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TUESDAY APRIL 4, 2017

Up and about but a long way out ... yet

Comparatively speaking, the farming sector finds itself today on a much more fertile ground than was the case, say, a couple of years ago. The momentum, however, is fragile enough to keep the stakeholders cautious rather than joyous.



The road to recovery



GREEN fields are beginning to get a bit greener after the farm sector finally succeeded in attracting official attention. Though a bit early to say how long it might last, things are definitely better for the moment.

BY AHMAD FRAZ KHAN

AFTER behaving disastrously erratic since the turn of the decade, the agriculture sector seems to have started a journey of relative recovery in 2016, especially during the second half, thanks mainly to two factors: the central government waking up to farming and farmers' plight, and crops adjusting to market realities for better prices.

Though the federal government likes to hog the entire credit for starting the revival process, the farmers, conceding the positive role of both federal and provincial governments in the process, think that a number of other factors also played a role. Listing those factors, they think that the sector had already hit the rock bottom and could not have possibly gone further down.

Secondly, the world market scenario, which had occasionally hit hard the crop sector, especially cereals, in the last decade, changed positively and helped the revival process. Finally, the farmers adjusted their cropping patterns to market forces for better returns and led the recovery process.

Differing on the apportionment

of credit, the government and farmers, however, agree that some course correction did start last year and things may improve further in 2017 if the official attention continues.

The context of disaster

Though it was never rosy even before, but the story of highly erratic performance of the sector began in 2010-11, when the sector registered 0.23 per cent growth, followed by 1.96 per cent and 3.62 per cent in next two years and the slide started in 2011-12 and 2012-13. In 2013-14, growth dipped to 2.62 per cent. In 2014-15, it came down to 2.52 per cent and in 2015-16, it plummeted to a negative 0.19 per cent. During that fateful year (2015-16), the crop sector fell by -6.25 per cent and important crops by -7.18 per cent. The cotton crop, which lubricates the exports engine and largely drives the economy, fell by a whopping 26.80 per cent.

All these figures come from the Economic Survey of Pakistan (2015-16) and were fiercely contested by farmers' bodies, individual farmers and independent researchers. They pleaded that situation on ground was much worse than what the official figures tell. Basing their argument on ground realities, where farm-

ers, finding it hard to make both ends meet, were protesting on the roads, throwing their commodities on the roads – because packing material was costlier than the produce – and spilling milk right in front of the parliament in Islamabad

In the three years span between 2013 and 2015, the farmers had blocked national highways over a dozen time, courting over 400 arrests in one incident, before they arrived in front of the parliament to spill thousands of litres of milk to highlight their and, of sector's, financial woes.

At an All Parties Conference, where almost all political parties, including the PML-N, PTI, MQM and PPP came to share farmers' concerns, the farmers pleaded that in single year (2015), cotton farmers lost Rs170 billion for loss of production and another Rs48 billion because of drop in prices this year. Only cotton made farmers poor by a staggering Rs218 billion in a single year. Similarly, potato growers have lost Rs150 billion because of price crash and paddy farmers had to incur losses of Rs35 billion due to similar reason. The figures were truly crushing for farmers.

The revival

Stung by three factors (the

enormity of losses to farmers, emerging political consensus and possibility of the opposition using farmers' activism to its advantage), the federal government came up with an unprecedented Rs341 billion package for agriculture in September 2015, which naturally took some to come on ground and helped revive the sector.

The major grouses of the farmers all these years have been increasing inputs' price and decreasing outputs' prices. The year 2016 saw some improvement on both sides. Take the inputs side first, especially fertiliser. The government offered direct subsidy on it and the consequent reduction played a huge role in helping the sector get back on its feet. The fertiliser prices were driven down by two factors – the government subsidy and international trend. During the year, prices of urea and Di-ammonium Phosphate (DAP) dropped significantly and led to massive increase in their application. The DAP price, which was hovering at Rs3,800 till the start of 2015, came down to Rs2,300 per bag in most of the country. Similarly, the urea price came down to Rs1,300 per bag with a drop of around Rs500 per bag during the year.

Because of this decline, the DAP, which is crucial for strength

of plants' root zone, application increased by 30 per cent in Punjab alone during one season – from 0.95 million tonnes to 1.25 million tonnes. Similarly, the urea, which leads to vegetative growth, off take swelled by 25 per cent – from 1.55 million tonnes to over two million tonnes.

This jump in fertiliser application, by and large, set off the negative impact of climate change and water shortage. Both farmers and planners agree that had it not been for 55 per cent increase of fertiliser, both these factors (water shortage and climate) would have spelled disaster for the crop sector.

Another factor that helped the sector during the year was removal of general sales tax on pesticides and machinery. According to the industry, the pesticides application went up by seven per cent and tractor sale by around 30 per cent.

The fertiliser factor contributed hugely to production of crops and almost the entire range of crops benefited, and, more crucially, their prices sustained. The Punjab picture, which produces over 80 per cent of agricultural production, reflects the national picture. For example, everyone feared

Continued on Page 20

A number of factors, including federal and provincial grants, helped revive the agriculture sector after a string of dismal years.

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The cotton gloom

Missing cotton targets seems to have become a norm in recent times. Despite claims to the contrary, the season ended 30pc behind the finishing line.

BY INTIKHAB HANIF

COTTON crop in Pakistan, that has been on the decline in the last many years due to the variety of seeds imposed on farmers, has some chance to improve next season because of rising international prices and the promised fertiliser subsidy.

Cotton farmers have, of recently, been switching over to alternate crops like rice, sugar and maize for price better than their own stuff. But the step-motherly treatment given to those who grew sugarcane by the sugar millers and reduction in the price of rice and maize may also bring back the dejected cotton growers to their principal crop next season.

But it still needs three major favours from the government - quality seeds, support price and procurement to guard against indigenous manipulation - if the policymakers want cotton to once again surface as the major Pakistani crop.

This year, Pakistan has again missed the cotton production target. Some claim that the target is missed by around 25 per cent against an estimated 14.1 million bales. They say that the final figure may reach 10.6 million bales by the end of March and the target-production gap is likely to be 25 per cent.

They say the current figures are better than last year when the sea-

son ended with 10 million bales, leaving a 30 per cent target-production gap.

Last year, the total production target was 15.49 million bales from an area of 7.7 million acres. This year, both were revised downwards at 14.1 million bales from 7.4 million acres. But the actual sowing went down steeply, especially in Punjab - the main culprit when it comes to cotton loss - and it lost 21 per cent area. Sindh, however, improved by two per cent.

The Cotton Crop Assessment Committee (CCAC) downward revised production estimates thrice during the season and ultimately Punjab was told to produce 6.903 million bales (against original 9.5 million bales), Sindh, 3.6 million instead of 4.5 million bales, Balochistan, 0.038 million bales against initial estimate of 0.098 million bales, and Khyber Pakhtunkhwa 10,000 bales against 15,000 bales.

Some leading cotton farmers in South Punjab and officials, who preferred anonymity, contest the current year's figures and say the gap is over 35 per cent. They say the 25 per cent gap calculations are made on the basis of the weight of the bale as described by a private body that is 150 or 155kg per bale. But according to the Pakistan Standard Weight, it should be 170kg per bale which proves that the country is missing the target by 35 per cent.

The stakeholders say the country is expected to get about 10.5 million bales of cotton in 2016-17 against the initial target of 14 million bales. This shows a shortfall of about 4-5 million bales, proving the shortfall to be above 35 per cent (based on 170kg per bale formula).

They say the cotton shortfall started when the Government of Pakistan decided to introduce Genetically Modified (GM) Bt cotton in Pakistan in 2010 to "increase yield and reduce pesticides and makes up 88 per cent of all cotton sown in the country".

Ever since the formal approval of the variety, Pakistan cotton production remained on an average between 11-13 million bales (170kg each). It shows a staggering shortfall

of 2-4 million bales against the target, forcing Pakistan to import cotton to meet its textile industry demands.

Pakistan had the highest yield per acre and highest ever recorded cotton production of 14.6 million bales in 2004-05 and this happened before the informal approval of transgenic Bt cotton. Yield in Punjab shrank from 24.49 maund (40kg) per acre in 2004 to 14.72 maund per acre in 2015 as per the official figures.

These stakeholders once again blame the imposed variety of seeds as the root cause of the problem. They say Bt cotton developed resistance. Hence pest like Pink Bollworm developed resistance against single gene Bollgard I and Bollgard-II.

Quality of Bt cotton seed is poor in germination as com-

pared to non-Bt cotton. If germination is poor, less than 75 per cent, it will be vulnerable to diseases and pest attack.

According to them, the seeds are in short supply. "Only 40 per cent of the total required certified BT cotton seeds are available with the government and the private sector," they say, quoting an official of the Ministry of National Food Security and Research.

The government's seed provision capacity has always been less than five per cent of the total cotton seed required for the approximate 3.21 million hectare or 7.73 million acres of cotton land. The missing 60 per cent seed requirement is met by savings by farmers or other not clearly described sources. This means the 60 per cent requirement is met by uncertified stuff.

Pakistan needs 40,000 metric tonnes cotton certified seeds against the mere available 15,864 metric tonnes.

And the next factor is like adding insult to injury. The government was not attaching tags to the bags of this seed since its introduction to show its health and ability to fight diseases or pests. The tags were issued last year but there is no mention of germination percentage (that shows the health of the seed) and the BT toxin level (that shows its ability to fight pests or disease).

They say as per official record and laboratory tests the germination quality of the supplied seed is less than 50 per cent as against the required above 75 per cent. And this is costing

Continued on Page 21

Glory days again?

Ensuring uninterrupted power supply at affordable rates is imperative if the textile industry has to regain lost ground.

BY AHMED AFFAN

PAKISTAN'S once flourishing textile sector is still finding its way back to those glory days, as the country gradually improves on the situation of power crisis. One cannot deny that the situation has much improved from the time when power shortages and high costs not just slowed down the business in this particular sector, but it worsened the situation to the extent that even large, well-established textile mills were alarmed enough to consider shutting down their operations completely.

Things are still not very rosy as a matter of fact because if evaluated we have lost precious time during this phase of struggle. We have not kept pace with the international competitors and compromised on a lot of our global market share as a result. Depleted energy production nearly crippled our medium-to-large textile setups while it gave the small ones almost no chance to survive.

A lot of them forfeited so much in terms of investments and work orders that they were turned into mere bystanders as their regular clients were forced to pick another country as their vendor because ours were unable to furnish orders on time in a business where deadlines are as crucial as anything else. According to some industry professionals, some small-level textile manufacturers are still working below capacity and are forced to look for earning opportunities elsewhere.

The factories, apart from the public utilities, have two options of power generation: gas and by diesel. The smaller setups, which exist in their hundreds of thousands, cannot

afford the luxury of gas or diesel generators, and are entirely reliant on the public network of electricity distribution. We all know how reliable that is - or unreliable. Production units which work on assembly-line formats are interrupted every time there is a power outage. In a situation like this it is as simple as; no electricity, no work. Even if they could afford a generator, running a whole production facility on diesel generators is not very cost-effective. If they are losing money by the hour, it is better to shut it down altogether.

Despite a number of announcements made by the government officials regarding eliminating the power crises and erecting new, more efficient power plants, the textiles sector is not completely on its feet. The power situation has definitely improved over the recent years but it has come with a cost, quite literally. The per-

unit charges of electricity all over Pakistan have gone up drastically. It is still a lot cheaper than producing electricity by generators but not very accommodating to help an industry gain its lost ground.

Pakistan, being one of the largest cotton-producing countries, providing massive employment opportunities to the locals, needs to be treated much better than it is by those who matter. If not facilitated, the stakeholders are at least to be given a level playing field so they can continue the good work on which they have built their reputation and rapport with their international clients. Out of all the other progressing industries in Pakistan, the textile industry still seems to be the most promising to bring in valuable business if the authorities can ensure an uninterrupted power supply at affordable rates. ■



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A KEY component of the agro economy, the sugar industry deserves a better deal for all concerned; the growers, the processors and the consumers.

Sweetening the economy

BY KHAWAJA AMER

WITH 38 million acres of land ideal for agriculture and forestry and a developed irrigation system with 40,000 miles of canals, Pakistan has been blessed with a very fertile land. The people of the region are therefore, largely related, directly or indirectly, to agriculture. About 50 per cent of Pakistan's working labour force is associated with agro-based economy contributing around 24 per cent to the GDP. The sugar industry, second to textile in the country, is perhaps the only industry which can be called a model for agro-based industries in the country.

There are about 90 sugar mills in the country, providing job opportunities to more or less 0.3 million people and contributing more than Rs20 billion to the government exchequer annually in the form of taxes and cess funds. Currently, there is more than one million hectares of land used for sugarcane cultivation which produces more than five million tonnes of white sugar annually.

Though sugar industry in Pakistan has always remained under criticism mainly on the grounds of earning huge profits through cartelisation, the fact remains that the socio-economic growth of a big chunk of our rural population in the provinces of Sindh, Punjab and the Khyber Pakhtunkhwa is associated with the sugar industry. Encouragingly enough, some of these sugar mills directly contact the farmers so that they can understand the problems being faced by them and help them in solving the problems of seed, fertilisers and pesticides. However, for the last couple of

years, there is a conflict between growers and millers over the issue of price. Growers insist on higher price for their raw material and millers grumble over the issue of higher cost of production and the import of sugar by the government which affects the market price of sugar. It is heartening to note that sugar industry is probably the only agro-based industry, which provides employment to the landless rural population besides giving a big boost to the economy of the country. Over the past 50 years, it has become the second largest industry after the textiles sector.

Though there is a general complaint that the industry is being run by some of the most influential politicians of the country, its contribution towards building the economy is colossal and, of course, worth mentioning.

It may be pointed out here that support prices for the sugarcane are fixed by the provincial governments from year to year and are usually different for Punjab and Sindh. Last year, the support prices were Rs. 180 for 40kg for Punjab and Khyber Pukhtunkhwa and Rs. 182 for 40kg for Sindh. Over the last 10 years, there has been an increase of 220 per cent in the support prices of sugarcane whereas the sugar prices have increased by 100 per cent during the same period. This over 100 per cent gap has adversely affected the sugar industry resulting in shutter-down in couple of mills.

It may be emphasised that the major costs borne by the sugar industry is of sugarcane. It alone constitutes around 80 per cent of the total cost of production besides other overheads. Heavy imposition of taxes, on the other hand further enhances the price



to a considerable extent. According to a rough estimate, cost of sugar is Rs.64 per kg ex-mill, the highest in the world considering that the international price is hanging around the \$200 mark while our yield of sugar content is the lowest. Therefore, Pakistan cannot compete in the export market without support.

On the other hand, the location of the sugar industry has contributed a great deal to the agro-based industry by transforming the rural lands into the semi-urban oasis. Due to sugar mill sites in the heart of rural places, modern facilities of roads, schools, dispensaries, markets and utilities such as electricity, telecommunications and transport have been provided to the sugar growing villages.

There is no denying the fact that this massive development by the government has been possible because of the mere establishments of the sugar mills. Sugar industry, in short, has given a new trend to the concept of rural industrialisation and thus can be termed as the engine of rural development. This has not been quantified, acknowledged or recognised. Had this been understood, sugar industry would not have been neglected.

In the year 2015-16, as per figures provided by the crop report given by Agriculture Policy Institute, sugarcane was planted over an area of 1.131 million hectares with a production of 65.451

million tonnes. The increase in area of sugarcane plantation was due to non-attractive prices received by the growers from other competing crops such as rice and cotton, as sugarcane being a cash crop has proved to be more beneficial to the farmers.

The high production of sugarcane would result in sugar production of more than five million tonnes in 2016-17. The carry forward stock in 2015-16 was 1.344 million tonnes. This would make the total availability to 6.9 million tonnes against the domestic requirement of 5.1 million tonnes leaving a surplus of about 1.8 million tonnes over the domestic requirement. Taking in to account reserves for two months, industry would be left with a surplus of about one million tonne.

According to a media report, the continuous increase in the minimum indicative price of sugarcane and resultant increase in area under cultivation of sugarcane puts pressure on price of sugar in domestic and international market.

Pakistan Sugar Mills Association (PSMA) has been pushing for a uniform sugarcane price policy in line with the cost of sugar production or to link the sugarcane price with the quality of cane. PSMA has argued consistently that linking price with the quality of cane would benefit both the mills and the growers.

The said report further adds that the growers who plant qual-

ity cane varieties and do more efforts for a better yield and recovery would get more prices compared to inefficient crop harvest. The matter is being discussed in various meetings and the PSMA stance has been highlighted. The indicative prices remained unchanged at Rs. 180/40kg in Punjab and Khyber Pakhtunkhwa and at Rs. 182/40kg in Sindh as against low price of sugar. The price fixed in Sindh remained sub judice. For 2017-18, the provincial governments are yet to announce the sugarcane indicative.

The provincial governments in their second estimate for 2016-17 have indicated crop area under sugarcane at 1.225 million hectares compared to 1.131 million hectares of the preceding year. Sugarcane production for 2016-17 is forecasted at 71.371 million tonnes compared to 65.451 million tonnes of the previous year.

The increase in area has been reported in Punjab and Sindh over the corresponding period of last year by about 12 per cent in Punjab and by almost 2.5 per cent in Sindh. Similarly, the production in Punjab has increased by 14 per cent compared to last year and 17 per cent over 2014-15. In Sindh, the increase in production over 2014-15 remained at almost 9.0 per cent.

These figures indicate an upward trend in the production of sugarcane and if the crop condition remains favourable then we may expect a sugar production of about 5.7 million tonnes in the year to come with carry forward stock of one million tonne by the end of the sugar year.

Keeping in view the multifarious problems including the energy crisis being faced by the country, not much can be done to improve the agro-based industrial sector for the time being. In 1947, Pakistan had a considerable agricultural potential. It inherited 31 per cent of irrigated areas, 25 per cent of area under cereals, 35 per cent of area with wheat plantation and 32 per cent of rice-sowing area. Before independence, these areas were collectively known as the breadbasket of India.

Sadly enough in Pakistan, the government is still not fully dedicated in adopting the new technologies and educating the farmers. It is imperative to revisit the current cropping pattern and land use for all major crops. According to agriculturists, the area under wheat should preferably be reduced to accommodate pulses and oilseed crops to overcome the gap in supply and demand. Some farmers in Punjab had last year preferred sowing maize and rice instead of cotton because of better market returns. There is a need for proper planning and scheduling to take our agro-based industry to new heights.

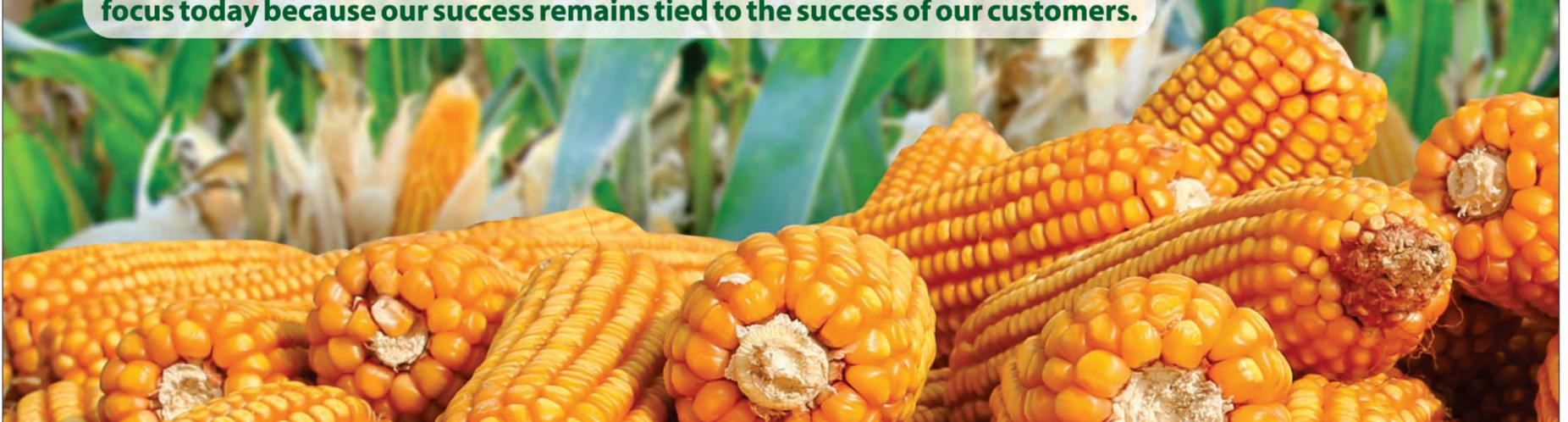
There are many problems in agro-industries yet to be overcome and this cannot happen in Pakistan if the government continues to ignore the stakeholders while preparing the budget. They must be taken into confidence before any crucial step is even planned.

