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RESEARCH &
DEVELOPMENT



CAPACITY
BUILDING



TESTING &
DIAGNOSTIC
SERVICES



05 *One Day International Workshop on "Modern Aquaculture Practices"*

07 *One Day International Workshop on "Shrimp Culture"*

R&T NEWSFEED

Technical Experts Visited Fish Seed Hatchery, Kaller Kahar, for Instrument Calibration and Maintenance

A team of technical experts led by Mr. Asif Ali, Quality Manager (QCL), visited Fish Seed Hatchery, Kaller Kahar, on January 3, 2022 for calibration of their equipment. Visit of the team was arranged on special instructions of the Director General Fisheries, Punjab and Director Fisheries (R&T) to ensure accurate functioning of the equipment installed at the Hatchery. Conductivity meters, DO meters, and pH meters were calibrated and made functional.



Inauguration Ceremony of Two Week Pre-Promotion Course for Junior Clerks and Senior Clerks

Inauguration ceremony of two-week Pre-Promotion Course for Junior Clerks and Senior Clerks was held on January 24, 2022. Dr. Anser Mahmood Chatta, Director Fisheries (R&T), chaired the Ceremony. He mentioned, during his Address to the course participants, that Pre-Promotion training courses help employees to learn and improve their skills required to function effectively in their new positions and become more productive members of the Department. He expressed hope that participants will be tactical, process oriented and driven towards continuous improvement after successful completion of the course.



A Special Training Course for QCL Staff Got Organized at PCSIR, Karachi on ISO 17025: 2017

A special one-week training course on ISO 17025: 2017 was organized for QCL staff at PCSIR, Karachi from January 10 – 14, 2022. Mr. Asif Ali, Quality Manager/ Deputy Director Fisheries (QCL), Ms. Sana Saleem, Technical Manager (Microbiology), Mr. Usman Pasha, Analyst (Chemistry), Mr. Mudassar Hanif, Deputy Technical Manager (Microbiology), Ms. Aroosa Qayyum, Analyst (Chemistry) and Ms. Amina Tariq, Analyst (Chemistry), attended the training. Training modules were based on comprehensive lectures on structure, scope and application of ISO/IEC 17025:2017. Mr. Asif Ali said that the training course has enhanced their understanding of the requirements of ISO/IEC 17025:2017 and the main challenges posed in its implementation. Team also visited Marine Fisheries Department (MDF) and some fish processing plants in Karachi.



Training Session on "Risk and Opportunities" by Dr. Abdul Basit Khan, Principal Scientific Officer at PCSIR



QCL staff visiting different ISO 17025: 2017 certified labs at PCSIR, Karachi



QCL staff visiting the Fish Processing Plant at West Wharf, Karachi



Certificate Distribution Ceremony chaired by Director General, PCSIR, Karachi



Inauguration Ceremony of Six Months Pre-Promotion Course for Fisheries Watchers

Inauguration ceremony of six-months Pre-Promotion Course for Fisheries Watchers was arranged on February 14, 2022. Dr. Anser Mahmood Chatta, Director Fisheries (R&T) chaired the Ceremony. Dr.

Anser, during his address, said that the training course will help Fisheries Watchers to boost up their abilities to understand and effectively communicate grass-root level problems to the concerned stakeholders. Mr. Bilal Ahmed, Deputy Director Fisheries (Principal), during his address, said that this training course is a great opportunity for the participants to enhance their



knowledge and skills necessary to accomplish their job responsibilities. Training modules are specially designed for this six months training course to improve and update knowledge of the participants on different aspects of fisheries and aquaculture.

Inauguration Ceremony of One Week Refresher Course for Deputy Director Fisheries

Inauguration ceremony of the five days Refresher Course for Deputy Director Fisheries was held on February 21, 2022. The refresher course with the title of “Problem Solving Training Workshop (Crash Programme) for Deputy Director Fisheries” was held from February 21-25, 2022. Inauguration

Ceremony was chaired by Dr. Sikander Hayat, Director General Fisheries, Punjab. Dr. Sikander, during his address to the course participants, said that this training will propel the team of senior officers of the Department to take on new responsibilities. Dr. Anser Mahmood Chatta, Director Fisheries (R&T) welcomed the participants at FR&TI and said that the special training modules are designed for the workshop and



worthy Director General and Directors of the Department of Fisheries, Punjab, are invited as resource persons. He further added that the workshop will help to enhance the comprehension of the senior officers about effective and efficient management of financial resources and to boost up their administrative skills.

