



Agri-Business Supplement

Zarai Taraqati Bank Limited.

APPLE ON THE VINE-AN INNOVATIVE METHOD TO GROW FRUIT TREES

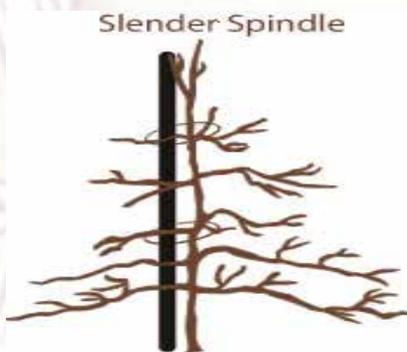
Growers are always looking for ways to ensure their fruit is as fresh and flavorful as possible. Support system/Trellis system in fruit production provides aid in controlling tree vigor, facilitate ease of management of the orchard, and help in provision of good light exposure to fruit and foliage. Trellis system is a close planting system in which trees are trained to form a V shaped canopy. The trellis consists of end frames and wires that support crop. Tree branches are then trained along with wires, providing a 'fruiting wall'.

Trellis system provides more nutrients to fruit other than branches to make fruit tasty. Additional sunshine and air hit the fruit which increase flavor of fruit (apple) and allow them to grow faster. Trellis system also makes it easier to monitor and pick the fruit at the time when it reaches its ideal ripeness.

Many different types of support systems are being used in orchard plantation in developed countries such as slender spindle support system, vertical axis and Tatura-type or V Shaped trellis. Trellis systems of the many trellis designs for tree crops, few are suitable for stone fruits, primarily because of their extreme vigor. The primary disadvantages of all trellis systems are the high cost of establishment and replanting, and the necessary commitment to extensive, detailed canopy manipulations

Slender Spindle System

It does not require large support posts, anchors, or wires. With wooden posts, a spike can be driven into the support post at ground level and be used in tying down limbs. When metal conduit or 2x2s are used to support trees, it is necessary to set larger posts at regular intervals down the tree row with a wire secured to the top of them. The individual tree supports should be fastened to the wire to give additional support.



Vertical, "Espalier-Type" Trellis

Trees are usually trained with a central leader and horizontal fruiting branches tied to the trellis wires. The system is more suitable for less vigorous, spur-bearing varieties of plums than for peaches and nectarines that



require annual renewal of fruitwood. Since forcing fruitwood to grow more horizontally can stimulate spurs to form and increase fruitfulness, this system does offer greater potential for extensive manipulation of the tree canopy. However, successful manipulation is costly and requires considerable knowledge of tree responses to manipulation. In some varieties, tying branches horizontally to wires stimulates excessive water sprout development and reduces shoot productivity. This often can be alleviated by tying branches at an angle of 45° to 60° from the vertical instead of 90° . Generally, vertical trellis systems offer potential for rapid canopy development, more uniform sunlight distribution throughout the canopy, and maintenance of a narrow fruiting wall.

Tatura-Type or V Shaped Trellis

This V-shaped system is similar to the perpendicular V except that trees are usually planted more closely together (2 to 4 feet in the row) and fruiting scaffolds are



supported by the trellis. The canopy established rapidly, was initially intended to accommodate mechanical hedging and harvesting of processing fruits. This system has potential for high yields because sunlight is distributed efficiently over the entire system and the wide canopy angles tend to stimulate fruitwood development.

Tatura Trellis or V shaped Trellis Construction

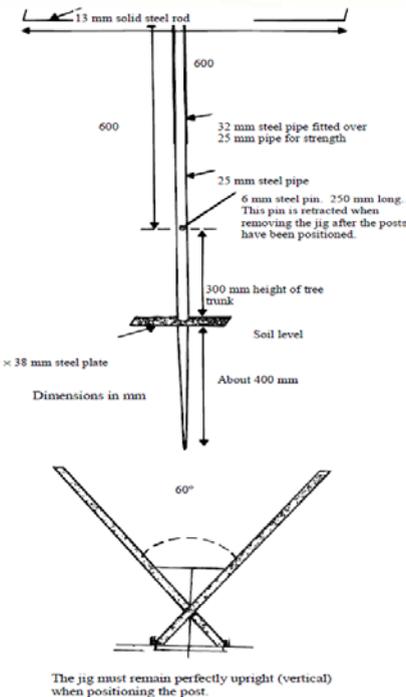
The Tatura trellis is a close-planting system for tree fruits, in which trees are trained to form a V shaped canopy. A trellis structure is needed to train the trees in forming the V, and to provide some support for the tree when carrying the crop. Each row of trees requires a trellis. The trellis consists of two end frames, intermediate frames, wires, and anchors.



The capital outlay for materials and labour for the trellis structure may be as high as 30% of the total establishment costs of the planting. Also, a failure of the trellis may lead to significant crop loss. Therefore design and erection of the trellis must be carefully considered.

Frames

A wide range of materials can be used for trellis frames: new, second-hand or second quality channel iron, railway line, pipe etc., or alternatively timber in the form of untreated hardwood poles, treated softwood (pine) poles, or milled timber. Poles of 100-125 mm diameter are commonly used for end-frames;



intermediate frames are constructed from 75-100 mm poles. Frames are often braced with a wire tie across the V at the level of the top wire during heavy crop loads in the first seven or so years of the planting, when the tree limb is not able to support as much of the crop load. If frames are not so braced, it is usual to use poles of 100-125 mm diameter for all frames.

