



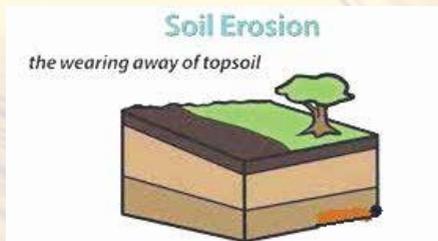
# Agri-Business Supplement

## Zarai Taraqati Bank Limited.

### SOIL EROSION AND ITS IMPACTS

The word erosion is derived from the Latin *rodere* meaning to 'gnaw', the same root that gives us the word 'rodent'. The main agents of erosion are water, wind and gravity.

Erosion is a natural process but is often intensified by human land use practices.



#### Soil Erosion in Pakistan

Soil erosion in Pakistan is becoming an increasingly bigger problem. One of the main causes for this erosion is the overgrazing of land as well as deforestation and poor water management. This erosion results in a decline of soil fertility making it very hard to grow crops. Wind and water erosion is affecting over 76% of Pakistan and every year the country losing a billion tons of soil that is being dumped into the Arabian sea. This erosion primarily takes place in the summer due to the heavy downpours that exist during that season. There is particular concern over the soil erosion in the river Chenab. This river has eroded over 12,000 acres of agricultural land and is affecting more and more villages in Pakistan.

#### The Reason

Part of the reason for the mass erosion of Pakistan's soil is from the deforestation of the country. Pakistan only has a 5.2% forest cover compared to the 25% that is considered acceptable. This is taking moisture from the land held by trees and not allowing organic matter to continue decomposing and creating fertile soil. These trees are being cut down in order for families to use them as fire wood and are being done in a way that does not promote sustainable use. Pakistan is considered second in the world for highest forest degradation which could lead to the complete destruction of their agricultural economy.

#### What is Being Done?

Pakistan became concerned with the issue of soil erosion in the 1970's. They started a Mass Awareness campaign, saying that the people needed to become educated on the topic and have done this fairly

successfully. However, people in that area still need the wood to burn for harsh winter and though they are educated continue the deforestation anyway. Pakistan has not passed any legislation to really solve the problem. It is hard to keep the poor population from using the natural resources. If Pakistan wants to continue to be a fully functioning country they have to learn to work together with land, not overuse it and maintain methods of sustainable use.

#### Types of Soil Erosion

Soil particles are detached (eroded), transported (as sediments) and deposited (sedimentation) by wind, water, ice or gravity. The erosion process is accelerated because the soil is left bare and unprotected mainly by vegetation. Different types of soil erosion i.e. 1) Water 2) Wind and 3) Mass movement are described in detail below:

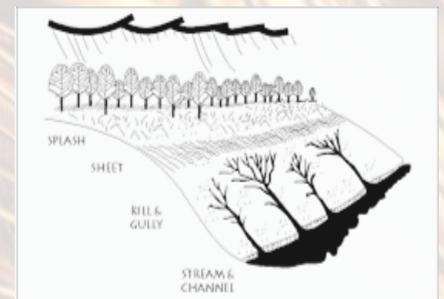
#### 1. Water Erosion

Water erosion is divided mainly into five different types as shown in the figure. These are ranked from least severe to most severe.

##### a. *Splash erosion*

Splash erosion is the first stage of the erosion process. It occurs when raindrops hit bare soil. The explosive impact breaks up soil aggregates so that

individual soil particles are 'splashed' onto the soil surface. The splashed particles can



rise as high as 60cm above the ground and move up to 1.5 meters from the point of impact. The particles block the spaces between soil aggregates, so that the soil forms a crust that reduces infiltration and increases runoff.

##### b. *Sheet Erosion*

Sheet erosion is the removal of soil in thin layers by raindrop impact and shallow surface flow. It results in loss of the finest soil particles that contain most of the available nutrients and organic matter in the soil. Soil loss is so gradual

that the erosion usually goes unnoticed, but the cumulative impact accounts for large soil losses. Soils most vulnerable to sheet erosion are overgrazed and cultivated soils where there is little vegetation to protect and hold the soil. Early signs of sheet erosion include bare areas, water puddling as soon as rain falls, visible grass roots, exposed tree roots, and exposed subsoil or stony soils. Soil deposits on the high side of obstructions such as fences may indicate active sheet erosion. Vegetation cover is vital to prevent sheet erosion because it protects the soil, impedes water flow and encourages water to infiltrate into the soil. The surface water flows that cause sheet erosion rarely flow for more than a few meters before concentrating into rills.

### c. *Rill Erosion*

Rills are shallow drainage lines less than 30cm deep. They develop when surface water concentrates in depressions or low points through paddocks and erodes the soil. Rill erosion is common in bare agricultural land, particularly overgrazed land, and in freshly cultivated soil where the soil structure has been loosened. The rills can usually be removed with farm machinery. Rill erosion can be lowered by reducing the volume and speed of surface water with grassed waterways and filter strips, ripped mulch lines, and contour drains. Rill erosion is often described as the intermediate stage between sheet erosion and gully erosion.

### d. *Gully erosion*

Gullies are channels deeper than 30cm that cannot be removed by normal cultivation. They can be spectacular to look at but over time actually lose less soil than sheet and rill erosion. Gullies occur when smaller water flows concentrate and cut a channel through the soil. Most gullies extend up slope as a result of the head of the gully being continually undercut and collapsing. However, collapse and slumping of sidewalls usually contribute a greater proportion of soil loss.

