce food, but they also prepare it and are responsible for the nutrition of the family. There is definitely something wrong with this picture, and a significant opportunity is required to address this glaring gap.

At the farm-level, *climate smart agriculture* is something farmers are already doing, but with varying degrees of success. These climate-smart practices include tasks such as planting fruit, fodder and fuel trees on farms. These can save much time and effort for those women who go out to collect fodder and fuel wood. They also can include in soil conservation efforts, which in some circumstances may greatly increase women's time spent on weeding and other tasks. Thus, it is necessary to understand the costs and benefits of these practices, not just for households, but also for individuals and the environments in which they live. The benefits derived out of their efforts on the farm are not analyzed and accounted to arrive at their actual financial contribution towards agriculture.

A gender-responsive approach to Climate-Smart Agriculture (CSA) means that the particular needs, priorities, and realities of men and women are recognized and adequately addressed in the design and application of Climate Smart Agriculture so that both men and women can equally benefit.



Criteria for Evaluating Whether a Gender-Responsive Approach is Used in CSA-sensitive Practices

- **Gender analysis:** At the outset of the work to develop or introduce a practice, an analysis of who has what and why, who does what and why, who makes decisions and why, and who needs what and why is carried out to develop an understanding of the site-specific gender, cultural and socioeconomic context. This analysis explores differential vulnerability of men and women to risk, opportunities and benefits, power relations within the household and the community, willingness to take on risk, and modes of access to sources of information. Findings of this analysis inform the application of the practice.
- **Participation and engagement:** Female and male farmers are involved in developing, adapting, testing and adjusting practices to meet their needs, preferences and opportunities. Communities and experts work together to understand local problems, climate projections, available assets and services, and to identify and test potential solutions, reducing existing gender inequalities and discrimination. Institutions are strengthened to continue fostering stakeholder engagement.
- **Constraints to uptake of practices are addressed:** Findings of the gender analysis are used to understand where there may be constraints to uptake of the practice, such as unequal roles in decision-making, unequal access to information or credit, and unequal ownership of land. By promoting an equitable access to resources and participation in household decision-making, all potential end-users can benefit from information and capacity development related to the opportunities of CSA-sensitive practices.
- **Immediate benefits:** The practice itself is designed to produce benefits for both men and women. These benefits include improvements in agricultural yields; reduction in the time, energy and labour spent by food producers, particularly

women, on their agricultural activities; and increases in women's access to and control of agricultural inputs and income.

- **Long-term benefits:** The practice itself contributes to longer-term changes in equality between men and women. It may enhance men's and women's resilience and agricultural productivity; increase women's control of resources; and increase participation of women and youth and other easily marginalized groups in decision-making at household and community levels.

Challenges to Adoption of a Gender-responsive Approaches

Gender-responsive approaches to agricultural development in general have been promoted for decades. The application of these approaches in the context of CSA at an early stage requires significant knowledge to draw upon and highlight in order to identify and overcome challenges that may arise. Main challenges may include:

- **Weak enabling environment:** A lack of political commitment or leadership on gender equality, due to a lack of gender awareness or resistance to incorporating gender issues into the work, can prevent the uptake of a gender responsive approach. Lack of staff capacity or funding, or cultural barriers limiting women's participation and leadership in activities and organizations can also pose barriers (Bryan et al., 2016). Often, addressing gender equality may be viewed as an "add-on" to the main work activities and it will not be given the importance it requires.
- **Logistical hurdles:** Time constraints, no or limited availability of gender expertise among team members, lack of monitoring of progress and results, or reduced funds dedicated to gender-related activities may hinder the completion of gender analysis and related activities. To overcome these challenges, awareness raising on why gender equality matters in CSA can be carried out at the beginning of the planning process. In addition, training, gender responsive budgets, and incentives can be useful in overcoming logistical challenges. Analysis of lessons learnt, results and benefits obtained on using a gender-responsive approach will improve further adoption of this approach.

Sources:

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SUCCESS STORY OF MR. WAHEED ALI

Mr. Waheed Ali is a Manager of Shah Farm Deh 302 at Taluka Ghulam Muhammad Mirpur Khas, Sindh. He cultivates sunflower in an area of about 50 acres. According to him this crop has great potential to grow it under different soil and climatic



conditions in rainfed as well as irrigated farming system in different agro-ecological zones. It is a high yielding crop with high oil contents that gives higher return to the farmers. Sunflower is a crop that fits well in the local cropping system and is considered as the most important cash crop in all parts of the country.