The length of the trellis frame posts depends on row width. A gap of about 2 m must be maintained

between the top of one canopy and its partner in the next row, and it is usual to have the top of the frame 300-400 mm below the top of the canopy. Therefore row spacing of 4.5 m or 5.0 m require 3.6 m long frame posts, and 6 m row spacing require 4.2 m posts. It has been found that posts placed 800-1000 mm into the ground are satisfactory.

Frame Erection

An efficient method of installing the trellis frames is to carefully erect the frames at each end of the trellis row, with the aid of a jig (tool used to control the location and/or motion of parts or other tools), and then line up the intermediate frames with the ends for correct angle and height.

Trellis frames can be erected manually or mechanically. If they are erected manually the jig can be used as a guide for augering the post holes (mechanical or manual auger). Usually the post holes are augered to a larger size than the post so that the correct angle can be set, and then the soil round the posts is firmly rammed. The jig is easily removed by first withdrawing the 6 mm steel pin.

Alternatively a modified tractor-mounted fence post-driver may be used to set the posts. Posts should be pointed, and can be driven into the ground at the appropriate 60 degree angle. Care should be taken to ensure that the angle of the driver is correct for each frame.

Wires

High tensile (HT) wire of 2.8 mm diameter (heavy galvanized) is normally used. Field measurements indicate that 2.5 mm "Tyeasy" high



tensile wire is strong enough. It is important to tie off and join HT wire with the correct knot. The wrong knot may reduce the wire strength by half. "Pin and loop" knots are recommended. Bending stresses can cause end-frames to break if wires are strained to an end-frame that has not been adequately tied, at the height of the wire being strained, to the anchor.

Installation of Trellis System

1. Install the trellis before planting trees. Dig two holes 2 feet deep about 2 inches larger in diameter than the post and 20 feet apart. Put the post into the holes and make sure they are straight. Pour the

concrete into holes it to over night before proceeding.

2. String four horizontal wires spaced 18 inches apart or three wires spaced 24 inches apart between the posts. Drill holes through the posts and install eye bolts in the holes. Attach a turnbuckle between the eye bolt and the wires so that they may be tightened if necessary.
3. Plant the first tree 4 feet from the end post of the trellis. Space additional trees 6 to 7 feet apart, keeping the graft union above ground. Secure the tree to the bottom wire with flexible plant ties.
4. Secure young shoots to the wires as they develop in the spring and summer. They should be tied loosely at 45° from angles from the main trunk of the tree. Always tie new branches so that the tip is not lower than its point of attachment to the trunk. Make sure there is at least one main branch growing in each direction away from the main trunk. Any shoots that grow away from the plane of the trellis should be either bent toward the trellis and tied there or pruned off. Allow one shoots to grow straight up. This will be the main stem from which other branches will grow.
5. Remove nay fruit that develops the first year to allow the tree to put its energy into growth and not fruiting. After the first growing season when the plants are dormant, remove the terminal ends of all branches and of the main shoot.
6. Prune and train newly developing branches at the beginning of the second season in the same manner as the first season. Remove any fruit that forms. The goal is to fill up the wires of the trellis with fruiting wood as soon as possible.
7. Prune away any way any limbs that are dying, diseased or have ceased production of fruit as the trees age. Cut these branches all the way back to the main trunk and train the new branches that replace the old.
8. Train the central branch of the tree along the top trellis wire when it reaches that height. Also train one other branch in each direction along the trellis. From this point on, little pruning should be required beyond keeping the growth thinned out enough to allow adequate light and air circulation and to maintain a 3 to 4 foot width of the tree row.

Source:

- <http://agriculture.vic.gov.au/agriculture/horticulture/fruit-and-nuts/orchard-management/the-tatura-trellis-construction>
- www.evernote.com

- www.homeguides.sfgate.com/grow-apples-trellis-systems-25151.html

CLIMATE SMART AGRICULTURE

Agriculture in Pakistan is significantly affected by short term climate variability and longer-term climate change. Pakistan is ranked among the top ten most climate vulnerable countries in the world in the Global Climate Risk Index 2017. The country has a diversified geography and climate. Broadly speaking, the country is situated on a steep incline, with altitudes varying from 8500 meters above sea level in the Himalayas to sea level at the country's coasts, all within a distance of less than 3,000 km. The marine tropical coastland, the subtropical continental lowlands and subtropical highlands, as well as the subtropical continental plateau constitute the main climatic regions of the country. Climate change threats are exacerbated in the country due to the arid climate and reliance on water from the glacial melt in the north.

Periods of severe droughts, followed by devastating floods are common in the country and have contributed to low crop yields, loss of livestock, damage



to irrigation infrastructure and food shortages in recent years. Economic losses associated to the 2010-2014 floods amounted to US\$ 18 billion, affecting the livelihoods of 38 million people and causing damages to approximately 4.3 million ha of cropland. Changes in climate have been manifested through long-term reduction in rainfall in the semi-arid regions of the country and higher glacial melts that contribute to over 70% of river flows. Moreover, the mean temperature across the country has increased by 0.5°C in the past 30 years.

