



# CROP AND WEED SCIENCE NEWS

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July-November 2019

## Global News on Agriculture

### Weeds are good for crops not the reverse

Weeds can help make farms more productive and not the opposite as is commonly believed, according to a new study by Italy's Sant'Anna School of Advanced Studies located in the Tuscan city of Pisa. The results of the study show, because they occupy so-called "ecological niches", certain weeds prevent more invasive species from taking root and infesting the crops, reinforcing the hypothesis that biodiversity is a positive factor for man-made as well as natural ecosystems. The study was conducted in collaboration with the National Agronomics Research Institute (INRA) in Dijon, France and has been published in Nature Sustainability scientific journal.



### UAVs may revolutionize weed management

UAVs, often referred to as drones, can travel where it is hard to navigate by ground – from flying over dense forests to hovering over lakes, streams and other bodies of water. And when equipped with the right tools, researchers say they can be quite effective at both finding and treating problem weeds. UAVs used in agriculture must be registered with the Federal Aviation Administration (FAA). The FAA also offers a certification process for operators.



### Marigold to control whiteflies

Researchers from Newcastle University published their findings in the journal PLOS ONE, stating that the leading agent released by marigolds is limonene which results in reductions in pest presence. The findings of this study could potentially lead to the development of cheaper alternatives to pesticides which have a much smaller impact on their immediate environment.



### Fungi could reduce reliance on fertilizers

Introducing fungi to wheat boosted their uptake of key nutrients and could lead to new, 'climate smart' varieties of crops, according to a new study. Researchers at the University of Leeds have demonstrated a partnership between wheat and soil fungi that could be utilized to develop new food crops and farming systems which are less reliant on fertilizers, reducing their contribution to the escalating climate crisis. It is the first time the fungi, which form partnerships with plant roots, have been shown to provide significant amounts of phosphorus and nitrogen to a cereal crop. The fungi continued to provide nutrients under higher levels of carbon dioxide (CO<sub>2</sub>) predicted for 2100, which has important implications for future food security. The results were published in the journal *Global Change Biology*. Lead researcher Professor Katie Field, from the University of Leeds' School of Biology and Global Food and Environment Institute, said: "Fungi could be a valuable new tool to help ensure future food security in the face of the climate and ecological crises."

### 'Ebola of plant viruses' concerns tomato industry

Virologists have brewed up a new alphabet soup — ToBRFV or tomato brown rugose fruit virus — and much to the consternation of greenhouse tomato growers in the U.S. First discovered in Jordan in 2015. "We've had two incidents of it in California," says Bob Gilbertson, who specializes in plant virology and seed pathology at University of California, Davis. Available information to date suggests ToBRFV is primarily a threat to protected culture (greenhouse or screenhouse) production although outbreaks in open fields have been reported in Mexico. "We're calling this one The Ebola of Plant Viruses," says Gilbertson, first cautioning, "you've got to be vigilant about it because it spreads so rapidly," and then cajoling, "but growers shouldn't be paranoid and panicking because we have a number of ways to manage it."



### Biological control for Fall Armyworm using Egg- Parasitoids

The Integrated Pest Management Innovation Lab (IPM IL) has been addressing the Fall Armyworm (FAW) problem in Africa since May 2017, when it invaded Ethiopia. The IPM IL, in collaboration with icipe and ICRISAT-Niger, has identified egg parasitoids — *Trichogramma spp.* and *Telenomus remus* — and some larval parasitoids which attack FAW in Africa. It is known that these parasitoids are amenable for augmentative biological control and they are being used in augmentative biological control of FAW in the Caribbean and South America.



### Banana resistant to Fusarium wilt Tropical Race 4 (TR4)

Chinese experts have recently released what they claim to be a new Cavendish-type variety of banana resistant to Fusarium wilt Tropical Race 4 (TR4). The new variety was developed using chemical mutagenesis techniques and is now being multiplied and distributed to provinces around China. Yi GanJun, vice president of the Guangdong Academy of Agricultural Sciences in Guangzhou, said the release of "a new Cavendish variety will benefit many farmers." "This state-of-the-art technology has resulted in a remarkable breakthrough to combat Fusarium wilt," he said.



