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Use of Waste Decomposer: A Study of the Organic Farming and Enhancing the Farmers' Income Level

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Abstract

This paper proposes that farmers use waste decomposers to enhance the fertility power of soil. The use of waste decomposers enhances the soil and it increases the farmer's income doubly. This product makes the land fertile and promotes organic farming but it is not a fertilizer, just an enhancer. Organic farming has not been broadly promoted in Nepal though most people demand organic products. Organic product means organic food which enhances the human mind. Still, the farmers are using chemical fertilizers in their farms for commercial purposes, but the productive capacity of the soil has declined. The overuse of chemical fertilizers has deteriorated not only the soil health but also the human health. Slowly and gradually, the area of barren land is increasing because of chemical aggression. The main purpose of the study is to protect human health and soil health. This waste decomposer solution decomposes the wastes into organic fertilizers shortly as well as it makes the seeds bacteria-free when washed by it before sown. Healthy seeds and organic fertilizers enhance harvesting. The price of organic products is higher than that of inorganic ones. This increases the farmer's income level. The findings of the study show that farmers' agricultural products have not been satisfactory with the use of conventional methods of farming. This method of farming has not enhanced the farmers' income source. This research attempts to bridge between agriculture and literature. The study adopts the descriptive survey methods and document analysis for the description and explanation of the use of waste decomposers and their benefits.

Keywords: better harvest, conventional methods, income, organic fertilizers, waste decomposer

Introduction

Background of the Study

The history of waste decomposers is interesting. India had the problem of managing the waste it produced millions of tons every year. To overcome the waste management problem, India developed a product called Waste Decomposer. It is a consortium of a few beneficial microorganisms which is isolated by Krishan Chandra 2004 from desi cow dung and took 11 years to standardize the mass multiplication technique at the farm level (Chandra et al., 2004, p. 1). In the beginning, this waste decomposer was invented for decomposing the wastes from farms, industries and factories. There was a problem in managing the waste from the city. Later, the national centre of organic farming of India seems to have experimented with it for agricultural usage and then they found a good result. After 11 years, this product was proven to be beneficial for agricultural use. Now, it has been used in India nationwide and most of them are benefitted from this product.

This paper attempts to bridge between agriculture and literature. Agriculture is the source of literature. Good agricultural products provide nutritious food. Nutritious food fosters the human mind. Healthy mind healthy product. So far as literature is concerned, it is the reflection of the society. When will there be literary productivities like writing poems, plays, stories or novels? It will be when the healthy minds start working. Organic food is supposed to be healthy food. The use of waste decomposers helps produce organic food. This enhances the literary productions.

Nepal is an agricultural country and agriculture is the backbone of the nation's economy. Although thousands of new technologies in farming have come, Nepali farmers are still using the conventional methods of farming so their returns are not so exciting. This frustrated many farmers and they have brains drained. In search of income-oriented jobs, either they have migrated to towns or moved to foreign lands for earning. Now, the Nepali people have started thinking that earning is possible only in foreign lands. The farmers, who have no option but to go to towns and foreign lands, have been working on the farm with a frustrated mentality. This paper attempts to prove that it is not good to be frustrated. And this study attempts to make the local farmers happy. There are several ways of earning even in the home country because almost all the employees, who came back to Nepal from foreign countries after a

certain period, have started farming being influenced and inspired by other countries. They make money here more than the money they used to earn in foreign lands. Their income nearly doubles from organic farming. And most of them regret having gone abroad. They claim that they would have earned more money if they had started farming instead of going there. There are several examples of such realities. Many people in Nepal have been suffering from poverty because of low harvesting as they cultivate their land applying conventional methods. The government of Nepal has been attempting to alleviate poverty through different policy interventions. To achieve poverty alleviation, the government encourages unorganized people from different sectors of the economy to form cooperatives (Rai, 2021, p. 1-2). But it does not seem to have worked well. Theoretically, the government has done a lot more for the betterment of Nepali farmers but their condition has not been enhanced. Moreover, a huge amount of nitrogen fertilizer is being used to increase crop productivity (Marahatta 2022, p. 115) but the farmer's condition is almost the same. After all, the farmers are always doing their best for better harvest or good crop productivity. Their harvest is not bad but its yield is not increasing. The study focuses on the following research questions:

Research Questions

The following the research questions have been set up to meet the research objectives of the paper:

- How to encourage organic farming if the farmers are still using chemical fertilizers following the conventional methods of farming instead of prioritizing the organic product?
- How to enhance the nation's economy using waste decomposers to promote agricultural products and farmers' income doubly, create employment opportunities within the nation and promote literature?

Research Objectives

The objectives of the study are as follows:

- To find out why the farmers are still using chemical fertilizers following the conventional methods of farming instead of prioritizing the organic product
- To discover how the use of waste decomposers enhances agricultural products and farmers' income doubly creates employment opportunities within the nation and promotes literature

Significance of the Study

The waste decomposer is the cheap and best way of enhancing the farmer's income level. It costs only 150 in India though it was only 20 IC in the beginning. The first and most important things are the seed and fertilizers. At first, the farmers must choose the right seed and then they have to use bio fertilizers but not chemical fertilizers. They have deteriorated the PH level of soil so the productive capacity of soil has declined. Now, organic farming has become popular and it is the demand of time. So, this paper emphasizes the use of waste decomposers by which the farmers double their income in nominal investment costing and this will support the nation's economy.

Limitations of the Study

The study is only about the use of waste decomposers in organic farming. The researcher informally inquired with different farmers of nurseries, vegetables and crops. Most of their experiences are not satisfactory. The focus of the study is only on how to enhance the farmer's income level. Thus, this paper proposes that farmers use the waste decomposer.

Review of the Literature

There are four online journals of agriculture but there is no article about the use of waste decomposers and its benefits. Marahatta (2022) suggests mulching methods and using nitrogen fertilizers to increase crop productivity which enhances the farmer's income. But there is no explanation for the use of waste decomposers and its usage. Thousands of scholars have written different fruitful and beneficial articles about how to enhance the farmer's income level. It is also helpful but it is a bit costlier. Rai (2021) has discussed local sales in the local market and selling local products by males and females. This article enhances female participation in farming. It has also not talked about increasing agricultural products by the use of waste decomposers. Poudel et al (2022) have only highlighted the use of Gibberellic acid to enhance grape cultivation and its ways of increasing harvesting. In commercial grape cultivation, the application of PGRs especially Gibberellic acid (GA3) is popular for enhancement of vegetative growth parameters like bunch weight, berry length, berry diameter, berry weight and size etc. (p. 132). The Gibberellic acid (GA3) is only for grape plants or for other plants, too. It has not been clearly said. But the waste decomposer is for multipurpose use for all plants, animals and hens or birds. In the modern age, the use of organic fertilizers seems to have been a kind of both fashion and passion.

Vermicompost, the organic fertilizer, gives the plants sufficient nutrition but it is expensive so every farmer cannot purchase it. Low-cost price is one of the necessary characteristics of commercial motives. Even the vermicompost producers do not use it in their farms because they earn money. They use naturally decomposed fertilizers in their farms. Bio-fertilizers contain nutrients; provide additional health and environmental benefits to crops, to the soil, and to the gardeners and farmers using them (Abhilash E. S., et al, 2014, p.26). By the use of vermicompost, the result in the plants is good but it is not under the reach of all the farmers. Compared to vermicompost, waste decomposer is about a hundred times cheaper, and it is under the reach of all professional and non-professional farmers for both personal and commercial usage. In most cases, the net returns were greater on the organic farms. Both studies showed that production costs were lower on the organic farms (Cacek, et al. 1986, pp. 25-26). Although there is no special suggestion of what sort of fertilizers are for organic farming, it is comparatively cheaper. Chemical fertilizers consume a lot of money. The waste decomposer is a blessing for the farmers because it increases their harvesting. It is said that organic farming is a superior system for managing soil-borne elements because of manure recycling and reduced soil erosion (Cacek, et al. 1986, p. 27). Doing organic farming has double the benefits of managing soil-borne elements as well as reducing soil erosion. The waste decomposer is used for manure recycling and decomposing the wastes of the garden like the leaves and small plants, even the stems of maize or so. The waste decomposer easily decomposes the garden wastes and makes them organic fertilizers just in 40 days. The cost of a waste decomposer is just 150 IC or it can be available free of cost. Organic farming, following the development of ecological thought generally, brought these strands together along with the larger environmental movement of which it is a part (Gregory, 2018, p. 21). The most revolutionary aspect of organic farming is a concern of environmental ecology.

