

Nano-Fertilizer: Leading the New 'Green Revolution'



The use of nanotechnology has helped fertilizer formulation to ensure increased uptake in plant cells and minimized nutrient loss. As a recent development in the nano-fertilizer technology, researchers are working to make urea application more effective for plants. The research has immense importance for a number of reasons. Urea, a rich source of nitrogen, breaks down quickly in wet soil and forms ammonia. Then the ammonia is washed away which creates a major environmental issue as it leads to eutrophication of water ways. Ultimately, it enters the atmosphere as nitrogen dioxide, the main greenhouse gas associated with agriculture. Besides, this fast decomposition limits the amount of nitrogen that can get absorbed by crop roots and requires farmers to apply more fertilizer to boost production. To prevent this, the researchers developed a simple and scalable method for

coating hydroxyapatite (HA) nanoparticles with urea molecules. HA is a mineral found in human and animal tissues and is considered to be environmentally friendly. In water, the hybridization of the HA nanoparticles and urea slowly released nitrogen, 12 times slower than urea by itself.

Such development in nano-fertilizer can certainly help contribute to a new green revolution to help feed the world's continuously growing population. Moreover, it will improve the environmental sustainability of agriculture. The impacts will be even greater in countries like Bangladesh where the population is huge compared to the arable land. ACI fertilizer is making it available in the market from April this year.

Dr. F H Ansarey
Executive Director
ACI Agribusiness



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Making Tomatoes Flavorful Again



What's wrong with the supermarket tomato? Consumers say they lack flavor, so a University of Florida researcher led a global team on a mission to identify the important factors that have been lost and put them back into modern tomatoes.

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New Dimension of Collaboration Between ACI & BARI for LBR Potato in Bangladesh

It was 2015, when the ASRBC of ACI Ltd., approached the Tuber Crops Research Centre (TCRC) of BARI for undertaking a collaborative research program for **developing late blight resistant/ tolerant potato varieties**. The authority of BARI kindly agreed, and allowed TCRC to extend support to ASRBC of ACI Ltd for the specific request of transferring LBR gene to selected NSB-released modern potato varieties named Diamant, Cardinal and an ASRBC-improved indigenous potato variety ACI Pakri-1.

The program activity started at the potato crossing block of TCRC at Joydebpur during the 2015-16

season. Berries developed on one of the three recipient (R) parents are shown in Fig. 1. There were 3 recipient parent varieties (Diamant, Cardinal, ACI Pakri-1) and 3 donor parents in the crossing program of 2015-16 at TCRC, Joydebpur and a sizable number of F1 seeds were obtained from each successful cross in 2015-16. Again in 2016-17 at TCRC, Debiganj there are 4 recipient parents (Diamant, Cardinal, ACI Pakri-1, ACI Pakri-2) and 4 donors being crossed for F1. The Editor expresses thanks to Prof. Siddique and his team for assistance.

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



Figs.1. Induction of flower in recipient (R) and donor (D) potato plants; and RxD berries set at TCRC, Joydebpur in 2015-16



Fig.2. Plants raised from F1 seeds at Debiganj station in 2016-17

The F₁ seeds of 2015-16 crosses were sown in beds in Nov 2016 at ASRBC Station, Debiganj; and the phenotypic characters of each plant are being recorded. Tubers of each selected plant will be cold-stored in separate bags, and will be planted in November 2017-18 at Debiganj Station. Tubers of each plant will make a line; and the lines will be tested under LB pressure. Lines showing LB resistance will be selected for further study.



Figs.3. Flower induction in potato donor and recipient plants through extension of photoperiod; ASRBC scientists collecting data; F1 berries set in recipient plants at Debiganj BSPC crossing block in 2016-17

Innovation and New Products

M-Pain Vet

ACI Animal Health launched M-Pain Vet on 2 February 2017. M-Pain Vet offers long-lasting relief from pain and fever caused by lameness, dehorning, castration, and acute mastitis. Each bolus of M-Pain Vet contains Meloxicam BP 100 mg and each ml of injection contains Meloxicam BP 5 mg. It is used for the symptomatic treatment of pain and inflammation associated with acute clinical mastitis. M-Pain Vet works as an aid in improving appetite and weight gain when administer at the onset of diarrhea. It is also used for the relief of pain following de-budding of horn buds in calves. M-Pain Vet is available as bolus and injection. Each box contains 10 vials of 10 ml M-Pain® Vet injection and (10 x 4) boluses in blister pack.



