

# “INVESTING IN OUR CULTURAL KNOWLEDGE”



Front row, Minister Phillip Paulwell (Minister of Science, Technology, Energy and Mining and Deputy Chairman, NCST) flanked by Senator Norman Grant(L)(Chairman, Jamaica 4H Club), Prof. Errol Morrison(Director General, NCST)(R), Dr. Cliff Riley(Executive Director, SRC) ( Second Right). Miss Patricia Lewin(Senior Technology Officer, NCST) (L), Mr. Clifton Grant (L) and Mr. Seiveright Dixon(Board Directors of Jamaica 4H) (Far L). Second Row, Dr. Ronald Blake (Executive Director of the Jamaica 4H Club) flanked by Graduates of the 1st Young Nutraceutical Farmers Training Programme.

  
**National Nutraceutical Industry**

*NATURE'S RESOURCES FOR WEALTH & WELLNESS*

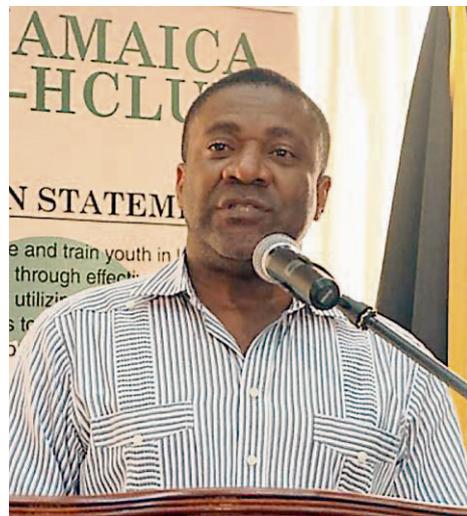
A Special Advertising Supplement

# Empowering our young nutraceutical farmers

**T**HE MINISTRY of Science, Technology, Energy and Mining fully endorses the involvement of our young farmers in the development of a viable nutraceutical industry in Jamaica and the recent consummation of a memorandum of understanding (MOU) between the Jamaica 4 H Clubs and the National Commission on Science and Technology (NCST) is a practical expression of our commitment and support.

The MOU resulted from the mandate given to the NCST by the prime minister and chairman of the National Commission to pursue the orderly development of a National Nutraceutical Industry in Jamaica. This industry would embrace the cultural values, traditional knowledge and practices of our people while promoting the application of scientific methods, the use of appropriate technology and adherence to internationally accepted standards and industry best practices.

A major activity under the MOU involves



the training of 1,000 young nutraceutical farmers, in batches of 30-35 trainees. The pilot project involved the training of 31 youth, designed to develop their capacity to grow and process nutraceutical plants into

viable products, incorporating good agricultural and manufacturing practices.

## TRAINING PROGRAMME

The training programme is a pilot to a much more extensive programme developed by the Biotechnology Centre at the University of the West Indies, Mona, to engage the Jamaica 4-H Clubites in enhancing the application of science and technology in agricultural practices. The training was developed and delivered by the Scientific Research Council (SRC) and the Jamaica 4-H Clubs.

The participants were selected on the basis that they were 18-35 years; have a background/education in agriculture, interested in growing nutraceutical crops, unemployed and own or have access to land.

The training took place over two weeks, from October 5-16, 2015 at the Scientific Research Council and the Jamaica 4-H Clubs training facilities in Rosehall, Linstead, St Catherine. Subsequent to the training, assis-

tance will be offered to propel them into entrepreneurial ventures. This will involve providing support in the cultivation of some 100 acres of land accessible to the trainees.

The country can derive tremendous economic and social benefits from this sector, which is teeming with opportunity for large, small, medium and micro enterprises.

## MAIN FOCUS

Unlike typical high production agricultural farming, nutraceutical farming focuses on efficacy, plant variability monitoring, non-toxic growing environments, proper wild crafting principles, safe storage and proper transport of materials, etc. These are critical aspects to safeguarding the quality and safety of the end products and form the basis of supplements, herbal medicines and functional foods in the nutraceutical industry.

Now that the first cohort of young nutraceutical farmers have been trained in the pilot programme, the evaluation of the project will guide the training of up to 1,000 Jamaica 4-H Clubites across the island over the next two years.

As Deputy Chairman of the NCST, and minister with portfolio responsibility for Science and Technology I have embraced the initiative and has offered support in the provision of 30 tablets uploaded with the training material.