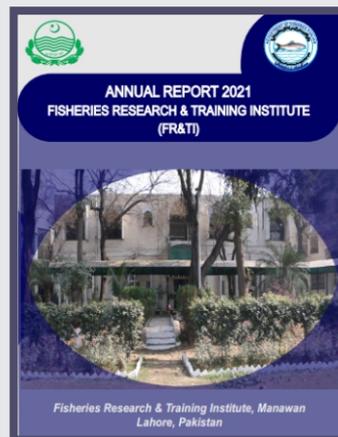
QCL Passed Proficiency Testing for Several Chemical and Microbial Parameters for 2022

Quality Control Labs (QCL) has passed Proficiency Testing for four microbial parameters of water for the year 2022. Proficiency testing scheme for water microbial parameters; aerobic plate count, total coliform count, fecal coliform count and *Escheria coli* was offered by National Physical and Standards Laboratory (NPSL), Islamabad. Earlier this year, QCL also passed proficiency testing offered by FAPAS, UK, for five chemical parameters (moisture, ash, protein, fat and fiber) of feed. Dr. Anser Mahmood Chatta, Director Fisheries (R&T), said that QCL regularly participates in different proficiency schemes to assess its competence and supplement the internal quality control system. Dr. Sikender Hayat, Director General Fisheries, Punjab, appreciated the dedicated efforts of top management and staff at QCL to ensure the accuracy and reliability of laboratory's testing services.



FR&TI Published its First Ever Annual Report for 2021

Fisheries Research & Training Institute (FR&TI), Lahore is devoted to work for capacity building for advancement of aquaculture and fisheries in the province. FR&TI also conducts multidisciplinary research activities to target different issues faced by aquaculturists/ fish farmers. However, the efforts of the Institute were never documented in the past. Dr. Anser Mahmood Chatta, Director Fisheries (R&T) felt the necessity of publication of an Annual Report to present the yearly achievements of FR&TI. Due to his sincere efforts and continuous support, first ever Annual Report of FR&TI for 2021 is now published.



Department of Fisheries, Punjab and Extru-Tech, Inc., USA Organized One Day International Workshop on “Modern Aquaculture Practices” at FR&TI

A One Day International Workshop on “Modern Aquaculture Practices” was held on March 02, 2022, at FR&TI, Lahore. Workshop was organized under the collaboration of Department of Fisheries, Punjab and Extru-Tech Inc., USA. Mr. Shahid Zaman, Worthy Secretary, Forest, Wildlife and Fisheries (FW&F) graced the event as chief guest. Dr. Zahid Yaqub, Global Representative of Extru-Tech, Inc., senior officers of the Department of Fisheries, Punjab and stakeholders from public and private sector attended the workshop. Dr. Anser Mahmood Chatta, Director Fisheries (R&T), during his welcome address, expressed gratitude to the chief guest, resource persons and distinguished guests for sparing their precious time to attend the event for sharing their knowledge and experience with the participants. The honorable guests Mr. Shahid Zaman, Worthy Secretary (FW&F) appreciated the efforts of the Department of Fisheries, Punjab, for promotion of sustainable aquaculture in the province. He said that such events serve as the knowledge sharing platform and provide opportunity to bring multi-stakeholders in close liaison. Dr. Sikender Hayat, Director General Fisheries, Punjab, told the participants that the workshop has been arranged to support aquaculture sector by disseminating knowledge on sustainable utilization of available resources. Mr. Bob Annan, American Consultant from Extru-Tech Inc. delivered an online comprehensive lecture on “Cutting Edge Fish & Shrimp Feed Production Technologies”. Dr. Alexery Polyakov and Mr. Alexander Sokolov, Fisheries & Aquaculture experts from Russia, delivered extensive presentations on “Aquaculture Engineering and Production System” and Modern Fish Reproduction Practices” respectively. Discussion sessions were also conducted for exchange of ideas and opinions and create an interactive environment during the workshop.



