BIOLIFE

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Mobile Apps in Dairy Farms

The ubiquitous presence of mobile phones in our country has opened new avenues of possibilities. This is also true for our dairy sector. With the increasing use of mobile applications worldwide, now dairy farm owners can track all the happenings on a farm from breeding, feeding to paying workers' salaries, and enhancing efficiency in the long run. Even, some smart integrated systems can automatically calculate total milk production from the cows, highlighting the highest and lowest producers. These smartphone apps can also help to keep an inventory of feeds, their nutrition value, and total cost. Moreover, monitoring of the animals' health has been made easier for farm-owners as the mobile apps can keep records of treatment, including diagnosis, medication, and vaccination.

However, there are still challenges to overcome to get the full benefit of such mobile apps for dairy farms. Many of our farmers are yet to upgrade to a smartphone. They need to be trained on why and how to use these apps. In addition to that, we need to develop localized apps for Bangladeshi farm-owners. Security and authenticity of data are other vital issues to consider. Most importantly today's dairy farm owners in our country must embrace information technology applications for better management of their farms.

Dr. F H Ansarey
Executive Director
ACI Agribusiness

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Omega ADE

ACI Animal Health launched Omega ADE on 17 April 2017. Each ml of Omega ADE contains Vitamin Do 20,000 I.U., Vitamin E 40 mg, Excipients q.s. to 1ml and Vitamin A 100,000 I.U. Omega ADE is equally effective for all Livestock.

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High Value Gene Sources: Indigenous Plants, Land Races, Wild Relatives & Varieties

The strong genetic base as to diversity is necessary for development of crop varieties in any country. With the development process of a country this strong base always gets reduced over time with pressure from multiple sources- continuous mono-culture, adoption of HYVs, environmental changes and increase in natural calamities e.g. flash floods, excessive rainfall, abnormally high temperatures, population pressure and encroachment of stressed environment. These indigenous varieties or landraces and wild relatives of major crops are exceptionally important as a genetic base for protection against pests and diseases. At the moment widespread adoption of modern cultivars without pockets of other varieties has lead to reducing population having inbuilt genetic defenses against pathogens and insects thus increasing the risk of epidemic attacks. The endemic plant genetic resources have high Zinc, hig Iron, low GI, Low Erucic acid, gene/s adaptive to stress environments like the high salinity and high drought condtions. These gene sources are high value and faster to be used in development of new varieties of demand.

Responsibility for maintaining the biodiversity is mainly with public sector organizations with one central governing body, like the National Plant Genetic Resources Institute (NPGRI); which will undertake survey, collection, characterization, documentation and sharing with others. Also includes developing a complete database of their relevant characteristics. Farmer groups can also be participating in the activities of the NPGRI on being trained. The database developed be made available publicly so that the uses of the PGR becomes easier and faster. The country-wide research stations/substations, universities, government installations of farms, forest nurseries, private nurseries, labs of different dimensions an types can become partners in preserving PGR in their own stations/facilities with information on the central database operated by the NPGRI, which will also help organizing sharing of the products of one to the other on collaborative MTA basis. Assistance of Adeeba Raihan of ASRBC is appreciated.

Prof. Lutfur Rahman,
Advisor, Agribusinesses, ACI Ltd.

Omega ADE

ACI Animal Health launched Omega ADE on 17 April 2017. Each ml of Omega ADE contains Vitamin Do 20,000 I.U., Vitamin E 40 mg, Excipients q.s. to 1ml and Vitamin A 100,000 I.U. Omega ADE is equally effective for all Livestock. In each hatchery, it is used during mating or reproduction, before and after vaccination, excessive heat and cold. In case of Layer, it is also used before administration of anthelmintic vaccination or during treatment of any diseases. Omega ADE also works in case of broiler and pullet during treatment of any diseases. In case of other animals, it is also helpful before vaccination & during any treatment. Omega ADE is available in 500 ml packs.