The continuation of the relative primitiveness will lead to further chaos in the agro-based industry. There is need to devise a scientific method and a rational approach to ease out the tension in the agro-industry which, in turn, might work in a positive and proper direction ultimately benefiting the people. ■

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In an urban setting

BY ATIF KHAN

SIXTY-SEVEN kilometres from Karachi, towards the west of the metropolis lies the agricultural village of Gharo. The two-hour drive, given decent highway conditions with no accident resulting in traffic jams, takes one through an agricultural belt that helps to feed the millions of dwellers of the city. Gharo is a sleepy town. Well, compared to the hustle and bustle of Karachi, it's definitely the calm and serenity that we all want. And that's why it has over the years developed into an escape for the city dwellers.

Located at the mouth of the once mighty Indus, Gharo has its magnetism. Its proximity to the ruins of the ancient city of Bhanbhore attracts the enthusiasts. Families escape Karachi for its farms and a waterpark. However, the affluent of the city have found another use for the city and that is investing in its agriculture. Over the years, people who are interested in financial adventure have opted to invest in the agricultural gold that Gharo has to offer. Its rich fertile land has beckoned an investor from Karachi into an investment that he is not accustomed to.

Dr Ali is a busy medical professional, who juggles daily amongst work, school, while taking care of additional duties for his extended family. With such a 24-hour schedule, one would assume that he's too busy for anything new. Well, he thought so too until he was sold the idea of buying a piece of agricultural land. "A friend of mine approached me with the crazy idea, let's buy land in Gharo. At first I was lost for words. Why Gharo? What's there that needs investment and needs to be developed?"

Like all well-meaning Pakistanis who return home after having completed their education and gained experience abroad, Dr. Ali came back a few years ago. Upon his return, he decided to invest a major chunk of his savings in property in Karachi. After resuming practice, he had built a small fortune that needed to be dispensed properly. Money lying in the bank accounts is not of any use. Depreciation plays havoc with the savings. Investment in gold or property is better. And for most residents caught in the rat race of making or saving more in the form of property, it's investing in known properties of the DHA and the likes that are most enticing. However, Gharo has slowly crept up the ladder for those who

want the difference.

"After the initial puzzled queries, I went to visit the place, and despite my hesitation ended up investing in a small area. Water for irrigation is available so that was the hook." But what of the 5 acres? It's too small a place to get any meaningful return on investment. "I realised and agreed. The only reason I bought was a bit of adventure. How else would I explain it?" he says with a laugh.

Adventure is something that Gharo has been offering for many years. It once housed a car racing track that saw many automobile enthusiasts try their driving skills. But over the years security and lack of funding led to its demise. Security is also an issue for those stepping out of Karachi's boundaries. Highway thievery and kidnappings are almost always on their mind, not to mention the accident-prone traffic. Still that hasn't stopped many from going for lady luck.

Man-power is available there. So is the land. The only thing missing is the investment. And that is something that Karachiites are providing. Fish farms have sprouted. Even fields of flowers are cultivated and harvested for the lucrative markets of Karachi. But as easy as it may sound, agriculture is not child's play.

With investments in the Karachi residential or commercial market, it's easy to know the physical boundaries of your asset. It's also within easy driving distance. We can hire a chowkidar to manage the gate, and if it's only investment then it is usually a buying and selling game as per the market economics. On the other hand, while buying rural land as investment a set of different dynamics come into play. It cannot be left idle like a flat or a bungalow of the city.

Once you have it you need to use it as an agricultural piece of property. Get the right helping hand, which can only be locals. Then engage the local market for the tools to cultivate it. If there is a sizable piece of land then one can invest in farming tools like tractor or a tube well etc. That costs money and of course not many see it coming. And then city folk aren't accustomed to how climate influences the agrarian practices. You bought it with your city earned money. You might want to maintain it using the money that is generated by that piece of land. Initial investment might be in a farm house. But its upkeep should come from the land.

Husbandry is also a good idea and a lot of people have been known to invest in Gharo



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with the mindset to raise cattle and make good money by selling it off during the Bakra Eid season. Easy peasy, isn't it! Animals require food, shelter and a good vet. Where's the money for that coming from? Then for the locals they could be easy target and they could be stolen. How are you going to provide them security? You need a guard, a locked gate. Shelter needs to adequate to protect them from the sun and the rain and the chilly nights. Yup, it's not just the land. It's a whole lot more. And since you're from the city, you need a trusted hand to ensure that you are not being skimmed. That's probably the toughest

part. All of a sudden it doesn't look like the peace of mind that you wanted, eh!

All the above concerns are for those who are thinking of buying a land in a village or a private farm house. It's much more than that deary. But of course, serious investors have thought of all of that and have gone for the calculated plunge. Many of them are of course those who once decided to go for it and experience the growing pains. In the meantime, people like Dr. Ali are contemplating, what we gotten ourselves into? He cannot back out of it for peer pressure. So for the foreseeing future it's to Gharo over the weekends. ■

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BY TAUSEEF RAZI MALLICK

WATER scarcity, or the shortage and unavailability of water, is a serious problem, especially in an agricultural country whose whole economy depends on it. A recent report by the International Monetary Fund (IMF) had threatened that water scarcity in Pakistan, if not managed properly, will result in affecting the whole economy of the country.

According to reports, Pakistan is ranked 36th among the world's most water-stressed countries. And the situation is likely to get worse in proportion to the increase in population.

Water is generally perceived as a natural entity and a basic utility, but when it comes to the broader picture and the outcomes associated with it, the issue gets totally economical. The economic policy institutions and instruments have a much vital role to play in managing the water challenges the country is currently facing.

The country happens to have the world's most extensive irrigation system and has all the necessary natural endowments but it will require a paradigm shift in the policy and management of water resources to make the most of these assets.

The Pakistani authorities and concerned bodies need to devise a strategy to first adapt measures to conserve the water by adjusting its demand and then plan and create awareness to control the excessive exploitation of groundwater.

The major consumption of water in Pakistan is in the agriculture sector and efforts need to be done to improve the water-use efficiency in agriculture. The economical aspect of this usage is that it mostly escapes taxation at the federal level and bears a light tax burden at the provincial level.

The solution to this problem involve the stakeholders on a greater scale at the local level, thus, making an effort to introduce water management among them and building their capacity as an institution to achieve sustainable gains from these efforts. But all this needs to be coupled with reforming the agriculture taxation system in all the provinces.

A general observation reveals that the canal water in Pakistan is priced very low as compared to the operating expenses, hence only a quarter of annual spending and maintenance costs are recovered — rest is all categorised as loss.

Another important factor to maintain the economical equilibrium, linked with provision of water, is that agriculture, which happens to consume most of the available water supply, is not taxed mostly — thus creating a major gap between the expense and outcome of all this process.

A general observation reveals that these policies result in the overuse of water. Research and reports suggest that Pakistan should invest in more less-water-intensive crops and the pricing structure of the major crops also needs to be revised. During the past few years, the per capita availability of water has seen a sharp decrease and that is mostly attributed to the increase in population.

If the current data is compared with that measured at the time of partition then the per capita availability of water has

A scarce commodity



WATER: A source getting scarce season after season.

decreased by 80 per cent in the past seven decades. And considering the current institutional condition and infrastructure, this steep decline in the water availability trend is expected to fall more and that too very rapidly.

Study reveals that the demand of water is projected to reach 274 million acre-feet by the year 2025, but the demand and supply of water will see a gap of nearly 83 million acre-feet as the supply is expected to remain stagnant at 191 million acre-feet.

The geography of the country is the key factor in this demand and supply situation as Pakistan mainly relies on single irrigation source — the Indus system and its attributes. Since this irrigation system relies on the melting of snow and glaciers in the great Himalayas, therefore the availability of water in the Indus system is highly seasonal.

Data reveals that 85 per cent of the annual water flow in the Indus systems occurs during the June-September period. This is also the time of the year with high concentration of rainfall which varies from 1,500mm per year in northern Punjab to 150mm per year in upper Sindh province.

The weather conditions in Pakistan are on the extreme and the country's agricultural, livestock and irrigation infrastructure are frequently damaged by these extreme weather conditions — including severe episodes of droughts and floods.

The major cause of the damages caused by these two types of calamities is repeatedly traced back to having inadequate storage capacity and control structures. Having adequate water storage capacity prevents both

forms of destruction. When the water is in excess, it stores and prevents from floods, and when its dry season this storage becomes the lifeline.

A study revealed that currently the average storage capacity of dams in the country is only equal to the average demand of 30 days. If we run a comparison with India and Egypt, it comes out that Egypt has 1,000-day storage of water while India has an emergency reserve enough to last the average demand for 220 days.

Realising this problem, the international aid agencies and bodies including the International Monetary Fund have repeatedly urged Pakistan to formulate a strategy regarding water resource management.

They have asked Pakistan to develop an integrated approach so that it can prioritise conserva-

tion and sustainable water use through improved cost recovery, upgrading infrastructure, and bringing agriculture under the tax regime. The IMF has suggested some water reforms for the capacity building of the current water management and conservation mechanism.

Currently the water charges, taken by the concerned authorities, amount to only 24 per cent of the total maintenance and operating charges per annum — thus imposing a direct drain on the government exchequer which needs to be reformed on priority basis.

The other major issue is that the pricing structure set by the government is similar for all major crops, which is definitely not reflective of the difference in consumption of water by these crops. For instance, rice crop consumes 60 per cent more water than cotton but are priced under the same category.

Similar problems also persist in urban areas. Tariffs for water utilities for consumption in households are quite low and have not been revised for several years. The recovery percentage in urban areas is also very low, and varies from 20 to 80 per cent of people paying for the water they consume. A lot of water is also lost in line losses and in recent days it's stolen too by water mafias. Currently, more than 35 per cent of the population lacks access to safe drinking water.

It is high time that the government invested in harnessing Pakistan's huge potential by constructing dams and hydropower projects. This will not only help in solving the water scarcity problems in the country but will also help resolve the seemingly ever persistent problem of power shortage.

With hydro potential of 50,000MW of electricity generation, Pakistan could overcome its energy shortage several times over and this will automatically help solve the water storage issues hence minimising, if not eliminating, the water scarcity concerns. ■

Anyone interested in resolving the issue of water scarcity and its related problems has to invest in building more dams.

Time to reclaim the lost land

Salinity has not only affected the crop production but has also dealt a severe blow to the infrastructure of major cities.

WATER salinity is becoming an ever growing concern for the agriculture sector and also affecting the agro environmental growth, thus, limiting the developments of plants. Experts believe that the country's large network of irrigation canals is the main reason behind this salinity problem.

Data reveals that about 6.67 million hectares of the total 22 million hectares of cultivable land available are affected by salinity and this ratio is alarmingly on the rise. Currently, the salinity in soil has affected around 25 per cent of the crop production in the past decade. Of the land that is termed saline, not all of it is completely unfit for agricultural productions. There are levels of salinity and some of them do support cultivation, but not all kinds of crops can grow there.

Salinity is not the only problem in this part of the world, the other related problem which is affecting the crop production is waterlogging. In Sindh alone, around 3.13 million hectares area is categorised as waterlogged, half of which is highly affected while the remaining area is moderately waterlogged.

The annual rainfall in Pakistan is becoming unpredictable, to say the least, and often

remains low than expectations. Therefore, the availability of water for irrigation is not up to the actual requirement to fulfil the population needs. Over the period many processes have been adopted and efforts been made to overcome these problems, but the lack of skills, funds and time becomes the hindrance factor.

The salinity affects the growth of plants. The plants are likely to be affected structurally, functionally, qualitatively and quantitatively. The accumulation of salt on soil surface is basically the result of high percentage of evapo-transpiration. While the average rainfall is unable to match this ratio, and thus this lack of equilibrium coupled with shallow groundwater depth, results in water salinity. The impermeable soil condition also plays an important factor as it increases the quantity of salt in soil.

There have been number of drainage and salinity control schemes launched over the years in an attempt to control this over growing problem, many of which are still underway, but the problem still persists and is rapidly tarnishing more than a million hectares of land in the country.

A study calculated that on an average

around 40,000 hectares of irrigated land is lost at the hand of waterlogging and salinity. Both phenomena are interlinked problems and co-exist at most of the places. This dual-edged menace is gradually but consistently consuming our cultivable land. Once affected by salt or salinity, the soil loses its value and productivity.

There are some standard practices which can be helpful in overcoming salinity, but to a certain level. Through special measures and management practices, these soils can be prepared for agricultural use, but limited.

As we lament the salinity in soil, the other alarming factor is a dwindling source of good quality fresh water. The average farmer in Pakistan is facing scarcity of fresh water and is compelled to use saline water for irrigation purposes. Numerous methods and diversified practices are currently being used across the country to fight the water salinity, keeping in view the different soil types.

But like in any other sector, even in agriculture, the lack of communication and coordination among the government, state institutions and the end-user is greatly affecting the development process. The universities, research organisations, federal and provincial institutes and government departments all are working in a water-tight compartment without knowing what is happening around.

And the salinity problem is not just limited to affecting the production of crops, it is also destroying infrastructure and cities specifically those located near river banks or water reservoirs. The salt is gradually eating up the building infrastructure in these cities.

— Tauseef Razi Mallick ■



Partnership Between
 Government of Gilgit Baltistan
 and International Fund
 for Agriculture Development (IFAD).

ECONOMIC TRANSFORMATION INITIATIVE (ETI) GILGIT-BALTISTAN is a seven year development programme of Government. of Gilgit Baltistan, co-funded by International Fund for Agriculture Development to boost regional economic activity through agricultural value-chain development. Overall Goal of the ETI is to improve incomes and reduce poverty and malnutrition in rural areas of Gilgit-Baltistan region

The ETI-GBP through its implementing partners, will organize small farmers and farming communities in villages for embedding into the Producer-Public-Private sector Partnerships (4P) along several value chains including Apricot, Potato, Cherry, Pine Nuts and High Value Vegetables.

**Economic Transformation Initiative
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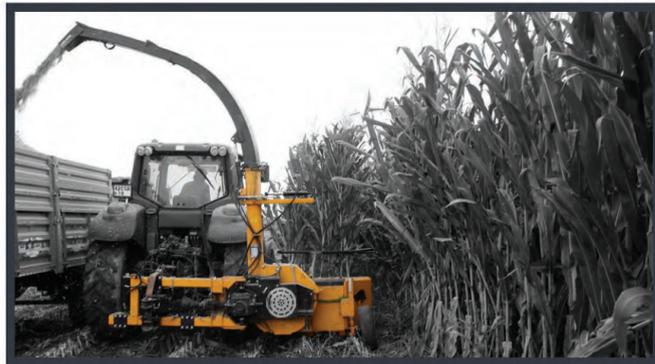

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FIELDS of cracked mud are a common sight in the wake of rising temperatures. The equation is simple: do nothing and pay the price.

In the face of climate change and global warming, we still stick to age-old practices. It's time to rethink both our priorities and practices.

BY ATIF KHAN

AMONGST the most pressing challenges that global warming is presenting to the world population is security of food. The changing climate has put immense strain on the world food supply through droughts and intense flooding in various parts of the planet. In this era of climate change and global warming, simply getting enough food on the table is not just a matter of utilising the existing farmland, but also keeping pace with the changing seasons of change.

It is estimated that the temperature on Earth has increased by at least 0.83 degrees Celsius since 1880. This is a significant change for the land that is being cultivated for food. This has led scientists to focus more on the local climates rather than the global charts we rely on. And despite technological advances, such as different varieties, genetically modified crops and more balanced irrigation systems, climate will continue to play its critical role in agricultural productivity.

According to studies, the shift in climate is also affecting change in the crops we use – the food that supports billions in particular regions. In South Asia, home to 1/7th of the global population and a region that already struggles to feed its most depressed segment, losses in rice, millet and maize crops can reach up to 10% in the next 10 years. In fact a fall in agricultural productivity of up to 30 per cent in the coming century is projected. Climate change will probably increase the risk of food insecurity for vulnerable groups, such as the poor.

Global climate change will alter a lot of things in agriculture. Decrease in food productivity

A lesson yet to be learnt

will lead to a change in agricultural practices. There is a need to rethink our irrigation practices, the use of pesticides and fertilisers. The changes will put a strain on the industries that facilitate the production of these and result in tremors in the global financial markets, to say the least. This will also affect crop diversity with many crops being replaced by the ones that are more suited for the changed climatic system. Be it drought or floods, the intense weather conditions also result in soil erosion.

The global population is expected to reach 10 billion by 2050. This will no doubt put more pressure on an already stressed food supply system with the agricultural demand predicted to increase by 50 per cent. Intense competition for natural resources is sure to further exacerbate the food security.

Pakistan meets its food requirements through a mixture of home production and imports. At the home front Pakistan fulfils water requirement for its crops through a mixture of winter and summer rainfall along with the melting of snow from the glaciers. If they decrease due to climate change then the challenges would increase. Already, mountains are unable to retain their snow yield leading to the fear that glaciers might not be able to replenish their supply.

Ground waters have reached the critical levels in several areas. In this scenario, an increase in temperature would result in further stress on the water reservoirs. Small dams, ponds and

canals etc would dry more rapidly and we will face water shortage.

Climate change has already shown its adverse effects on the industry here. Last year, climate change induced heavy rainfall, high temperatures and major pest outbreaks took their toll on Pakistan's cotton growing districts in Punjab as well as in Sindh. Prolonged heavy showers and high temperatures resulted in pest outbreaks, such as white fly and pink bollworm. In addition, cotton planting was delayed due to the late wheat harvest because of erratic weather that had affected crop development.

Government figures showed a drop of 28 per cent in cotton production during 2015-16. Not to mention that cotton contributes one per cent to Pakistan's GDP and five per cent of the country's agriculture value-added sector is caused by climate change-induced phenomena.

According to the Pakistan Economic Survey 2015-16, cotton production has dropped dramatically with the industry missing its 5.5 per cent growth target. Officials pointed that erratic weather has proved lethal for the production of cotton, one of the country's key cash crops. The year 2015 was the hottest in the cotton growing regions over the past decade and with similar weather conditions predicted for the coming year, cotton production may continue to slide.

Alarm bells about another major crop, wheat, had been rung many years ago. Again affected by climate change, summers are gradually becoming longer and

winters shorter, reducing the length of the wheat growing season. In addition, monsoon rains have been delayed by up to a month in some places. As wheat needs moisture and coolness to grow, it is one of the first crops to be affected by changes in the local climate.

In the 1970s, wheat was sown mainly in October and November, and was traditionally harvested in June and July. But in the 1980s, the harvest was brought forward to May and more recently to April, as weather patterns have altered. Per-acre yield has been reduced due to weak germination as the crop was not getting the cold temperature it needed due to rising temperatures. Lessons should be learnt from other parts of the world to modify the age-old practices and adapt ourselves to the changing climate.

Crop failures, like that of Russia's 2010 wheat crop, will likely become more common under climate change due to a higher frequency of extreme weather events, including more intense monsoon rains. The worst effects of global warming could be mitigated by improved farming and the development of new crops. Agricultural universities have developed drought-and-flood-resistant crop varieties, including a "Maxipak" wheat strain that is only one foot tall and can withstand heavy rains.

A loss in agriculture produce is bound to send people in search of other food sources. And the sea with its fish stocks is the only viable alternative.

Seafood is a critical source of

nourishment for more than 2.5 billion people worldwide, but decades of overfishing have decimated fish populations, while warming waters have pushed species into new territory and affected their reproductive cycles. According to the WWF, fish populations that could be the staple for billions have fallen 74 per cent since 1970. Population increase too has put a strain and it is estimated that global fish consumption rose to over 44 pounds per person a year since 2015 – four times more than it was in 1950. That demand has left 85 per cent of the world's fish stocks over-exploited, depleted, or fully exploited.

Where scientist and other professionals are working hard to at least mitigate the risks that come with global warming, one set of professionals is not ready or isn't ready for the financial risks available is the financial sector itself. A recent report expressed its concern that global banks holding \$400 billion of shipping debt are unaware how ill-prepared the maritime industry is in the face of oncoming climate regulations.

In October last, over 170 countries at the UN's shipping body agreed to deliver a new set of carbon-cutting rules by 2023 to cover the world's fleet of carriers, estimated to be 50,000 carriers.

Limiting global warming to two degrees Celsius seems like a reasonable goal for the world to aspire to. It will still bring droughts, floods, and sea level rise. But it looks like a dream now as the present US administration is bent on undoing work of the previous administrations and encouraging all the trade and manmade activities that are responsible for global warming. A more thoughtful and less selfish look into the issues would only be able to make matter better rather than much worse. ■



Market Development Facility is an Australian government supported multi-country private sector development programme operating in the Dairy, Meat, Leather and Horticulture engagement areas in Pakistan.

MDF develops partnerships with businesses and supports innovative ideas, investment and regulatory reform that can lead to additional income and employment through sustainable and pro-poor growth.

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- Establish model farms to demonstrate benefits of improved production practices
- Develop ICT systems and training to deliver information to farmers
- Establish good manufacturing practices for Leather goods' manufacturers

Find out more at:
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BY KHAWAJA AMER

LIVESTOCK is one of the most significant subsectors of agriculture in Pakistan. This segment is very important because over 35 million rural population is engaged in maintaining cattle herd, largely for selling milk within the neighbourhood as well as in far-flung areas. A number of processing plants also get milk from this source. Despite being the most profitable livestock product, milk production is the least commercialised enterprise in the agricultural economy in our country.