Left to Right: Mr. Shahid Zaman, Worthy Secretary, Forest, Wildlife & Fisheries and Dr. Sikender Hayat, Director General Fisheries, Punjab, addressing to the Workshop participants at Inaugural Session

**Pictorial Coverage of Workshop on “Modern Aquaculture Practices”
(March 02, 2022)**



Reception of Fisheries & Aquaculture Experts from Russia at FR&TI
(Dr. Alexery Polyakov and Mr. Alexander Sokolov)



Welcome Address by Dr. Anser Mahmood Chhatta, Director Fisheries (R&T)



Dr. Zahid Yaqoob, Global Representative, Extru-Tech, Inc., USA addressing at Inauguration Ceremony



On-line lecture by Mr. Bob Annan on “Cutting Edge Fish & Shrimp Feed Production”



Dr. Alexery Polyakov delivering lecture on “Aquaculture Engineering and Production Systems”



Mr. Alexander Sokolov delivering lecture on “Modern Fish Reproduction Practices”



Left to Right: Dr. Sikender Hayat, Director General Fisheries, Punjab, Mr. Shahid Zaman, Worthy Secretary, Forest, Wildlife & Fisheries, Dr. Zahid Yaqoob, Global Representative (Extru-Tech, Inc., USA), Mr. Alexander Sokolov, Fisheries Specialist, Dr. Alexery Polyakov, Aquaculture Engineering Specialist and Dr. Anser Mahmood Chhatta, Director Fisheries (R&T) at Shield Distribution Ceremony

FR&TI and FDB Organized One Day International Workshop on “Shrimp Culture” at FR&TI

A One Day Workshop on “Shrimp Culture” was organized at FR&TI with collaboration of Fisheries Development Board (FDB), Ministry of National Food Security & Research, Islamabad, on March 14, 2022. International shrimp culture experts from Thailand were invited as guest speakers for the workshop to deliver lectures on sustainable shrimp farming practices. Mr. Phadet Hongmanee, Shrimp Feed Expert from AMG Thai Union Feedmill, delivered a comprehensive presentation on “Shrimp



Welcomme Address by Dr. Anser Mahmood Chatta, Director Fisheries (R&T)



Mr. Phadet Hongmanee delivering lecture on “Shrimp Culture Techniques”

Culture Techniques”. Ms. Teeraya Suwanachi, Marketing Expert from AMG Thai Union Feedmill, explained the processes involved in production and distribution of aquaculture feeds. Senior officers from the Department of Fisheries, Punjab and aquaculture stakeholders from public and private sector attended the workshop. Dr. Anser Mahmood Chatta, Director Fisheries (R&T), in his welcome address, said, that shrimp farming is a well-developed industry in Thailand and it is a great opportunity for interested shrimp farmers as well as Departmental officers to learn shrimp culture practices from experiences of Thailand. Mr. Nabeel Chaudhary, CEO (Pakistan) AMG Thai Union Feed Mills Thailand, also addressed the participants and said that global shrimp farming market is growing at a faster rate and shrimp culture can be a source of substantial income in developing countries. As shrimp farming was not practiced in Pakistan on large scale earlier, there is the dire need to train the potential farmers on shrimp farming and to bridge the knowledge and action gaps.



Lecture by Ms. Teeraya Suwanachi

Development Project “Establishment of Tilapia Research Center at Fisheries Research & Training Institute, Lahore” Recommended to be Transferred to Non-Development Phase

Development Project of FR&TI entitled “Establishment of Tilapia Research Center at Fisheries Research & Training Institute, Lahore” (2017-18) to (2020-21) is recommended to be transferred from Development to Non-Development phase. The project was included in the Agenda Items of 221st Evaluation Committee Meeting



held on March 18, 2022, under the chairmanship of Director General, M&E, Planning and Development Board, Punjab. Dr. Sikender Hayat, Director General Fisheries, Punjab, Dr. Anser Mahmood Chatta, Director Fisheries (R&T) and Mr. Muhammad Ramzan, Director Fisheries (Planning) attended the meeting as Departmental Representative and defended the project. Members of the Evaluation Committee discussed the project in detail and finally recommended to transfer it from Development to Non-Development phase along with its 13 posts.

Meeting to Review Annual Research Plan (2022) held at FR&TI

A meeting to review the Annual Research Plan (ARP) 2022 of FR&TI was held on March 25, 2022 at Quality Control Labs (QCL). Dr. Sikender Hayat, Director General Fisheries, Punjab, chaired the meeting that was also attended by Mr. Iftikhar Ahmed, Director Fisheries (Admn), Dr. Muhammad Abid, Director Fisheries (Aquaculture), Mr. Muhammad Ramzan, Director Fisheries (P&D). Researchers presented their research proposals and defended them for final approval. Eight research projects were approved for ARP 2022. Dr. Anser Mahmood Chatta, Director Fisheries (R&T) said that research is a key component of our Institute’s Framework and we have identified priority research areas to align our research activities with the



Department’s strategic priorities. Dr. Sikender Hayat, Director General Fisheries, Punjab, appreciated the efforts of Dr. Anser Mahmood Chatta, Director Fisheries (R&T) and his team to prepare applied and farmer oriented research projects.

