BIOLIFE

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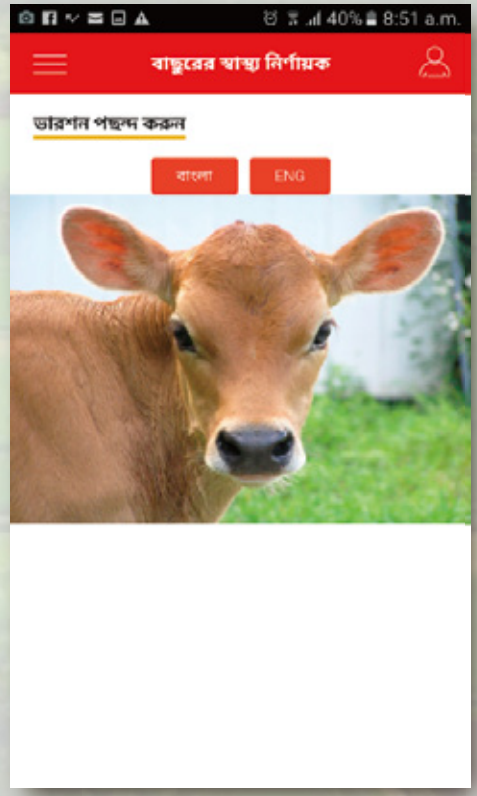
ACI Develops Mobile Application to Reduce Calf Mortality

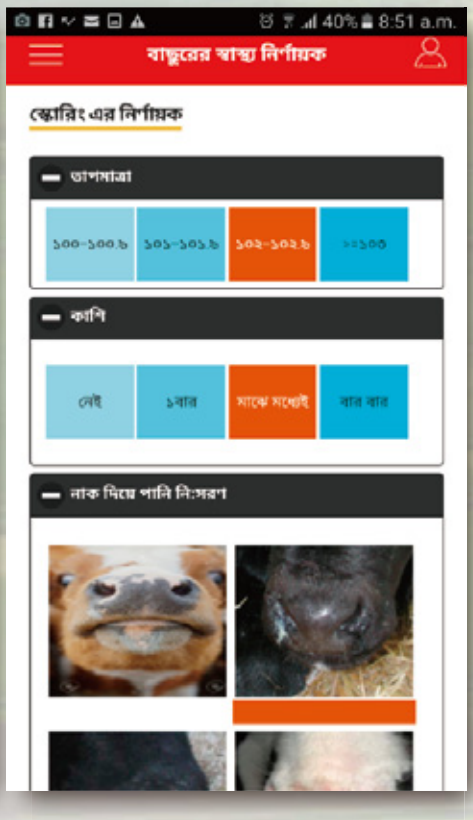
In Bangladesh, calf mortality is around 20% with a large number of calves dying every year because of pneumonia and diarrhea. At the same time, there is also a lack of medical support on time. Rural Veterinary Practitioner covers about 98% of the sector. But it is very difficult for a Registered Veterinarian to cover such large areas for treatment.

In order to address this problem, ACI has prepared an application named “Zero Calf‘’. The aim is to reduce the calf mortality rate to ZERO. Through this app a rural Doctor can diagnose the disease by entering the symptoms that are observed during the animal examination. After a series of symptom analysis, the app shows the name of disease and an associated score indicating the intensity of the disease along with the possible line of treatment and prescriptions required.

With proper usage, such an app can bring revolutionary improvements in the cattle-farming sector of Bangladesh.

Dr. F H Ansarey
Managing Director & CEO
ACI Agribusiness





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Training Farmers on Safe Use of Biotechnology and Communication

Bangladesh has made headlines in the world of Biotechnology by approving the release of 4 transgenic varieties of eggplant in 2014. The varieties released are Bt Uttara, Bt Kajla, Bt Noyontara, and Bt ISD 006. It was announced in March 2017 that 3 more varieties are in the pipeline. The transgenic brinjals, resistant to fruit and shoot borers are being cultivated by 6000 farmers in 36 districts. The government is now planning to provide incentives to Bt brinjal growers and hopes this will help spread cultivation to all 64 districts of the country.