The majority of the national livestock herd is spread in small units throughout the country. About 55 million landless or smallholder farmers produce the bulk of the country's milk supply. About 80 per cent of the milk in the country is collectively produced by rural commercial and rural subsistence producers. Milk production and marketing in Pakistan is still exclusively dominated by the informal private sector, consisting of various agents, each performing a specialised role at the relative link in the supply chain. These consist of producers, collectors, middlemen, processors, traders and consumers.

Due to lack of proper management practices and poor breeding, animal production tends to be very low. This results in low farm profitability and reduced national productivity. For instance, in comparison with, say, Germany, there are three times as many dairy animals in Pakistan but the milk yield is only one-fifth.

Despite all such setbacks, as per International Farms Comparison Network (IFCN) Dairy Report 2014, Pakistan is third largest milk producing country in the world. Milk is produced by buffalo, cattle, sheep and goat but cattle and buffalo are considered as major dairy animals while camel has recently entered the domestic market. Within the last few years, camel milk patrons are increasing in number.

Despite having a thin consistency, salty taste and slight odour, the milk has created a market for itself in the country due to its potential medicinal benefits. The imported version, bottled with preservatives, is generally available in high-end grocery store chillers. But street vendors also supply camel milk to various customers through delivery boys. According to a report, this product is getting very popular because of the developing health awareness among the residents of the upscale localities who want the satisfaction of purchasing organic milk.

According to a report published in national media in May last year, over 10 million farming families produce approximately 40 billion litres of milk annually, contributing a share of 11.30 per cent to the GDP, because over 90 per cent of the milk

Up there but not quite



A LITTLE more attention can do wonders to the dairy sector that can leave the world wide-eyed.

market is owned and controlled by the informal and unorganised sector. In an informality driven market, there is no incentive to innovate, grow and adopt scientific method. Pakistan's milk market is essentially informal — where the packaged milk industry accounts for only six per cent of total milk consumption in the country. But then Pakistan's industry can catch up in vast jump by going from the baseline of six per cent to at least 25 per cent by 2025, of course if the economic policy in the country is conducive enough to support this industry with required incentives. The reason of such a limited share of the packed dairy product industry is the fact that a very brute majority of our population still believes that the packed milk loses its nutritional values during its processing. Moreover, they believe that shelf life of a perishable product like milk should not exceed more than 48 hours. Even in upscale localities of the most modern and literate city of Karachi, we see heavy rush in loose milk outlets, because they still consider that the loose milk is more beneficial for health than packed milk. In spite of massive publicity campaigns by the packed milk companies, they have not yet been able to woo even the upper class of the population.

Since most dairy farms in our country

are in the informal sector and cannot afford to go for heavy investment required to setup state-of-the-art plant, there is need to provide facilities for all those investors who are willing to invest in the dairy sector. And there is no reason that Pakistan cannot do it. The example of Turkey is before us. Turkey has transformed its dairy sector in the last decade or so where the processed/packaged milk industry now comprises 70 per cent of the market, up dramatically from 30 per cent just a few years ago.

In spite of efforts to make the use of packaged milk more widespread, the majority of Pakistanis still drink loose milk and even those who consume packaged milk use it in conjunction with loose milk. Therefore Pakistan presents a tremendous growth opportunity for milk processors. There is no denying the fact that the potential is enormous in our country. According to the industry sources, around \$800 million of foreign and local investment has taken place in dairy farms and the dairy processing sector over the last five years in Pakistan which is very encouraging.

We are still far behind in dairy industry if we compare ourselves even with Vietnam where the herd count on modern dairy farms has gone up to 30,000 heads, whereas our packaged milk industry claims to have



4,000 cows. The biggest dairy farm in the world, to no one's surprise, is of course, China with 100,000 cows.

A recent report by a multinational has predicted a 36 per cent growth in global milk consumption over the next decade. According to the study, this growth would mainly occur in emerging markets of Asia: demand in India will increase by 120 per cent, in China by 78 per cent, in Pakistan by 35 per cent and the rest of Asia by over 57 per cent.

The report provides ample opportunities for Pakistan's dairy industry domestically as well as regionally for a massive growth. It is encouraging to note that the Pakistan Dairy industry has been able to register a substantial growth in the last couple of years attracting Rs20bn investment, according to some estimates.

The real challenge and opportunity, according to the report would be the growth taking place in the region around Pakistan — China and India — both being lucrative and geographically close markets, yet tough competitors. But with ample growth potentials Pakistan industry can compete and claim some share; it can expand rapidly. This should not be a problem, for the country has everything necessary for this — a huge and growing livestock population that can ensure abundant supply of milk. With better management and efficient marketing, Pakistan could have the fastest growing industrial base in the dairy sector.

All said and done, government involvement is definitely needed to take care of the developing situation. For instance, the Russians have banned dairy products from the European Union after the Ukraine crisis. Now, the fear is that the EU would dump skimmed milk around the world, making milk manufacturing technically easier and financially more lucrative. That is where the policymakers should play their role and help new players enter the domestic market — increase competition and efficiency and enable the industry to compete regionally and internationally. ■

Despite being among the largest milk-producing countries in the world, Pakistan lacks proper management and breeding practices that result in low turnovers.

Water Management Department



Water has become the most important strategic resource for socio-economic development in the Punjab. It is key driver of provincial economy and plays an intrinsic role in rural development and its transformation. Agriculture is the biggest user (over 90%) of available water supplies. Despite critical significance of irrigated agriculture to national development, it could not perform sustainably because of lack of modernization, escalating water shortages, and inefficient use of available resources amid various other emerging challenges like climate change.

Under dwindling water resources, Water Management wing since its inception during 1976 is playing a key role in enhancing the conveyance, application and water use efficiency of the available water supplies through adoption of more efficient and productive On Farm Water Management (OFWM) technologies and techniques. Water Management wing has implemented over 50 development projects in collaboration with various international (World Bank, Asian Development Bank, FAO, JICA, DFID etc.) and national organizations. Over two million farm families have directly been benefited from OFWM interventions and these interventions, over the years, have played a significant role in uplifting socio-economic status of people in rural areas.

Currently, Water Management wing is implementing annual development portfolio of over PKR 5 billion with one World Bank funded project and four locally funded schemes. These projects envisage diverse range of climate smart activities including watercourse improvement in canal areas, rehabilitation of irrigation schemes outside canal commands, installation of high efficiency irrigation systems, provision of LASER units for strengthening precision land leveling services in private sector, provision of solar system for operating HEIS, installation of tunnels for high value farming, construction of water storage ponds and human resource development activities. Most of above activities are being implemented through active involvement of private sector.

Agriculture Extension and Adaptive Research



Agricultural production is a very complex system. It depends on several inter related components such development of appropriate production technology, dissemination of modern technology to the end users, and the formulation of farmer friendly agricultural policies.

Dissemination of appropriate technology to the farmer's is of vital importance if benefit is to be derived from technological advances moreover, the gap exists between the research findings and farmers' adoption needs appropriate rectification by the adaptive research. This task is carried out through agriculture extension system in Punjab.

Adaptive Research aims at devising site specific technology packages for increasing agricultural production. It helps to adjust the results of research into suitable form before transmitting it to the farmers, keeping in view their local agro-climatic and socio-economic conditions. It bridges up the gap between research findings and farmers achievements and extension.





LEAVING the herds to their own devices is not quite the effective, modern way of managing livestock.

Livestock has given the much-needed boost to the agriculture sector that has been at the receiving end for a long time.

BY KHALID HASNAIN

THE importance of livestock in agriculture sector is gradually increasing in view of the growing economy, growing population and the growing food security in Pakistan.

According to a recent report, compiled by Punjab's livestock and dairy development department, the sector's contribution toward agriculture gross domestic product (GDP) stood at 58.6 per cent, followed by 11.6 per cent in National GDP and three per cent in the annual growth rate during Pakistan Economic Survey (2015-16). Similarly the rural population—35 to 40 million, engaged in the livestock, derived 40 per cent of the total income of the farmers.

The livestock has attracted a huge investment from the private sector that has developed several dairy farms in Punjab and Sindh after introduction of innovative approaches towards breed improvement and linkages between the farmers and the farms.

"I think that the private sector is the only one that has succeeded in bringing revolution in the livestock sector. You can see several big business groups, including Nishat, Interloop, Dada and Sapphire, that

... bull by the horns

have entered the livestock sector and helped boost it a lot," says Hafiz Sajjad Hussain, an agrarian with major in economics.

Talking to Dawn, Mr Hussain, who works for a leading food company, claims that the private sector was the only one that introduced a comprehensive mechanism for making the informal and conventional Pakistani livestock market a formal one by setting various standards under best management practices. "Previously, there was no system or mechanism about purchasing the milk under a standard (quality etc) procedure. The private sector has taught the buyers how to buy the milk by assessing quality. It has also introduced a good system for making payments to farmers under best management practices," he says.

In view of the livestock and poultry products, Punjab, according to the report, appears to be on top of the list with 61.2 per cent share in milk production, 43.2 per cent (beef), 32.6 per cent (mutton) and 69.69 per cent in

poultry meat. The report mentions the country as having a huge number of animals' species that includes cattle - 42.8 million, buffalo - 36.6 million, sheep - 29.8 million, goats - 70.3 million, camels - 1.0 million - horses - 0.4 million, donkeys - 5.1 million and mules - 0.2 million.

The province of Punjab alone has a share of 49 per cent with 20.972 million cattle, 65 per cent with 23.79 million buffaloes, 24 per cent with 7.154 million sheep, 37 per cent with 26.011 million goats, 22 per cent with 0.22 million camels, 47 per cent with 0.188 million horses, 52 per cent with 2.652 million donkeys and 41 per cent with 0.082 million mules.

The experts believe that if the government focusses on the replacement of the non-productive animals with the productive ones alone, the production can be on much higher side. "At present, the number of non-productive animals is higher than those giving higher production (milk in particular). And if we replace them with the productive animals with state-of-the-art dairy technologies, Pakistan will never be among those countries having threats to food security," says Dr Rahat Ali, Livestock Services Training Institutes (Sheikhupura) principal.

"The basic problem is awareness, as the people engaged in livestock in rural areas are uneducated and practising conventional methods and relying on the local animals (buffaloes, cows etc) giving five to 10 litre milk in a day despite knowing about the availability of the animals producing 30 to 40 litre milk daily," he tells Dawn.

The department terms livestock as the most important segment of the agriculture sector with the involvement of eight million families, contributing a lot in the socio-economic development, poverty alleviation and food security, population growth, urbanisation, changed eating patterns, increase in per capita income and export opportunities, per unit animal productivity.

It aims at livestock development strategy to foster private sector led development with public sector providing enabling environment through policy interventions and regulatory measures through better health coverage, management, best

breeding practices, insemination services, nutrition and controlling diseases of economic importance.

"The other issue the department has been facing is the infrastructural condition of our veterinary hospitals. Though all hospitals are now well equipped, but their buildings are in dilapidated condition. However, the department has now introduced various initiatives in this regard," Dr Ali says.

With various objectives for breed improvement, disease control, surveillance and reporting, conservation of animal gene pool, capacity building and the Human Resource Development, the provincial government is presently implementing as many as 12 livestock development projects worth over Rs6.855 billion. The projects include provision of effective veterinary and extension services at livestock farmers and improving production performance of livestock through de-worming and vaccination.

Four new projects worth Rs356 million, including enhancing competitiveness of livestock production system by joint venture of the livestock department with skilled community activists, have also been planned by the department to execute in the ongoing and next fiscal year. It further claims of taking various initiatives including carpet vaccination against contagious/infectious animal diseases, provision of customised motorbikes to field technical staff in the wake of improving service delivery and establishment of fully equipped 110 mobile veterinary units for the provision of prophylactic and treatment facility to farmers at their doorsteps besides marketing the livestock a potential investment opportunity in vaccine production and marketing, fodder, world halal market, processing and value addition and market linkages.

"At present, I am seeing our agriculture sector nearing collapse. And the only thing that has kept this sector still alive, to some extent, is the livestock. So our agriculture future lies in the livestock if we continue giving it due importance," says Punjab's livestock and dairy development secretary Naseem Sadiq. He says that the main issues the department has been

battling for was the provision of quality milk and meat to the public at large and the reasonable payment to the farmers engaged in such businesses.

"The people must understand that they would have to pay good prices to the farmers if they want good milk and meat," he adds. Mr Sadiq terms the local animals' species as best in the world, claiming that Pakistan was a country where people could find different species after every 100 kilometres. "There is an impression that local buffaloes or cows are less productive than the imported ones. It is wrong to say. If we focus on prevention of diseases and improve the feed/nutrition for the indigenous buffaloes and cows, we can easily increase their production," he says.

"And it can be assessed well from a buffalo that gives five to seven litres of milk in a village and 12 to 15 litres in Lahore. It means the problem is diseases and the nutrition since the same is served well in Lahore than the rural areas," he argues. Mr Sadiq says that the elite breed producing 25 to 30 litres of milk a day would be no more of use/production after a couple of years. And finally it would go for slaughtering, while the local breed giving less milk would remain productive for several years and finally go for slaughtering/meat productions after a long time.

But on the other hand, Mr Hussain does not agree with the livestock secretary's arguments. "I agree that the elite animals will be no more of use after a couple of years. But we have to see the requirement of the milk and meat that has been increasing on daily basis. And the prevailing situation demands the availability of the imported breeds that are comparatively more productive than the local species," he justifies.

He says if the farmers continue to rely on indigenous breed with several other fixed and routine expenses, they would neither meet the requirement nor compete with the international market. "Therefore, we will have to adopt an 'out of the box' approach if we really want to boost the livestock in agriculture sector," he adds. He says that keeping in view the situation, the private sector left the local breed and introduced the well productive elite breed/species in Pakistan. "That is why the livestock is now considered to be the most important segment in agriculture sector," says Hussain. ■

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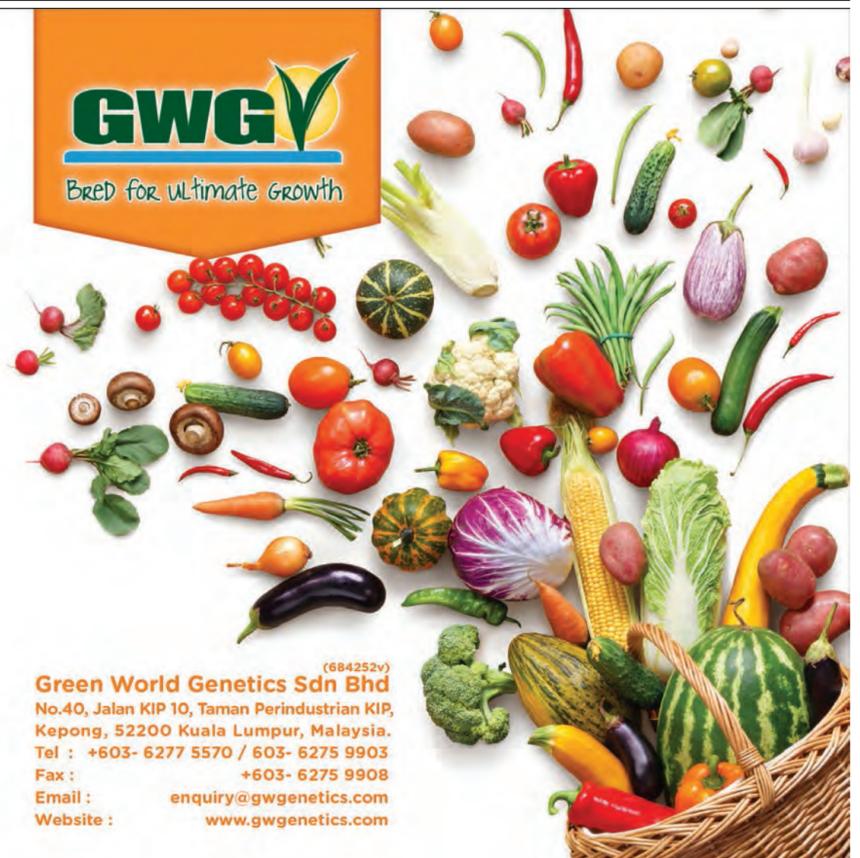
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The poultry puzzle

BY KHAWAJA AMER

PROTEIN is one of the most vital elements of the human diet and is regarded as a vital component by leading dieticians. In a country where malnutrition is a common problem, there is a dire need to make the chicken industry modern and efficient to meet the challenges of the international market. One cannot deny the fact that the poultry sector is one of the most organised and vibrant segments of the agriculture industry of Pakistan.

An economic analysis of poultry egg production was conducted in Quetta, district, Balochistan, by the Department of Agricultural Economics, Faculty of Agricultural Social Sciences, Sindh Agriculture University, Tandojam. The survey stated: "This sector generates direct and indirect employment and income for about 1.5 million people. Its contribution in agriculture and livestock is 6.4 per cent and 11.5 per cent, respectively. Pakistan has been producing 10,000 million table eggs and 1,196 metric tons of chicken meat annually.

But unfortunately, despite being an important and vibrant segment of agriculture in Pakistan with a significant contribution to the national GDP, it is being treated differently for the purpose of taxation, making the survival of the industry pretty much difficult."

Pakistan Poultry Association (PPA) Chairman Khalil Sattar says it doesn't stand to reason that why crop yield and poultry are treated differently for the purpose of taxation when both are providing the same nutritional support for the body. Seeds for crop and vegetable production are subject to three per cent import duty while the seed production sector in poultry, which is the grandparent and parent stock for hatching eggs is subject to 16, 20 and 21

per cent import duty, respectively.

He argues that fertiliser and poultry feed is one and the same, because both the items are used for a similar purpose. It is astonishing that all fertilisers are not only exempted from import duty but are heavily subsidised.

At the same time, all poultry feed ingredients comprising more than 50 per cent of the cost component are subject to import duty and sales tax. For instance, Soya bean meal, an important ingredient of poultry feed is subject to 11 per cent import duty, 10 per cent sales tax and one per cent additional customs duty. So is the case with other meals like sunflower, canola seed, corn gluten feed and enzymes.

Sattar points out that on the side the machinery and agriculture greenhouses are subject to zero per cent import duty and zero per cent sales tax, whereas, equipment and machinery used in the poultry industry are subject to three per cent import duty and 17 per cent sales tax.

Elaborating his point, he says that the equipment used in poultry are exactly the same as that used in greenhouses as environment-controlled poultry houses and greenhouses use an evaporative cooling system which includes hot air generators and a drip irrigation system which is similar to the nipple dripping system used in poultry. In short, all greenhouse equipment can be used in poultry farming as well. But strangely enough, for the purpose of taxation, they are treated differently, making the continuation of business difficult. It is time the government provided a level playing field to the poultry industry, he remarks.

Sattar seems pretty dejected with the government's step-motherly treatment. He complains that because of anomalies and contradictions in the taxation system, the poultry farming sector is sustaining heavy losses. For instance, Parent Stock Farmers, the day-old chick producers, suffer heavy losses as

the annual average price of the day-old chick was Rs.24 against the cost of its production of Rs.31.50 as worked out during 2012 jointly by the Director Poultry Production, Government of Punjab and the Commissioner Animal Husbandry. It has since then gone still higher.

The greatest loss has been sustained by the poultry seed producing sector which is the parent stock and the grandparent stock and finally adversely affects the broilers. Heavy taxes are adding to the already high risk faced by the industry due to multiple diseases, environment factors, etc.

Comparing the risk factor in the poultry industry with that of other developed countries, he says that in developed countries, in case of an outbreak of disease in chickens, the government immediately takes charge, firstly by destroying all the chickens in the affected farms and then taking preventive measures.

The best part of the whole exercise is the fact that the affected farmers are duly compensated which enables them to start afresh. But in Pakistan, the affected farmers are not compensated and, as a result, they take quite a long time to re-establish themselves. In such a situation, the best solution that he suggests is to arrange loans from banks and the government must at least bear the cost of the markup on such loans.

He also argues that being a highly perishable generic product (commodity), there is tremendous fluctuation in demand and supply and the price fluctuates accordingly. When the price goes up, following market trends, the government gets upset and tries to control the price which is not a practical approach. In fact, the only way to stabilise prices is to change the perishable nature to a storable one, which can only be done by encouraging the poultry processing sector in the country. Pakistan is the 10th largest broiler producer in the world



PROTEIN in the making!

and the 10 top producers process almost 90 to 99 per cent of the live broilers produced, but even then, Pakistan produces less than five per cent of the total world output.

Chicken processing units have now become one of the most essential and vibrant contributors of frozen food worldwide. Brisk consumption of chicken, in fact, has become a way of life and has led to the rapid expansion of the chicken market in the world. Chicken farms are a part of this phenomenal expansion.

The poultry industry in Pakistan has also made a significant contribution to the enhancement of food production. There is no denying the fact that poultry farming is of extreme importance to the country, especially in terms of offering better food and animal proteins in a more accessible and cheaper way.

