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A Case Report on Cow Dung Composting: Traditional Practice Followed By Women in Rural Areas of Jammu & Kashmir for Maintaining Agroecology

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Introduction

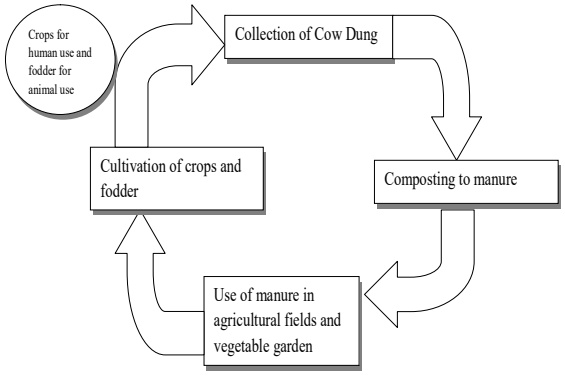
Ranbir Singh Pura (also known as R.S. Pura) is a small town in Jammu District of State Jammu and Kashmir of Indian Union. The area is well known for the production of quality Basmati Rice which is famous all over the world. The rice produce had given a unique place to R.S. Pura in the world market. Not only Basmati Rice, the area is well known for its livestock wealth and the animal husbandry practices followed by the people here. Both agricultural i.e. Basmati Rice and animal produce i.e. milk and milk products has led to the economic stability and prosperity among farmers in the region.

One among these farmers is Balwinder Kour, a woman farmer from village Kotli Shah Doula of Taluq R.S. Pura. Hardly able to read and write, a middle class woman but highly thoughtful and possess a sense of deep analysis and understanding. She had set an example among farmers of her area by creating her own cycle of practices which include both agricultural and animal husbandry practices. This particular cycle of events which she undertakes had helped her to bring about a profitable farming along with maintenance of agro-ecology.

Thoughtful cycle of practices

Crops for human use and fodder for animal use

The cycle starts from the collection of cow dung from the cattle she owns. The cow dung then is accumulated at a particular place in the form of heaps for a particular period of time to convert it into compost manure. Further the manure so formed after composting is used by her in her agricultural land and also in her vegetable garden. The cycle of events followed by her is shown in the following cycle:



Cycle of practices followed by Balwinder Kour and in rural areas for maintaining agro-ecology

Cattle: a manure factory

Balwinder Kour collects cow dung twice a day. The cow she owns on an average voids 8 kilograms of dung per day, which amounts to 2920 Kg cow dung per year. The manure yield after composting the same dung will be 1400 Kg (approx.) manure which is sufficient to be used as a natural fertilizer for 1.5 acre of agricultural land she possess for taking two cropping per year.

Merits of cow dung manure

Balwinder Kour advocates the use of cow dung manure over the chemical fertilizers. Although she have very less qualifications, still she is intelligent enough to analyze the merits of cow dung manure on her own and firmly believes that its use is beneficial for soil and ecology. She does not know the scientific basis of her statement but her statement holds true in

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every aspect. She is master in the practices of agricultural production and is possessing up to date knowledge of agricultural and animal husbandry practices.

Balwinder Kour does not uses chemical fertilizers in her land and when we asked her about the reason, she answered that it depletes the soil of its essential nutrients and the age of the soil decreases. She told us that to maintain the natural health of the soil, one should only use cow dung manure as it is a product given by nature and natural things do not have any side-effects. She further told us that the cow dung manure increases the health of the soil and the crops so yielded from the soil is healthy to be consumed both for humans and animals.

Scientific validation of use of cow dung manure over chemical fertilizers for maintaining agro-ecology

Cow dung consists of 3% nitrogen, 2% phosphorous and 1% potassium (NPK 3-2-1) which is sufficient for crop growth and grain production. The compost manure also removes harmful ammonia gas from the soil and pathogens like *Escherichia coli.* It also eliminates weeds from the soil and add significant amount of organic matter to soil. It also increases moisture holding capacity of soil which enable farmer to water crops less frequently. Compost manure improves aeration and helps in breaking up soil. There are some beneficial bacteria in cow dung manure which have tendency to convert nutrients into easily accessible forms. Although Balwinder Kour does not know all the above listed benefits of the cow dung manure but her statement that cow dung manure maintain the overall health of soil and crops grown in it scientifically holds true and it is a major boost for maintenance of agro-ecology.

On the other hand if we look at the disadvantages of chemical fertilizers, we know that they increase pH of soil, kill the bacteria favorable for soil, they induce many health hazards to humans like hypersensitivity reactions, reduce quality of produce, accumulation of toxic residues in vegetables, fruits, leaves, flowers. In addition to these, they accelerate process of soil erosion, release green house gas i.e. nitrous oxide, plants loses its insect and pest control ability and becomes susceptible to many sort of diseases, and ultimately these chemical fertilizers degrade agro-ecology and hence ecosystem.

Thus, the use of cow dung manure by Balwinder Kour in her fields and vegetable garden is justifiable and advisable for other farmers too.

When asked about any training she took for farming, she told us that as such she never undertook any training for agricultural and animal husbandry practices but she occasionally visit the camps organized by the Department of Agriculture, Government of Jammu and Kashmir and Sher-E-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-J) near her village.

When asked about the technique of making compost manure, she told us that it is an age old process and is followed in rural areas from a very long time. She had learnt its use from her mother and in rural areas of J&K it is a traditional practice. From the last 20 years she is using compost cow dung manure for her agricultural and vegetable produce.

Crop-rotations: a boon for agro-ecology

Balwinder Kour not only uses cow dung manure for increasing health of soil and maintenance of agro-ecology, she also has one more technique for the same i.e. crop rotations. In between the crops of wheat and rice, she cultivate a crop of Berseem (*Trifolium alexandrium*), a leguminous fodder crop. Leguminous fodder plants fix the atmospheric nitrogen and hence increase the fertility of soil which helps in increasing the yield of next crop sown in the same soil. So, the intelligent crop rotations done by her also maintain the agro-ecology. The fodder so cultivated is fed to the cow she own for taking milk and dung, which completes the vicious cycle of practices.

A heap of cow dung for composting into cow dung manure

A basket full of compost cow dung manure for application in fields and in vegetable garden

Cultivation of Basmati Rice at R.S. Pura by using cow dung compost as a source of fertilizer

Balwinder Kour, woman farmer using cow dung compost at her vegetable garden

The low cost input i.e. cow dung compost in use for cultivation of chemical free vegetables and maintenance of agro-ecology

Conclusion

India being an agricultural nation can make of use of this low input resource like use cow dung manure for increasing the agricultural production. The women play an important role in agricultural and animal husbandry practices as they are the ones who spent most of the time in their agricultural lands and with their animals. Just by replicating this small model which comprise of a cow and agriculture land, we can cut short expenses on chemical fertilizers and economize agriculture production thereby increasing the profit margin of our farmers. The women serves as the strongest link in maintaining the agro-ecology as they are the ones who are very closely related to agricultural ecosystem and just by taking a small step towards constructive efforts integrating agriculture and animal husbandry, they can take a big leap in maintenance of agro-ecology.