Apart from Bt brinjal, research is being carried out on disease resistant transgenic potato. Single gene transgenic potato resistant to late blight is ready for release, with approval still under review. In addition to this, in collaboration with Michigan State University and under the "Feed the Future Biotechnology Potato Partnership" three-gene transgenic potato materials are also ready for trials in Bangladesh.

GM rice is also in the pipeline. A saline tolerant variety has been developed which is pending field trial, while the transgenic golden rice variety is already undergoing field trial. With such advances in the GM food crop sector, it is important to educate the farmers' who will take up cultivation of these transgenic crops.

Cultivating transgenic crops is associated with its own rules which are determined internationally as well as outlined in the Biosafety Guidelines of Bangladesh. But to implement them successfully, awareness is essential for all stakeholders beginning from scientists to extension officers to farmers to consumers. This will prevent the GM crops from mixing with the non-GM varieties and thus the consumers can choose the type they want. Farmers need to know the special procedures of cultivating GM crops, including the planting distances or barriers between GM and non-GM crops as well as well disposing of waste from GM fields. It is also equally important to educate farmers on communication regarding GM crops. This is simply not just clearly marking GM vegetables in the market, but also to be able to answer questions of the consumers, so that irrational fear about GM is not spread.

Such measures are already being taken by other developing countries such as the Philippines, where using the example of Golden Rice; the Philippine Rice Research Institute (PRRI) have been training farmers on Biotechnology and communication. In Bangladesh the Public Sector should partner with Private companies having strong biotech activities, to communicate appropriate information related to GM crop production to consumption.

Assistance of Adeeba Raihan, Senior Scientist, ASRBC, ACI Limited is highly acknowledged

Prof. Lutfur Rahman,
Advisor, ACI Agribusiness &
Editor, Biolife

Image: Filipino farmers receiving training from PRRI on Biotechnology (source: www.isaaa.org)

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ACI Seed arranged a field day for variety demonstration of Tropical-33 cabbage on 7 December 2017 at Jalwapara, Comilla. The aim of the event was to demonstrate the performance of the variety and its production practices in the field. To assess the potential of the variety and highlight the role of stockholders including sales personnel, stockiest and farmers in the seed supply chain were also on the agenda. The lead farmer Md. Nuru Mia cultivated ACI Seed's cabbage variety Tropical-33 in his 24 decimal land in the current Rabi season and he is expecting to earn a net profit Tk. 45,000. About 50 local farmers attended the field day and got highly motivated to cultivate the Tropical-33 variety in next season. From ACI Seed, Mr. Ehtesham, Marketing Officer; Mr. Abu Musa, ASM; Mr. Abu Taher, PDS Officer; Mr. Zakir Hossain, RSM and Mr. Abdullah Al Masud, Product Manager (Vegetable) joined the program.

NEB & Bioferti Campaigns in Rajshahi

On 9 December 2017, ACI Fertilizer arranged a campaign to increase awareness on the effectiveness of NEB and Bioferti at Tanore Upazilla, Rajshahi. Local Area Executive, Officer & FS conducted the campaign at Krishnapur Bazar where farmers from different villages participated.

The campaign team visited different shops and briefed farmers about various features of NEB and Bioferti. Especially they described the benefits of using these products in case of different crops especially on potato. The key discussion was on the application and subsequent economic impacts of using NEB as well as Bioferti.
Nitrogen Efficiency for Bioavailability (NEB) is a blend of natural Root Exudates that maximizes microbial activities in the soil. By the use of NEB, plants get more of the N for longer period of time which assists to provide significant growth advantages of plants. NEB is now applied to increase its uptake and decrease environmental impact by reducing usage of urea fertilizer. Moreover, Bioferti is completely a natural product manufactured from the world's best marine plant Ascophyllum nodosum. It is a composition of beneficial bioactive compounds which supports the plant to upgrade the nutrient and grow properly.

