

Vigyan Ashram Status Report

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A] Solar Dome Dryer field trial @ Nandurbar

Field trial of solar dome dryer was started on 3rd April at Malpada hamlet of Molgi village (Nandurbar, Maharashtra) in partnership with 'REEDs foundation'. We have demonstrated drying of 35 kg Mahua flowers in 2 days. Dryer was able to remove 37 to 40 % moisture in 2 days. Farmers are satisfied with drying efficiency & quality output. We are planning to test the dryer for other NTFP material viz. raw mango, mahua fruits etc. Before shifting dryer to Nandurbar, Rutika & Akshay (research interns) conducted multiple trials with this dryer at Pabal. They tested dryer for tomato & onion drying. For tomatoes, dried flex weighing 6.73 kg was harvested for 120 kg tomatoes in 3 days (94.39 % water removal). In second trial, 100 kg onion (4 mm slices) dried to 12.93 kg final weight in 3 days (87.07 % water removal).



Testing @ Pabal



Drying onion



Field trial @ Malpada (Nandurbar)

B] Atal Tinkering Lab (ATL) teacher training program:

Advanced training on various digital fabrication tools, basic electronics application & coding, IoT & Robotics was conducted for 17 selected teachers from ATLs in Karnataka. Trainers from Government Tool Room & Training Centre (GTTC) and trainers from Pi-Jam foundation also participated in the training. The training was organised in collaboration with UNICEF from 7th to 11th April at Pabal.



C] Admissions open for Diploma in Basic Rural Technology (DBRT batch 2025-26):

Diploma in Basic Rural Technology (DBRT) admissions for 2025-26 are started. We are updating the curriculum and wanted to relaunch it as course for students willing to become entrepreneur. Visit Admission notice on: <https://vigyanashram.in/admissions/> .

This year, we are focusing on reaching out to students from tribal regions and aspirational districts. Ranajeet, Ganesh & Vishal conducted 'students boot camps' in Parabhani & Nanded districts of Marathwada region during 3rd - 5th April and 10 - 12th April. A webinar on DBRT course information, post-training opportunities and admission criteria was conducted on 29th April for school HMs in Uttar-Pradesh state.

DBRT campus update:

i) Energy & Environment section:

Students repaired air-blower of hydroponics system and learned motor re-winding skills. Students also installed new electrical connection at kitchen store room. Also, learnt basic service & repair of Diesel generator. They also installed 2 new CCTV cameras in guest-hostel facility. Total value of their community service was Rs.7,4587/- including students earning of Rs.7,260/-.

ii) Agriculture & Animal husbandry section:

Students worked on installing new polyhouse. They had installed drip irrigation in polyhouse. They worked with DIC student to install foggers & fan-pad system in polyhouse. Students also harvested 7.870 kg lettuce from hydroponics system and 300 kg green-fodder from open plots.

iii) Workshop section: Students fabricated 2 units of LPG-cylinder cabinet with investment of Rs.13,548/-. Students worked for installation of LPG-pipe line in kitchen.

Students also fabricated meeting table & chair set for EDP section while learning advanced wood-working, powder coating and fabrication skills. Total value of community service was Rs.55,497/- including students earning of Rs.16,616/-.

iv) Home & Health section: Students learnt vegetable drying skills while processing 12 kg onion and 126 kg tomatoes. They produced 1.3 kg dried onion & 6.10 kg tomato flex. Students helped DIC students to collect data on solar dome dryer efficiency. They also worked on processing of Tamarind (50 kg), bread flour (20 kg) with total sales of Rs.7830/- during April month.



Installing CCTV camera



Students doing fabrication job

D] Technology development updates & Design Innovation Centre (DIC):

DST-SUNIL project updates:

i) Polyhouse climate control & pest prediction system:

- Ganesh & Ranajeet visited polyhouse-based capsicum cultivating farmers in Nimgaon-Jali (Sangamner, Ahilyanagar) and Tarapur (Pandharpur, Solapur) village on 1st April and 9th April respectively. Visit was aimed to collect base-line data on pesticide usage and cost of cultivation. At Nimgaon-Jali village, a data from 3 farmers was collected and a weather sensor was installed at polyhouse of one farmer. In Tarapur village, Ranajeet attended meeting with Mahakrushi Farmer Producer Organization (MFPO). It has capsicum cultivation on 10-acre polyhouse. We are collaborating with them for testing of sensors & getting data on pesticide usage.
- Construction of new climate control (fan-pad + foggers) polyhouse is completed. It's a 390 ft² (30 ft long * 13 ft in width) polyhouse specially designed & constructed control, for experiments on fan-pad and fogger efficiency study. Tejaswini & Abhijit started data collection work on heat-capture while installing 10 data loggers received from Mr. Sidharth Kulkarni (E-Yantra Lab IIT Pawai). During April, Tejaswini found maximum temperature rise of 65 °C during 11 AM to 2 PM. She is working on installation of 3 type of foggers for testing its efficiency.



