

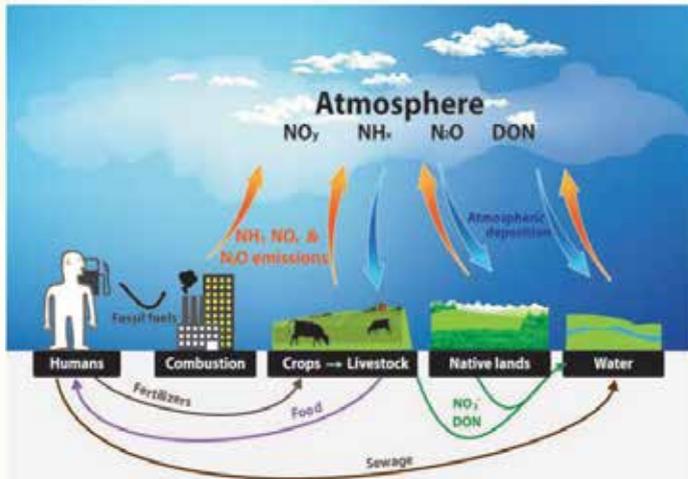


Agri-Business Supplement

Zarai Taraqati Bank Limited.

NITROGEN POLLUTION

Movement and redistribution of reactive nitrogen in land, water and air.

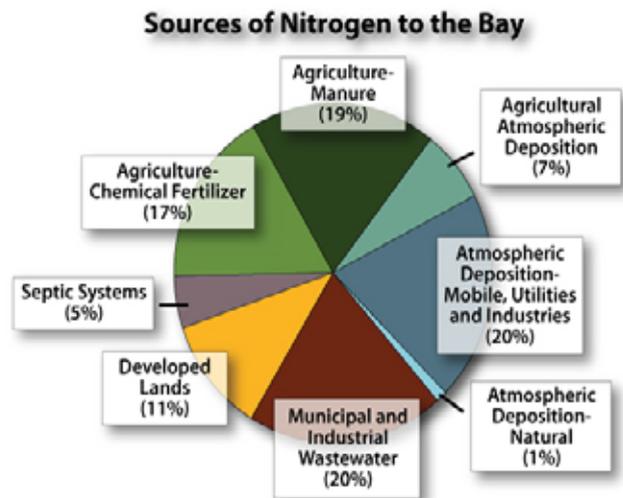


Nitrogen is an essential element required for successful plant growth. Although inorganic nitrogen compounds (i.e., NH_4^+ , NO_2^- , and NO_3^-) account for less than 5% of the total nitrogen in soil, they are the main form of the element absorbed by most plants. Inorganic and organic fertilizers are applied to maintain the nutritional condition of different cropping systems. For an organic agricultural system, continuous application of manure increases the nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), and magnesium (Mg) content in soil. Once organic fertilizers are applied to soils mineralization begins, inorganic nitrogen is released and absorbed by plants. However, the rate of mineralization is controlled by several factors, including agricultural management, microorganism, soil properties, temperature, and water content as well as the type of organic fertilizer. Many models have been developed to predict the release of nitrogen in applied organic fertilizers.

Excess nitrogen is lost in ionic or gaseous form through leaching, volatilization, and denitrification. If nitrate is not absorbed by plant roots, it is carried away by runoff or leaches into the soil along with water. The phytoavailability of the nitrogen pool increases when excess nitrogen is applied, and this increase intensifies the potential threat to the surrounding environment. There is a close relationship between the excessive application of nitrogen fertilizers and environmental problems such as eutrophication, the greenhouse effect, and acid rain.

Consuming contaminated groundwater or crops with a high concentration of nitrate has negative effects on human health. In a study scientists observed that when the application rate of nitrogen fertilizer is increased by 30%, the corn yield increased by 4%, but the amount of nitrate lost through leaching increased by 53%. However, leaching loss would be 37% less if application rate of nitrogen fertilizer is reduced to 30% coupled with yield losses.

Major Sources of Nitrogen Pollution



Farming operations can contribute to nutrient pollution when not properly managed. Fertilizers and animal manure, which are both rich in nitrogen and phosphorus, are the primary sources of nutrient pollution from agricultural sources. Excess nutrients can impact water quality when it rains or when water and soil containing nitrogen and phosphorus wash into nearby water or leach into ground water. Fertilized soils and livestock can be significant sources of gaseous, nitrogen-based compounds like ammonia and nitrogen oxides. Ammonia can be harmful to aquatic life if large amounts are deposited to surface water. Nitrous oxide is a potent greenhouse gas.

- **Storm water:** When precipitation falls on our cities and towns, it runs across hard surfaces - like rooftops, sidewalks and roads - and carries pollutants, including nitrogen and phosphorus, into local waterways.
- **Waste water:** Our sewerage and septic systems are responsible for treating large quantities of waste, and these systems do not always operate properly

or remove enough nitrogen and phosphorus before discharging into waterways.

- **Fossil Fuels:** Electric power generation, industry, transportation and agriculture have increased the amount of nitrogen in the air through use of fossil fuels.
- **In and Around the Home:** Fertilizers, yard and pet waste, certain soaps and detergents contain nitrogen and phosphorus, and can contribute to nutrient pollution if not properly used or disposed of. The amount of hard surfaces and type of landscaping can also increase the runoff of nitrogen and phosphorus during wet weather.

Effects of Nitrogen Pollution

Plant Loss

Though nitrogen serves to aid plants in their growth, weeds and nonnative plants tend to grow more readily with additional nitrogen supplies. Other plants that have lower nitrogen needs end up dying, causing a decline in native species.

Soil Imbalance

In the soil, too much nitrogen also creates an imbalance of nutrients that causes a depletion of other important minerals such as calcium, phosphorus and magnesium. While fertilizer overuse causes this change, nitrogen-polluted air, caused by nitrates from automobiles and industrial plants, also results in this acidification of the soil when acid rain falls. When the nitrogen abundance reduces important minerals, toxic elements such as aluminum can proliferate and harm plants as well as fish in rivers.