Projections indicate an increase in mean temperature of 1.4°C - 3.7°C by 2060 in Pakistan (higher than the expected global average), with the north potentially experiencing higher temperatures compared to the south of the country. Temperatures are also expected to increase more in winter than in summer in Pakistan. Projections for precipitation change are less clear, due to considerable model uncertainties for the region.

Changes in monsoons and increased temperatures are likely to bring considerable challenges to agriculture,

particularly in northern Pakistan, where vulnerability to climate change is already high. Increases in temperature will likely speed up crop growth cycles and shorten the time between sowing and harvesting, affecting crop yields. According to the Climate Change Vulnerability Index, droughts are expected to increase in winter, affecting the yield of cash harvests. Meanwhile, increase in precipitation in the summer season may cause floods throughout different areas of Pakistan. Despite extensive irrigation infrastructure, gaps in water management infrastructure, such as dams, results in discharge of excess water into the sea, leaving the country in water-stressed situation for the large part of the year.

Potential Economic Impacts of Climate Change

An analysis using the International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) was carried out for the selected key production systems in Pakistan, analyzing impacts of climate change over the period of 2020 – 2050, on net trade, yield and area (for crops), and animal numbers (for livestock products). The results are presented as the percentage differences between a scenario where climate change occurs (CC) compared to a scenario without climate change (NoCC). The results show that CC has mixed effects on agricultural production, potentially contributing to the increase in yields and land area for some crops, and decreases for others. The specific impacts depend on the production system in question, with wheat, maize, sugarcane and chickpea facing the most negative impact.

Overall, the area under wheat cultivation is projected to decrease under both the CC and NoCC scenarios, while the area under cotton, maize, rice, sugarcane, tropical fruit cultivation are projected increase under both CC and NoCC scenarios. The 2050 wheat area under climate change is projected to be 2.5 % lower than the projected 2050 area if climate change had not occurred, followed by vegetable and chickpea with 0.7% and 0.1% respectively. Furthermore, harvested area of maize, sugarcane and rice cultivation under CC are projected to be larger than under NoCC, with 3.4%, 3.1% and 2.4% respectively.

Yields for some cultivations are projected to increase over the period 2020 to 2050 under both CC and



NoCC, but this increase is projected to be less under CC in all productions systems. The 2050 chickpea yields under climate change are 12.6% lower than the projected 2050 value if climate change had not occurred, followed by maize, sugarcane and vegetable by 11.7%, 6.2% and 6.0%, respectively.

Climate Smart Technologies and Practices

CSA technologies and practices present opportunities for addressing climate change challenges, as well as for economic growth and development of the agriculture sector. For this profile, practices are considered CSA if they enhance food security as well as at least one of the other objectives of CSA (adaptation and/or mitigation). Hundreds of technologies and approaches around the world fall under the heading of CSA.

Conservation agriculture and no-till practices are on the rise in Pakistan. In Punjab and Sindh



provinces, for example, no-till rice-wheat systems are increasingly being adopted (this is true across much of South Asia, more broadly). In this management system, wheat is planted immediately following the rice harvest without tilling the land. Only shallow channels sufficiently deep for seed germination are utilized, minimizing soil disturbance and maximizing soil carbon storage. Soil ripping, another minimal till practice, is currently widely adopted by sugarcane producers in Pakistan, also in Punjab and Sindh provinces. Raised bed planting of maize is also a widely adopted management strategy in both KPK and Punjab provinces, contributing to considerable water use efficiency improvements.

The use of improved seed varieties and livestock breeds is a central CSA strategy being utilized in Pakistan, although limited in its current deployment given the reduced availability of breeding materials. Early maturing varieties of maize—a moderately adopted adaptation strategy—in KPK province is denoted as especially climate smart given its strong effect on productivity improvements. Meanwhile pest tolerant varieties of onion are also widely adopted in Punjab and Sindh provinces and considered moderately climate smart. Drought



tolerant varieties of wheat and cotton, and heat tolerant varieties for cotton are utilized across Pakistan.

Other commonly adopted management practices in Pakistan include Integrated Pest Management (IPM), or a holistic view of pest management that aims to reduce environment and human impacts of pesticides and promotes natural pest control methods. To control white fly populations in chili crops in Pakistan, for example, natural predators like ladybugs, lacewings, or whitefly parasites can be released. This approach has been promoted by the Agribusiness Support Fund in Pakistan, with support from the U.S. Agency for International Development (USAID).

