



# Agri-Business Supplement Zarai Taraqiati Bank Limited.

## TEAK (SAGWAN) PLANTATION

**Teak** (*Tectona grandis*) is a tropical hardwood tree species, commonly called as "Sagwan". It is a large, deciduous tree that occurs in mixed hardwood forests. It has small, fragrant white flowers and large papery leaves that are often hairy on the lower surface. It produces small, white flowers arranged in a dense cluster (panicle) spread up to the end of branches. Flowers contain both types of reproductive organs hence are perfect flowers. *Sagwan* is native to south and southeast Asia, mainly India, Sri Lanka, Indonesia, Malaysia, Thailand, Myanmar and Bangladesh but now has been domesticated in many African and Caribbean countries. Myanmar's teak forests account for nearly half of the world's naturally occurring teak.



Teak wood has a leather-like smell and is particularly valued for its durability and water resistance. The tree is quite hard and shows very good development on the fertile lower slopes of the hills, where the soil is deep, but in shallow soils and along dry ridges it becomes stunted due to deficiency of nitrogen. Teak reproduces naturally from seed, but the extent of its natural regeneration depends on climatic and edaphic factors.

### Economic Importance

The timber (teak) is world's famous for furniture, construction of poles, beams, trusses, columns, roofs, doors, window frames, flooring, planking, paneling, staircases, making railway sleepers, bridges, carts & carriages, agricultural implements like ploughs, shingles, footboards, stretching boards in woolen mills, heavy packing cases, boating in tropical waters, ships, making sound boards and plywood.

### Growing Areas in Pakistan

In Pakistan Nelumber Hybrid type of teak (Sagwan) can be grown successfully in Islamabad, Karachi,

Gawadar, Thatta, Badin, Khaipur, Bhimber, Kotli and all districts of Punjab, Sindh and Khyber Pakhtunkhwa, and low warm areas of Balochistan.

### Production Technology

#### Propagation

Teak is propagated mainly from seeds. Germination of seeds involves pretreatment to remove dormancy arising from the thick pericarp. Pretreatment involves alternate wetting and drying of the seeds. Seeds are soaked in water for 12 hours and then spread to dry in the sun for 12 hours. This is repeated for 10–14 days and then the seeds are sown in shallow germination beds of coarse peat covered by sand. Seeds then germinate after 15 to 30 days. Direct sowing can be done by broadcasting the seed or by dibbling, but transplanting of seedlings is preferred and is most prevalent.



Clonal propagation of teak has been successfully done through grafting, rooted stem cuttings and micro propagation. After propagation plant can be raised direct or by transplanting the nursery-raised seedlings.

#### Time of Sowing

Seeds are sown in nursery beds, generally during April-May, depending upon the local conditions, but it may also be sown as early as in March.

#### Climate and Soil

- Teak plant is an important tree of humid regions, but it prefers moist, warm tropical climate. It can withstand extremes of temperature (13–44°C), but more profuse growth observed between 13–17°C. It grows well in rainfall zone of 1200–2500 mm.
- Teak can be grown successfully on clay soils specially grown best on sandy to clay soils. However water logged and saline soil conditions are not feasible for its cultivation.

#### Planting Technique

Planting of teak forest depends on area as well as type of planting e.g. block or bund planting. The optimum

spacing between plants is 9 to 10 ft or between rows is 2 m to accommodate 500 plants per acre. Weeding may be carried out at 3 operations in first year, 2 operations in second year and 1 operation in the third year. First thinning in a 7<sup>th</sup> / 8<sup>th</sup> year and second thinning in 13<sup>th</sup> / 14<sup>th</sup> year should be done. Two doses of fertilizer (in the month of August & September) @ 50 g per plant of NPK (15:15:15) may be provided every year up to three years. Irrigation should be mostly applied during stress period which boosts the growth of the plants. Teak is very sensitive to poor drainage.

### Diseases, Insects and Pests

A range of insects, pests and diseases cause significant loss to the farmers. It reduced the wooden quality of teak as well as market price.

- Teak defoliator & skeletonizer cause extensive damage to young plantations.
- Root rot is also common in the plantation. Pink disease fungus causes cankers and bark flaking.
- Powdery mildew leads to premature defoliation. It is thus necessary to undertake prophylactic and control measures to ensure good health of the crops.

Fresh leaf extracts of Datura metal and neem are found to be most effective against teak skeletonizer disease. Use of these type eco-friendly insecticides which are harmless and have pollution free implications on the environment .

### Yield and Income

In general, first quality teak yields at 20 years of age, when the average diameter is 27.2 cm and average height is 23.2m. If the number of trees per acre is 102, the total yield of stem timber is 28.04 m<sup>3</sup>. Nelumbar Sagwan Hybrid types of teak become ready for sale after 10 years of growth and farmers can receive 15 ft<sup>3</sup> to 25 ft<sup>3</sup> of stem timber yield.



### Conclusion

Teak plantation gives a better yield as well as reduces the soil erosion in high rainfall areas. Its timber used for quality furniture's, can enhance the profit to the farmers. Initially cost is more, but after seventh year onward it starts to give some returns. It also acts as a wind break. Thus, Teak plantation is a good source of income with crop production.