OUR SERVICES

■ Training & Capacity Building

● Training Courses

- Two Week Pre-Promotion Course for Junior Clerks and Senior Clerks (January 29 - February 04, 2022)



- Six Months Pre-Promotion Course for Fisheries Watchers (February - August)



- One Week Refresher Course for Deputy Director Fisheries (February 21 - 25, 2022)



Exposure Visits by Academia

Study tours and exposure visits are a great way to promote sharing of knowledge and capacity development. F&TI provides the opportunities for academia to visit the Institute and familiarize their students with the working environment outside of classrooms.

Study Tour of Students from the University of Lahore

A group of 55 students and faculty members from University of Lahore (Institute of Molecular Biology and Biotechnology), visited FR&TI on March 29, 2022. The group was led by Dr. Sikender Hayat, Head of Department of Zoology, University of Lahore. Dr. Anser Mahmood Chatta, Director Fisheries (R&T) welcomed the guests and briefed the students about the research and training activities of FR&TI. Later, the students visited different laboratories and research facilities at FR&TI and QCL.



Visit of Faculty from the University of Agriculture, Faisalabad

Faculty members from Department of Zoology, Wildlife and Fisheries, University of Agriculture, Faisalabad, visited FR&TI on March 21, 2022. The group of eight faculty members was led by Dr. Hammad Azher, Chairman (Department of Zoology, Wildlife and Fisheries). Dr. Kashifa Naghma Waheed, Principal Chemist/ Research Coordinator, briefed them about organizational structure and training & research activities of FR&TI. Later, the faculty members visited different section and laboratories at FR&TI.



Study Tour of Students from the Govt. Islamia College, Civil Lines, Lahore

A class of 20 students of BS (Zoology) from Govt. Islamia College, Civil Lines, Lahore, visited FR&TI on March 17, 2022. The students were briefed about operations and functions of different sections at FR&TI. Later, the class visited different testing and research laboratories at FR&TI where lab staff briefed them about testing facilities and ongoing research activities.

■ Testing and Diagnostic Services

● Soil & Water Analysis



Water & Soil Testing Laboratory (R&T) provides free of cost water and soil testing services to the valued fish farmers. One hundred and six (106) water samples received from potential sites and fish ponds in Punjab have been analyzed in the Lab from January - March, 2022, through one thousand three hundred and seventy-eight (1378) chemical tests. Eighty-six (86) soil samples received in the Lab during this period are also analyzed through five hundred and sixteen (516) mechanical and chemical tests to determine site suitability for aquaculture in Punjab.

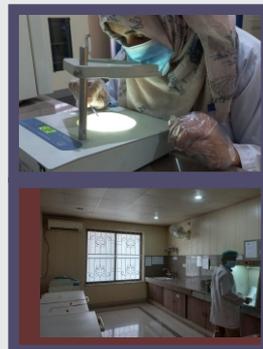
● Fish Disease Diagnosis

Seven (07) diseased fish samples brought to the Aquaculture & Pathology Section were analyzed during January - March, 2022. Recommendations for appropriate treatment were also provided to the concerned farmers on the basis of diagnosis of fish disease.



● Testing Services at Quality Control Labs

QCL is devoted to provide reliable chemical and microbial testing services for its values customers in confirmation with the requirements of ISO/IEC 17025: 2017. QCL has analyzed one hundred and seventy-three (173) samples of water, two hundred and four (204) samples of fish and one hundred and forty-nine (149) samples of fish feed through two thousand one hundred and forty-one (2141) chemical tests during January – March, 2022. Two thousand three hundred and one (2301) microbial tests are also conducted for ninety-nine (99) samples of water and four hundred and twelve samples (412) of fish.



RESEARCH & DEVELOPMENT

■ Research Activities

● Annual Research Plan 2022

FR&TI prepares Annual Research Plan (ARP) and submits to higher authorities for approval. Following eight research projects are approved by the Technical Research Review Committee of the Department for ARP 2022.