Methods and Materials

This study is qualitative research. This research is a combination of empirical and data analysis. The researcher collected the data from Mahalaxmi-7, a ward unit of Mahalaxmi Municipality of Lalitpur, Nepal. He made a field visit to those places where the targeted population was there. He randomly interviewed them without a structured questionnaire. The information or a kind of primary data was collected from twenty-five households located in the Tikathali area of Mahalaxmi Municipality, Lalitpur District of Nepal. From them, only seventy per cent of farmers' information was

involved in the study for quality research. The collected data were analyzed and interpreted. This study used a descriptive survey method of research and a document analysis approach for the analysis of the research. Keywords like, waste decomposer, organic farming, farming and farmer, agriculture, and literature were used to find the relevant materials from libraries and websites.

Results and Discussion

This paper explores the overall benefits of organic farming and its consequences like generating employment opportunities and enhancing the small-scale industries in Nepal. The employment opportunity within the country promotes not only the individuals' income but also the nation's economy. The youths who are going abroad for foreign employment form a considerable number. Five lakh youths have taken the NOC for visa processing in seven months. The main objective of the study is to control this flow of outgoing youths from the country although all the youths will not stay in the country. This study may help brake the speed of overflow of the youths to foreign countries. India has promoted agricultural products as they were inspired by Israel. Israel has promoted agriculture and exported a lot of agricultural products to the world. So have America, Vietnam, Brazil, Indonesia and India. Nepal's economy will be enhanced if agricultural activities are aggressively accelerated. So, the study aims to reorient the farmers and encourage the youths, who are manual workers, to do organic farming using bio fertilizers and establish at least small-scale industries of organic products like rice mills and juice factories and so on. If Nepal is independent in such agricultural products, although it is nominal, the economy of the nation will be enhanced. But, the overall state of industrialization is still in its infantile stage. The industry which is regarded as the secondary sector of the economy contributes below 10 percent (Khatri, 2019, p. 131). Increasing this percentage is today's necessity and demand or challenge. Needless to say that chemical fertilizers deteriorate human health and soil productivity. The mainly noticeable health effects on humans are headaches, breathing problems, abdominal cramps, fatigue, and tingling by organophosphate (qtd in Bist & Saud, 2022, p. 126) because of pesticides in the plants. Pesticides are the chemical substances widely used to control insects and pests to protect crops, and vegetables for better yield, and long-term preservation (qtd in Bist & Saud, 2022, p. 126). But these products are chemically prepared and they have harmful effects on human health.

Despite these things, the waste decomposer has a multipurpose function. Enhancing organic farming might be the first preference but it has other waste management functions, too, like municipal solid waste management and farm waste management. One of the key causes of concern in developing countries is Municipal Solid Waste Management and Farm Waste Management (Gokul Kannan, 2020, p. 63). The waste decomposer can be used in the dumping site properly so that it reduces the foul odour or stinking smell around the surroundings so that the local people will not be irritated. In the piles of decomposing wastes, the waste decomposer has to be sprayed and it helps decompose the wastes fast and reduces the smell. The municipal solid non-decaying wastes might not be decomposed for organic fertilizers as farm wastes, but the stinking smells can be controlled anyway. This helps maintain sanitary purposes.