The poultry industry has all the potential to generate huge foreign exchange, says Khalil. He says

that if the government desires stability in poultry prices and encourages value addition for the purpose of exporting Halal poultry products, incentives for poultry processing is the only way to generate huge foreign exchange. In order to make food available at lower prices, the UK to date provides zero rating not only to processed chicken but also to poultry feed ingredients.

Sattar is of the view that in order to continue further development and expansion in the field of poultry production, import duty and sales tax on all inputs of poultry farming should be brought at par with agriculture.

To stabilise poultry prices, maintain equilibrium between demand and supply and to encourage production of Halal poultry and its value added products, zero rating should be restored. Though the UK has a much higher per capita income, it provides zero rating to poultry and poultry feed ingredients. Why can't we, he asks. ■

University of Agriculture Faisalabad (UAF)



The University of Agriculture, Faisalabad, is a university in the city of Faisalabad, Punjab, Pakistan. It was established in 1906 [1] as the first major institution of higher agricultural education in the undivided Punjab.

At independence in 1947, Pakistan was a predominantly agricultural country. In spite of subsequent industrialization and development, agriculture remains central to its economy. After independence, the Government of Pakistan appointed National Commissions on Food and Education to reform the existing agrarian system in Pakistan and to formulate measures for developing better agricultural potential. The commissions made a plea for the establishment of an agricultural university for research and education in agriculture. It was established by upgrading the former Punjab Agricultural College and Research Institute in 1961.

The 1,950 acre university campus represents both history and the present era. The new campus is lush green with a conglomeration of monolithic blocks built in modern style. The old campus is reminiscent of traditional Muslim architecture. The campus is located in the centre of the city at a distance of 12 km north east of the Faisalabad International Airport, about 2 km.



Directorate of Pest warning and Quality Control of Pesticides

Government of Punjab Agriculture Department has a specialized wing for Plant Protection i.e. Directorate General of Pest Warning & Quality Control of Pesticides Punjab responsible for monitoring of pest development and executing all the plant protection activities throughout the Punjab province.

Objectives of this wing is to monitor and execute following activities throughout the Punjab:

- Plant Protection Activities with the main aim to adopt IPM Techniques for insect pest and disease management and to apply the pesticides only when needed.
- Quality Control of Pesticides including Registration of Pesticide Distributors.
- Training of farmers / pesticide dealers / extension agents in plant protection and safe handling / use of pesticides.
- This wing was created with the main aim to stop indiscriminate use of pesticides and to acquaint the farmers with appropriate use of pesticide with doses and time of spray.
- Initially it was created as Project Directorate with headquarter at Multan for only cotton crop in cotton zone but keeping in view the effectiveness of this system, it was expanded to the entire province of Punjab for all crops, vegetables and orchards etc. During 1987 the post of Project Director was upgraded to that of Director. Further due to its importance and achievements the Government elevated this Directorate to Directorate General during the year 2005 along with 190 posts of different categories





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1 MILLION
households benefited

JOB

Since 2011, more than 336,500 new jobs can be attributed to USAID programs

336,500
new jobs

BUSINESS

In the past 6 years, Pakistani businesses have enjoyed an increase of more than \$170 million in sales and approximately \$76 million in exports through USAID's efforts

\$170 million increase in sales
\$76 million increase in exports

ASSISTANCE

From 2002-2015, USAID allocated more than \$350 million to support Pakistan's agriculture sector

\$350 MILLION
worth of agriculture support

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U.S.-Pakistan Partnership for Access to Credit through USAID's Development Credit Authority, has teamed with Bank Alfalah Limited, JS Bank Limited, First Microfinance Bank of Pakistan Limited, and Khushhali Bank Limited to provide up to \$60 million in financing mechanisms to help micro, small, and medium enterprises, including agribusinesses.

Pakistan Private Investment Initiative is creating investment funds to inject capital into high-growth small and medium enterprises, providing a basis for the formation of a private equity industry in Pakistan.



International Water Management Institute reforms farmer-run irrigation schemes, improves measurement of irrigation system performance, recalibrates irrigation water rates, and puts farmers in charge of groundwater.



Agricultural Innovation Program supports research to help farmers producing cereal, vegetables, fruits, and livestock products. Partner: International Maize and Wheat Improvement Center (CIMMYT)



Wheat Production and Enhancement Program for Pakistan supports research that leads to identification, adoption, and optimal agronomic management of new wheat varieties.

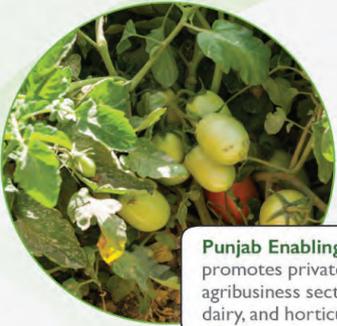


Gomal Zam Dam Irrigation and Command Area Project
 helps WAPDA and the Khyber Pakhtunkhwa Department of Agriculture provide year-round water to residents.

Satpara Development Project
 has constructed on-farm irrigation systems for over 15,500 acres downstream from the Satpara Dam in Gilgit-Baltistan. Partner: Aga Khan Rural Support Program



U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security
 drives innovation and growth in agriculture with research focusing on climate change, precision agriculture, policy, and biotechnology. Partner: University of Agriculture, Faisalabad & University of California, Davis



Punjab Enabling Environment Project
 promotes private sector-led growth in the agribusiness sector to improve livestock, dairy, and horticulture value chains.



U.S.-Pakistan Partnership for Agricultural Market Development
 helps Pakistan's commercial agriculture and livestock sectors meet international and domestic demand in targeted product lines by improving production, marketing, and business management practices.



Balochistan



Sindh



International Wheat and Maize Improvement Center
 plays a crucial role in catalyzing research on cereals using best agronomic practices.



Center for Agriculture and Biosciences International
 strengthens pre- and post-harvest management of pests of high-value crops. Partner: Texas A&M University



International Center for Agricultural Research in the Dry Areas
 promotes agricultural development in dry areas, with research and training activities that cover crop improvement, water and land management, and climate change adaptation.



American Soybean Association
 aims to develop Pakistan's aquaculture sector and its use of floating feeds made from U.S. soy.

Chicken in every pot

BY KHALID HASNAIN

With the joint efforts of public and private sectors, supply of hygienic chicken meat for consumption can be ensured.

POULTRY is one of the largest agro-based segments of Pakistan having an investment of over Rs750 billion and two per cent contribution to GDP. Since the commercial poultry, in the country, was formally established over half-century ago, the sector has been, reportedly, making a tremendous contribution in bridging the gap between supply and demand of meat protein.

According to Pakistan Poultry Association (PPA), with the continuous depletion of supply of red meat, the poultry is the cheapest available animal protein source for the public at large and as such is an effective check upon the spiraling animal protein prices, causing deficiency of protein in human bodies in view of the required standards.

"At present, there are 9-to-10,000 poultry farms/sheds, including 5,000 controlled sheds in all provinces and majority of them exist in Punjab. Of 5,000 controlled sheds, 4,000 are in Punjab and rest 1,000 in other three provinces. These 5,000 controlled/automated sheds have replaced about 25,000 conventional farms in the country," explains Syed Javaid Bukhari, the PPA secretary. He thinks that poultry farming is comparatively more economically viable than goat and calves farming.

Poultry industry generates employment and provides source of income to more than 1.5 million people of Pakistan directly and indirectly.

According to senior PPA official Abdul Karim Bhatti, the poultry is a

major source of the provision of protein, which is economically viable for all. "It is the healthiest part of food, becoming more efficient to provide protein than any other meat," he says. "Despite various challenges, this industry continues production at a good pace," he tells Dawn.

The poultry sector is one of the most organised branches of the agro-based sector of the country having a growth rate of 10-12% per annum. At present, over Rs190 billion worth of agriculture produce and by products of agriculture are being used in poultry feeds. There are over 15,000 poultry farms spread deep into the rural areas across the country from Karachi to Peshawar having capacity ranging between 5,000 to 500,000 broilers.

As the marketing channels of broilers and eggs are predominantly in the unorganised sector, 40-45 per cent of the total meat consumption is being procured from poultry products.

The Poultry slaughterhouses, processing/value addition in organised sector is five to six per cent and annually we are producing 18,000 million table eggs and 2,250 million kilograms chicken meat.

"In our country, per capita consumption of meat is only 7kgs and 65-70 eggs annually, whereas developed world is consuming about 40kgs meat and over 300 eggs per capita per year," states a PPA report. It says that as per WHO standards, daily requirement of animal protein for a person is 27 grams whereas public is consuming 17 grams only, which indicates less animal protein consumption by the people as per



LIVE birds continue to outdo the processed chicken market across the country.

required standards.

Last year's broiler parent stock placement remained at 13 million birds. Similarly the broiler day-old chicks in number were 1,560 million out of which 1,404 million were marketed, resulting 2,250 million kgs chicken meat production. The layer parent stock remained at 0.925 million while the commercial layers touched the figure of 60 million, producing 18,000 million table eggs. Approximately 8.5 million tonnes feed was produced last year.

The main issue that the poultry sector has been facing for many years is the availability of hygienic chicken meat as the usage of oral antibiotics and hormones for growing chicken at farms has raised concerns over provision of healthy meat to the public at large at the vendors' shops.

Poultry experts believe that both the public and private sectors will have to join hands in order to provide the hygienic chicken meat to the people by devising an effective strategy in this regard. "It is an important source of protein, which is necessary (27 grams) for consumption by each adult person. Since a person gets 16 grams protein from other resources, he/she lacks 11 grams. And the poultry sector is bridging this gap to some extent," says Prof Dr Athar Masood, Head of Department of Poultry Sciences in the Lahore University of Veterinary and Animal Sciences (UVAS). "There is a myth or misconception that the broilers are given hormones. This is not correct," he adds.

However, Prof Masood confirms administering of oral antibiotics to the broilers at farms in case of any disease. And this causes insertion of these antibiotics' residuals in the body after consumption of such chicken meat that makes the human body antibiotic-resistant.

"Sometimes, we have to use heavy form of antibiotic

(Klaricid) for light infections. It means that our body has become antibiotics resistant, rejecting a majority of antibiotics to cure and needs heavy antibiotics for this. It also means that it happened after consumption of such affected meat (unhygienic one). It is really a serious issue that must be on top priority of the both public and private sectors," he explains.

While the UVAS poultry department head sees the issue as a serious one, he suggests various ways leading to human consumption of hygienic meat. For the removal of antibiotics affects from the broilers, those engaged in the poultry businesses must ensure that their chickens drink water for at least five days before their transportation to the vendors' outlets. But normally it does not happen.

Therefore, the government and poultry associations and the farmers themselves will have to do this at any cost besides improving the structural/infrastructural condition of a huge number of chicken sale centres across the country. And side by side, the people should switch to buy the processed chicken meat being provided by various private companies rather than getting the same from the conventional shops.

"These companies guarantee the supply of antibiotic-free chicken in the market, as they claim to have no disease-ridden birds at their state-of-the-art farms. And consumption of such hygienic meat would prove to be much healthier for the humans," he claims. UVAS has also established a farm of 2,500 birds as a pilot project in which disease and antibiotic-free chickens are being grown under scientific methods with good management practices. "In this way, we can also compete with the international market," Prof Masood believes.

On the other hand, PPA offi-

cialists list a couple of issues the poultry sector has been facing for some years. "Actually a lobby is unnecessarily defaming our sector. First it spread misconceptions, such as, giving hormones to birds at farms and later other things to prove that chicken meat is unhygienic. This has damaged the poultry sector badly," complains Bhatti.

He quotes a recent international meeting of the poultry sector's representatives of Pakistan, India, Sri Lanka and Bangladesh in which the poultry farms management of our country was declared the best in the region. However, the condition of chicken sale points/outlets was noted to be the worst that raised various hygiene-related issues. "In view of the meeting and our further investigation, we have finally reached a consensus that the main issue the poultry sector has been facing is the chicken meat certification and traceability. And once we ensure the provision of hygienically certified chicken meat in the market and the government makes efforts for the conversion of the existing deplorable sale points into the modern ones, there will be no issue in future," the PPA official explains.

He blames the provincial and federal governments for ignoring such important interventions intentionally just to keep the chicken prices low to make the people happy for their political interests.

Therefore, the governments would have to come out of such traditional and conventional tactics to lure the voters by manipulating the price bars so that the people could use healthy chicken at a higher price but still very much cheaper than beef and mutton. He also urges the federal government to declare the import of various poultry raw materials tax free, as it would facilitate the masses in buying hygienic meat at reduced prices. ■



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Meeting the meat demand

BY TAUSEEF RAZI MALLICK

WE are meat-eaters — as a society in general and individuals in particular. The amount of meat we consume in our daily routine is enough to classify us as the most 'dangerous' carnivorous creature in this world.

Be it chicken, mutton or beef, the average consumption of meat by one average household is often more than what a meat-eater jungle animal consumes in the same period of time. The major reason for that is probably the approach towards consumption; animals consume meat to survive but we have made it a way to express our social standing.

This emerging but alarming trend is hurting both — the society and the meat industry. In the past few years, there has been a tremendous hike in meat consumption and the industry is finding it hard to meet this meat demand. Hence new methods and techniques are being derived along with legislating new policies to encourage more and more investors to invest in this business in order to keep the demand-supply graph under control.

The newly calculated meat consumption trend suggests that there is an ever-growing domestic demand for each household and it can be mainly attributed to the increasing population, urbanisation and growth in average income.

The consumption of meat is one thing that can be dated back to the evolution of mankind, but despite the evolution of man and the massive change in approach towards life over centuries there has not been much change in the functioning of the meat industry — or in fact its classification as an industry.

Till this date, the meat sellers work in isolation in most parts of the country. However, in bigger cities, efforts have been long made to channelise the production and selling of meat — of all types — but with little effect on



THERE are reasons for the butchers to be all smiles. They are keeping the competition at bay ... thus far.

Even with the threats it poses to public health, fresh meat still manages to get the consumers' vote of confidence.

the growth.

The mechanism is present and apparently is being implemented too but a general visit to the market can tell how flawed it is. In fact, if you happen to be the one who does the grocery shopping for home than you will be quite familiar with the flaws in this whole mechanism.

In Pakistan, most of the people, roughly 95 per cent, buy meat from the poultry or meat shop in their respective locality. This has been the trend since ages and will likely remain so for years to come. The trust issues attached with

the quality of meat is probably the main factor behind this ever existing trend along with the easiness. Meat is a daily consumption item like vegetables and therefore the former needs to be as easily available as the latter. And hence the best option to buy meat easily automatically narrows down to the local meat vendor near your home.

The decline in quality has, however, been a considerable factor in the past one decade if not more. There have been all kinds of malpractices reported in the production and distribution of meat and

related products.

Health hazards have also increased and therefore the general population is now looking for new places from where it can buy quality meat.

In the past few years many incidents were reported where the meat-sellers were caught selling unhygienic meat or even meat of dead animals. And if you think that was enough to make you a vegetarian, then you are mistaken. Incidents were reported where the meat-sellers were found selling meat of dogs in place of mutton and of donkey in

place of beef. This scandal, of sort, took the whole country by surprise.

These incidents were not limited to major cities, as one would think since the demand is too high here. But even the villages and towns were not spared.

In cities the malpractices were done in an orderly manner while in small towns and villages they were in isolation, but kept happening and were reported on national media.

This was the time when processed

Continued on Page 19

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Agriculture land development of 25000 acres through 306 operational bulldozers Ground water exploitation through 3000 tube well bores with 133 hand boring plants and 19 Power Drilling Rigs 1056 Electrical Resistivity Meter Surveys for ground water exploration through 28 ERM at District Level Soil and Water Conservation Structures including mini dams and small dams in Potohar and Barani Areas of Province

Technology Induction

GPS tracking system for Bulldozers and Vehicles of the Department E-Booking of Bulldozers for farmers to enhance transparency Establishment of Hi-Tech

Mechanization Centres Design and development of Modern Agriculture Machinery through Reverse Engineering.

Future Focus

Horizontal Land Development for increasing population needs of food & clothing and to make efforts for value added agriculture produce To lead towards mechanized farm operation for labour and time saving Standardization of Agriculture Machinery for better standards of Quality and availability Expansion of post harvest machinery for low shelf life agriculture produce.



Punjab Agricultural RESEARCH Board



Punjab Agricultural Research Board (PARB) is established as an autonomous body under PARB Act, 1997 to foster an integrated approach for research planning and efficient allocation of research resource so that the agriculture innovation system of the province can generate appropriate solutions of the issues faced to various stakeholders in the food and fiber chain.

PARB's vision is to enhance sustainable productivity, reduce poverty, ensure food security and promote competitiveness in the agricultural sector through output oriented agricultural research developments plans. PARB's mission is to support efficient development of scientific technologies for the prosperity of the agricultural

Functions

The Board shall take all such measures as it deems necessary for the promotion, development and conduct of agricultural research in the Punjab. To meet these objectives, the department has the following functions: Plan, coordinate, monitor and evaluate agricultural research, Approve agricultural research and training priorities, Suggest measures to the Government to upgrade agriculture research and its management in the Province, Redirect or re-allocate resources of the Board, Approve research projects subject to the powers equivalent to the Departmental Development Sub-committee (DDSC) as may be notified by the Government, Collaborate with national

BY SHEEMA KHAN

LAST year, 26 people, many of them from a single family, were declared dead after ingesting *mithai* that had been mixed with a pesticide. This tragic incident took place in a village in the Layyah district of Punjab province. The pesticide detected in the sweets was reported banned in Pakistan, and shops were not permitted to sell it. Whoever did whatever, the end consumers paid the price with their lives.

Pesticides are chemicals that are used in agriculture to protect crops against insects, fungi, weeds and other pests, and are also used to protect public health in controlling the vectors of tropical diseases, such as mosquitoes. Moreover, apart from the useful use of pesticides, they are potentially toxic to humans.

According to United Nations' latest report of the Special Rapporteur on the right to food, pesticides are responsible for an estimated 200,000 acute poisoning deaths each year, 99 per cent of which occur in developing countries. Pesticide residues are commonly found in both plants and animal food sources, resulting in significant exposure risks for consumers. Traces may remain on fruits and vegetables that are extensively treated with pesticides before they reach the consumer. The highest levels of pesticides are often found in legumes, leafy greens and fruits such as apples, strawberries and grapes.

Unfortunately, there are no reliable global statistics on the number of people who suffer from pesticide exposure, according to the UN report. In line with the global trend, Pakistan has no official statistics which may suggest how many people die from pesticide exposure of any kind. On contacting the World Health Organization (WHO) as well as the Food and Agriculture Organization (FAO) representatives in Pakistan, *Dawn* was unable to get any, let alone exact, numbers related to deaths caused by usage of pesticides.

The government, too, cannot provide statistics. Not even those which may suggest the number of pesticides imported or the amounts used in Pakistan.

According to Dr Syed Waseem-ul-Hassan, Director-General, Department of Plant Protection (DPP), at the Ministry of National Food Security and Research, the figures may be compiled but it is a lengthy process.

Furthermore, the pesticides are all imported, he says. "We import 100 per cent of the pesticides used countrywide," says Dr Hassan. He adds that they register and allow pesticides into the country which are not harmful to humans. "There is a strong mechanism which exists to monitor the import of pesticides. One has to send an application to DPP in order to import a pesticide," adds Dr Hassan.

He also shares that the product goes on "test and trial for two years". Furthermore, a committee to ensure the standard and quality of the product is taken on-board so that the "very best" of the pesticides are distributed in Pakistan.

Dr Hassan also suggests that because farmers are "highly illiterate", they go for excessive use of pesticides. The quantity used by them is based on guess-work. "Excessive use of any product is harmful. So is the case for pesti-



PACKED with nutrition or pesticides?

Killing fields

cides. We lack safe-handling," he says.

A landlord based in Mirpur Sakro, Sindh, doesn't agree with the claim that pesticides are being imported. "Locally produced pesticides are used by majority of the farmers," says Alam Sher.

Just like Dr Hassan, Sher also highlights the excessive use of pesticides. "The quantity to be used is written on the packaging. Farmers usually measure with cups. Nothing is ever accurate in Pakistan," grumbles Sher.

He also reveals that farmers don't care about the side-effects and end up using so much of the product that it leads to destroying the plant. "Isn't this enough to suggest how harmful it is for human consumption?" questions Sher.

In memory of the consumer

After the vegetables and fruits are ripe and good for consumption, they are sent to the wholesale vegetable markets (*sabzi mandi*) in different cities from where vegetable and fruit vendors buy the fresh produces and sell them to the masses.

"The produces are absolutely clean and fresh. You won't see any dirt on them," shares a confident Israr Abbasi, who sells vegetables in a neighbourhood in Karachi. Not aware of the harmful effects of pesticides, he is sure that every person washes the produces after going home and because of that the vegetables or fruits are safe for consumption. "The germs should die once produces are washed."

