USE OF PLASTIC MULCH IN CROP PRODUCTION

Benefits of mulching on growth and yield of annual and perennial crops have long been recognized. Mulching with organic or inorganic materials aims to cover soils and forms a physical barrier to limit soil water evaporation, control weeds, maintain a good soil structure, and protect crops from soil contamination. **Natural mulches** are those derived from animal and plant materials. If properly used, they can offer all benefits of other types of mulches. Natural mulches help in maintaining soil organic matter and tilth and provide food and shelter for earthworms and other desirable soil biota. However, natural materials are not often available in adequate amounts, their quality is inconsistent, and they require more labor for spreading. Natural mulches do not always provide adequate weed control they may carry weed seeds and often retard soil warming in spring, a condition that can delay growth and ripening in warm season vegetables.

Straw mulches often contaminate the soil with weed seeds and deplete the seedbed nitrogen due to their high carbon-to-nitrogen (C/N) ratio. Organic materials that have a high C/N ratio such as grain straw may temporarily immobilize soil nitrogen as they decompose. Natural mulch also harbours pests such as termites, slugs, snails, earwigs, etc. Natural mulches are reported to reduce soil temperature and evaporation, but do not invariably cause higher yields. Therefore, natural mulches could not be used efficiently in crop production during all the seasons. To overcome some of the problems outlined above, paper and plastic mulches have been developed for use in agriculture. Plastic film used as mulch has revolutionized the age-old technique of mulching.

Efforts have been made to develop environmentally compatible plastic products by incorporating renewable polymers as an alternative to petroleum-derived chemical. The renewable polymers are relatively inexpensive, environment friendly, and also naturally biodegradable. Particularly, plant material derived from renewable crops, by-products, or their industrially processed wastes offer a good source of fiber for applications.

Application of Plastic Mulch in Crops

Plastic mulch can be used in any climate, soil or season for cultivating crops like peanut, corn, cotton, vegetables and fruits. Today, fresh market producers mostly grown on plastic mulch include tomato, bell pepper, muskmelon, eggplant, slicing cucumber, watermelon. Plastic products that are biodegradable are desirable because they can reduce non-recyclable waste, conserve resources, and decrease environmental pollution. The widespread use of polyethylene (the principal type of plastic used today) is due to easy processibility, excellent chemical resistance, high durability, flexibility, and freedom from odour and toxicity. Use of plastic mulch in field crops such as corn, cotton, sugarcane, and rice has been successful in many countries. Plastic mulch is reported to be useful to overcome a-biotic stresses in many crops in China. Plastic film mulching with varying specifications is currently used in northern

China, covering about 7 million ha of field crops. Plastic film mulching has been used in cultivating peanut, corn, cotton, vegetable, and fruit crops. Fresh market vegetables that are grown mainly on plastic mulch include bell pepper, muskmelon, eggplant, slicing cucumber, summer squash, tomato and watermelon.

General Uses of Plastic Mulches

- Plastic mulch alters the crop microclimate by changing the soil energy balance. Modification of the crop microclimate results in changes in soil temperature that may affect plant growth and yield.
- Heating properties of plastic such as reflectivity, absorptivity, and transmittance and their interaction with solar radiation have a direct effect on the soil temperature under the plastic mulch. The use of clear plastic mulch in cold areas or seasons increases soil temperature and promotes germination and emergence of many crops.
- Different types and colours of plastic mulch have characteristic optical properties that change the levels of light radiation reaching the soil, causing increases or decreases in the soil temperature. Black and clear mulches have shown the greatest soil warming potential among the various mulch colours.
- Plant growth requires radiation as a source of energy for photosynthesis. Higher soil temperatures increase nutrient availability, enhance nutrient uptake by roots, increase the number and activity of soil microorganisms, and speed up plant germination and growth. Mulching avoids the fluctuations in temperature in the first 20–30cm depth in soils.
- Plastic mulch protects the soil from water and wind erosion and hail damage. The dominant advantage of using polyethylene mulch is its ability to aid in the retention of nutrients within the root zone, thereby permitting more efficient nutrient utilization by the crop. Constant moisture content, higher temperature, and better aeration of the soil all tend to favour higher microbial biomass in the soil thus ensuring more complete nitrification.
- The benefits of polyethylene mulch include greater root growth and nutrient uptake earlier ripening and a higher yield of fruit (and improved fruit quality and a lower incidence of viral diseases than plants grown without mulch).
- Plastic mulches keep ripening fruits off the soil. This reduced contact with the soil decreases fruit rot as well as keeps the fruit and vegetables clean. This is beneficial for the production of strawberries.