Aquaculture & Pathology

- Evaluation of Growth Performance of Tilapia (GIFT) and *Pangasius* Fish Seed with Varied Stocking Densities using Biofloc Technology
- Studies on Effect of Probiotics on Water, Plankton Profile and Fish Growth in Pond Aquaculture

Breeding & Genetics

- Comparative Study of Sex Reversal Methods of Genetically Improved Farmed Tilapia (GIFT) under Local Conditions

Chemistry

- Development of White Worms (*Enchytraeus albidus*) Culture System and its Effect on Fish Growth as a Feed Supplement
- Comparative Studies on Effectiveness of Various Hydrophytes for Phytoremediation of Sewage Water
- Breeding and Rearing of Ornamental Fish to Promote it as a Viable Cottage Industry

Fish Nutrition

- Installation of Small Scale Aquaponics System for Demonstration at FR&TI, Manawan, Lahore
- Effects of Varied Feeding Regimes, Photoperiod and Light on the Survival of *Wallagu attu* Post-Larvae

■ Development Projects

Establishment of Fish Seed Hatchery and Creation of Research Facility at Bhaseen

Objective of Development Project of Directorate of Hatchery Management (Gestation Period; 2019-20 to 2021-22) is to establish a state of the art Fish Seed Hatchery at Bhaseen. One component of this Project will be completed by FR&TI. Total Project Cost is Rs. 226.32 Million out of which Rs. 84.988 Million are allocated to FR&TI for establishment of its Research Facility. Construction of 18 research ponds and a thermo controlled Wet Lab is under process by FR&TI at Bhaseen. Construction of overhead reservoir and office building will be completed soon.



Establishment of Tilapia Research Center at Fisheries Research & Training Institute, Lahore

Development Project of Fisheries Research & Training Institute, Lahore titled “Establishment of Tilapia Research Center at Fisheries Research and Training Institute, Lahore” was successfully completed in June, 2021. The project is, now, recommended to be transferred from Development to Non-Development Phase along with its 13 posts in the 221st Evaluation Committee Meeting held on March 18, 2022, under the chairmanship of Director General, M&E, Planning and Development Board, Punjab. The project was based on conducting research studies on reproductive physiology, sex reversal techniques and culture of tilapia.



POSTINGS & TRANSFERS

- Ms. Maria Latif, Assistant Director Fisheries, has been transferred from the o/o of Director Fisheries (R&T) and posted as such at Fish Seed Hatchery, Rawalpindi in January, 2022.
- Mr. Asif Ali, Quality Manager (QCL) has been entrusted with additional charge of Deputy Director Fisheries (QCL) in March, 2022.
- Ms. Seher Tahir has been transferred from the o/o of Director Fisheries (R&T) in March, 2022. and posted as such in the o/o of Director Fisheries (Aqua).

GLIMPSES OF ACTIVITIES AT FR&TI



Discussion of research proposals during
ARP Review Meeting



Mr. Nabeel Chaudhary, CEO (Pakistan) AMG Thai Union Feed Mills, Thailand, addressing to the participants at One Day International Workshop on "Shrimp Culture"



Analysis of protein content
in fish feed



Students from University of Lahore visiting
Chemistry Lab at QCL



Analysis of heavy metals in water



Incubation setup at TRC Hatchery Building



Students from University of Lahore visiting Chemistry Lab
at FR&TI

FARMER'S CORNER

Sugar Press Mud as a Suitable Organic Fertilizer for Fish Ponds

The Sugar Industry is the second largest agro-based industry in Pakistan. Large amounts of press mud are released by the sugarcane industry and the disposal of this by-product is a major issue. Dr. Kashifa Naghma Waheed, Sectional Head, Chemistry Section (R&T) has conducted an extensive study to investigate the effectiveness of Sugar Press Mud (SPM), as a fertilizer for Aquaculture. The study showed that Sugar Press Mud contains optimum amount of essential macronutrients and micronutrients. Moreover, non-essential and toxic elements are found in minimal amounts in it. Research study has also revealed that SPM can provide higher fish growth compared to cow dung. The outcome of research has showed the potential of Sugar Press Mud as a cheaper and eco-friendly organic fertilizer. Use of Sugar Press Mud as an organic fertilizer in fish ponds will not only lead to increased fertility of soil and water, but also held to reduce negative environmental impact of sugar industry.

