

Agroecological Transition in Kerala During the Post Covid Period

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Abstract— The COVID nineteen pandemic exposed the vulnerability of food systems and highlighted the need for sustainable and resilient agricultural practices. Kerala responded by promoting integrated farming and agroecological approaches through policy initiatives and institutional reforms. This study examines whether these interventions supported the agroecological transition of large farms during the post COVID period. Primary data were collected from forty six large farmers in rural and urban areas of Thiruvananthapuram district. Agroecological performance was assessed using the Food and Agriculture Organization Tool for Agroecological Performance Evaluation. The findings show improvements in resilience, knowledge sharing, local markets, and circular economy practices after the pandemic. The number of farms moving towards agroecological transition also increased. However, progress in diversity, synergies, efficiency, recycling, and governance remained limited, indicating that the transition is still incomplete. The study concludes that the COVID period acted as a catalyst for promoting agroecological farming in Kerala, but long term policy support, stronger institutions, and greater farmer participation are essential to achieve a sustainable and resilient agricultural system.

Key words— Agroecology; Agroecological Transition; COVID-19; Integrated Farming Systems; TAPE; Sustainable Agriculture; Food Sovereignty; Agricultural Resilience; Subhiksha Keralam.

I. INTRODUCTION

The food crisis experienced during the COVID-19 pandemic revealed multiple deep-rooted problems in the global food system, including disparities in land tenure, disruptions in supply chains, labour exploitation, and the continuing struggle for food sovereignty (United Nations, 2020; IPES-Food, 2020; FAO, 2021). The crisis forced societies to challenge the prevailing food paradigm and imagine a more resilient, regenerative, and equitable food system based on justice, sustainability, and cooperation (Altieri & Nicholls, 2020; Rosset & Altieri, 2017). In this regard, agroecology emerged as a viable alternative to extractive industrial agriculture by promoting farming systems that function in harmony with natural ecosystems (Wezel et al., 2009; Gliessman, 2015). Drawing upon ecological science, agroecology seeks to develop agricultural systems that enhance biodiversity, improve soil health, promote closed-loop nutrient cycles, and reduce dependence on synthetic external inputs (FAO, 2018; Pretty, 2008; Altieri et al., 2017). Through policies that facilitate agroecological transitions, governments can promote food systems that are environmentally sustainable, economically viable, and socially just (FAO, 2018; Gliessman, 2015). The agroecological principle of creating farms with closed-loop systems can strengthen local food production, improve household autonomy, and enhance resilience against future crises (Altieri & Nicholls, 2020).

The COVID-19 pandemic and the resultant economic lockdown affected every aspect of human life, and agriculture and food systems were among the sectors that experienced the most immediate repercussions (FAO, 2020; World Bank, 2021). From disruptions in supply chains to food scarcity, the pandemic transformed the way governments and societies perceived agricultural systems (United Nations, 2020). In India, where a large proportion of the population depends on agriculture for its livelihood, restrictions imposed during the lockdown created significant challenges in production, distribution, and value addition (FAO, 2020). In response, both the Central and State Governments introduced a range of policy interventions to stabilize agricultural production and ensure food security. Kerala, in particular, adopted a proactive strategy that transformed the crisis into an opportunity to strengthen local economies, support smallholder farmers, secure livelihoods, and promote resilient bioregional food networks (Government of Kerala, 2020).

The strategies adopted to promote agroecological farming ranged from farm-level interventions to institutional and policy reforms. During this period, the role of the Krishi Bhavan, the local extension unit of the Department of Agriculture, Government of Kerala, shifted from being primarily a monitoring agency to becoming a facilitator of sustainable and responsible agriculture (Government of Kerala, 2020). Instead of focusing solely on individual crops, greater emphasis was placed on integrated cropping systems that efficiently combined natural resources, farming activities, and community participation, reflecting the principles of agroecology (Gliessman, 2015; Wezel et al., 2009). Institutional reforms also strengthened collaboration between Krishi Bhavans, Local Self-Governments (LSGs), farmer collectives, and agricultural universities. Participatory decision-making, knowledge co-creation, and ICT-enabled extension services facilitated the dissemination of scientific and local knowledge and improved farmers' access to technical support (Government of Kerala, 2020).

