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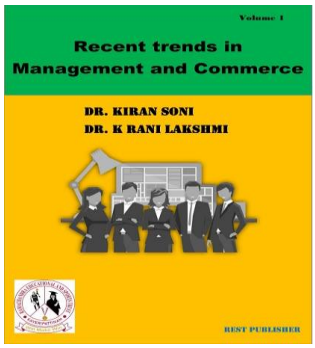

Subsistence Farming in Transitional Economies in India Using GRA Method

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Abstract: *A form of agriculture known as subsistence farming involves cultivating crops to meet the farmers' daily needs. As a result, agricultural farming is done on a limited scale without any excess to sell or trade. An economy that is not dependent on money, in which barter may be used instead of buying and selling, and which typically only offers a minimal level of life, is comparable to subsistence farming. In contrast to expectations, the ceecs' transition to a market economy happened in a different order. Numerous predictions came to pass, and today, more than ten years after the start of the reform process, the study of these nations and the issues they face falls under a different subfield of economics called the economy of change. At first, a deeply corrupt market to fix the economic change was considered effortful. However, abrupt and drastic developments in many nations have compelled scholars to reevaluate their assumptions and admit that a planned economy is a market economy fundamentally economics is different. Economic behavior is the structure of the economy defined within properties is the opinion the primary accomplishment of modern study on transition. The patterns of behavior are not predetermined; rather, they are evolving on their own. In transitioning nations, the mechanics of this process might produce disparate results from similar starting positions. The problem of subsistence farming is one of the major factors influencing behavior in the agro-food industry. Research significance: In small plantations, farmers for themselves and their families Food enough to feed organic farming when planting carries out organic farming farmers who adhere to their farms are primarily local for consumption and survival are producing. Surplus. A subsistence economy prioritizes necessities like food, clothes, and shelter over the market. From now on, "subsistence" refers to providing for one's basic needs. Subsistence economy often ceaselessness and agriculture, through gathering and hunting to provide basic needs dependent on natural resources. A subsistence economy has no industrialization, little for economic surplus, and needs only trade. Resources in hunting and gathering communities are frequently, if not always, underutilized. Methodology: Gray relational analysis is gray calculating relational degree and the contribution of the core behavior of the organization between measurement or system factors determine the degree of influence is a method. Two between factors or for two systems of the relationship between the measure is called the degree of gray correlation. Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits. Evaluation preference: 2010, 2015, 2018,2021. Results: from the result, it is seen that Milk is got the first rank whereas is Meat products is having the lowest rank. Conclusion: Milk the top spot, as does Meat products, which ranks low.*

Keywords: *Subsistence farming, Vegetables, Milk, Gray relational analysis.*

1. INTRODUCTION

There is broad agreement that households primarily obtain food from three sources. These include marketplaces, an output sufficient for survival, and transfers from government agencies or other households. These sources of production, trade barter or purchase, and transfers are sometimes referred to as entitlements categories. In the past, rural families produce their food urban families did buy it. Urban and rural faith of families in market purchases has grown significantly, according to recent surveys. As a result, low-income households' food expenses may account for 60 to 80 percent of their overall income [1]. Small-scale subsistence farming has become more prevalent in central and eastern Europe as a result of the region's transition to a market economy. As a result, agriculture has a dualistic structure that includes both large-scale commercial farms and numerous small-scale subsistence farms. Because a significant portion of food production and consumption occurs for subsistence, the performance of agriculture is uncertain. Predicting the overall consequences of agricultural and rural policies is difficult due to the extensive practice of subsistence farming [2]. There is no clear consensus in the literature regarding the function and future of subsistence farming. One

