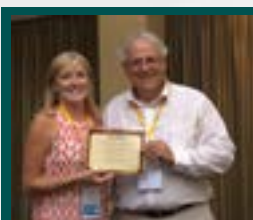


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Scientific Tracks & Abstracts

New approaches for Pear (*Pyrus communis* L.) production in sub tropical zones of India: A review

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Pear, (*genus Pyrus*), genus of some 20–45 trees and shrubs in the rose family (Rosaceae), including the common pear (*Pyrus communis*). One of the most important fruit trees in the world, the common pear is cultivated in all temperate-zone countries of both hemispheres. The fruit is commonly eaten fresh or is canned. It is used to produce perry, an alcoholic beverage. Several species, such as the Callery pear (*P. calleryana*), are grown as ornamentals. The common pear tree is broad-headed and up to 13 metres (43 feet) high at maturity. The trees are relatively long-lived (50 to 75 years) and may reach considerable size unless carefully trained and pruned. The roundish to oval leathery leaves, somewhat wedge-shaped at their bases, appear about the same time as the flowers, which are about 2.5 cm (1 inch) wide and usually white. Pear flowers are usually white or pink and have five petals and sepals; the bases of the five styles are separated. Pear fruits are generally sweeter and of softer texture than apples and are distinguished by the presence of hard cells in the flesh, the so-called grit, or stone cells. In Europe the main rootstock used is quince (*Cydonia oblonga*), which produces a dwarfed tree that fruits at an earlier age than most of the trees on pear rootstocks.

Biography

Ashok kumar is affiliated to Sanskrit University, India. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Health assessment of wheat agroecosystems

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This research was conducted in order to health assessment of wheat agroecosystems in Bandar-e-Torkeman county, north of Iran, during 2018-2019. In this study, we used some parameters such as weed biodiversity index, Environmental Impact Quotient of Pesticide (EIQ), soil microbial respiration, soil organic carbon, soil organic matter, abundance of earthworms, soil pH and EC, and grain yield. Data were collected through field measurements from 59 wheat fields, and preparation of questionnaires. Then, this information was moved to geographic information system (GIS) software and thematic layers were overlaid and final map was prepared in two classes, healthy and unhealthy. The results showed that unhealthy fields were distributed and mostly located in the central parts of the county. The characteristics of this class included the use of high amounts of pesticides and the consumption of dangerous poisons, high diversity of weeds species, low grain yield, unsuitable values of soil pH and EC, low percentage of organic carbon and organic matter, and absence of earthworms.

Biography

I am Hossein Kazemi, PhD in agroecology, from Iran. I am working as an associate professor in department of agronomy, Gorgan University of Agricultural Sciences and Natural Resources (GUASNR), in Gorgan city, Iran. I have been supervising projects on assessment of agroecosystems by GIS and RS techniques, ecosystem services assessment and sustainable agriculture systems. I have around 11 years' experience of teaching and research in different universities of Iran and cooperation with different national/ international journals as editor, reviewer and author.

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Biological agents in organic production in Serbia

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Protection of maize and small grain seeds from diseases and insects with Plant Growth Promoting Rhizobacteria (PGPR) is in the concept of sustainable agriculture, integral and organic plant protection supported by the European Commission. The need for food and raw materials in the same time increase the agricultural areas and provoke the improvement of the technology of growing corn and small grains. Of the total available agricultural area in Serbia in 2020, 68% was sown with grain. Maize was grown on about 996,527ha, which is 29.4% more than the ten-year average. Compared to the average agricultural areas in the period 2011–2020, area under wheat production increased by 9.4%. Organic cereals production is organized on 2,306 ha in Serbia.