Algae Growth

When nitrogen levels in rivers and streams increase, they aid in algae overgrowth. As algae dies and decomposes organic matter in the water increases. This process drops the level of oxygen. Without the oxygen, fish, crabs and other aquatic life die.



Acid Rain

Nitrogen oxides from fossil fuel combustion contribute to the formation of acid rain. This is very dangerous for human, livestock and plant growth and development. Acid rain affects forests in a very bad way by taking away important minerals from the leaves and the soil and stunt the growth of plants.

However acid rain is beneficial on alkaline soil because water become natural when react with soil particles.



1. Farm Management Options

When nitrogen leaves the root zone, it can affect the quality of groundwater and surface water. The following sections describe some general approaches and specific ways to reduce the movement of nitrate to groundwater or the movement of ammonia to surface water.

Reduce total nitrogen loading

- Ensure livestock feed rations are not higher than necessary to meet production targets. This will save both feed costs and excess nitrogen loss in the manure.
- Use nitrogen from sources available on the farm first, where possible (e.g., manure), before buying any nitrogen sources produced off-farm.

Prevent runoff from manure or other nutrient materials

- Store manure properly until it is ready for land application. Be sure your storage area is properly sited, designed and sized.

Manage fields to avoid excess nitrate that could leach to groundwater

- Identify fields and areas sensitive to nitrogen in areas where nutrient applications are planned. For instance, sandy or gravelly soils, and soils with shallow water tables are more susceptible to nitrogen leaching.
- Match nitrogen applications with crop requirements. Use the spring or pre-sidedress soil nitrogen test where available (e.g., for corn and barley).
- In your Nutrient Management Plan, account for nitrogen contributions from green manure crops and any previous crop rotations.
- In your Nutrient Management Plan, account for nitrogen from any manure or biosolid application.
- Apply most of the nitrogen just before the time of maximum crop uptake (e.g., sidedress corn).
- Split applications of nitrogen through techniques such as fertigation.

- Practice crop rotations to make efficient use of nitrogen and maintain healthy soils.
- Establish cover crops as needed to "tie up" any excess nitrogen at the end of the season.

Manage nutrient application to avoid ammonium losses to surface water

- Practice timely tillage to incorporate manure, balancing the risk of soil compaction with the losses of nitrogen to the atmosphere if the manure is not incorporated quickly.
- Avoid applying manure near surface water or on steeply sloping land.
- Keep application rates low enough to prevent runoff.
- Mix manure into the soil as soon possible after applying it.
- On tile-drained land, keep application rates of liquid manure below 40 m³/ha (3,600 gal/ac) or pre-till the field before applying it. This will help prevent the movement of manure directly to tile through cracks or earthworm channels.

Sources:

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INTRODUCTION OF HYBRID MAIZE VARIETIES IN PAKISTAN CAN MAXIMIZE CROP YIELD



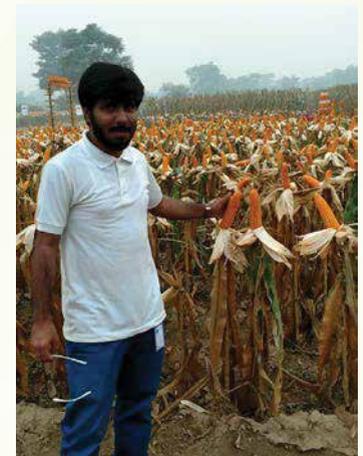
Muhammad Fakhar Imam

OG-II ATD ZTBL

Maize being the highest yielding cereal crop in the world, is of significant importance for Pakistan, where rapidly increasing population has already out stripped the available food supplies. In Pakistan maize is third important cereal after wheat and rice. Maize accounts for 4.8% of the total cropped area and 3.5% of the value of agricultural output. It is planted on an estimated area of 0.9 million hectare with an annual production of 1.3 million tonnes. The bulk (97%) of

the total production comes from two major provinces, KPK, accounting for 57% of the total area and 68% of total production. Punjab contribute 38% acreage with 30% of total maize grain production. Very little maize 2-3% is produced in the province of Sindh and Balochistan. Though not included in Pakistan official statistics maize is an important crop of AJK with about 0.122 million hectare of maize being planted during Kharif. Similarly a very growing and high yielding sector of maize, the spring maize area and production in Punjab is not accounted for, which covers around 0.070 million ha with about 050 million tonnes of maize grain being produced. Out of total corn production, around 60% is used in poultry feeds, 25% in industries and remaining percentage is used as food for human and animals. Demand in production of corn is increasing day by day due to its use as Biofuel and Silage.

Now the introduction of hybrid maize varieties in Pakistan can maximize the crop yield. In Pakistan, maize is now gaining an important position in farming because of its higher yield potential and short growth duration. The next important step after its introduction is "to make new hybrid seeds



accessible to farmers at affordable prices, because if we cannot deliver the hybrid seeds to the local farmers, then the innovation is useless." The experts reported that though, after the introduction of hybrid maize in Pakistan, farmers have gradually shifted to high-yielding hybrid maize from traditional or Open Pollinated Varieties (OPVs) but some farmers failed to get the desired production because of use of substandard hybrids and old farming practices. "The adoption of best quality hybrids is also important because the weather patterns are changing and farmers desperately need such seeds as could cope with the harsh weather conditions, fit in changing crop rotations and most importantly provide the much-needed economic benefits to the farmers,"

Along with the introduction of hybrid seeds, there is dire need to provide the extension services/technology transfer to the farming community about the best quality hybrid corn seeds and use the recommended agronomic practices to achieve the

best, in terms of yield, out of corn hybrids. Also need to inform the farmers that new corn hybrids perform very well in harsh weather conditions. "Grains of some of new hybrids are



bigger and their resistance against diseases is also high. Another advantage is that when the crop fully ripens their leaves remain fresh and green which can be used as fodder for animals. Hybrid maize seeds are disease resistant and less pest attack especially shoot fly is not reported by Research Stations.