school of thought is the lifeblood of Europe and semi-subsistence is seen as farms an undesirable characteristic that hinders rural development. Subsistence farming has a reputation for using outdated technologies, being inefficient, and wasting precious resources that may have been put to better use. Subsistence has frequently been linked to poverty. However, not only in low-income countries but also in those with a moderate income, may be organic farming seen as a crucial survival tactic, particularly in times of severe economic recession and change. Cite subsistence farming as a means for people to withstand dangerous situations, in vulnerable areas more transactions in the economy deal with expenses [3]. Because they can substitute for land, animals are essential in organic farming as a source and market for food surpluses. As part of its zero hunger project, which was inspired by brazil, Nicaragua gave smallholders pigs, cows, chickens, and farm animals like ducks and technical assistance. Life chances of survival to increase, livestock and provision of veterinary services were merged [4]. A variety in addition to the trees in subsistence farming systems in part tree species are kept in farms forest environments. These trees play a crucial role in guaranteeing the sustainability of agricultural production and traditional agriculture practices are crucial for preserving the variety of crops. Farm trees' status and contribution to the preservation of biodiversity, however, are little understood. In this essay, two villages in nepal's western middle hills are studied as a case study [5]. Have examined the significance of livelihoods in shifting agriculture and four shifting nations family survey family using data specific characteristics and scholarships livelihood will be described by size. In other words, we sought to pinpoint the barriers that transitional farming households face in their attempts to participate in the market and move beyond subsistence. Knowing these limitations could help rural development policymakers decide where to place their focus [6]. By selecting between hypothetical but realistic agricultural alternatives with hazardous vs sure results, the farmers' attitudes towards risk were evaluated. These inquiries, which serve as the foundation for our empirical study, were created to identify the certainty equivalents of uncertain futures with specified probabilities. Each group of farmers received two subsets of replies as a result of the adoption of two different risky prospects. The first category solely involved rewards that were more than what was needed for daily survival. While the level of total income was in jeopardy in these, sustenance was guaranteed [7]. Human-wildlife conflict security initiatives, government, workers, and locals bustling among community's topic to be discussed. In many nations. Feelings of exclusion and alienation have been exacerbated by the absence of locally accepted, practical solutions to reduce such conflict, especially for protected areas the next living rural African among the people. Leading environment enthusiasts are human-wildlife as a major threat to the conflict has identified the effectiveness of African conservation projects, nevertheless, in recent years. Research and publications by naughton-treves & Treves have drawn rural African people pays attention to the costs coexisting with animals [8]. The creation of seasonal weather forecasts, it is in many places around the world rainfall and temperature foretells conflict, has been made possible by improvements in our capacity to model el nio and other significant large-scale internal climatic changes. These projections have improved food security by enabling developing nations to anticipate deficits in grain output. Subsistence farmers in several nations receive projections, which may enable they are the results of their crop they should minimize the impact of drought on their harvests by adjusting properly [9]. The articles in this issue deal with a wide range of subjects and geographical areas, but local livelihoods, land use plans, and for resource management exams assessments of interrelationships, and various external cope with pressures how are these used. Ratings such as connecting them. Deforestation, land use change, and local management, livelihoods for agriculture and cash crops communication between, and land change of use and income diversification three broad categories under which we have grouped the papers, though several of them inevitably contain elements that fall under more than one of these [10]. The agricultural economy of Ethiopia, which supports the vast majority of its citizens, is always in danger due to numerous types of soil degradation. Future food of the country's security and development opportunities are gravely threatened by soil erosion by water, which continues to be the most significant of these problems. One of the worst locations of soil erosion in the world is Ethiopia, according to reports [11]. Subsistence among those most at risk from the current climate variability is farmers. According to climate models, climate change will result in higher temperatures, more variable rainfall, and extreme weather events increase in intensity and frequency. Many development professionals have suggested agroforestry, or the deliberate integration of trees into the farming system, as a potential tactic to assist farmers in lowering their susceptibility to climate change. [12]. Subsistence farming is defined as a style of agriculture in which almost all cultivated produce or cattle farmers support their family using, for sale, or trade not much. Sustenance size of farms, in general, larger than a few acres will not exist and will be used agricultural techniques are generally crude and are low yielding. The extensive knowledge of agricultural economists in the underdeveloped nations of latin america, asia, and africa is generalized in this concept [13]. Are remittances utilized to buy labor and non-labor intensive supplies for agriculture. Of subsistence crops global on production scale what is the effect of migration more subsistence farming expanding towards commercial agriculture results from migration and remittances [14]. We examine agricultural households in five new members that have a significant subsistence and semi-subsistence farming sector, primary survey data, and about constant drawing on literature livelihoods. According to the study, subsistence farming significantly raises household incomes [15].