Promo for NPKS Fertilizer 'Ratno'

Since its launching on 16 November 2017, ACI Fertilizer has been using integrated marketing communication effort to popularize the balanced NPKS fertilizer 'Ratno' across the country. For this, different kinds of promotional marketing tools are being used such as roadshow, leaflet, poster, festoon, etc. Besides, retailer and farmer training sessions are arranged. The field force had conducted different demonstration and partnership programs in collaboration with Department of Agriculture Extension (DAE). As a result, more than 2,000 Metric Ton 'Ratno' fertilizer has been sold out till December 2017. Different national daily and online news portals covered various features on 'Ratno'. So cumulatively, it's been a great activation program of this NPKS fertilizer and repurchase rates by farmers and traders also show

a positive paradigm for the future market of 'Ratno'. The NPKS Fertilizer 'Ratno' is a result of the partnership between Mazim Agro Industries Ltd. and ACI Fertilizer.
'Ratno' is a balanced fertilizer containing a proper mixture of Nitrogen (N), Phosphorus (P), Potassium (K) and Sulfur (S) which are most important nutrients for yield. It provides balanced nutrients to soil which ensures timely yield, growth, flowering and fruiting cycle.

French Technology to create Skilled Manpower in Poultry Industry

ACI Animal Health has successfully organized and implemented the 'Avian Diseases Veterinary Post-graduate Diploma Course 2017' with the joint efforts of famous poultry vaccine manufacturing and research company Ceva Sante Animale of France, and Sher-E-Bangla Agricultural University (SEU) with a view to creating skilled manpower for Poultry Industry. This skilled manpower will contribute to grow poultry industry more profitably. Dr. F H Ansarey, Managing Director, ACI Agribusiness gave the welcome speech in the certificate giving ceremony of this course where 32 expert veterinarians representing public sector, private sector and academia were awarded with the diploma degree after completion of the course successfully.
Professor Dr. Karim Adju of National Veterinary School of France (ENVA) and Prof. Dr. Moncef Bouzouaia (Ceva, France) also gave his valuable insights on how this newly transferred specialized skills and knowledge will contribute to the development of the poultry sector in Bangladesh. Vice Chancellor (SAU) Professor Dr. Kamal Uddin Ahamed also felicitated the organizer and participants of the training course. Manager of this progam Dr. Marie Ducrotoy, Pro Vice Chancellor of SAU Dr. Md. Sekender Ali, and Treasurer of the same university Dr. Professor Dr. Anwarul Haque Beg also congratulated the trainees. Mr. Jean- Pierre Ponset, Charge D'Affairs of France Embassy was also present as a special guest in this program.

ACI Motors at ICME Exhibition'17, BUET

ACI Motors participated in an exhibition organized by Mechanical Engineering Department of Bangladesh University of Engineering and Technology (BUET) from 20 to 22 December 2017. The exhibition was part of the 12th International Conference on Mechanical Engineering (ICME2017), a biannual conference organized by BUET since 1995. ACI Motors team displayed different agro-based machineries i.e. Tractor, Harvester, and Reaper along with YAMAHA Motorcycle, Construction Equipment and Diesel Generator in the exhibition. Apart from the product display, ACI Motors team demonstrated field level operations through video projections which drew attention of the visitors including professors, students, researchers and engineers from BUET and other institutions. At the closing ceremony of ICME2017, ACI Motors received an award as one of the best stalls in the exhibition.

Yamaha: Reaching 1M+ Fans on facebook

Yamaha Motorcycles Bangladesh facebook fan page recently hit the spectacular milestone of reaching 1 million fans. As one of the fastest growing fan page in its class, the page has become a hub for regular news, events and promo updates for all the motorcycle enthusiasts of the country. Not only new product info but also online customer service is provided using the facebook page. Moreover, facebook LIVE video sessions are being arranged where viewers could directly ask questions to experts regarding maintenance and safety of their motorbikes. Right now Yamaha Motorcycles Bangladesh is maintaining its digital presence on YouTube, Instagram, Viber & Online News Portal (Prothom Alo) along with the facebook fan page. Different digital campaigns like the recent "Dream Bike Yamaha" are organized on a regular basis. A dedicated website and a service app for smartphones are under process for all the Yamaha fans of Bangladesh. ACI Motors is the country's sole distributor for Yamaha Motorcycles.