Syn Biotech

Syn Biotech is a natural source of Synbiotic combination of benefit microorganism and Prebiotic. It helps to benefit microorganism for permanent colonization, prevent pathogen colonization, increase digestive enzyme, acidulant in gut and decrease anti-nutrient factors. Syn Biotech is a composition of Saccharomyces cerevisiae 1X107 cfu/lit, Bacillus subtilis 1X1011 cfu/lit, Bacillus lichenifermis 1X1011 cfu/lit, Lactobacillus acidophilus 1X1010 cfu/lit, Lactobacillus plantarum 1X1010 cfu/lit, Lactobacillus lactis 1X1010 cfu/lit, Streptococcus thermophilus 1X106 cfu/lit and Fructo Oligosaccharide (FOS) 20 gm/lit. It is used for Synergistic action of Probiotic and Prebiotic to improve gut performance. Syn Biotech helps to increase beneficial microorganism and stimulate immunity system. It also helps to improve digestibility, Feed Conversion Ratio (FCR), performance and survival rate. Syn Biotech Significantly improves production of poultry. It has no side effect. ACI Animal Health launched Syn Biotech on 12 April 2017. It is available in 100 ml packs. Syn Biotech is manufactured by Vet Superior Consultant Co.Ltd.

ACI-Bayer Partnered to Synergize Seed Tech

Bayer CropScience Ltd., a Germany based leading agri-input company in Bangladesh, has joined hands with ACI Ltd on 18 April 2017 for improving rice yields in Aman season. Bayer and ACI will distribute 'Arize® Dhani Gold', a hybrid rice variety from Bayer for Aman season, simultaneously in Bangladesh through their distribution channel. Srinivasa Kumar Karavadi, Managing Director, Bayer CropScience Ltd, Bangladesh and Dr. F. H Ansarey, Executive Director, Agro Division, ACI Ltd. signed a partnership agreement in ACI Center, Dhaka in presence of officials from the Department of Agriculture Extension (DAE) and officials of both companies.

The partnership will enable a higher reach of hybrid seed technology to farmers. Arize® Dhani Gold has Bacterial Leaf Blight (BLB) tolerance, which is one of the major concerns for Bangladeshi farmers in the Aman season. It also has a 20-25% higher yield capacity as compared to local High Yielding Varieties. The duration of the hybrid is relatively shorter and can be harvested within 125-130 days (Seed to Seed), which means farmers can grow other winter crops like mustard, potato etc. prior to Boro paddy. Arize® Dhani Gold, which was released in Bangladesh a few years back, is gaining popularity among farmers for its unique features. The Department of Agricultural Extension in Bangladesh is focusing more on improving productivity in Aman season which can reduce pressure on input-intensive Boro paddy cultivation. The Bayer-ACI partnership will create a strong synergy to promote this technology to the farming community to increase the overall paddy productivity during the Aman season.

ACI Fertilizer at Mungbean Fair 2017

To introduce and promote balanced fertilization to farmers as well as other stakeholders, ACI Fertilizer participated in the Mungbean Fair 2017 held on Sunday, 23 April 2017 at Gymnasium, Patuakhali Sadar. SME Club of Bangladesh Institute of ICT in Development (BIID) and Patuakhali Chamber of Commerce and Industries (PCCI) jointly organized the event with the assistance of the DC's office, Patuakhali and Department of Agricultural Extension (DAE). The institutional

participants at the fair included agri-input companies, financial institutions, insurance companies, potential buyers (traders, processors etc.) and different service providers. The objective of the fair was to establish a geographical branding for Mungbean at Patuakhali. Patuakhali is rich in Mung bean production and is the supply center for all over the country. The daylong fair was inaugurated by the chief guest Mr. A K M Shamimul Haque Siddique, Deputy Commissioner, Patuakhali. Mr. Shahid Uddin Akbar was the welcome speaker. Mr. Bashir Ahmed, Business Director of ACI Fertilizer, SME Club mentors Md. Abdur Razak and Md. Kabir Sikder,

PCCI President Mr. Mohiuddin Ahmed were also present in the session as special guests.

To recognize the crop's abundant production in the locality and help local producers get better results, ACI Fertilizer team demonstrated various ways to improve yield by using micronutrient and balanced fertilizers. Representatives from mungbean businesses (various level, within and outside Patuakhali), trade bodies, local government as well as business specialists, policy-makers, financial institutes, INGOs, NOGs, agri input and output market stakeholders of Mungbean joined the event and observed the demonstration on organic, bio-fertilizer and micronutrient.

