

My Coconut My Legacy

planting the idea of coconut in young minds- ICAR CPCRI Farmer FIRST Program (FFP)

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The broad objectives of farming evolved from food production in systemic ways and shifted from food gathering towards science-based high-tech systems. Coconut is a crop being associated with more than one generation in the homesteads and considered as a component in the family farm. The members of the farm family right from the children to the elders are enjoying the tastes, sounds, beauty, income and the toiling for nurturing and cultivation of coconut palms. As in a family, the continuity of coconut cultivation, transferring knowledge and skills through experiences is part of the social and personal development.

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**TO FORGET
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OURSELVES-**
MAHATMA GANDHI

These features evidently remind us to keep youngsters as part of this learning cycle enabling the sustainability of cropping systems for ecology, social wellness and personal happiness in the connected framework of

meta values and applications in life. These factors encouraged to initiate small steps in connecting coconut with younger generations through ‘My Coconut My Legacy (MCML)’ program of ICAR CPCRI- Farmer FIRST Program (FFP) involving school students of the implemented panchayath, Pathiyoor in Alappuzha District, Kerala state.

India is becoming the youngest nation with nearly 70 percent of the population below 35 years age. According to 2011 Census, the youth in the country including adolescents is around 550 million. This demographic dividend opens up galaxy of opportunities



in Agriculture bringing in creative ideas, development of new skills, knowledge and forging positive attitude. Government of India initiatives like Attracting and Retaining Youth in Agriculture (ARYA) aims to attract and empower rural youths in agriculture, service and allied sectors for income and employment. Farm youths are also indented to indulge in group activities in processing, value addition and marketing. ARYA envisions demonstrating functional linkages and convergences with institutions and stakeholders under various schemes and programs for youths in agriculture. This program is being implemented through Krishi Vigyan Kendra (KVK) in 25 states identifying more than two lakh youths per district. Another program, Student READY (Rural and Entrepreneurship Awareness Development Yojana) tends to improve the employability and as entrepreneurs through finishing schools for undergraduate students, working in coordination with institutions and KVKs and RAWE program to get real life experiences of farming, the challenges, problems, constraints and the ways to confidently tackle, through technologies and practical wisdom.

School farms

Student life is learning, discovering, joyfully knowing and observing nature, walking the curious paths, and cherishing every moment of finding oneself and society. Elder generations used to say to be like a coconut, strong internally and externally and straight with head held high with dignity, being and nurturing nature. Several programs are being organized across the world to make students know about the importance and significance of coconut palms, meeting coconut farmers, and conducting various activities related to the coconut tree and its parts such as craft work using coconut shells, coconut palm parts, coconut flowers, coconut shell dance, drawing and colouring.

Reviews of various studies show young adults after school education are mostly without consistent and experiential education on food production system, lack of knowledge of basic nutrition, local foods, food preparation and storage skills, cropping and integrated farming systems, everyday food practices catering different age categories, and food production for humans, animals, birds and the intrinsic idea of natural connectivity of existence (Sadegholvad

et al. (2017), Brookes et al. (2013). Studies stated that farming and food literacy are effectively included in the curriculum of students to offer experiential learning pedagogies in agricultural production through school gardens, cooking programs by food and agricultural clubs, connecting students with local farms as field trips or as a day in farm and with farmer and home science short courses. (Redwick et al. (2019). There could be various types of school farms as elucidated by Corbett et al. (2019)

1. Farming education centre – farm operations, multiple farming activities like livestock, aquaculture, crops etc
2. Specific farm operations in small area- eg. Vegetables in pots or grow bags
3. School gardens- experiencing horticultural operations for students
4. Off school farm operations in agricultural demonstration plots, progressive farmers gardens, research stations, Agricultural /Horticulture departments
5. Actual farming in school lands and realizing the income also, as a participatory program