### Source:

- Dotaniya.M.L. V.Meena, M. Lata and H.P Meena.2013. *Teak Plantation-A Potential Source of Income Generation.,* popularkheti.Vol-1, Issue-3, Available online at [www.popularkheti.info](http://www.popularkheti.info)
- *Forest and Environment Species. Complied By: Publicity and Extension Division Punjab Forest Department. Lahore.*

## MODIFIED ATMOSPHERE PACKAGING

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### Introduction

Pakistan's agriculture environment provides an ideal place for the production of different horticultural commodities. Pakistan is one of the few countries of the world where fruits are grown in cool / temperate climate (Apple, Plum, Pear, Cherries), warm temperate (Apricot, Grape, Pomegranate and Melon), and subtropical climate (Citrus, Mango, Banana, Dates and Guava).



Currently Citrus and Mango fruit are among the most important horticultural crops of international trade. The most important established export markets for Pakistani Kinnow are Middle East (UAE, Dubai, Bahrain, Saudi Arabia, Iran, China, Singapore, UK and Russian Federation. Major export markets of Pakistani mango include Dubai, Saudi Arabia, Oman, United Kingdom, Kuwait, Bahrain, France and Germany. Internationally shared projects like Australia-Pak Mango Supply Chain Management Project (ASLP) and FIRMS project (USAID) have facilitated in capacity building programs and on farm infrastructure development along with the Global GAP certification. Due to these interventions, now Pakistan has also got access to the supermarkets of European Union, Japan, Australia and USA.

The market for these fruits has increased significantly in the last few decades. This is due to numerous aspects, such as alterations in diet habits, demand for exotic articles, advance technologies like Control Atmosphere (CA) and Modified Atmosphere Packaging (MAP), cold storage and careful transport from field to ultimate destination. As world is becoming global village, innovative challenges like WTO, quarantine rules, sanitary and phyto-sanitary procedures are starting for the export and import of fruit. Pakistan is facing tough competition due to high quality standards required regarding export of Kinnow and Mango fruit to international markets. Maximum profit from product could only be gained by appropriate maturity and proper postharvest handling procedures.

The metabolic process remains continue in highly perishable fruits and vegetables after harvesting. The main causes of postharvest losses and deterioration include physiological disorders, diseases, insect and pest attacks, over-ripening, ageing and loss of water. Post-harvest losses in fruits ranges from 10 percent to 50 percent in both developed and developing countries .

### **Modified Atmosphere Packaging (MAP)**

Modified atmosphere is a practice of modifying the composition of the internal atmosphere of a package (commonly food packages, drugs, etc.) in order to improve the shelf life. MAP is a significant method to increase the shelflife of fresh produce by altering the concentration of oxygen and carbon dioxide in packaging from the normal environment that helped to lengthen the postharvest life and maintain the quality of different horticultural commodities. The MAP in postharvest storage of horticultural commodities is known an essential technology to decrease losses, sustain quality and increase shelf life in all over the distribution structure. The low levels of O<sub>2</sub> and high levels of CO<sub>2</sub> in MAP reduce the ethylene production, decrease respiration speed, decay and physiological alterations, with the resultant advantage of extending the storage period of the fresh produce.

### **How Does Modified Atmosphere Packaging Protect Food?**

There are two different kinds of Modified Atmosphere Packaging i.e. Active and Passive. The active MAP is "the displacement of gases in the package, which is then replaced by a desired mixture

of gases". While the passive MAP as "when the product is packaged using a selected film type, A desired atmosphere develops naturally in the consequence of the products' respiration and the diffusion of gases inside of film."

Largely, Modified Atmosphere Packaging technologies protects fresh food by decreasing its exposure to oxygen. Oxygen leads to oxidation, which can cause discoloration, spoilage, and off-flavors and textures. By decreasing or controlling the amount of oxygen present in a package, the food product remains fresh longer, extending its shelf life and ensuring it remains attractive to consumers. Modified Atmosphere Packaging technologies are especially useful for fresh-cut fruits and vegetables, which can degrade in a matter of hours when exposed to oxygen.

Modified Atmospheric Packaging includes vacuum packaging, which consists of a range of low or non-permeable films (barrier films) or containers. When food items are placed into the pack, the air is removed and the pack is hermetically sealed under a vacuum. No other gases are added to replace the space created by the removed air.

### **Pakistan's Fresh Fruit Industry**



At present Pakistan's fruit industry is facing low quality issues and limited shelf lifes, for distribution to distant markets. To sustain the maximum level of quality of greatest production of fresh fruit, several issues need to be addressed. Out of these appropriate packaging of fresh produce is one of the most important considerations. Good packaging materials help to maintain freshness, firmness and high quality of fruits for a reasonable time. MAP technology helps to increase the postharvest life of fruit crops.