Impact of Plastic Mulch on Yield Quality

The utilization of plastic mulch in combination with drip irrigation has played a major role in the increases in production of tomato, pepper, eggplant, watermelon, muskmelon, cucumber and squash among other vegetables.

- Many researchers found that reflective mulch increased soluble solids content, total phenolics (aromatic compounds which serve as anti-microbial protection), flavanols, and anthocyanins (water-soluble pigments related to flavonoids properties) content in grapes. Reflective mulch was also found to increase soluble solids in plums.
- Altering the colour of plastic mulch could alter anthocyanins content in butterbean. Strawberries that ripened over red plastic mulch were significantly higher in aroma and flavour compounds. Some scientists found that the use of yellow and black mulches resulted in higher concentrations of phenolics in carrot. Also, the use of yellow and white mulches resulted in higher β-carotene (organic compounds with orange pigments in plants) and ascorbic acid (water soluble sugar acid with antioxidant properties) content in carrots when compared to other colored mulches and bare soil treatments.

Plastic Mulch and Pest Management

- Plastic mulches provide a range of weed control levels, depending on the amount of light transmission through the mulch. Plastic mulch reduced weed emergence by 64% to 98% during the growing season. Black mulches are more effective for weed control, but typically provide less soil warming than clear mulch.
- Mulches may also protect the crop from insect pests or diseases. Reflective plastic mulch can be used to manage silver leaf whitefly populations. Since many insects use visual cues to find host plants, interference with these cues can cause

increased attraction or repulsion to the plastic mulched fields and, thus, crops contained within those fields. Greater numbers of western flower thrips are attracted to low UV reflective white, blue, and yellow colors.

Aphids also demonstrate attraction to certain colors, like yellow, green, and bare soil, and repulsion to other colors, such as silver, black and transparent.

- In recent years, there has been increased attention to the use of colored plastic mulches in preventing or delaying the onset of various insect-vectored diseases. The use of reflective mulch greatly reduced the number of aphid vectors and delayed the spread of bean yellow mosaic virus and cucumber mosaic virus.

Application of Plastic Mulch

The use of plastic mulch requires a unique application process to ensure proper placement of the plastic film. This application process begins with preparing the field the same way one would for a flat seed bed. The bed must be free of large soil clods and organic residue. A machine called a plastic layer or a bed shaper is pulled over the field creating a row of plastic mulch covering a planting bed. These beds can be a flat bed which simply means the surface of the plastic mulch is level with the inter-row soil surface. Machines that form raised beds create a plastic surface higher than the inter-row soil surface. The basic concept of the plastic bed shaper is a shaping box which creates the bed that is then covered by plastic via a roller and two coulters that cover the edges of the plastic film to hold the plastic the soil's surface. These plastic layers also place the drip irrigation line under the plastic while the machine lays the plastic. It is somewhat important that the plastic is rather tight. This becomes important in the planting process.

Limitations of Plastic Mulch

- Utilization of plastics in agriculture in the form of mulch films, greenhouse components, irrigation tubes and general-purpose containers continue to generate plastic waste in large quantities. Currently, any systematic collection of plastic waste for recycling and/or disposal is rather expensive and limited only to certain communities. Moreover, when plastics are contaminated with soil, foods or other chemicals recycling of such material become difficult.

- Most mulch films are currently produced from petroleum-based plastics, usually polyethylene, and cause a considerable waste disposal problem. Perhaps a major limitation to commercial uses of plastic mulches is the disposal of the plastic film after use, which causes an environmental pollution problem.
- The majority of reports on plastic mulches show that increased root-zone temperature is one of the main benefits associated with the use of plastic mulches. Additional studies also show that, depending on the crop species, geographical region, or time of the year, plastic mulches create high zone-temperature conditions that may be deleterious to growth and yield of vegetables.

Alternatives to Plastic Mulch

***Paper mulches*:** attracted a good deal of attention in the early 1920s. They were not adapted for commercial vegetable production because of their short life, as well as the cost of material and labor, which was not mechanized. Thus, the trend has been toward using synthetic mulches such as films made of formulations of paper, which includes combinations of paper and polyethylene, foils and waxes. Petroleum and resin mulches were also developed for arid climates at the same time. Synthetic mulches including thin sheets of plastic, paper, and petroleum materials present increased benefits over natural mulches.