**PHILLIP PAULWELL**

Minister of Science, Technology, Energy and Mining & Deputy Chairman, NCST

## POTENTIAL DRUG INTERACTION HANDBOOK – THE NATURAL PRODUCTS INSTITUTE, UWI

The Natural Products Institute (NPI) within the Faculty of Science and Technology is a dedicated research unit with the aim of developing natural products in Jamaica. Towards achieving this, the NPI has assiduously worked to establish biological activity screening capabilities locally, for testing efficacy and safety of our natural resources. Gaining insight to these two aspects of any proposed health product is vital.

One of our main areas for safety includes the avoidance of potential drug-herb interactions. We recently launched a handbook, a practical guide to avoid adverse drug reactions, for use by physicians, pharmacists, other health care professionals, and patients alike. This handbook has approximately 70 potential interactions by 30 herbs and foods commonly used in Jamaica. It summarizes a decade of research conducted at the NPI and succinctly highlights results from field surveys as well as laboratory investigations and includes clinical research from around the world. The surveys do indicate that potential drug-herb interactions are an important public health care issue in Jamaica, with over 80% of prescription users also using herbal remedies, and only 18% of physicians being aware of such concomitant practices.

This handbook, provides examples of clinically relevant drug interactions for grapefruit juice, St. John's wort, ginger, garlic and also monitoring guidance on local medicinal plants such as cerasee, breadfruit leaf, Leaf of Life and Ackee leaf when used with multiple medications.

The information from the handbook has been applied to form an app and webpage that can be used easily by the medical community for quick reference. The authors hope the handbook will help increase awareness of this public health issue and mitigate potential adverse drug reactions in the country, as the Nutraceutical industry expands in Jamaica.



# Next step to nutraceutical success

ON JULY 24, 2015 when the Jamaica 4H clubs embarked on this journey through the signing of a memorandum of understanding with the National Commission on Science and Technology (NCST), we endeavoured to look at some of the following:

- design and implementation of projects using an applied science and technology approach
- provision of lands and greenhouse space for the production of nutraceutical plants
- the 4-H Clubs in partnership with the University of the West Indies (UWI) will establish a Plant Propagation and Tissue Culture Lab at our Salisbury Plain in St Andrew
- provide analysis of production and projects, which will inform the development and improvement of policies.

We are well under way as these 31 individuals prepare to take the next step to nutraceutical success.



I thank our partners, the NCST, the Scientific Research Council and the UWI as we continue to promote the mix of agriculture, science and technology.

In 2000 when I became chairman of the Jamaica 4-H Clubs, our membership was 18,000. Today, our membership is at 94,054 with more than 1,110 clubs and 3,000 leaders. As a result of this specific programme and others, we are reducing the average age of our farmers progressively, from in the high 60's, 25 years ago to the high 40's now.

This is a significant achievement in the agricultural sector. Though the Jamaica 4-H Clubs, the Ministry of Agriculture and Fisheries and the Government of Jamaica have invested over the last five years, more than one billion dollars through budgeting support.

**SENATOR NORMAN W. GRANT OD, JP**  
 Chairman, Jamaica 4 H Clubs,  
 Board of Directors and  
 Vice-chairman 4-H Global  
 Network Board

## CONGRATULATIONS!



Congratulations on behalf of the National Nutraceutical Industry Steering Committee to Mr Norman Wright, managing director, Perishables Jamaica, for graduating the MSc in Complementary and Alternative Medicine programme at the University of Technology, Jamaica!



## Timeless Herbal Care



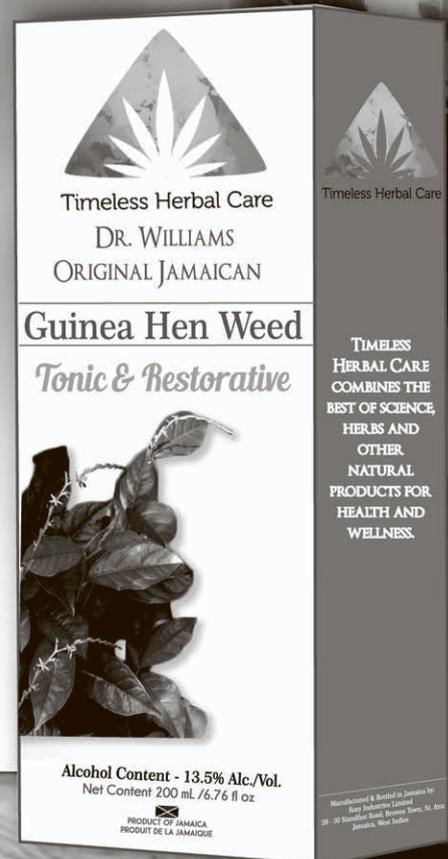
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**Dr. Lawrence Williams**