Mint BLP Liquid

On 18 February 2017, ACI Animal Health launched Mint BLP Liquid. It contains Menthol 5%, Eucalyptus oil 2%, Peppermint oil 3%, Thymol, Carvacrol, cinnamaldehyde, eugenol and capsaicin 10%, Monobutylin 10%, Lactic acid 5%, Glycerin 35%, Lactic acid 5%, Glycerin 35%. Mint BLP Liquid helps to reduce respiratory distress as in chronic respiratory disease (CRD), coryza and respiratory disease complex (RDC) and reduce the colonization and invasiveness of Salmonella / E. Coli /Clostridium perfringens. It is highly effective against Necrotic enteritis caused by Clostridium perfringens. Mint BLP Liquid helps to increase health status / egg shell quality and overcome post vaccination reaction e.g. live NDV vaccination. It also works for reduction of mortality /morbidity and improvement of digestibility/immune system. Mint BLP Liquid is available in 100 ml packs.



ACI Agribusiness in CASH-II Conference



ACI Agribusiness participated in the 2nd Conference on Conservation Agriculture for Smallholders (CASH-II) on 14 – 16 February 2017 at Bangladesh Agricultural University (BAU) Campus, Mymensingh. The conference was jointly organized by Bangladesh Agricultural Research Institute (BARI), Bangladesh Agricultural Research Council (BARC), Bangladesh Agricultural Research Institute (BARI), Bangladesh Agricultural University (BAU), Bangladesh Conservation Agriculture Service Providers Association, Bangladesh Rice Research Institute (BRRI), Barind Multi-purpose Development Authority (BMDA), International Maize and Wheat Improvement Center (CIMMYT), International Rice Research Institute (IRRI), Krishi Gobeshona Foundation (KGF) and Murdoch University, Australia. This international event was sponsored by Australian Center for International Agricultural Research (ACIAR) and supported by BAU, Hoque Corporation and Murdoch University, Australia in different capacities.

The themes of the conference were: i. Design and development of machinery, implements, and tools; ii. Soils, water and weed management and agronomy; iii. Commercialization and adoption of CA-based technologies and practices;

and iv. Policy and institutional framework. Seven (7) exhibitors, including ACI Agribusiness, participated to demonstrate their technologies and products. Conservation Agriculture (CA) -cropping systems based on minimum tillage, crop residue retention and appropriate crop rotations and associations is practiced on over 155 million hectares around the world, covering more than one tenth of the global annual cropland. CA is considered as an opportunity to save labour and time, save fuel, save water and lower costs of production.

Prof. Dr. Jashimuddin Khan, Pro Vice-Chancellor, BAU; Dr. Akram Hossain Chowdhury, Chairman, BMDA; Dr. Bhagya Rani Banik, Director General, BRRI; Ms. Priyanka Chowdhury, Delegate from Australian High Commission, Dhaka; Dr. Mohammad Jalal Uddin, Executive Chairman, BARC; Dr. Evan Christen, Program Manager, ACIAR, Australia; Prof. Dr. Richard W Bell, Murdoch University, Australia; national and international scientists, students visited ACI Agribusiness stall during the exhibition. The whole program was chaired by Prof. Dr. Lutful Hassan, Chairman, Local Organizing Committee, CASH-II. ACI Agribusiness received an award for its active participation in the conference.