Another strategy for reducing plastic mulch waste has been double cropping, which allows growing two (or more) crops on the same mulch one of the advantages of double cropping is the reduction of the total volume of used agricultural plastic. These materials are fully degradable but are expensive, difficult to handle, and require specialized equipment for application. Also, they do not provide the level of weed suppression and soil warming generally achieved with plastic mulch.

Biodegradable and Photodegradable Plastic Mulches:

- An alternative solution for reducing waste from polyethylene mulches is to develop photodegradable or biodegradable mulches. Photodegradable plastics are those which are degraded by photo-initiated chemical reactions. The problem with these plastics is the continual use of non-renewable petroleum-based resources and their questionable ability to decompose to carbon dioxide (CO_2) and water H_2O incompletely in the soil without light emission.
- Photo-biodegradable polyethylene films containing starch have been developed and used in agriculture. They are better able to raise temperature, preserve moisture, and raise yield than common polyethylene films and can be degraded environmentally after use. Photodegradable plastic mulches have been effective but have proven to be unreliable as well as expensive to use.
- An alternative to photodegradable plastics or polyethylene mulch may be the use of biodegradable films, made of corn starch and other biodegradable polymers. Since they are broken down by the action of humidity and microorganisms, decomposing completely into CO_2 and water. At the end of their life, biodegradable materials can be integrated directly into the soil where microflora transforms them into carbon dioxide or methane, water, and biomass. Biodegradable plastic includes polyhydroxyalkanoates, polylactides, polycaprolactone, aliphatic polyesters, polysaccharides, and copolymer or blend of these. The most important are poly (3-hydroxybutyrate) and poly (3-hydroxybutyrate-co-3-hydroxyvalerate).

  Biodegradable plastics opened the way for new considerations of waste management strategies since these materials are designed to degrade under environmental conditions or in municipal and industrial biological waste treatment facilities. Biodegradable mulch films can biodegrade in the field after ploughing, thus eliminating film recovery and disposal.

Source:

- *K. Subrahmaniyan and M. Ngouajio. 2012. Polyethylene and biodegradable mulches for agricultural applications: a review. Agron. Sustain. Dev. 32:501–529*
- *https://en.wikipedia.org/wiki/Plastic_mulch*

JUJUBE: APPLE OF THE DESERT

Jujube or ber is cultivated all over the drier parts of the Indo-Pak subcontinent for its fresh fruits, which are rich in vitamins and minerals, because of this reason jujube is called “apple of the desert”.

It can be successfully cultivated even in the most marginal ecosystems of the subtropics and tropics. Since its cultivation requires little care, the fruit tree is suitable to rehabilitate extensive resource poor areas; it also exists in wild groves which are wide spread in the warmer parts of Pakistan. As well as the fruits, the wild trees also yield timber of marginal value, brushwood, fuel wood, and leaf fodder. The tree propagates freely and greatly resists recurrent drought. It is thus an important tree suitable for irrigation into agro-forestry systems of warm desert eco-regions. The tree can help in economic sustenance and insurance against ecological degradation.

Since *ber* trees can endure extreme degrees of stress from drought, salinity and even water logging in the soil, they are considered suitable for planting on degraded and marginal lands. Plantations are also profitable on such lands and can be an insurance aberrant weather. Its powerful root system helps in conservation of the soil. Some of the wild cultivars of jujube are moderately durable and are used for a variety of purposes such as house posts, agricultural implements, tent pegs, cart wheels and spokes.

Jujube trees are considered amongst the best for rearing lac insects. A lac yield of 1.5 kg per tree per year has been obtained by collection during October-November in Cholistan Desert, Pakistan. By using 6-8, 2-3 m long shoots of 2-3 cm thickness on a stump for inoculation by lac insects, a yield of 3-6 kg of raw lac can be obtained in 3 years. However, if used for lac fruit production is not viable. Jujube tree are commonly used as live fencing. Cut branches

of *ber* are often used as a protective fencing material around agricultural fields.

Fruits of jujube are commonly used in Pakistani households as fresh fruit and dehydrated for later use. However, the fruits of wild seedlings trees are mostly used for sun drying. Its powder is used for baking and to prepare jam and a traditional loaf. The mature green fruits are also occasionally used in Pakistan to prepare *chutney*, pickle and jelly. Powder is made from the ripe fruits. Various confectionary recipes such as cake, butter pudding and sweet pickle have been recommended from dried jujube fruits. Some times fruits are dried and powdered to prepare a product called "*churan*". This is currently localized and could possibly become more popular if standard products are developed.