### e. *Tunnel erosion*

Tunnel erosion occurs when surface water moves into and through dispersive subsoils. Dispersive soils are poorly structured so they erode easily when wet. The tunnel starts when surface water moves into the soil along cracks

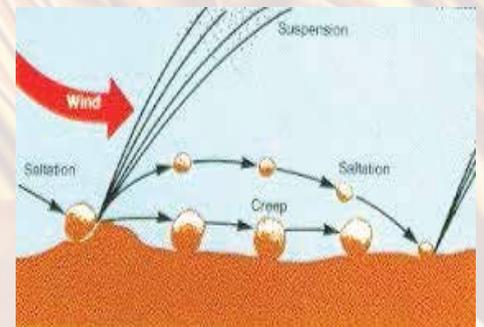
or channels or through rabbit burrows and old tree root cavities. Dispersive clays are the first to be removed by the water flow. As the space enlarges, more water can pour in and further erode the soil. As the tunnel expands, parts of the tunnel roof collapse leading to pot-holes and gullies. Indications of tunnel erosion include water seepage at the foot of a slope and fine sediment fans downhill of a tunnel outlet. Remediation actions include breaking open existing tunnels, re-vegetation, and increasing soil organic matter. Extensive earthworks may also be required.

## 2. *Wind Erosion*

Wind erosion is a serious environmental problem.

a) Suspension,

b) Saltation and c) Surface creep are the three types of soil movement that occur during wind erosion.



### a. *Suspension*

It occurs when very fine dirt and dust particles are lifted into the wind. The particles can be thrown into the air through impact with other particles or by the wind itself. Once in the atmosphere, these particles can be carried very high and be transported over extremely long distances.

### b. *Saltation*

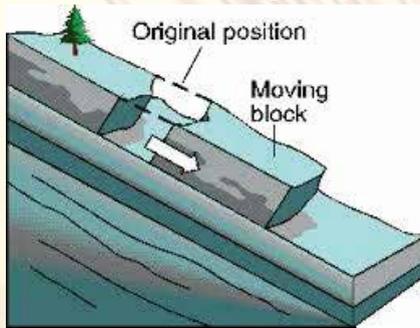
Fine particles are lifted into the air by the wind and drift horizontally across the surface increasing in velocity as they go. They travel approximately four times longer in distance than in height and when they strike the surface again they either rebound back into the air or knock other particles into the air. This is the major form of soil movement due to wind.

### c. *Creep*

The large particles that are too heavy to be lifted into the air are moved through a process called surface creep. The particles are rolled across the surface after coming in contact with the soil particles in saltation.

### 3. Mass Movement

Mass movement is the downward movement of soil and rock under the influence of gravity. It is most frequent on slopes above 25 degrees with little vegetation and annual rainfall over 900mm and often



occurs after heavy storms when soil becomes waterlogged and heavy. Mass movement is a major form of natural land degradation due to its intense rainfall events. Types of mass movement include soil creep, earth flow, slumps, landslips, landslides and avalanches. Factors increasing mass movement include erosion or excavation undermining the foot of a slope, weight loads of buildings or embankments, and loss of stabilizing roots through removal of vegetation. Vegetation removal may also increase soil water levels and soil water pressure, reducing the cohesive strength of the soil. In clay soils with high shrink-swell capacity water enters the soil through cracks and then swells the subsoil, increasing its weight on the slope. Early signs of mass movement include previous movement, bare soil 'scars' across slopes, and stock tracks causing cracks or minor terracing. Old or dormant landslips are characterized by long, uneven hummocky slopes and bent tree trunks on steep slopes. As gravity is the principal force in mass movement, expert's advice is needed to remedy affected land. Remediation actions include diverting water away from slip-prone areas, fencing off suspect areas, and re-vegetating with trees and perennial pastures.

#### Effects of Water Erosion

##### On-Site

The implications of soil erosion by water extend beyond the removal of valuable topsoil. Crop emergence, growth and yield are directly affected by the loss of natural nutrients and applied fertilizers. Seeds and plants can be disturbed or completely removed by the erosion. Organic matter from the soil, residues and any applied manure is relatively lightweight and can be readily transported off the field, particularly during spring thaw conditions.

Pesticides may also be carried off the site with the eroded soil.

Soil quality, structure, stability and texture can be affected by the loss of soil. The breakdown of aggregates and the removal of smaller particles or entire layers of soil or organic matter can weaken the structure and even change the texture. Textural changes can in turn affect the water-holding capacity of the soil, making it more susceptible to extreme conditions such as drought.

##### Off-Site

The off-site impacts of soil erosion by water are not always as apparent as the on-site effects. Eroded soil, deposited down slope, inhibits or delays the emergence of seeds, buries small seedlings and necessitates replanting in the affected areas. Also, sediment can accumulate on down-slope properties and contribute to road damage.

Sediment that reaches streams or watercourses can accelerate bank erosion, obstruct stream and drainage channels, fill in reservoirs, damage fish habitat and degrade downstream water quality. Pesticides and fertilizers, frequently transported along with the eroding soil, contaminate or pollute downstream water sources, wetlands and lakes.

#### Effects of Wind Erosion

Wind erosion damages crops through sandblasting of young seedlings or transplants, burial of plants or seed, and exposure of seed.

Crops are ruined, resulting in costly delays and making reseeding necessary. Plants damaged by sandblasting are vulnerable to the entry of disease with a resulting decrease in yield, loss of quality and market value. Also, wind erosion can create adverse operating conditions, preventing timely field activities.



Soil drifting is a fertility-depleting process that can lead to poor crop growth and yield reductions in areas of fields where wind erosion is a recurring problem. Continual drifting of an area gradually causes a textural change in the soil. Loss of fine sand, silt, clay and organic particles from sandy soils serves to lower the moisture-holding capacity of the soil. This increases the erodibility of the soil and compounds the problem.

