

Avoiding Farm Yard Manure in Food Production in Uttar Pradesh

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Abstract

Organic farming is influenced by availability and application of organic manure into soil. Cheap and easily available organic manure is farm yard manure in rural areas. Availability of farm yard manure is depends upon the status of domestic farm animals in the households. Now-a-days farm animals are decreasing because of change in life style and lack of interest among youth in agricultural work, low profit from animals. This paper indicates that low availability of compost and labour shortage in agriculture influenced composting into soil, on other hand use of chemical fertilizer increasing because of introduction of high yielding varieties. There were 400 farmers interviewed in ten districts of Uttar Pradesh during July to November, 2016. There were five categories of respondents selected purposely. These are large, medium, small, marginal and agricultural labour-cum-cultivator. Most of the farmers have stopped composting soil, and if they composted not in sufficient quantity on regular basis. The reasons for not composting soil were non availability of compost and no labour for application of compost into soil. The farmers who are applying compost into soil, have sufficient family labours and have domestic animals.

Key words: Compost, labour shortage, and productivity of land

Introduction

In scenario of WTO, food quality assurance is the matter of concern in international agriculture market. Food availability in terms of quantity is not enough without quality food in the country. India has sufficient quantity of grains for feeding its citizen, but are these grains healthy and rich in nutrient? Quality food can be obtained by using of organic manure and less use of chemical fertilizers in the crops. The shelf-life of agricultural products from organic farming is more than non-organic farming (Prasad and Saini, 2010). Organic manures like farm yard manures or green manures should be applied before sowing (Shivay, 2013). Farm yard manure is the cheap and easily available organic manure in the rural areas. Organic manure retains water into soils for longer duration. Composting into soil depends upon the availability of animal excreta in the household and availability of human labour for loading, de-loading and spreading and mixing of it into soil. Keep in mind that compost is necessary for production of quality food under organic farming; it has planned this study to know the status of composting among the farmers in Uttar

Pradesh largest populated state of India.

Methodology

There were 400 respondents have been selected purposely by snowball sampling. These are marginal, small, medium, large farmers and agriculture labour-cum-cultivator. They were interviewed during July to November, 2016 in ten districts of UP. These districts are Mahoba, Hamirpur, Etawa, Auraya, Kanpur Dehat, Lucknow, Deoria, Sonebhadra, Baghpat and Noida (GB Nagar). Two types of households have selected in each village i.e., migrant household (MH) and Non migrant Household (NMH). That is why; two villages from each district have been selected keep in mind of distance from main town purposely. Qualitative data has been collected through focus group discussion. Questions were how much, when and for what they using compost and why not using or why have stopped composting.

Results and Discussion

Now compost application into soil decreased and most of the farmers were not aware about the recommended quantity of compost. Some of them

reported that they have piles of compost but loading on a cart/ trolley and de-loading and spreading in the field, is very hard work. In case of some farmers, composting of field has not been done in the last 2-4 years and in some other cases in the last 10 years. The farmers have ready to pay higher wage for this work, but labours were not interested to work. In this way, the compost application was affected due to labour shortage. About 8.3 per cent (30/360) of the households have stopped composting (Table 1).

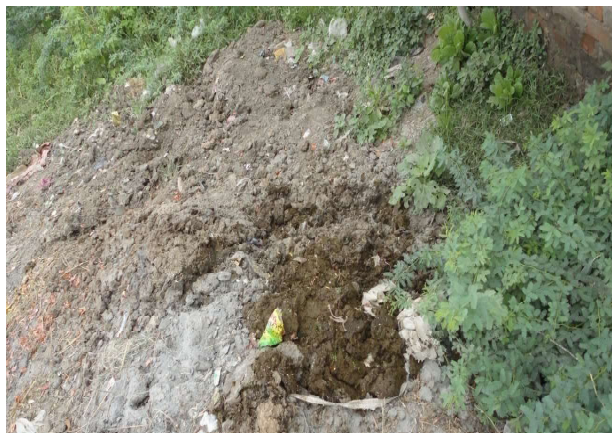
Table 1: Compost and Fertilizer Use into Soil by households

Item	Per cent
1 Status of composting	
Stopped	8.3
Regular	66.4
Not sufficient	19.2
Not regular	6.1
Total (N)	400
2 Reasons for stopping	
No availability of labour	41.9
No availability of compost	58.1
Total (N)	130
3 Increased quantity of fertilizer now	
No	24.7
Yes	75.3
Total (N)	400
4 Reason for Increasing fertilizer	
No response	11.1
Due to hybrid seed and irrigation	80.3
To increase yield	8.6
Total (N)	271