During the COVID-19 lockdown, when agricultural supply chains experienced severe disruptions, the Department of Agriculture directly intervened to facilitate harvesting, transportation, and marketing of agricultural produce while providing financial assistance to farmers (Government of Kerala, 2020). Simultaneously, campaigns encouraging households to become food self-sufficient were launched, and citizens received technical, advisory, and financial support from government agencies and other institutions (Government of Kerala, 2020). These initiatives contributed to the revival of homestead agriculture and enabled many households to achieve self-sufficiency in vegetable production.

Two flagship programmes introduced during this period were the Subhiksha Keralam project and the centrally sponsored Bharatiya Prakritik Krishi Paddhati (BPKP), both of which promoted integrated farming systems through financial incentives, technical assistance, and support for cultivating indigenous crop varieties (Government of Kerala, 2020; Ministry of Agriculture &

Farmers Welfare, 2020). These interventions encouraged farming systems characterized by circular resource use, recycling of farm inputs, crop diversification, and reduced dependence on synthetic fertilizers and pesticides, which are central principles of agroecology (FAO, 2018; Altieri et al., 2017). The adoption of integrated farming systems improved soil fertility, enhanced soil organic matter, stimulated natural nutrient cycling, and reduced dependence on water and other external resources (Pretty, 2008; Gliessman, 2015). Moreover, the formation of farmer clusters strengthened cooperation, knowledge exchange, and collective marketing, thereby increasing the resilience of local agricultural systems (Rosset & Altieri, 2017). These farms increasingly exhibited agroecological characteristics such as biodiversity conservation, recycling of inputs, integration of farming components, and stronger connections to local food cultures and traditional agricultural practices (Wezel et al., 2009; FAO, 2018).

Against this backdrop, it is important to assess whether the strategic shift undertaken by the Government of Kerala towards promoting organic and integrated farming systems, together with institutional and governance reforms during the COVID-19 pandemic, contributed to positive outcomes in the agricultural sector. In particular, this study examines whether these policy and institutional changes facilitated the establishment and expansion of agroecological farms and strengthened the transition towards sustainable agricultural practices.

II. METHODOLOGY

To understand the transition towards sustainable agricultural practices the paper focuses on a comparison of the Agroecological characteristics of large farms in the pre and post Covid period. Large farms are defined as farms where farming is done in extensive scale, with profit motive, where most of the produce is marketed. Data were collected from forty-six farmers, both from rural and urban areas. Thiruvananthapuram Corporation was selected as the urban area and Vembayam Grama Panchayat was selected as rural area.

The study is based on field data collected from large scale farmers. Two different questionnaires are used to understand the Agroecological performance of farms during the pre and Covid/post Covid period. Tool for Agriculture Performance Evaluation (TAPE) is used to compare the multidimensional performances of and large farms during pre and Covid/post Covid periods. The study has used Characterization of agroecological transition (CAET) that consists of the 10 elements used as criteria to define semi-quantitative indices that take the form of descriptive scales with scores from 0 to 4 (a modified Likert-type scale). The scores of the sub-indices are summed and the totals are standardized on a scale from 0 to 100 percent to obtain the general score for one element. The total number of indices scored in the CAET is 37. The elements include, diversity, synergies, efficiency, recycling of biomass and nutrients, resilience of stability of income/production to recover from perturbations, culture and food tradition appropriate diet and nutrition awareness, co creation and sharing of knowledge, human and social values women's empowerment, circular and solidarity economy, responsible governance- producer's empowerment. The systems in agroecological transition are categorized by the stage in which they are in the transition. The average scores of all 10 elements are calculated and on the basis three classifications are made - non-agroecological, farm in transition, model agroecological system. Farms that scores <50 percent are non-agroecological systems, from 50 to 70 percent are in transition to agroecology, >70 percent are advanced agroecological systems. For understanding characterizes of micro farms customized questionnaire developed by Centre for Agricultural Landscape Research is used (Zasada, 2019).