Very good quality preserves and candy can be prepared from hard mature *ber* fruits for which techniques have been standardized in Pakistan. Candy seems to be more popular than preserve, perhaps because it is more easily handled and stored. Its demand could grow further as sweetened dehydrated fruit. Pulp obtained from fully ripe jujube fruits can be used for the preparation of ready to serve beverage and squash. Ready to serve beverage prepared on a small scale is already popular in some location of Pakistan. The product needs to be further developed to make it more acceptable if a sustained supply and product quality are ensured.

A number of products such as *murabba* (preserve), candy and dehydrated jujube are prepared from the fruits. Fully ripe fruits are dried to prepare a dehydrated product similar to dry dates. The fruits of wild and cultivated *ber* are dried in the sun. The dried fruit is relished as a dessert. Fruits after sun drying are also consumed during off season. Improved methods to prepare good quality dehydrated products have been developed in Pakistan. The dehydrated product has already generated a good demand when prepared from selected cultivars/types by standard methods. The demand is expected to rise and become more popular when dehydrated fruit without added sugar is preferred.

Dried fruit of jujube contains several volatile substances, which have significance in impairing the typical flavor to the fruit. Mature jujube fruits also contain polyphenols and rutin. It was observed that the contents were about ten times higher than any other fruit. The ripe fruit is cooling, digestive, aphrodisiac, tonic, laxative, invigorating and removes biliousness, burning sensation, thirst, vomiting and blood impurities. The dried fruit is laxative and an appetizer, and allays thirst. The acrid and sweetish seeds are also a tonic and aphrodisiac and cure eye diseases, cough, lessen expectoration, asthma, thirst, burning sensation and leucorrhoea. Ripe fruit is useful in fever, wounds and ulcers. The astringent seed is a tonic for the heart and brain and allays thirst. Fruits have been used for dying silk and used for fish stupefying.

Chinese jujube cultivar seeds are known to contain a number of saponins, which have medicinal value. Oleic acid, being one of the essential fatty acid for the human beings, is present in the fatty oil of the seeds of Chinese jujube cultivar. It has been recognized to possess a mild sedative activity and is used in treatment of insomnia. Sour jujube fruit is ground to powder and used to cure hypertension and stomach troubles.

Jujube is richer than apple in protein, phosphorous, calcium, carotene and vitamin C and excels oranges in phosphorous, iron, vitamin C, calorific value and carbohydrates. Ripe fruits provide 20.9 K. calories per 100 g pulp. According to WHO/FAO recommendation, the daily diet of an adult should contain 30 mg ascorbic acid. This requirement can be met by including 3 fruits in the daily diet. The highest ascorbic acid content was found in the middle part and acidity in the lower part of the fruit. Fruit also contains about 70 I.U of vitamin A in 100 g of pulp. Chinese jujube cultivar fruits were found to be generally richer in minerals than the stone fruits. Vitamin C and B-complex contents were found at the highest at early ripening stage.

CONTAGIOUS ECTHYMA (ORF/SORE MOUTH) IN SHEEP AND GOATS

Introduction

Figure 1. Small ruminant with sore mouth.

Contagious ecthyma, also known as orf or sore mouth, is a zoonotic disease, which means that it is easily transmitted from animals to humans. It induces

acute pustular lesions in the skin of goats, sheep, and wild ruminants worldwide. Young animals are the most susceptible to contracting the disease. Kids and lambs can contract sore mouth after a few weeks of birth. However, sore mouth outbreaks in young animals are most frequent during postweaning. Sore mouth is caused by a poxivirus related to the pseudocowpox and bovine papular stomatitis virus family. The virus is epitheliotropic, which means that it has an affinity for the skin since infection occurs by direct contact. The incubation period is relatively short. Susceptible animals usually develop the first signs of the disease 4 to 7 days after exposure that persists for 1 to 2 weeks or for longer periods. The disease affects sheep and goats; it is marked by an increase in incidence and severity if not controlled among small ruminant herds. Sore mouth outbreaks occur more frequently during periods of extreme temperatures such as late summer and winter. The disease initially presents itself as papules (elevation of the skin) that progresses to blisters (fluid-filled pouches) or pustules before encrusting. These lesions are found in the skin of the lips. They can spread around the outside and inside of the mouth, face, lips, ears, vulva, lets, scrotum, teats, and feet, usually in the interdigital region. Extensive lesions on the feet can lead to lameness in adults and young animals. The infection is spread by direct and indirect contact from infected animals or by contact with infected tissue or saliva containing the virus. During the course of the disease, blisters eventually break down to release more of the virus and later develop into wet pus-like (suppurative) scabs. These lesions can persist for 3 weeks and can become a site for the development of secondary bacterial infections. Scab tissues are extremely painful, to the point of preventing sick animals from eating. Because infected kids present lesions on their gums and lips, does and ewes can acquire lesions on their udder. The lesions on the udder are due to direct contamination during nursing that causes mastitis (inflammation of the mammary gland) in does and ewes. Severe to moderate enlargement of the lymph nodes, arthritis, and pneumonia resulting from sore mouth has been reported. Most animals acquire immunity after contracting the disease; however, subsequent outbreaks in herds are common with a less severe form of the disease.