It has tap root system going up to 3 feet depth with larger lateral spread roots. It is an annual, erect herbaceous plant with a height of 1.5 to 3 meter, glabrous, often unbranched, thick, regular, woody with pith often hollow. Sunflower is protandrous, 10-40 cm in diameter, the seeds are ovoid, compressed, slightly, angled variable in size, have different colour viz., white, cream, brown, black or grey with white strips.

Planting of Sunflower

- The grower says that sunflower can be grown in sandy to clay soils having pH of 6.5 to 7.5 in range. However, saline and water logged soils are not fit for its plantation.
- Seed bed should be well drained and well pulverized, so that tap root system can be penetrate easily.
- Apply granular fertilizer along with organic manure during seed bed preparation to increase the fertility of soil.
- Seed rate depends on seed's dormancy, time of cultivation and technique of cultivation. Always use healthy and disease free hybrid seeds at rate of 2 to 2.5 kg per acre.
- Sunflower requires 120 frost-free days and can tolerate temperatures from 8 to 34°C. The optimum temperature for better crop production is considered to be between 20 °C and 25°C.
- It can be grown in winter as well as in summer. Winter crop can be grown from start of December

to mid of February, while summer crop can be grown during the end of July to mid of August.

- Four to five times of Irrigation is required during life cycle of the crop, however it depends on weather conditions, in warm and dry weather conditions crop demands more irrigation.

Seed Varieties to Grow

The grower says that he use hyson 33, NIL-78 and advance seeds (ICI) to cultivate crops.



Insect, Pest and Diseases

- Most of disease casual agents like fungus and viruses can attack on crop and cause diseases like rust, downy and powdery mildew and seed fungi etc.
- Sunflower is an insect free crop, however a gray moth, army worm, american worm and milli bug attack on crop.

Harvesting and Storage

- Generally crop matures 30 to 45 days after blooming. Turning of flower brown is an indicator of maturity.
- Cut the head off the plant (about 4 inches below the flower head) and remove seeds with finger or fork or generally shaking the head.
- Remove the moisture contents from seed by spreading them under sun shine and store at a proper place, where mouse or birds can't reach.

Precautionary Measures

- Apply only optimum amount of inputs like fertilizer, water to protect crop from wilting.
- Apply registered and recommended insecticides or pesticides on crop
- Remove the fungal infected and insect pest attacked plants from the plant population.

زرعی سفارشات برائے کسان گندم

- ☆ زمین کی تیاری شروع کر دیں، گلے سڑی کھاڈا لیں اور زمین میں اچھی طرح ملا دیں، بیج اور کھاڈا کا انتظام کریں۔
- ☆ پنجاب کے تمام بارانی علاقوں کے لیے زراعت کی منظور شدہ گندم کی اقسام NARC 2009، BARS 2009، دھرا نی 2011، پاکستان 2013، احسان 2016، فتح جنگ 2016 اور بارانی 2017 کو 20 اکتوبر سے 15 نومبر تک اور چکوال 50 کو 15 اکتوبر سے 15 نومبر تک کاشت کریں۔
- ☆ پنجاب کے تمام آبپاش علاقوں کے لیے سحر 2006، آری 2011، فیصل آباد 2008، NARC 2011، گلکسی 2013، بورلاگ 2016، این این گندم 1، اناج 2017 کاشت کیلئے موزوں ہیں۔
- ☆ بروقت کاشت 30 نومبر تک کے لیے شرح بیج 40 سے 50 فی ایکڑ کلوگرام اور یکم دسمبر سے 15 دسمبر تک شرح بیج 50 سے 60 کلوگرام فی ایکڑ رکھیں۔