The removal of wind-blown soils from fence rows, constructed drainage channels and roads, and from around buildings is a costly process. Also, soil nutrients and surface-applied chemicals can be carried along with the soil particles, contributing to off-site impacts. In addition, blowing dust can affect human health and create public safety hazards.

**Prevention of Soil Erosion**

A range of measures have been used to control/prevent erosion. Some were adopted from other countries such as the USA, some were learnt by trial and error, and others developed from research. Following are the measures that can be implemented to prevent soil erosion

**Plant grass and Shrubs**

Bare soil is easily swept away by wind and water, the two main causes of erosion. Plant roots hold the soil together, while their leaves block rain and stop it breaking the soil apart. Turf, ornamental grass, and low, spreading shrubs work best, since they cover the soil completely.



- o If the ground is mostly flat (slope of 3:1 or less), this might be enough to solve the problem. Steep slopes erode faster, so they need more protection.

**Add Mulch or Rocks**

This will weigh down the soil and protect the seeds and young plants underneath from getting washed away. It also slows the absorption of water to reduce runoff. Grass clippings or bark chips work especially well.



- o If you plant something in the soil, the plant's roots can hold the soil together. If you don't plant anything, then keep the soil covered with mulch. You can also add mulch around plants to add another layer of protection or to keep the soil warm.

**Use Mulch Matting to hold Vegetation on Slopes**

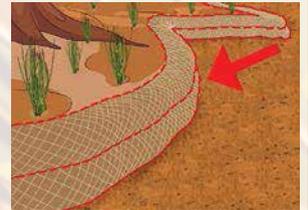
Fiber mulch mats or erosion control mats are a layer of mulch held together in a fiber mesh. This structure holds the mulch together in areas where normal mulch would be washed or blown away. Lay the mat over seeds or young plants.



- o On steep slopes, dig a small trench at the top of the hill. Lay the top of the mat in the trench; fill it up with soil, then fold the mat back over the top.

**Put Down Fiber Logs**

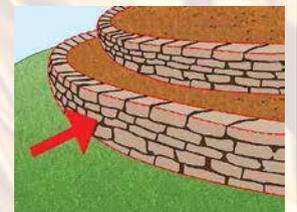
Another option for erosion control on steep slopes is a series of rolled up logs or "wattles" made from fibrous material (like straw). Water running down the slope will slow down when it hits the logs, soaking into the soil instead of carrying mud downhill. Put the logs down across the slope, 10 to 25 feet (3-8m) apart. Hold them in place with wooden stakes or sturdy, living plants.



- o You can plant seeds directly in the logs to protect them while they grow.

**Build Retaining Walls**

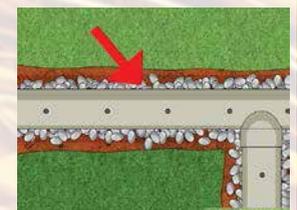
Badly eroded slopes will continue to collapse downhill until they are stabilized. A retaining wall at the base of the slope will block the soil and slow down the collapse. This gives grass or other plants time to grow and help the soil hold together.



- o Give the wall a 2% slope on the side (perpendicular to the incline) so that water flows off to the side instead of pooling.
- o You may build the wall from concrete blocks, rock or wood. Only use wood treated with a preservative to prevent rot.
- o Use retaining walls around flowerbeds and other raised soil areas as well.
- o You may need local government approval to build these structures.

**Improve Drainage**

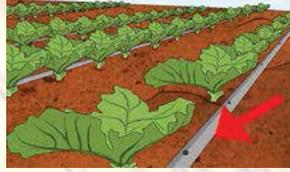
All buildings should have gutters or pipes that can drain water effectively out of your garden and into water collection systems. Without adequate drainage, heavy rain could wash away a whole layer of topsoil.



- o Areas with heavy water runoff may require installing an underground perforated drainage pipe.

**Reduce Watering if Possible**

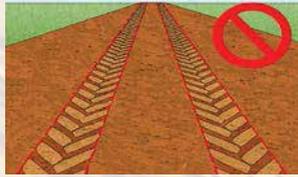
Over-watering your garden can speed up erosion by washing away soil. Use less water if you can, or install a drip irrigation system. Since a drip system only delivers small amounts of water at a time, there is no water flooding across the surface to carry topsoil.



- o You can also install drip lines underground to deliver water directly to the roots.

**Avoid Soil Compaction**

When people, animals, or machines travel over soil, they press it down, compacting the soil into a dense layer. Since there is less space between dirt particles in compacted soil, water has a hard time draining through, and carries soil on the surface downhill instead. Walk on paving stones or cleared paths instead of trampling the soil, especially when it is wet. Adding compost or manure can also help by attracting earthworms, which break the soil into looser clumps.



- o Compacted soil also makes it harder for plants to become established, since the roots have trouble breaking through.
- o Compaction always leads to net erosion. The water may run off of compacted soil, but as it runs off it generates more force, which can increase the erosion in other areas.

**Keep Soil Covered Year-round**

Bare soil is far more vulnerable to erosion than soil with ground cover. Aim for at least 30% ground cover on all grazing land, ideally 40% or more. After harvesting crops, leave the residue on the soil as mulch, or plant hardy winter crops



**Plant Trees to Prevent Landslides**

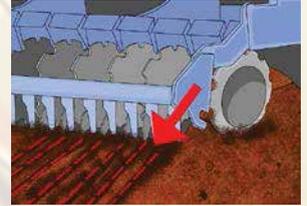
Tree roots are powerful tools when soil is too eroded or steep to plant. Plant native trees slopes and riverbanks to reduce soil loss.



