FORM – A : RESULT OF ONGOING EXPERIMENT

01.	*Experiment number and title (As per CJA)	:	19.4.3.40 - Influence of various spacing and foliar application of novel organic liquid nutrients on performance of Cowpea (*Vigna unguiculata* L.) under mango-based agroforestry system
02.	Budget Head		352/12130
03.	Collaborative department, if any		NA
04.	Location and Agro-climatic sub region	:	Horticulture Polytechnic, NAU, Navsari
05.	Background Information	:	Indian agriculture is facing diverse challenges and constraints due to growing demographic pressure, increasing food, feed and fodder needs natural resource degradation and climate change. Therefore, diversification of landuse systems with agroforestry is a necessary strategy for providing variety of products for meeting requirements of the people, insurance against risks caused by weather aberrations, controlling erosion hazards and ensuring sustainable production on a long-term basis particularly in view of the effects of climate change (Dhara and Sharma, 2015). Agroforestry is a collective name for landuse systems and technologies, where woody perennials (trees, shrubs, palm, bambos, *etc*.) are deliberately used in the same piece of land management units as agricultural crops and/or animals in some form of spatial arrangement or temporal sequence. In agroforestry systems, there are both ecological and economical interactions between the different components (Lundgreen and Raintree, 1982). Fruit-based agroforestry system integrates the cultivation of agronomic crops, vegetable crops, fruit trees and silvi component. *Mangifera indica* L., commonly known as mango is one of the best tropical fruit tree belonging to the family Anacardiaceae and believed to be originated in Asia. Genus Mangifera approximately contains 69 different species (Ediriweera *et. al.*, 2017). India contributes major part of the world Mango production. In India, Mango is considered as King of fruits. *Mangifera indica* L. also has medicinal importance. It is a pharmacologically, ethnomedically and phytochemically diverse plant. The cowpea is an annual herbaceous legume from the genus Vigna within the family Fabaceae. Plant types are often categorized as erect, semi-erect, postrate (trailing) or climbing. Cowpea originated in Africa and is widely grown in Africa, Latin America, Southeast Asia and in the southern United States. Cowpea is a warm-season crop well adapted to many areas of the humid tropics and temperate zones. It is chiefly used as a grain crop, for animal fodder or as a vegetable. Cowpea seed is a nutritious component in the human diet, as well as nutritious livestock feed. Fertilizers, artificial or natural, are the components that increase plant productivity and development. Fertilizers help in increasing soil fertility and thereby promoting plant growth. With the help of fertilizers, plant becomes resilient against harmful plant pathogens, pests and weeds. Elimination of diseases in plant increases the value in the harvest. Incorporating fertilizers into the soil guarantees that the plant is getting proper nutrition during its development.

06.	Objectives			1. To study the influence of various spacing on performance of Cowpea (*Vigna unguiculata* L.) *var*. GVC-9 under mango-based agroforestry system 2. To study the influence of foliar application of liquid fertilizers on performance of Cowpea (*Vigna unguiculata* L.) *var*. GVC-9 under mango-based agroforestry system 3. To study the interaction effect of various spacing and foliar application of liquid fertilizers on performance of Cowpea (*Vigna unguiculata* L.) *var*. GVC-9under mango-based agroforestry system 4. To find out the economics of Cowpea (*Vigna unguiculata* L.) *var*. GVC-9 cultivation		
07.	Investigators		:	**PI:** Dr. M. B. Tandel, I/C Head (SAF) & Assistant Professor (Forestry) **Co-PI:** 1. Dr. M. R. Parmar, Assistant Professor (Agroforestry) **Associates:** 1. Dr. M. P. Ahir, Assistant Professor (Floriculture) 2. Dr. C. S. Desai, Assistant Research Scientist		
08.	Year of commencement		:	2023-24		
09.	Season		:	NA		
10.	Crop and variety		:	Mango (*Mangifera indica* L.) Cowpea (*Vigna unguiculata* L.) *var*. GVC-9		
11.	Experimental details		:			
	(a)	Treatment combinations	:	16		
		Factor A: Spacing		S_1: 30 x 30 cm^2 S_2: 40 x 30 cm^2		
		Factor B: Novel Organic Liquid Nutrients	:	F_1: Control F_2: Novel (0.5 %) F_3: Novel (1 %) F_4: Novel (1.5 %)		
		Factors C: Growing conditions	:	G_1: Under Mango orchard G_2: Under open condition		
	(b)	Design	:	Randomized Block Design with Factorial Concept (FRBD)		
	(c)	Replications	:	3		
	(d)	Plot size	:	Gross	-	5 m x 10 m
				Net	-	S_1: 2.70 m x 5.40 m
						S_2: 2.00 m x 6.00 m
12.	Cultural details					
	(a) Previous crops and fertilizers		:	NA		
	(b) Sowing date		:	Second Fortnight of February		
	(c) Seed rate			35 - 40 kg/ha		
	(d) Spacing			S_1: 2.70 m x 5.40 m		
				S_2: 2.70 m x 5.05 m		
	(e) Manures and fertilizers			20:40:00 @ NPK and FYM @ 15 t/ha		

	(f) No. of irrigation with date		4
	(g) Cultural operations with date		2
	(h) Plant protection measures		2
	(i) Harvesting date		First Fortnight of June
13.	Soil analysis		NA
14.	Input analysis		Yes – Economics
15.	Results (Table/s with statistical analysis and Interpretation)	:	Planting will be done in Second fortnight of February - 2024
16.	Remarks (for abnormal experimental results only)	:	-
17.	Reasons for abnormal conditions affecting experimental results and low yield if any be given in brief. e.g. uneven plant stand, pest and disease incidence, weather conditions, etc.	:	NA
18.	Any other information	:	NA