Hybrid seeds can be sown in Kharif and Rabi. In Kharif season, the crop matures in about 100 days while in Rabi it takes about 120 days. In the plains, the sowing period in Rabi season is



February 15 to March 15 while in Kharif it is between June 15 and July 20. In hilly and semi-mountainous areas, should be cultivated between May 1 and June 25. By cultivating hybrid maize seed the farmers can get the maximum yield. Pioneer by interviewing the farmers who cultivated their hybrid maize seeds reported that the farmers got 120-140 mounds yield/acre and can earn more than 100,000 PKR/acre and also suggested that by cultivating hybrid maize seeds farmers can maximize their yield and income.

زیتون (OLIVE) کی کاشت



زیتون کا باغ لگائیں۔ ہزار سال تک بھر پور منافع کمائیں

ماہرین کہتے ہیں کہ اگر آپ پاکستان میں ایک مرتبہ زیتون کا باغ لگالیں تو وہ کم از کم ایک ہزار سال تک پھل دیتا رہے گا۔

زیتون کن کن اضلاع میں لگایا جاسکتا ہے؟

زیتون کے باغات پنجاب سمیت پاکستان کے تمام علاقوں میں کامیابی سے لگائے جاسکتے ہیں۔ حتیٰ کہ چولستان میں بھی زیتون کی کاشت ہو سکتی ہے۔ لیکن فی الحال زیتون کی کاشت کے حوالے سے حکومت پنجاب کی ساری توجہ پوٹھوہار کے علاقوں پر مرکوز ہے۔

زیتون کس طرح کی زمین میں لگایا جاسکتا ہے؟

زیتون کا پودا ہر طرح کی زمینوں مثلاً ریتیلی، کچی، پکی، پتھریلی، صحرائی زمینوں میں کامیابی سے لگایا جاسکتا ہے۔ صرف کھروالی زمین یا ایسی زمینیں جہاں پانی کھڑا رہے، زیتون کے لئے موزوں نہیں ہیں۔

زیتون کو کتنے پانی کی ضرورت ہے؟

زیتون کے پودے کو شروع شروع میں تقریباً دس دن کے وقفے سے پانی لگانا چاہیے۔ جیسے جیسے پودا بڑا ہوتا جاتا ہے ویسے ویسے اس کی پانی کی ضرورت بھی کم ہوتی جاتی ہے۔ دو سال کے بعد زیتون کے پودے کو 20 سے 25 دن کے وقفے سے پانی لگانا چاہیے۔

زیتون کے پودے کب لگائے جاسکتے ہیں؟

زیتون کے پودے موسم بہار یعنی فروری، مارچ، اپریل یا پھر مونسون کے موسم یعنی اگست، ستمبر، اکتوبر میں لگائے جاسکتے ہیں۔

زیتون کے پودے لگانے کا طریقہ کار کیا ہے؟

زیتون کا باغ لگاتے ہوئے پودوں کا درمیانی فاصلہ 10×10 فٹ ہونا ضروری ہے۔ اس طرح ایک ایکڑ میں تقریباً 400 پودے لگائے جاسکتے ہیں۔ یہ بھی دھیان رہے کہ زیتون کے پودے باغ کی بیرونی حدود سے تقریباً 8 تا 10 فٹ کھیت کے اندر ہونے چاہئیں۔

پودے لگانے کے لئے دو فٹ گہرا اور دو فٹ ہی چوڑا گڑھا کھودیں۔ اس کے بعد زرخیز مٹی اور بھل سے گڑھوں کی بھرائی کر دیں۔ اب زیتون کا پودا لگانے کے لئے آپ کی زمین تیار ہے۔

پودے کو احتیاط سے شاپر سے نکالیں تاکہ گچی وغیرہ ٹوٹ کر جڑوں کو ہوانہ لگ جائے۔ گڑھے کی مٹی کھود کر پودا لگائیں اور اس کے بعد پودے کے چاروں طرف مٹی کو پاؤں کی مدد سے دبا دیں تاکہ پودا مستحکم ہو جائے۔ چھوٹے پودے کا تناڈرانا زک ہوتا ہے اس لئے پودے کو پلاسٹک کے پائپ سے سہارا دے دیا جائے تو زیادہ بہتر ہے۔ سہارے کے لئے لکڑی کا استعمال نہ کریں کیونکہ لکڑی کو دیکھ لگ سکتی ہے جو بعد میں پودے پر بھی حملہ آور ہو سکتی ہے۔

زیتون کی کون کون سی اقسام کہاں کہاں کاشت کی جاسکتی ہیں؟

پوٹھوہار اور اس کے ملحقہ اضلاع کے لئے درج ذیل اقسام کاشت کی جاسکتی ہیں۔

نمبر 1. لیسینو

نمبر 2. گیملک

نمبر 3. پینڈولینو

نمبر 4. بنالی

اس طرح ایک ایکڑ میں موجود 400 (اوسط) پودوں سے 10000 ہزار کلوگرام زیتون کا پھل حاصل ہو سکتا ہے۔

ایک ایکڑ کے پھل سے کتنا تیل نکل آتا ہے؟

بہتر یہ ہے کہ زیتون کے کاشتکار پھل کو بیچنے کی بجائے اس کا تیل نکوائیں اور پھر اس تیل کو مارکیٹ میں فروخت کریں۔ زیتون کے پھل سے 20 سے 30 فی صد کے حساب سے تیل نکل آتا ہے۔ 20 فی صد کے حساب سے ایک ایکڑ زیتون کے پھل (10000 کلوگرام) سے تقریباً 2000 کلوگرام تیل نکل آتا ہے۔

فی ایکڑ آمدن کتنی ہو سکتی ہے؟

یوں تو مارکیٹ میں بڑے بڑے سپر سٹوروں پر آپ کو زیتون کا تیل کوالٹی کے حساب سے 800 روپے سے لیکر 1100 روپے فی کلو تک مل سکتا ہے۔ لیکن واضح رہے کہ یہ سارے کا سارا تیل باہر سے درآمد کیا جاتا ہے جس کی کوالٹی پر ماہرین کے شدید تحفظات ہیں۔ ماہرین کہتے ہیں کہ مختلف برانڈوں کا درآمد شدہ تیل جو پاکستانی مارکیٹ میں بک رہا ہے یہ خالص زیتون کا تیل نہیں ہے بلکہ اس میں کئی دوسرے تیلوں کی ملاوٹ ہوتی ہے۔