PPP Workshop for Crop Breeding at BAU

A Workshop on 'Public-Private Partnership (PPP) for Crop Breeding' was organized by Plant Breeding and Genetics Society of Bangladesh (PBGSB) on 22 April 2017 at Bangladesh Agricultural University (BAU), Mymensingh. Dr. Md. Shamsher Ali, DG, BINA graced in the workshop as Guest of Honor while Prof. Dr. Lutfur Rahman, Advisor, ACI Agribusiness initiated the discussion with a concept note on Public-Private Partnership (PPP) for Crop Breeding. The discussion followed by three more notes from Prof. Dr. M. A. Rahim (Director, Germplasm Center, BAU), Dr. Mirza Md. Mofazzal Islam (Plant Breeding Division, BINA), Prof. Dr. Md. Ashraful Hoque (GPB, BAU) on technologies and opportunity of research in crop breeding through PPP. Participants discussed on possible PPP in Plant Breeding. It was interesting to record some of the promising varieties of BINA and BAU along with the breeding approach of the ACI R&D, which generated knowledge of sharing matured technology but also accepted that the private sector breeders should be in direct collaboration from the beginning of the research on traits of demands.

Twenty-six participants including faculty members from universities, scientists of BINA, and ACI have participated in the workshop. The participants shared and discussed the techniques, traits of demands of crop varieties and changing the mindset in generating knowledge with skills through joint efforts of public and private breeders. This workshop sensitized the policymakers, academia, and the public and private sector partners towards promoting future plant breeding through joint efforts. The workshop was directed by Prof. Dr. A. K. M. Aminul Islam, General Secretary and chaired by Dr. Md. Khairul Bashar, President of PBGSB. ACI provided financial support to organize the workshop.

ACI Motors Stakeholder Meeting at B.Baria

On 20 April 2017, ACI Motors organized the 'Mechanics & Customer Meeting-2017' at Morichakandi, Bancharampur, B. Baria for networking and building relationship with partners and stakeholders. M/S Shimul Machinery, Dealer of ACI Motors was the local organizer of the event. Around 50 mechanics and customers attended this program from different upazillas of B Baria. Mr. Jakir Hossain, Sales Manager, Central Part, Mr. Arafat Hossain,

aAssistant Product Manager nd, Mr. Abdul Alim Sk, Territory Manager, Comilla were present from ACI Motors. They addressed the participants for product promotion and network development. Moreover, ACI products' features & benefits were briefly discussed in the meeting. Mechanics and customers also gave their feedback. Lastly, Mr. Shimul Hossain, Proprietor of M/S Shimul Machinery gave his insights on product promotion and marketing guideline.

ACI Motors celebrated Pohela Boisakh Countrywide

On the occasion of Bengali New Year 1424, ACI Motors arranged an array of events to celebrate Pohela Boisakh (The first day of Bengali New Year) countrywide in April 2017. Covering all the four zones (East, Central, South, and North) of the country, the Bengali New Year celebration brought festivity at 27 different locations while touching the hearts of more than 3000 people. During these celebrations, ACI Motors welcomed customers with gifts, snacks, and lunch. Product Display also took place in a festive mood countywide. A remarkable part was the Yamaha Test Ride segment organized in the capital city during the New Year celebration.

Barley Genome Sequenced

A team of researchers at the University of California, along a group of 77 scientists worldwide, have sequenced the complete genome of barley, a key ingredient in beer and single malt Scotch. The research, 10 years in the making, was just published in the journal Nature. "This takes the level of completeness of the barley genome up a huge notch," said Timothy Close, a professor of genetics at UC Riverside. "It makes it much easier for researchers working with barley to be focused on attainable objectives, ranging from new variety development through breeding to mechanistic studies of genes." The research will also aid scientists working with other "cereal crops," including rice, wheat, rye, maize, millet, sorghum, oats and even turfgrass, which like the other food crops, is in the grass family, Close said.