Abbasi does not consider the poisonous pesticides as a big enough deal to think about. "No one has time to think about these petty issues. At least I haven't received a complaint ever," he says with delight.

According to WHO data, in 2012

an estimated 193,460 people died worldwide from unintentional poisoning. Of these deaths, 84 per cent occurred in low-and-middle-income countries. In the same year, unintentional poisoning caused a loss of over 10.7 million years of healthy life.

Save yourself

A professor at Faisalabad's University of Agriculture shares some expert information about pesticides. "Carcinogenic chemicals are present in the pesticide," says Dr Mansoor-ul-Hassan who teaches at the Department of Entomology. "Using pesticides should be the very last option when it comes to plant protection."

Dr Mansoor shares the shocking fact that Maximum Residue Limit (MRL) is checked only in the produces which have to be exported. MRL is the maximum amount of pesticide residue that is expected to remain on food products when a pesticide is used according to label directions that will not be a concern to human health. He blames lack of laboratories and government will to produce vegetables and fruits safe for consumption at the local level.

Did you know that just Jinnah Postgraduate Medical Centre (JPMC), a hospital in Karachi, receives six to seven patients of poisoning on a daily basis? In fact, majority have to do with organophosphate poisoning which is caused by pesticides.

"Agricultural produces with pesticides residue are highly life-threatening. Youngsters with this poisoning in particular are often put on ventilators," says Seemin Jamali, Executive Director and Head of Emergency at the JPMC. When asked about what the doctors do when such a patient arrives, she says that it all depends on how long the patient

has taken to get to the emergency room. "Every case is different. Stomach wash is necessary," adds Dr Jamali.

"WHO advises extremely cautious use of pesticides, where utmost critical." This is shared by Dr Mohammad Assai, Acting WHO representative in Pakistan. "Risk assessment for pesticide residues in food, as conducted by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), establishes a safe intake level after assessing the level of risk," says Dr Assai.

The representative also shares that acceptable daily intakes (ADIs) are used by governments and international risk managers, such as the Codex Alimentarius Commission, to establish MRLs for pesticides in food. MRLs are enforced by national authorities to ensure that the amount of pesticide residues, consumers are exposed to through eating food over a lifetime, will not have adverse health effects.

Wanted: Good governance

Citizens care about three things when it comes to purchasing something: quality, price, availability. This is the view of Abrar Hafeez, Secretary-General, Consumer Rights Commission of Pakistan (CRCP). "All rules, laws and standards are applied when the produces are to be exported. Otherwise, it'll give Pakistan a bad name. But it is very rare for local usage."

At the federal level, the government does not consider the problem a big one, according to Hafeez. Although laws are available, but enforcement is a miss.

"The government neglects the problems associated with the usage of pesticides. Since pesticides can result as deadly for humans. It means that the government has no reason to neglect this issue."

But it isn't just Hafeez here who is asking for government attention. According to the landlord Sher, the government does not even provide safety goggles, masks or gloves. "No boots, nothing. Most important is the air-purifying mask. Farmers easily fall ill as they face breathing prob-

lems, lung failures and what not," shares a disgruntled Sher. In fact, he also adds that farmers are not trained in the Sindh province at least, and that they are not even given any sort of awareness on the issue of pesticides.

Ironically, government representative DG Dr Hassan of the Department of Plant Protection claims that trainings are conducted at provincial levels. "Every province is independent in this regard. They send out trainers in various areas to teach farmers how to use pesticides, the precautionary measures needed etc."

But during this statement, he mentions that he is aware of the trainings going on in Punjab and "maybe Khyber-Pakhtunkhwa (KP)", but is unaware of the conditions in Balochistan and Sindh.

Where should consumers go?

Pesticides can result in various diseases which may reduce life expectancy. Pakistan is much more susceptible to harmful impacts of pesticides because of a lack of regulation.

"You have to inform consumers; otherwise, it falls under deceptive marketing." This is the view of Nadeem Iqbal, CEO, The Network for Consumer Protection. "If the consumer does not know what that product is made of and how harmful it may be for that person, it is a fraud," he says.

Iqbal tells *Dawn* that consumer courts are very much present in the provinces of Punjab and KP. "Although they do not exist in Sindh and Balochistan, consumers can still go to courts in their province because laws exist to protect them." According to him, Punjab is home to 11 consumer courts, whereas KP has eight.

The erstwhile NWFP (now known as KP) established its Consumer Protection Law in 1997, followed by Balochistan in 2003 and Punjab in 2005. Consumer Protection Law, Sindh, was approved in 2015. However, Consumer Courts have not been established yet. Punjab Consumer Courts were approved in 2006 and became functional in 2007. Overall, the scenario is grim. And that is an understatement. ■

It is imperative to educate the farmers about the harmful effects of pesticides in order to ensure consumer safety.

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The meat market

Continued from Page 17

and packaged meat actually made inroads to the average household, where it had no chance otherwise in normal circumstances.

People were forced to make expensive choices in the better interest of their household and loved ones.

Even the families that were against consuming processed or packaged meats were forced to buy it due to the obvious hazards linked with unprocessed meat.

Hina Mujeeb Alam, a working woman who runs her household, says that she buys mutton from a butcher shop in the locality but that's a trusted butcher as he slaughters the animal himself and not brings the meat from somewhere else.

"We are buying mutton from him for quiet sometime now and are satisfied with it," says Ms Alam, while throwing in her dislike for poultry chicken.

"I am totally avoiding eating chicken, especially after the doctors advised me and told about the hazards associated with poultry chicken."

It is pertinent to mention here that the per capita consumption of poultry meat in Pakistan is around 5kgs per year. It is more than half the overall per capita meat consumption of 8kgs.

Ms Zeenat, a teacher by profession, says that she did have complaints with the open meat but is yet to buy processed or packaged meat for household consumption.

"I have issues with frozen meat. What's the point of buying meat, or anything else for that matter, if you know it's not fresh?"

She is of the opinion that the threat of substandard meat is very real but one cannot compromise to consume fresh meat due to this threat.

"You should be careful while buying but should not give up on fresh meat," she maintains.

Khushbo Rafiq, a lecturer by profession, says that she buys meat from the shop in her locality and was quite content with that.

"I have bought the processed chicken from a famous processed meat brand but to be honest I didn't like the taste and it wasn't much different from what we buy fresh from the local poultry shop," she says. "Then why spend the extra money?"

This reveals that people do realise the quality and hygiene issues related with the meat available at local meat shops, but, at the same time, they don't find the processed meat worthy enough to spend some extra bucks on.

BY TAUSEEF RAZI MALLICK

The 'paradigm' shift

Having witnessed a change in the consumer behaviour, many have now jumped onto the bandwagon and started offering processed and packaged meat.

THE processed and packaged meat industry might have existed for long but it should thank its rival, the fresh meat industry, which has made the game a bit easier for the processed meat industry through the provision of sub-standard meat in the past few years. It was the local meat vendors who gave way to their opponents who are now catching up fast.

In earlier decades, there happened to be a butcher shop in every neighbourhood and it would have a carcass hanging at the front with a hook. The locals would go there, debate a bit over the quality or the price and would be satisfied by the salesman; mostly butchers themselves. Such a relationship would usually be based on mutual trust.

This was the time when villages had not turned into towns and cities had not transformed into mega cities. But now the time and approach both have changed, and this change in approach has led to the influx of processed and packaged meat in our daily life.

Pakistan is changing rapidly and so is the love towards meat. According to data collected by *The Guardian* in 1969 to map the worldwide meat consumption, the meat consumption in Pakistan was about 7kgs per person.

A more recent data collected by the Food and Agriculture Organisation of the United Nations in 2009 showed that an average Pakistani was consuming around 15kgs of meat.

In the year 2009-10, the total red meat production comprised 1.65 million tonnes of beef and 0.60 million tonnes of mutton.

The processed and packaged meat providers vow to deliver a safe and affordable option for the meat lovers who are, otherwise, worried about the quality of meat they are consuming.

People, looking for safe and hygienic meat, head towards these shops or outlets which are now rapidly growing in numbers and can be spotted in every supermarket or commercial area in major cities.

In addition to the known brands, many grocery stores and super marts are coming up with their own versions of packaged meat.

The first thing that you notice about these meat brands is the presentation. They definitely make you fall in love with the meat at first sight.

Gone are the days when the carcass of the animal used to hang in the open with



THESE are clearly buffaloes and not cows. Right?

a hook. Now is the time when the nicely cut pieces of meat are displayed at air conditioned shops in glass shelves, with a tag mentioning its weight and price.

From air-conditioned stores that eliminate the risk of meat going bad on the shelves, to a closely-monitored supply chain, one leading brand claims to be changing the meat shopping pattern in Pakistan — "transforming the once-dreaded experience of visiting the butcher into a comfortable, hygienic one", if the promotional

brand brochure is anything to go by.

Usually the processed and packaged meat is provided at 10 per cent higher price in the name of value addition than what is set for fresh meat by the government authorities. But even this rule is often not abided by.

As for the other related products of meat, the rates are set by the companies since it is their product and doesn't come under any government regulation.

Another selling point that the processed meat outlets are claiming is

that their meat is free from antibiotic therapies and hormones.

They take pride in announcing that "all their livestock are grass-fed and free from artificial breeding techniques". With this catch on the offering, many farm houses have stepped into this processed and packaged meat business and instead of just providing animals to middlemen or slaughter houses, they are now selling the finished product through online shops or marts. ■

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Muhammad Nawaz Sharif

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Muhammad Nawaz Sharif University of Agriculture is a higher education institute located in Multan, Pakistan. The University was established in 2012 on the initiative of Chief Minister Punjab Mian Muhammad Shahbaz Sharif. The major objective is to provide quality professional education in the southern region of Punjab province.

Campus

The main campus of MNS-UAM is located in the premises of Sui Gas Road, Multan. Sub Campus of MNS-UAM is located in Jalalpur Pirwala.

DIRECTORATE OF AGRICULTURAL INFORMATION, PUNJAB

Agricultural information service was initiated during 1961 under administrative control of Directorate of Agriculture West Pakistan. In 1962 Agriculture Department was reorganized and Agricultural Information Service was re-designated as Bureau of Agricultural Information under direct control of Secretary Agriculture, Punjab. Later with expansion of agricultural extension and research systems in Punjab province. the Bureau of Agricultural Information was upgraded as Directorate of Agricultural information, Punjab in 1979, The Directorate was charged with the responsibility to disseminate information through effective use of print and electronic media for technology transfer to farmers to enhance agricultural productivity and profitability. The Directorate of Agricultural Information, Punjab is also responsible for Institution to institution "as well as institution to all stakeholders" communication.

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OBJECTIVES

- To disseminate incrimination about modern agriculture technology / cropping techniques through print and electronic media for transfer of technology to the farmers.
- To produce educative audio-visuals for agricultural technology transfer to growers / stakeholders.
- To work as two-way channel of communication between various formations of Agriculture Department, Punjab.
- To update knowledge of research and extension.
- To improve communication skills of professionals working in agriculture and allied departments.

Things are looking better

Continued from Page 02

price crash in maize in the province because of record acreage. It, however, did not happen. Up from 167,000 acres in 2015 to over two million acres in 2016 and production jumping by over 100,000 tonnes – from 3.97 million tonnes to 4.93 million tonnes. The price still held, rather went up. In 2015, its price dropped as low as to Rs550 for each maund. In 2016, they ranged between Rs800 to Rs1,000 per maund.

Similarly, the rice production during the year increased to 3.50 million tonnes, up from 3.39 tonnes previous year. The price also increased to around Rs1,200 per maund against Rs700 per maund a year earlier.

Despite being a disastrous year as far as acreage was concerned (a drop of 1.2 million acres – from 5.5 million acres to 4.38 million acres) the cotton production increased by almost one million bales; from 6.34 million bales in 2015 to 7.3 million bales in 2016. The average yield was one of the best the country has ever had: it was 21.21 maunds per acre against a paltry 14.60 maunds per acre a year earlier. The price also sustained a level of over Rs3,000 per maund against around Rs2,500, or below, previous year.

So was the story of sugarcane, which achieved a record per acre average yield of 650 maunds and overall production of 48 million tonnes against 42 million tonnes previous year. Barring some complaints, the price, by and large, sustained the officially declared price for the majority of farmers. Wheat remained at 19.54 million tonnes, with a slight increase in the provincial average – from 29.95 maunds to 30.54 maunds. Again, the price was not a big issue as the official procurement kept it stabilised around official line.

Minor crops like tomato and moong recovered very well and helped individual farmers greatly. For example, tomato yield was 94,000 tonnes in 2014 and it went up to 106,000 tonnes this year. In the pulses sector, moong recovered very well: from 90,000 tonnes in 2014 to 94,000 in 2015, 116,000 tonnes in 2016. It is because of this addition, the price has dropped from Rs160 per kilogram to current Rs120 per kilogram.

According to the farmers, their sector has certainly come out of the rut it was stuck between 2013 and 2015. During the year, they started at least recovering their cost of production because of two factors. Firstly, the cost of production itself came down because of massive subsidy package that both the central and provincial government had been running. It also brought down the cost of money with both of them contributing to mark-up rates. Drop in fertiliser and electricity prices. All this helped bring the cost of production down. The additional yields were mercifully not big enough to lead to price crashes; they only rationalised the supplies. This delicate balance between additional supplies and market forces kept prices stable and helped the sector back on its feet. They hope that the same trend would continue in 2017 and make the sector, somewhat, profitable. ■



WOMEN remain the unsung heroes of the farming sector. They are among the most active, but are never counted among the activists.

Empowering the community

In the face of farmer activism that had been gathering momentum for a few years, the community has started to show some gains.

BY AHMAD FRAZ KHAN

AS the farmers activism grew in strength and spread in 2015, so did the government's nervousness regarding a mechanism to deal with the restive farming community, especially in the run-up to local bodies' elections that were due in early 2016.

The well-attended All Parties Conference at Islamabad convened by the farmers, where all parties came to support them, rang alarm bells for the PML-N, both as a political party and as the government. Its calculation, at that point of time, was that farmers, as overwhelming majority, were up for political grab, say observers monitoring the situation.

What added to its political anxiety was the PTI factor: the government was still recovering from the after-effects of the PTI's four-month protest at the capital in 2014. On its part, the PTI was getting ready for another lockdown of the federal capital in November that year.

The Punjab government, each time farmers blocked roads or announced a run on provincial capital, had repeatedly promised to "take all genuine" demands to the federal government, with a pledge to put its weight behind them. The Punjab was taking all those issues up with the federal government

time to time and asking for sympathetic consideration for them.

These factors, according to many, came together to shake the federal government out of its long slumber on the sector. It was under these circumstances that the federal government announced Rs341 billion package for farming, meeting almost all demands of the farmers to a greater extent.

The farmers' main grouse was the ever-increasing cost of production and ever decreasing cost of outputs. The federal package addressed both issues by heavily subsidising inputs and doling out cash to cotton and rice farmers, who have suffered price crashes.

Under the package, the government decided to provide Rs147 billion as direct cash subsidy to the cotton and rice farmers, cultivating less than 12.50 acres, at a rate of Rs5,000 per acre. Another Rs20 billion were allocated to subsidise fertiliser. The government also promised to negotiate with local fertiliser manufacturers and gas companies to revert the increase in prices of fertilisers which has gone up by Rs200 per bag and promised cheaper LNG, as feed gas, supplies in return.

The electricity price for tubewells during peak-hours was fixed at Rs10.35 per unit and Rs8.85 for off-peak hours. This would ensure a saving of Rs 1,600 and Rs 500 per day for the farmers run-

ning tubewells on diesel for five hours daily and on petrol for same duration, respectively. The sales tax on these bills amounting Rs7 billion was to be borne by the federal government.

The custom duty, sales tax and withholding tax on the agriculture machinery has been reduced from 45 per cent to nine per cent. The rice millers have been given full exemption on the turnover tax for year 2015-16.

The government also offered Rs30 billion as the 50 per cent guarantee to banks on loans, helping 300,000 farming families. The time-limit to pay back Rs34 billion outstanding loan on rice traders was extended up to June 30, 2016. It promised to work with private bank to reduce mark-up on agriculture loans by two per cent, which it estimated would pass a benefit of Rs11 billion on to the farmers.

The value of production unit has been increased from Rs 2,000 to Rs 4,000 which would help farmers get doubled the amount of loan against their land value. Solar tubewells were also promised to farmers owning up to 12.5 acre of land.

Of all the promises that the package made, three were crucially helpful for farmers. They included direct cash subsidy, bringing down prices of fertiliser and reduction in cost of electricity. It provided the farmers a sense of immediacy.

To its credit, the federal government

took the process further when it weaved in all the concessions in the next budget. It announced Rs400 per bag subsidy on Urea and the industry added Rs50 per bag relief from its own kitty and brought the price of Urea down to Rs1,400 per bag from earlier price of Rs1,850 per bag. Similarly, the Di-Ammonia Phosphate (DAP) price was brought down to Rs2,300 per bag, with a subsidy of Rs500 per bag. The federal government spared Rs36 billion, with equal share coming from provinces. The prices of electricity were brought further down to Rs5.35 per unit for off-peak and Rs8.35 for peak hours. This measure cost the federal kitty Rs27 billion.

Another Rs40 billion were set aside for direct cash subsidy. Import duty on pesticides was taken off. Credit line for the sector was increased to Rs700 billion – doubling it in last four years. Duty on the import of agricultural machinery was slashed from five to two per cent.

As corollary of first two steps, the Prime Minister announced Rs180 billion package, mainly for the textile industry, to arrest declining exports and promote domestic business.

All these steps are expected, or at least government hopes so, to promote domestic production and help clear way for more exports – meaning thereby consumption of the production – and stabilise agri-business as well. ■




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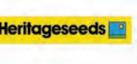
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Problem waiting for a fix

Continued from Page 04

dearly to the farmers as they are forced to use at least 40 per cent extra seeds in the hope of a right yield.

Again, the toxin level should be 1.8mg per gram but it has been 0.03 in Pakistani case. The maximum level ever has been 1.3mg per gram. "And this is why we have not been able to fight cotton diseases or pests," a farmer says.

Other stakeholders say that the Provisionally Approved Bt cotton problems were never fixed. All licenses of Bt cotton expired in 2013 so they reapplied for renewal and included more substandard Bt cotton seeds varieties, they allege.

And despite the problems, the price of the seed has seen an upward revision. This is in addition to the ever rising prices of other inputs like water and fertilisers.

The cotton watchers say the GM technology or any other must go through proper regulatory system to evaluate its performance in our local agro-climatic conditions rather than the allowed direct import and flooding in the market. Without any regulatory process the imported GM seeds may bring foreign diseases and seed-inherited problems which will destroy our agriculture sector.

GM cotton should be tested on large scale to analyse its yield and production performance in our cotton belt region while also considering other factors like input costs - water, fertilisers, pesticides etc. so that it should be sustainable and economical to the farmers and the agriculture sector. Or the best choice is to reintroduce our time-tested indigenous cotton seed. ■

BY AHMED AFFAN

Beyond borders

With the recent influx of international fashion brands, the native ones have improved themselves drastically and are actually giving a tough time to their rivals from abroad.



THE activity of turning cloth into clothes has picked up tremendous pace in the last few years.

PAKISTANIS as a nation are never short on arguable topics of discussion, but one of those things where we all seem to agree is the fact that we prefer our local fashion brands to international ones. The eagerness to shop at local retail chains is on a definite rise. Pakistan's retail sector is unquestionably moving upward and upward. It can be predicted that this industry will soon become a major hub for retail and related businesses. Although retailers have existed in Pakistan since its inception, the recent induction of global brands and outlets has sort of kick-started the sector. There can be numerous factors that declare the success of our local fashion brands over international competition, but highly reasonable price points and accessibility are surely on the top of that list.

Gone are the days when there were two seasons in a fashion calendar; post 2014 there are about 10 'micro-seasons' per year. New lines are coming out every other month. The term is 'Fast Fashion'. The fashion industry, nowadays, is designed to make you feel 'out of trend' after just one month. The merchandise is typically priced low; the idea of business is to produce relatively lower quality merchandise and sell it in high volumes at cheaper prices.

Talking about the element of affordable prices among Pakistan-based fashion brands, we need to give due credit to the country's internal capacity of growing one of the best qualities of raw materials and their highly competent aptitude for value-addition. The reason we can produce such good quality garments at such competitive rates is that we hardly have to rely on any materials or labour from outside the country; we are virtually autonomous in this area and that gives our local fashion industry a major edge over other competing markets that do not have this luxury of self-reliance. Considering this, it is surprising that only a very small percentage of our annual textile exports are fashion garments.

To be honest, the market is not exactly favourable for local businesspersons bringing in fashion brands from abroad. Even if they want to bring in a Fast Fashion, low priced international brand, they are compelled to raise the prices because of the high import tariffs. The importers, hence, increase the selling prices to the level where the initially targeted audience considers them exorbitant and when the brand eventually opens its doors to public, it ends up as just another overpriced destination for average quality apparel.