III. RESULTS

Socio-demographic and occupational status of farmers

Table 1: Socio-demographic and occupational profile of sample farmers

	Number	Percent
Age		
19 to 60	10	21.7
60 & Above	36	78.3
Total	46	100
Gender		
Male	44	95.7
Female	2	4.3
Total	46	100
Education		
Below primary	10	21.7
High school	22	47.8
Higher secondary	4	8.7
Degree or Diploma	10	21.7
Total	46	100
Agriculture or Agri based activity status		
Extended after Covid	12	26.1
No change	26	56.5
Reduced after covid	8	17.4
Total	46	100
Whether farming is the main source of income?		
Yes	44	95.7
No	2	4.3
Total	46	100

Source: Primary data

Socio-demographic and occupational status of large farmers is depicted in Table.1. Of the total sample of farmers around seventy-eight belongs to the group of old age category; and around ninety five percent are male farmers. Twenty one percent of farmers have education attainment below primary level, and forty-seven have studied up to high school. Around twenty seven percent of farmers are having education attainment up to higher secondary/degree/diploma and seven percent has studied PG and above, depicting good education attainment among sample population. Twenty six percent of farmers extended agriculture activities during the period of pandemic and seventeen percent reduced the activities after Covid 19. To around fifty six percent of farmers, there was no change during pre and post Covid times. For ninety five percent of farmers, main source of income is from agriculture.

An analysis of land area owned and cultivated by farmers reveals that average land holding is 150.47 cents and area under farming is 199.78 cents (leased area also).

Table 2: Land area under farming

	N	Minimum	Maximum	Mean	Std. Deviation
Land area owned in cents	46	4	808	150.47	207.98
Area under farming	46	30	550	199.78	146.51

Source: Primary data

Table 3: Farming activities

Do you follow organic cultivation?		
Fully	6	13
Partially	36	78.3
No	4	8.7
Total	46	100
Does your family support farming activities?		
Yes	38	82.6
No	8	17.4
Total	46	100
On an average how much time do you spend in your farm at home every day?		
One to 2 hours	4	8.7
More than two hours	42	91.3
Total	46	100
Your production for		
both self-consumption and others without payment	6	13
Self-consumption and market	40	87
Total	46	100

Source: Primary data

With regard to farming activities, thirteen percent of farmers follow organic cultivation fully and around eighty percent are doing organic agriculture partially. Eighty two percent of farmers get support from their families to do agriculture activities while seventeen percent are not getting the support. Ninety one percent of farmers spent more than two hours in the farm while the rest spent one to two hours in the farm. With regard to agriculture produce, eighty seven percent use output for both self-consumption and for selling in market, while thirteen percent share the produce with neighbors.

Agroecological Performance Evaluation

Agroecological characteristics of large farms are analyzed using Tool for Agroecological Performance Evaluation (TAPE) developed by FAO. Diversity, synergies, efficiency, recycling of biomass and nutrients, resilience stability, culture and food tradition, co-creation and sharing of knowledge, human and social values, circular and solidarity economy, responsible governance and producers empowerment are measured using the index. Each component is measured using sub-indices during pre and post Covid periods and the results are shown in the following tables.

Diversity

Diversity in crops and animals in the farm is one important aspect that determines the quality of farming and diversity in large farms is measured using the index. Comparison of diversity in farms during pre-Covid and post Covid period shows that, diversity in choice of crops, trees and animals has increased in post Covid period but is less than 2.5 showing low diversity in the large farms. Mean score for crops was 2.4 during pre-Covid period and it decreased to 2.3 in post Covid period. Similarly, diversity of animals remained constant at 0.8 and that of trees increased only by 0.2 points. Even though there is slight increase in trees and in diversity of activities (from 1.3 to 1.6), the increase is not significant, since the mean score is below 2.5 in post Covid period too. In short, compared to pre-Covid period, there is not much difference in diversity aspects of the farm, and for many indicators mean score is below 2, depicting low diversity in large farms.

Synergy

Synergy refers to the integration of crops and animals on a single farm. Crop-livestock-aquaculture integration, soil plant system management, integration with trees, connectivity between elements of agroecosystem and landscape are analyzed pre and post Covid period for large farms.

