



Harvesting Prosperity: The Hidden Value of Agricultural Waste

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Abstract

Agriculture sustains the population by supplying food, generates revenue for farmers, and supplies essential resources for industry. However, in addition to these factors, the negative aspect of agriculture stems from the inadequate handling of its leftover material, which has a detrimental effect on the environment. It contributes to different forms of environmental pollution such as soil degradation, air pollution, and water pollution. One of the main causes of pollution in countries like India is the large amount of agricultural waste, which amounts to 350 million tons. As a solution, the idea of converting agricultural waste into a valuable resource has emerged, aiming to safely utilize these waste materials and generate income from them. There might be other factors contributing to the inadequate handling of agricultural waste, such as: a) The lack of literacy among farmers. b) Farmers who are slow in progress. c). The affluent farmer's lack of interest. Insufficient time to effectively use these agricultural goods e). Utilizing agricultural waste just as firewood instead of harnessing it in its most productive form, among other possibilities. In order to transform agricultural waste into a valuable resource, comprehensive changes must be implemented. This includes promoting innovative methods for utilizing agricultural waste and shifting the mindset of farmers to embrace the safe and profitable utilization of such waste.

Introduction

Agricultural rubbish Waste from agriculture is not the same as rubbish from a garbage can. Those are the byproducts that may be used for a variety of purposes. When it comes to the management of agricultural waste, the most essential thing is to take an innovative approach to the effective exploitation of this agricultural waste.

Some of the useful ideas are as follows,

- ✓ The fibrous roots of several crops and plants, such as coconut and arecanut, can be used as padding material in the production of couches, beds, and pillows.
- ✓ In the summer season, one may enhance the cooling effect of an air cooler by attaching paddy straw, wheat straw, or pigeon pea stalks to it and moistening them with water. This will help bring cooler air into the room.
- ✓ Rose blossoms are often used to adorn homes and temples during festivals. After the pooja, you may employ these rose petals to create gulukand.
- ✓ The discarded outer peel of different fruit crops such as lemon, mandarin, and orange may be used for extracting citric acid after removing the pulp. This citric acid can be employed as a fuel source for lamps. Additionally, the waste outer covering of pineapple can be utilized to produce alcohol in a domestic setting.

- ✓ Fruit crops such as bananas have several uses beyond just the fruit. The fibers from the stem may be used to make rope, the leaves can serve as plates, and the stem can be used for decorative purposes in the house. Similarly, in the case of arecanut, the covering of the blossom can be used to make plates, hats, and other items.
- ✓ One can create mosquito repellent paper by utilizing dried neem leaves. The primary method involves compressing and crushing the old newspaper, followed by the addition of neem leaf powder. The resulting paste is then spread onto a flat surface and allowed to dry until all moisture has evaporated, resulting in a paper that may be used as a mosquito repellent.
- ✓ The side wall of a sericulture unit may be constructed using sunflower and pigeon pea stem stalks. Spraying water over these stalks helps to maintain the relative humidity (R.H.) within the unit, which is beneficial for the production of silk worms.
- ✓ Paddy straw, wheat straw, maize, and sorghum broken grains may serve as suitable substrates for cultivating Button mushrooms, Oyster mushrooms, and Paddy straw mushrooms. These mushrooms have a strong presence in the market and provide lucrative revenue opportunities.
- ✓ Stems of different crops may serve as a mulching material, enhancing the retention of soil moisture and reducing excessive water loss caused by evaporation.
- ✓ Green manure crops such as Sunnhemp and other leguminous crops provide 40-60kg of nitrogen per hectare after decomposition. This decreases the need for additional nitrogen fertilizer and helps maintain soil fertility.
- ✓ Coconut fiber may serve as a cost-effective alternative to traditional scrub brushes for cleaning equipment.
- ✓ Pigeon pea stems may serve as organic matter for decomposition in the creation of Vermicompost, which can be commercially sold at a significant price.
- ✓ Maize cob fibers are highly significant for various cottage industries, the handicraft sector, and the textile industry, despite being commonly regarded as waste.
- ✓ Ragi straw or paddy straw is used to provide a protective covering for glass utensils, safeguarding them from scratches. Additionally, these straws are employed for packaging fruits, effectively shielding them from any damage and preserving their quality.
- ✓ The coconut shell may be used to create bowls and beautiful motifs for house decoration.
- ✓ The residual product obtained after extracting oil from groundnut and soybean seeds may be used to make biscuits. Kurkures and fish meal.

Animal Husbandry Waste

Animal husbandry is a component of agriculture. India has a substantial livestock population of around 529.7 million, consisting of cattle (205 million), buffalo (85 million), poultry, sheep, goats, and other animals. The goods derived from these livestock, such as meat, milk, skin, and wool, contribute significantly to the Indian economy. The survival, growth, and development of these livestock need a substantial amount of feed. Agricultural waste, the residual byproducts of food crops, may serve as a nutrient-dense feed for animals.