Protecting corn and small grain seeds (wheat, barley, millet, hay, triticale) from diseases and insects became a challenge for Serbian producers of seeds and mercantile crops because a large number of fungicides and insecticides, due to toxicity to birds, bees, fish, warm-blooded animals and adverse effects on the environment, have been removed from the list of permitted products. However, seeds infected with phytopathogenic fungi: *Fusarium*, *Rhizoctonia*, *Phytium* lose germination, and the larvae of *Agriotes* sp. bite the roots, which reduces crop density and yield.

PGPR of the genus *Bacillus*, synthesize antibiotics, lipoproteins that have antifungal activity, while some species produce endotoxins that have an insecticidal effect. Since strains of these bacteria are not pathogenic to humans and have a positive effect on the environment, they are recommended in the system of integrated plant protection. To solve the problem of protecting seeds from diseases and insects, we used indigenous strains of bacteria from the genus *Bacillus* as a biological agents that can protect seeds in a completely natural way. Zones of inhibition of fungal growth were from 35% to 45%. Results of field trials indicated a statistically significant improvement in germination and growth of seedlings treated with bioinsecticide and biofungicide compared to untreated seed.

Biography

Slavica Stanković is affiliated to Maize Research Institute “Zemun Polje”. She is a recipient of many awards and grants for her valuable contributions and discoveries in major area of subject research. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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Role of biofertilizers in achieving sustainability in crop production

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The term “sustainable agriculture” means an integrated system of plant and animal production practices focusing on site-specific application of inputs that will satisfy food, feed and fiber needs in the long-run and improves the quality of life for farmers and society as a whole [1]. Long term application of synthetic chemical fertilizers possesses adverse effects on the environment such as chemical accumulation in the air and water; and also harms the soil health, decreases soil water holding capacity, increases salinity and disparity in soil nutrients. Furthermore, there is imperative need to combat these social issues of increasing food instability, availability and nutritional insecurity through cost-effective, environment-friendly and socially acceptable agricultural options. Consequently, biofertilizers were opted to somehow reduce the adverse impact of low soil fertility, the impact of environmental stress and the effect of biotic stress such as pathogens and other microorganisms by improving the rhizospheric conditions for achieving sustainability in the crop production [2].

Biofertilizers contain living cells of agriculturally beneficial microorganisms that colonize the rhizosphere of the plant and play important role in promoting plant growth and improving soil health. Eg. Rhizobium, Pseudomonas, Trichoderma and PSB (Phosphate Solubilizing Bacteria). They are eco-friendly and organic in nature [3]. These microorganisms enhance plant survival, growth, performance, and yield by several functions viz. stimulating root growth; enabling water uptake; improving plant nutrition by increasing nutrient uptake, nutrient availability and supply of hormones and other organic element for plants; maintaining soil biodiversity; and defend plants from phytopathogenic microorganisms via antagonistic activities like release of lytic enzymes, siderophores and antibiotics. Integrated application of FYM and chemical fertilizers along with seed treatment of biofertilizers improved seed germination percentage, growth and seed yield due to increased N fixation and several other factors such as release of growth promoting substances, control of plant pathogen, and proliferation of beneficial organism [4]. Rhizobium, Azotobacter and Azolla play important role in improving nitrogen availability and PSB inoculation is useful in replenishing the available P status of soil. VAM inoculation along with PSB fulfill the one-fourth phosphorus need, indicating economization of fertilizer P to the tune of about 25% without compromising crop productivity and soil fertility ascribed to improved nutrient mobilization in soil [5]. Increased availability of nutrients from organic manure and growth-promoting substances due to biofertilizer inoculation also benefitted the succeeding crop in terms of higher growth, yield attributes and yield. Combined use of RDF with biofertilizers is capable of sustaining higher productivity and profitability on long term basis. Thus, it was evident that integration of biofertilizers in cultural practices enhanced the crop productivity and helps in sustaining health of soil and crop ecosystem.