The results show that mean score of all variables are less than 2, depicting low synergy in the large farms in both periods. Even though there is small improvement in the mean scores, especially for soil-plant system management, on average, facets of synergy in farm are low. This shows that large farms are following mono cropping and uses external inputs for farming and there is less connectivity in the agro ecosystem.

Table 4: Diversity and Synergy in farms during pre and post Covid period

Diversity			
<i>Before Covid</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Crops	46	2.43	0.93
Animals	46	0.87	1.13
Trees	46	1.43	1.26
Diversity of activities, products and services	46	1.35	0.97
<i>After Covid</i>			
Crops	46	2.30	1.01
Animals	46	0.83	0.93
Trees	46	1.61	1.29
Diversity of activities, products and services	46	1.65	0.97
Synergy			
<i>Before Covid</i>			
Crop-livestock Aquaculture integration	46	1.04	1.13
Soil-plants system Management	46	1.65	1.18
Integration with trees	46	1.09	0.98
Connectivity between elements Of agroecosystem and landscape	46	1.04	0.97
<i>After Covid</i>			
Crop-livestock Aquaculture integration	46	1.00	1.12
Soil-plants system Management	46	1.96	1.21
Integration with trees	46	1.22	1.11
Connectivity between elements Of agroecosystem and landscape	46	1.35	1.18

Source: Primary data

Efficiency

Efficiency in farms is measured based on use of external inputs, management of soil fertility, productivity and ability to meet household needs in large farms. Efficient farm uses least external inputs, maintains soil fertility and reaps optimal harvest, needed for household. A comparison between pre and post Covid periods shows that there has been an increase in efficiency of farm on some facets, but some other factors showed a decline. Mean scores in both pre and post Covid period shows that the mean value is less than 2.5 in both periods, depicting low efficiency in the selected farms. The farm doesn't show a consistent improvement of indices. For instance, use of external inputs, management of soil fertility increased over the period from, 1.4 to 1.7 and 1.9 respectively, but productivity decreased to 1.9 from 2. Efficiency in large farms is very less, as is clear from the mean values of efficiency indicators.

Recycling

Recycling of farm resources reduces input costs, enables low reliance on external inputs, improves quality of produce and ultimately ensures farm sustainability under climate change conditions. Recycling capacity of farms during pre and post Covid period is measured using extent of recycling biomass and nutrients, water harvesting, management of seeds and breeds, use and production of renewable energy. The mean score is less than 2.5 for all indices in both periods, showing less recycling in the farms.

The mean scores for each facets show a slight improvement in post Covid period. Recycling of biomass increased to 2.2 from 1.9, water saving from 0.9 to 1 and management of seeds from 1.6 to 2. However, all the mean scores are less than 2.5 and thus show a low recycling capacity of the farms.

Resilience

Resilience of a farming system is its ability to ensure the provision of the system functions in the face of increasingly complex and accumulating economic, social, environmental and institutional shocks and stresses, through capacities of robustness, adaptability and transformability. In large farms, mechanisms to absorb and recover from shocks and stresses and to maintain sustainability is very important. Stability of income, mechanisms to reduce vulnerability and amount of indebtedness is measured to find out resilience capacity of farms. Analysis of resilience shows that, stability of production and mechanisms to reduce vulnerability has increased three points to 2.1 and 2.4 respectively in post Covid period. Index for resilience to indebtedness was 2.8 in pre Covid period; it reduced to 2.6 in post Covid period. However, the mean scores are less than 2.5, and thus show a low resilience level.