گرین ایگرو کی معلومات کے مطابق چکوال میں تحقیقاتی ادارے کے پلانٹ سے نکالا جانے والا تیل کم از کم 2 ہزار روپے فی کلو کے حساب سے بک رہا ہے۔ واضح رہے کہ چکوال کا زرعی تحقیقاتی ادارہ کسانوں کو تیل نکالنے کی مفت سہولت فراہم کر رہا ہے۔

اگر ریٹ واقعی دو ہزار روپے فی کلوگرام ہو تو آمدن کا حساب آپ خود لگا سکتے ہیں۔ گرین ایگرو نے آمدن معلوم کرنے کے لئے 800 روپے فی کلوگرام کے ریٹ کو سامنے رکھا ہے۔

اس طرح سے 2000 کلوگرام تیل سے حاصل ہونے والی آمدن تقریباً 16 لاکھ روپے بنتی ہے۔

اگر باغ کی اچھی دیکھ بھال کی جائے تو آمدن دو گنا ہو سکتی ہے

یہ تو آپ جانتے ہی ہیں کہ زیتون کے پھل سے تیل کے علاوہ اچار اور مرلج جات بھی بنائے جاتے ہیں۔ اور ویسے بھی جس درخت کی اللہ نے قرآن میں قسم کھائی ہے اس میں نقصان کیسے ہو سکتا ہے

Source: www.parc.gov.pk

www.punjabagri.com.pk

BIO-SALINE AGRICULTURE

Saline Soil is a type of soil that contains sufficient amount of soluble salt to adversely affect the growth of most crop plants with a lower limit of electrical conductivity of the saturated extract (EC_e) being 4 deci Siemens / meter (dS/m). Most of the irrigated agricultural land of Pakistan is under semi-arid to arid climate with very low annual precipitation. High salt contents accumulate on surface of soil due to insufficient leaching of salt. Although, salt-affected soils contain sufficient moisture for plant growth, but it generally plant remains physiologically dry. From germination to maturity, all plant growth stages are adversely affected by salinity. The saline-sodic soils with high sodium content are compact and generally

نمبر 5. آریوسانا

نمبر 6. کورونیکلی

نمبر 7. آریسٹوینہ

پنجاب اور سندھ کے گرم علاقوں سمیت دیگر گرم علاقوں کے لئے درج ذیل اقسام کاشت کرنی چاہئیں۔

نمبر 1. آریوسانا

نمبر 2. کورونیکلی

نمبر 3. آریسٹوینہ

یاد رکھیں زیتون کا باغ لگاتے وقت کم از کم دو یا دو سے زائد اقسام لگانا چاہئیں اس طرح بہتر بار آوری کی بدولت پیداوار اچھی ہوتی ہے۔

زیتون کے باغ کو کھادیں کتنی اور کون کونسی ڈالنی چاہئیں؟

کھاد دوسرے سال کے پودے کو ڈالیں۔ دوسرے سال کے پودے کے لئے:

گوبر کی کھاد... 5 کلوگرام فی پودا ڈالیں... اگلے سالوں میں ہر سال 5 کلوگرام کا اضافہ کریں

نائٹروجن کھاد... 200 گرام فی پودا ڈالیں... اگلے سالوں میں ہر سال 100 گرام کا اضافہ کریں

فاسفورس کھاد... 100 گرام فی پودا ڈالیں... اگلے سالوں میں ہر سال 50 گرام کا اضافہ کریں

پوناش کھاد... 50 گرام فی پودا ڈالیں... اگلے سالوں میں ہر سال 50 گرام کا اضافہ کریں

زیتون کے پودے کو پھل کتنے سال بعد لگتا ہے؟

عام طور پر 3 سال میں زیتون کے پودے پر پھل آنا شروع ہو جاتا ہے۔

زیتون کے پودے پر پھل پہلے سبز اور پھر جامنی ہو جاتا ہے۔ سبز پھل اچار اور جامنی تیل نکالنے کے لئے استعمال ہوتا ہے

زیتون کے باغ سے فی ایکڑ کتنی پیداوار حاصل کی جاسکتی ہے؟

زیتون کے ایک پودے سے پیداوار کا دارومدار اس بات پر ہے کہ آپ نے پودے کی دیکھ بھال کس طرح سے کی ہے۔

اچھی دیکھ بھال کی بدولت ایک پودے سے 60 کلوگرام یا اس سے بھی زیادہ زیتون کا پھل با آسانی حاصل ہو سکتا ہے۔

لیکن اگر دیکھ بھال درمیانی سی کی گئی تو 40 کلوگرام فی پودا پھل حاصل ہو سکتا ہے۔ انتہائی کم دیکھ بھال سے پودے کی پیداوار 25 سے 30 کلوگرام فی پودا تک بھی گر سکتی ہے۔ لہذا ماہرین زیتون کے باغات کی فی ایکڑ پیداوار کا حساب لگانے کے لئے 25 کلوگرام فی پودا پیداوار کو سامنے رکھتے ہیں۔

form a hardpan on the soil surface. This compactness prevents plant root proliferation and reduces salt leaching. Thus the reclamation of such soils with simple leaching by flooding remains ineffective. The application of gypsum enhances leaching by improving soil hydraulic conductivity. Modern irrigation system is a major cause of the secondary salinities in Pakistan through:

1. Seepage from irrigation canals
2. High salt concentrations in irrigation water
3. Insufficient leaching of salt
4. Type of salts in the irrigation water

There are several strategies involved in the management of the saline soils like engineering approach, reclamation approach and Bio-saline agriculture approach. In Pakistan all these approaches were practiced, with varied results.

Bio-saline Agriculture



It can be defined as the use of genetic resources (plants, animals, fish, insects and micro-organisms) and improved agricultural practices to obtain profitable use from saline land and irrigation water on a sustainable basis. It is a rich collection of possible systems for the use of saline resources. The components of these systems vary according to the needs of farmers and the capabilities of land and water.