Diagnosis

A diagnosis is based on the characteristics and location of the lesions, as well as herd history of previous outbreaks. A definitive diagnosis is based on viral isolation and an immunologic test.

Treatment

Lesions can be treated with a single application of 3 percent iodine solution. Animals are cured spontaneously in most cases. In severe cases of secondary bacterial infection, the usage of a systemic antibiotic is recommended. It is important to treat the lesions on the teats (nipples) of the does to prevent the development of mastitis. For infected kids, be sure they are fed artificially.

Figure 2. Small ruminant being treated for sore mouth disease.

Prevention and Control

• Minimize transportation stress.

• Always quarantine new animals before introducing them to the rest of the herd.

• In case of an outbreak, separate sick animals in a pen for treatment.

• Always feed and treat sick animals after feeding the herd.

• Incinerate gloves and all tissues that come in contact with lesions extracted from sick animals. The virus can persist in animal tissue for a long period of time, becoming a source of contamination.

• Always wear gloves when handling sick animals and vaccines as humans can contract the disease.

• Avoid the consumption of milk from does that present lesions on the teats and udder.

• A systematic vaccination of the entire herd is recommended only during outbreaks. There are two vaccines available for use in sheep. The vaccines are modified versions of live viruses and are administered topically. A small dose of the vaccine is brushed over light scarifications of the skin on the inside of the thigh. These vaccines will induce a mild form of the disease. In sheep flocks where there is a prevalence of the disease, lambs should be vaccinated at the age of 1 month with a booster 2 to 3 months later. There is

currently no recommended vaccination protocol for goats since the sheep vaccine is not FDA-approved for use in goats.

WOMEN FARMERS

Written by Nadia Agha, Published in Dawn.

Globally, women produce 50 per cent of food and provide 43pc of agriculture labour. Asia in particular has a family farming system in which women's roles are central as they supplement the family income by working the fields. In the Philippines, Thailand and Indonesia, for example, women perform half the labour in rice production. This goes up to 80pc in India and Bangladesh. Nevertheless, there is scant information on the gender system of each region and the constraints women farmers face. What is known is that in developing economies, most rural women carry heavy burdens of limited literacy, malnourishment and violence, which bars them from improving their conditions.

Pakistan's agriculture sector is said to be the backbone of the economy because of its contribution to GDP. Rural women are central to this agro-based economy; they are major participants in food production in rice- and wheat-growing regions, as well as in cotton-picking processes. Despite this, Pakistan's social indicators present a very alarming picture: rural women are caught in a web of chronic poverty due to little access to productive resources and credit, which limits investment in technology and impedes farming productivity.

They usually engage with agriculture in two ways: they either work on landlords' farms as peasants or manage their families' farms. Working for landlords is largely based on payment in kind. For example, farmers, including women, in northern Sindh are paid 40 kilograms of wheat upon the harvest of half an acre, which is used up in household consumption and is central to the family's survival. This, however, takes its toll.

Much of the work involves manual labour that consumes time and energy. And since their work is not registered, women face extreme exploitation. The mode and value of payments are decided verbally, and there is no concept of meeting the national minimum wage. And while 72pc of working women are involved in agricultural activities, most are not involved in post-harvest activities, such as processing or grading of fruits and vegetables. Those working on their families' farms lack knowledge of modern farming techniques to boost productivity. In the event of a pest attack, poor farmers prefer setting the affected area on fire to save the remaining crop because they cannot afford pesticide, let alone quality fertiliser. As a result, they yield only enough for subsistence living.

The absence of social capital and well-integrated social community networks generally associated with women's empowerment also affects women's ability to bring change to their lives. These groups not only enhance access to loans but also help women bargain and sell their labour. In most cases, women's ability to obtain loans for agricultural production is determined by their association with community networks. Once a network is formed, it can be used for multiple purposes: sharing produce from livestock, selling and buying from each other, etc. Some NGOs in Sindh have started this to ensure flow of credit to rural women as well as the smooth return of credit, but on a larger scale such networks are practically nonexistent.