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Biography

Pragati Yadav is from Department of Agronomy, Chaudhary Charan Singh Haryana Agricultural University, Haryana, India. Her research interests are nutrient management, biofertilizer application, incorporation of organic sources of nutrients in crop production, pulses production and crop management practices in relation to improve soil fertility and physical condition. She had done post-graduation with specialization in nutrient management of greengram under organic farming. She has been pursuing doctorate and working on the significance of nanofertilizers in crop production in view to reduce the bulky chemical fertilizer application. She has published few articles in national journals and magazines; and wrote few book chapters also.

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Market chain analysis of onion: The case of Raya Azebo District, Southern Tigray, and Ethiopia

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In Ethiopia onion production is increasing from time to time mainly due to its high profitability per unit area. Onion has significant contribution in generating cash income for farmers in Raya Azebo district. Therefore, enhancing onion producer's access to market and improving market linkage is an essential issue. Hence, this study was aimed to analyzing structure-conduct-performance of onion market and identifying factors affecting market supply of onion of onion producers. Data were collected from both primary and secondary sources. Primary data were collected from 150 farm households and 20 traders. Four onion marketing channels were identified in the study area. The highest total gross margin is 27.6 in channel IV. The highest gross marketing margin of producers of onion market is 88% in channel II. Result from analysis of market concentration indicated that onion market characterized by strong oligopolistic market structure with the buyers' concentration ratio of 88.7 in Maichew town and 82.7 in Mekelle town. Lack of capital, licensing problem and seasonal supply were identified as the major entry barrier to onion marketing. Market conduct shows that the price of onion is set by traders while producers are price taker. Multiple linear regression model result indicated that family size in adult equivalent, irrigated land size, access to information, frequency of extension contact and ownership of transport were significantly determined quantity of onion supplied to the market. It is recommended that, strengthen and diversifying extension service in information, marketing, post-harvest handling, irrigation application and water harvest technology is highly important.

Biography

Belayneh Yohannes is affiliated to Raya University, Ethiopia. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Toxigenic fungal species in cereal-based foods in Serbia

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Mycotoxicological studies were performed in samples of cereals and cereal products collected from fifty four health food stores during 2021. After superficial disinfection in sodium hypochlorite, wheat grains were placed on 2% water agar surface, 10 grains per Petri dish, and incubated during 7 days on temperature of 26°C. According to methods by Ellis (1971), Nelson et al. (1983) Burgess et al. (1994) and Watanabe et al. (1994), fungi genera were determined with special focus on determination of species of *Fusarium* genus. By microbiological analysis of investigated wheat grains the presence of seven fungi genera was established, *Acremoniella* (0.09%), *Acremonium* (0.06%), *Alternaria* (96%), *Dreschlera* (0.3%), *Fusarium* (3.5%), *Nigrospora* (0.03%) and *Penicillium* (0.03%). Within *Fusarium* genus eight species were identified, *F. graminearum* (63.5%), *F. oxysporum* (1.7%), *F. poae* (0.9%), *F. proliferatum* (5.2%), *F. semitectum* (2.6%), *F. sporotrichioides* (20.9%), *F. subglutinans* (3.5%) and *F. verticillioides* (1.7%). High presence of species *F. graminearum* and *F. sporotrichioides* indicated potential danger of presence of mycotoxins zearalenone and trichothecene which cause disease in humans and livestock. Species of the genus *Alternaria* (up to 87%) and *Aspergillus* (up to 90%) were identified most often and in the highest percentage on the examined samples of food for human consumption. Of the species of the genus *Aspergillus*, *A. flavus* (average 28.6%) and *A. niger* (average 9.5%) were most often identified. Of the genus *Fusarium*, the species *F. verticillioides* was identified in the strongest intensity.

Popcorn was the most infected with *F. verticillioides* (17%), but also contaminated with fumonisin B1 (12,704 ppm), which is synthesized by this species. Since these were products that were stored, it was expected that species of the genus *Aspergillus* would predominate, with a high frequency of aflatoxins. More than 90% of samples contained aflatoxin B1 than allowed by the Rulebook of Serbia (Official Gazette of RS, 2011). Fumonisin B1 was detected in lower concentrations, but in this case more than 50% of samples contained this mycotoxin above the permitted concentration.