This scenario kicks them out of the Fast Fashion game, which is what this 'fashion era' is all about. The only brands that are actually serving the masses and selling high volumes at very economical price are local, and, for once, good; thankfully. In recent times, one may have noticed that many local fashion brands are coming up with their taglines focussing on the fact that they are made in Pakistan, which points towards the fact that consumers are not only aware but also appreciative of fashion apparel that is made in Pakistan.

The comparatively higher income and a more relaxed financial environment, cost-wise, allows the local names to open more and more outlets which obviously boosts their reach to the fashion-hungry audience. People living in the metropolitan cities of Pakistan are often heard complaining about the number of shopping

malls being made in the city but every shopping mall on every nook and cranny has almost every local apparel brand. It is just because they cannot afford to miss an opportunity. Even if it sounds useless now, it may turn into gold any time. Such are the dynamics of expansion of our retail sector.

Even though it is far away from being saturated, the local retail industry definitely has become highly competitive in recent times. A brand doing well always compels its local competitors to up their game if they are willing and competent enough to win a considerable market share. The other options left for them are to barely survive or just find another business for themselves. This almost cut-throat competition of gaining the market share eventually improves the overall quality of the market. We can easily observe such examples in our market.

With the more recent influx of numerous fashion brands in Pakistan from all around the world, some local brands have emerged to be the market leaders and are actually giving a tough time to their rivals from overseas. In many cases, the local brands have grown so much in this competitive setting that they have crossed the country's geographical borders and are now international.

Another aspect of our retail industry, that has flour-

ished tremendously in recent times, owing to our local produce of good quality cotton and the local artisan-ship, is the market of Cotton Lawn. A countless number of lawn brands are launched each year in market and many, if not most, do really well. Cotton lawn, which used to be a very ordinary, affordable and a bland affair, is now anything but. The enchanting colour palettes of lawn brands and glamour have certainly made lawn a hot commodity in our society.

The craze of modern cotton lawn is still fresh but it cannot be categorised as a fad anymore; it has proven its hold. From the times when nobody preferred wearing the lacklustre fabric we live in times when you will have some difficulty finding any women or in fact any grownup who does not recognise any one of the mega brand names. Lawn designers are treated as prodigies in our societies.

While there is a lack of employment opportunities for people in Pakistan, our retail industry has proved to be a beacon of hope in the last few decades. The industry has been able to provide job opportunities to not just the well-educated lot but also to people with just basic education on their merit. Our local retail industry is among those very few sectors in Pakistan that have always been a flag-bearer of the idea of equal employment opportunities. Way to go! ■

Pir Mehr Ali Shah Arid Agriculture University Presents Package For 21st Century Agriculture

Pir Mehr Ali Shah Arid Agriculture University (PMAS-AAUR) is striving hard to provide enabling academic environment for youth/farming community looking towards joining hands with modern world for exportable surplus. The effort demanded a tangible change in university education to equip the agriculture graduates for self-employment thereby making a positive contribution in national development besides improving their livelihood. To achieve this AAUR has embarked upon a number of new initiatives for developing practical Work Stations for students' training in diversified disciplines of agriculture. This exercise enabled the University to serve the community in more befitting manner and economical ways. Out of many achievements, AAUR has been successful in introducing a package for 21st Century Agriculture which not only multiplies the crop yield manifolds like 50 to 100 times of various vegetables & fruits but also provides exportable quality products acceptable in international market. This package consists of Rainwater Harvesting, Hydroponic Agriculture, and Biomass-Bioenergy Generation Units. The salient feature of the package is that it very much suits to increasing number of small land holders.

The University is not only providing conducive learning environment to its students during their academic pursuit at campus but also struggling for their capacity building to reduce the gap from education to employment. In this regard, University management has taken a number of practical training initiatives during the last four years for the capacity building of students and farmers to become successful entrepreneurs, including the followings:

- Aquarium-cum-aviary- aquaculture
- Trellising manufacturing
- Animal Feed Mill
- Wheat Processing Unit
- Poultry Farming
- Fancy Bird Breeding center
- Ostrich farming
- University research products centre
- Vegetable farming
- Fish Harvesting Model
- Dairy Farming
- Mehr Mineral Water

On academic side, several new Faculties, Institutes and Departments have been established besides strengthening the existing academic facilities. These include Faculty of Agricultural Engineering & Technology, Faculty of Social Sciences, Institute of Food & Nutrition Sciences, Institute of Hydroponic Agriculture, Institute of Geo-information and Earth Observation, Department of Climate Change and a University Sub-campus at Attock.

Ayub Agricultural Research Institute, Faisalabad

SALIENT ACHIEVEMENTS OF Ayub Agricultural Research Institute, Faisalabad

- Developed 489 varieties of various crops since its inception in 1962. These include 83 wheat, 62 cotton, 27 rice, 25 sugarcane, 29 maize & millets, 31 pulses, 32 oilseeds, 65 vegetable, 105 fruits and 3 flower varieties.
- Self-sufficient in wheat, rice, cotton, sugarcane, maize, kinnow and mango as a result of high yielding varieties.
- Developing Pothwar into an Olive Valley: Free of cost distribution of 2 million olive plants among farmers.
- For promotion of date palm cultivation in Southern Punjab, provision of high quality date palm plants to farmers free of cost i.e. Ajwa, Amber, Mabroom, Khalas, Medjoul etc.
- Development of seedless kinnow and its distribution to farmers • Research & development for promotion of non-traditional crops/high value fruits i.e., olive, grapes, stevia, kalonji, pistachio, blackberry, blueberry, avocado, cranberry etc.
- With reference to production technology, appropriate planting time, fertilizer regime, seed rate, sowing methods of new crop varieties and other technical aspects were determined.
- A large number of fruits, vegetables and cereals based value added products as well as low cost post-harvest management technologies have been evolved.
- Soil and water analysis facility to farmers at district level laboratories and fertilizer recommendation accordingly. Soil & water analysis of every field of Punjab & digital mapping.
- Establishment of Climate Change Research Centre & developing of climate resilient varieties to withstand in changing climatic scenario.
- Initiation of research on organic farming & nutrition enhancement.

Partners in progress

Engro Fertilizers – Giving back to the farmer

AGRICULTURE is the backbone of Pakistan's economy. It contributes 21 per cent to annual GDP and is the bread and butter of 45 per cent of country's population. Despite its central role, the sector has been suffering from decline. Keeping this in view, Engro Fertilizers joined hands with Engro Foundation to carry out a detailed study of the segment. The findings of the study were quite alarming and highlighted some serious issues being faced by the Pakistani farming community. Engro Fertilizers Limited then took a historic decision to help the farmer in areas of its expertise and resources. Hence 'RAHBAR' project, the biggest CSR initiative in the history of Engro Fertilizers limited, was conceived and initiated.

The background: The agriculture sector plays a central role in Pakistan's economy. It is the second largest sector, accounting for over 21 per cent of GDP and is by far the largest employer, absorbing 45 per cent of the country's total labour force. It is also the largest source of foreign exchange earnings. Nearly 68 per cent of the country's population resides in rural areas, and is directly or indirectly linked with agriculture for their livelihood.

In Pakistan, farm production is dominated by a few crops which account for more than 50 per cent of GDP from agriculture. Cropping systems vary widely because of variations in agro-climatic and soil conditions. Wheat is the major winter crop in all regions of the country. In summer, rice, cotton, and maize are grown in areas suitable for their production.

Despite its critical importance to growth, exports, incomes, and food security, the agriculture sector has been suffering from decline in Pakistan. Growth in the sector, particularly in the crop sub sector, has been falling for the past three decades. Productivity remains low, with rising yield gaps.

The provinces of Punjab and Sindh are the agricultural hubs of Pakistan. Both the provinces boast the two major staple crops namely wheat and rice. Wheat crop is a subject of national food security and is inevitably a necessary crop for small farmers to fulfil their own food requirement. Rice is a capital intensive crop that requires special agronomy and care due to its intensive water intake requirement and its susceptibility to disease and pest attack. The Wheat-Rice cropping system in Punjab has the highest number of household member's dependency per unit of cropped area while the economic return from the same, is lowest among the cropping systems.

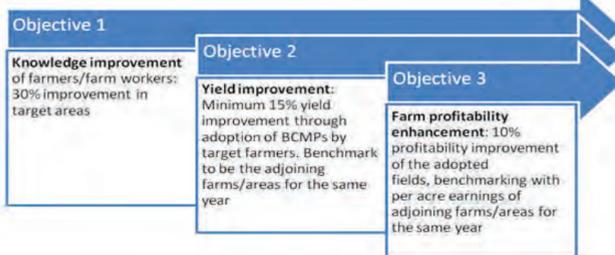
The agricultural landscape in Pakistan is mostly made up of small to medium farmers (farmers having holding up to 12.5 acres or less) who account for about 90 per cent. The small to medium growers mostly practice subsistence farming and face economic hardship. Hence the small and medium farmers hold a pivotal position in any effort to revamp the agricultural sector of the country.

Hence, RAHBAR project aims to benefit more than half a million of these small to medium farmers in the Wheat-Rice cropping system through knowledge-based interventions designed around best crop management practices.

The project: 'RAHBAR' project, the biggest CSR initiative in the history of Engro Fertilizers Limited, was conceived and initiated. The project aims to

improve farm productivity of small to medium growers in selected areas of Wheat-Rice cropping system of Punjab and Sindh through capacity building and introduction of innovative techniques for input/output resource efficiency. The project goals are: Improve knowledge of farmers/farm workers on crop management practices; Increase crop yield and; Enhance farmer/farm profitability. The project pilot was rolled out in Sheikhpura district on wheat crop in September 2015. A total of 5000 plus farmers were registered for

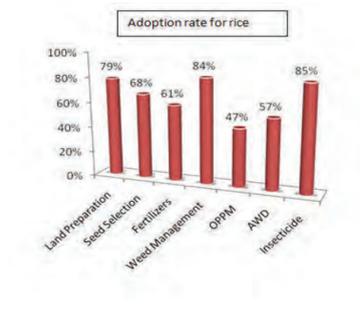
Objectives



their capacity building on Best Crop Management Practices (BCMP's). Farmer training sessions on BCMP's were held by the RAHBAR project team in 158 villages of Sheikhpura district. Additionally, 742 rural women were trained on farm activities such as grain

handling (seed and ration), seed processing (cleaning + grading), kitchen gardening, management of perishable farm produce and household hygiene. Rice crop harvest completion in November 2016 marked the end of pilot phase of the RAHBAR project. The

supervised plots compared to yield and profitability of non-target farmers in the same areas. The pilot results has proved that small steps such as farmer education on best crop management practices and proper usage of available agricultural machinery could bring about a



wheat and rice crop yield results in the Sheikhpura district are testimonial to the efforts of the RAHBAR team and marked success of the project design and operations. The project was able to achieve its targets by a stretch – 26 per

cent yield improvement in wheat and 37 per cent improvement in rice in RAHBAR supervised plots against a plan of 15 per cent along with 45 per cent increase in farm profitability in wheat and 121 per cent increase in case of rice have been registered in RAHBAR

huge change and do wonders for the farmers of the country.

Means of intervention employed: The potential limitations and gaps in knowledge dissemination and crop management practices warrant interventions at critical crop stages. RAHBAR uses Engro's years of experience and expertise in the agricultural sector to design and utilise these interventions as a primary tool to educate farmers on BCMP's pertinent to these crop stages. These interventions emphasise on increasing awareness and exposure of farmers to innovative agricultural practices.

Empirical evidence shows that the most reliable and effective means of such interventions are personal contact, persistent and continuous farm advisory, demonstration and message reinforcement.

Interventions propagated by RAHBAR project are:

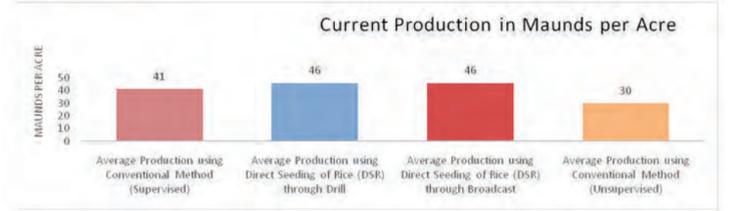
Objective 1: Knowledge Improvement
 The pre-intervention KI mapping was

Intervention	Objective	Expected Results
Group interaction of experts with farmers	Information dissemination	• Improvement in farmer knowledge index on crop technology
Distribution of promotional material: Crop literature, banners, posters, wall panels etc.	Information dissemination	--As above--
Broad based SMS-texting	Information dissemination	--As above--
Assessment of soil fertility for balanced nutrient use for rice and wheat	Field demonstration	• Efficient fertilizer use • Improvement in soil health
Promotion of Zero tillage for wheat	Innovative sowing method	• Cost and time saving in plowing expenses • Mitigation of elevated CO ₂ levels in atmosphere due to intensive tillage • Improvement in water use efficiency (WUE)
Promoting alternate wetting and drying; and direct seeding of rice for rice	Innovative sowing and irrigation method	• Cost saving in irrigation expense • Reduction in CH ₄ emissions

		from traditional way of rice cultivation under flooded conditions. • Improvement in WUE • Conservation of water resources
Partnership/Collaboration with quality conscious pesticide/seed company for certified seeds and plant protection chemicals	Quality input	• Yield improvement • Environmental protection • Protection of human health
Linking quality service providers (Harvester/thresher owners)	Quality of service	• Yield improvement with efficient use of machinery
Involving produce buyers during crop stages, and possibility of procurement points near villages	Better produce price	• Premium on produce • Quick adoptability of new techniques



Post FaCP yield- Engro

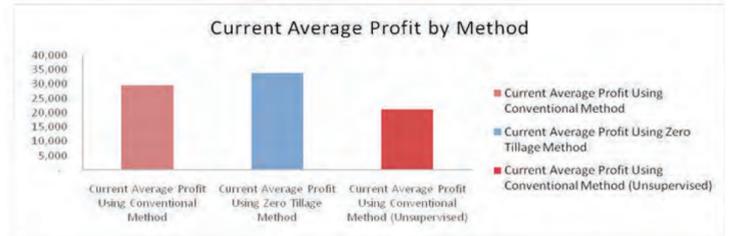


done during the farmer registration process, whereas the post intervention results were gathered after the completion of crop cycle.

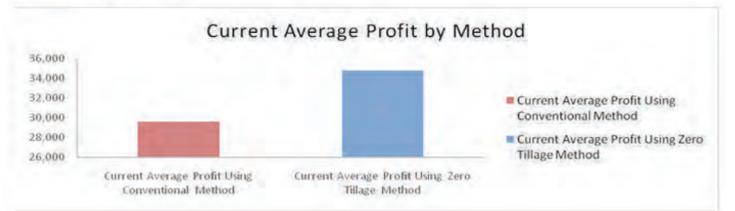
A third party survey was conducted by Nielsen after the wheat crop cycle to substantiate the project accomplishments; the survey mainly targeted the three core objectives, knowledge improvement, yield improvement and

field visits, SMS service and crop literature are shown below. Although, the efficacy of every mean cannot be computed on stand-alone basis, the years-long experience of Engro suggests that a combination of these can help achieve a bigger impact.

Crop Yield Improvement
 Crop yield results for both wheat and

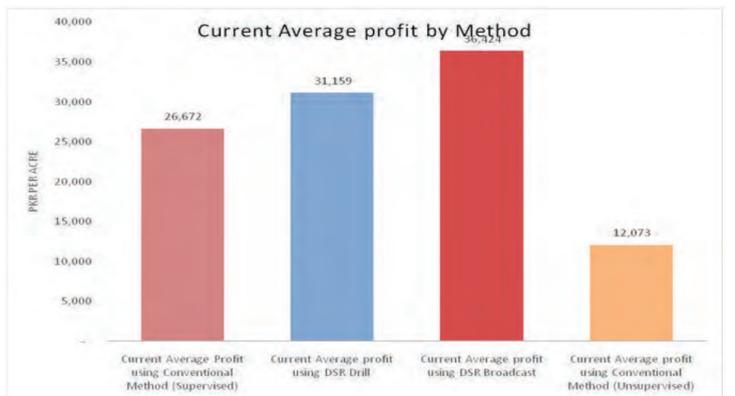


Post FaCP farm profit - Nielsen



farm profitability. The survey was rolled out in three main territories of Sheikhpura, where the data of 200 registered farmers were acquired and analysed. Nielsen results for post-FaCP KI, witness a colossal measure of improvement in farmer's knowledge based upon the best crop management practices.

Objective 2: Yield Improvement through adoption of BCMP's



Yield is a product of good crop management and agro-climatic conditions of any given area. When comparing the two input variables, farmer yield differences are entirely dependent upon variations in farmer crop management practices, since the climate serves to be a constant factor resulting in insignificant yield differences. Farmer adoptability of best crop management practices being taught to them through different modes of intervention such as farmer meetings, group discussions,

was achieved. Nielsen's survey based upon farmer crop yield improvement further corroborated the RAHBAR achievements by registering the increased farmer yield as shown below:

Post- FaCP Yield Engro

Rice: Against a project target of 15 per cent the team was able to achieve a yield improvement of 37 per cent in RAHBAR supervised conventional plots vs. adjacent unsupervised plots. The following results indicate the yield differences between the unsupervised conventional plots and supervised conventional plots.

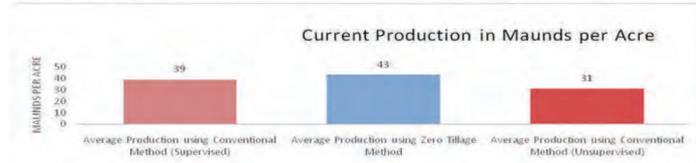
Post FaCP yield- Engro

Objective 3: Farm Profitability Enhancement
 Wheat: The conventional supervised plots registered a staggering 45 per cent increase vs. plan of 10 per cent in farm profitability vs non-RAHBAR farms. Nielsen's results based upon farm profitability further corroborated the RAHBAR achievements by registering the increased farm profit as shown below:

Post FaCP farm profit - Engro

Rice: The following results indicate the variance between profits achieved through unsupervised conventional farming and supervised conventional farming. RAHBAR registered farmers were able to achieve two-fold the profit earned by non-RAHBAR farmers.

Post- FaCP Yield Engro



Post-FaCP Yield Nielsen





engro fertilizers

EMPOWERING THE FARMER



Engro Fertilizers is determined to meet the diverse farming needs with products that are the hallmark of quality and reliability. Hand in hand with the farmers, Engro Fertilizers is leading the fertilizer industry towards growth and prosperity.



بہتر زندگی اینگرو سے!

Partners in progress

USAID

AS the Dawn Food and Agriculture Expo celebrate its sixth consecutive year, the US government continues to strengthen its commitment to build Pakistan's agriculture sector through a strong relationship which is especially manifest in the agricultural sector. The United States acknowledges the fact that Pakistan's sustainable economic growth begins with a strong agricultural base since agriculture plays a vital role in the economic growth of Pakistan, accounting for 21 per cent of the total GDP and employing more than 40 per cent of the labour force.

The United States Government is helping Pakistanis secure a more prosperous future by increasing household incomes and employment, nurturing competitive small and medium enterprises, expanding trade and investment, creating more rewarding business opportunities, building on-farm irrigation infrastructure, and promoting a vibrant agricultural sector.

The United States and Pakistan have a long and distinguished history in partnering for progressive agricultural research and development which dates back to the Green Revolution of the 1950s and 1960s when high-yielding grains were introduced. Through this partnership of over 50 years, the United States Government has worked with Pakistan to boost productivity by developing new crop varieties and improving management practices while helping small- and medium-sized agricultural businesses access financing and tap into more lucrative markets.

US Programmes, through partnerships with the Government of Pakistan and the private sector, have helped Pakistanis secure a more prosperous future by increasing household incomes, creating jobs, nurturing competitive small and medium enterprises, expanding trade and investment, creating more rewarding business opportunities, building on-farm irrigation infrastructure, and promoting a vibrant agricultural sector.

US government's agricultural efforts even expanded to higher education, which has promoted and funded research, development, and dissemination of new techniques and technology. Over the years, the United States government helped establish the University of Agriculture in Faisalabad and the Agricultural University of Peshawar and more recently has developed centres for advanced studies for food security and agriculture at University of Agriculture, Faisalabad to take the agricultural research to the next level.

The United States and Pakistan partnership in the agriculture sector has resulted in brighter future for Pakistan's farmers. Major accomplishments include building dams to irrigate land and introduction of high value and modern agriculture to maximise production, introducing new varieties of fruits and vegetables, and a flourishing academic exchange programme enriching research and application of innovative technologies.

In order to increase Pakistan's agriculture productivity and improve the lives of farmers, the United States government continues to work closely with Pakistan to advance agricultural research, introduction and adoption of modern practices and technologies, improving watershed conservation and better water management and increasing cross-border trade. These programmes are complimented with economic policy activities that strengthen institutional and policy making capacity. An important example is USAID's assistance to the Government of Pakistan in enacting an amendment to the Seed Law in 2015, which now enables private seed companies to operate legally. This legislation is expected to stimulate competition and foreign investment.