The study focuses on the use of waste decomposers by which not only the organic fertilizers are prepared but also the organic pesticides and vitamins are prepared simultaneously. The main concern of the study is to promote the organic farming system that is beneficial from a natural environment point of view. Another important benefit of organic farming to the environment is its lower emission of carbon dioxide (Nandwani, 2016, p. 3). The waste decomposer is available in the market at a nominal price (150 IC for 50 ml. and Rs 600 in the black market but it was only INR 20 in India). It is now in liquid form. It can also be availed from some individuals free of cost which is called mother culture. Once it is brought home it will always remain with the person. If one litre of mother culture or 50 ml. from the market is available, hundreds of litres of decomposer will be prepared soon. The preparation method is very easy. First, there should be one plastic drum of 200 litres, one kilogram of jaggery, the chemical-free sweet substance, made from sugarcane by pressing it in the machine, and one four feet long wooden stick. The plastic drum should be filled with hundred litres of plain water either directly from a well or tape but not chlorine-treated water in which there is chemical. The water should be chemical-free. And the jaggery is added to the drum in which there is one hundred litres of water. Then the jaggery mixed water is to be diluted or stirred by the wooden stick at least two times a day, regularly for seven days. The drum should be covered with a plastic lid or other plastics. It becomes mature after seven days and it is ready for use.

Now the farmer has to separate one litre of mother culture for future use. He can prepare another hundred litres from this one litre, immediately or after some days. He has to mix this prepared decomposer solution with the ratio of one litre of this solution

in five litres of plain water. Or he can mix these 99 litres of prepared decomposer solution in about four hundred litres of water. (99x5=945). This is the maximum limit but if it is used in a one-litre solution to one-litre water, it is okay. It does harm the young plants if the ratio of water is otherwise. Then it has to be sprayed on the plants appropriately. This process should be conducted once a week or three times a month in the morning and evening time.

Its use is not limited to this. It is used in the soil directly for controlling harmful bacteria. The infinite horizon of waste decomposers enhances the organic farming system. Its implacability is very wide. In India, [t]he states government passed an organic farming policy in 2010, which led to the ban of several pesticides in the state (Thottathil, 2014, p. 38). For controlling pests and insects, several pesticides have come on the market, and the farmers use them without a doctor's prescription. This controls the pests and insects but it harms the human health. The use of waste decomposers makes the soil harmful bacteria free or healthy. It contains millions of bacteria that are totally in favour of good results. This controls other harmful bacteria and protects the plants from different fungal diseases. This also protects the soil. Now the discussion goes on to the ways of use of waste decomposers.

Usages of Waste Decomposer

The use of this solution helps promote agricultural harvesting as it is the way of organic farming. Organic farming performs better than conventional farming in respect to floral and faunal diversity (Stolze, 2000, Intro. p. II). The study describes some ways of usages of waste decomposers. There are several ways presented here for clarification. The use of waste decomposers is organic composting. The animal manure or dungs, garden waste materials and kitchen wastages are to be piled in one place. Some leaves and stems of plants or shrubs can be added to the pile layer by layer, and the solution is sprayed over it. From these waste materials, the compost fertilizers are prepared in about six months naturally, but the waste decomposer solution decomposes them just in forty days or so. The quantity is 50ml decomposer solution or one litre of mother culture for one hundred litres of water. It multiplies proportionately when increased the quantity of composting raw materials. With this solution, it is better to add some cereal flour to it. And this solution is sprayed once a week on the pile of waste and it decomposes the waste materials shortly. Many governments that long ignored organic farming now offer farmers subsidies for producing organically (Lockeretz, 2007, p. 3). Many governments do this for the sake of human health. Thus,