- o Bare ground around the trees still needs to be covered in mulch or grass for best results.

**Reduce Tillage**

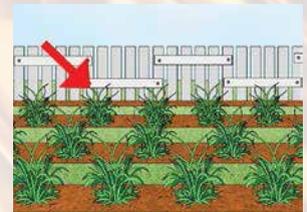
Deep, frequent tillage creates a layer of compact soil vulnerable to water erosion, topped by loose soil easily removed by wind. Consider a zero-tillage approach using a coulters or other deep planting device. If this is not feasible, try a ridge-till or mulch-till system that leaves soil levels untouched.



- o These conservation tillage techniques also reduce the amount of vehicle traffic, and therefore soil compaction.

**Protect Weak Crops with Strip Cropping**

Crops with weak roots or that need to be sparsely planted are more vulnerable to erosion. Plant these in strips, alternating with strips of an erosion-resistant crop such as dense grass or legumes.



- o Plant the crop so they contour the slope.
- o Plant these crops perpendicular to the prevailing wind if possible.

**Practice wet Season Spelling**

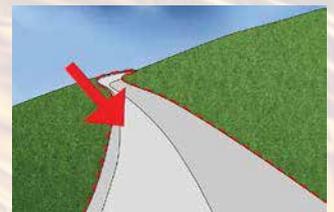
Grazing land cannot remain healthy and erosion-resistant if cattle are allowed to graze year-round. For best results, close off a paddock for the entire wet season to allow grasses to re-establish themselves.



- o This may not be effective if the other paddocks cannot support the spelled cattle.
- o If possible, keep cattle away from riverbanks and heavily eroded soil at all times.
- o Plant these crops perpendicular to the prevailing wind if possible.

**Control Downhill Runoff with Flumes**

Runoff is concentrated into a narrower area as it travels across lands. The points where the concentrated runoff reaches a slope are particularly vulnerable to erosion. You can build a paved flume, or lined channel, to lead the water to safe drainage to system. Build these at gully heads as well.



- Another option is to build a swale to re-direct the runoff into a pond. Building several swales along a hillside can greatly reduce runoff volume and eliminate the need for a paved channel.
- Do not build flumes on slopes steeper than 1.5:1.

**Turn a Hillside into Terraces**

The steepest slopes are almost impossible to farm on. Turn the hill into terraces instead by building retaining walls running across the slopes. In between the walls grade the soil level to create flat area resistant to erosion.



**Source**

<http://www.dpi.nsw.gov.au/agriculture/resources/soils/erosion>  
 OMAFRA Factsheet, *Universal Soil Loss Equation (USLE)*,  
 Order No. 12-051.  
 BMP 06, *Soil Management*.  
 BMP 26, *Controlling Soil Erosion on the Farm*.

**MEDICINAL USES AND CULTIVATION OF CARROT**

**Introduction**

Carrot, *Daucus carota L.*, a prominent member of the family *Umbelliferae*, is one of the major vegetable produced and consumed in Pakistan. It occupies a prime position among the winter vegetables. Carrots are cultivated on an area of 13.3 thousand hectares, with 227.1 thousand tonnes production (Agri. Statistics 2014-15). The national average yield for carrot is quite low as compared to other advanced countries, such as Belgium, Denmark, and the United Kingdom.



**Nutritional Value of Carrot**

The world over, healthy eating strategy has forced the general public to eat more fresh fruit and vegetables. Among these, carrots are being increasingly consumed, mainly due to their pleasant flavor and perceived health benefits related to vitamins, minerals, and fiber that they contain;  $\beta$ -carotene, a dimer of Vitamin A, is abundant in carrots. Furthermore, carrots are rich in dietary fiber, antioxidants, and minerals, and fall in alkaline food.

In Pakistan, deficiency of vitamin A was found to be 18.95% among rural adult females aged 20 to 23

years, and females aged 24 to 27 years were also found to be deficient. Carrot is one of the potential sources of natural phytopigments, such as lycopene,  $\beta$ -carotene, xanthophylls, and anthocyanin, found in many colors, such as white, red, pink, purple, yellow, black, and orange.

**Health Benefits**

Several health benefits are associated with carrots, such as strengthening the immune system, regulating metabolism, maintaining a healthy skin and vision, and reducing the risks of high blood pressure, stroke, heart disease, and some types of heart and lungs cancer. Moreover, carrots are a cheaper source of essential nutrients in Pakistan, but its use in the daily life of the people is very low because of the limited information on the nutritional importance of this crop. As carrots are grown both in rural and as well as Periurban areas, its potential for generating employment is an added advantage to improve the economic conditions of the weaker segment of the society. The leaves of this crop are also used as fodder for the farm animals. This is an additional advantage, as at times the supply of fodder is scarce in the region.



**Carrot Cultivation**

Carrot, like other vegetables, is a short duration crop and the farming community earns enormous profits through its



cultivation. The farmers having small chunk of land holdings and surplus family labor can earn huge amount of profit by growing this vegetable because carrot crop requires less amount of inputs and plant protection measures. However, it is sensitive to quality of irrigation water. It grows quite well in the presence of canal irrigation or ground water with good quality.

Carrot cultivation is gaining popularity among farmers in diverse areas of the Punjab Province, which has recently been seen as a lucrative enterprise. Pakistan has a diverse climate that offers a wide range

of vegetables to be produced and exported. Today, there is an urgent need to standardize agro techniques compatible with local climatic and edaphic conditions.