Bio-saline agriculture technology is an alternative approach for effective utilization of salt affected soils which involves the cultivation of salt tolerant species/cultivars with genetic traits. Identification of specific characteristics related to salt tolerance provides biological markers useful in selecting salt tolerance crops. Salt-tolerance is the ability of plants to survive under excess salts in the rooting medium

without any adverse affects on the growth of plants. This technology gives economic return and provides vegetative cover to soil which reduces evaporation and rate of soil Salinization. This biological approach involves screening and selection of highly salt-tolerant plant species/varieties from the naturally existing germplasm or from these developed through breeding, hybridization and other techniques, and then introducing the selected plants for increased plant establishment and productivity in saline areas.

Modern research has identified more than 1,500 plant species that are able to withstand salt concentrations in excess to those found in seawater. These plants (trees, shrubs and salt tolerant grasses and herbs) are a major resource that can be used in the development of agricultural systems for salt affected soils.

A number of species may be grown in such conditions as follows. Good quality irrigation water should be used during the initial establishment phase and for periodical leaching of salts from soil surface. Under proper management, this can be a positive and cost-effective venture.

Salt Tolerant Tree Crops

Name	Tolerance to
Saphaida	Salinity, water logging and drought
Frash	Salinity
Arjan	Salinity and Water logging
Baid	Salinity
Sukhchain	Salinity
Kikar	Salinity and Sodicity
Siris	Salinity
Jaman	-do-
Ber	-do-
Guava	-do-
Jangli Kikar	Salinity and Sodicity
Ipil Ipil	Salinity
Van	-do-
Date palm	-do-
Karir	-do-
Neem	-do-
Falsa	-do-

Agroforestry has been proven as a good system for economically sustainable biomass production on saline land. Nuclear Institute of Biology and Agriculture (NIAB), Faisalabad has identified salt tolerant tree plants by planting them in Biosaline Agriculture Research Stations at large scale tree/shrub plantation of *Eucalyptus camaldulensis* (*Saphaida*), *Acacia ampliceps*, *Acacia nilotica* (Kikar) Jangli Kikar (*Prosopis juliflora*), *Parkinsonia*, Frash (*Tamarix*), Neem (*Azadirachta indica*) and Iple iple. *Eucalyptus camaldulensis* and *Acacia ampliceps* proved the best among tree species.

Salt Tolerant Grasses

Name	Tolerance To
Kallar grass	Salinity/Sodicity
Jantar	Salinity
Buffalo grass	Salinity/Drought
Gobi sarson	-do-
Tall wheat grass	Salinity
Finger millet (Madhal)	-do-
Garden cress (Halon)	-do-
Japanese millet (Swank)	-do-
Little millet (Swank)	-do-

A large number of plant species/varieties of barley, forage grass, saltbushes were evaluated under saline field conditions in Biosaline Research Stations (BARS-II) at Pakka Anna near Faisalabad on 1000 acres of saline Land. Selected salt tolerant fodders were include Kallar grass (*Leptochloa fusca*), *Sporobolus arabicus*, Para grass, Swank (*Echinochola sp.*), *Sesbania* and *Atriplex* spp., varieties of barley (*Hordeum vulgare*), wheat (*Triticum aestivum*) and *Brassica* spp.

Salt Tolerant Plants

NIAB has identified large number of plant species/varieties after screening for salt tolerance using gravel/hydroponics technique. NIAB identified one salt tolerant variety of cotton (NIAB-999) and one salt tolerant variety of wheat (Sarsabz) for salt-

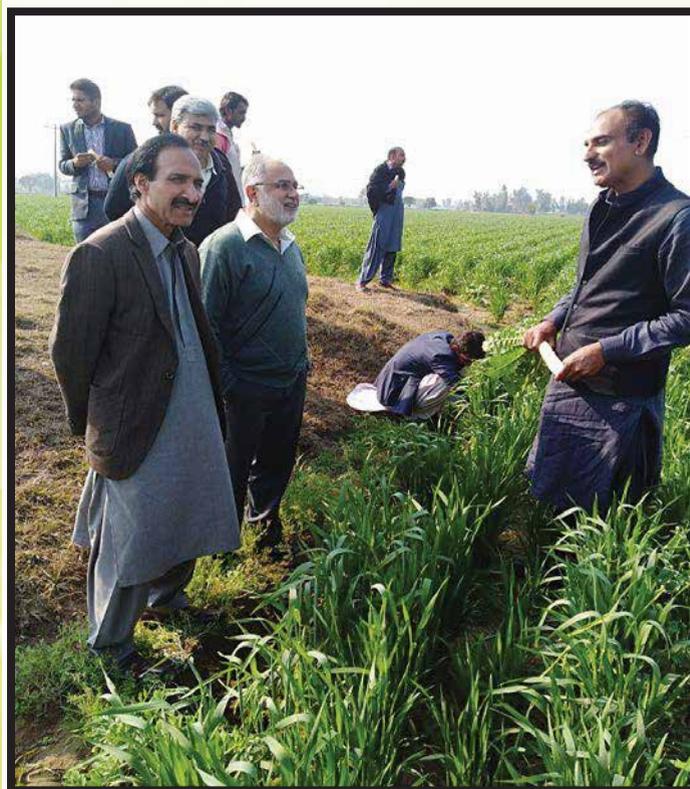
affected areas. Two salt tolerant mutants, one each of mungbean and cowpea were also developed.

One cowpea mutant line has also been identified that is early maturing and can tolerate salinity up to $EC = 10 \text{ dS m}^{-1}$. This mutant can also be grown as a catch crop. It matures within 70-80 days and can fit very well in the cropping systems like cotton after cotton and wheat after rice

Sources:

- M. Ajmal K.2007. Biosaline Agriculture in Pakistan. Deptt. of Botany, Uni. of Karachi
- <http://www.niab.org.pk/soil.htm>
- <http://www.pakissan.com/english/advisory/salinity.tolerant.crop.shtml>

SUCCESS STORY OF MR. SULTAN BHATTI (A PROGRESSIVE FARMER)



Sultan Bhatti is a progressive farmer and very passionate to adopt and adapt new innovations. He is resident of village Sukhakee, Tehsil Pindi Bhattian, District Hafizabad, Punjab, Pakistan. He owns 100 acres of agricultural land, out of which wheat has been sown on 15 acres.