Potential Dealers visit Seed Potato Fields



ACI Seed arranged a field visit program for the seed dealers on 30 January 2017 at Barulia Bazar, Birgonj, Dinajpur. 45 dealers from 11 different regions of northern and western part of the country participated in the field visit. They visited our seed potato production fields at Dhangram Block, Mohanpur Block, Balarampur Block, Shibrapur Block in Birol, Dinajpur and Chak Haldia Block, Dhanakhali Block in Thakuragon Sadar, Thakuragon. ACI Seed produces seed potato in 14 different blocks which covering 529 acres of lands in Dinajpur and Thakurgaon districts. Participants also visited net houses in leased land block, Birgonj, Dinajpur and in Chak haldia Block, Thakurgaon. Here ACI seed produces quality seed potato

of Diamant, Cardinal, Asterix, and Granola varieties using tissue culture based plantlets in leased land block, Birgonj, Dinajpur and breeder, foundation and certified seeds in different contact growers' blocks. The field visit program was arranged at 70 days of crop stage. The dealers were very pleased to see the field performance of the seed potato production fields. As a result, they have set a target to purchase 4500 MT seeds from ACI Seed. Such field visits are the occasions where we renew our strong business relationship with our vital stakeholders like dealers. Program Manager (Potato), Regional Sales Manager, Product Manager, Sales Manager, Business Manager and Head of Business of ACI Seed attended the recent field visits.

National Seminar on Mango Resource Development



Events and Activities

On 11 February 2017, ACI Fertilizer organized a Mango Resource Development Seminar at Sadar, Chapai Nawabganj. Professor Muhammad Mizanuddin, Vice Chancellor of Rajshahi University inaugurated the daylong seminar as the chief guest. The seminar was further enriched by the guest of honor Dr. F H Ansarey, Executive Director of ACI Agribusiness. Along with others Dr. Md. Amzad Hossain, Director, Training and Communication of BARI, Dr. Md. EnamulHaque, Former Director of DAE, Khamarbari, Dhaka and Kbd. Md. Monzurul Huda, Assistant Director, DAE of Chapai Nawabganj were present as special guests. Dr. Md. Hamim Reza preside in the first session and Md. Mahmudul Hasan, District Administrator of Chapai Nawabganj preside in the second session of the

program. The speakers shared how researchers and extension personnel can help farmers with more practical approaches. The aim of the national level seminar was to ensure massive cultivation of both exotic and locally developed alternate bearing varieties in the country. Speakers of the seminar also highlighted on the process of exporting mango abroad.

There are around 3.5 million mango trees of different ages on around 23,000 hectares of land in the Rajshahi region. The number of growing mango trees has been increasing in this region for the last couple of years. The Mango Resource Development Seminar was arranged to ensure better mango production in the region through knowledge and experience sharing.

Fertilizer NEB Field Day in Jessore



A series of trials on NEB, a new product of ACI Fertilizer, was held at different locations of Jessore area on potato crop in the month of February 2017. These demo results found 14% yield increase and 31% cost savings which is significantly different from the treatment and control plots. In treated plots, there were 5.5 mt/bigha and in control 4.8 mt/bigha were found. One of the field days was held on 14 February 2017 at Panchbaria in Jessore Sadar. Kbd. Firoz Hossain, Product manager of ACI Fertilizer, Kbd. Mustafizur Rahman Khan, Sales of

ACI fertilizer along with respective Upazila Agriculture Officer (UAO), Sub Assistant Agriculture Officer (SAAO), dealers, retailers and large number of farmers were present in the field day.

In Bangladesh, approximately 2.6 million MT of urea are being used. NEB can save 50% of the urea usage which would lead to a reduction of 25-30% in the total cost of urea. This means that the cost of production for farmers will decrease to a large extent. These field days are intended to aware the farming community about these possibilities.