Installing sensors in polyhouse



Polyhouse fabrication work

Black-Soldier-Fly (BSF) based composting & poultry farming:

At Rajgurunagar, approximately 19 metric tons (MT) of bio-waste was processed with production of 33.3 kg BSFL. Rajgurunagar Municipal Council (RMC) gave a letter of appreciation for processing 2.5 ton/day waste processing with BSF based innovative waste processing technology.

Mahesh started Black Soldier Fly Larvae (BSFL) feeding trial on layer poultry birds. Trial was conducted on selected 10 birds of layers at Laxmi Poultry Farm (Pabal). These birds were of 72-week-old with average weight of 1.390 kg & producing 0.8 eggs/day/bird. BSFL fed to birds in the live form replacing 50 % daily feed. During 10 days trial their average egg production remained unchanged (0.8 eggs/day/birds) without any adverse effect on egg size, egg breakage and health of birds. During 20 days trial average weight of experimental birds increased by 0.023 kg. This is may be due to extra fat (30 to 35 %) in BSF larvae. The results are

encouraging as its saving 50 % feeding cost on feed without affecting bird health.

- Arun and Mahesh are working on overcoming the lower Feed Conversion Ratio (FCR) at dumping ground and lower hatching rate in BSF breeding chamber.

Other research-fellow projects:

- Akshay tested hybrid solar dryer (Solar PV based heaters + solar heat plate) at Agro-Rangar RSVC campus (Dhamari). For 30 kg onion loading 85.33 % water removal recorded 7 houses (1 day) drying for this dryer. Though drying rate is much faster, loading capacity of dryer is limited with 5 times higher capital investment.
- Aditya started work on modification of 'millet flex making machine'. The machine is received from AgroZee Pvt. Ltd. (Urali-Kanchan). Aditya is also working on standardizing recipe flow for making jawar-flex and caroot-halwa mix as his research project activity.



Millet Flex Making Machine



Moringa Tissue culture plant



Photosynthesis efficiency study

- In Plant Tissue Culture (PTC) laboratory, Amisha started trials of Turmeric and Moringa plants. She successfully germinated moringa seeds in culture media but shoot tip culture for both plants failed due to contamination. She is working on modifying inoculation protocol.
- In Li-COR 6800 photosynthesis efficiency study, Sayali noted AQ curve (light intensity Vs Photosynthesis rate). She completed readings for brinjal, turmeric and rose plants at varying temperature (25, 30 & 35 Deg C).
- In April month, Megha Sonkamble completed 6-month DIC internship while Ravindra Chadwik and Rakshit Rao (B.Sc Microbiology) joined internship program.

Fab academy updates: Fab academy students completed learning activities on moulding & casting, networking -communication, interface & application programming. Students successfully submitted their 'make-a-machine' assignment. They fabricated an image recognition -based pick-n-drop robotic arm. Its working video can be found on- <https://fabacademy.org/2025/labs/vigyanashram/students/ramesh-bommidi/assignment12.html>

E] DIY lab & Atal Tinkering Lab (ATL) update:

- We have conducted total 12 summer camps for ATL schools in Andhra Pradesh and Telangana state. During 17th April to 7th May, total 12 summer camps (11 in Andhra Pradesh & 1 IN Telangana state) were conducted, benefiting 381 students & 68 ATL teachers. Students learnt activities like making DIY RC robots, circuit building using breadboard and simulation, etc. in 3-days duration camps.
- We are providing mentoring support to seven students teams for Seed-The-Future-Entrepreneur (STFE-Made in 3D) competition. Four teams are from Andhra Pradesh and 3 teams from Karnataka state.
- At Do-It-Yourself (DIY) lab, 3 training workshops (25 students) were conducted. Students build Tetrahedral Shape Bamboo Dryer (ARTI model), build smart garden gadgets (soil moisture tensor, climate sensor) and field tested it.



F] ASMITA: A women-led tailoring enterprise

ASMITA team learnt making of purses & hand-bags, kopri stitching from local experts and completed order of 50 T-shirts for staff & students at Pabal campus. They also learnt 'digital embroidery' skills while creating logo and decorative items with embroidery. The total value of their community service was Rs.10,468/- through sales of T-Shirts, bags and other apparels.



G] Introduction to Basic Technology (IBT) program updates:

IBT Maharashtra: During April month, IBT schools were busy with annual examination & academic submissions. IBT Team is busy in designing new activities for next academic year.

- i) Visit of school teachers from Marathwada: On 7th April, team of 10 teachers from Parabhani & Hingoli region visited Pabal campus for studying IBT program. This visit was organized by CSR division of 'Pravin Masalewale Pvt. Ltd.' to implement IBT program in selected school.

- ii) Prototype for Seed-The-Future-Entrepreneur (STFE) competition: We are providing mentoring four IBT schools for STFE competition.
- iii) Summer camp activities: IBT school organized summer activity camps for junior (class VI to VIII) class students.
Activities are organized in Sangise, Tung, Shirgaon, Nigade and Vahangaon.
- iv) We are piloting projects as per NCF 2023 guidelines during this summer holidays. Dhamari, Katraj and Gawadewadi schools invited for conducting projects during summer vacation.