ZTBL Team headed by Mr. Farhat Karim Hashmi, Group Head (LMD, ATD, P&RD) and Mr. Muhammad Ikram Ul Haq (Senior Vice President, ATD) along with four subject specialists visited Sultan Bhatti Farm near Sukkhee where the

progressive grower/owner Mr. Sultan Bhatti briefed the team about managing sowing of 4Kg and 10Kg wheat seed/acre.

The grower owns 100 acres land out of which wheat has been sown on 15 acres. 10 acres land has been sown by using 10 kg wheat seed per acres, while 5 acres land sown by using only 4 kg seed/acre. The owner claimed that previously by the same method he obtained yield about 52monds/acre. The main reason of obtaining yields above average is that more heads were produced (tillers).

Methodology:

The team observed that 4kg seed/acre has been used via Raised Bed Technology with an aim to reduce the input cost. The Raised Bed having a width of 45 inch containing 5 lines of wheat were sown by planter having line to line distance 9 inches. The seed was planted with the help of modified planter in which 2-3 seed were sown on the same place. The wheat tillage was practically counted with simple random sampling technique i.e. 70-80 tillers/2-3 Seeds. Two trolleys of FYM were used at the time of sowing. Up till now foliar application of fertilizer and half bag of DAP (25 kg) Urea (25 kg) was used/acre.



The most important aspect is the methodology used can save production cost by using minimum input cost. In Pakistan mostly 40 kg seed is required for on acre land but Sultan Bhatti Farm used only 4 -10 kg seed for one acre land with minimum use of fertilizer and having maximum tillers. Variety of wheat being grown by him is Faisalabad 2008. Foliar application of 17 kg DAP and almost half bag of Urea was

applied uptill for good crop production of wheat and for moisture conservation, soil structure and texture as compared to normal Cultivation where more fertilizer is used.

In another plot Mr. Sultan Bhatti cultivate the wheat crop in rice field in which rice straw increased the organic matter of soil. This wheat crop has many missing patches but grower said he has obtained his purpose to increase the organic matter and this will help in next year cultivation.

Wheat was cultivated on 1 acre using zero tillage technology. On ridges the holes are made at 9-10 inches for maize sowing. Rather than direct sowing the grower raised maize nursery and applied effective Micro Organism (Bacteria) to activate soil microorganism which consist Lactic acid Bacteria, Phototrophic Bacteria and yeast. These Bacteria make soil more soft, increase plant resistant, control PH of soil and make better use of fertilizer to plants.

Findings:

- Research scientists and extension Departments recommends 40-50 Kg seed/acre but Mr. Sultan is practicing only 4 kg seed/acre and claimed 52 monds/acre of yield.
- The management practices include things such as timely sowing and good soil fertility (especially nitrogen and phosphorus), early nitrogen applications can promote more tillering.
- Raised Bed Technology reduced the input cost of irrigation and fertilizer. It also reduced the damage of crop from wind lodging. It was also seen that almost 70-80 tillers were produced in centre rows while 40-50 tillers were seen in rows near to furrows.
- It was also found that in 2017 almost 25000-28000 PKR was cost of one acre of wheat and 50,000 PKR return was received by farmer ultimately generating 15,000-20,000 PKR Profit for one acre but in Raised Bed Technology almost 60 to 70 % cost is saved and approximately 10,000-150000 PKR is used for one acre with maximum tiller and ultimately better yield.
- The Grower also used peas crop on sides of beds for increasing the soil fertility. Legumes crops can fix the nitrogen in the soil from their roots called nodules that increase soil fertility and minimize the cost of Nitrogen fertilizer ultimately leads to precision agriculture.

زرعی سفارشات برائے کسان

کماڈ

- ☆ کماڈ کی کاشت کا موزوں وقت فروری سے مارچ کے وسط تک ہے۔
- ☆ کماڈ کی اچھی پیداوار کے لیے اچھے نکاس والی بھاری میرا زمین نہایت موزوں ہے اور کاشت کھلیوں پر کریں۔
- ☆ ہمیشہ صحت مند بیماریوں اور کیڑوں سے پاک مندرج ذیل بیج استعمال کریں:
- (ا) ترقی دادہ اقسام: سی پی ایف 400-77، سی پی ایف 237، ایچ ایس ایف 240 اور ایچ ایس ایف 242۔
- (ب) درمیانی اقسام: ایس پی ایف 213، ایس پی ایف 234، سی پی ایف 246، سی پی ایف 247، سی پی ایف 248 اور سی پی ایف 249
- ☆ فاسفورس اور پوناش کی تمام جبکہ نائٹروجن کی ایک تہائی بوری بوقت بوائی ڈال دیں اور ہاتھ سے مٹی کی ہلکی سے تڑال کر پانی لگادیں تاکہ موسمی تغیرات سے بچا جاسکے۔
- ☆ بروقت کاشت کے لیے دو آنکھوں والے 30 ہزار سے یا 3 آنکھوں والے 20 ہزار سے فی ایکڑ استعمال کریں۔

بھاریہ مٹی

- ☆ بھاریہ مٹی کی کاشت تمام میدانی علاقوں میں فروری کے آخر تک مکمل کر لیں۔ موزوں ترین وقت آخر فروری ہے۔
- ☆ بھاریہ مٹی کی کاشت کے لیے قطاروں کا درمیانی فاصلہ سوادوتا اڑھائی فٹ رکھیں۔ ڈرل کاشت کی صورت میں شرح مٹی کے لیے بیج 12 تا 15 کلوگرام فی ایکڑ استعمال کریں۔
- ☆ وٹوں پر کاشت کے لیے 8 سے 10 کلوگرام بیج فی ایکڑ استعمال کریں۔
- ☆ کاشت کے لیے کھیلپاں شرقا غرابنائیں تاکہ دھوپ کی شدت سے بیج کا گاؤ بہتر ہو سکے۔
- ☆ دوغلی اقسام کے لیے کمزور زمینوں میں 3 بوری ڈی اے پی اور 2 بوری پوناشیم سلفیٹ، درمیانی زمینوں میں اڑھائی بوری ڈی اے پی، ڈیڑھ بوری پوناشیم سلفیٹ اور زرخیز زمینوں کے لیے 2 بوری ڈی اے پی اور 1 بوری پوناشیم سلفیٹ فی ایکڑ استعمال کریں۔