In this regard, women's access to and control over capital and finances is very important because it helps them form social networks. Financing in the formal and informal sectors has increased over the years, yet farmers' access to financial services in developing countries is limited. The absence of a well-integrated credit system specifically for women farmers has reduced social capital and networking opportunities. Farm labour that women are engaged in plays a vital role not just for the economy but also for their families' wellbeing; studies show that women invest more in children's education, health and nutrition than men. Given the rigid patriarchal norms that constrain their lives, it's no wonder that women continue to be the poorest of the poor. Their engagements with farm labour only helps them access enough food for survival, the vicious cycle of poverty remains intact.

Empowering and facilitating women will have a durable positive impact on agriculture productivity and families' food and social security. It is necessary to study gender systems in different regions and explore rural women's constraints. As long as they remain unexplored, it is difficult to narrow gender gaps and empower rural women. The government should introduce gender-sensitive agricultural policies. Engaging women in targeted trainings and enabling them to access flexible loans will also improve livelihoods. These initiatives can only be compatible and effective when we know the gender system of each region.

SUCCESS STORY OF HAJI SHER ZADA
(A PROGRESSIVE FARMER)

Haji Sher Zada is a progressive dairy farmer, resident of Haji Chinar Kally Tehsil Takht Bhai Distt. Mardan. He owns 30 acre land where he has established a dairy farm comprising of two sections. One section is constructed on an area of 5 kanal having two sheds with a measurement of 130 by 20 feet each, used for milking animals. Total no. of buffaloes is 52. The other section is for dry animals.

Because of his successful farming business Haji Sher Zada recently established his second dairy farm having 62 cows. The shed is 130 feet lengthy and 40 feet wide. Manger has been constructed in the middle of the sheds. Buffaloes milk production is 20kg per head per day and average cow milk production per head per day is 18 kg.

For feeding these cattles about 50 maunds of silage is used per day. This sillage is usually arranged from District Okara. Local wanda is used about 15 maunds per day.

For green fodder purpose he grows maize, sugarcane, wheat, berseam and evergreen fodder on his land. For drinking water of cattles a separate manger about 20 by 5 feet has been constructed in each farm. Haji Sher says that daily supply of clean drinking water is necessary in clean troughs/manger i.e. 15 to 20 liters of water consumption/animal/day to maintains the production capacity of the animal. One manager, one accountant and 10 labours are hired for farm management.

Haji Sher gives first priority on animal health for which a vertinary doctor has been engaged with proper hygienic environment maintained for animals. A Suzuki van has also been arranged for milk transportation to the market. He focuses on proper feeding of animals. According to him, for adequate weight gain use of balanced feed purchased from well reputed companies or formulated accordingly is necessary.

Haji Sher Zada gives following suggestions to new comers in dairy farming business;

- First of all it needs to be decided which breed of animal you prefer. For selection of breed keep in mind the following characteristics of a good breed:
  1. Attain maturity at early age
  2. First calving and first lactation should be at early age
  3. More production per lactation
  4. Less calving interval
  5. Short dry period
  6. Short service period
  7. Less feed intake and more production (Better FCR)
- Preferably purchase the animals of the breed of choice from native area, from a reputed and reliable breeder
- Try to purchase young animals, recently calved and preferably in second lactation
- Make sure that animal is disease free
- Carefully examine the udder including the teats. After milking, the udder should shrink like a balloon from which air blows out. In other words, on palpation, the udder should not give any feeling of being meaty or containing any hard tissue. The teats should be properly placed and of moderate size. There should be no extra teats
- To determine the daily milk yield, the animal should be milked for three consecutive milking. This also helps find out the temperament of the animal
- Make the animal move a few steps to assess if there is any leg problem
- Also check that the animal has healthy eyes
- The dairy animal should not be abnormally over or under conditioned
- Better watch the animal while it is ingesting feed. Possibly, examine its teeth and observe that it ruminates well
- Only high producing animals should be selected