Events and Activities

ACI Motors at Indo-Bangla Automotive Show

ACI Motors showcased Yamaha Motorcycles in the recent Indo-Bangla Automotive Show held on 2-4 February 2017 at International Convention City Bashundhara (ICCB), Dhaka. Minister for Road Transport & Bridges Mr. Obaidul Quader inaugurated the three-day fair. Indian High Commissioner Harsh Vardhan Shringla and Senior Secretary for Industries Md. Mosharraf Hossain Bhuiyan were also present. Society of Indian Automobile Manufacturers (SIAM) organized the show for the first time in the country. The Indian Ministry of Heavy Industries & Public Enterprises, High Commission of India in Dhaka, Automotive Component Manufacturers Association of India (ACMA),

India-Bangladesh Chamber of Commerce and Industry (IBCCI), the Federation of Bangladesh Chambers of Commerce and Industry (FBCCI), Bangladesh Automobile Assemblers & Manufacturers Association (BAAMA), and Bangladesh Motorcycle Assemblers & Manufacturers Association (BMAMA) supported the event. Yamaha Motorcycles Bangladesh - ACI Motors along with other automobile and automotive companies, government departments, dealers and service agents joined the event and showcased popular motorcycle models with accessories like Yamaha R15 v2, R15s, Fazer V2, FZS V2, SZ-RR v2, Saluto disk and drum.



ACI Motors introduced Mini Combine Harvester HF-1

ACI Motors introduced a new harvesting technology to address the labor shortage problem during the harvesting season. The demand for labor increases up to 40% during the peak harvesting season. As a result, the labor wage increases and farmers have to suffer a lot. They also don't get fair price of rice/wheat against their cost. To solve these problems, ACI Motors brings ACI Mini Combine Harvester HF-1. ACI Mini Combine Harvester HF-1 can harvest 1 bigha or 33 decimal of land of rice and wheat in 1 hour and takes 2 liter diesel. Straw remain full. By using this harvester farmer can save 80% labor, 63% time & 68% cost. Farmers can earn at least 1,600 Taka per hour comparing to traditional method. Government is providing 50% subsidy on this harvester for all over the country & 70% subsidy for Haor and Coastal areas. This harvesting technology created a great interest among farmers.



ACI Motors is providing one year warranty and free service. Driver training and spare parts support are also provided. ACI Motors plans to provide the new harvesting technology to minimum 500 farmers in this year.

Making Tomatoes Flavorful Again

What's wrong with the supermarket tomato? Consumers say they lack flavor, so a University of Florida researcher led a global team on a mission to identify the important factors that have been lost and put them back into modern tomatoes. In a study published on January 26, 2017 in the journal *Science*, Harry Klee, a professor of horticultural sciences with UF's Institute of Food and Agricultural Sciences, identifies the chemical combinations for better tomato flavor.

"We're just fixing what has been damaged over the last half century to push them back to where they were a century ago, taste-wise," said Klee, stressing that this technique involves classical genetics, not genetic modification. "We can make the supermarket tomato taste noticeably better." Step one was to find out which of the hundreds of chemicals in a tomato contribute the most to taste. Modern tomatoes lack sufficient sugars and volatile chemicals critical to better flavor, Klee said. Those traits have been lost during the past 50 years because breeders have not had the tools to routinely screen for flavor, he said.

To help, researchers studied what they call "alleles," the versions of DNA in a tomato gene that give it its specific traits. Klee likened the concept to DNA in humans. Everyone has the same number of genes in their DNA, but a particular version of each gene determines traits such as height, weight and



Modern tomatoes lack sufficient sugars and volatile chemicals critical to better flavor. Those traits have been lost during the past 50 years because breeders have not had the tools to routinely screen for flavor, he said.

Photo Credit: jat306 / Fotolia

hair color. "We wanted to identify why modern tomato varieties are deficient in those flavor chemicals," Klee said. "It's because they have lost the more desirable alleles of a number of genes." Scientists then identified the locations of the good alleles in the tomato genome, he said. That required what's called a genome-wide assessment study. There, scientists mapped genes that control synthesis of all the important chemicals. Once they found them, they used genetic analysis to replace bad alleles in modern tomato varieties with the good alleles, Klee said.

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

High-Res Satellites Help Measure Farm Yields

Stanford researchers have developed a new way to estimate crop yields from space, using high-res photos snapped by a new wave of compact satellites. The approach, detailed in the February 13, 2017 issue of the journal of the Proceedings of the National Academy of Sciences, could be used to estimate agricultural productivity and test intervention strategies in poor regions of the world where data are currently extremely scarce.