### **Climate and Time of Sowing**

*Agaiti* (early) sowing should be completed by the mid of August whereas *pachaiti* (late) sowing continues till the end of October. Imported varieties are sown in November and December. For good results, the seed should be dipped in water for about 12 hours. Temperatures close to 35<sup>0</sup>C do not give good germination rate. A temperature of 7 to 24<sup>0</sup>C is good for the germination of the crop. Temperature between 25 and 35<sup>0</sup>C reduces give good germination rate and the size of carrot root remains small. Temperatures between 20-25<sup>0</sup>C are best for healthy crop yield.

### **Soil**

It can be grown on all types of soil but efficient growth is obtained in a deep, loose, loamy soil. For early crop sandy loam soil preferred but for large yield silt-loam is desirable. In well drained, deep soil, long smooth slender roots are formed. The carrots grown on heavy soil are rough and coarse. Maximum yield is expected at soil PH 6.5. It is necessary to prepare soil to a fine tilth. If soil is not thoroughly prepared and if it contains soil clods or under composed organic matter, good quality and well-shaped roots cannot be produced.

### **Sowing**

Carrots are grown from direct seedling method. The seeds are sown either by broadcasting or drilling in lines. Seed rate of 6-8 kg per acre is recommended. To facilitate even distribution seeds are mixed with fine sand. Seeds can be sown on flat bed at loser spacing of 15-25 cm or on both sides of ridge, while sowing soil should have sufficient moisture. After sowing, give light irrigation with due to care to avoid flooding of seeds. Follow shallow sowing for better seed germination. Seed soaking in water for 12-24 shallow before sowing gives good germination. Follow sowing at 15 X 15 cm distance in flat bed. In case of ridges and furrow layout 45 X 15 cm spacing is kept. On an average 6-8 kg seed is required for a hectare.

### **Irrigation Scheduling**

Furrows should be made at about 2.5 feet distance in levelled seedbed, seed should be spread by kera method at a depth of 1 cm and cover it with soil. Then

field should be irrigated so that the water does not reach the seed directly. Initially, irrigation twice a week and later, once a week is better, or the gap between successive irrigations can be adjusted according to the field conditions. Irrigation should be terminated around 2 weeks before harvest, so that carrots gain sweetness and the uprooting also becomes easy.

### **Manure and Fertilizer**

Organic manures are best option. Well rotten FYM is good for the development of healthy carrot roots whereas, incomplete or mildly rotten FYM causes many roots in the carrots. Organic manure should be spread 2 months earlier to sowing carrots or it can be given to soil one crop earlier in the previous season so that FYM is well mixed when time for carrot sowing arrives.

Nitrogenous fertilizers are not good for carrots. However 2 bags of DAP and 1 bag of potash per acre should be well spread in the field at the time of seedbed preparation. 1 bag of ammonium sulphate should be applied after one month of crop stand.

### **Interculture**

Prompt weeding in early period of one half month after sowing is essential as the cross sown closely. Later on it is difficult to weed. In this regard clean cultivation before sowing is important. Weed competition causes heavy loss of top and impair root quality. Manual weeding not only controls the weeds but improves aeration resolution in better root growth. Earthing up is also practiced which control the weeds and also covers the exposed roots to prevent discoloration of roots.

### **Harvesting and Yield**

Carrot matures in 100 to 120 days, but for use as household vegetable, carrot is ready to be harvested in 80-90 days. It should be harvested when diameter of the carrot root reaches about 2-4 centimeters. Irrigation should be terminated 2 weeks earlier to harvest.

### **Sources**

- <http://pakagrifarming.blogspot.com/2013/09/90-cropping-technology-of-carrots-daucus-carota-in-pakistan.html>

### **Author**

- Miss, Saadia Ghaffar, Student at PMAS Arid Agriculture University, Rawalpindi.
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## زرعی سفارشات برائے کسان

### گندم

- ☆ گندم کی فصل پکنے اور کٹائی کا عمل مارچ سے لیکر مئی تک جاری رہتا ہے۔ پاکستان میں تقریباً ہر سال 4 فیصد گندم برداشت و سنبھال کے دوران ضائع ہو جاتی ہے۔ اس لیے گندم کی سنبھال اور ذخیرہ اندوزی کے دوران خصوصی احتیاط کی جائے تاکہ محنت کا ثمر ضائع نہ ہو۔
- ☆ اپنی آئندہ فصل کے لیے بیج رکھنے کے لیے ایسے کھیت کا انتخاب کریں جہاں فصل تندرست، خالص اور جڑی بوٹیوں سے پاک ہو۔
- ☆ بارش کے دوران فصل کی کٹائی بند کر دیں اور اس وقت تک دوبارہ نہ شروع کریں جب تک موسم ٹھیک نہ ہو جائے۔
- ☆ کٹائی کے بعد بھریاں قدرے چھوٹی بنا دیں اور سٹوں کا رخ ایک ہی طرف رکھتے ہوئے کھلیاں اس طرح لگائیں کہ سٹوں کا رخ اوپر کی طرف رہے۔
- ☆ کھلیاں چھوٹے اور اونچے کھیتوں میں لگائیں اور کھلوڑوں کے ارد گرد پانی کے نکاس کے لیے کھائی بنائیں۔
- ☆ تھریٹنگ کے بعد بیج کو بوریوں میں ڈال کر کسی محفوظ اور پاک جگہ پر سٹور کر رکھیں۔

### موگ پھلی

- ☆ بارانی علاقوں میں موگ پھلی کی کاشت آخر اپریل تک کرنی چاہیے۔
- ☆ موگ پھلی کی کاشت کے لیے زمین کی تیاری کریں۔ اچھے نکاس والی ریتیلی میرا زمین کاشت کے لیے موزوں ہے۔
- ☆ زمین کی تیاری کے وقت گہرا اہل چلائیں۔ تاکہ اوپر والی مٹی مکمل طور پر نیچے چلی جائے اور جڑی بوٹیاں بھی تلف ہو جائیں۔