on his scientifically developed

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Timeless Herbal Care

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## SPEECH

# Newest cadre of nutraceutical entrepreneurs

**T**HE JAMAICA 4-H Clubs and the National Commission on Science and Technology (NCST) have partnered to produce the first batch of qualified Young Nutraceutical Farmers in Jamaica.

As a result of their new-found skills, these youngsters can now enter the industry, not only as agriculturalists, but also the newest cadre of nutraceutical entrepreneurs.

This programme came out of a memorandum of understanding signed between the NCST and the



Jamaica 4-H Clubs in July of this year. For the design and implementation of this programme, special

commendation must be given to the University of the West Indies, the Scientific Research Council, members of staff of the 4-H Clubs, and the NCST. Training of the participants lasted two weeks.

The 31 participants were exposed to various modules, including:

- Plant-tissue culture production
- Basic bio-based laboratory skills
- Extraction of essential oils
- Food safety systems
- Good agricultural practices
- The value chain management

The participants' training was

enhanced by the incorporation of tablets provided by the Ministry of Science, Technology, and Energy and Mining.

### NEXT PHASE

We now prepare for the next phase of the programme, which includes the sourcing and the provision of seedlings and basic inputs to begin cultivation on nutraceutical crops to the participants.

As executive director, I express thanks to the partner agencies for making this programme a reality. The Jamaica 4-H Clubs has been

boosting its entrepreneurial training component to assist our youth. This programme is just another to continue our impact on the Jamaican economy.

I urge the graduates to continue what they have started. This is a new dimension that is expected to bear fruit for them. I look forward to seeing their progress and growth reports and your continued growth in the nutraceutical industry.

**DR RONALD BLAKE**  
Executive Director  
Jamaica 4-H Clubs

## We made it!

**WOW!** IT was two weeks, but it felt like years! Through the hustle and bustle, we have managed to grasp it all and I'm now proud to say we are now our own entrepreneurs, leaders, herbalists, agriculturists. We are now neurtracuetically trained!

During our first week, we were trained by a group of professionals at the Scientific Research Council. Can you believe we made our own soap? Never in our wildest dreams, but we did!

We got hands on with tissue culture where plants are grown in labs at the early stages of their plant life.

Following this, we made our own body butter, which I know the ladies enjoyed because we want to look young forever. We also produced essential oils.

### PROCESSING PLANT

At the processing plant was where the real fun began.

We processed our own food products such as guava jelly, and oh yes, it was good.

We then went further into the extraction stage of the lemon grass, which is also the main ingredient in some products such as body lotion, body wash and essential oils.

After this, we were exposed to dehydration of foods, packaging and storing, which we all know is essential in the process of manufacturing!

The week's activities also included

the making of wine and I know guys enjoyed that topic the most!

At the end of week one, the task was on. We were now trained to be our own bosses in starting and building our businesses so that we can contribute to our society and economy in a positive way.

For our second week which was at the 4-H Centre at Rose Hall, Linstead, St Catherine. We began crop production, which is, of course, very vital.

We were trained in how to cultivate our lands, what crops to plant and in which season, but our main focus was on ginger and turmeric industries which are growing fast in our economy.

They were endless and we enjoyed every bit of and it.

We were selected from across the island with different backgrounds and personalities. We ate, sang, chatted and laughed together. We bonded as a family with one thing in common: We believed in ourselves, the training, and that we could make a difference.

We are here as living proof for all to see and to share in our dream.

As I close, I must say a big thank you, on behalf of my fellow graduates, to all who made this possible.

I will now end with a quote by Bob Marley:

*"Don't gain the world and lose your soul, wisdom is better than silver or gold."*

**PETROVA KENWOOD**  
Valedictorian



## GRADUATION HIGHLIGHTS



Nakia McDonald (second left) being presented with a tablet by Phillip Paulwell, minister of science, technology, energy and mining; along with Senator Norman Grant (second right), chairman of the Jamaica 4H Clubs; and Professor Errol Morrison (right), director general, National Commission on Science and Technology. Looking on is Dr Ronald Blake, executive director of Jamaica 4-H Clubs.