2. MATERIALS & METHODS

Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits
Evaluation preference: 2010, 2015, 2018,2021
Vegetables: Vegetables are people and as food by other animal's edible plant parts. Flowers, fruits, stems, leaves, roots and all including seeds and edible plant material the original definition of the mark still exists and is often used.
Meat products: Animal flesh consumed as food is known as meat. Since the beginning of time, people have hunted, farmed, and scavenged animals for food. Chickens, sheep, bunnies, pigs, and cattle could all be domesticated thanks to the neolithic revolution's settlement-building.
Milk: Humans and other mammals, especially mammary glands milk are preparing children other breast milk rather than foods because they want their digestive system while growing and maturing it is well tolerated. If well olerated, milk may be offered later. The final result. It's quite acceptable to drink a typical glass of milk every day if you are not lactose intolerant or allergic to dairy. Drinking milk and using other dairy products in your diet can have certain health benefits, from enhancing bone health to preventing cognitive decline.
Potatoes: The potato is america's native vegetable, rich in starch food and solanum tuberosum the tuber of the plant. Nightshade family solanaceae this plant is perennial is a plant. From south america as far south as chile, a variety is wild potato species are found. Potatoes once upon a time native to various regions independently of the americans were considered cultivated, but then genetic studies of today's extreme northwestern bolivia and in the region of southern peru showed the same appearance. For about 7,000-10,000 years formerly, associated with potatoes of the solanum brevican complex a race was bred there. Some of the potatoes are close relatives from south america and grown in the andes region, there the species is endemic.
Meat: domesticated wild bird species gallus gallus domesticus southeast native to asia gray and ceylon junglefowl with wild species such as related to a young man the bird is called the rooster and the age the male bird that arrived is the rooster or also known as cock. A castrated boy also referred to as a cabin. The bullet is a sexy young female bird; a chicken is one-year-old the female bird that came. Nowadays, people are mostly chickens as pets, they eat meat and eggs they also maintain food. They are historically for cockfighting raised, it's a few more done in the regions. Breeding layers and broilers chicken meat and respectively to produce eggs are used.
Fresh fruits: any fruits and vegetables not subject to any kind of processing are referred to as new products. Nuts, herbs, popcorn, vegetable plants or seedlings, dried beans or peas, seeds or grains, and flowers are not included in this definition. Not yet protected or non-perishable food is fresh considered. Fruits and vegetables are picked and perfected this is handled in a manner that means, meat is recently killed and ready for consumption done, and fish caught or harvested is refrigerated.

3. GREY RELATIONAL ANALYSIS (GRA)

Gray correlation analysis (GRA), this type of problem to solve data envelopment analysis facility analyzed. Layout and dispatch rules both cases of selection problem are gra's to illustrate the application, gra procedure were analyzed using gra's core process is first of all compare the performance of alternatives sequential translation. This step ash is called associated formation. Then, compare all gray between rows and reference row the correlation coefficient is calculated. Finally, this gray is related in terms of coefficients, reference sequence and for each comparison sequence the gray in between relative quality is calculated [16]. The surface roughness and bur of the work piece drilling process parameters for height gray related analysis to improve application introduced. An orthogonal sequence to the experimental design was used. Many performance characteristics surface gray for hardness and burr height ash obtained from corresponding analysis machining parameters optimized by relevant standards are determined. By the author of this work for better knowledge, gray is related drilling down using analysis optimization and in the process effect of cutting parameters on several performance characteristics there is no published work to evaluate [17]. Deng (1989) is a gray relational proposed the analysis. Gray relational analysis is gray relational approximate rows using grade a method of measuring quantity. Some other researchers of process parameters optimization has also been studied. Die-sinking EDM machining parameters related to gray to shape analysis. In polycarbonate composites of yield stress and elongation injection molding for mechanical properties to obtain optimum parameters of the process gray relational analysis. The simulation used the taguchi method and presented an ash-related analysis. Taguchi method and gray related analysis with several performance characteristics improve turn functions. Particle with multiple performance properties wire of reinforced material is electric to optimize the extrusion process gray relational analysis. Taguchi method and gray relational analysis final grinding dry for high purity graphite in process improve machining parameters [18]. Gray correlation analysis, a weighted average in practice depends on several criteria. Several criteria have been proposed decision making for ordering goods. Gray correlation analysis (GRA) is commonly used in asia. It's an impact assessment model, which is relational two in terms of