### کما

- ☆ زرخیز زمین کے لیے 2.5 بوری یوریا + 1 بوری ڈی اے پی اور 1 بوری پوٹاشیم سلفیٹ، درمیانی زمین کے لیے 2.5 بوری یوریا + 2 بوری ڈی اے پی اور 2 بوری پوٹاشیم سلفیٹ اور کمزور زمینوں کے لیے 4 بوری یوریا + 3 بوری ڈی اے پی اور 2 بوری پوٹاشیم سلفیٹ فی ایکڑ ڈالیں۔
- ☆ سونا یوریا کا استعمال آگاہی کے بعد تین سطحوں میں کرنا چاہیے۔ بہار یہ کاشت کے لیے پہلی قسط اپریل میں، دوسری قسط مئی کے آخر میں اور تیسری قسط جون کے آخر میں پوناش کے ساتھ مکس کر کے ڈالیں۔
- ☆ ستمبر کے مہینے میں کاشت کی گئی فصل کو سونا یوریا کی تیسری قسط 1.25 سونا یوریا فی ایکڑ اپریل کے آخری ہفتے میں مٹی چڑھاتے وقت ڈالیں۔

### کپاس

- ☆ محکمہ زراعت کی سفارش کردہ روایتی اقسام سی آئی ایم-496، سی آئی ایم-506، سی آئی ایم-554، سی آئی ایم-506، نیاب-777، ایم این ایچ-786، سی آری ایس ایم-38، ایس ایم ایچ-151، سی آئی ایم-573، فوجی-115، بی ایچ-167، نیاب-852، ساٹو 124 کاشت کے لیے موزوں اقسام ہیں۔
- ☆ کپاس کے مرکزی علاقہ جات میں فصل کی کاشت 31 مئی تک مکمل کر لیں جبکہ ثانوی و دیگر علاقوں میں 15 مئی تک کاشت مکمل کر لیں۔
- ☆ کاشت پٹریوں پر کریں اور ہموار زمین پر قطاروں میں کاشت کی صورت میں پہلی آبپاشی کے بعد پودوں کی ایک لائن چھوڑ کر دوسری لائن میں مٹی چڑھا کر پٹریاں بنا دیں۔
- ☆ ڈرل سے لائنوں میں کاشت کی گئی چھوٹے قد والی اقسام سی آئی ایم-608، اور جی ایس 1، کوپیلی آبپاشی یوائی کے 30 سے 40 دن بعد جبکہ بقیہ لمبے والی اقسام کو 40 تا 50 دن بعد اور اس کے بعد ہر آبپاشی 12 سے 15 دن کے وقفہ سے کریں۔
- ☆ مرکزی علاقہ جات میں کپاس کو 58 سے 69 کلوگرام نائٹروجن، 35 کلوگرام فاسفورس اور 25 کلوگرام نائٹروجن، 35 کلوگرام فاسفورس اور 25 کلوگرام پوناش فی ایکڑ ڈالیں۔

### پکن گارڈنگ

- ☆ کاشت کی گئی سبزیوں کو مناسب وقفہ سے آبپاشی کریں بعد ازاں وتر آنے پر گوڈی جاری رکھیں۔
- ☆ زرخیز زمینوں سے لگائی جانے والی سبزیات جالی یا ملل کی چھوٹی مثل بنا کر کاشت کریں تاکہ ننھے منھے پودوں کو گرمی اور پرندوں سے بچا جاسکے۔
- ☆ فصل کی بڑھوتری کے لیے جڑی بوٹیوں اور کیڑوں کو کھڑوں کا تدارک انتہائی ضروری ہے۔

Source: 1) Ziratanama Government Of Punjab (Farmers Advisory)

2) Fauji Fertilizer Company Limited (Farmers' Advisory Services)

پلاننگ اینڈ ریسرچ ڈیپارٹمنٹ

ہیڈ آفس، زرعی ترقیاتی بینک لمیٹڈ

اسلام آباد

## MANAGEMENT TIPS

### Is Shutting Down the Net for Few Hours Good for Business?

In some cases, shutting down the internet for a short time might even increase productivity. In a study that analyzed what happened when a company suffered an internet outage that lasted four hours or more, it comes out that instead of the employees twiddling their thumbs they did things that they would normally put off such as dealing with paper works. The result was a boost for business. Does this mean that if every company turned off their computers for a few hours each month and made employees do their tasks they postponed there would be an overall productivity benefit?



Source: <http://www.bbc.com>

### Six steps for giving constructive feedback

Giving constructive feedback to employees is important, whether that input comes directly from you or from one of your managers. Using positive, open and supportive feedback establishes trust, says Emma Seppala, the science director of Stanford University's Center for Compassion and Altruism Research and Education.

#### 1. Facial expression

Smiling is so important to social interactions that we can discern whether someone is smiling even if we can't see them, Seppala says. Your smile is important when delivering feedback. An appropriate smile projects warmth and goodwill.



**2. Eye contact:** Eye contact is the crucial first step for resonance, a term psychologists use to describe a person's ability to read someone else's emotions. It's also important for creating a feeling of connection, Seppala says. Make and maintain eye contact when you're giving someone feedback.

**3. Voice:** The tone of your voice, more than the words you use, give away how you feel. When providing feedback, use a firm voice to project confidence and trust.

**4. Posture:** When providing feedback, use a non-dominant stance your role is already powerful. Having your chest open, arms uncrossed, making sure to keep nodding, smiling and vocalizing will help. The best way for the other party to hear you is if you are not domineering, Seppala says.