"Improving agricultural productivity is going to be one of the main ways to reduce hunger and improve livelihoods in poor parts of the world," said study-coauthor Marshall Burke, an assistant professor in the department of Earth System

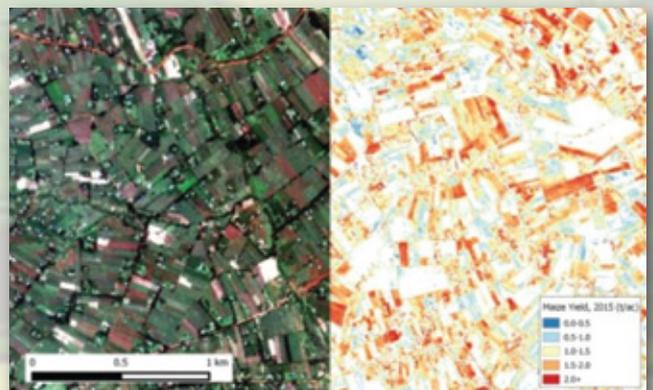


Image of maize farm plots in Western Kenya were taken by Terra Bella satellites (left) and an agricultural yield map (right) generated from the same image using machine learning algorithms.

Photo Credit: Image courtesy of David Lobell

Agri-tech & Communication

Science at Stanford's School of Earth, Energy & Environmental Sciences. "But to improve agricultural productivity, we first have to measure it, and unfortunately this isn't done on most farms around the world." Earth-observing satellites have been around for over three decades, but most of the imagery they capture has not been high-enough resolution to visualize the very small agricultural fields typical in developing countries. Recently, however, satellites have shrunk in both size and cost while simultaneously improving in resolution, and today there are several companies competing to launch refrigerator- and shoebox-sized satellites

into space that take high resolution images of Earth. "You can get lots of them up there, all capturing very small parts of the land surface at very high resolution," said study-coauthor David Lobell, an associate professor in the Department of Earth System Science. "Any one satellite doesn't give you very much information, but the constellation of them actually means that you're covering most of the world at very high resolution and at very low cost. That's something we never really had even a few years ago."

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

Research Explains Plant Tissues' Sense of Direction

Scientists at the John Innes Centre, Norwich have discovered how complex plant shapes are formed. The work, led by Dr. Alexandra Rebocho and colleagues in Professor Enrico Coen's laboratory, could have wide implications on the understanding of shape formation, or 'morphogenesis', in nature. Understanding how genes influence plant shape formation would lead to better-adapted and higher yielding crop varieties.

One of the prevailing theories of how complex plant shapes develop, upon which this new research builds, is the theory of 'tissue conflict resolution'. In this theory, growth outcomes depend on tissues. In isolation, individual tissue regions grow equally in all directions or elongate in a preferred direction. In reality, tissue regions do not occur in isolation, but the adhesion and cohesion between adjoining regions cause tissues to buckle, curve, or bend to a compromise state. The three proposed types of tissue conflict resolution are areal, surface, and directional. The new research provides evidence for the third



category: directional conflict. Tissues, or collections of tissues, can have a set of directions, or 'polarity field', which is caused by the asymmetrical distribution of proteins within cells. An example of a response to this directionality is when plants grow faster parallel or perpendicular to the local polarity field.

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

How Bees Get Nutrients Despite Few Taste Genes

Despite having few taste genes, honey bees are fine-tuned to know what minerals the colony may lack and proactively seek out nutrients in conjunction with the season when their floral diet varies. This key finding from a new study led by Tufts University scientists sheds light on limited research on the micronutrient requirements of honey bees, and provides potentially useful insight in support of increased health of the bee population, which has declined rapidly in recent years for a variety of complex reasons.