quality similarity between rows or measures the degree of difference. A global comparison to a local comparison is done by measuring the distance between two data sets between two points. Gra has the merit of point set topology therefore, it is subjective to the parameters in the model avoids side effects of the system. Using the ordered pair concept available products and eol the two result domains of the strategy are linked this article is going to provide the method. To apply this domain-combination method the gra model is obviously appropriate [19] Istanbul stock exchange (ISE) some funds in the financial sector index order shares of companies do gray correlation analysis (GRA) is used. Gra has become a benchmark of global comparability contains and to instead, it does not change any hierarchical structure. To retain eligibility, all criteria are also the means of decision are equally distributed. The original decision model was multilevel if in a multilevel hierarchical structure, multiple a level from levels weighting for performance characteristics a change must be made [20] Gray correlation analysis (GRA) based on the use of optimization of wastewater treatment alternatives gray is related to selection analysis. Bad, incomplete and to deal with uncertain information it has been proven to be effective. The main directions gray relational analysis (GRA) is in current applications one of gray system. Gray relationship grades multiple performance by optimizing complexity between characteristics gra can be used to effectively resolve correlations [21]. Gray relational analysis is used with many performance characteristics to solve the turning functions. As a performance index gray relative quality using the taguchi method optimum cutting parameters by can be determined. Ash taguchi by relational analysis multiple performance characteristics by method an overview of optimization first is given. Then, cut select and turn parameters evaluation of machine performance in operations is discussed. Gray communication of taguchi method by analysis basically turn functions the upgrade is described in detail [22]. In gray correlation analysis, electrode wear, material removal rate and surface roughness test results are initially zero, in the normalized range, it is gray, also known as correlation formation. For determining optimum machining parameters gray relational analysis it is reported step by step. Many considering performance characteristics optimum machining parameters are obtained [23]. The following conclusions on the benefits of using the Gra method are based on original data, a gray area in multi-attribute decision making (MADM) problems is correlation analysis (GRA) method. The calculations are simple and easy to understand. In a business context helps in making management decisions this is one of the best methods [24] Multi-functional properties surface removal rate and maximum surface area all 203 particles with hardness for machining reinforced material optimized wire electrical discharge machining (WEDM) gray to determine the parameters correlation analysis. Gray relational analysis method material removal rate using the tool abrasion, surface roughness and specific shear stress of multi-functional properties including basically cutting speed, feed rate, turning parameters such as depth of cut and machining time [25].

4. RESULT AND DISCUSSION

TABLE 1. Subsistence farming

	2010	**2015**	**2018**	**2021**
Vegetables	75.9	71.4	61.4	59.9
Meat products	74.1	64.2	57.8	59.3
Milk	80.2	82.4	68.5	60.6
Potatoes	55.2	16.1	39.5	39.9
Meat	70.4	65.6	54.9	51.5
Fresh fruits	55.6	60.7	41.2	43.5

Table 1. shows the Subsistence farming in transitional economies in India of Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits Evaluation preference: 2010, 2015, 2018,2021.

TABLE 2. Normalized Data

Normalized Data			
2021	**2015**	**2018**	**2021**
0.828	0.8340875	0.244828	0.0338164
0.756	0.7254902	0.368966	0.0628019
1	1	0	0
0	0	1	1
0.608	0.7466063	0.468966	0.4396135
0.016	0.6726998	0.941379	0.826087

Table 2 shows the Normalized data for Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits Evaluation preference: 2010, 2015, 2018,2021 it is also the Normalized value.