To evaluate the performance of 'Kinnow' mandarin under Modified Atmosphere Packaging (MAP) different studies were carried out in Postharvest

Research Training Center (PRTC), Institute of Horticultural Sciences (HIS) University of Agriculture, Faisalabad (UAF). After trials successful results were found that Kinnow fruit maintained the high cosmetic appearance. It is important to design special packaging films with a low transmission rate and a high permeability to O<sub>2</sub> and CO<sub>2</sub> for citrus fruits while in Mango cv. 'Sindhri' responded more positively during post-storage handling and ripening at low temperature with delayed ripening. Low temperature with combination of MAP bags played useful role to minimize the weight loss % and other compositional changes such as peel color development, delayed ripening and increased shelf life (5 days) as compared to control (only 2 days) effectively. Mango cv. Sindhri can be stored under MAP with delayed ripening resulting in increased shelf life upto 5 days as compared to un-bagged (2 days). Furthermore fruit stored in X. tend® bag showed better results regarding fruit quality and shelf life as compared to Bio-Fresh®

### Application of MAP

- Producers of fresh fruits and vegetables
- Snackes producers
- Pharmaceutical and nutraceutical manufacturers
- Coffee roasters

Fresh fruit and vegetables produce ethylene gas after harvest and in this context; ethylene gas is a critical aging factor for fresh produce. The exposure of some produce types to ethylene accelerates produce ripening then senescence, deterioration and susceptibility to microbial disease. MAP bags absorb ethylene gas released from the atmosphere and consequently slow the ripening process and prolong the life and freshness of the produce. Last but not the least, MAP bags control the level of moisture around the produce by either water vapor absorption.

Ned-Pak established in 2011 is a consortium of Dutch and Pakistani technical experts of fresh fruits & vegetables and flowers to export fresh produce by sea instead of by air from Pakistan over long distances. This company performed some experiments and found positive result. Successful results on Kinnow in 2012 have proven a shelf life extension for two months in ambient temperature (Dec/Feb), so the packaging in MAP bags can bring a saving in 2013/14 electricity bill of over US \$20 million. This will make Kinnow more competitive in the International markets.

### Advantages of MAP

Fresh produce when packed with MAP has the following advantages:

- Reduces weight loss, decay, incidence of jelly seed, lentils spots and chilling injury.
- Reduces waste in supply chain.
- Preserves firmness and smoothness.
- Prolongs storage life
- Slows breakdown.
- It slows down ripening

### Reference :

<http://foodjournal.pk/May-June-2013/PDF-May-June-2013/Ned-Pak.pdf>

### SUGARCANE AND ITS BY-PRODUCTS



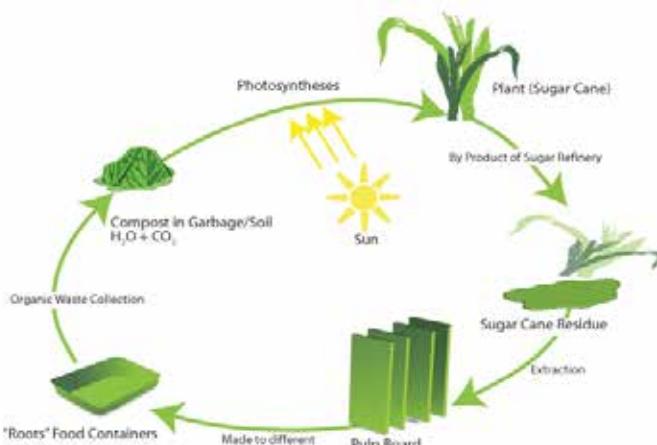
Sugarcane today is considered as one of the best converter of solar energy into biomass and sugar. It is a rich source of food (sucrose, jaggery and syrup), fibre (cellulose), fodder (green leaves and tops of cane plant, bagasse, and molasses and to some extent press mud), fuel and chemical. The main by-products are bagasse, molasses and press mud.

The other products and their by-products of less commercial value are green leaves and tops, trash, boiler ash and effluent generated by sugar industry and distillery. Many countries have thought of diversification and utilization of it's by- products. In the case where economies entirely depend on sugar export earnings any fall in international rates shatter their economies. They find it wise to diversify the activities of this sector by setting up industries based on by-products. Though many products can be made however production of few are financially viable.

### Bagasse Based Industries

Bagasse is a fibrous residue left over after crushing sugarcane. The fibre contents of bagasse (cellulose) is used in cellulose industries like the pulp, paper, particle boards, cattle-feed etc. This is valued as an important by-product and efforts are under way to save as much as possible to produce the value-added

products. Bagasse is traditionally used as captive fuel in sugar factory boiler for raising steam required for the generation of power and driving the prime movers.



In recent years, the technology for making different products such as papers, boards and chemicals are developed and many countries have introduced energy conservation measures to save as much as possible, even after using it as captive fuel. For setting up commercial plants, it should either be surplus or saved. It is possible to pool the surplus from a number of factories for supporting a bagasse-based industry. Though the price of all grades of paper is very high at present, but still such plants are financially viable.

In the wake of a steep decline in wood supplies and the need to conserve forest resources, the country has set up bagasse-based particle board and fibre-board plants with and without decorated laminations to replace wood-based boards. Such boards are used for making office racks, cupboards, table tops, partition walls, and ceiling etc.

Production of cattle-feed is progressing in Caribbean countries and Latin America. As the digestibility of bagasse by the animals is very low due to its lignin content, these countries have set up pre-hydrolysis treatment on commercial scale. These plants pre-digest bagasse and admix it with usual ingredients of cattle feeds (like corn, oil-cakes, grain, millets, urea etc.,) and also add molasses as a binding agent to palletize this mixture for packing in the polythene bags and transporting it to dairy farms and owners of cattle. Such type of technology is planned to be developed in future in the country.