Table 5: Efficiency and Recycling in farms

Efficiency					
<i>Before Covid</i>	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Use of external inputs	46	0	4	1.43	1.11
Management of soil fertility	46	0	3	1.43	0.78
Management of pests and disease	46	0	3	2.09	0.78
Productivity and household needs	46	0	3	2.00	0.99
<i>After Covid</i>	46				
Use of external inputs	46	0	4	1.96	1.05
Management of soil fertility	46	0	3	1.74	0.85
Management of pests and disease	46	0	3	2.13	0.81
Productivity and household needs	46	0	4	1.91	1.23
Recycling					
<i>Before Covid</i>					
Recycling of biomass and nutrients	46	0	4	1.96	1.09
Water saving	46	0	3	0.91	0.98
Management of seeds and breeds	46	0	3	1.70	0.92
Renewable energy use and production	46	0	2	0.52	0.84
<i>After Covid</i>					
Recycling of Biomass And Nutrients	46	0	4	2.22	1.15
Water saving	46	0	4	1.00	1.19
Management of seeds and breeds	46	0	4	2.00	1.07
Renewable energy use and production	46	0	3	0.70	1.13

Source: Primary data

Culture and food tradition

Culture and food tradition appropriate to the local condition of farm is very much important in making the farm sustainable. Use of local varieties of crops is important in maintaining the natural ecosystem intact and viable. Analysis of culture and food tradition shows that; there is no pattern of increase in the indices. Awareness has increased from 2.3 to 2.5, but, use of local varieties has decreased from 2 to 1.9. And all the indices show value less than 2.5, depicting low awareness of culture and food tradition and lack of traditional varieties in large farms.

Table 6: Resilience and Culture and Food Tradition

Resilience					
<i>Before Covid</i>	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Resilience Stability of Income/Production and Capacity to Recover From Perturbations	46	0	3	1.83	0.77
Mechanisms to reduce vulnerability	46	0	3	2.13	0.75
Indebtedness	46	1	4	2.87	0.86
<i>After Covid</i>					
Resilience stability	46	0	3	2.13	0.91
Mechanisms to reduce vulnerability	46	1	3	2.43	0.72
Indebtedness	46	0	4	2.65	1.25
Culture and food tradition					
<i>Before Covid</i>					
Culture & food tradition appropriate diet and nutrition awareness	46	0	3	2.30	0.81
Local or traditional	46	0	3	2.00	0.89
Use of local varieties/breeds	46	1	3	2.04	0.76
<i>After Covid</i>	46				
Culture & food tradition appropriate diet and nutrition awareness	46	0	4	2.57	0.83
Local or traditional	46	0	3	2.35	0.82
Use of local varieties/breeds	46	0	3	1.96	0.97

Source: Primary data

Table 7: Co creation and human and social values

Co-creation					
<i>Before Covid</i>	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Co-creation & sharing of knowledge platforms for the horizontal creation and transfer of knowledge And good practices	46	1	3	2.09	0.66
Access to agroecological knowledge and interest	46	0	3	1.61	0.65
Participation of producers in networks	46	1	3	1.87	0.75
<i>After Covid</i>					
Co-creation & sharing of knowledge platforms for the horizontal creation and transfer of Knowledge and good practices	46	0	3	2.48	0.72
Access to agroecological knowledge and interest	46	1	3	2.30	0.55
Participation of producers in networks	46	1	3	2.35	0.71
Human and social values					
<i>Before Covid</i>					
Human & Social Values Women's Empowerment	46	0	3	1.83	0.57
Labour (productive conditions	46	0	3	1.91	0.84
Youth empowerment and emigration	46	0	3	0.78	0.79
<i>After Covid</i>					
Human & Social Values Women's Empowerment	46	1	3	1.96	0.47
Labour (productive conditions	46	0	3	2.04	0.87
Youth empowerment and emigration	46	0	4	1.96	1.35

Source: Primary data

Co-creation

Co creation is measured using the three indices, namely co creation and sharing of knowledge, access to agroecological knowledge and interest, participation of producer networks. All three indices show an enhancement over the period. Sharing of knowledge increased from 2.08 to 2.4 and interest toward agroecology increased to 2.3 in post Covid period. Participation in producer network also increased to 2.3 from 1.8. However, the indices showing value less than 2.5 depicts low co-creation and sharing of knowledge in large farms.

Human and social values

Human and social values forms an integral part of agroecological farming. Working condition of labors, equal opportunity for both gender and empowerment are important aspects relating to this. Mean scores have increased during the period of Covid. Especially, youth empowerment has shown an increase from 0.7 in pre Covid period to 1.9 in post Covid period. However, these values are below 2.5, and so human and social values in the farm are not so progressive, as needed for agroecological farm.