The research, published in *Ecological Entomology*, suggests that beekeepers should provide opportunities for their bees to access specific nutrients, possibly through a natural mineral lick, to support their balanced health because the bees will search for the minerals when they need them. It is also an opportunity for the general public to support the bee population by planting a diverse range of flowers that bloom throughout the year. "Currently, there are micronutrient supplements for managed bee hives on the market but there is little research backing up which minerals the bees actually need," said Rachael Bonoan, the lead study author and a



Honey bees are fine-tuned to know what minerals the colony may lack and proactively seek out nutrients in conjunction with the season.

Photo Credit: Dmytro Smaglov / Fotolia

Ph.D. candidate in biology in the School of Arts and Sciences at Tufts. "The fact that honey bees switch their mineral preferences based on what is available in their floral diet is really exciting. This means that somehow, honey bees know which nutrients the colony needs. This insight helps us support honey bees and other pollinators by providing access to diverse nutrient sources all year long."

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

New Lines of Broccoli May Grow in Any Season

Scientists at the John Innes Centre are developing a new line of fast-growing sprouting broccoli that goes from seed to harvest in 8-10 weeks. It has the potential to deliver two full crops a season in-field or it can be grown all year round in protected conditions, which could help with continuity of supply, as growers would no longer be reliant on seasonal weather conditions. The part of the broccoli plant that we eat is the flower buds. This innovation in crop production builds on the wealth of fundamental research carried out by Professor Dame Caroline Dean and her lab on vernalisation -- the need for some plants to experience a period of cold weather before they can flower. The timing of the switch to flowering is critical for a plant's adaptation to the environment and its resulting yield. Dr Judith Irwin and her team, working collaboratively with Professor Dean, have focused on translating this knowledge to Brassica crop species.

Many crops rely on this period of cold before they can flower and so are very susceptible to fluctuating winter temperatures. Recent adverse weather in Murcia, Spain led to a shortage of courgettes, iceberg lettuce and broccoli. The team at the John Innes



Dr Judith Irwin

Photo Credit: John Innes Centre

Centre have been working on way to increase crop productivity and reduce our vulnerability to fluctuations in climate. Dr Irwin said, "We harnessed our knowledge of how plants regulate the flowering process to remove the requirement for a period of cold temperature and bring this new broccoli line to harvest faster. This means growers could turn around two field-based crops in one season, or if the broccoli is grown in protected conditions, 4-5 crops in a year."

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

Climate-smart Rice Helps Farmers Face Climate Change

Stress-tolerant rice varieties can help farmers face the challenges of climate change, according to Matthew Morell, Director General of the International Rice Research Institute (IRRI). Morell stressed this during his Millenium Lecture at the M.S. Swaminathan Research Foundation in Chennai, India on February 10, 2017. Furthermore, he labeled rice as "the engine of food security" since more than half of the world's population consider rice as their daily staple food. Thus, the efforts of rice scientists to improve rice are vital in addressing hunger and malnutrition in developing countries. Morell also discussed the climate change-ready rice varieties developed by IRRI and its partners, which produce high yields and at the same time tolerant to flooding, drought, and saline soils.

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



Drones Are What's Next for Plant Breeders

Crop breeders grow thousands of potential varieties at a time; until now, observations of key traits were made by hand. In a new study, unmanned aerial vehicles, or drones, were used successfully to remotely evaluate and predict soybean maturity timing in tests of potential varieties. The use of drones for this purpose could substantially reduce the man-hours needed to evaluate new crops.

When plant breeders develop new crop varieties, they grow up a lot of plants and they all need to be checked. Repeatedly. "Farmers might have a 100-acre field planted with one soybean variety, whereas breeders may have 10,000 potential varieties planted on one 10-acre field. The farmer can fairly quickly determine whether the single variety in a field is ready to be harvested. However, breeders have to walk through research fields several times in the fall to determine the date when each potential variety matures," explains University of Illinois soybean breeder Brian Diers. "We have to check every three days," masters student Nathan Schmitz adds. "It takes a good amount of time during a busy part of the year. Sometimes it's really hot, sometimes really muddy."



Drones are increasingly being used in agriculture. A new study demonstrates their benefits for soybean breeders.