- ✓ Utilizing different types of crop bran as feed for cattle and poultry might help minimize additional costs for feed and generate substantial money from poultry farming.
- ✓ Silage may be produced by using the residual elements of crops, which undergo fermentation and are then kept with high moisture content. Stalk-derived briquettes
Coconut fiber scrub may serve as a valuable source of offseason fodder for cattle, sheep, and other ruminant animals. This is an effective method of repurposing agricultural waste into useable feed during non-growing seasons.
- ✓ Wheat bran and straw powder may be marketed as Bhusa in the market, at a premium price.

- ✓ The cattle and buffalo consume certain types of weeds, including *Cynadon dactylon* and *Cyperus rotundus*. Instead of manually removing these weeds or using pesticides, they may be effectively managed by allowing animals to graze in the weed area. This approach not only saves expenditures on weeding operations but also helps preserve soil fertility.
- ✓ Waste bran may serve as a substitute for sand as a ground material in chicken houses. It is particularly valuable due to its ability to retain water. When mixed with excreta, it functions as compost, which can be disposed of in fields to enhance the nutritional content of the soil.
- ✓ In addition to the primary product of livestock, the excreta of livestock have significant value. They can be utilized for various purposes such as cow dung cake preparation, composting, biogas production, vibhuti making, and cattle urine can serve as a nitrogen source in the field. These sources can generate substantial income, highlighting the fact that agricultural waste is indeed a valuable asset.
- ✓ Once the animals are killed, their skin, known as leather, may be used to create various items including as belts, bags, wallets, and jackets. Additionally, the bones can be employed in the production of toothpaste and several cosmetic goods.

Technology Intervention

Technological intervention is essential for effectively managing agricultural waste by facilitating the transformation of waste into a useable form, hence enhancing its ease and efficiency of utilization. The use of processed agricultural waste also results in greater profits. Some of the examples where technological intervention can make the agricultural waste easily manageable are,

- ✓ Stalks of various crops can be chopped and briquetting it by Briquetting Machine and these briquettes can be marketed where you get huge prize for your waste agricultural products and this Briquette emits less pollution on burning compared to direct burning of waste.
- ✓ Rice husk which has huge ash content of (20-25%) and also high content of silica in it which can also be used in constructions of road which has stabilizing property by technological application but instead farmer usually burn it for heat or dumped it as waste.
- ✓ Extraction of Bioactive Phytochemicals from the waste stalks of various crops like sugarcane, tobacco etc. through technological application.
- ✓ After extraction of oil from rice bran, the bran is used in stream preparation which plays a very important role in parboiling of rice.
- ✓ Using the Paper Making machine it would be very easy in conversion of the waste raw material into useful papers which has multiuse.
- ✓ Nowadays plastic is most important pollutant which harms the nature hence it is most important for us not to use plastic bag instead we can use the Eco – friendly bags which are made from the wheat straw which is biodegradable.
- ✓ One of the byproducts of sugarcane industry is Bagasse which is mainly used as burning fuel in the industries but instead of that it can be used in the paper industry where by using this you can produce very good quality paper. and most important is stops the activity of cutting trees for producing papers.

Technological intervention may significantly contribute to the efficient use of agricultural waste, resulting in optimum profitability. Enrichment Activities First and foremost, it is crucial for us to comprehend how to alter the mindset of each person and farmer in order to embrace safe agricultural techniques. This should be accompanied by a business concept that transforms agricultural waste into a profitable venture, all while maintaining a sustainable

objective. The significance of motivation in relation to agricultural waste management cannot be overstated. To achieve this, the following procedures should be implemented:

- ✓ Proper counseling to the farmers by extensional persons and innovative farmer to encourage them to adopt safe agricultural practices and innovative skills by which they make the unusable things to useable form.
- ✓ Result demonstration of agricultural waste management techniques should be done at rural field level to show the village individuals about the techniques and to motivate them adopt it easily.
- ✓ Demonstration of income generation practices from the agricultural waste by methods like Composting, Briquettes making, Card board making, Paper making.
- ✓ Showing a right platform for the farmer for marketing of their modified agricultural waste where they get real prize for their products.
- ✓ Starting the small-scale industries which depend on agricultural waste as raw material in the rural area where both industries and farmer are benefited because industries get their raw material easily and farmer can sell their agricultural waste to industries and also farmers can get job opportunity in off season Ex: Plywood making factory, Briquettes making factory which play role in converting the agricultural waste into useful wealth.
- ✓ As much of the farmer purchase the necessary inputs from the Raitha Samparaka Kendra so motivation activities should be done at that place, regarding the waste management and getting profit from the waste, for example demonstrating individual regarding compost preparation using the agricultural waste and getting income.

Conclusion

Therefore, it is crucial to ensure the safe utilization of agricultural waste, transforming it into valuable resources rather than utilizing it improperly and turning it into a hazardous substance for the environment. The paramount importance is in achieving sustainability via the eco-friendly utilization of agricultural waste. Consequently, it is essential to enhance knowledge and foster interest among farmers about the safe utilization of agricultural waste.

References

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