چنا اور مسور

- ☆ ایک اور چکوال میں چنے کی کاشت اگر مکمل نہ ہوئی ہو تو جلد از جلد مکمل کر لیں اور ہمیشہ بذریعہ ڈرل یا پور کاشت کریں۔
- ☆ شرح بیج 30 کلوگرام فی ایکڑ رکھیں۔
- ☆ چنے کی دیسی اقسام میں ہلکسر 2000، پنجاب 2008، ونہار 2000، بل 98، سی ایم 98 اور بھکر 2011 شامل ہیں۔
- ☆ کابلی اقسام میں CM2008، نور 91، نور 2009، نور 2013، اورٹن 2013 کاشت کریں۔
- ☆ ستمبر کاشت کماد میں کابلی چنے کی مخلوط کاشت بڑی مفید ثابت ہوتی ہے۔ اس لیے 4 فٹ کے فاصلے پر کاشت کماد کے درمیان بیڈ پر چنے کی دو لائنیں یا 2.5 فٹ کے فاصلے پر کاشت کماد میں چنے کی ایک لائن کاشت کریں۔
- ☆ مسور کی کاشت جاری رکھیں اور شرح بیج 10 سے 12 کلوگرام فی ایکڑ رکھیں۔
- ☆ منظور شدہ اقسام نیاب مسور 2002، نیاب مسور 2006، پنجاب مسور 2009، مسور 93 اور چکوال مسور اور مرکز 2009 کے بیج کا بندوبست کریں۔

کینولا

- ☆ کینولا کی کاشت کا بہترین وقت 31 اکتوبر تک ہے۔ منظور شدہ اقسام پنجاب کینولا، فیصل کینولا اور کینولا ہا ہنڈ کاشت کریں۔
- ☆ شرح بیج آبپاش علاقوں کے لیے ڈیڑھ سے دو کلوگرام جبکہ بارانی علاقوں سے دو سے آڑھائی کلوگرام فی ایکڑ استعمال کریں۔
- ☆ فصل کو بیماریوں سے محفوظ رکھنے کے لیے محکمہ زراعت کے مقامی عملہ کے مشورہ سے بیج کو سرائیت پذیر پھپھوندی کش زہر لگائیں۔
- ☆ تیلدار اجناس کا بیج این اے ارسی اسلام آباد، پنجاب سیڈ کارپوریشن، مختلف زرعی تحقیقاتی اداروں، شعبہ روغنمدار اجناس ریسرچ اسٹیشن خانپور، ریجنل زرعی تحقیقاتی ادارہ، بہاولپور، بارانی زرعی تحقیقاتی ادارہ چکوال اور پرائیویٹ سیڈ کمپنیوں سے حاصل کیا جاسکتا ہے۔

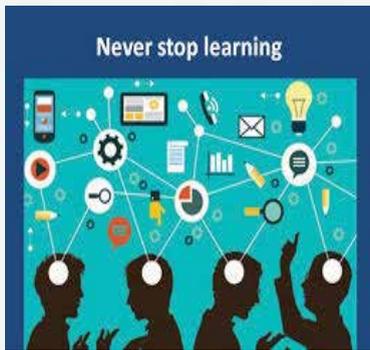
چارہ جات

- ☆ برسیم کی کاشت کریں اور شرح بیج 8 کلوگرام فی ایکڑ رکھیں۔
- ☆ شام کے وقت کاشت کریں چونکہ اسے ساگڑا بہتر ہوتا ہے۔
- ☆ لوسرن کی کاشت شروع کریں۔ لوسرن کی کاشت کا وقت 15 نومبر تک ہے۔
- ☆ چھٹے کی صورت میں شرح بیج 6 سے 8 کلوگرام اور ڈرل یا کیرا کی صورت میں شرح بیج 4 سے 6 کلوگرام فی ایکڑ استعمال کریں۔
- ☆ بے موسمی سبزیوں کی کاشت کے لیے ٹیل ٹیکنالوجی اپنائیں۔ سبزی مرچ، اور شملہ مرچ کی پیڑی 15 تا 30 ستمبر تک مکمل کر لیں۔

MANAGEMENT TIPS

Leaders Never Stop Learning

To be a leader, you have to be willing to keep up with the trends and think differently than your peers, writes Monica Torres in her article “Four Best Career Advice Lessons From Departing PepsiCo CEO Indra Nooyi”.