Table 8: Circular and Solidarity economy and responsible governance

Circular and Solidarity economy					
<i>Before Covid</i>	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
Products and services marketed locally	46	1	4	2.22	1.03
Networks of producers, relationship with consumers and presence of intermediaries	46	1	4	2.30	0.92
Local food system	46	1	3	2.17	0.71
<i>After Covid</i>					
Products and services marketed locally	46	1	4	2.96	0.92
Networks of producers, relationship with consumers and presence of intermediaries	46	1	4	2.78	0.66
Local food system	46	1	3	2.39	0.58
Responsible governance					
<i>Before Covid</i>					
Responsible governance	46	1	4	2.57	1.33
Producers' Empowerment	46	0	4	1.61	1.02
participation in governance	46	0	3	1.74	1.04
<i>After Covid</i>					
Responsible governance	46	1	4	2.39	1.18
Responsible governance and empowerment	46	0	4	2.26	1.00
Participation in governance	46	0	3	1.57	0.89

Source: Primary data

Circular and Solidarity economy

Agroecology seeks to reconnect producers and consumers through a circular and solidarity economy that prioritizes local markets and supports local economic development by creating virtuous cycles. Strengthening short food circuits can increase the incomes of food producers while maintaining a fair price for consumers. These include new innovative markets, alongside more traditional territorial markets, where most smallholders market their products. These aspects are measured using the indices and the mean values show an enhancement in post Covid period. The mean scores are less than 2.5 for all three indices in pre Covid period but it has increased in post Covid period, showing slight improvement. In post Covid period the mean score for products marketed locally is 2.9 and for networks the value is 2.7.

Responsible governance

Indices for responsible governance show a decline, depicting low responsible governance in the large farmers. The mean values are less than 2.5 in both periods depicting low producer empowerment in large farms and lack of networking.

According to TAPE, index score less than 50 shows that farms are non agroecological and index in between 50 to 70 shows that farms are in transition. Before Covid 19, seventy percent of the farms were doing intensive farming; thirty percent of farms were adapting agroecological practices and they were in stage of transition to organic farming. However, the percent of farms adapting to agroecological farming increased to fifty two post Covid 19 period.

Index score both before and after Covid is less than 50 for five facets (diversity, synergies, efficiency, capacity to recover and recycling) which shows that the farms are non-agroecological. Even though during lockdown, there has been an enhancement in facets such as resilience, culture and food tradition, possibly as a result of government propaganda and support from Krishi Bhavan, there has not been a commendable impact on large farms. Large farms are in transition stage with regard to these facets.

Table 9: Agroecological transition during pre and post Covid period

Before Covid	Number	Percent
Non agroecological	32	69.6
Farms in transition	14	30.4
Total	46	100.0
After Covid		
Non agroecological	22	47.8
Farms in transition	24	52.2
Total	46	100.0