Biography

Ana Obradovic is affiliated to Maize Research Institute "Zemun Polje". She is a recipient of many awards and grants for her valuable contributions and discoveries in major area of subject research. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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Correlation and path coefficient analysis of yield and yield attributing characters of wheat genotypes under heat stress and drought conditions

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Wheat covers the most important food crops in the world and in Nepal in terms of area coverage and productivity. Heat stress and drought stress are the most important limiting abiotic factors for wheat production. The field research was conducted at Bhairahawa, Nepal on December 26, 2021, at the Institute of Agriculture and Animal Science (IAAS), Paklihawa under heat stress and drought conditions to identify traits that highly contribute to grain yield and are suitable for further improvement. The research was conducted in an alpha-lattice design with two replications under heat stress and drought environments. Each replication consists of 5 blocks and 4 plots. The measurement of each plot was 4 m by 2.5 m whereas each plot consists of 10 rows with a spacing of 25 cm between the rows and there was continuous sowing in a row. The correlation of grain yield with each of seven parameters i.e., plant height, number of grains per spike, number of spikelets per spike, spike length, spike weight, test weight and spike per m² was found to be positive. Yield attributing characters spike per m² ($r = 0.365$) showed highly significant correlation with yield; followed by number of spikelets per spike ($r = 0.318$), plant height ($r = 0.317$), test weight ($r = 0.310$), spike length ($r = 0.244$), spike weight ($r = 0.233$) and number of grains per spike ($r = 0.130$). Path coefficient analysis revealed that the magnitude of the positive direct effect on grain yield was the highest for spike per m² (0.61267) followed by test weight (0.3228), number of spikelets per spike (0.27009), plant height (0.21373), spike length (0.18794) and number of grains per spike (0.1365). It shows that only spike weight contributes for a negative direct effect on grain yield. Hence, it is clear from the study the number of spikes per m² is the trait that needs to be selected for high yield under heat stress and drought conditions.

Biography

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Horticulture value chain analysis of the state of Rajasthan, India

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The state of Rajasthan is the predominantly depends on agriculture and blessed with the various agro climatic conditions. Horticulture produce in the state has strong economic significance for farmers in semi-arid areas of Rajasthan due to its high-income potential. The total area under horticultural production during the period 2019-20 in the state was 1656037 thousand hectares and in the year 2010-11 was 1175881 thousand hectares. Over the last decades there is overall 40% growth in horticulture sector in the state (480156 hectares). Some major constraints in production stage are in-consistent weather pattern, high cost of seeds and farmers not following PoP. The horticulture crops suffer significant post-harvest loss due to handling at various stages in the value chain. Further, cost of cultivation of horticulture crops can be reduce through reducing the cost of seeds and enhancement in productivity through good agriculture practices. The post-harvest losses also need to be reduced through proper education of farmers and other components in the value chain. The Farmers shares are differed from crop wise farmers shares and post-harvest losses are differed from crop wise. The farmers share in Coriander crop value chain is 62%. The farmers share in Potato crop value chain is 60% and post-harvest losses are 20%. The farmers share in Mustard crop value chain is 41% and post-harvest losses are 20%. The farmers share in Isabgoal crop value chain is 9%. The farmers share in Groundnut crop value chain is 25% and post-harvest losses are 30%. The farmers share in Kinno crop value chain is 28% and post-harvest losses are 12%. The farmers share in Soyabean crop value chain is 22% and post-harvest losses are 9%. The farmers share in Garlic crop value chain is 45% and post-harvest losses are 12%. It depends on the involvement of the farmers in the value chain. Most of the profit is being retained by high end processors. Processing is also out of reach of small companies due to large investment required in plant and machinery. Significant amount of raw material goes out of the state for the processing. Developing of food processing setup in the state is in the largest interest of the whole state agricultural economy. Unless farmers become the value chain partner rather than just actors, till farmers will not have significant share in the agriculture value chain. Therefore, Farmers Producers Companies (FPC) of farmers would be an ideal platform for evolving the role of farmers from being chain actors to chain partners by doing both backward and forward integration of activities related to horticulture value chain in the state of Rajasthan. Farmer's producer companies can also help in in reducing cost of cultivation by undertaking bulk purchase of agri input at wholesale price and selling farmers at a price equal to or lower than the retail price at the back end. At the front end of the value chain, the FPC can undertake direct collection of raw material from the farmers and thereby reduce both the wastage and cost of visit to mandi for farmers. The FPC can further undertake primary processing of the agriculture produce and supply directly to large processors and other value chain factors. The state of Rajasthan has tremendous potential for the further growth of agricultural economy. Strategic efforts are required to counter the challenges exists in the horticulture value chain by which horticulture sector of the state would flourish.