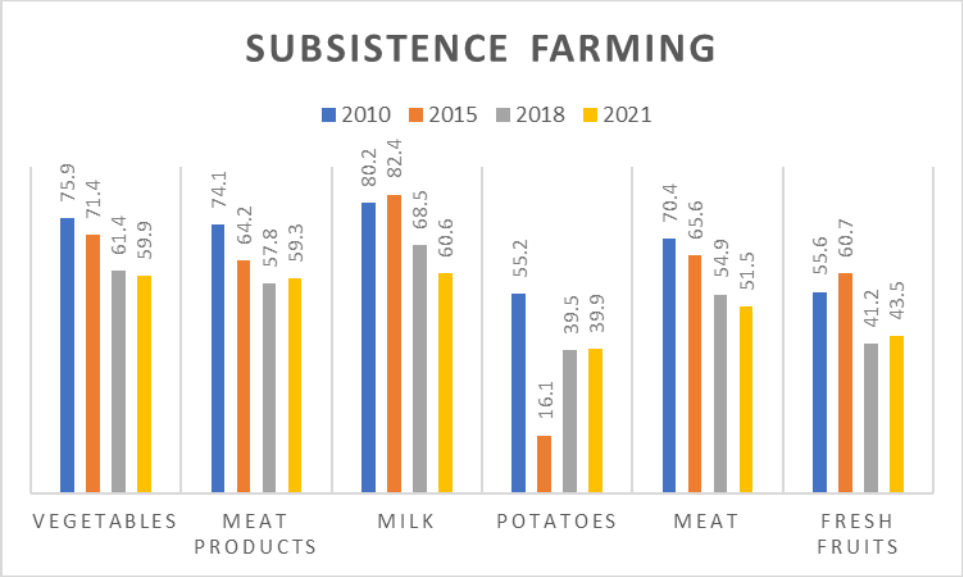

FIGURE 1. Subsistence farming

Figure 1 shows the graphical representation in 2010, Milk had the highest value while potatoes showed the lowest value. In 2015, Milk showed the highest value while potatoes showed the lowest value. In 2018, Milk showed the highest value while potatoes showed the lowest value. In 2021, Milk showed the highest value while potatoes showed the lowest value.

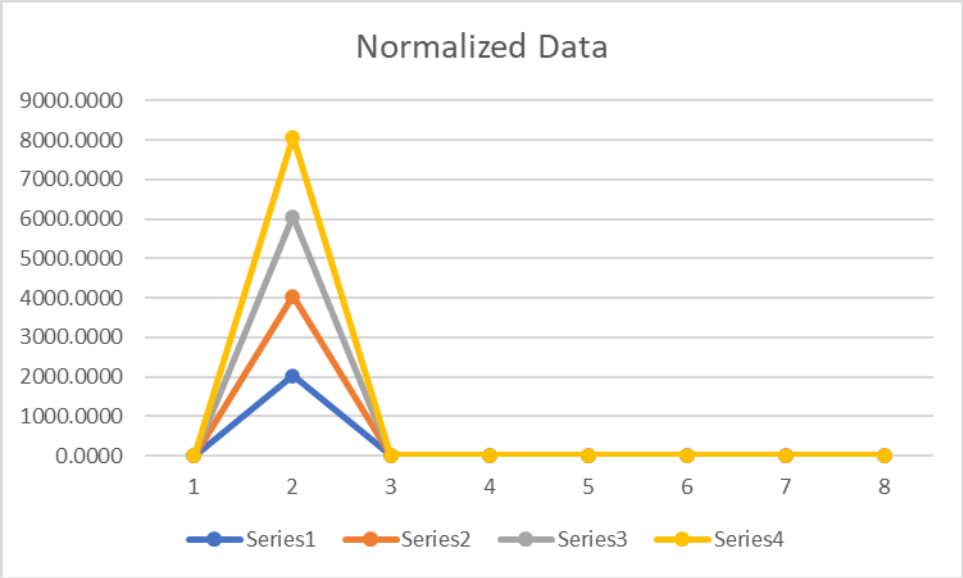

FIGURE 2. Normalized Data

TABLE 3. Deviation sequence

Deviation sequence			
2010	**2015**	**2018**	**2021**
0.1720	0.1659125	0.755172	0.9661836
0.244	0.2745098	0.631034	0.9371981
0	0	1	1
1	1	0	0
0.392	0.2533937	0.531034	0.5603865
0.984	0.3273002	0.058621	0.173913

Table 3 shows the Deviation sequence for Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits Evaluation preference: 2010, 2015, 2018,2021 it is also the Maximum or Deviation sequence value.