### Molasses Based Industries

Molasses is the final mother liquor leftover after the crystallization of sugar. It is sent out of the factory as a waste product. However, molasses contains about

30-35 per cent sugar and 15-20 per cent reducing sugars. Thus, the total sugar content of molasses is 45-55 per cent. It is by virtue of this total content that molasses is a valuable raw material for the production of many value-added products. Main products that can be produced from it on commercial scale are ethyl alcohol, citric acid, lactic acid, cattle feed, oxalic acid, bakers yeast, mono sodium glutamate, torula yeast, lysine, acetone-butanol-alcohol.

In addition to this, many alcohol-based chemicals like acetic acid, acetic anhydride, acetone, ethyl acetate, ethyl benzene, styrene, poly-styrene, poly-ethylene and synthetic rubber are also produced using cane molasses. Ethyl alcohol is used for potable purposes, as well as feed stocks for many alcohol-based chemicals. The production of ethyl alcohol by fermentation of molasses is the most commercially successful process. The alcohol obtained by this process is also more suitable for use as potable spirit. In this connection, work may be done in the country on commercial scale.

The production of citric acid from commercial sugar is a simple process but commercial sugar is very expensive and, therefore, many firms prefer to manufacture citric acid from the molasses. For the preparation of citric acid from molasses the UK has developed a process for submerged fermentation of cane molasses into citric acid. Citric acid is used in the manufacture of jams, jellies, fruit juice, confectionery and other food products.

Based on this phenomenon a plant may be installed in the country to meet the citric acid demand, as the cost of production of citric acid based on cane molasses would be the lowest when manufactured here. Molasses are used by different cattle-feed manufacturers. In the US as much as four million tons is used in cattle feeds. There is a need to increase the molasses in cattle feed by developing technology for producing urea-molasses blocks (animal chocolates). Molasses is the main raw material for the production of different types of yeast, including bakers yeast by fermentation.

Bakers yeast is mainly used in the manufacture of bread, but it is also used for fermentation of molasses into ethyl alcohol. There is demand for bakers yeast and improved strains of distillers yeast and hence, there is a scope for setting up such few units.

In some countries, polishes are made from cane wax, paraffin wax, bees wax. The oil from sugarcane wax is used in special varnishes. Lipid or soft wax fraction

of sugarcane wax is also used to develop grease. Cane wax emulsion is used for preservation of fruits, vegetables and cheese.

Oil from sugarcane wax is used for protection against corrosion, and crude sugarcane wax is used directly for the manufacture of carbon paper. It is also used in improving the low melting/release properties of toners used in multicolour photographic copiers and printers. For this, in the core material 0.5 to 2 per cent of sugarcane wax (melting point: 60°C) is used. All the components of wax such as hard wax, oil and resin find their use as a plasticizer in tyre industry.

It was reported by Sung-Wu and Wen-Che, 1981 that the wax scrapped off from cane stalks and extracted in petroleum ether in the concentration of 0.1 to 1 mg/l in the nutrient agar-agar stimulated the growth of rice seedlings.

There are many industrial uses of sugarcane refined wax such as water proofing emulsion for particle board and textile treatment, hot melting glues, removers of a casting from fibreglass moulds and precision casting. The oil fraction of sugarcane wax is used for making poultry feed and anti-foaming agents in extinguishing powders. The introduction of new and synthetic sweeteners from corn and other starchy crops has also affected the economic viability of the sugar industry. It is realized that more avenues to earn profits are to be established through proper and fuller utilization of sugar crops.

It is necessary that each mill unit be converted into an integrated complex to produce sugar, alcohol, paper and a host of value-added downstream products.

As far as the bagasse-based industries are concerned there is a tremendous scope to set up plants to produce market pulp, newsprint, writing and printing papers, particle board, medium density fibreboards, cattle-feed, and chemicals like furfural etc., as there is a good demand for all these products in the country itself. The country has 27 operating sugar factories.

As far as the molasses-based industries are concerned, the ideal solution would be set up distilleries to produce industrial alcohol, extra neutral alcohol and potable spirits. Industrial alcohol can be used as the feedstock for producing many value-added products. The molasses-based products can compete in the international market with the products produced in other countries, due to the fact, that the price of molasses here is the lowest.

Pakistan needs to introduce constructive and meaningful changes in the industry. It has become

imperative and urgent to prepare a plan to explore sugarcane as a food-feed-fuel-fibre-fodder-fertilizer crop, a multiple product commodity, in service to all future generations.

*Source: <https://www.pakissan.com/2017/06/15/sugarcane-and-its-by-products/>*

## KAIROMONE TRAPS- AN EFFECTIVE WAY TO CONTROL FRUIT FLIES

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Intensive care for pests and diseases is a basic first step in building a proper Integrated Pest Management (IPM) program. It is important to target the pest at right time with right product, which can save money and crop as well. Moreover, it is more effective to manage pest control plan. There are many ways to monitor and control pest, one of the best and effective method is Kairomone traps. Kairomone traps are not only method to control all kinds of pests.