Phillip Paulwell (left), minister of science, technology, energy and mining and deputy chair of the National Commission on Science and Technology (NCST); and Professor Errol Morrison, director general of NCST.



Top achiever in the training programme, Sherene Green, being presented with a certificate for Most Outstanding Student by Minister Phillip Paulwell.

# NCU steeped in medicinal herbs research

NORTHERN CARIBBEAN University (NCU) has been engaged in research activities on a variety of medicinal plants. The botanical plot on the main campus in Mandeville contains various plants of medicinal value, which include sorrel, aloe vera, lemon grass, moringa, miracle fruit, mint, tree of life, turmeric and ginger.

Traditionally, sorrel (*Hibiscus sabdariffa*) has been served as a favourite drink for Jamaicans during the festive season. However, in recent years, it is produced all year round and is now commonly found in different food products, including syrup, jam, juice and wine. Our investigations have revealed that sorrel has high nutritional and medicinal properties, which include antioxidant and anti-cancer properties. It is also an immune system builder, increasing good cholesterol.

## THE MIRACLE FRUIT

NCU researchers have also focused on another plant of nutraceutical value, the miracle fruit (*Synsepalum dulcificum*). The leaves of the miracle fruit are high in protein content, while both leaves and berries are high in flavonoids and terpenoids. They express beneficial bioactivities, including antioxidant, anti-cancer, anti-inflammatory, anti-allergenic, anti-anginal and antimicrobial properties in humans. The miracle fruit could be harnessed as a natural antibiotic against life-



Professor Vincent Wright (left), dean, College of Natural and Applied Sciences, Allied Health and Nursing, at the Northern Caribbean University, shares information on moringa with his colleague, Professor Samson Omoregie, acting chair, Department of Biology, Chemistry and Environmental Sciences.

threatening microbes like *Pseudomonas aeruginosa*. Also notable is our study on the anti-cancer properties of ginger.

## Natural Products Research Laboratory at the University of Technology, Jamaica

FOR CENTURIES, scientific research has played an important role in the generation of new knowledge, new technologies and the training of skilled individuals. One such area is natural products research which has been the backbone of the nutraceutical, cosmetic and pharmaceutical industries.

Today, this process continues and has been expanded at the University of Technology, Jamaica (UTech) with primary focus on research, conservation advocacy and education. To this end, the Natural Products Research Laboratory (NPRL) was created at the university with grant funding from the Global Environmental Facility/Small Grants Programme/United Nations Development Fund and the Environmental Foundation of Jamaica.

The laboratory's aims:



PLEASE SEE **RESEARCH**, 14



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# SRC enabling development of nutraceutical industry

THE GLOBAL nutraceutical industry is estimated at US\$270 billion and is considered one of the fastest-growing sectors worldwide and is projected to be worth US\$600 billion with the opening of the Asian markets. Nutraceuticals are products when consumed or used, results in specific health benefits. Awareness of this industry has been heightened over the years driven by the needs of the consumers for health, wellness and longevity.

One hundred and sixty plants have been declared as having medicinal properties worldwide, of which 80 are endemic to Jamaica. The Scientific Research Council (SRC) is cognisant of Jamaica's rich biodiversity, executing testing on more than 100 locally grown plants. The results indicated high antioxidant activity in more than 40 per cent of the plants traditionally used in folk medicine.

The SRC conducts tests for intrinsic qualities associated with nutraceuticals, such as antioxidants, anti-inflam-



matory and antimicrobial activity in plants and products. Antioxidant potency is an indicator of the product's ability to combat aging activity; inflammatory is directly related to pain and joint fatigue and antimicrobial is associated with wound healing. Additionally, the SRC engages in the devel-

opment of functional beverages, the filling of capsules as supplements and personal care products.

## PARTNERSHIP

The SRC committed to the development of the nutraceutical industry, recently partnered with the National Commission on Science and Technology and the Jamaica 4-H Clubs to train 31 youths, ages 18-35, from across the island to grow medicinal plants. This augers well for the nation in terms of its ability to provide raw material to support the nutraceutical market; create employment and generate wealth through mass cultivation and employment.

Jamaica can secure the health benefits promised by nutraceuticals. With greater involvement of people from all sector of the society, we can without a doubt secure a place in the global Health and Wellness Market.

