E-ISSN: 2618-0618
P-ISSN: 2618-060X

www.agronomyjournals.com
2024; SP-7(12): 77-79
Received: 19-08-2024
Accepted: 26-09-2024

B Bhanu Kiran Reddy
Department of Soil Science and Agricultural Chemistry, Agricultural College, PJTSAU, Polasa, Jagtial, Telangana, India

K Chandrashaker
Department of Soil Science and Agricultural Chemistry, Agricultural College, PJTSAU, Polasa, Jagtial, Telangana, India

B Raju
Department of Soil Science and Agricultural Chemistry, Agricultural College, PJTSAU, Polasa, Jagtial, Telangana, India

KB Suneetha Devi
Department of Soil Science and Agricultural Chemistry, Agricultural College, PJTSAU, Polasa, Jagtial, Telangana, India

Corresponding Author:
B Bhanu Kiran Reddy
Department of Soil Science and Agricultural Chemistry, Agricultural College, PJTSAU, Polasa, Jagtial, Telangana, India

Survey on farmers preferences and awareness on crop residue management in Jagtial district of Telangana

B Bhanu Kiran Reddy, K Chandrashaker, B Raju and KB Suneetha Devi

DOI: https://doi.org/10.33545/2618060X.2024.v7.i12Sb.2107

Abstract
Agricultural crop residues are generated in large quantities and constitute an abundant but under utilized source of renewable biomass in agriculture. The amount of crop residues available in India is estimated to be approximately 500 million tons (Bhuvaneshwari *et al.*, 2019). With a representative survey we examined what practice the farmers of Jagtial Mandal, Jagtial Dist. of Telangana State are following for crop residue management, their view on how to manage crop residue and their awareness about decomposers and composting methods. The results indicated that "burning of crop residues" ranked first among with a Garette's score of 70.86. But as per the view of the farmer "incorporation of crop residues" ranked first among crop residue management practices followed by farmers with a Garette's score of 67.25. Survey results also reported that 53 percent of farm respondents were unaware about composting methods and use of decomposers for crop residue decomposition and 47 percentage were aware about decomposers and composting methods.

Keywords: Crop residue management, agricultural biomass, crop residue burning

1. Introduction
Soil is one of the most precious natural resources of the earth and maintenance of its health is the moral responsibility of mankind. However, the higher quantity of production of food, fuel and feed is causing an irreplaceable damage to its environment. Use of organic wastes as soil amendment may hold a good promise for improving the soil health, crop productivity and reduce the waste disposal problem. Paddy straw is one of the waste organic products whose huge quantity needs some valuable disposal solution (Gaind and Nain, 2007) [4]. Burning of crop residues causes nutrients loss in soil and affects human health by polluting air, water and environment. The burning results in huge losses of carbon (almost 100 percentage), N (up to 80percentage), P (25 percentage), K (21 percentage) and S (50-60 percentage), thereby depriving the soils of its organic matter (Mandal *et al.*, 2004) [6]. Burning of residues resulted in loss of soil organic matter, which is a visible threat in sustaining the crop productivity. The burning of agricultural residues leads to significant emission of chemical and radiative gases, particulate matter and harmful air pollutants. So, to know about the practices, views and problems faced by farmers in crop residue management, a survey was conducted among of Jagtial Mandal of Telangana State.

2. Materials and Methods
2.1 Data Collection
To know the awareness about the usage of decomposers for composting of crop residues, a survey was conducted among the farmers of Jagtial Mandal of Telangana State. The study area was geographically situated at an altitude of 243.4 m above mean sea level on 18.7895° N latitude and 78.9120° E longitude with 24 villages. Data collected from 100 farmers of Jagtial mandal as per the questionnaire (Table) and used Garrett's ranking technique to analyse the data.

2.1.1 Garrett's ranking technique

In the Garrett's scoring technique, the respondents were asked to rank the factors or problems faced in availing the institutional credit and these ranks were converted into percent position by using the formula.

$$\text{Percent position} = \frac{100 \times (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Ranking given to the i^{th} attribute by the j^{th} individual

N_j = Number of attributes ranked by the j^{th} individual.

By referring to the Garrett's table, the percent positions estimated were converted into scores. Thus, for each factor the scores of the various respondents were added and the mean values were estimated. The mean values thus obtained for each of the attributes were arranged in descending order. The attributes with the highest mean value were considered as the most important one and the others followed in that order.

3. Results and Discussion

A survey has been conducted among the farming community of Jagtial Mandal, Jagtial Dist. of Telangana State to know the awareness about composting of crop residues and management practice following by the farmers. Data has collected from 100 farmers as per the questionnaire and analyzed using Garette's ranking technique to find out the significant management practice which was adopted by the farmers. As per this method, respondents also have been asked to assign the rank for management practices and outcomes of such ranking have been converted in to score value and presented in Table 1.