That means going beyond the standard advice of consultants. Imparting what Torres learned from Indra Nooyi, she said that bosses who rely upon traditional strategic planning cycle or consulting reports are doing their companies a “big disservice.” Torres said, citing Nooyi’s wisdom, CEO’s and leaders have to be lifelong students — not just students in the sense of attending courses or reading a book or two. They’ve got to learn how to read widely, walk the market, look at trends in the market place, make connections that don’t seem obvious,” she said.

Source: Monica Torres, [https:// www.thriveglobal.com](https://www.thriveglobal.com)

Transparency Increases Accountability

Many leaders look for ways to increase accountability within the ranks. A powerful way to increase team engagement is by being transparent with the appropriate business results. Sharing performance data will typically get team members sharing best practices and ideas for what is working. Use transparency wisely within your organization and it will become a key resource for increasing team engagement.



Source: Brian Montes, *Global Organizational Problem Solver*.

Three Strategies to Supercharge Your Leadership Skills

All leaders may have the same goal to get the best performance out of their teams but they set out to achieve them very differently. Below, is a list of things every business leader should know to become a more effective.

- Blend multiple leadership styles to suit different scenarios. While most of us gravitate strongly towards one specific style of leadership, that

doesn’t mean that we don’t occasionally incorporate attributes of the others into our actions and decisions. This is actually a highly effective tendency, since



taking on a management role often requires flexibility and the ability to adapt as required. There is no single approach that works optimally in all situations. Rather, the best leaders are able to draw on various styles and switch back and forth efficiently.

- Incorporate active listening skills and respond to the new information you receive. Good listening is a crucial skill for effective leaders to practice. It is important that you listen intently whenever employees share their specific concerns, struggles, and goals. Doing so puts you in a position to provide solutions that can empower them to overcome roadblocks and accomplish much more at their jobs.
- Balance your tendencies and improve your overall habits. Part of understanding your strengths as a leader involves learning how to deal with your weaknesses as well. Think carefully about the actions you take and determine how you can bring balance to the equation. The more closely you observe the nuances of your management style, the better prepared you will be to counteract your less desirable habits.

Source: <https://www.inc.com>, By Firas Kittaneh Co-founder and CEO, Amerisleep

Control Your Time and Efforts

One of the highlights of the article “8 Leadership Tips to Maximize Productivity”, authored by Will Mann, Vice President of Fitness at O2 Fitness, is controlling your time and efforts. Willman writes



“as a leader, we will have 1,000 things on our plate at any given time. One of the best skills we can possess is the ability to choose what is most important. When we choose what is most important, we time block it into our schedule. With the rest, we have three choices. 1) Delegate it. 2) Say “not yet” and plan it for the future. 3) Decide that it is little importance and disregard it altogether”.

NATIONAL NEWS

Punjab Government Allocated Rs. 7000 Million to Agriculture Sector

The provincial government has earmarked Rs 7000 million for the agriculture sector for remaining eight months of the current fiscal year from November 2018 to June 2019, with a vision to transform Punjab agriculture into a market-driven, diversified and sustainable sector. According to the budget documents, Rs 6,865 million has been set aside for seven ongoing schemes and Rs.135 million for five new schemes. The purpose of the enhanced allocations is to raise growth rate of the agriculture sector from existing 3.4 per cent to 7 percent, improve crop productivity, transform agriculture department into a strong ICT-led farmer-centric institution, improve service delivery to farmers with an access to evidence-based and diagnostic-driven services and mobilize private investment worth Rs 75 billion in the agriculture sector.

Telenor-Winrock Audio Platform to Deliver Agriculture Advisory Through Smart Phones

An agreement was made between Telenor Pakistan and Winrock International, a leading provider of social, agriculture and environmental solutions, on October 16, 2018. The aim of this agreement was to launch a digital audio platform through which farmers could access agriculture advisories, weather updates and modern technology through their smart phones. As a result of the agreement both parties will facilitate farming community by introduction of innovative techniques and technologies to increase their agriculture productivity and reduce the post harvest losses in 12 districts of Punjab and Sindh province. Both parties will disseminate a developed content (information from sowing to marketing of agriculture products and financial literacy) prepared by the

Winrock International's through Telenor's Khushaal Zamindar digital platform to the farmers.

The service will be executed in regional languages for the farmers in Sindh and Punjab regions including Thatta, Mirpur Khas, Hyderabad/Matiari, Umerkot, Tando Allah Yar and Khairpur in Sindh; Shiekhpura, Multan, Muzaffargarh, Khanewal, Bahawalpur and Lodhran in Punjab.