**CLIFF RILEY, PHD**  
Executive Director, SRC

## RESEARCH

CONTINUED FROM 13

1) To conduct basic pharmacological, biomedical and phytochemical investigations of Jamaican plants with special emphasis on endemic and endangered plants of the Cockpit Country.

2) To expose the innate value of these species thereby promoting conservation and protection.

3) To foster discovery and scientific interests among secondary students through active engagement.

4) To train the next generation of undergraduate and graduate students to the highest international levels within the field.

An MPhil/PhD in Chemistry programme in the Faculty of Science and Sport at UTech, Jamaica, was designed to enable graduate students to work in the

NPRL and obtain higher degrees of significant local and international value.

Through hands-on experience, state of the art instrumentation and techniques, all stakeholders will be able to benefit from the results obtained at the NRPL.

The outcomes of this vital project have been reinforced by collaborations with the Scientific Research Council; Ministry of Agriculture and Fisheries; Natural Product Institute; Department of Chemistry at the University of the West Indies, Mona; McNeese State University, and other relevant institutions.

**DR ANDREW S. LAMM**  
Director, Centre for Science-based Research, Entrepreneurship and Continuing Studies;  
Principal Investigator: Natural Products Research Laboratory,  
University of Technology, Jamaica.



# Interested in disease free plants?

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## Scientific research endorsing Jamaica's cultural knowledge

**T**IMELESS HERBAL Care is a new, dynamic Jamaican company dedicated to combining present day science, technology and innovation with the traditional knowledge and creativity of our people to develop an alternative health and wellness industry, using nutraceuticals and pharmaceuticals known worldwide to treat and prevent illnesses.



Timeless is proud to be the first company in Jamaica to receive a licence to cultivate ganja for medicinal purposes and will play a major role in the development of the medicinal ganja industry. In this regard we have partnered with a number of local farmers, businesspersons, foreign interests, The University of The West Indies and other entities.

A major policy of Timeless is to practise (meaningful community-development) with the decentralisation operations so that farmers and rural residents benefit financially in their communities, experience, increased employment, opportunities that will spawn new businesses or expand others, thereby, stemming the rural-urban drift problem. The first two products – Dr Williams' Original Tonic Wine and Restorative and a Pain Rub, that Timeless is bringing to market, were in fact developed by Jamaicans, one in deep rural Jamaica.

Timeless has roots in the ganja industry, as our CEO, Mr Hawthorne Watson, is a pioneer researcher on ganja, proposed a structure for Cannabitriol, a cannabinoid found in Jamaican ganja.

We recognise the overarching responsibility of the National Commission on Science and Technology and look forward to a long, fruitful, and mutually beneficial relationship, as together we seek to position Jamaicans for greater socio-economic development.

**COURTNEY BETTY**  
Chief Executive Officer

## Who shall dispense medicinal cannabis?

JAMAICA is seized with the possibilities of Cannabis research for nutraceutical, pharmaceutical and cosmoceutical purposes. The University of Technology, Jamaica, Jamaica's National University, was granted a licence in May 2015 by the Government of Jamaica to further explore the therapeutic potential of the plant. Through our School of Pharmacy, trains students to develop stable and safe health products. We train complementary and alternative medicines experts and herbologists who may have interest in the therapeutic uses of Cannabis.



### VALUE OF CANNABIS RESEARCH LICENCE

The Cannabis research licence assisted us to forge an agreement with Steep Hill Jamaica to strengthen Cannabis testing capacities. We have trained over 600 pharmacists about the emerging science in Cannabis testing. Our partner, Ganja LLC, is finalizing its experimental grows. The next stages of the University's value chain is about to unfold based on appropriate niches that exist.

### IMPORTANT SOCIAL EXPERIMENT

We pose the question, "Who shall dispense

Cannabis?" because of loose and disconcerting use of legally protected terms in the current Cannabis debate. The gap between nutraceutical and pharmaceutical classification is fraught with potholes in most cases. Depending on the classifications, well intended amendments that decriminalized ganja use and opened up the space for medicinal research may result in the reduction of emphasis on dispensing and counseling in the context of a Jamaica in which ganja use is endemic. This would be a most undesirable outcome. Such considerations have contributed to the balanced and tightly controlled approach that UTech, Ja has adopted in the use of its licence. We are conscious that in an important social experiment that requires responsible thinking and action is underway.