Biography

Parashram Patil is affiliated to The Institute for [Natural Resources](#), India. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Efficiency of novel nanoparticles from shrimp shells as a nematicide against plant parasitic nematodes

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Nowadays world is facing various problems regarding food security, among them, pests and diseases are causes major losses in plants and crops. In addition, shrimp waste has been used successfully as a component of plant fertilizer. During composting, shrimp byproducts have shown promise as worm feed and may be utilized in bait or agricultural worm production. In this investigation, shrimp shell of silver nanoparticles used as nematicide on plant parasitic nematodes. The nematicidal activity of biosynthesized silver nanoparticles concentrations. 50, 100, and 200 µg/mL were estimated in vitro against plant parasitic nematode (*Meloidogyne incognita*), egg hatching and movement after 24 and 48 hours. The silver nanoparticles 200 µg/ml experiment revealed that nanoparticles illustrated high nematicidal activity after 48 h up to 90% of nematode mortality. Generally, the efficiency of shrimp shells' nanoparticles was suppressed the nematode activity, mortality, egg hatching, and movement of larvae. To our knowledge, this is the first report of nematicidal action of biosynthesized silver nanoparticles shrimp shells extract and it could be applied as an effective nematicide to control the plant-parasitic nematode as it is simple, stable, cost-effective and ecofriendly where environment remains safe.

Biography

Dina Elkobrosy is affiliated to Universities & research Centers District, Egypt. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Morpho – physiological parameters of different genotypes of safflower (*Carthamus tinctorius L.*) at various phenophases

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The experiment was conducted on “morpho – physiological parameters of different genotypes of safflower (*Carthamus tinctorius L.*) at various phenophases” to find out the traits associated with higher oil and seed yield in rabi season 2021-22 at research cum instruction farm of IGKV Raipur, in the department of plant physiology, agricultural biochemistry, Medicinal and aromatic plants. Collage of agriculture, Raipur. 25 (including 3 checks) genotype of safflower was used in RBD replicated thrice for phenological morpho-physiological and yield attributes related to higher yield. The morpho-physiological and yield attributes associated with high seed yield and HI were closely and positively associated with “leaf area, LAI, CGR, number of branches per plant, number of capitulum per plant, capitulum diameter, capitulum weight, number of seeds per capitulum and test weight”. Long duration genotypes IVHT-20-21 have shown high yield as compared to short duration IVHT-20-7 (short duration) indicated early phenophases and shorter duration of flowering and capitulum filling was found to be not desirable for high seed yield.