IPM strategies are determined to be highly climate smart in the context of sugarcane production in Sindh



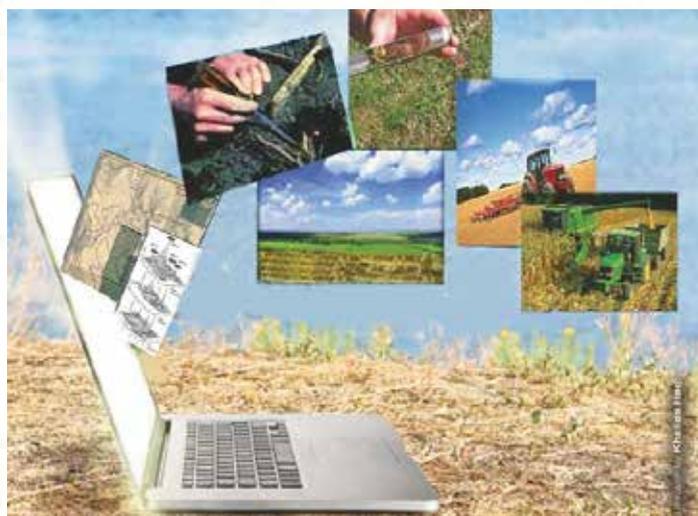
province, for example. Similarly, the use of bio-fertilizers, bio-pesticides and weed control practices are also widely adopted CSA practices that can reduce agricultural GHG emissions and solid waste pollution. This includes the application of bio power fertilizer and Spinosad (bio-pesticide against fruit flies) in the case of mango and biological-controlled varieties of sugarcane. Generally speaking, across Pakistan a balanced used of chemical and biological fertilizers is maintained for the important cotton crop.

Finally, Pakistan is making considerable efforts to incorporate renewable energy technologies into its agricultural production systems. This includes windmills, solar panels and bio-energy production units that can be used for water supply and storage and other farm equipment. Under the “Better Use of Energy in Agriculture” project in Punjab province, solar powered High Efficiency Irrigation Systems (HEIS) are deployed for drip irrigation systems with storage ponds and submersible pumps to optimize use of water and supplement conventional high carbon

energy sources that are limited and expensive. The World Bank is supporting two HEIS projects in Punjab and Sindh provinces to improve productivity of water use in irrigated agriculture and to grow high value crops.

<https://ccaafs.cgiar.org/publications/climate-smart-agriculture-pakistan#.Whf3OEqWbIU>

PRECISION AGRICULTURE: A NEW APPROACH TO CROP MANAGEMENT



It is expected that the world’s population will reach 9.2 billion people at year 2050, 34 percent higher than today. Much of this growth will happen in developing countries. To keep up with rising populations and income growth, global food production must increase by 70 percent in order to be able to feed the world.

In Pakistan agriculture is characterized by small scale farms with low productivity and inefficient use of inputs. In recent years, our agriculture sector has been facing some serious problems, such as reduction in crop productivity, hike in input prices, water scarcity, power shortage and reduced acceptance of our products in international markets. Moreover, lack of subsidies on agricultural inputs, unavailability of quality inputs and lack of information from consultant agencies, poor agricultural policies of government and untimely availability of irrigation water are major factors which negatively affect farming community.

To sort out this situation there is a need of a system in which we can maximize food production with minimum environmental impact risks and overall reduce the cost of production. In present scenario we have opportunity to create differences with the help of science and technological innovations to address critical issues that will have significant effects on the lives of millions of people.

Precision agriculture is a farming management based on observing, measuring and responding to

inter and intra-field variability in crops. It is about managing the variations in field accurately to produce more food using lesser resources and reducing cost of production. Precision agriculture is also known as Site Specific Crop Management (SSCM). It enables the farmer to produce more efficiently through rational use of resources and balanced use of inputs. Chemicals and other expensive inputs use only where and when they are necessary.

Precision agriculture is a multi disciplinary approach as its aim to identify, analyze and manage spatial and temporal variability associated with all aspects of crop production within the fields for optimal productivity, profitability, and sustainability, protecting land resources and safeguarding the environments.

Current Status of Precision Agriculture in the Country



The only precision agricultural technology that is very much developed in the country is laser land leveling. This technology is called precision land leveling. Precision land leveling is a resource conservation technology, which saves irrigation water and time. In irrigated plains of the country, precision land leveling has increased crop yield up to 26 % and has reduced the irrigation time of a field from 2.12 h to 1.13 h. Another precision technology that has been practiced by the small farmers is zone management. In this technology land is divided into small piece of land as management units to customize site-specific application of fertilizer, seed and irrigation water. However, the accuracy of this manual approach is not so good because this also includes uniform application of inputs to a large extent.

Implementation of Precision Agriculture

Precision Agriculture can be implemented either by purchasing precision agriculture services or by developing precision agriculture capabilities within your own farming system. It may be more cost-effective to purchase some precision agriculture services, such as variable rate fertilizer application. But, some Precision technologies need to be

developed within your own farming system, such as yield monitoring. Following basic steps will help to initiate precision farming technologies:

- Keep records of soil, crops and yield
- Map exact boundaries of fields and water courses
- Calculate dimensions and exact area of each field
- Review current data
- Obtain additional data including yield data
- Interpret data
- Examine results
- Develop management strategy all above mentioned steps will help adopting precision farming technologies on a farm.

Components of Precision Agriculture

Precision agriculture comprises following components;

1) Digital Global positioning systems (DGPS):

It is a network of different satellites, which is used to identify the location of data points of soil and crop attributes on basis of longitude, latitude and elevation.

2) Geographic information system (GIS):

Geographic information system (GIS) interprets hardware, software and data for characterizing, managing, analyzing and displaying all forms of information.