Pheromones are chemicals produced by some species of insects to interconnect with members of the same species. Likewise, these are 'sex pheromones' which a female produces to attract a mate. Pheromones are most well-known for moths, butterflies & fruit flies and these chemical messengers can be commercially produced by synthesizing and blending the appropriate chemicals. Keeping in view the ease and importance of this management plan for particular insects, these traps are widely used in all over world including Pakistan. In this regards Methyl Eugenol is used for control of fruit flies in fruits and vegetables. Rather Methyle Eugenol is phenylepropanoid, produced and extracted from plants and it attracts the insects. Therefore, it should not be called as Pheromone but Kairomone.

Fruit flies are big hindrance of normal fruit growth in gourds, cucurbits and other fruits. Therefore, due to abnormal fruit growth and poor fruit quality, farmers are unable to get handsome return. Bitter gourd is highly affected with fruit fly and farmer is helpless to use easy method of chemical sprays. When chemical treatment does not work, then this biological control of these insects is very operative. Nevertheless, it is not complete remedy. But it may be very effective in combination of any other action.

### Cost Analysis

Today's farmer is getting benefit by using these traps. Now farmers have an effective biological control for fruit flies, moths and other insects which appeal on the Methyl Eugenol. According to farming

community it is a convenient and remarkable tool to control fruit flies. Its cost is Rs. 3000/L, which is sufficient for an area of hectare.

### How to use?

These traps are hung and a small cotton plug is used in which 5-6 drops of Methyl Eugenol are poured. This cotton plug is put inside the trap which has holes on both sides. The male insects are attracted into the trap for the said artificial chemical and ultimately their death occurs.

### Key points

- Cotton plug must be changed after every 5-6 days
- Remove dead insects and clean the trap
- Put neat cotton swab/plug and let it somewhat wet with drops of Methyl Eugenol



Trap is hanging in sponge gourd vine



A close view of trapped

## RICE CROP DISEASES AND THEIR CONTROL

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### 1. Blight or Brown Spot

**Symptoms:** Initially small dots or circular eye shaped or oval light spots appear on leaves. Later on withering and yellowing of leaves occur.

### Control

1. Use of resistant varieties or disease free seed in healthy soils
2. Sanitation and crop rotation
3. Hot water seed treatment at 54 °C for 10 minutes or with seed dressing fungicides,
4. Collection and destruction of stubble and spraying with copper fungicides at right time
5. Application of suitable foliar fungicides may help to minimize further dissemination of the disease

### 2. Bunt of Rice (Black or Kernel Smut)

**Symptoms:** Diseased grains are filled with black powder, only few grains may be affected completely or partially in the ear.

### Control

1. Cultivation of resistant and early maturing varieties
2. Avoid high rates of nitrogen fertilizer
3. Avoid winnowing and threshing of diseased crop in field
4. Treat the seed with suitable chemicals easily available in the market
5. Collect and burn diseased ear heads.

### 3. Rice blast

**Symptoms:** Small spots appear on leaves, nodes, panicles and grains and sometimes on leaf sheaths. Brown to black spots also develops on inflorescence and glumes. In later stages, diseased heads appear blasted and whitish in color.

### Control

1. Burn and destroy diseased plant debris and stubble
2. Early planting
3. Cultivation of resistant varieties
4. Dusting the seed with any one of the organic mercurial seed dressing fungicides
5. Spray the crop with organomercurials

### 4. Bakanae Disease (White Stalk)

**Symptoms:** Infected seedlings are thin, chlorotic, may die before or after transplanting. In the field, infected plants have few tillers and leaves die in short time. Live plants have empty panicles.

### Control

1. Cultivation of resistant varieties
2. Seed treatment before sowing

## SUCCESS STORY OF MR. BEHZAD RAFIQUE (A CUT FLOWER EXPERT AND GROWER)

Floriculture has emerged a highly competitive industry all over the world and production of cut flowers is now a profitable profession with a much higher potential for returns. The favorable agro-climatic conditions of Pakistan makes floricultural crop production a promising business, the returns of these crops is much higher than other agricultural crops as they have a short life span and gives maximum returns. Cut flowers demand varies during the year depending upon different social utilities whereas supply of cut flowers fluctuates due to seasonal effects of weather.

Muhammad Behzad Rafiq having his expertise in horticulture industry of Pakistan is currently working with an aim to augment the local cut flower industry of Pakistan. During his Msc, he did research work on finding new cut flowers of Pakistani markets and after three years of trials, he is successfully growing more than twenty different cultivars as cut flowers in Lahore. His work has been published internationally and he has also represented his findings in different international conferences.

He is currently running his own firm with the name of "Florasian Specialty Cut flowers" and successfully growing different exotic flowers with special techniques that were being imported from Holland, Kenya, Malaysia etc. earlier. He owns total area of about 03 acres near Badian Road Lahore. At his farms, he is growing flowers round the year including Stock, Delphiniums, Chinese Aster, Snapdragons, Sunflowers, Craspedia, Tiny Chrysanthemum, Limonium, Celosia, Gladiolus, lilies etc. and supply them to different floral shops and designers at Lahore, Islamabad and Karachi. He is also working as a floriculture trainer and conduct different floral designing workshops in different universities, colleges and schools just to create awareness among people about floriculture.



He says that import expenditure can be minimized if these flowers are grown locally. He encourages other students to opt for this field, as it has a vast scope in Pakistan.