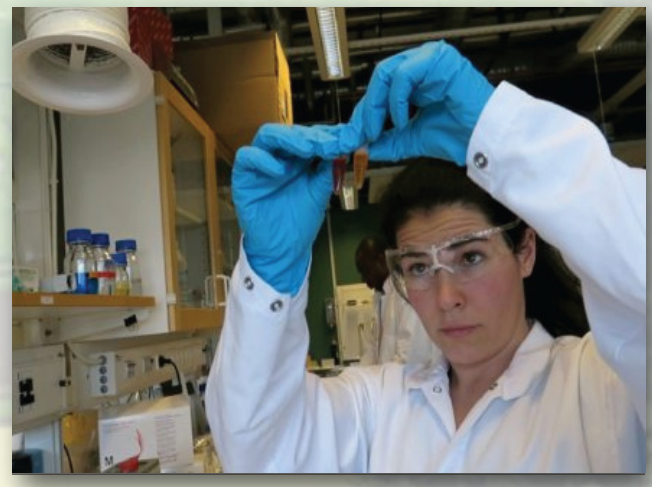
Barley has been used for more than 10,000 years as a staple food and for fermented beverages, and as animal feed. It is found in breakfast cereals and all-purpose flour and helps bread rise. Malted barley gives beer color, body, protein to form a good head, and the natural sugars needed for fermentation. And single malt Scotch is made from only water and malted barley. The report in Nature provides new insights into gene families that are key to the malting process. The barley genome sequence also enabled the identification of regions of the genome that have been vulnerable to genetic bottlenecking during domestication, knowledge that helps to guide breeders to optimize genetic diversity in their crop improvement efforts. Ten years ago, the International Barley Genome Sequencing Consortium, which is led by Nils Stein of the Leibniz Institute of Plant Genetics and Crop Plant Research in Germany, set out to assemble a complete reference sequence of the barley genome.

Barley is one of the world's most important cereal crops.
Photo Credit: Close Lab, UC Riverside.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

Plastics from Byproducts of Wheat Milling?

It's usually used as livestock feed, but wheat bran's value in human nutrition and medicine may soon reach its full potential with a new sustainable processing method developed by Swedish researchers. As a commodity, the least valuable part of the wheat grain is the bran -- the outer coating of the kernel, which is typically sold as animal feed. Now researchers at KTH Royal Institute of Technology in Stockholm have developed a process to extract valuable biomolecules from this offal which could be used as antioxidants, prebiotics and even food packaging material. The extraction process uses only hot, high pressure water and carbohydrate-active enzymes to harvest wheat bran's hemicelluloses and oligosaccharides. This process allows these polysaccharides to retain



The process yields biomolecules that would be unextractable using existing methods.
Photo Credit: KTH Royal Institute of Technology

their antioxidant properties -- which are stripped away through ordinary alkaline extraction techniques.

Andrea Ruthes, postdoctoral researcher, and Francisco Vilaplana, associate professor in Glycoscience at KTH Royal Institute of Technology are the scientists behind this discovery, which was reported in the recent issue of the journal Green Chemistry. "In bran and other cereal tissues, the hemicelluloses are difficult to extract because they're tighly interconnected and recalcitrant," Vilaplana says. One way to do it is with alkaline, but that also destroys the part of the molecule that gives it its antioxidant functions. "We use a cascade approach where we first extract the hemicelluloses in polymer form and then we use the enzymes to selectively tackle the un-extractable residue. In this way we maximize total yields of valuable biomolecules from the bran," he says.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

Symbiotic Bacteria: From Hitchhiker to Bodyguard

An international team of researchers have discovered a remarkable microbe with a Jekyll and Hyde character. The bacterium Burkholderia gladioli lives in specific organs of a plant-feeding beetle and defends the insect's eggs from detrimental fungi by producing antibiotics. However, when transferred to a plant, the bacterium can spread throughout the tissues and negatively affect the plant. Microbes are not always hostile players when interacting with animals and plants, they can also be powerful allies. In fact, transitions between antagonistic and cooperative lifestyles in microbes are likely not an exception, although such shifts have rarely been observed directly. In a new study published in Nature Communications, researchers from Johannes Gutenberg University Mainz (JGU), the Max Planck Institute for Chemical Ecology and the Leibniz Institute for Natural Product Research and Infection Biology -- Hans Knöll Institute (HKI) -- in Jena, and the Universidad Estadual Paulista in Rio Claro, Brazil, gathered evidence for such a transition. Beetles like Lagria villosa outsource offspring protection to a bacterium. Moreover, a newly discovered antibiotic agent in the study resembles a plant defense compound.