Strategies for Adoption of Precision Farming Technologies

Precision agricultural technologies can be used successfully not only in large fields, but also in small



fields. Small fields can be consolidated virtually to consider as a big field for mapping of soil and crop attributes. However, variable rate technologies can be successfully used in even small fields. Small farmers can use low cost and small machine-based variable rate technologies and can start with a single precision application, whereas the progressive farmers should select more than one precision application as a

package for growing high value commercial crops. The initial goal should not be to get maximum yield, rather to optimize crop inputs and to prevent over- and under-application of agricultural inputs for reducing environmental risks.

Private agencies should come forward to invest in this sector to provide consultancy services to progressive farmers by providing tools, infrastructure, operational support and controlling systems. By adopting these strategies, the current stage of uniform soil and crop management will gradually change to site-specific soil and crop management in the country.

Potential Areas for Adoption of Precision Agriculture

For precision agriculture, data can be collected by combine harvesters (by employing yield monitors); satellites and aeroplanes (by satellite and aerial imagery for making vegetation indices, biomass maps and digital elevation models of landscape); tractor (equipped with GPS and proximal soil sensors, e.g. Green Seeker); field vehicles (for employing sensors), by other handheld and stationary sensors.

- Small and progressive farmers can start some sort of precision technologies for better management of their farms. For example, application of Global Information System (GIS) to small farms can be successfully used for mapping boundaries and soil and crop attributes and keeping record of their farms.
- Deployment of yield monitors on combine harvesters can be the starting point for precision agriculture in the country. Yield maps are indicators for site-specific fertiliser application in a field. These yield monitors can be successfully used to map rice and wheat yield in rice-wheat belt of the Punjab province.
- Portable handheld chlorophyll meters can be used to map nitrogen stress of the crop for application of nitrogen fertilizers.
- Portable pH meters can be used to map soil pH on-the-go in the field for limestone application.
- Handheld biomass sensors can be used to map biomass in terms of Normalized Difference Vegetation Index (NDVI) at various stages of crop growth. For example, Green Seeker handheld digital crop sensor is an active light source optical sensor that is used to measure plant biomass as NDVI.
- Mechanical seed metering systems are not so accurate to deliver exact number of seeds at exact

distance. Computer aided seed metering mechanisms can be developed for placement of desired number of seeds at desired distance. Precision planters for maize, cotton and vegetables are direly needed in the country.

- Image analysis can be used to identify weeds in crops, which can be eliminated by micro-sprayers actuated by precision controllers and delivery system. Precision weeding can be used to remove inter-row and intra-row weeds from row crops. The weeds can be distinguished by the color, shape and texture of leaves.
- Variable rate technology in crop production can include variable application of fertilizers, pesticides, manure (litter), seeds, tillage depth according to compaction level and irrigation. Variable rate fertilizer application allows crop producers to apply different rates of fertilizer at each location across fields. This technology may include in-cab computer and software with a field zone application map, fertilizer equipment capable of changing rates during operation and a precise GPS device. Different map-based and reactive variable rate technologies can be used by small and progressive farmers.
- Supervised or guided soil sampling can be used after getting ancillary data of soil sensors to reduce the soil sampling points from a field. In grid sampling, actual variability in soil attributes can be overlooked. Therefore, supervised soil sampling can better characterise soil variability.

Conclusion

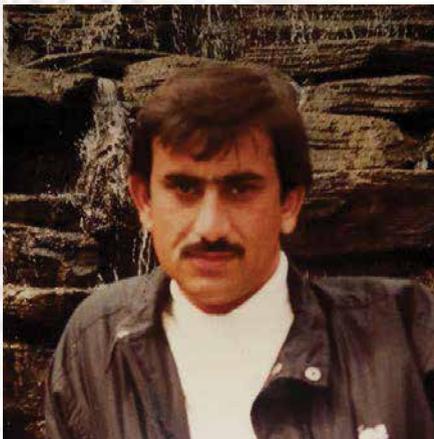
In Pakistan, there is not even a single farmer who is using this advance technology. The only precision technology that is used in Pakistan successfully is laser land leveling. In Pakistan, there is also need to support this information based agriculture by government agencies and the agriculture researchers should conduct research on farmer's fields to bring their attention towards this contemporary type of agriculture. It is a fact that adoption of this innovative type in entire country is not possible as every farmer will not agree to adopt these sophisticated technologies, but there are some relatively developed farmers, which can act as incubators for adoption of these technologies for emerging.

Sources:

- <http://technologytimes.pk>
- Hafiz S. Mahmood, T. Ahmad, Z. Ali and M. Ahmed. 2016. *Adoption of precision farming technologies in Pakistan. Conference Paper, Research Gate*

SUCCESS STORY OF MR. ARSHAD MEHMOOD (A PROGRESSIVE FARMER)

Mr. Arshad Mehmood owns a poultry farming business, resident of Bhaun, Chakwal. He



owns total irrigated land of 40 canal where he has established open shed for poultry farming on an area of 10,000 sq. foot. Moreover he also possesses 4 cows and 2 buffaloes. On his farm, he also cultivates seasonal vegetables and sells them in market of nearest city to earn profit. Due to his adoption of best farming practices and techniques, he is able to construct another poultry farm on an area of 30 canal having open shed on 15,000 square foot. He is having 8-10 workers for management of each poultry farm.