Source: Primary data

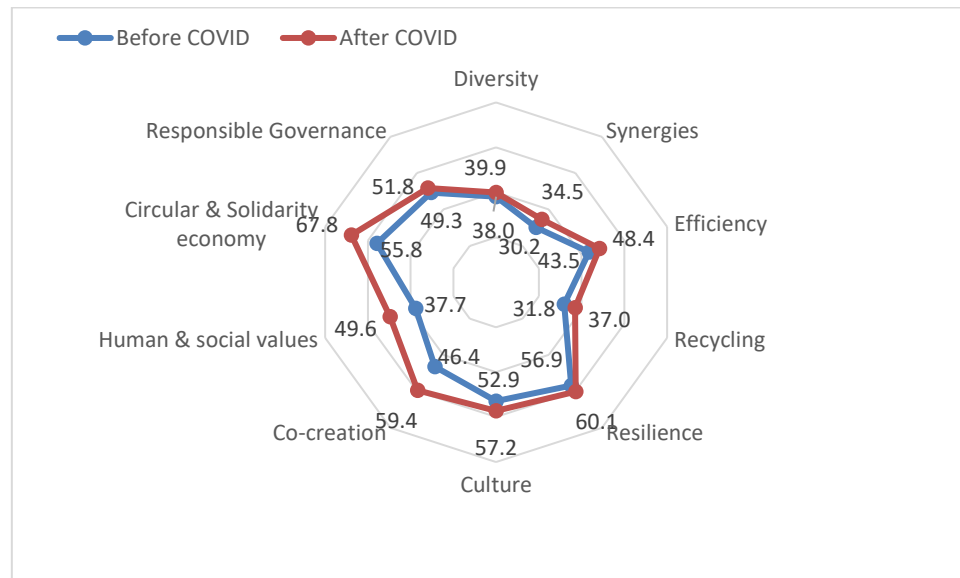
Table 10: Summary table

Agroecological traits	Before COVID		After COVID	
	Mean	Std. Deviation	Mean	Std. Deviation
Diversity	46	38.0	23.0	39.9
Synergies	46	30.2	22.5	34.5
Efficiency	46	43.5	19.7	48.4
Recycling of biomass and nutrients	46	31.8	16.6	37.0
Resilience stability of income /production and Capacity to recover from perturbations	46	56.9	16.0	60.1
Culture & food tradition appropriate diet and nutrition awareness	46	52.9	17.0	57.2
Co-creation & sharing of knowledge platforms for The horizontal creation and transfer of knowledge And good practices	46	46.4	14.2	59.4
Human & social values women's empowerment	46	37.7	11.1	49.6
Circular & solidarity economy	46	55.8	20.1	67.8
Responsible governance producers' empowerment	46	49.3	14.7	51.8

Source: Primary data

The radar diagram compares agroecological characteristics of large farms during pre and post Covid periods. It shows that the mean values are less than 50, for diversity, synergies, efficiency, and resilience depicting non agroecological nature of large farms with regard to these aspects. Other aspects, such as resilience, co creation of knowledge and food tradition shows values between 50 and 70, depicting a transition happening in farms, during post Covid period.

Figure 1: Graphical representation of TAPE



Source: Primary data

IV. CONCLUSION

Covid 19 and resultant economic lockdown all over the world affected every aspect of human life, and farming and food systems is one important sector that faced immediate repercussion. From disruptions of supply chain to food scarcity, it changed the way in which governments and society perceive agriculture systems. And India, with a majority of population depending on agriculture, faced many obstacles related to production, distribution and value addition owing to hindrances put by economic lockdown. Along with state governments, central government also mooted many new strategies, to cope up with the new situation. Kerala is one state that initiated strategies, policies and programs to control the impact of lockdown, and indeed turned it in to an opportunity to support the local economies and stand in solidarity with the small farmers, securing their livelihoods and promoting the construction of resilient bioregional food networks.

Unlike the earlier strategies, new ones focused on materializing the envisaged agroecological transition and, as a result intensive integrated farming systems were given significance where natural, societal and farming elements are efficiently and sustainably used. To boost the natural systems, agroecological farming practices were promoted where farms are characterized with diversity of crops, synergies, efficiency, recycling of biomass/nutrients and resilience. In this regard, strategies were adopted for crop-livestock aqua culture integration, soil plant system management and connectivity between elements in agro ecosystem. As a part of targeting the societal elements, all stakeholders were trained to work together, so as to co-create knowledge and increase networking among participants. In this regard, refinement in the institutional nature of Krishi Bhavan to bring in both structural and functional modifications was made. Krishi Bhavan started to work more with LSGs and farmer clusters and participatory decision-making mechanisms and systems for co-creation and sharing of knowledge were introduced as a result. At farm level, crop specific strategies were initiated to address issues relating to particular crops and to maintain resource efficiency.

The perceived change in agriculture sector is nudged by combining the two programs- Subhiksha Keralam, a state funded program to support small holder farms, and BPKP- the centrally sponsored scheme to promote agroecological/traditional farming. During the period of Covid 19, state government and agriculture department succeeded in combining the aspects of the two programs and prompted agroecological transition in Kerala. It provided farmers with both financial and technical support, and the propaganda for self-sufficiency captured the mind of people. Analysis shows that half of the farms have started to adapt agroecological practices during Covid 19 which is a mark towards sustainable agricultural practices.

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