Scientifically compost is the main source of plant nutrients. According to agronomists and soil scientists, in one hectare of land about 1.5 to 2 cart loads (about one tonne/ha) of compost should be applied per year to maintain soil health. The quantity of compost varies from crop to crop, nature of land (irrigated and un-irrigated) and depends on the characteristics of soil. The compost is prepared from wastes of all kinds of farmhouse and cattle shed supplies of organic material. Though all of them were aware of the importance of compost, most of them were not aware about the recommended quantity of compost required for a specific crop. For example cereal and vegetable crops require more quantity of compost than pulse crops. And similarly, light soils (sandy soil) require higher quantity of compost than heavy soils (black soil). However, none of them have tested the soil in their field in a soil science laboratory

for nutrient status. The quantity of compost varies from crop to crop, nature of land (irrigated and un-irrigated) and depends on the characteristics of soil. The compost is prepared from wastes of all kinds of farmhouse and cattle shed supplies of organic material. Though all of them were aware of the importance of compost, most of them were not aware about the recommended quantity of compost required for a specific crop. However, none of them have tested the soil in their field in a soil science laboratory for nutrient status. There are 17 plant nutrient elements required and specific fertilizer is available for each element. Farmers were not aware about all plant nutrient elements. Majority of the households (90%) have applied compost into soil. About 19% of them have used compost, but not on a regular basis. Farmers are not applying compost into soil in most of the districts. Some of them have used compost but not on a regular basis or every year. There were 66% of the households that have used compost regularly in a sufficient amount. Actually farmers use compost into soil during the month of June and July or before monsoon every year. There were 74% of the large farmers and 63% each of small and medium farmers have used compost regularly. It has been also observed that they have used compost, not in entire area of their land, but have used in selected areas or part of their landholdings in a year. It may be due to the non-availability of the compost. Most of them have used compost in irrigated land or in cultivation of vegetable crops. Picture 1 clearly indicates that farmers have not used compost due to lack of labour even they have compost.

The farmers have stopped composting in the soil because of either non-availability of labour or non-availability of compost or both. We have seen during the survey, the heaps of the compost which were resting in front of farmers' homes or farm houses. Non-availability of compost was due to non-availability of domestic farm animals or the use of animal excreta for fuel for cooking, which is the main source of energy for cooking in the rural areas. "The production of rural compost (million tonne) increased over the years from 252 in 1987 to 280 in 1991-92 and then declined to 226 in 1995-96, 134 in 1998-99 and 129 in 2004-05 may be due to its burning and diversion as animal feed and some industrial use as source of fuel/energy (Handbook of Agriculture, 2009, p.529). Agricultural labour were also not interested in loading, transporting and de-loading the compost, even though they were searching for jobs and ready to pay/offered high wage



Picture 1: Compost (Gobar Khad) lying at the farm house of a farmer

rate. Some of them agree to loading or de-loading but at a two times higher wage rate. Table 2 shows that 58 per cent of the farmers have not used compost due to unavailability of compost and 42 per cent of them have not used the same because of the labour shortage. These problems were more common among the large and medium farmers in both the districts. Most of the households have stopped using of compost due to

Table 2: Compost and fertilizer Use into Soil by type of farmers

Item	Type of Farmers			Total
	Small*	Medium	Large	
1. Status of composting into soil				
Stopped	8.9	9.7	6.2	8.3
Regular	63.4	62.9	73.5	66.4
Not sufficient	23.6	21.0	12.4	19.2
Not regular	4.1	6.5	8.0	6.1
Total (N)	133	134	123	400
2. Reasons for stop				
No availability of labour	39.0	41.9	41.6	41.9
No availability of compost	61.0	58.1	58.4	58.1
Total (N)	31	52	37	130
3. Increased Quantity of Fertilizer now				
No effect	5.7	4.0	0.0	3.3
Yes	81.3	74.2	69.9	75.3
but not more	13.0	21.8	30.1	21.4
Total (N)	133	134	123	400
4. Reason for Increasing fertilizer				
No response	11.4	8.1	14.2	11.1
Due to hybrid seed and irrigation	88.6	76.6	75.2	80.3
To increase yield	0.0	15.3	10.6	8.6
Total (N)	126	129	123	378

*including labour, marginal and small farmers

unavailability of compost and rest have stopped it because of labour shortage, 54 per cent of the households have stopped composting due to labour shortage. We have not shown the relationship between availability of animals and supply of compost, but both certainly have a positive relationship.

Other sources of nutrients for crops are chemical fertilizers. Farmers have increased the quantity of fertilizers into soil because of introduction of high yielding varieties. Some of them have increased quantity of fertilizers because they wanted more production from a small area of land. All the farmers have applied fertilizers for cereal crops but none of them have applied fertilizers for pulse crops. Pulse crops were thus growing under rain-fed conditions and farmers were not using fertilizers. One can expect that small and medium farmers are trying to get maximum profit/yield per unit of land through intensive cultivation and use of high yielding varieties (HYVs). Table 2 clearly indicates that 81% of the marginal and small farmers and 74% of the medium farmers have increased the quantity of fertilizers because of introduction of hybrid seeds and increase in irrigation land. Some of them have interestingly replied that they now use fertilizers in a single dose whereas they were earlier applying the same into two split doses after irrigation, the reason being labour shortage. The farmers do not have compost even when they have three and or more animals. The reason of this may be that they have used dung cakes as cooking fuel. Another reason for unavailability of compost in rural areas is anaerobic animals (care free animals), these animals are roaming here and there and no chance of collecting dung and heaping of it.

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