Summer camp @ Gawadewadi

Learning-By-Doing (LBD) and STEM program (STARS Forum):

- Due to summer break in schools, Field officers from UP Harshit, Premlata, Snehlata, Siraj joined Pabal campus from 7th April for annual refresher training. They are preparing for designing of STEM activities and field implementation plan.
- Team completed STEM lab set up in 10 schools in Murshidabad district. STEM kits were distributed to 10 schools. Program has started STEM activities in schools.
- Hon. Chief Minister of Uttar-Pradesh Shri. Yogi Adityanath ji visited Learning-By-Doing (LBD) program activity exhibition stall at Bareilly on 1st April. Students from UPS Damkhoda, and UPS Rajau, Bareilly exhibited LBD activities & innovative projects. Hon C.M interacted with students about their experience and future aspirations etc. The exhibition was part of 'School Chalo Abhiyaan' by Basic Shiksha Abhiyaan (BSA). Vigyan Ashram along with Stars forum is implementing LBD program in 2274 school of UP with support of UNICEF and Samagra-Shiksha (Uttar-Pradesh).



STEM activity in Murshidabad



H] Entrepreneurship Development Program (EDP) update (VATF):

- Workshop on a drone based rural enterprises: A two days hands-on training workshop on 'drone based rural enterprise opportunities' was conducted on 4th & 5th April at Pabal. Training was conducted in collaboration with Pinaak Aerial System (Pune). Total 11 trainees participated in training to learn type of

drone for enterprises, basic flying protocols, enterprise opportunities along with investment & licencing requirements.

- **Women-entrepreneur training workshop:** A 3 days training workshop for women-entrepreneurs was conducted at Hivare-Korda village (Tal- Parner, Dist- Ahillyanagar) during 26th to 28th April. Training was conducted for women in network with 'Social Centre Institute' in Ahillyanagar district. Total 17 participants participated in the training.

We are very thankful to AFARM organization for organizing training.



Women Entrepreneurship Training

Mentoring support & field visits:

- 11th April, Mr. Amol Waghmare and members of Women Self Help Group (WSHG) from Kanhewadi village (Tal- Rajgurunagar, Dist-Pune) visited Pabal campus to explore opportunities in technology-based enterprise development. We are helping them in selection of enterprise and training.
- Ganesh visited Mr. Ghaytadak (Ranjangaon, village-based poultry farming alumni) along with Pabal village-based farmer Mr. Dada Jadhav for exploring opportunity 'free-stall deshi poultry farming'.

Hero of the month: Mrs. Pradnya Shevde started a millets processing enterprise 'Samarth Foods' At-Dhankawdi, Tal-Haveli, Dist.-Pune. She is participant of millet-processing training-workshop.

I] Other tit-bits:

- i. Ranajeet & Yogesh presented progress made under various activities in Department of Science & Technology (DST) supported Strengthening, Upscaling & Nurturing Local Innovations for Livelihood (SUNIL) program in an online meeting with Dr. Anita Aggarwal (Head of Science Division, DST) on 16th April.
- ii. Bhakti attended lecture on 'The role of Humans in the age of Robots and AI' by Dr. Kiran Karnik (Ex-Chairman, NASSCOM) organized by Maharashtra Knowledge Corporation Ltd (MKCL) on 24th April.
- iii. Marathi Wikipedia team conducted training on creating Wiki-account, books scanning and publication for 9 participants on 11th April.
- iv. Saurabh Shinde resigned from his position (project coordinator- EDP) for better prospects. We wish him a best luck for future endeavours.
- v. Weather record – Rainfall of the month – 00 mm (Total: 596.44 mm), Max temp-42.00° C, Min Temp – 19.00° C, Humidity –60%, Water height in well– 2.40 M.
- vi. Energy consumption record- Electricity unit – III Phase-0 units, I Phase import- 2372 units, Export (I & III phase)- 1650 units, Solar generation (off-grid)-171 units, DG used – 06:00 Hrs, Biogas- 44.74 m³ (dung used-884 kg).
- vii. Animal Husbandry section update – Milk production – 350 Kg (Gross profit Rs: 2,405/-). Poultry egg incubator – 20 new chicks (20 % hatching rate due to older eggs and higher outside temperature)
- viii. Online visitors: www.vigyanashram.com – 815 (Organic search- 549, Direct search-266). Campus tour visitors: 163.

JJ Data Report: <https://shorturl.at/O0luQ>

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Photo Gallery:



Drone making Workshop at Pabal



DBRT promotion at Amravati



DBRT students doing maintenance of Milking M/C



Harvesting from hydroponics



Recording growth



LBD stall at School Chalo Abhiyan



Cycle repairing activity @ Comopsite School Malesiamau Lucknow

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