According to Mr. Arshad, a poultry farm doesn't require high capital for starting. Only basic capital is required to start raising poultry. And most of the poultry birds are not much costly to start raising. Commercial poultry farming business also ensure high return of investment within a very short period. Some poultry birds like broiler chickens take shorter duration of time to mature and generating profit. Moreover, marketing is also easy as there are established markets for poultry & always in demand.

Suitable poultry housing is very important for successful poultry farming business. He raises poultry birds in open sheds which need accurate management and environment for better production and welfare. He makes sure well management, ventilation, lighting, temperature and litter condition.

He has a planned and proper designed poultry housing to keep the poultry birds healthy and productive.

He practices layer poultry for egg production. Commercial hen generally starts laying eggs at the age of 12-20 weeks. They start laying eggs regularly at their 25 weeks of age. After 70-72 weeks of age egg production of layer poultry get reduced. For commercial layer poultry farming, he generally keep the hens for 12 months from their first laying period. And then sell them for slaughter purpose. Although chickens naturally survive for more than 6 years. He ensures collecting eggs on daily basis.

Mr. Arshad recommends feeding high quality, fresh and nutritious food to ensure good health, proper growth and high production. He prepares feed by himself by adding all types of necessary vitamins and minerals. He prepares feed by mixing different grains like soybean, corn & canola and fish.

Commercial poultry feeds for various types of birds are available in the market. You can easily feed this to your birds.



Along with feeding your birds high quality and nutritious feeds, always serve them sufficient amount of fresh and clean water according to their demand. By Providing the birds nutritious feed, clean water and proper hygiene condition, chances of disease are minimized. Manure is removed and clean litter or bedding is added on a regular basis. He uses old litter and manure for composting and adding to gardens as a fertilizer.

Birds are checked regularly to ensure they remain in good health. He further suggests that it is vital that one learns how to



catch and hold birds securely and safely. A quick feel of the breastbone for muscle will let you know if your birds are losing weight. Check regularly for parasites such as lice or mites and isolate and treat sick birds. Learn to recognize common diseases. Monitor the visual appearance of your birds so you can pick up the first signs of disease, feather pecking or any aggressive behavior.

زرعی سفارشات برائے کسان گندم

- ☆ گندم کی بہتر پیداوار کے لیے موزوں وقت یکم نومبر تا 20 نومبر ہے تاہم یہ فصل 15 دسمبر تک کاشت کی جاسکتی ہے۔
- ☆ 20 نومبر تک بوائی کے لیے 85 فیصد سے زائد شرح اگاؤ والا 50 کلوگرام بیج فی ایکڑ استعمال کریں۔ چھتھی کاشت یعنی 21 نومبر تا 15 دسمبر تک کاشت کی صورت میں شرح بیج 60 کلوگرام فی ایکڑ رکھیں۔
- ☆ گندم کی اچھی پیداوار کے لیے پودوں کی تعداد 12 تا 16 لاکھ فی ایکڑ ہونی چاہیے۔ پودوں کی مطلوبہ تعداد کے حصول کے لیے گندم کی بوائی بذریعہ ڈرل کریں تاہم ڈرل کی عدم دستیابی کی صورت میں بذریعہ چھلہ بھی کاشت کی جاسکتی ہے۔

خنے اور مسور کی کاشت

- ☆ بارانی علاقوں میں دالوں کی کاشت بذریعہ ڈرل یا پور کریں تاکہ بیج کی روئیدگی اچھی ہو۔ قطاروں کا درمیانی فاصلہ ایک فٹ رکھیں۔
- ☆ فصل اگنے کے 10-15 دن کے اندر اس کی چھدرائی ضرور کریں اور خنے کے پودوں کا درمیانی فاصلہ 6 انچ جبکہ مسور میں فاصلہ 2 تا 3 انچ رکھیں۔
- ☆ جڑی بوٹیوں کی تلفی کے لیے پہلی گوڈی اگاؤ سے 30 سے 40 جبکہ دوسری گوڈی ایک ماہ بعد کریں۔ بارانی اور ریتلے علاقوں میں جڑی بوٹی مارنے کا استعمال پیڈی میٹھلین بحساب 1.5 لٹری ایکڑ استعمال کریں۔

- ☆ فصل کو پہلا پانی پھول آنے سے پہلے اور دوسرا پھلیا بننے پر دیں۔
- ☆ مسور اور خنے کی فصل پر مختلف بیماریاں حملہ آور ہوتی ہیں جن میں مرجھاؤ جھساؤ کنگلی، مسور کی پھوہندی زیادہ اہم ہیں اس کے علاوہ ان پر دیمک، ٹوکا، چورکیٹرا، چوسنے والے کیڑے مثلاً ست حیلہ سفید مکھی تھرپس لٹگری سنڈی اور ناڈ کی سنڈی حملہ کرتے ہیں۔ ان تمام کیڑوں اور بیماریوں کا تدارک زرعی ماہرین سے مشورہ کر کے کریں۔