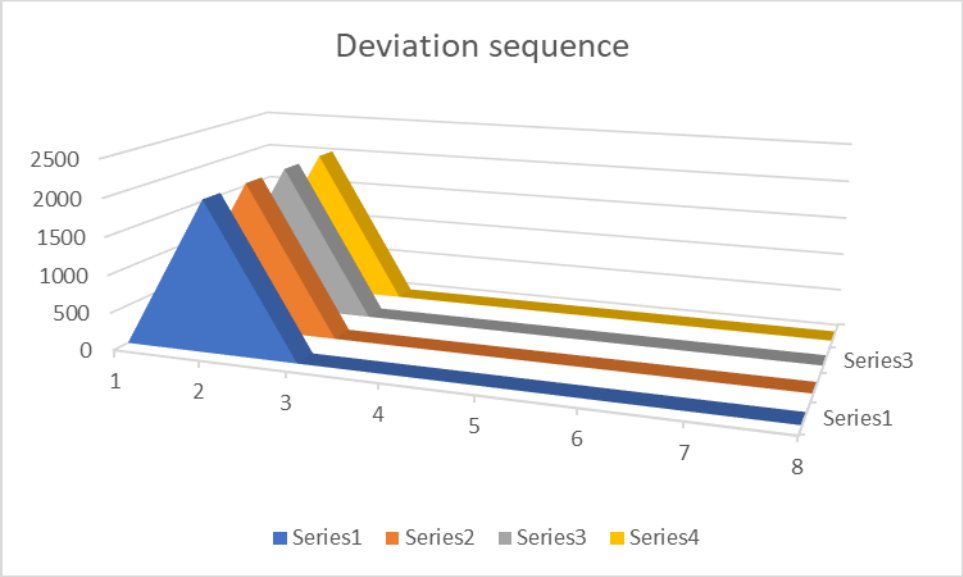

FIGURE 3. Deviation sequence

TABLE 4. Grey relation coefficient

Grey relation coefficient			
2010	**2015**	**2018**	**2021**
0.7440476	0.7508494	0.398352	0.341
0.672043	0.6455696	0.442073	0.348
1	1	0.333333	0.333
0.3333333	0.3333333	1	1
0.5605381	0.6636637	0.48495	0.472
0.3369272	0.6043756	0.895062	0.742

Table 4 shows the Grey relation coefficient for Alternative: Vegetables, Meat products, Milk, Potatoes, Meat, Fresh fruits Evaluation preference: 2010, 2015, 2018,2021 it is also Calculated the Maximum and minimum Value.

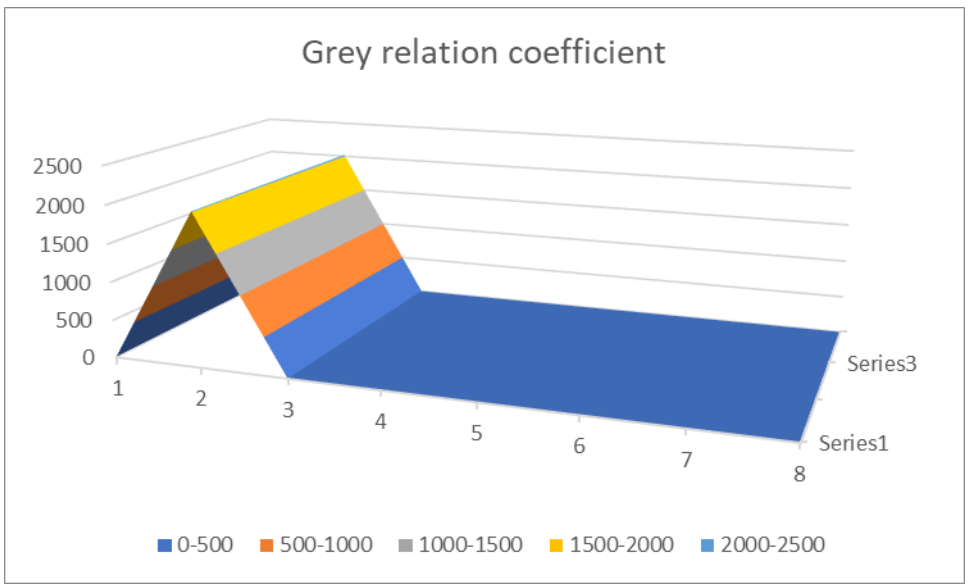

FIGURE 4. Grey relation coefficient

TABLE 5. GRG & Rank

	GRG	Rank
Vegetables	0.558568	4
Meat products	0.526896	6
Milk	0.666667	1
Potatoes	0.666667	2
Meat	0.545169	5
Fresh fruits	0.644575	3

Table 5, Shows the GRG values for Vegetables, Meat Products, Milk, Potatoes, Meat, and Fresh Fruits are displayed. Vegetables are ranked fourth, Meat Products are ranked sixth, Milk is ranked first, Potatoes are ranked second, Meat is ranked fifth, and Fresh Fruits are ranked third in the final analysis of this paper. The GRA technique is used to generate the outcome.