Coconut demonstration plot- Farmer in discussion with Agricultural students

Local communities can play a role through contributing finance, seeds/planting materials, offering purposeful monitoring and advisories to school farm-based education. Reports published in 1980s and 1990s among the North American Pueblo people, New Mexico, indicated including ecology and sustainability in school farm education inculcating cultural values of Zuni People in local food production. Food literacy education offers to choice and skills of individual knowledge and knowledge and participation for collective action in agriculture. Blair et al. (2023) concluded in their scoping review on 'What is a school farm?' that, since school farms become more prominent programs to teach food education, research is needed to support school farms' implementation and sustainability. The review covered 94 articles on school farms with vocational trainings in agriculture, animal husbandry and crop production as features of school farms across 103 years of publication. Recent literature showed inclusion of sustainability, food systems and healthy eating as themes in school farms. Studies on impact of school farms indicated factors such as promoting leadership and

responsibility, self-sufficiency and self-efficacy among the students due to group and individual project works on school farms. School farms were reported to offer opportunities in inquiry based experiential learning, and shape them as agents of change and community citizens. Few studies indicated that educational and experiential learning could be provided to diverse student groups who otherwise could not have had any access to farm learning. Majority (91%) of the parents who supported school farms were convinced about the benefits on personality development of their children. Rural areas were found to be more engaged in active school farm programs than urban schools, with critical curricula and pedagogy. They concluded that more systematic research and policy inputs need to be done in promoting pedagogy and community engagement in re branding school farms.

My Coconut My Legacy (MCML)

Coconut is the traditional base crop of homesteads 'purayida krishi' in Malayalam meaning 'homestead gardening' and providing fresh foods integrating

agriculture, livestock, poultry, and pond pisciculture and creating a food forest ecosystem in small and marginal land holdings supporting natural resource components. ICAR Central Plantation Crops Research Institute (CPCRI), Regional Station, Kayamkulam is implementing the ICAR Farmer FIRST Program (FFP) in Alappuzha district, which is a coastal district of Kerala, wherein, coconut is the major crop. Since coconut is a perennial crop, there is a need for 'inter-generational' transfer of knowledge and experiential learning. The objectives of MCML are primarily to familiarize and lead school students of lower primary to high school, to the wonderful world of coconut, and to sow the seeds of the natural connection of farming and the lives and livelihood of society. A total of eight schools with more than 500 students, involving 4 LP schools, 3 UP schools, and 2 high schools of Pathiyoor panchayat was the FFP intervention area.

Mr. Muhammed Manzur, Headmaster, Government LP school, Ramapuram, Pathiyoor panchayat was full of smiles while talking about MCML. "The legacy of coconut tells the history of development and changes in the state. We, teachers and parents, are so elated to be part of this program by ICAR CPCRI since the students started loving coconut and related with the planting of ten coconut seedlings in the school premises. The cropping systems in inter spaces of coconut made denser in school premises with fruit crops such as mango, jack, sapota, west Indian cherry, guava, rambutan, star apple, and rose apple in the year 2020 and all of them started bearing flowers and fruits. These are



■ Familiarizing rubber plots to replace plastic- MCML of CPCRI FFP

being relished by the students and visiting birds as well. This opened insightful experiences for the students on reaping farming outcomes, and an opportunity to share things with friends, birds, squirrels, and butterflies. Our students are proud of this and are now offering a plant to the school on their birthdays and planting with multiple hands. It was so heartwarming that they even saved their drinking water to water the vegetables and flowering plants in the gardens, and they said that plants also become thirsty and weak otherwise". Master Abhijith, a Class IV student of GUPS, Kareelakulangara said "The green sprouts of sown seeds are so tender and beautiful. Our friends share organic manures like cow dung and compost from our homes or neighborhoods for our agri garden in school. My great wish is to pluck the tender nuts from these planted coconuts, before leaving this school, since it is a dwarf variety that will start yielding before three years". This is a reflection of their hope and confidence. Mrs. Sri Devi, a teacher, at UP school in

Bhagavathipadi, had a differently beautiful response. "When you plant a coconut seedling with the involvement of students, we are planting agriculture in their minds and brains. Coconut will be growing along with the students and will flower and fruit in a perennial nature as the students progress in their lives. This is one of the greatest lessons learnt in my life also, since my parents made us to plant and nurture coconut seedlings, and they are like siblings to us in sharing and proud to see them progress along with us".

In the MCML program, the students and parents were motivated to 'adopt a coconut palm' of their homesteads. The sweetest attitude of students was naming the adopted coconut palms similar to pet dogs, cats or livestock. They were also facilitated to observe and learn names of each parts of coconut, birds and insects associated and the nutritional and health aspects of this wonder tree offering health to living beings and ecology.