### Quicksilver Ants Break Sprint Records

The world's fastest known ant can reach speeds that would make even Usain Bolt appear sluggish, and they can do this in desert temperatures that sometimes reach 140 degrees Fahrenheit. The Saharan silver ant can reach speeds of nearly a meter per second, or 108 body lengths per second. "They go out in midday hours, which sounds more or less crazy or absurd," said Sarah Pfeffer, a post-doctoral researcher at the University of Ulm in Germany and the lead author of a study published in the *Journal of Experimental Biology*.



## Release of New Varieties from BCKV

### Trombay Bidhan Mustard-204 (TBM-204): Mustard variety for West Bengal

Trombay Bidhan Mustard-204 (TBM-204) has been released through Gazette Notification of Government of India vide S.O.No. 3220(E) New Delhi, dated 5<sup>th</sup> September, 2019 and declared that the said variety shall be the notified varieties for the purposes of the Seed Act 1966 and shall be sold for purpose of agriculture in the State West Bengal. The variety has been developed jointly by Dr. Amitava Dutta, Associate Professor and Head, Department of Seed Science and Technology, Bidhan Chandra Krishi Viswavidyalaya (BCKV), Mohanpur, Nadia, West Bengal and Dr. Sanjoy Jambulkar, Bhabha Atomic Research Centre, Mumbai. TBM-204 has the distinction of attaining 1336 kg/ha seed yield (4 years, average). TBM-204 is preferred by the farmers because it does not lodge or shatter at maturity. It has yellow seed coat and high oil content (41%). It is a good alternative for B-9 and farmers of West Bengal will be benefitted by cultivating the variety. Society heartily congratulates Dr. Dutta, who is also life member of the society, for developing this variety.



### Bidhan Khesari-1: Grasspea variety for West Bengal

Bidhan Khesari-1 (IC 626295), a high yielding grasspea variety, has been released by SVRC for the state of West Bengal. This has been notified (S.O. No. 1498(E) dated 01.04.2019) by the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW), Government of India. It has been developed from a parental combination of Nirmal x BioL-212 selection following pedigree method of breeding. The variety recorded average yield of 1500-2000 kg per ha under poira (utera) cropping and has a potential of 2500 kg/ha under normal tillage situation. It is early maturing type with small round seed and has low ODAP content ( $\beta$ -ODAP or  $\beta$ -N-Oxalyl-L- $\alpha$ , $\beta$ -diaminopropionic acid). The variety being small seeded and high biomass type hold promise as a utera (poira) crop in rice fallow of West Bengal. It also recorded yield advantage of 16.5% and 8.3 % over the other two check varieties Pusa-24 and Prateek respectively. Society heartily congratulates Dr. Raghunath Sadhukhan, Professor, Dept. of Genetics and Plant Breeding and Life member of the society for developing this variety.



### International Fellowship for pursuing Ph.D



Two life members of the society, Sri Raghunath Mandal, Asst. Professor, Dept. of Plant Pathology, F./Ag., BCKV and Sri Kingshuk Dhall, Asst. Professor, F./Agril. Engg. got prestigious fellowship for pursuing Ph.D programme at London and Australia (Melbourne) respectively. Mr. Mandal went to School of Biological Sciences at Royal Holloway University of London and fund will be provided by ICAR International Fellowship. Er. Dhali got offer from Food Science Deptt, RMIT, Melbourne, Australia. Society wishes them the best of luck in all of their future academic endeavor.