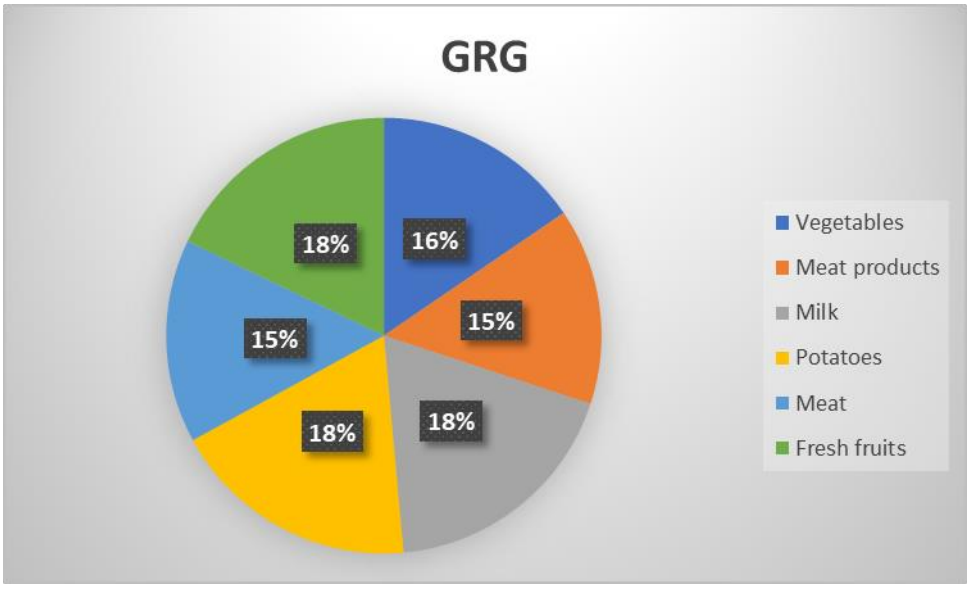

FIGURE 5. GRG

Figure 5 shows the GRG of vegetables 0.558568, meat products 0.526896, milk 0.666667, potatoes 0.666667, meat 0.545169, fresh fruits 0.644575.

FIGURE 6. Rank

Figure 6 shows that vegetables are in fourth place, meat products in sixth place, milk in the first place, potatoes in second place, meat in fifth place, and fresh fruits in third place. The final decision is made using the GRA method.

5. CONCLUSION

Subsistence agriculture is the livelihood of farmers crops to supplement cultivation is a type of agriculture. Hence, surplus sales in business this agriculture where there is none made in small quantities. That is why this agriculture is considered family farming because it is farmers' food for their families and fulfills their needs. Agriculture was traditionally widespread in effect, that is low-level technology and they do the housework are using this category in agriculture, a few acres of land required, and for cultivation, family members are enough. Subsistence agriculture, agriculture form, almost all of which crops or livestock the farmer and the farmer's family are used to maintaining, for sale or trade too little, too much will be around the world pre-industrial agriculture people are traditionally natural they practice agriculture. Some of these people are after exhausting the soil in place they went from site to site. As urban centers develop, agricultural production is highly specialized became sophisticated and commercial agriculture developed, and farmer's substantial surplus of some crops produced and produced trade in manufactured goods made or for money selling sub-Saharan large parts of Africa including, various parts of the world still subsistence farming today continues relatively broadly. Subsistence farms in general not more than a few acres, and farm technology is old and low it will also have yield. Livelihoods in fragile economies agriculture, this article is an alternative emphasis on countries' effects of subsistence agriculture discusses and explains. Some aspects of subsistence farming review of economic models made and for livelihood risk aversion and trade-offs attach descriptions of costs a two-stage decision model is presented. Role of subsistence agriculture with only one business and agriculture is compared. Of certain conditions under, livelihood is a stabilization roleplaying and gross positive impact on agriculture causes consumption is livelihood using the concept of position, if additional conditions are met, these fixed effects are variable valid in perspective the paper demonstrates that. Policy recommendations and potential agricultural commercialization a related future research program obtained by programmatic analysis. Self-sufficiency in organic farming although received, most of today's organic farmers are also to some extent engaged in trade. Modern having complex markets than consumers in countries measured in money although the volume of trade is low, they mainly target these markets used to get things, not to generate income for food these items are usually for survival not necessary and sugar, iron roofing sheets, bicycles, used clothes and may include many. Many people's important trade contacts and trading products are their special skills or valuable in the market special access to resources can produce due. Most are subsistence farmers today they operate in developing countries. Subsistence farming in general highlights small cap/fin requirements, mixed cropping, and agriculture chemicals are pesticides and limited to fertilizers use, of crops and animals unimproved varieties, for sale little or surplus yield, crude/traditional tools like spades, knives, and cutlasses, mainly production of food crops, small scattered lands, unskilled workers dependence is often familial members and generally low yield.

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