According to Mr. Behzad, in Pakistan the demand of cut flowers is highly driven by social occasions but with the changing life style and increasing awareness of the beneficial effects of the beautiful cut flowers people have started including it in everyday life. However the production is highly dependent upon season which can be minimized by exploiting the natural blessing of four available seasons and topographical variations.

### Key Success Factors

- Increasing cut flower demand.
- Growing demand in hostile industry and offices.
- Exclusive novelty products.
- Elevating demand in most cities of the country.
- Changing life style and increased demand for flower consumption in rural and urban areas.
- Off season supply from colder regions including Balochistan and hilly areas of the country.
- Encouraging and supporting the formation of bulb certification scheme, particularly for bulb exports.
- Promoting opportunity for the development of native flora for the domestic and export markets.
- Identification of market niches that can be supplied taking advantage of Pakistan's climate.

### Recommendations and Suggestions

- Most important is site selection, the farms should be established in areas that have plenty of water, electricity facility and road access.
- Scientific information must be followed for farming practices including pest and weed management.
- The key factor of success is availability of healthy certified seeds/bulbs/corms, land preparation, sowing pattern, fertilizer management, and proper irrigation and marketing strategies.
- Production must be demand oriented; the producer is advised to exploit the peak seasons for maximum profit earning.



## زرعی سفارشات برائے کسان

### دھان

دھان کی پیسی کی کاشت کا وقت برائے موٹی اقسام (اری) 20 مئی تا 7 جون، فائن اقسام کیم جون تا 20 جون اور شاہین بائستی 15 جون تا 30 جون جبکہ ہابرڈ اقسام کے لیے 20 مئی تا 15 جون ہے۔

اچھے اور ہترزاگا کے لیے بیج کاشت سے پہلے نمکین پانی میں (محاسب 25 گرام نمک فی لیٹر) ڈالیں اور بیچ پڑھ جانے والے بیجوں کو کاشت کریں۔

فصل کو بکانی اور پتوں کے بھورے دھبواں والی جیسی بیماریوں سے محفوظ رکھنے کے لیے بیج کو بواہی سے دو ہفتے پہلے بچھوندی کش زہر خایو فینیٹ میتھاکل 2 سے 2.5 گرام فی کلوگرام بیج کو لگانی ہے۔

دھان کی منظور شدہ موٹی اقسام کے ایس 282، نیاب اری 9، اری 6، کے ایس کے 133، کے ایس کے 434 اور نیاب 2013 جبکہ بائستی اقسام پر بائستی، بائستی 515، بائستی 385، شاہین بائستی، بائستی پاک، پنجاب بائستی، نیاب بائستی 2016 اور نور بائستی ہابرڈ اقسام والے 26، پرائیڈ 1، شہنشاہ 2، پی ایچ بی 71، آرائز سوٹ اور فائن بائستی اقسام بی ایس 2 اور پی کے 386 کے بیج کا انتظام کریں۔

### کپاس

کپاس کے مرکزی علاقہ جات میں فصل کی کاشت 31 مئی تک مکمل کر لیں۔ کاشت پڑیوں پر کریں اور ہموار زمین پر قطاروں میں کاشت کی صورت میں پہلی آپاشی کے بعد پودوں کی ایک لائن چھوڑ کر دوسرا لائن میں مٹی چڑھا کر پڑیاں بنائیں۔

ڈرل سے لاکنوں میں کاشت کی گئی کپاس کو پہلی آپاشی 3 سے 4 دن بعد اور پھر دوسرا، تیسرا اور چوتھی 6 سے 9 دن کے وقفہ سے کریں۔

مکمل زراعت کی سفارش کردہ روایتی اقسام میں آئی ایم-496، ہی آئی ایم-506، ہی آئی ایم-554، نیاب 777، ہی آئی ایم-608، ایم این ایچ-786، ہی آر ایس ایم-38، ہی آئی ایم-573، ایس ایل ایچ-317، نجی-115، نیاب-852، نیاب کرن، نیاب-112، جی ایس-1، سائنس-124، اور نیاب 2008 کا شت کریں۔

کھادوں کا متوازن استعمال اچھی پیداوار کے لیے نہایت ضروری ہے۔ مرکزی علاقہ جات میں کپاس کو 69 کلوگرام ناٹرودجن، 35 کلوگرام فاسفورس اور 25 کلوگرام پوٹاش فی اکڑہ ایں۔ جبکہ ثانوی علاقہ جات میں 58 کلوگرام ناٹرودجن، 35 کلوگرام فاسفورس اور 25 کلوگرام پوٹاش فی اکڑہ ایں۔

### کماد اور بہاریہ مکتی

کماد کی بھرپور فصل کے لیے بہاریہ کاشت کو فی اکڑہ 64 ایچ اور ستمبر کا شیفٹ فصل کے لیے 80 ایچ پانی در کارہوتا ہے پانی کی کمی فی اکڑہ پیداوار پر برا اثر ڈالتی ہے۔ لہذا 10 سے 12 دن کے وقفہ سے آپاشی کرتے رہیں۔

مکتی کی فصل کو مناسب وقفہ سے آپاشی کریں بور آنے پر کسی صورت میں بھی پانی کی کمی نہ آنے دیں اور کھیت کو بیسہہ تروتھاالت میں رکھیں تاکہ دانہ بننے میں مدد مل سکے۔