As part of the FFP, three MCML based radio programs

were relayed in Farm & Home session of All India Radio (AIR), Thiruvananthapuram involving students of MCML schools. The program was well received as a model in greening young minds, facilitated by teachers, parents, society, and agricultural research institutions. The audience responses were so vivid with suggestions and sharing of memories of being involved in farming in their youthful periods because farming starts seeding first in minds. The suggestions evolved from the interactive discussion on MCML partners were as follows:

- Farming should be in the daily curriculum of schools as a continuing learning process
- Agricultural tools ensuring safety for handling by students of various age groups, need to be allotted to schools
- Agricultural universities and research institutes can have 'youths in farming' objectives as extension components
- Young farmers 'farm schools' can be poised as local learning spots for students
- 'Citizen science' 'experiential learning' and 'journaling' on farming and agriculture for young farmers can include Agro Ecosystem Analysis (AESA) for documenting ecological factors, climate changes, crops, cropping systems, IFS, landscape-based agricultural problems, familiarizing and obtaining skills with farm tools and types of equipment as social engineering.

Cases of student's activities in Coconut cultivation

It is amusing to know that there is a causal connection

between trees (accessible green spaces in schools) and learning as per a study by University of Illinois. The benefits accrued are stress reduction, enhancing physical activities, mental health, concentration and environmental awareness. They conducted an experiment testing window views affecting stress, attention and information retention of students. They found that students having green window view recovered mental fatigue faster with longer attention period and better information retention. It can be true with coconut groves also.

Few interesting activities organized by education institutions for students are furnished below.

1. Social learning on coconut cultivation:

The first case is of Ruwangiri National School, Bogamulla, Kurunegala district, North Western Province, Srilanka. The school students prepared coconut nursery with 60 seed nuts and eventually implemented 'Kapruka' (the tree of life-coconut) planting program. Coconut quiz programs and hands on session on coconut seedlings planting in school premises resulted in knowledge and skill transfer besides orienting to responsible farming practices in coconut. Students were updated on the damage and remedies of the Coconut whitefly and Weligama Coconut Leaf Wilt Disease (WCLWD) spreading rapidly around coconut. Participant villagers and teachers were honored by presenting coconut seedlings and the NGO provided handbooks on coconut cultivation to school.

2. Knowledge on coconut oil among students:

A study among students of Hail University on the knowledge about coconut oil and human health indicated that female students' knowledge was higher than male students.

3. One student, one coconut, one tree planting:

Students urged to embrace coconut farming: The students in second cycle schools were impressed on involving in the "one student one coconut, one tree planting," exercise as a viable avenue for employment opportunity after school, at schools and Colleges, Sekondi, Ghana. The program covered planting of 800 coconut seedlings and aims promotion of awareness on nutritional values of coconut and products for students in their meals. Scope of coconut in Ghana is increasing and the benefits of coconut is that it can be sold as fresh, dried, or processed, year long, and offers employment opportunity to youth.

4. Traditional coconut crafts adds creativity:

Crafting traditional 'Taledan' with coconut leaves: Taledan is a traditional tray, square or rectangular shaped with frame on sides, made of using mature green coconut fronds or leaves, for serving 'lawar', a traditional Balinese dish (Indonesian dish created from a mixture of vegetables, coconut, and minced meat mixed with rich herbs and spices). Coconut leaflets are sewn together with small bamboo sticks split into fine pieces. This activity enables students to use environment friendly materials for use, improves creativity, precision and their finer skills in making precise and meticulous

hand work. The program was conducted for three weeks (1 hour/meeting) and the completed 'taledan' were given to them for taking home and using it. They could learn that coconut is of multiple uses in daily life besides the food and commercial purposes.

5. Coconut rupee:

Innovative step in Bali college to pay fees in coconut: Education is vital for any individual for the growth of one's life. A college in Bali allowed students to pay in coconuts and other farm produces, if they were struggling to pay fees due to the economic slowdown due to Pandemic in 2020. This initiative in tuition fees payment for continuous education, also incorporated entrepreneurship among students, as those coconuts are being used for VCO production and other farm products like moringa leaves and leaves of gotu kola (local medicinal plant) for production of herbal soaps using coconut oil. This idea caught the attention of world-wide media as well.

6. Coconut teaches skills and tastes:

Schools in various states of India celebrated coconut day with special programs. Some are creating awareness on the uses of coconut and shell and students exhibited the coconut-based activities like coconut shell watermelon, musical coconut drum, coconut shake, crayon stand, flower pot, etc. Teachers explained to students as to where coconuts are found, what they are used for and how it is considered healthy in all forms like its juice, milk, kernel, oil etc.