سورج مکھی

- ☆ سورج مکھی کی کاشت کا وقت فروری کے آخر تک ہے۔
- ☆ سورج مکھی کی کاشت سیم زدہ اور ریتلی زمین کے علاوہ ہر طرح کی زمین میں کاشت ہو سکتی ہے۔ البتہ بھاری میرا زمین کاشت کے لیے موزوں ترین ہے۔
- ☆ ترقی دادہ ہائبرڈ اقسام میں ہائی سن 33، ٹی 40318، گورا 4، ایس ایف 0046، این کے سینٹی، ارمونی اور کوئڈی کاشت کریں۔
- ☆ اچھے گاؤ کے لیے 2 تا 2.5 کلوگرام بیج فی ایکڑ استعمال کریں۔ فصل قطاروں میں کاشت کریں۔ قطاروں کا درمیانی فاصلہ سوادو فٹ سے اڑھائی فٹ رکھیں اور پودوں کا درمیانی فاصلہ آپاش علاقوں میں 9 انچ اور بارانی علاقوں میں ایک فٹ رکھیں۔

سبزیات و باغات

- ☆ موسم گرما میں کاشت کی جانے والی سبزیات میں کرپلا، گھیا، کدو، توری، بھنڈی، ہبزم رچ اور کھیرے کی کاشت کا وقت فروری اور مارچ ہے۔
- ☆ سبزیات کی کاشت کے لیے اچھے نکاس والی بھاری میرا زمین کا انتخاب کریں اور بوائی سے پہلے گوبر کی کھاڈ ڈال کر بل چلا کر کس کر دیں۔
- ☆ آم کے باغ میں نائٹروجن، فاسفورس، پوناش اور چھپسم بطور کھاڈ ڈال دیں اور بعد میں آپاشی کریں۔
- ☆ آم کے پودوں میں پھول آنے پر موسمی حالات کو مدنظر رکھتے ہوئے 20 دن کے وقفے سے آپاشی کریں۔
- ☆ رس چوسنے والے کیڑوں کے انسداد کے لیے زرعی ماہرین کے مشورہ کے مطابق کیڑے مارا دیات کا استعمال کریں۔

MANAGEMENT TIPS

8 Top Trends of Marketing in Asia 2018



1. Digital technology and the Internet of Things (IoT) cast a profound impact on marketing practices: Technology's impact will become stronger and wider in every aspect of business and some areas of job competencies

2. The integration of entrepreneurship and marketing is inevitable: Entrepreneurship will play a more crucial role in marketing to achieve business success through creation of products, markets, as well as enhanced diversification. Many smaller companies will implement this entrepreneurial marketing approach in facing their bigger competitors. Entrepreneurial marketing will be strongly adopted by companies undergoing turbulent situations in business, characterized by volatility, uncertainty, complexity, and ambiguity (VUCA).

3. Influence of younger generation with online and social media culture is unstoppable: Online and social media platforms will continue to become stronger in supporting businesses across sectors and scales.

4. Companies are getting more concerned about their return-on-marketing (ROM): In this super-competitive era, efficiency is becoming an important factor in ensuring that companies are able to reap acceptable profit margins.

5. Halal market is getting Bigger: Demand of Muslimfriendly and halal-certified products and services— ranging from categories such as food, beauty products, fashion, tourism, banking, etc.—is getting higher in Asia

6. Customer experience era is here to stay. The metric of good quality is becoming generic and customer experience (or CX) throughout all customer touch points and journey is the new way to maintain

customer repeat purchase and stronger and more loyal customer relationships.

7. Fintech is proliferating resulting in a more advanced cashless society. Most countries are getting ready for this transition. China as well as Japan and South Korea are already ahead in terms of digital payment systems, with several Asian countries in tow.

8. Number of young entrepreneurs is increasing. More and more young people (including university graduates) are venturing into the startup space, establishing budding ventures in various fields and areas, facilitated by the growing number of co-working spaces, access to information (via the Internet), and the easiness of market access via online platforms.

Source: <http://bbf.digital/8-top-trends-marketing-asia>

Avoid Barriers Undercutting your Team's Development



There are several ways that leaders jeopardize and undercut their team's development. Here's how to avoid those barriers, writes Robyn McLeod, leadership and team development coach. Let go – You can't do everything and your team won't learn if you don't delegate and share decision making as much as possible. Get out of the weeds – Operate at your level – set a vision, be strategic, understand and articulate the big picture. Otherwise, you'll find yourself doing the work of someone a level below you, focusing on minutiae, and micromanaging. Teach and coach – Development is an active job. You have to spend time with your team members, be accessible, share your knowledge and experience, and offer guidance and feedback. You can't do that if you are constantly in meetings or behind closed doors. Consistent teaching and coaching is essential for team development.

Source: <https://chatsworthconsulting.com>

NATIONAL NEWS

Milk Enhancement: Injections Banned

The government of Sindh has imposed a ban on sell/purchase and usage of cattle milk enhancement injections, ie, bovine Somato-Torphin (rBST) and other related drugs throughout Sindh with immediate effect till further orders. The SHOs of the police stations concerned are authorized to register complaints under Section 188 PPC in writing for violation of Section 144 Cr PC.