the waste decomposer promotes organic farming, the farmer's income level, and the economy of the state by making the waste best. This will promote agriculture, horticulture, culture and literature. The human minds are to be washed by a vast river of literature for changes. This is the only literature which can change human thoughts. Literature can teach society through stories, fables, poems, novels and plays effectively. For this, organic food is necessary. For producing organic food, organic farming must be promoted. And for organic farming, waste decomposer is only the best way for organic composting. No chemical fertilizers can challenge organic composting. Another reason to try organic composting is to help improve soil health and reduce erosion, especially if you have a large-scale agricultural system or a garden. Organic compost contains nitrogen, phosphorus, and potassium–three essential nutrients that garden crops need an abundance of to thrive (Rosser, 2021, n. p). This suggests that the home garden should be organic as well as other fields of paddy, maize, and wheat.

This waste decomposer solution also treats the seeds before they are sown in the field for germination. This treats the land as well. The breeding seeds are always well-selected but they can be attacked by pests, insects and other bacteria. If this solution is applied to the seeds before sowing, the harmful bacteria are controlled and sprouting becomes healthy. If the sprouts are healthy, the plant will be healthy. And healthy plants may bear good fruits or harvesting. Likewise, this solution can be used for preparing pesticides. Several chemical pesticides affect human health. So, organic pesticides can be prepared from waste decomposers. To prepare the organic pesticides, neem leaves, tobacco leaves, hashish leaves and some other plants, which generally animals do not eat, are good raw materials for pesticides. They are to be crushed in the mortar and dipped in the five litres of waste decomposer solution for 10 days. After that, the prepared pesticides should be filtered in the cotton clothes and the organic pesticide will be ready for use. With the help of a spray machine, this solution is to be sprayed on the plants that are attacked by the pests. This is the best way of treatment for organic farming as "organic farming is best defined by its principal ideological background based on the concept of the farm as an organism in which all components - soil, plant and animals - interact to maintain a stable whole" (15). Organic farming conserves these three components like soil, plant and animals.

This solution can also be used for making vitamins for fully chemical-free plants. First, it is necessary to collect 200 gm iron nails, 100 gm copper, and zinc, and two pieces of run-out used batteries of pen torch light and they should be dipped in this

5 litres of solution for 7 days. Now the liquid should be separated from those ingredients which were mixed. This solution is an effective vitamin for plants. Like the way of pesticide spray, this vitamin solution is also to be sprayed on the plants. The change or growth of the plants is remarkably seen after four days or five. The plants start growing in a better way.

This solution can be fed to the animals and hens, too. For the buffalo, about 200ml is sufficient for one time. It should be given once a day by mixing in the grass or water. The result is remarkable. The experienced farmer claims that the animals give 10% more milk after they are fed this solution. The result is seen after 40 days. The milk-giving animals are to be bathed with this solution by mixing it with water in ¼ ratio twice or thrice a week. This controls the flies and mosquitos. If the cows are not irritated by the flies, they will eat the grass freely without tension and rest in a relaxed mood. This also helps the growth of milk. This solution mixed with water can be used to spray in the cow and buffalo sheds, and in the hen's coops, this reduces the bad smells and controls other harmful bacteria. If it is fed to the hens, it will entice their appetite. It can be a kind of appetizer for both animals and birds. If they eat more, they give more products. It can be eaten by man as well. Bimal Kumar Bhattarai of Tangal Bhagawati, Kathmandu claims that it cured the psoriasis in the hand.

This product is used for multiplying the humic acid and amino acid that is very useful for plants and soil. The dried cow dung that is about a year old becomes like a cake. This is prepared by putting them in the shed for a year. This becomes appropriate for making the humic acid or amino acid. This one-year-old dried cow dung is dipped in ten litres of the waste decomposer for seven days. Now the liquid which turns dark yellow makes the soil soft and productive. The prepared humic acid is multiplied three times more by adding the water and waste decomposer solution in a ratio of fifty-fifty. This prepared solution has to be sprayed on the plants and the soil. The power of humic acid will not be reduced though the quantity is increased. This is because of the waste decomposer solution. These are the major uses of waste decomposers. There are many more uses for it. So, it is a blessing for the farmers. Every farmer has to keep it and use it all the time. The websites and YouTube videos help them with extra information about the uses of waste decomposers.