Informative videos on coconut, hands on experiences on different

types of coconut (Different colors of nuts), dried coconuts, copra etc to understand the differences were shown to students. Also coconut ladoos were prepared as collective event, drinking fresh tender-nut water for tasting coconut based foods. Learning of words associated with coconut palms, products, coconut parts etc was also fun filled education. The facts and importance of health benefits of coconut, coconut oil, tender-nut water encouraged students to include them in their diets and open up discussion and exposure to use of coconut at home.

7. Student Innovation -Coconut Meat Into Crispy Squid:

Program of 100 Young Entrepreneurial Students, Central Java, Indonesia initiated providing healthy foods to combat unhealthy food consumption. Plant based foods that resemble meat dishes was one option, as substitute to squid meat, with scope for vegetarian squid business opportunity in tune with preferred tastes and demand. Market demand steadily increased with good packaging and promotional interventions like pamphlets, posters, social media and the business volume was very encouraging, and plan for e commerce. This is an example of experiential learning of business opportunities with coconut based healthy products for vocational education institutions.

8. Learning from Coconut farmers:

Education trip of students as open day exercise by Caribbean Agricultural Research and Development Institute's (CARDI) to Hope estate (which is one of the largest in the Caribbean) and hands on experience provided in

mother palm, seed-nut selection, nursery raising as a lucrative venture, so that young generation gets opportunities to involve and exposed to the coconut industry. These initiatives could be taken up linking and converging with education and agriculture institutions to large scale.

9. Coconut creates:

Seychelles Institute for Art and Design (SIAD) conducted a handicraft coconut workshop for a dozen of students who did de-husking, designing, staining and decorating their coconuts under the close supervision of renowned local craftsman, Mr. Florent Servina. He has been creating art work out of coconuts for a decade, as part of a certificate program in collaboration with Crafts Development Section of National Arts and Crafts Council (NACC). Exposure ensured to the scope of ideal raw materials available everywhere in the country for promoting traditional art forms, to the next generation. 'Keep at it. Keep creating. You cannot lose when working with coconuts' was the message of the master craftsman.

10. Coconut weaves bird homes:

Weaver bird population decreasing: Students could be oriented to the decile in biodiversity, due to human activities in the decile of weaver birds closely associated with coconut mostly. Importance of nurturing and preserving natural coexistence in coconut based ecological system. Ornithologists said that some species of birds that survive by eating insects in the fields are facing extinction globally. About 150 species of birds are at risk and worldwide, a dozen bird species are at risk of extinction

11. Learning life cycle of coconut-eye opening for students :

Coconut is entwined culturally with Guam. In a collaborative kids program, in Guam, students learnt the life cycle of a coconut from seed to palm along with the local language associated with coconut and palm. They also learnt to prepare coconut milk, traditional and modern methods to grate coconut, tasting and relishing fresh coconut gratings and coconut water and other local coconut dishes. Their message in local language is Biba (enthusiasm, hailing) niyok (coconut)

12. Students project on coconut replanting program;

College students in Espiritu Santo (Largest island of Vanuatu) started a collaborative program on Coconut Replanting, led by the Department of Agriculture and Rural Development for rejuvenating the island's coconut palm population, addressing decreasing yields, and combating the threat of the Coconut Rhinoceros Beetle (CRB). Pivotal step in safeguarding Vanuatu's agricultural future as the country rallies against the Rhinoceros Beetle threat. Educators, agricultural experts, local leaders and student community together revitalize the coconut industry and processing as a forward-looking project.

13. International Coconut Community (ICC) addresses youths -international training for youths in coconut industry:

Global interests in youth and coconut sector, is reflected in an year long training program on "Empowering the Future of Coconut Sector: A Youth-Led Transformation Program through Sustainable



Future farmers- happy and confident

Partnerships”, inaugurated by ICC in collaboration with various research institutes and private sectors, in Jakarta, Indonesia in September 2024 in hybrid mode. The program aims to empower the next generation to transform the industry through sustainable practices, including an internship and market linkage program, with ICC funding select participants and projects. The training program addresses concerns on farming population predominantly made up of older farmers with limited involvement of the younger generation, who can introduce innovative solutions for higher productivity, lower costs, and better market access.