مکتی کی فصل کو آپاش علاقوں میں بقیہ 3 اقساط میں ڈالی جانے والی ناٹرودجن 3 سے 5 پتے نکلنے پر، 8 سے 10 پتے نکلنے پر اور بچھوٹل آنے سے 14 سے 15 دن قبل سفارش کر دہ مقدار کے مطابق ضرور استعمال کریں۔

### سبزیات و باغات

ٹماٹر کی فصل کو صبح یا شام کے وقت توڑیں اور ان کو مٹھدا کرنے کے لیے پانی سے دھولیں تاکہ ان کی تازگی برقرار رہے۔

موسیم گرم کی سبزیوں کی جہاں ضرورت ہو گودی کریں اور 8 سے 10 دن کے وقفہ سے آپاشی کریں۔

ترشاوہ بچھلوں کے باغات میں ناٹرودجن کھاد (یوریا) بطور دوسرا خوارک 1 کلوگرام فی پودا ڈالیں۔ پتوں پر بچھوٹلے غذائی اجزاء کا سپرے کریں۔

آم کے باغات میں آپاشی کا وقفہ 20 دن کا رکھیں۔

## MANAGEMENT TIPS

### Recognize Employees' Efforts and Accomplishments



We learned to say “thank you” to strangers who do so little as hold the door open, so how is it there when there is so much neglect in thanking the people whose day in and day out put their managers proud and company successful? Employee appreciation, when done right, will help increase productivity, engagement, team morale, and therefore retention.

*Source: by Ali Robins, www.officevibe.com*

### Breaking the Cycle of Low Morale on Workplace

One of the hardest part about a workplace with low morale is everyone's attitude. You can't cut the tension in the air with a knife. When your office



or team is like that, it's easy to be more critical and negative. Bad attitudes and poor treatment of one another becomes a self reinforcing cycle of sadness and aggression. Don't let that be your team. The example you set is one of the most powerful tools you have as a leader. It may be hard at first, but the payoff can be huge if you can start finding more ways to praise and positively reinforce your team. As Dale Carnegie writes in How to Win Friends and Influence People, “Praise the slightest improvement and praise every improvement. Be hearty in your approbation and lavish in your praise.” If anyone on your team does something great, let them hear it loud and clear. Take the time to recognize your unsung heroes. Ask

your team who they think is going unrecognized or what work is most thankless.

*Source: <https://getlighthouse.com>*

### Show Interest in Employees' Personal Lives

According to reports, 60% of employees don't feel that their employers care about them. It seems obvious enough to say, but in the hustle and bustle of the workday, we sometimes forget that employees are more than just employees. They are also parents, students, caretakers, and potentially many other combinations of roles. People have lives outside of work; hobbies and passions that make them unique. Showing interest in this is one way to differentiate bad bosses from great leaders.



*Source: by Ali Robins, www.officevibe.com*

### What is Content Marketing?

Content marketing is the process of making articles,



videos, and other materials for bringing awareness to your organization. Content marketing doesn't need to ask for someone to take the next step directly – but may be part of a broader effort to educate, entertain, or thoughtfully share useful information with people that may be interested in you, and people that could benefit from the information you're sharing. According to the Content Marketing Institute – content marketing generates over three times as many leads as outbound marketing and costs 62% less. This means more awareness, more donations, and more volunteers – for less.

*Source: Tim Brown, owner of Hook Agency*

## NATIONAL NEWS

### First Automatic Milk Vending Machine Inaugurated

The Punjab Livestock and Dairy Development Board (PLDDB) inaugurated its first automatic milk vending machine for ensuring provision of 100% pure, healthy, hygienic and affordable milk at Rs 75 per litre only. First automatic machine has been installed in Township Model Bazaar and more machines would be installed in different locations of Lahore gradually.

PLDDB procures Sahiwal cow A2 type milk from its own farm situated at Khizarabad, Sargodha, and processes it at its own pasteurization and chilling plant as per international standards and then dispatch it to Lahore through chiller vans. Finally the milk is delivered to end consumers via automatic milk vending machine in sealed packs.

### Punjab Agriculture Department Distributes Motorbikes Among Farmers

The Punjab Agriculture Department (PAD) distributed motorcycles among the most connected farmers on mobile application Connected Agriculture Platform Punjab (CAPP) developed by the department for disseminating agro-based information to the farmers community especially small farmers.

### Rice Exports Increased by 27 Percent in 10 Months

Rice exports from Pakistan have shown sizeable growth of 27 percent in the first ten months of current fiscal year (FY18). Pakistan has exported some 3.228 million metric tonnes of rice amounting to \$1.573 billion in July to April of this fiscal year, whereas the country had exported 2.8 million metric tonnes of rice amounting to \$1.23 billion in the same period of last fiscal year, depicting a significant growth of 27 percent in terms of values and 15 percent in terms of quantity.

### Two-Month Fishing Ban May Take Place in June-July Period

A two-month fishing ban is expected to take place in June-July period during the interim government to restrict the fisheries hunt in high-tide summer season. Insofar, incumbent government is likely to recommend the fishing ban for two-month to the caretaker setup to restrict the hunting until August 1.