سبزیات

- ☆ پیاز کی زمری کی کاشت کا آخری وقت نومبر ہے۔ اور کھیت میں پھیری کی منتقلی دسمبر اور جنوری تک ہوتی ہے۔
- ☆ آلو کی بہار کی فصل کی کاشت جنوری سے وسط فروری تک کاشت کی جاسکتی ہے۔
- ☆ پیاز کا تین کلوگرام فی ایکڑ بیج استعمال کریں۔ ڈیڑھ بوری ڈی اے پی اور ایک بوری پوناش فی ایکڑ بوقت کاشت استعمال کریں۔
- ☆ زمین کی اچھی طرح تیاری کریں اور چھوٹی چھوٹی کیاریاں بنائیں، ان کیاریوں میں تین انچ کے فاصلے پر ایک انچ گہری لائنیں لگا کر بیج کاشت کریں۔

ترشاوہ پھل

- ☆ کورا پرنے کے دنوں میں باغات کو کورے سے بچائیں۔ اور کورے والی راتوں کو پانی لگائیں اور دھونی بھی دیتے رہیں۔
- ☆ پھل کی فروخت کا بندوبست کریں۔ پھل کو بغیر نقصان کے توڑنا ایک محنت طلب کام ہوتا ہے۔ اس لیے پھل توڑنے والے کا تجربہ کار ہونا ضروری ہے۔
- ☆ ڈنڈی کو پھل کی سطح کے قریب قینچی سے کاٹا جائے۔ پھل کو تھیلیوں میں ڈال کر نیچے لایا جائے اور حسب ضرورت پیٹیوں میں پیک کریں۔
- ☆ دسمبر میں 1 تا 1.5 کلوگرام سونا ڈی اے پی، 0.5 تا 1 کلوگرام ایف ایف ایس ایس او پی یا ایف ایف ایس ایس او پی کو گوبر کی کھاد 80 تا 100 کلوگرام فی پودا ڈال کر گوڈی کر کے زمین میں ملا دیں۔

Source: 1) Ziratnama Government of Punjab (Farmer's Advisory)

2) Fauji Fertilizer Company Limited (Farmer's Advisory Service)

MANAGEMENT TIPS

Consider Hiring a Meeting Facilitator for your Strategic Planning Events

It may seem like an unneeded expense, but facilitators have a lot to offer, writes Raegan Johnson, a contributor to Associations Now, <http://associationsnow.co>



m. This was supported by Erin Hall by saying that “Facilitators are skilled at asking questions, sparking Meaningful conversations, highlighting trends, and shifting conversations in productive directions.” “Tangents are rarely found in a strategic planning event with a good facilitator at the helm.” Hall makes other

Dealing with Sarcasm in the Workplace

While sarcasm may be fun in your social life, it has no place in the worlds of business and productivity, writes Aaron Lynn in her article, “Dealing with the Inefficient”. The best way to handle sarcasm in a business environment is simply to respond in good faith and then take follow-up action to do what needs to be done, she adds.



Source: <http://www.asianefficiency.com> recommendations for holding a productive planning

Building a Culture of Innovation through Recognition and Reward

Team members who constantly pitch ideas. No one has a mortgage on ideas and you need loads of them; Networking and collaboration between diverse teams and employees who take an idea further, rather than kill it;



Fresh insight and research into customer’s problems. Innovation starts with problems, not ideas; Teams that take a different path in trying to solve those problems;

Ideas that didn’t work but produced learning to be used elsewhere; People who have taken on an interesting hobby or something outside of work to shift their perspective; A team member who does something new to bring a fresh approach and new thinking into your company; Transparency and honesty. Great ideas happen when opposing opinions bump heads without people getting defensive.

Source: Simon Banks, Director, VisualFunk

Bringing to life what you offer

It doesn’t matter how good what you have to offer is if you can’t communicate it to your audience. Here are some simple techniques to put some more bite into your proposition and bring to life what you have to offer increasing your chances of having your audience say yes.



Outcomes: Focus on the outcomes that your audience will receive from a relationship with you (increased sales, awareness, loyalty, engagement and reduced time, costs, energy) rather than just the features that you offer (tickets, hospitality, signage).

Key messages: Focus on delivering key messages; too much information will dilute the impact of the key points that you are trying to convey. What are your key messages? **Visuals:** A picture tells a thousand words; use visuals to reinforce your written and verbal messages Facts. Provide relevant facts as evidence to support your case Emotions. Where appropriate, use emotive pictures, stories, quotations, testimonials and examples to generate an emotional response Timetables. Help your audience to clearly see the path that you are asking them to travel by providing a timetable of activity from this moment on Credibility. Help your audience to relate the opportunity to their own needs by providing examples of how what you offer has benefited others in a similar situation – people who had similar needs

Customise: Emphasize points that are relevant to your audience, for example, a sales manager will probably be more interested in the impact on sales targets, the HR manager the impact on employees, the accountant on whether the figures are robust and stack up and the marketing manager on the impact on the brand.

Source: <https://richardwoodward.com.a>

NATIONAL NEWS

Under Khadim-e-Punjab Package 5.2 million farmers to get subsidized DAP

The Punjab government is extending subsidy on the purchase of DAP fertilizer in the province under Khadam-e-Punjab Kissan Package. As many as 5.2 million farmers in Punjab will be covered under this subsidy scheme. Spokesman for the provincial agriculture department said here on Monday, the government to ensure 100 percent transparency will use the voucher system which will be packed in the bag of DAP. He said that vouchers that are not packed with fertilizer bags have been blocked.