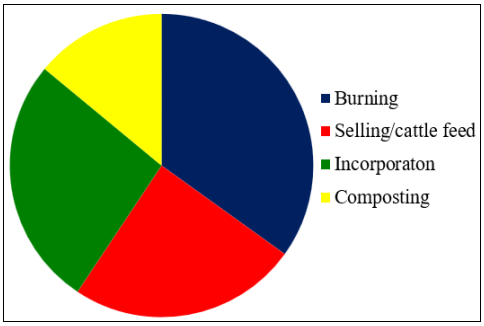

Fig 1: Crop residue management practices and their ranking followed by farmers

From the table 1 and Fig. 1 it was evident that "burning of crop residues" ranked first with a Garette's score of 70.86, incorporation ranked second, selling/cattle feed ranked third and composting ranked fourth with a Garette's score of 54.08, 49.56 and 28.40, respectively. Farmers feeling that burning straw were considered a low cost solution alternate to tilling in the straw. Thus burning of residue is the most economical method. Farmers burn residue mainly due to inconveniences faced in the use of farm machinery for preparing the field for next season and because of the short turn-around time between the harvesting of crop and the sowing of next crop. Similar results were obtained by Ahmed *et al.*, 2015 [1].

The collected data from farmers also analysed using Garette's ranking technique to know the view of farmers to manage crop residues and respondents also have been asked to assign the rank for management practices as per their view and outcomes of such ranking have been converted in to score value and presented in Table 2.

Table 1: Crop residue management practices and their ranking followed by farmers

S. No.	Crop residue management practice	Garett score	Rank
1	Burning	70.86	1
2	Selling/cattle feed	49.56	3
3	Incorporation	54.08	2
4	Composting	28.40	4

Table 2: View of farmers for crop residue management practices and their ranking

S. No.	Crop residue management practice	Garett score	Rank
1.	Burning	46.05	4
2.	Selling/cattle feed	51.00	3
3.	Incorporation	67.25	1
4.	Composting	63.52	2

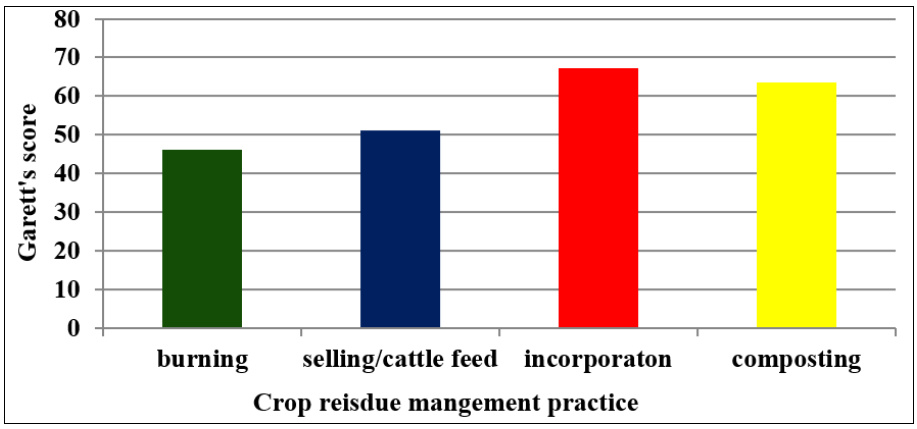

Fig 2: View of farmers for crop residue management practices and their ranking

The data presented in Table 2 and Fig 2 shows that incorporation of crop residues ranked first with a Garette's score of 67.25, composting ranked second, selling/cattle feed ranked third and burning ranked last with Garette's score of 63.52, 51.00 and 46.05, respectively. Farmer's knowledge and perception can influence the adoption of technology. Farmer's perception reveled that, incorporation is the best alternative to manage crop residues in terms of cost of handling, improves soil quality, requires less fertilizers for the next crop and reduces environmental impacts with burning. These results are in accordance with the results of Ervin and Ervin, 1982.

Survey results also reported that 53 percent of farm respondents were unaware about composting methods and use of decomposers for crop residue decomposition and 47 percentage

were aware about decomposers and composting methods because of their illiteracy, low educational qualification and small holdings. Farmer's perception that composting requires more time and care to be taken, labour cost is high for removal, loading and transportation and also requires spaces as most of the farmers were having less land.

4. Conclusion

Our results illustrate that "burning of crop residues" is the most followed farmers practice. But as per the view of the farmer "incorporation of crop residues" is is the best alternative to manage crop residues. Our results demonstrate that 53 percent of farm respondents were unaware about composting methods and use of decomposers for crop residue decomposition.

5. References

1. Ahmed T, Ahmed B, Ahmed W. Why do farmers burn rice residues? Examining farmers' choices in Punjab, Pakistan. Land Use Policy. 2015;47:448-458.
2. Bhuvaneshwari S, Hettiarachchi H, Meegoda JN. Crop Residue Burning in India: Policy Challenges and Potential Solutions. Int J Environ Res Public Health. 2019;16(5):832.
3. Ervin CA, Ervin DE. Factors affecting the use of soil conservation practices: hypothesis, evidence and policy implications. Land Econ. 1982;58:277-292.
4. Gaind S, Nain L. Chemical and biological properties of wheat soil in response to paddy straw incorporation and its biodegradation by fungal inoculants. Biodegradation. 2007;18:495-503.
5. Garret HE, Woodworth RS. Statistics in Psychology and Education. Bombay: Vakils, Feffer and Simons Pvt Ltd.; c1969. p. 329.
6. Mandal KG, Misra AK, Hati KM, Bandyopadhyay KK, Ghosh PK, Mohanty M, *et al*. Rice residue-management options and effects on soil properties and crop productivity. J Food Agric Environ. 2004;2:224-231.