MANAGEMENT TIPS

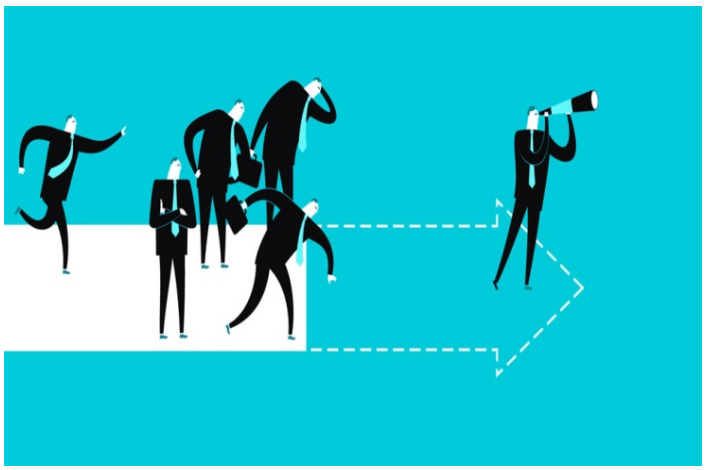
Shaking Seating Arrangements for Better Learning

We're all used to the classroom-style seating in educational settings—whether that be at annual meetings or in-house sessions. But you may be able to keep attendants' attention and better engage them just by shaking up your seating arrangements. If you're hosting an educational session in a large room, try multitiered seating. "The idea is to set up decking within a ballroom," writes Erin Deinzer. "On each tier, consider large beanbag chairs for people to sit on, alongside trays to hold drinks and snacks."To ensure that your attendees pay close attention to your speaker, try silent sessions. "Attendees sit on communal couches while they listen to the presentation through headsets—sans any auditory distraction."

Source: Raegan Johnson,

Six Strategies for Developing Leaders in Your Company

Recruiting leaders from outside your business can be



expensive, time-consuming and risky. That's why the ability to develop homegrown talent gives your business a long-term competitive advantage. Here are 6 ways to develop leaders in your business:

1. Learn to recognize potential. Identify emerging leaders who can step in and fill critical roles when necessary. Push people out of their comfort zone. Difficult or unusual situations are excellent for testing whether someone is leadership material. Look beyond job-related skills to behaviour and attitudes. Learn about their interests, goals and values. TIP: Leaders exist at all levels of your organization—seek them out.

2. Get help finding high-potential employees. Make sure your managers are also on the lookout for the best and brightest in the ranks. TIP: Make leaders accountable for developing other leaders.

3. Sell your vision. It's your role to set and communicate a strategic direction for the business. Discuss your vision and ask for your people's help in shaping it.This gives employees a shared sense of mission and encourages potential leaders to see a future for themselves in the business. TIP: Keep in mind the "what's in it for me" element. No matter how happy they are in their job, it's difficult for employees to reach the business owner's level of engagement.

4. Provide opportunities for leadership development. Make leadership development a part of your business strategy. A leadership plan should cover all levels and indicate when an employee should be ready to move to a higher position. TIP: Make sure employees have the support and guidance they need to perform in new roles.

5. Monitor. Measure. Reward. People need to be accountable for their performance, including getting credit for their accomplishments. Put in place an appraisal and incentive system that fairly evaluates performance and rewards excellence. TIP: Don't give up on people too easily. Work together to improve performance. You may find a diamond in the rough.

6. Support through coaching. Coaching is a form of development usually based on one-on-one discussions, providing guidance and advice for specific challenges. Use coaching discussions to help your emerging leaders address their fears and weaknesses. TIP: Live what you preach and keep your promises. Be honest and coherent in your interactions with employees.

Source: Business Development Bank of Canada, https://www.bdc.ca

NATIONAL NEWS

‘Kitchen gardening’: PAD to sell 0.15 million seed kits on subsidized rates

Punjab Agriculture Department has made necessary arrangements for selling 1,50,000 seed kits on subsidized rates during Rabi crop in the province. The step has been taken to promote "kitchen gardening culture" and create awareness about the importance and utility of home grown fresh vegetables across the Province.

Kitchen gardening has gained popularity among the people especially the women folk in different districts of Punjab including Sialkot. The kitchen gardening in the recent past has gained high importance in the wake of upsurge in prices, malnutrition, poverty alleviation and consumption of fresh and home grown vegetables.

Under the arrangements as many as 3200 seed kits would be sold on subsidized rates to facilitate the people and ensure promotion of kitchen gardening culture at gross roots level in Sialkot district out of which 1200 kits are supplied in Sialkot, 800 in Daska, 900 in Pasrur.

Source:www.brecorder.com

Import of Pulses Slumps by 25.17 Percent

Pakistan pulses import slumped by 25.17 percent to $137.269 million in July-September of fiscal year 2018, official figures say. Fall in pulses import now stands at $46.178 million in July-September of fiscal year 2018 from $183.447 million in July-September of fiscal year 2017, Pakistan Bureau of Statistics shows. Import volume of pulses also scaled back to 169,821 metric tons in July-September of fiscal year 2018 from 209,860 metric tons in July-September of fiscal year 2017, down by 40,039 metric tons or 19.08 percent.