Nevertheless, only registered farmers can get advantage of this subsidy scheme and the registration process has been made very simple and transparent for farmers. Farmers have only to make a call on toll free numbers of Agriculture Helpline ie 0800-15000 & 0800-29000 and provide detail of their identity card and other required information to get them registered.

Desilting campaign for Rabi to start on December 26

The Punjab Irrigation Department's de-silting campaign for Rabi 2017-18 is scheduled to start from December 26th 2017. A canal closure plan for the campaign has also been finalized and shared with all the six operation zones of Punjab irrigation. Chief engineers of all the six zones; Lahore, Bahawalpur, Multan, Faisalabad, DG Khan and Sargodha have finalized the de-silting activities in their respective zones.

De-silting campaign would run till January 30th and would cover around 3000 canal miles in the entire province. The campaign has been designed keeping in view the irrigation needs of the farmers for wheat crop. De-silting ensures that all canals are restored to their optimum performance.

USAID helping to boost chili production

The US-Pakistan Partnership for Agricultural Market Development (AMD), along with the Trade Development Authority of Pakistan (TDAP) and Government of Sindh held a conference in Karachi that brought together public-private stakeholders to discuss issues and challenges pertaining to Pakistan's chili sector. AMD is a project of US Agency for International Development (USAID). USAID launched the US-Pakistan Partnership for Agricultural Market Development in February 2015 to improve the ability of Pakistan's commercial agriculture and livestock sectors to compete in international and

national markets in the four target product lines; meat, high value and off season vegetables, mangoes, and citrus. This partnership acts as a catalyst for development and investment in the target product lines, helps improve the quality and increase the quantity of exportable agricultural produce, and promotes cooperation among farmers, processors, exporters and buyers of Pakistani agricultural products in international (non-US) markets thus resulting in increased incomes and generating employment opportunities for Pakistani people working in the targeted product line.

Arrangements to distribute 77,000 wheat seeds bags finalized

Punjab Agriculture Department evolved a comprehensive plan costing Rs 200 million for provision of rust tolerant high yielding certified seed of wheat varieties for replacement of old and rusted varieties for sustainability of wheat production in the province.

Sources in Agriculture department told Business Recorder on Sunday that necessary arrangements for the distribution of wheat seed among farmers had been finalized and under the plan 77,000 bags of high yielding certified seeds of wheat would be provided to the farmers free of cost in the province. The basic concept of the programme was to promote rust resistant high yielding varieties of wheat for sustainable wheat production under the climate change situation in the country.

Punjab government chalks out Rs 2.14 billion plan for promoting agriculture

Punjab government has chalked out a four-year plan costing more than Rs 2.14 billion for the promotion of agriculture and prosperity of farmers in the province. Sources in agriculture department told Business Recorder on Sunday that under the plan special attention would be accorded on reclamation of water-logging and salinity hit land in different districts of the Punjab.

The reclamation is the process of changing land that rendered unfit for farming, sources said. The proposed reclamation programme would be supportive in making water-logging and salinity hit land cultivable in across the Province. The proposed plan would be carried out during next fiscal period and the government was making adequate arrangements for initiating the proposed plan for attaining yielding Results.

Source: www.brecorder.com

ZTBL NEWS**Delegation from Agriculture Development Bank of China Visited ZTBL**

Zarai Taraqati Bank Limited (ZTBL) was visited by a delegation headed by Mr. He Xingxiang (Vice President) Agricultural Development Bank of China on 26th of October 2017. The delegation comprising senior executives of ADBC was received by President/CEO ZTBL, Syed Talat Mahmood and Chief Operating Officer (COO), Mian Aamir Hussain. The Senior Management of ZTBL participated in the meeting that followed. Delegation was briefed about role of ZTBL in the area of agriculture development and its future growth strategy for livestock, dairy & crops and value chain financing plans. Potential collaboration in agri. sector came under discussion including other related matters of interest. Agricultural Development Bank of China (ADBC) is the only agricultural policy-oriented bank which is under the direct administration of the State Council in China and enjoys Vice Ministerial Status. The mission and objective of ADBC is to promote the development of agriculture and rural economy was given in a briefing by the delegation.



They also informed the ZTBL Management that future cooperation in agriculture sector under the ambit of CPEC would be extended. Both the Banks agreed on exchange of expertise and visits to support agricultural development and in this continuation, a Memorandum of Understanding would be signed in future for extending cooperation for agri. technology transfer and exchange of best agricultural practices followed by China in order to disseminate the same among farming community of Pakistan.

**Opening of ZTBL's New Branches under Branch Expansion Plan**

ZTBL inaugurated two new branches one at Channi Ghot under Bhawalpur Zone and other at Adda Peer Ghani under Sahiwal Zone. The main objective of establishing new branches is to alleviate financial suffering of local masses by ensuring greater outreach for cost effective and timely availability of credit to the farming community of the area which will help them in improving their living standard. This is all due to dedication and motivation of Honorable President of ZTBL, under whose dynamic leadership, Bank is playing significant role in meeting growing demand of the farming community.

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