Conclusion

The study was carried out for enhancing organic farming in Nepal. Most farmers were using the conventional methods of farming. This paper was about modern

organic farming. This research targeted the Nepali farmers who are doing their best but their results are not as they expected. This study was to enhance their economic condition. Agriculture is the first and most beneficial occupation in Nepal. It is the backbone of the nation's economy. India seems to have been independent in many agricultural products because of the use of waste decomposers. This makes the size of fruits and corn bigger and looks shiny and fresh. This paper focused on organic farming which enhances organic agricultural products. Organic products always have markets because of their nutrient quality. The study also bridges agriculture and literature. Agriculture is the source of literature and culture. Good food nurtures a good mind, and a good mind produces good literature. The different forms of literature like a poem, play, story and novel teach society. The nutrient food and nutrient mind are always unquestionable. Thus, nature, culture, literature, agriculture and horticulture are relative things.

The use of waste decomposers increases the size of agricultural products and changes their looks. Not only the appearance but also the content that is good nutrients according to lab test results while it experimented. So, this solution can enhance Nepal's independence, too, at least in some agricultural products, either potatoes or so. The use of waste decomposers has been widely practiced in India so it has enhanced their agricultural products remarkably. Some scholars claim that it was practiced in Japan before and India copied this but there is no such proof. This paper was not concerned with the history but it was concerned with its performance and farmer's benefits and public income that help foster the national economy. Its use is in the infantile stage yet. The waste decomposer has multipurpose functions but it has not been well promoted yet in Nepal. The Nepal government especially, the agriculture research centre, Khumaltar, should initiate it to make its use nationwide. One of the officials, something Dr. Bla-blah went to visit Bimal Kumar Bhattarai, who has been distributing the mother culture of waste decomposers freely, and talked to him. The majority of farmers have not applied this due to a lack of knowledge. The waste is best but the general farmers do not try to understand this. This waste decomposer solution spray is good yeast for decomposing kitchen, garden, farming and industrial decaying wastes in forty days, whereas the natural process takes about six months. It is a kind of fast track of decomposing the wastes into organic fertilizers. It is not only the fast track of decomposing the wastes it is also a fast track of making the farmers prosperous. This is the age of organic products and health awareness. In addition to this, *nano* urea has

also been in use these days. Its cost is also nominal in the comparison of chemical urea but function is same. Or this *nano* urea is also organic but it does not concern to the waste decomposer. It is a matter of great concern for the modern people. So, organic products have big markets.

The use of waste decomposers is not only to decompose the wastes, cow dung, and kitchen wastes, making pesticides and vitamins, but it also has multi-functions to make vitamins and pesticides. This study might encourage Kathmandu Metropolitan City to manage the waste best. There has not been a deep study on this solution, and this study has not fully covered all the details of its benefits. Hundreds of PhD theses can be written in this area. By reading this article, some scholars in the field of agriculture and environmental ecology can initiate the research. Many farmers will be benefitted from this knowledge. This article will be a source of knowledge for those farmers who are willing to enhance their income level from organic farming. This article means to say, ‘do the thing differently in a smart way so that the result is different that is always positive. This method of farming might be a good brake for the over-chemical aggression in many fields. The practice is chemical free. It will be helpful to reduce global warming if all the plants become healthy as it helps maintain the greenery for producing sufficient oxygen. If the world is ready to use this solution massively, they will have to extend sugarcane farming for producing the jaggery. The world has been fed up with chemicals and its effects are innumerable. The human health issue is a matter of great concern. Use this waste decomposer more, this will enhance you more.

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