**5. Breath:** Before a meeting with someone where you will be giving negative feedback, take deep, calming breaths. When you exhale, your heart rate and blood pressure decrease, Seppala says, so focus on breathing out longer than you breathe in. Doing this for a couple of minutes before a meeting will help calm your nerves, which will put the person you are talking with at greater ease.

**6. Attention:** Given your busy schedule and demands on your time, your mind may not be fully present when you are meeting with someone. Take a moment to block out all of the distractions that may be pulling at you to be attentive during feedback conversations so you can listen and respond skillfully.

### Benefits of Strategic Planning

Strategic planning serves a variety of purposes in organizations, including to:



1. Clearly define the purpose of the organization and to establish realistic goals and objectives consistent with that mission in a defined time frame within the organization's capacity for implementation.
  2. Communicate those goals and objectives to the organization's constituents.
  3. Develop a sense of ownership of the plan.
  4. Ensure the most effective use is made of the organization's resources by focusing the resources on the key priorities.
  5. Provide a base from which progress can be measured and establish a mechanism for informed change when needed.
  6. Listen to everyone's opinions in order to build consensus about where the organization is going.
- Other reasons include that strategic planning
7. Provides clearer focus for the organization, thereby producing more efficiency and effectiveness.
  8. Bridges staff/employees and the board of directors (in the case of corporations).
  9. Builds strong teams in the board and in the staff/employees (in the case of corporations).
  10. Provides the glue that keeps the board members together (in the case of corporations).
  11. Produces great satisfaction and meaning among planners, especially around a common vision.
  12. Increases productivity from increased efficiency and effectiveness.
  13. Solves major problems in the organization

Source: <http://managementhelp.org/>

## NATIONAL NEWS

**USAID Promoting Horticulture**

The US-Pakistan Partnership for Agricultural Market Development is one of USAID project working with Pakistani growers, processors, and exporters to create a competitive agricultural sector and to give high-value products increased access to both export and domestic markets. The project has identified horticulture - specifically mangoes, citrus, vegetables and livestock as having the greatest potential for growth. The initial growth potential forecasts show that the four product lines can generate as much as \$447 million over the next six years.

This project is partly responsible for the Indonesian government revising their calendar of import quotas, allowing local exporters to send their produce to Indonesia throughout Pakistan's citrus-growing season. It also successfully sent trial shipments of vegetables, mangoes, and meat to Gulf countries and Singapore via sea using climate-controlled shipping containers and improved packaging, allowing exporters to save \$1 per kg in freight charges while significantly extending the shelf life of the produce. Such donor-funded programmes are helping Pakistan promote agriculture exports in product lines that have tremendous potential for growth. With a horticulture policy currently in the works, it is heartening to see horticulture getting into the limelight, at a time that agriculture and exports are not doing too well.

**Proper Processing can Raise Poultry Export to \$2bn**

University of Veterinary and Animal Sciences (UVAS), Lahore, Prof Talat Naseer Pasha said on Monday that proper processing of poultry products in the country can increase its export to US\$ 2 billion.

Talking to APP here, he said that poultry products have great export potential and big market particularly in Middle and Far East countries, central Asian states and Russia.

He said that export of poultry meat would not only improve economic condition of the poultry farmers but also boost agriculture sector.

He said, livestock sector contributes 55 per cent to agricultural GDP and 12 percent including 4 per cent of poultry products to the country's overall GDP. Poultry is the most vibrant sector in Pakistan with an annual growth of 8 to 10 per cent, he said.

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

**Rice Export Blues**

Rice exporters seem to be in deep trouble, as the latest PBS numbers spell out disaster; for the eight months ended FY17, Pakistan's total rice exports are down 11 percent year-on-year to \$2.41 billion. It is pertinent to mention here that rice is Pakistan's second-largest export earner, after textile.

For 8 MFY 17, Basmati exports are down 13 percent in quantity and a whopping 17 percent in value. As for non-Basmati, exports are down 11 percent year-on-year in terms of volume, and 14 percent in dollar terms.

It is now the non-Basmati variety that has become a cause of concern. This decline is a relatively recent phenomenon, as Pakistan had been doing exceptionally well to capture markets for its cheaper, non-Basmati varieties of rice in FY16. Indeed, the once booming non-Basmati varieties are now suffering the same fate as their premium counterpart.

One ray of hope is that banking channels with Iran are finally opening up and Basmati is showing some signs of improvement. For the month of February, Basmati exports inched up by 25 percent over last year. The source added that Basmati rice is now getting a better price and the reopening of Iran could bring much-needed reprieve for the industry.

**Urea Off-Take**

Urea off-take in February registered a 5-year low. Couple it with January urea off-take, and the 2MCY17 number is at a 13-year low. That said, it is not necessarily a worrying sign, as it comes at the back of heavy buying in the dying months of CY16, making up for most of the sluggish Rabi crop season off-take.

All eyes are now on the upcoming Kharif season, as March usually does not see high urea off-take. There are reports that the Kharif season sowing may get delayed in some key areas, which could have a toll on urea buying as the season begins.

So far the signs are encouraging in terms of agri output, and urea should see demand pick up once Kharif crops get in full swing. The best part in the whole scenario is that the price uncertainty that persisted for much of last year seems to have vanished, at least for now.

Urea prices have been stabilized post government intervention through subsidy.

The inventories still sit at over a million tons which could be a cause of concern, as demand has struggled to keep pace.