ACI Agrolink starts Distributing Fonterra's 'Anchor' Dairy Products

ACI Agrolink Limited, a subsidiary of ACI Limited, has signed an agreement with New Zealand dairy company Fonterra, to exclusively distribute, promote and sell high-quality Anchor dairy products in Bangladesh from 1 December 2017. At the signing ceremony, Dr. F H Ansarey, Managing Director, ACI Agrolink Limited said, "We are in the process of establishing a unique distribution network to make Anchor dairy products accessible across the entire country. Anchor is a renowned global dairy nutrition brand and we have a shared vision alongside Fonterra to enrich people's lives by supplying safe, high-quality dairy nutrition to the people of Bangladesh."

Fonterra, the dairy co-operative behind Anchor, is the world's largest exporter of dairy products, operating in more than 100 countries around the world and sharing the nutritional benefits of dairy with over a billion people every day. Fonterra places food safety and quality at its core, conducting close to seven million tests on its milk and products every year. Fonterra's Managing Director Sri Lanka and Indian Subcontinent, Mr. Sunil Sethi said, "We are pleased to partner with ACI Agrolink Limited in our efforts to provide more consumers each day with the highest quality dairy nutrition from New Zealand. Through ACI's strong distribution network, families across Bangladesh will now have access to Anchor full cream milk powder - and this is just the beginning. We expect many more exciting innovations to follow, as we continue to nourish our consumers through meeting their nutritional needs across different stages of their lives." Dr. F H Ansarey, Managing Director, ACI Agrolink Limited; Mr. M Saifullah, Head of Business, ACI Agrolink Limited; Mr. Labanyendu Mishra, Country Manager, Fonterra Brands and other officials from ACI were present at the signing.

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Leftovers can be quite valuable. For instance, when soybean seed is crushed and the oil extracted, what's left is called soybean meal. You'll want to save this leftover. Soybean meal contains high-quality protein. Globally, close to 98% of soybean meal produced is used in animal feed. The United Nations Food and Agriculture Organization calls it "the most important and preferred source of high-quality vegetable protein for animal feed."

But soybean growers face a challenge. It has proved difficult to develop soybean varieties with both high protein levels and high yields. These two characteristics are negatively correlated: when soybean yields are high, protein levels tend to decrease, and vice-versa. Plant breeder Brian Diers and colleagues addressed this problem in a new study. Their initial results suggest it might be possible to breed soybeans with higher protein concentration without significantly decreasing yields. "Growers are typically paid based on the weight of soybeans they deliver to buyers," says Diers, a researcher at the University of Illinois at Urbana-Champaign. "Therefore, growers decide which varieties of soybean to grow based primarily on yields." If high-protein varieties of soybean have relatively low yields, they may not be chosen by growers, says Diers. For this study, the researchers tested a gene that increases protein by breeding it into two different varieties of soybean. The results were promising. Plants of both varieties with the high protein gene had increased protein concentration and did not show a significant decrease in yields. "The study has also increased our understanding of the genetics of protein concentration in soybean," says Diers. "That's important because soybean protein concentration is impacted by many genes." These genes are spread across different locations in the soybean DNA. Different versions of genes at each location can lead to higher or lower protein concentration in soybean.

(Source: Agriculture and Food News-Science Daily; www.sciencedaily.com)