### SOCIETY CONGRATULATES ALL THE MEMBERS OF SOCIETY FELICITATED/ AWARDED BY DIFFERENT INSTITUTIONS



Dr. Sanjoy Shil, Assistant Professor, Department of Plant Physiology, F./Ag., BCKV and Life member of the Society received "Young Scientist Award" in the International Conference on "Recent Advances in Agricultural, Environmental and Applied Sciences for Global Development (RAAEASGD-2019) held on 27-29<sup>th</sup> September, 2019 at L.S. Negi Auditorium, Dr. Yashwant Singh Parmar



University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh organized by Agro-Environmental Developmental Society (AEDS) in association with Plant Pathology Research Institute, ARC, Cairo University, Giza, Egypt and Tribhuvan University, Institute of Forestry, Pokhara Campus, Nepal. Dr. Sunil Ghosh, Associate Professor, Department of Agricultural Biotechnology, F./Ag., BCKV and Life member of the Society got Best Academician Award from the said conference.

Dr. Sankar Kr Acharya, Professor, Department of Agriculture Extension, F./Ag., BCKV & Life member of the society was being conferred with the prestigious ISEE Fellowship Award on 16th November at SKRAU, Bikaner for his outstanding contribution in spearheading the discipline with innovative and unique research and publication in the realm of Extension Science.



Dr Anupam Pariari, Professor and Head, Dept of Plantation, Spices, Medicinal and Aromatic Crops, F/ Horticulture, BCKV and Joint Secretary, CWSS received "Lincoln University Life time Achievement Award 2019" in Grand Blue Wave, Kuala Lumpur, Malaysia on 25th September, 2019. He has also received "IARA -Best Scientist Award, 2019" presented by Indian Academic Researchers' Association at Tiruchirapally, Tamilnadu on 21st April, 2019.



Dr. Sankhajit Roy, Assistant Professor, Dept of Agriculture Chemicals, F./Ag., and member of the society received Dr. A. P. J. Abdul Kalam Scientist Award-2019 in 9<sup>th</sup> International Conference on Agriculture, Horticulture and Plant Science at Dharamshala, HP, India on 27-28 June 2019 organized by The Society of Tropical Agriculture, New Delhi, India.

Dr. Md. Nasim Ali, Associate Professor, Department of Agricultural Biotechnology, F./Ag., BCKV and Life member of the Society was invited for delivering Key Note address in the International conference on "Recent trend & practices In Science, Technology Development, Humanities for sustainable rural Development" held at USTM, Meghalaya during 6-7 September 2019.



#### Best Resource sharing Award bagged by Central Library, BCKV

The Central Library, Bidhan Chandra Krishi Viswa vidyalaya received Best Resource sharing Award (Eastern Region) held at OUAT, Bhubaneswar, Odisha on August 9, 2019 for providing national wide documents on request through ICAR-Consortium for e-Resources in Agriculture (CeRA) platform.



#### PUBLICATION OF BOOKS

Dr. Sankar Kr Acharya, Professor of Department of Agriculture Extension & Life member of the society co-authored 6 Books viz., Artisanry & Rural Ecology Transforming Life and Livelihood (ISBN: 978-93-88020-85-5), Pulse Enterprise Sociology & Ecology (ISBN: 978-93-88020-79-4), Self Help Group : The Income, Enterprise and Ecology (ISBN: 978-93-538-70-00-3), Entropy, Chaos and Social Ecology : The Stress and Response of Indian Farmers (ISBN:978-81-941991-80-2), Rapid Environment Impact Assessment (ISBN: 978-93-85822-80-3), Customers' Behaviour in Retail chain Marketing: The Approach and analysis (ISBN: 978-81-94252-58-0).

Dr. Sanjoy Shil, Assistant Professor, Department of Plant Physiology, F./Ag., BCKV and Life member of the Society published a text book entitled as "An introduction to Plant Physiology" from Kalyani Publishers, New Delhi (ISBN: 978-93-89477-58-0).

#### Upcoming Programme of the Society

International Seminar on "Agriskills for Convergence in Research, Industry & Livelihood (ACRIL) to be held at Farmers' Academy and Convention Centre (FACC), BCKV, Kalyani-741235, Nadia, West Bengal, India during 28<sup>th</sup> November to 1<sup>st</sup> December 2019

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