**ZTBL NEWS**

**ZTBL Started Receiving Hajj Applications for the Year 2017**

Hajj policy for the year 2017 has been announced by Ministry of Religious Affairs and Interfaith Harmony, Government of Pakistan, Islamabad. Under this policy two hajj schemes i.e. government hajj scheme and private Hajj scheme has been announced. ZTBL being a part of Government hajj scheme has started receiving hajj applications in all branches of ZTBL all over the country. Hajj applications will be accepted till 26-04-2017 and balloting will be held on 28-04-2017. Hajj dues for Hajj 2017 are:

S.No.	Place of Departure	Amount without Qurbani	With Qurbani
1	Karachi, Quetta, Sukkur (South Region)	270,000	283,050
2	Islamabad, Peshawar, Lahore, Faisalabad, Sialkot, R.Y.Khan, Multan (North Region)	280,000	293,050

\*Qurbani Charges are Rs. 13,050 per person which is optional and shall be deposited along with the application.

**ZTBL Hosted a Regional Seminar**



ADIFIMI-WB-ZTBL jointly arranged a regional seminar on “Financial Inclusion Strategies in South Asia: Methodology and Perspectives”. This seminar was hosted by ZTBL on 28<sup>th</sup> and 29<sup>th</sup> March 2017 at Marriot Hotel in Islamabad where spokespersons from different countries of the region presented their country’s strategy on financial inclusion. The seminar was attended by Regional/Institutional delegates from Bangladesh, Turkey, Pakistan and other ADFIMI member countries, highlighting the role and prospects of Financial Inclusion in achieving Sustainable Development Goals in Regional economies and member Islamic countries. Welcoming note of the seminar was delivered by Mr. Farhat Karim Hashmi, EVP- Planning, Research & Technology Division ZTBL. Opening remarks of the seminar were presented by Mr. Nuri Birtek, Secretary General-ADFIMI, Syed Talat Mahmood, President-ZTBL and Prof. Dr. Zamir Iqbal from World Bank Global Islamic Finance Development Centre. Mr. Nuri

Birtek, Secretary General ADFIMI, in his opening remarks emphasized the need for enhanced cooperation among the member countries through the platform of financial inclusion especially in overcoming the challenges of poverty eradication in developing countries. Syed Talat Mahmood, President ZTBL in his key note address presented an outline of inclusive strategies highlighting the policy initiatives undertaken by the Bank. President ZTBL re-iterated his resolve for inclusion of farming community of the country.



Prof. Dr. Zamir Iqbal of World Bank group highlighted the role of Inclusive strategies in coping up with the challenges of Millennium Development Goals and sustainable development goals. The event envisaged to have long-term benefits via contribution of

Government of Pakistan and World Bank and to create awareness of the importance of financial inclusion, to review state of financial inclusion in South Asia and study good practices in conventional and Islamic Microfinance and Micro Takaful application in South Asia Region.



**ZTBL Hosted First Belarus-Pakistan Agriculture Forum**

Zarai Taraqiati Bank Limited hosted first Belarus-Pakistan Agriculture Forum; a Business to Business Interactive Conference held on April 11th, 2017 at Marriott Islamabad. The event was graced by a high powered delegation of Belarusian Parliament, headed by Vladimir Andreichenko, Speaker of the House of Representatives, National Assembly Republic of Belarus.



This delegation was also accompanied by Agri business leaders of Belarus, for Business to Business interaction with the agri business community of

Pakistan, which was headed by H.E Leonid Zayats, honorable Minister for Agriculture and Food Republic of Belarus.



Mr. Sikander Hayat Khan Bosan, Minister for National Food Security and Research Pakistan, also graced the event by his honorable presence. He thanked the honorable

Parliamentarian and agri-business community delegation of Republic of Belarus and appreciated the efforts of Zarai Taraqati Bank Limited for hosting this event and emphasized on forging of long lasting co-operation of agriculture and allied sectors of both the countries. He further said that heavy mechanical industry for agriculture, Pakistan's high potential for Dairy and Livestock products and major crops along with the need for mechanization of agriculture fields of Pakistan offers great potential to the agribusiness community of Belarus.



Delivering the welcoming address, Syed Talat Mahmood, President ZTBL, thanked the honorable delegation for providing ZTBL the

opportunity to serve as a bridge in building agri-business relationship between both the countries, Belarus and Pakistan.



At the event two Memorandum of understanding (MoUs) were signed for extension of co-operation among both the countries.

One was signed between Zarai Taraqati Bank Limited and Gomselmash, an agriculture machinery manufacturer of Republic of Belarus, for extension of co-operation by ZTBL to Gomselmash. The other MOU was signed between Agriculture University Faisalabad and Belarus State Agrarian Technical University for extension of co-operation in various fields of agriculture which includes bio-technology and Genetic Engineering.

Various agriculture products were also placed at the event for providing first hand introduction of Belarusian dairy, milk, meat and poultry products to Pakistani agri-business community. The event envisages going a long way for future expanded co-



operation in various fields of agriculture among both countries.



**World Bank Representatives Visited ZTBL under TA -**

**SMART Project for Agriculture Insurance**

The aforesaid team of World Bank visited ZTBL on April 12, 2017 under technical assistance program for Strengthening Markets for Agriculture and Rural Transformation in Punjab known as SMART Project. The purpose of WB Team visit was to assess role of ZTBL in arranging insurance while lending to crop and livestock producers. Mian Amir Hussain , COO, Sheikh Amanullah, SEVP and Mr. Farhat Karim Hashmi, EVP and other executives of ZTBL briefed the mission regarding ZTBL's role in the present arrangement of crop and livestock loan insurances and its future prospects to expand the scheme. A detailed presentation of ZTBL's lending scheme and insurance coverage was also given to the mission by Sheikh Amanullah, SEVP.



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**Technology for Agriculture**