In Sep 2017, pulses import plunged by 33.07 percent or $19.098 million to $32.599 million from $51.697 million in September 2016. The country imported 40,489 metric tons of pulses in September 2017 as compared to $59,711 metric tons of the commodity imported in September 2016, lower by 19222 metric tons or 32.19 percent.

Source:www.brecorder.com

Pad Plans to Promote Guava Cultivation

Punjab Agriculture Department (PAD) has prepared a strategy for the promotion of Guava fruit cultivation in selected districts of the Province. The concept of this programme was to expand the cultivation of Guava on large scale in the Punjab and after success of the programme the same will be replicated in other districts of the Punjab. Guava is being consumed by a large number of people in every nook and corner of the country.

Under the programme demonstration block of Guava spreading over 10 acres of land were being developed at tehsil level for making it profitable and to enhance productivity. The demonstrated Guava blocks were being developed in Sialkot, Lahore, Narowal, Gujranwala and Hafizabad districts of the Punjab for the guidance of the growers. According to sources, Guava is much popular fruit among the people evenly rural and urban areas of the Punjab and people consume it in both the seasons.

Source:www.brecorder.com

‘Subsidy on DAP fertilizer being provided to 5.2 millions farmers in Punjab’

Under Khadam-e-Punjab Kissan package, the government is providing subsidy on DAP fertilizer to 5.2 million farmers in the province in the form of vouchers which will be sealed in the bag of DAP fertilizer.

He said the farmers/stakeholders will type voucher number along with their CNIC number and send it to 8070 through SMS. The farmer will get subsidy of Rs 150 per voucher through mobile cash agents. A farmer can get subsidy vouchers on up to 20 bags of DAP fertilizer. This subsidy is being provided to all registered farmers of Kissan package. Unregistered farmers can contact Agriculture Helpline toll free numbers 0800-15000 & 0800-29000 to register themselves and get benefit of this subsidy scheme. The Spokesman said through this subsidy scheme the farmers cost of production will be reduced while use of DAP fertilizer will increase per acre yield of crops.

Source:www.brecorder.com

Potato Yield’ Competition

Under the directives of Punjab Chief Minister Agriculture Department is making necessary arrangements for holding "Potato Yield" competition 2017-18 in Punjab. Potato yield competition will be held provincial, divisional, district and tehsil levels. At provincial level Laser land leveler, tractor-trolley and potato digger costing Rs 1, 450,00 will be awarded to the winners of the competition.

Source:www.brecorder.com

ZTBL NEWS

Harvesting Ceremony of Mushroom

Zarai Taraqiati Bank Ltd (ZTBL) organized a field day on harvesting of 2nd Batch of Mushroom at ZTBL Farm, Islamabad on 05-10-2017. Senior Executives of the Bank Mr. Khalid Mehmood Gill and Mr. Farhat Karim Hashmi jointly inaugurated the harvesting ceremony of Mushroom.

Ceremony was also attended by other Executives /Officers of the Bank, Representatives of various herbal medicine companies and mushroom farmers. Mr. Muhammad Ikram ul Haq, SVP(ATD) briefed the participants about mushroom farming, its health benefits and other farm activities.

M/s DXN, Rawalpindi, Khumbi Mushroom Farm, Faisalabad and ZTBL Farm, Islamabad displayed Mushroom, bar honey, Olive Pickle and other products produced by them. The participants took keen interest and appreciated the efforts of ZTBL for organizing an informative/knowledgeable field day at ZTBL Farm Islamabad.

Inauguration of Deposit Taking Branch at DHA Lahore

President ZTBl, Syed Talat Mahmood, recently inaugurated Bank's new Commercial Branch at DHA, Phase-V, Lahore Zone- an important trade center of the area. Different account holders, representatives of other commercial banks and ZTBL Senior Management including Mian Aamir Hussain, Chief Operating Officer (COO), attended the ceremony. On this occasion President ZTBL said that Bank's management is working hard with devotion and sincerity to achieve its mission & providing maximum facilities to their clients at their door step.

Opening of Two New Branches at Dera Din Panah & Bait Mir Hazar Khan under Muzafarabad Zone.

ZTBL inaugurated two new branches at Dera Din Panah & Bait Mir Hazar Khan under Muzafarabad 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 and other banking services 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.