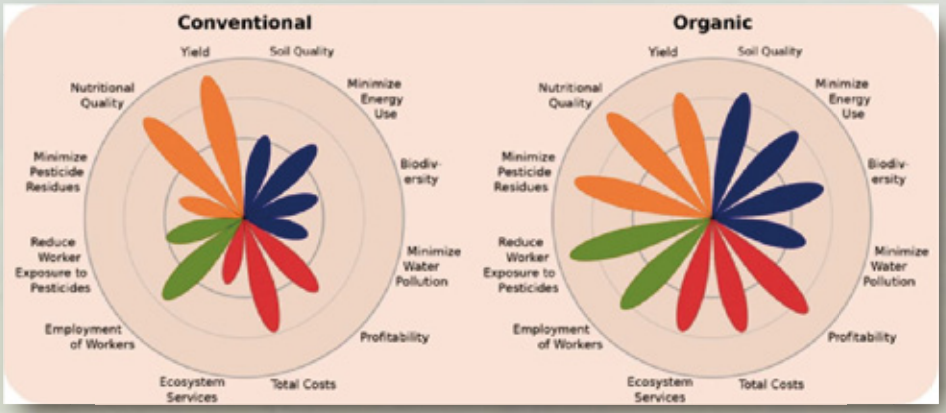
These are soybean crossing plots from trials in Urbana, Illinois.
Photo Credit: Brian Diers

Organic Agriculture Key to Feeding the World Sustainably

Washington State University researchers have concluded that feeding a growing global population with sustainability goals in mind is possible. Their review of hundreds of published studies provides evidence that organic farming can produce sufficient yields, be profitable for farmers, protect and improve the environment and be safer for farm workers. The review study, "Organic Agriculture in the 21st Century," is featured as the cover story for February issue of the journal Nature Plants and was authored by John Reganold, WSU Regents professor of soil science and agroecology and doctoral candidate Jonathan Wachter. It is the first such study to analyze 40 years of science comparing organic and conventional agriculture across the four goals of sustainability identified by the National Academy of Sciences: productivity, economics, environment, and community wellbeing.

"Hundreds of scientific studies now show that organic ag should play a role in feeding the world," said Reganold, lead author of the study. "Thirty years ago, there were just a couple handfuls of studies comparing organic agriculture with conventional. In the last 15 years, these kinds of studies have skyrocketed." Organic production currently accounts for only one percent of the global agricultural land, despite rapid growth in the last two decades. Critics have long argued that organic agriculture is inefficient, requiring more land to yield the same amount of food.

The review paper describes cases where organic yields can be higher than conventional farming methods. "In severe drought conditions, which are expected to increase with climate change, organic farms have the potential to produce high yields because of the higher water-holding capacity of organically farmed soils," Reganold said.
(Source: Agriculture and Food News-Science Daily; www.sciencedaily.com)



An assessment of organic farming relative to conventional farming illustrates that organic systems better balance the four areas of sustainability.
Photo Credit: Reganold and Wachter

Study Reveals New Insight into "Immortal" Plant Cells

A new study conducted by a research team from The John Innes Centre (JIC) led by Dr. Xiaoqi Feng reveals that plants have a reprogramming mechanism that allows them to maintain fitness down the generations. The team made the discovery while studying germ cells in flowering plants. Germ cells, specialized for sexual reproduction, are referred to as "immortal" because they pass genetic material through the generations.

The JIC team worked with colleagues from the University of Leicester to reveal for the first time the existence of DNA methylation changes in the germline of flowering plants. They also revealed that this reprogramming happens via a process known as de novo (anew) DNA methylation and its biological significance in maintaining reproductive success. Dr. Feng explained, "Our research shows that developmentally regulated DNA methylation reprogramming can regulate plant development. Scientists have been searching for this for a long time. We show that genes can be regulated in specific cells via the de novo DNA methylation pathway, which is prevalent in many plant tissues, hence this mechanism may apply to many processes in plants."

(Source: Crop Biotech Update, International Service for the Acquisition of Agri-biotech Applications-ISAAA; www.isaaa.org)

Dr. Xiaoqi Feng
Photo Credit: The John Innes Centre (JIC)

Food for Thought: Use More Forages in Livestock Farming

Small-scale livestock farming in the tropics can become more intensive yet sustainable if more and better forage is used to feed the animals being reared. This could benefit farming endeavours in rural South Asia, sub-Saharan Africa, Central America and the Caribbean, and see a move away from the increased reliance on grain-based feeds, say scientists at CIAT (International Center for Tropical Agriculture) and Thomas Rudel of Rutgers University in the US, in Springer's journal Ambio.