### Adequate Sugar Stock Available, ECC Told

The Economic Coordination Committee (ECC) of the Cabinet has been informed that there is adequate sugar stock in the country to cater the need despite a

likely surge in use of the commodity during Ramazan. ECC meeting chaired by the Prime Minister Shahid Khaqan Abbasi reviewed the availability of sugar in the country for Ramazan. A participant of the meeting said that consumption of sugar usually increases during the holy month and especially during the last ten days of Ramazan.

Ministry of Commerce presented a report to the ECC on availability of sugar during the month of Ramzan stated that 4.35 million metric tons sugar stock is available with monthly consumption standing at 0.433 million metric tons per month in the country. The meeting expressed satisfaction over the availability of sugar stock to cater the demand for Ramazan without any change of increase in the price of the commodity.

The government will be providing a subsidy on sugar as well through Utility Stores Corporation as sugar is part of 19 commodities to be provided at subsidized rates by the government during the holy month. Other commodities included in the Ramazan package are flour, cooking oil, ghee, grams, basen, dates, rice, squashes, milk and tea.

### Pakistani Sheep & Goat Breeds and their Problems

There are about 28 sheep and 34 goat breeds in Pakistan, representing a diverse gene pool and rich genetic potential. Lohi and Kajli are the major sheep breeds of Punjab, while Dumbi and Kachi are major sheep breeds of Sindh for meat production. Lack of fodder and nutrition is considered to be a major problem of small ruminant's production. Ruminants face fodder shortage in 2 periods, May to June and October to November. Moreover conventional feeding system completes only maintenance requirements of growing their relevant hormones.



- Nutritional requirements of the small ruminants require special attention for better production.
- Develop proper association among farmers and extension workers.
- Proper Gov. Incentives and strategies for propagating and enhancement of small ruminant production in Pakistan.

Source: [www.brecorder.com](http://www.brecorder.com)

## ZTBL NEWS

### A Field Day on Mushroom Farming

Zarai Taraqiati Bank Ltd. (ZTBL) and Agri. Tourism Development Cooperation of Pakistan (ATDCP) jointly organized a Field Day on Mushroom Farming on 26 April 2018 at ZTBL Farm Islamabad. The event was graced by Sr. Executives/Executives of the Bank from Head Office & ZTBL Staff College, Mushroom Experts from across the country, Families, Government Officials, Universities Professors, Private Organizations, Progressive Farmers and Subject Specialists of Agriculture Technology Division.

Chief Guest Mr. Farhat Karim Hashmi, Group Head(ATD, LMD and P&RD) ZTBL, welcomed the honorable guests and gave a brief glance on ZTBL activities and products particularly on new venture of Mushroom cultivation at ZTBL Farm. Mr. Muhammad Ikram Ul Haq, Acting Executive Vice President, Agriculture Technology Division apprised the participants about ZTBL Farm activities and its various products such as Honey Bee, Peaches, Different Mushrooms and Hybrid Vegetables i.e., Cucumber,

Tomatoes, Capsicum, Leek, Cherry Tomatoes, Green Chillies etc being grown under Tunnel Farming. Mr. Muhammad Kashif and Mr. Faheem Haider (Subject Specialists, Mushroom/Horticulture) explained the Mushroom Production Technology to visitors and extended useful information.

Different Govt. /Non-Govt. Organizations and Companies such as Pakistan Natural Museum (Islamabad), Margalla Mushroom Farm, DXN Company, Khumbi Mushroom Farm (Faisalabad),



Sidhu Mushroom Farm (Faisalabad), Awan Gardens (Islamabad), Halal Ayurveda and ZTBL arranged stalls and displayed their different products including Mushroom Varieties, Honey, Organic Vegetables, Mushroom Products, Olive and Stevia Leaves.

A Technical Session was also organized during the occasion, where different speakers/experts presented their informative and thought provoking lectures on various aspects of Mushroom and highlighted the importance and marketing strategies. Mr. Farhat Karim Hashmi also presented shields to honorable speakers and appreciated efforts of AEVP (ATDiv) and his Team on arranging a successful field day. The honorable guests took keen interest and appreciated the efforts of the officers/staff of ZTBL and offered their gratitude for promoting Mushroom cultivation in the country through such informative/knowledgeable field days for provision of cholesterol free & rich source of protein food.

### ZTBL Won Patron's Trophy Grade-II 2017-18

Zarai Taraqiati Bank Limited (ZTBL) cricket team defeated Ghani Glass cricket team by 5 wickets in the final match of Patron's Trophy Grade-II 2017-18 at Pindi Cricket Stadium, Rawalpindi from 21-24 April, 2018 and qualified for Quaid-e-Azam Trophy Grade-I Cricket Tournament.

In this test Match, ZTBL batted first and gave a target of 293 runs in its first innings to Ghani Glass. Aqib Shah and Saad Nasim scored 72 & 71 runs respectively. While Ghani Glass was bowled out at 55 runs and faced follow-on. After follow-on Ghani Glass scored 369 in 2<sup>nd</sup> Innings and gave the target of 132 runs to ZTBL, which it chased only for the loss of 5 wickets. Aqib Shah again scored 47 not out and was declared as Man of the Match. ZTBL bowler Muhammad Ali was declared the Best Bowler of the Tournament.

At the end of event Syed Talat Mahmood, President/CEO, Zarai Taraqiati Bank Ltd. (ZTBL) appreciated the cricket team and their coaches for this success.



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