Additionally, USAID is partnering with Pakistani government and private sector entities at all levels to improve the business enabling environment. In the last five years, USAID projects have benefited over one million farming households, improved the productivity through introduction of new technologies and management practices on over 906,750 acres of land while training 300,000 farmers in the use of new technologies and management practices. During that time period, USAID programmes have helped generate over \$170 million in domestic sales, increased exports by \$76 million and leveraged over \$ 72 million in private sector investment, and created 336,500 new jobs.

Water is the lifeline for Pakistan's agriculture sector but this important domestic resource is becoming more and scarcer due to obsolete practices and inefficient management. The US Government projects are working to educate Pakistani farmers on more efficient ways to utilise water resources, and helping farmers better manage water at farm level. Through improved field preparation, farmers are able to get the right amount of water to crops at the right time. Techniques such as laser levelling and the use of cover crops are saving millions of gallons of water from wasteful runoff. Additionally, the introduction of high efficiency irrigation systems



THE colours of the national agriculture sector come in many shades and hues; each one brighter than the other. The sector is a major partner in the overall national progress.

tems such as drip and sprinkler irrigation, farmers are able to use and manage water more efficiently. Over the past five years USAID and WAPDA have constructed more than 255 kilometres of canals in the GomalZam command area which have helped bring over 190,000 acres of land under irrigation. This newly irrigated land is under way to grow high value agricultural crops through introduction of modern technologies and best management practices. In total, over the past five years, USAID has helped build and rehabilitate irrigation and drainage services to over 450,000 acres of Pakistani farmland.

Market linkage is critical to the success of the agriculture sector. USAID's programmes have successfully opened new markets to further exports of Pakistani agricultural produce and increased the quality and quantity exported to the existing markets. This was made possible by introduction of better post-harvest handling, improved packing and packaging and use of controlled atmosphere in sea shipments of meat and horticulture which increases the shelf life of the produce while increasing the profit margins for the farmers and exporters by up to one dollar per kilo.

USAID economic growth and agriculture projects will continue striving to improve the agriculture sector and the lives of all Pakistanis. In conjunction with the national and provincial governments, USAID is developing new methods to promote and expand Pakistan's commercial agriculture. Future projects will continue to build on current successes while simultaneously focussing on new product lines across all agriculture production lines, including fruits, vegetables meat and dairy. This focus will help achieve a more competitive agricultural sector and allow increased access to both export and domestic markets. Future projects will also strive to assist in the development of market systems, product quality standards, and marketing associations to better strengthen ties between Pakistani and United States Agriculture Industries through better coordination among growers, agribusinesses and importers.

While both the US and Pakistan acknowledges the immense advancements we have made together over the past five years, we must continue progress. The improvements we have seen only give us encouragement and confidence to keep working for the next five years and beyond.

Current US Government supported agriculture improvement initiatives: The US-Pakistan Partnership for Agricultural Market Development (AMD) helps Pakistan's commercial agriculture and livestock sectors meet international and domestic demand in targeted product lines by improving production, marketing, and business management practices. AMD has facilitated the participation of Pakistani companies in various food and agricultural expos around the region, linking them with international buyers and boosting exports.

The Punjab Enabling Environment Project (PEEP) promotes private sector-led growth in the agribusiness sector. The activities focus on policy reforms, capacity building of sector associations, and investments in Punjab to support the government, private sector, and civil society organisations in improving livestock, dairy, and horticulture value chains.

The Satpara Development Project, in partnership with the Agha Khan Foundation, has constructed on-farm irrigation systems for over 9,000 acres downstream from the Satpara Dam in Gilgit-Baltistan. The project is improving the supply of irrigation water by lining water courses with concrete to keep water from seeping into the ground and thus ensuring efficient water use.

The Agricultural Innovation Program (AIP), implemented by the International Maize and Wheat Improvement Center (CIMMYT), supports research aimed at improving Pakistan's agricultural productivity. AIP has introduced dozens of new varieties of maize that are drought-resistant, heat-resistant, and have



enhanced nutritional quality. They also have increased tolerance to insect attacks and low soil nitrogen. These hybrid maize seeds have the potential to reduce the amount of money Pakistani farmers spend on imported seeds.

The US-Pakistan Centre for Advanced Studies in Agriculture and Food Security is one of three centres USAID is funding in Pakistani universities to strengthen their abilities in applied research and develop solutions in the areas of energy, water, agriculture, and food security. The Centre, collaboration between the University of Agriculture, Faisalabad and the University of California, Davis, drives innovation and growth in the agriculture sector.

The US-Pakistan Partnership for Access to Credit, through USAID's Development Credit Authority, has teamed with Bank Alfalah Limited, JS Bank Limited, First Microfinance Bank of Pakistan Limited, and Khushhali Bank Limited to provide up to \$60 million in formal financing mechanisms to help micro, small, and medium enterprises, including agribusinesses, further develop their companies.

The GomalZam Dam Command Area Development Project (GZD-CADP) is part of the GomalZam Dam and Irrigation System. The command area, located in the districts of D. I. Khan and Tank, includes 69 villages in the three Tehsils (Tank, D. I. Khan and Kulachi). The total cultivable command area is over 191,000 acres, including 94,050 acres in Tank, 87,235 acres in Kulachi and 9,776 acres in D. I. Khan. The development of the command area is planned under an approved PC-1 from the Government of Khyber Pakhtunkhwa (GoKP) and the federal government. USAID and the GoKP signed the Activity Agreement on March 18, 2015. The project will be completed in late 2017.

The US Department of Agriculture (USDA) helps strengthen the capacity of public and private institutions through exchange opportunities, sharing advanced technologies, and staff training. These activities focus on animal and plant health, increasing dairy production, improving soil fertility and soil health, along with demonstration and dissemination of technological information to improve water use efficiency in irrigation. All of these initiatives are designed to share our collective knowledge and increase agricultural production.

US Government projects supporting trade and finance: The Pakistan Regional Economic Integration Activity (PREIA) is enhancing Pakistan's regional economic integration with its neighbours by increasing Pakistani businesses' access to international markets. Through trade policy reform and streamlined trade procedures, PREIA aims to improve the bilateral and international trade environment resulting in increased trade and transit volumes. This new project has four planned PREIA's focus areas include improving the GOP's ability to develop and implement reforms to trade-related policies; strengthening public and private sector engagement in trade policy-making, improving regional trade and transit facilitation by Pakistan

Customs; and improving regional business-to-business linkages.

The US-Pakistan Partnership for Access to Credit, through USAID's Development Credit Authority, has teamed with Bank Alfalah Limited, JS Bank Limited, First Microfinance Bank of Pakistan Limited, and Khushhali Bank Limited to provide up to \$60 million in formal financing mechanisms to help micro, small, and medium enterprises, including agribusinesses, further develop their companies.

Pakistan Private Investment Initiative (PPII) is a private sector solution to sustainable job creation. PPII is creating investment funds to inject capital into high-growth small and medium enterprises (SMEs), providing a basis for the formation of a private equity industry in Pakistan. Targeting lower-risk expansion stage SMEs, including agribusinesses, the PPII investment strategy focuses on high growth potential investments with development impact.

US Department of Commerce is making efforts to further business opportunities between Pakistan and the United States by providing technical assistance to the public and private sector in legal and regulatory frameworks, as well as assisting companies improve their trading capabilities. More information can be found at www.export.gov/pakistan.

For more information on United States Government agriculture programmes, please visit USAID Pakistan at www.fas.usda.gov/regions/pakistan, and USAID Pakistan at www.usaid.gov/pakistan and infopakistan@usaid.gov.

Austrade

PAKISTAN, with its mineral rich soils of Punjab and Indus basin region, is yet to exploit its full resources! Challenges are there of course, particularly, the low productivity from soil which was once considered the food basket of Indian sub-continent. There is strong demand for agricultural technology to help it remain a key supplier of produce to India, Afghanistan and Middle East markets as a wider region. It is one of the few steady markets that had experienced continued growth over the last three years.

Pakistan is an emerging market! The country has a great potential to grow its agriculture and manufacturing sector. With a population of 200 million, Pakistan has an under-developed agriculture sector. While the country faces challenges due to its security issues, its market presents numerous opportunities.

According to most data available on internet, Pakistan is considered the fifth largest producer of milk from a herd size of 50 million. Yet it imports milk and milk products to meet its growing demands.

An estimated eight million farmers in Pakistan own a small herd of cattle/per person compared to Australia which has only 20,000 farmers with 1.6 million dairy cattle. Australian herd milking average is 5600 litre/per lactation compared to Pakistan's less than 1000 litre/per lactation.

There are several factors which lead to profitable dairy operations. Since

2007, Pakistan has seen many new farms developed by traditional business houses with no or minimum agribusiness exposure. Some of the factors which are considered most vital by Dairy Australia are:

Animal health and fertility: Reproductive performance of herd can limit the profitability of the farm, better animal husbandry practices help keep animal healthy and fertile. All stakeholders in dairy sector have to evolve a strategy to lift herd fertility, improved on-farm practices and better/proven genetics for cow fertility. Closer partnerships with the milk processors will increase the reach and uptake of these industry assets.

Adoption of Biosecurity planning at medium to large size farms for endemic diseases such as Mycoplasma and digital dermatitis and Emergency Animal Disease preparedness on farms. Keep Healthy Hooves and manage lameness. Managing milk quality: It is important for the industry in Pakistan to evolve milk quality standards in line with international standards and adopt measures against adulteration and protect and improve industry profitability through improved milk quality.

Farm business management: A profitable agribusiness now requires education and training of our farmers to understand the financial sides of the farm management and risks involved. In Australia, dairy farms faced many challenges to profit though better performing dairy farms from across all regions generate the returns that allows for long-term wealth creation.

In Pakistan, to improve profitability and manage risk, farmers require a range of farm business management skills. The industry has to take help from business schools to design short term courses in "The Farm Business Management Program" that provide a focus on maximising profit and managing risk. The target audience is farmers and service providers with a focus on profitability and financial literacy for dairy farmers.

Feed base and animal nutrition: Low cost of production of home-grown pasture and forages underpin the competitive advantages of farmers, quality of feed and the efficient utilisation and integration of supplements to improve overall gains.

Dairy industry stakeholders need to develop strategy in Pakistan to develop and deliver information to farmers on feed base management system. The industry in Pakistan has seen a considerable investment in the last 10 years. Productivity at some farms had enhanced due to better animal nutrition and now with the availability of quality forage seed from Australia.

Genetic and herd improvement: In Australia, dairy industry has witnessed a substantial increase in dairy farm profitability by taking full advantage of the benefits of herd improvement. Quality of proven genetics had resulted in increase in milk yields and better results for future genetic gains. Pakistan dairy herd can improve by learning from Australian experience in genetic and herd improvement.



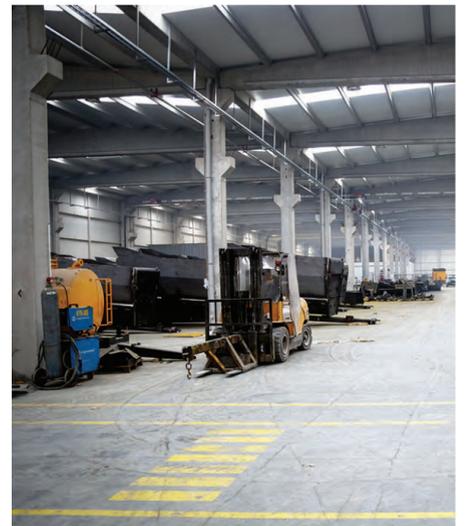
Mr. Bekir Turkmen
Chairman of Celikel Group, Turkey
THIS is a special day for me that I am going to announce the launch of Celikel South Asia. Pakistan has always been very close to my heart as people of both countries enjoy very special relationship and we know Pakistan as being the land of very strong, hardworking and welcoming people.
Celikel Group, since 1962, is the biggest and market leader of agricultural machinery specialised in dairy sector in Turkey and we export to more than 70 countries. However, we have decided to come to Pakistan for our first international operation outside Turkey. This is because of our trust in Pakistani people and potential this market has. Pakistan is among top producers of agricultural commodities and fourth largest producer of dairy in the world. Pakistan's dairy sector is evolving and reshaping itself into more organised industry and we are sure that Celikel Group can play its role to support the farmers' community and other stakeholders in the industry. I also believe that this is significant step towards Pakistan's agriculture and dairy sector and would create job opportunities for skilled people while opening doors of opportunities for the industry and people associated with it. At the end, I would like to thank farmers' community, my team and all other friends who have trusted Celikel machinery in Pakistan.
Jeeway Jeeway Pakistan!



Partners in progress

Celikel
Celikel Agricultural Machinery Co. was established by Mr. Muhsin TÜRKMEN in Turkey in early 1960s. In its first decade, it manufactured plough and included cultivator machine into the range in mid 1980s. In early 1992, it moved its plant to Turkey's Konya city which is known as the capital city of Turkish agricultural machinery industry and started to manufacture a wider range of quality products including forage and maize choppers in addition to drum mowers which come out with their complex and combine structures able to do several operations within one body. Alfalfa Planting Machine which can perform spreading planting was launched in the market of out farmer for the first time in Turkey in 2002 and Feed Crushing Machine was presented in 2003. Celikel began to manufacture Mixer Feeder Wagons in various sizes in the beginning of 2008 and finally added Cow Brush Machine to its product range.
Today, as the 54th fast growing company in Tur-

key, Celikel became a world market leader among Turkish and world farmers with its product range including Maize Choppers, Forage Harvesters, Drum Mowers, Feed Crushing Machines, Bale Loading Machines, Levelling Blades, Row independent maize choppers, Mixer Feeder Wagons and Cow Brush Machines. It is manufacturing 7000 units of machinery within its facility of 40.000 m2 with more than 200 experienced staff including 30 engineers.
Moreover, its Research - Development centre registered by The Turkish Government, feasibility activities and studies about other machines continue to provide time and labour saving to livestock enterprises.
The quality of Celikel has been approved by several authorities such as Turkish Standards Institute, European Conformity Certifications, Various Test Reports provided by Ministry of Agriculture and Rural Affairs, International Agricultural Tools and Machines Test Centres, ISO 9001-2000 Quality Certificate.



Mr Sajid Ahmed Bodla
CEO, Celikel South Asia
Thanks to Allah Almighty that we are able to bring good news for the dairy and agriculture industry in Pakistan. I believe there is great opportunity for us to modernise our agricultural practices and this is not possible without availability of right machinery to gain more productivity and efficiency. Our aim is to provide modern agricultural and dairy machinery to the farmers in Pakistan which is manufactured in Pakistan as per international standards and at the same time it is affordable for the farmers. Celikel South Asian would not only produce machinery for Pakistani market but would also work as exporting hub to other countries in the region and in the context of CPEC project, this becomes an important milestone for the industry in Pakistan. We will continue to seek guidance from farmers in Pakistan who are always an inspiration for me and we will continue to work closely for all the stakeholders in the industry in order to play our role for prosperity of our country.
Pakistan Zindabaad!



ABL

ALLIED Bank Limited started its operations in Lahore by the name Australasia Bank before independence in 1942 and became Allied Bank of Pakistan in 1974.

In August 2004, because of capital reconstruction, the Bank's ownership was transferred to a consortium comprising Ibrahim Group; therefore, it was renamed as Allied Bank Limited in 2005.

With its existence of over 70 years, the bank has flourished into an organization with a strong foundation enforced by sturdy financial, technical and human capital patronage. The Bank has a large network of 1,150 (Conventional: 1,071, Islamic: 77, Overseas: 1; EPZ: 1) online branches in over 475 cities and towns. The Bank also have vast network of 1,150 ATMs in more than 250 cities and towns across Pakistan and offers various technology-based products and services to its diverse clientele.

Under the leadership of its CEO Mr. Tahir Hassan Qureshi, the core mission of the organization is to provide high-tech integrated innovative financial solutions to meet the requirements of its valued customers from all walks of life.

It is pertinent to mention that the Year 2017 also marks the completion of 75 years in business for Allied Bank which indeed is a big milestone in the banking history of Pakistan

AUSTREX & DairyCare Pakistan

AUSTREX is a trusted global livestock exporter with a strong international reputation for understanding customers' needs and delivering consistent and reliable solutions in Pakistan in partnership with DairyCare that enhances profitability and success. AUSTREX is a global leader in livestock export. It is providing complete services including cattle selection, dairy cattle exports, dairy cattle transportation and services to handle dairy cattle at farm for existing and potential dairy and livestock farmers. In partnership with DairyCare Pakistan, AUSTREX has the expertise, experience and connections to make it easily possible for you to buy the best dairy herd that is suitable to your farming need and budgets. AUSTREX shipping has further strengthened with the induction of state-of-the-art cattle ships "Ganado Express & Girolando Express" in its fleet of livestock carriers.

We have been consistently importing and supplying high producing dairy milking cows from Australia since 2011. Our flagship exclusive dairy farm in Pakistan is "Interloop Dairies Ltd". Other corporate dairy farms that are our clients include Sharif Dairy Farm, Nishat Dairy Ltd, Military Dairy Farms, Interloop Dairy, Nestle Farmers and many others.

AUSTREX in partnership with DairyCare Pakistan is above and beyond every other exporter, committed to supply high quality Australian dairy breeding cattle to various dairy farms in Pakistan. Team of AUSTREX experts and DairyCare Pakistan experts focus on pre and post cattle import support to dairy farms in Pakistan. We go even beyond this and come in partnership with our client and provide him support and assistance he requires during pre and post farm set-up operations.

Our complete cattle buying solution in partnership with AUSTREX makes the whole process convenient and easy for you. We oversee the cattle buying procedure on your behalf from cattle selection to shipping and handling, and you will concentrate on your farm with peace of mind. We provide 30 days post delivery insurance cover.

By the grace of Allah, our dedicated ship to Pakistan is scheduled twice a year to bring high quality Australian breeding cattle for existing and new corporate dairy farms. We believe in quality and transparency of operations. New and existing farms management teams are welcome to contact us and join us in Pakistan and Australia to witness our massive and highly organised cattle selection, shipping and export operations. We have started booking dairy cattle orders for our ships scheduled to arrive in Pakistan for this year.

ETI Gilgit-Baltistan

ECONOMIC Transformation Initiative - Gilgit Baltistan (ETI-GB) Programme is a co-funding agreement arrangement between Government of Pakistan and International Fund for Agriculture Development (IFAD), through the Planning & Development (P&D) Department of Government of Gilgit-Baltistan (GoGB). The ETI Programme will span over seven years (September 2015 - August 2022), for agriculture land, farm to market access roads and value chain development initiatives. The overall goal is to expand on irrigated agriculture land and linking farmers to markets for increased production, and connecting 50,000 small farmers to mainstream markets in organised groups as registered entities for income enhancement.

Owing to the availability of suitable and varied growth season in GB for different High Value Horticulture crops, ETI envisages development of priority value chains and establishment of Value Chain Fund (VCF). VCF is a financing facility on competitive matching grant basis that will help forge market linkages, overcoming value chain missing links and enhancing capacity of small farmers for increased incomes by 25 percent, leading to social and economic well-being of at least 100,000 beneficiaries in Gilgit-Baltistan.

Partners in progress



WORKING side by side, the two genders are equal partners in the progress of the farming sector in the country.



The ETI-GBP through its implementing partners, is in process of organising landless farmers in barren land areas and small farmer communities in villages for embedding into the Producer-Public-Private sector Partnerships (P4) using a host of matching grants from the VCF. Eligible recipients are small farmers organised into registered groups in GB with private sector where the latter will secure financing needs from VCF on presenting viable business plans that ensures small farmers are directly and indirectly benefited from improved businesses in these partnerships.

Farm Dynamics Pakistan (FDP)

FARM Dynamics Pakistan (Pvt) Ltd. was established to provide efficient farming solutions to optimally utilise available resources i.e. land, water and inputs.

Based on our own farming experience, we looked around the globe to tap latest technologies and today FDP is capable of suggesting and furnishing.

Integrated Crop Management Solutions (ICM):

Irrigation Management
 On farm Micro Environment Monitoring Pest & Disease Monitoring & Management Soil & Crop Profiling

Mechanisation: Farm efficiencies are critical for sustainable farming business which is not possible to optimise without mechanisation. Lately we focussed on an upcoming issue of sugarcane harvesting. Discussions with various farmers in different parts of the country indicate rising need for mechanised sugarcane harvesting. In spite of fast growing population, shortage of sugarcane field labour is a major issue and we believe the labour shortage is going to deepen within a couple of years when major CPEC projects will get in full force. So FDP is working with sugarcane farmers and the sugar mills to go for mechanised production of sugarcane i.e. plantation as well as harvesting. We believe mechanised harvesting will also help improve the environment in general but particularly the traffic along the highways and rural road, during the crushing season.

Preserving fodder is also possible only through mechanisation. So, FDP is ready to support the fodder growers with quality machinery for hay, haylage and silage making.