Photo Credit: University of Illinois College of Agricultural, Consumer and Environmental Sciences (ACES)

To make things easier, an interdisciplinary team including breeders, computer scientists, engineers, and geographic information specialists turned to unmanned aerial vehicles – commonly known as UAVs or drones.

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

Foot-And-Mouth Crises: Key Vaccination Strategy

A new reactive vaccination strategy for future foot-and-mouth disease epidemics shows that significant cost savings can be achieved by accurately identifying our capacity to vaccinate -- according to a new study published in PLOS Computational Biology.

During the early stages of outbreaks of foot-and-mouth disease, control measures will be put in place to reduce the risk of disease spread and in an attempt to minimize the economic impact of the outbreak. In the event that there is a significant risk of a large-scale epidemic, reactive vaccination may be introduced in a ring around infected premises in order to reduce the likelihood of onward transmission occurring. If vaccination is deployed, it is critical to determine the size of the ring that should be used, as this will have a major impact upon the effectiveness of the strategy. However, the ability to determine what the ring size should be is complicated by a range of uncertainties surrounding vaccination, including the number of animals that can be vaccinated per day, the time delay between an animal becoming vaccinated and that animal acquiring immunity and the vaccine efficacy (or the likelihood that a vaccinated animal will become immune to infection). Researchers have developed a mathematical model that determines the best vaccination strategy that should be implemented in the presence of this uncertainty. The model shows that if it were possible to resolve all uncertainty prior to the



introduction of control, savings of £55 million in outbreak costs could be expected; with a reduction of 221,900 livestock culled and 4.3 days of outbreak duration. The model identified that the vast majority of this saving could be found by resolving uncertainty in the number of animals that can be vaccinated per day. 85% (£47 million) of the total cost savings could be achieved if the daily vaccination capacity is known.

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



Believe it or not!



- Carrot is a root vegetable with the most commonly eaten part being the taproot.
- Carrot is usually orange in color although purple, red, white, and yellow varieties also exist.
- The carrot is in the top 10 of most economically important global vegetable crops.
- It is true that eating massive amounts of carrots can sometimes cause a person's skin to turn yellowish orange.
- Carrots are made up of 88 percent water.



Nutrition Chart

Mushroom (100 grams)			
Calories	41	Sodium	69 mg
Sugar	4.7 g	Dietary fiber	2.8g
Total Fat	0.2 g		
Protein	0.9 g		
Potassium	320 mg		

Source: USDA

Tips

Carrots used for the prevention of many diseases. As example:

- Carrots reduce the risk of lung cancer, breast cancer and colon cancer.
- The high level of beta-carotene in carrots acts as an antioxidant to cell damage done to the body through regular metabolism. It helps to slow down the aging of cells.
- Carrots are known by herbalists to prevent infection. They can be used on cuts—shredded raw or boiled and mashed.
- Carrots are used as an inexpensive and very convenient facial mask.
- From all the above benefits it's no surprise that in a Harvard University study, people who ate five or more carrots a week were less likely to suffer a stroke than those who ate only one carrot a month or less.

Sharing is caring!

The urban legend that 'eating large quantities of carrots helps us to see in the dark' was developed from stories started in World War II. British gunners were shooting down German planes at night and to cover up the fact that it was the effective use of radar technologies that was achieving this, the Royal Air Force (RAF) circulated a story about their pilots' high level of carrot consumption. However, the science is pretty sound that carrots, by virtue of their heavy dose of Vitamin A (in the form of beta carotene), are good for your eye health.



One of the many advertisements that appeared during WWII that encouraged the consumption of carrots for help seeing during the blackouts.



Legendary WW II fighter ace John 'Cat's Eyes' Cunningham – his extraordinary 'eyesight' was credited to eating excessive carrots. But the actual reason was the newly developed Radar Technology.

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ACI Agribusinesses

Creating Wealth for Farmers

ACI Agribusinesses, the leading agriculture integrator in Bangladesh, is dedicated to gaining prosperity of Bangladesh through food security. ACI Agribusinesses offers complete solutions to farmers and also educates them about the technical know-how.