Lagria villosa beetle.
Photo Credit: Laura V. Flórez, JGU

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

Scientists Develop GE Rice that Flower on Demand

University of Tokyo researchers genetically engineered rice that does not flower until it comes in contact with a specific fungicide. The results are published in Nature Plants. Takeshi Izawa and colleagues developed non-flowering rice plants by overexpressing a floral repressor gene (Grain number, plant height and heading date 7) to block natural flowering. Then they co-transformed plants with a rice florigen gene (Heading date 3a), which is induced by particular agrochemicals. Plants that undergo a longer time of vegetative growth exhibited improved plant and panicle size as well as other yield-related characteristics. The results of the study can lead to the development of crops that can grow in different climate types and facilitate breeding for different agronomical characteristics.

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

Deciphering Plant Immunity against Parasites

Nematodes are a huge threat to agriculture since they parasitize important crops such as wheat, soybean, and banana; but plants can defend themselves. Researchers at Bonn University, together with collaborators from the Sainsbury Laboratory in Norwich, identified a protein that allows plants to recognize a chemical signal from the worm and initiate immune responses against the invaders. This discovery will help to develop crop plants that feature enhanced protection against this type of parasites. The work is published in the current issue of PLOS Pathogens.

Plant-parasitic nematodes are microscopic worms that parasitize their host plants to withdraw water and nutrients. The feeding process seriously damages the host plant. Nematode infection distorts root and shoot structure, compromises the plant´s ability to absorb nutrients from soil, and eventually reduces crop yield. Yearly losses exceed ten percent in important crops such as wheat, soybean, and banana. In addition to causing direct damage, nematode infection also provides an opportunity for other pathogens to invade and attack the host plants.

Mary Wang´ombe and Badou Mendy from the Department of Molecular Phytomedicine at the University of Bonn.

Photo Credit: Molekulare Phytomedizin/Uni Bonn

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

Spermidine-Rich Foods May Extend Lifespan

Spermidine -- a compound found in foods like aged cheese, mushrooms, soy products, legumes, corn and whole grains -- seems to prevent (at least in animal models) liver fibrosis and hepatocellular carcinoma, which is the most common type of liver cancer. There is also some evidence that it may prolong lifespan, according to a study published recently in the journal Cancer Research. Researchers gave animal models an oral supplement of spermidine and found that they lived longer and were less likely than untreated individuals to have liver fibrosis and cancerous liver tumors, even when predisposed for those conditions.

"It's a dramatic increase in lifespan of animal models, as much as 25 percent," said Leyuan Liu, PhD, assistant professor at the Texas A&M Institute of Biosciences and Technology's Center for Translational Cancer Research. "In human terms, that would mean that instead of living to about 81 years old, the average American could live to be over 100." The trouble is that people would need to begin ingesting spermidine from the time they begin eating solid food to get this kind of significant improvement in their lifespans; those animal models treated later only saw a 10 percent increase in longevity. Still, it may be the most sustainable option scientists have found yet. "Only three interventions -- severely cutting the number of calories consumed, restricting the amount of methionine (a type of amino acid found in meat and other proteins) in the diet and using the drug rapamycin -- have been shown to truly prolong the lifespans of vertebrates, but eating less and not eating meat will not be welcomed by general population, while rapamycin has shown to suppress the human immune system," Liu said. "Therefore, spermidine may be a better approach."

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

New Data Unearths Pesticide Peril in Beehives

Honeybees -- employed to pollinate crops during the blooming season -- encounter danger due to lingering and wandering pesticides, according to a new Cornell University study that analyzed the bee's own food. Researchers used 120 pristine honeybee colonies that were placed near 30 apple orchards around New York state. After allowing the bees to forage for several days during the apple flowering period, the scientists examined each hive's "beebread" -- the bees' food stores made from gathered pollen -- to search for traces of pesticides.

In 17 percent of colonies, the beebread revealed the presence of acutely high levels of pesticide exposure, while 73 percent were found to have chronic exposure. "Surprisingly, there is not much known about the magnitude of risk or mechanisms of pesticide exposure when honeybees are brought in to pollinate major agricultural crops," said lead author Scott McArt, assistant professor of entomology at Cornell. "Beekeepers are very concerned about pesticides, but there's very little field data. We're trying to fill that gap in knowledge, so there's less mystery and more fact regarding this controversial topic."