Quality inputs: Enhancing the safe and sustainable Food Production by improving the quality of inputs, FDP is distributing tried and tested seeds like Tolar (Rhodes Grass) and Emmerson (Rye Grass) seeds for green, haylage and hay. The studies done by organisations like IRLI, show the improvement in daily milk production by 1.2 to 2.8 litres per animal.

Working with international organisations: Another aspect of FDP is to work with international organisations to improve the plight of small farmers, particularly in the most backward areas by holding farmers' days, and doing efforts to realise the dream of "Healthy Animals & Prosperous Farmer"

Farm Solutions Pvt. Ltd.

BARKAT Dairy and Livestock feeds has been providing quality feeds and nutritional products to Pakistan's dairy industry and has achieved a decent

standing by exhibiting evident improvements in animal health, production and reproduction. In order to broaden the domain of our services, we have established Farm Solutions Pvt. Ltd. with a vision to provide one-window solutions for dairy farming needs with same level of commitment to quality and customer care.

In this new formation, we have teamed up with both national and international top dairy professionals and manufacturers. We are adding a variety of services in our portfolio including Pre-Business Studies and Feasibilities, In-Operation Farm Management Consultancy and Support, Live Cattle Import, Nutritional and Reproduction products supply.

The feed is produced in Quality Approved mill with a deep understanding of the nutritional requirements. Products are made from high-quality ingredients that are tested for their nutrient values and the process is monitored throughout.

Farm Solutions Pvt. Ltd. is working with NASNA Pty. Ltd. in Pakistan for cattle import from Australia. We ensure quality dairy cattle supply to our customer. We offer our customer complete solutions for any kind of livestock requirements. All our cattle are sourced from the registered cattle vendors, using our expert procuring team, which includes experienced veterinary doctor, cattle and herd management team and export marketing team to suit the customer requirement. NASNA has a team of experts in every part of livestock supply chain to ensure quality cattle supply to our valuable customers.

Our key focus is customers' satisfaction, animal welfare and community.

Greaves Pakistan (Private)

IT is well known that meagre resources compel for their better utilisation and preservation. Most of the developing countries lack in fresh water resources. In Pakistan, it is more vital than ordinary due to the agrarian nature of economy. Per capita water availability decreased from 5260 m³ in 1951 to 1050 m³ in 2008. The share of agriculture sector in the Gross Domestic Product (GDP) of Pakistan is about 24 per cent and about 60 per cent of the population depends on agriculture and allied industries for their needs. Since water is the major input in agriculture, the agricultural productivity and its sustainability depend on the adequate availability of water.

Electricity is the basic necessity of mankind from which 38 per cent of entire Pakistan's population is deprived since independence. Pakistan faces a shortfall of 3000MW to 4000MW where as the demand is of 18000MW. The country has 50000MW solar potential which is almost more than twice the current demand.

Greaves Pakistan (Private) Limited, under the banner of Ghulam Farooq Group, is keen to resolve or minimise the issue of water availability and electricity especially for the agriculture needs of the country. The company has launched a special programme named "Agriculture Solar Support Program (ASSP)" for our diligent agricultural growers of country to enhance and encourage their sustainable growth. We believe farmers should be encouraged to convert their grid or diesel-operated

ture machinery which would help reduce the cost by eliminating wastage and decreasing the harvesting time.

Matra Asia's greatest asset is its investment in human capital; our workforce currently consists of trained Doctors of Veterinary Medicine (DVM), Post Graduates in Animal Nutrition and Post Graduate Agronomists. Matra Asia strives to continually grow its investment in human resource, by recruiting, training and educating top professionals who would go into the field and help the farmers directly. The dairy sector lacks quality after sales services and that's what Matra Asia hopes to offer. Matra Asia will constantly evolve, look for new opportunities and develop products to improve the economics and well-being of farmers, the backbone of the economy.

Market Development Facility

THE Market Development Facility (MDF) is a multi-country private sector development programme funded by the Australian Government. It operates in five countries, including Pakistan.

In Pakistan, MDF partners with local businesses in the areas of dairy, meat, leather and horticulture to encourage business innovation and entrepreneurship and create additional income and employment for poor men and women in rural and urban locations. To date, MDF has 40 partnerships with local businesses across Pakistan and has stimulated investment of PKR 277,595,000 (out of which 34 per cent is MDF's contribution). MDF is entering its second phase beginning in July 2017. It is also working towards venturing into two new engagement areas in Pakistan - Sustainable Technology and Enabling Business Services.

In dairy, MDF recognises potential to increase supply to a growing domestic market and there are many smallholder farmers involved at the production level. Improvement in the volume and quality of milk supply to more sophisticated buyers, will translate into higher incomes for the farmers. MDF's partnership with milk processing company 'Shakarganj' has enabled Shakarganj to set up chillers in South Punjab, develop an extension service and establish financial services for the benefit of small farmers.

Other initiatives in these areas are aimed at providing nutritious fodder, information and agricultural inputs for farmers to use to increase their animals' health.

In meat, processors are investing in more formalised supply chain arrangements to be able to source more traceable, quality animals. MDF's partnership with Oasis Farms is aimed at supporting Oasis to invest in their supply chain, in order to improve their ability to procure quality cattle.

In horticulture, MDF has been very active in remote regions to boost supply to growing domestic markets and for export. MDF's partnerships in this area, for example with 'Magnus Kahl Seeds' company, are helping farmers improve the quality of vegetables and fruits in remote areas by giving them access to good quality agricultural inputs, farming practices and information.

MDF is particularly interested in developing sustainable businesses that include women as entrepreneurs, employees or beneficiaries to increase women's economic empowerment, which is an important area for sustainable and inclusive growth. For instance, MDF's partnership with Kashf Foundation will enable the micro-finance institution to create a financial product specially tailored for female rural livestock farmers.

Nestle Pakistan

FOR over two decades, Nestlé Pakistan, has strived to bring high quality products that have won the hearts of all Pakistanis. Our bedrock values of respect, trust, integrity and teamwork have helped us become the premier Nutrition, Health and Wellness Company.

We express our enduring belief of driving positive change and ensuring a better quality of life for the communities. Guided by our renewed agenda for growth, we aim to seize greater opportunities that lie ahead, based on our idea of extending healthier food and beverage choices to all.

Rural Development is one of our biggest areas of focus. At Nestlé, we believe the development of community lies in the development of people. Our Milk Collection and Dairy Development Team has been playing a vital role in transforming the livelihoods and encouraging socio-economic empowerment of the communities specially dairy farmers, who are a part of our dairy value chain in Pakistan.

We support dairy farmers to reduce their cost of milk production and to improve their farm operational efficiencies to ultimately increase their profit margins, through subsidised farm input supplies, financial support, demonstrations of best farm practices, provision of quality feed and development of model farms. Farmer training is major component in farmer's capacity building and under this initiative more than 74,000 dairy farmers are trained in 2016 through training farms and rural training camps.

Keeping in view the role of rural women in livestock management and the significance of their economic empowerment, Nestlé conducts capacity building trainings for rural women to help improve livestock healthcare facilities for dairy farmers, create gender empowerment and boost income generation for rural communities.

Nestlé Pakistan is committed to creating shared values for the communities it operates within.

Green World Genetics

GREEN World Genetics Sdn Bhd (GWG) is a well-integrated total food value chain organisation with strong focus on research and development of tropical hybrid seeds as well as improvement of agricultural produce.

Committed to providing the best quality products for our customers, we apply stringent quality control process and use only superior planting materials to significantly improve crops marketability besides developing new varieties. With operations spanning across the Asia Pacific region, GWG performs market-driven technical studies and commercial activities.

GWG products range from seeds to fresh produce covering field crops, fruits, vegetables and flowers. The hybrid seeds that have been developed by GWG are melon, watermelon, maize, sweet corn, cucumber, hot chilli, tomato, sweet pepper, and rice.

Since its incorporation in Malaysia, GWG has expanded its diversified operations across the Asia Pacific region. It is recognised as one of the very few pioneering organisations that engage in multi-disciplinary crop improvement research programme. In addition, GWG is awarded with BioNexus status and is participating in few of the government initiated projects.

Matra Asia

PAKISTAN'S dairy sector is widely underserved and hence has been facing major problems of inefficiency as well as mismanagement. The core problem was of inadequate and low quality inputs being used by dairy farmers all over Pakistan. Established in 2012 as a provider of high quality ingredients and compound feed to the dairy industry, Matra Asia (Private) Ltd has looked to solve this problem, growing its business from one product line to include several products from both local and international sources.

Matra Asia set up its compound feed manufacturing facility near Lahore at Manga Mandi. The manufacturing plant started operations in April'16 and has helped the company in ensuring the upmost quality with timely deliveries to a distribution network spread all over Pakistan. Matra Asia recently formed a partnership with Le Gouessant France, one of the biggest dairy nutrition companies in Europe. This has allowed us to import high quality dairy minerals which would help milking yields as well as animal health.

The shortage of quality fodder all year long is a serious problem for the dairy farmers in Pakistan. The reason for that being low quality local seeds and no source of cheap high quality forage seeds were available. Matra Asia introduced imported seeds in the market at affordable rates which were coated to ensure the highest percentages of germination. Matra Asia is in collaboration with Heritage Seeds of Australia and Alforex Seeds of The United States as the sole distributor of various varieties of seeds including Rhodes Grass, Alfalfa and Sorghum Sudan Grass. Matra Asia has come into an agreement with Rostselmash in Russia to import high quality agricul-

Pioneer Pakistan Seed Ltd.

BY the year 2050, it's predicted that the world's population will exceed nine billion people. That's 150,000 new mouths to feed every single day. To address that, we need to double our food production in the next 40 years. No company is more uniquely qualified to meet this complex challenge than DuPont with its portfolio of businesses, products and services that span the food value chain.

DuPont Pioneer is the world's leading developer and supplier of advanced plant genetics, agronomic support and services to farmers. Pioneer is focussed on delivering integrated seed solutions that include elite genetics, native and biotech traits, and seed treatment options, coupled with agronomic advice and services to help farmers manage their production risks and plant the right product on the right acre or hectare. We're proud of our people, our history, our innovations and our successful customers across the more than 90 countries we serve. Together, we're closer to meeting the challenge of achieving global food security.

Pioneer is striving to increase per-acre yield, while decreasing the overall impact of farming on the environment and society. We're actively developing products and traits that enable more efficient fertiliser and water use and the reduction of pesticides and fossil fuels. And we work with governments, local organisations, schools and communities around the world to develop local and sustainable agriculture skills and knowledge for growers of all ages.

Quadri Group (QG)

QUADRI Group (QG), established in 1957, is proud to be associated with the shoe making, hardware and allied industries all over Pakistan. Being one of the largest and premium adhesive manufacturers of quality products, we always strive on delivering innovative and eco-friendly products that are better suited for our clients, their businesses and the end users.

Thus, we are pleased to introduce a range of eco-friendly non-toxic adhesives for pest/insect control and agricultural industry.

QG Crop Saver is non-toxic and easy to apply insect trap adhesive which has the great ability to attract and stick pests. It is most suitable for catching all kinds of flying and crawling insects, worms and even lizards, cockroaches, mosquitoes and stop their reproduction. It can be used in vegetables and fruit farms, cattle farms, fish markets, stables, barns, restaurants, offices, kitchen, laboratories and households. It is highly recommended for Organic crops and tunnel farming.

Trapcol & Traprat are easy to use, non-toxic and highly sticky adhesives with a long open-tack time. They are very effective for trapping rats, mice and all kind of rodents including small snakes, scorpions, lizard etc. It can be used in household, kitchen, garages, restaurants, farms, offices etc.

Ravi Agric

THE business that started back in 1913 with the production of grain binders in the rural Westphalia region of Germany has today become a major force in the agricultural machinery sector and propelled the CLAAS name to global renown. The success story began with an improved knotter, which was able to tie tight knots to secure the straw bundles, despite the poor-quality binding twine of the time. It is above all thanks to these machines that CLAAS has been able to attain its global reach and importance. With the production facilities all over the world, the company is able to ensure not only fast delivery, but also optimal adaptation of the machines to the requirements of the respective local markets. Ever since CLAAS was awarded its first patent for

Partners in progress



THE raw material and the human resource represent another set of partners in progress.

its knotter in 1921, the company has consistently demonstrated its skills as a pioneer and innovator, continuing to develop intelligent solutions that offer decisive improvements in straw, hay and silage quality. European market leader in combine harvesters, CLAAS is also the world leader in another large product group, self-propelled forage harvesters. CLAAS is also a top performer in world-wide agricultural engineering with tractors, agricultural balers and green harvesting machinery. The CLAAS product portfolio also includes state-of-the-art farming information technology. CLAAS employs 11,500 workers worldwide and reported a turnover of 3.8 billion euros in the financial year of 2015.

Farmers and contractors today have high expectations for a square baler – not only high throughput, but also feed quality and user comfort. The new QUADRANT from CLAAS shows that the company has listened to the customer's requirements, and implemented them without exception. With the two new QUADRANT 5200 and QUADRANT 4200 large square balers, thanks to their cleverly designed cutterbar system and automatic baling pressure control, CLAAS provides an even more versatile range of big balers for all feed crop types.

Ravi Agric is a CLAAS partner in Pakistan since 2009. The company takes root from age-old integrity, a value instilled artificer from day one. The company offers CLAAS machines and services and is above all a solution provider, having as objective the productivity increase of Pakistani agriculture.

FEEDING Pakistan has assisted approximately 3,500 Pakistani fish farmers and helped increase the market

value of fish produced – tilapia – from zero at the beginning of the project to an estimated Rs.550 million (\$ 5.5 million) in 2016. The project demonstrated improvement in fish growth and survival through the use soy-based, floating fish feed produced in Pakistan with US soybean meal. Feed produced with high quality soy protein not only supports growth and healthy development of fish but also reduces costs and supports healthy environment initiatives.

A variety of stakeholders have collaborated throughout FEEDING Pakistan including the Pakistan Fisheries Developments Board (FDB), provincial Department of Fisheries of Sindh, Punjab, the University of Veterinary and Animal Sciences, Kansas State University, University of Arizona, World Aquaculture Society, Lahore College for Woman University, Sindh University, local fish farmers, Pakistani government representatives, and variety of private-sector Pakistani companies.

Successes under the project include the establishment of Pakistan's first extruder dedicated to the production of soy-based floating fish feed; support to establish of Pakistan's first private sector tilapia hatchery which sold approximately 2.5 million young tilapia fry to farmers 2016, with plans to produce up to 10 million per year in coming years; and the production of the Aquaculture Handbook-Fish Farming and Nutrition in Pakistan, and A Manual of Tilapia which will serve as a lasting resource for stakeholders.

The advances made under FEEDING Pakistan are due primarily to the integral participation and dedication of Pakistani fish farmers, academics, members of private sector and government officials. Participant's desire for increased knowledge led to the rapid adoptions of new technology and best managements practices. The subsequent private investment of time and resources by both individuals and institution have created a framework for continued growth of Pakistani's aquaculture sector for years to come promising to ultimately reduce the protein gap in Pakistan and improve food security.

UMT SFAS

KEEPING pace with the latest technologies and trends is paramount for the businesses to succeed. In Pakistan, food technology and agriculture sciences are among the sectors which are rapidly evolving. These fast growing sectors are

also offering diverse career opportunities to graduates who are skilled in these specialised fields.

Keeping in view the increasing demand of skilled food technologists and agricultural scientists, the University of Management and Technology (UMT) has established the School of Food and Agricultural Sciences (SFAS) that offers programmes to prepare students for rewarding future careers and leadership positions in food and agricultural sectors. Its unique combination of courses, mentored by foreign qualified faculty, constructive teaching and practical research provides an excellent opportunity to leverage your passion for better food and dairy products development as well as their quality management.

SFAS at UMT aims to integrate recent advances in food processing and agricultural technologies to develop a society of food professionals with enhanced competence that can understand the pivotal role of agro-industry in Pakistan and world economies. With an innovative teaching and research facility, SFAS is striving to uplift farm management and food industries of Pakistan. An innovative aspect of SFAS teaching is the regular industrial tours that ensure students' grip over knowledge and industrial automation. The curriculum developed by the foreign qualified faculty meets international standards and HEC requirements. SFAS uses innovative, technology-driven and interdisciplinary approaches to produce qualified professionals that are well versed with the techniques and market trends that will contribute to the development of food and agricultural sectors in Pakistan.

National Bank of Pakistan

NATIONAL Bank of Pakistan (NBP) was incorporated in Pakistan under the National Bank of Pakistan Ordinance, 1949. It is involved in commercial banking and related services in Pakistan and abroad. It has one of the largest domestic branch networks (consisting of 1448 branches) across Pakistan as well as 21 overseas branches and various representative offices worldwide.

Agriculture is the backbone of Pakistani economy and it comprises 21 per cent of Pakistan's GDP, directly supports three-quarters of the country's population, employs half of the labour force and contributes a large share of foreign exchange. The country has one

of the world's largest irrigation systems. Pakistan is the fourth largest producer of cotton, has third largest herd of stock and is the fifth largest producer of milk. The country is fifth largest in sugarcane production and dates and sixth largest producer of mangoes and the largest producer of kinnows and also has sizable ranking as rice exporter.

Due to its national importance and significance, National Bank always gives special emphasis to agriculture financing business and at present NBP is the largest commercial bank as far as agriculture financing is concerned. During 2015-16, NBP achieved the highest disbursement in agriculture by any financial institution and not only achieved the SBP assigned target but surpassed it by a hefty margin.

Of the total 1,448 domestic online branches, 875 are involved in catering to the needs of farmers, while it offers complete range of commercial banking services to farmers. During 2015-16, NBP disbursed Rs.96 billion to farmers, most of them are small farmers, and as of December 31, 2016, NBP's outstanding portfolio was standing at Rs 45,789.5 serving more than 241,000 families in the country.

The advances in agriculture can be divided into two categories: farm and non-farm. Farm Credit is further divided in production and development. Production Finance is meant for crop production. It is a finance facility which is given mainly for meeting input needs of a particular crop. These loans are mainly for the purchase of agriculture inputs like seeds, fertilisers, pesticides, etc. and other short-term requirements. Whereas, financing for development is to carry out development work on and off the farm and includes financing for the purchase of tractor, tube wells, farm machinery, land improvement, etc.

Besides this, the bank also provides financing to non-farm sector. The financing to non-farm sector deals in financing for livestock, dairy, poultry, fisheries, orchards and forestry.

Not only in agriculture and SME sector, NBP also progressed in many areas as it has converted the entire network of 1448 branches online. National Bank of Pakistan has widely penetrated branch network in the country and its services are available to Pakistanis living in far-flung and most difficult to reach areas. People living in such remote areas will benefit the most from this development. Through online facility, NBP customers holding an account at any online branch can deposit and withdraw cash from any of the 1448 online branches through inter-branch transactions (IBT); Debit/ATM Card can be issued to all customers of online branches; centralised account opening; Know Your Customer (KYC) and better control and compliance.

National Bank of Pakistan is a diversified, dynamic and largest bank institution of the country. Its services are available to individuals, corporate entities and government. It continues to act as trustee of public funds and as the agent to the Central Bank, the State Bank of Pakistan (in places where SBP does not have presence).

NBP is the pioneer in Pakistan in developing a wide range of consumer products, to enhance business and cater to the different segments of society. Some schemes are specifically designed for all the income segments of population. These include NBP Advance Salary, NBP Saibaan, NBP Kissan Dost, and NBP Cash n Gold. NBP has implemented special credit schemes such as small finance for agriculture, business and industries. NBP through concerted efforts managed growth in all spheres especially in low risk consumer finance (Cash n Gold) and deposits with record growth. SME and agriculture sectors have been its focus, as these are main pillars for increasing economic activities in the country and offer lucrative opportunities for effective diversification and optimum returns. ■



Australia & Pakistan a Success Story of Agriculture Sector Linkages Program

Both Australia & Pakistan enjoy a strong shared interest in many things as far ranging as Cricket and agriculture. Australia recognises Pakistan is an emerging market with great potential to grow its agricultural sector. Geographically it stands as an important ally of Australia sitting at the cross roads of the Middle-East, Central Asia and South-Asian markets.

Australia understand Pakistan growing needs in the energy and food sectors, and Australian agri-technologies in Pakistan introduce reliable, efficient and cost-effective irrigation and water transport system, improved land nutrients and soil health approaches; conservation of soil moisture; risk management and yield maximization. Leveraging Australian experience will boost production and increase profits of Pakistan farmers.

To build strong trade linkages between Australia and Pakistan is a strategic priority of the Australian Trade & Investment Commission. For Pakistan, Australia is a natural agriculture partner with similar crop patterns and historic linkages and working in collaboration opens the door to enhancement of the Pakistan Industry and improved global competitiveness.

For more information on Australian Agribusiness; products, technologies and services please contact:

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engro fertilizers

EMPOWERING THE FARMER



Engro Fertilizers is determined to meet the diverse farming needs with products that are the hallmark of quality and reliability. Hand in hand with the farmers, Engro Fertilizers is leading the fertilizer industry towards growth and prosperity.



بہتر زندگی اینگرو سے!