The world's livestock population has over the past two decades shifted from ruminants (such as cattle, goats, and sheep that digest their food in a complex of stomachs) towards monogastric animals (such as pigs and poultry that have a single stomach). Whereas the former can quite easily digest pasture grasses, other forages, and roughages, the latter cannot. In especially the developed world farmers increasingly use more grain and soybean-based concentrates to feed their animals. This has led to a rise in grain prices and has reduced the availability of food for human consumption. Rudel and his associates at CIAT argue that the "LivestockPlus" program could be a way forward by increasing the use of forages to feed livestock, which is often reared on small farms, in the tropics. Its agricultural research and extension efforts help to intensify in sustainable ways the management of forage grasses and legumes, shrubs, trees, and animals.

(Source: Springer Nature; www.springer.com)

Brown Swiss cattle are shown in a silvo-pasture in the Ecuadorian Amazon.

Photo Credit: Diana Burbano

Researchers Trace Potato's Origins & Untapped Potential

To learn how the potato was domesticated, and how its DNA evolved over time, a team of researchers from the United States conducted a plant genome project to understand the crop's domestication and identified potential genes to improve on in the future. The team examined wild and cultivated potato species, including those found in South American markets, domestic North American varieties, and landraces, which are cultivated potatoes analogous to heirloom breeds.

A change that accompanied the domestication process is reduced pollen fertility. While some wild species must be fertile to disperse seeds, cultivated species grow from tubers. The team aligned genomes of each potato they studied to the "doubled monoploid" (DM) potato. The tuber's relative genetic simplicity compared to commercial potatoes made it easier to sequence using available next-generation sequencing technology. Understanding the tuber's genetic blueprint could help growers transition to a successful breeding scheme that will produce desirable varieties.

(Source: Crop Biotech Update, International Service for the Acquisition of Agri-biotech Applications-ISAAA; www.isaaa.org)

Photo Credit: CBC.ca

Compound from Oilseeds May Be High-Value Product

The oil extracted from ground seeds of camelina and carinata, oilseed plants from the mustard family, can be used as jet fuel. However, with oil prices at an all-time low, that is economically challenging. These promising biofuel sources may be one stop closer to reality due to extracting a substance called glucosinolate. Glucosinolate is one of the bioactive compounds that remains after the oil has been extracted, according to bioprocessing engineer Zhengrong "Jimmy" Gu, an associate professor at South Dakota State University. He and doctoral student Yuhe Cao developed a means of extracting glucosinolate from the oilseed meal, which may lead to high-value uses for the chemical.

In response to the U.S. Navy's Great Green Fleet Initiative to develop biofuel from nonfood oilseeds, SDSU researchers have been determining the suitability and sustainability of oilseed crops in the Dakotas and assessing the oil and fuel characteristics of the seeds since 2012. Camelina and carinata are two of the oilseeds being studied. The research is supported through the South Dakota legislative funding of the South Dakota Oilseeds Initiative, industry partners and federal funding via the North Central Sun Grant Center.

(Source: Agriculture and Food News-Science Daily; www.sciencedaily.com)

Researchers at South Dakota State University are looking at the nonfood oilseed, carinata, as a potential biofuel feedstock.

Photo Credit: South Dakota State University

Eating Nuts Can Reduce Weight Gain, Study Finds

A study recently published in the online version of the European Journal of Nutrition has found that people who include nuts in their diet are more likely to reduce weight gain and lower the risk of overweight and obesity. The findings came to light after researchers at Loma Linda University School of Public Health and the International Agency for Research on Cancer (IARC) evaluated diet and lifestyle data from more than 373,000 individuals from 10 European countries between the ages of 25 and 70. Senior investigator Joan Sabaté, MD, DrPH, director of the Center for Nutrition, Lifestyle and Disease Prevention at LLUSPH, said that many people have historically assumed that nuts -- an energy-dense, high-fat food -- are not a good choice for individuals who want to lose weight. The findings, however, contradict that assumption.