Plantation Drive under Green Pakistan Project (GPP) to be given Importance in KPK

As per vision of Prime Minister of Pakistan Khyber Pakhtunkhwa Governor, Shah Farman gave emphasis on tree plantation to



achieve the goal and objectives of Green Pakistan Project in the Province. He expressed these views at the inaugural ceremony of autumn season tree plantation campaign. According to him, 0.1 million olives and moringa plants will be planted during the ongoing fall season.

It is worth to mention here that ZTBL has also started a tree plantation campaign. Under this campaign, a target to plant 5000 trees has been given to all zones included Peshawar zone. Further, Mobile Credit Officer of each branch will be given a target for tree plantation.

Farmers Should Start Wheat Cultivation from October 15, 2018

The agriculture scientists have advised farmers to start wheat cultivation in arid areas from October 15 to get better production.



According to a spokesman for the Agriculture Department, in the arid areas, farmers should cultivate approved varieties like Chakwal-50, NARC-2009, PARC-2009, Dharabi-2011 and Pakistan-2013, while in irrigated areas, the wheat varieties like Sehar-2006, Lasani-2008, Faisalabad-2008, AARI-2011, Punjab-2011, Millat-2011, NARC-2011, Shafaq-2006, Fareed-2006, Meraj-2008 and Aas-2011 should be cultivated from 1st November, 2018.

ZTBL NEWS**World Bank Delegation Visited ZTBL for Revamping Plan**

World Bank's team of consultants consisting of Mr. Henry Bagazonzya (International Agriculture Finance Specialist) and Mr. Inshan Nawaz Kauji (Agriculture Finance Specialist) visited ZTBL from 8th October, 2018 to 10th October, 2018.

During their visit the World Bank team of consultants had detailed interactive sessions with various business and operational support Divisions of the Bank, assessing the nature and scope of ZTBL's revamping. The efforts and approach deputed in the Revamping Plan ZTBL was greatly appreciated by the World Bank team being in line with the international agriculture landscape and agriculture productivity and business approach rendered by ZTBL. The services of World Bank team of consultants for review and suggests improvement in the Revamping plan was arranged / facilitated by Economic Affairs Division Government of Pakistan under World Bank's technical assistance.

**Converde Asia Team Visited the ZTBL Farm**

In July, 2018 a MoU was signed between ZTBL & Converde Asia Pvt. Ltd. to provide a general framework to facilitate collaboration and cooperation between parties in matter of common interest. i.e. nursery plantation as well as any other project mutually agreed between the parties. Now a team of Converde Asia Pvt. Ltd. headed by Dr. Mubashir Bhatti along with 14 female members visited the ZTBL farm on 09th October, 2018.

Mr. Wahab Khan, Farm Manager along with his team members welcomed the Converde Asia's team and explained the main objective of ZTBL Farm and

highlighted the role of the Bank in promotion of latest agri. technologies/innovations to the farming community of the country. Booklets related to cropping sector were also presented to the participants. At the end, the participants appreciated the knowledge provided by Subject specialists and the efforts of Bank in this respect.

**PATU Lahore Team Attended a Seminar on Kitchen Gardening in the Institute of Agricultural Sciences, Punjab University, Lahore**

A team of Provincial Agriculture Technology Unit (PATU), ZTBL Lahore attended a seminar on kitchen gardening and seed distribution



organized by Institute of Agricultural Sciences (IAGS) University of the Punjab, Lahore. In this Seminar, Mr. Abdul Mannan (Assistant Manager, KSSL) was invited as the guest speaker. The aim of the seminar was to motivate the community for kitchen gardening and practices, to meet the food requirement of growing population and to boost country's economy.

Opening of New Branches

New branches named as Jalla Jeem and Churasta Mian Khan have been opened by the Bank under the Vehari and Okara zone respectively. The main objective of these new branches is to alleviate the financial suffering of local masses by ensuring greater outreach for cost effective and timely availability of credit to the farming community. This is all due to dedication and motivation of our President, ZTBL under whose dynamic leadership, the Bank is playing significant role in meeting growing demand of farming community.

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Technology for Agriculture