World coconut day is established by ICC to recognize the importance of coconut on September 2, every year since 2009, with specific themes each year. All coconut growing

countries and stakeholders including students and youths, actively celebrates with various programs and events to promote consumption and awareness of role of coconut in nutrition and nurturing ecology. The theme of World Coconut Day 2024 was ‘Coconut for a Circular Economy: Building Partnership for Maximum Value’ and of 2023 was “Coconuts: Transforming Lives.”

14. Coconut Toy-Based Pedagogy:

This is based on the principle that toys are not just for entertainment or recreation but can also be used as a learning resource for the mental, physical, social and emotional development of the child. Toys can open up and ignite the mind of the child.’ (NCERT, 2022). Coconut based toys are organic, safe, available and indigenous toys made from green leaves,

midribs, wood, fronds, shells, fallen buttons in combination or singly traditionally also nurturing students’ cognitive skills, creative and critical thinking, reasoning, problem-solving, communication and adaptability. Coconut toy making improves the physical skills, hand-eye coordination and balance and could be efficiently linked with teaching and learning for explaining stories, literature, measurement and scientific concepts.

15. Student friendly activities of ICAR CPCRI:

The institute is catering to student communities right from schools, colleges, technical institutions to Agricultural colleges, of state and national levels, Visit to the institute plots, laboratories, interaction with scientists and information gallery are scheduled generally for students. Training programs,



■ Students planting coconut seedlings

planting coconut seedlings and learning coconut, facilitating visit and learning from farmers experiences, familiarizing coconut products and motivating to know more on virtues and role of coconut in daily life and social development.

Conclusion

Policy back up for extension approaches and interventions are essential for ensuring younger generation as ambassadors and practitioners of coconut cultivation in social, economical, cultural, ecological and human well being through coconut and vast potential for sustainable future of food security in coconut growing countries. Distance learning programs on farming already in vogue, specifically for

coconut systems are welcome. Students should be offered choice based coconut farming lessons inculcated in curriculum to be designed for experiential learning from farmers also and exposure of students to different cultivation practices, challenges and potentials through exposures to different agro climatic regions can be taken up. The promotion and idea based innovations in ICT and AI in coconut farming and processing needs further impetus. Generating media coverage of local foods, skill development in food preparation, involving farmers, women farmers and model coconut entrepreneurs could render awareness, motivation, interests and action. Above all leadership development programs/trainings in agricultural and rural

development among youths is highly warranted for the future of farming. These factors could be considered in re-branding farm schools concept in coconut cultivation. ■

References

- Blair, S.A.; Edwards, G.; Yu, K.; Jovel, E.; Powell, L.J.; Renwick, K.; Conklin, A.I. (2023). What Is a School Farm? Results of a Scoping Review. *Int. J. Environ. Res. Public Health*: 20: 5332. <https://doi.org/10.3390/ijerph20075332>
- Brooks, N.; Begley, A. (2023). Adolescent food literacy programmes: A review of the literature. *Nutritive Diet*.71: 158–171.
- Corbett, M.; Brett, P.; Hawkins, C.L. What we're about out here: The resilience and relevance of school farms in rural Tasmania. *J. Res. Rural. Educ.* 2017, 32, 1–12.
- National Council of Educational Research and Training (NCERT). (2022). *Toy-based Pedagogy: A Handbook*. Department of School Education & Literacy Ministry of Education, Government of India. https://dse.education.gov.in/sites/default/files/update/toy_based_pedagogy.pdf
- Renwick, K.; Powell, L.J. (2019). Focusing on the Literacy in Food Literacy: Practice, Community, and Food Sovereignty. *J. Fam. Consum. Sci.* 111: 24–30.
- Sadegholvad, S.; Yeatman, H.; Parrish, A.-M.; Worsley (2017). A. What Should Be Taught in Secondary Schools' Nutrition and Food Systems Education? Views from Prominent Food-Related Professionals in Australia. *Nutrients*. 9:1207.
- Yomna Ali Moustafa Marzok Elkhateeb, Salma Bashir Alrashidi, Ebtesam Hdeeb Alshammary. (2019). Assessment of Knowledge About Effects of Coconut Oil on Human Health Among Students of Hail University. *International Journal of Biomedical Science and Engineering*. 7(3) : 68-74. doi: 10.11648/j.ijbse.20190703.12