In their five-year study, Sabaté and junior investigator Heinz Freisling, PhD, a nutritional epidemiologist with the Nutritional Methodology and Biostatistics group at IARC headquarters in Lyons, France, found that participants gained a mean average of 2.1 kilograms during the five-year period of the study. However, participants who ate the most nuts not only had less weight gain than their nut-abstaining peers, but also enjoyed a 5 percent lower risk of becoming overweight or obese. "To me, this confirms that nuts are not an obesogenic food," Sabaté said.

(Source: Agriculture and Food News-Science Daily; www.sciencedaily.com)

Assorted nuts.

Photo Credit: bit24 / Fotolia

Wheat Disease Breakthrough to Help Feed the World

Famine may be largely a thing of the past but in recent years the re-emergence of a disease that can kill wheat -- which provides a fifth of humanity's food -- has threatened food security; now a break through is being announced, in two companion papers being published in the journal Science.

In a world first, science has leaped a step ahead of an old foe that has recently re-emerged in some parts of the world, where it has devastated crops because of its ability to evolve, undoing much of the hard work that began in earnest with the Green Revolution -- using natural techniques to isolate the first rust pathogen gene that wheat plants detect and use to 'switch on' in-built resistance. The breakthrough in research targeting the stem rust foe -- historically the most dangerous pathogen of wheat -- will mean suspect samples could be analyzed within hours in an emergency rather than weeks, potentially saving crops from being destroyed. "For the first time it will be possible to do DNA testing to identify whether a rust in a wheat crop anywhere in the world can overcome a rust-resistance gene, called Sr50, which is being introduced in high-yielding wheat varieties," said Professor Robert Park, corresponding author from the University of Sydney. "This will indicate whether or not a given wheat crop needs to be sprayed with expensive fungicide quickly to protect against rust -- which would otherwise devastate the crop in a matter of weeks."

(Source: Agriculture and Food News-Science Daily; www.sciencedaily.com)

The pathogen kills wheat plants by girdling stems, resulting in crops comprising a tangled mess.

Photo Credit: Robert Park, University of Sydney

Believe it or not!

- The papaya plant, although mostly referred to as a tree, is actually a giant herb. It is fast-growing and can produce fruit within 6 to 12 months from planting.
- Ripe papaya is usually eaten raw. Unripe papaya can be eaten if cooked and is used in many sauces and dishes around the world.
- Papaya is perennial plant that can survive around 20 years in the wild.
- The papaya tree can grow from seed to 20 foot in just 18 months.
- The exact origination of papaya is unknown but it is believed to be native to southern Mexico and neighboring Central America.

Nutrition Chart

Pineapple (100 grams)	
Calories	43
Sugar	8 g
Total Fat	0.3 g
Protein	0.5 g
Potassium	182 mg
Sodium	8 mg
Dietary fiber	1.7 g

Source: USDA

Tips

- Papaya is rich source of vitamins C and vitamins of the B group. It contains beta-carotene which turns into vitamin A inside the human body. Besides vitamins, papaya contains numerous valuable minerals and high content of dietary fibers.
- Papaya can be used in the treatment of Dengue fever.
- Papaya is one of the most effective treatments for indigestion. It is the only fruit that contains papain, an enzyme that has the ability to digest protein.
- Papain is also popular (in countries where it grows) as a topical application in the treatment of Cuts, rashes, stings and burns. Harrison Ford was treated for a ruptured disc incurred during filming of Indiana Jones and the Temple of Doom by papain injections.
- Papaya is also believed to prevent cancer.

Sharing is caring!

The papaya has several culinary uses. Aside from eating it raw, you can combine it with other ingredients to make a healthy smoothie or a salsa. Green papaya is an effective meat tenderizer. The papaya seed, which resembles a peppercorn in taste and appearance, can be utilized as a substitute for pepper. In some parts of the world, the papaya fruit is a common component in stews and curries.

Aside from the edible fruit, other parts of the papaya plant have other uses as well. In some cultures, the seeds and leaves are valued as medicine. Papaya seeds are said to be effective in getting rid of intestinal parasites while a tea brewed from papaya leaves is known to prevent malaria. Likewise, the stems and bark of the papaya plant can be made into rope.