Honeybees create honey in their hive through the topped-out combs, and they keep beebread -- their food -- in the other combs.
Photo Credit: gudrin / Fotolia

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

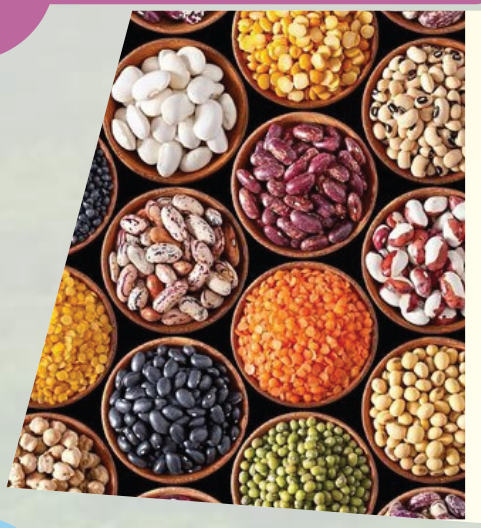
Turning Chicken Feces, Weeds Into Biofuel

Chicken is a favorite, inexpensive meat across the globe. But the bird's popularity results in a lot of waste that can pollute soil and water. One strategy for dealing with poultry poop is to turn it into biofuel, and now scientists have developed a way to do this by mixing the waste with another environmental scourge, an invasive weed that is affecting agriculture in Africa. They report their approach in ACS' journal Energy & Fuels.

Poultry sludge is sometimes turned into fertilizer, but recent trends in industrialized chicken farming have led to an increase in waste mismanagement and negative environmental impacts, according to the United Nations Food and Agriculture Organization. Droppings can contain nutrients, hormones, antibiotics and heavy metals and can wash into the soil and surface water. To deal with this problem, scientists have been working on ways to convert the waste into fuel. But alone, poultry droppings don't transform well into biogas, so it's mixed with plant materials such as switch grass. Samuel O. Dahunsi, Solomon U. Oranusi and colleagues wanted to see if they could combine the chicken waste with Tithonia diversifolia (Mexican sunflower), which was introduced to Africa as an ornamental plant decades ago and has become a major weed threatening agricultural production on the continent. The researchers developed a process to pre-treat chicken droppings, and then have anaerobic microbes digest the waste and Mexican sunflowers together. Eight kilograms of poultry waste and sunflowers produced more than 3 kg of biogas -- more than enough fuel to drive the reaction and have some leftover for other uses such as powering a generator. Also, the researchers say that the residual solids from the process could be applied as fertilizer or soil conditioner.

(Source: Agriculture and Food News, ScienceDaily. www.sciencedaily.com)

Believe it or not!



- Beans are the only cultivated plants that actually enrich, rather than deplete, the soil during the growing process.
- Beans have been cultivated by humans for 6,000 years.
- The earliest reference to baked beans was in 1832 in a book called American Frugal Housewife.
- One can of baked beans is sold in the UK every 17 seconds.
- Pythagoras disliked bean. He thought that dead people's soul lied in beans.

Nutrition Chart

Bean (100 grams)

Calories	347	Sodium	12 mg
Sugar	2.1 g	Dietary fiber	16 g
Total Fat	1.2 g		
Protein	21 g		
Potassium	1393 mg		

Source: USDA

Tips

Bean helps us to be fit and healthy in many ways:

- Studies have shown that people who eat more legumes have a lower risk of heart disease.
- Beans contain a wide range of cancer-fighting plant chemicals, specifically, isoflavones and phytosterols which are associated with reduced cancer risk.
- Beans also contain saponins and phytosterols, which help lower cholesterol.
- Beans are a diabetes sufferer's superfood! The balance of complex carbohydrates and protein provides a slow, steady source of glucose instead of the sudden surge that can occur after eating simple carbohydrates.
- The low-fat nature of beans makes it easier for you to lose weight.

Sharing is caring!

In 1966, Ronald Reagan, then running for governor of California, started snacking on jelly beans from the Herman Goelitz Candy Company in his efforts to quit pipe smoking. While he stopped smoking, he developed a serious jelly bean jones. When he was elected US president, he kept a jar on his desk and handed out the candy as gifts. A special jelly-bean jar holder was even installed for him on the presidential jet, and Reagan even sent beans on the Challenger space shuttle in 1983 as a treat for the astronauts.