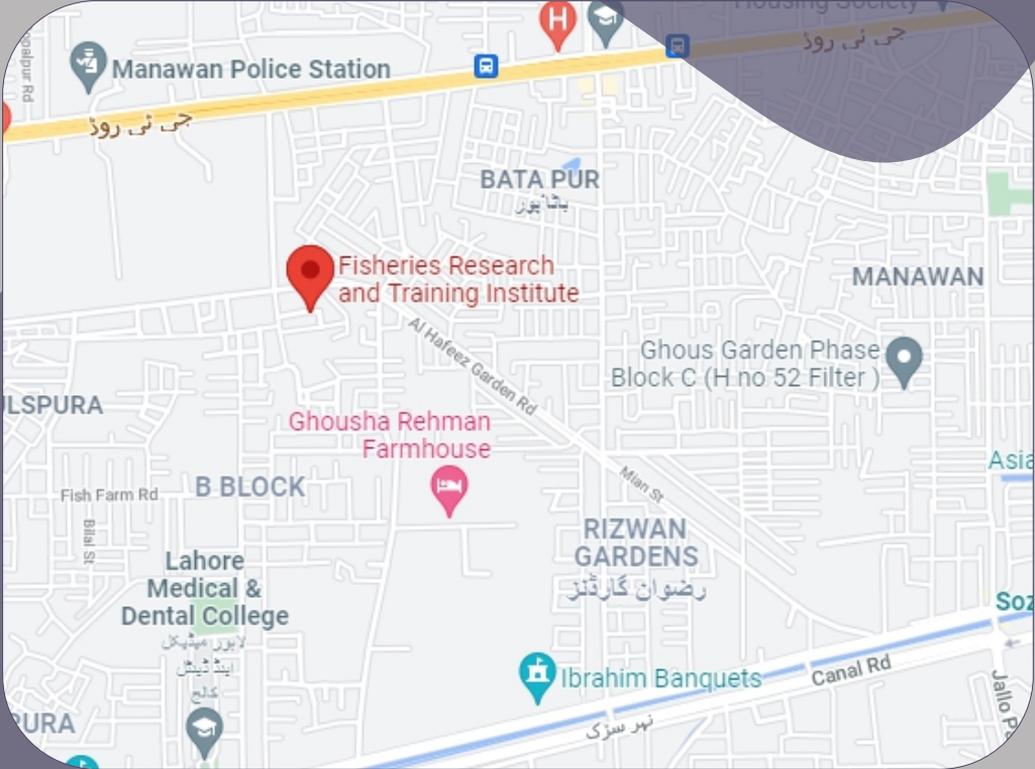


Use of sugar press mud as fertilizer for fish culture

شوگر پریس مڈ: فٹ فارم کے لیے بہترین نامیاتی کھاد

چینی کی صنعت پاکستان کی دوسری بڑی زرعی صنعت ہے۔ شوگر پریس مڈ گتے سے چینی بنانے کے عمل میں ضمنی مصنوعات کے طور پر بڑی مقدار میں پیدا ہوتا ہے۔ ڈاکٹر کاظمہ نغمہ وحید، سیکشنل ہیڈ، کیمسٹری سیکشن (R&T) نے شوگر پریس مڈ کی تالاب میں کھاد کے طور پر تاثیر جاننے کے لیے ایک وسیع اور جامع تحقیق کی ہے۔ اس تحقیق سے پتہ چلا ہے کہ شوگر پریس مڈ میں میکرو نیوٹریٹس اور مائیکرو نیوٹریٹس کی مناسب مقدار موجود ہوتی ہے۔ مزید برآں اس میں غیر ضروری اور زہریلے عناصر کم سے کم مقدار میں پائے جاتے ہیں۔ اس تحقیق کے نتائج سے یہ بھی واضح ہوا کہ تالاب میں شوگر پریس مڈ کے استعمال سے گائے کے گوبر کے مقابلے میں مچھلی کی بہتر نشوونما ہو سکتی ہے۔ تحقیق کے نتائج نے ایک سستی اور ماحول دوست نامیاتی کھاد کے طور پر شوگر پریس مڈ کی تاثیر کو واضح کیا ہے۔ مچھلی کے تالاب میں نامیاتی کھاد کے طور پر شوگر پریس مڈ کا استعمال نہ صرف مٹی اور پانی کی زرخیزی میں اضافہ کرے گا بلکہ چینی کی صنعت کے منفی ماحولیاتی اثرات کو کم کرنے کے لیے معاون ثابت ہوگا۔

How to Reach FR&TI



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