Biography

Rahul Raj is affiliated to Indira Gandhi Krishi Vishwavidyalaya, India. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Characterization of major anchote producing areas of Ethiopia

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Anchote, *Coccinia abyssinica* (Lam.) Cogn., is an annual trailing vine belonging to the Cucurbitaceae family grown principally for its tuberous root even though its tender leaves are also widely used as food. The need to promote this neglected and under-utilized crop and safeguard its diversity by characterizing the producing areas is paramount because of its nutritional, agronomic, medicinal, socio-cultural and socio-economic importance for the growers and to promote other similar areas to produce and utilize. In order to influence the wider agricultural system of Ethiopia, major anchote producing areas need to be characterized with their climatic conditions; agro-ecologies, topography and soil types using updated and latest GIS data infrastructure and Geo-processing and GIS overlay analysis, and to determine the suitable areas of production, to use in extension and popularization of anchote to other parts of Ethiopia. The major agro-ecological zones in which anchote is widely grown are identified as tepid sub-humid mid-highlands (32.43%), warm sub-humid lowlands (29.04%), tepid humid mid highlands (9.73%), warm moist lowlands (9.38%), warm humid lowlands (7.49%), and warm per-humid lowlands (6.06%). The area of major anchote producing areas cover 124,634 square kilometers with aspect of 1970 south, slope of 0.00 with an average of 60 to the maximum of 750. The lowest topography was 396 m a.s.l while the average and highest altitudes were 1590 and 3300 m. a.s.l, respectively. The major soil types of anchote growing areas were Nitisols (59.80%) and Leptosols. The identification of climatic factors of the major anchote growing areas confirms the possibility of production and utilization at similar areas of Ethiopia and shows the scope of the crop to be extended in similar agroecological conditions of Ethiopian agricultural system to advance the development of the crop and other underutilized crops.

Biography

Destafekadu Mijena is affiliated to Ethiopian Institute of Agricultural Research, Ethiopia. He is a recipient of many awards and grants for his valuable contributions and discoveries in major area of subject research. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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Shefarms (rural women in agribusiness initiative)

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Statement of the Problem: Women in Ghana play a major role in Ghana's agriculture development producing approximately 70 percent of the country's food stock yet they lack access to information, technology, ready market, training, and opportunities to develop essential skills limiting them from operating their farms as a business. Also, they are largely locked out of having access to or owning land and obtaining financial services due to limited education and other social and cultural barriers.

SheFarms is an on-farm incubator to inspire rural young women to make income and impact through climate-smart vegetable farming. SheFarmers will go through a series of hands-on training sessions, coaching, and mentoring to equip them with the necessary agri-entrepreneurial and technical skills they need to start and/or run their own farms. These hands-on training will include good agricultural practices, handling and storage, financial literacy, leadership skills, technology, etc.

They will be trained on how to integrate human activities into the natural environment to protect the climate, promote biodiversity, produce safe and healthy foods, and sustain farmlands for future generations. Some of the women will receive training and hydroponics setups and operation. They will be provided access to market and form a cooperative to support each other's agribusiness.

Through SheFarms project, women who form a large part of the agriculture value chain in Ghana yet have limited access to information, technology, inputs, training, and opportunities will have access to these resources to start/run successful farms.

They will also build the confidence needed to speak out, train others, and successfully run their business.

Main Goal: Ensure sustainable food production systems and implement resilient agriculture practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding, and other disaster and that progressively improve land and soil quality.

Biography

Henry Cofie Fordi is a Development Planner and an Agriprenuer with over 7 years of experience working with people especially women and youth in the agribusiness sector. He is a founding member of Guzakuza, an organization committed to equipping women with tools and resources to build resilient agribusiness in Africa.

He is also the manager for Access Agric an online agriculture news portal that provides a platform to publish, promote and access agriculture news and events.

Henry Cofie Fordi is passionate about empowering women using agriculture, providing training in sustainable agricultural practices, and working with communities to protect the climate and biodiversity, promote food security and sustain farmlands for future generations. He holds a bachelor's degree in Development Studies (Development Communication option).

He is a Gender Makes Business Sense for Facilitators & Mentors German Agency for International Cooperation (GIZ) and the African Union Development Agency (AUDA-NEPAD).

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