Edf Board Approves Rs 92.75 Million Dtl for Export of Kinnow to Russia

The Export Development Fund (EDF) Board headed by Minister for Commerce and Textile, Pervaiz Malik has approved Rs 92.75 million as Drawback of Local Taxes and Levies (DLTL) for export of 3,500 containers of Kinnows to Russia. The decision was taken at a recent meeting of the Board held in the committee room of the Commerce Division. Irsa releasing 86,000 cusecs of water for Rabi crops

The Indus River System Authority is releasing 86,000 cusecs water from the dams and run of the river water in Chenab and Kabul for irrigating the Rabi crops including the nation's staple food, wheat, grams, lentils, mustards, oil seeds, vegetables, fodder for livestock, fruit orchards across the country. Water regulatory body is discharging 40,000 cusecs of water from the Tarbela dam on the mighty Indus River, 22,000 cusecs water downstream the Mangla dam on the river Jhelum, 15,400 run of the Kabul river and 8,600 cusecs flowing in the river Chenab at Marala. Since there is as much as 36 percent shortage of irrigation water for 2018 winter crops, the provinces are very judiciously using the available water keeping in view needs of command areas of the irrigation canals. They said that the crops in Punjab are at a critical stage of growth and flowering, therefore the water regulators have to be vigilant and avoid wastage of the precious resource.

Conference on Pulses, Grains Held

Pakistan's first Pulses and Grains Conference was held on Sunday hosted by Pakistan Pulses Importers Association (PPIA). The conference was organized in collaboration with Australian Trade and Investment Commission-Austrade (A department of the Government of Australia).

The conference was attended by delegation of Australian exporters, farmers and processors of pulses with an aim to promote bilateral trade between

Pakistan and Australia. The event was attended by more than 200 participants including members of Pulse Association of the South East Australia (PASEA), Jacky Sung from One Special Grain, Nusrat Nadeem from Full Spectrum, Imran Saeed and Tahir Mahmood from Australian Trade and Investment Commission. The event consisted of presentations and panel discussion on several topics including future outlook of chickpeas, lentils, oats and barley.

This was the first time a pulses and grains conference was held in Pakistan and several requests were received from Australian delegates to conduct this conference annually. There were two panel discussions one on "Kabuli Chickpea" (white gram) hosted by President PPIA Mohammad Ahmed and "Desi Gram" Panel discussion was hosted by Bilal Ahmed vice president PPIA. Over all lentils scenario was presented by Dhanesh Kumar Director Sakhi Group of companies Member managing committee PPIA.

Ministry Formulates Strategy to Introduce Changes in Cropping Pattern

Ministry of National Food Security and Research(MoNFS&R) has formulated National Food Security Policy envisaging measures to introduce changes in the country's cropping system and reducing area under rice and sugarcane crops for cultivation of high value crops, such as oilseeds, pulses, soybean, horticulture crops and fodder.

Ministry of Textile Industry has also proposed that provinces should stop granting permission for setting up new sugar mills in the cotton growing areas that led to a decline in cotton plantation. The sources said increase in number of sugar mills with enhancement in crushing capacity of existing mills in major cotton growing areas has resulted in 22 percent reduction in cotton areas over the last 10 years.

"The support price for procurement of imported food crops such as pulses and oilseeds may be introduced to promote import substitution rather than subsidizing export of wheat and sugar," the sources quoted MNFS&R as suggesting in its National Food Security Policy which is yet to be considered by the federal cabinet. The sources said, major reduction in cotton growing areas has been witnessed in Punjab where cotton area has declined by 26 per cent over the same period.

Source: www.brecorder.com

ZTBL NEWS**NA Committee Recommends Tax Exemption for ZTBL Farmers**

The National Assembly Standing Committee on Finance, Revenue and Economic Affairs has recommended income tax exemption to Zarai Taraqati Bank Limited (ZTBL) on agricultural financing to small farmers and subsistence farm holdings.

During a meeting of the committee which was held under the chairmanship of Member National Assembly (MNA) Qaiser Ahmed Shaikh, the parliamentary body recommended to allow the tax exemption demanded by ZTBL. At the same time, the committee also recommended tax exemption on specified lending through commercial banks as well. The committee recommended that government should give exemptions to ZTBL and other commercial banks on lending to farmers. However the government may accept or reject the recommendation.

ZTBL Won Shooting Ball Tournament

Zarai Taraqati Bank Limited won 25th All Pakistan Silver Jubilee Inter-Departmental Enger AW Khan Buatti Dr MI Pathan Memorial Shooting ball tournament 2018. Final match was held at Hyderabad between CDA and ZTBL where ZTBL won in straight sets by 16 to 11 & 16 to 12.

Revival of Sada Bahar Scheme

In order to facilitate the farmers it has been decided by the competent authority to revive Sada Bahar Scheme (SBS). The scheme would help farmers to have easy access towards credit with the facility of

one time documentation for three years period, withdrawal of loan amount as per their credit requirement and deposit the same as and when funds are available with them.

Main objective of revival of this scheme aims at adequate & timely financial support to the farmers for their working capital credit needs in a more flexible and cost effective manner. The scheme primarily would cater to the financing requirements for working capital as well as input needs to all eligible fresh & existing farmers across the country.

ZTBL Team Conducted Exploratory Tour to Sukheke, Hafizabad and Faisalabad to Visit Agricultural and Mushroom Farms

ZTBL Team headed by Mr. Farhat Karim Hashmi, Acting Group Head (LMD, ATD, P & RD) and Mr. Muhammad Ikram Ul Haq (Senior Vice President, ATD) along with four subject specialists visited MA Farm located at Agri Farms Chak No. 156 RB, Dherh Tehsil & District Faisalabad. MA Farms adopted a progressive approach in growing multiple crops such as Cucumber, Potato, Onion, Chilli, Pumpkin, Melon, Water melon, Ice berg, Brinjal, Garlic, Wheat, Broccoli, Tomato, Capsicum, Pees, Lady Finger, Grapes, Papaya, Maize etc. They use UK based STC technology through which mostly operations are conducted mechanically. ZTBL team visited one of their four permanent tunnel structures covering an area of 6.25 acres/tunnel. Tomatoes and Cucumber have been cultivated in these tunnels and both crops are in healthy conditions.

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Technology for Agriculture