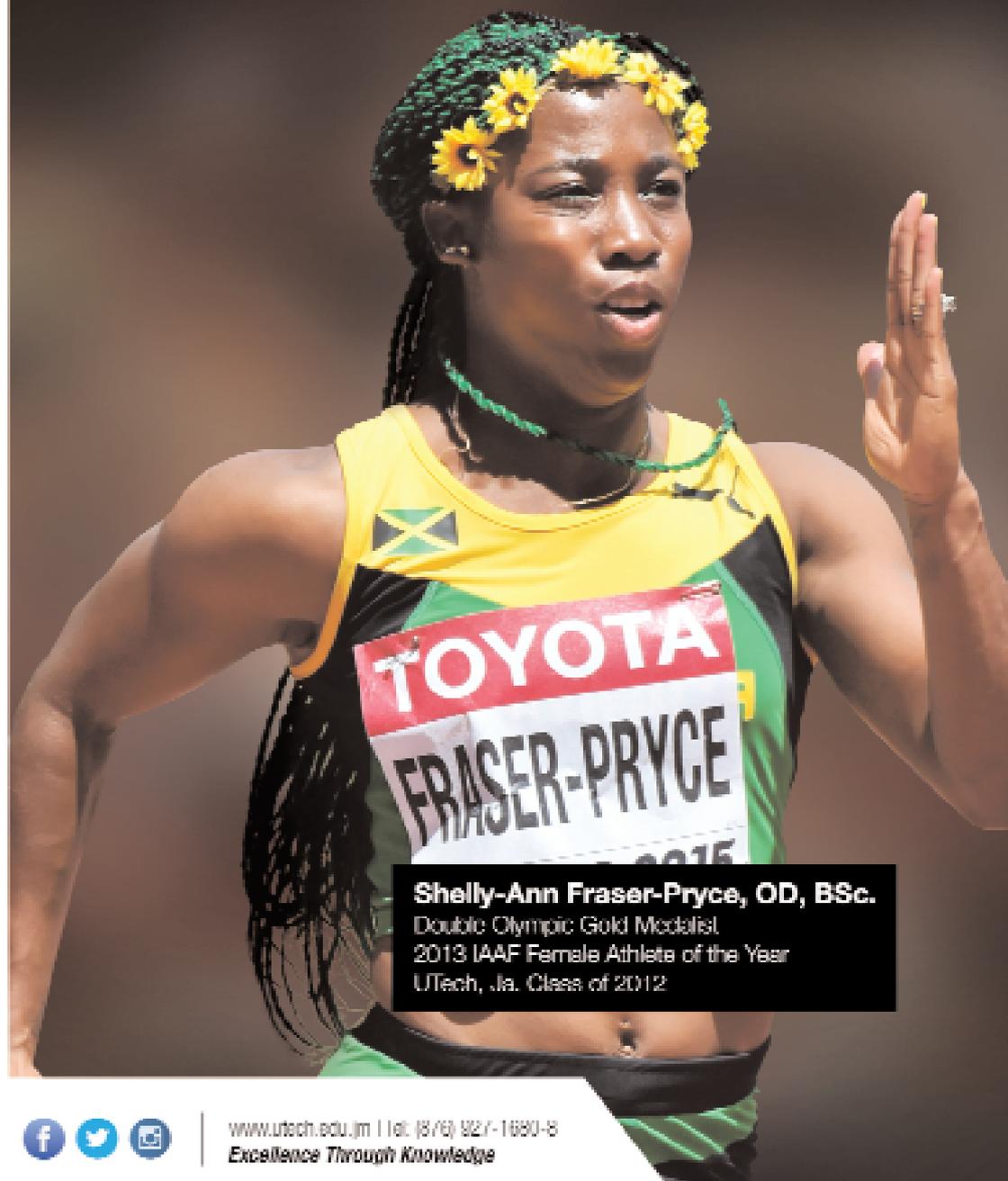
**DR ELLEN GRIZZLE**  
The University of Technology,  
Jamaica



University of  
Technology,  
Jamaica

Leading the way  
**FORWARD**

At UTech, Jamaica, knowledge is not only about what you put in, but also **what you get out.**



**Shelly-Ann Fraser-Pryce, OD, BSc.**  
Double Olympic Gold Medalist  
2013 IAAF Female Athlete of the Year  
UTech, Ja. Class of 2012



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For further information, please contact:

**Mrs. Carol Fender-Walker | Miss Jeanelle Wright**

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